

AMX by **Kentec & Hochiki**

User Manual



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Section 1

Introduction

About This Manual

AMX is an advanced Alarm Management System. If a topic cannot be found in this manual, try the online help system. Some of the names and terms used in this manual may be unfamiliar. *Section 17 - Glossary of Terms* provides descriptions of the various terms used.

Two terms that may at first seem confusing are Events and Alarms. These tend to be used interchangeably throughout this manual. They really refer to the same thing – inputs to AMX – but a ‘fault’ input will be an event and not necessarily an alarm.

This manual provides comprehensive information, both for the user and for the AMX programmer. Throughout this manual, key information will be shown as bullet points in the left-hand margin.

Several icons are used to highlight important points.



This icon highlights important information



This icon highlights critical information

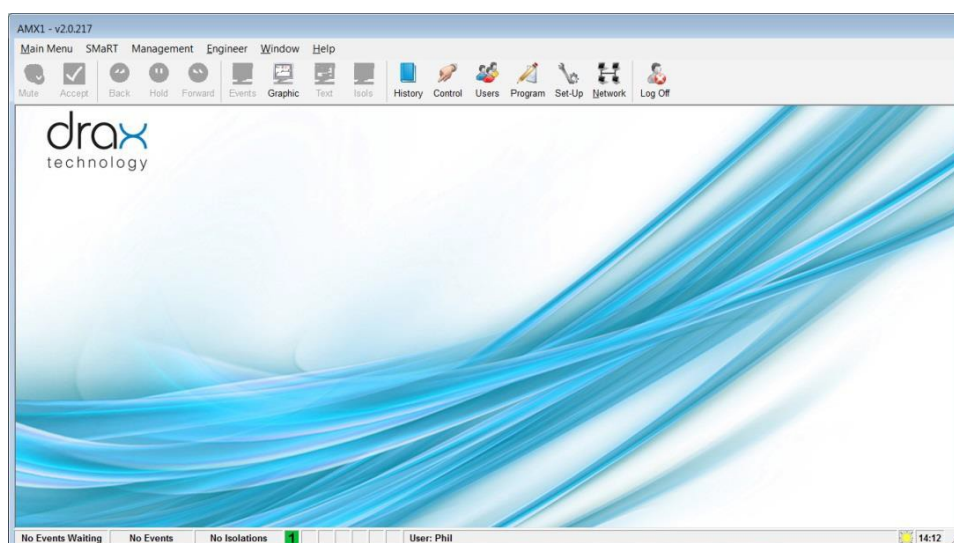


This is a warning – do not do this!



This icon tells you where additional information can be found

Description of AMX



AMX is a versatile single workstation Alarm Management System that provides an integrated solution to the management and control of one or more stand-alone alarm systems.

AMX's clear, user-friendly interface provides an enhanced common display for external alarm systems. Use of the system does not require extensive user training. Powerful integral history archiving, and control tools allow advanced users to manage their sites more effectively.

Alarms of different types – which may even be from different alarm systems – can be prioritised so that the user is led to the most important information first. Each alarm type may use one or more of several different display formats: graphical, text description with instructions, or a list of current alarms.

This versatile and highly configurable system may be tailored towards specific applications, allowing a custom solution, and providing maximum benefits for the user.

Interactive graphics allow the user to control his site via simple mouse clicks – to control a fire panel, or isolate a detector, for example.

User Profiles allow the System Manager to manage and control the facilities available to each individual system user.

Node profiles allow the system to cater for different types of control panels and networks.

Network Managers allow AMX to interface to a wide variety of external networks or remote subsystems. For a full description of how AMX is interfaced to the outside world, see *Section 13 - Interfacing to the Outside World*.

AMX Main Features

Easy to Use and Powerful

- AMX is a powerful 32-bit program with a modern look and feel that will be familiar to users of Windows programs.
- Easy to use graphical interface with clear toolbars, pop-up menus and ToolTip hints.
- Menu operation of all main functions for keyboard users
- Some basic user alarm responses can be made with single key presses
- Available as a single workstation program that does not rely upon external servers or centralised databases
- Multiple workstation capability
- AMX runs under Windows 10 and is backwards compatible with Windows 7 and XP, providing a modern user interface that meets the expectations of users combined with the power of a professional operating system.
- Will run under future Windows versions
- An option offers parallel multi-tasking operation with other PC programs (only in non-critical applications)

Choices of Graphic, Text instructions, Current Event List and History Recording when an Event occurs

- Multiple graphics per event
- Zoom in/out – multiple views
- Interactive dynamic graphics also offer control
- A Current Event List provides an overview of alarms in the system. The Event List can be sorted by priority, time, location, etc.
- A text instructions page (fully scrollable) per event
- Optional reset text page per event

User definable Event Types to define how events are handled

- Easy prioritisation of different Event Types from different disciplines
- Options for the initial display format of each Event Type
- Day and Night time options for auto-acceptance of each Event Type
- Day and Night time options for disablement of each Event Type
- Selectable alarm sound for each Event Type

Extensive History Archive

- Up to 32,000 events and alarms can be stored in the History *every day*
- The length of time that the History information is stored depends only upon available disk space
- Quick, easy classification of alarms/events into user defined categories – e.g., “False Alarm”
- History Explorer for quick navigation of the History Archive
- History lists can be sorted by Event Type, Location, Time, etc
- Separate history lists for Isolations, Controls, User logging on/off and System Events including programming changes
- History Report generation using a powerful History Search facility
- Printing of History Reports

- History Analysis for tracking frequent events, etc.

Many additional features for the User

- Extensive Set-up options, allowing use to be tailored towards specific applications
- Control Lists for user control of external Networks and Systems¹
- Isolation facilities for use with Fire Networks
- User Notes may be attached to many items. These enable the user to make notes for future reference.
- User configuration of screen displays

Easy to Program

- User defined Event Types with user programmable Event Profiles define how each type of alarm or event is handled
- Text pages can use text templates – or use free text with full WP editing facilities
- Quick, easy input programming using Templates and user- defined Text Fields
- Hi resolution hi-colour graphics
- Graphics can be imported from any package that can produce native Windows format files (BMP, DIB, WMF, etc)
- AutoCAD diagrams can be exported from AutoCAD and imported to AMX
- Graphics symbols may be positioned and resized as required
- User generated sounds – including speech announcements – may be imported for use with alarms

A Secure System

- Password protection to all program modules
- Up to 2000 Users may be set up, each with their own individual User Profile defining which parts of AMX they can access
- AMX records System Events and program changes.
- Failure of AMX system can be signalled on external Network(s) and remote subsystems¹
- Network and subsystem faults/failures may be indicated on AMX (depending upon the Network)
- AMX and its associated Network Manager programs monitor each other for correct operation.

Flexible Interfacing Options

- Separate Network Manager programs to allow easy interfacing to 3rd party networks/systems
- AMX interfaces to many different systems/networks using standard hardware – often no special interface hardware is required².

¹ The control facilities available depend upon the Network

² If the external system allows it

AMX User Interface

Using the Keyboard

Most of the basic operation of the AMX is possible using just the keyboard. However, more advanced operations – such as programming the system – will require the use of a mouse.

All basic user functions such as muting the alarm sounds and accepting alarms are possible by using simple function key shortcuts. It is not intended that a basic Operator should need to use a mouse.

Although many of AMX windows make use of toolbars, which require a mouse for operation, most of the toolbar functions are available via the main menu bar.

Main Screen Function Keys

The following function key shortcuts are available from the Main Screen:

F1	Help
F2	Hold the current page (no scroll)
F3	Scroll the page back
F4	Scroll the page forward
F5	Mute the Sound
F6	Accept the currently displayed event
F7	Show the Text Page
F8	Show the Graphic Page
F9	Show the Event List
F10	Activate the menu
F11	(unused)
F12	Log on and off

Ctrl-F7	Tile Event List and Graphic
Ctrl-F8	Tile Text and Graphic
Ctrl-F9	Tile Event List and Text Page

The functions performed by these keys are explained in *Section 2 - Alarm and Event Handling*.

Using the Mouse



In common with most Windows programs the AMX makes extensive use of pop-up menus, which are activated by clicking on items with the right mouse button. Some functions are only available via this method.

A mouse is essential for programming of the AMX system. Although a basic Operator may use the system with keyboard only, a Manager or Engineer will need a mouse to access the more advanced features.

Use of the mouse within AMX follows normal Windows conventions, with extensive use of toolbars and pop-up menus.

Touch Screen

AMX supports touch screen operation at the basic Operator level – i.e., for accepting alarms, etc. Please contact your supplier to discuss touch screen options.

Multiple Windows

AMX uses the standard windows MDI (Multiple Document Interface).

This means that The AMX program consists of a main window containing several “child” windows, many of which can be open at the same time.

Child windows can be minimised, maximised, tiled and cascaded using the control buttons at the top right of each window, or using the Window menu at the top of the AMX screen.

Although the User has great flexibility in window layout, the AMX will often take over when an alarm occurs. It will close unwanted windows and ensure that the main alarm display windows (the Current Event List, Graphic Page, and Text Page) are arranged as required by the Event Type settings (see *Section 7 - Managing Event Types* for a description of Event Types and display settings).

There are some set-up options which will force windows to be maximised when they are opened – *Set-up Window*.

When a window is closed, AMX remembers its size and position. When the window is reopened at a later time AMX will, if appropriate, position it how it was when it was closed.

Toolbars

AMX makes use of several toolbars. In addition to the Main Toolbar, which remains permanently on display at the top of the Main Screen, several of the subsidiary windows have their own toolbars.

All toolbar icons in AMX are large and clear, in recognition of the fact that the user will often be untrained or relatively unfamiliar with the system.

Here is an example toolbar (taken from the history window):



The above example demonstrates several attributes of AMX toolbars. At the left-hand end is a double vertical line – this is a “handle” and the user can drag the toolbar to a different part of the screen using this handle.

Not all toolbars have handles.

Next to the handle is the print icon. Hovering the mouse cursor over any of the icons produces two effects: the border of the icon is raised and a ToolTip describing the icons function appears.

The next group of five icons consists of selection buttons, which remain pressed after they are clicked with the mouse.

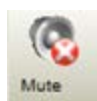
In between the two arrow icons is a text entry field: click on it with the mouse and then type directly into it (in this case, a date should be entered).

The toolbar icon on the right is a window close icon. This appears at the right-hand end of most toolbars on windows that can be closed by the user.

AMX toolbars cannot be operated using the keyboard, but most toolbar functions are also available on drop-down menus from the main menu bar.

Main Toolbar

These are the icons that can appear on the Main Toolbar –



Mute Sound. This button provides a method of muting the audible alarm sound on the PC before the alarm is accepted. Operation of this button may be changed from a full mute to a snooze control within the general setup.



Accept Event. Acceptance is the process of a user indicating they have dealt with and accepted an alarm or Event.



Scrolls back to the previous alarm in the current event list.



Holds the position in the current event list and prevents automatic scrolling from taking place.



Scrolls on to the next alarm in the current event list.



Displays the current event list. If several windows are open, then this button brings the current event list to the front.



Displays the Graphics window. If several windows are open then this button brings the Graphics window to the front. This button can be used to switch to a graphical view of the alarm currently selected in the current event list or it can be used to open the Graphics window for site exploration at any time.



Displays the Text window for the alarm currently selected in the Current Event List. If several windows are open this button brings the Graphics window to the front. This button will be greyed out when there is no text instructions page available for the current alarm.



Displays the Isolation List. This button is an option and may not be available in systems that do not make use of isolations. The option is enabled in the Set-up window.



Opens the History window, from where the user may explore previous alarms and events.



Opens the Control window where manual controls and automatic time controls can be set up or initiated.



Opens the User window, where users are added, managed and removed. Passwords can be altered from this window.



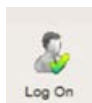
Opens the Input Programming List window, from where any of the system inputs can have Event Types, Graphics and Text Pages assigned.



Opens the Set-up window, where the AMX1 system options can be altered.



Opens the Network window, where remote subsystem nodes are added, managed, and removed.



Allows a user to log on to the AMX1 system. This button will be unavailable when a user is already logged on.



Allows a user to log off from the AMX1 system. This button will be unavailable when if there is no user logged on.

These options are available via the Main Menu for keyboard users.

Note:

Some of these toolbar buttons may be disabled (shown in grey). Availability will upon the User Profile for the user who is currently logged on to the system. Some buttons may be unavailable because they are currently inappropriate – the Accept button will be disabled if there is no alarm waiting to be accepted, for example.

Status Bar

The Main Status bar at the bottom of the AMX screen provides a continuous indication of the system status.



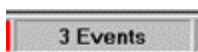
NB : The AMX window will occupy the whole screen area. In some Windows systems the Windows taskbar may be set to 'Always On Top', which means that the AMX status bar will be obscured.

The user should right click on the Windows taskbar, select 'Properties' and disable the 'Always On Top' setting.

These are the functions of the panels on the status bar:



The Events Waiting panel indicates the number of events that are waiting acceptance by the User. For an explanation on event acceptance see *Section 2 - Alarm and Event Handling*. The term "Events" is used because an event might not necessarily be an alarm, it could be a fault or some other kind of non-alarm event.



This panel indicates the total number of events in the system. The total includes events awaiting acceptance, accepted events and isolations.



These four small panels show the status of the four Network Managers 1-4. If they are green the Network Manager is functioning correctly, if they are red there is either a problem with the Network Manager or the Network Manager is not responding to AMX. If they are grey, there is no Network Manager loaded. In the example on the left it can be seen that Network Managers 1 and 2 are functioning correctly and Network Managers 3 and 4 are unused. The number of Network Managers in use will depend upon the options purchased with the AMX system.



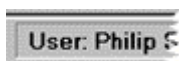
This icon that indicates the alarm/event sound on the PC has been muted.



This icon indicates that automatic scrolling of alarms has been stopped by use of the "hold" function.



This icon indicates that AMX is in auto-accept mode, which means that alarms will be automatically accepted without user intervention. For further details of auto-accept see *Section 2 - Auto Accept Mode*. Auto accept mode can be toggled by double-clicking this icon, but only if the user has authority to do so.



The name of the user who is currently logged onto the system is shown here. See *Section 2 - Logging On and Off*. Double clicking on the username will offer the option to log off.



The icon here shows whether the AMX is in day or Night mode. The sun, as shown on the left, indicates daytime and a moon icon indicates night-time. See *Section 10 - Day and Night Times*.



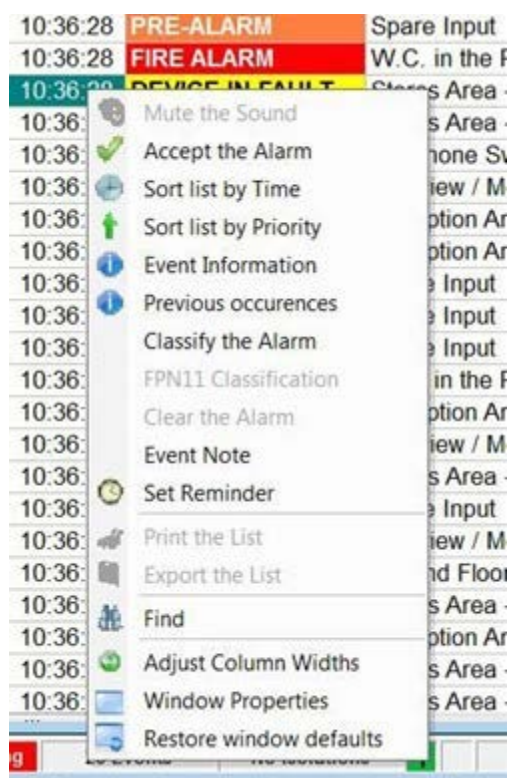
This is the current time. A User with authorisation to change the system time can do so by double clicking on this panel.

Pop-up Menus

AMX makes extensive use of pop-up menus. Many functions are only accessible via a pop-up menu.

Right clicking the mouse button on certain parts of the screen accesses the pop-up menus. They are usually available from lists, graphics pages, text pages and a few other places as well.

Here is an example:



pop-up menus cannot normally be accessed without the mouse, so some important functions may be duplicated on the toolbars, main menus or via keyboard shortcuts.

When a pop-up menu is displayed, selection can be made using the left mouse button. The menu can be closed using the escape key, or by clicking outside of the menu area.

Some pop-up menu options may be unavailable (and greyed out) if the user does not have permission to access these functions.

Main Menu

The main menu bar for AMX appears across the top of the screen, just below the program Title Bar.

The Main Menu is dynamic as the user opens up various windows more options appear.

The following menu options will normally be visible when a user has logged onto the system:

Main Menu	This drop-down menu duplicates the Main Toolbar functions for the keyboard user. This option is normally visible even when no user is logged on.
Management	This menu offers a few system management facilities, including Viewing Node Profiles and Data Backup. This menu is only visible to a user with a Manager level password or above. See <i>Section 5 - Manager</i> .
Engineer	This menu only appears to users with an Engineer profile and provides several test facilities.
Window	This menu provides standard Windows tiling and cascading functions. This option is normally visible even when no user is logged on.
Help	This menu provides access to the online help file and also has an option to display a dialog box giving information about the system.

Other menu options will appear on the Main Menu bar as the user opens up various windows. These menu options will include:

History	This menu appears when the History window is open and provides keyboard access to some of the main History functions.
Controls	This menu appears when the Control window is open and provides keyboard access to some of the main functions in the Control window. Users (with suitable authorisation) will be able to initiate controls from the keyboard using this menu, although Controls or more easily managed and operated with a mouse.
Users	This menu appears when the Users window has been opened and it provides keyboard access to some of the User window functions.
Programming	This menu appears when the Control window is open and provides keyboard access to some of the main functions in the Control window. Users (with suitable authorisation) will be able to initiate controls from the keyboard using this menu, although Controls or more easily managed and operated with a mouse.
Network	This menu appears when the Network window has been opened and it provides keyboard access to some of the main Network window functions.

Often the drop-down menus provided by these options will duplicate the window toolbar button functions, but additional options will sometimes appear.

Note: It is possible that some of the options on these menus will be disabled. Sometimes the menus themselves will be disabled. This depends very much upon the User Profile for the user who is logged on to the system.

Using Lists

Lists are used to display data in tabular format in many parts of the AMX system. Here is an example list:

Number	Description	Type	Pictures	Usage
1	Large Fire Detector	COMPOUND	4	0
2	Door	COMPOUND	3	0
3	Window	COMPOUND	3	0
4	Shutter Door	COMPOUND	3	0
5	Sliding Door	COMPOUND	3	0
6	Node Fire	COMPOUND	4	0
7	Node Access	COMPOUND	3	0
8	Window Unlock key	SIMPLE	2	0
9	Flickering Fire (Large)	SIMPLE	1	0
10	Flickering Fire (Small)	SIMPLE	1	0
11	Hazard (Radio Active)	SIMPLE	1	0
12	Small Fire Detector	COMPOUND	4	0
13	Medical (Yellow)	SIMPLE	2	0
14	Medical (Green)	SIMPLE	2	0
15	Medical (Blue)	SIMPLE	2	0
16	Medical (Red)	SIMPLE	2	0
17	Plant	SIMPLE	2	0
18	Blank/Red/Yellow/Green/Blue Node	COMPOUND	5	0
19	Blood Bank	SIMPLE	2	0

Lists have several important attributes and features. Learning to use lists effectively will help to get the most out of the AMX system. Generally, these lists work in a similar manner to Excel tables.

In the example list above, item number 9 is selected with the green cursor bar. In some lists a block of items can be selected, but, with one or two exceptions, only a complete block without gaps can be selected – not individual items (i.e., the standard windows Ctrl-Click is not implemented in AMX, except in one or two special cases). Places where control click random selection is possible, include the Isolation List and the action list in the Control Editor.

Sometimes selecting more than one item in a list will disable some toolbar buttons or menu options. This is to prevent particular operations being carried out on multiple list items. For example, it is not possible to accept more than one alarm at a time, selecting a block of unaccepted alarms in the Current Event List will disable the Accept button on the main toolbar.

Here is an example of a list header.

	Event/Alarm Type	Location
3:15	FIRE ALARM DETECTED	Reception
5:15	FIRE ALARM DETECTED	Reception
4:52	FIRE ALARM DETECTED	Reception

The user can adjust the width of individual list columns by placing the mouse over the black line between two header items, so that the mouse cursor changes into a two-headed arrow, holding the left mouse button down, and dragging the column dividing line to the left or right. When list column widths are reduced too far and text is truncated an ellipsis (...) is shown.

To set the width of a column automatically, double-click on the dividing line to the right of the column in the list header bar. e.g., to automatically adjust the width of the “Event/Alarm Type” column in the list shown below, double-click on the vertical dividing line between “Event/Alarm Type” and “Location”. This will ensure that the width of the “Event/Alarm Type” column is set to accommodate the widest text phrase in any row of that column.

To adjust the width of several columns automatically, select the columns to be adjusted by dragging the mouse over them and then use the mouse right-click pop-up menu option described below.

Sometimes it is possible to sort a list based upon the data in the columns. In the example the list has been sorted by the Event/Alarm type column and the small red Arrow in the column header indicates the direction of the sort. To initiate a sort, click the left mouse button (single click) on the header of a column - i.e., where it says 'Event/Alarm Type' in the picture above. The first click will sort the List in ascending order and the second click will sort it in descending order.

Not all columns support the sort function, try clicking on a column header to find out if the list can be sorted on that column. The Current Event List is a special case: clicking on the header of the Event Type column sorts this list by priority – not alphabetically.

Location	Status
Electrical Sub Station No. 1	Acc
Reception Desk	Acc
General Office	Acc

Sometimes it is possible to add a User Note to a list item. When a note is added a note icon will appear. See *Section 9 - Notes*.

Notes can be deleted by calling up the note editor (using the list's pop-up menu see *Section 1 - Pop-up Menus* and then using the "Delete" button in the Note Editor.

Certain List items support in-cell editing, mainly in the programming and configuration sections of AMX. Double-clicking on one of these items will initiate editing. Alternatively, selecting the cell (highlighting it by moving the cursor bar to it) and typing an alphanumeric key on the keyboard will initiate in-cell editing:

Cleaners Store	
Wash Ro	
Laboratory	

In-cell editing works like Excel. Typing directly into a cell will overwrite the current contents, or Enter, Space or F2 will start editing the current contents (of editable cells). The new text is typed directly into the cell, and it will be saved when either the Enter key is pressed, or when the focus is moved elsewhere. Pressing the Escape key will abandon in-cell editing without saving any changes. When editing text in a list cell the user will not be allowed to type more than the maximum number of allowable characters for that cell.

Hint: To type in a list of items – e.g., a list of Location/Description phrases in the Input Programming List is simply a case of type-text – down-arrow- type-text – down-arrow, and so on. Clicking the right-hand mouse button on a list will, in most cases, display a pop-up menu. The menu items will vary depending upon the function of the list, but most lists will contain the following options near, or at, the bottom.

Clicking the right-hand mouse button on a list will, in most cases, display a pop-up menu. The menu items will vary depending upon the function of the list, but most lists will contain the following options near, or at, the bottom.

Adjust Column Widths

This option is also identified by the green double arrow icon. When selected the width of the selected column automatically adjusts to fit the widest data entry, by measuring the width of the data in the column and adjusting the column so that the data fits. If several columns are selected (by dragging across them with the mouse) then the width will be set automatically for all selected columns.

Window Properties

This option is also identified by the blue window icon. When selected the properties window opens allowing the user to change items such as List colour and Font size. The settings only affect the current list, settings for other lists remain unchanged.

Restore Window Defaults

This option is also identified by the blue window with rotating arrow icon. When selected it will restore the window settings back to default values.

Other options that frequently appear in list pop-up menus include:

Print the List (Printer Icon)	This option opens the Print window allowing selection of printer and print options for the user to print the associated list.
Export the List (Disk Icon)	Opens the Export window allowing export of the list data as a CSV or Tab-delimited format file.
Information	Information options will be identified by a Blue circle containing an 'i'. Clicking these options pertaining to the list item selected i.e.,, for an alarm event it will display, time of activation etc. The information window also allows the user to add, edit, view, or delete a text note associated with the list item, see Note Editor. Classification of list items can also be done through this window.
Find (Binocular Icon)	Opens the Quick Find search dialog box so that an item can be located easily in long lists. The search starts on the currently selected row and only the text in the selected column(s) is searched.

Although a user can scroll up and down AMX lists using the keyboard, most of the functions described here require the use of a mouse.

When a window containing a list is closed, AMX will store any user settings or customisation of the list. The stored items include:

List font, font size and attributes (bold) etc.

Colours of the text, background, cells, grid, etc.

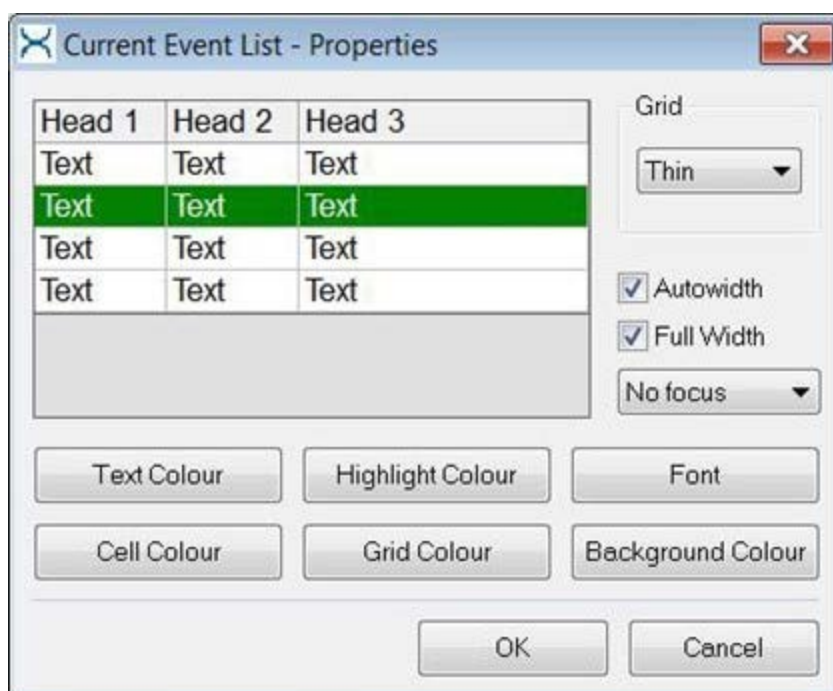
The width of the columns

The sort order¹

These stored settings are recalled and used to set-up the window the next time it's opened.

¹ The sort order is stored in most cases, but not all

List Properties Window



This window can be called up from all lists. It allows customisation of the list's appearance. The settings made here affect only the list from where this window was called up. This feature can be very useful if, for example, it is desired to have a large text font for the Current Event List which could be viewed by anybody, but a smaller font for lists in the management functions. Another use is to "colour code" lists by setting a unique colour for their grid or background.

The window has several areas and buttons:

- | | |
|-------------------------|--|
| Preview Area | Located in the top left of the window, it shows a preview of how any changes will look. |
| Grid | The grid setting allows variation of the dividing lines that appear in between the cells. (Cells are the white rectangles in the example.) |
| Focus | <p>This option selects how a list cell will be highlighted when selected. Drop down menu provides the following options – No Focus, Light Focus, Heavy Focus, Solid Focus, Raised Focus, Inset Focus.</p> <p>This setting has no effect on lists that allow Explorer-type random selection – e.g., the Isolation List.</p> |
| Text Colour | Changes to colour of text within cells. |
| Highlight Colour | The highlight colour is used for the cursor highlight. It is shown as green in the example |

Font	The font setting affects all text in the cells and in the column headers.
Cell Colour	The cell colour setting is the background colour of the data cells (shown in white in the example). This does not affect the background colour of the column headers, which remains in the default Windows background colour (set via Windows set-up).
Grid Colour	The grid colour is the colour of the dividing lines between the data cells.
Background Colour	The background colour is the colour of the list area that is not covered by data cells. It is shown in dark grey in the example above.

When making changes to a list's appearance, always strive to improve the clarity pop-up rather than making it look pretty. The pop-up menu option to restore the default colours and fonts can be used to return the appearance to normal if required.

Changes in font size and the various colour settings can often be used to make a particular list stand out but be wary of inconsistencies i.e., Lists with different font sizes may appear odd.

AMX Feature Sets

A list of the features in the full and Lite versions is shown below.

Feature	AMX
Hardware Requirements	
Platform	Refer to <i>DTD082 – AMX PC Requirements</i> for the latest information
Display	
Network Managers	4
Remote Nodes (max)	2047
Subgroups per Node ¹	255
Inputs per Subgroup	255
Input States per Input	16
Current Event List	YES
Concurrent alarms	4,000
Alarm Text Page	YES
Graphics	2,000
Graphic Zoom Levels	Unlimited
Graphic Explorer	YES
Alarm Classification	YES
User Notes	YES

Manual Controls	YES
Time Controls	YES
Isolation Controls	YES
Automatic Controls	Yes
Fire Panel Control ²	Yes
User-defined Control Boxes	Yes
Day/Night settings	Yes
Event History	Yes
Control History	Yes
Isolation History	Yes
User History	Yes
System History	Yes
History Report Printing	Yes
History Export	Yes

¹ A Subgroup may be a zone, loop or other depending upon the application

² Evacuate Silence Alarms and Reset

Feature	AMX
History Search	YES
History Explorer	YES
History Capacity	32,000 Events per day
History Storage	Unlimited ¹
Maximum Users ²	2000
General Printing	YES
General List Export	YES

¹ History Storage is limited only by the available disk space

² Each User can have a unique password and user access profile



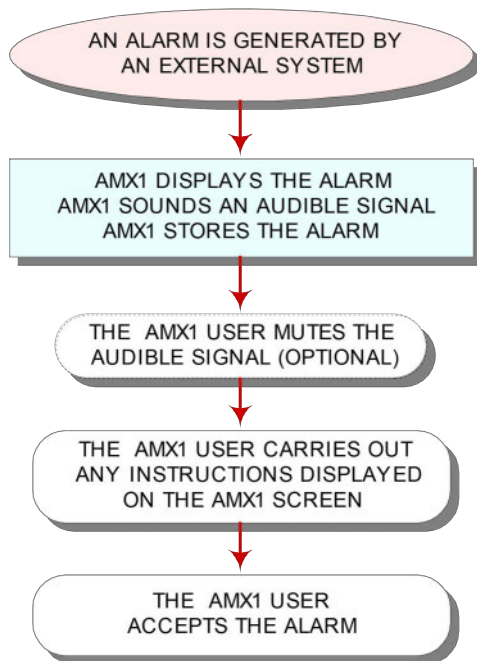
Kentec Electronics Ltd reserves the right to make changes to the AMX specification and therefore features in the supplied software may differ a little from the list above.

Section 2

Operation

Basic Principles

Operating the AMX is very simple.



AMX can do much, much more.- but the above procedure is all that is required for a basic system Operator. This alarm handling procedure will be explained in greater detail later in this chapter.

These basic operations can be carried out by single key presses on the keyboard, or by clicking the large icons on the Main Toolbar with a mouse.

A user who is a Manager or Engineer can carry out more advanced operations, including searching/printing the History, controlling the external systems and programming the AMX.



If a user is using any part of the AMX (other than the alarm handling routines) when an alarm occurs, AMX may close the windows they are using and force the alarm to the front of the display. Whether or not this happens depends upon the Initial Display attribute in the Event Type - see *Section 7 - Alarm Display Setting*.

Logging On and Off

The basic principle of operation outlined above will normally require a user to be logged on to the system.

To log on to the system a user must enter a password that has been set up previously by either a Manager or an Engineer.

Logging on and off the system is achieved via the Log in window, which is accessed via two main toolbar buttons or by pressing the **F12** key. Only one of these two toolbar buttons will be available at any one time, depending upon whether a User is already logged on.



Log On



Log Off



Clicking the Log On icon will display a window requesting a password. The user must type a valid password, then click the OK button or press Enter.

The system allows three abortive attempts to enter a valid password, then records the log-in failure in the History log.

When a user's password is set up, a User Profile is created. This defines which areas of the AMX the user may access. When a user logs on the main toolbar buttons and main menu options that are available to them will be enabled.

After a User has logged on, their name (identity) will be shown at the bottom right-hand end of the main status bar. The time that the user logs on and off is recorded in the User History. Users with the correct authorisation may view this History.

When a user performs an operation, such as accepting the alarms or changing the programming of AMX, their identity will be stored along with the time and date of the operation.

Also recorded will be a summary of actions performed by the user whilst they were logged on to the AMX. This is recorded in the System History after each programming "session", or when the user logs off.

Touchscreen Log On

AMX works well with touch screen TFT panels at Operator level. To make touch log on easier there is a touch screen log on option. This must be enabled via a check box option on the System tab of the main Setup window.



Once the option has been enabled the standard logon box will look like the dialog on the left.

Touching the button marked >> will expand the dialog to show a touch keypad – as shown below.



User can enter their password, note that they must have a numeric password (or PIN) for this to work.

The user may still use the keyboard to enter a password in the normal way when this option has been enabled.

The **Bk** button allows the user to correct a mistake when entering their password.

Alarm and Event Handling

Different types of alarm and event may be handled in several different ways by the AMX (this is defined by the Event Type assigned to the input), but the basic principles of alarm handling are generally as follows:

An event occurs in one of the remote subsystems and is passed to AMX via one of its Network Managers. An event may be an alarm, a fault, or it may simply be the report of a change in status somewhere in a subsystem.

AMX places the alarm in the Current Event List and records the alarm in the Event History. *Hint:* The Current Event List provides an overview and is a useful way of deciding which event to view next.

The status bar at the bottom of the main screen is updated to show the number of events awaiting user acceptance and the total number of events in the system.



AMX initiates any Automatic Controls that are programmed for this specific event.

AMX prioritises the alarm using the priority defined by the Event Type if other alarms are already in the system. This is an important feature of the AMX – see *Section 2 - Alarm Prioritisation*.

Now, AMX displays the alarm information in the manner defined by its configuration and custom programming. Normally, unless specifically configured otherwise in the Event Type attributes, the alarm will take precedence on the display and will be shown on top of any other AMX function that are in progress. If necessary, AMX will close any subsidiary windows (including the help window) to ensure that the alarm display can be seen.

¹If required (optional), the AMX sounds an audible signal to attract the attention of a user or other personnel in ear-shot of the system. The user may silence the sound using the main toolbar icon or the function key shortcut.



Mute the Sound **F5**

If the user mutes the sound the status bar at the bottom of the screen will indicate the muted status by displaying this small icon.



The user carries out any actions dictated by the (optional) text page on the display. Actions might require telephoning to report the event or operating unconnected systems.

After carrying out any actions the user accepts the alarm using the accept button on the main toolbar or using the function key.



Accept the Alarm **F6**

The time and date of the user's acceptance of the alarm is recorded in the History, along with the identity of the user who is currently logged on to the system. **Note:** Certain types of event may be accepted automatically after a pre-set period and some types of event may disappear from the Current Event list after they are accepted. This behaviour is controlled by the Event Type attributes. It is also possible to set a global auto-accept mode, which will cause all events to be accepted automatically, after a delay if the user does not manually accept them first.

The alarm remains in the Current Event List (and in the system) until it is reset at source (in the remote subsystem), or until the user manually clears it. (Manual clearance is possible only with some Event Types.) The alarm will remain on display until replaced by a new unacknowledged alarm, or until the user manually switches to other AMX routines. The AMX will normally prevent the user from switching away from the alarm display until the alarm has been accepted.

After the user has finished dealing with the alarm and accepted it, he will be able to return to using any of the other facilities within the system (assuming there are no other events or alarms waiting).



AMX has many options for displaying events and alarms and these are set as Event Type attributes – see *Section 7 - Event Type Attributes*.

Therefore, not all events/alarms will be displayed in the same way, and it is possible that some Event Types be silently recorded in the History without any visible or audible signal indicating that they have occurred.

Alarm Prioritisation

Alarm/Event prioritisation is the key to how AMX handles multiple alarms and mixes alarms from different disciplines. When more than one alarm occurs at the same time it is essential that the user is not distracted by unimportant events when there are more important alarms requiring attention. The AMX will ensure that the user is shown alarms in order of priority.

The Event Type sets the priority of different alarms, and this Event Type priority is alterable by the System Programmer. AMX will automatically sort the incoming alarms into order of priority, showing the user the most important alarms first and displaying the less important events as soon as the user has accepted the higher priority ones.

Here is a simple example using just two event types: a Fire Alarm (the highest priority in this example) and a Mains Failure event.

MAINS FAILURE

If the Mains Failure event occurs first, it will be displayed on the AMX along with its audible signal and the system will await acceptance of the event by a user. The main status bar will indicate one Event and one Event waiting (i.e., waiting to be accepted).

MAINS FAILURE

FIRE ALARM

When a Fire Alarm

occurs, it will be given precedence on the display, even though the first Mains Failure event has not yet been accepted. The display will show the Fire Alarm and the audible signal will change to the fire alarm sound. The main status bar now indicates two Events and two Events waiting.

FIRE ALARM

MAINS FAILURE

When the user has dealt with and accepted the Fire Alarm, the unaccepted Mains Failure event will now once again be shown on the display and the audible signal will change back to the sound for this type of event. The main status bar indicates two Events and one Event waiting.

After the Mains Failure event has been accepted, the main display will alternate (scroll) between the two alarms, or the user may switch to viewing just the Current Event List which shows the total of alarms in the system along with their accepted status. The main status bar indicates two Events and no Events waiting.

Using this method of prioritisation AMX ensures that the user's attention is always drawn to the most important alarm first. However, the Current Event List may be used to alter the order in which the user deals with alarms simply by selecting the desired alarm in the list. After the User has accepted the alarm they selected, the AMX will automatically show the next highest priority alarm. In other words, when several alarms are waiting to be accepted AMX will show the most important, but the user can temporarily switch to viewing another alarm before dealing with it. Sometimes it is useful to switch the overview given by the Current Event List, which gives a broader picture of what is happening in multiple alarm situations.

Alarm Displays

There are several initial display possibilities available when an alarm or event occurs. These include:

- Displaying a graphics page that incorporates an interactive symbol showing the position and type of alarm.
- Adding the alarm to the Current Event List.
- Displaying a text page describing the alarm and giving instructions to the user.
- Showing the Current event List on the left-hand side of the screen (with the alarm highlighted) and displaying the text instructions page to its right.
- Doing nothing.

An alarm can make use of several of these options. It is quite normal for alarms to have a graphic page, a page of text and an entry in the Current Event List¹. The user can switch between the three basic display options of Current Event List, Text Page, or Graphics Page using the main toolbar icons or the function keys.



The Current Event List **F9**



The Text Page **F7**



The Graphics Page **F8**

Tile Current Event List and Text Page **Ctrl-F9**

Examples of these display options are given in *Section 2 - Viewing the Alarm Information*.

¹ An alarm must go in the Current Event List if it is to have either a graphic or text page

It is possible to specify various combinations of the options outlined above, including cascading, or tiling of the Text, Graphics and Event List windows. These options may be different for each Event Type – see *Section 7 - Managing Event Types*.

Even if the option of doing nothing has been selected, the event will normally be recorded in the event history. This option is often useful for recording events of low importance that do not need to be displayed to the user. Events recorded in this manner may be viewed or printed out using History Reports later.

How events and alarms are initially displayed and which of these options apply to a particular alarm is decided by assigning Event Types. The Event Type is pivotal in specifying AMXs handling of the different alarms.

Scrolling Through Alarms

When there are several accepted alarms in the system, the AMX will normally cycle through them automatically. The rate at which they are scrolled depends upon a set-up option (see *Section 8 - Display Set-up Options*) and this is normally set between 5 and 60 seconds.

Clicking on the Hold button will temporarily stop automatic scrolling. The events can be scrolled manually by using the next and previous alarm buttons. Hold mode is cancelled by the user manually scrolling to another event, or by an incoming alarm.



Show the previous alarm



Hold the current alarm



Show the next alarm

Setting a scroll time of zero seconds will permanently disable automatic scrolling.

Automatic scrolling does not take place when there are unaccepted events in the system.

Scrolling backwards or forwards changes to the previous or next event in the Current Event List. When the bottom the list is reached when scrolling, continuing to scroll will move back to the top of the list.

Auto Accept Mode

Auto-Accept is a mode whereby the AMX will display an event or alarm for a preset period of time and then accept it automatically. The user can set the time period before automatic acceptance occurs. This is done in the Set-up window – see *Section 8 - Display Set-up Options*.

Auto-Accept mode is turned on and off by double clicking on the “Auto” status panel on the main status bar at the bottom of the screen. A small icon displayed in the status bar will indicate when auto-accept mode is set. 

An alternative method of turning on Auto-Accept is via the Management Menu.

If a user cannot turn auto-accept mode on and off it may be because he does not have this facility authorised in his User Profile.

The above setting is a global auto-accept mode – it affects all alarms. Certain Event Types may be automatically accepted anyway – read about the General Attributes in Event Type Programming. There is also an Event Type attribute (option) that allows alarms of that type to be automatically accepted either during the day or during the night.

Accept All Events

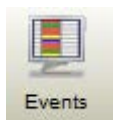
An option on the Management menu allows a user to accept all of the unaccepted events in one operation.

Because this feature could be misused it can be accessed by only Users who have permission to do so set in their User Profile.

Viewing the Alarm Information

As described in *Section 2 - Alarm Displays*, there are several ways in which the alarms may be viewed.

Current Event List



This main toolbar button, or keyboard shortcut F9, will open up the Current Event List window, or bring it to the front if there are several windows open.

The Current Event List is the most convenient method of dealing with current alarms. From here the user may select any alarm for acceptance, viewing, classification, clearance, etc. By highlighting an alarm in the Current Event List, the user can bypass the priority of alarms set-up by the system programmer¹.

The list displays the following information about events and alarms:

- The Date and Time that the event occurred
- The Event Type
- The Location (or description) of the event
- The event's status – i.e., if it has been accepted
- A numeric reference
- The ID (name) of the User who accepted the alarm
- Classification of the event – see *Section 2 - Classifying an Alarm*.

Selecting an event in this list will cause the text page and graphics page for the event to be loaded, but they will not be seen unless the text and graphics windows are already open. The user can open them manually with the toolbar buttons to be described shortly.

As previously described, multiple events received at the AMX are prioritised by Event Type and the highest priority is shown to the user first. If the user switches to the current event list using the toolbar or keyboard they will be able to alter the order in which they view and accept the events into any order. If the user switches to the current Event list when all the events are accepted, they will be able to select an event for further study, classification, etc.

If there are too many events to be displayed in one screen a vertical scrollbar will appear at the right. A horizontal scrollbar will normally be available at the bottom of the window and scrolling the window sideways using this scrollbar will show some further information about the alarms.

A highlight bar (or cursor), which is shown in green in the above example, shows which event is selected in Current Event List. (Sometimes the cursor highlight does not extend across the width of the list.) Selecting an event achieves the following:

Any graphic associated with the event is loaded into the graphics window. The graphics window may not be currently visible, but it will be loaded in case the user wishes to view it.

Any text page will be loaded into the text page window, ready for the user if they should require it.

Some operations can be performed upon the selected event.

These include:

- Classification of the event
- Attaching a User Note to the event
- Displaying more information about the event (event details and previous occurrences).

The selected event can also be accepted, if it has not already been done.

Status
Accepted 
WAITING
Accepted 

The status column in the Current Event List shows which events have been accepted and which are still awaiting User acceptance.

When there are multiple events in the AMX, and all the events have been accepted the system will scroll down the event list at a rate determined by the event scroll speed setting in the Set-up window. As the list is scrolled the cursor highlight will select the next event. Scrolling takes place even if the Current Event List is not on view, so if the text page is maximised the AMX will load and display each text page in turn as it scrolls down the Current Event List in the background.

The list may be sorted by clicking on some of the column headers. Clicking on the Event Type header will sort the list in order of event priority – see *Section 2 - Sorting the Current Event List*.

Clicking the right-hand mouse button on the list will display a pop-up menu with several options, including:

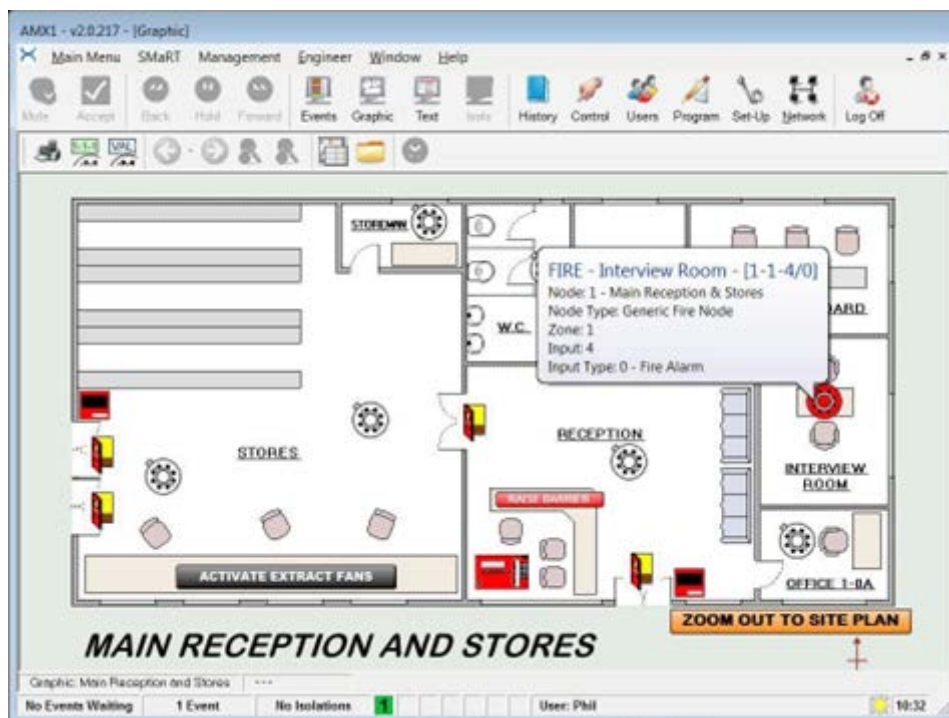
- Sort the list by Time and Priority
- Display more Event Details
- Display previous occurrences of the event
- Classify the event
- Clear the Event
- Edit the user's Event Note
- Standard list configuration options allowing the appearance of the list to be customised - see *Section 1 - List Properties Window*.

Most of the above pop-up menu options are explained in the section on Advanced Operation.

Graphics Page

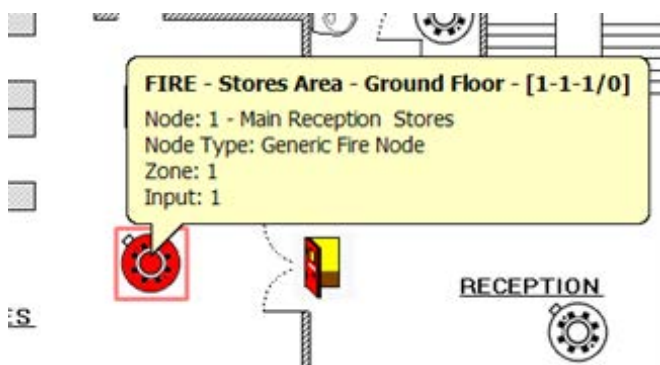


This main toolbar button (or keyboard shortcut F8) will open the Graphics window or bring it to the front if there are several windows open.



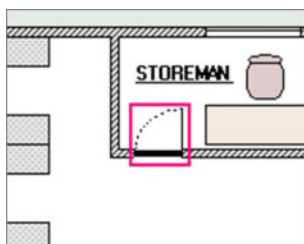
The above picture is an example of a full screen graphics page. The graphics page contains symbols that represent the status of inputs in the remote subsystems.

If the mouse cursor is allowed to hover over a symbol, a small text panel (ToolTip) will appear to describe the location or type of symbol.



The composition of this phrase may vary from the example above, depending upon system configuration and the options selected - see *Section 16 - Symbol ToolTip Phrase*.

If an input is active (in alarm) its symbol will probably be shown in a different colour. The actual change to the symbol display is defined by the picture configuration for the symbol. See Symbol Picture Configuration for further information about this.

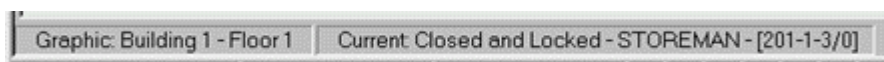


Symbols can be selected. Selection is by clicking on the symbol, or by using the Tab key to cycle through the symbols (Shift-Tab cycles backwards). When a symbol is selected a rectangle is drawn around it. Set-up options allow for a much thicker selection rectangle and a choice of colour.

In this example on the right the door symbol has been selected.

Selecting a symbol serves two purposes: to see more information about it and to zoom in or out of that area.

When a symbol is selected the graphics page status bar at the bottom of the graphic window displays the following information:



The left-hand panel is the name of the graphic the page is displaying. The right-hand panel is the status and name of the currently selected symbol. The information in the right-hand panel is the same as that displayed by the Symbol's ToolTip phrase.

The graphics page has its own toolbar.



The toolbar buttons include:

Button	Function	See Section
	Print the currently displayed Graphic	<i>Section 11 - Graphic Printing</i>
	Shows the input reference for devices and inputs	<i>Section 2 - Labels</i>
	Display fire device analogue values on systems that support the feature	<i>Section 11 - Analogue Values</i>



Scrolls back to the previously displayed Graphic.



A small down arrow to the right of this button allows you to pick from a list of recently displayed graphics



Used in conjunction with the Back button above to scroll between graphics.



Zoom out from currently selected symbol

Section 2 - Zooming



Zoom in on currently selected symbol

Section 2 - Zooming



Display the Graphic Selection window.

Section 2 - Using Graphics for Status and Control



Open the Graphics Explorer

Section 2 - Using the Graphics Explorer



Close the Graphics window

Graphics Navigation

Any graphics page can be displayed by calling up the Graphics Explorer or Graphics Selection window using the toolbar icons above and selecting the desired page.

The zoom buttons are also available on a pop-up menu that is displayed if the user clicks on a symbol with the right mouse button. This may be found to be a better method of zooming as it allows zooming into a particular area without first selecting a symbol.

A different pop-up menu is displayed if the user right-clicks on the graphic itself. This offers the following options:

- Zoom out from the currently selected symbol
- Zoom in on the currently selected symbol
- Set the current graphic as the default – the “default” graphic is the one that will be shown initially if the Graphic window is opened when there are no alarms/events in the system. It is also shown if the user double-clicks on any other graphic (avoiding double clicking in symbols). The default graphic is usually a “Site Map”, or some other picture that gives an overview of the whole system
- Set the Display Set-up options – opens the main Set-up window so that the various displays options can be configured - see *Section 8 - Display Set-up Options*.

Zooming

As previously described, zooming in and out is achieved by using the graphics page toolbar icons or with the right-mouse button pop-up menu. When zooming in, AMX needs to know which area it should zoom in on. This is achieved by links defined by the system programmer in the Symbol Configuration window during Graphic Page Configuration. See *Section 7 - Graphics & Symbols* and *Section 7 - Graphic Page Configuration* for more information about configuring the zooming.

An alternative to zooming is to use the Graphics Explorer - see *Section 2 - Using the Graphics Explorer*.

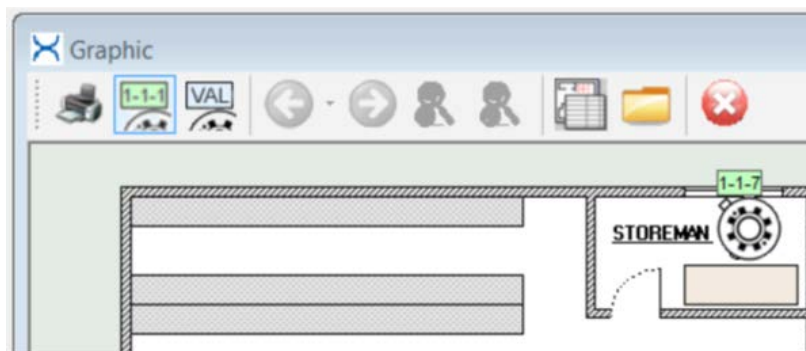
Many system programmers implement navigation and zooming using graphic control buttons - see *Section 7 - Graphic Buttons*.

Labels

The Labels toolbar icon switches on small labels to show the input reference for input symbols on the graphic.



It is not possible to display labels and device analogue values at the same time.



Graphics pages may be viewed at any time – not just when an alarm is present – by opening the page with the main toolbar icon or using the F8 keyboard shortcut key.

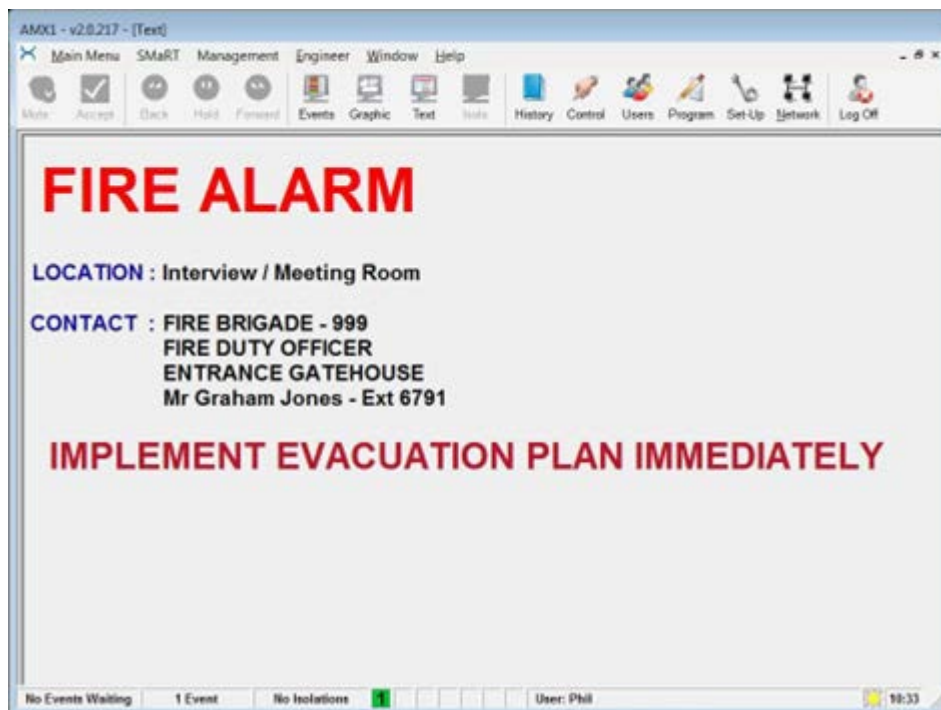


This might be desirable when the application uses interactive graphics, from where the user can send controls. Graphic interaction is via the symbols, some of which may also be configured to send controls to the remote subsystems. This is further explained in *Section 2 - Using Graphics for Status and Control*.

Text Instructions Page



This main toolbar button (or keyboard shortcut F7) will open up the Text window or bring it to the front if there are several windows open.



The above picture is example of a full screen text page. The layout of the text page is defined by the System Programmer and not limited to the simple example above. In some applications the text may not take up the whole screen area.

The text page can be used to give additional information and instructions to the user. Each input to the system can have its own text page. The page can be scrolled up and down using a scrollbar that appears at the right-hand side when the page is too long to fit on the display. Text pages are optional.

The text page for any event can be displayed by selecting an event in the Current Event List and using the toolbar icon or keyboard shortcut –



Show the Text page **F7**

The text page is just one method of presenting alarm information to the user (the others are the Current Event List and the Graphics page). The initial type of display that is first shown when an alarm occurs is defined by Event Type attributes and the user can then use the toolbar or keyboard shortcuts to switch between the various display modes.

Tiled Text and Current Event List

By using the Window menu or by pressing Ctrl-F9 it is possible to tile the current Event List and the Text page.



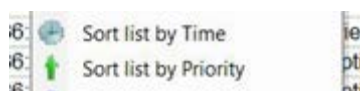
The tiling of the two windows places the Current Event List in the left half of the display and the text page on the right. As the user selects an alarm in the Event List on the left, its text page will be automatically loaded on the right. This type of display may be preferred in some applications. The toolbar buttons or keyboard shortcuts can be used to switch back to any of the other three main views.

Advanced Operation

AMXAMX provides several advanced alarm handling features to aid the User. These are accessed via the pop-up menu that appears when the right mouse button is clicked on the Current Event List.

Note: Some of the pop-up menu options may be unavailable if more than one alarm is selected in the list, or if the user does not have permission to access these features.

Sorting the Current Event List



Two options on the Current Event List pop-up menu allow the list to be sorted by time or priority.

The first of these items – Sort the List by Time – rearranges the order of items with the first (oldest) at the top of the list. The sorting is based upon the time and date that appears in the left-hand columns.

The second option – Sort by Priority – rearranges the order of the current events so that the most important is at the top of the list and the least important is at the bottom. The system's programmer set the priority of the different events during configuration of the AMX.

These two pre-defined sorts are not the only sorting options available. The Current Event List can be sorted, like most AMX lists, by clicking on the column headers - see *Section 1 - Using Lists*. Clicking on the headers of an Event List column will sort it into alphabetical order based upon the contents of that column. Clicking on the same column header a second time will reverse the order of the sort. One exception to the usual alphabetical sort is clicking on the Event Type column, which will sort the list in order of priority, not alphabetically.

Viewing Alarm Details



Some further information on each alarm can be found by using a Current Event List pop-up menu option. This displays a dialog window that shows more information on the alarm selected in the list.

In addition to the basic alarm information, this dialog window shows how long the alarm has been present in the system, when it was accepted, who accepted it, and the amount of time elapsed between the beginning of the alarm and a user accepting it.

The (optional) Event Classification is shown at bottom of the window, see *Section 2 - Classifying an Alarm* for more information on Alarm Classification.

Previous Occurrences of an Alarm



A further Current Event List pop-up menu option shows the most recent previous occurrences of the currently selected alarm.

Up to eight occurrences are shown, with the most recent at the top.

This list is displayed as a tab option on the same dialog window that was used to show the Alarm Details. This dialog is also used for editing and reading a Note attached to the alarm.

Therefore, the user can quickly switch between these three features.

Use the History Search facilities to build a full report containing a more comprehensive list of all occurrences of this alarm over a user-specified period.

Event Service Records

Another Current Event List pop-up menu option shows the most recent service events for the currently selected alarm.

This is a list of alarms from the input that occurred whilst the node was in Service Mode.

Up to 32 service records will be shown in this list. Further occurrences can be found by using the Search button at the bottom of the dialog, or by using the Service Reports features.

NB. Service Reports are an optional feature of AMX and may not be present in all systems.

Classifying an Alarm

Classification of an event or alarm is assigning a “tag” which identifies the reason for the event or its validity. Typical examples of classifications might be:

Genuine Alarm

False Alarm

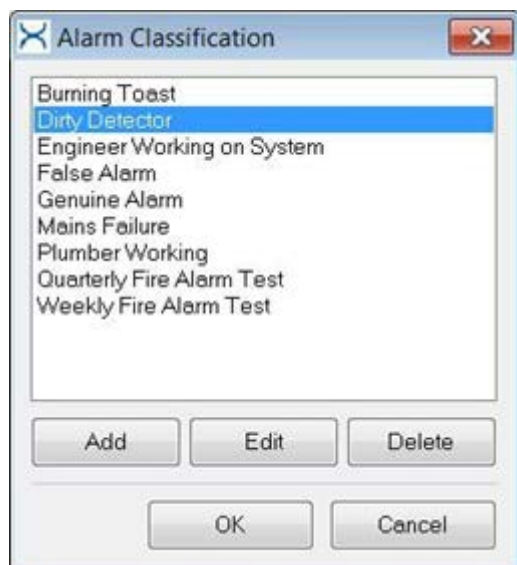
Service Operation

Event classification allows alarms to be categorised according to their reason. Apart from clearly identifying specific types of alarm, this feature is useful when building History Reports. Event Classification is only intended to show a short classification phrase. For adding more detailed information to an alarm use the event Note facility described in Section 2 - Adding a Note to an Alarm.

Event Classification is an optional facility – it is not essential to do this. Event Classification can also be performed from the History page - see *Section 3 - History Event Classification*.

Events are classified via the Event Classification window, which also provides facilities for the user to create their own classification categories.

At the top of the window are the Event Classification Categories. This is the list of classification categories previously defined by users.



Double clicking on an event in this list will assign the classification to selected event(s) in the Current Event List or Event History List.

Alternatively, select the classification and click on the OK button.

To close the window without assigning a classification, use the cancel button.

Use the Add, Edit and Delete classification buttons to manage the classification categories –

Add

The Add button in the Event Classification Window allows the user to add a new classification category. Classification categories can be any 24-character phrase. If a phrase that is too long is entered it will be truncated.

Edit	The Edit button in the Event Classification Window allows the user to edit the 24-character classification phrase that is currently selected in the list above. Editing the classification phrase will not affect the classification of events that have already been classified.
Delete	This button in the Event Classification Window removes the currently selected classification category. Deleting the classification phrase will not affect events that have already been classified. The Delete button removes the classification category from the list of available categories – it does not remove classification from an event.

There is a default classification category defined in *Section 8 - Set-up Window*, but this is not assigned to an event unless explicitly done so by the user.

The identity of the user who classified an event can be seen via the History Event Classification dialog, which is called up from the History Window - see *Section 3 - History Event Classification*.

There is no way of removing classification from an event once it has been classified. If the User should wish to remove classification from events that were classified in error, this can be achieved by defining “-” as a classification category and assigning this.

The Alarm Classification feature is accessed via the Current Event List pop-up menu.

Manually Clearing an Alarm

The user can manually clear events from the AMX. This is done via the right-hand mouse button pop-up menu in the Current Event List. AMX will ask for confirmation of the clearance before it is carried out.

Multiple events may be cleared in one operation if more than one event is selected in the Current Event List.

Normally, events will be cleared when they reset at source. However, there are several reasons why the user might want to manually clear events:

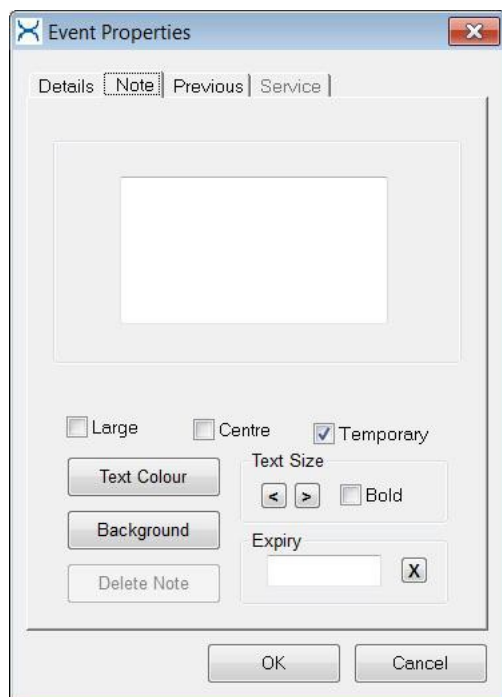
- The application demands that a user *should* manually clear events.
- To remove unimportant “clutter” from the Current Event List.
- If an event is “stuck”, maybe because the equipment in the remote subsystem was powered down before the event was reset.

Clearing Events does not remove them from the Event History. It is not possible to remove events from the Event History.

A user will only be able to manually clear events if permission has been set in their User Profile.

The Manual Clearance feature is accessed via the Current Event List pop-up menu.

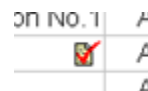
Adding a Note to an Alarm



An alarm note is stored in the Event History. It allows the user to add some comments to any event, maybe an explanation of what occurred for example. The note can contain much more comprehensive information than the Event Classification described previously, although the latter is quicker and can be very useful when used in conjunction with History Search to build reports.

The note is entered or edited with the standard note editor, which is fully described in *Section 9 - Notes*.

Once a note has been added to an event, a note icon will appear Against The Event in both the Current Event List and the Event History.



Notes can be added to events when viewing either the Current Event List or the Event History.

The Alarm Note Editor is accessed via the Current Event List pop-up menu.

Using Graphics for Status and Control

The Graphics pages can be called up at any time and used for viewing the status of various parts of the system, or for controlling the remote subsystems¹. To use the graphics pages effectively, it is important to know how to navigate around them.



The graphics page is called up using the main toolbar graphics icon or keyboard shortcut F8.

If there are alarms present the first graphic to be displayed will be the graphic associated with the alarm that is currently selected in the Current Event list. If there are no alarms, or if there is no graphic associated with the currently selected alarm, the first page to be displayed will be the default graphics page. The default graphics page can be chosen by the user – see *Section 2 - Graphics Navigation*.

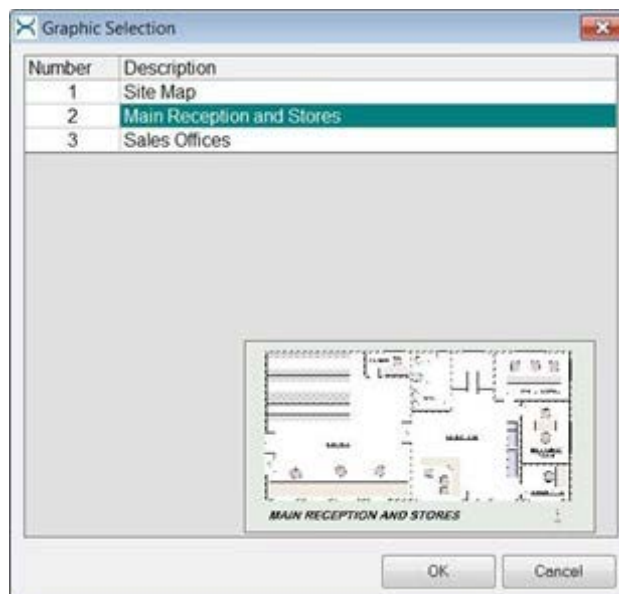
When a graphics window has been opened the user can navigate around the pages using three main methods: zooming in and out, manually selecting a graphic, or using the graphics explorer. Zooming was explained in *Section 2 - Zooming* and the other two methods will now be described.

¹ The degree of control that can be exercised over a remote subsystem connected to the AMX depends very much upon the capabilities of that system.

Selecting a Graphic Manually



The Graphic selection button on the Graphics Page toolbar will open up the Graphics Selection window.



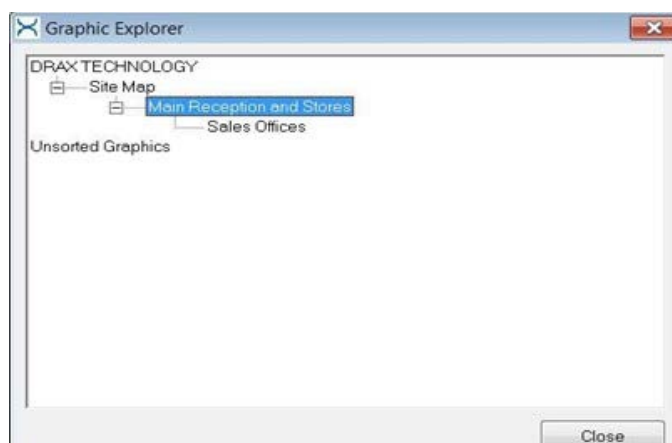
Either select the graphic to be displayed from the list and click the OK button, or double click on the desired graphic's description. The number shown to the left of a graphic is for convenient reference only and does not fulfil any critical function. However, as the list may be sorted alphabetically by clicking on the header of the description column, clicking on the number column header will put the list back in its original order.

A small panel overlaid on top of the Graphics management window shows a miniature preview of the graphic that selected in the list. The position of the panel will move up and down so that it does not obscure the currently selected line. If you cannot see this graphic preview, then right-click on the list and enable it.

Using the Graphics Explorer



This button on the Graphics Page toolbar will open the Graphics Explorer window.



The Graphics Explorer works in a similar way to Window Explorer. The user can organise graphics in a tree structure. Clicking on the name of a graphic will automatically load it into the main graphics window. When the Graphics Explorer window is opened, the name of the current graphic will be highlighted.



The user must manually configure the Graphic Explorer. It does not correspond with the zoom settings configured when symbols are placed on the graphic. Configuration will be described shortly.

Graphics are organised as a master (normally a site map) and sub-graphics.

The “+” and “-” symbols indicate whether a graphic has a further sub-graphics. A “+” symbol will be shown if there are sub-graphics which are not being displayed – click the symbol to expand the list and show the sub-graphics and the symbol will then change to a “-”.

When the Graphics Explorer is first opened, most of the list will be “collapsed” and it will be necessary to manually open and close parts of the list.

Organising the Graphics Explorer

To organise the Explorer, a graphic must be selected and then dragged and dropped onto another graphic. It will then become a sub-graphic of the one that it was dropped on to. This operation does not have any effect on the pre-programmed zoom links or any other configuration.

Here is an example: to make “Building 3” a sub-graphic of “Floor 2”, follow this procedure:

1. Open the Graphics Explorer
2. Find the graphic “Building 3”, expanding the list if necessary. Click on the name “Building 3”, release the mouse button and wait until the graphic is loaded in the graphics window below.
3. Now position the cursor above the highlighted name “Building 3” in the Graphics Explorer. Press the left mouse button and, holding the button down, drag the cursor until it’s over the name “Floor 2” and then release the button.

It will be easier to accomplish this task if the list is not expanded any more than necessary. If it is a very large system with multiple graphics it may prove necessary to move the graphic name in more than one operation, temporarily dropping it in one location and then moving it again after scrolling the list further.

The names of graphics cannot be altered via the graphics explorer. This must be done in Graphics Management – see *Section 7 - Managing Graphics*.

A user can organise the Graphics Explorer only if permission has been granted in their user profile – see *Section 5 - User Profile*.

Interactive Graphics

Graphic interaction is via the symbols. Not only do symbols indicate the real-time status of remote inputs, but some symbols may also be configured to send controls to remote subsystems. Double clicking on a symbol activates these controls. Typical examples of controls are the Isolation Control Box and the Fire Panel Controls box – *Section 2 - Fire and Isolation Control Boxes* If a control is defined, a small dialog window will be displayed showing the control(s) and the user can either send the control or cancel it by closing the box.

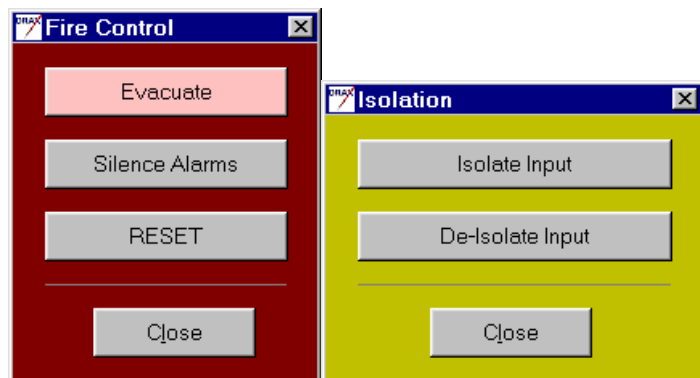
If no controls are associated with the symbol, then clicking on it will have no effect. Only users with permission in their User Profile can initiate these controls.

The position of the symbol’s control dialog window can be centred on the symbol, or offset. This choice is made via a global option in the main set-up window. To close the control dialog window without initiating a control, either click on the graphic outside of the control dialog, use the close button, or use the window close icon at the top right corner. If the user takes no action the window will, eventually, close automatically. The time delay before the window closes is user- programmable via a set-up option in the main set-up window. A further set-up option defines whether the

control dialog should remain on the screen after a control has been initiated or if it should close immediately. The former option might be useful in systems where more than one control could be initiated from the dialog.

Fire and Isolation Control Boxes

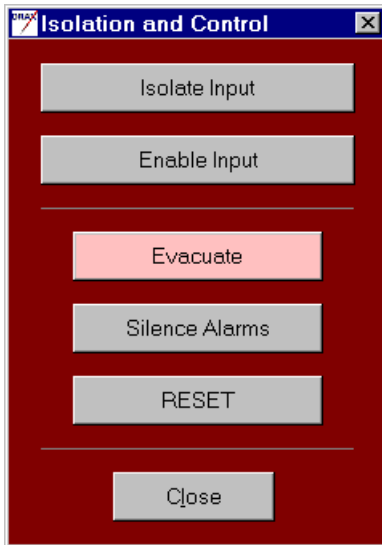
Two examples of the control box dialog windows just described are shown below.



These two examples might be used with symbols in fire alarm systems, but other types of control box will appear in other types of system. In the examples above the buttons will conduct the following functions:

Isolate	Isolates the remote subsystem input associated with the currently selected symbol
Enable	De-Isolates (re-enables) the remote subsystem input associated with the currently selected symbol
Evacuate	Sends an Evacuate signal to the remote subsystem node associated with the currently selected symbol
Silence Alarms	Sends a Silence Alarms signal to the remote subsystem node associated with the currently selected symbol.
Reset	Sends a Reset signal to the remote subsystem node associated with the currently selected symbol
Close	Closes the window without issuing any actions to the remote subsystem

As previously described, if a button in the control box is not clicked within a certain time period, the box will disappear. This user defined time-out period is usually between 10 and 60 seconds.



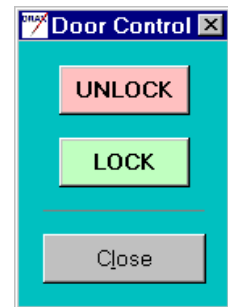
A user can only use Control boxes if permission has been granted in their user profile - see *Section 5 - User Profile*. Another type of fire control box is the combined fire and isolation control box.

This box combines the functions of the two previously described boxes. And the buttons have the same functions.

The Door Lock/Unlock Control Box

This window is another one of the Control box options that is displayed when a User double-clicks on a symbol on a graphics page.

This control sends on and off commands to the remote subsystem output associated with the current symbol. This output is used to control the locking and unlocking of the door.

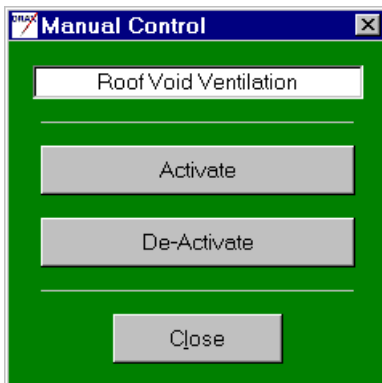


This window will disappear automatically after a timeout period specified by the Symbol Control Window Timeout option in Set-up. This

Control box will not be available to Users who do not have permission set in their User Profile.

The User Defined Control Boxes

There are two user-defined control boxes available: The Manual Control box and the Manual Control List box.



The Manual Control box on the left allows the user to initiate a single Manual Control.

This is a user-defined control box. The single manual control is selected by the system programmer during system programming.

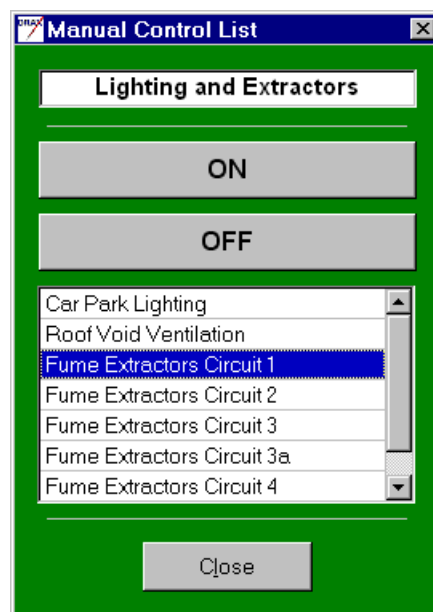
The next type of control box displays a list of controls, so the user has a choice of control to initiate.

The Manual Control List box on the right allows the user to choose a Manual Control from a Manual Control List that was selected by the system programmer during system programming. The user is presented with a list of controls, and they can select and initiate any (or all) of them.

The system programmer will have selected the control list from those lists available in the control window.

These windows will disappear automatically after a timeout period specified by the Symbol Control Window Timeout option in Set-up. In the case of the Manual Control List window the timeout period will be restarted each time a control is initiated in case it is required to select and initiate another control.

These Control boxes will not be available to Users who do not have permission set in their User Profile.



Isolations and Disablements

Some types or remote subsystems – e.g., fire and security panels may offer the facility for isolating or disabling remote devices. This requires a command to be sent to a remote node, which tells the control panel to isolate the device.

When a device has been isolated at the remote subsystem, either by a control sent from the AMX or by a user operating the control panel at the remote location, the AMX will indicate the isolation on its main status bar. The isolation will also be placed in the AMX's Isolation List†.



In common with all Windows programs the AMX makes extensive use of pop-up menus, which are activated by clicking on items with the right mouse button. Some functions are only available via this method.

Isolation List

The Isolation List is an option which is enabled via the Set-up window – see *Section 8 - Set-up Window*. If it is not enabled the Main Toolbar button described below will not appear and it will not be possible to access the list. Some AMX applications may not require this function, which is why it is an option.



This button on the Main Toolbar will open the Isolation List window.

As previously described, some types of remote subsystem may have the ability to isolate specified inputs. An example of this type of system would be a fire alarm panel.

When isolation is possible it is highly desirable to have an indication at AMX of those inputs which isolated (disabled) and therefore not functioning normally. To achieve this, AMX provides this optional Isolation List.

The Isolation List uses the standard AMX list format, and the following columns are displayed:

Date	This is the date the isolation was activated. The list will be sorted in date/time order if the header of this column is clicked.
Time	This is the time the isolation was activated. The list will be sorted in date/time order if the header of this column is clicked.
Reference	This is the numeric reference (see <i>Section 16 - Numeric Reference</i>) by which AMX identifies each unique input. The list can be sorted on this column.
Type	This is the type of isolation. It will indicate whether the isolation was at the remote subsystem or from the AMX and, if it was from AMX, it will indicate confirmation has been received from the remote subsystem. The list can be sorted on this column.
Location	This is the unique text phrase that can be used to describe each remote subsystem's input. This may have more meaning to the user than the reference. The list can be sorted on this column.
Isolated by	This is the name of the user who isolated the remote input if it was activated from the AMX. If the isolation was activated remotely, then this column will be blank, as the information is not available. The list can be sorted on this column.

Clicking on the list with the right mouse button will display a pop-up menu. This offers the following options:

Edit the isolation Note.	A user note may be added to the isolation. This note will be stored in the Isolation History
De-isolate selected device(s)	The selected isolation(s) can be de-isolated (the input can be re-enabled) using this option. If a block of isolations are selected, they may all be re-enabled in one operation

This list complements the other options available for indicating input isolation on the AMX. The four options available to the User are:

1. Event/alarm display, either text page or graphic page, with an entry in the Current Event List.
2. Indication of the total number of isolations on the main status bar. This must be enabled in set-up.
3. The Isolation History
4. The optional Isolation List.

In the Isolation List multiple items may be selected randomly using the standard Windows Explorer Ctrl-Click selection method.

Isolating and Disabling Devices

1. There are several options available for isolating and disabling remote inputs to the AMX.
2. Graphic page symbols may be configured with Isolation Control boxes – see *Section 2 - Interactive Graphics*.
3. Input devices that have already been isolated may be re-enabled via the Isolation List – see *Section 2 - Fire and Isolation Control Boxes*.
4. Manual or Time Controls may be set-up to isolate or de-isolate one or several devices – see *Section 4 - Controls and Actions*.
5. It may be possible to isolate input devices directly at a remote control panel. The isolated status can be indicated if the remote subsystem reports it back to AMX.

Configuration and Programming

The AMX does not fulfil any useful functions without configuration and programming. Although an unprogrammed AMX will recognise alarms received via its Network Managers. It will only give a one-line indication in the Current Event List, without any alarm sounds, graphics, or instructions for the User.

A System Manager or an Engineer will normally carry out programming of the AMX. The day-to-day AMX Operator is unlikely to be involved in this process, although they can be given access to the programming facilities if required.

It is the responsibility of the AMX programmer to ensure that the system provides the correct information in the desired format as the user needs it. Care should be taken in planning the system. There are many options available, and the programmer should think carefully about what the operator needs from the system in their application.

After the system has been programmed, testing and commissioning is very important. It is essential to ensure that an alarm in the remote system produces the correct displays for the AMX operator. There are several factors that could prevent this: errors in programming, faults in the interface to the remote system and faults in any interconnecting networks to name a few. To aid the programmer a AMX user with Engineer's access can simulate alarms (see *Section 12 - Simulating Alarms*, although this can prove that AMX has the correct information programmed it cannot prove that the remote system is signalling an alarm correctly. The amount of post-installation testing required will vary dependent upon the application and size of the system. This aspect of configuration is very important and must not be ignored.

Programming and configuration of the AMX falls into several areas:

- **Programming of the Inputs** – This is where the main bulk of the alarm display programming is carried out. The subject is fully covered in *Section 7 - Programming Inputs*. Also covered in this section are the various programming management routines – the creating of Event types, importing of graphics, etc.
- **Managing the Users** – The section starting on *Section 5 - About Users*, describes how new users can be added to the system each with their own identity, password and User Profile.
- **Setting up Controls** – Programming of the Manual and Time controls are covered in the section starting on page 102. Controlling the remote subsystems is also possible via the graphic pages – see *Section 4 - Controls and Actions*.
- **Managing External Network Connections** – The Network window is where AMX is told about the type of remote system(s) and its capabilities – see *Section 6 - Network Window*. It may also be necessary to configure some settings for the independent Network Manager programs - see *Section 12 - Setting Up the Network Managers*.
- **The Set-up Options** – There are several options that affect either the appearance of the AMX or how it behaves. These are mainly accessed via the Set-Up window – see *Section 8 - Set-up Window*. In addition to these options, it is possible to alter the appearance of the list windows that are used in many areas of the AMX – see *Section 1 - List Properties Window*.

These subjects are covered in detail in the sections indicated above, so no further information will be given here.



NEVER omit proper testing and commissioning of the system. If the responses to a fire alarm in a remote subsystem are mis-programmed by the AMX programmer and are displayed as an unimportant event or some other type of alarm the consequences could be serious. It is the responsibility of the AMX programmers and installers to ensure that the system is operating properly and giving the correct alarm indications.

Following a Logical Configuration Procedure

An unprogrammed AMX system may seem a little daunting to the inexperienced system programmer. However, it is not difficult to configure and program the system so long as a logical procedure is followed.

Careful preparation will save time and prevent difficulties during the installation and commissioning stages. In particular, gathering information about the external equipment and the site prior to configuring the system will greatly assist the programmer. If AMX is to be connected to just one master control panel – e.g., a security or fire panel – the task of gathering information about the external system will not be difficult. Even in this case, it will still be necessary to get details about the number of zones, input devices and the location of each input device. In more complex installations, perhaps involving networks of control panels and I/O devices with requirements for controlling remote outputs, comprehensive input/output lists will be needed. If this information is gathered prior to starting work on the AMX, it should be necessary to configure each input only once and it will be easier to make use of the quick programming facilities - see *Section 7 - Quick Input Programming Techniques*.

Once the information regarding the site and its external systems has been collected together, programming can commence. This is where following a logical procedure will shorten the task. Although the exact procedure may vary slightly depending upon the specific project, this is the broad procedure:

1. Add Nodes to the AMX system by adding them in the Network window. Be careful to select the correct Node Type. This tells AMX about the capabilities of the node – i.e., the type and number of inputs at the node and the type of controls that can be sent to the node (see *Section 6 - Network Window*.) It is essential to do this before programming controls and it is strongly recommended that it be done before Input Programming is attempted.
2. Import any sounds that will be used to provide audible alarms, see *Section 7 - Sounds* and *Section 7 - Managing Sounds*. Do this before creating the Event Types, or else it will be necessary to edit the Event Types again later.
3. Create the Event Types that will be used by the system. Event types dictate how AMX will prioritise and present alarms of each type. See *Section 7 - Event Types* for a further description of Event Types and *Section 7 - Managing Event Types* for information on creating them.
4. Import the graphics that will be needed. See *Section 7 - Graphics & Symbols* for a description of how graphics and symbols are used together and *Section 7 - Managing Graphics* for information on importing and managing the graphics. Graphics are imported into a list; they are not assigned to the pages at this stage (this is done during Input Programming).
5. Create the Symbols (icons) that will be used on the graphics pages. This involves adding symbols in the Symbol Management window and importing the pictures that will be used by them. See *Section 7 - Managing Symbols*.
6. Create any Text Fields that will be needed. Carefully planned use of Fixed Text Fields will greatly assist in making global change to text pages in the future. Fields are described in *Section 7 - Managing Fields*. Fields are very useful in Templates, so they should be created before the Templates.
7. Set-up the Templates. It is not essential to use Templates, but they will greatly assist the quick programming of the text pages. See *Section 7 - Templates*, *Section 7 - Creating and Using Templates* 7 - and *Section 7 - Managing Templates*.
8. Program the inputs. This is an extensive task, where the bulk of the work lies, which is described fully in *Section 7 - Programming Inputs*. This is where the location/description phrase is assigned, the text pages are created, and the graphics are configured. Correct planning and configuration of the previous items will make this task far less onerous than it may at first appear. There is some information about Quick Input Programming Techniques in *Section 7 - Quick Input Programming Techniques*.
9. Set-up any Manual or Time Controls that are required by the application - see *Section 4 - Controls and Actions*.

10. Add users to the system, creating passwords and user profiles for each user. See *Section 5 - About Users*.
11. Finally, adjust any of the global set-up options described in *Section 8 - Set-up Window*.
12. Test the system!

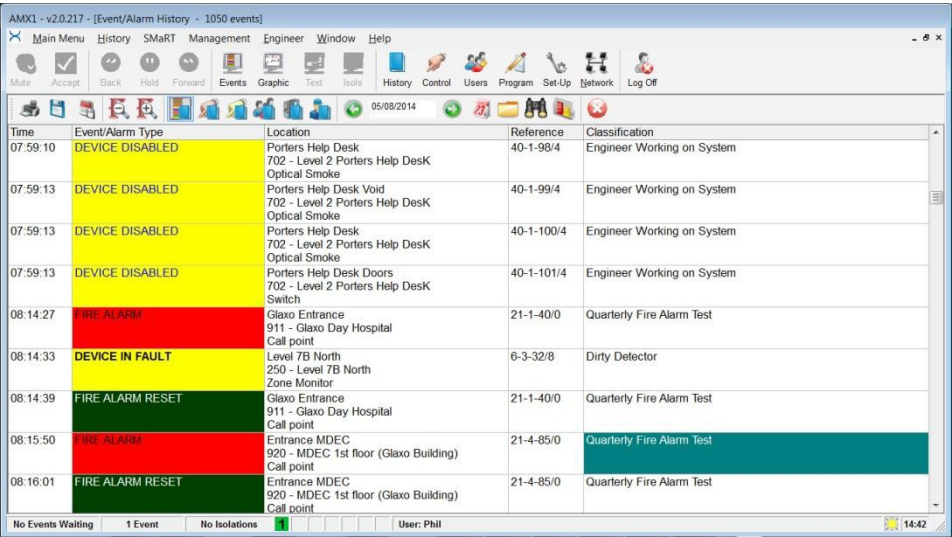
Much more information regarding programming the system is given in *Section 7 - Programming Inputs*.

Section 3
Exploring the History

History Window



This button on the Main toolbar will open the History window.



The history window shows recorded events for one day at a time. The date currently being displayed is shown on the history window toolbar.

The History is further subdivided into 6 sections: the Event History, Control History, Isolation History, User History, System History, and Service History. The currently selected history is indicated by one of the five history selection toolbar buttons being depressed.

AMX histories are displayed in the standard AMX list format. They may be sorted; fonts and colours may be changed, and the columns may be resized – see *Section 1 - Using Lists* for more information on using lists.

The history window has its own toolbar.



The toolbar buttons include:

Button	Function	See Section
	Print the currently displayed History	<i>Section 3 - Printing from the History</i>
	Export the currently displayed History	<i>Section 3 - Exporting History Data</i>



Export one month of History data



Decrease the font size of the list



Increase the font size of the list



Open the Event History

Section 3 - Event History



Open the Control History

Section 3 - Control History



Open the Isolation History

Section 3 - Isolation History



Open the User History

Section 3 - User History



Open the System History

Section 3 - System History



Go back one Day

Section 3 - Changing the History Date



Go forward one Day

Section 3 - Changing the History Date



Display the History Calendar

Section 3 - History Calendar



Display the History Explorer

Section 3 - History Explorer



Search the History and build a Report

Section 3 - Generating History Reports



Close the History window

Clicking the right mouse button on the list will produce a pop-up menu. The options available may vary.

The top section is used for navigating around the history - see *Section 3 - Changing the History Date*.

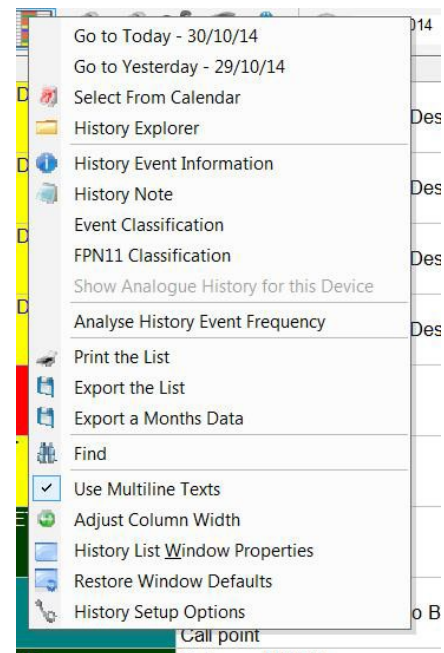
The second section calls up dialogs that provides additional information and functions for the selected event. The Analyse History Event Frequency option is described in *Section 3 - Analysing History Data*.

The third section is for printing and exporting.

The Find option provides a quick text search in the current list. The search will span all rows but only the selected columns.

The bottom section allows the appearance of the History list to be customised with the Window Properties dialog - see *Section 1 - Using Lists*.

The five histories will now be further described.



Event History



This button on the History window toolbar will open the Event History for the currently selected date.

The Event History is the main store for alarms and events. This history stores:

1. Alarms and events reported from the remote subsystems connected to AMX¹
2. Faults and external system errors detected by the Network Managers
3. Internal Alarms and System Faults generated by the AMX

The columns displayed in the Event History List include:

Time	This is the time at which the Event or Alarm occurred. The date is shown in the toolbar. Click on the header of this column to sort the list into chronological order (the default)
Event/Alarm Type	This column shows the type of event. It is colour coded for easier identification of different types. The text and colour are defined by the Event Type definition.
Location	This text phrase describes the actual event. It may not necessarily be a location. It is the phrase assigned to the input during Input Programming

¹ Note that some Event Types may not be logged into the Event History - this is defined by the Event Type attributes.

Reference	This is a unique numeric reference for the system input – see <i>Section 16 - Numeric Reference</i> for an explanation of this
Classification	An optional short phrase classifying the reason for the alarm – see <i>Section 2 - Classifying an Alarm</i>
Serial number	A unique serial number assigned in ascending order – making attempts to tamper with the history obvious

Control History



This button on the History window toolbar will open the Control History for the currently selected date.

The Control History records all controls (other than isolations) which are initiated from the AMX by a user. This history stores:

1. Manual controls initiated from AMX by a User
2. Time Controls automatically initiated by the AMX¹
3. Certain controls initiated by a User via the graphic page Control boxes

The columns displayed in the Control History List include:

Time	This is the time at which the Control was initiated. The date is shown in the toolbar. Click on the header of this column to sort the list into chronological order (the default)
Control Type	This column shows if the control was by manual operation or time (automatic). ON/OFF indication is also shown in this column
Description	This text phrase describes the actual control. It is the name assigned when the control was programmed
Operator	If the control was a manual control, this is the name of the operator who initiated it
Serial number	A unique serial number assigned in ascending order

¹ Logging Time controls to this history is optional - see *Section 7 - Event Type Attributes*

Isolation History



This button on the History window toolbar will open the Isolation History for the currently selected date.

The Isolation History contains a record of all Isolations initiated from the AMXAMX and also isolations initiated at certain types of remote subsystems¹. This history stores:

1. Isolations initiated from the AMX, with indication of whether or not they were confirmed by the remote subsystem².
2. Notification of isolations received from the remote subsystem.

The columns displayed in the Isolation History List include:

Time	This is the time at which the Isolation occurred or was initiated. The date is shown in the toolbar. Click on the header of this column to sort the list into chronological order (the default)
Isolation Type	This column shows the type of isolation. It is prefaced by one of these words – Remote This is an isolation carried out on the remote subsystem Command This is an isolation command sent from AMX, but no confirmation was received Confirmed This was an isolation command sent from AMX and confirmation was received from the remote system
Location	This text phrase describes the isolated input, it may not necessarily be a location. It is the phrase assigned to the input during Input Programming
Reference	This is a unique numeric reference for the system input – see <i>Section 16 - Numeric Reference</i> for an explanation of this
Isolated by	If this was an isolation carried out from the AMX, this is the name of the operator who initiated it
Serial number	A unique serial number assigned in ascending order – making tampering with the history obvious

¹ Some remote subsystems do not have the capability of reporting outstations back to the AMX.

² Indication of confirmation is only possible if the remote subsystem reports the isolation back. Not all subsystems have this capability.

User History

The User History records users as they log on and off the system.



This button on the History window toolbar will open the User History for the currently selected date.

The User History is the main store for recording users as they log on and off the AMX. This history stores:

1. The time when a user logs on and off the system
2. The duration for which the user remained on the system
3. The mode of logging off

The columns displayed in the User History list include:

User	This is the Identity of the user who logged on and off
On Time	This is the time the User Logged on. The date is shown in the toolbar. Click on the header of this column to sort the list into chronological order (the default)
Off Time	This is the time the User Logged off.
Duration	This is the length of time the User remained logged on to the AMX
Log Off Mode	A short phrase describing how the user logged off the system. Usually "Normal Log Off" at present but may indicate timed log off or timeout in future AMX versions.
Serial Number	A unique serial number assigned in ascending order

System History

The System History is where system events such as starting and stopping the program, changing the PC clock, etc are stored. A summary of actions performed by a user – e.g., “5 Pages Programmed” are also stored in this history.



This button on the History window toolbar will open the System History for the currently selected date.

The System History is where system events are stored. This history stores:

1. Starting and stopping of the AMX program
2. A summary of actions performed by users. This information is usually stored when a user logs off, or sometimes when the user closes certain main configuration windows. Amongst the user actions recorded are:
 - Number of events accepted, classified, or cleared
 - Number of programming changes made
 - Number of nodes, users and controls added, edited, or deleted
 - Number of controls or isolations initiated
3. Problems and faults with the configuration and other errors

The columns displayed in the System History List include:

Time	This is the time the system event occurred. The date is shown in the toolbar. Click on the header of this column to sort the list into chronological order (the default).
User	This column either shows the name of the user, or the type of system event.
Details	This gives details of the user actions – e.g., 5 pages programmed – or describes the type of system event
Serial number	A unique serial number assigned in ascending order

Service History

The Service History is an optional feature used by maintenance companies to track and report upon their service operations.



This button on the History window toolbar will open the Service History for the currently selected date.

Please refer to the section on Service Reporting in *Section 11 - Service Mode*.

Navigating around the History

The History window will normally show events for one day at a time - unless it is displaying a report resulting from a History Search.

Knowing how to navigate around the History will allow the user to explore the History more effectively. Using the toolbar buttons to select the five different histories has already been explained. The three main methods of changing the day on display are directly changing the History date, using the History Calendar, or using the History Explorer.

Changing the History Date



These buttons and panel on the History window toolbar allow direct changing of the History date.

The left and right arrows move back and forward by one day at a time. Alternatively, a date may be typed directly into the date panel – click the mouse on the date panel so that the date can be typed there. The events for the new date will be loaded into the list below as the date is changed.

Two options on the History pop-up menu offer the option of going directly to Today (the current day) or Yesterday.

History Calendar



This button on the History window toolbar will open the History Calendar window.



.The < and > buttons scroll the month back and forth.

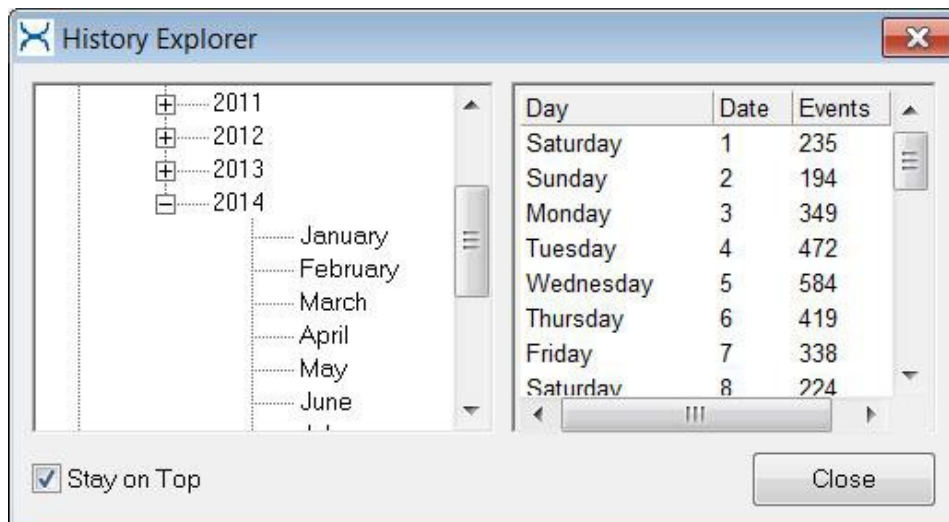
Clicking on a day will set the day of the month along with the month and year that is displayed above. The window will then be closed (there is a set-up option to make it remain open).

Use the close button at the top right corner to close the calendar window.

History Explorer



This button on the History window toolbar will open up the History Explorer window.



The History Explorer provides a convenient method of navigating around the system Histories.

The left-hand panel allows the user to select a History type, year and month, using the standard windows explorer interface. The History is shown in a tree structure. The "+" and "-" symbols indicate whether or not a History or month can be expanded. A "+" symbol will be shown if further expansion is possible – click the symbol to expand the list and the symbol will then change to a "-". When the History Explorer is first opened, most of the list will be "collapsed" and it will be necessary to manually open and close parts of the list to find the dates of interest.

As different Histories are selected in the left-hand panel, the right-hand panel displays each day of the selected month along with the total number of events stored for that day. Clicking on a day in this panel will load it into the main History Window. If the "Stay on Top" box has been checked the History Explorer will remain on top of other windows, allowing the user to further navigate around the Histories until the desired day has been found.

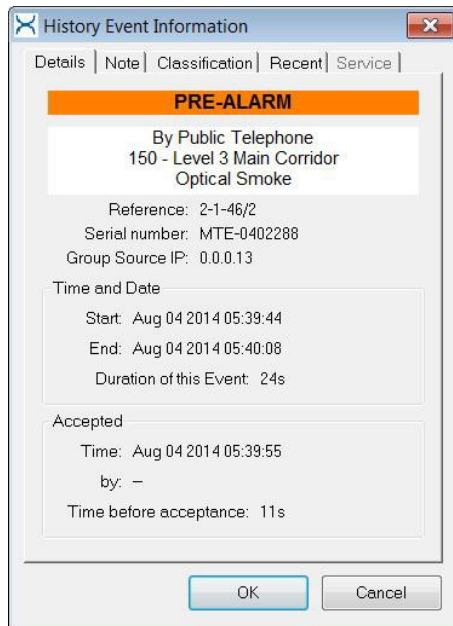
The Close button closes the History Explorer window without changing the date further.

Other History Functions

There are several functions that can be carried out relating to history. These include seeing further detail on alarms, classifying events, and adding notes. These will now be described.

Seeing More History Detail

Further detail of History items may sometimes be available, especially in the Event History. An option on the History pop-up menu calls up the History details window.

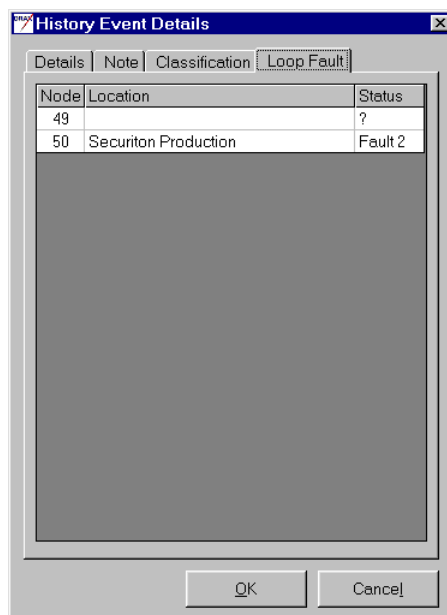


At the top of the dialog window is the Event Type, the Location/description, the numeric reference and the unique serial number.

If this AMX is part of a TCP Groups network the source IP address is shown next.

The panel below this information shows the start time and date of this event. It also shows the end (reset) time and how long the event was present (the duration) before it was reset or cleared.

The bottom panel shows the time and date when this event was accepted, the name of the user who accepted it – and how long the event was present before it was accepted.



Occasionally a “special” type of alarm may have some extra information, and this will be available via a fourth tab on the dialog window. This fourth tab becomes visible only when this extra information is available.

In this example, Loop Fault information is shown – resulting from an alarm caused by a network Manager Detecting a loop break in an external system.

This extra information only appears for a very small number of special alarms.

History Event Classification

Another History pop-up menu option displays the Event Classification. Event classification was described in *Section 2 - Classifying an Alarm*.

If the event has already been classified the classification will be shown here along with the identity of the classifying user and the time and date that it was classified.



The Classify button allows a classification to be assigned or altered.

The classification window will be displayed and, if required, the user can create new classification categories whilst carrying out the classification.

Adding Notes to Events

The history note is accessed using the pop-up menu from any History list.

An event note can be stored in the Event History. It allows the user to add some comments to any event, maybe an explanation of what occurred for example. Notes can also be assigned in the other Histories.

The note is entered or edited with the standard note editor. This is described in *Section 9 - Notes*. Once a note has been added to an event, a note icon will appear against the event in the history list.

Location	Status
Electrical Sub Station No. 1	Acc
Reception Desk	Acc
General Office	Acc

Notes can be added to alarms when viewing either the Event History or the Current Event List.

Generating History Reports

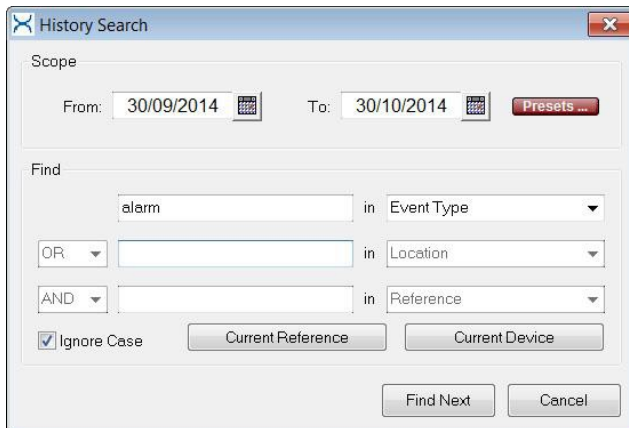
As previously described, the History normally displays just one day's events at a time. History Reports can span a much longer period. They are built using the History Search facility. History Reports can be sorted, viewed, printed and exported to a disk file.

Learning to use the History Search to build History reports is the key to getting the most out of AMX's comprehensive History database. For example, reports may be built that list all security alarms in a given time period, or the number of times a particular input has generated a fault signal, or when a particular user logged on and off. All five Histories can be searched.

Using the History Search



This button on the History window toolbar will open up the History Search window.



The two date input panels at the top of the window set the range of History dates that will be searched. Clicking on the buttons to the right of these panels will display the calendar, so that dates can be set with simple mouse clicks (see *Section 3 - History Calendar*). The red *Presets* button at the top right allows you to select from a pre-defined range of dates – e.g., *The last 30 days*.

Enter the text string(s) to search for in one or more of the three search fields (FIRE and RESET is shown in the search fields in the diagram above). A check box at the bottom left of the window allows the user to decide if the search is to consider the upper- and lower-case letters in the text as different. If this box is checked the searches will not be case sensitive.

“Wild cards” cannot be used in the search text. If the string is prefixed with “^” then the text must start at the beginning of the item being searched – e.g., “^FIRE” will find “FIRE ALARM” but not “DETECTOR FIRE”.

Use the drop-down list boxes on the right of the Find panel to select the History field to be searched. The options available will depend upon the type of History currently being viewed.

Two drop down list boxes on the left of the Find panel allow choosing of a logical operator when searching for more than one text. The options are as follows:

AND Requires that the previous text AND this text must both be found.

OR Requires that either the previous text OR this text could be found.

NOT Requires that the previous text must be found, but the text on this line must NOT be found

The buttons for Current Reference and Current Device will only be visible when the Event History is being searched. The Current Reference button will fill in the search fields with data to find occurrences of the event that was selected in the History window when the Search window was opened. In other words, to find occurrences of a specific alarm or event:

1. Select an occurrence of the event in the History window
2. Click the Search button on the toolbar
3. In the search window click the Current Reference button
4. Fill in the date range at the top of the search window and click Find Next

The Current Device button fulfils the same function as the Current Reference button, except it ignores the input type. This can be useful with multi-state inputs like fire detectors, where searching for Current Device will find alarms, faults, isolations, and other events from the selected device. See History Search Examples for further information on this.

The Find Next button starts the search. The History window will be cleared, and a history report will be built up line by line as each item is found. A progress bar indicates how far the search has progressed is shown during the search and the user may click a cancel button to abort the operation.

An extra list column is added to the left of the History list. This indicates the date of each event.

When a History report has been created it can be sorted by clicking on the list column headers. It may prove necessary to further refine the search by opening the Search window again and adding another text search string. When the search window is reopened the information previously entered in the search field will be remembered.

When a search report is on display the user may switch back and forth between the History Report and the main History using the options on the History pop-up menu. When switching back to the main history the item selected in the History report will be found and the History for that day is loaded. This can sometimes be useful as it allows an event to be viewed “in context” – i.e., with the other alarms events that occurred immediately prior to, and after, it.

To cancel the History report and return to the main History window, simply click on one of the five main History selection buttons on the History window toolbar.



History Reports are limited to 4000 lines¹. Reports of this size may take quite a while to compile, so don't search a wider date range than necessary and be prepared to abort a search and further refine it if it appears to be finding too many items.

History Search Examples

This section contains several History Search examples. Study them to see what the Search routine is capable of.

Refer to *Section 3 - Exporting History Data*, to see the layout of the History search window. In these examples, assume that the Ignore Case box is checked, unless specified otherwise. Do not forget to specify the date search range correctly.

First, here is a simple search in the Event History:

	FIRE	Event Type

This will find all examples of the word FIRE in the Event Type text. Included will be FIRE, FIRE ALARM, FAULTY FIRE PANEL, FIRE RESET, etc.

To refine the search a little further:

	FIRE	Event Type
NOT	RESET	Event Type

Now the FIRE RESET will be ignored, but FIRE, FIRE ALARM, FAULTY FIRE PANEL, will still be found.

To avoid finding FAULTY FIRE PANEL:

	^FIRE	Event Type
NOT	RESET	Event Type

¹ This restriction may be removed in the future

Adding ^ at the beginning will demand that the word FIRE occurs at the beginning of the Event Type text so only FIRE and FIRE ALARM are found. An alternative method of achieving the same thing could have been:

	FIRE	Event Type
NOT	RESET	Event Type
NOT	FAULTY	Event Type

- the first method had the advantage of leaving one of the three search text fields free for further refinement. For example, it might also be desired to look for a fire in a particular location:

	^FIRE	Event Type
NOT	RESET	Event Type
AND	STORES	Location

This will find fires in any location containing the word STORES. However, this may not produce the desired results if there are Stores at more than one remote node. As a fire panel will often occupy one system Node address, the following example:

	^FIRE	Event Type
NOT	RESET	Event Type
AND	27	Node

Including the numeric reference in the search compiles node or zone reports will find fires from the fire panel located at system Node address 27 – and to refine the search still further this:

	^FIRE	Event Type
NOT	RESET	Event Type
AND	^27/5	Reference

This will find fires from zone 5 of the fire panel located at system Node address 27. Note the use of the ^ operator before the 27/5 – if this is omitted the search will also find any fires from zone 27 device 5 of *any* fire panel.

To look for a specific input or input device, finding all events signalled from it:

	27	Node
AND	5	Zone
AND	11	Input

- will find any events from input 11 at zone 5 of loop 27, regardless of the input type.

An alternative method of achieving the same thing is to select an occurrence of the event in the main History window, click the Search button to open the Search window and click the Current Device button which will automatically enter the following:

	^27/5/11	Reference
--	-----------------	------------------

This will find all inputs from a particular device, which could be fires, faults, isolations, etc. To find events of just the type selected in the main History window, click the Current Reference button instead of the Current Device button.

The examples given so far have been for the Event History, but the principles described can equally be applied to the other four Histories. Here are a few examples.

In the Control History:

	MANUAL	Control Type
AND	FRED BLOGGS	Initiating User

- will find all manual controls initiated by FRED BLOGGS. In the Isolation History:

	REMOTE	Isolation Type
AND	^27/5	Reference

- will find all isolations in zone 5 of the fire panel at remote node 27 that were carried out remotely (at the panel).

In the User History:

	FRED BLOGGS	User
--	--------------------	-------------

- will find all times that user FRED BLOGGS logged on and off the system. In the System History:

	accepted	System Event
AND	FRED BLOGGS	User/Details

- will build up a record showing how often FRED BLOGGS has accepted alarms.

Remember that, when a report has been built, it may be printed, or exported to a disk file for further study on another PC.

Printing from the History



This button on the History window toolbar will open up the History Print window.

The History Report Printing window is almost identical to the common printing window, so please refer to the detailed description of this in *Section 9 - Printing* for more information.

Although printing will commonly be of History Reports, events in the main History window can be printed directly without building a report first.

Two separate report formats are available, portrait and landscape. The landscape option incorporates more detail.

History reports are printed with one event per line. Other than by changing the portrait or landscape selection, it is not possible to change the detail included in the report. If the History line has 2 or 3 lines of information in the *Location* field, then all of the lines will be included.

Several set-up options affect the printing of history reports, particularly colour shading used in Event history printing. See *Section 8 - Printing Set-up Options* for further information.



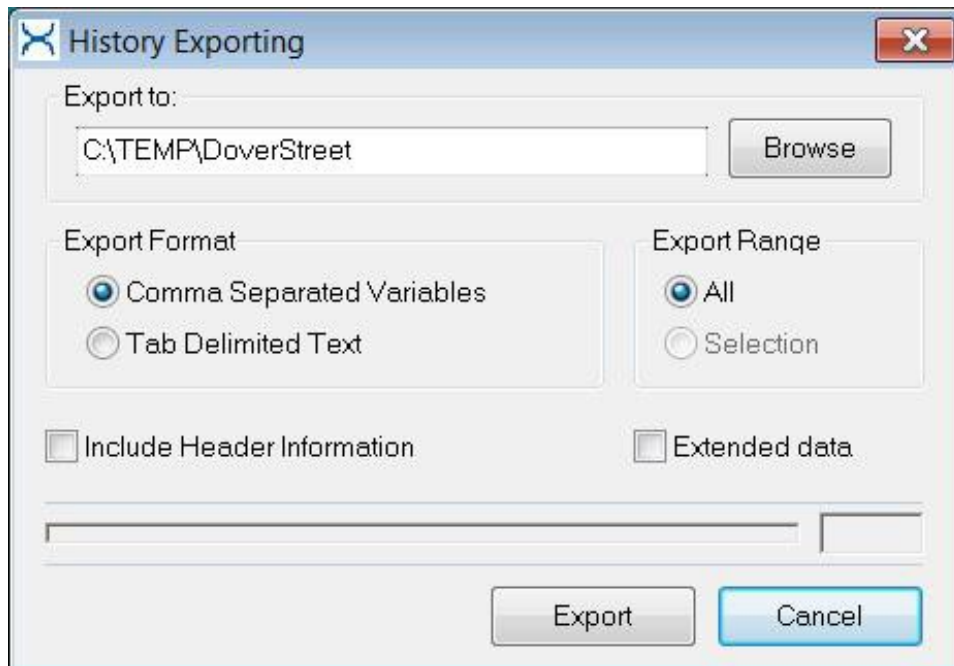
History Print will print a report based upon the list on display in the History window. Use the full range of searching and sorting options to compile a list of items that are to be printed. If necessary, select a block of these items using the mouse.

Pre-Defined History Reports

There are pre-defined (system) History Reports available from the Management window – also user defined History Reports may be saved and re-used.

Please see *Section 11 - Pre-defined History Reports* for further information.

Exporting History Data



History data is exported using the common list export routines. Please see *Section 9 - List Exporting*.

The Extended data option is unique to History Exporting and it saves additional data items over and above the data on display – e.g., the Classification and Classification Time for each event will be included.

The list rows will be saved in the order that they are displayed on the screen, so the lists may be sorted to vary the save order. If Selection is selected in the Export Range panel, then only the rows selected in the list will be exported.

When the Export One Month toolbar button is used then the Export Range option will be replaced with a means of selecting the month and year to be saved.

Analysing History Data



The History Analysis toolbar button offers an option to Analyse Event Frequency.

The first step is to use History Search to build a list of events that you want to analyse – e.g., Faults – and have these listed in the History window. If you want to analyse the events on a particular day, just select the History event view for the desired day.

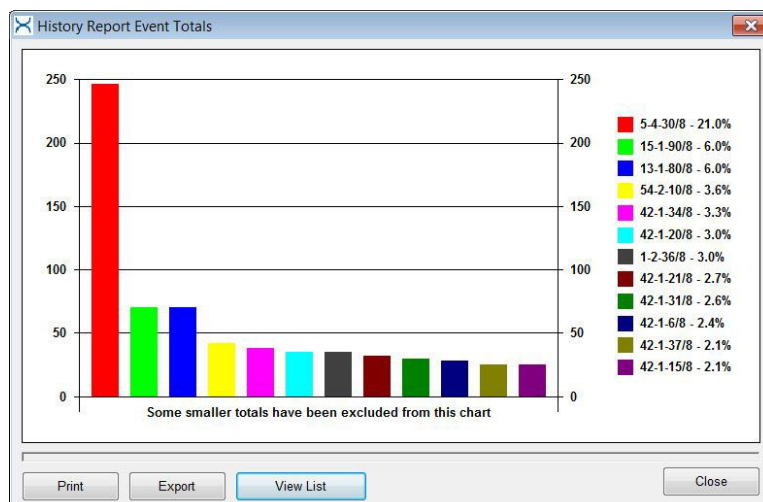
Now click the toolbar button. The Analyse History Event Frequency window allows you to see which events or alarms have occurred – i.e., which inputs have been triggered – most regularly.

Reference	Event Type	Location/Description	Total	%age
5-4-30/8	DEVICE IN FAULT	Pipeway Smoke Detector, 504 - Level 1 Physio...	246	21.0%
15-1-90/8	DEVICE IN FAULT	Radio Interface, 400 - TRUST BOTTLESTORE ...	70	6.0%
13-1-80/8	DEVICE IN FAULT	Main Lab Corridor, 146 - Level 3 Pathology, Zon...	70	6.0%
54-2-10/8	DEVICE IN FAULT	VESDAAHU 3, 444 - ISTC AHU 3 LEVEL 4 GE...	42	3.6%
42-1-34/8	DEVICE IN FAULT	Beacon Level 8 Carpark, 363 - Multistorey Carp...	38	3.3%
42-1-20/8	DEVICE IN FAULT	Beacon Ground Fl Lift Lobby, 356 - Multistorey ...	35	3.0%
1-2-36/8	DEVICE IN FAULT	Store Room 3H34, 550 - Level 3 OPD (G/F) Cor...	35	3.0%
42-1-21/8	DEVICE IN FAULT	Beacon Level 1 Stairwell, 356 - Multistorey Carp...	32	2.7%
42-1-31/8	DEVICE IN FAULT	Beacon Level 7 Carpark, 362 - Multistorey Carp...	30	2.6%
42-1-6/8	DEVICE IN FAULT	Beacon Outside Pump Room, 351 - MSCP Offi...	28	2.4%
42-1-37/8	DEVICE IN FAULT	Beacon Level 9 Carpark, 364 - Multistorey Carp...	25	2.1%
42-1-15/8	DEVICE IN FAULT	Beacon Office Corridor, 351 - MSCP Office & T...	25	2.1%
42-1-28/8	DEVICE IN FAULT	Beacon Level 6 Carpark, 361 - Multistorey Carp...	20	1.7%
54-2-9/8	DEVICE IN FAULT	VESDAAHU 3, 419 - ISTC LVL 5 PLANTROO...	18	1.5%
42-1-25/8	DEVICE IN FAULT	Beacon Level 5 Carpark, 360 - Multistorey Carp...	13	1.1%
42-1-44/8	DEVICE IN FAULT	Beacon Level 11 Carpark, 366 - Multistorey Carp...	11	0.9%
42-1-22/8	DEVICE IN FAULT	Beacon Level 4 Carpark, 359 - Multistorey Carp...	9	0.8%
42-1-9/8	DEVICE IN FAULT	Beacon Male WC, 351 - MSCP Office & Toilets...	8	0.7%
42-1-2/8	DEVICE IN FAULT	Lift Shaft, 352 - Multistorey Carpark Lift Shaft, ...	8	0.7%
42-1-10/8	DEVICE IN FAULT	Beacon WC Corridor, 351 - MSCP Office & Toi...	8	0.7%

Buttons: Print, Export, View Graph, Close

The most frequently activated inputs will be at the top.

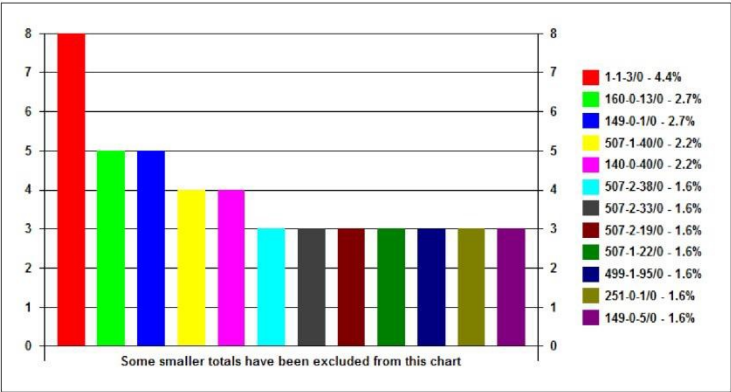
To see the data in graph format, click the button at the bottom – *View Graph*.



In the example, a History Report was first generated using the History Search facility. The search looked for all occurrences of "FAULT" over a three-month period. When the results of the search were displayed in the History window the Analyse History Event Frequency window was called up from the toolbar. As you can see from the picture, the most frequently occurring fault was a 'Fire Device Fault' located at 'Pipeway Smoke Detector'. The Total column on the right of the list window shows how often the event occurred and the Reference column on the left shows the Input Reference for this device.

The Analysis can be printed and exported, of course. In this case the graph will be printed at the top with the list below.

False Alarms March 2006



Reference	Event Type	Location/Description	Total	%age
1-1-3/0	FIRE	ACCESS CORRIDOR	8	4.4%
160-0-13/0	FIRE	CENTRAL WORKSHOP	5	2.7%
149-0-1/0	FIRE	CENTRAL STORES	5	2.7%
507-1-40/0	FIRE	DAY ROOM	4	2.2%
140-0-40/0	FIRE	STAIRCASE 3 EXIT	4	2.2%
507-2-38/0	FIRE	FREEZER ROOM	3	1.6%
507-2-33/0	FIRE	STAIRCASE 2 EXIT	3	1.6%

Section 4

Controlling the Subsystems

About Controls and Actions

AMX offers powerful control facilities. These fall into three broad categories:

1. **Manual controls**, initiated by a User from a general control dialog or a list in the Control window. Manual Controls can also be initiated from Graphic Buttons on the Graphic Pages.
2. **Time controls**, issued automatically by the AMX
3. **Automatic Controls** issued in response to an incoming alarm or event¹



Before a control can be programmed the user must define the destination node's type in the main Nodes set-up window. This is because AMX will not allow controls to be programmed for undefined nodes, as it does not know how the controls should be formatted.

Controls and Actions

It is important to understand the difference between Controls and Actions. A AMX Control consists of a list of one or more individual Actions. Each action will affect one single remote output point – turn on one remote output for example.

Because a Control can consist of many actions (up to 256 at present) a single control can affect many remote outputs. The user who activates the control sees only one control and is unaware of the list of actions that has been set up by the system programmer.

Using a list of actions to make up a Control means that a single control can affect several outputs across any of the different remote networks connected to AMX via Network Managers. When the control is activated, AMX automatically routes each action to the correct Network Manager.

NB. It is not possible to guarantee the operational order of controls sent to different remote networks due to the disparate speeds of these networks.

Control Types

There are several different control types:

Single state controls are **Manual Controls** used where a manual action is required, but there is no opposite toggle of the action. Reset of a fire panel, for example.

Bi-state controls are **Manual Controls** which are used where it is necessary to have a manual control that toggles between two states – turning lights ON and Lights OFF, for example. Note that, due to AMX's flexible use of action lists, the "ON" and "OFF" states of the controls do not have to be sent to the same output(s) – or even to the same network!

Time Controls are activated automatically by the system. AMX uses an 8-day timer: Monday to Sunday – and Holidays. Time controls can be programmed with one-minute accuracy and there are four ON times and four OFF times available for each control. Time Controls are a type of bi-state control as they have two activations: ON and OFF. A User can manually initiate time controls using the activation buttons on the Control window toolbar.

¹ Automatic Controls may not be available in some versions of AMX

Automatic Controls are activated automatically when an event is received at AMX. This is a powerful feature of AMX that allows cross-network programming. Auto-controls are another type of bi-state control as they have two activations: ON when the event is received at AMX and OFF when the event is reset. However, if actions are only required when the alarm occurs, with no actions upon alarm reset, the “off” action list is left empty.

Isolation controls are a type of **Manual Control** that provides quick isolation of fire detectors or zones from a graphic map. See *Section 2 - Isolating and Disabling Devices*.

Control boxes are also a type of **Manual Control** and are used from graphics pages to provide quick access to predefined controls. See *Section 2 - Fire and Isolation Control Boxes*.

Control buttons are a type of manual control using graphic buttons that can be placed onto Graphic pages. See *Section 7 - Graphic Buttons*.

The Isolation Controls and Control boxes usually consist of a single action, but the other controls may be a list of up to 256 separated actions, automatically directed to any of the remote networks connected to the AMX.

Organising the Controls into Lists

Manual and Time controls are organised into separate lists in the Control window – see *Section 4 - Control Window*.

Not only are there separate lists for time and manual controls, but the user may also create any number of sub-lists or “sub-categories”. By organising the controls into lists in this manner the user can keep controls of a particular type – or controls affecting a particular remote area – together.

Furthermore, it is possible for a manual control list to be called up by a user double-clicking on a symbol on a graphics page. Then the Manual Control List box will be displayed, allowing the user to select and initiate any control from the list.

How Node Profiles Affect Controls

Because AMX is a multi-network system, it needs to know what commands can be sent to each remote node. This is accomplished automatically by the Node Profiles. Drax creates the node Profiles, and they describe the capability of each remote node type. The user or system programmer does not need to know any detail about these. All that is necessary is to set the Node type when adding nodes to the system in AMX’s Network Nodes window.



If a node does not have a node type assigned in the Network Window, then AMX will not allow any controls to be programmed for the node.

Types of Action

As previously described, Node Profiles tell AMX which action commands can be sent to each different Node type. Command names are descriptive and, where possible, the same terminology is used in different node types.

For example, the command “Silence Alarms” will normally look the same for any type of fire panel interface.

In some networks the full range of Action commands will be available via the AMX Network Manager. Other network interfaces may be more limited and may not allow AMX access to all possible commands.



Some control actions may not be available under all circumstances. For example, isolation actions are not normally available as automatic controls and some advanced control types are only available to users with an Engineer's password.

Local and Remote Actions

The list of actions that comprised a control may consist of both local and remote actions. Local actions are carried out on the AMX itself. Remote actions are carried out on the external connected system(s).

Power of the Controls

AMX controls are very powerful. The controls can span more than one network and carry out a wide range of actions. For example, it would be possible to set up a single Time Control to isolate one or more devices connected via a fire panel connected via a SMaRT Watch module and isolate one or more devices connected directly to a different fire alarm system via a separate Network Manager. This Time Control could have up to four ON and OFF operations per day – or it could switch at the system wide day/night times.

Another example would be to use a single Graphic Control button to send silence alarms to fire panels from three different manufacturers with just one mouse click.

Real-time Status

The AMX software does not display real time status of controlled outputs. This is because single controls can affect many outputs so there is no easy indication of the output status.

However, it is possible to feed back the status of some controlled equipment as a non-alarm signal that uses a graphical symbol to indicate the status of that equipment¹.

Conditional Controls

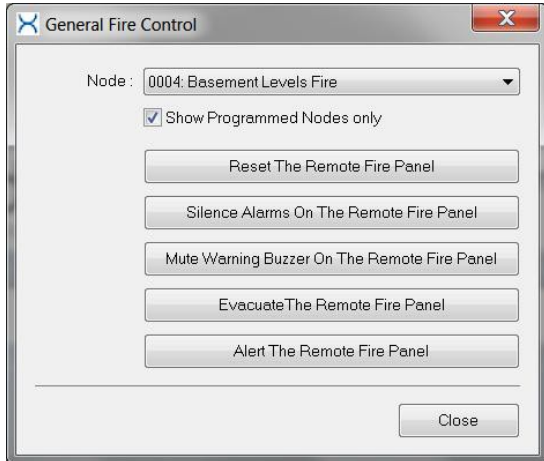
Macros, conditional or logic controls (AND, NOR, etc) are not implemented in the current issues of AMX software.

¹ This depends very much upon the capabilities of the remote system and its interface to AMX

General Control Windows

Several General Control Dialogs are available via the Management Menu. To access these control dialogs a User must have Manager level of access and permission in their User Profile.

General Fire Window

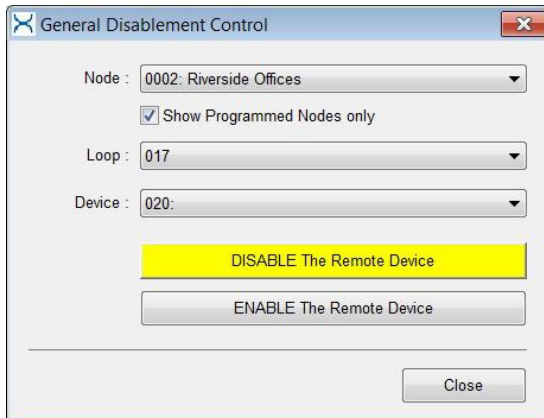


The buttons enabled in this dialog will depend upon the external system's capabilities as defined in the Node Profile.

An Evacuate warning may be given, depending upon a setup option.

This dialog will be available only if the option to enable it is checked on the Control tab of the main Set Up window.

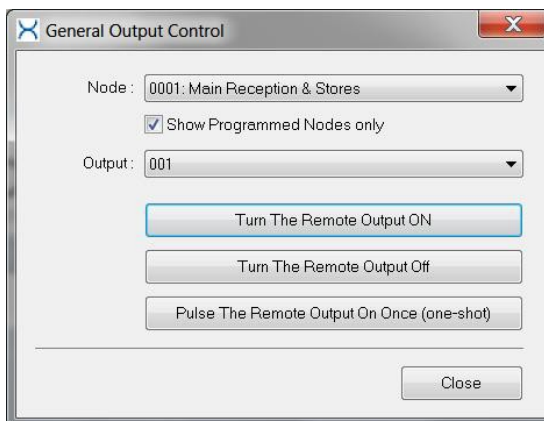
General Disablement/Isolation Window



The buttons enabled in this dialog will depend upon the external system's capabilities as defined in the Node Profile.

This dialog will be available only if the option to enable it is checked on the Control tab of the main Set Up window.

General Output Control Window



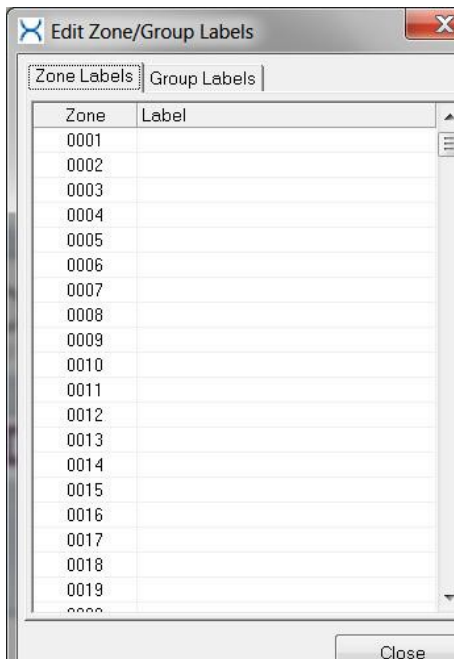
The buttons enabled in this dialog will depend upon the external system's capabilities as defined in the Node Profile.

This dialog will be available only if the option to enable it is checked on the Control tab of the main Set Up window.

General Zone/Group Disablement Window



This dialog will be available only if the option to enable it is checked on the Control tab of the main Set Up window.

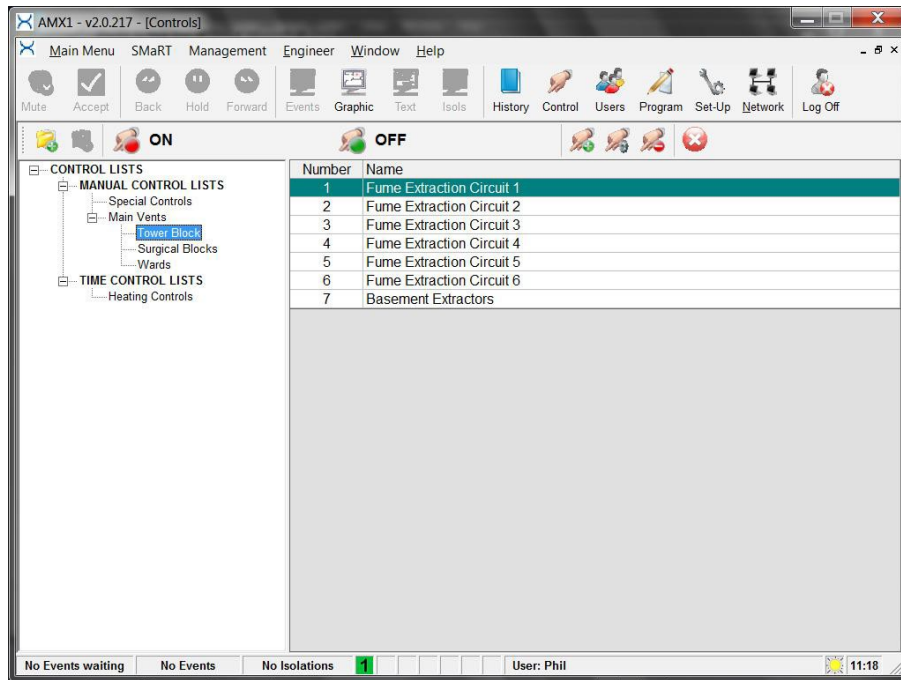


The Edit Labels button allows the programmer to assign meaningful names to the Groups and Zones

Control Window



This button on the Main toolbar will open up the Control window, from where controls may be managed and initiated.



Manual and Time controls may be managed from the Controls window. Graphical Controls – isolation boxes and control boxes – are configured when the graphics page is configured – see *Section 7 - Graphic Page Configuration*.

The main Control window is split into three areas: the toolbar at the top, the Control Explorer on the left-hand side and the Control List on the right. (Control Lists should not be confused with Action Lists).

When a category is selected in the explorer on the left, a list of controls in the selected category will be shown on the right.

Dragging the splitter-bar between Control Explorer and the Control List with the mouse will move the division between them.

The buttons on the control window toolbar include:

Button	Function	See Section
	Adds a category to the Control Explorer	<i>Section 4 - Control Explorer</i>
	Deletes a category from the Control Explorer	<i>Section 4 - Control Explorer</i>
	Activates a control (ON)	<i>Section 4 - Manually Initiating Controls</i>
	De-activates a control (OFF)	<i>Section 4 - Manually Initiating Controls</i>
	Adds a Control to the current category	<i>Section 4 - Defining Controls</i>



Edits the currently selected Control



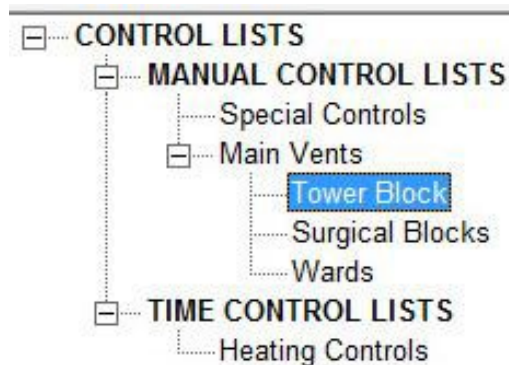
Deletes the currently selected Control



Closes the Control window

Some of these buttons may be unavailable if the user does not have permission to use the functions set in their User Profile.

Control Explorer



The Control Explorer on the left side of the Control window allows the user to create, organise and select Control Lists.

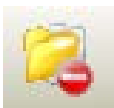
Clicking on the Control Explorer with the right mouse button offers an option of using a large font for the explorer instead of the default small font.

Clicking on an explorer node with the left mouse button selects the list and loads it into the right hand side of the window. Clicking on the node a second time allows the list name to be edited.

The explorer shows all the control lists. The main explorer categories shown in capital letters – CONTROLS, MANUAL and TIME – are fixed and cannot be altered or deleted. Some versions of AMX may have additional root categories.



Lists can be created and deleted as required, using the Add Category and Delete Category buttons on the main toolbar.



The Delete Category function will not be available if the currently selected category's list is not empty.

Using the procedure previously described, list names can be edited after the list has been added.

Manually Initiating Controls

When a control is selected in the list at the right of the control window, the activation buttons on the toolbar will be enabled.



Some controls have two buttons (for turning things on and off) and others may have only one. The legend next to the button's icon depends upon the control's programming. In the example above the legends are START and STOP, but they could be ON and OFF, or something else.

The selected control can be initiated by clicking on these buttons. Both Manual Controls and Time controls can be initiated in this manner. All the actions in the Control's action list will be automatically vectored to the remote subsystems or, in the case of local actions, carried out on the AMX itself. AMX will look at each action and vector it to the correct Network Manager. Then the individual Network Managers will take care of sending the actions to the remote locations.

Manual Control Lists

When the user clicks on a Manual Control category in the Control Explorer all controls in that category will be loaded into the control list on the right of the window.

The columns displayed in the Manual Control list include:

Number	A simple numeric reference
Name	The name of the control as programmed in the Control Editor.

The Manual Control list cannot be sorted, but the order of items in the list can be organised using Cut and Paste.

Time Control Lists

When the user clicks on a Time Control category in the Control Explorer all controls in that Time Control category will be loaded into the control list on the right of the window.

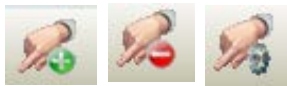
The columns displayed in the Time Control list include:

Number	A simple numeric reference
Name	The name of the control as programmed in the Control Editor.
ON1 to OFF4	Four ON Times and four OFF times, displayed in 24-hour format – e.g., as 17:35. A blank column indicates that no time has been set. It is not necessary to program all the times.

Days	A key indicating which days of the week the time control will be automatically activated –	
	S = Sunday	T = Thursday
	M = Monday	F = Friday
	T = Tuesday	S = Saturday
	W = Wednesday	H = Holiday

The Manual Control list cannot be sorted, but the order of items in the list can be organised using Cut and Paste.

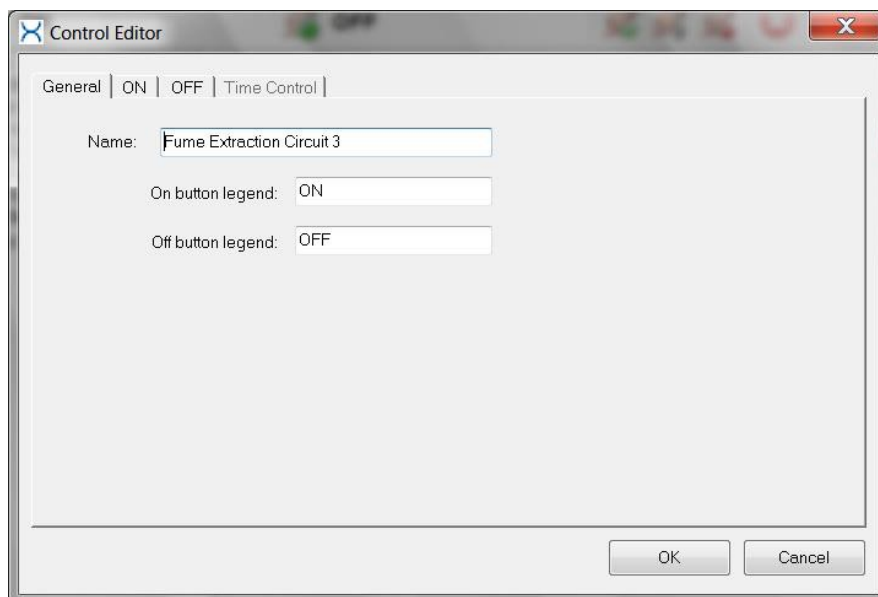
Defining Controls



Three buttons allow controls to be added edited and deleted from the current category's list. The first two – the Add and Edit buttons – call up the Control Editor window.

Control Editor

Setting up the list of actions for a control is done via the Control Editor.



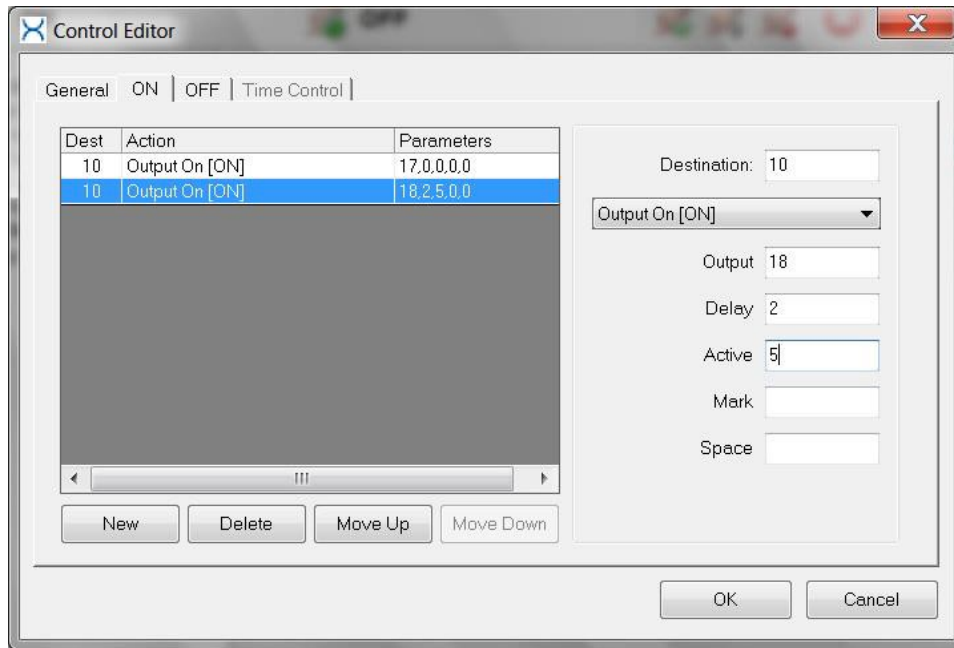
The Name text entry panel is the name of the control, as it will appear in the control list on the right of the main Control Window.

Below this are two legends for the activate and de-activate buttons that are shown on the main Control Window toolbar. If a control is single- state and does not have an opposite action – e.g., reset of external equipment – it should be programmed for the ON button and the OFF button legend should be left blank.



If either the On or OFF legend is left blank the corresponding control button on the control window toolbar will be disabled.

There are separate lists of actions for the ON and OFF activation of a control. These are selected by clicking the ON and OFF tabs in the Control Editor window. The ON tab selects the list of actions for when the control is turned ON. If a control is only single-state and does not have an opposite action – e.g., reset of external equipment – the actions should be programmed on this tab and the list on the OFF tab should be left blank.



The action list editor shown above allows the programmer to edit the list of actions for a control. There are usually separate lists for the ON and OFF states of a control.

This editor is common for Time Controls, Manual Controls and Automatic Controls.

The editor consists of two main areas: the action list on the left and the data entry area on the right. Buttons below the action list allow actions to be added, deleted and organised. These two areas will now be considered in more detail.

To add a new action to the Action List:

Click the New button.

Enter the destination node address in the Destination panel on the right. If you want to create Local Actions on the AMX then enter the destination address 0.

Select an action in the drop-down list box of actions.

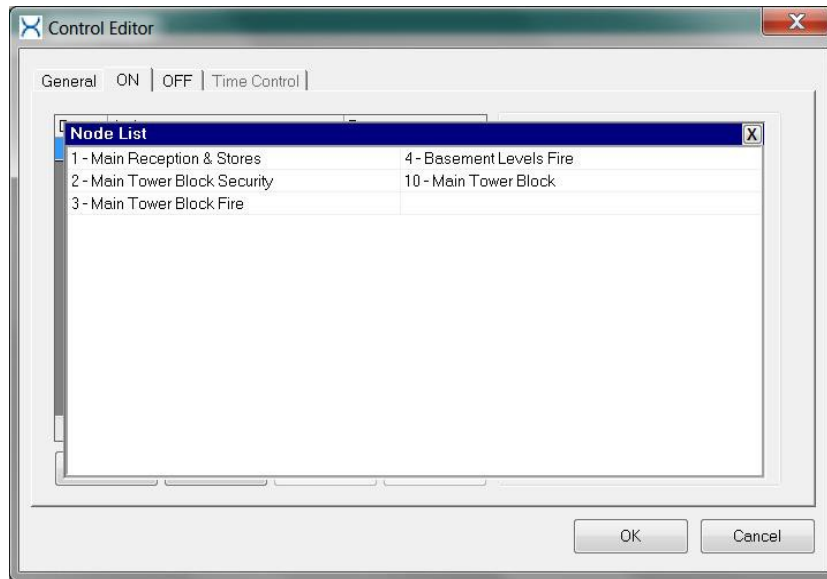
Type the requested parameters into the parameter entry panels.



The actions available will depend upon the Node Profile assigned to the node at the destination address specified in the previous step. *No Node Profile – No Actions available.*

Existing action list entries may be edited by selecting them in the list on the left and then their parameters will be loaded into the data entry area on the right. If more than one action is selected simultaneously the data entry area will be disabled.

To delete an action, select it and then click the Delete button. The action will be deleted without further warning.



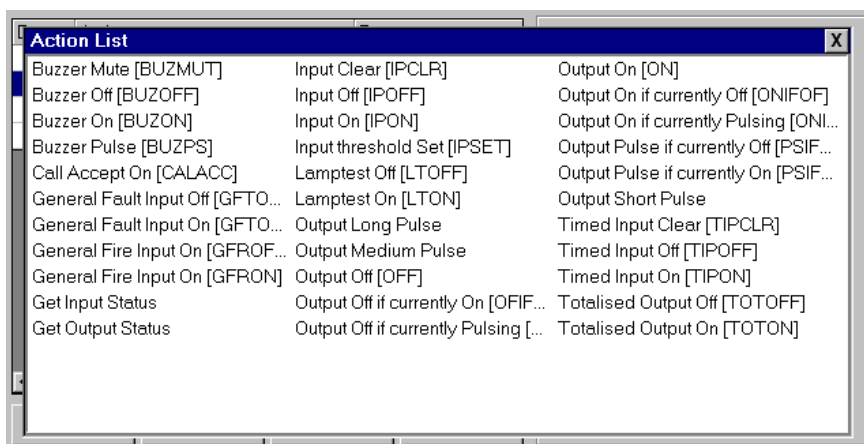
Once the destination node address has been entered, the drop-down list box below will load the actions available for this node. These will be different for the various types of node (This depends upon the Node Profile – please note that the generic node types have no control action capabilities). As the programmer selects an action type the input fields will prompt for the correct parameters.

NB. Some actions are available only to engineers and others may not be available when editing automatic controls.

Select an action in the drop-down list box of actions. As an action is selected the parameter input panels below will change to show the parameters required for the type of action selected. Different actions require different parameters, and the data entry panel captions change to reflect this.



Pressing Ctrl-A will call up a convenient Action Selection Window, which might be easier to use when a lot of different action types are available.



Enter the parameters. The action list will be updated automatically. If an out-of-range parameter is entered, it will be forced back into range when the focus is moved to another field on the screen.

Hint: If the cursor is allowed to hover over the parameter entry panels, a ToolTip showing the maximum and minimum values will appear.

Hint: Position the cursor in one of the parameter text entry fields on the right-hand side of the action list editor. Pressing the Alt key in conjunction with either the up Arrow or the down Arrow will now scroll the left-hand action list to the next or previous action whilst keeping the focus in the text field. This is very useful if the programmer wishes to work down a list of actions, altering the same parameter in each one. For example, the output number in a whole list of actions could be changed quite quickly like this.

Closing the window containing the action list editor will save the data. If a Cancel button or Escape key is used to close the window, changes to the list will be discarded.



The AMX is designed to be usable by relatively unskilled programmers and it does not require any detailed programming knowledge to use it. However, the programmer must understand the system or else they will send commands that wreak havoc with the external network(s). Because of this, some advanced controls will only be available when an engineer is logged on to the system. Also, some controls are not available when editing auto-controls.

Additional Editing for Time Controls

The screenshot shows the 'Control Editor' dialog box with the 'Time Control' tab selected. The dialog has four tabs: 'General', 'ON', 'OFF', and 'Time Control'. The 'Time Control' tab contains two main sections: 'Times' and 'Time Control Type'.

Times Section: A table with two columns, 'ON' and 'OFF', and four rows. The first row shows '09:00' in the ON column and '12:30' in the OFF column. The second row shows '16:30' in the ON column and '18:00' in the OFF column. The third and fourth rows are empty.

	ON	OFF
1:	09:00	12:30
2:	16:30	18:00
3:		
4:		

Time Control Type Section: Three radio buttons: 'Weekly' (selected), 'Monthly', and 'Yearly'.

Days Section: A list of days with checkboxes: Sunday (checked), Monday, Tuesday, Wednesday, Thursday, Friday, Saturday (checked), and Holiday (checked). There are 'All' and 'None' buttons below the list.

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

When editing Time Controls a fourth tab will appear in the Control Editor dialog window.

Each Time Control can have four ON times and four OFF times. The times are entered as HH:MM using the 24-hour clock. Time fields can be left blank. Controls will only be initiated at these times on the days specified in the right-hand panel.

Check the days that operation is required. AMX has a separate setting for Holidays, which overrides the day of the week settings. Holidays are set-up on the Holidays tab of the set-up window – see *Section 8 - Day/Night & Holiday Set-up (Times)*.

Sometimes it is required to have a Time control that operates at one set of times on weekdays and another set of times on weekends and holidays (for example). This is easily achieved by creating two Time Controls, one with the weekdays enabled and the other with weekends and holidays enabled. To do this, program the first Time Control and make sure all its actions are correct. Then use Copy and Paste in the main Control list to create a duplicate. Finally, edit the times for the duplicate. It is also a good idea to rename the two controls so that they are readily identified.



Time controls may be sent to the remote subsystems anything up to 30 seconds after the time programmed in the time fields.

A second option is to use a monthly control:

The screenshot shows the 'Control Editor' window with the 'Time Control' tab selected. The 'Time Control Type' section has three radio buttons: 'Weekly', 'Monthly' (which is selected), and 'Yearly'. Below this, the 'Day of the Month' section contains a label 'The Day of the Month:' followed by a dropdown menu showing the number '1'. On the left, the 'Times' section has a table with columns 'ON' and 'OFF' and four rows. The first row is filled with '09:00' and '18:00', while the others are empty. At the bottom are 'OK' and 'Cancel' buttons.

When you specify the day of the month be careful that you choose a day that exists every month. For example, not all months have the 31st.

The third option is to use the Yearly option:

This screenshot shows the 'Control Editor' window with the 'Time Control' tab selected. In the 'Time Control Type' section, the 'Yearly' radio button is selected. The 'Yearly Date' section below it has two dropdown menus: 'The Day of the Month:' set to '1' and 'The Month:' set to 'January'. The 'Times' table on the left is identical to the previous screenshot, with the first row containing '09:00' and '18:00'. 'OK' and 'Cancel' buttons are at the bottom.

Be careful not to choose Feb 29th - this will be actioned only every four years!

Quarterly, bi-monthly, and bi-annual tests can also be set up using the yearly option. You will need to have a yearly entry in the time control list for each date that you wish the tests to take place. For example, if you want the test to take place every three months on the first day of the quarter you must program four entries in the time control list - for January 1st, April 1st, etc. You can copy and paste controls in the Control window list, so it is quite easy to set-up the Jan 1st control, copy it three times, and edit the date.

On 4	Off 4	Operation
		The 3rd of each month
		The 3rd of each month
		The 3rd of each month
		The 3rd of each month
		September 9th each year

You will notice that the time control list shows when the controls are to be actioned at the right-hand side of the Control window.

Weekly controls will have an abbreviation showing which days of the week they are operational - e.g., MTW---SH (Monday, Tuesday, etc).

On button legend:

Off button legend:

☒ Time Control Enabled

☐ Time Control Disabled

You can temporarily disable time controls by using the disabled radio button on the first tab of the control editor dialog.

When controls are disabled they will be highlighted in yellow in the Control list, as shown below.

 STOP		   								
No.	Name	On 1	Off 1	On 2	Off 2	On 3	Off 3	On 4	Off 4	Operation
1	Basement Heating	09:00	18:00							Disabled
2	Basement heating	09:00	12:30	16:30	18:00					S-----SH each week
3	Basement Extractor Fans	09:00	12:30	16:30	18:00					S-----SH each week
4	Main Tower heating	09:00	12:30	16:30	18:00					S-----SH each week
5	Finance Office heating	09:00	12:30	16:30	18:00					S-----SH each week

It may be desirable to have a confirmation that a scheduled control has been sent to the panel. There is a set-up option to log the time controls to the Control History (see the Controls tab in the main set-up window to enable this). If this option is checked then the commencement of each test will be recorded.

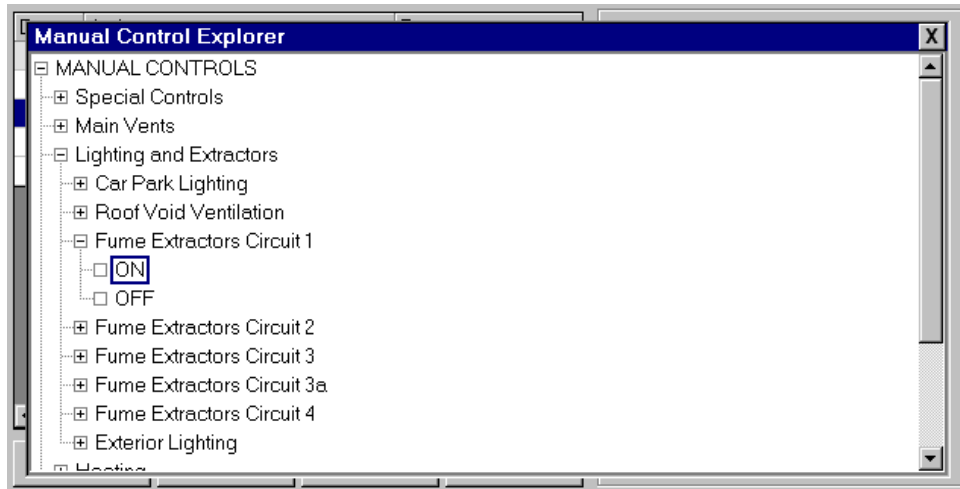
Time	Control Type	Description	Initiated By	Serial No.
10:11:00	Time Control: ON	2nd Test	Automatic initiation	MTC-0002045
10:13:01	Time Control: ON	3rd Test	Automatic initiation	MTC-0002046
10:15:06	Time Control: ON	5th Test	Automatic initiation	MTC-0002047
10:17:03	Time Control: ON	6th Test	Automatic initiation	MTC-0002048
10:19:07	Time Control: ON	7th Test	Automatic initiation	MTC-0002049
10:32:02	Time Control: ON	9th Test	Automatic initiation	MTC-0002050
10:33:00	Time Control: ON	10th Test	Automatic initiation	MTC-0002051
10:51:05	Time Control: ON	14th Test	Automatic initiation	MTC-0002052
11:17:00	Time Control: ON	15th Test	Automatic initiation	MTC-0002053

Note that this will record only that the control was sent to the remote equipment - it does not confirm that the control was acted upon.

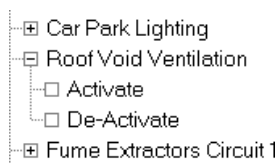
Additional Editing for Automatic Controls

When editing an automatic controls, it is possible to “call” one of the existing Manual Controls as a “subroutine”. Automatic controls may be copied to many inputs, which can make it difficult to implement global changes to the control. The major advantage of using a subroutine in an automatic control is that it is much easier to change the common action list in the Manual Control than to redefine the action list for many different inputs if a change is required at a later date.

Inserting a Manual Control into an automatic control as a subroutine is implemented via an option on the action list pop-up menu. When this option is selected a Manual Control selection dialog will be shown.



The dialog uses a standard explorer style. Nodes are expanded or collapsed by clicking on them. Selection of the Manual Control that is to be inserted is accomplished by double-clicking on it. Please note that a choice must be made between the “on” or “off” state of the control as shown in the example above.



Of course, some Manual Controls may have different names for the on and off states – a control for Ventilation could have “Activate” and “De-Activate”, as in this example.

When the Manual Control has been inserted it will appear in the list as shown in this example.

The highlighted action is the Manual Control that will be called as a subroutine.

Dest	Action	Parameters
	Automatic Controls for major fire	
10	Output On [ON]	44,0,0,0,0
4	Evacuate Network	
MC:	Fume Extraction Circuit 5	ON
10	Output Medium Pulse	17

At present it is possible to use a manual control as a subroutine only in the automatic controls.

NB. Some actions may not be available when editing automatic controls.

Section 5**Managing the Users****About Users**

People who operate the AMX are referred to as Users. AMX may have up to 2000 Users, each with their own personal password and an individual

Profile that defines which functions of the AMX are available to them.

Users may change their own password, but they cannot change their own profile.

AMX programmers are also users, and they will have their own User Profile which will normally give access to more areas than a standard user can access.

For each User, the following parameters may be configured:

Password	A unique password of between 4 and 16 characters
User Identity	A name or identity for the User – plain text of up to 32 characters. The user identity of the User currently logged on to the AMX is shown at bottom right of the Main status bar. It is also recorded when the user makes programming changes or performs certain actions on the system.
Access Level	The user's basic access level: Operator, Manager or Engineer. The access level sets a basic access hierarchy, with the Operator at the bottom. Some advanced AMX features may not be available to operators or managers.
User Profile	Individual access permissions for specific areas of the AMX program
Status	Individual users may have their access rights enabled or disabled (suspended). This facility allows a user's access rights to be fully suspended without deleting their profile from the system.

There are three basic levels of user: the Operator, the Manager and the Engineer. In addition to these three basic access levels, a User Profile for each user defines exactly which parts of the program and functions they can access.

The User Profile for any user may be printed from the User list right-click pop-up menu in the User window.

Operator

An Operator is someone who requires basic features of the system. This will normally include muting the sound on alarm, accepting the alarm, and scrolling through existing alarms.

Normally, operator level access would be given to a user who will access the system for day-to-day operation, but who will not be required (or allowed) to alter the AMX's configuration and set-up.

Manager

A Manager is someone who uses advanced features of the system, including programming of the text pages and both programming and initiating Controls.

When a user with a manager's level of access is logged onto the system an additional Manager menu becomes visible on the main menu bar.

Users with Manager access normally will be the people responsible for system configuration, making backups, creating controls, managing Users, etc. In normal circumstances, this will often be the highest level of access given to an on-site user. A Manager's password allows access to almost every feature of the AMX, depending upon any restrictions created in the individual's User Profile.

Engineer

An Engineer is someone who can have access to all features of the system. Some special features are restricted to Engineers only and these include stopping the system and programming certain types of control.

When a user with an Engineer's level of access is logged onto the system an additional Engineer menu becomes visible on the main menu bar. The manager's menu is also available to users with Engineer access.

The Engineer level of access is normally reserved for technicians responsible for the installation, commissioning and maintenance of the AMX. Under some circumstances an Engineer's password may be made available to an on-site user, with the proviso that they understand the implications of using the few additional facilities that are available to Engineers.



Engineer access to the AMX allows the user to carry out some functions that may interfere with the normal operation of the system.

Recording User Actions

If required, a single User Profile and password may be used for a group of people – e.g., “The Service Department” – although there are disadvantages to this approach. One of the reasons this is disadvantageous is because the AMX records many of the actions performed by a user.

When a user accepts an alarm, the time and date of the acceptance and the user's identity (name) is stored in both the Current Event List and the History.

If a user initiates a Manual control, the users' identity is stored in the Control History so there is a record of the action. Similarly, isolations made by a user are stored in the Isolation History.

When a user creates a new item – a control, a text page, even a new user – this action is recorded by the AMX. The time and date is recorded along with the user identity of the user who created the item. AMX also remembers the four most recent changes to each item. These creation and change times can normally be viewed via The Properties Window, which is available on many pop-up menus when an item is selected in a list – see *Section 9 - Properties Window*.

As a user logs off the system, a summary of their actions is stored in the User History. This will consist of entries like “9 Events accepted”, “3 Inputs programmed”, “4 Events Classified”, etc.

User Window



This button on the Main toolbar will open up the User window, from where the users can be managed.

Number	User Identity	Access Level	Status	Created	Last On System
1	System Configuration Password	Engineer	Enabled ✓	Jun 26 2013 11:06:07	
2	Phil	Engineer	Enabled ✓	Jun 26 2013 11:07:16	
3	James Macpherson	Engineer	Enabled ✓	Nov 04 2014 11:31:10	
4	Chris Brown	Manager	Enabled ✓	Nov 04 2014 11:31:56	
5	Chris Wilkinson	Operator	Suspended ✗	Nov 04 2014 11:32:12	

The buttons on the User window toolbar include:

Button	Function	See Section
	Adds a new User	Section 5 - Adding and Deleting Users
	Edits the User Profile and other properties for the user currently selected in the user window list.	Section 5 - User Profile
	Deletes the currently selected user. Confirmation will be requested.	Section 5 - Adding and Deleting Users
	Allows the password to be edited for the currently selected user. A user often may edit their own password ¹ .	Section 5 - Adding and Deleting Users
	Toggles suspension status of the currently selected user(s)	Section 5 - Suspending Users
	Closes the User window	

Some of the buttons may be unavailable if the user does not have permission to use these functions set in their User Profile.

¹ A User Profile Option enables editing of a user’s own password, allowing this facility to be controlled for individual users

The columns displayed in the User window list include:

Number	A simple numeric reference
User Identity	A 32-character name or text phrase which will be used to identify the user in AMX. Double-clicking on this panel allows in-cell editing of the User Identity ¹
Access Level	The user's basic access level: Operator, Manager or Engineer
Status	Indicates whether the user's access rights have been suspended. Suspension may be toggled by double-clicking on this panel ²
Created	The date and time when this user was first added to the system.
Last On System	The Last Time that this user logged on to the AMX.

Changing the Password

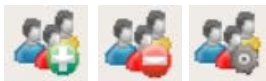


This button on the User window toolbar will open up the Password Programming dialog window.

In this window a new password can be entered. The characters typed on the keyboard will not be displayed – they will be replaced with a # character.

The password must be entered twice; the second time confirming correct entry

Adding and Deleting Users



Three buttons on the User window toolbar allow users to be added edited and deleted. These buttons will not be available if more than one user is selected in the User list.

¹ If the currently logged on User has permission to program Users

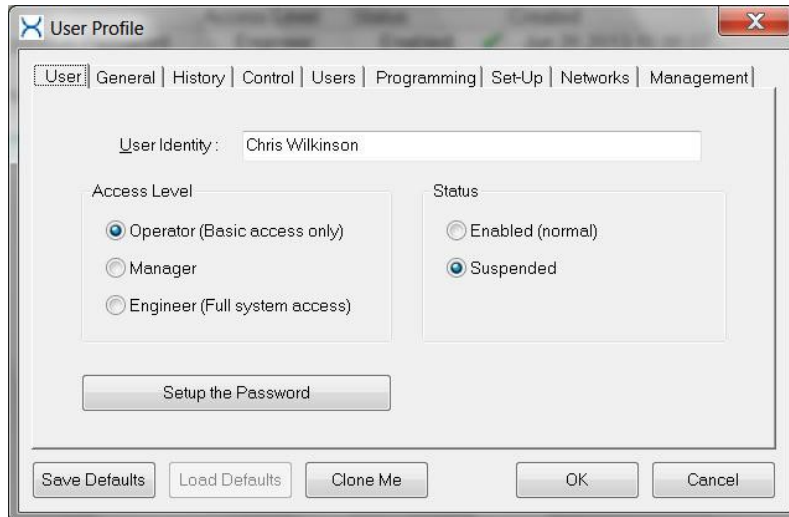
² If the currently logged on User has permission to suspend and re-enable Users

The first two buttons open the User Profile programming window (described next) and the third button will delete the currently selected user after asking for confirmation.

Deleting a user from the system does not delete the records of actions they may have performed in the past.

User Profile

The User Profile window is where the properties for each individual user are set up.



The tabbed dialog window has several tabs. The first of these is where basic information such as the User Identity and basic access level are programmed. The password can also be set from this window.

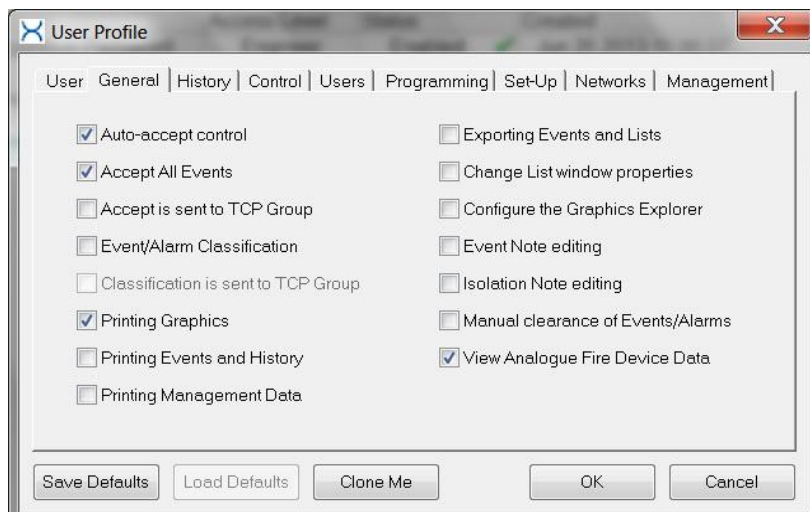
The other tabs select various parts of the User Profile for configuration. These are split into a number of categories, which broadly correspond, with the main sections of the program.

Check boxes enable access to each of the areas of the program:

Access to the various areas and functions of the AMX are enabled when there is a tick in the check box.

There follows some lists of the key areas with explanations and references to where the facilities are described. Use the online help to obtain explanations of options that do not appear in these lists.

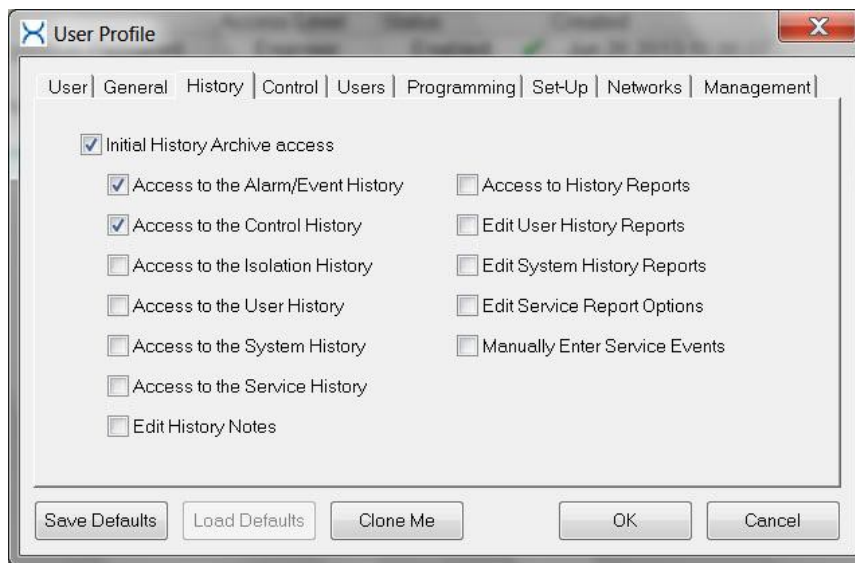
General Access Options



Access Option	Description	See Section
Auto-Accept Control	Allows a user to enable or disable the AMX auto- accept facility. This feature is not normally made available to Operators.	<i>Section 2 - Auto Accept Mode</i>
Accept All Events	This User profile option provides the ability to accept all unaccepted events in one operation. This facility is accessed via the Management Menu.	
Accept is Sent To TCP/IP Groups	When the User accepts an event, the action will also be sent to other PCs in a TCP/IP Group. (This works in conjunction with one of the Event Type attributes.)	
Event Note Editing	Allows the user to edit notes attached to events and alarms. This option allows Notes to be edited from the Current Event List – there is a separate option for editing notes in the History.	<i>Section 2 - Adding a Note to an Alarm</i>
Event/Alarm Classification	Allows the user to classify events. Events may be classified from either the Current Event List, or from the Event History.	<i>Section 2 - Classifying an Alarm</i>
Classification is sent to TCP Groups	Any classifications carried out by this user will be propagated to other PCs in a TCP/IP Group.	
Printing Graphics	Allows the user to print Graphics using the toolbar button in the main graphics window.	
Manual Clearance Of Events & Alarms	Allows the user to manually clear alarms and events from the Current Event List. This feature is not normally made available to Operators.	<i>Section 2 - Manually Clearing an Alarm</i>
Isolation Note Editing	Allows the user to edit a note attached to an isolation in the main isolation list.	<i>Section 9 - Notes</i>
Printing Events	Allows the user to print events and alarms from the History, the Current Event List and the Isolation list.	<i>Section 3 - Printing from the History</i>
Change List Window Properties	Allows a user to alter the appearance of the list windows used in many of the AMX screens.	<i>Section 1 - List Properties Window</i>
Printing Management Data	Allows the user to print various lists from different parts of the program. This access option does not have any effect on the Event, Isolation or History printing. If this is not enabled, the user will not be able to use many of the print facilities that appear in list pop-up menus.	<i>Section 9 - Printing from Lists</i>
Exporting Events And Lists	This setting allows the user to export data from many of the various lists in different parts of the AMX program. Data is exported as tab-delimited text or Comma separated variables (CSV) files.	<i>Section 9 - List Exporting</i>

Configure The Graphics Explorer	This access permission setting allows the user to configure that Graphics Explorer tree that can be accessed from the Graphics page.	<i>Section 2 - Fire and Isolation Control Boxes</i>
Event Note Editing	Allows this user to edit a note attached to events in the Current Event List.	
Isolation Note Editing	Allows this user to edit a note attached to events in the Isolation List.	
Manual Clearance of Events/Alarms	The user can clear (remove) events and alarms using either the pop-up menu in the Current Event List or via the Engineer Menu (if they have Engineer access).	
View Analogue Fire Device data	The user may call up analogue fire device data in the main graphics window.	<i>Section 11 - Analogue Values</i>

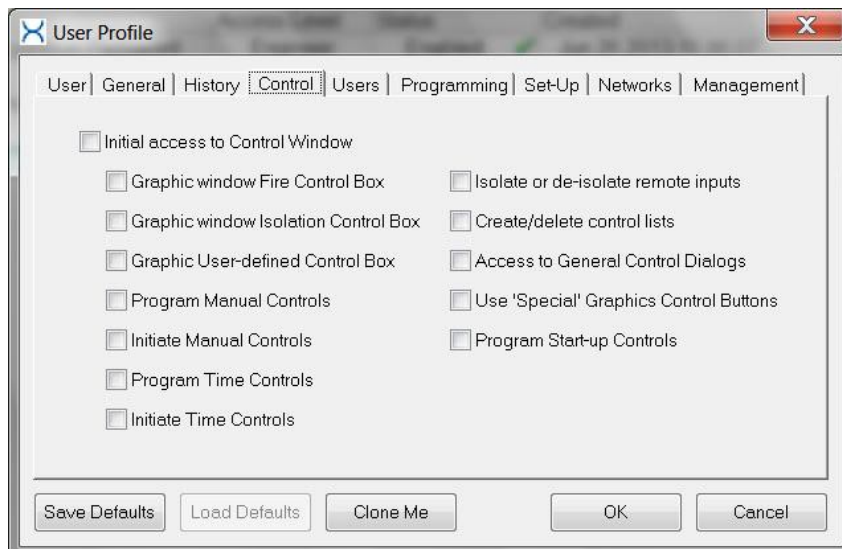
History Access Options



Access Option	Description	See Section
Initial History Archive Access	Allows the user to access the History. If this is not enabled the History button on the Main Screen toolbar and the History Menu on the main menu bar will be disabled or invisible.	<i>Section 3 - History Window</i>
Access To The Event History	Allows the user to access the Event/Alarm History. If this is not selected the Event/Alarm history button on the History window toolbar will be disabled.	<i>Section 3 - Event History</i>
Access To The Control History	Allows the user to access the Control History. If this is not selected the Control history button on the History window toolbar will be disabled.	<i>Section 3 - Control History</i>
Access To The Isolation History	Allows the user to access the Isolation History. If this is not selected the Isolation history button on the History window toolbar will be disabled.	<i>Section 3 - Isolation History</i>
Access To The User History	Allows the user to access the User History. If this is not selected the User history button on the History window toolbar will be disabled.	<i>Section 3 - User History</i>
Access To The System History	Allows the user to access the System History. If this is not selected the system history button on the History window toolbar will be disabled.	<i>Section 3 - System History</i>
Edit History Notes	Allows a user to edit notes attached to events in the history. This option also allows Event/Alarm Notes to be edited from the History, but there is a separate option for editing notes in the Current Event List.	<i>Section 3 - Adding Notes to Events</i>

Access To History Reports	The user can access the pre-defined and user- defined History Reports	<i>Section 3 - Exporting History Data</i>
Edit User History Reports	The user can create, edit and save History Reports	<i>Section 3 - Exploring the History</i>
Edit System History Reports	The user can edit the pre-defined History Reports	<i>Section 3 - Exploring the History</i>
Edit Service History Reports	The user can edit the reports in the optional Service Reporting module.	<i>Section 11 - Service Mode</i>
Manually Enter Service Events	Access to manual entry in the optional Service Reporting module.	<i>Section 11 - Service Mode</i>

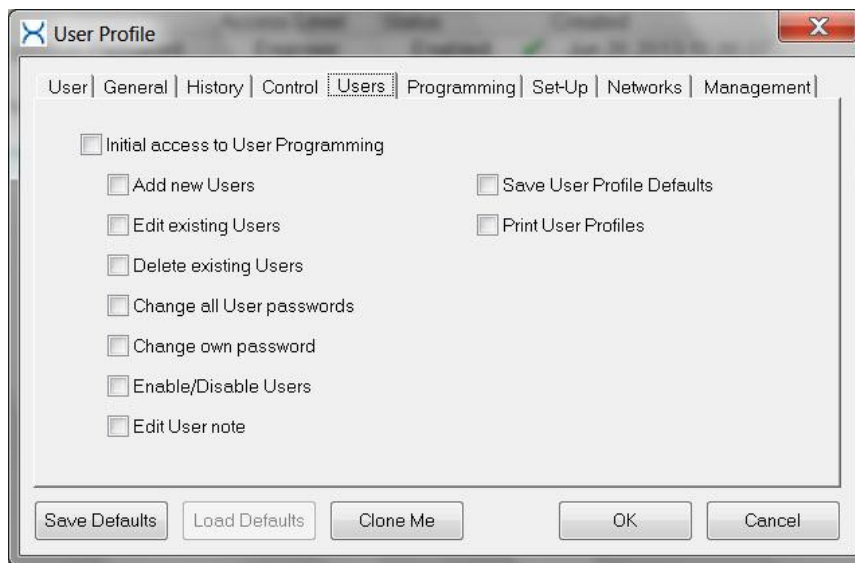
Control Access Options



Access Option	Description	See Section
Initial Access To Controls	Allows the user to access the Control Window. If this is not enabled the Control button on the Main Screen toolbar and the Control Menu on the main menu bar will be disabled or invisible.	<i>Section 4 - Controls and Actions</i>
Graphic Window Fire Control Box	Allows the user to call up and use the fire control box by double clicking on a graphic symbol.	<i>Section 2 - Fire and Isolation Control Boxes</i>

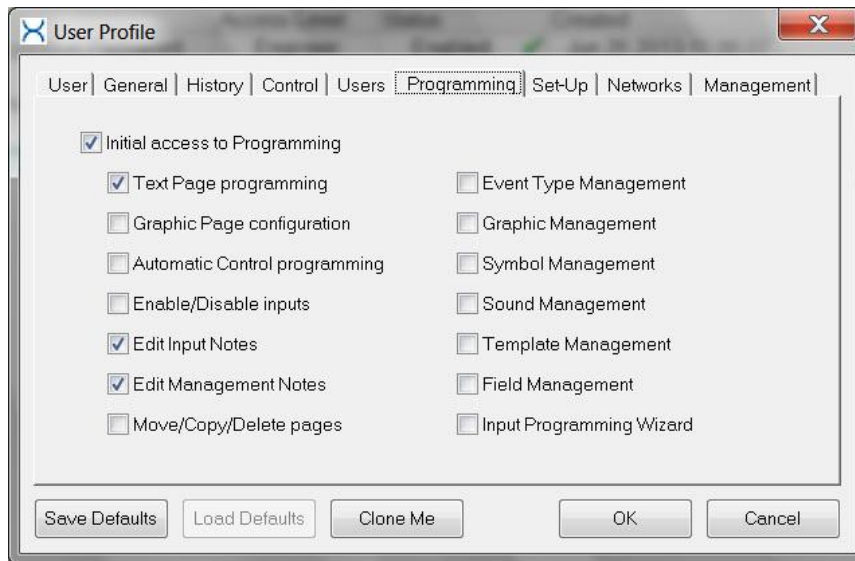
Graphic Window Isolation Control Box	Allows the user to call up and use the isolation control box by double clicking on a graphic symbol.	<i>Section 2 - Fire and Isolation Control Boxes</i>
Graphic User-defined Control Box	Allows the user to call up a user-defined list box by double clicking on a graphic symbol.	<i>Section 2 - The User Defined Control Boxes</i>
Program Manual Controls	Allows the user to create, edit and delete manual controls.	<i>Section 4 - Defining Controls</i>
Initiate Manual Controls	Allows the user to initiate manual controls using the Control Window toolbar buttons or pop-up menu.	<i>Section 4 - Manually Initiating Controls</i>
Program Time Controls	Allows the user to create, edit and delete time controls – and edit the times at which they operate.	<i>Section 4 - Additional Editing for Time Controls</i>
Initiate Time Controls	Allows the user to manually initiate time controls using the Control Window toolbar buttons or pop-up menu.	<i>Section 4 - Manually Initiating Controls</i>
Isolate Or De-Isolate Remote Inputs	Allows the user to isolate or de-isolate inputs in the remote subsystems.	<i>Section 2 - Isolations and Disablements</i>
Create/Delete Control Lists	Allows the user to create, delete and rename control lists.	<i>Section 4 - Control Window</i>
Access General Control Dialogs	The General Control dialogs are on the Management menu so Manager level access will also be needed.	<i>Section 4 - General Control Windows</i>
Use 'Special' Graphics Control Buttons	Allows the user to initiate graphic buttons with 'special permission' attribute.	<i>Section 7 - Graphic Buttons</i>
Program Start-up Controls	Start-up controls are carried out when the AMX program is started	<i>Section 11 - Service Mode</i>

User Management Access Options



Access Option	Description	See Section
Initial Access To User Programming	Allows the user to access the User Programming window. If this is not enabled the User Programming button on the Main Screen toolbar and the User Programming Menu on the main menu bar will be disabled or invisible.	<i>Section 5 - About Users</i>
Add New Users	Allows the user to add new users to the system.	<i>Section 5 - Adding and Deleting Users</i>
Edit Existing Users	Allows the user to edit the user profile for existing users. NB: a user cannot edit their own profile.	<i>Section 5 - User Profile</i>
Delete Existing Users	Allows the user to delete users from the system. All settings for their user profiles will be deleted at the same time.	<i>Section 5 - Adding and Deleting Users</i>
Change All User Passwords	Allows the user to change other users passwords.	<i>Section 5 - Adding and Deleting Users</i>
Change Own Password	Allows the user to change their own password.	<i>Section 5 - Adding and Deleting Users</i>
Enable & Disable Users	Allows the user to enable or disable other users. A user cannot enable or disable themselves.	<i>Section 5 - Suspending Users</i>
Edit User Note	Allows the user to edit a note attached to a user's entry in the User Window list.	<i>Section 9 - Notes</i>
Save User Profile Defaults	The user can save the default settings for each of the three user categories: Operator, Manager and Engineer.	

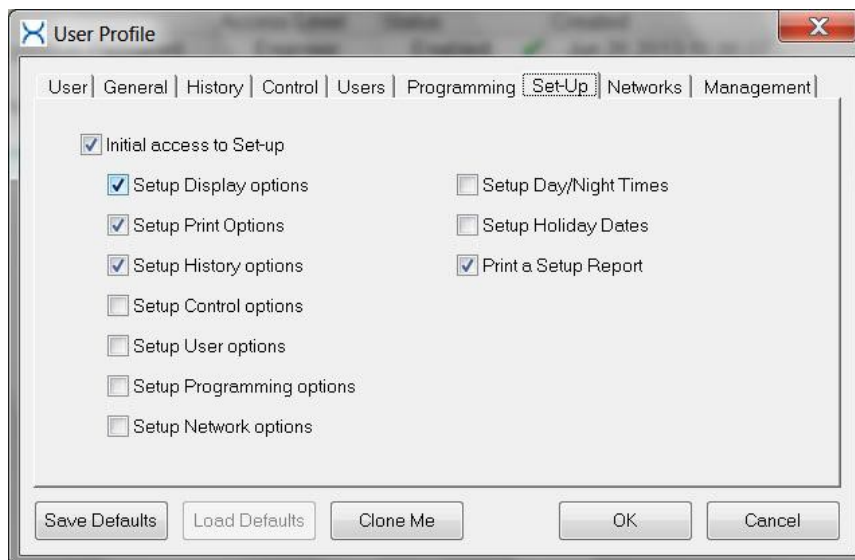
Programming Access Options



Access Option	Description	See Section
Initial Access To Programming	Allows the user to access the Input Programming Window. If this is not enabled the Programming button on the Main Screen toolbar and the Programming Menu on the main menu bar will be disabled or invisible.	<i>Section 7 - Input Programming List</i>
Text Page Programming	Allows the user to program and edit the text pages that are shown (optionally) when an event occurs.	<i>Section 7 - Text Page Programming</i>
Graphic Page Configuration	Allows the user to program and edit the graphic pages that are shown (optionally) either when an event occurs or when a graphic is called up using the Graphic button on the main toolbar.	<i>Section 7 - Graphic Page Configuration</i>
Automatic Control Programming	Allows the user to program automatic controls.	<i>Section 7 - Automatic Controls</i>
Enable & Disable Inputs	Allows the user to enable or disable inputs in the Input Programming list.. When an input is disabled, the event will be ignored.	<i>Section 7 - Enabling and Disabling Inputs</i>
Edit Input Notes	Allows the user to edit a note attached to an input in the Input Programming list.	<i>Section 9 - Notes</i>
Edit Management Notes	Allows the user to edit notes attached to entries in the various management lists (e.g., Symbol Management, etc).	<i>Section 9 - Notes</i>
Move/Copy/Delete Pages	Allows the user to move, copy and delete pages in the Input Programming List.	<i>Section 7 - Moving, Copying and Deleting Pages</i>
Event Type Management	Allows the user to access the Event Type Management window, where Event Types may be created and edited.	<i>Section 7 - Managing Event Types</i>
Graphic Management	Allows the user to access the Graphic Management window, where Graphics may be imported, exported, and renamed.	<i>Section 7 - Managing Graphics</i>

Symbol Management	Allows the user to access the Symbol Management window, where Symbols may be imported, exported, and renamed.	<i>Section 7 - Managing Symbols</i>
Sound Management	Allows the user to access the Sound Management window, where Sounds may be imported, exported, and renamed.	<i>Section 7 - Managing Symbols</i>
Template Management	Allows the user to access the Template Management window, where Templates may be renamed and edited.	<i>Section 7 - Managing Templates</i>
Input Programming Wizard	The user can use the Input Programming Wizard for quicker system programming.	<i>Section 7 - Input Programming Wizard</i>
Field Management	Allows the user to access the Field Management window, where Fields may be created and edited.	<i>Section 7 - Managing Fields</i>

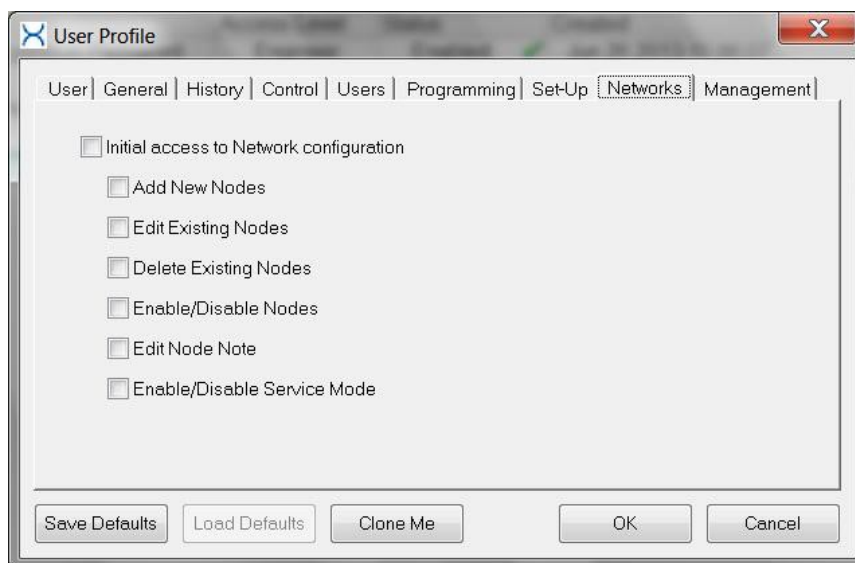
Set-up Access Options



Access Option	Description	See Section
Initial Access To Set-Up	Allows the user to access the main Set-up window. If this is not enabled the Set-up button on the Main Screen toolbar will be disabled.	<i>Section 8 - Set-up Window</i>
Set-up Display Options	Allows the user access to the options that affect the overall main screen appearance and event/alarm display.	<i>Section 8 - Display Set-up Options</i>
Set-up Print Options	Allows the user to access the set-up options which affect printing	<i>Section 8 - Printing Set-up Options</i>
Set-up History Options	Allows the user to access the Set-up options that affect the History.	<i>Section 8 - History Set-up Options</i>
Set-up Control Options	Allows the user to access the Set-up options that affect the Controls.	<i>Section 8 - Control Set-up Options</i>

Set-up User Options	Allows the user to access the Set-up options that affect the management of Users.	<i>Section 8 - Users Set-up Options</i>
Set-up Programming Options	Allows the user to access the Set-up options that affect programming of the AMX.	<i>Section 8 - Programming Set-up Options</i>
Set-up Network Options	Allows the user to access the Set-up options that affect the Networks and Nodes.	<i>Section 8 - Network Set-up Options</i>
Set-up Day/Night Times	Allows the user access to editing the day/night times. The day/night times have a global effect on the system.	<i>Section 8 - Day/Night & Holiday Set-up (Times)</i>
Set-up Holiday Dates	Allows the user access to editing the list of dates defining which days AMX will regard as a holiday.	<i>Section 8 - Day/Night & Holiday Set-up (Times)</i>

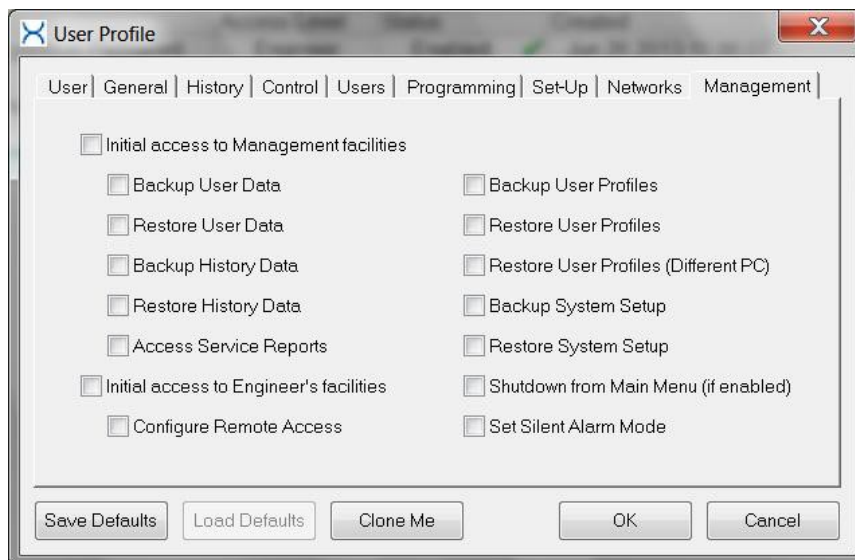
Network Access Options



Access Option	Description	See Section
Initial Access To Network Configuration	Allows the user to access the Network/Nodes configuration window. If this is not enabled the Network/Nodes configuration button on the Main Screen toolbar will be disabled.	<i>Section 6 - Network Window</i>
Add New Nodes	Allows the user to add new nodes to the AMX.	<i>Section 6 - Adding, Editing and Deleting Nodes</i>

Edit Existing Nodes	Allows the user to edit existing AMX node entries in the Network/Nodes window.	<i>Section 6 - Node Editing Window</i>
Delete Existing Nodes	Allows the user to delete nodes from the system.	<i>Section 6 - Adding, Editing and Deleting Nodes</i>
Enable & Disable Nodes	Allows the user to enable or disable individual nodes.	<i>Section 7 - Enabling and Disabling Inputs</i>
Edit Node Note	Allows the user to edit notes attached to entries in the Network/nodes window list.	<i>Section 9 - Notes</i>
Enable and Disable Service Mode	The user can initiate service operations with the optional Service Reporting Module	<i>Section 11 - Service Mode</i>

Management Access Options



Access Option	Description	See Section
Initial Access To Management Facilities	Allows the user to access the general management facilities. These are normally accessed via the main menu bar, but the menu will be either disabled or invisible if this access option is not enabled.	
Backup User Data	Allows the user to access the data back-up facility. This is normally accessed via the Management Menu on the main menu bar, but the option will be either disabled or invisible if this access option is not enabled.	<i>Section 10 - Backup and Restore Utilities</i>
Restore User Data	Allows the user to access the data restore facility.	<i>Section 10 - Backup and Restore Utilities</i>

Backup History Data	Allows the user to access the history back-up facility.	<i>Section 10 - Backup and Restore Utilities</i>
Restore History Data	Allows the user to access the history restore facility.	<i>Section 10 - Backup and Restore Utilities</i>
Backup User Profiles	Allows the user to access the user profiles back-up facility.	<i>Section 10 - Backup and Restore Utilities</i>
Restore User Profiles	Allows the user to access the user profiles restore facility.	<i>Section 10 - Backup and Restore Utilities</i>
Backup System Setup	Allows the user to access the setup back-up facility.	<i>Section 10 - Backup and Restore Utilities</i>
Restore System Setup	Allows the user to access the setup restore facility.	<i>Section 10 - Backup and Restore Utilities</i>
Initial Access To Engineer's Facilities	Allows the user to access the Engineers' facilities ¹ . These are normally accessed via the main menu bar, but the menu will be either disabled or invisible if the user either does not have access rights or does not have an Engineer-level password.	<i>Section 12 - Engineers Functions</i>
Configure Remote Access	Reserved for Future Use.	
Set Silent Alarm Mode	Allows the user to utilise this feature which is useful when programming on live systems.	<i>Section 11 - Local Actions</i>

¹Engineer's facilities include the ability to simulate alarms and to stop the AMX program from running.

Loading and Saving Default Profiles

Buttons at the bottom of the User Profile Editing window allow default profile settings to be saved and loaded. One default profile may be saved for each user type: Operator, Manager and Engineer.

This facility allows a basic profile to be created for the Operator, Manager and the Engineer. Then when a new user is being added to the system the defaults are loaded and any adjustments for the individual user may be carried out.

When the Save Defaults button is clicked the settings currently loaded in the User Profile editing window are saved for the current user type. These will over-write any previous defaults that had been saved.

When the Load defaults button is clicked the defaults for the current user type will be reloaded. This will override the current settings in the window.

Clone Me

The Clone Me button at the bottom of the User Profile dialog allows you to copy your configured settings to the User Profile that you are currently configuring.

This might make a good starting point, as an alternative to loading defaults.

Suspending Users



A User window toolbar icon allows a user to be suspended from the AMX, which means that they cannot log on.

Users may also be suspended by double clicking on the Suspended panel in the User list or by setting the suspended option in the User Profile editing window.

The User List will indicate when a User is suspended:

Chris Brown	Manager	Enabled	Nov 0
Chris Wilkinson	Operator	Suspended X	Nov 0

Printing a User Profile

A printout of a User Profile may be obtained via an option on the right-click pop-up menu in the main User Window.

Section 6

Managing External Networks

About Networks, Nodes, and Inputs

Network Managers are used to connect AMX to the external networks and remote subsystems. Each Network Manager may consist of one or more nodes and there will be several inputs, which can vary from a dozen or so up to tens of thousands.

The relationship between the AMX, Network Managers, Remote Subsystems, Nodes and inputs is explained in much more detail in *Section 13 - Interfacing to the Outside World*.

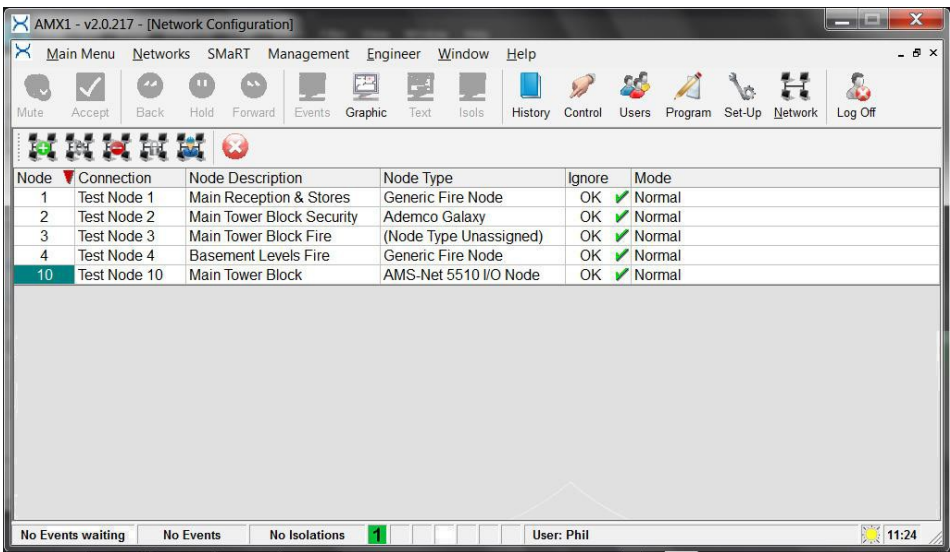


AMX needs to know about the remote nodes, this is achieved by adding nodes in the Network Window. If a node is not added here, AMX will not be aware of the type of node or its capabilities and this may prevent full use of the node. In particular, controls will not be available for a node unless AMX knows about the node.

Network Window



This button on the Main toolbar will open the Network window. This is where remote nodes are added to the AMX and can be managed.



The Network window uses the standard AMX list format, with a tool bar at the top of the window allowing access to the main functions. The buttons on the Network window toolbar include:

Button	Function	See Section
	Adds a new Node	<i>Section 6 - Adding, Editing and Deleting Nodes</i>



Edits the Node currently selected in the Network window list.

Section 6 - Adding, Editing and Deleting Nodes



Deletes the currently selected Node. Confirmation will be requested.

Section 6 - Adding, Editing and Deleting Nodes



Allows the Node to be "Ignored"

Section 6 - Managing External Networks



Puts the Node into Service Mode

Section 11 - Service Mode



Closes the Node window

Some of these buttons may be unavailable if the user does not have access set in their User Profile.

Clicking on the Node list with the right mouse button will show a pop-up menu. Among the options offered on this menu are details of who created and edited the currently selected node, an option to attach a note to the node, and a method of viewing the node definitions in the node profiles. Also on the pop-up menu are the standard options for configuring the appearance of the Node list.

The list of Nodes may be printed and exported to a disk file using options on the pop-up menu.

The columns displayed in the Network window list include:

Node	This is the numeric address of each node in the system. This number must be unique, and a system of node mapping is used to ensure that nodes in different remote subsystems do not have node numbers that clash.
Connection	This shows which Network Manager is connecting the remote node to the AMX. The connection is worked out by AMX using the node address and the user cannot define it. NB: The connection column will show "- None -" if there is a dongle error, or if no dongle is present, because the remote node cannot contact the AMX.
Node Description	This is a 32-character text that describes the Node or its location. This list item supports in-cell editing.
Node Type	This is a <u>very</u> important item. Setting the node type assigns a Node Profile to the node. This setting will define which inputs can be programmed, which controls can be initiated, etc.

This column indicates whether or not the Ignore mode is set.

Ignore **NB:** Events and alarms from a disabled node will be ignored by AMX. Double clicking on the cell will toggle this setting if the user has permission to make the change. When the node is set to Ignore then all inputs for that node will be shown as disabled in the Input programming List and it will not be possible to re-enable them via the Input Programming List.

Mode Indicates if the Node is in Service Mode

Adding, Editing and Deleting Nodes



Three toolbar buttons allow the user to Add, Edit and Delete nodes from the AMX

The Add and Edit buttons call up the Node editing window, which is described shortly. The Delete button will remove the node from the list of AMX nodes after first asking the user to confirm deletion.

Deleting a node does not delete any inputs, pages, or controls programmed for the node.

Node Editing Window

The Node editing window is where basic information about the Node is entered.

The Node Name or Node Description is a text of up to 32 characters describing the Node or its location.

The Node Type is very important setting, which assigns a Node Profile to the node. The Node profile tells AMX about the capabilities of the Node. Amongst other items, the Node Profile defines:

- How many inputs are available at the node
- The names of the Input Types
- Which types of control can be sent to the node
- Whether or not inputs may be isolated

If the node type is uncertain when a node is being added to the system, it is possible to assign a “generic node type”. This will allow any input to be programmed, but the Input Types will be unnamed and there will not be any controls available - see *Section 13 - About Node Profiles*.

The Node Number is the numeric address of the node. This number must be unique to this node and cannot be used by any other node in the system. A system of node mapping – explained on *Section 13 - Node Mapping* – ensures that nodes in different remote subsystems do not have node numbers that clash.

The Ignore Node checkbox indicates whether or not the Ignore mode is set. See the next topic for a further description of this.

A button in the Node Editing window provides access to the Node Profile viewing window – see *Section 10 - Additional Functions*.

Ignoring Nodes

Events and alarms received from an “ignored” node will not be seen by AMX. This feature may be used to temporarily disable an entire node without deleting it from the system. Normally this facility would only be used as part of maintenance or commissioning operation on the external equipment.



Use this facility with care, as it can disable essential alarms from an entire node.

There are three methods by which Ignore mode can be set:

1. Use the Network window toolbar button to toggle the Ignore status
2. Use the checkbox in the Node Editing window
3. Double-click on the Ignore column in the Network window.

None of these methods will work if the user does not have permission to Enable/Disable Nodes within their User Profile.

Ignoring a node will only stop AMX from seeing events and alarms reported from the node. It does not stop the user from sending controls to the node and it does not stop the node carrying out any of its other functions that are not associated with AMX.

Node Status

Node Status is indicated in the list

Ignore	Mode
OK	✓ Normal
OK	✓ Normal
OK	✓ Normal
IGNORE	✗ Normal
OK	✓ SERVICE MODE

Section 7

Programming Inputs

An Introduction to Input Programming

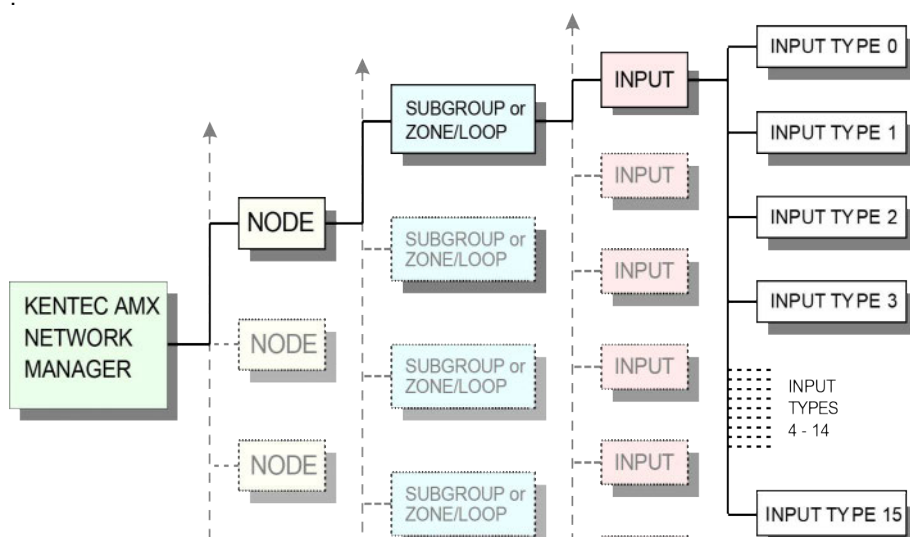
In programming the inputs of the AMX, the system programmer is defining how the alarms will be handled, prioritised, and presented.

Careful planning and preparation is advisable, as this can not only significantly shorten the amount of time required for this task but also prevent the need for time wasting corrections later.

It is strongly recommended that programmers unfamiliar with AMX and its programming read *Section 2 - Configuration and Programming*. As well as giving an overview of programming, that section also details a logical procedure to follow.

Many of the system management facilities – e.g., the ability to create and edit Event Types – are closely connected with Input Programming and these parts of the program are normally only accessible from the Programming menu on the main menu bar. The Programming menu appears only when the Input Programming List window is open.

The section of this manual on Interfacing to the Outside World (see *Section 13 - Interfacing to the Outside World*) describes how the remote subsystems are divided into Nodes and Subgroups (usually zones or loops). The following diagram shows a pictorial representation of how the AMX's inputs are related to this structure. Understanding this relationship is important when programming the AMX's inputs



In the above diagram, it can be seen that a AMX Network Manager connects to a number of Nodes. Each node is subdivided into Subgroups¹ - usually up to a maximum of 255 subgroups. A subgroup may be a loop (most common for fire panels), or a zone. A subgroup is further divided into up to 255 inputs. The inputs themselves may have up to 16 Input Types.

Input Types

A remote subsystem input can have up to 16 Input Types. Simple inputs, which just go on and off will have only one Input Type. An example of this might be a simple door contact used to signal an alarm when a door is open. The single Input Type will be Door Open (on), with the off condition representing Door Closed.

This is fine for simple inputs, but some types of input may be more complex. This is particularly true when the input is from some kind of active device – a security sensor, a fire detector, or an access control system, for example. Unlike the simple inputs with just on and off states, all of these inputs can have more than one state. Here are some examples of Input Types for inputs that can have multiple states:

¹ Some special types of Node may not be divided into subgroups, consisting instead of one large pool of inputs. This is defined in the Node Profile for these types of Nodes.

Access Control IP	Security Sensor	Fire Detector
Door Forced	Alarm	Fire
Door Open	Tamper	Pre-Alarm
Door Unlocked	Fault	Isolation
		Fault
		Test Mode
		Maintenance

Normally, simple inputs will use generic names for their single Input Type – e.g., Hardware Inputs, whereas the more complex inputs will have specific names for each Input Type.

Different Node types may have different Input Types. These are defined in the Node Profile.

Input Types should not be confused with Event Types, although they are often allied. Input Types are the names given to the different **states** of an Input. Event Types are a generic definition of a type of alarm. Event types may be used by more than one Input Type – or a specific Input Type could use different Event Types to allow some of the inputs to be handled differently.

Event Types

The Event Type is a special type of profile that describes how a particular type of event or alarm is to be handled by the AMX. The system programmer can define these profiles and up to 32,000 different event Types are possible.

Different types of alarm will use different Event Types. This allows the AMX to act according to the importance and requirements of the alarm. For example, a Door Open alarm may just need to display a graphic showing the location of a door, whilst a Fire Alarm might initially display a text page of emergency instructions ensuring that this takes precedence over lesser alarms such as the Door Open alarm.

Every Event Type has a 32 character text phrase for an ON occurrence of an alarm using this type and another for the OFF. These phrases appear in the Current Event List and the Event History. The system programmer can define the colours of these phrases and this colour coding is used so events of a particular type can be easily identified in the listings.

Typical examples of an Event Type might be:

- Security Door Opened
- Fire Alarm – Main building
- Fire Alarm – External Store
- High Boiler Temperature
- Node Power Fault

It is easy for a beginner to confuse Event Types with Input Types. Input Types are the generic names given to the different states of an Input. Event Types are a definition of a type of alarm. There sometimes may be several similar Event Types – e.g., “Fire Alarm – Main building” and “Fire Alarm – External Store”. This would be done so that the fire alarm in the main building could be given priority (higher importance) over the external store alarm. Either of these Event Types could be used with a Fire Alarm Input Type.

It is normal to have different sounds for different Event Types. All events of a particular type will use the same alarm sound.

Event Type Attributes

Each Event Type has a number of Event Type Attributes. These, in conjunction with the other Event Type definition information, define exactly what the system will do when the alarm occurs.

Event Type Attributes include the type of initial display (graphic, text, current event list, etc), whether or not an alarm of this type is recorded in the History, day/night disablement, and many others. Each Event Type attribute is explained in more detail in the section on Adding and Editing Event Types in *Section 7 - Managing Event Types*.

Alarm Priority

The AMX prioritises alarms so that the most important are shown to the user first. This is important so that, in multiple alarm situations, the User is not prevented from seeing critical alarms by the presence of less important events.

If an alarm is on display and a second higher priority event occurs, the AMX display will change to show this new alarm. After the user has dealt with and accepted the second higher-priority alarm, the display will switch back to showing the original alarm.

When multiple alarms occur at the same time, the system will insist on displaying the alarms in order of priority, but the user can manually switch to the Current Event List, select a different alarm of lower priority, and view/accept it. After the user has accepted this lower priority alarm the system will revert back to displaying the alarms in order of priority.

Alarms are prioritised by Event Type. Event Types at the top of the Event Type list have the greatest importance. The programmer can promote or demote an Event Types importance by moving them up or down the list in the Event Type Management window.

The Event Type priority is changed by using either the Increase Priority or Decrease Priority buttons at the bottom of the Event Type Management window, or by using the identical functions on the pop-up menu.

Each time the Increase Priority button is clicked the selected Event Type will be moved closer to the top of the list, increasing its priority.

The Description/Location Phrase

The Location or Description phrase is a unique 32-character text phrase that is used throughout AMX to describe a particular input. This phrase is programmed in the Input Programming List using in-cell editing.

This text phrase is shown in The Current Event List along with the Event Type phrase. When planning a system, the programmer should take care that the combination of these two phrases gives a clear indication of *what* an alarm is and *where* it is.

In many cases the Location Text phrase will be supplied by the connected subsystem. A fire panel will often supply its 'device text' when an event occurs. Sometimes a panel will supply additional

information specific to the input – a zone text and/or a device type – and these are displayed on second and third lines below the location text in the Current Event List and the History.

Usually, an input with several Input Types will use the same Location/Description or description phrase for each state of the input, although in most cases different phrases could be used if required¹. However, it should not normally be necessary to do this.

¹ Certain inputs may be forced by the system to use the same location/description phrase for different states. This is defined by the Node Profile.



A setup option determines whether panel-supplied location text over-rides locally entered text.

Here are some examples of both Location/Description phrases and Event Type phrases, showing their different application:

Location/Description phrase :	Main Reception Area
	Director's Office
	Canteen and Rest Area

Event Type phrase:	Fire Alarm Detected
	Secure Area Unlocked
	Electrical Fault

These will be combined in the Current Event List and the Event History to give, for example:

Fire Alarm Detected - Main Reception Area

or

Secure Area Unlocked - Director's Office



There is nothing to stop the programmer using any text in either phrase, but it is of major importance that the two phrases combined should be sufficient to give the User clear and unambiguous indication of **what** and **where** the alarm is, regardless of any further text and graphic programming.

Alarm and Reset Text Pages

The programmer can specify an individual text page for each Input Type (state) of an input. This is not just for the on (or alarm) states of the input, but also for when the input resets (or turns off).

A text page contains text describing the alarm and giving instructions to be carried out by the users. It is possible to mix different fonts, font sizes and colours, which allows text pages for different types of alarm to be given a different appearance. It is also possible to define the background colour of a text page. The layout of the text page is freely programmable, although templates may be used to speed up the text page programming (see a following topic).

The use of a reset text page is not mandatory. An Event Type attribute specifies whether or not the Reset of an alarm should be displayed, so some alarms can have both an alarm and a reset page and others may have the alarm page only.

It is possible to insert Fields into the text pages. These simplify programming and make future global changes easier. They are described in *Section 7 - Fields*.

Although only one page is allowed for each of the Input Types of an input, the page may extend off the bottom of the screen and a scroll bar will appear automatically on the longer pages so that the user can scroll up and down to read the instructions.

Two examples of text pages are shown in *Section 2 - Text Instructions Page*. In the first of these two examples the text page will normally occupy the whole width of the AMX display, but in the second the text page is half the display width with the Current Event List occupying the other half. The Event Type dictates which display method is used

and this is set-up when these are programmed. It should be clear that a text page formatted for the whole display width would not display correctly if forced into half the width, so the programmer should think about the overall appearance before commencing programming.

Templates

Templates are very useful and can be used to speed up text page programming. Frequently used text pages can be stored in a template and copied to a page during Input Programming.



The above example shows a Template for a very simple text page. Even a Template this simple can save a lot of typing if it is re-used for dozens or perhaps hundreds of text pages. All the programmer needs to do is to assign this template to the required inputs and then fill in the blanks.

The next topic – about Fields – will expand upon the use of this simple Template and show how more of the information can be filled in automatically, saving even more typing.

When a template is used for a text page a copy of the text is made and the link with the original is broken. This means that changing a template will not affect the pages that have already been programmed using that template. However, it has the advantage that, once a template has been copied to a text page, it can be edited or altered freely. To make global changes to a wide number of pages possible, Fixed Text Fields can be used (described shortly). A system can be programmed quite quickly if Templates are combined with System and Fixed Text Fields.

Templates are created during text page programming, and instructions for doing this are given in *Section 7 - Templates*.

To delete or rename a template use the Template Management window. This is accessed by selecting 'Programming Template Management' from the main menu bar.

Fields

Fields are used in text page programming. They are often used to hold contact names, phone numbers, and other text items that might change.

Fields are like a database field: they are an area of the screen that contains a piece of text from elsewhere, or a piece of text that may depend upon the status of some other part of the system.

For example: a Day/Night field embedded in a text page will show different text phrases during the daytime and night-time. This facility can be used to give different instructions to the user during the day and the night.

During text page programming, Fields are shown within the pages as an identification string. e.g., <:SF00001:>. It is not possible to edit this identification string. When an alarm occurs, this identification string is replaced with the field text.



On the left of this diagram is the page as shown during text page programming. On the right the fields are expanded as they appear when the text page is displayed during an alarm (or when the preview button is pressed).

The Preview button on the Text Page Programming toolbar toggles preview mode on and off and is used so that the programmer can see exactly how the final page will appear. The Field identification string shown during programming always has the same length.

Field types

There are two basic field types that can be used in text pages. They can be identified by the two-letter prefix in their reference:

Field Type	Prefix shown during programming
System Field	SF
Text Field	TF

Fields may be further subdivided into three types: Fixed, Day/Night, and Dynamic.

Type	Sub-Type	Function
SYSTEM	Fixed	Always displays the same non- definable text. System Fields are always fixed.
	Fixed	Always displays the same text
	Day/Night	Displays different text in day and night times
TEXT	Dynamic	Text depends upon status of a AMX input
	Fixed	Always displays the same picture
	Day/Night	Different pictures in day and night times
PICTURE	Dynamic	Picture depends upon an AMX input status

System Fields are all pre-defined. They have no day/night or dynamic dependency. The following system fields are currently available, although this list is subject to change as new fields are added:

Number	Type	Description
SF00003	Node number	This is the numeric number of the node from where the alarm originated.
SF00004	Node description	This is the description or name of the node from where the alarm originated, as it was programmed when the node was added to AMX in the Network window.
SF00005	Zone number	This is the numeric number of the sub-group (zone or loop) from where the alarm originated.
SF00007	Input Type number	This is the numeric number of the Input Type of this alarm.
SF00008	Input Type description	This is the description of the Input Type of this alarm, taken from the Node Profile.
SF00009	Input number	This is the numeric number of the input from where the alarm originated.
SF00010	Location/Description phrase	This is the unique text phrase that was programmed for the input in the Input Programming list.
SF00021	Event Type phrase	This is the text phrase for the Event Type assigned to this input. It will be different for alarm and reset. Only the plain text is used – the colour of the event type is ignored.
SF00023	Numeric Reference	This is the unique numeric reference for the input from where the alarm originated.

Use of Fields

Fixed Text Fields can be used to build up a library of contact personnel. This is an important function of fields.



Always consider using Fixed Text fields for contact names and phone numbers. It makes it much easier to make changes later if a contact should change.

The major advantage of using a Fields for a contact – e.g., “Phone Service Extension 306” – and then putting this Field in the text pages instead of typing the actual text can be seen if consideration is given to what happens if the extension number changes.

Instead of re-programming every single text page containing that extension number, it is necessary only to change the one Field. All pages that used the field will automatically show the new extension number.

Fixed Picture Fields can be used to build up a library of pictures that can be incorporated within the text pages to augment their appearance.

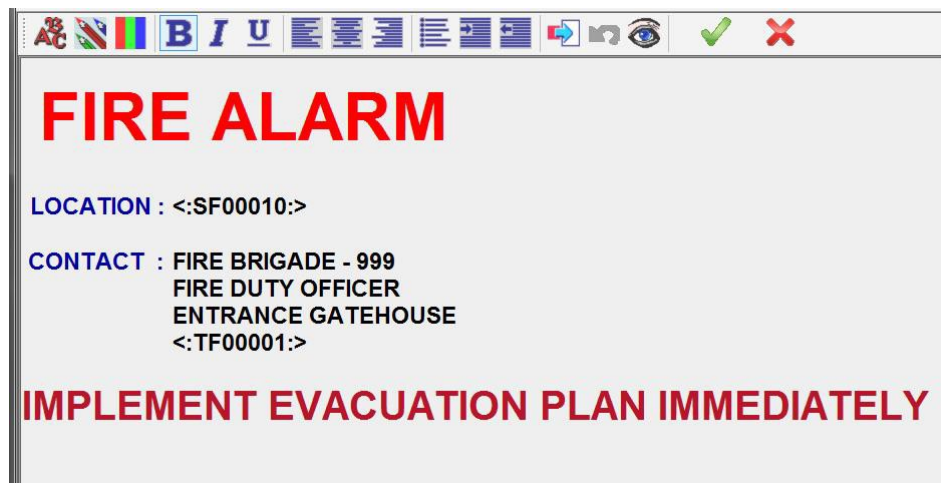
Day/Night fields can be used to present information that is different in the day and night time. For example, a day/night text field in a security alarm page could say “Contact Security Office” during the day and “Contact the Police” at night when the security office is unmanned.

Dynamic Fields can be used to assure the user of a certain condition in a remote subsystem during an alarm. For example, a dynamic text field in a security alarm page could say “Door Open” or “Door Closed” if a door contact is connected into the remote subsystem so it can signal back its status. Dynamic picture fields work in a similar manner to simple symbols used in the graphics pages.

System Fields can be used with Templates as part of the procedure to program inputs quickly. This is described in the next topic.

Using Fields With Templates

In *Section 7 - Templates* there is a description of how Templates could be used to improve productivity during Text page programming. Incorporating fields within Templates can further enhance them. For example, if a system field containing the input's location text is programmed into a template this will be automatically filled in with the correct location text every time the Template is used for a text page.



In the example above five fields have been used. System Fields have been used to automatically fill in the alarm location. Fixed Text Fields have been used for one of the contact instruction phrases. The result of using these can be seen in the next diagram, which shows how that page appears during alarm display. The use of these is a little subtler than may first appear. The Fixed Text Field in this example makes use of the day/night facility. Mr Jones is present in the building only during normal office hours, so this field displays alternative information at night. For example, the text phrase “Mr Graham Jones” can just be replaced with a blank during non-office hours.



It should be evident that combining Fields with Templates can greatly reduce the amount of work needed for Text page programming. This is discussed further in *Section 7 - Quick Input Programming Techniques*.

Graphics & Symbols

AMX uses graphics pages to indicate the location and type of alarm/event, either as a primary indication or to augment the information shown in the Current Event List and/or Text Page. Graphics can also be used as status indication pages, or as pages from where controls can be initiated. All these functions can be combined in one graphic.

Overview

Graphics can be prepared using any CAD or Painting program that is capable of exporting in Windows formats – see the topics on Preparing Graphics for use with AMX (*Section 7 - Preparing Graphics for use with AMX*) and Graphic File Formats (page 382). They are then imported into AMX using the Graphics Management routines.

Graphics pages are made interactive by adding Symbols to them. Symbols can serve three main purposes:

- They can indicate status of an input, subgroup (zone or loop) or node in the remote subsystem.
- They can be used to call up a control box from where the user can send a control to the remote subsystems.
- Simple decoration of the graphic.

Symbols can be “free”, or they may be assigned to system inputs. Free symbols always show the same picture and are usually non-interactive. Free symbols are used for “decoration” – e.g., placing fire extinguishers on a graphic used to indicate fires. Free symbols can also have a control assigned to them.

Symbols assigned to an input will show a picture that depends upon the state of the input. These are used to graphically indicate the state of inputs.

The pictures for Symbols are prepared, like graphics, on any CAD or painting program that is capable of exporting in Windows formats – see *Section 16 - Symbol File Formats*. They are then imported into AMX via the Symbol Picture Configuration window available in the Symbols Management section of the AMX program.

Symbols may be “Simple” or “Compound”. Simple symbols have two pictures and are used for simple inputs that can only be on or off.

Compound symbols have up to 17 pictures and may be used for inputs that can have several different states – e.g., fire detectors that can be in fire, fault, isolation, etc.

Creating Dynamic AMX Graphics

As previously explained, AMX graphics are not just static pictures. They are made dynamic by incorporating one or more symbols that indicate the real-time status of remote inputs. They can also be made interactive by having controls associated with the symbols.

The system programmer is responsible for the addition of the dynamic and interactive properties as the AMX is configured. This process involves several steps, but the result is a fully dynamic graphic, which the user sees as a single easily used entity.

The steps involved in creating dynamic graphics are as follows:

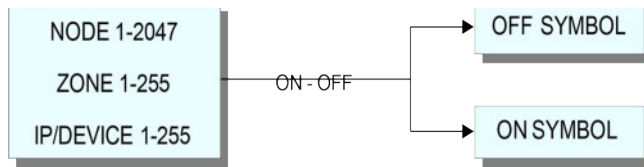
Step	See Section
1. Create a graphic using a drawing, painting or CAD program on a PC ¹ .	<i>Section 7 - Preparing Graphics for use with AMX</i>
2. Export the graphic to a disk for transfer to the AMX.	
3. Import the graphic to AMX via the Graphics Management Window.	<i>Section 7 - Graphics Management Window</i>
4. Create symbol pictures using a drawing, painting or CAD program.	<i>Section 7 - Managing Symbols</i>
5. Export the symbol pictures to a disk for transfer to the AMX.	
6. Create the required symbols in the Symbol Management window.	<i>Section 7 - Symbol Management Window</i>
7. Import the symbol pictures to AMX via the Symbol Picture Configuration Window.	<i>Section 7 - Symbol Picture Configuration</i>
8. Assign the graphic to one or more inputs during Input Programming. Typically, one graphic may be used for dozens of inputs.	<i>Section 7 - Graphic Page Configuration</i>
9. Place a symbol on the Graphic during Graphic Page Configuration	<i>Section 7 - Graphic Selection Window</i>
10. Configure the symbol in the Symbol Configuration window	<i>Section 7 - Symbol Configuration Window</i>

Although this process may appear at first to be quite laborious, this is not the case. Careful pre-planning is the key to painless programming, and this is particularly important in the case of graphics. Steps 1-7 above will normally be completed before the programming of the individual inputs commences. The number of graphics and symbols will, of course, vary with the size of the system and the type of application, but often there will only be a few dozen of each. Then it is simply a case of repeating steps 8 to 10.

Before embarking upon this process, the programmer should study the remainder of this topic on Graphics & Symbols so that they are fully conversant with the principals involved.

¹ Graphics can be created on any computer system capable of transferring the result to a PC.

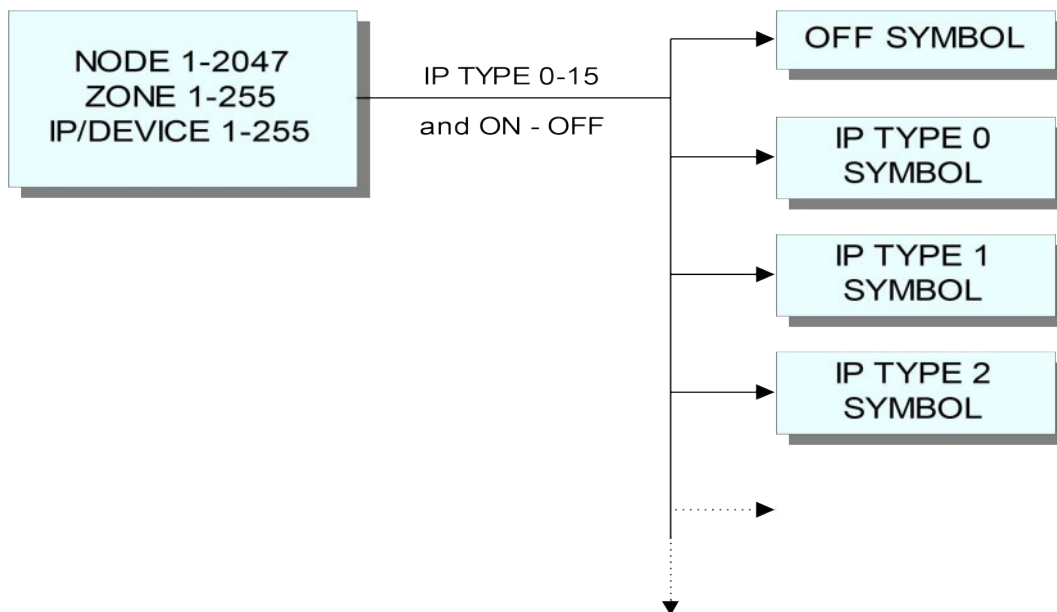
Simple Symbols



Simple symbols have two pictures and are used for simple on/off input types.

Simple symbols have a picture for the “off” state as well as an “on” picture. If there is no picture for the off state, then the symbol will only be seen when the associated input is on.

Compound Symbols



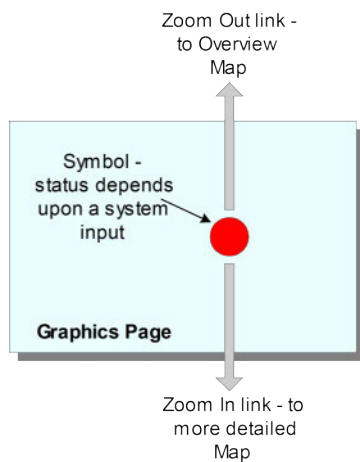
Compound symbols can have up to 17 pictures. They are used for complex multi-state inputs – e.g., fire detectors, which can be in fire, pre- alarm, isolation, fault states, etc.

With compound symbols there is one picture for every Input Type associated with the input (see *Section 7 - Input Types* for discussion of Input Types). There is also a picture for the “off” or quiescent state of the input. This makes a maximum of 17 pictures, although few inputs will use all 16 Input Types and therefore symbols with the full complement of 17 pictures will be rare.

Compound symbols are used with to show different states of an input. Only one of the pictures will be shown at any one time. If the input is in more than one of these states simultaneously, then the lowest Input Type Number (e.g., Input Type 0) will take priority and will define which picture is shown. This ensures that a door unlocked symbol will prevent a more important door alarm being graphically displayed from the same input.

Zooming In and Out

When the user is viewing a graphics page, he/she may wish to zoom out (for an overview or site map) or zoom in for closer more detailed view.

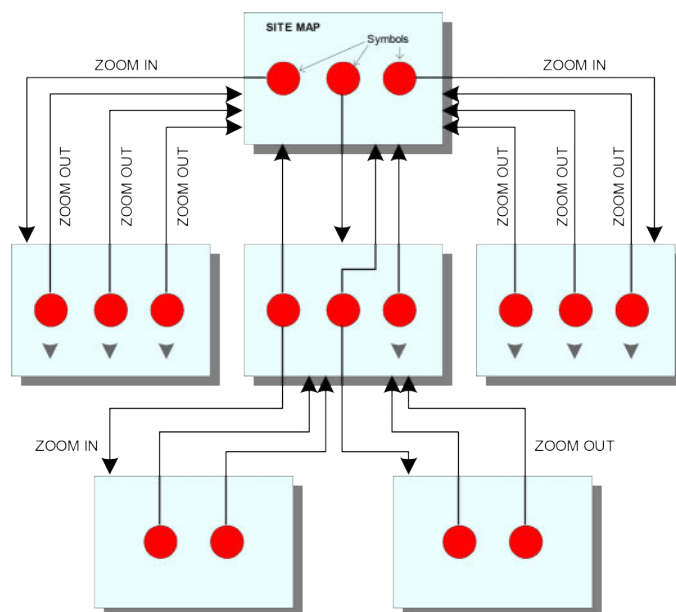


Two magnifying glass buttons are provided on the graphics page toolbar for the user to zoom in and out (*Section 2 - Zooming*). The new map that AMX will zoom into or out from is dictated by the currently selected symbol on the page. The user can "select" a symbol by clicking on it or by using the Tab key. A frame is shown around the selected symbol.

The system needs to know which page to display when the user zooms in or out and this is done by the Symbol Configuration dialog box that is available during Graphics Page configuration.

The two magnifying glass buttons will only be enabled when zoom links are available. If the user right mouse clicks on a symbol a pop-up menu will appear, and this provides an alternative method of zooming.

Here is a diagram, which shows the hierarchical links between the various maps.



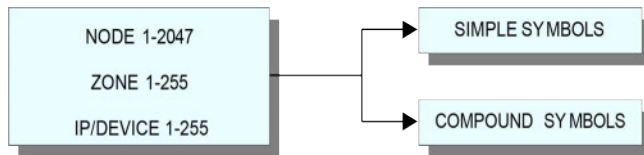
In the diagram above, the closest view maps are at the bottom. Some maps have been omitted for clarity.

The zoom in and out links are defined during symbol configuration when the symbols are placed on the graphics page.

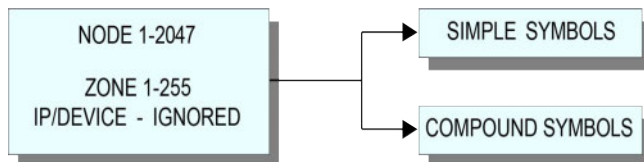
Input, Node and Zone Symbols

Symbols can be associated either with the Input, the Zone or the Node (they can also be Free, when they have no association and never change to show a different picture). This applies to both simple and compound symbols.

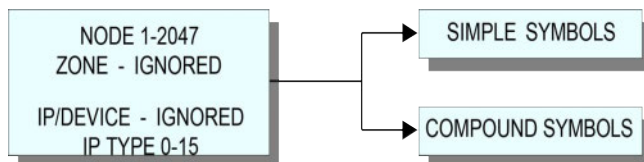
Input symbols change state only when the specified node, zone and input changes, as shown below.



Zone symbols will change state when the specified node and zone changes, but the input number is ignored. See the diagram below.



A Node symbol changes state whenever the status of the specified node changes, but both the zone and input numbers are ignored. See the diagram below.



In the case of zone and node symbols, it is highly likely that there will be active inputs representing more than one status. For example, in the case of a fire node it is quite possible that there will be devices in fire, isolation and disabled states simultaneously. If this happens the zone or node symbol will indicate the highest priority Input Type, which would be Fire in this case. The priority of the Input Types is not connected with the Event Type priority. It is fixed in the Node Profile, with Input Type 0 having the highest priority. The Input Type priority does not have any effect on the order in which alarms are shown to the user; it affects symbol display only.

Sounds

AMXAMX uses sound to attract the attention of the users when an alarm occurs. The use of sound is optional, as some types of event/alarm or some resets may not require the user's attention.

The volume of the sound is affected by the Windows Volume Control setting. This can be set-up via the Windows volume control dialog box, which can normally be found in Window's Multimedia folder. Ensure that the Wave file slider is not muted. Some PCs and/or their speakers may have a volume control, which will affect the sound levels.

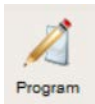
Sounds are associated with the Event Type. Sounds are not limited to chimes and bells – they may also be speech announcements. However, speech announcements must be fairly general – e.g., "There is a Security Alert" – as they will be used for all the alarms that using the same Event Type.

It is not possible to have separate sounds for individual inputs. If it is necessary to have alarms that use the same Event Type to have different sounds, then a duplicate Event Type with the alternative sound can be created.

The same sound can be used for any number of Event Types, and it may be preferable to group Event Types by using the same sound for all alarms, a different sound for all faults, etc. These sounds will become known to users, who will learn to recognise the urgency of the situation even before they see the AMX screen.

See the sections on the Event Type's Sounds (Section 7 - Event Type's Sounds) and Managing Sounds (Section 7 - Managing Sounds) for further details.

Input Programming List



This button on the Main toolbar will open the Input Programming List window.

Node: 1 - Fire Alarm : Zone 1						
I/P	Event Type	Location/description	Programmed	Status	Last Edited	Last Activated
1	FIRE ALARM	Stores Area - Ground Floor		Enabled	Jun 27 2005 10:35:39	Oct 30 2014 14:30:33
2	FIRE ALARM	Reception Area - Main Entrance		Enabled	Jun 22 2005 16:24:43	Oct 30 2014 14:30:27
3	FIRE ALARM	Telephone Switchboard		Enabled	Jun 22 2005 16:14:06	Oct 30 2014 10:36:28
4	FIRE ALARM	Interview / Meeting Room		Enabled	Jun 22 2005 16:13:32	Oct 30 2014 14:29:43
5	FIRE ALARM	Ground Floor Office 1-0A		IGNORED	Apr 05 2005 12:04:30	Oct 30 2014 14:30:11
6	FIRE ALARM	W.C. in the Reception Area		IGNORED	Jun 22 2005 16:13:56	Oct 30 2014 10:36:28
7	FIRE ALARM	Stores Area - Storemans Office		IGNORED	Jun 22 2005 16:21:10	
8	FIRE ALARM	Stores Area - Fire Exit		Enabled	Jun 22 2005 16:23:09	Oct 29 2014 16:36:57
9	FIRE ALARM	Stores Area - Ground Floor		Enabled	Jun 22 2005 16:24:23	Oct 30 2014 10:36:28
10	FIRE ALARM	Reception Area - Main Desk		Enabled	Jun 22 2005 16:25:00	Oct 30 2014 10:36:28
11	FIRE ALARM	Spare Input		Enabled	Jun 22 2005 16:29:11	Oct 30 2014 10:36:28
12	FIRE ALARM	Spare Input		Enabled	Jun 22 2005 16:29:18	Oct 30 2014 10:36:28
13	-	-		IGNORED		Oct 29 2014 16:34:43
14	-	-		IGNORED		Oct 30 2014 10:34:56
15	-	-		IGNORED		Oct 09 2014 11:47:37
16	-	-		IGNORED		Oct 30 2014 10:34:32
17	-	-		IGNORED		Oct 30 2014 10:34:56
18	-	-		IGNORED		
19	-	-		IGNORED		

The Input Programming List window is the main focus point for configuring how the AMX will respond to different system inputs.

As described earlier in this chapter, careful preparation prior to attempting to program the inputs will pay dividends. This preparation includes defining the Event Types, Templates, Fields, Graphics, etc.

Each of the inputs located in the remote subsystems, connected to the AMX via one of the Network Managers, has a unique reference number. From the Input Programming List, the system programmer can configure the key items for each of the inputs using the reference number to identify the input. These key items that can be configured from the Input Programming list include:

- An Event Type can be assigned, which will determine how a change in this input's status is handled by the AMX – e.g., is it indicated as an alarm or just recorded in the History.
- A unique Location/Description phrase can be assigned to each Input.
- A text page containing information and instructions for the user when the input is turned ON (goes into alarm).
- A further text page, which contains more information and instructions to be displayed to the User when the input is turned OFF (or is reset).
- A graphics page, which shows the location and status of one or more inputs, using interactive picture Symbols for status indication and control.
- Automatic controls can be programmed, so that actions may be performed in either the same or a different remote subsystem when the input changes state.¹
- Individual Inputs may be disabled – so that there is no alarm display, and no automatic controls are initiated when the input changes state.

The Input Programming List window uses the standard AMX list format, with a toolbar at the top of the window allowing access to the main functions.

¹ Not all versions of AMX allow automatic controls.

The first button on the toolbar is the wide Input Selection button.



Clicking this button will display the Input Selection Window (see *Section 7 - Input Selection Window*) from where the Node, type of input and (if applicable) the zone or loop can be selected. After the Input Selection Window is closed the Input Programming list will load all of the inputs for the selected subgroup/zone/loop, and input type. The number of inputs in the list may vary as these are defined by the Node Profile. Therefore, it is helpful if the Nodes have been added to the AMX in the Network window before input programming commences. This allows the AMX to know what types of input are valid at the remote node and how many of each type are available.

The other buttons on the Input Programming List window toolbar include:

Button	Function	See page
	Opens the Text page programming window for the Input currently selected in the Input Programming list	<i>Section 7 - Text Page Programming</i>
	Opens the window for programming the Reset Text	<i>Section 7 - Text Page Programming</i>
	Opens the Graphics Configuration Window, where the main graphic page associated with the currently selected input can be configured. It also allows a symbol for this input to be added to an existing graphic	<i>Section 7 - Graphic Page Configuration</i>
	Opens the Automatic controls Programming window	<i>Section 7 - Automatic Controls</i>
	Opens an Explorer window so that you can find programmed inputs quickly	
	Calls up the Input Programming Wizard for quick programming of entire loops	<i>Section 7 - Input Programming Wizard</i>
	Closes the Node window	

Some of these buttons may be unavailable if the programmer does not have access permission set in their User Profile.

Clicking on the Input Programming list with the right mouse button will produce a pop-up menu offering many options. Some input programming facilities are available only via this pop-up menu.

The facilities here include:

Recents... This displays a list showing the numeric reference of the last 20 inputs that were programmed or changed.

Description	Programmed	Status	Last Edited
Ground Floor		Enabled	Jun 27 2005
a -			
1-2-1/0			05
1-1-1/0			05
1-1-1/0			05
1-1-21/0			05
1-1-20/0			05

Move Selected Input(s) to ... This will move the selected input configurations (or a block of selected input configurations) to another node/zone/input type/input. Any automatic controls are also moved. The Input Selection window will be shown so that a new input number can be selected.

The Input Selection dialog box contains the following fields and controls:

- Node:** A text box with the value '1' and a list icon.
- Zone:** A text box with the value '1' and a list icon.
- Input:** A text box with the value '1' and a list icon.
- Node Type:** A dropdown menu showing 'Generic Fire Node'.
- Input Type:** A dropdown menu showing '00: Fire Alarm'.
- Reference:** A text box showing '1-1-1/0'.
- Enable Browse Mode:** A checked checkbox.
- Buttons:** 'OK' and 'Cancel' buttons.

If a block of inputs is being moved, then the first in the block will be moved to the chosen input, the second to the input after, and so on. The original programming for the selected inputs will be deleted.

Copy Selected Input(s) to ... This will copy the selected input configurations (or a block of selected input configurations) and any automatic controls to another node/zone/input type/input. This works in the same way as Move Selected Page(s) above, but this time the programming for the original inputs is left unchanged.

Delete Selected Input(s) This deletes all configuration programming including the pages and the automatic controls for the selected input, or for a block of selected input. AMX will ask for conformation before the deletion is carried out. There is no way of undoing the deletion, so be sure this is exactly what is required.

Delete Inputs Partial... This allows you to delete only specific items for the selected inputs.

The Input Deletion dialog box contains the following options:

- ☐ Delete Location Text
- ☒ Delete Text Page
- ☐ Delete Reset Page
- ☒ Delete Graphic Page Assignment
- ☐ Delete Automatic Controls
- ☐ Delete FPN11 Area Codes
- ☐ DELETE ENTIRE INPUT
- ☐ Delete Input Types 0 to 14

1 Inputs Selected

Buttons: Delete, Cancel

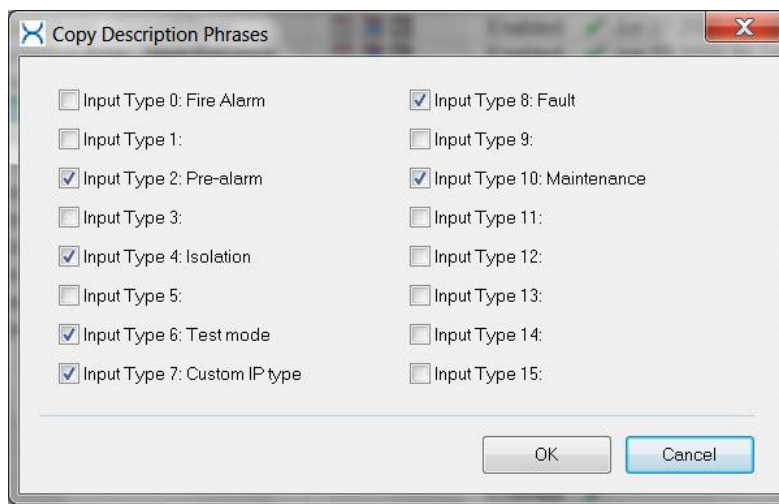
Assign Event Type to Input(s)... This is where the Event Type is assigned to an input – or to a block of selected inputs if more than one input is selected. This is not the only way of assigning an Event Type

Copy Template to Alarm Page(s)... Here a Template can be assigned to an input's ON (alarm) text page. The same Template can be assigned to a block of selected input ON pages in one operation. This will overwrite any existing text on the page.

Copy Template to Reset Page(s)... A Template can also be assigned to an input's OFF (reset) page. The same Template can be assigned to a block of selected input OFF pages in one operation.

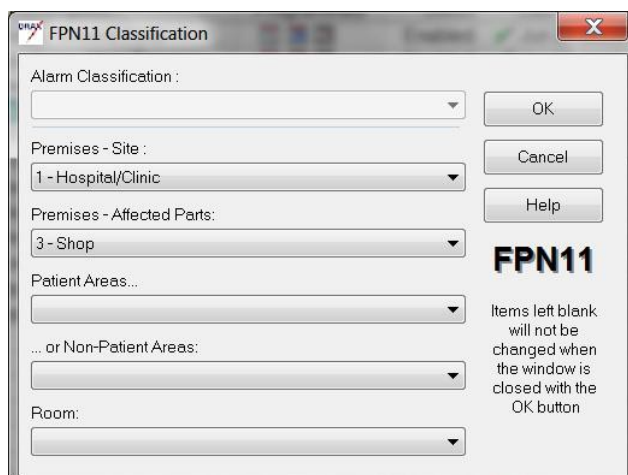
Assign Graphic to Inputs(s)... This is where a graphic page is associated with the input. The same graphic can be assigned to a block of selected pages in one operation.

Copy Description to Input Types... When the input can have multiple states – e.g., a security detector that can be in alarm, tamper (sabotage) or fault – it will use a different input type for each state. It will usually be desirable to have the same location/description phrase for each of the input types and this option calls up the Copying Description Phrases window so that the phrase for one or more inputs can be copied to other input types.



This operation can be performed on a whole block of Inputs at the same time. When the window is opened some Input Types may already be checked. These will be the available Input Types as defined by the Node Profile for the node that the input resides upon.

Toggle Status of Inputs(s) Allows disabling of the input (or a selected block of inputs). A disabled input will be ignored by the system. This means that, for this input, there will be no alarm display, no recording of the alarm in the history – and no automatic controls.



Input Change Details Opens up a window showing who programmed the inputs, who made the four most recent changes and when the changes were made.

Input Programming Note. Allows the User to add a note to the input using the standard Note Editor.

Edit Zone Programming Note. Allows the User to add comments that are common for this subgroup (or zone, or loop). This does not use the standard note editor and is intended only for Engineers/Managers to store technical references.

Edit Node Programming Note. As for the Zone Programming Note, but this Note is common to the whole node.

The currently displayed list of Inputs may be printed and exported to a disk file using options on the pop-up menu.

At the bottom of the pop-up menu are the standard options for auto- sizing the list columns, changing the list properties, and resetting defaults for the list properties.



When Copying or Moving Inputs, the graphics pages will be copied or moved, but the association references for symbols on the graphics page will NOT be changed. This means that any symbols associated with the input being copied/moved will remain associated with the original input number. This can be changed in Graphics Page Configuration after the copy/move operation.

The columns displayed in the Input Programming List window include:

Input Number	This is not the whole numeric reference, just the number of the input. For security and fire panels this will be the detector number.
Event Type	This column displays the Event Type phrase giving a broad indication of what this type of event is. The Event Type also defines how the input will be handled by AMX, using the Event Type Attributes.
Location-Description phrase	This is a unique 32-character text that is used throughout AMX to describe this particular input. This column supports in- cell editing. Some Node Profiles contain a flag that will cause AMX to force the Location/Description phrases for each Input Type to be the same. In other words, changing the phrases for one input type will automatically copy it to all other Input Types for the input. This behaviour can be overridden by a global Use Input Description Phrase Synchronisation option in the main Set-up window under Programming.
Programmed	The Programmed status column shows icons that indicate which items have been programmed and configured for this input –  = Alarm text page  = Reset text page  = Graphics page  = Automatic Controls

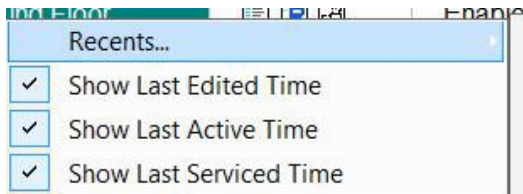
Status

Indicates if this input has been disabled. A disabled input will be ignored by the system. The programmer can toggle the disabled status by double clicking on this field, but the status will only change if he/she has permission to do this in their User Profile. It will not be possible to toggle the disabled status of an input if it is disabled for some other reason – please read the important note below.



There are three reasons why an input might be shown as disabled in the Input programming List:

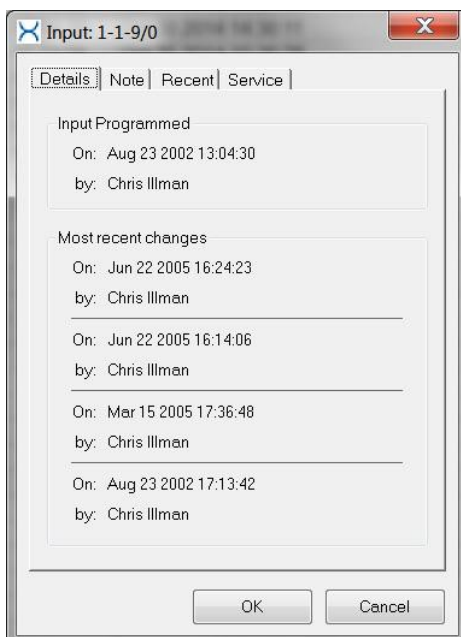
1. It has been explicitly disabled by a User double clicking on the Status field in the Input Programming List.
2. The whole node has been set to Ignore in the Network window. It will not be possible to re-enable the input via the Input Programming List in this case.
3. The input is unprogrammed and the global Ignore Unprogrammed Inputs option has been checked in the main Set-up window. It will not be possible to re-enable the input via the Input Programming List in this case



There are three additional columns which may optionally be displayed in this window by selecting options from the Input Programming List pop-up menu

Show Last Edited Time

This optional column shows when this input was last edited. You can see more edit records by calling up Input Information from the pop-up menu.



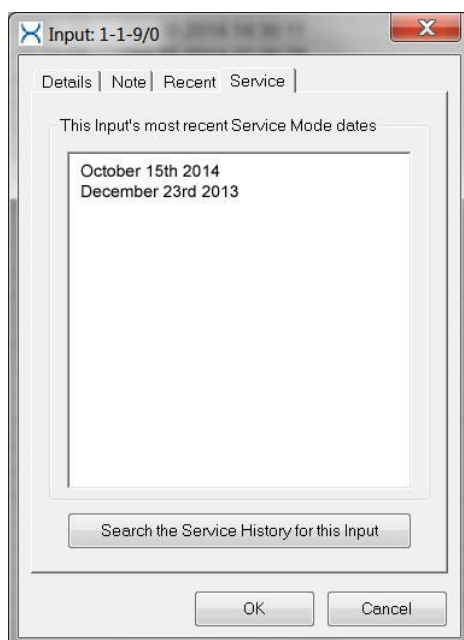
A button in this dialog allows you to search the entire History for activations of this input.

Show Last Active Time

This optional column shows when this input was last activated. You can see activations in a tab in the Input Information dialog (from the pop-up menu).

**Show Last Service Time**

The pop-up menu can be used to show more information in the Input information dialog.



Input Selection Window

Node: 2 - Fault : Loop 1			
I/P	Event Type	Location/description	Programmed
1	00: Fire Alarm	2-1-1/0	

Clicking the wide button on the Input Programming List toolbar opens the window

The node number appears as <node> / <panel>, where <panel> is the number of a networked panel, from 1 to 15. This window is where the Node, type of input and (if applicable) the subgroup/zone/loop can be selected for programming.

The Node Selection area of the Input Selection window allows the User to set the desired node by either typing it into the text entry area or by moving the scroll bar below.

If the left mouse button is double-clicked on the text entry area a pick-list of nodes will be displayed. This will show all the system's nodes (as defined in the Network window).

As the node number changes, so the Node Type panel on the right of the Input Selection window changes to show the type of node assigned to the node number. Also, the contents of the Input Type list box will change to allow selection of the correct Input Types (as defined in the Node Profile) for this type of node.

The subgroup (Zone or Loop) selection area of the Input Selection window allows the programmer to select the zone or loop by either typing it into the text entry area or by moving the scroll bar below.

The maximum value allowed in the subgroup/zone/loop selection area will depend upon the Node Profile for the node type and this maximum may vary as the node number is changed in the node selection area. For some node types or if certain input types are selected in the Input Type selection list, the zone selection area may be disabled.

Some Node types may not use subgroups. These node types will have one large pool of inputs, which could be as many as 65,000. In this case the subgroup setting will allow selection of a block of 100 inputs from this pool.

The Input Selection area of the Input Selection window allows the programmer to select the desired input (or device or detector) by either typing it into the text entry area or by moving the scroll bar below. The input can also be

changed and selected using the list scroll bar in the Input Programming List window after the Input Selection dialog window has been closed.

The maximum value allowed in the input selection area will depend upon the Node Profile for the node type and this maximum may vary as the node number is changed in the node selection area. It may also vary when the Input Type setting is changed. If Communications Fault is selected in the Input Type selection list the input selection area will be disabled.

The Node Type panel in the Input Selection window displays the node type. It changes as the node number is changed in the node selection area. This panel is only to give information to the programmer regarding the type of the node that has is present at the currently set node address. (Assigning a Node Profile in the Network window configures the node type.)

The Input Type List area of the Input Selection window allows the programmer to select an Input Type. The contents of the Input Type list box will change to allow selection of only those Input Types that are valid for the node specified in the node selection area, as defined in its Node Profile. If the Node number is changed the contents of the Input Type List may be seen to vary as the valid Input Types for the different Nodes are loaded.



If it is necessary to access input types other than those allowed for the node type at a specific node address, go to the Network window and temporarily assign a “(generic node type)” to this node number. Then all input types for this node can be accessed. It will be possible to program pages, but it will not be possible to program automatic controls. Don’t forget to re- assign the original node type when finished!

When the Browse Mode option is checked the Input Programming List in the background will change as the settings in this dialog are changed.

This is a useful feature that allows a user to browse around looking for a particular input.

After the Input Selection Window is closed using the Close button, the Input Programming list will load all the inputs for the selected node, subgroup/zone/loop, and input type. Both programmed and unprogrammed inputs will be shown. The number of inputs in the list will vary depending upon the node type and the input type – these are defined by the Node Profile and cannot be changed by the programmer. For example, a simple hardware node may have only 32 inputs in the list whereas a detection loop for a Kentec fire panel may have up to 255. If a node type was not assigned when the node was added in the Network window then the list will default to 255 inputs, but the input type will be indicated numerically as “Input type X” and not named as in the diagram at the beginning of this topic.



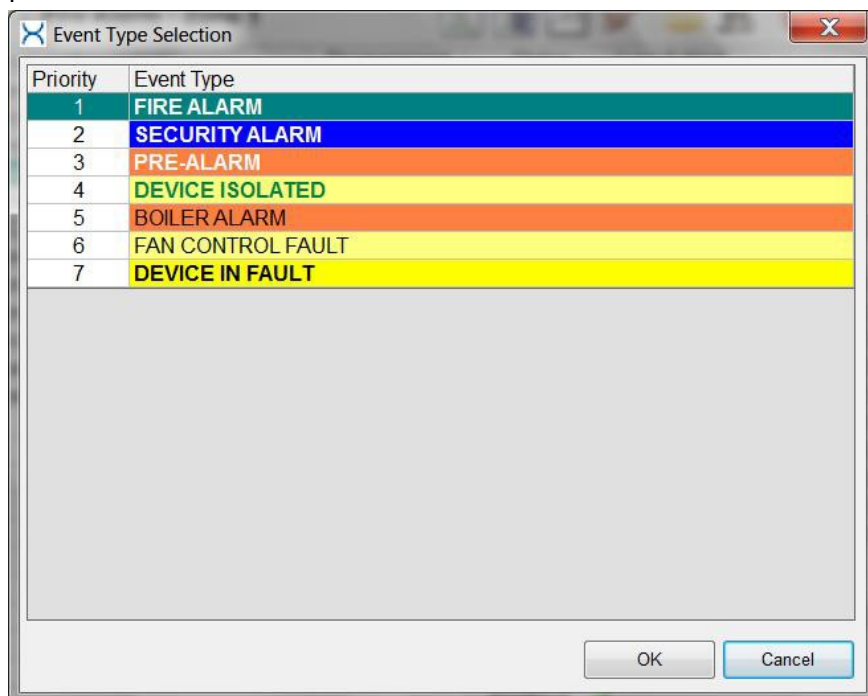
Don’t forget to program the AMX’s status “inputs”. See *Section 16 - Status Inputs* for a list of these.

Event Type Selection

There are three main methods whereby the programmer can assign an Event Type to an input:

1. Using the right mouse click pop-up menu in the Input Programming List. This method will assign the Event Type to more than one input if a block of inputs is selected.
2. Double-clicking the left mouse button on the Event Type column in the Input Programming list. This method will assign the Event Type to the selected input only.
3. Double-clicking the left mouse button on the Event Type panel on the status bar of the Text Page programming window. This method will assign the Event Type to the input that is being programmed only.

Whichever method is used, the Event Type Selection window will be displayed:



Selection is made either by highlighting the desired Event Type and clicking the OK button, or by simply double-clicking the Event Type in the list.

The Event Type selection list cannot be sorted. The order of the list is the priority (importance) attached to the Event Type and this is indicated numerically by the left-hand column. The priority can be altered in the Event Type Management window (see *Section 7 - Managing Event Types*).

A programmer who may be configuring inputs in an existing system should be aware that the original programmer may have created several similar Event Types with different priorities, so care must be taken to assign the correct type. As the Event Type name is displayed in the Current Event List and the History the names for these similar types might be identical. The Note facility can be used by the system programmer to attach a note describing the intended usage of each event Type and the presence of a note icon will indicate that such a note is present.

The Location/Description Phrase

The Location/Description phrase is not only displayed in the Input Programming list, but also used along with the Event Type phrase in the Current Event List and the History. Therefore, it is important that an accurate descriptive phrase is assigned to each input.



It is not necessary to enter location texts when the external system supplies location information – e.g., fire device text.

ED	Despatch Clerk	ARG
ED	Rest Room	ARG
ED	Quality Manager's Offi	ARG
ED	Mr Wiggin's Office	ARG
ED	Secretarial Area	ARG

The phrase is entered an edited directly into the Input Programming list using in-cell editing .

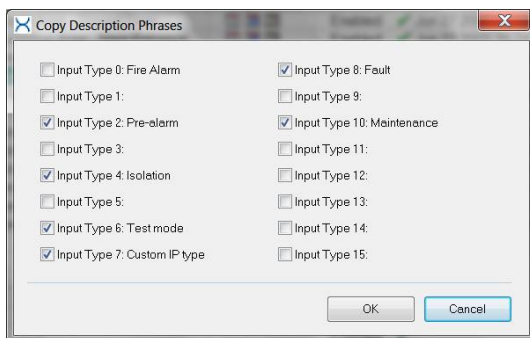
Entering or editing a location/description phrase will change the text for the currently displayed Input Type only. However, this may not always be quite what is desired. Multi-state inputs may have several Input Types that would normally use the same location/description phrase.

For example, security detectors will typically have Input Types for Alarm, Tamper, and Fault. These will normally require the same phrase.

Remember that the type of alarm is indicated by the Event Type phrase, and it is not normal to repeat that information in the Location/Description phrase. Some types of Node, may automatically synchronise the phrase across the Event Types, but, in most cases, this must be done manually using the Copy Input Descriptions facility.

Copy Input Descriptions

The Copy Input Descriptions facility is accessed via the Input Programming list right mouse click pop-up menu.



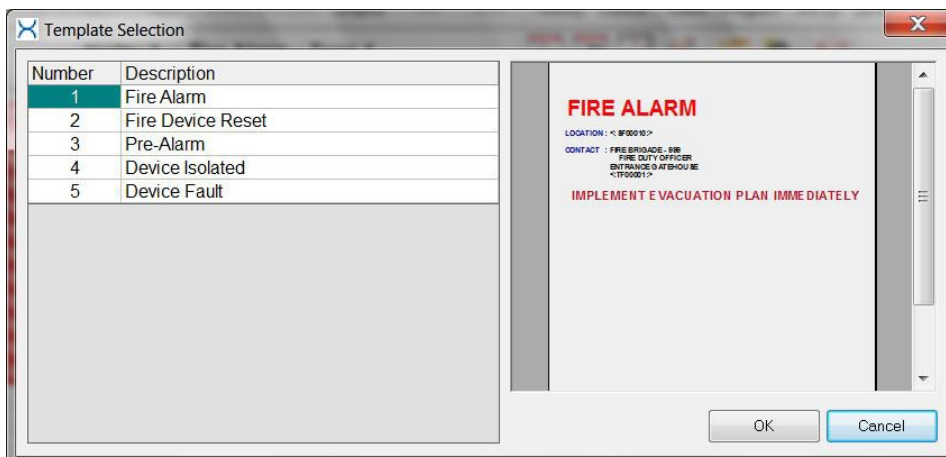
Check the boxes next to the Input Types to which the currently selected description should be copied.

If a block of inputs is selected in the Input Programming list, then they will all be changed in one operation.

Although the window will allow copying of phrases to unused Input Types, this is inadvisable as it wastes storage space in the system. Just check the used Input Types. Unused (unassigned) Input Types are shown as just "input Type 6:" (for example) and have no description. In the window above the used input Types are Fire Alarm, isolation, Fault, Maintenance and Housekeeping.

Template Selection

Templates can be pasted to text pages from two places: from the Right mouse pop-up menus in the Input Programming List and during Text Page Programming.



Selection is made either by highlighting the desired Template by single- clicking on it and then clicking the OK button, or by simply double- clicking the Template in the list. A preview of the selected Template is shown in the panel on the right.

The Template selection list can be sorted either in numeric order or alphabetically by name. Sorting is initiated by clicking on the column header. This may help to find the desired Template in larger systems where many Templates have been defined.

When a template is pasted into a text page it over-writes any existing text that is already there. AMX will give a warning before this happens.

Moving, Copying and Deleting Pages

Moving, copying, and deleting pages is accomplished via options of the Input programming Lists' pop-up menu. These options are described in *Section 7 - Input Programming List*.

Enabling and Disabling Inputs

Individual inputs may be disabled. A disabled input will be ignored by the system. This means that there will be no alarm display, no recording of the alarm in the history, and no automatic controls.

There are two methods by which the inputs may be disabled. Both are performed via the Input Programming List. A single input can be disabled by double clicking on it in the Status column of the list. A whole block of inputs may be disabled in one operation by selecting the block and then using the Toggle Status option on the right-mouse button pop-up menu.

If an input is shown as disabled and it cannot be re-enabled this is probably because either the node is set to 'Ignore' in the Network window or because it is an unprogrammed input and the global Ignore Unprogrammed Inputs is checked.



This type of Isolation/Disablement only prevents AMX display of the alarms, and it does not stop the remote subsystem from performing its functions. For example, disabling a fire alarm detector input will stop the AMX displaying the alarm, but it will not stop the remote fire alarm from sounding its bells and giving its other normal fire responses.

Text Page Programming

This topic on Text Page programming applies to both the alarm and the reset text pages.



These buttons on the Input Programming List toolbar will open the Text Programming window.



The first button is for the alarm page programming and the second for the reset page.



This window is used for the programming of the text pages. The same window is used for programming alarm (ON) text pages and for reset (OFF) text pages.

Programming pages is similar to using a word processor and functions like cut, copy and paste are fully supported.

The process of programming these pages can be speeded up by the use of a Templates and Fields. See *Section 7 - Quick Input Programming Techniques*.

The toolbar at the top of the Text Programming screen provides access to many of the main text editing functions. Many of these affect either the currently selected text or the text at the current insertion point.

These principles follow general Windows guidelines. For example, consider the bold text setting. If some text is selected, then only the selected text will be affected by setting bold text using the toolbar button. If no text is selected, then bold mode will be turned on at the current insertion point (where the cursor is) and subsequent text will be in bold. Selected text can include fields and the fields will take on the bold setting, but only if the whole field is selected including the <: and :> beginning and end of field markers.

The toolbar buttons include:

Button	Function
	This icon calls up the font selection window (<i>Section 9 - Font Dialog</i>) from where the programmer may choose a different font or a different font size. The programmer can change existing text by selecting it before clicking this button.
	This icon calls up a text colour dialog window (see <i>Section 9 - Colour Dialog</i>) so that the programmer can choose the colour of the text. Existing text can be coloured by selecting it before clicking this button.
	The background button calls up the colour dialog window so that the background colour of the text page can be chosen. This setting will affect the whole page – it is not possible to set a background colour for a small area only.
	Sets bold text mode for the selected text, or at the current cursor insertion point.
	Sets italic text mode for the selected text, or at the current cursor insertion point.
	Sets underline text mode for the selected text, or at the current cursor insertion point.
	Aligns the selected text to the left margin of the page.



Centres the selected text between the left and right margins.



Aligns the selected text to the right margin of the page.



Applies bullets to the selected text, or removes any existing bullets. The bullet format is predefined and cannot be changed.



Increase Indent moves the selected text by its left margin to the right by one tab stop each time its clicked. Some control over Tab Stops is possible via the Text Page programming pop-up menu.



Decreases Indent moves the selected text by moving its left margin back by one tab stop each time it is clicked.



Inserts a Field. The Field Selection dialog window (see *Section 7 - Using Fields and the Field Selection Window*) will be shown and either a System Field, Text Field, or Picture Field can be inserted.



Undoes the last editing action. Only one level of undo is available.



Switches to Preview Mode. In preview mode the Fields will be shown as they will appear when the page is displayed in normal alarm mode. This means that the field references such as <:TF00001:> will be temporarily replaced with the actual text display information. In Preview Mode it is not possible to edit the text: the Preview button remains pressed, and it must be clicked again to release it and cancel Preview mode.

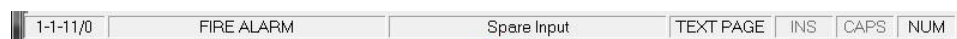


Accepts the changes and closes this window after saving the text.



Closes the window, abandoning any changes that have been made. A warning will be given (subject to a Programming Set-up option).

At the bottom of the window is an input programming status bar:



The left-hand panel displays the numeric reference for the page that is being edited as Node – SubGroup (zone/loop) – Input / Input Type.

The second panel shows the Event Type. The Event Type is normally assigned from the Input Programming List, but it can be assigned or changed from here by double clicking on this panel of the status bar.

The next panel shows the location (or description) text. This is programmed in the Input Programming list using in-cell editing (see *Section 7 - The Location/Description Phrase*). The fourth panel shows the type of page being edited: text page, reset page, or graphics page.

Also on the status bar are three small panels showing the status of the Insert key, Caps Lock, and Num Lock key.

The programmer can toggle these by double clicking on the panels or, alternatively, they can be set using the toolbar buttons.

Clicking on the text page with the right mouse button will display a pop-up menu, which includes following options:

The standard **Cut**, **Copy** and **Paste** clipboard options.

Export Text Page - allows the programmer to save a text page to a temporary disk file, or to a removable disk for transferring to another system. The saved text page does not include the fields, because they may not correspond to the field definitions that exist on another system when the page is reloaded. Pages can be saved to a floppy disk if required.

A File Save dialog will be displayed and the programmer may use any legal filename, but the extension “.mtp” should be used so that the file is recognised when it is re-imported into another AMX.

Pages can be saved to a temporary disk file, but it is strongly recommended that pages not be saved into the AMX installation directory or any of its subdirectories. If it is required to save several pages temporarily then consider using templates. These have the advantage that they can contain fields.

Import Text Page - imports a text page from either a temporary file or from a removable disk. A File Import dialog will be displayed and any file with the extension “.mtp” will be offered for import.

Copy Text To A New Template - this option copies the whole page (or the selected text) to a new Template. This is how Templates are created. See *Section 7 - Creating and Using Templates*.

Paste Text From A Template - This menu option displays the Templates Selection window so that the programmer may choose a Template to be used for this page. **Warning:** This will overwrite any existing text on the page.

Remove All The Fields – this removes all the Fields from the current text page but leaves the text unchanged. **Hint:** To delete a single Field, just double-click on it with the left mouse button and AMX will ask if the field is to be deleted.

Clear The Page - removes everything from the current page, making it entirely blank, and sets the current text settings back to the default values.

Save Current Text Settings As Default - this takes the font size, colour, background colour, etc of the selected text and saves it as the default settings that will be used whenever a new page is started. When setting this option, be careful that the selection does not span more than on colour or font. If it does, the results when starting new pages will be unpredictable.



If an alarm occurs during Text Page Programming the Text Programming window will be closed automatically¹ to allow display of the alarm. In this case, any edits to the current page will be lost. This can be avoided by careful use of Silent Alarm Mode – *Section 11 - Local Actions*.

Creating and Using Templates

Templates can be used to increase productivity when carrying out text page programming. Frequently used text pages can be stored in a template and copied to a page during Input Programming. When combined with Fields, the amount of work needed to program text instruction pages is greatly reduced. Careful planning will also help avoid major changes when contact names and details change after the system has been installed for some time. For further background information on Templates and Fields see *Section 7 - Templates* and *Section 7 - Fields*.

AMX does not need a special facility for creating Templates. Instead, Templates can be created from any text page during text page programming. This is done via the text page programming right mouse click pop-up menu. The option Copy Text To A New Template copies the whole page (or just the selected text) to a new Template. If some text on the page is selected, then only the selected text is copied to the Template. If no text is selected the whole page is copied.

If there is no existing page with the correct text from which a template can be created, it is a simple matter to program the text in the page for an unused input. Any unused input will do. The text page can be deleted after the Template has been saved.

¹ If the Event Type attributes for the alarm demand a display change

When the menu option is activated, a dialog box will ask for a name for the template. Up to 32 characters can be entered and the programmer is advised to give the Templates names that will be clear and unambiguous when somebody else must select from a list of dozens of Templates at a much later date. Calling a Template “Fault” might seem like a good idea when there are only a few of them, but it will not be easy to find it again when there are several different Templates for various types of faults.

The Templates will contain all the fields, fonts, and colours of the original text pages. It is not possible to export and import the Templates between two AMX systems because the Field definitions will probably be incorrect on the target system.

The Export Text Page option of the pop-up menu can be used to save text pages to storage media for transfer between systems, but these saved pages will not contain the Field information for reasons just mentioned.

A text page pop-up menu option allows a Template to be pasted to the text page currently being edited. Templates can also be pasted from the Input programming List pop-up menu. When the option to paste a template is chosen the Template selection window – see *Section 7 - Template Selection* – is displayed so that the programmer can choose the required Template. If the programmer has carefully planned the use of Templates and Fields before embarking upon programming they will find, in many cases, the whole process can be carried out from the Input Programming List without any need for actually entering Text Page Programming for each individual page.

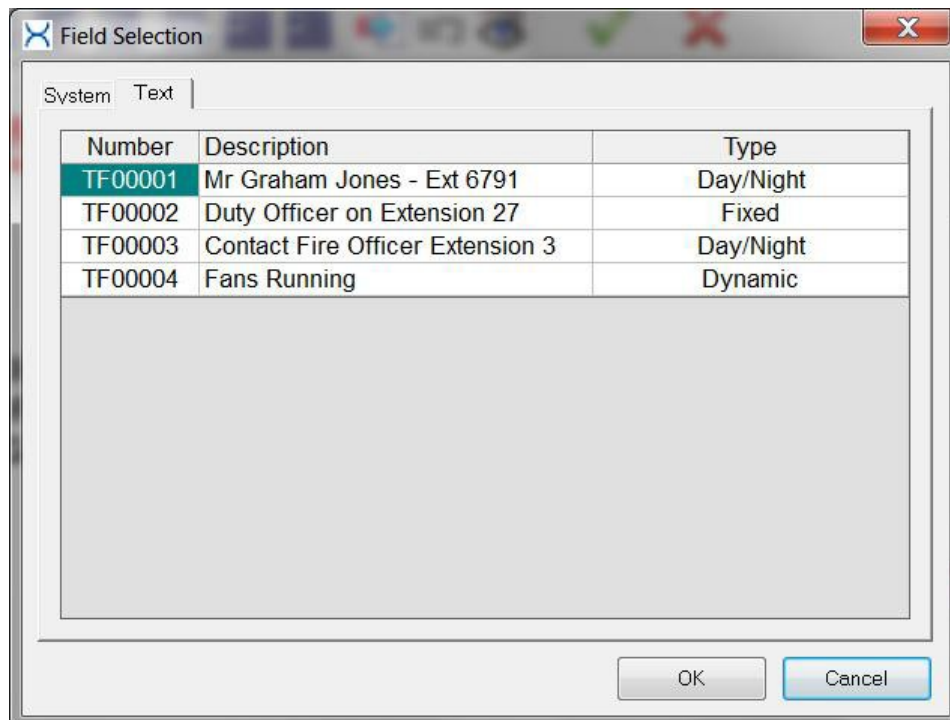
Using Fields and the Field Selection Window

Fields are like database fields and are used in text page programming to insert an area of the screen that contains a piece of text from elsewhere, or a piece of text that may depend upon the status of some other part of the system. A full description of Fields is given in *Section 7 - Fields*, so no further background will be given here.



This button on the Text Page Programming window toolbar will insert a field at the current cursor position.

When the programmer clicks this button the Field selection widow is displayed.



The Field Selection window has two Tabs so the programmer can insert either of the two field types – System or Text. When the Text tab is selected the list indicates whether the text field is Fixed, Day/Night or Dynamic, as can be seen in the figure above.

Selection is made either by highlighting the desired Field by single- clicking on it and then clicking the OK button, or by simply double- clicking the Field in the list.

The Field selection list can be sorted either in numeric order or alphabetically by name. Sorting is initiated by clicking on the column header. This may help to find the desired Field in larger systems where many Fields have been defined.



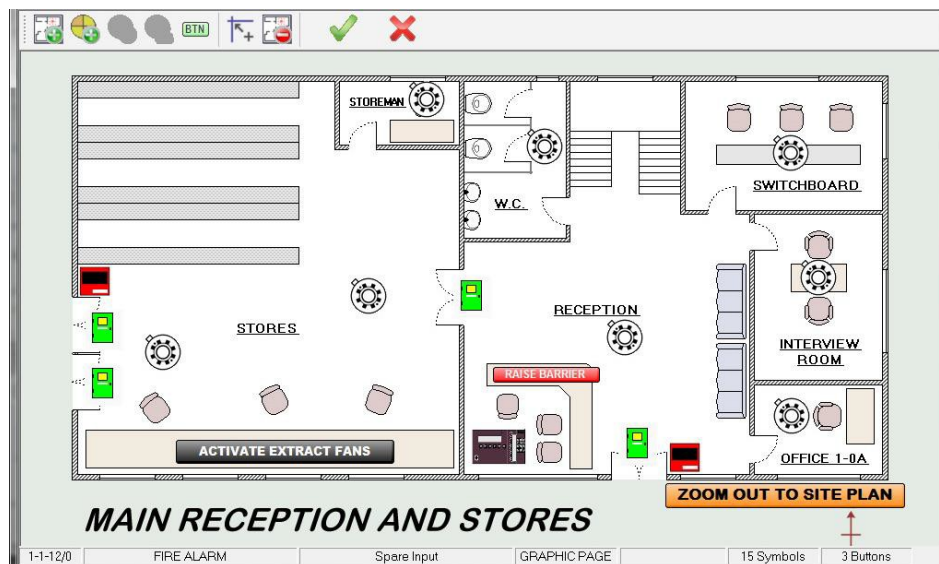
When a Field is inserted into the text page, its reference is shown. If the Preview toolbar button is pressed, then the actual Field text will be shown, but editing will be disabled until Preview mode is turned off.

There is an option on the Text Page Programming pop-up menu that will Remove All The Fields. This removes all of the Fields from the current text page but leaves the text unchanged. To delete just a single Field, double-click on it with the left mouse button and confirm the deletion when asked.

Graphic Page Configuration



This button on the Input Programming List toolbar opens the Graphic Page Configuration window.



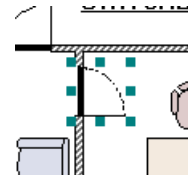
This window is where the programmer configures the graphic associated with the input that was selected in the Input Programming list. This graphic will sometimes be shown automatically when the input goes into alarm, or it may be an optional graphic that a user chooses to view when working with alarms in the Current Event List. If the application requires the graphic to be shown automatically when the input goes into alarm, the system programmer must ensure that the input uses an Event Type that specifies the initial display should be graphical. See *Section 7 - Event Types* and *Section 7 - Alarm Display Setting* for more information of Event Types and the initial display setting.

The basic procedure when configuring a graphic page is to choose which graphic is to be associated with the input. This can also be done directly from the Input Programming List, which might be quicker as the same graphic can be

assigned to a block of inputs in one operation. However, the advantage of calling up The Graphic Page Configuration window is that the User is able to place a symbol associated with the input onto the graphic. This symbol will interactively indicate the status of the input and, in some cases, allow controls to be initiated. A graphic can contain up to 64 symbols, each associated with a different input, although, if required, several symbols could be associated with the same input.

When the symbol is placed on the graphic the programmer can define what will happen if, during alarm display, they zoom out for a broader view or zoom in for a closer view. Controls associated with the symbol can also be configured. This configuration is defined in the Symbol Configuration window after the symbol has been placed – see *Section 7 - Symbol Configuration Window*.

If the programmer clicks the mouse on a graphics page symbol it will be selected. Selection is shown by a rectangle of 8 small blocks (called “Handles”) surrounding the symbol. Only one symbol can be selected at a time. Some actions, such as symbol deletion, apply only to the selected symbol.



Selection of a Symbol allows several operations to be performed on it, including resizing and configuration.

The graphics configuration page has its own toolbar, which offers the following options:

Button	Function
	Displays the Graphic Selection Window so that the programmer can choose the graphic that is to be associated with the input.
	Displays the Symbol Selection Window so that the programmer can choose a symbol to place on the graphic. More than one symbol can be placed.
	Removes the currently selected symbol from the graphic.
	Displays the Symbol Selection List, so that the programmer can find any symbol on the page.
	Places a graphic button that can be used for graphic page navigation or external system control – see <i>Section 7 - Graphic Buttons</i> .
	Makes newly place or moved symbols and buttons snap to an invisible grid to aid with lining them up.
	Clears the page so that no graphic is associated with this input.



Accepts the changes and closes this window after first saving the graphic configuration.



Closes the window, abandoning any changes that have been made. A warning will be given, subject to a Programming Set-up option.

At the bottom of the window is a graphics configuration status bar, which is shown in two parts here for clarity.



The left-hand panel displays the numeric reference for the input that is being programmed. This is the input that was selected in the Input Programming List when the Graphics Page Configuration window was opened.

The second panel shows the Event Type that has been assigned to this input and the next panel shows the location (or description) text.



The fourth panel shows the type of page being edited: in this case Graphic Page Configuration.

The next panel shows the position and size (in pixels) of the currently selected symbol. This indication will change as each symbol is selected and it can be used to see if symbols are lined up on the page. The position and size is shown in pixels as:

<distance from left>,<distance from top>/<width>,<height> In the status bar diagram above this is:

356, 244 / 40, 40

which means:

The symbol is 356 pixels from the page left edge The symbol is 244 pixels from the page top edge The symbol is 40 pixels wide

The symbol is 40 pixels high

The final two panels show the number of symbols and buttons on the current page.

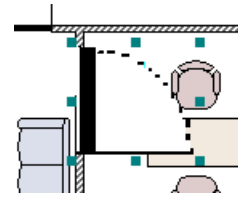
When a symbol has been placed on the graphic by using the toolbar button described in *Section 7 - Graphic Page Configuration*, the Symbol Configuration Window will be displayed automatically. See page 207 for a complete description of how to program the information for the symbol. The Symbol Configuration Window can be displayed for any symbol at any time simply by double clicking on the symbol with the left mouse button.

When the Symbol Configuration Window has been closed the programmer drags the symbol into the required position using the mouse. To drag a Symbol, place the mouse cursor over its centre, hold the left mouse button down, move the mouse to pull the symbol into position, then release the mouse button. Use the left and top indications in the status bar to line up the symbol with others on the page. It is recommended to avoid overlapping symbols.

The symbol can be resized by dragging its selection handles. The handles at the corners allow both the width and height to be varied at the same time whilst the handles in the middle of the vertical sides restrict resizing to the width only and the handles in the middle of the horizontal sides restrict resizing to the height. Use the width and height indications in the status bar to set the Symbol to be the same size as others on the page (if required).

Care must be taken when resizing bitmap symbols, as they may become excessively “blocky” in appearance. If it is going to be a frequent requirement that Symbols are significantly resized, then consider using symbols created from Windows metafiles as these retain a crisp, clear appearance when resized (see *Section 16 - Symbol File Formats*).

As the symbol is moved or resized the graphics status bar panel will be updated so that the exact size and position can be checked.

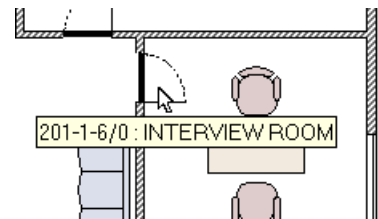


If an alarm occurs during Text Page Programming the Text Programming window will be closed automatically¹ to allow display of the alarm. In this case, any edits to the current page will be lost. This can be avoided by careful use of Silent Alarm Mode – see *Section 11 - Local Actions*.

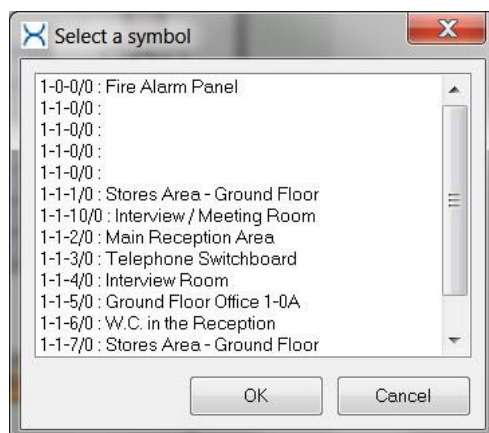
Finding a Symbol on the Page

When a Graphics Page contains many symbols, it can sometimes be a little difficult finding the required symbol. If the cursor is allowed to hover over a symbol, a ToolTip showing both the numeric reference of the symbol's input and the Symbol Phrase will appear².

Although this helps in locating specific symbols, it can still be laborious finding out which symbol is associated with a particular input when a page contains dozens of symbols. An alternative method of finding a specific symbol is to use the Symbol List.



The Symbol list is called up with the Symbol List button on the Graphics Configuration window toolbar.



This list is used to find a specific symbol on a graphic page. The list shows all of the symbols on the current page. The list is sorted in numeric reference order.

As the User clicks on a symbol in the list, it will be selected on the graphics page below.

The text description is from the Symbol location text programmed in the Symbol Configuration window.

Graphic Selection Window



A graphic is assigned to a page by calling up the Graphic selection window using the toolbar button.

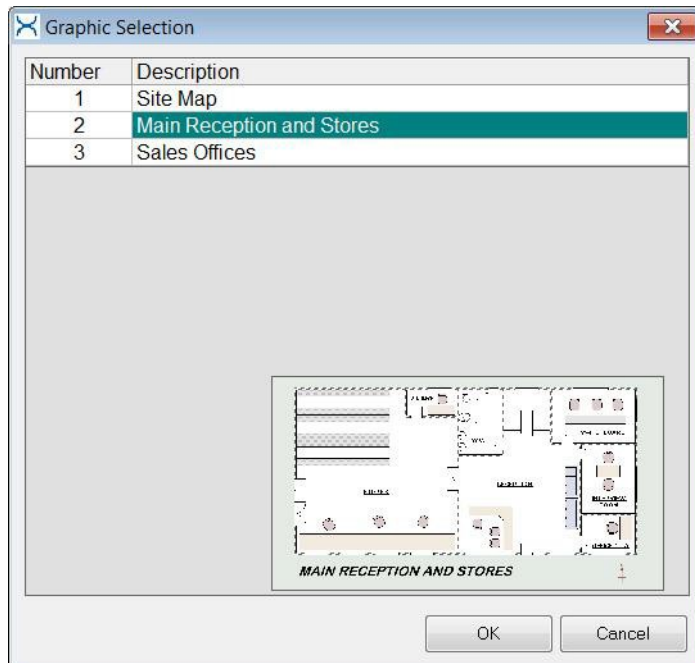
This is not the only way of assigning a graphic to inputs. Graphics can also be assigned from the Input Programming list.

The Graphics Selection window is where graphics are chosen when they are assigned to inputs – it is not where graphics are imported into the AMX. Importation of graphics is via Graphics Management, and this is described in *Section 7 - Managing Graphics*.

¹ If the Event Type attributes for the alarm demand a display change

² The composition of the symbol ToolTip phrase shown during configuration is slightly different from the one show during normal alarm operation, which is described in *Section 16 - Symbol ToolTip Phrase*

This window is also displayed when a User wants to select a graphics for display in the main graphic window.



Selection of the required graphic is made either by highlighting the desired graphic in the list and clicking the OK button, or by double-clicking the name of the graphic in the list.

If the preview panel at the bottom right is not visible, then right-click on the list and enable it.

The Graphic Selection List can be sorted by clicking on the column header of either the Number or the Description column. The Number column indicates the order in which graphics were imported to this AMX system and it is included for reference information only.

Use the cancel button to close the window without assigning a graphic. Any existing graphic will not be overwritten if the window is cancelled.

Symbol Selection Window

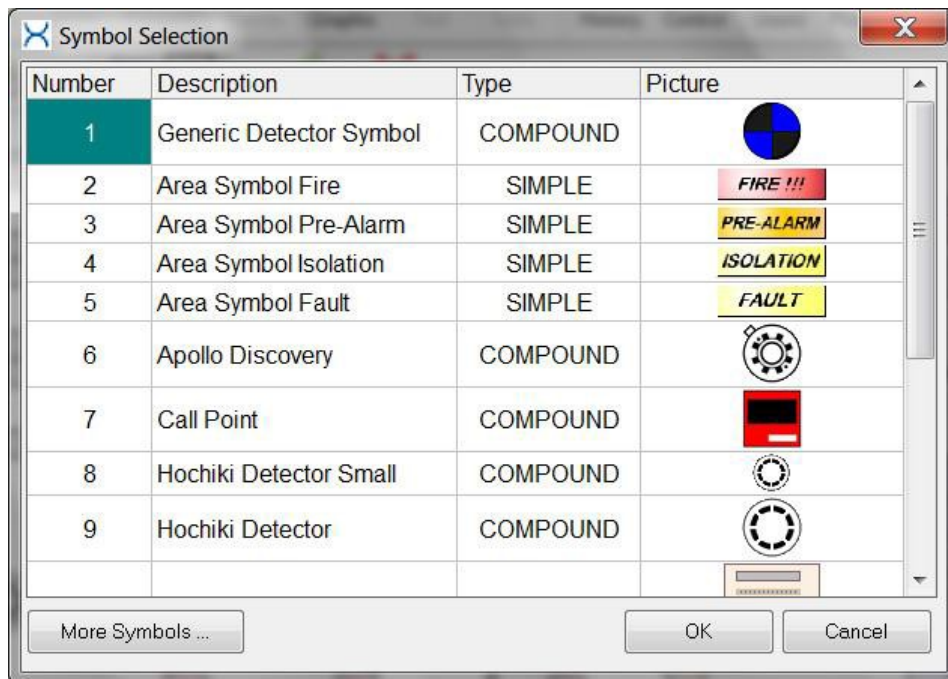


A symbol is placed on a graphic by calling up the Symbol Selection window using the toolbar button.

Each time the Symbol Selection window is displayed only one symbol can be selected and placed on the graphic, but the Symbol Selection window can be called up more than once whilst configuring the page. Therefore, it is possible to place several symbols without saving the graphic page configuration and going back to the Input Programming List each time.

When the window appears the name of the last symbol that was used (placed) will be highlighted. This makes it quick to place several symbols onto a graphic one after the other.

The Symbol Selection window is where symbols to be placed on the graphics pages are chosen. The actual pictures used for the symbols are imported via the Symbol Management facilities described in *Section 7 - Managing Symbols*.



Selection of the required symbol is made either by highlighting it in the list and clicking the OK button, or by double-clicking its name in the list.

The Symbol Selection list can be sorted by clicking on the column header of either the Number, Description or Type columns. The Number column indicates only the order in which symbols were imported to this AMX system and it is included for reference only.

The Symbol Selection window has a pop-up menu, which offers standard options for adding a User Note, checking on the last changes, and customising the appearance of the window.

Use the cancel button to close the window without placing a symbol.

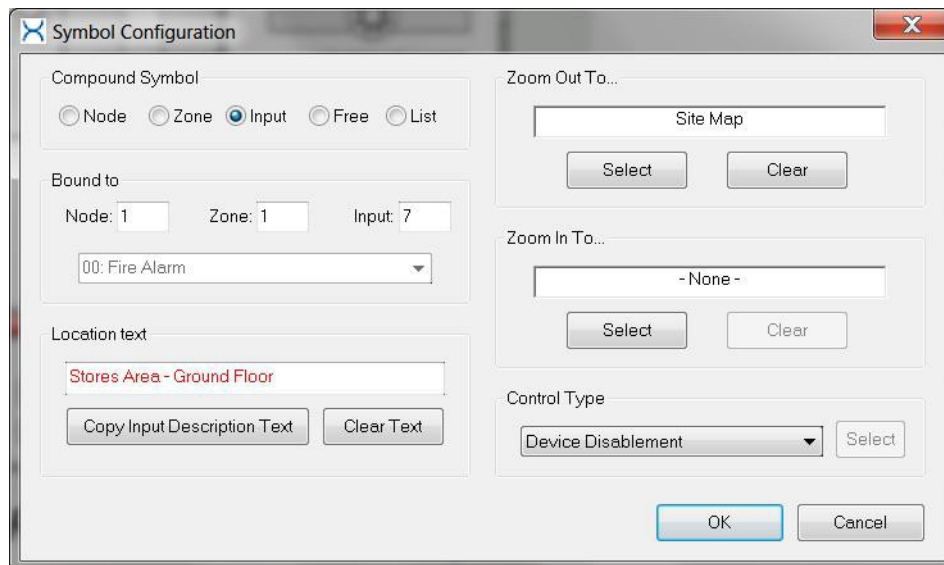
When a symbol has been chosen, its configuration window will be displayed so that its degree of interactivity can be configured. After closing this window it can be dragged into position anywhere on the screen. It is recommended to avoid overlapping symbols as much as possible.

Symbol Configuration Window



The information that is programmed in the Symbol Configuration window is an essential part of configuring graphics in AMX, so please read this topic carefully.

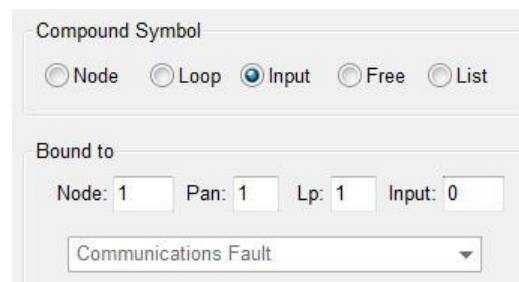
The Symbol Configuration window is displayed automatically when a symbol is placed upon a graphics page using the Add Symbol button on the Graphics Page Configuration toolbar. It can also be called up during Graphics Configuration by double clicking on any symbol.



The top left-hand panel on the Symbol Configuration window indicates the symbol type.

The title of the panel will show either **Simple Symbol** or **Compound Symbol**, depending upon the type that was chosen from the Symbol Selection window.

Simple and compound symbols were explained in *Section 7 - Graphics & Symbols*.



Within this panel there are five choices:

- | | |
|-----------------------|--|
| Node | This symbol shows a picture which depends upon the node's status i.e, a simple symbol will show its ON (or alarm) symbol if <i>any</i> input is ON in the specified node. A compound symbol will vary its state depending upon the most important Input Type that is ON at the node i.e.,, a node compound symbol could be used to show Fire, Isolation or Fault status of a fire panel, which would normally occupy one node address. Node symbols will generally be used in overview graphics, or "Site Maps". |
| Zone (or Loop) | In the same manner as the node symbol varied its picture depending upon a node's status, a zone symbol varies its picture depending upon the status of a specified node <i>and</i> zone. N.B. "Zone" could be "Loop" or "Subgroup", depending upon the node type. |
| Input | This is the most used symbol as it indicates the status of a specific input, taking into account the node, zone and input number. Typically, this type of symbol could be used to indicate the status of a door contact, switch, security detector, fire detector, or any other type of single input point. |
| Free | A free symbol is not associated with any input and does not vary its picture. It is used for decoration only i.e.,, free symbols might be used to indicate the location of fire extinguishers using small pictures. The advantage of using a free symbol over drawing the fire extinguisher on the map is that it is much easier to move the symbol if the location of the extinguisher changes |

List List symbol can be used to provide a common indicator for multiple inputs – see *Section 11 - List Symbols*.

The **Bound To** panel on the Symbol Configuration window indicates the input that the symbol is associated with. If the input specified here changes state, then the symbol picture will change to indicate the status of the input.

There are three text entry panels for entering node, zone, and input information. When a symbol is first placed these will, by default show the numbers for the input currently being configured. However, they can be changed to any input that is required.

Some of these panels may be disabled, depending upon the Symbol Type being configured. For example, the input panel will be disabled (greyed- out) when a zone symbol is being configured and all of the panels will be disabled when a free symbol is being configured. **N.B.** If any information is visible in a disabled panel, it can safely be ignored.

When configuring Simple Symbols an Input Type can also be selected from the Input Type drop down list box below the node, zone, and input entry areas in the Bound To panel. With Compound Symbols the different Input Types are automatically associated with different pictures and so the list box will be disabled.

NB: as the node number is changed the options available in the list box will change to show the Input Types available (as defined in the Node Profile).

The **Symbol Location Text** panel on the Symbol Configuration window allows entry of the text phrase that is shown in the Symbol ToolTip¹ and also in the Graphics Page status bar.

The programmer can either type a phrase of up to 32 characters or click the Copy Input Phrase button which will copy the text from the input specified in the Bound To panel above.

When adding a new symbol to a graphic the location/description text from the input associated with the symbol is automatically inserted into the location text field. This saves the user having to click the “Copy Input Phrase” button to manually copy the phrase.

The colour of the text shown in this panel will vary from red (not in sync with the input’s text) to black as the user changes either the text or the symbol’s type or input association. There is a clear text button.

The **Zoom Out To** panel in the Symbol Configuration window is where the programmer can define which graphic page will be displayed, the Graphics Page’s Zoom Out toolbar button is clicked whilst this symbol is selected. This panel is the key to zooming in and out of the maps. The zooming operation follows the link set up in this panel and the link set in the **Zoom In To** panel, where the programmer can define the graphic page to be displayed if the Graphics Page’s Zoom In toolbar button is clicked whilst this symbol is selected.

Click the Select button to display the Graphic Selection window where a graphic can be selected or press the Clear button if it is not required to have a graphic that can be zoomed out to. If there is no link, the corresponding zoom button on the main Graphic Page (see *Section 2 - Zooming*) will be disabled when this symbol is selected on the page.

The **Control Type** panel in the Symbol Configuration window is for selection of the type of Control Box that will be shown if a User double- clicks on the symbol in the main Graphic page display. If symbol interaction (control) is not required, ensure it is set to “- None -”.

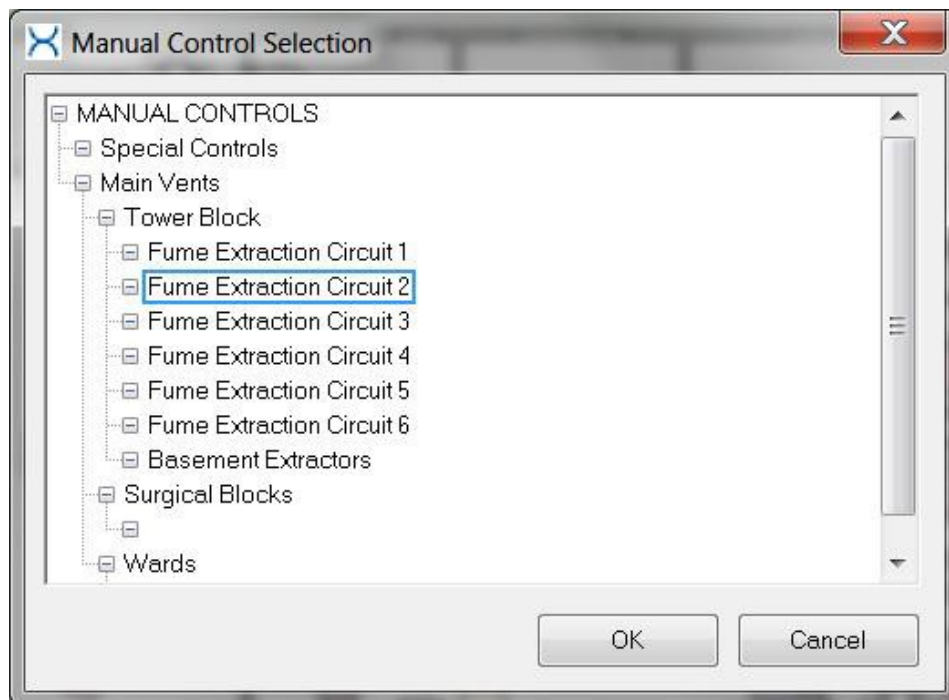
¹ This is shown in the ToolTip both during Graphics page Configuration and also during normal Graphic display

There are several types of control box available. These are:

- A **Fire Panel Control** box, used to control basic operations (Evacuate and reset) of a fire alarm panel.
- An **Isolation Control** box. This may be used with fire panels to isolate detectors and other types of control equipment that allow isolation of input devices. The device associated with the symbol is the one isolated.
- A combined **Fire panel & Isolation Control** box, which combines basic fire panel control and isolation of the device associated with the symbol.
- A Door Lock/Unlock Control box.
- A **Manual Control** box, which allows the user to initiate a single manual control. When this option is selected, the user will need to click on the Select button to choose the manual control to be associated with this symbol. The control is chosen from the control lists that have been set-up in the Control Window – see page 109 – so these control lists must be set-up before the symbols are configured.
- A **Manual Control List** box, which allows the user to choose a Manual Control List from the lists previously set-up in the control window. The Select button must be used to choose the list to be associated with the symbol. When a user double-clicks on the symbol in normal alarm or control operation of the system they will be presented with this list of controls, and they will be able to select and initiate any (or all) of them.

Examples of each of these types of control box are shown in the section dealing with Interactive Graphics in *Section 2 - Fire and Isolation Control Boxes*.

Symbol Manual Control Selection



The system programmer must specify the manual control(s) that will be available when a user-defined Control Box is displayed after a User double clicks on a symbol. This choice of controls(s) is made via this Manual Control Selection window.

The selection list is presented in standard explorer style and the programmer must expand the required node(s) to see the item to be selected.

There are two types of user-defined control box – the Manual Control Box and the Manual Control List Box. The former requires selection of a manual control name, whilst the later requires a manual control list to be selected. Selection is made by either double-clicking on the desired item, or by selecting it and then clicking the OK button.

After selection has been made the Control Type panel in the Symbol Configuration window will show either: “MC: < Manual Control Name >” or “MC List: < Manual Control List Name >”.

Graphic Buttons

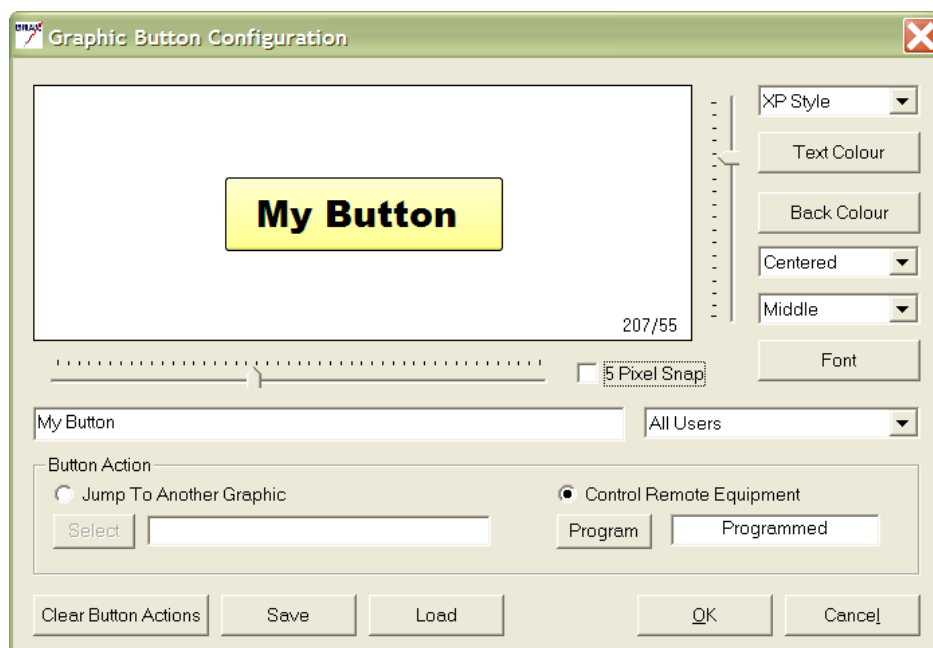
AMX buttons may be placed upon graphics pages to carry out two functions:

- Graphics navigation - to jump to another graphic (map)
- To execute a list of control actions

Buttons are placed on graphics in a similar manner to placing symbols. When configuring a graphic, click on the toolbar button:



A new button will be placed at the top left corner of the graphic page and the Graphic Button configuration dialog will be displayed. After configuration the button may be dragged into position.



At the top left of the configuration dialog is a panel previewing how your button will look. Its size (in pixels) is shown at the bottom right of that panel. Sliders along the bottom and right-hand side of the panel allow you to change the size of the button. A checkbox marked *5 Pixel Snap* ensures that the size changes are in multiples of 5 pixels. This makes it much easier to make several buttons the same size.

The text panel below the horizontal slider is where your caption is entered.

Button style

At the top right of the dialog are various settings which govern how the button will look. Four basic styles are available: *XP Style* (as in the example above), *3D Style*, *Flat*, and *Flat with a Border*. Buttons and combo boxes below allow the colour, caption position and font to be chosen. Be careful when using unusual fonts: if the graphic is being programmed on a machine other than the target machine then it is very important to make sure that font exists on both machines.

Button Action

A panel at the bottom of the dialog is where the button action is set. There are two choices: *Jump To Another Graphic* or *Control Remote Equipment*. The *Jump To Another Graphic* option is used to make navigation buttons; the user may click on them to move to another graphic. Click on the *Select* button and choose the target graphic from the list that will be displayed. The *Control Remote Equipment* option allows you to create a button that sends commands to the remotely connected systems – to reset a fire system, for example. Click the *Program* button and the standard AMX control list editor will be displayed. Up to 255 different actions may be programmed in this list, and these may be addressed to more than one remote system.

Therefore, a AMX that is displaying alarms from two or more different types of fire or security system could have a single button that resets all of these systems with just one click.

The Control list editor is a standard AMX feature, and a full description of its use can be found in the AMX manual and help file. Please remember that you must type a destination node address into the control editor before the actions become available.

Button actions may be cleared with the *Clear Button Actions* button at the bottom left-hand corner of the dialog.

Permission

It might be necessary to restrict access to some controls provided by an AMX graphic button. There are five levels of access, set with the combo box below the *Font* button:

- All users
- Operators and Above
- Managers and Above
- Engineers and Above
- Special Permission

The *Special Permission* option restrict the buttons use to Users who have the *Use 'Special' Graphics Control Buttons* option checked in their User Profile (it's on the Control tab).

Saving and Loading

If a button is to be used on more than one page its definition can be saved. Then it can be reloaded the next time a button is created. This makes it easy to re-use buttons, or create buttons with a consistent size and appearance.

Editing and Deleting Existing Buttons

To edit or delete an existing button right click on it and choose the option you want from the pop-up menu. To re-size an existing button, follow the procedure just given to edit the button and change its size in the configuration dialog.

Buttons may be positioned anywhere on the graphics page by dragging them into position. The graphic page configuration window has a Snap button on its toolbar which may be useful when trying to put several buttons into a vertical or horizontal row.

Automatic Controls



This button on the Input programming list toolbar is for the programming of Automatic Controls.

Automatic Controls are initiated automatically by AMX in response to an input changing state. An automatic control will consist of a list of actions, which may be sent to several different destinations in more than one remote subsystem.

Automatic Controls are very powerful. They allow an event or input in one remote subsystem to automatically initiate actions in another remote subsystem, which will usually be a completely different type of system that could not be connected to the first system without AMX acting as a “bridge”.

The AMX Automatic Controls are assigned to inputs. This is done via the Input Programming List. The Automatic Control must be assigned to each input that is to activate the control. In other words, if a particular output is to be activated every time any input in a zone goes into alarm, then it is necessary to assign the control to each one of the inputs in that zone.

To assign an automatic control to an input, follow this procedure:

1. Go to the Input Programming List.
2. Select the required input.
3. Click the Controls icon on the Input Programming List toolbar.
4. The Control Editor will be displayed. Enter a list of actions for when the input turns ON and another list for when the input turns OFF. See *Section 4 - Defining Controls* for details of how to do this.
5. Click the OK button to save the automatic control

Do not forget to program actions for both the ON and OFF input states i.e., If a remote output is turned on in response to an input to AMX, the output will not switch off unless there is an action programmed to turn it off when the input is reset.

Quick Programming of Automatic Controls

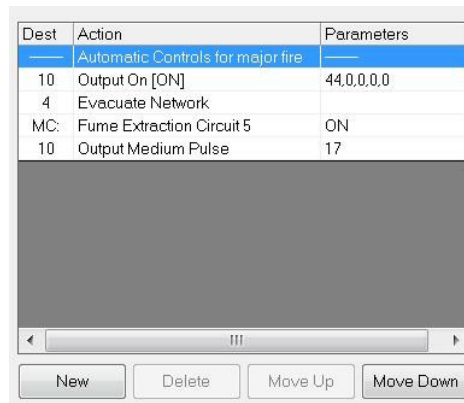
A common control can be assigned to a block of inputs in one operation in the same way that an Event Type or Template is assigned to a block of inputs.

To assign an automatic control to a block of inputs in one operation, go to the Input Programming List and select the required block of inputs. Click the Controls icon on the Input Programming List toolbar. The Control Editor will be displayed, and actions can be entered for when the input goes on and when the input goes off. When you click the OK button to close the Control Editor a copy of these two action lists will be copied to every input that had been selected. This list of actions can be edited independently for each input later, if required.

Using a Manual Control as a Subroutine

When a common action or several common actions are to be carried out in response to multiple different inputs, there is an advantage to using a “subroutine”.

Before programming the input(s), go into the Control Window and set up a Manual Control for the common action. This Manual Control will be the subroutine and it can consist of one or many actions. Now program Automatic Controls for an input or for a block of inputs as previously described. However, when the Control Editor is displayed right-click on the action list at the left of the control editor window and choose “Insert Manual Control” from the pop-up menu. Select the Manual Control that you had previously defined, and this will now be called as a “sub-routine” when the Automatic Control is initiated by AMX.



Dest	Action	Parameters
---	Automatic Controls for major fire	---
10	Output On [ON]	44,0,0,0,0
4	Evacuate Network	
MC:	Fume Extraction Circuit 5	ON
10	Output Medium Pulse	17

Additional actions can be added to the action list along with the subroutine – or further manual controls can be added as additional subroutines. Do not forget to program the “subroutine” for when the input goes OFF as well.

The major advantage of using a subroutine like this is that it is much easier to change the common action list in the Manual Control than to redefine the action list for many different inputs. If at some time in future, you need to redefine the common actions you need only to edit the one Manual Control in the main Control Window and you do not need to re-programme each input individually.

Another advantage is that programming an input with the single common subroutine will be much quicker than typing in the list of actions each time.

Be aware of the risk in creating too many actions when calling several Manual controls as subroutines. If there are too many actions the remote subsystems may not be able to action them quickly enough. There is no strict limit, but a control that results in more than 100 actions should be considered excessive. Some types of external system may not be able to handle even this number. Please seek advice from Drax if there is any uncertainty.

Automatic Control Performance

As a rough guide an automatic control will usually be transmitted from the AMX about 1 second after the input event is received at the AMX. However, it is unlikely that this speed of reaction will be seen in practice when looking at a remote output after an input has been activated. The reason is that the 1 second delay within the AMX does not take into account any delays elsewhere in the entire system.

The total delay will consist of the sum of the following items:

1. Delays in the remote equipment where the input originates.
2. Delays/latency in the software protocol used to transfer the event either directly to the AMX or to a remote network node.
3. Transmission delays if the input is signalled back to AMX via a network system.

4. Network delays if the control is to be transmitted to another AMX in a TCP/IP Group.
5. The 1 second (average) delay within the AMX
6. Transmission delays if the output is signalled back to a remote node via a network system.
7. Delays/latency in the software protocol used to transfer the event into the remote equipment either directly from the AMX Network Manager or from a network node.
8. Delays in the remote equipment before it activates the output.

It is difficult to predict the speed of an action. Delays that are measured when a system and its networks are quiet may become longer when a system is very busy. Therefore, this unpredictability should be taken into account when designing systems.

Automatic Control Reliability

AMX is an alarm management system, and most of the alarms and events will be associated with life safety systems. Therefore, it is necessary to consider the implications of any unreliability or failure of the controls.

Although PCs are very reliable these days, it should be remembered that the automatic controls will only be initiated whilst the PC has power and is running correctly. A PC failure will prevent the controls from being initiated, also if an engineer is making a backup (which takes AMX offline), or has shut AMX down for some other reason, the controls cannot be carried out.



You should not use Automatic Controls for primary alarm responses – e.g., activating fire alarm sounders in the zone of origin.

Although automatic controls are normally very reliable, any critical or life safety function should be approached with care. If the remote subsystem performs some critical function – the ringing of bells by a fire alarm panel for example – the this function should normally be left to the remote subsystem¹. Of course, the AMX can be programmed to carry out subsidiary or supplementary control functions whilst the main equipment carries out the critical action. For example, the fire alarm system can ring the bells directly whilst the AMX can be programmed to turn on the car park lighting and shut down the air conditioning if a fire should occur.

When implementing automatic critical controls in a system consider this to be the order of infallibility, with number 1 the best:

1. **Controls kept within the remote subsystem.** When there are super-critical control functions it is quite likely that the hardware of the remote subsystem has been designed to meet Standards specific to its discipline. Therefore, this is the route to ensure that the requirements of the Standards are maintained.
2. **Controls initiated from AMX.** In normal operation there should be no problem using AMX automatic controls. However, if the PC's power should fail or if somebody interferes with the AMX – switches it off for example – there will be no automatic controls. This might be the only method of initiating an automatic control when the output action is to take place in a system other than the one where the input originated.

This does not mean in any way that the AMX is unreliable – it's just that the option 1 is sometimes more reliable due to the nature of their hardware.

If it is necessary to perform critical functions via AMX automatic controls, then the use of an Uninterruptible Power Supply to protect against power failures should be considered mandatory. There should also be a procedure adopted when AMX is taken offline for backups or maintenance.

When AMX has passed an automatic control action – e.g., activation of an output – to a remote subsystem via one of its Network Managers it can no longer have any influence on what happens to that action.

In some systems the equipment may indicate to AMX that it has received the action, but if the remote subsystem does not do anything about it then AMX can do no more.

¹ In the case of bell ringing by a fire alarm panel the requirements of the BS-EN standards will be the overriding factor.

Quick Input Programming Techniques

AMX has some facilities that aid the quick programming of inputs.

The quick programming facilities are accessed from the Input Programming List window. The quick programming facilities are accessed from this window by using the pop-up menu that appears when the right mouse button is clicked on the list.

The facilities available to speed up quick input programming are:

- Assign Event Type to Page(s)
- Assign Template to alarm page(s)
- Assign Template to reset page(s)
- Copy Input Descriptions
- Assign Graphic to page(s)
- Toggle enable/disable input status¹
- Move selected Input(s)
- Copy selected Input(s)
- Delete selected Input(s)

The above commands can be applied either to a single page or to a selected block of pages.

To program the inputs quickly, do the following:

1. Create the required Event Types if they do not already exist
2. Create text page Templates embodying System Fields for the Description/Location. Think carefully about using Fixed Fields in the Templates for any contact names or phone numbers, as this will save a lot of time if changes need to be made later.
3. Assign the Event Type to the Page(s)
4. Assign the Template to the alarm page(s)
5. Type the Description/Location text into the field directly into the Input Programming List Window, using in-cell editing.
6. In the case of multi-state inputs, then copy the Description/Location phrases to the other used Input Types.

These inputs are now basically programmed. However, although this procedure has assigned graphics pages to the inputs, it cannot place symbols on the pages, and this must still be done for each input that has a symbol associated with it.

The AMX will issue a warning if the commands are going to overwrite existing programming information.



See The Input Programming Wizard in *Section 7 - Input Programming Wizard* for an alternative method of fast input programming.

¹ Toggling enable/disable for page status works only on programmed pages

Managing Event Types

The Event Type is a user-defined profile that describes how a particular type of event or alarm is to be handled by the AMX. If the programmer assigns different Event types to different types of input, AMX can automatically handle and prioritise the alarms in the desired manner. Alarms from different disciplines will normally use different Event Types.

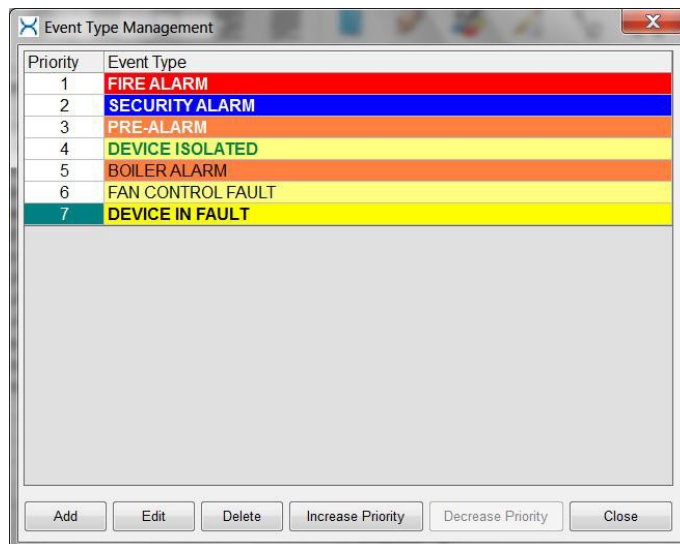
Typical examples of an Event Type might include Fire Alarms, Security Alerts, Faults, etc. However, it is perfectly valid, and sometimes highly desirable to create similar Event Types so that alarms for different areas (for example) can be handled slightly differently.

This topic of the AMX manual deals with the creation and management of the Event Types, but some further background information can be found in *Section 7 - Event Types*.

The Event Types are managed via the Event Type Management window.

The Event Type Management Window

The Event Type Management window is accessed from the Programming Menu on the main toolbar. This menu option only appears when the Input programming List is on the screen. It is also necessary for the User to have access to the management routines enabled in their user Profile.



This window provides access to the Event Type Management facilities.

The Event Type Management list has a pop-up menu, accessed by clicking the right mouse button on the list. Options on this menu include:

- Facilities to print and export the Event type List. See *Section 9 - Printing from Lists* and *.Section 9 - List Exporting*
- Duplication of the window buttons that Increase and Decrease the priority of the event Type.
- Quick Find – a list search facility
- A dialog box that shows who created the Event Type and the last four times that it was edited.
- An option to add or edit a User Note for the Event Type.
- The standard list window set-up facilities so that the appearance can be customised.

Buttons at the bottom of the window allow Event Types to be added, edited, and deleted.

A column shows the number of times each Event type has been used – i.e., assigned to an input. This figure allows the programmer to identify the most used Event Types.



If the programmer deletes an Event Type that is still assigned to inputs, these inputs may not display as required and will take a low priority. It is strongly recommended that Event Types are only deleted if it is certain that they are not used.

The Event Type Management list cannot be sorted. The order of the list is the priority attached to the Event Type and this is indicated numerically by the left-hand column. Event types with the highest priority – nearest the top of the list – will take precedence when more than one unaccepted Alarm is present in the AMX.

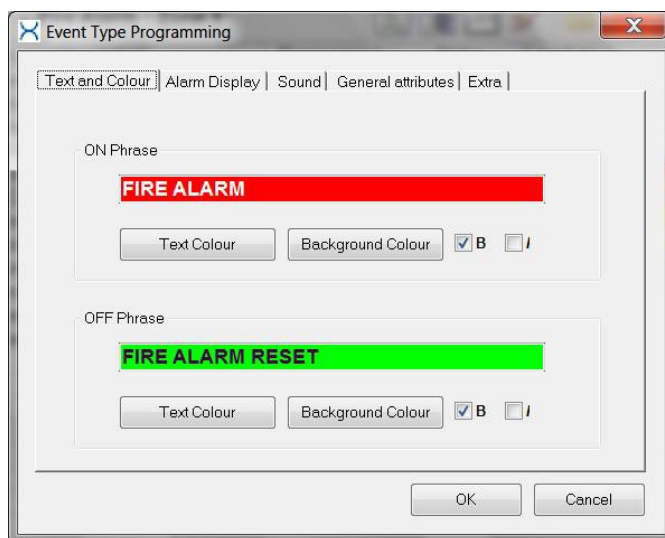
Setting the Event Type Priority

The Event Type priority is changed by using either of the two Increase Priority and Decrease Priority buttons at the bottom of the Event Type Management window, or by using the identical functions on the pop-up menu.

Each time the Increase Priority button is clicked the selected Event type will be moved closer to the top of the list, increasing its priority.

Adding and Editing Event Types

Event Types can be added and edited using by using the two buttons at the bottom of the Event Type Management window. These will display the Event Type Programming window.



The *Text And Colour* tab in the Event Type programming dialog window is where the text phrases describing the ON and OFF states of this Event Type are programmed. The Event Type has separate 32-character phrases for ON and OFF occurrences of an alarm using this type. These phrases appear in the Current Event List and Event History.

These phrases should be general in nature, as they should indicate the *type* of Event. A description phrase, which is specific to each individual input, can be defined in the Input Programming List.

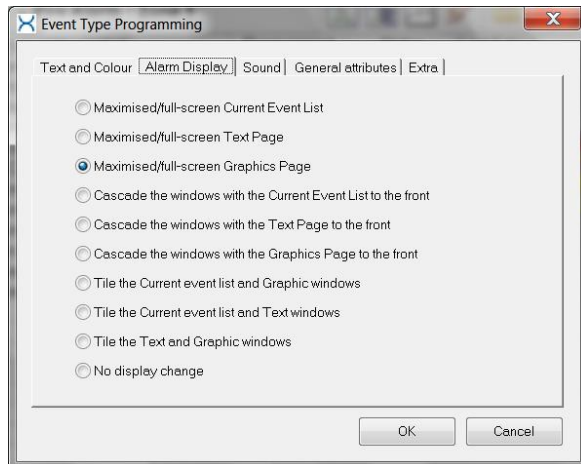
Typical examples of an Event Type ON phrase:

- GENERATOR STARTED
- FIRE DEVICE ISOLATED
- DOOR OPENED

It might be found that using upper case letters for the Event Type phrases and using lower case for the individual input phrases (programmed elsewhere) give a clear appearance, but the system is flexible, and the programmer can use lower or upper case as desired.

The colours of these Event Type phases are also defined by the system programmer and this colour “coding” can be used so that events of a particular type can be easily identified. Both the text colour and the background colour of the phrase can be chosen. The background colour is used only for the Event Type column in the Current Event and History lists – not for other items in the list such as the description – but printing options allow this colour to be used as a pastel background shade in printed History Reports.

Alarm Display Setting



The Alarm Display, or Initial Display, setting defines how alarms using this Event Type will be displayed to the User. Several different settings are available, allowing various combinations of the Text, Graphic and Current Event List to be displayed.

This setting does not stop the user from switching views manually when an alarm occurs

The various initial alarm display options include:

Maximised/Full Current Event List

Specifies that the initial display of the alarm should be a full screen Current Event List. This will either fill the client window area, or be maximised, depending upon the global Set-up options.

Full/Maximised Text Page

This option specifies that the initial display of an alarm should be a full screen text Page. This will either fill the client window area, or be maximised, depending upon the global set-up options.

Full/Maximised Graphics Page

Specifies that the initial first display of an alarm should be a full screen Graphics Page. This will either fill the client window area, or be maximised, depending upon the global Set-up options.

Cascaded Current Event List

Specifies that the initial display of an alarm should be cascaded Text, Graphic and Current Event List windows, with the Current Event List to the front.

Cascaded Text Page

Specifies that the initial display of an alarm should be cascaded Text, Graphic and Current Event List windows, with the Text Page to the front.

Cascaded Graphics Page

Specifies that the initial display of an alarm should be cascaded Text, Graphic and Current Event List windows, with the Graphics Page to the front.

Tiled Event List and Graphic

Specifies that the initial display of an alarm should be a tiled Current Event List and Graphics Page. Tiling will be vertical, with the Event List on the left. The display will be split equally – 50/50.

Tiled Event List and Text

Specifies that the first display of an alarm should be a tiled Current Event List and Text Page. Tiling will be vertical, with the Event List on the left. The display will be split equally – 50/50.

This is a common initial display method, as it shows the user a summary of current events on the left and instruction specific to the selected alarm on the right. The user can manually switch to a graphic view if desired.

Tiled Text and Graphic

Specifies that the first display of an alarm should be a tiled Text Page and Graphics Page. Tiling will be vertical, with the Text Page on the left. The display will be split equally – 50/50.

No Display Change

Specifies that the first display of an event/alarm should not cause any change to the current screen display layout. This option is useful for events that have low importance, but still need to be recorded at the AMX.

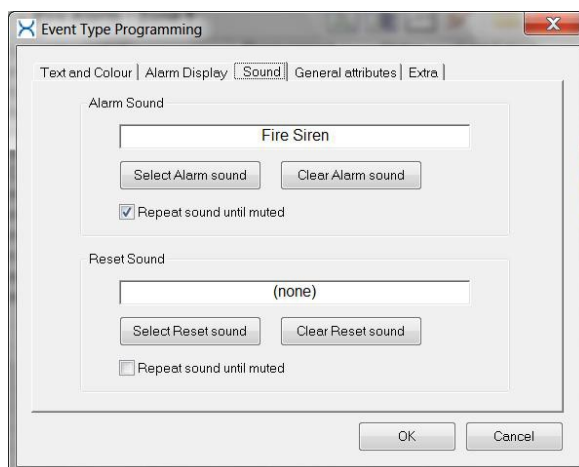
There are also several options on the Event Type Programming General Attributes tab which allow options of having events which are recorded to the History and not displayed at all, or not displayed during the day or night, etc.

Although there are quite a wide range of options available, it may be confusing for the user if too many different display formats occur when there are different types of alarm. It is usually wise to choose one or two preferred display formats for the system and stick with them.



If the tiled Event List and Text Page option is to be used, take care when programming the text pages. The text will wrap at the end of the line, if the page was programmed with full width in mind the layout might become messy when the window is tiled and set to half the screen width. Check the layouts carefully before programming large numbers of pages.

Event Type's Sounds

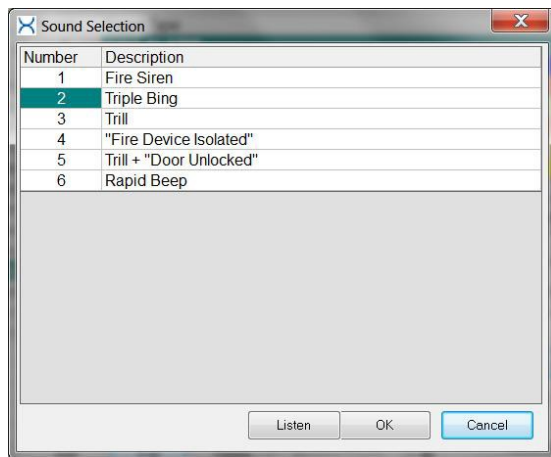


The Sound tab in the Event Type programming dialog window allows the programmer to specify the optional audible alarm sounds to be used both when this Event Type occurs and when it resets.

Each Event Type can have its own individual, easily identified sound associated with it – or sometimes no sound at all will be preferred.

The Alarm sound will be played when an alarm using this Event Type is turned ON.

Similarly, the Reset Sound will be played when alarm using this Event Type resets. If either of these fields on the Event Type Programming Sound tab is blank there will be no sound. Use the Select Alarm Sound button to choose the sound. The same sound can be used for any number of Event Types.



When the Select Alarm Sound button is clicked the Sound Selection window will be displayed.

Selection of the required sound is made either by highlighting it in the list and clicking the OK button, or by simply double-clicking its name in the list.

The Listen button allows the user to hear the sound selected, before making the final selection.

The Sound Selection list can be sorted by clicking on the column header of either the Number or on the Description column. The Number column indicates the order in which sounds were imported to the AMX system and it is included for reference only.

The Sound Selection window has a pop-up menu, which offers standard options for adding a User Note, checking on the last changes, and customising the appearance of the window.

Use the cancel button to close the window with assigning a sound.

If the *Repeat Sound Until Muted* check box in the Event Type programming window is checked the sound will loop continuously until either a user mutes it or the event is accepted. If this box is not checked the sound will be played once and then stop.

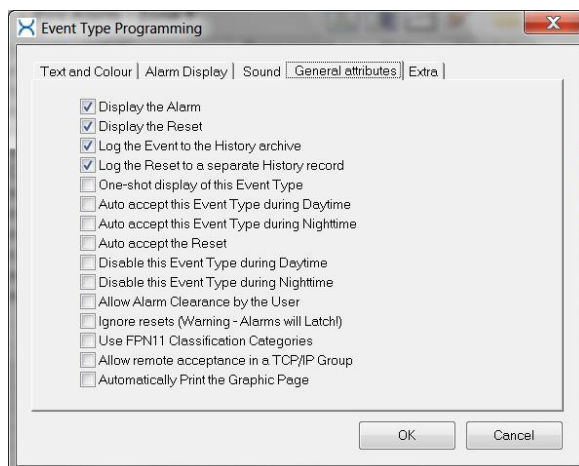
Often, it might be desirable to have a sound with the alarm, but no sound with the reset. Alternatively, it might be desired to have a continuous sound with the alarm that plays until muted, or the alarm is accepted and a single short sound to accompany the reset.

Sounds are not limited to chimes and bells – they may also be speech announcements. Speech announcements should be general – e.g., "There is a Security Alert" – as they will be used for all alarms that use this Event Type. See the section on Sound Management – see *Section 7 - Managing Sounds* for further details.



It may be preferable to "group" similar Event Types by using the same sound for similar types of alarm. Users who will learn to react accordingly as soon as they hear the sound. However, unless speech is used it is wise to avoid having too many different sounds, as this will simply be confusing for the users.

Event Type Attributes



Each Event Type has a number of Event Type Attributes, which define how the AMX will handle events/alarms of this type.

These attributes allow for a wide range of handling options, but they should be used carefully, particularly the options that disable inputs as alarms can go unseen in these cases. Be sure that is what is intended.

The options available include:

	If this option on the Event Type Programming General Attributes tab is checked an Alarm using this Event Type will be displayed using the option selected on the Alarm Display tab – e.g., as a maximised text page. If this box is not checked the Alarm will not be displayed.
Display the Alarm	If both this box and the Display Reset box are unchecked, then events/alarms using this Event Type will not be displayed at all. However, they will still be recorded in the History (if the log option is specified). NB: Other attributes may also affect the alarm display, particularly the Disable during the day/night options.
Display the Reset	As per the previous option, but for Reset.
Log Event Attribute	If this option is checked then events/alarms using the Event Type will be recorded in the Event History. Normally this option should be checked, or else there will be no History record of alarms using this Event Type.
Log Reset Separately	This option specifies that a reset (OFF) of this Event Type will be logged to the Event History as a separate record. If this option is unchecked the reset time will be recorded along with the original alarm (ON) entry in the History. This option could be useful where the OFF condition of an Event Type is critical, and it is useful to recall events in strict chronological order.
One Shot Display	This option specifies that events/alarms using this Event Type will be shown to the user only once. When the alarm (ON) occurs it will be displayed, then it will clear from the display and the Current Event List when a user presses the Accept button. Resets of this Event Type will be ignored as they have (in effect) already been reset when they were cleared automatically by AMX. This type of display prevents the Current Event List from being cluttered up with less important events.
Auto Accept during the Day	Specifies that events/alarms using this Event Type that occur during the Day-time will be accepted automatically by the AMX after a time delay. Both alarms (ON) and resets (OFF) are affected by this attribute. The Day and Night times – and the time delay before auto-accept occurs – are global settings which can be changed in the main Set-Up window.
Auto Accept during the Night	As per the previous option but applies to Nighttime.
Auto Accept the Reset	This option specifies that the events/alarms using this Event Type will have their resets (OFFs) accepted automatically by the AMX after a time delay. Alarms will still require acceptance in the normal way. This attribute may be used in conjunction with the Day/Night auto accept attributes to increase flexibility of the auto-accept options.
Disable during the Day	If this option is checked then the events/alarms using this Event Type which occur during daytime will be disabled (ignored). If the event has turned on during the night (and therefore is on the display) it will remain in the system when the transition to daytime occurs.
Disable during the Night	As per the previous option but applies to Night-time.
Allow Manual Alarm Clearance	If this option is checked then the User will be allowed to clear alarms of this type from the Current event List manually¹. Clearing an alarm will also remove any associated text/graphics page from the display. Manually clearing alarms is a useful feature that can prevent the Current event List from becoming cluttered up with events and alarms that have been fully dealt with but have not yet reset at source.

Ignore Resets	If this option on the Event Type Programming General Attributes tab is checked the Resets using this Event Type will be ignored. Warning! This option must be used with care as events/alarms will “latch” and will require manual clearance.
Allow Remote Acceptance in a TCP/IP Group	Some AMX applications may require that alarms remain in the system and are manually cleared by a User – see <i>Section 2 - Manually Clearing an Alarm</i> for more information. If you require Users on remote PCs to be able to accept this event, remotely check this box. The User on the remote PC will need permission to do this in their User Profile.
Automatically Print the Graphic Page	Prints the Graphic page automatically on alarm. This is an optional feature.

If these attributes are changed for existing Event types, then all inputs that use the Event Type will be affected by the new attribute choices.

Managing Graphics

This topic of the manual deals with the import and management of the Graphics used as maps or graphical status indications in the AMX.

Graphics are the fixed background picture – they are made dynamic or interactive by placing symbols upon them during graphic page configuration (see *Section 7 - Graphic Page Configuration*). Please read *Section 7 - Graphics & Symbols* if you are not already familiar with this subject.



We strongly recommend that you use bitmap files – JPG, BMP or GIF. Although WMF vector files can be used they often give poor performance or unwanted issues in practice

Graphics Size and Resolution

AMX was originally targeted at a graphics resolution of 1024 x 768 pixels. However, it can work in any resolution above that up to, and exceeding, HDTV resolution of 1920 x 1080.

Whatever resolution you choose it is strongly recommended to set large fonts on the PC to ensure that embedded icons and symbols in the program display correctly. Large fonts are preferred on high resolution displays when the User may not be sitting directly in front of the system.

It is essential that graphics are programmed on a system that uses the same resolution as the PC running the AMX on site (including the large fonts setting). If this is not done, then it is likely that the graphics will not display in the correct size when installed on site.

On a system running at a screen resolution of 1024 x 768 pixels the graphic should be 1004 (wide) x 556 pixels. Often a system may have a much higher screen resolution.

Wide screens are fine – just be consistent (see above).

¹ If they have permission to carry out this operation set in their User Profile

For screen resolutions other than 1024 x 768 pixels the graphic should be:

Graphic Width in pixels = screen width in pixels – 20

Graphic Height in pixels = screen height in pixels – 212

Example for a screen resolution of 1920 x 1080:

Graphic Width in pixels = 1920 – 20 = 1900 pixels

Graphic Height in pixels = 1080 – 212 = 868 pixels

The actual height and width available may vary slightly depending upon the operating system, the operating system theme in use, and the AMX theme selected in the setup window, so allow for very slight cropping at the edges.



Remember, whatever resolution is used **it is essential** that the same resolution and the same large fonts setting is used when transferring data between different AMX PCs.

We recommend that Windows Large Fonts setting is always used.

Preparing Graphics for use with AMX

Graphics for use in the AMX can be prepared with any program that can save or export the data in native Windows formats. These formats include bitmaps (GIF, JPG, or BMP) and metafiles (WMF).

For the best and sharpest results graphics should be prepared for the size of the AMX graphics window (see above) and should not be resized afterwards.

Important! Graphics are not resized when they are loaded. If they are too big, the excess will be off the screen.

Programmers should think carefully about the overall style of the graphics when they are created. The appearance to users will be greatly improved if the graphics all share the same visual style.

Think carefully about the appearance on the screen. Although the overall look is down to personal taste, it can influence the usability of the finally configured system.

Consider the following guidelines:

- White line drawings on a black background may look dated.
- Brightly coloured diagrams are initially appealing, but they may prevent the alarm symbols from standing out. Muted pastel colours (or even black, grey, and white) used for the main drawing with brightly coloured symbols often works well.
- Too much detail in a drawing can confuse the user. Keep drawings simple and clear. CAD drawings that are created for construction or wiring work may have far too much detail. Remove all unnecessary layers of detail.
- Keep text on the graphic to a minimum and don't make it too small.
- Design for your final AMX screen resolution. Creating a bitmap drawing in a different size and then resizing it may lead to "blocky" text and curves. It may also cause horizontal and vertical lines to take on arbitrary widths or display as grey instead of fully black or white. CAD (vector) drawings can be created in any size and then resized at the final stage before converting to bitmap.
- If a bitmap drawing *must* be resized, experiment with using either re-sampling or anti-aliasing techniques for the best results. Getting this right will make a big difference to the quality of the result.

The above are recommended guidelines. A full description of the techniques involved in creating and editing drawings is beyond the scope of this manual. The programmer is strongly recommended to familiarise themselves with their drawing/painting package before starting on the AMX graphics.

There are no recommended graphics program to use.

Here are a few popular PC graphics programs:

Program	Format	Program	Format
AutoCad TM	Vector	PaintShop Pro TM	Bitmap
Visio TM	Vector (part of some office packages)	Windows Paint TM ¹	Bitmap (maybe too simple)
PhotoShop TM	Bitmap		
PhotoShop Elements TM	Bitmap (cheaper than Photo-shop full version and will do all you want)		

There are many other applications on the market, the above list is just a selection.

It is recommended that Vector files be converted to bitmap before importing into AMX.

Finally, scanning existing diagrams is sometimes seen as a quick method of getting graphics into the AMX however will not provide the quality that an original graphic file will.

It is not possible to edit an AMX graphic with symbols on it. Symbols are overlaid on top of the graphic by the AMX when the graphic is displayed allowing the AMX to control their dynamism and interactivity.

See *Section 7 - Using AutoCADTM Graphics* for one method of using AutoCADTM files.



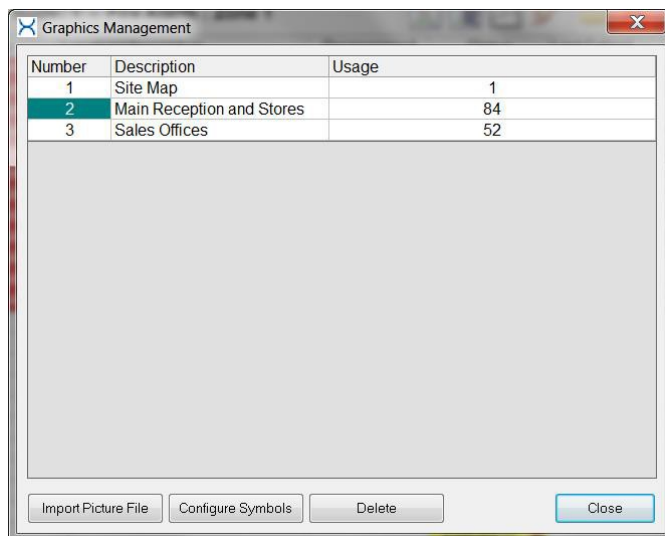
When creating graphics, give them filenames that clearly describe what they depict. Filenames of less than 32 characters (plus extension, making 36 in total) are advisable, as this allows AMX to retain the original filename. Clear filenames will be found to be useful if system changes are made at later date.

Graphics are imported and managed via the Graphics Management window.

¹ The Paint program supplied with Windows may not have the functions required to create a good quality graphic.

Graphics Management Window

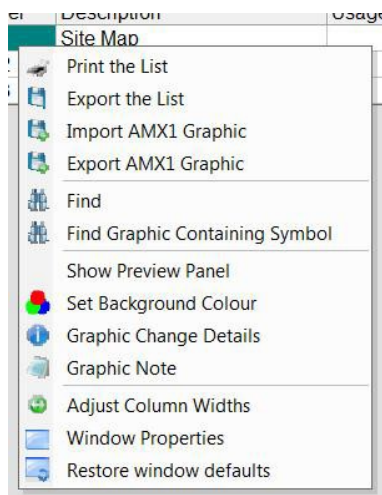
The Graphics Management window is accessed from the Programming Menu on the main toolbar, this menu option only appears when the Input programming List is on the screen. It is necessary for the programmer to have access to the management routines enabled in their User Profile, or they will not be able to access this window.



This window provides access to the Graphics Management facilities. It will not be possible to access this window whilst graphics page configuration is in progress.

A small panel overlaid on top of the Graphics management window shows a miniature preview of the graphic that is selected in the list. The position of the panel will move up and down so that it does not obscure the currently selected line.

The Graphics Management list has a pop-up menu, accessed by clicking the right mouse button on the list.



Options on this menu include:

- Facilities to print and export the Graphics list. See *Section 9 - Printing from Lists* and *Section 9 - List Exporting*.
- An option that calls up the standard colour dialog window so that the background colour of the graphic can be set. This colour is used for vector (WMF) format files, but it will not be seen with bitmap files unless the imported

graphic is less than the window size. This is because bitmaps have their own solid background colour¹. By default, WMF files will be given a grey background.

- A Quick Find facility to locate a graphic by name. The search starts on the currently selected row and only the text in the currently selected column(s) is searched.
- A dialog box that shows who originally imported the graphics and the last four times that its name was edited, or it was re-imported.
- An option to add or edit a User Note for the graphics.
- The standard AMX list set-up facilities, which allow the window's appearance to be customised.

Buttons at the bottom of the window allow graphics to be imported and deleted. There is also a button that allows the Symbols to be configured on top of a graphic – see *Section 7 - Graphics & Symbols*.

The Graphics Management list can be sorted by clicking on the column headers for Number and Description. The Number column is just a numeric reference and has no other significance.

Importing Graphics

A button at the bottom of the Graphics Management window allows the programmer to import graphics into the AMX system. This button calls up the standard file dialog (see *Section 7 - Graphics Management Window*).

The file dialog will show acceptable graphic files. These will include those with the extensions such as BMP, GIF, WMF, etc. The drive and folder can be changed so the desired file can be located.

When the file has been found the Import button in the file dialog should be clicked. The file will be copied into AMX and it will appear in the Graphics Management list with a temporary description. This description can now be edited using in-cell editing.

If AMX detects that the file being imported has the same filename as one already on the system, it will ask if the original file is to be replaced. If the programmer replies *No* then the file will be given a new name, but if the programmer answers *Yes* then the original file will be overwritten. This is an important feature that allows a graphic to be altered or edited on another PC and then re-imported to the AMX. However, it is essential to be sure that the file being overwritten is indeed just an earlier version of the one being imported.

If a file is mistakenly allowed to overwrite a totally unrelated graphic, then that graphic will be lost and the inputs that used it will have an incorrect display. If there is any doubt whether an imported file should be overwriting an existing file, always answer *No*.



Filenames for graphics that are to be imported to AMX should be less than 32 characters. This allows AMX to retain the original filename, this makes it easier should they need to be altered or re-imported later.

Re-editing Graphics

The previous topic mentioned the re-importing of graphics. Sometimes it is necessary to make small changes to a graphic, perhaps because the use or layout of a building has changed.

When AMX imports a graphic it retains the original filename, providing the filename is less than 32 characters. This means that the original file can be edited later and re-imported to the AMX.

Because it has the same filename as an existing graphic, the programmer will be prompted to accept the overwrite of the existing file.

Answering **Yes** will cause the newly edited version of the graphic to replace the old version. The symbols that were configured for the original graphics will be retained in their original positions and all the inputs that used the older version of the graphic will now use the replacement file¹. If editing the graphic, requires symbol positions to be altered the programmer must find the input that used the graphic in Input Programming and enter the Graphics Configuration window from there. Then the symbols can be moved around as required.

Re-editing and re-importing a graphic assumes that the original programmer kept the master files carefully and they are available. If this is not the case, they can be copied from the existing AMX installation (or preferably from a configuration backup disk). The graphics can be found in the subfolder `\Data\Graphics` below the AMX installation folder. If the previous recommendations of using a clear filename of less than 32 characters has been followed, the required graphic should be readily identifiable and can be copied to another disk using Windows Explorer. Note that the graphics filename will often not be the same as the 48-character name that was given to it after it was imported to AMX.

Never edit graphics on a live AMX system, copy it to another machine before editing.



It is not possible to edit the graphic on an external system with the symbols in place.

Using AutoCAD™ Graphics

AMX will not read AutoCad™ files directly. Sometimes this requirement arises because it is thought that using existing AutoCad drawings of a site or building will avoid the need for creating graphics especially for the AMX configuration.

Unfortunately, this is not really true. Most existing AutoCad™ drawings have been created with A0 or A1 printed copies in mind and these contain huge amounts of detail that will just blur into a mess when compressed down onto the average PC monitor. In many cases,

AutoCad™ drawings will contain borders and boilerplates that have no place on the AMX display.

However, it is still perfectly possible to use these drawings as a starting point for AMX graphics. To achieve this, it is necessary to remove the unnecessary levels and layers of detail and zoom into the sections of the drawing that are required.

This is one method of manipulating an AutoCad™ drawing for use in AMX:

1. Display the drawing in AutoCad™ with the same screen resolution used by AMX. Scroll/zoom the drawing until the required part is visible.
2. Capture the display using a screen capture program or by pressing Alt+Print Screen to copy the screen to the clipboard.
3. Paste the captured screen into a bitmap graphic editor (e.g., Adobe PhotoShop™ Elements, etc).
4. In the graphic editor, crop the picture to the required size (see *Section 7 - Graphics Management Window*).
5. Add any colour or additional details using the bitmap graphic editor.
6. Save the drawing as BMP, RLE, or GIF, giving it a clear unambiguous filename of less than 32 characters.
7. Import the drawing into AMX

Some knowledge of graphics programs and how to use them is necessary to make the best AMX graphics.

¹ If the original graphic was on display in the Main Graphic window during the import operation it will not be updated until the next time the Main Graphic window is loaded.

Managing Symbols

This topic of the AMX manual deals with the creation and management of the symbols that are used to make AMX graphics interactive. Refer to *Section 7 - Graphics & Symbols* if you are not already familiar with this subject.

Preparing Symbol Pictures for AMX

Preparation of symbol pictures used to make symbols interactive follows the same process as preparing the graphics, except the pictures are smaller. The pictures are prepared on another machine and imported to the AMX. Refer to the section on preparing graphics for further information on using various external graphics editors – see *Section 7 - Preparing Graphics for use with AMX*.

The main difference between graphics and symbols is that symbols will generally require more than one picture. Simple symbols require two pictures and compound symbols can have up to seventeen. All pictures for one symbol should be the same size.

As with the graphics, either vector (metafile) or bitmap drawings can be used. See *Section 16 - Symbol File Formats* for information and recommendations regarding the types of files to use for symbols.

Symbols can be stretched and resized after they have been placed on a map. Generally, vector drawings resize better than bitmaps.

If irregular shape Symbols are required, then there are two choices: the WMF vector format or a GIF (bitmap) with a transparent background.



Most bitmap graphics editors allow saving in the GIF format, but some of these programs may not allow transparent backgrounds.

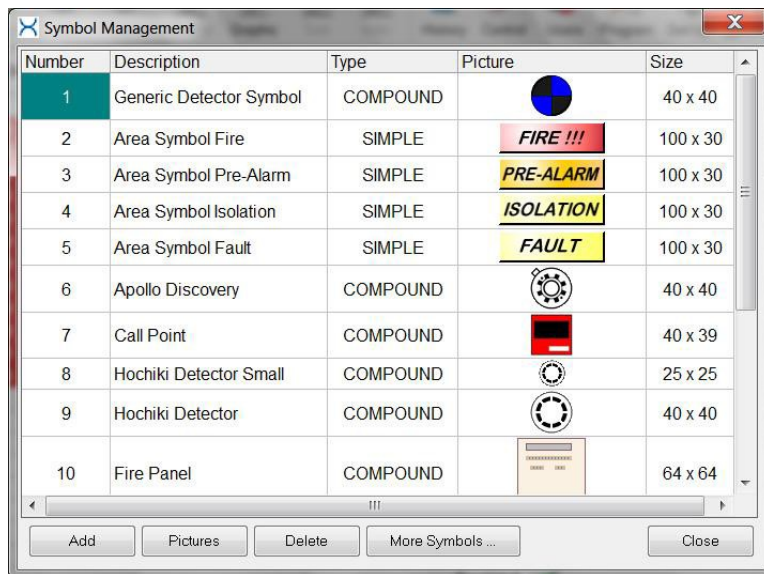
If symbols have irregular shapes the selection handles shown during configuration and the selection frame shown on the Main Graphic display will still be rectangular surrounding the shape.

One use of irregular shaped symbols is to simulate the “flood fill” of an area with colour. For example, if a building on a site diagram is to be shown in red when there is an alarm, it can be copied from the graphic in a graphics editor program and turned into a coloured irregular shaped symbol picture. This can then be imported into an AMX symbol and placed on the graphic during Graphic page Configuration.

Symbol Management Window

The Symbol Management window is accessed from the Programming Menu on the main toolbar, This menu option only appears when the Input programming List is on the screen. It is also necessary for the programmer logged onto the AMX to have access to the management routines enabled in their user Profile, or else they will not be able to access this window.

It will not be possible to access this window whilst graphics page configuration is in progress.



This window provides access to the Symbol Management facilities.

The Symbol Management list has a pop-up menu, accessed by clicking the right mouse button on the list. Options on this menu include:

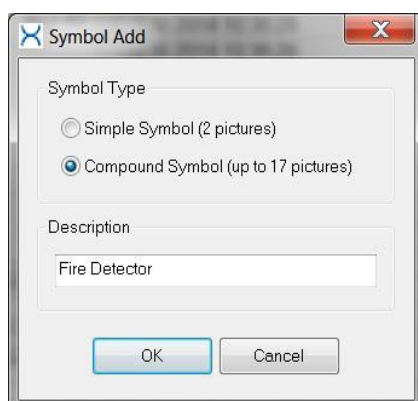
- Facilities to print and export the Symbol list. See *Section 9 - Printing from Lists* and *Section 9 - List Exporting*.
- A dialog box that shows who originally created the Symbol and the last four times that its name was edited, or new pictures were imported.
- An option to add or edit a User Note for the Symbol.
- The standard list window set-up facilities so that the dialog's appearance can be customised.

The Symbol Management list can be sorted by clicking on the column headers for Number, Description, and type. The Number column is just a numeric reference.

Clicking on the description of a Symbol in the list will allow its name to be edited using in-cell editing.

One of the list columns shows a preview of the symbol. Usually, the picture for the OFF state is shown. The picture is resized to fit the space available and may not reflect the actual size or quality of the symbol.

Buttons at the bottom of the window allow new Symbols to be added and old Symbols to be deleted. The Pictures button calls up the Symbol Picture Configuration window where the actual pictures used by the currently selected symbol can be imported and the symbol can be fully configured.



When the Add Symbol button is clicked the Symbol Add dialog is how. This is where the programmer must choose if the new Symbol will be simple or compound.

The programmer can also enter a description (name) for the Symbol here. Up to 32 characters can be entered. This description can be changed later if required, by using in-cell editing in the Symbol Management window.

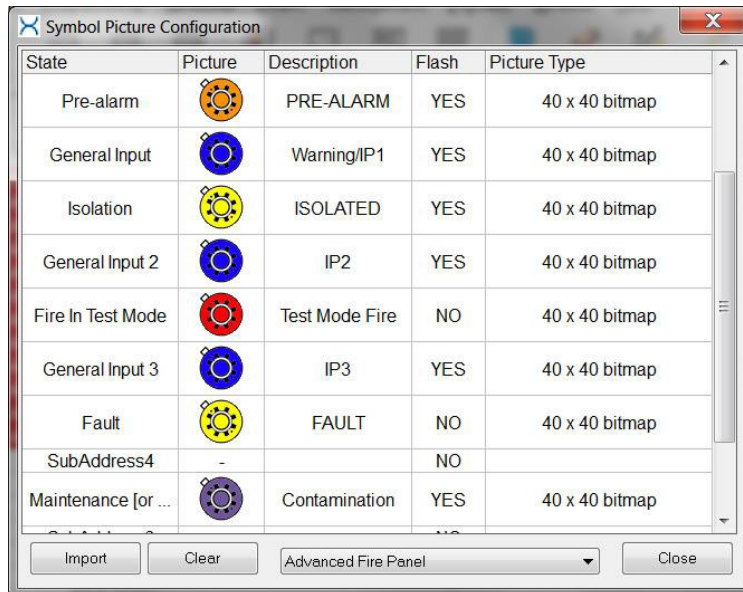


Simple symbols are used for inputs with just *on* and *off* states – **Compound** symbols are used for inputs that can have multiple states – e.g., fire detectors

Selecting the type and clicking the OK button will open up the Symbol Picture Configuration window.

Symbol Picture Configuration

This window is where the pictures used by a symbol are imported and the symbol is fully configured.



The above diagram shows the configuration of a compound symbol, there are rows for the *OFF* state of the input and 16 possible *ON* states. A simple Symbol will only have two rows: for *OFF* and *ON* states of the input.

The 16 *ON* states of a compound Symbol correspond with the 16 possible Input Types. Usually, the left-hand column of the list (headed State) will show just *Input Type 1* through to *Input Type 16*, but this is not very helpful to the programmer if they do not know what types of alarm the various Input Types correspond to. To assist the programmer, the drop-down list box at the bottom of the window allows a node profile to be selected. The State column will then be loaded with the names of the Input Types that are defined in the node profile. In the diagram above, the Symbol being configured is going to be used to show the status of a fire panel detector, so the Node Profile for the fire panel has been selected in the drop-down box at the bottom of the window. This has made the State column show the programmer the various states (Input Types) of the detector. This allows the programmer to easily identify which Input Type needs which symbol picture.

It is not necessary to import pictures for all the unused Input Types (States) of the symbol. It is not even necessary to import pictures for all the used States. In the diagram above there are pictures for the Off, Fire, Isolation and Fault States of the detector, but none for the Maintenance state. If a Maintenance alarm should occur for an input that has this Symbol associated with it, the Off picture will be displayed. As this will normally be on the graphic anyway, no change will be seen.

The Symbol Picture Configuration list has a pop-up menu, accessed by clicking the right mouse button on the list. Options on this menu include:

- Facilities to print and export the Symbol Picture Configuration list. *Section 9 - Printing from Lists* and *Section 9 - List Exporting*. Currently, pictures are not printed or exported by these options.
- The standard list window set-up facilities so that the dialog's appearance can be customised.

The Symbol Picture Configuration list cannot be sorted. The order of the list always has the *OFF* picture at the top and the other pictures in descending order of importance below.

Buttons at the bottom of the window allow the currently highlighted symbol picture to be cleared, pictures to be imported, and the window to be closed saving the configuration.

Importing Symbol Pictures

A button at the bottom of the Symbol Picture Configuration window allows the programmer to import pictures for the symbols into the AMX system. Pictures are imported into the State highlighted in the list above.

The file dialog will show acceptable picture files. These will include those with the extensions such as BMP, GIF, WMF, etc. The drive and folder can be changed so the desired file can be located.

When the file has been found the Import button in the file dialog should be clicked. The file will be copied into AMX and will be renamed to make it easier for AMX to organise and handle the large number of symbol pictures that could be imported. This new system name will be displayed in the Description column where it can be edited using in-cell editing.

The Description field can be very useful, as a global set-up option will cause it to be displayed in the alarm Symbol's ToolTip text and in the status bar at the bottom of the main Graphics page – see *Section 2 - Graphics Page* and *Section 16 - Symbol ToolTip Phrase*. In some applications this may make the type of alarm clearer, especially in systems that make heavy use of graphics. Use of this facility is optional.

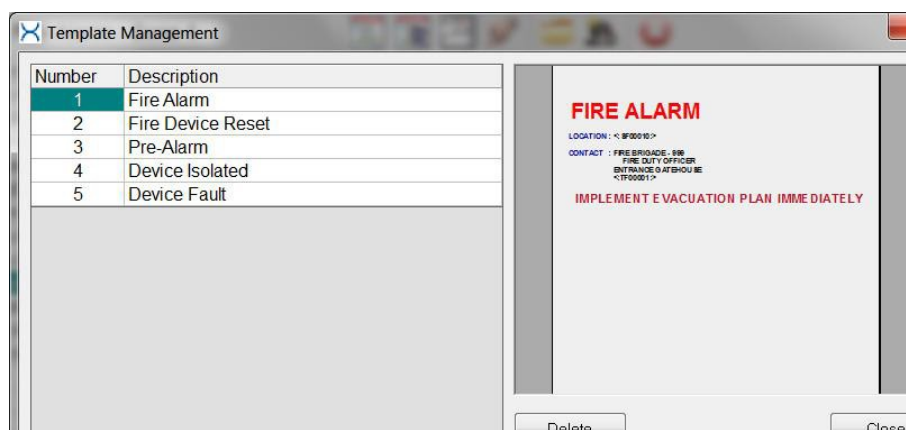
Sometimes it might be desired to have a Symbol flash. A flashing Symbol will alternate between its alarm picture (which will depend upon the alarm's Input Type) and the *Off* picture about once per second. Double clicking on the Flash column will enable flashing. Double clicking again will turn off the flash mode.

After the picture has been imported, the size and type of picture will be shown in the Picture Type column in the Symbol Picture Configuration list.

Managing Templates

Templates are used to speed up the programming of alarm text pages in the AMX and are created during text page programming – see *Section 7 - Creating and Using Templates*. The Template Management window allows them to be renamed and deleted and is accessed from the Programming Menu on the main toolbar. This menu option appears only when the Input Programming List is on the screen. It is necessary for the programmer to have access to the management routines enabled in their User Profile, or else they will not be able to access this window.

Template Management Window



The Template Management window has just two columns: Number and Description.

A preview of the selected Template is shown in the panel on the right.

The Description column shows the name that has been assigned to the Templates and the Number column is just a Numeric reference.

The list may be sorted by clicking on the header of either column. A Delete button allows unwanted templates to be deleted.

Templates can be renamed by double clicking on their description and then using in-cell editing.

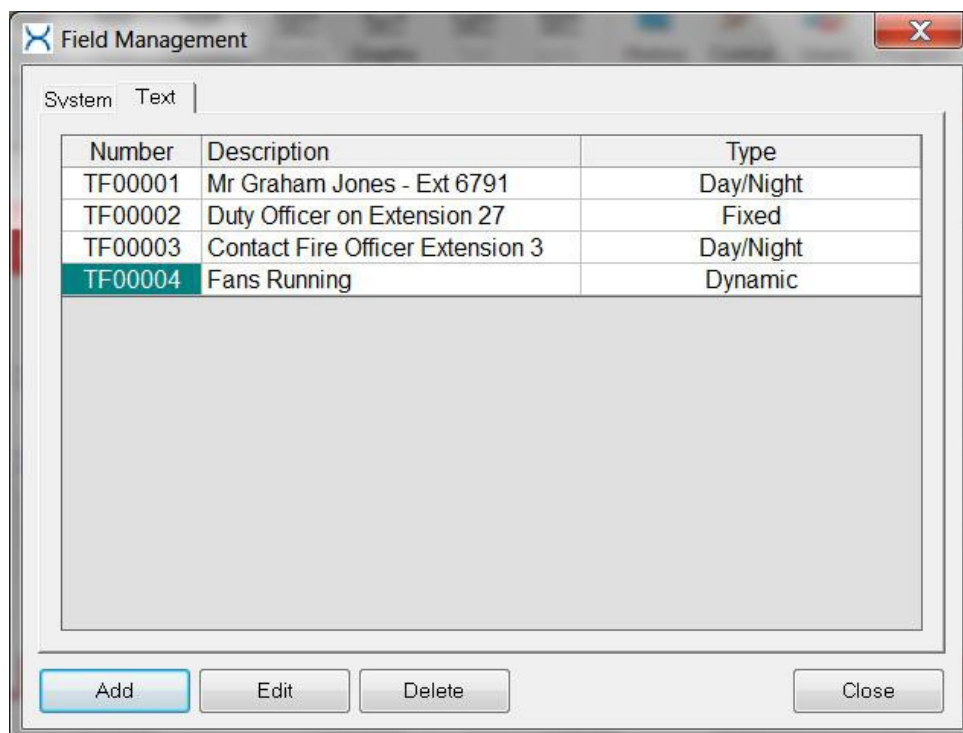
The Template Management list has a pop-up menu, accessed by clicking the right mouse button on the list. Options on this menu include:

- Facilities to print and export the Template Management list. See *Section 7 - Text Page Programming Section 9 - Printing from Lists* and *Section 9 - List Exporting*.
- Import and Export of Templates
- A dialog box that shows who originally created the Template and the last four times that its name was edited.
- An option to add or edit a User Note for the Template.
- The standard list window set-up facilities so that the dialog's appearance can be customised.

Managing Fields

Fields are described in *Section 7 - Fields*. The Field Management window allows them to be created, edited, and deleted. The window is accessed from the Programming Menu on the main toolbar. This menu option appears only when the Input Programming List is on the screen. It is also necessary for the programmer currently logged onto the AMX to have access to the management routines enabled in their User Profile, or else they will not be able to access this window.

Field Management Window



The Field Management window has two tabs for System and Text Fields. Only the Text Field tab is valid in Field Management, because System Fields are not editable. Therefore, the rest of this section applies only to Text Fields.

The list has three columns: Number, Description, and Type.

Description column shows the name that has been assigned to the Fields. This is the first of the two possible text phrases that can be programmed for the field. The Number column is just a Numeric reference.

Type column shows the type of Text Field: Fixed, Dynamic or Day/Night.

The Field Management list cannot be sorted.

The Field Management list has a pop-up menu, accessed by clicking the right mouse button on the list. Options on this menu include:

- Facilities to print and export the Field Management list. See *Section 9 - Printing from Lists* and *Section 9 - List Exporting*.
- Import and Export of Fields
- A dialog box that shows who originally created the Field and the last four times it was edited.
- An option to add or edit a User Note.
- Standard list window set-up facilities so that the dialog's appearance can be customised.

A Delete button allows unwanted Fields to be deleted.



Do not delete Fields that might still be used in text pages, as these pages cannot display the correct information after the Field has been deleted.

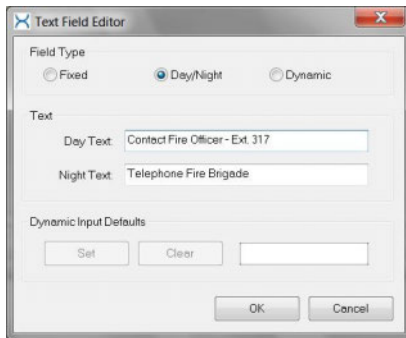
The Add and Edit buttons allow new Text Fields to be created and existing ones to be edited, the same editor is used for both the creating and the editing of the Fields.

Text Field Editing

The Text Field editor has radio option buttons at the top. Here the programmer can specify whether it is a Fixed, Day/Night or Dynamic Field.

When the Fixed Field option button is pressed the editor will allow Field text to be entered in the first text entry panel only. Field text can be up to 32 characters.

Fixed Fields are usually used for contact names and numbers. They always display the same information, so the other parts of the editor window are disabled.

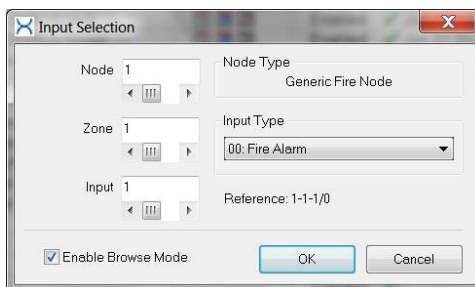
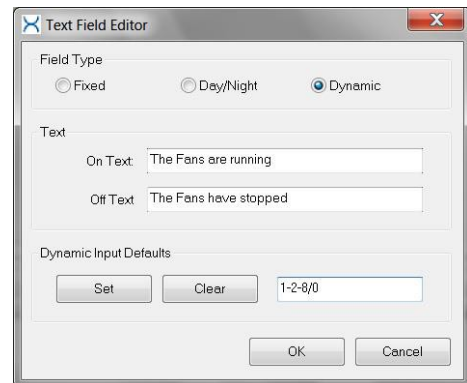


When the Day/Night Field option button is pressed the editor allows Field text to be entered in both text entry panels. 32 characters can be entered for each of the two field phrases.

The text displayed will depend upon the current day/night status of the AMX. This is a global setting in the main set-up window – see *Section 10 - Additional Functions*.

When the Dynamic Field option button is pressed the editor allows 32 characters of field text to be entered in both text entry panels.

This time the text displayed in the text alarm page will depend upon the status of an AMX input¹. The input that controls the choice of text is displayed in the Dynamic input panel. Clicking the Set button opens the Input Selection window.



The input details can be entered by using the relevant slider or by typing the input details in the relevant box.

The input setting can be cleared using the Clear button in the Text Field Editor window.

Once all selections are complete click OK to save and close the input selection window. Click Set on the Text Field Editor followed by OK to save the configuration.

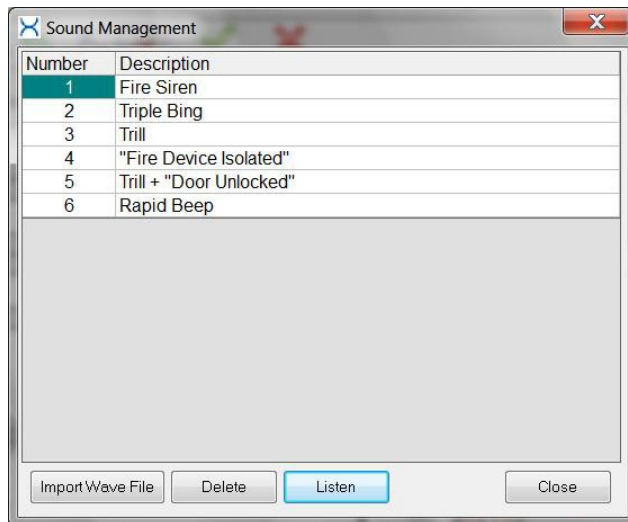
Managing Sounds

Sounds are used in AMX to give audible indication of alarms; different Sounds can be assigned to different Event Types. Sounds are imported, tested, renamed, and deleted using the Sound Management window. Sounds are assigned to the different Event Types during Event Type programming described in *Section 7 - Event Type's Sounds*.

The Sound Management window is accessed from the Programming Menu on the main toolbar, this menu option appears only when the Input Programming List is on the screen. It is also necessary for the programmer to have access to the management routines enabled in their User Profile, or they will not be able to access this window.

¹ The input that a dynamic field is linked to must report its status back to AMX or else no changes will be seen

The Sound Management Window



The Sound Management window has two columns: Number & Description.

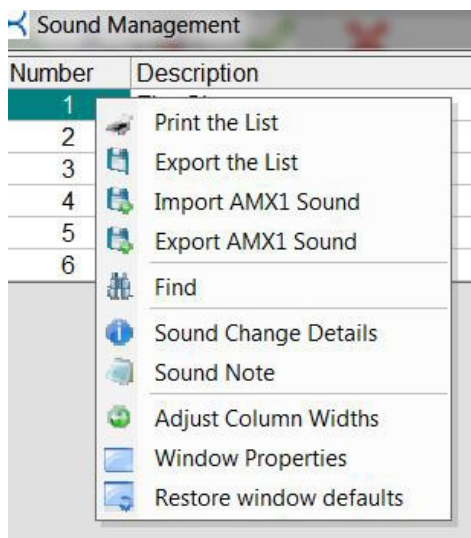
The Description column shows the name that has been assigned to the Sound and it should contain a description that makes the Sound easy to identify. The Number column is a Numeric reference.

The list may be sorted by clicking on the header of any of the columns.

A Delete button allows unwanted Sounds to be deleted. Sounds can be renamed by double clicking on their description and then using in-cell editing. Be careful not to delete Sounds that are used by the Event Types, as these Event Types will no longer give an audible alarm.

The Listen button allows Sounds to be auditioned. The sound is played once only, so sounds that normally loop – e.g., sirens – will not sound the same as they sound during alarm conditions. However, this auditioning is adequate for finding a particular sound.

The Sounds Management list has a pop-up menu, accessed by clicking the right mouse button on the list.



Options on this menu include:

- Facilities to print and export the Sound Management list. See *Section 9 - Printing from Lists* and *Section 9 - List Exporting*.

- Import and Export of Sounds
- A dialog box that shows who originally imported the Sound and the last four times that its name was edited.
- An option to add or edit a User Note for the Sound.
- The standard list window set-up facilities so that the dialog's appearance can be customised.

Preparing Sounds for use with AMX

AMX uses Windows wave (.WAV) files for alarm sounds.

Sounds are recorded on another PC and then imported to AMX.

Mono recording is recommended, although stereo files can be used. Stereo offers little advantage in this application and the files will be significantly larger taking much longer to load. See *Section 16 - Symbol File Formats*.



24-bit sound files and files with high sample rates may not play back in AMX

AMX Sounds can be anything that is recordable i.e., sirens, bell chimes, musical notes, speech announcements etc.

Before recording the sounds, the programmer should plan out what style of sound will be used in the application i.e., chimes, continuous sirens, speech announcements, etc. It is not necessary to use the same type of sound for all the alarm types. An unimportant fault might have a short bell chime, whilst a fire alarm could use a continuous siren.

If a continuous sound is required, the “*Repeat Until Muted*” option can be set when the Sound is assigned to an Event type in Event type programming. This will make the audio file loop continuously until a user presses the *Mute* or *Accept* buttons. It is necessary to record only a short segment of sound which will be continuously looped, one or two seconds is generally adequate for sirens and electronic sounds.

Actual sounders/sirens can be recorded using a portable recorder or laptop computer, the microphone must be as close as possible to the source to avoid excessive background noise.

Some PC sound recording programs can generate simple electronic sounds and several Virtual Music Synthesiser programs can be found through shareware and internet sources.

If speech is to be used, plan out the phrases to be recorded before starting the recording session. Keep the phrases general in nature – e.g., “Fire Alarm” and – keep them short. Don’t give too much information. The purpose of the audible alarm is to attract attention and draw nearby personnel to the AMX screen where details of the alarm can be read from the screen. As Sounds are assigned by Event Type it is not possible to provide the exact location of an alarm.

Use a speaker with a good clear voice to make the announcements. Practice recordings before making the final recorded file. Talk close to the microphone to minimise background noise. Set the record sound level carefully, using the maximum level that does not introduce distortion. Use a tone of voice with suitable urgency.

When an announcement or sound has been recorded, it will often benefit from some additional processing. It is recommended to get somebody with the necessary skills to assist with this.

When the recording sounds acceptable it should be edited to the correct length. Don’t make it too long. If a speech announcement is to be looped (repeated continuously) leave a short moment of silence at the end of the statement, so the repetitions do not run into each other.

Save the sound to disk as an uncompressed wave (.WAV file), DO NOT use compressed audio formats when saving the wave files. Import sound files to AMX via the Sound Management window.

Finally, DO NOT use sounds unnecessarily or in an inappropriate manner. If a regular mid-morning generator test fault signal is accompanied by shrieking sirens, screamed announcements, it will annoy people in the vicinity and cause them to pay less attention to other more important alarms as they will become used to the noise.

Importing Sounds

An Import button at the bottom of the Sound Management window allows the programmer to import sounds into the AMX system. This button calls up the standard file dialog.

The file dialog will show acceptable sound files, which will have the extension .WAV. The drive and folder can be changed so that the desired file can be located.

When the file has been found the Import button in the file dialog should be clicked. The sound file will be copied into AMX, where it will be given a system filename. It will now appear in the Sound Management list with a temporary description. This description can be edited using in-cell editing.



There may be additional sounds already installed on your system. Use the Library Browser – see *Section 11 - Library Browser*.

Input Programming Wizard

The Input Programming Wizard is designed to speed up the programming of AMX inputs. Although it is not difficult to use, you need to be familiar with AMX programming to use the wizard correctly. This is because the wizard is designed for *faster* programming of inputs rather than *easier* programming.

Before using the wizard, you must have permission enabled in your User Profile.

There were two main objectives for the wizard's design:

1. To speed up the initial programming of inputs
2. To allow inputs to be added quickly later, using the same settings/options.

The Input Programming Wizard can, in one operation:

- Assign an Event Type to an input or assign different Event Types to each Input Type for a multi-state input (e.g., Fire, fault, Disablement, etc).
- Assign a location/description phrase to an input, copying it to multiple Input Types.
- Copy an Alarm Template to the input or copy different Templates to each Input Type.
- Copy a Reset Template to the input or copy different Templates to each Input Type.
- Assign a Graphic to the Input, using the same graphic for multiple Input types or allowing different Graphics to be used for each type.
- Place a Symbol linked to the Input onto a Graphic, using the same Symbol for multiple Input Types or allowing different Graphics to be used for each type.¹
- Set the Zoom and Control options for Symbols which the wizard has placed on to a Graphic.
- Assign Automatic Controls to an input.

¹ Although the wizard can place a Symbol on to a graphic it must be dragged to the correct position manually.

The Input Programming Wizard also offers the following additional features:

- The wizard can perform its operation on any of the inputs in the currently open Input Programming List, so a whole loop or zone can be programmed in one operation.
- The wizard settings (i.e., the Event Type, Template, Graphic selections etc) can be saved and reloaded. This means that you can use the same settings for a different node/zone, making modifications if necessary.
- The wizard remembers the last settings used for each zone, loop, or node hardware inputs and automatically reloads them next time the wizard is used for that group of inputs. In other words, if the User wants to add a couple of inputs to zone 11 on node 5, the wizard reloads the settings it last used for that zone and allows the User to modify them (if necessary) before programming the new inputs.
- The wizard is non-destructive – i.e., it only changes the things the User tells it to change. This means that you can go back and add a Graphic and Symbol without changing existing text pages. However, it will over-write existing programming if that's what you tell it to do.
- You can load location/description phrases from a text file.
- You can paste multiple location/description phrases from the clipboard. Text phrases can be copied and pasted from tables in Word and Excel (if the table is in the correct format).
- Status input descriptions can be loaded from the Node Profile, allowing very quick programming of Status Inputs if a generic Status Input Template is used for the text pages.

A Typical Programming Scenario

Let us consider the AMX programming for a fire panel with several loops.

Before using the wizard, the required Event Types, Templates, Graphics and Symbols must be in place.

Use the wizard to program the first loop, selecting the Event Type, Templates, Graphic, and Symbol, and programming the Automatic Controls. Open the Graphic and drag the symbols to the correct positions.

Go to the next loop to be programmed and click on the wizard, load the settings that were used for the previous loop and change the Location/Description texts and the graphic selection. Change or modify the automatic controls if necessary. Press *Finish* to program the loop, then move onto the next loops and repeat.

Two years later you go back to site and want to add two detectors to loop 3. Go to loop 3 in the Input Programming List and click on the wizard. All the settings you used last time for that loop will be reloaded. Type in the two new Location/Description texts, make any other modifications that you might want and press 'Finish' to add .

Before You Start – PLAN!

Planning is the key to quick and successful AMX programming. This applies just as much when using the wizard as it did before. Please study the sections on Quick Input Programming and the general Programming sections in the manual of the help file.

Get your strategy right first. Consider the following:

1. Are you programming a text or graphics-based system?
2. Have you created or imported appropriate Event Types, templates, and symbols for this project?
3. Have you prepared and imported your graphics?
4. Are your text Fields correctly set-up and working correctly in conjunction with the Templates?
5. Is the end user happy with what you are planning to do?

Using the Wizard



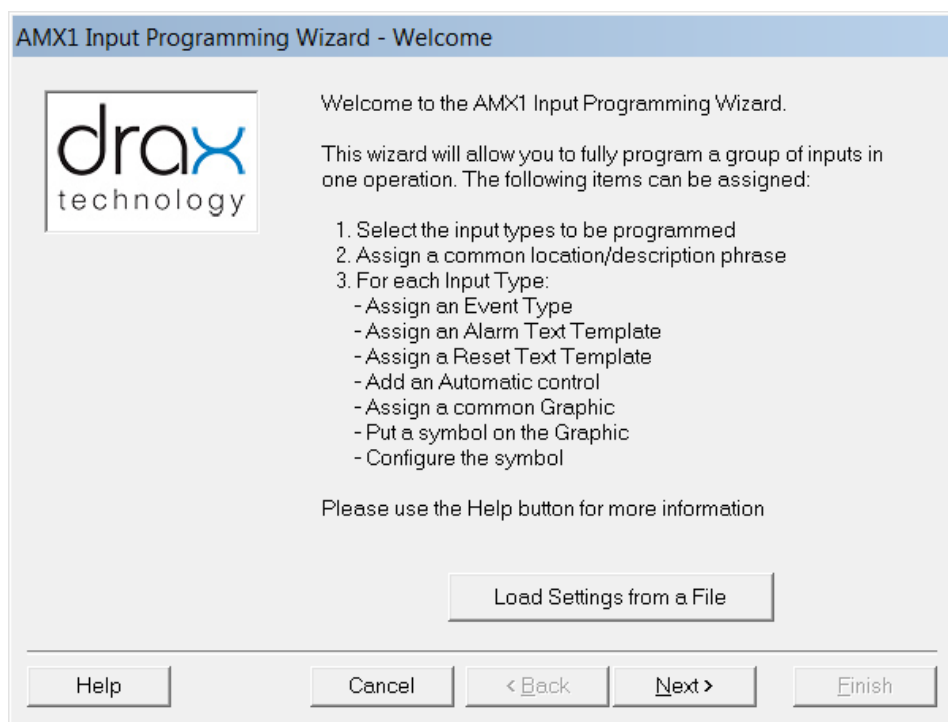
The Input Programming Wizard is accessed via the Icon on the Input Programming List toolbar.

The wizard adheres to standard Microsoft conventions. It appears as a dialog window with *Next* and *Previous* buttons allowing you to browse back and forwards making changes before pressing the *Finish* button to carry out the programming.

A help button at the bottom left-hand corner of the wizard dialog gives context sensitive help on each screen.

Each of the User screens will now be explained:-

Welcome Screen



As well as giving introductory information a button on the welcome screen allows you to load pre-set settings from a file. This is the only time this button will be available within the wizard. If you ignore this option and change your mind you will have to either cancel the wizard or use the back button.

When the wizard is loaded it will automatically reload the settings last used for the Input Programming List that is currently open (if there are any stored), so it is not necessary to reload them each time.

If you want to load in settings from a file, press the button and select the wizard file with the standard file selection dialog. By default, the dialog will be open at the folder:

'<AMX_Folder>\Data\User\ Input_Programming_Wizard'. (Input programming wizard files have the extension '.ipw'.)

You may wish to load the settings that were used when last programming another zone or another node. To do this, press the 'Load from file' button and browse down to the <AMX_Folder>\Data\User\ *Input_Programming_Wizard\Last_Used* subfolder. Here you will find that the wizard has automatically saved its settings using plain English filenames – e.g., *Node 0011 – Loop 001.ipw* and *Node 0015 – Hardware Inputs.ipw* – each time it was used.

Select the file that you want to load and press the *Load* button.

Inputs Screen

AMX1 Input Programming Wizard - Input Confirmation and Text

Please confirm the inputs to be programmed and enter or change the Location/Description phrase(s).

Input		Location/Description
2	☒	
3	☒	
4	☒	
5	☒	
6	☒	
7	☒	
8	☒	
9	☒	
10	☒	
11	☒	
12	☒	
13	☒	
14	☒	
15	☒	

☐ Do 4 Loops/Zones

Help Cancel < Back Next > Finish

This screen allows you to select which inputs you wish to program and enter the Location/Description text for each of them. When programming multi-state inputs – e.g., fire detectors – the wizard assumes that all input states will all use the same Location/Description text. If you want different texts, you will have to program them manually.

Any inputs that were highlighted in the Input Programming List will be pre-selected when the wizard is opened. Select or deselect individual inputs by clicking on their checkboxes. Free selection is allowed, so you can, for example, program inputs 1, 3, 4 and 16 – unlike the selection in the Input Programming List, which allows block selection only.

The checkbox 'Do 4 Loops/Zones' will cause the Input Program Wizard to program the next four loops i.e., If you are on loop 1 and tick the box loops 1 to 4 will be programmed.

To program the texts – just click on the list and type in the normal manner.

There are buttons on the left side of the window which provide some enhanced functions that may be useful. These are explained below:

Select All Inputs

Ticks the checkbox for every input in the list.

Deselect All Inputs

Unticks the checkbox for every input in the list.

Load Text from file

Opens a standard file selection dialog box allowing you to choose a text file (.txt) containing a simple list of text phrases to use. The first line in the file will be loaded into the row selected in the wizard's input list, the second line into the row after, and so on. Ensure you click on the correct first target row before loading the file. All lines will be automatically truncated to 32 characters and excess lines will be ignored.

If a line starts with a number followed by a Tab character (ASCII 9), then it will be assumed that this is an input number (1 to 255) and the text after the tab character will be loaded into the specified lines.

Subsequent texts will follow on from that position in the list. The safest way of preparing a text file is to ensure that each line contains <Input Number><Tab><Text>. You can create such a file in MS Excel by making a two-column spreadsheet with the input number in the left hand column and the text in the right column and saving it as 'Tabbed Text' Alternatively, you can create a table in MS Word and convert it to tabbed text before saving it as 'Text Only' – do not save it as a word DOC – or create a text file in any plain text editor.

Paste From Clipboard

If you are programming the inputs in the office or workshop where Word and Excel are installed on the same machine, then you can copy the two columns from an Excel spreadsheet or a Word table to the clipboard and paste them directly into the list using the button.

Load From Node Profile

The final button in this window is visible only when programming Status Inputs. This is the button – and this pulls the Status Input descriptions in from the Node Profile assigned to the node being programmed and puts them into the list.

Main Programming Screen(s)

This screen is where you enter all your selections – the Event Type, templates, etc.

AMX1 Input Programming Wizard - Input Type 0

draX technology

☐ Use a common Graphic and Symbol for all Input Types

☒ Program : FIRE ALARM

Select and configure each item in the list below. Clear items will not be touched.

Event Type	FIRE ALARM
Alarm Template	Fire
Reset Template	Fire Reset
Graphic	
Symbol	
Automatic Control	

Select Event Type

Clear Event Type

Help Cancel < Back Next > Finish

When programming Hardware and Status inputs there will be just one of these steps before you reach the final screen, but when programming multi-state inputs there will be one step for each Input type. For example, when programming inputs which are fire detectors there will be a step for Fire, then one for Isolation, one for Fault, and so on.

In this step there is a list of the six items that can be programmed. These are:

- Event Type
- Alarm (ON) Template
- Reset (OFF) Template
- Graphic
- Symbol
- Automatic Controls

To select any of these above items, either select it in the list and click the Select button or double-click on it in the list. The normal selection boxes will be shown for the first five items and after a Symbol has been selected the Symbol configuration dialog will be shown (with some items pre-selected or greyed out).

When you select Automatic Controls the Control editor will be shown. Remember that there is often a significant advantage to calling a Manual Control as a subroutine for common functions. Refer to the manual and help file for more details.

To clear any of the selections, select them in the list and then click the Clear button. Items that are clear will be left untouched – in other words the original programming will be retained.

When programming multi-state inputs there will be a checkbox at the left of the window, when checked it instructs AMX to use the same graphic and symbol for each of the Input Types. Any change made to the Graphic or Symbol selection for one Input Type will be automatically copied across to the other Input Types.

The final screen provides the opportunity to save the current settings to a file before pressing the 'Finish' button to program the inputs.



Remember, the current settings will automatically be saved for this node and zone/loop anyway, but you may wish to manually save them if you are using several different settings across a loop – or perhaps common settings for certain types of hardware input.

When you click the 'Finish' button the inputs will be programmed, and a progress dialog will be displayed whilst this happens.



AMX will temporarily go offline whilst the inputs are programmed.

When the wizard places symbols onto a graphic it cannot know where they should go, so it lines them up along the top of the graphic in rows. The graphic must be opened, and symbols manually dragged into position.

At present it is not possible to program Communications Fault inputs with the wizard.

Common Questions

Can I transfer wizard files to another machine?

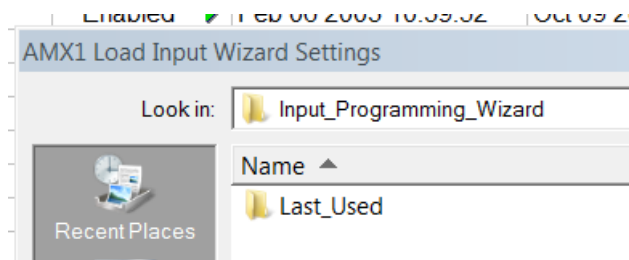
No – not unless the other machine has identical user data. The wizard files do not contain the Template or other definitions. Manually transferring the templates using export and import will not allow the wizard files to be transferred either. However, if you make a backup of the program data on your source machine then the wizard files are included in the backup, they will be restored to a target machine along with the program data.

Can I delete items with the wizard?

No. This feature is currently not available.

How do I program extra inputs on a loop using the previous settings?

On the Wizard opening screen click the *Load Settings* button and navigate to the *Last Used* folder where all settings for each loop have been stored automatically.



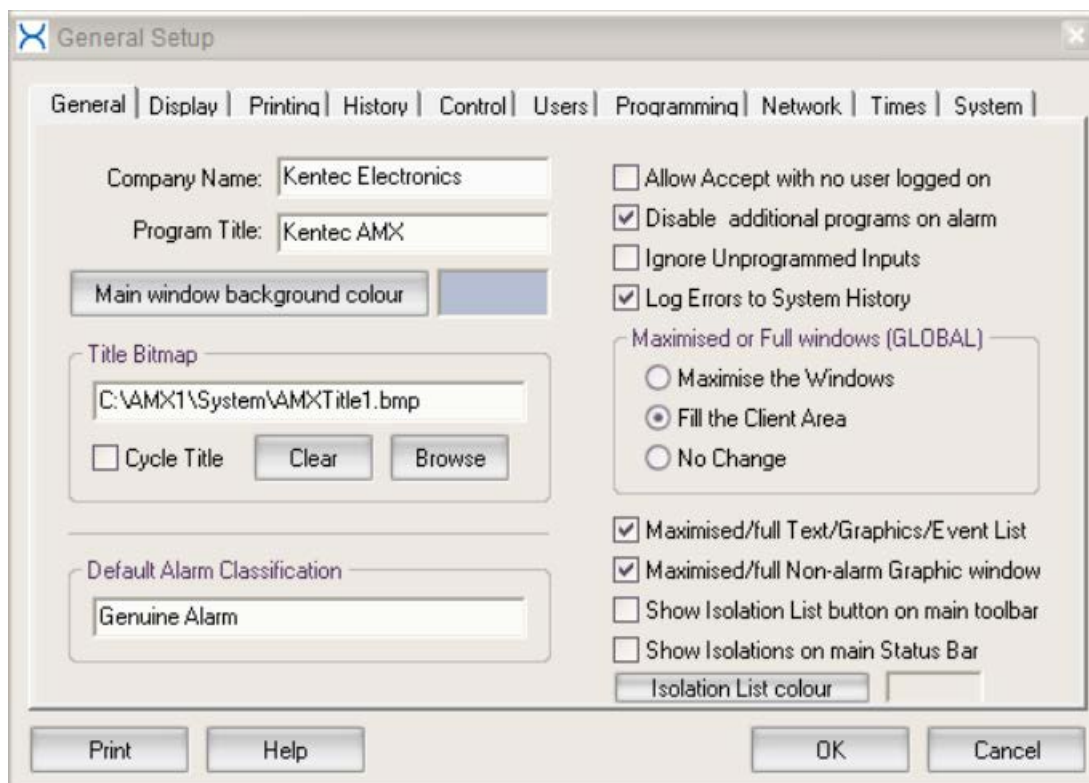
Section 8

AMX Set-up Options**Set-up Window**

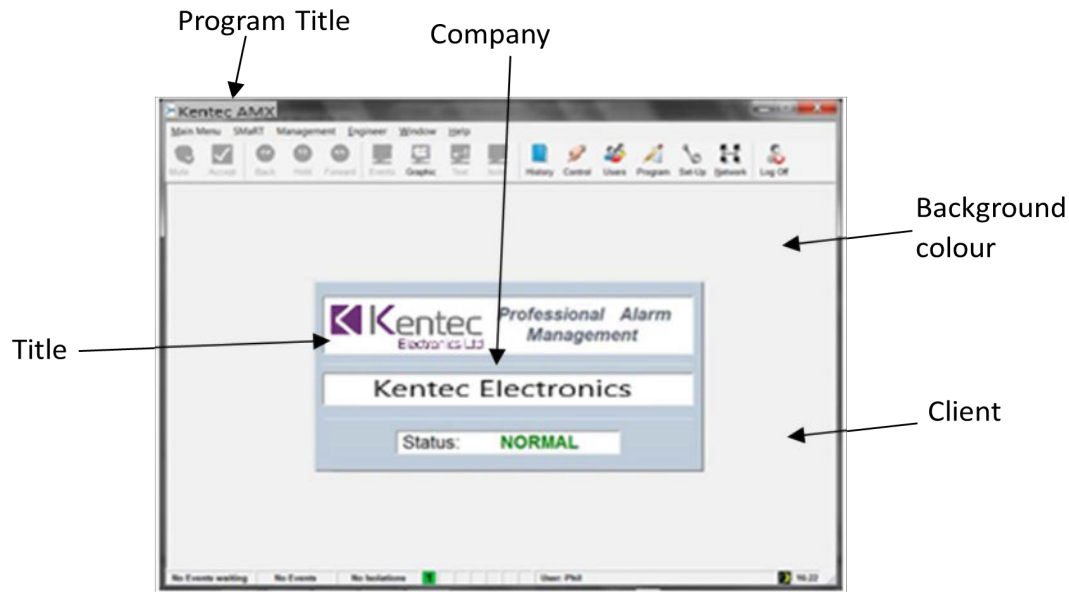
This button on the Main toolbar will open the Set-up window.

The set-up window has several tabs, allowing the various set-up options to be grouped together into logical areas.

The main set-up facilities will be described in this section.

General Set-up Options

General set-up options appear as above. Some of these items affect how the main screen of the AMX will appear when there are no alarms. The following diagram identifies some areas that may be unfamiliar:



The various general set-up options will now be described.

Company Name The Company Name is shown in the main text Title. In the picture above it is **Kentec Electronics**.

Program Title The Program Title is shown at the top left-hand corner of the AMX Screen. This is followed by the software version number and, when applicable the name of the currently active window.

Background Colour The Main window background colour is the background colour of the AMX main program screen, which is visible when no windows are open. The Main window background colour button opens the standard colour setting dialog box and the user may choose any colour for the background.

Title Bitmap The Title Bitmap is an optional alternative title, which uses a graphic. The graphic is selected and cleared with the 'Clear' and 'Browse' buttons. If the Title Bitmap Filename is blank there will be no graphical title.

If the Cycle box is checked the bitmap and the text title will be alternated at a rate set by the Title Scroll Speed slider.

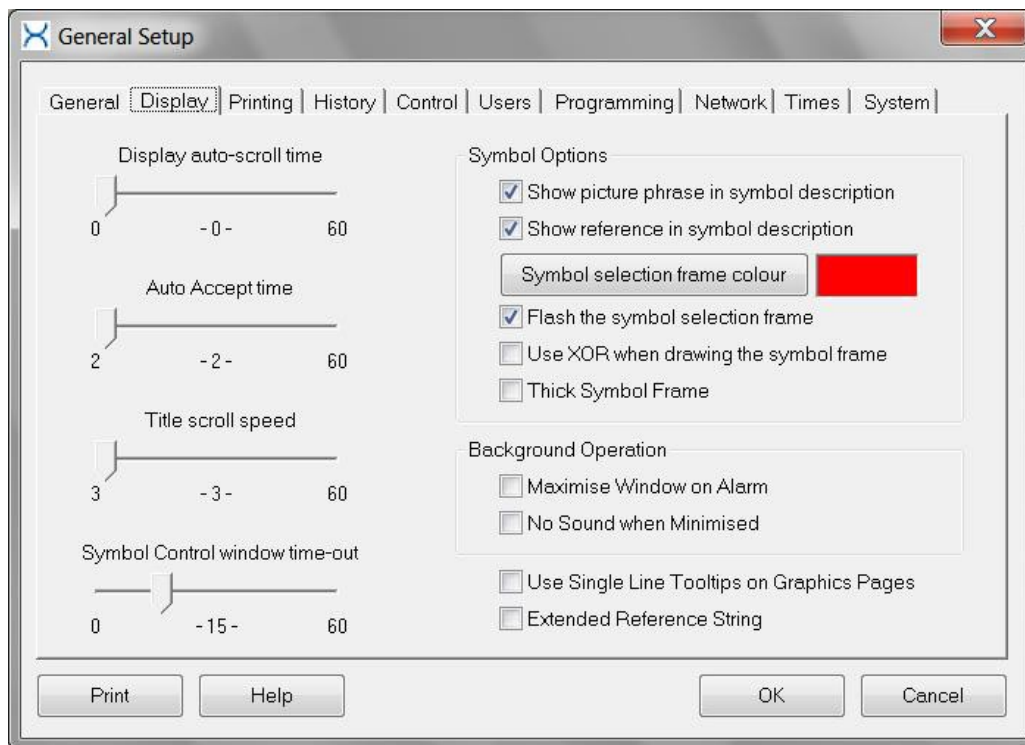


If you want to use an AMX graphic with symbols and buttons as an interactive title graphic, enter its name (as shown in the Graphic Management window) here preceded by a '\$' character – e.g., "\$Main Reception"

Default Classification The default classification is offered when the user classifies and event/alarm. Alarm classifications are limited to 24 characters and any more than this will be ignored. See Section 2 - *Classifying an Alarm*.

Allow Accept With No User Logged On	If this option is checked it will be possible for any user to accept alarms even when there is no user logged onto the system.
Disable Additional Programs On Alarm	If this option is checked it will not be possible to enter additional program modules (e.g., the History) whilst there are unaccepted alarms in the system.
Ignore Unprogrammed Inputs	When this option is checked the AMX will ignore events and alarms from all inputs that are unprogrammed. The definition of unprogrammed is not having an Event Type assigned.  This is a powerful feature, but it should be used with care. If this option is checked, new inputs added to the remote subsystems will not appear to be working until they have been programmed on AMX. When this option is checked all unprogrammed inputs will be shown as disabled in the Input Programming List.
Log Errors To System History	If this option is checked, certain program errors will be recorded in the System History. This option is useful in tracking down any errors that may occur.
Maximised Or Full Windows (GLOBAL)	This is a global option that defines how new windows will be opened. There are three options: Maximise1 windows when they are opened Fill the client area (similar to maximising, but does not affect other windows) no change. If the option for individual windows to be maximised/full is not selected on the other set-up pages, there will be no change.
Maximised/Full Text/ Graphics/Event List	This option defines how the Text, Graphics and Event List windows will be opened. If it is checked these three windows will be either maximised or fill the client area, with the setting in the Maximised or Full windows option defining whether the window is maximised or full.
Maximised/Full Non-Alarm Graphic Window	This option defines how the Graphics window will be opened when the User opens it manually in a non-alarm situation. If it is checked these three windows will be either maximised or fill the client area, with the setting in the Maximised or Full windows option defining whether the window is maximised or full.
Show Isolation List Button On Main Toolbar	This option defines whether a separate button to call up the Isolation List should be shown on the Main Tool bar. If this option is not checked it will not be possible to access the Isolation window. This facility is optional because some AMX applications may not require isolations.
Show Isolations On Main Status Bar	This option enables a separate counter panel on the main status bar, which indicates the total number of isolations in the system.
Place Status Bar At The Top Of The Screen	This option makes the main screen Status Bar appear at the top of the screen instead of at the bottom (default). The purpose of this option is simply to give an alternative display format.

Display Set-up Options



Maximise Window on Alarm

Feature not available

No Sound When Minimised

Feature not available

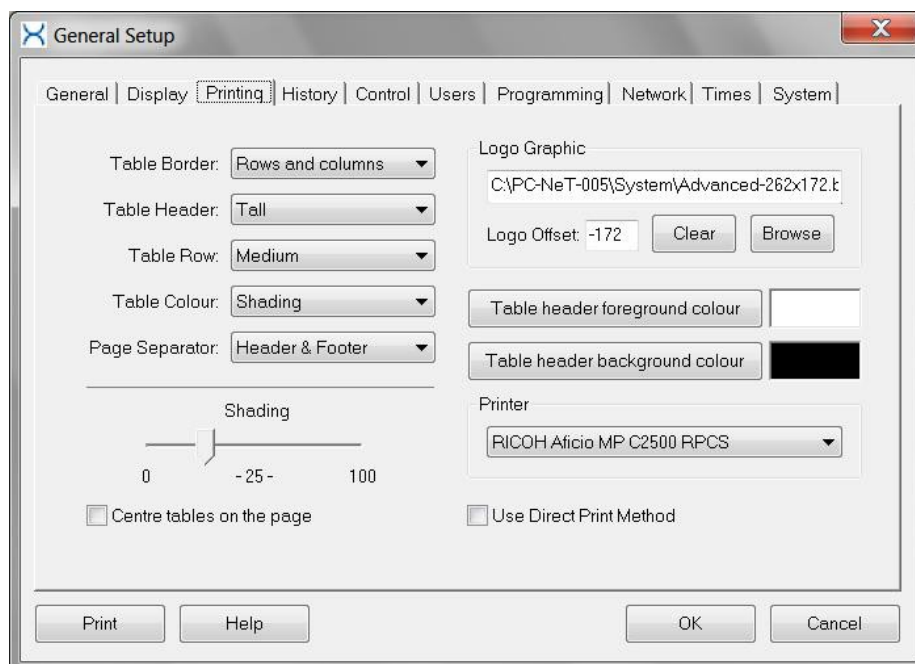
Use Single Line Tooltip On Graphics Pages

Displays a simpler tooltip when the mouse hovers over graphic symbols

Extended Reference String

Expands the concise reference strings displayed in many places to a more readable format

Printing Set-up Options



The Printing set-up options affect how the various reports and printouts will look. These settings are global, so the same appearance is maintained for all printouts. Customisation of individual reports – e.g., the report header text and colour – is available when each report is created.

Use the standard Print Preview option – see *Section 9 - Print Preview Window* – to check the results of these changes before printing. If these set-up options are changed whilst a Print preview window is open, the changes will not be seen until the window has been closed and a new report has been created.

Table Border	When data is printed in tabular form, this option specifies if there should be a grid or lines between the rows. None – Prints the table without any grid or lines Row separators – Prints only the horizontal lines, between the table rows Rows – Prints horizontal lines between the table rows and vertical lines on the left and right borders of the table Rows and columns – Prints a full grid around the table rows and columns.
Table Header	Specifies the height of the header that is shown at the top of the table on each page. Five options are available – from Very Short to Very Tall.
Table Row	Specifies the height of the rows used in the report tables.
Table Colour	Specifies the type of colour that will be used when printing the tables. Colour is used only when printing reports from the Event history. The colour extends across the full width of the row. None – No colour is used. This is used to obtain a black and white print out. Shading – Uses a pastel shaded background for the rows, with the depth of the shading set by the Shading slider. The light background colour is based upon the event type colour. Event Colour – Uses the full Event colour (both foreground and background). Some combinations of foreground and background colours, due to differences between the screen and printer outputs, may not be entirely clear. If this is the case, use the shading option above.

Page Separator	Specifies whether lines should be printed across the page width either below the page title or just above the page footer. Options are available so that either or both can be printed.
Shading	Allows adjustment of the colour lightness when the shading option is selected for table colour. This setting has no effect when <i>None</i> or <i>Event Colour</i> are selected in the table colour drop- down list.
Centre Tables On The Page	If this option is checked the tables will be printed on the page with equal margins left and right. If unchecked, the tables will be aligned against the left-hand margin.
Logo Graphic	If a picture file is specified here, it will be printed at the top right-hand corner of each page as a logo. If a logo is not required, this setting should be blank. The graphic files must be bitmaps – BMP, JPG or GIF types will be suitable. Graphics should be approximately 480 pixels for each inch to be printed on the page, so a 240 x 240 pixel graphic will print a logo roughly half an inch square. Use the Browse button to call up the file selection dialog, or the Clear button to clear the filename (no logo will be printed).
Offset (Logo Graphic)	This setting enables a small vertical displacement of the logo graphic to obtain better alignment with the header. This option is normally left as 0, but values from - 500 to 500 may be entered to give plus or minus half an inch adjustment. Some experimentation may be necessary to obtain a satisfactory result. If a negative value is entered, moving the logo graphic up towards the top of the page, take care that it is not moved into the top margin area which will cause the top part of the logo to be lost when the pages are printed.
Table Header Foreground Colour	Specifies the foreground colour to be used (for the wording) when printing the header at the top of the printed tables.
Table Header Background Colour	Specifies the background colour to be used when printing the header at the top of the tables.
Printer	The Printer drop-down box list all the printers installed in Windows on this PC. All printing operations will be sent to the printer selected here.  If there is no printer selected certain functions – e.g., Print preview and template preview – will not function.
Use direct Print Method	Provides compatibility with older printer drivers which may not correctly reproduce AMXs shaded History printouts. Normally unchecked.

History Set-up Options

These options affect how the History appears to the user.

Maximised/Full History Window Upon Entry	This option defines whether the History window should be maximised (or set to fill the client area) when the History is opened. If this option is not checked the window will be opened with the same size and position that it had the last time it was closed. Selection between maximisation or filling the client area is done by a global setting in General Set-up - see <i>Section 8 - General Set-up Options</i>.
Show Classification In Event History List	Defines whether a column for Event Classification should be shown in the Event History list. If the application is not going to use Event Classification, unchecking this box prevents a totally blank column being shown in the Event History list.
Show Reference In The Event History	Defines whether the inputs numeric reference should be shown in the Event History list. Some users may prefer not to see this information. The reference will be stored in the history regardless of the state of this setting.
Show Reference In The Control History	Defines whether a numeric input reference for the controlled output should be shown in the Control History list. Some users may prefer not to see this information. The reference will be stored in the history regardless of the state of this setting.
Show Reference In The Isolation History	Defines whether a numeric input reference for the isolated input/device should be shown in the Isolation History list. The reference will be stored in the history regardless of the state of this setting.
Show Serial Number In History Lists	If this box is checked, the unique serial number that is assigned to each event, control, and isolation is shown in the History lists. The purpose of the serial number is only to assist in identifying attempts to tamper with the Histories, the displays may appear a little simpler and less cluttered if this serial number is not shown. Turning off the serial number does not stop it from being assigned and stored and the numbers will become visible when the option is turned back on.
Close History Calendar on Selection	If this option is checked the History Calendar window will close automatically when the user selects a date. This option affects only the calendar for the main History window and not the pop-up calendar in History Search.
Close History Calendar on Selection	If this option is checked the History Calendar window will close automatically when the user selects a date. This option affects only the calendar for the main History window and not the pop-up calendar in History Search.
Record Accepts in System History	Provides traceability of who accepted an event.

Control Set-up Options

Maximised/Full Control Window Upon Entry	This option defines whether the Control window should be maximised (or set to fill the client area) when the Control window is opened. If this option is not checked the window will be opened with the same size and position that it had the last time it was closed. Selection between maximisation or filling the client area is done by a global setting in General Set-up, which is described in <i>Section 8 - General Set-up Options</i>.
Close Control Boxes Automatically	Defines whether the Control Box that can be displayed when a graphics symbol is double-clicked should automatically disappear as soon as the control has been initiated. If this option is not checked the Control Box will remain on screen allowing further controls to be initiated from it. Control Boxes are described in <i>Section 2 - Fire and Isolation Control Boxes</i>.
Offset Control Box From Mouse	This option allows a Control Box (called up when the graphics symbol is double-clicked) to be offset so that it does not obscure the symbol. If this option is unchecked the Control Box will be centred on the cursor.
Control Box Evacuate Warning	If this option is checked the User will be shown a warning dialog when trying to initiate a fire evacuate from AMX¹.
Log Time Controls To Control History	If this option is checked, the automatic initiation of Time Controls by the AMX is logged as an entry in the Control History. Sometimes it may be useful to turn this option on during system configuration and commissioning as the history record allows correct operation to be checked, but then turn the option off later to prevent filling up the history with repetitive unnecessary records.
Management Menu Fire Controls	If this option is checked these controls will be available from the Management Menu.
Management Menu Disablement Controls	If this option is checked these controls will be available from the Management Menu.
Management Menu Output Controls	If this option is checked these controls will be available from the Management Menu.
Management Menu Zone/Group Isolation Controls	If this option is checked these controls will be available from the Management Menu.
Management Menu Zone Omit	If this option is checked these controls will be available from the Management Menu. Used with some security panels.

¹ Does not apply to controls in the Manual or Time control windows

Users Set-up Options

Maximised/full User window upon entry

This option defines whether the User window should be maximised (or set to fill the client area) when the User window is opened. If this option is not checked the window will be opened with the same size and position that it had the last time it was closed. Selection between maximisation and filling the client area is done by a global setting in General Set-up – see *Section 8 - General Set-up Options*.

Programming Set-up Options

Maximised/Full Programming Window Upon Entry

This option defines whether the Programming window should be maximised (or set to fill the client area) when it is opened. If this option is not checked the window will be opened with the same size and position that it had the last time it was closed. Selection between maximisation and filling the client area is done by a global setting in General Set-up – see *Section 8 - General Set-up Options*.

Ask Before Abandoning Edited Page

If this option is selected the programmer will be asked for confirmation if they try to cancel editing of a text page. If unchecked, the editing operation will be abandoned once the programmer clicks the close icon without any further warning. Experienced programmers may prefer this latter setting for speed.

Suppress Printing of Blank Lines

This option affects the printing of Input Programming Lists. If this option is unchecked the whole list in the of Input Programming List display window will be printed, including a line for each unprogrammed input. Checking this option will suppress the printing of lines for the unprogrammed inputs.

Use Input Description Synchronization

This option means that multi-state inputs will use the Location Text phrase from any state that is programmed for that input¹.

Disable Word-wrap in text pages

Normally when a text page is resized any text that extends beyond the right border will wrap to the next line. This option disables that.

Network Set-up Options

Maximised/full Network window upon entry

This option defines whether the Control window should be maximised (or set to fill the client area) when it is opened. If this option is not checked the window will be opened with the same size and position that it had the last time it was closed.

Selection between maximisation or filling the client area is done by a global setting in General Set-up, which is described in *Section 8 - General Set-up Options*

¹ The states affected are defined in the Node Profile

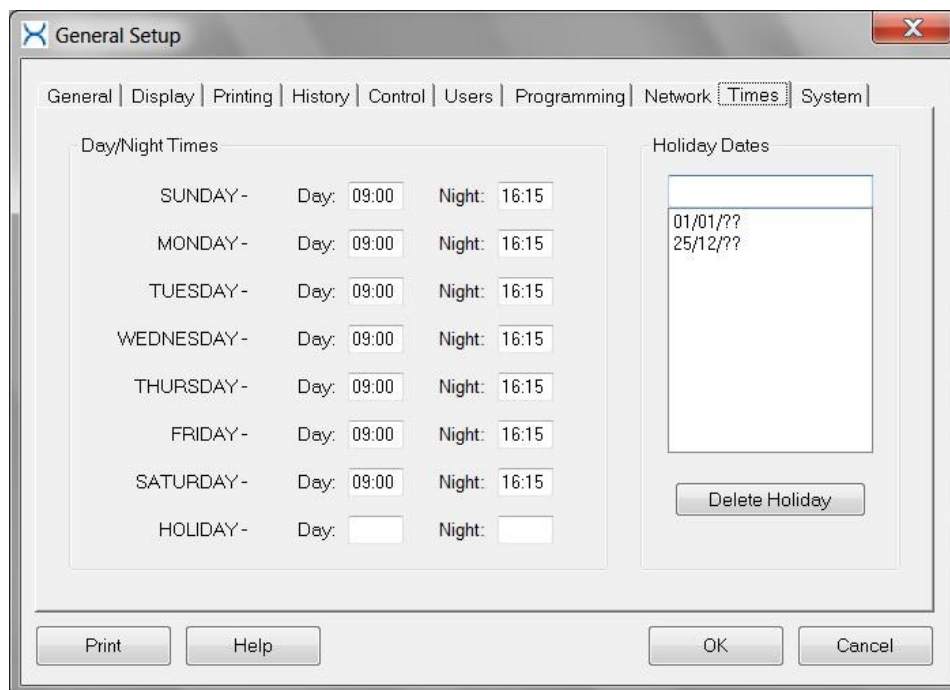
Day/Night & Holiday Set-up (Times)

AMX supports Day and Night settings. The Day time is when the day period begins and the Night time is when the night period begins, this generally relates to site operating hours.

There are separate day and night settings for each day of the week – configurable setting for holiday periods.

Day and night times may be used to have separate text phrases in text fields (allowing different instructions and information to be given to the User during the day and night periods) and to initiate Time Controls at the day/night transitions.

Some Event Types may be disabled during either the Day or Night-time, or they may be automatically accepted by the AMX during either day or night. See *Section 7 - Event Type's Sounds* for more information about this.



The day and night times are entered into the panels on the left of the window. If the night start time is set earlier than the day start time, the system will assume it is operating in night time settings for that whole day.

Times should be programmed in 24-hour format – e.g., “09:35” or “21:30” – using a colon to separate hours and minutes.

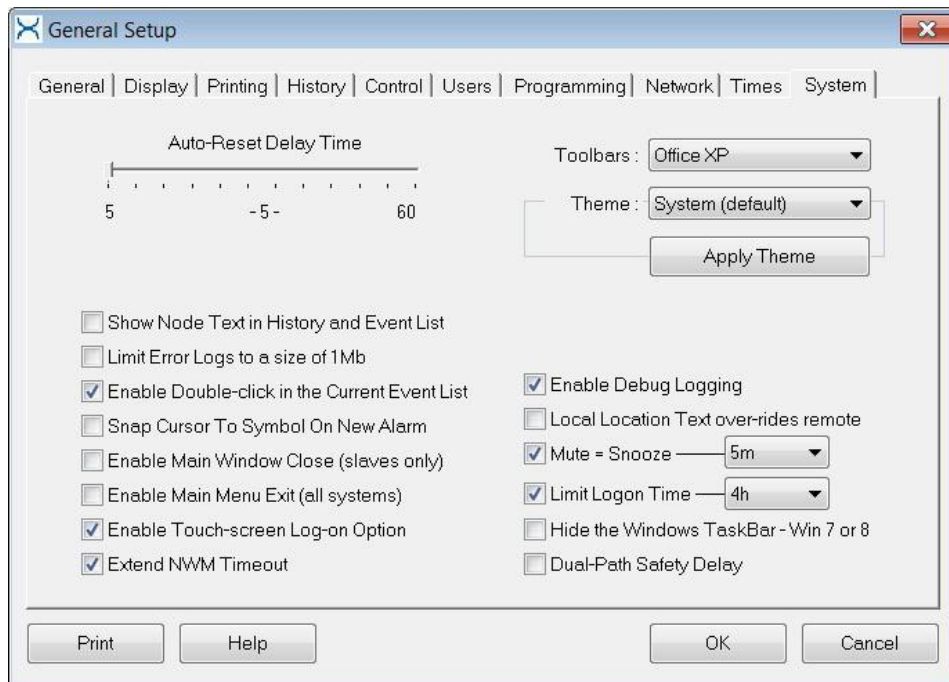
There are separately configured day/night settings for holiday periods i.e., Public holidays. Holiday dates must be added to the box on ‘Holiday Dates’ box on the right of the window. Any dates within this box will automatically use the ‘HOLIDAY’ Day/Night setting.

To add a holiday date: place the cursor in the date entry box above the list, type the date in the format dd:mm:yy and press the enter key to add it to the list. If the year is entered as “??”, then this same holiday date will be used every year.

To edit a holiday date: select it in the list and (it will appear in the date entry box)above. Edit and press Enter to place it in the list.

To delete a holiday date: select it in the list and (it will appear in the date entry panel) above. Then press the “Delete Date Button”.

System Setup



The System tab offers various options that affect how the system works overall.

Auto Reset Delay Time

Applies only to the optional service mode facility where an engineer might be carrying out a one-man test.

Show Node Text In History And Event list

This setting will cause the location description of the node as set in the Network window to appear in the location column of the event list and the history as a fourth line.

Limit Error Logs to a Size of 1 MB

This is used if advanced debug logging is turned on. The setting does not apply to any error logs or debug logs created by network managers.

Enable Double-Click In The Current Event List

This option allows the user to access additional information by double clicking on various areas of the current event list. Double clicking on a row in the current event list will show the event information dialogue, double-clicking on a row in the classification column they will be shown the classification dialogue.

Snap Cursor To Symbol On New Alarm

Applies to graphics pages that are on display when a new alarm occurs and if a symbol on that graphics page refers to the new alarm the cursor will be moved over that symbol. This will cause the graphic tooltip to appear after a second or two.

Enable Main Window Close

This only applies to slaves in the TCP/IP group (see *Section 11 - AMX TCP/IP Groups*). This allows the user of a slave AMX to shut down the AMX system.

Enable Main Menu Exit

This will put an exit program option onto the main menu so that the program may be shut down by somebody other than an engineer (this option normally only appears on the Engineers menu).

Enable Touch Screen Logon	Enables the option to login with a numeric pin code using a touchscreen – see <i>Section 2 - Touchscreen Log On</i> .
Extend Network Manager Timeout	This is an engineering function. This may be used by engineers to prevent Network Manager indicating communication problems with the AMX while engineers are working within the main program. This option is normally unchecked unless requested otherwise by a AMX engineer.
Toolbars	This drop-down menu allows you to vary the style of the toolbar used within AMX.
Theme	This drop-down menu allows the selection of different window colour themes on the AMX. Click the APPLY THEME button once selected.
Enable Debug Logging	When selected AMX creates additional log files which may be requested from Kentec Technical Support when trying to diagnose issues.
Local Location Text Overrides Remote	When selected any text entered manually in the input programming list will take precedence over the text sent from the panel. Normally this option is unchecked and the text from the panel has precedence.
Mute = Snooze	When this option is selected the operation of the mute button is changed so that the sound is only temporarily muted. If the user does not accept the alarm within the specified time period, the sound will start again to attract their attention. When this option is checked a drop-down box offering an option of times for the snooze period will be visible.
Limit Logon Time	When this option is selected a drop-down menu box will appear. This allows the setting of a time-controlled logon period. At the expiry of this configured time period, the user will be automatically logged out.
Hide the Windows Taskbar Windows 7 or 8.	The taskbar at the bottom of the window screen will obscure the AMX status bar in Windows 7 or Windows 8 systems. This option temporarily hides it so that the full AMX window is visible. The taskbar will be restored when AMX is shut down.
Dual Path Safety Delay	Advanced engineering function that is used only should there be problems with re-triggered alarms when a dual path redundancy system is in operatio

Printing the Current Set-up

A button at the bottom of the set-up window allows the current set-up to be printed to that a hardcopy record can be kept.

Section 9

Common Functions

Printing



Reports can be printed from several areas of the AMX. Either a toolbar button or an option on a pop-up menu will indicate the possibility of printing a report.

Clicking on the button or selecting the menu item will open the Report printing window.

Printing Window

Printing is controlled from the Printing Window

The print options available are as follows:

Report title

Reports can be given a title which will appear at the top of each page. The required title text is entered into the 'Report Title' box. The 'Colour' button next to this box allows selection of the title text. To make the title text **Bold**, *Italic* or **both** tick the relevant boxes.

Title text as default will be aligned to the left margin, but can be centre aligned by ticking the 'Centre Title' box.

Footer

Reports can be given footer text which will appear at the top of each page. The required text is entered into the 'Footer' box. The 'Colour' button next to this box allows selection of the title text. To make the title text **Bold**, *Italic* or **both** tick the relevant boxes.

Two additional pieces of information can be added to the footer by ticking the appropriate boxes:

Includes Username

This adds the Username of the user logged in at the time of the print request to the report footer.

Include Date/Time

This adds the current date and time to the report footer.

Print range

This option enables the user to select whether the whole event history list is printed or a selection of events from this list. If printing a selection of events from the list these must be selected by highlighting them on the event history list prior to opening the print window.

Orientation

Determines the orientation of the printed report as either landscape or portrait.

Copies

Sets how many copies of the report are to be printed.

See *Section 9 - Printing from Lists* for further information on how best to use the orientation and font size options when printing lists.

Print Preview

Allows the user to see a preview of the report before printing, see the Print Preview Window section for further details.

Print Now

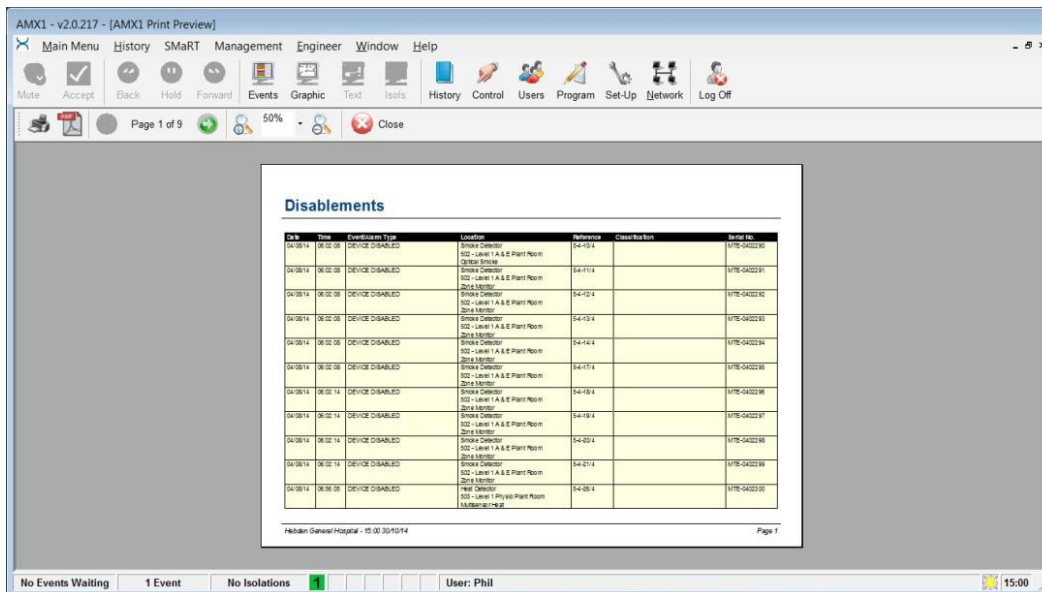
Prints the report based on the current settings

Cancel

Closes the print window

Print Preview Window

The Print Preview button displays the Print Preview window shown below, allowing the user to view the report before printing.



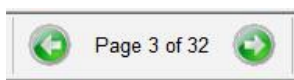
The Print Preview window has a toolbar with the following options:



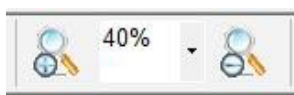
This button initiates printing. A standard windows dialog box will be shown, offering a chance to select the printer.



This button allows you to save the report to a standard Adobe Acrobat™ PDF file. The Windows file dialog will be shown so that you can choose a filename and destination.



The left and right buttons change the page that is being displayed with the centre panel indicating which page is on view. This panel also gives an indication of how big the report will be.



The Preview display can be zoomed in and out either by using the two magnifying glass buttons or by selecting the desired magnification from the drop-down list box.



Abandons the printing operation and closes the Print preview window.

Printing from Lists

Most AMX printing is the printing of reports generated from a list that is currently displayed on the screen.

Careful preparation of the data and careful selection of the printing options is necessary to produce a good quality report, especially as the AMX will not wrap the data onto the next line.

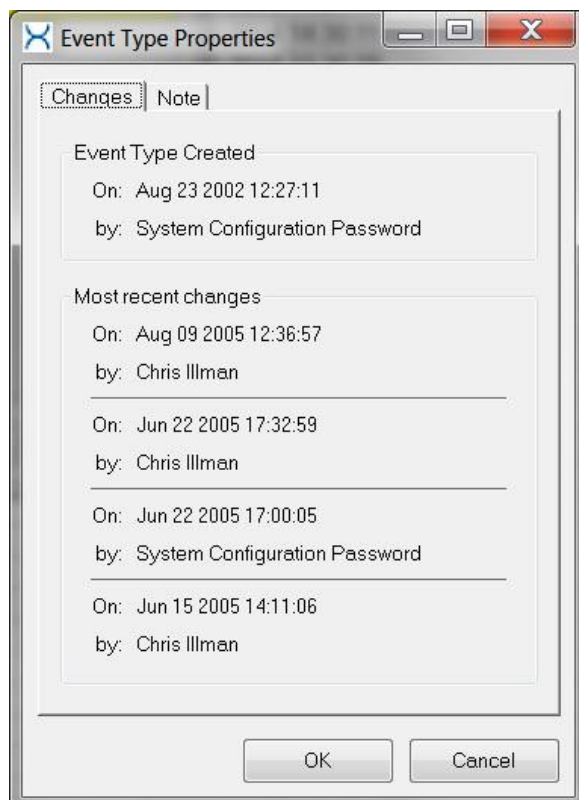
In general, what you see is what you get. The data that is printed will depend upon the list that is on the screen. This means that sorting the data in the list will control the sorted order of the printed output. If a block of items is selected in the list the option to just print this block will be offered.

It is most important that the lines of data will fit on the page. If AMX detects that the lines will spill over the edge, a warning will be given before printing starts. There are three methods by which the user may prevent over-spill:

1. Use the landscape printing option if more width is required.
2. Select a smaller font size if the width of the lines is too great.
3. The width of the columns on the printed page will be dictated by the width of the columns of the list on view. Careful adjustment of these list column widths will therefore aid the layout of the reports – see *Section 1 - Using Lists*.

History List printing is a special case. If a History list is to be printed the landscape option will include additional data in many cases, especially when printing the Event History. When printing History lists the column widths will be set with AMX. Printing the Event History will use the shading options set in Printing Set-up, normally shading is not used. Also, it is not possible to vary the font size when printing History lists and this option will not be visible in the printing window.

Properties Window



The Properties window is available from many list pop-up menus throughout AMX. It details for the item selected in the list window from where it was called up.

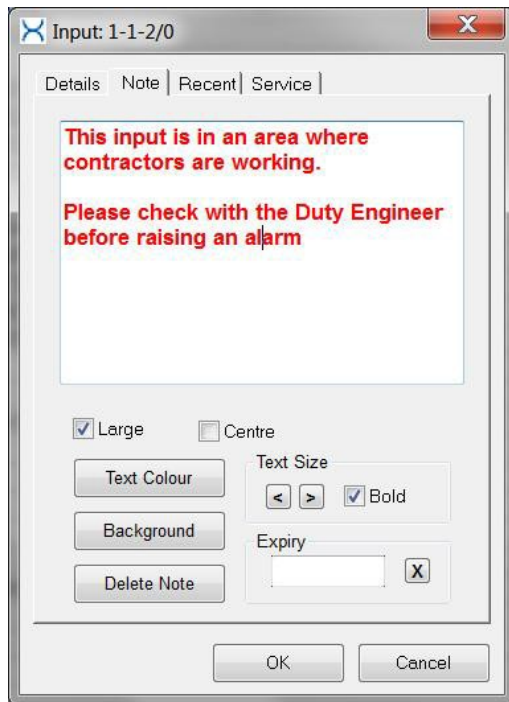
The name of the person who originally created the item is displayed, along with the time and date that it was created.

The four most recent changes are also displayed. The names of the programmers who made the changes are shown with the time and date.

This window might appear on menu options as Information window or Details window.

Notes

Notes can be added to many list items. They are usually accessed via the pop-up menu that appears when a user right clicks on the list with the mouse. When the User selects the Note option the standard Note editor will be displayed. This is usually displayed on a tab of a multifunction dialog window.



The text entry panel at the top of the window is where the note is entered and edited. Notes can be up to 2000 characters. They can be scrolled up and down using the scroll bar on the right.

Right clicking on the text panel with the mouse displays a pop-up menu offering options to insert the time and date etc.

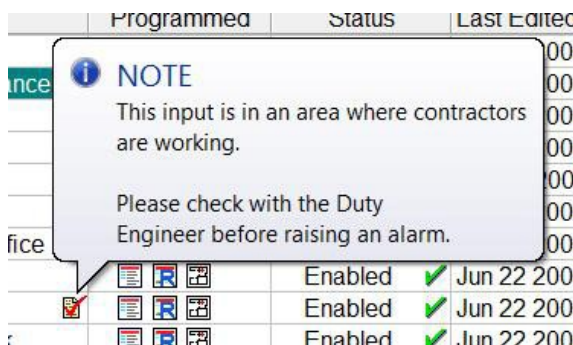
The text Colour button allows changing of the colour of the text used in the note. Similarly, the background Colour button allows changing of the background colour of the note. The whole note is affected by these settings. This can be useful for colour keying the notes.

The Delete button deletes the note, close the window after pressing the delete button and the exiting note will be removed. If more text is entered after the delete button has been pressed, then the new text will be saved in the note.

The size arrows allow a choice of text sizes and the bold check box makes it stand out more. The setting affects the whole note.

Viewing Notes

When a note has been added to a list item a small note icon will appear against the item in the list.



Notes can be recalled using the pop-up menu in many lists. Hovering the mouse over the icon in the list will display the note in a tooltip balloon.

Text Page Sticky Notes

Notes may be added to text pages. They appear on top of the text page like a small 'post-it' note. The user can decide the colour and text size. Two note sizes are available.

Here is an example of a text page with a note on top of it. The note is initially shown in the bottom right corner, but the user can drag it to any position on the screen and if the screen scrolls away to display another event and then scrolls back the note's position will be remembered.



Notes for text pages can be added in two ways:

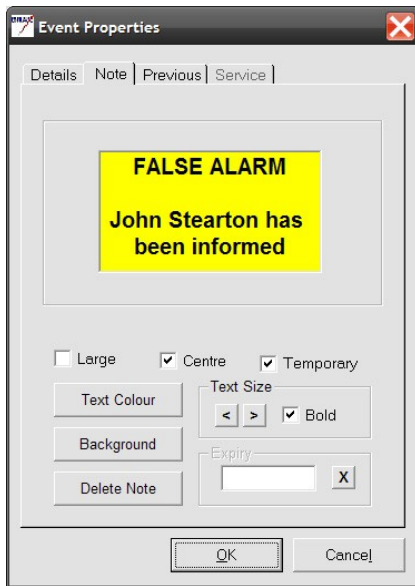
1. Directly to the alarm on screen either via the Text Page or via the Current Event List. This method is typically used to add a note to an existing alarm – e.g., “*This has been investigated and needs no further action*”. Notes added in this way are also stored in the history.
2. Added via the Input Programming List. This method might be used to pre-prepare a note that will display a message to the user when this input goes into alarm– e.g., “*Contractors are working in this area at present*”. Notes added in this way are not copied to the history.

The two methods are handled slightly differently. Notes are added to the current alarm either by double-clicking on the background of the text page or by right clicking the alarm in the current event list and choosing *Event Note* from the pop-up context menu. Notes added in this way are also stored in the history.

If you wish to reprogram a note in advance whilst the input is not in alarm, then you can add it via the Input Programming List. Just right click on the input in the list and choose *Input Note* from the pop-up context menu.

Temporary Notes

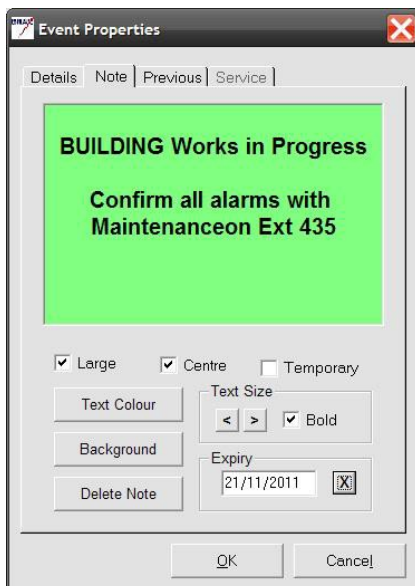
Notes added to the current alarm optionally can be set to be *Temporary* by checking the option in the note editor. A temporary note is displayed on the text page as normal, it is stored in the history, but it is discarded when the alarm is reset. So next time the same alarm occurs there will be no note. However, the note you programmed will remain in history as a permanent record. This feature is useful for leaving temporary messages to other AMX uses about the event on the screen.



The picture shows the note editor being used to program a temporary alarm.

Only notes added to the current alarm via the text page, or the Current Event List can be set as temporary notes. Notes added via the Input Programming List are always Permanent or Timed.

Timed Notes



Notes can be given an expiry date; this means that when the expiry date is reached the note is discarded and will no longer be shown. For example, if you know that contractors are working in an area for two weeks you may wish to add a note and have the note expire when the contractors have finished.

Timed notes expire as soon as the date rolls over to the selected expiry date. However, if the note is on display at the time of date rollover it will not be removed until the screen is next refreshed.

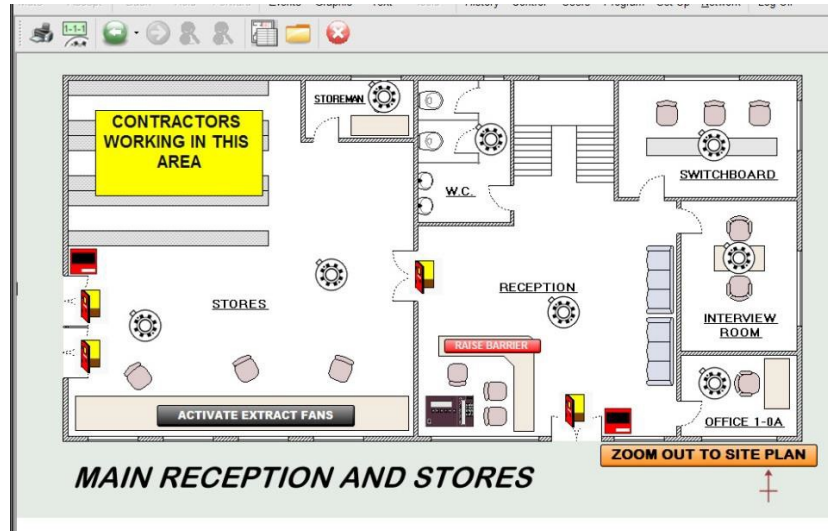
The picture of the note editor shows a timed note being programmed. You just enter the date in the expiry panel using the format shown. If you wish to erase an expiry date, just click the little cross to the right of the panel.

When the panel is blank there is no expiry time, and the note is Permanent.

Graphics Notes

It is also possible to add a note to a graphics page. These can only be added via the graphics management window. Right click on the graphic where you wish to have the note and select graphic note from the pop-up context menu.

Here is an example of a note on a graphics page:



As with the text note, the user can drag the note to any position they wish when the graphic is displayed on the screen.

Graphics notes can only be Timed or Permanent and they are not stored in the history.

Note Priority

It is possible that an input may have two notes assigned – one via the Input Programming List and another programmed via the Current Event List or the text page. Only one note can be displayed on the text page and the note programmed via the current event will take priority. If that is a temporary note it will be discarded when the event ends, but next time the event occurs the note from the Input Programming List will be shown

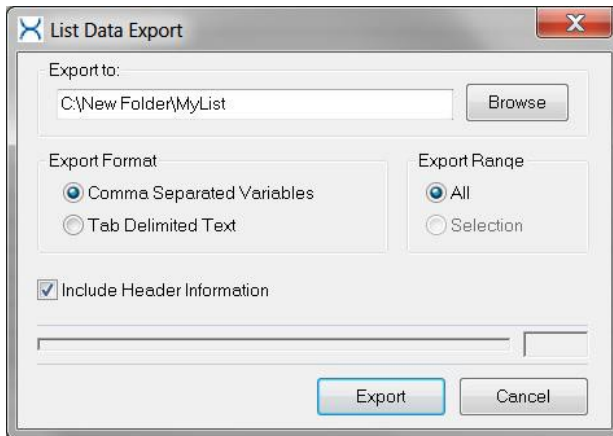
Deleting Notes

Remember, to delete a note you need to display it in the note editor and click the delete note button.

User Permissions

The user must have permission in their User Profile before they can program notes.

List Exporting



AMX makes extensive use of lists and most of these lists can be exported to a temporary data file.

The main reason for exporting a list is to either use it as a useful reference during programming, or to assess its data in an external database or spreadsheet program.

Sometimes an exported list may be imported into a Word processor system when configuration documentation is being created.

The filename to which the list will be exported is set in the top panel. The filename can be typed directly, but it is usually easier to use the browse button, which will display the file dialog.

There are two formats that can be used to export the list data:

Comma Separated Variables creates a CSV text file where each row occupies one line. The data in each column of the list is enclosed in quotes and these are then separated with a comma. A three-column row would be saved as "Column1", "Column2", "Column3". This is a common format used by database and spreadsheet columns. CSV files will be saved with a ".csv" extension.

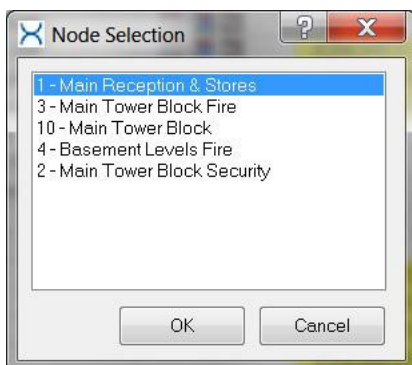
Tab Delimited Text also saves a text file with one line for each row. In this case the column data is not enclosed in quotes and Tab characters instead of commas separate them. Tab-delimited files will be saved with a ".txt" extension.

In both formats, the list rows will be saved in the order that they are displayed on the screen, so the lists may be sorted to vary the save order. If Selection is selected in the Export Range panel, then only the rows selected in the list will be exported.

The *Include Header Information* check box will cause the first row to contain the phrases that appear in the column headers.

Clicking the Export button will start the export. Progress will be indicated on a progress bar.

Node Selection Window



The Node Selection window can be called up from several areas of the AMX.

This window shows a list of AMX nodes. Only nodes that have been added to AMX in the Network window are shown. The numeric node number (the AMX address) is shown to the left of the node name. Choose the desired node by either double clicking on it in the list or by selecting it and clicking the OK button.

Colour Dialog



There are many areas of AMX where the colour can be customised, notably the appearance of the various list windows.

The top part of the dialog shows the basic colours available. The section below shows any custom colours that have already been defined.

Usually, the basic colours will be sufficient, but AMX allows full flexibility and any colour required can be defined.

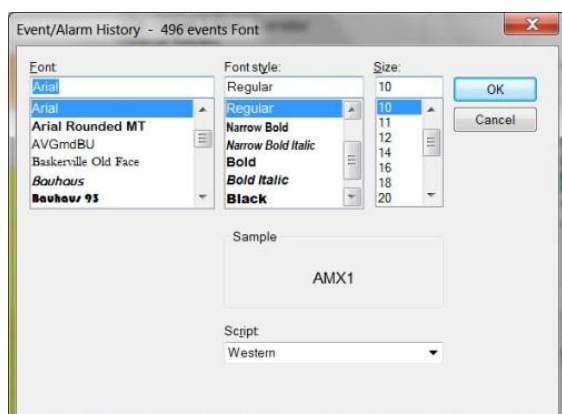
To define a custom colour, click the basic colour closest to it, and then click the Define Custom Colours button.



Clicking the Define Custom Colours button will expand the window to show a large colour matrix and a brightness bar to its right. Click on these to select the colour and shade required – then click the Add To Custom Colours button. This will add it to the Custom colours panel at the left of the window.

To make the colour choice, double click on it in the Basic Colours or Custom Colours panel, or single click it and press the OK button.

Font Dialog



The font dialog is used in text page programming – and when customising the appearance of the AMX list windows.

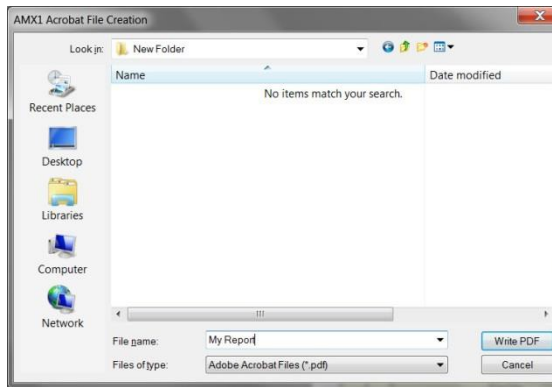
Both the font and its size can be chosen in this window. The Sample panel shows a preview of how the font will appear.

For best results, only use TrueType fonts in AMX pages and lists.



If you use non-standard Windows fonts when creating text pages on a separate machine make sure that they are installed on the target machine, or they will not display correctly.

The File Dialog



The file dialog will be displayed whenever a file is to be imported or exported from AMX.

Normally AMX will make the file dialog display only files of the correct type for the operation that is currently being performed.

Folders can be selected – and the file list appearance can be changed – using the buttons at the top. When a file is to be imported to AMX, locate it in the main list, single click on it, then press the Import Button.

When exporting a file, locate the disk and folder and then type the filename in the “File name” text field. Usually, AMX

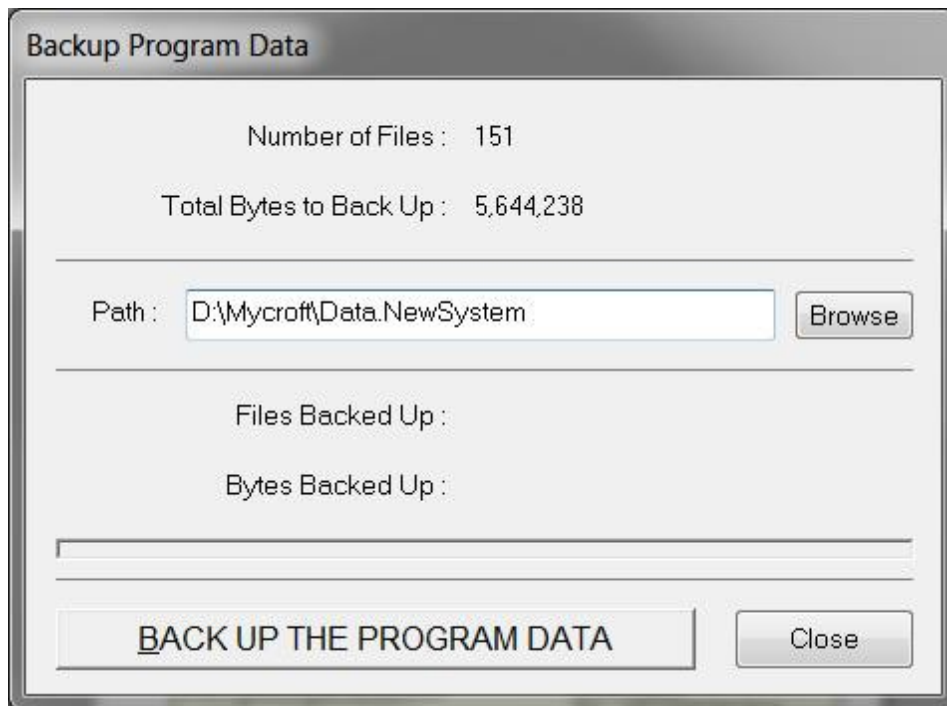
will add any filename extension that is required. Then click the Export or Save button.

Section 10

Additional Functions**Backup and Restore Utilities**

The AMX will not accept alarms during the backup operation. Alarms will be received and held by the Network Manager(s), but they will not be displayed until after the backup has completed.

The Backup and Restore Utilities are available from the Management menu. This menu is only accessible by Managers and Engineers.



The main features of the backup routines are:

- Data is compressed so that it takes less space
- Backed up data consists of a single file
- Network backup is possible
- Up to 2Gb of user data can be backed up
- There is a fully integrated restore from backup facility
- Backups of the Program Data, History, User Profiles and System Configuration can be made
- The Process of backing up and restoring data to other PCs in a TCP/IP group can be automated – see *Section 10 - Backup and Restore Utilities*.

The following backup devices are suitable:

- To a removable USB flash drive
- To an external USB hard drive
- To a NAS drive
- To a folder over an accessible network path



Remember – never make multiple backups of the same type into the same folder. Always make new folder, preferably with a name that references the site name and/or the date.

Four Types of Back Up

There are four types of back up available, each backing up different types of data. These four separate backup facilities are accessed via the AMX's Managers menu.

Backup User Data – This will back up the all the user-programmed data for the events and alarms, including the text/graphics pages, controls, libraries of symbols, etc. Passwords and User Profiles are not included in this backup, nor is History data or the System Configuration.

Backup History Data – This backs up all the History data. This facility is so that History data can be restored should the AMX machine suffer a failure with attendant data loss. This facility cannot be used for transferring data to another machine – use History Export for this.

Attempts to transfer the History to another machine will produce inaccurate alarm history information unless the other machine is loaded with the same user data. When History Data is restored any new History events that have occurred since the backup was made should be retained if they have not been deleted or lost.

Backup User Profiles – This saves the User Profiles and the User passwords. As with the History data backup, this facility is so that the User Profiles can be restored should the AMX machine suffer a failure. User Profiles can normally only be restored to the machine from where they were backed up, although an Engineer may have special access permission to transfer them onto another machine. Remember that when User Profiles are restored all passwords and User Access rights will be set back to the old settings as they were when the backup was made. This is the reason that User Profiles are not included in the normal User Data backup.

Backup System Configuration – This saves the system configuration so that it can be restored or transferred to another machine. Only certain items are saved. These include all the settings in the main Set-up window, the fonts/colours/settings for all lists and the printer settings.

Making a Backup of User Data

The backup window is shown, from where the user enters a backup path and initiates the operation.



The path can contain a folder name only when backing up to non-removable hard disks. If backing up to USB flash drives simply put the drive letter and a colon – e.g., "F:"

Be sure to label each backup disk with its date as it is removed from the computer.

You cannot make two backups of the same type into one folder, as the filename is fixed. Any attempt to do this will over-write the previous data.

Follow good backup practice. It is not good practice to make all your regular backups onto one removable drive, as loss of that drive could result in a catastrophic loss if all backups have been made to the same disk. If for cost reasons it is undesirable to use a new disk for every backup, use a at least three sets of backup disks and rotate them, so that loss of one backup set does not represent a total loss of data.

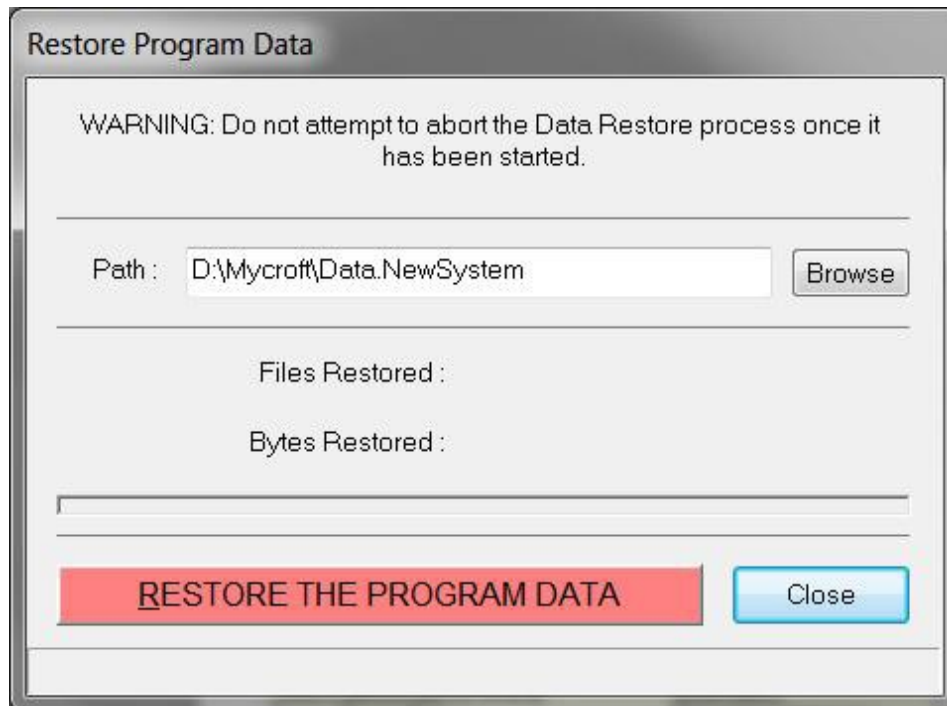


MAKE BACKUPS REGULARLY

Restoring User Data from a Backup

NB: Once started, the Data Restore process must be completed or else AMX's data will be incomplete, and the system will not be stable. Be certain that a full backup file is available before commencing a Data Restore. See the later section on Recovering from a failed Data Restore Operation if problems should occur during a data restore. Any one of the four types of back up may be restored when necessary – it is not necessary to restore all four at the same time.

The Data restore window is similar in appearance to the Data Backup window.



Enter a path or drive letter where an AMX backup can be found. If the backup set is on removable disks put the disk in the drive. Click the button to commence restoring data.



Attempting to abort this process will leave AMX with incomplete and unstable data.

When the data has been restored AMX may suggest that you should restart it. It is strongly recommended to do this, as data held in AMX's internal memory buffers may not correspond with the data that has just been restored.

Recovering from a failed Data Restore Operation

If the Data Restore operation is aborted or fails AMX will be left with an incomplete or corrupt user data base. This will cause system instability, so the program will be terminated.

To try and recover from this situation, simply restart AMX. If AMX can recover and use its original pre-restore data, it will do so automatically. Then you can re-try the Data Restore. Recovery should be successful in most cases, but if AMX fails to run use Windows Explorer to delete the subfolders *Data* and *Data.Old* below your AMX installation directory. This will completely remove the database leaving AMX with no data. Now do a full Data Restore from a backup set.

Technical Notes On Backup and Restore

AMX user data is stored in a AMX subfolder "Data" and several subfolders below that. When restoring data AMX first renames the *Data* folder to *Data.Old* so that it can attempt automatic recovery if the Data Restore fails. Therefore, there must be enough hard disk space so that two copies of the AMX data can exist at the same time, or else the Data Restore will fail. The *Data.Old* folder is left on the disc after the Data Restore is completed (so that manual

recovery can be attempted if something goes badly wrong) and it will be destroyed and replaced next time a Data Restore is carried out.

Because of the safety procedure outlined above, AMX requires sufficient disk space to store two copies of the user data. If there is insufficient space the Data Restore operation may fail. If this happens manually delete the Data directory and rename the *Data.Old* directory to Data.

The backed up data is stored in a single file with the name *Data.Amx*. This can be sent via email, but it might be quite large. The data is compressed and is WinZip compatible. Therefore, in an emergency, individual files can be extracted from the backup data using WinZip or a similar Zip utility.

It is possible that some early AMX systems have spurious files or folders caused by manual data copying. In the unlikely event of these causing a Backup or Restore to fail, ensure that there are no hidden or read-only folders/files. (AMX attempts to overcome problems caused by such files automatically, but this may not be possible).

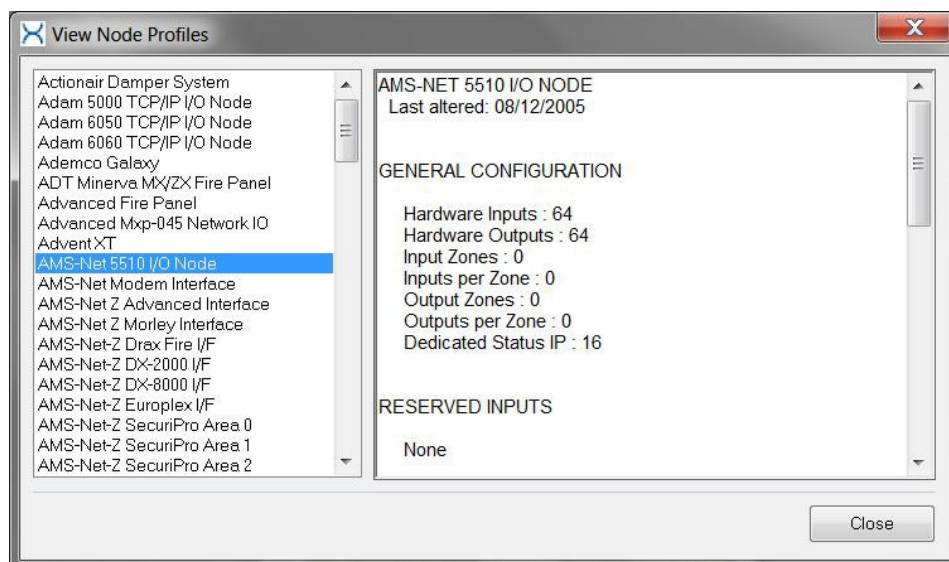
Day and Night Times

AMX can make use of Day and Night times. Daytime is the time at which day is considered to begin and Night-time is the time at which night begins. There are separate day and night settings for each day of the week – and a further setting for Holidays. These settings are used with Day/Night Fields and Time Controls.

Day and Night times are defined in the main Set-up window. Please see *Section 8 - Day/Night & Holiday Set-up (Times)* for more information about setting them up.

Viewing Node Profiles

The Node Profile viewing window can be accessed via the Management menu on the main menu bar. This menu is available only when a Manager or Engineer is logged on to the AMX. It is also possible to access this window from the Network window – see *Section 6 - Network Window*.



The Node Profile viewing window allows a programmer to see the definition of node types contained in the Node Profiles.

Click on a Node type in the list on the left and its definition will be loaded into the panel on the right.

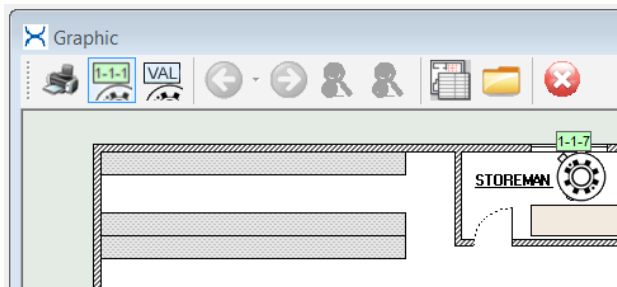
It is not possible to edit the Node Profiles. See *Section 13 - About Node Profiles* for further information on this subject.

Section 11

Advanced Features

Graphic Printing

AMX has a feature to print graphic pages on demand.



The *Print* icon at the left-hand end of the Graphics page is used to print the currently displayed graphic. Any flashing symbols will be printed in their alarm (ON) state.

The Print Preview window will be shown first. Here you can choose to send the graphic to the printer or to a PDF file.

Using the toolbar Icon next to the Print icon you can switch on labels that show the reference of each device. You can see an example above: the green label just above the smoke detector icon. These labels can be toggled on and off. By default, they are not shown.

The VAL button will switch on analogue values for devices on external systems that support this feature – see *Section 11 - Device Analogue Values*.

Note: that there is a *User Profile* option to give users permission to use this print facility.

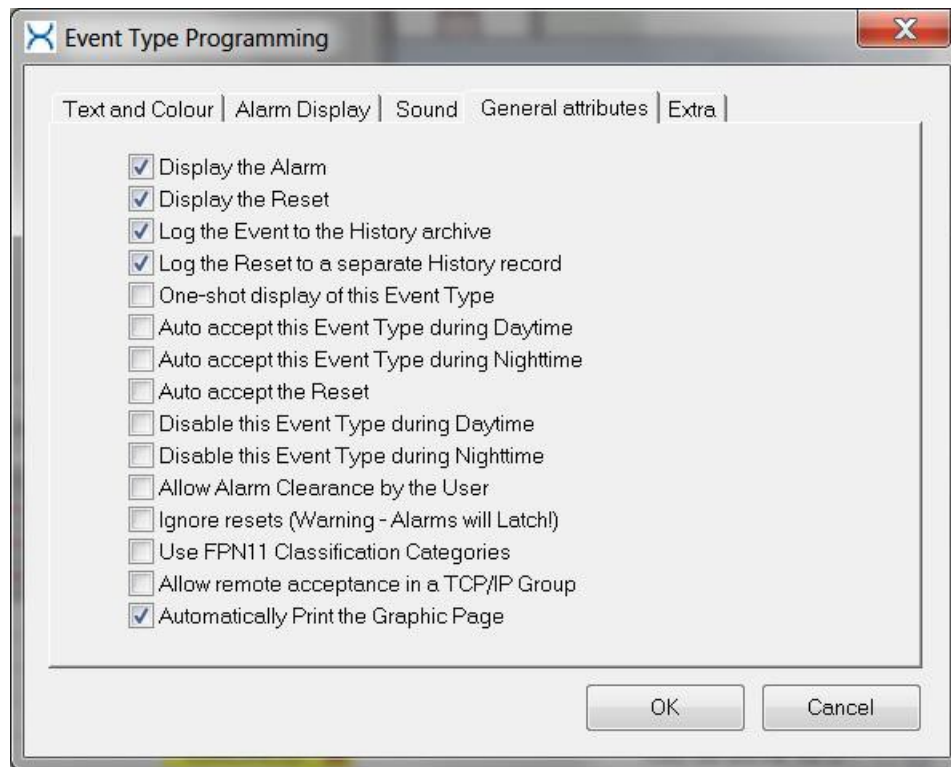
Automatic Graphic Printing

AMX can print the graphics page automatically when an alarm occurs. This facility is enabled by an *Event Type Attribute* so you can set fire alarms to print the graphics automatically.

The graphic is printed to the printer selected in Set-Up – see *Section 8 - Printing Set-up Options* – when it is displayed on the screen. If several alarms occur at the same time, then each graphic will be printed as its graphic page is displayed. If an unexpected alarm is left on the screen for a little while the subsequent graphics pages will not be printed until this alarm is accepted and the display scrolls on to the new page.

The AMX will print the tooltip text showing which device is in alarm if the setup option to *Snap The Cursor To The Symbol On Alarm* is enabled. Under some circumstances – if the symbol is close to the edge of the graphic – the tooltip text might be slightly truncated. The tooltip text is printed as a single line at the bottom of the page.

The following screenshot shows how to enable automatic graphic printing in the Event Type Attributes. The option is at the bottom of the list.



To enable the cursor to snap to the symbol for the alarm currently being printed set the option on the System tab of the Set-up window – see *Section 8 - AMX Set-up Options*.

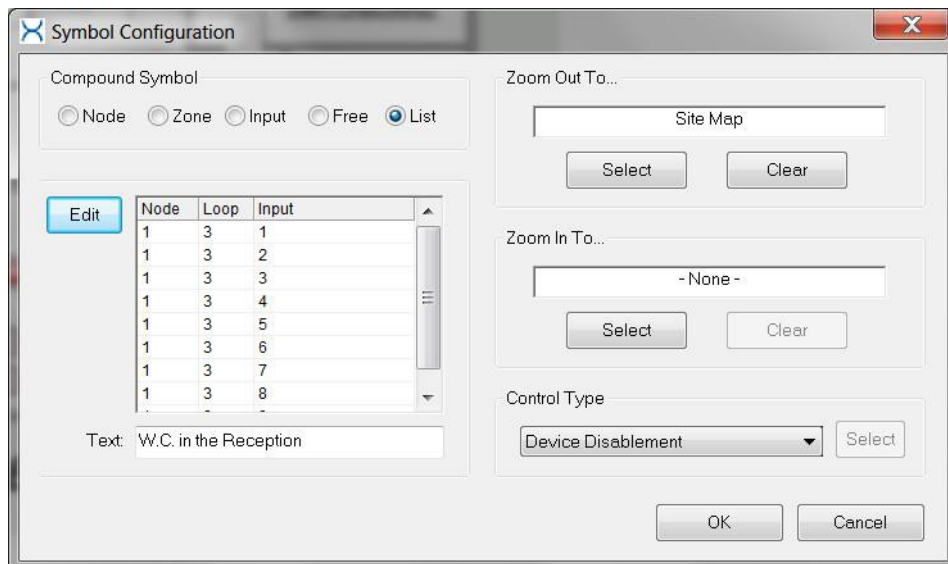
Remember that AMX one always prints to the printer set up on the printing tab of the main setup window.

List Symbols

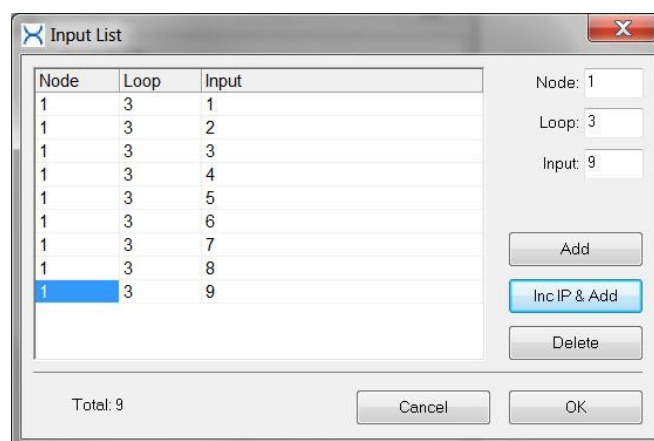
Normally an interactive symbol can be tied only to a single input, a single loop, or a single node. List symbols can be tied to a list of up to 128 inputs, loops, or nodes. If any one of the inputs in the list is in an alarm condition the symbol will change state to indicate the status of the 'group' list.

List Symbols may be Compound or Simple. In the case of compound symbols, the status shown by the symbol will be the highest priority in the group list – e.g., if some inputs in the list are in fault, but one input in the list is in fire, the symbol will indicate the status of the group as fire (the highest priority).

List symbols are placed on a graphic in the normal manner. When the Symbol Configuration dialog appears select the fifth option **List** at the top left. Selecting this option will show the current list (if any).



Clicking on the *Edit* button displays a dialog that allows the list to be edited.



Type the Node, Loop, and Input number into the panels at the top right, then click the *Add* button. Simple symbols will have a panel for Input Type.

If you want to add several consecutive inputs, just add the first input in the series, make sure it is highlighted in the list on the left, then click *Inc IP & Add*.

If you want to add a global node status to the list, enter the Node number, set the Loop and Input as zero, and click *Add*.

The list will be automatically sorted into numeric order. You can enter a maximum of 128 inputs into the list.

To delete an input, highlight it in the list and click *Delete*. When you have finished click OK and you will be returned to the Symbol Configuration dialog.

List symbols can have controls, just like other types of symbols. If the Isolation (disabling) control is used, then the isolation will be sent to every input in the list. If the Fire Panel Controls are enabled, then they will be sent to every Node (panel) for which there is an entry in the list. For example, with a list symbol using the list shown in the diagram above pressing Reset will send a Reset to nodes 1, 33, 49. Please note that all Fire Controls in the control dialog box will appear enabled, regardless of whether individual nodes/panels can accept specific commands like Alert.

Device Analogue Values

This section describes the display of fire device analogue values in AMX.

What You Can Do

- Display a whole loop of device analogue values
- Display a single analogue value from a symbol on a graphics page
- Display values for all devices on a graphics Page
- Record values from specified devices up to once per day
- Display a graph of value changes for a device
- Print reports and displays as appropriate

Analogue values cannot be displayed in an AMX slave that is not fitted with a dongle. AMX slaves do not have the ability to send requests or controls to the remote panels.



It is very important to ensure that the correct node profile is assigned to the node from which you are requesting analogue data. The node profile specifies whether the remote node (panel) supports analogue data values

Analogue Values

AMX will present the value as an 8-bit number – i.e., a number from 0 to 255. AMX does not attempt to interpret this value as this depends upon many factors.



It is the responsibility of a trained, competent engineer with knowledge of the specific fire alarm system and the site installation to interpret the results that are displayed.

For example, a fire detector may have a nominal fire threshold of 64, but the indication of a fire alarm could be influenced by sensitivity settings, multi-mode use, and double knock implementations.

Limitations and Caveats

Be careful if using displayed values to decide whether or not a device is 'safe' – i.e., it is not in a fire state. This decision must be based upon several factors, including:

- The fire panel manufacturer
- The fire device manufacturer
- The fire device type
- The fire device mode
- The sensitivity set for the specific address in the fire panel.
- Multi-mode detector considerations



Decisions based upon the displayed values are the responsibility of the user. Kentec Electronics Ltd is not responsible for the result of any decisions based upon the information displayed in AMX.

Reading Values from a Panel

The simplest way of viewing a device's value is to call up the option *Fetch Device Analogue Values* from the *Management Menu*. The Device Analogue Values Window will be opened.

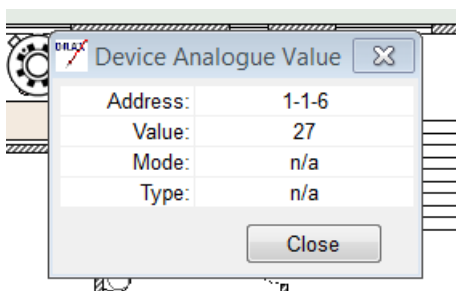
Node	Loop	Addr	Analogue
1	1	1 Stores Area - Ground Floor	34
1	1	2 Reception Area - Main Entrance	33
1	1	3 Telephone Switchboard	70
1	1	4 Interview / Meeting Room	58
1	1	5 Ground Floor Office 1-0A	24
1	1	6 W.C. in the Reception Area	26
1	1	7 Stores Area - Storemans Office	20
1	1	8 Stores Area - Fire Exit	30
1	1	9 Stores Area - Ground Floor	19
1	1	10 Reception Area - Main Desk	26
1	1	11 Spare Input	31
1	1	12 Spare Input	29

Device values are displayed a loop at a time. Select the panel and loop, and then click the *Refresh* button.

Once a loop full of values has been obtained the toolbar buttons may be used to Print or Export the information in the standard AMX manner.

Displaying Values in Graphics Page

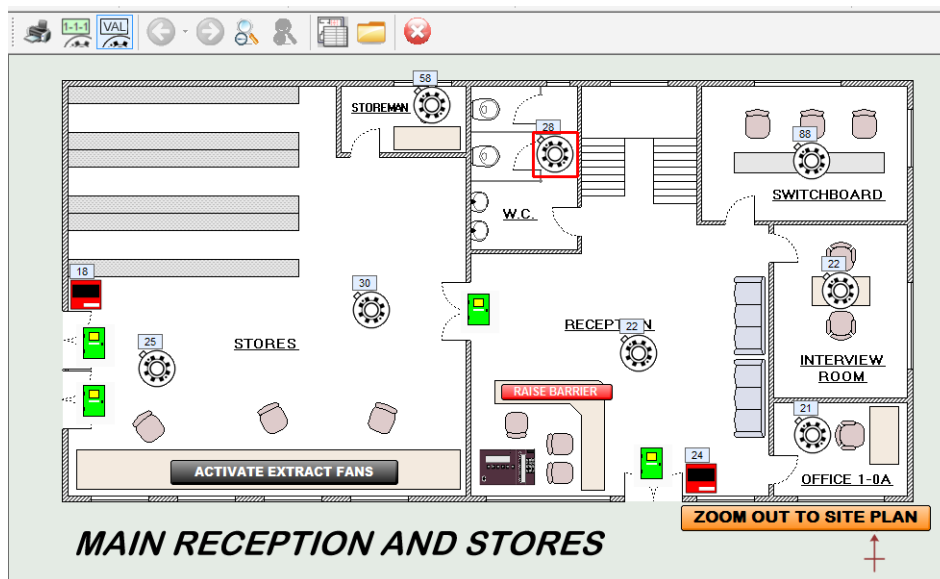
You can choose to display a single devices value, or the values of all the devices on the page.



To display a single device's value simply right click on the device and select *Get Analogue Value* from the pop-up menu. A dialog window will be displayed, which shows the value as well as sensor type and mode if available.

The analogue value will be updated every 20-30 seconds whilst this dialog is on display.

To see the values of all devices the graphic, click the toolbar button marked *VAL* – for value. This will display a small label next to each device and request the values from the remote panel (s). Each label will be populated as the value is returned.



It may take a minute or even several minutes to populate a graphic with many detectors.

Please note that you cannot display the device references labels and the analogue value labels at the same time. They are mutually exclusive.

The Graphic may be printed in the normal way and the analogue values will be included on the printout.

Recording Values over Time

AMX can store one value per day for each device. These values will be stored permanently in the analogue history.

Values are stored only if you set them up to be recorded in AMX.

Fire panels usually do not provide historical analogue value storage, so it is not possible to fetch values retrospectively.

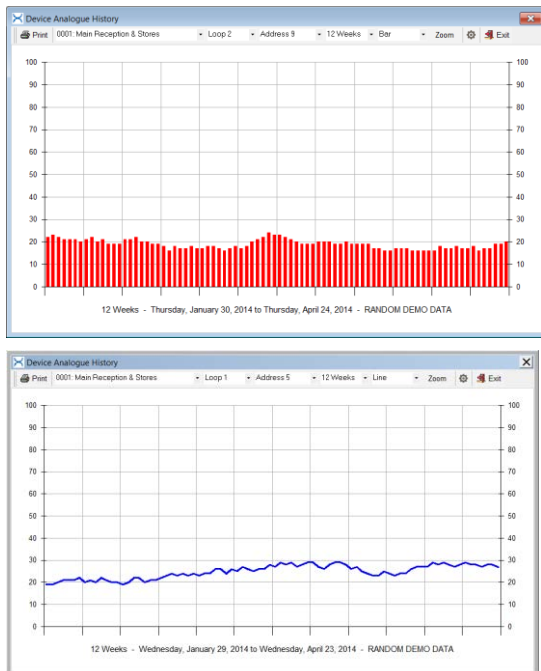
Only one value per day per device can be stored. If you fetch the value more than once a day the second result will overwrite the first.

Analogue values fetched using the Device Analogue Values window or the Graphics Page are not stored in the analogue history.

To specify which devices are to have their analogue values recorded use AMX's standard Time Control Scheduler in conjunction with a Local Action (see *Section 11 - Local Actions*). Full information on how to set this up is given in the document referred to at the end of this section.

There are two ways in which you can access the recorded analogue values. The first is from the Management Menu. The second is from the history: select an event and right-click, then you can view the recorded Analogue History for that device. This option will be disabled if there is no data stored for the device.

Several different display formats are available.



When the window is displayed you will have several options. Use the tool bar at the top of the device analogue history window to choose the device for which you wish to view the history. You can also choose the time period that you wish to view, with several pre-set times from four weeks to 10 years.

You can print a report of the Recorded Values



Event Reminders

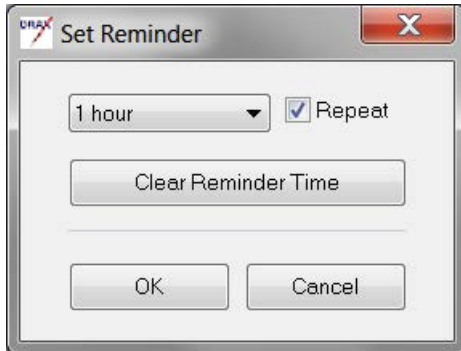
AMX Event Reminders are used to remind users that certain events are still present in the system.

For example, a user isolates a fire device and accepts the onscreen notification of the isolation. An Event Reminder will 'retrigger' the isolation event after a period of time. This event will be re-displayed, audible notification will restart reminding the user there is an isolation still active and they will have to accept the alarm again.

Event Reminders can be set in two ways:

By Event Type - All events of the selected type – e.g., isolations – will have the same Event Reminder time.

Individual events/Alarms - Event reminders can be set for individual events/alarms by selecting them in the Current Event list and clicking 'Set Reminder' on the right-click pop-up menu.



A dialog will be displayed where the user can select from several reminder times varying from 2 minutes to 8 weeks. Similar options are available on the *Extra* tab of the Event Type programming dialog. If the *Repeat* option is checked the Reminder will re-trigger again and again at the specified interval until it is reset, otherwise the Reminder will be given just once.

When the event occurs, it is accepted in the normal way. However, a clock icon is shown instead of the usual tick in the Current Event List – see the middle event below.

Date	Time	Event Type	Location	Status	Referen...
06/11/14	15:31:19	FIRE ALARM	Stores Area - Ground Floor	Accepted	1-1-1/0
06/11/14	15:31:27	FIRE ALARM	Reception Area - Main Entrance	Accepted	1-1-2/0
06/11/14	15:31:28	FIRE ALARM	Telephone Switchboard	Accepted	1-1-3/0
06/11/14	15:31:29	FIRE ALARM	Interview / Meeting Room	Accepted	1-1-4/0

If the event resets or is manually cleared before the reminder time elapses the timer is cancelled, and no further reminder will be given.

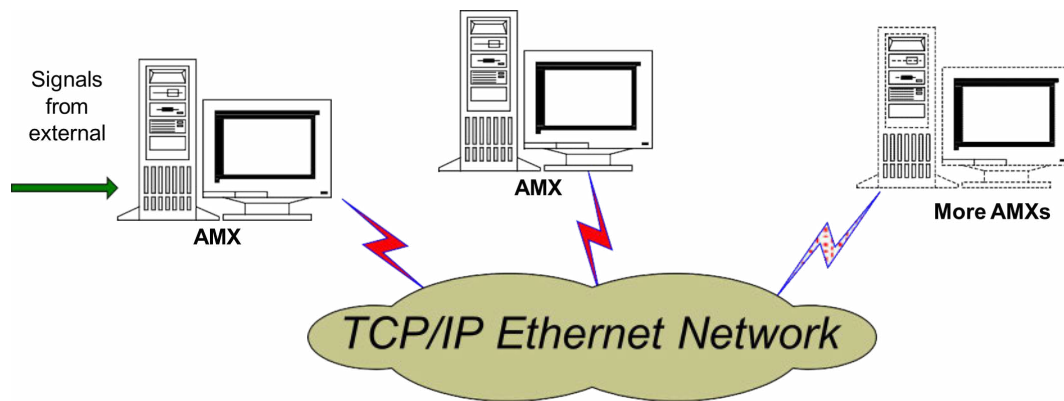
By default, only the first time of acceptance of the event is recorded in the main history. However, there is an option on the History tab in the main Setup window to *Record Accepts in the System History*. If this option is checked then every time the user accepts the Reminder it will be recorded in the System History, providing an audit trail.

Countdown Timer

AMX's Countdown Timer displays a coloured panel showing a numeric countdown when a specific type of alarm occurs. This can be used to warn system operators of an impending event – e.g., the impending expiration of an evacuation delay.

The Countdown Timer is associated with an Event Type. Program the required timer settings from the Event Type Programming dialog – on the *Extra* tab. Different Event Types can have different colour and duration settings for the countdown, but only one countdown panel is displayed at any one time.

AMX TCP/IP Groups



Two or more AMXs can be connected in an AMX Group using an existing site Ethernet network, or over the internet.

This provides the following features:

1. Distributing alarms from a “master” or “central” AMX to one or more remote AMXs.
2. A scalable AMX solution or big sites, with several AMXs each with four Network Managers.
3. A user running AMX on an occasional basis, connecting to the main AMX(s) as required.

When a AMX connects to a group it will “synchronise” its Current Event List, which will display the existing events on the other AMXs. Its History will be updated with any events that may have occurred prior to connection.

The connection between AMXs are monitored, and faults will be indicated on the AMX screen should communication be lost with other AMXs within the group. If the group network fails, alarms are stored within the AMX(s) with the Network Manager connection, and these will be passed to other AMXs in the group when communications are restored.

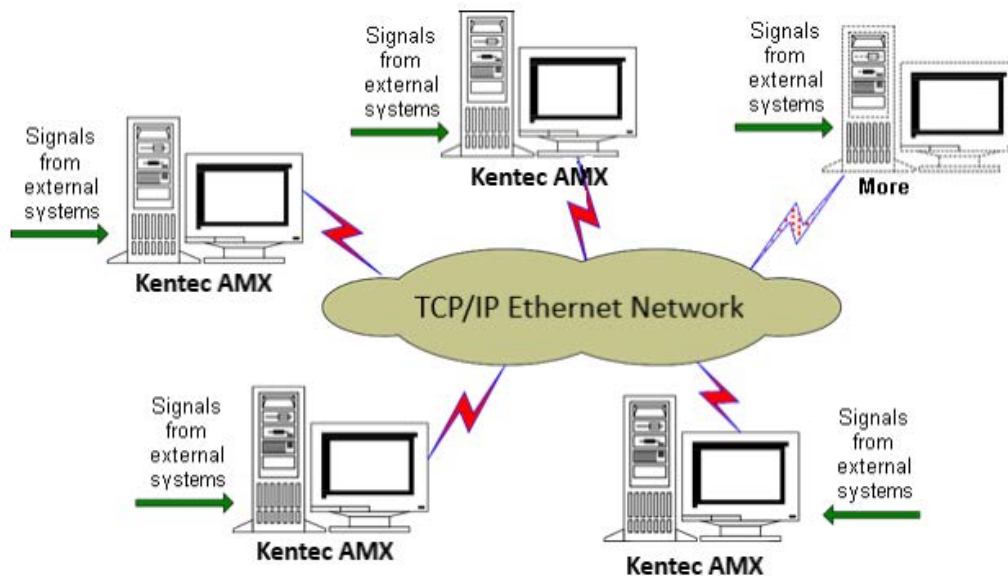
The diagram above shows a simple application. One “master” AMX is interfacing to remote equipment. This AMX receives the alarms and disseminates it to one or more “slave” AMXs via a TCP/IP Ethernet network. This network can be either the existing onsite network or a dedicated network that is installed just for the AMX Group.

The remote AMXs can also send controls out to the external equipment, as well as receiving alarms.

Please note that only the alarm information is sent over the network, not the pages and graphics. This means that each AMX must have a copy of the page database installed. This can easily be done using the backup and restore facilities built into AMX. Network data update is also available – see *Section 11 - Network Data Update*.

There is a maximum limit of 128 AMXs in a group, including slaves.

A Scalable AMX Network

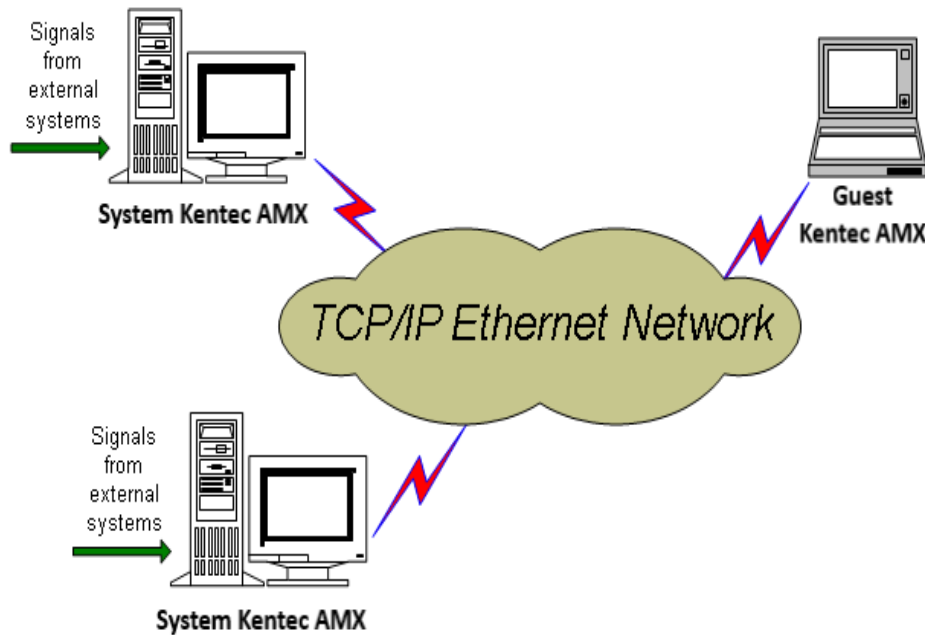


In a scalable scenario each AMX can receive signals from external systems. Therefore, instead of being limited to having just four network connections at one location, an AMX Group can have four network connections at every location. Each time more network connections are required, or a different connection location is required, another AMX is connected to the group.

This scenario can also be used in a very small AMX Group. For example, a group could consist of just two AMXs with one remote system connection. This would allow two remote systems to be monitored and controlled at different locations, with the two AMXs sharing their alarm data.

Note: When two or more AMXs have Network Managers it is essential to make sure that the "Offset" (base address) of each Network Manager is unique.

System and Guest AMXs



A AMX that forms a permanent part of the AMX Group is called a **System AMX**. It is also possible to have **Guest AMXs** that connect to the system permanently.

A Guest AMX has the same facilities as a System AMX, except when:

1. No faults are indicated when a Guest AMX goes offline
2. A Guest AMX cannot have any direct Network Manager connections to remote systems

An engineer or manager who does not need permanent connection to the AMX system can use a Guest AMX. When they connect to the AMX Group their Current Event List will quickly synchronise to show the current status of the system and their history will be updated with alarms and events that they may have missed whilst they were disconnected.

Please note that it is possible to configure a group so that alarms are sent to only selected PCs in the group.

Slave AMXs

A simple option in an AMX Group is to use a master AMX with one or more slaves. All interfacing to the outside world is done by the Master. The slaves have no interfacing capability and can connect to only one Master. Slaves can be either a System Slave or a Guest Slave.

When the master AMX is setup additional licenses are purchased for the required number of slaves. The dongle supplied for the master is enabled for this maximum number of slaves. The slave AMXs do not need dongles. All systems using Group Slaves must have at least one 'master' AMX with a dongle. A slave must be registered with the master AMX during initial system set-up. This process is described later. The process of re-registration on start-up is automatic in the case of Guest Slaves, which may be shut down and restarted whenever required.

A Slave AMX has some limitations, compared to a full AMX group member.

These are:

1. No interfacing to the outside world – i.e., no Network Managers.
2. Slaves cannot send controls to remote systems connected to the master.
3. There is no Network Manager test box, so test alarms cannot be generated locally.
4. A slave can connect to only one AMX

When a slave AMX is started, it will synchronise its Current Event List with the Master and show any alarms that currently exist. It will also synchronise its history information with the Master. This process might take a little while (a minute or two) if the slave has been unconnected for a long period of time.

Network Data Update

This AMX option makes it easier to manage page programming changes in a TCP/IP Group of AMXs. The user can designate one AMX in the group as the master and all page programming changes are made on this master. Then the user can send the changes to all the remote PCs in the group.

Sending the data is initiated by a simple manual operation. The operation will update all AMXs in the group. When the data is received at the remote it is installed automatically without user intervention.

It is not possible to update just one AMX in a group – the same data is sent to all AMXs. The system is in effect automating the backup and restore process, so the whole programming database will be replicated on the remotes.

The following data is updated during the network data update:

- Text pages
- Graphic pages
- Controls – time, manual, auto
- Page programming elements – e.g., Event Types, Sounds, etc
- The Network window entries

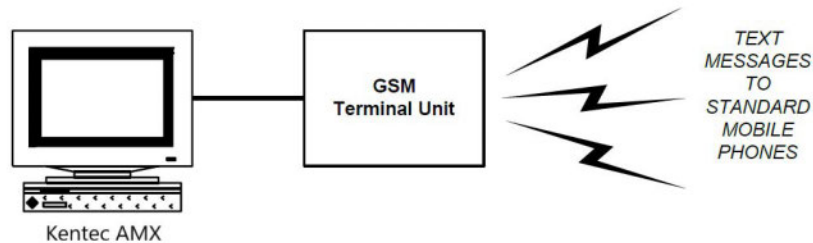
Initiating an Update

When the program changes have been made on the master go to the SMaRT menu and select Initiate Network Data Update.

A dialog box will appear. Click the button to confirm and initiate the transfer. The dialog box remains on the screen whilst the data is assembled. Data is then queued for transfer to the remote AMXs, and a completed message is displayed.

SMS Messaging

This optional feature enables AMX to send short text messages when certain alarms occur.



SMS Features

The AMX SMS server enables SMS text messaging of alarms and events from an AMX to standard mobile phones. It offers the following features:

- Up to 256 SMS Recipients (mobile phone users)
- Programmable availability time for each user
- User active/inactive setting
- Manual message send facility
- Event Type message filtering
- Keyword message filtering
- Global Disable/Enable facility

Facilities are provided to vector alarms to different mobile phone users depending upon the type of alarm. There are also facilities to prevent users from being bothered by SMS messages when they don't need or want them.

Each Recipient can be set as either active or in-active. In-active users will receive no SMS messages.

There is a programmable availability time for each recipient as some recipients may not want to receive SMS messages whilst they are not at work, or perhaps they want to receive notifications only when away from the office.

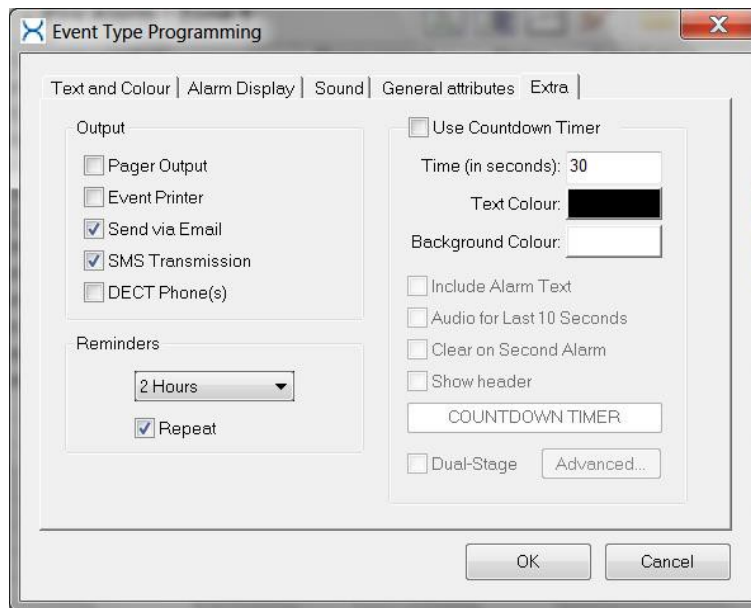
You can limit the types of messages sent to a user by specifying keywords, which must appear in the message text.

Event Type Message Filtering



This setting is very important. If the AMX Event Types are not set-up correctly then they will not be sent via SMS.

Every AMX Event Type has a setting to specify whether or not that Event Type is to be sent to the SMS server. Go into Event Type programming and select the *Extra* tab.



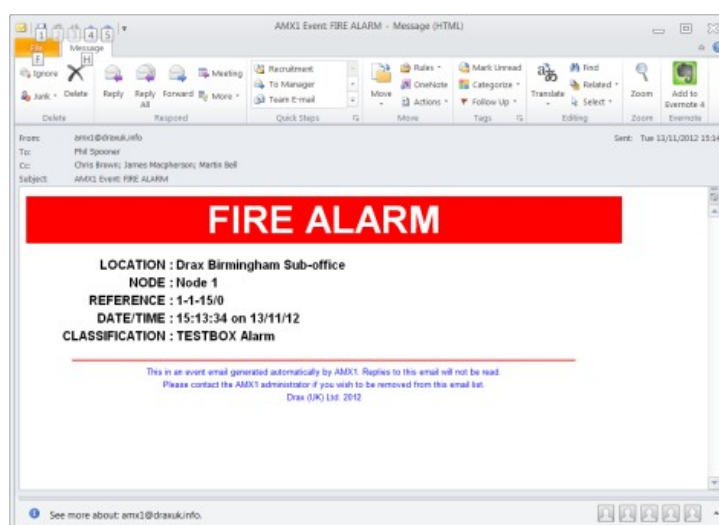
Check the SMS Transmission box. Do this for every Event Type that you want passed to the SMS server. Remember that you can carry out further filtering for individual SMS recipients using keywords, as described above.

Email

The optional AMX Email Network Manager gives the AMX Alarm Management System the ability to send emails about events and alarms.

Two modes of operation are available:

1. Individual alarms can be sent by email. These will be displayed in the recipient's email client in colour or, optionally, as plain text. The information transmitted is taken from the existing programming on the AMX system and no additional text programming is required.



2. History reports can be scheduled to be sent automatically at intervals. The reports can cover the previous 1 to 10 days and they can be sent as full- colour emails, text emails, or attachments that can be opened in Microsoft Excel.

Date	Time	Event Type	Location	Reference
03/11/12	09:34:55	Panel Status Event	Entire Zone Disabled	5-0-19
03/11/12	04:59:04	Door Alarm T11	Street Door Between Lifts & Wards 27.28	504-0-28
03/11/12	07:01:10	Panel Status Event	Sounder Disabled	5-0-6
03/11/12	07:01:16	Door Alarm T16	Thoracic Medicine Fire Escape	508-0-3
03/11/12	07:01:58	Panel Status Event	Entire Zone Disabled	5-0-19
03/11/12	07:55:15	Fire Device Isolated	Roof Void Over Ward 9 Wards 8 and 9 Optical	10-5-8
03/11/12	07:55:28	Fire Device Isolated	Roof Void Over Ward 8 Wards 8 and 9 Optical	10-5-11
03/11/12	07:58:29	Door Alarm T16	Thoracic Medicine Fire Escape	508-0-3
03/11/12	08:37:42	Door Alarm T1	Endoscopy Seated Recovery	509-0-2
03/11/12	08:48:50	Door Alarm T16	Kray Phase 1 Fire Escape	503-0-17
03/11/12	09:04:29	Door Alarm T0	Ward 27&28 Stroke Unit Lounge Doors	504-0-27
03/11/12	09:05:50	Door Alarm T0	Ward 27&28 Stroke Unit Lounge Doors	504-0-27
03/11/12	09:06:00	Door Alarm T0	Ward 27&28 Stroke Unit Lounge Doors	504-0-27
03/11/12	09:06:19	Door Alarm T0	Ward 27&28 Stroke Unit Lounge Doors	504-0-27
03/11/12	09:11:51	Door Alarm T1	Endoscopy Seated Recovery	509-0-2
03/11/12	09:34:55	Door Alarm T0	Ward 27&28 Stroke Unit Lounge Doors	504-0-27
03/11/12	09:46:20	Door Alarm T0	Ward 27&28 Stroke Unit Courtyard Doors	504-0-26
03/11/12	09:48:20	Door Alarm T0	Ward 27&28 Stroke Unit Lounge Doors	504-0-27
03/11/12	09:50:09	Door Alarm T0	Ward 27&28 Stroke Unit Courtyard Doors	504-0-26
03/11/12	09:50:23	Door Alarm T0	Ward 27&28 Stroke Unit Courtyard Doors	504-0-26
03/11/12	10:42:41	Panel Status Event	System Clock Adjust	10-0-29
03/11/12	10:43:33	Fire Device Isolated	Roof Void Over Ward 9 Wards 8 and 9 Optical	10-5-8

Both the alarms and the history reports can be filtered so that only specific types of events are sent. They can also be vectored to different recipients depending upon the type of event.

This is how a fire alarm appears in Microsoft Outlook™.

Subject: AMX1 Event: FIRE ALARM

FIRE ALARM

LOCATION : Drax Birmingham Sub-office
NODE : Node 1
REFERENCE : 1-1-15/0
DATE/TIME : 15:13:34 on 13/11/12
CLASSIFICATION : TESTBOX Alarm

This is an event email generated automatically by AMX1. Replies to this email will not be read.
 Please contact the AMX1 administrator if you wish to be removed from this email list.
 Drax (UK) Ltd. 2012

Email Filtering

Broad filtering can be carried out by selecting or deselecting the Email option on the extra tab of the Event Type programming dialog.

Further filtering may be carried out using filter facilities built into the email Network Manager.

AMX Service Reporting

AMX has an optional Service Reporting module. This consists of three special AMX features:

1. Service Mode
2. The Service History
3. Service Reports

Alarms generated when AMX is in Service Mode are put into the Service History and you may then generate several reports from this information.

Service Mode

Service Mode is used to record commissioning and service test operations. It may be used to ensure inputs have been tested, show when they were tested, and build reports of inputs requiring testing.

When a Node is in Service Mode any events from that Node will be “silent” – i.e., they will not display on the AMX screen or be logged into the Event History – but they will be logged to a special Service History.

Nodes are put into Service Mode on an individual basis. In other words, you can have any number of Nodes in Service Mode although normally only one or two Nodes will be in Service Mode at any one time. Service Mode must be enabled individually for each Node. Alarms and events from Nodes that are not in Service Mode will be displayed and recorded on AMX normally.

When a Node is put into Service Mode the name of the engineer performing the service and a description of the Service Type must be entered. This information will be stored in the Service History and will be used in the generation of the Service Reports, so enter accurate and useful descriptions here.

As soon as a Node is put into Service Mode an internal “alarm” is generated and put in the Current Event List. A Node will remain in Service mode indefinitely, or until AMX is shut down and restarted, so this alarm cannot be cleared from the Current Event List.



Putting a Node into Service mode does not stop “cause and effect” actions programmed externally to the AMX – e.g., fire panel alarm sounders.

The Service History

The Service History stores every event that occurs from Nodes in Service Mode. It can be viewed, searched, and printed like the normal Event History. The Service History stores only the start time of an event, as its duration and reset time are unimportant. The Service History is very much like the Event History, except the colour of the Event Type Text is muted.

The Service History is found in the History window, where a Service History icon is on the main Toolbar.

Using the Service History, you can look at the Service Mode events for any date or search for service types or service engineers. It is easy to use the History search to build a report e.g., Commissioning Tests between two dates.

Service Reports

Several pre-defined Service Reports may be accessed via the Management menu. These are in addition to the reports that can be built from the Service History.

Most of the reports have several user options. The reports usually are specific to one Node and, optionally, one Zone. In other words, you must supply the Node and possibly the Zone or Loop number, which is to be the basis of the report.

AMX will provide the following report types:

Recently Serviced Inputs	Report shows the inputs that have been serviced within the specified time period.
Inputs Not Recently Serviced	Report shows inputs from a Node and Zone that have not been serviced within the specified time period.
Last Test Dates	Report shows up to 32 last test dates for inputs of a Node and Zone.
Most Recent Test Details	Report shows details of up to 32 last tests for inputs of a Node and Zone.
Comprehensive Service Report	AMX searches the entire Service History for tests for a specific Node and Zone. Unlike the Most Recent Test Details report, this report shows every individual test, even if the input was tested several times on the same day. Optionally, inputs not serviced/tested within a specified time period can be highlighted.
Node Last Service Dates	Shows up to 32 dates upon which the Nodes were in Service Mode. All Nodes are shown in this list.
Node Service Details	Report shows details of up to 32 Node Service Mode operations.

Local Inputs

Occasionally it may be desirable to have a local input, or even a local output at an AMX. This optional AMX feature allows up to 3 inputs and one output to be configured using a simple interface module.

Uses for these inputs and or output might include:

- Implementing desk mounted Mute and Accept buttons at AMX
- Activating an external lamp or siren at AMX when critical events occur
- Using a keyswitch at AMX to put external systems into a certain state

I/O Module

This feature uses a readily available low-cost USB serial adaptor to provide three inputs by looking at the state of its control inputs. The feature has been developed around a Belkin FSU103v adaptor but should work with any serial port that implements the full RS232 port features.



Further information on this subject can be found in the Kentec Manual *Man-1593 AMX Local IO*

Start-Up Actions

Start-up actions may be used to put AMX or one of its connected systems into a known state when the AMX program is started. Here are some examples of how they might be used:

- To make AMX start with auto-accept on
- To reset a remote system at start-up
- To disable a node, input, or Event Type at start-up

It might be desirable to use Start-up actions when Local Actions are being used as you may wish to ensure that the AMX is in a specific state at start up. For example, if you are using a Local Action to implement secondary (redundant) path switching then you will want to ensure that the secondary path is disabled when AMX starts up. For more information on Local Actions see *Section 11 - Local Actions*.

Start-up actions are programmed via an option on the Engineer's menu. The User must have Engineer level of access. The User must also have the option to program start-up actions enabled in their User Profile (it's on the Control tab).

If there are start-up actions, AMX will make note that they have been actioned in the System History when AMX starts. No note will be made if there are no start-up actions. If the start-up actions are Local Actions, then each will be recorded in the Control History.

Local Actions

Automate or control the AMX system itself. Users will be familiar with the different types of Control facilities that exist within AMX to control remote systems – e.g., reset a fire system, disable an input, etc. Local Actions allow you to use these AMX's control facilities to change the way in which the AMX operates.

Here are a few examples of what you can do with Local Actions:

- Prevent a User from Logging into the system between certain times, or on certain days
- Disable secondary (redundant) transmission paths when the primary path is working correctly
- Disable a specified Event Type, or even a single input in response to a time event or an external input
- Have a remote input somewhere put a node into Service Mode.
- Use graphic control buttons to accept an event, cancel a countdown timer, etc
- Display a message to the User at a specific time
- Record fire device analogue values to a daily history record

The actions can have a big effect on AMX operation so most of them require an Engineer level of access to be set up.

These are Local Actions, and in most cases, they are not transmitted to other AMX Group members in systems using multiple AMXs.

Some local actions are transient – this means that they will not be remembered after a system restart. For example, a disabled Event Type will be re-enabled should the AMX system be restarted. Refer to the sections on each control to see if they are transient.

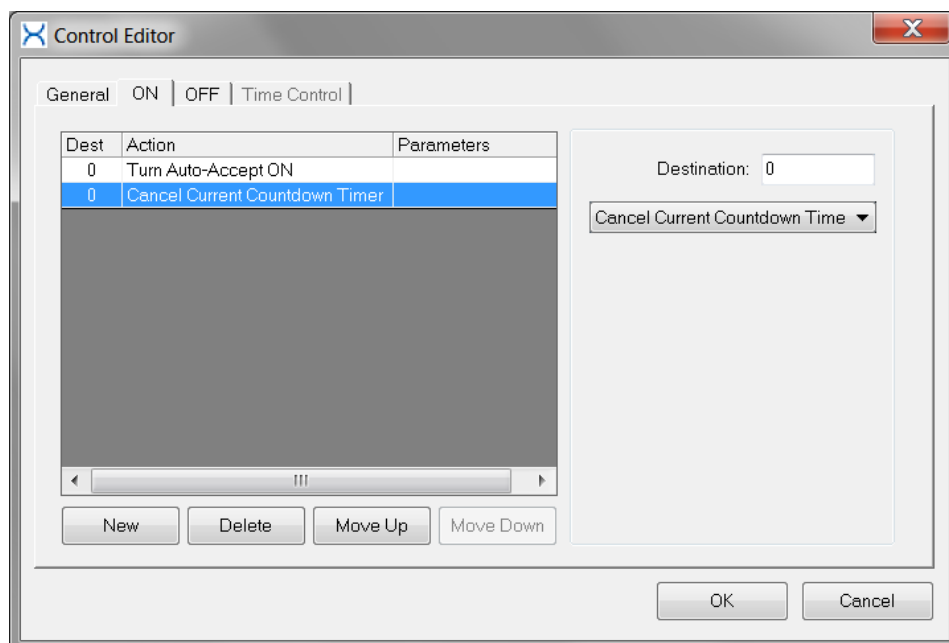
Programming Local Actions

Local Actions are programmed like any other Control actions in AMX. This means that Local Actions are available in the following ways:

- As a Manual Control, from the Control Window
- As a Time Control (this is AMX's scheduler), from the Control window
- As an Automatic Control, initiated in response to an incoming event/alarm
- From a graphic control button

Local Actions may be mixed with non-local actions e.g., A single graphic control button could send a command to a remote system whilst also performing a Local Action.

Local actions are added in the Control editor in the normal manner:



Just enter a zero into the Destination panel and select the Local Action from the drop-down list below.

Basic Data

AMX is installed with a backup of basic data that includes some standard (mainly fire) Event Types, sounds and symbols.

This data can be added to a new AMX using the Data Restore facility and looking in the subfolder *BasicData* below your installation folder. This path will normally be:

C:\AMX\BasicData

Importing this data will over-write any data already in the system.

Reminders

AMX Event Reminders are used to remind users that certain events are still present in the system.

For example, a user might isolate a fire device, accept the onscreen notification of the isolation, and then get distracted and forget to re-enable the device later. When an Event Reminder is set the event will 'retrigger' after a configured period of time. This will cause the alarm to be re-displayed, the sound will restart, and the user will have to accept the alarm again.

Event Reminders can be set in two ways. Firstly, an Event Type can have a Reminder Time associated with it. Then all events of that type – e.g., isolations – will have the same Event Reminder time automatically set. In the second method an Event reminder can be set for individual events/alarms by selecting them in the Current Event list and selecting 'Set Reminder' from the right-click pop-up menu.

User Warning Dialogs

This feature allows you to define warning messages that will be shown to the user when they click on certain controls. For example, a user enabling a fire device might be warned to check that the device will not go into fire before they enable it.

The warning is shown as a custom message in a dialog box on the screen.



You can program Warning messages for the following:

- General Fire Controls (from Management Menu)
- General isolation controls (from Management Menu)
- General Output controls (from Management Menu)
- Zone/Group Isolation controls (from Management Menu)
- Zone Omit controls (from Management Menu)
- Symbol Controls (when double-clicking a symbol)
- Graphic Control buttons (on Graphic pages)

You cannot program warning messages for Manual or Time Controls set up in the main Control window.

Use of the warning messages is optional. If they are unprogrammed or blank, then no warning dialog will be shown.

Pre-defined History Reports

History reports are a powerful feature, which allow you to create customised printouts of the history data. Once a report is created it may be printed or exported for use in external database or spreadsheet programs. You may also use the analysis feature to display or print a report and graph showing frequency of occurrence of various events. Analysing history reports in this manner can be useful in tracking false alarms, for example.

There are several printing set-up options available when printing data from the Event History.

There are three ways to create a History Report.

System History Reports

These are pre-defined reports built-in to the system. These include the following reports:

- Alarms
- Fire Alarms
- Disablements
- Faults
- User-Selected Event Type
- Backup and Restore History
- Communications Errors
- User Logging On/Off
- System Start-up/Shutdown

There are several options for the time period of the report- e.g., Last 7 Days, Last Three Months, or a user-specified time period.

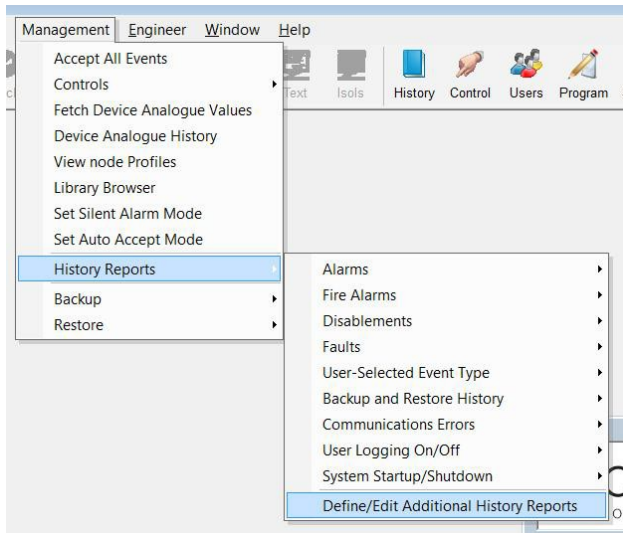
History reports are accessed from the Management menu. It is possible for a user with an engineer level password to edit the system history reports.

User-Defined History Reports

Use these for reports that are specific to your AMX applications.

These can be created by any user with at least a Manager-level password. They are saved and may be called up from the Management menu. As with the system history reports you will be offered a number of options for the time period of the report.

To define these reports, choose the option from the Management Menu.



History Search Print

Using History Search from the toolbar in the history window you can build up a custom data report on the screen. This can then be printed or exported using the toolbar icons in the History window. The History Report Print window will be shown, where you can specify various options like the page header and footer.

Exporting and Importing Single Items

It is possible to export and import the following items (components):

- Event Types
- Fields
- Graphics
- Sounds
- Symbols
- Templates

This allows you to re-use symbols etc on another system.

At present there are no facilities for exporting/importing Controls or Control Lists.

The import and export functions can be found on the pop-up menus in the corresponding Management windows – e.g., Graphics Management. Each item is exported as a single file containing all of the parts necessary to reproduce

the component. For example, an exported symbol will consist of a single file with an “.xsl” extension – this contains all of the symbol information and up to 17 individual graphic pictures used by the symbol.

When a component is imported it is placed at the end of the Management list.

If AMX detects an identical component already in the system, it will offer the option of importing a copy or aborting the operation. If a copy is imported, then the name will be changed slightly so that the new copy is readily identifiable.

Included in the exported component will be the names of the people who originally programmed the item and who have subsequently altered it, plus the creation and alteration times.

Before a component is imported you can click on the “Info” button to display some information about the component. This will help you select the right item. When a sound component is selected in the browser window a “Listen” button will become visible, allowing the sound to be auditioned.

There now follows some specific notes on each of the six exportable items.

Sound Import/Export

Exported sounds consist of the original wave file plus the “header” information, such as the name given to the sound in AMX. Because of the nature of sound files, the export file may be quite large. Exported Sounds have a ‘.xsd’ extension.

Field Import/Export

At present only text fields can be exported. Exported fields have a ‘.xfd’ extension.

Symbol Import/Export

Symbols may use up to 17 separate picture files and these are all included when a symbol is exported.

When the symbol is imported on the target system the symbol Picture files are renamed and the symbol definition is altered to use these new names. Exported Symbols have a ‘.xsl’ extension.

Event Type Import/Export

Event Types are a little more complex because each capture may use one or two of different sounds and these Sounds may not exist on the target system. When an Event Type is exported the two Sounds that are used are included within it.

When AMX imports an Event Type it first looks to see if the sounds already exist on the target system. If they do, then AMX alters the Event Type definition to use the existing Sounds. However, if the Sounds do not exist then will first import the embedded sounds (which ultimately will appear in the Sound Management list) and then import the Event Type definition, once again altering it to refer to the new sounds that are now on the target system.

Exported Event Types have a ‘.xet’ extension.

Templates Import/Export

Templates are also complex because they can contain Text Fields. The Text Field definitions are included in the export file and AMX will first check to see if they exist on the target system, and if they don’t AMX will add them before importing the Template definition.

It is recommended that thought be given to the use of Text Fields when creating Templates for the standard Library. In this case it will not be appropriate to use Text Fields with real names, it is suggested that generic contact names

are used. For example, in a fire alarm template there could be six text field contact names called “Fire Contact One”, “Fire Contact Two”, etc. Similarly, in the fire alarm fault template there can be generic contact names such as “Fault Contact One”, “Fault Contact Two”, and so on. Then when these Templates are imported from the standard Library, it will be found that Text Fields with these names have been created automatically and the user can fill in the real names before the system goes into use.

Exported Templates have an ‘.xtn’ extension.

Graphic Import/Export

Graphics are also quite complex because they can contain many Symbols, or many instances of one symbol. The Symbol definitions are embedded within the Graphic export file and, as with other items, first checks to see if they already exist on the target system and only imports them if they are not already in existence. Then at the graphic data is altered to use either the existing Symbols or the newly imported copies.

There are some limitations with exported Graphics. Symbols embedded on graphics pages will often have zoom linkages programmed for them. These will be cancelled when the Graphic is re-imported onto a new system because they may well connect to non-existent graphic pages. Similarly, Symbols may have Control definitions (for when the user double-clicks on them). Simple generic controls such as the fire control box will be retained, but links to Manual Controls or Control Lists will be cleared, as these may not exist on the target system.

Exported Graphics have a ‘.xgc’ extension.

Silent Alarm Mode

Alarms normally take priority in AMX. This means that if you are browsing the history or working in any other program module an incoming alarm will take precedence and you will be ejected from your current task. This is exactly how the system should work. This can be a nuisance when undertaking long programming tasks, or whilst working on the system while tests are on-going.

The Silent Alarm Mode setting may be used when programming the system to prevent alarms from interrupting the programming process. Once Silent Alarm mode is selected incoming alarms will be put into the Current Event list and History without any alarm display or sound.

To start Silent Alarm mode, you must be logged on with a Manager or Engineer level password, and you must have permission enabled on the Management tab of your User Profile setting. Then you can choose Set Silent Alarm Mode from AMX’s Management menu.

In the Silent Alarm window select the time period for silent alarms to be active and click the SET button. At the end of the specified time period Silent Alarm Mode is automatically cancelled. The maximum time for which Silent Alarm Mode can be enabled is 8 hours. It is not possible to leave the system permanently in this mode.



In Silent Alarm mode the events waiting panel on the status bar indicates SILENT MODE. Alarms and events will come and go silently from the Current Event List without requiring acceptance, but they will be logged to the History normally.



This is an engineer's convenience feature, and it is not intended for normal use, as features like on-shot alarms might be changed whilst this mode is in operation.

Silent Alarm Mode can be cancelled at any time from the Management menu. The mode will automatically be cancelled if you log off the system. Setting or clearing of the silent alarm mode is logged to the System history.



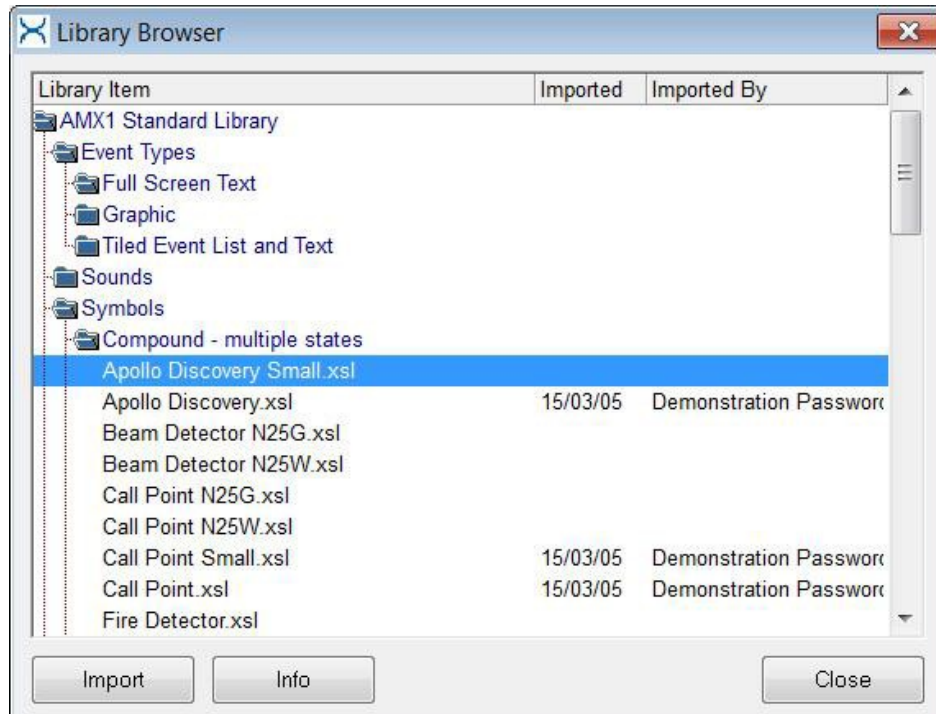
It is the responsibility of the User who instigates Silent Alarm Mode to ensure that any real alarms are dealt with correctly during Silent Alarm Mode, as they will not be displayed on AMX.

Library Browser

The Standard Library is accessed via the Library browser. You will find this on the Management Menu. The library will always be installed, but it is up to the user whether or not they want to import components from it. Each time a AMX installation is upgraded with a new version of software the library will be upgraded to the latest version as well.

The library consists of a tree structure, starting off with main categories of Event Types, Sounds, Symbols and Templates. There are no Library categories for Fields and Graphics.

The main categories are further broken down into a number of subcategories. For example, in the Event Types category there are subcategories for full text page display, tiled current events list and text page, and full Graphics page display. Each of these has further subcategories for different disciplines: Fire, Security, etc.



To import a component, simply select it in the browser window and click the "Import" button. Alternatively double-click on that component. If an identical component already exists within the AMX you will be prompted to decide whether or not to import a new copy, selecting 'no' will abandon the import operation.

Section 12

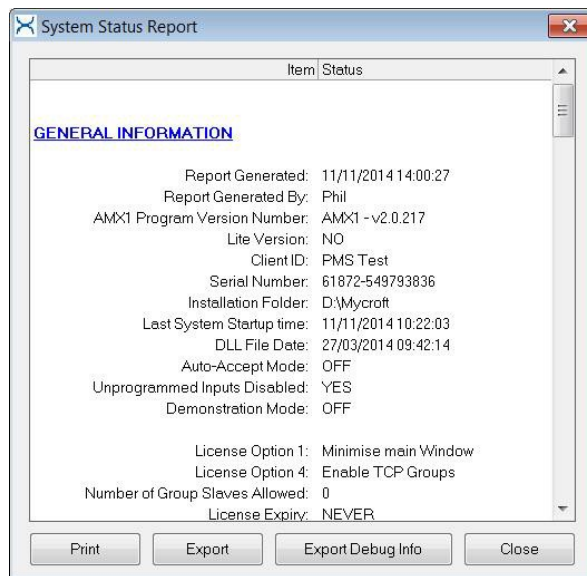
Engineers Functions

Some special AMX Functions are available only to Engineers. An Engineer is someone who can have access to all features of the system including stopping the system and programming certain types of control. Because these features may affect normal operation, they are usually made available to only a small number of responsible people.

The actual facilities available to each user are specified in the individual User Profile, so even an Engineer may be excluded from certain areas of the AMX.

Most of these facilities are accessed via the Engineers menu. This menu appears on the main menu bar only when there is an Engineer logged on to the AMX.

System Status Report



The System Status Report displays a screen of status and debugging information, which might be useful to an Engineer trying to track down a system problem.

The System Status Report is available only to Engineers.

Some general information about the system is displayed, followed by information on each of the Network Managers used by the system. The information shown for each Network manager will vary, depending upon the Network Manager type.

At the bottom of the System Status Report window are buttons to Print and Export the report. Printing uses the standard facility for Printing Lists and export uses the standard facility for Exporting Lists.

Export Debug Info

At the bottom of the report window is an Export Debug Info button. This button is provided so that an engineer can export extended system information to a file which can be emailed or posted to the system supplier. This might be useful when diagnosing difficult problems. Clicking on the button will cause AMX to collate all the relevant data and zip it up into a file with a user-specified name. This file can be saved directly to a floppy or other removable disk.

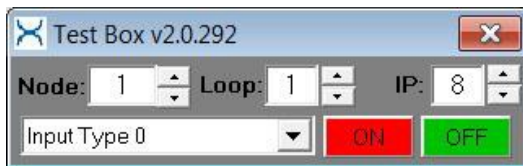
Included in this file is the System Status Report, a directory listing for AMX, and various files showing the current system's set-up.



The system may delay the display of alarms for a few seconds whilst the debug information is being collated.

Simulating Alarms

Simulation of alarms may be required by an engineer to test configurations. This can be done using the Test Box can be accessed via the Network Manager's submenu off the Engineer's menu.



The appearance of the Test Box will vary depending upon the type of Network Manager(s) in use, but it will generally look like the example shown.

The panels and buttons in the Test Box allow any alarm to be simulated. The Engineer will need to know the numeric reference of the alarm to be generated.

The On and Off buttons are used to generate the alarm and its reset.

Hint: If the alarm does not appear when activated, check that the input nor the Node are set to Ignore (disabled).

This facility of alarm simulation can be very useful when systems are being configured as it allows the programmer to check the full range of responses to an input and see how the pages will appear to the user.



Alarms generated via the Test Box will be stored in the Event History where they may be indistinguishable from real alarms. Some test box alarms may be pre-classified, but in other cases it might be desirable to use the History Event Classification feature to mark these as "Test Alarms".

Clearing All Alarms

An option on the Engineer's menu allows an Engineer to clear all of the current alarms in the system. This feature might be useful during testing.

When alarms are cleared there is no reset generated for them. They are removed from the Current Event List and the system but remain in the History.

Setting Up the Network Managers

Each individual Network Manager requires configuration. The items to be configured generally include:

- The PC communications port(s) it uses
- It's address in any external system
- The type of polling, if applicable, that is used to monitor nodes in the remote system
- The node addresses to be polled, if applicable, in the remote system
- The AMX's system address in the remote system, if applicable.

- Any Offset to be added to remote node addresses to prevent clashes between the addresses used by multiple Network Managers.

These settings are available via the Network Manager's submenu, which is to be found off the Engineer's menu.

Explanations of how to set these options can be found in the manual for the Network Manager(s) in use.

Stopping the AMX Program

By default, only engineers can shut down the AMX program using an option on the Engineer's menu. A setup option can make this available via the Main Menu to non-engineers.

Note: This is the only correct method of ending the program. If any other method is used the Network Managers will assume that the AMX program has failed and initiate their error and restart procedures.

Program shut down will be recorded in the System History, along with the name of the Engineer logged on during shutdown.

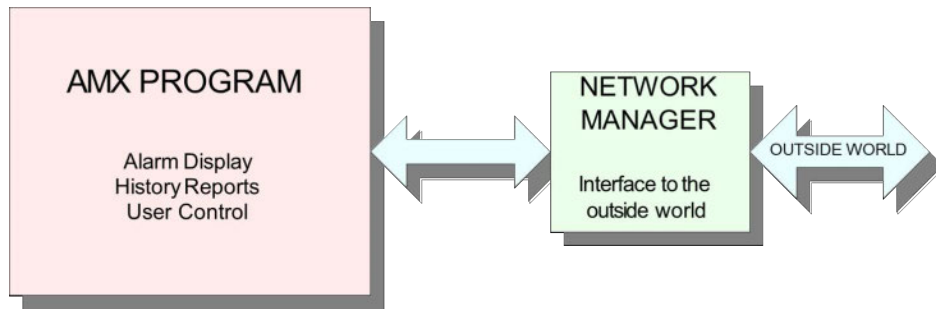
Section 13

Interfacing to the Outside World

Network Managers

AMX uses separate programs called Network Managers to connect to external networks and remote subsystems.

The AMX Interfacing Concept



The AMX software consists of at least two independent programmes that multi-task on the same PC. These are the main AMX program and the Network Managers.

The main AMX program is responsible for prioritisation, display and recording of the alarms, and all of the main user interfacing. The separate Network Manager programs control communication with the outside world, receiving alarms from the externally connected equipment and passing controls back to it. These two programmes multi-task on the PC, communicate with each other internally and monitor each other for greater system integrity.

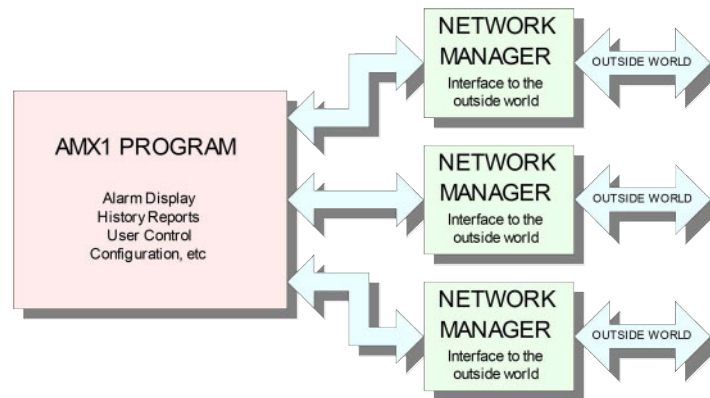
The main AMX program only needs to be changed when new features are being added. If it is required to interface to a new type of external network or remote subsystem, a new Network Manager program is created. It is not necessary to change the main program. This makes it easy and quick to adapt the system to different networks and external subsystems.

Each Network Manager implements a serial protocol for connecting to the external equipment. However, a Network Manager is much more than just a software driver. The Network Manager is responsible not just for communicating with the external equipment, it performs the following functions:

- Implements the protocol used by the external equipment
- Buffers controls to the external equipment, implementing handshaking and flow control as necessary
- Buffers the events from the external equipment in case the AMX is not ready or able to receive them
- Monitors the external equipment for communications faults and indicates failures as an alarm sent to the AMX.
- Monitors the AMX program for correct operation, indicating failure

The electrical interface to the outside world is usually via the PC's serial ports. These are chosen to suit the external equipment and may be the standard serial ports built into a PC, or they may use additional plug-in isolated ports on standard PC cards.

Multiple Networks and Multiple Discipline

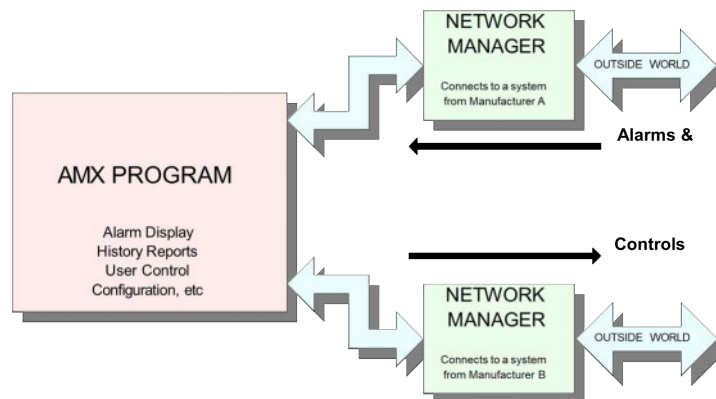


The basic AMX program is designed to work with up to four different Network Managers simultaneously (although the diagram above shows only three). With additional hardware, further expansion can be accommodated.

Each Network Manager can connect to an external Network of many hundreds of remote nodes, or to a single external subsystem.

This ability allows the AMX system to display and prioritise alarms from more than one external network or subsystem. For example, AMX could be connected to a PLC network, an Access Control network and to a Fire network. All that is needed is to use the relevant Network Manager programs for each different type of external system to which AMX is to be connected. AMX can then prioritise the alarms and events from the different subsystems and combine them together onto a common graphical or text display.

Interaction Between Networks



An important feature of AMX is that it allows interaction between the different networks that can be connected by the separate Network Managers. This interaction is achieved with Automatic Controls.

As shown in the diagram above, events and alarms received from the Network Manager connected to manufacturer A's system can trigger controls which are sent to a separate system from manufacturer B (connected to the second Network Manager). These controls are programmed on the AMX and can be configured by the AMX programmer. The exact types of control that are available will depend upon the external systems/networks and the capabilities of the external network protocols.

As an example, if a fire network was connected to the first Network Manager and an Access Control network was connected to the second, it would be possible for events or alarms in the fire network to unlock doors in the Access Control system via the AMX's custom programming.

Programming of these controls is done on the AMX PC and does not require changing of firmware or software in the external systems or networks.

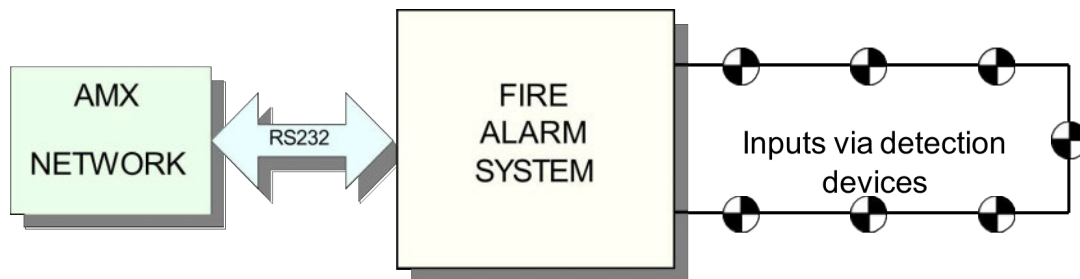


These controls are dependent upon the AMX PC being functional so they should be generally used for supplementary controls and not for life-critical functions. This is not a major restriction, as networks such as fire networks will perform their own critical functions in order to comply with the standards.

About Nodes and Inputs

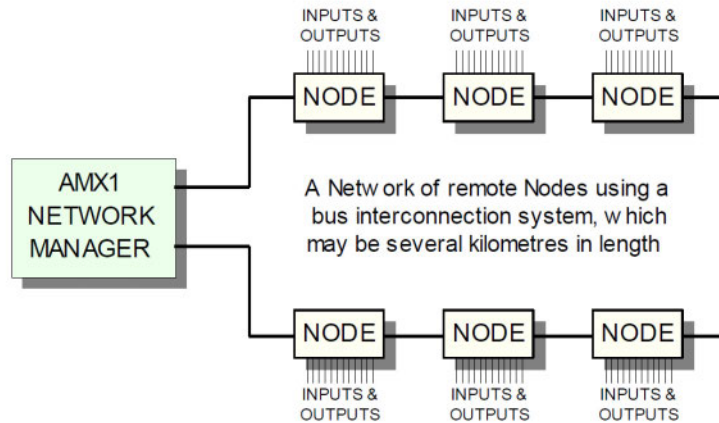
The previous section described how Network Managers are used to interface to an external system.

A Node is a connection point within a remote subsystem or network. A node might be a single alarm panel or a simple input board. Normally several (or many) nodes are networked together and connected to AMX via one Network Manager. The capabilities of the individual node types are described by the Node Profiles.



The diagram above shows a very simple Network Manager connection, where the Network Manager is interfacing to one control panel. In this case it is an alarm system, but it could be any type of control panel or external equipment. Inputs in the diagram above are fire detection devices connected back to the alarm system control panel. These devices will trigger the appropriate alarm responses within the alarm system and neither the AMX nor its Network Manager will have any effect upon the operation of these functions. The alarm system signals the remote events and alarms out of its RS232 port using a protocol selected or created by the alarm system's manufacturer. The Network Manager receives these events and alarms, performs any handshaking or acknowledgement as appropriate, and then passes them on into the AMX system.

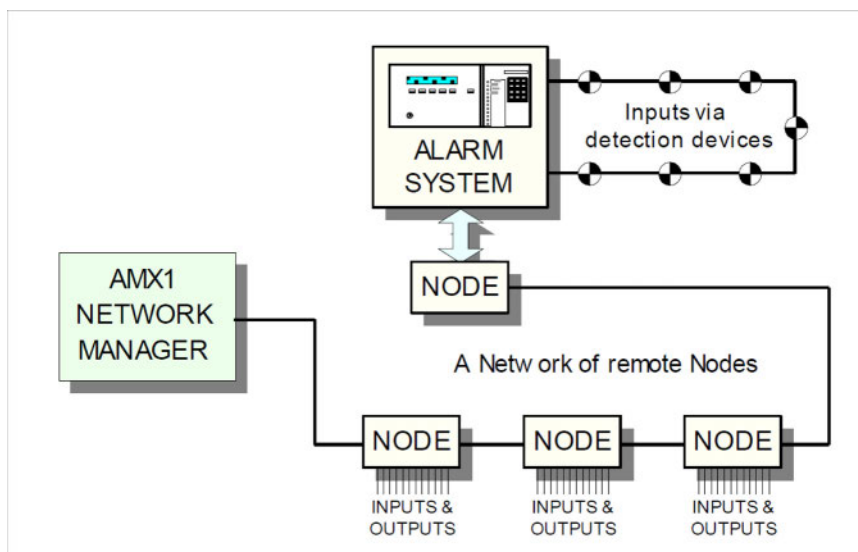
The system just described is only one type of Network Manager connection. In this system the alarm control panel will normally occupy one node (address) within the AMX. However, in many cases, the Network Manager will interface to a large number of separate nodes. These nodes will probably be distributed around a site and connected back either directly to the Network Manager or indirectly via a central control system using some kind of bus system – e.g., RS485, Fieldbus, etc.



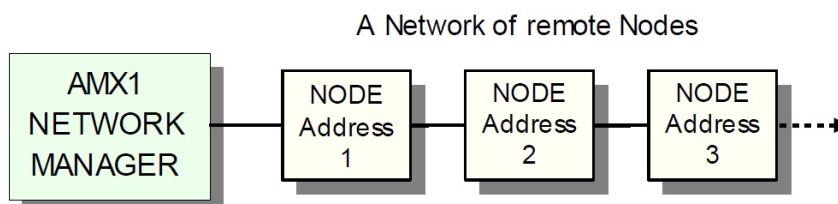
In the example just shown, the nodes have both inputs and outputs. The inputs are reported back to the Network Manager via the bus system and then passed back into the AMX using the same procedure as before. In this example, controls can also be sent from the AMX to alter the state of any remote output. The AMX Network Manager will convert the controls into the protocol used by the bus system, address them to the appropriate node and finally transmit them so that they carry out the required action.

Many different types of external network are possible. These networks are not a part of AMX, and, in many cases, they may be existing systems that were installed some time prior to the AMX system. AMX can interface to any external network for which a Network Manager has been created. In some circumstances a special hardware card will be required to perform interfacing between the PC's serial port and the network's bus system.

In the further example shown below a network system has been used to combine discreet inputs and outputs and also to implement a serial connection to an alarm system at a remote node.



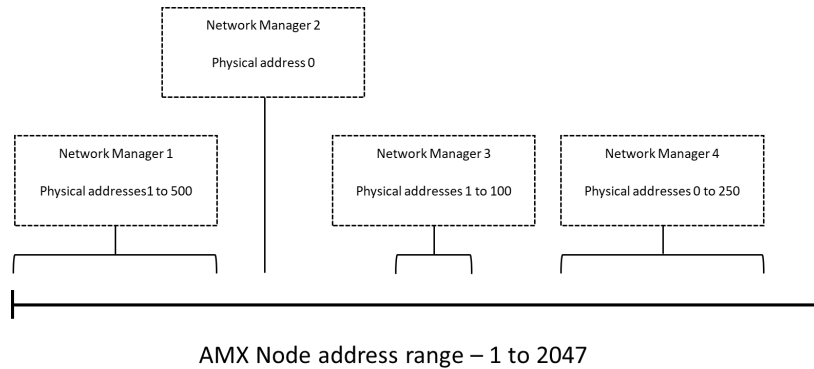
In the above examples, each of the remote nodes will occupy one address within the AMX system. Valid addresses are from 1 to 2047.



In the diagram the nodes are shown as having addresses 1, 2 and 3. If a second Network Manager is then used to connect to another network or system, it is quite possible that this second system will also have nodes with addresses 1, 2 and 3. To overcome this problem a system of node mapping is used.

Node Mapping

Node mapping adds an offset to the remote system node addresses, using a separate offset for each Network Manager, to ensure that no two nodes appear to have the same address.



In the diagram four Network Managers have been connected back to an AMX and their remote node addresses are matched to different addresses in the available range.

Network Manager 1 has no node offset, so its nodes physical addresses 1 to 500 correspond directly to the AMX addresses 1 to 500.

Network Manager 2 has only one node address (this would be quite normal in the case of a Network Manager connection to a large central alarm or control system) and this has been given the offset 600. As its single node has a physical address of zero this gives it an AMX address of 600. Network Manager 3 consists of 100 nodes. It is not possible for them to use addresses 1 to 100, because the nodes from Network Manager 1 already occupy these. So an offset of 1000 has been added to Network Manager 3, with the result that AMX sees these remote nodes as having addresses 1001 to 1100.

Finally, a similar situation exists with the Network Manager 4 connection. Its 251 addresses from 0 to 250 have been moved far up the AMX node address range by giving Network Manager 4 an AMX offset of 1500.

The above is just an example. It is not necessary to have higher AMX addresses for the higher number Network Managers. Network Manager 1 could use addresses ranging from 1500 to 2000 if required. However, it is not permissible for Network Manager address ranges to overlap, and care must be taken when planning the system to ensure that there are no conflicts. It would also be wise, unlike in the example above, to keep the address blocks close together. This will make it much easier should it be desired to add further Network Managers at a later date.

The configuration of the AMX offset address and its address in any remote subsystem is carried out in each Network Manager set-up window. See the documentation on the individual Network Managers for details of these options.

Each input to the AMX has a unique numeric reference¹, which will appear at various places within the AMX. It is not essential for the average day-to-day user to understand or work with the numeric reference, but any user involved in programming or configuration of the AMX should understand it. The numeric reference is explained in *Section 16 - Numeric Reference*.

About Node Profiles

A Node Profile describes the capabilities of a Node type. Node Profiles, which are created by Kentec, describe the node's capabilities to the AMX.

Information included in a Node Profile includes:

- The number of inputs available at the node
- The number of outputs available at the node
- The number of status inputs
- Whether or not the node's inputs are organised into subgroups of zones or loops and, if so, the number of subgroups
- The description phrase to be used for input subgroups – e.g., “zone” or “loop”
- Types of control possible – and the minimum/maximum values for each control parameter
- Limitations on the controls (exclusions) – i.e., restricting some controls to engineers or not allowing them to be used a automatic controls
- Names for each Input Type
- Whether or not inputs may be isolated (disabled)
- Some Node Profiles contain a flag that will cause AMX to force the Location/Description phrases for each Input Type to be the same. In other words, changing the phrases for one input type will automatically copy it to all of the other Input Types for the input. This behaviour can be overridden by a global Use Input Description Phrase Synchronisation option in the main Set-up window.

Node profiles may be looked at by using the Node Profile Viewing Window – see *Section 10 - Additional Functions* – which can be accessed from the Management menu.

Section 14

Additional Information

Setting Up a New System

AMX may be supplied as a CD, flash drive, or as a downloadable file. This installation program installs the software and its support files.

Before running this program, it is necessary to ensure the PC is configured correctly, so please read the document referenced at the top of this section.

The Installation program will suggest installing AMX in the "C:\AMX" directory. Before accepting this default, make sure that this installation directory is the best option.

A full installation will take less than 100 MB, but the configuration data can run to 100s of megabytes in anything other than small systems. In addition to the space used by the program and its configuration data, the History data can also build to 100s of megabytes.

Set the PC's display video resolution to the required settings before embarking upon programming.

Check that the PC sound is working. If the PC does not produce sound via Windows it will not produce any sound from AMX. Similarly, check that any optional printer has the correct driver installed and make sure it is set to be the default printer.

Finally, plug the dongle into a USB port. The software can be installed without the dongle being plugged into the PC, so it may be fitted later if required. See *Section 14 - Dongle* for further information.

Before installing the AMX software on the PC, close all other programs that are running.



You must be logged on to the PC with Administrator privileges to install AMX

Run the installation program and follow the onscreen prompts to install AMX. The following will be installed:

- The AMX program
- A number of support files used by AMX
- The dongle driver software
- The Arial Rounded MT Bold font
- An uninstall program – *unwise.exe* – will be placed in the installation folder

After the software has been installed, a request to restart the program will be made. You must do this, as the PC restart finalises the dongle driver installation.

When AMX is first run after installation it will create all of the necessary subfolders and files.

There is a default password for a newly installed system. This is an engineer level password with everything enabled. This may be used to create other passwords. It is not possible to edit a password that has been used to log onto the system, so it may be necessary to retain the default password for the time being. However, this default password should be re-programmed or deleted once some new passwords have been set-up. See *Section 5 - About Users* for details on adding Users and setting up their passwords.



There is no back door password so make sure that the passwords are not forgotten, or else there will be no way of accessing the system. Do not delete all of the Engineer level passwords.

This completes the installation of the AMX software.



You must run AMX as an administrator or else Windows may prevent the program from creating and removing the folders it uses.

If your system uses TCP/IP Groups, you may need to alter the system's firewall. Refer to the Groups documentation.

Updating an Installation

An existing installation can be updated without damaging the configuration or History data. However, it is still prudent to make a backup of the configuration data before updating the installation.

To update the AMX, the program must first be shut down – see *Section 12 - Stopping the AMX Program*. The update process is the same as the process of installing the software that was described in the previous topic. In this case, the checks on resolution and disk partitions will not need to be repeated.

Be very careful to install the software into the same folder where the program was originally installed. Do not accept the standard default folder of “C:\AMX” unless it is certain that was where the program was originally put.

After the update software has been installed, accept any Windows restart messages, start AMX and check that the new version number is shown in the program title bar.

Making the PC Auto-boot AMX

Often it is desirable to set AMX to start automatically when the PC is started.

The normal procedure is to create a shortcut to the AMX program `AMX Alarm Manager.exe` and place this shortcut in the PC start-up folder.

There may be problems getting this working. This is because the AMX program may be started before the operating system and system drivers have fully finished loading. A typical symptom of this could be a dongle error at start-up.

To overcome this, it is necessary to use a start delay at the start of the AMX program until the PC is fully settled. This is done by creating the shortcut not to the AMX program, but to the program `AMX Start Delay 30.exe` which is to be found in the AMX installation folder. Then place the shortcut in the start-up folder in the normal way.

Now when the PC starts up there will be a 30 second delay before it starts the AMX program. This will avoid start-up problems.

You will also need to make sure that Windows does not prompt for a username and password when the PC is started.

Firewall Warnings

It is possible that the PC may request firewall access for the AMX application when it is first run. This is because AMX uses TCP/Ip in some applications. You should grant access when requested to do so.

Server Environments



AMX is a desktop application, and it does not support client/server installations.

We test and validate under current desktop version of Windows.

We do not test or validate under virtual server operating systems as they are not normally used with AMX.

If you need more than one AMX please refer to *Section 11 - AMX TCP/IP Groups*. A carefully designed AMX Groups application can offer greater resilience and redundancy than an installation based around a single server. The *AMX Slaves* option allows a 'master' AMX to act as a central server for a number of users.

Remote Access



Do not use Windows Remote Desktop with AMX. There is a risk that the system may be left functioning incorrectly when the remote user logs out.

If you wish to allow your maintenance company to have remote access to your AMX then we suggest you explore third-party products such as Team Viewer™ or UltraVNC™.

Advice on using these third-party products is outside the scope of this manual, so please study their documentation. You should be aware that these products do not provide independent access to the remote user – anything done remotely will be visible to the site user. These products are not suitable for providing multi-user access.



Use of these third-party products for remote access is at your own risk and Drax cannot be responsible for any system failures caused by using them.

Dongle

The dongle is a device that plugs into a USB port of the AMX and is the license to use the system.

The AMX can run in demonstration mode without a dongle, but it will be unable to communicate with external sub-systems and networks in this mode.

The dongle license tells AMX what Network Managers and options have been purchased and enables those features.

Lost dongles will not be replaced without payment of a full licence fee.



NEVER remove the dongle from the AMX's USB port. Although the AMX may initially appear to function without the dongle, it will eventually detect the dongle error and parts of the program will shut down. If the AMX program is restarted without the dongle it will not be possible to communicate with the external networks.

Upgrade Keys

Sometimes a user will purchase a new feature or a new Network Manager. These features can be enabled on site by entering a simple upgrade key into AMX.

Upgrade keys are specific to a particular dongle license and will work only on the system for which they were created.

The key is entered using a button in the AMX's *About* dialog box.

Self-Monitoring and Integrity

The AMX and the Network Managers monitor each other for correct operation.

The AMX indicates the Network Manager's status in its status bar, with separate indications for each Network Manager.



In the example here the green numbers 1 and 2 indicate that Network Managers 1 and 2 are both working correctly. If there is a problem with either of them, the panels would be red. Around 10 to 30 seconds¹ after a Network manager ceases to respond AMX will indicate the failure with an alarm (see *Section 16 - Status Inputs*), changing the status bar indication and recording the fault in both the Event and the System History. A further 10 to 30 seconds later, AMX makes the first of three attempts to restart the errant Network Manager.

All being well, the first attempt at a restart should be successful. If all three restart attempts – at 20-60 second intervals – fail, AMX will give up and an engineer's attention will be required. If the AMX succeeds in restarting the Network Manager, the successful restart will be recorded in the System History. However, the alarm generated upon Network Manager failure will still require acceptance by a user, as indeed will the reset of this alarm that was generated when the Network Manager restarted.

Monitoring works both ways. Each of the Network Managers monitor the AMX and should any of them fail to see the AMX working correctly, they will indicate the error by displaying the ERROR dialog box shown below. An intermittent beep will also be given. The beep can be muted, but the ERROR window cannot be closed.



This ERROR dialog is displayed after an interval of approximately 20 seconds. After a further 20 seconds (approximately) the Network Manager will attempt to restart the AMX. If the first attempt is unsuccessful, two further attempts will be made at intervals of 20-60 seconds. If all three restart attempts are unsuccessful the error dialog will remain on the screen until an engineer attends the system.

During the period whilst the AMX is in fault, the Network Manager(s) will spool any incoming alarms to a hard disk file so that they are not lost. When the AMX is successfully restarted, the error dialog will be automatically cleared from the screen. An alarm indicating the AMX failure will be sent to the AMX and recorded in the History, any spooled alarms will also be transferred to the AMX.

Certain AMX functions, especially when making backup, may extend the approximate error detection periods described above, this is to allow for any delays that might occur when trying to write to removable disks. This will help prevent a false AMX error indication if a User should try to backup data to an empty drive unit.



The red Network Manager error dialog window will also be displayed if someone attempts to shut down the AMX without following the correct procedure. See *Section 12 - Stopping the AMX Program*.

¹ The timing varies depending upon the number of Network Managers in use

Using the Online Help

AMX has standard Windows Help available. Help is context sensitive: in other words, it gives help on the area of program currently in use. The online help is often the best way of getting up to date information on using the AMX, as it is updated more regularly than this printed manual.

Pressing the F1 function key accesses the online Help. If there is any help available for the current operation the help window will be opened, and the topic will be displayed.

Another method of accessing the online Help is via the Help menu on the main menu bar. This offers two further ways of calling up Help: via the Help contents page and via the Help index.

Help for the individual Network Managers is accessed under the Engineer's Menu. Drop down the Engineer's menu and click on the option for the Required Network Manager. If online help is available, it will be found on the menu fly-out.



Online Help is disabled when there are unaccepted alarms in the AMX. In addition to this, an incoming alarm will close the Help window to prevent it obscuring the main alarm display.

Checking the Program Version

The program version is normally displayed in the title bar of the main window. Further information can be found by selecting 'Help' then 'About' from the main menu bar. This will display an information window where the name of the licensed AMX client is displayed along with the program serial number.

Section 15

Frequently Asked Questions

This section contains the answers to some questions that have arisen during the configuration and use of the AMX. They are in no particular order. Some of the questions apply to basic use of the system, others to the installation and commissioning.

- Q** Why don't some alarms appear on the AMX Screen? I am sure they are being sent to AMX and some alarms appear whilst others don't.
- A** If you are 100% sure that these alarms are being sent to AMX, check these user configuration items:
Is the Input for the alarm disabled in Input Programming (see *Section 7 - Enabling and Disabling Inputs*)?
Is the whole node set to be ignored by the AMX (see *Section 6 - Managing External Networks*)?
Do the Event Type attributes for the alarm allow it to be displayed – i.e., it is not disabled during the day or set for no alarm display, etc (See *Section 7 - Event Type Attributes*)?
- Q** How do I disable unwanted alarms – i.e., some inputs are automatically reported to AMX, but they are of no value or interest?
- A** Individual inputs can be disabled in Input Programming – see *Section 7 - Enabling and Disabling Inputs*. It is the responsibility of the programmer to only use this facility when it is really necessary, as disabling inputs could prevent important alarms from being displayed if the wrong input is disabled.
- Q** How do I stop the AMX automatically scrolling through the pages when there are several alarms in the system?
- A** To temporarily stop the scrolling, use the Hold button or function key. This is described in *Section 2 - Scrolling Through Alarms*. To completely stop all scrolling of the alarms, set the scroll time to zero seconds in the set-up window – see *Section 8 - Display Set-up Options*.
- Q** How do I configure a graphic that is not tied to a specific input – e.g., a site Map?
- A** Some graphics do not need to be assigned to specific inputs. Import these in Graphics Management, then assign the graphic to an unused input and configure/place the symbols in the normal way. This can all be done from the Input Programming List. It will be helpful to keep all graphics configured like this together in one block of inputs. Don't forget where you put them. Maybe add a User Note recording their location in the Graphics Selection List
- Q** I have transferred my configuration data to another machine. Why are the symbols displaced to the top and left?
- A** This is probably because the PC screen resolution is set to Small Fonts – set it to Large Fonts. Another possibility is that the display resolution is not the same resolution on both machines.

Q Why is there no sound?

A Check that the speakers are turned on, that they are plugged into the PC, that there is power to them (if required), and also check the Windows volume control settings via Multimedia in Windows Control Panel. The master volume and the Wave volume should be turned up and neither should be muted.

Q I transferred text pages from another machine and the text pages look wrong?

A Do the pages use fonts other than the standard Arial, Courier and Times New Roman that are supplied with windows. If so, it will be necessary to transfer the font from the other machine by copying its file to a disc and then installing it on the target machine using Fonts in Windows Control Panel.

Q How can I find out when a particular user was last on the system?

A In the User Management window, select the user you are interested in and right-click on the list. From the pop-up menu select User Last On Details and the last eight times the user logged on to the system will be displayed. For a more comprehensive list, go to the User History and build a History Report by using the History Search facility to look for the User's ID over the range of dates that are of interest.

Q I am trying to program actions for a manual/time control, but when I type in the node number there is no list of actions?

A AMX doesn't know what type of node is at that address. Open the Network window and ensure that the Node Type is set for the node.

Q Why can't I see the Event Classification in the Event History list?

A This is optional and must be enabled on the History tab of the main set-up window.

Q What are these unknown alarms from Node 0?

A They are internal alarms generated by AMX itself. There is a list of these in *Section 16 - Status Inputs*. These should be programmed like any other input.

Q Why do I see a filename in the ToolTip that appears when my mouse cursor is over a symbol on a graphic page?

A This means that no phrase has been programmed for the symbol's picture. See *Section 16 - Symbol ToolTip Phrase* for details of how the phrase is made up and how to overcome this problem

Q What is the red Error window that cannot be closed?

A This is probably the error window that appears when AMX's normal operation fails – see *Section 14 - Self-Monitoring and Integrity*. If it does not clear and return to normal AMX operation within a few minutes, contact your service engineer.

Q How are the zoom in and out links on the graphics pages configured?

A The links are configured via the symbols on the page. Read the sections on Symbols (*Section 7 - Graphics & Symbols*) and Graphic Page Configuration (*Section 7 - Graphic Page Configuration*). Alternatively, you can use Graphic Buttons for navigation.

Q How do I make the AMX program run automatically when I turn the PC on?

A See *Section 14 - Making the PC Auto-boot AMX*.

Q How do I create irregular (non-rectangular) shaped symbols?

A Using pictures that are transparent GIFs can do this. See *Section 7 - Managing Symbols*.

Q How can I make an area of a map fill with colour when there is an alarm?

A Use irregular shaped symbols created based upon the area's outline in the original map graphic – see *Section 7 - Managing Symbols*.

Q If I change a template, will the text pages that have already used the template be affected?

A No. When you use a template for a text page a copy is made and the link with the original is broken. If you want to be able to make global changes to a wide number of pages use fixed Text Fields.

Q Why do some of my graphics appear stretched or compressed?

A You may have this problem with WMF (Windows Metafile) graphics – especially if the graphics window is resized. It is recommended that these graphics are converted to bitmaps if this problem should occur.

Q How do I find an Input that I was programming 10 minutes ago – I've forgotten its reference?

A Use the "Recents" list of the right mouse click pop-up menu available in the Input Programming List.

Q An input is shown as disabled in the Input Programming List and I can't enable it. Why?

There are a number of reasons why this could be the case:

You don't have permission in your User Profile to change the enabled status of inputs.

A It is an unprogrammed input and you have the "Disable Unprogrammed Inputs" option checked in Set-Up.

You have this node set to "Ignore" in the Network window.

Section 16

Technical Data

General Technical Data



AMX is constantly being updated and enhanced. Kentec Electronics Ltd reserves the right to vary the specifications at any time.

Minimum Hardware Requirements	Pentium i5 processor or better • 8GB Ram • SSD hard drive • RJ45 network adapter for network connection • 6 USB ports minimum • Wireless Keyboard and Mouse • In built speakers in monitor/all in one unit or internal sound card and 3rd party speakers
Platform	Windows 10 or 11 recommended
Minimum Display Requirements	1920 x 1080P monitor
Network Managers	4 Network Managers (on a basic system without special hardware)
Remote Nodes	2047 nodes
Zones or Loops per Node	255 (subgroups, zones or loops)
Inputs per Zone/Loop	255
Input states per Input	16 Input Types available for multi-state inputs
Maximum Text Pages	2,129,698,800 text pages – theoretical limit. In practice this is limited by the available disk space.
Maximum Graphics	32,000 graphic pages
No. of Concurrent Events/Alarms	4,000
History Capacity	32,000 Events/Alarms per day. There are five histories – the Event history, the Isolation History, the Control History, the User History and the System History, each of which can store up to 32000 events every day. There is no limit on how long the data may be stored, assuming adequate disk space.
Maximum Users	Up to 2000 Users may have their own password and User Profile defining which areas of the AMX program they may access.
Event Type Categories	Up to 32,000 Event Type categories - e.g., "Security Alarm", "Plant Fault" - defining how this type of event should be handled by the system.
Alarm Priorities	Up to 32,000 priorities - set by the Event Type

Minimum PC Requirements

Pentium i5 processor or better

8GB Ram

SSD hard drive

Win 10 Pro

1920 x 1080P monitor

RJ45 network adapter for network connection

6 USB ports minimum

Wireless Keyboard and Mouse

In built speakers in monitor/all in one unit or internal sound card and 3rd party speakers

The AMX PC will be in operation 24 hours a day for many years. It may be desirable to look at on-site PC maintenance as part of the purchase package. Consider the service and spares implications carefully when selecting a PC manufacturer.

Graphic File Formats

AMX can use most native Windows graphics file formats.

Windows uses two types of graphic file: Bitmaps and Metafiles. A Bitmap is a type of graphic file where the colour and position of each individual dot on the screen is stored in the file.

Bitmaps do not resize very well. Bitmaps are usually used by painting or photo-editing programs but are less suitable for complex CAD applications. A Metafile is a type of graphics file where the diagram is stored as a series of lines and curves with mathematical co-ordinates. Metafiles can be resized with very little distortion. CAD and drawing packages usually use a type of metafile - or vector file.

These formats can be imported into AMX:

File Extension	Type	Colours	File Size	Loading Speed
.JPG	Bitmap	16 million	Small	Slow
.BMP	Bitmap	16 million	Very large	Medium
.BMP	Bitmap	256	Large	Fast
.BMP	Bitmap	16	Medium	Fast
.RLE	Bitmap	256	Small	Fast
.WMF	Metafile	16 million	Small	See below
.EMF	Metafile	16 million	Small	See below
.GIF	Bitmap	256	Small	Fast

Complex WMF metafile graphics can be slow to load if they contain levels of detail that are too small to be rendered on the AMX screen slow and these WMF files work better if they are converted to bitmaps.

JPG files saved with high compression may show unwanted artefacts, but JPG files are best for photos.

For further information and advice on preparing graphics for use with AMX see *Section 7 - Preparing Graphics for use with AMX*.

Symbol File Formats

AMX can use most native Windows graphics file formats for Symbols. Both bitmaps and metafiles can be used.

These formats can be imported into AMX for use as symbols:

Type	Resize Quality	Transparency	Maximum Size (see below)
.BMP	Poor	No	128 x 128
.RLE	Poor	No	128 x 128
.GIF	Poor	Yes	128 x 128
.WMF	Good	Yes	Unlimited
.JPG	Poor	No	64 x 64
.ICO	Poor	Yes	16x16, 32x32 or 48x48

The Maximum Size is only a recommendation, based upon the loading speed when there are many symbols on a graphics page. A single symbol could, in theory be the size of the whole screen. AMX will allow this, but it is not recommended unless there is only one or two symbols on the page.

Resize Quality shows what the quality will be like if the symbol is stretched or shrunk when it is put on the graphics page. Once again, this is for guidance only.

Symbols with transparency can have a see-through background allowing symbols to have an irregular shape.

256 colour GIF files have been found to give good results where the resizing of symbols is not a prime requirement.

See the section on preparing Symbol pictures for AMX in *Section 7 - Managing Symbols*

Sound File Formats

AMX can use any windows .WAV (wave) file, but compressed file formats should be avoided.

The recommended wave file format is:

Sample Rate	44.1 kHz
Resolution	16 bit
Format	PCM (uncompressed)

See *Section 7 - Preparing Sounds for use with AMX*.

Numeric Reference

The numeric reference is a unique number, which AMX uses to identify each input in a remote subsystem.

The number is displayed in the format:

<Node> - <SubGroup> - <Input> / <Input Type>

The SubGroup is normally a Zone or Loop, but the actual descriptive phrase will differ, depending upon the Node Profile for the node.

The following values are permissible:

	Min	Max
Node	0	2047
SubGroup	0	255
Input	1	255
Input Type	0	15

The maximum numbers of subgroups, inputs and input types will vary depending upon the node type. This information is contained in the Node Profiles.

Typical examples of a numeric reference are:

1-3-8/4	Node 1, subgroup 3, input 8, input type 4
1345-104-226/0	Node 1345, subgroup 104, input 226, input type 0

For fire panels, these would be equivalent to:

1-3-8/4	Node 1, Loop 3, Detector 8, Isolation
1345-104-226/0	Node 1345, Zone 104, Detector 226, Device in Fire

Note how the SubGroup can have a different name at different nodes in the above example.

Numeric Reference - Special Cases

Hardware inputs located directly at a node will normally have the SubGroup and Input Type set to 0.

Node	= Node
SubGroup	= 0
Input Type	= 0
Input number	= 1 to X

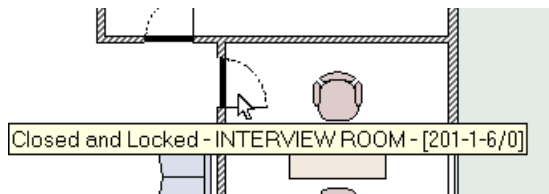
Node status inputs will have the Zone set to 0 and Input Type set to 15 -

Node	= Node
SubGroup	= 0
Input Type	= 15
Input number	= 1 to X

Node communications fault will be input 0 of the Hardware Input Type -

Node	= Node
SubGroup	= 0
Input Type	= 0
Input number	= 0

Symbol ToolTip Phrase



When the cursor hovers over a symbol on a graphics page, a "ToolTip" appears to give the user some information about the symbol.

This ToolTip phrase is compiled from three separate items. The first part - 'Closed and Locked' in the example above - is taken from the short phrase that can be used to describe each picture of a symbol.

This allows a different phrase to appear for each state of the input associated with the symbol. This is programmed in Symbol Picture Configuration - see *Section 7 - Symbol Picture Configuration*.

If no phrases have been programmed for the pictures, the filename will be displayed. This may be undesirable, so a global set-up option - see *Section 8 - Display Set-up Options* - allows the symbol picture phrase to be omitted from the ToolTip when it is not required.

The second part of the phrase is the Location text that was programmed for the symbol in the Symbol Configuration window - see *Section 7 - Symbol Configuration Window*. This part of the phrase is not optional.

The final part of the phrase is the numeric reference, which is described in *Section 16 - Numeric Reference*. This part of the phrase is optional and, like the first part, can be omitted using a global set-up option - see *Section 8 - Display Set-up Options*.

The two options allow for variation in the style of phrase that will be displayed. In the above example, only the words "INTERVIEW ROOM" would be displayed if both optional parts were turned off.

Generic Input Types

These are the Input Types used for most fire alarm panels connected to AMX, regardless of the panel's manufacturer. Not all panels will use all of these Input Type options.

This list may be modified by the Node Profile for a particular type of panel.

Input Type 0	Fire Alarm
Input Type 1	(unused)
Input Type 2	Pre-alarm
Input Type 3	(unused)
Input Type 4	Isolation
Input Type 5	Additional Isolations
Input Type 6	Test mode
Input Type 7	Custom IP type/3rd IP
Input Type 8	Fault
Input Type 9	(unused)
Input Type 10	Maintenance
Input Type 11	(unused)
Input Type 12	(unused)
Input Type 13	(unused)
Input Type 14	Loop fault IP
Input Type 15	Module fault

Additional Isolations (Input Type 5)

Zone 1 = Sounder Circuit 1 to 255

Zone 2 = Control Line 1 to 255

Zone 3 = Status Input 1 to 255

Zone 4 = Loop isolated 1 to 255

Status Inputs

The following internal status “inputs” may be turned on if an AMX error occurs, generating alarms:

Node	IP Type	SubGroup ¹	Input	Function
0	0	0	1	NWM 1 Not responding
0	0	0	2	NWM 1 Bi-directional loop fault
0	0	0	3	NWM 1 Dongle Error
0	0	0	4	NWM1 No remote response
0	0	0	9-11	NWM 2 - as for NWM 2
0	0	0	17-19	NWM 3 - as for NWM 3
0	0	0	25-27	NWM 4 - as for NWM 4
0	0	0	129	General Dongle Error

Not responding

AMX can get no response from the Network Manager.

Bi-directional loop fault

Certain types of remote subsystem use a loop network for communication between the remote nodes. If a break in this loop is detected, then a Bi-directional loop fault alarm is generated.

Dongle Error

Network manager is not seeing an authorisation dongle correctly.

No remote response

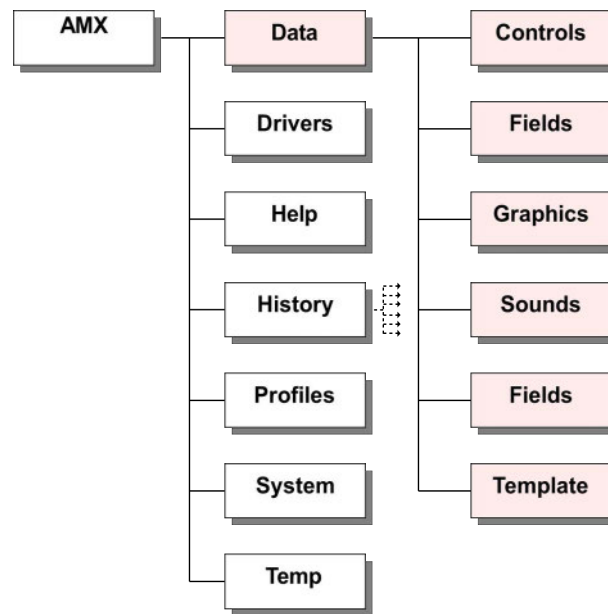
Network Manager is functioning, but it cannot get a response from the remote subsystem that it is connected to

General Dongle Error

Main AMX program is not seeing an authorisation dongle.

¹ SubGroup means zone or loop

Directory/Folder Structures



The basic AMX Folder structure is shown in the diagram above. All of the user's configuration data is contained in the Data folder and its subfolders. Copying this folder with its subfolders can make or restore a complete backup of all the configuration data.

The History folder has a structure of subfolders below it, but this has not been detailed here as it is of no interest or use to the User.

Section 17

Glossary of Terms

Acceptance or Accept	Acceptance is the process of a user indicating they have dealt with and accepted an alarm or event. The user does this with either the main toolbar Accept icon or the keyboard shortcut. If the AMX is giving an audible signal, the sound will be cancelled automatically when the event is accepted. If there is a second alarm awaiting acceptance it will be displayed immediately after the first alarm is accepted.
Access Level	The access level sets a basic access hierarchy of Operator, Manager and Engineer, with the Operator at the bottom. Some advanced AMX features may not be available to Operators or Managers.
Action Lists	Actions are grouped together into Action Lists list and the whole list is initiated at the same time. It is not normally possible to initiate individual actions from an action list.
Actions	Actions are the basic building block elements from which Controls are built. Each action represents one signal to a remote point in the external subsystems.
Alarm Classification	See <i>Classification</i>
Alarms	Alarms are signalled from remote equipment that is connected to the AMX via Network Managers. Alarms may be from many different disciplines and their priority, and the Event Type associated with them determines the handling. The terms Alarms and Events are sometimes used interchangeably within AMX with "Events" used to refer to non-critical inputs which are not strictly an alarm - e.g., a fault signal. In general terms, an Event is any external remote system occurrence signalled to the AMX system and an alarm is a critical type of event.
Attributes, Event Type	See <i>Event Type Attributes</i>
Auto-Accept	Auto-Accept is a mode whereby AMX will display an event or alarm for a pre-set period of time and then accept it automatically. The User may set the time period before auto-accept occurs in the Set-up window. Auto-Accept mode is turned on and off by double clicking on the "Auto" status panel on the main status bar at the bottom of the screen. The status bar will indicate when auto-accept mode is set. Certain Event Types may be automatically accepted - either during the day or night-time - depending upon the Event Type assigned to them.

Automatic Controls¹	Automatic Controls are initiated automatically by AMX in response to an event signalled from a remote subsystem. Not available in AMX Lite. An automatic control will consist of a list of actions, which may be sent to a number of different destinations in more than one remote subsystem.
Bitmap	A Bitmap is a type of graphic file where the colour and position of each individual dot on the screen is stored in the file. Bitmaps do not resize very well. Bitmaps are usually used by painting or photo-editing programs but are less suitable for complex CAD applications. Examples of bitmaps are files with BMP, GIF and JPG extensions. An alternative type of graphic file is the Metafile.
Classification	Classification of an event or alarm is assigning a "tag" which identifies the reason for the event or its validity. See <i>Section 2 - Classifying an Alarm</i> .
Clearance of Events	See <i>Event Clearance</i>
Colour Selection Dialog	AMX uses a standard Windows colour selection dialog box. See <i>Section 9 - Colour Dialog</i> .
Control History	The Control History records all controls (other than isolations) which are initiated from the AMX by a user.
Control Lists	Time Controls and Manual Controls are usually organised into a number of different lists. The only purpose of these lists is to have a convenient method of grouping various control types together so that a particular control can be easily located.
Controls	Controls are groups of one or more Actions that are sent to the external remote subsystems via the Network Managers. Controls may be Manual, occur at predefined time (Time Controls), or occur automatically in response to an alarm or event in the system. Controls usually consist of two action lists (for on and off) and some other information.
Current Event List	A list of all Alarms and Events that are currently active (i.e., not yet reset) in the system. It gives an overview of the current situation. Selecting an event in the Event List will load the appropriate Text Page and Graphics Page into their respective windows.

¹ Automatic Controls are a special feature, which is not available with all versions of AMX or some external Networks.

Day/Night Times	AMX uses Day and Night times. Day time is the time at which day is considered to begin and Night time is the time at which night begins. There are separate day and night settings for each day of the week - and a further setting for Holidays. Day and night times may be used to have separate text phrases in text fields and also to initiate Time Controls. Some Event Types may be disabled during the Day or Night.
Description Phrase	This is a unique 32-character text that is used throughout AMX to describe each input. This is sometimes referred to as the Location phrase. This phrase is programmed in the Input Programming List.
Disablements	<i>See Isolations</i>
Engineer	An Engineer is someone who can have access to all features of the system. Some features are restricted to Engineers only and these include stopping the system and programming certain types of control. Other types of user are the Operator and the Manager. Note: The actual facilities available to each user are specified in the individual User Profile.
Event Classification	<i>See Classification</i>
Event Clearance	A user may manually clear events and alarms from the system via the right-mouse button pop-up menu in the Current Event List. Manually clearing an alarm does not clear it from the Event History. The user must have authorisation in their User Profile before they can manually clear alarms. Some applications require alarms and events to remain in the AMX until an authorised person manually clears them.
Event History	The Event History is where all the alarms and events are stored along with the name of the accepting user and the time and date when they were accepted. NB: Some events and alarms may not be logged into the Event History this depends upon the Attributes in the Event Type assigned to the event/alarm.
Event Type	The Event Type is a user-defined profile that describes how a particular type of event or alarm is to be handled by the AMX. Alarms from different disciplines will normally use different Event Types. The Event Type also determines the priority of the event or alarm. Typical examples of an Event Type might be : • Security Door Opened • A Security Alert • A Fire Alarm • Mains Failure Each Event Type has a number of Event Type Attributes, which define how the AMX will handle events/alarms of this type.

Event Type Attributes	Every Event Type has a number of attributes which define: • How the alarm is displayed to the user initially • The phrases used to describe the event type • Colours to use when displaying this event type phrase, so different event types can be easily distinguished in the Current Event List and Event History. • Any sounds associated with events/alarms of this type • Various attributes governing history logging, day/night disablement, auto-accept, etc
Events	See <i>Alarms</i>
External system	See <i>Remote Subsystem</i>
Fields	Fields - used in text page programming - are an area of the screen that contains a piece of text from elsewhere, or a piece of text that may depend upon the status of some other part of the system. e.g., A Day/Night field embedded in a text page will show different text phrases during the daytime and the night-time and this facility can be used to give different instructions to the user during these periods. There are three types of Fields: the System Field, the Text Field and the Picture Field. Fields can be combined with Templates to provide a quick method of text page programming.
Font Selection Dialog	AMX uses a standard Windows font selection dialog box. See <i>Section 9 - Font Dialog</i> .
Generic Node Type	When adding Nodes to the AMX in the Network window you must tell the AMX the type of node. The generic node type can be assigned if the exact type is not yet known, but it will not be possible to program controls for the Node until a proper Node Profile has been assigned to it.
Graphic	See <i>Graphics Page</i> .
Graphics Page	Graphics pages - sometimes referred to as Graphics or Maps - are used to show a map of where an alarm or event has occurred. Graphics pages incorporate Symbols showing the exact location of an alarm. Graphics pages may be accessed during non-alarm situations to send various controls to the remote subsystems - isolating a fire detector for example.

History	All events signalled from the remote subsystems to the AMX are stored in the History, along with the name of the user who accepted the event and the time at which the event was accepted. Separate Histories are maintained for System Events, User Access Logs, Controls and Isolations.
Hold	When there are several accepted alarms in the system, the AMX may cycle through them automatically. The Hold button on the main toolbar will stop this automatic scrolling so the User has more time to assess the information for an alarm. An icon on the status bar indicates Hold mode. Hold mode is cancelled by either clicking the Hold button again, manually scrolling to another alarm, or by an incoming alarm.
Holidays	The user may program specific dates to be regarded as a holiday. When a date is specified as a holiday this over-rides, any other setting for that period. This facility is useful with Time Controls. Holidays are defined in Day/Night and Holiday Set-up.
Identity	See <i>Section 5 - User Identity</i> .
In-Cell Editing	Some List items support in-cell editing, mainly in the programming and configuration sections of AMX. Double clicking on one of these items will initiate editing. The new text can be typed directly into the cell, and it will be saved when either the Enter key is pressed, or when the focus is moved elsewhere. Pressing the Escape key will abandon in-cell editing without saving any changes. See <i>Section 1 - Using Lists</i>.
Input Type	Each remote subsystem input may have up to 16 Input Types. Different Node types may have different Input Types. These are defined in the Node Profile. Here are some examples of Input Types : Hardware Inputs Device in Fire Door Contact open Some physical inputs to the system may have more than one Input Type assigned to them - e.g., a fire detector may have Fire, Fault, Isolated and Pre-Alarm input types.
Isolation History	The Isolation History stores a record of all Isolations initiated from the AMX - and also those initiated at certain types of remote subsystems.

Isolations	Isolations are controls sent from the AMX to remote equipment to isolate or disable an input at that remote subsystem. Isolations can often be performed directly at the remote equipment and if they are then reported back to AMX they are recorded in the History. Isolations, both local and remote, are recorded in the Isolation History.
Location Phrase	This is a unique 32-character text that is used throughout AMX to describe a particular input. This is sometimes referred to as the Description phrase. This phrase is programmed in the Input Programming List.
Loop	A type of SubGroup. See <i>SubGroup</i>.
Main Screen	This is where the various alarm displays and windows appear. When there are no alarms present, and no user windows are open a title screen is displayed.
Main Screen Title Bar	This appears at the top of the AMX program window and gives the following information: - Program Name - Program Version - Name of user window if it is maximised This should not be confused with the Title Display that appears in the Main Display Area.
Manager	A Manager is someone who uses advanced features of the system, including programming of the text pages and both programming and initiating Controls. Other types of users are the Operator and the Engineer. Note: The actual facilities available to each user are specified in the individual User Profile.
Manual Controls	An AMX user initiates manual controls. A manual control will consist of a list of actions, which may be sent to a number of different destinations in more than one remote subsystem.
Map	See <i>Graphic</i>.

Metafile	A Metafile is a type of graphics file where the diagram is stored as a series of lines and curves with mathematical co-ordinates. Metafiles can be resized with very little distortion, but large and complex files may be slow to load. CAD and drawing packages usually use a type of metafile. Metafiles used in the AMX usually have a WMF extension. An alternative type of graphic file is the Bitmap.
Network Manager	Network Managers are separate multitasking programs that interface AMX to the outside world. See <i>Section 6 - Network Window</i> and <i>Section 13 - Interfacing to the Outside World</i>.
Night-times	See <i>Day/Night Times</i>.
Node	A Node is a connection point within a remote subsystem or network. A node might be a single alarm panel or a simple input board. Normally several (or many) nodes might be networked together and connected to AMX via one Network Manager. Each node has a unique address. A node consists of a number of Inputs - this could be many thousands. The capabilities of individual node types are described by the Node Profiles. See <i>Section 13 - About Nodes and Inputs</i>.
Node Mapping	This is a method used by AMX to ensure that two nodes connected via different network Managers do not have the same address as far as AMX is concerned. For example, it is not possible for nodes in different networks to have the address 1, so an offset is added to node addresses from one Network Manager to prevent clashes. See <i>Section 13 - Node Mapping</i>.
Node Profile	A Node Profile describes the capabilities of a Node type. Node Profiles are created by the AMX developer and they define the number of inputs available, types of control possible, etc. See <i>Section 13 - About Node Profiles</i>.
Notes	Notes can be added to many list items. These are intended as an aid to the User. Examples of note use are : - To record additional information about events in the history - To attach remarks to entries in the Network Nodes list - To attach special interfacing or connection information to inputs in the Page Programming List. An icon appears in the list when a note has been added. Notes are deleted by calling up the note editor and using the "Delete" button.
Numeric Reference	This is a unique number, which AMX uses to identify each input in a remote subsystem. See <i>Section 16 - Numeric Reference</i>.

Operator	An Operator is someone who uses just the basic features of the system. This will normally include muting the sound on alarm, accepting the alarm, and scrolling through existing alarms. Other types of user are the Manager and the Engineer. Note: The actual facilities available to each user are specified in the individual User Profile.
Page	See <i>Graphics Page and Text page</i>
Pop-Up Menu	Often a pop-up menu can be called up by clicking on a list with the right mouse button. There are a few other areas of the program where pop-up menus can be called up - by right clicking on the text entry panel in the Note Editor, for example. Pop-up menus are used extensively in a AMX and they provide quick access to many of the more advanced features. Some features are available only via pop-up menus.
Priority	The priority of events and alarms determines the order in which they are shown to the User. The Event Type assigned to an alarm determines this priority and it can be altered during system programming by moving the Event Type up or down in the Event Type list.
Profile	See <i>Node Profile and User Profile</i>
Programmer	See <i>System Programmer</i>
Quick Find	The Quick Find facility appears on the pop-up menu of many AMX lists. It provides a quick text search in the current list. The search will span all rows but only the selected columns. The search starts from the current cursor position.
Reference	See <i>Numeric Reference</i>
Remote Node	The term Remote Node is sometimes used to stress that Nodes are located in the Remote Subsystems away from the AMX. See <i>Node</i> .

Remote Subsystem	Remote subsystems (or external systems) refers to external equipment that is connected to the AMX via one of the Network Managers. A remote subsystem will consist of one or more Nodes. See <i>Section 13 - Interfacing to the Outside World</i> .
Scroll	When there are several accepted alarms in the system, the AMX may cycle through them automatically. The rate at which they are scrolled depends upon a set-up option and this is normally between 5 and 60 seconds. Automatic scrolling does not take place when there are unaccepted events in the system.
Service History	Where events from a node that is in Service Mode are stored.
Service Mode	When a node is in Service Mode the events/alarms from that node are not displayed to the user, but they are recorded in the Service History. Service Mode is an optional feature which may not be present on all systems.
Simple Symbols	A Simple symbol is a type of Symbol that has only two pictures - one for the OFF state of the associated input and one for the ON state. Simple symbols are used for simple inputs from the remote subsystems - e.g., a simple on/off switch. The alternative symbol type is Compound Symbols.
SubGroup	AMX usually sees the pool of inputs at remote nodes as being divided into SubGroups. These SubGroups usually correspond with some physical organisation at the remote node. Examples of SubGroups are Loops or Zones. Therefore, a remote node might have 8 loops of 126 inputs per loop, or 255 zones of 255 inputs.
Subsystem	See <i>Remote Subsystem</i>
Symbols	Symbols are small pictures used in the graphics pages to show the location of inputs to the system - i.e., events or alarms. Symbols may change state (use a different picture) in response to events and alarms and they can also be interactive allowing the user to carry out certain controls by double clicking on them. There are two basic types of symbol: Simple Symbols and Compound Symbols. When a the cursor is over a symbol, a ToolTip describing its location or function is often displayed.

System Events	System Events are events such as a starting and stopping of the program, Network Manager events and system errors. These are stored in the System History.
System Fields	System Fields are a type of Field which display text information taken from the system itself - e.g., the numeric reference of the current page, or its location text. The AMX programmer cannot define System Fields.
System History	The System History is where system events such as starting and stopping the program, changing the PC clock, etc are stored. A summary of actions performed by a user - e.g., "5 Pages Programmed" are also stored in this history.
System Programmer	The system programmer is a user who is authorised to program the AMX. This authorisation is set in the User Profile. Sometimes the system programmer will be the supplier and sometimes it will be the end-user. A system programmer will have Manager or Engineer access to the system.
Templates	Templates are predefined page layouts containing text that is common to all many pages. The user can create templates and they may contain Fields. Templates can be combined with Fields to provide a quick method of text page programming.
Text page	Text pages are used to give instructions, contact information and other data to the User when an alarm occurs. Text pages are optional and not all alarms will use them. See <i>Section 2 - Text Instructions Page</i> .
Title Display (or Title Screen)	This is shown in the main display area when there are no alarms present and no user windows open. There are two options: a text window displaying the project name or a graphic. See <i>Section 8 - Set-up Window</i> .
ToolTips	ToolTips are small text panels that appear when the cursor covers over a toolbar icon or status panel. The text describes the function of the item that the cursor is over. ToolTips are also used in a AMX in the graphics pages, where they indicate the location or name of a symbol.
User History	The User History records users as they log on and off the system.

User Identity	The user identity is the name that is shown at bottom right of the Main status bar. It is also recorded when the user makes programming changes or performs certain actions on the system.
User Note	See <i>Notes</i> .
User Profile	A user profile defines which parts of the AMX system a user can access and use. Each user has their individual profile, which is set up in the User Programming window. See <i>Section 5 - User Profile</i> .
Vector graphic	A vector type of graphic consists is made up of lines and curves and stored as mathematical co-ordinates. In Windows, a vector graphic is often referred to as a Metafile. See <i>Metafile</i> .
Zone	A type of SubGroup. See <i>SubGroup</i> .