Introduction to the Manual

This manual provides information on the installation, operation and maintenance of the JSB FX6000 System.

Notice

The operating system of the FX6000 may be revised as a result of enhancements to the system software or hardware. Revisions to this manual will be issued and supplied on request and should be logged in the table supplied on the contents page.

Caution

Risk of explosion if battery is replaced by an incorrect type dispose of the used batteries according to the instructions

Contact

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Service: 01302 303352
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Contents

Section 1 - System Installation and Design
Introduction 5
Project Planning 6
System Design Guidelines 7
Compatible Equipment 8
Detectors 9
Callpoints 10
Beacons and Sounders 11
Base Sounder 11
Stand Alone Sounders 12
Loop Powered Beacon 12
Compatible Interfaces 13
3 Channel I/O 13
1 Channel I/O 14
Zone Monitor Unit 14
Shop Monitor Unit 15
Spur Isolator 16
4 Way Sounder Circuit Controller 16
Micro Interfaces 17
Fan Controller Interfaces (FC18 / FC6) 18
Equipment Compatibility 19
System Overview 20
Technical Specification 22
Optional Functions as per EN54 Pt 2 & 4 24
Optional Functions Not Approved to EN54 Pt 2 & 4 28
Cable and Wiring 29
Installation 30
Fixing Details 31
External Connections 32
Networking 33
Inputs/Outputs 34
Maintainance 36

Section 2 - Panel Assembly Information
Attaching Panel Door 38
Installing Optional Screen Door 39
Replacing Printer Paper Roll 40

Section 3 - Commissioning
Commissioning Mode 42
Configuration 43
Panel Fault Finding 44
Protocol 45
PC Commissioning Software 46

Section 4 - Panel Controls And Indicators
System Indicators 50
Panel Layout 51
Touch Screen Display 52
Panel Operation 53
Public (Access Level 1) 54
Evacuate (Access Level 2) 55
Silence Alarms 56
Mute Buzzer 57
Reset 57
Pre Alarms 58
Disabled Devices 58
View Faults 59
Enable / Disable (Others Menu) 59
Print 61
Lamp Test 62
Weekly Test 63
View Events 64
Check Auto Config 65
Replace Device 66
Test Device 67
Test Zone 68
Sounder Level Test Mode 69
Global LED Flashing On/Off 70
One Man Walk Test 71
Load CDR From Laptop 72
Download CDR To Laptop 73
Auto Learn 74
Erase Log 75
System Details 76
Analogue Levels 77
Printer Settings 78
Change Panel Number 79
Number of Panels In Network 80
Screen Cover 81
Programming I/O and Sounders 82
Sound Settings 83
Change Date/Time 84
Change Address Text 85
Change Zone Text 86
Change Panel Text 87
Configure Zones 88
Change User Code 89
Add Zone 90
Delete Zone 91
Add Device 92
Delete Device 93
Configure Heat Detectors 94
Network 95
Password Protection 96

Section 5 - Appendix
Spur Isolator 98
4 Way Sounder Controller 99
Zone Monitor Unit 100
Shop Monitor Unit 101
1 Way Input Output Unit 102
Detector Base Wiring 103
System Wiring 104
IP66 Wall Sounder 105
Internal Wall Sounder 106
Base Sounder 107
3 Way Input Output Unit 108
Loop Powered Beacon 109
Callpoint 110
EN54 Product Spec Label 111
Battery Disposal Instructions 112
CE Marking 113
Section 1
System Installation and Design
Introduction

FX6000 provides all of the sophisticated features required of a leading edge analogue addressable fire system along with the simple operation and neat installation demanded by installers and building users.

The panel can be flush or surface mounted and the generously sized metal back box allows ample facilities for rear or top cable entries. It is available in single two and four loop versions, with or without an integral printer.

In addition both passive and fully functional repeater panels are available.

A comprehensive range of ancillary devices is available to operate with FX6000, including optical, ionisation, photo-thermal and heat detectors, base mounted and stand alone sounders (including an IP67 version) a loop powered beacon and a wide range of input and output interfaces.

Each of the FX6000 system components has been specifically designed to operate as part of a FX6000 system, this provides an assurance that the panel, the detectors, the interfaces and the ancillaries are all fully compatible with each other and that the full range of system functionality is supported by each device.

Each loop of a FX6000 panel can accommodate up to 200 addresses. To comply with EN54 requirements no more than 512 addresses should be connected to a single panel. Each panel can indicate up to 96 zones. Panels are available with up to 4 detection loops, up to 126 panels can be networked together to form a single system capable of operating with over 32,000 devices.

**Note:**
Network systems fall outside the scope of EN54.
Project Planning

The following is a typical program and timetable for a FX6000 installation project, once the initial order has been received:

1. **Project Meeting**
   Installer and user to be present; system specifications, schematic diagram and proposed circuit drawing to be available. FX6000 Installation and commissioning guide to be provided.

2. **Equipment Fix**
   Typically 2 week’s notice is required for equipment to be delivered. Cable to be installed and bases/back boxes to be fitted. Then fire detectors, callpoints, alarm sounders, isolator units and interface units to be installed.

3. **Address Schedule**
   Schedule of sensor locations to be completed by installer and returned to enable system programming.

4. **Auto Learn**
   Fire panel/repeater panels to be installed and terminated. System to be powered up by installer and auto learn mode activated (see auto learn section). System to be tested and verified by installer, prior to final commissioning.

5. **Final Commissioning**
   Minimum 2 weeks notice is required from receipt of address schedule and commission request form. Cooper Fire Service Engineer to attend site implement/oversee the final commissioning procedures (see commissioning section), in conjunction with the installer.
System Design Guidelines

Guidelines
Systems should to the relevant local standards and codes of practice, for the UK this is BS5839 Pt 1. FX6000 meets all the relevant requirements of BS5839 Pt 1: 2002. Installation planning is simplified by the fact that every addressable FX6000 device contains an integral short circuit isolator. Care must be taken to ensure that local standards requirements regarding aspects such as loop coverage, area covered by a single spur and cable specification are observed.

There may be certain applications in which deviations from the code may be necessary and these must be listed on the commissioning certificate. (See commissioning section).

Loop Lengths
The maximum permitted loop length is 2 km measured from the near to the far terminals on the FX6000 motherboard PCB. There is no minimum limit to loop length. Any wiring spurs off the loop must be included within the 2 km limit. On long loop runs, the lengths of wiring rises and falls (between floors, down to manual callpoints) must be included. Remember to include these especially when taking loop lengths from plan drawings.

Loop Loading - Total Number of Addresses
The total number of addresses per loop is 200. this includes detectors, callpoints and all other addressable items (e.g. MPU, MIO, loop repeaters etc.) When designing systems its recommended that allowances are made for future expansion. Short circuit isolators are incorporated into every FX6000 loop device, including Smoke detectors, heat detectors, sounders, callpoints and interfaces. Therefore, no further fault protection is required, in the event of a single fault, none of the devices connected to the loop will fail to operate as the fault will be isolated by the two adjacent devices. Spur connected devices downstream of a cable fault will cease to function.

FX6000/PR Repeater Panels
Each repeater unit requires one address and consumes no more current from the loop than a smoke detector. The repeater also requires a local mains supply and incorporates battery backup.

Loop Loading System Verification
Unless a loop loading calculation has already been carried out, please contact our technical support department (01302 303350), before starting installation to verify that a proposed loop loading arrangement is acceptable.
## FX6000 system components

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Description</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX6000/1</td>
<td>1 Loop FX6000 Panel</td>
<td>495 W x 400 H x 180 D</td>
</tr>
<tr>
<td>FX6000/2</td>
<td>2 Loop FX6000 Panel</td>
<td>495 W x 400 H x 180 D</td>
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<tr>
<td>FX6000/4</td>
<td>4 Loop FX6000 Panel</td>
<td>495 W x 400 H x 180 D</td>
</tr>
<tr>
<td>FX6000/1/P</td>
<td>1 Loop FX6000 panel c/w integral printer</td>
<td>495 W x 400 H x 180 D</td>
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<td>FX6000/2/P</td>
<td>2 Loop FX6000 panel c/w integral printer</td>
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<td>FX6000/4/P</td>
<td>4 Loop FX6000 panel c/w integral printer</td>
<td>495 W x 400 H x 180 D</td>
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<td>FX6000/1/G</td>
<td>1 Loop FX6000 Panel Graphite finish</td>
<td>495 W x 400 H x 180 D</td>
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<tr>
<td>FX6000/2/G</td>
<td>2 Loop FX6000 Panel Graphite finish</td>
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<td>1 Loop FX6000 panel c/w integral printer Graphite finish</td>
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<tr>
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<td>2 Loop FX6000 panel c/w integral printer Graphite finish</td>
<td>495 W x 400 H x 180 D</td>
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<tr>
<td>FX6000/4/P/G</td>
<td>4 Loop FX6000 panel c/w integral printer Graphite finish</td>
<td>495 W x 400 H x 180 D</td>
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<td>FX6000/COV</td>
<td>Hinged protective cover kit</td>
<td></td>
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<tr>
<td>FX6000/PR</td>
<td>Passive repeater for FX6000</td>
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</tr>
<tr>
<td>FXN538LBS</td>
<td>Sounder Base</td>
<td>102 Dia x 40 D</td>
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<tr>
<td>MASC</td>
<td>Cover for FXN538LBS</td>
<td>102 Dia x 13 D</td>
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<td>MASB870</td>
<td>Base Sounder Beacon</td>
<td>114 Dia x 36 D</td>
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<tr>
<td>MASB870-NT</td>
<td>Base Beacon</td>
<td>114 Dia x 36 D</td>
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<td>FXN538LPS</td>
<td>Wall Sounder</td>
<td>105 L x 105 H x 95 D</td>
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<td>FXN538LPSWP</td>
<td>IP66 Wall sounder</td>
<td>108 L x 108 H x 103 D</td>
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<tr>
<td>FXN338BCN</td>
<td>Addressable Beacon</td>
<td>95 Dia x 50 D</td>
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<tr>
<td>FXN501</td>
<td>Surface / Flush Callpoint</td>
<td>85 L x 85 W x 53 D</td>
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<tr>
<td>FXN503</td>
<td>Weatherproof Callpoint</td>
<td>108 L x 108 W x 65 D</td>
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<td>FXN510</td>
<td>3 Channel I/O Device</td>
<td>147 L x 88 W x 57 D</td>
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<tr>
<td>FXN510T</td>
<td>3 Channel I/O Device 1 Address</td>
<td>147 L x 88 W x 57 D</td>
</tr>
<tr>
<td>FXN510S</td>
<td>3 Channel I/O Device reset on silence</td>
<td>147 L x 88 W x 57 D</td>
</tr>
<tr>
<td>FXN511</td>
<td>1 Channel Output Unit (mains rated)</td>
<td>180 L x 130 H x 60 D</td>
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<td>FXN512</td>
<td>Zone Monitor Unit</td>
<td>150 L x 89 H x 58 D</td>
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<tr>
<td>MIU871/ IS</td>
<td>Zone Monitor Unit Intrinsically Safe</td>
<td>150 L x 89 H x 58 D</td>
</tr>
<tr>
<td>FXN516</td>
<td>Shop Unit Interface</td>
<td>150 L x 89 H x 58 D</td>
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<tr>
<td>FXN513</td>
<td>Spur Isolator</td>
<td>112 L x 41 H x 33 D</td>
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<tr>
<td>FXN515</td>
<td>4 Way Sounder Circuit Controller.</td>
<td>300 L x 300 H x 74 D</td>
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<td>FXN720</td>
<td>Common Mounting Base For Analogue Detectors</td>
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<tr>
<td>FXN723</td>
<td>Optical Smoke Detector</td>
<td>101 Dia x 33 D</td>
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<td>FXN725</td>
<td>Multi Mode Heat Detector</td>
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<td>FXN722</td>
<td>Combined Photo Thermal Detector</td>
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<tr>
<td>MIU872</td>
<td>Micro Zone Monitor Unit</td>
<td>63 L x 35 H x 18.5 D</td>
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<tr>
<td>MCIM-C</td>
<td>Micro Callpoint Input Module</td>
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<tr>
<td>MCOM-S</td>
<td>Micro Sounder Output Module</td>
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<tr>
<td>MCOM-R</td>
<td>Micro Output Module Resetable</td>
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<tr>
<td>MICM-NF</td>
<td>Micro Analogue Non Fire Input Module</td>
<td>63 L x 35 H x 18.5 D</td>
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</table>
Detectors

Analogue Photoelectric Detector - FXN723
This is the most commonly used detector and is most suitable for detecting slow burning fires. The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the FX6000 control panel.

Analogue Photo/thermal Detector - FXN722
This is a new addition to the JSB range of detectors. It is the ideal detector for a multi-use environment as it has an excellent response to smouldering and fast burning fires. Photo/thermal detectors can be programmed for thermal only operation at certain times of day. The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the FX6000 control panel.

Analogue Heat Detector - FXN725
Heat detectors are suitable for dusty environments or environments where smoke is likely to be present under normal operating conditions. The FXN725 can be programmed to operate in A1R, BS or CS mode of operation depending on the required application and sensitivity requirements. The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the FX6000 control panel.
Callpoints - FXN501 / FXN503

The range of purpose designed callpoints for FX6000 consists of a surface callpoint, a flush callpoint and a surface weatherproof callpoint. A range of accessories is available including a hinged protective cover, resettable element kit and a flush bezel. The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the FX6000 control panel.
Sounders and Beacons

A wide range of loop powered sounders and beacons are available to operate with FX6000 consisting of a combined sounder base with a maximum output of 95 dB(A), a standalone sounder with a maximum output of 100 dB(A) that is available in standard or weatherproof versions and a stand alone loop powered beacon.

For applications where a discreet dedicated sounder is required, a cover plate is available for the white base mounted sounder enabling it to be used as a stand alone wall or ceiling mounted sounder.

All of these devices are fully programmable via the sophisticated FX6000 multi stage cause and effect programming facilities.

All sounders have multiple selectable volume settings, the volume setting is controlled globally by the FX6000 panel and so can be altered without needing to access the sounder. Alternatively individual sounders can be set through the JSB programming utility.

Base Sounder - FXN538LBS

The FXN538LBS has been designed specifically to complement the latest generation of JSB soft addressed detectors. It consists of a first fix bracket, and a main body which clips onto the bracket incorporating the sounder and a detector mounting base in a single composite assembly.

After the body has been clicked into place and connected, a detector or front cover is then added to complete a very simple quick and neat installation. The cover enables the FXN538LBS to be used as a discreet stand alone wall or ceiling mounted device. The sounder base design incorporates a mechanism that can be activated if required to lock either the detector or the cover into place to prevent unauthorised removal.
Stand Alone Sounders -
FXN538LPS / FXN538LPSWP
Stand alone sounders are ideal for applications where greater sound outputs are required than can be achieved with a base sounder or for applications requiring a higher level of resilience or ingress protection. 2 different versions are available standard version and an IP66 rated version.

Loop Powered Beacon - FXN338BCN
A loop powered flashing beacon is available for applications where visual alarm indication is required such as areas of high ambient noise or buildings which are used by people who are hard of hearing.

Base Sounder Beacon - MASB870
Loop powered base sounder with a built in beacon where both sound and visual alarms are required. Taking 1 address

Base Beacon - MASB870-NT
Loop powered base beacon where visual alarm without sound are required. Taking 1 address.
Compatible Interfaces

FX6000 has been designed to be suitable for a wide range of applications, various interfaces have been developed to enable the simple integration of other fire systems or building control and safety systems. The following devices are available:

3 Channel I/O Device - FXN510
FXN510 has 3 input channels and 3 output channels, it is used to monitor up to three separate inputs from equipment such as sprinkler flow switches and also to provide 3 separately controlled volt free output contacts which are intended to be used to control external equipment such as air handling plant or access control systems. All inputs and outputs operate completely independently of each other and can be programmed using the sophisticated cause and effect capabilities of FX6000 to operate either globally or in response to activation of specific devices or specific inputs. Inputs are monitored for open and short circuits, a specific resistance is required to activate an alarm condition, fully open or short circuit conditions are monitored and generate a system fault signal. Inputs are suitable for use as fire signal inputs such as from a sprinkler flow switch, however they can also be used to monitor non fire inputs such as external keyswitches. Outputs are rated to switch a maximum of 1A resistive at 30 V dc. FXN510 fixes to a standard, deep, double gang back box and can be either surface or semi recess mounted.

FXN510T
This unit is identical in build to the FXN510 but this has been designed to take 3 addresses (this can be expensive in terms of outputs because it replies as 3 x 3 channel I/O’s), this means that text information can be allocated to each channel. It also allows each individual input and output to be disabled (by address). The maximum number of addressable FXN510T per loop is 6.

FXN510S
Once again this unit is identical with the FXN510 only taking 1 address. The programming is the same as the FXN510. This unit was designed so that the relay outputs reset on silence rather than full reset, thus enabling the user to interface this device with other fire panels and hence prevents locking up. The maximum number of addressable FXN510S per loop is 20.
1 Channel I/O device with mains rated switching capability - FXN511

FXN511 is a single channel input / output unit, the output is capable of switching up to 8 A at 230 V ac. Commonly used for applications such as door release controls and plant shut down signalling. The input is monitored for open and short circuits, a specific resistance is required to activate an alarm condition, fully open or short circuit conditions are monitored and generate a system fault signal. The input is suitable for use as a fire signal input such as from a sprinkler flow switch, however it can also be used to monitor non fire inputs such as an external keyswitch.

![1 channel I/O device](image)

Zone monitor unit - FXN512

FXN512 is designed to enable a zone of compatible conventional detectors and callpoints to be connected into the FX6000 loop, it is compatible with up to 20 JSB conventional detectors connected via FXN520 bases. Please refer to local standards e.g. BS5839 Pt 1:2002 for details of the maximum allowable area to be covered by a single spur / zone. FXN512 fixes to a standard, deep, double gang back box and can be either surface or semi recess mounted. When semi recessed only the front section protrudes giving a maximum 29mm depth.

![Zone monitor unit](image)

MIU871/IS

Similar to the above but the detection zone has been programmed to accept a Zener barrier and zone of intrinsically safe detectors. End of line for this zone now becomes 6K8 and the diode in the detector base must be removed.
Shop Unit Interface - FXN516
FXN516 accepts a zone of conventional detectors plus an unlimited number of callpoints which can be connected to the same input as the detectors or a separate callpoint input if required. There is also a facility to connect a power supply, which can then be monitored for fault.

In addition it has the facility to connect two circuits of conventional polarised sounders, which are monitored by means of an end of line resistor and powered in alarm conditions from the external power supply. The sounder circuits can be programmed to operate in pulsed, continuous or time delayed mode.

Please refer to local standards e.g. BS5839 Pt 1:2002 for details of the maximum allowable area to be covered by a single spur / zone.

Note: This unit must always be used with a 24V power supply
Spur Isolator - FXN513
Enables soft addressing to work when the loop contains spurs, it controls the addressing operation so that when the system reaches a spur, all devices on the spur are allocated an address before it continues addressing the loop. The device also incorporates a short circuit isolator. Because each device contains a short circuit isolator only 1 is required at the start of each spur. FXN513 is mounted on a standard deep double gang back box (supplied) please refer to BS5839 Pt 1:2002 f

4 Way Sounder Circuit Controller - FXN515
FXN515 provides power for 4 separately controllable conventional sounder circuits, each circuit can be separately programmed. FXN515 is designed to greatly simplify installation in applications where specialist sounders or beacons are required since it powers the sounders and allows full control of the sounder operation without having to wire the sounder back to the FX6000 control panel.

A 4 way unit takes up a single address but each circuit can be independently controlled. An FXN515 unit requires a local un-switched 230V supply and incorporates a back up battery to 24 hours of standby operation followed by a minimum of 30 minutes of full alarm ringing. A standby of 72 hours can be achieved at the expense of reduced load capability.
Micro Interfaces

A range of micro interfaces modules are also available:

**MCIM**
Is a competitively priced input module, designed to enable a JSB panel to accept input signals from external devices such as key switches and sprinkler flow switches. It is extremely compact and therefore ideal for incorporation into other equipment. The maximum number of addressable MCIM per loop is 20.

**MCOM**
Is a competitively priced output module, designed to enable a JSB panel control external devices such as door holders or access control systems. It is extremely compact and therefore ideal for incorporation into other equipment. The maximum number of addressable MCOM per loop is 20.

**MIU872**
Is a compact single zone input, soft addressed, microinterface, incorporating integral short circuit isolators. It is fully compatible with the current range of JSB analogue fire detection panels. It is suitable for interfacing a zone of up to 20 conventional JSB detectors onto a JSB analogue fire panel. It will operate with any JSB conventional detector in configuration with a schottky diode type base.

**MCIM-C (Identified as a Callpoint)**
Is a compact input module used to accept input signals from external equipment such as beam detectors, flow switches, valve monitor switches etc. The maximum number of sounder devices per loop is 200.

**MCOM-S (Identified as a Sounder)**
Is a compact single Channel output unit. This device is identified as a sounder output by a JSB addressable panel. The maximum number of sounder devices per loop is 60.

**MCOM-R**
Is a compact output module used to control or signal external equipment which require removal of power for reset purposes. The maximum number of addressable MCOM-R per loop is 20.

**MICM-NF**
Is a compact single Channel input unit. This device is identified as a non-fire input module by the JSB addressable panel. The maximum number of addressable MICM-NF per loop is 200. Complex cause and effect can still be achieved using the latest site installer software without any indication on the panel. However the action will still be seen in the event log. Ideally suited for non fire applications.
Fan Controller Interfaces (FC18 / FC6)

FC18 and FC6 Interface is designed to work with the JSB range of analogue fire alarm control panels, providing the capability to control and display the status of AHU fans.

FC18 and FC6 Interface is connected to a JSB analogue addressable fire alarm control panel by means of the comms loop, utilizing only one address whilst providing the ability to monitor and control up to six AHU Fans.

Each FC6 and FC18 Interface incorporates its own CPU specifically configured to control the relevant input and output logic making programming quick and easy via the ‘CAPPER’ software or site installer.

Using the CAPPER software or site installer, each individual Fan Control channel on the FC6 is programmed to an output and feedback input field device to control and monitor the status of an AHU fan.

**Features**
- Convenient loop mounting
- Comprehensive LED display
- Surface/rack mounting options
- Key operated auto/manual operation
- Comprehensive software cause and effect
Equipment Compatibility

Detectors
Loop wired detectors must be of the JSB series soft addressed analogue type. FXN500 series conventional detectors can be connected via an FXN512 interface. The connection of other detector types via an FXN512 interface is not recommended.

Callpoints
Loop wired callpoints must be the JSB series soft addressed analogue type, FX200 series conventional callpoints can be connected via an FXN512 interface. The connection of other callpoint types via an FXN512 interface is not recommended.

Sounders
Loop powered addressable sounders must be of the JSB 500 series soft addressed analogue type. Conventional sounders can also be connected either to the conventional sounder circuits at the panel or to the loop via a FXN515 addressable sounder controller interface providing they meet the following:
1. They are suitable for operation between 18 V and 28 V.
2. They are polarised and suppressed.
3. The total alarm load is less than the rating of the panel / alarm power interface.

Note:
It is possible to use devices outside these requirements if they are supplied with power from a separate source and switched via a suitable relay.

Relay Circuits
Additional relays can be added to the FX6000 system by using either FXN511 or FXN510 relay units. Relays / Auto-dialers and auxiliary equipment A wide variety of relays and other equipment can be connected to the FX6000 system, but you should note the following constraints:
1. FX6000 provides monitored outputs to drive fire and fault relays mounted in external equipment. External relays should be suppressed. If a non-suppressed relay is used then a diode can be connected. To suppress any reverse EMF on the release of the relay which might cause the panel to malfunction.
2. A 24 V dc output is provided at the panel to make it easy to connect ancillary equipment. Although the panel can supply a continuous quiescent load of up to 30 mA, BS5839 precludes this practice and any ancillary equipment you connect should only consume power in the alarm or fault mode to meet the requirements of BS5839.

Additional Instructions for Electromagnetic Compatibility
When used as intended this product complies with EMC Directive (89/336/EEC) and the UK EMC regulations 1992 (SI 2372/1992) by meeting the limits set by the standards BS5406 (Pt 2 & 3) 1988, EN50130-4 immunity and EN 61000-6-3 emission requirements. The following installation guidelines must be followed.
1. External cables must be connected using the cable entries or knockouts provided.
2. When routing external cables inside the product they must be
   a) Kept as short as possible
   b) Routed close to the housing
   c) Kept as far as possible from the electronics
Any modifications other than those stated in this manual, or any other use of this product may cause interference and it is the responsibility of the user to comply with the EMC and Low Voltage Directives.

Section 1 - System Installation and Design
System Overview

Simple User Interface
The main element of the user interface with FX6000 is a large (120mm x 90mm visible area) touch screen display, which provides comprehensive user information and also acts as a multifunctional keypad.

Comprehensive context sensitive help information is provided throughout the menus to assist unfamiliar users with system operation.

The FX6000 touch screen display automatically reconfigures to suit the selected function, for example, if the change device text menu option is selected, the touch screen is automatically formatted as a full QWERTY keyboard to enable fast and simple text entry.

The use of the touch screen display enables a wide range of user and engineering facilities to be incorporated into the panel whilst still offering simple operation.

As well as a large format LCD display providing full system status information, the panel incorporates 96 traditional zone indication LED's to provide clear information about the status and spread of a fire even to a user who is completely unfamiliar with the operation of the system.

In addition there are a number of system status LED’s designed to give clear status information to non technical users.

User Configuration and Maintenance Facilities
FX6000 has comprehensive facilities for on site system configuration, whereby the user can add or remove simple devices or change device text directly via the panel, without the need for a service engineer to visit site. For initial configuration or major system changes special PC configuration software is available enabling Cooper Lighting and Safety personnel to do this more efficiently than can be achieved using the system screen. Exiting configurations can be uploaded to the PC so that changes can be made to the existing system rather than having to revert to initial files.

Sophisticated Sounder Control Facilities
FX6000 has the ability to support highly complex ringing pattern requirements. Multistage cause and effect programming is possible whereby each addressable sounder or output interface can be programmed independently if required and can be set to respond to specific addresses, specific detection zones, specific panels on a networked system or standard global ringing.

The panel supports 3 separate sets of programming per sounder and each stage can be triggered differently for example, if a single detector is triggered the panel can be programmed such that the sounder nearest to the detector operates immediately and continuously, the remaining sounders in the affected zone operate in pulsed mode and the other sounders delay for a selectable period to allow the cause of the alarm to be investigated before global ringing commences.
Spur Tolerant Soft Addressing
FX6000 utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes. Once the system has been installed and the autolearn menu selected, the FX6000 control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop, this avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.

A major innovation with FX6000 is the ability to incorporate spurs of analogue devices which are fed from the main loop by utilising a spur isolator. Whenever the panel detects a spur, it breaks from allocating address numbers to the loop wired devices, allocates address numbers to each of the devices on the spur in sequence and then continues to address the devices on the main loop. Every FX6000 analogue device incorporates an integral short circuit isolator ensuring maximum system integrity. A single short circuit will not disable any loop-mounted devices, the isolators in the devices each side of the short circuit will operate and the FX6000 control panel will drive communication from both ends of the loop. The spur isolator also incorporates a short circuit isolator such that in the event of a short circuit on the spur, the integrity of the main loop will not be compromised. Please refer to local standards e.g. BS5839 Pt 1:2002 for details of the maximum allowable area to be covered by a single spur.

Simple Future Expansion
FX6000 is designed to ensure simplicity of future expansion. If an additional device is added after the system has been programmed, the FX6000 will allocate the next available address, it will not alter any of the existing address numbers allocation thus enabling simple updating of as fitted drawings etc. Similarly if a device is removed, the relevant address is saved as a spare address for future use, the addresses of the remaining devices are not altered.

Integral Power Supply and Battery
The FX6000 panel is designed for ease of installation, the power supply and battery are integral to the main control panel so only a single panel is required even on large 4 loop systems.

Optional Printer
FX6000 panels are available with optional built in printers. Where a printer is fitted, it is housed behind a printer cover door, which can be opened by means of a special tool (Supplied) to provide simple and safe access to the printer paper roll without exposure to any live equipment. Paper replacement is extremely simple due to the drop in loading method and auto feed printer design, the paper roll is simply dropped into the purpose designed cradle and the end of the roll is then offered up to the printer, which will then automatically load the paper ready for use. The printer can be set to either print automatically or to print on demand When a printer is not fitted, a removable, flush fitting blanking plate is used to cover the printer paper aperture to enhance the appearance of FX6000 and to preserve its ingress protection rating.

Optional Hinged Lockable Cover
With a standard panel, access to all panel functions is controlled by a series of pass codes, which are entered via the touch screen display, for maximum security, a facility is built into the FX6000 to enable the user to alter the user pass code as required. For applications where a high level of resilience is required, a clear hinged lockable front cover is available which allows the screen and all of the system status indicators to be clearly seen but prevents access without first unlocking the cover. A single concealed locking mechanism provides access to both the printer door and the optional display cover. Where a hinged cover is fitted, additional buttons are provided to scroll the display and to silence the fault buzzer without opening the lockable cover.

Section 1 - System Installation and Design
## Technical Specification

### Power Supply (Approved EN54 pt 4)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mains</strong></td>
<td></td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>230 Vac + 10%, -15%</td>
</tr>
<tr>
<td>Nominal current</td>
<td>75 mA</td>
</tr>
<tr>
<td>Maximum current</td>
<td>750 mA</td>
</tr>
<tr>
<td>Input fuse R1</td>
<td>NTC SG39 Imax 4Amp</td>
</tr>
<tr>
<td><strong>Output voltage including tolerances</strong></td>
<td></td>
</tr>
<tr>
<td>26 V</td>
<td>18.5 V to 29.5 V</td>
</tr>
<tr>
<td>26 V RAW</td>
<td>18.5 V to 29.5 V</td>
</tr>
<tr>
<td>5 V Output</td>
<td>4.6 V to 5.5 V</td>
</tr>
<tr>
<td><strong>Ripple voltages</strong></td>
<td></td>
</tr>
<tr>
<td>26 V</td>
<td>800 mV</td>
</tr>
<tr>
<td>26 V RAW</td>
<td>800 mV</td>
</tr>
<tr>
<td>5 V Output</td>
<td>430 mV</td>
</tr>
<tr>
<td><strong>Maximum loadings</strong></td>
<td></td>
</tr>
<tr>
<td>26 V O/P</td>
<td>0.98 A</td>
</tr>
<tr>
<td>26 V RAW O/P</td>
<td>1.7 A</td>
</tr>
<tr>
<td>5 V</td>
<td>0.5 A</td>
</tr>
<tr>
<td><strong>Standby current (4 loops loaded)</strong></td>
<td></td>
</tr>
<tr>
<td>26 V</td>
<td>280 mA</td>
</tr>
<tr>
<td>26 V RAW</td>
<td>150 mA</td>
</tr>
<tr>
<td>26 V</td>
<td>280 mA</td>
</tr>
<tr>
<td>26 V RAW</td>
<td>150 mA</td>
</tr>
<tr>
<td>5 V</td>
<td>43 mA</td>
</tr>
</tbody>
</table>

FX6000 is protected by an internal thermal device, this requires no maintenance

*I max a, I max b and I min = Current as specified in BSEN54-4 Published 2006 (Amendments 1 and 2)

### Batteries

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of batteries</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>YUASA NP12-12</td>
</tr>
<tr>
<td>Capacity</td>
<td>12 Ah</td>
</tr>
<tr>
<td>Battery fuse</td>
<td>6.3 A Anti-Surge (F4)</td>
</tr>
<tr>
<td>Maximum battery current</td>
<td>3.5 Amps</td>
</tr>
<tr>
<td>Standby current (mA)</td>
<td>175 (4 loops), 125 (2 loops)</td>
</tr>
<tr>
<td>Maximum charging current to the batteries</td>
<td>1.0 amp</td>
</tr>
<tr>
<td>Float voltage</td>
<td>27.4 V</td>
</tr>
<tr>
<td>Final voltage</td>
<td>21.0 V</td>
</tr>
<tr>
<td>Charging characteristics</td>
<td>Constant voltage with 0.970A limit with temperature compensation</td>
</tr>
</tbody>
</table>

Maximum current drawn from the batteries (when the mains is not available) 3.5Amps

Deep discharge protection 20.6V

Battery internal impedance fault >0.5 ohms

### Inputs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressable loops</td>
<td></td>
</tr>
<tr>
<td>Max number</td>
<td>1 - 4</td>
</tr>
<tr>
<td>Max loop load per loop</td>
<td>220 mA</td>
</tr>
<tr>
<td>Max number of addressable devices per loop</td>
<td>200</td>
</tr>
</tbody>
</table>

Class change Operated by external volt free contact
Outputs

Conventional sounder circuits
Number of sounder circuits 4
Total sounder Load 1.5 Amps
Sounder circuit fuses (F1/2/3/4) 1.6 Amp (Quick Blow)
End of line resistor 6k8

Fire Protecting Equipment
Max Load 60 mA
Fused (PTC3) 100 mA polyswitch
End of line resistor 6k8

Fault Routing Equipment
Max load 30 mA
Fused (PTC1) 100 mA polyswitch
End of line resistor 6k8

Auxiliary Relays - The auxiliary relays provide fused volt free change over contacts. These contacts are not monitored.
Max load 24 V 1 Amp
Fuse (PTC4) 1.35 Amps polyswitch
Auxiliary 24 V Supply
Nominal voltage 24 V ±10%
Fuse (PTC5) 100 mA Polyswitch
Maximum current 30 mA

This output is not to be used for fire protecting equipment or fire alarm routing equipment. Any power taken from the alarm system will effect the standby duration

RS485 Port - Serial output port for driving FX6000 repeater panels, mimics etc. This output is short circuit protected
Max cable length 2Km
Min recommended cable size 1mm² (Screened)

RS232 Port - Serial output port for driving FX6000 repeater panels, mimic etc. This output is short circuit protected

Printer (Optional)
Type High speed thermal
Number of characters per Line 40
Type of paper 58mm x 46mm Thermal Roll
Replacement paper roll order code ADF6PRINTERPAPER

Mechanical Specification
Weight incl batteries 18kg, excl batteries 9kg
Dimensions (Standard batteries) 495mm(L) x 395mm(H) x 180mm(D)
Type of material (backbox) Mild Steel (power coated)
Type of material (Facia) PC/ABS
Flammability rating UL 94 V0
Total number of knockouts 51
Diameter of knockout 20mm
Anti-Tamper Cover (optional) Weight : 250g
Material used : Poly Carbonate
Flammability rating : UL 94 5VA

Terminal Blocks: Do not use excessive force when tightening the screws on the terminal block
Risk of explosion if battery is replaced by an incorrect type dispose of the used batteries according to the instructions
Optional Functions as per EN54 Pt 2 & 4

FX6000 is approved to EN54 Parts 2 & 4 including all the following options which can be selected as required

Panel Outputs

Panel Sounders: (option 7.8 EN54 Pt 2)
2 pairs of outputs are provided. ONLY polarised equipment should be used. Ensure the polarity of the connections are observed at all times and end of line resistors (6k8 5%) are fitted for correct operation. The total alarm load across all sounder outputs = 1.5 Amp All outputs are fused with 1.6 Amp Glass fuse. Alarm devices should be spread equally across the 4 sounder circuits.
WARNING: Do not exceed the rated output current

Output Fire Alarm Routing Equipment (option 7.9 EN54 Pt 2)
This output, which is fused, and monitored using a 6.8k end of line resistor, is used for the automatic transmission of the fire signals to fire alarm routing equipment (e.g. fire brigade). It operates by providing 24 V output to an auxiliary device (e.g. relay). It is current limited to 30 mA using a resettable polyswitch. Class change and test conditions do not operate this output. If operated under a fire alarm condition, the indication will be displayed on the Touch screen display and will remain until the fire alarm is reset. Ensure the polarity of the connections are observed at all times and end of line resistors (6k8 5%) are fitted for correct operation.

Output to Fire Alarm Protecting Equipment (option 7.10 EN54 Pt 2)
This output, which is fused, and monitored using a 6.8k end of line resistor used for the transmission of the fire signals to controls for automatic fire protecting equipment (e.g. door released units etc). It operates by providing 24 V output to an auxiliary device (e.g. relay). It is current limited to 30 mA using a resettable polyswitch. Class change and test conditions do not operate this output. If operated under a fire alarm condition, this output remains energised until the fire alarm is reset. Ensure the polarity of the connections is observed at all times and end of line resistors (6k8 5%) are fitted for correct operation.

Output to Fault Warning Routing Equipment (option 9.4.1c EN54 Pt 2)
This output, which is fused and monitored using 6.8k end of line resistor, is used for the transmission of fault signals to fault warning routing equipment. This output is monitored using 6k8 end of line resistor and it current limited to 30 mA. Under normal condition it operates by providing 12 Vdc which can be connected directly to a 12 V auxiliary device (relay). It is current limited to 30 mA. Under fault conditions or even if the FX6000 is powered down, this output will be switch to 0 V. Ensure the polarity of the connections is observed at all times and end of line resistors (6k8 5%) are fitted for correct operation.

Delays to Outputs (option 7.11 of EN54 Pt 2)
The FX6000 has the option to delay the operation of panel sounders, the fire routing equipment output and the fire protecting equipment. This delay is selectable using the FX6000 site installer download software. The delay is configurable in increments of 1 minute up to a maximum of 10 minutes. This delay can be enabled and disabled at access level 2. The FX6000 has the facility for a specific callpoint to override this delay by programming this callpoint via an input interface to provide an evacuate signal using FX6000 site Installer.
Dependencies on More Than One Alarm Signal - Type C (option 7.12.3 of EN54 Pt 2)
The FX6000 has the facility to inhibit the operation of the output sounders, output to fire routing equipment and the output of the fire protecting equipment until one more confirmatory signals are received from different zones. This feature is programmable using FX6000 site installer software.

Alarm Counter (option 7.13 EN54 Pt 2)
The panel records the number of instances that it enters the fire alarm condition. This is abbreviated in the touch screen by "AC" and it is displayed in the fire window at access level 2. This counter can only be reset by the manufacturer.

Optional Auxiliary Board Vds Requirement (Option Not Required by EN54)
This board can be connected to an extinguishing system as well as a fire brigade control panel. This board has been tested and approved in accordance with DIN14661 and DIN 14675.

Input / Outputs to Fire Brigade Panel

Outputs

Output 1: Fire Protecting Equipment Operated "Extinguishing On"
This output is ON in alarm condition to indicate that the FX6000 control and indicating equipment has operated the fire protecting equipment (option 7.10 of EN54 Pt 2).

Output 2: Fire Routing Equipment Operated "Fire Brigade Link"
This output is ON in alarm condition to indicate that the FX6000 control and indicating equipment has operated the fire routing equipment (option 7.9 of EN54 Pt 2).

Output 3: Disablement of Fire Protecting Equipment
This output is ON to indicate that the fire protecting equipment has been disabled either by the FX6000 control and indicating equipment or the fire brigade panel.
Output 4: **Disablement of the Fire Routing Equipment**
This output is ON to indicate that the fire routing equipment has been disabled either by the FX6000 control and indicating equipment or the fire brigade panel.

Output 5: **Reset from Fire Alarm Condition**
This output is ON to indicate that the FX6000 control and indicating equipment is in alarm condition. This output will remain ON for at least 15mins after reset or when the reset has been activated from the fire alarm brigade panel.

Output 6: **Disablement of Sounders**
This output is ON to indicate that the sounders have been disabled either by the FX6000 control and indicating equipment or the fire brigade panel.

Inputs

Input 1: **Reset**
This input is used to reset the control and indicating equipment.

Input 2: **Testing of Fire Routing Equipment**
This input is used to test the output to the fire routing equipment.

Input 3: **Disablement of the Fire Routing Equipment**
This input is used to disable the fire routing equipment if the FX6000. Once the FRE is disabled from this interface, it can never be enabled from the FX6000 control panel.

Input 4: **Disablement of the Fire Protecting Equipment**
This input is used to disable the fire protecting equipment of the FX6000. Once the FRE is disabled from this interface, it can never be enabled from the FX6000 control panel.

Input 5: **Disablement of Sounders**
This input is used to disable the sounders of the FX6000. The disablement of sounders from the fire brigade panel can be re-abled from the FX6000 control panel only when the system is not alarm state.
German Interface Electrical Characteristics

Inputs
The inputs are designed to be actioned in one of two ways, see list below:

First: A change in logic state ie. switch toggled on / off.
Second: Logic pulse ie. nominal state logic high, then logic low > 200mS then return to logic high.

All inputs are held high via a weak pull up (logic high), the action of short circuiting any of the five inputs to there respective 0v will result in a logic low.

1: reset -> logic pulse
2: FRE relay test -> logic pulse
3: FPE disable -> logic state change
4: FRE disable -> logic state change
5: Acoustic disable -> pulse logic

Monitored Inputs
In Fault / Extinguisher Active

-> End Of Line resistor 3K3.
-> 680 Ohm across input to actiavte input

Relay Outputs
Normal status -> Input sees a 3k3 resistor.
Active status -> Input sees a 680 ohm resistor.

Outputs
1: Extinguisher released -> output high 26 V
2: FRE operated
3: FPE disabled
4: FRE disabled
5: Panel in fire, will remain on after panel soft reset for > 15 minutes, or extinguish immediately with interface reset
6: Disable all sounders.
Optional Functions Not Approved to EN54 Pt 2 & 4

**Italian Mode: (option not required by EN54 Pt 2)**
This mode can be programmed at access level 3. This relates to points 12.2(a) and 12.2(b) of the Internal Italian Ministerial Decree 9th April 1994 which states that in the event of a fire detection from 2 or more detectors or from an MCP there should be a 2 minute delay before output activation otherwise in the event of a fire detection from any one detector there should be a 5 minute delay before output activation, provided that the fire event is not acknowledged. These delays apply to siren activation as well as the shutting down/activation of other external equipment and additionally the legislation states that these delays should be adjustable depending on the type of activity being carried out within the building.

For example, if there was a fire detected from a single detector then we should start a 5-minute (adjustable) delay (T2). If however a fire is detected from a second detector or a call-point the delay should automatically revert to 2 minutes (adjustable) (T1). In this scenario the value of (T1) is critical. To keep things simple, let’s assume that we set T1 = 2 minutes and T2 = 5 minutes.

**Swedish Mode (option not required by EN54 Pt2)**
This mode is programmed at access level 3. One of the Swedish requirements is that access level 2 and 3 is only available by the access of the keyswitch. The key switch is wired to the class change input.

**Commission per Loop (option not required by EN54 Pt2)**
This mode is programmed at access level 3. This allows the commissioning engineer to auto learn one loop at the time.

**Alarm Verification (option not required by EN54 Pt2)**
This mode is programmed at access level 3. This has the flexibility to delay the activation of detectors by 30 seconds. In the event of an alarm from a detector, the led of the detector will be illuminated and no alarm will be displayed on the panel. The detectors are checked continuously for 30 seconds. If after this time, the detector is still in alarm, the output will be activated otherwise the detector will be reset.

**Timer T1/T2 (option not required by EN54 Pt2)**
This mode is set on at access level 3 and is a commonly used by eastern european countries.

In the event of a fire the timer T1 can be set from 0 to 3 min where the alarm will be displayed on the panel and no output activation, if during this time the alarm is acknowledged then timer T2 can be set from 0-10 min where the alarm can be investigated and alarm reset. However if timer T1 and T2 time out during alarm activation, the outputs will be activated.

**Timer T1/T2 with Callpoint Override (option not required by EN54 Pt2)**
This is similar to the above except a callpoint alarm will activate the output instantly.
Cable and Wiring

Only the cable types listed below are allowable for loop connections.
1. Enhanced Fire TUF
2. Fire TUF™
3. FP200
4. MICC

When choosing your preferred cable type, you must take note of the following cable and wiring requirements.
1. The cable must be 2 core screened with an over sheath.
2. Maximum loop length with any of the above cables is 2KM
3. Maximum volt drop must be limited to 7 volts.
4. The conductors should be 1.5mm minimum an no larger than 2.5mm
5. Multicore cable should not be used for detector wiring.
6. Different loops should NEVER be run within the same cable.
7. Loop feeds and returns should never be used within the same cable.

Cable Resistance

<table>
<thead>
<tr>
<th>Core Diameter</th>
<th>Typical FP200 Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0mm²</td>
<td>18.1 Ohms/km/Core</td>
</tr>
<tr>
<td>1.5mm²</td>
<td>12.1 Ohms/km/Core</td>
</tr>
<tr>
<td>2.5mm²</td>
<td>7.41 Ohms/km/Core</td>
</tr>
<tr>
<td>4.0mm²</td>
<td>4.61 Ohms/km/Core</td>
</tr>
</tbody>
</table>

Cable Anchorage
The mains cable must be fixed securely with a 20mm cable gland. Remove a suitably located knockout feed the cable through the gland and bolt the gland to the FX6000 backbox as shown. Secure the cable to the side of the box using the cable clip provided.

NOTE: The mains cable tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching on of the mains supply.
Installation

- the panel should be installed in a clean, dry, reasonably well ventilated place, and not in direct sunlight. Temperatures in excess of 40°C and below 5°C may cause problems, if in doubt consult Cooper Lighting and Safety. The panel should be located away from any potential hazard, in a position where it is readily accessible to authorised staff, and the fire services, ideally on the perimeter of a building near a permanent entrance. Mount the panel to the wall using the drill template provided. Do not drill through the panel to the wall as dust will contaminate the circuitry.

**Installation Guide**

- Never carry out insulation tests on cables connected to electronic equipment.
- DO NOT OVER TIGHTEN TERMINAL CONNECTOR SCREWS
- Always use the correct type of cables specifically designed for the operation of fire detection and alarm circuits.
- Always adhere to volt drop limitation when sizing cables
- Always observe polarity throughout. Non colour coded conductors should be permanently identified.
- Screen continuity must be maintained throughout the entire loop circuit including at each junction point and at each device, terminals are provided on each device to facilitate this.
- The screen should be earthed at the connection point provided at the FX6000 panel and not at any other point. Both the loop start and the loop end must be connected to the appropriate earthing points. Care must be taken to avoid connecting the screen to the earthed body of any metal devices, enclosures or cable containment. The screen or drain wire of the loop cables should not be considered as safety earth and therefore should not be connected to terminals marked with the earth symbol, except at the panel, and should not be insulated with green and yellow sleeving.
- FX6000 utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes. Once the system has been installed and the autolearn menu selected, the FX6000 control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop, this avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.
- It is of vital importance that accurate details are kept of the exact wiring route in order to determine which address has been allocated to each device.
Fixing Details

Read all the installation instructions before commencing with the installation. The installation of this panel must be carried out by a suitably qualified /trained person. The installation must comply with IEE wiring regulations and with BS5839 Pt 1 2002. The electronic components within the fire panel are static sensitive. Do not touch the electronics directly.

Mounting the Backbox
The FX6000 can be flush mount or surface mounted.

1. Surface Mount: Drill four holes and fix the backbox to the wall.

2. Flush Mount: The backbox requires a hole 364 x 472 with a depth of 117mm (standard battery / backbox) or 217 mm if deep backbox is used.

Installing Cabling
Once the backbox is mounted the next stage is to install the power and loop cables and fit the glands.
External Connections (Mains Supply)

The mains supply should be installed in accordance with the current edition of the IEE wiring regulations. Connection to the mains supply must be via an isolating device (e.g. an isolating fuse rated at 3Amps maximum) reserved solely for the fire alarm system. The cover should be coloured red and labelled “FIRE ALARM - DO NOT SWITCH OFF”. The isolating protective device should be secure from unauthorised operation and ideally installed in a securely closed box with a breakable cover.

An additional warning label should be provided, depending on whether:

1. The isolating protective device is fed from the live side of the main isolating device in which case the label on the isolating protective device, should read in addition - “WARNING: THIS SUPPLY REMAINS ALIVE WHEN THE MAIN SWITCH IS TURNED OFF”. A further label should be placed on the main isolating device reading “WARNING: THE FIRE ALARM SUPPLY REMAINS LIVE WHEN THIS SWITCH IS TURNED OFF.

Or

2. If the isolating protective device is fed from the dead side of the main isolating device, a label should be fixed to the main isolating device reading “WARNING: THIS SWITCH ALSO CONTROLS THE SUPPLY TO THE FIRE ALARM SYSTEM”.

Distributed Power Supplies
The above also applies to any distributed power supply (i.e. mains connections for FX6000/PR repeat units FXN515 relay units, etc.)

Cable Segregation
All cables for the fire alarm system should be segregated from any other cables/wiring/services.

Wiring configurations
Spurs can be taken off the loop in the following ways:

1. FXN512 Addressable Interface - Allows up to 20 conventional smoke detectors and unlimited FX501 / 503 callpoints.
2. Direct Loop Spur Wiring - Allows a zone of analogue detectors and callpoints to be directly spurred off the loop

Note: The mains cable tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching on of the mains supply.
Networking

Up to sixty three FX6000 panels or passive repeaters can be networked together to operate as a single networked system. To achieve this each panel must be fitted with a network card (supplied at additional cost).

When operating as a networked system all fire and fault event information is displayed at every panel, silencing and resetting of alarms can also be carried out from any panel on a networked system if panels are suitably configured.

Networked panels are connected using a loop topology illustrated, or radial.

Networked panels can be used as active repeaters, alternatively a low cost passive repeater is available. This can either be connected a loop of an individual panel or it can be connected to the network. The recommended network cable for the network connection between panels is an enhanced Firetuf cable (manufactured by Draka cables (part number 910234)). Screen continuity must be maintained throughout the entire network circuit including at each junction point. The screen should only be earthed at the connection point provided at the first panel and not at any other point. The screen or drain wire of the network cable should not be considered as a safety earth and therefore should not be connected to terminals marked with the earth symbol, except at the panel, and should not be insulated with green and yellow sleeving.

Where the network cable passes between buildings, screen continuity should not be maintained from building to building. A booster device must however be used irrespective of cable length and should be fitted at a suitable point in the link between buildings. The cable screen should be connected to the earth of one panel in each building.
Input/Outputs

Panel Inputs
Class Change: (option not required by EN54)
A pair of terminals are provided for class change. By shorting these terminals together (e.g. switch, time clock) the alarm will sound (panel sounders + loop sounders only). The Panel will not indicate a Fire. The alarm will cancel when the short circuit is removed. If the short circuit is not removed the alarms will not cancel.
WARNING: No voltage should be applied to this input

Panel Outputs
Panel Sounders: (option 7.8 EN54 Pt 2)
2 pairs of outputs are provided. ONLY polarised equipment should be used. Ensure the polarity of the connections are observed at all times and end of line resistors (6k8 5%) are fitted for correct operation. The total alarm load across all sounder outputs = 1.5 Amp All outputs are fused with 1.6 Amp glass fuse alarm devices should be spread equally across the 4 sounder circuits.
WARNING: Do not exceed the rated output current

Output Fire Alarm Routing Equipment
(option 7.9 EN54 Pt 2)
This output, which is fused and monitored using a 6.8k end of line resistor, is used for the automatic transmission of the fire signals to fire alarm routing equipment (e.g. Fire brigade). It operates by providing 12 V output to an auxiliary device (e.g. relay). It is current limited to 30 mA using a resettable polyswitch. Class change and test conditions do not operate this output. If operated under a fire alarm condition, the indication will be displayed on the Touch screen display and will remain until the fire alarm is reset. Ensure the polarity of the connections are observed at all times and end of line resistors (6k8 5%) are fitted for correct operation.
Output to Fire Alarm Protecting Equipment (option 7.10 EN54 Pt 2)
This output, which is fused and monitored using 6.8k end of line resistor is used for the transmission of the fire signals to controls for automatic fire protecting equipment (e.g. door release units etc). It operates by providing 24 V output to an auxiliary device (e.g. relay).

It is current limited to 30 mA using a resettable polyswitch. Class change and test conditions do not operate this output. If operated under a fire alarm condition, this output remains activated until the fire alarm is reset. Ensure the polarity of the connections is observed at all times and end of line resistors (6k8 5%) are fitted for correct operation. All activated devices must be polarised.

Output to Fault Warning Routing Equipment (option 9.4.1c EN54 Pt 2)
This output, which is fused and monitored using 6.8k end of line resistor is used for the transmission of fault signals to fault warning routing equipment. This output is monitored using 6k8 end of line resistor and it current limited to 30 mA.

Under normal conditions it operates by providing 24 V dc which can be connected directly to a 24 V auxiliary device (relay). It is current limited to 30 mA. Under fault conditions or even if the FX6000 is switched off, this output will switch to 0 V. Ensure the polarity of the connections is observed at all times and end of line resistors (6k8 5%) are fitted for correct operation.

Auxiliary Relay (option not required by EN54)
This output is a volt free contact, which is protected by a polyswitch. It is rated at 24V 1Amp. If operated under a fire alarm condition, this output will remain energised until the fire alarm is reset.

Auxiliary DC Output (option not defined by EN54)
A 24V dc output is provided. This output is protected by a polyswitch. This output can be used to power fire or fault auxiliary equipment. Please ensure that all equipments connected to this output will only draw current when a fire condition exists.

WARNING: Do not exceed the rated output current

Mimic Output (option not required by EN54)
This RS485 output is used to send data to a mimic display or a repeater panel. The maximum distance is 2km.
Maintainance

Daily Inspection
Check that only the green “POWER ON” indicator shows. Inspect for any fault indication. Notify any faults to a system supervisor.

Weekly Test
Check indicators. Press supervisor mode on the top left of the touch screen. Enter passcode. Select “others” tab. Press the button labeled weekly test, confirm you wish to perform the test and the amber “System Test” LED will light. The panel will stay in the weekly test mode for 5mins before resetting. During the weekly test, trigger a smoke detector or callpoint and check the fire panel registers the device and illuminates the correct zonal indicator. Trigger a different device every time a weekly test is performed ensuring devices are tested in rotation until all have been checked. It is advisable to develop a detailed building plan highlighting devices and locations to aid testing. The panel will reset automatically once the 5mins have elapsed. If no devices are triggered during the weekly test the panel will abort the test and reset after 5mins. Record weekly test in the table provided in the log book.

Quarterly Test
Check all previous log book entries and verify that remedial action has been taken. Carry out the weekly test. Visually examine the batteries and their connections, by loosening the screws behind printer door and opening the hinged front from the right hand side. Disconnect the mains supply and check that the battery is capable of supplying the alarm sounders, by operating a callpoint.

Annual Test
As weekly test and quarterly test above. Additionally test all sensors and callpoints and check operation.

Every 2-3 Years
Replace or return the smoke detectors for cleaning to ensure correct operation and freedom from false alarms. Special equipment is required for cleaning smoke detectors. Consult Cooper Lighting and Safety.

Every 5 Years
Replace sealed lead acid battery.

Cleaning
When cleaning the panel, use a moist cloth. Do not use solvents or harsh abrasives.

Printer Paper Order Code

Servicing: Cooper Lighting and Safety can offer a regular servicing contract.
Cooper Lighting and Safety
Service Division,
Wheatley Hall road
Doncaster
DN2 4NB.
Telephone: 01302 303352  Web: www.cooperfire.com
Section 2
Panel Assembly Information
Attaching the Door

The door is designed as a drop on fit. Offer the door up to the back box in the open position as shown below. Align the hinges and lower the door onto the hinge pins. Check the hinges are secure.
Installing a Hinged Cover

An option hinged cover is available as an optional extra item for FX6000. This can be fitted as standard equipment prior to despatch or retro-fitted later. The method for fitting a cover is shown below.

Insert the bottom peg of the hinged cover into the panel as shown and close the hinged cover followed by the printer door. Next from the back of the panel insert second peg though the hole shown below and push into the hinged cover.
Fitting Printer Paper Roll

Open the printer access door on the right hand side of the panel using the key provided. Drop the paper roll into the paper holder and feed paper into the printer. The printer will then automatically pull the paper through if the panel is powered up. Tear off the excess paper then close and secure the printer access door. Please note for paper feed to operate correctly, paper end must be straight.

New paper roll simply drops into the holder.

Push paper underneath the roller as shown until printer automatically loads the paper. Tear off excess paper and close the printer compartment door.
Section 3
Commissioning
Commissioning Mode

Walk test mode allows a single engineer to test the various detectors and callpoints on a system without always having to return to the panel either to reset the system or silence the alarms. When in COMMISSIONING MODE, the system operates as normal except that when a detector or callpoint goes into alarm, the alarms only operate for a few seconds and then will silence. The panel then tries to reset the device automatically and, if successful, the alarms are operated again for a few seconds and the installation engineer can move on to the next detector. After a full test has been carried out the engineer can check the order in which the detectors/callpoints were operated using the DISPLAY LOG mode. This information can also be printed on the optional printer.

When the panel is in “Walk Test Mode” the control panel inserts a different code into the log and also onto the print-out. This is to distinguish between when a device has been tested in “Walk Test Mode” and when a device has been triggered while in normal operation.

The following differences will occur:

1. When in the LOG mode, "One man walk test” will appear on the display followed by the address text and device type.
2. On the printout a “One man walk test” message will appear followed by the address text and device type.
3. During a real fire “FIRE !” Will appear on the display followed by the address text and device type.
Configuration

DB Level Check
FX6000 includes the facility to test and set the system sounders with the minimum amount of disturbance. In sounder test mode, the sounders will sound for 30 seconds on then 30 seconds off. This facility can be accessed via the engineering menu.

Detector LED Flashing
The FX6000 detector flashing function is used to allow a visual inspection and confirmation that the fire panel is in communication with the installed system devices. This facility can be accessed via the engineering menu and can be switched on or off at any time as required.

Up/downloading using PC Software
The PC Software enables the address, location text, device type and any comments to be downloaded to the FX6000 panels.

The software can download to all 126 networkable panels.

The PC is connected to each panel on the network in turn. All data for the panel is downloaded.

For networked systems, panels are identified by panel number, P1, P2 etc.
Panel Fault Finding

= +5.5V ± 0.5V (No Printer Attached)

= O/C Normal  S/C Fire
= S/C Normal  O/C Fire

= 12V No Fault  0V (short CCT) Fault

= 28.5V (No Load Connected)

= -0.6V-No Fire 28V Fire

No Fires
See Scope Plots for Monitoring Condition

= 22V (Device Fitted) 0V (Unused)
= 22V (Device Fitted) 0V (Unused)

= As Above

= As Above

= As Above

= 28V (Open Circuit, No Input)

= -0.6V Mon +28V Fire (Depends on Programming)
= -0.6V Mon +28V Fire (Depends on Programming)
= -0.6V Mon +28V Fire (Depends on Programming)
= -0.6V Mon +28V Fire (Depends on Programming)

See Scope Plots for Monitoring Conditions

= 28V (Device Fitted) 0V (Unused)

See Scope Plots for Monitoring Condition

= -0.6V-No Fire 28V Fire
= -0.6V-No Fire 28V Fire

Static Conditions (No Data)

= 0V (No Data)

= 0V (No Data)
Protocol Format

Normal Communications to Devices:
With the command bits set for the 'Normal' command and the MSB of the three mode bits set at 0, this shortened version of the Normal communications to each device allows the analogue reply or status from each device to be read. This format of communication is generally used throughout all background supervision of the addressable loop.

Alarm Interrogate Command:
This command is seen by all devices on the loop, so no address byte is required, and is periodically sent out during normal communications. This command allows any device experiencing an alarm condition to respond, with callpoints given the highest priority, reporting their address. This causes the control panel to break off from general background supervision of the loop and focus directly on the device in question.

Full Protocol Format:
With the command bits set for the 'Normal' command and the MSB of the three mode bits set at 1, the long version of the Normal communications can be sent to any device. This would normally be done by the panel following a response to the Alarm Interrogate command, allowing the panel to check the device address, ID and confirm that the analogue reply, or status, is truly an alarm condition before actioning the panel sounder outputs, for example.

Viewing the Voltage and Current waveforms at the panel:

Loop 1: Using a digital storage oscilloscope, connect one channel to R34 on the loop driver card; probe 0 V clip to the 'in-board' side of the resistor. This will display the loop current. Connect the other channel to Loop 1, S+ terminal on the main mother board. DO NOT connect the 0 V clip of this probe.

Loop 2: Using a digital storage oscilloscope, connect one channel to R36 on the loop driver card; probe 0 V clip to the 'in-board' side of the resistor. This will display the loop current. Connect the other channel to Loop 2, S+ terminal on the main mother board. DO NOT connect the 0 V clip of this probe

Each Packet of Comms above must be separated by a gap of 20ms minimum where the line is held at 24v
PC Commissioning Software

Device Input Programming

- **Fire**: panel reports fire from device.
- **Fault**: panel reports fault from device.
- **Reset**: panel resets.
- **Silence**: silence all currently active sounders.
- **Pre-Alarm**: panel reports pre-alarm from device.
- **Non-Latching**: device won’t latch in alarm condition, used in conjunction with isolates.

**Isolate Zone / Address**

User can define between zones or addresses to be isolated on activation of the device. The isolate list button enables the user to enter up to 8 unique zones or addresses.

If non-latching has been enabled, isolated devices can be un-isolated as the triggered device returns to normal operation. (A callpoint keyswitch is an example for this application)
PC Commissioning Software

Device Outputs

Delay Configuration
The output of a device when triggered can be delayed - based on a user defined value in minutes. This programming option is enabled when a value other than zero is entered inside the 'Delay' window.

MCP Override
This option is a manual intervention override, when enabled (check in box) the delay can be overridden from any callpoint on the loop when triggered.
Panel Outputs

Dependency Type C
Each panel output can be assigned a unique list of zones derived from the zones available on the loop, to activate this output, two unique zones from this list have to be in fire or alternatively any zone outside this list will trigger the output also. When the ‘Coincidence’ box is checked - the ‘Allocate device’ button allows the user to populate this list.
Section 4
Panel Controls and Indicators
Panel Controls and Indicators

1. System LED’s
2. Zonal LED’s
3. Touch Screen Display
4. Printer Access Door
5. Slot for Optional Printer

<table>
<thead>
<tr>
<th>LED</th>
<th>Name Function</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power On Shows Panel is On</td>
<td>Check Indicator is Illuminated</td>
</tr>
<tr>
<td>2</td>
<td>Fire Indicators Panel has Detected a Fire</td>
<td>Implement Fire Action Procedure</td>
</tr>
<tr>
<td>3</td>
<td>General Fault Monitors Devices for Faults e.g. Smoke detectors/Sounders</td>
<td>Report to System Supervisor</td>
</tr>
<tr>
<td>4</td>
<td>System Fault Monitors Fire Panel for Faults</td>
<td>Report Fault to Service Dept</td>
</tr>
<tr>
<td>5</td>
<td>Power Fault Monitor Internal Battery Charger</td>
<td>Report Fault to Service Dept</td>
</tr>
<tr>
<td>6</td>
<td>Sounder Monitors Sounder Circuits/Indicates Disablement of this Output</td>
<td>Report Fault to Service Dept</td>
</tr>
<tr>
<td>7</td>
<td>System Disable Part of the System has been Disabled</td>
<td>Report to System Supervisor</td>
</tr>
<tr>
<td>8</td>
<td>System Test Supervisor/Engineer is Testing the System</td>
<td>Check with System Supervisor</td>
</tr>
<tr>
<td>9</td>
<td>FRE Monitors the FRE Circuit/Indicates Disablement of this Output</td>
<td>Report Fault to Service Dept</td>
</tr>
<tr>
<td>10</td>
<td>Extinguisher Activated Display Activation of Extinguishers (If Option Fitted)</td>
<td>Check with System Supervisor</td>
</tr>
<tr>
<td>11</td>
<td>Delay Active Delays on Outputs Active</td>
<td>Check with System Supervisor</td>
</tr>
</tbody>
</table>
Panel Controls and Indicators

1. Log Book Storage
2. Insert Supervisor Key Here
3. Printer
4. Paper Roll Storage

1. Optional Hinged Cover
2. Scroll Up
3. Mute Buzzer
4. Scroll Down
The touch screen is a multi-function display consisting 320 x 240 dots featuring high intensity backlighting. In normal operation, the display indicates as above with the backlighting off.

During an event on the system the display shows the FIRST EVENT and LAST EVENT plus other events as space allows.

The last 2 lines are normally used to display the total number of events, but they are also used for scrolling fire conditions, faults, pre alarms or disabled devices independently or for displaying a reduced menu when in fire condition.

When an event occurs the touch screen backlighting comes on unless there is a mains power supply fault.

Use the touch screen to scroll through all active events on the system by using the SCROLL UP and SCROLL DOWN buttons (available at access level 1). You can display the contents of the log and also view details of any fires, faults, pre-alarms,faults or disablenments.. When displaying the system menu on the touch screen, the last 5 lines of the display are shown in reverse text.
Panel Operation

FX6000 is operated via a backlit touch screen. The default fire screen is shown below. From this screen all the panels functions can be operated. The first time you touch the screen the backlight will illuminate the panel.

Pressing a field will highlight it and forward to the next screen as shown below.

Touch the screen here to view details
Public (Access Level 1)

Public access level does not require an access code and allows anybody to review the functions outlined below.
Evacuate (Access Level 2)

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode Passcode and select “Evacuate” on the menu at the top of the screen.

Select “Yes” to evacuate the building.
Silence Alarms

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode Passcode and select “Silence Alarms” button as the top of

Select “yes” to silence Alarm.

This will silence ALL sounders
Do you wish to continue?

Yes  No
Mute Buzzer

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode and Select “Mute Buzzer” from the Top Menu

Reset

Enter the Supervisor Mode and Select “Reset” from the top Menu. Select “Yes” to reset the panel.

Faults = Short circuits, broken detectors etc.
To remove faults from this list:
1) Fix Fault
2) Reset Panel
Pre-Alarms

Enter the Supervisor Mode and Select “Pre-Alarms” tab.

A pre-alarm is shown when a detector appears to register heat or smoke but in a quantity that is insufficient to warrant an alarm. Pre-alarm may indicate a build up of dirt in a smoke detector which can be interpreted by the detector as smoke presence.

Disabled Devices

Enter the Supervisor mode and Select the “Disabled” tab.

The individual buttons show which devices and the number of devices which have been disabled. Press one of the buttons to display detailed information for a particular category.
Faults

Enter Supervisor Mode Passcode and select “Faults” tab.

Enable/Disable (Others Menu)

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode passcode and select the "Others" tab.
Enable/Disable (Others Menu) Cont.

The Enable/Disable feature allows the operator to disable part or a whole system by the sub menus shown on the left.
Print

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode and Select the “Others” Tab. Press “Print”

Select the Information You wish to Print from the Buttons Listed.
Lamp Test

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode and Select the “Others” Tab. Press “Lamp Test”
Weekly Test

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode. Select the others tab as shown below. Press Weekly test.

Weekly test is now in progress.

The panel will automatically return to the system healthy screen once the weekly test has been completed.
Viewing Events

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode Passcode. Select the “Others” tab and press View Log.

Use the scroll bar to view the list of up to 1000 events.

The FX6000 event log stores up to 1000 events including, fires, faults, resets and address changes. Once the maximum 1000 events has been reached FX6000 will automatically overwrite the oldest event every time a new event is stored. The event log can only be reset by an approved service engineer.
Check Auto Config

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the passcode.

Enter the Supervisor Mode and Select the “Others” Tab. Press Check Auto Config. This feature will scan the loop and pinpoint the exact location of any break in the loop wiring and will also identify any changes in the loop configuration (e.g. New devices added or changed device types).
Replace Device

Replace device enables an existing device to be replaced with a new device without losing the existing text and sounder programming. Replace a single device then use the replace device menu to allocate an existing address to the new device.

![Diagram of the replace device menu with options for selecting a loop, entering loop addresses, and configuring settings.]
Test Device (Access Level 3)

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the service mode touch the supervisor button and enter engineer passcode.

Enter the Service mode. Select “Test”.

Select the “Test Device” button.

Touch row to select device to test.

<table>
<thead>
<tr>
<th>Service FRE off</th>
<th>Exit</th>
<th>Mute Buzzer</th>
<th>Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service FRE off</th>
<th>Exit</th>
<th>Mute Buzzer</th>
<th>Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Touch row to test</th>
<th>Show All</th>
<th>Show Detectors</th>
<th>Show Alarms</th>
<th>Show Relay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>001</td>
<td>Lobby, Building 1, 1st Floor Loop 1, Zone 2, Type: Optical</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>002</td>
<td>Main Reception, Building 1, 1st Floor Loop 1, Zone 2, Type: Optical</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>003</td>
<td>Storage / archive, Building 1, 1st Floor Loop 1, Zone 2, Type: Optical</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>004</td>
<td>Meeting Room 1, Building 1, 1st Floor Loop 1, Zone 2, Type: Optical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Test Zone

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode, Select “Test” and on the Screen Shown Below Press “Test Zone”
Sounder Level Test Mode

Enter the Service Mode and Select Test. From the Test Menu Select “Sounder Level Test Mode”

Sound Level Test Mode
Do you want to continue?
Yes  No

Sound Level Test Mode
All sounders will now pulse 15 seconds on, 30 seconds off
Touch “Stop” button to stop test
Stop

Section 4 - Panel Controls and Indicators
Global Flashing LED On/Off

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Test.

If global LED flashing is set to on, all device LED’s will pulse intermittently to confirm correct communication.

Select “Global Flashing LED On/Off” from the Test Menu Screen.
One Man Walk Test

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Test.

Select “One Man Walk Test” from the Test Menu Screen.

* Features outside EN54 spec

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Select “One Man Walk Test” from the Test Menu Screen.
Commission: Load CDR from Laptop

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission.

Select “Load CDR from Laptop” from the Commission Menu

After pressing “Yes” click commission on the PC download software.

Important:
Do not click commission before pressing “Yes” on the “Load CDR” screen.
Commission: Download CDR to Laptop

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission.

Select “Download CDR from Laptop” from the Commission Menu Screen.
Commission: Auto Learn

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission.

Select “Auto Learn” from the Configure Menu Screen.

Important: Activating autolearn will erase all existing programming, text and configuration data.
Erase Log

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission.

Select “Erase Log and Reset” from the Configure Menu Screen.

This will delete all log entries

Do you want to continue?

Yes  No
System Details

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission, then Press “System Details”.

<table>
<thead>
<tr>
<th>Service</th>
<th>Exit</th>
<th>Mute</th>
<th>Buzzer</th>
<th>Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRE Off</td>
<td>Print</td>
<td>Exit</td>
<td>Print</td>
<td>Exit</td>
</tr>
<tr>
<td>Program</td>
<td>V3.02.01</td>
<td>Program Data</td>
<td>22/01.08</td>
<td>CDR</td>
</tr>
<tr>
<td>CDR Checksum</td>
<td>0xF7D95E</td>
<td>Loop Controller 1</td>
<td>V2.1.4</td>
<td>Loop Controller 2</td>
</tr>
<tr>
<td>Loop 1</td>
<td>Optical</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loop 2</td>
<td>Ionisation</td>
<td>13</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Loop 3</td>
<td>Thermal A1R</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loop 4</td>
<td>Opto / Thermal</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Panel Number</td>
<td>0</td>
<td>Thermal BS</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Panels</td>
<td>1</td>
<td>Thermal CS</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total Addresses</td>
<td>13</td>
<td>Alarm</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Zones</td>
<td>4</td>
<td>I / O Units</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Section 4 - Panel Controls and Indicators
Analogue Level

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission then press “Analogue Levels”.

Note: Go to command can be used to jump to a specific address
## Printer Settings

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission then press “Printer settings”.

<table>
<thead>
<tr>
<th>Service</th>
<th>Exit</th>
<th>Mute</th>
<th>Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRE Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable/Disable Address</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service</th>
<th>Exit</th>
<th>Mute</th>
<th>Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRE Off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load CDR from Laptop</td>
<td>Analogue Level</td>
<td>Printer Settings</td>
<td></td>
</tr>
<tr>
<td>Download CDR to Laptop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Learn</td>
<td></td>
<td>Change Panel Number</td>
<td></td>
</tr>
<tr>
<td>Erase Log and Reset</td>
<td></td>
<td>Number of Panel in Network</td>
<td></td>
</tr>
<tr>
<td>Systems Detail</td>
<td></td>
<td>Screen Cover</td>
<td></td>
</tr>
<tr>
<td>Load Logo From PC</td>
<td></td>
<td>Italian Mode</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service</th>
<th>Exit</th>
<th>Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRE Off</td>
<td></td>
<td></td>
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Change Panel Number

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission then press “Change Panel Number”
Number of Panels in Network

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission then press “Number of Panels in Network”
Screen Cover

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Commission then press “Screen Cover”
Programming I/O and Sounders

To activate the touch screen, touch the top left corner of the screen until the screen illuminates. To enter the supervisor mode touch the supervisor button and enter the service passcode.

Enter the Service Mode and Select Configure.

Select “Programming I/O and Sounders” from the Configure Menu Screen.

Press panel outputs -

Note: Interface Inputs/Interface Outputs are only used in certain export markets
Sound Settings

Touch sound settings.

Selections from the screens below will become the global settings for all loop sounders.

Section 4 - Panel Controls and Indicators
Change Date/Time

Enter the Service Mode and Select Configure. Select Change Date/Time.

Set the Time Using the Buttons Shown Below.
Change Address Text

Enter the Service Mode and Select Configure. Select “Change Text”

Press “Change Address Text”

Select the Address you wish to change and edit using the keyboard
Change Zone Text

Enter the Service Mode and Select Configure. Select “Change Text”

Select the Address you wish to change and edit using the keyboard
Change Panel Text

Enter the Service Mode and Select Configure. Select “Change Text”
Configure Zones

Enter the Service Mode and Select Configure. Select “Configure Zones”

Select Zone into which device will be added

Touch the dash to move the device into the selected zone.
Change User Code

Enter the Service Mode and Select Configure. Select “Change User Code”
Add Zone

Enter the Service Mode and Select Configure. Select “Add Zone”
Delete Zone

Enter the Service Mode and Select Configure, select “Add/Delete” then “Delete Zone”

Select Zone to be Deleted

Confirm or Cancel Deletion

Add Zone 2?

Yes  No
Add Device

Enter the Service Mode and Select Configure, select “Add/Delete” then “Add Device”

Select a Loop to Add a New Device

Confirm New Device and Loop
Delete Device

Enter the Service Mode and Select Configure, select “Add/Delete” then “Delete Device”

Select a Device to Delete

Confirm or Cancel Deletion

Delete device 3?

Device 3
Loop 1, Address 3. Device Type Opto / Thermal

Yes  No
Configure Heat Detectors

Enter the Service Mode and Select Configure. Select “Configure Heat Detectors”

Select a Device to Configure

Select appropriate detector class
Network

Enter the Service Mode and Select Configure. Select “Network”, This menu defines whether messages are broadcast across the network or remain local.
Password Protection

The JSB FX6000 system has password protection which restricts access to the DISABLE Menu and to TEST/COMMISSIONING MODE. The password is a four digit code and the default number is 2214 for access level two and 143243 for access level three. The password entry screen is accessed via the supervisor mode button. Press supervisor mode and the password entry screen will be displayed, type in the passcode and press Ok. If the wrong password is entered three times further access to the system is denied.

![Password Entry Screen](image-url)
Section 5
Appendix
Spur Isolator - FXN513

Installation
1. Fit the unit in position.
2. Connect the unit according to the diagram below.

Notes:
A Spur Isolator must be used when making spurs from the analogue addressable panel loop. Without this unit, the self addressing features of the system will not function correctly.

No addressing of the interface is required. See control panel operation for details.

Standard Connections

Notes:
1. Only connect cable screen to its adjacent earth terminal.
2. For maximum spur length / load see BS5839 Pt 1:2002.
3. This unit can only be used with JSB FXN720 and FXN720 detector bases and compatible detectors.
4 Way Sounder Controller - FXN515

Installation
1. Remove the cover of the unit.
2. Fit the back-plate in position and pass the wires into it taking care not to damage the circuit board.
3. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details. This unit requires a permanent 230 V AC supply.

Standard Connections

Notes:
1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistors must always be fitted, even if the sounder circuits are Unused.
Zone Monitor Unit - FXN512

Installation
1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting backbox.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections

Notes:
1. This unit can only be used with FXN520 detector base and compatible detectors.
2. Only connect cable screen to its adjacent earth terminal.
3. The end of line resistor must always be fitted, even if the spur is unused.
5. Maximum number of callpoints allowed is unlimited.
6. Detector zone end of line device is EOLM-1 (supplied)
7. Callpoint zone has end of line resistor
Shop Monitor Unit - FXN516

Installation
1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting backbox.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections

Notes:
1. This unit can only be used with FXN520 detector base and compatible detectors.
2. Only connect cable screen to its adjacent earth terminal.
3. The end of line resistor must always be fitted, even if the spur is unused.
5. Maximum number of callpoints allowed is unlimited.
6. Detector zone end of line device is EOLM-1
7. Callpoint zone has end of line resistor

Callpoints can be connected with detectors on detector zone if preferred

Section 5 - Appendix
1 Way Input / Output Unit - FXN511

Installation
1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections

![Diagram of connections]

Only connected cable screen to its adjacent earth terminal.
The end of line resistor must always be fitted, even if the spur is unused.

WARNING: Segregate mains cable from other connections to this unit. 230 V Relay output is unfused. Ensure that the 230 V supply feeding this unit is adequately protected

Notes:
1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor must always be fitted, even if the inputs are unused.
Detector Base Wiring - FXN720

Supply Voltage: 18 - 30 V dc
Cable Size: 0.5 - 2.5mm²
Recommended cable types: FIRETUF, FP200 or MICC
Mounting hole centres: 50 - 80mm

Wiring Hints
1. Each terminal is suitable for clamping up to 2 wires
2. Clamping of 2 wires of very different diameters under one screw is not recommended.
3. Suitable for mounting to mounting boxes with 50-80mm fixing centres. General If difficulty is experienced when mounting the detector, this may be due to the following:
4. Wiring causing an obstruction - move or shorten wires.
5. Although the base is tolerant to uneven mounting surfaces, a very uneven surface may cause the base to deform when the mounting screws are tightened down - loosen screws to reduce this or slide base to a more flat position.

WARNING: Do not use high voltage testers when detectors or control panel are connected to the system.
Any 300 series analogue sensor can be connected to the loop circuits. Any 300 series analogue sensor can be connected to the loop circuits.
Weatherproof Wall Sounder - MAS850LPS/WP

Installation
1. Drill required holes for the cable gland fixing
2. Drill out the required fixing holes
3. Fix to mounting surface using two suitable screws

Standard Connections

WARNING: Do not use high voltage testers if any equipment is connected to the system. earth screen must be continuous along entire length of loop.

![Diagram of analogue addressable loop]
Internal Wall Sounder - MAS850/LPS

Installation
1. Fix to mounting surface using two suitable screws - the rear gasket fits underneath the base and the sounder gasket fits inside the base.

Standard Connections

WARNING: Do not use high voltage testers if any equipment is connected to the system. earth screen must be continuous along entire length of loop.

Note:
Care should be taken to ensure the cable does not put stress on the circuit board.

---

Analogue addressable loop

- In
- Out

E - +

---

E - +
Base Sounder - FXN538LBS + MASC

Supply Voltage: 17 ~ 32 V dc
Cable Size / type: 0.5 ~ 2.5mm/ FIRETUF, FP200 or MICC
Standby current: < 320 uA
Operating temperature: -10 to +55 degrees C (95%RH)
Sound output @ +/-3dB (set by panel):
  - Low volume: 84 dB @ <4mA
  - Medium volume: 92 dB @ <8mA
  - High volume: 95 dB @ <12mA
Tones (set by panel):
  - Continuous 910 Hz
  - Pulsed: 910 Hz / 0Hz pulse 1 Hz
  - Two tone: 610 / 910 Hz @ 1 Hz cycle
  - Slow whoop: 500-1200 Hz in 3.5 seconds / 0.5secs gap
3 Way Input / Output Unit - FXN510

Installation
1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections

Notes:
1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor must always be fitted, even if the inputs are unused.
3. Monitored inputs can detect open or short circuit faults.
4. Output relays are volt-free contacts and are not monitored.
Loop Powered Beacon - FXN338BCN

Connection Details
Earth screen of cable to be continuous between beacons

WARNING: Do not use high voltage testers if any equipment is connected to the system.

Standard Connections
Callpoint - FXN501 / FXN503

Standard Connections

Analogue addressable loop
EN54 Product Spec Label

Note: X=2 on a 2 Zone Panel / X=4 on a 4 Zone Panel

Note: If the panel is recessed this label must be placed on the front of the panel
Battery Disposal Instructions

Although batteries contain lead and small amounts of antimony and arsenic, they are safe if handled according to the accompanying guide. The battery cells must not be dismantled as this involves several hazards, which are best handled under controlled conditions, using specialised equipment. No attempt should be made to repair any batteries; they should be treated as disposable when they have outlived their use. Batteries must be disposed of in accordance with current waste disposal and pollution legislation and in particular; The Environment Protection Act 1990, Special Waste Regulation 1996. It is recommended that the following authorities are contacted before any attempt is made to dispose of batteries; Environment Agency Local office, Local Authority Environmental Health or Waste Handling department.
## CE Marking

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### Options Provided

7.8 Output to fire alarm devices
7.9.1 Output to fire alarm routing equipment
7.10.1 Output to automatic fire protection equipment (type A)
7.10.2 Output to automatic fire protection equipment (type B)
7.11 Delays to outputs
7.12.3 Dependencies on more than one alarm signal-Type C
7.13 Alarm counter
8.9 Output to fault routing equipment
9.5 Disablement of each point
10 Test condition

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Other technical data: see Doc. PR200-04-513 held by the manufacturer
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