GLOBAL
FIRE EQUIPMENT

ORION PLUS

CONVENTIONAL FIRE ALARM CONTROL PANEL

INSTALLATION & COMMISSIONING MANUAL

VERSION 1.2 - 04/2019

OVERVIEW

INTRODUCTION

This document covers the installation and commissioning of an ORION PLUS fire alarm panel. This document is intended for use by a competent and qualified, fire alarm installation engineer.

The ORION PLUS fire alarm system should be tailored to the building requirements. The complete system should be designed to meet all applicable regulations. The installation must then be performed in accordance with the system design. This manual not only clarifies the components and connections during installation but will also assist in commissioning and maintenance.

This manual covers the installation and commissioning of a complete system.

ELECTRO-STATIC SENSITIVE DEVICES (ESD)
TAKE SUITABLE ESD PRECAUTIONS WHEN REMOVING OR INSTALLING PRINTED CIRCUIT BOARDS.

All PCBs contain Electrostatic Sensitive Devices. Take suitable ESD (Electrostatic Discharge) precautions when removing or installing printed circuit boards (PCBs).

ORION PLUS FIRE ALARM PANEL - KEY FEATURES

- 8 Zone Conventional Panel - Expandable up to 16 zone
- Supports connection to Repeater via RS485, Fibre-Optic or TCP/IP
- 32 devices per zone
- Compatible with all our own low cost ancillary modules
- 1 Fire output relay (change-over) and 1 Fault relay (change-over)
- 2 conventional alarm outputs (Individually programmable)
- All detection zones monitored for integrity
- Backlit Graphical LCD display
- Programming by integrated keypad or Loader PC software
- Event log (rolling, 10000 entries)

ACCESS LEVEL 1 - General User

Unless otherwise indicated, in order to enable the operation of a particular switch, either a valid User or Programming Access Code is required.
The only exceptions are the following:
1- Lamp Test Switch
2- Queue Review Switches(Fire, Fault, Test and Disabled)
3- Delays Active Switch. During an alarm condition and while delays are active.

By entering a valid User Access Code (Factory default ▲▲▲▲▲), the authorized user gains access to the operation of all switches at the front of the panel display. Authorized User Access also grants the possibility of enabling or disabling zones.

ACCESS LEVEL 2 - Authorized User Controls

Access to this level is accomplished by the introduction of a code using the panel keypad. The user code is factory set to ▲▲▲▲▲ and after entering each digit in turn, press OK to confirm entry.

INTERNAL BUZZER SILENCE
The occurrence of any new fire or fault condition will initiate the operation of the internal buzzer. By pressing this switch, the operation of the buzzer will be stopped until a new fire or fault appears on the system.

ALARM SILENCE/RESOUND
Activates all sounders. A second press deactivates all sounders. The button LED (red) is illuminated whilst the sounders are activated.

SOUNDERS ENABLE/DISABLE
Pressing this button will enable/disable all conventional sounder circuits .

DELAYS ACTIVE
Pressing this button will activate any preprogrammed delays. The yellow LED associated with this button and the general disablements LED will both be lit. A second press of this button will deactivate the delays and the LED. Under any fire condition the delays will be activated. If during the course of these delays, at access level 1(General User - code entry not required), this button is pressed, the delays will be overridden and the sounders and together with any other fire indicating equipment, will be activated.

USER & INSTALLER ACCESS CODES
To enter both codes use the arrow keys ▶▲▼ and when finished press ENTER.

Access Level 2 - Press ENTER, then Authorized User Access Code ▲▲▲▲▲ and then press ENTER to confirm entry.

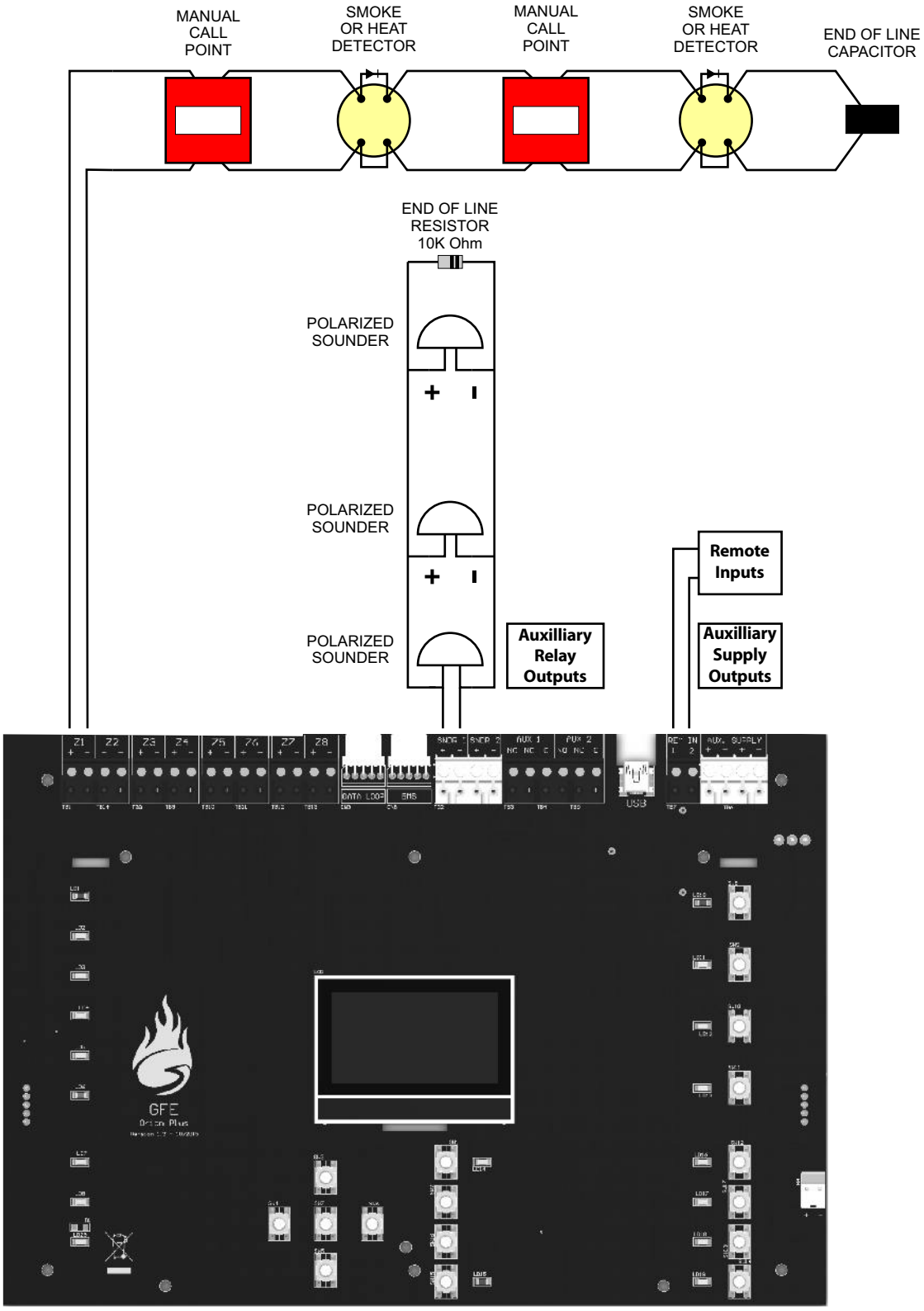
Access Level 3 - Press ENTER, then Installer Access Code ▲▼▲▼▲ and then press ENTER to confirm entry

MAIN PANEL KEYPAD INSTRUCTIONS

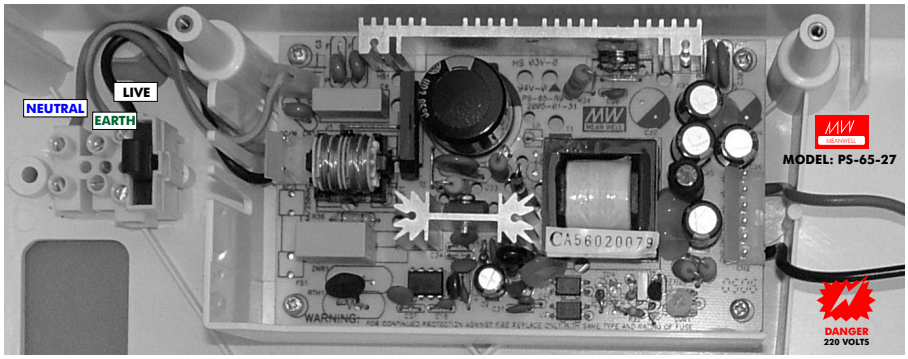
ENTER	Used to confirm entry of any data or selection.
▲	Used to increase selection or number. Also used for code entry.
▼	Used to decrease selection or number. Also used for code entry.
▶	Used to change data entry field/ location.
ESC	Escape key. Used to exit a particular function.

NOTE: It is not possible to introduce text for labels using the front panel keypad.

TYPICAL SYSTEM SCHEMATIC



POWER REQUIREMENTS



POWER SUPPLY SPECIFICATION - MEANWELL Model: PS-65-27	
MAINS SUPPLY VOLTAGE	85 - 264 V 50/60 Hz
INTERNAL POWER SUPPLY	Min. 20 V DC - Max. 30 V DC (28.5 V DC nominal) Max. Ripple 1 V peak-peak
TOTAL OUTPUT CURRENT	2.4 A @ 230 Vac
SUPPLY AND BATTERY CHARGER MONITORED?	YES
BATTERIES MONITORED	YES
MAX BATTERY SIZE	2 x 12 V 7AH VRLA
MAINS FUSE	4 A - 250 V Slow Blow - 20 mm
BATTERY FUSE	1.6 Amp Resettable - Electronic Fuse
MAX CURRENT DRAW FROM BATTERY (MAINS FAIL)	1.5 Amp Max. @ Max. Operating Temperature

Voltage

Primary supply voltage	85 - 264 V A.C.
EMC Standard	EN55022 class B / EN61000-4-2,3,4,5,6,8,11 / EN61000-3-2,3

Current
2.4 A PSU's recommended for 8-16 zones panels.
The maximum alarm sounder current is 400 mA for both conventional sounder circuits.

Battery
Internal maximum 24 V / 7 Ah

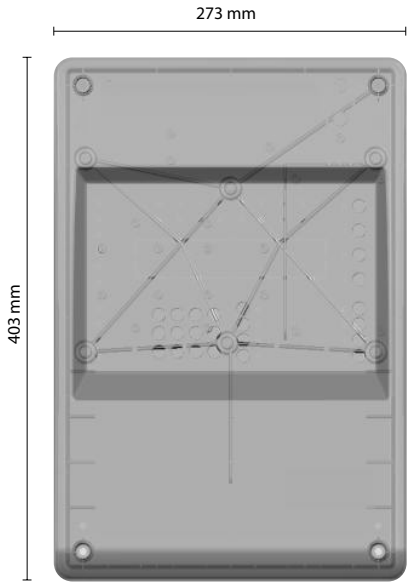
BATTERY REQUIREMENTS

Min battery capacity 2 x 2 Ah 12 V DC
Max Battery capacity 2 x 7 Ah 12 V DC
Always use Lead- acid VRLA Batteries
The battery Ah required for a given installation is calculated from the following formula:

(Quiescent current in mA of the panel with everything connected X Standby time required in hours divided by 1000) + (Alarm current in Amps (sounder load) X Alarm time in hours) + 20%

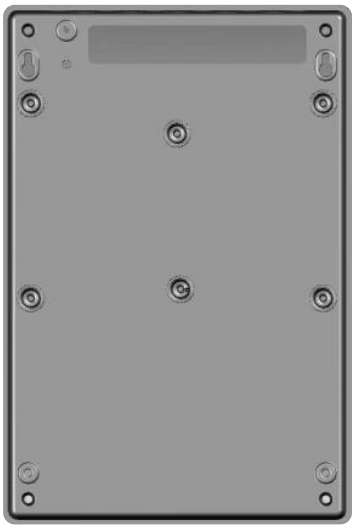
Round up to the next available battery size. Quiescent current of the panel with everything is found by adding the standby current of all connected devices to the standby current of the panel (38 mA). Consult the manual for the individual devices to confirm the standby current.

ABS BOX INFORMATION

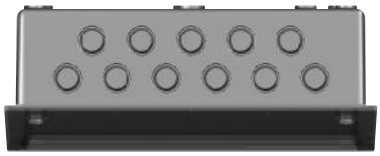


VIEW FROM FRONT

VIEW FROM SIDE



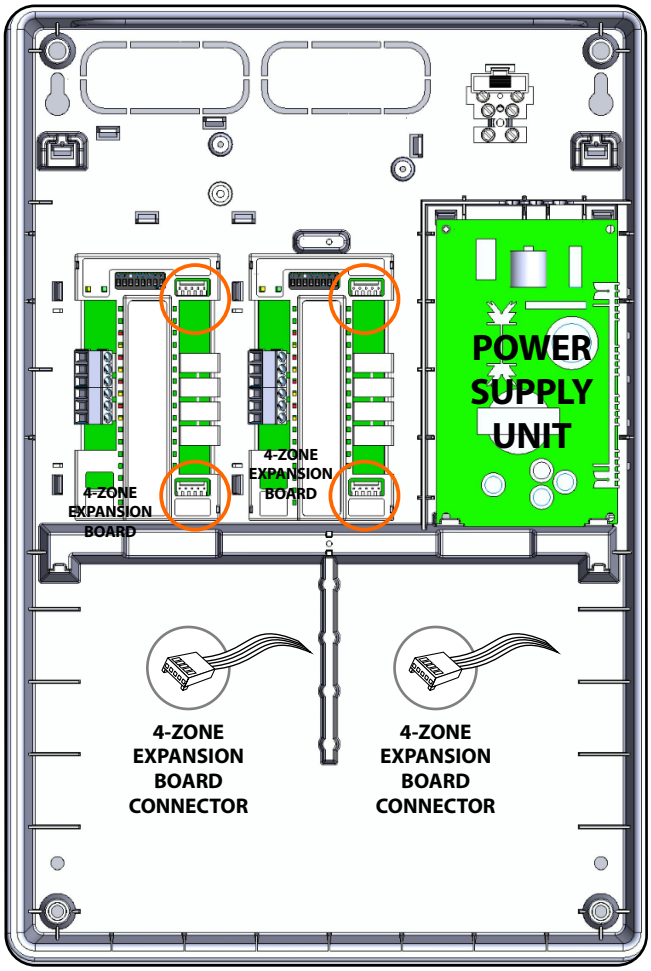
VIEW FROM REAR



VIEW FROM TOP

DIMENSIONS	
SIZE	273 (W) x 403 (L) x 106 (H) mm
WEIGHT WITHOUT BATTERIES	1,6 Kgs

IDENTIFYING COMPONENTS



FITTING ORION PLUS EXPANSION ZONE CARD

1 - This operation should only be performed by qualified personnel.

2 - Power to the panel should be completely removed, both primary and secondary (batteries) supplies, before the installation process of the card is initiated.

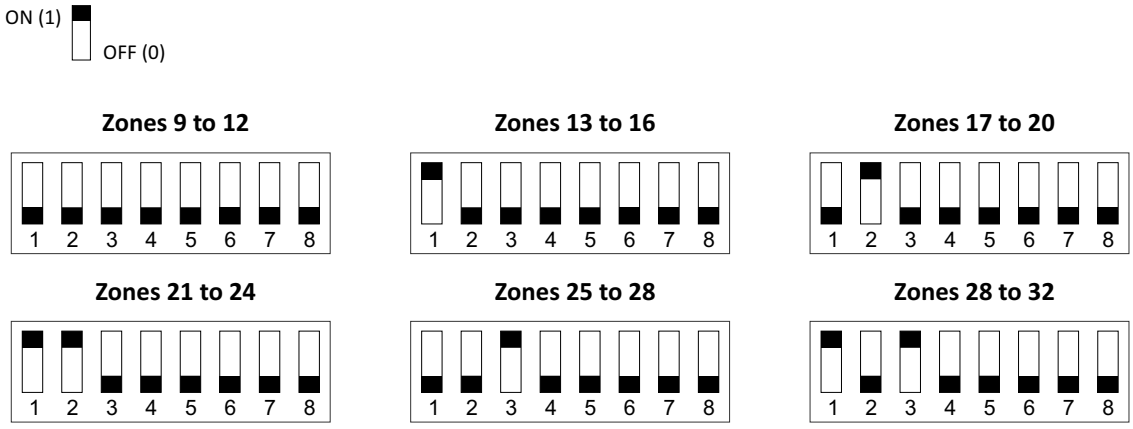
3 - Use 5-way flat cable assembly provided to interconnect expansion board and panel's main board. After process is complete re-apply power to the panel.

4 - Panel should be in installation mode. Green (Status) LED should be flashing.
See function 8.4.1

5 - Confirm using function 7.1 that expansion zones have been detected.

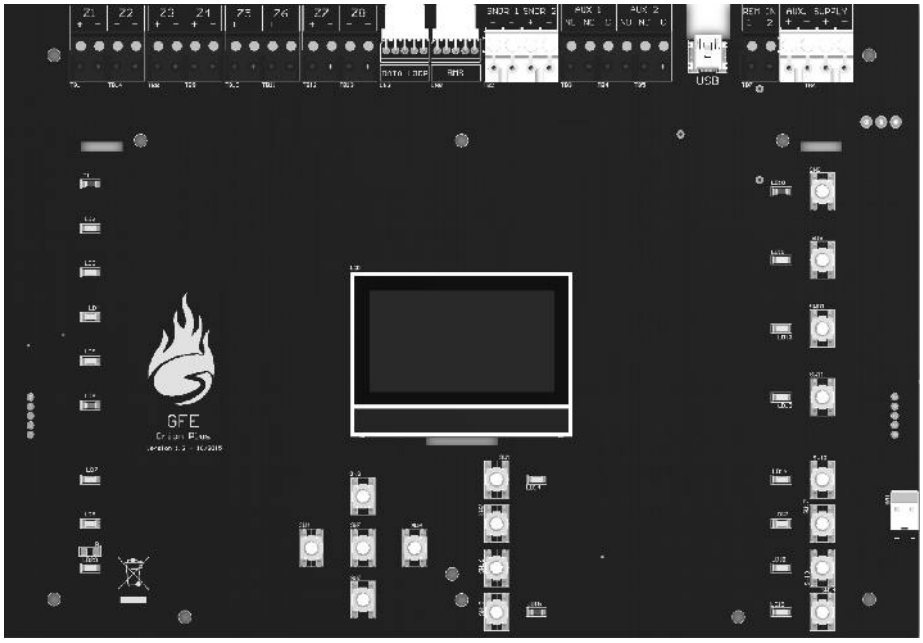
6 - No programming is required in order to enable the zone expansion card. This card is automatically detected by the panel.

ZONES EXPANSION MODULE ADDRESS



NOTE: Up to 16 zones. To install up to 32 zones, there is an alternate version of the panel. Please, contact GFE support.

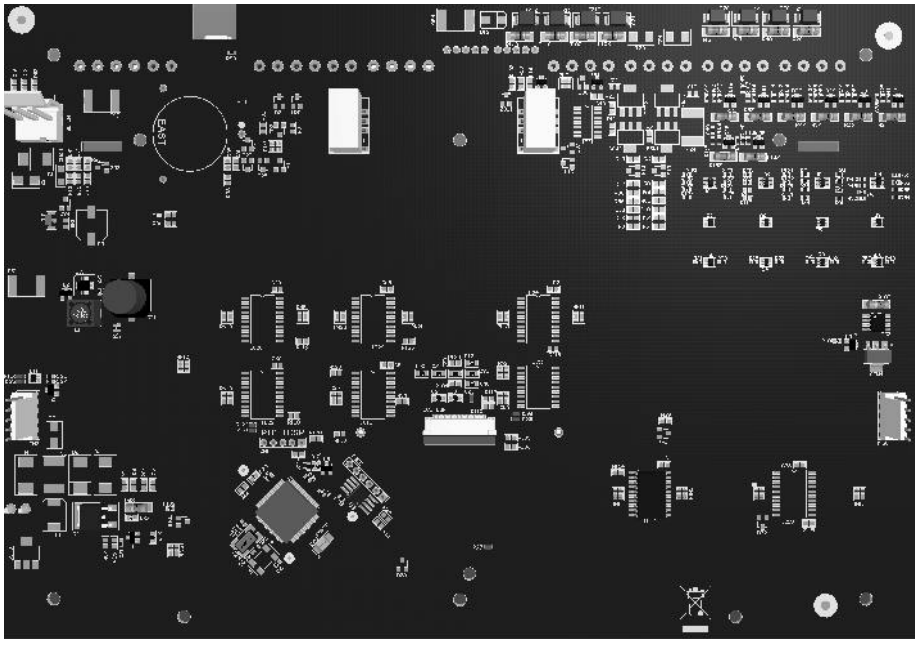
ORION PLUS MAIN BOARD

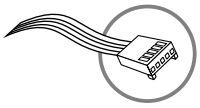


BATTERY Connector

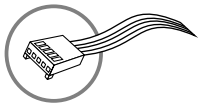
FRONT VIEW

PSU Connector





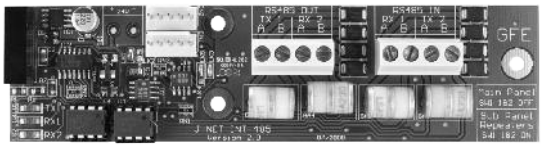
4-ZONE EXPANSION BOARD CONNECTOR



4-ZONE EXPANSION BOARD CONNECTOR

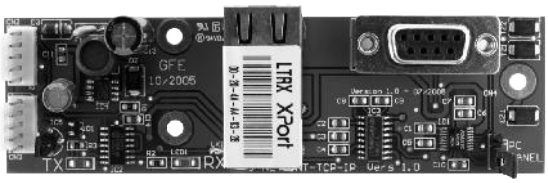
REAR VIEW

NOTE: ORION PLUS can only be networked with repeater panels.

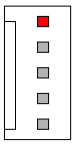


J-NET-INT-485
INTERFACE FOR RS485 COMMUNICATION

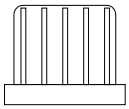
J-NET-INT-FO
FIBRE OPTIC INTERFACE



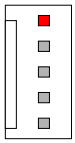
J-NET-INT-TCP/IP
INTERFACE FOR TCP/IP COMMUNICATION



NOTE:
THROUGHOUT THE MANUAL, THE RED PIN ON THE 5 WAY MOLEX INDICATES WHICH PIN IS Nº1

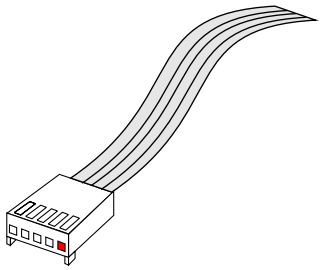


VIEW FROM FRONT



VIEW FROM TOP

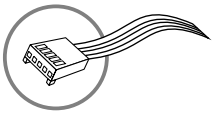
MALE — FEMALE

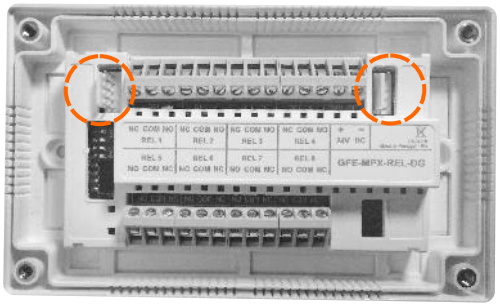


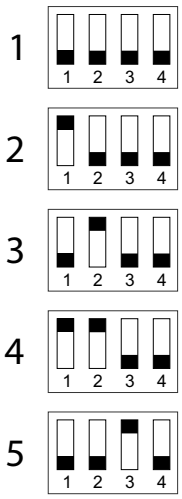
Typical cable form (one end)

ACCESSORIES

RELAY BOARD







1. Address 0 or No DIL Switch:
The relays will go OFF
with the following events:
Relay 1 - Fire
Relay 2 - Fault
Relay 3 - Pre Alarm
Relay 4 - Test
Realy 5 - Any Disablement
Relay 6 - Sounders ON
Relay 7 - Relays Disabled
Relay 8 - Sounders Disabled

2. Address 1 - Zones 1 to 8
3. Address 2 - Zones 9 to 16
4. Address 3 - Zones 17 to 24
5. Address 4 - Zones 25 to 32

NOTE: Up to 16 zones. To install up to 32 zones, there is an alternate version of the panel. Please, contact GFE support.

EN54 INFORMATION

In accordance with EN54-2 1997/AC:1999 clause 13.7, the maximum number of sensors and/or manual call points in this panel will not exceed 512 units.

The Fire Detection Control Panel complies with the requirements of EN54-2 and EN54-4 1997/AC:1999. In addition to the requirements of the above mentioned standard, the unit conforms to the following optional functions:

OPTION		EN54 pt. 2 Clause
Indication	Fault Signals from Points	8.3
Controls	Delays for activation of outputs	7.11
	Disablement of each Addressable point	9.5
	Test Condition	10
Outputs	Outputs to fire alarm devices	7.8

In addition to the functions required by the standard EN54-2 1997/AC:1999, the panel supports ancillary functions that are not required by the above mentioned standard, namely:

Ancillary Functions:

Panel network connection ports

Panel to PC programming software (upload / download) USB port.

Remote Inputs (Normally Open)

Auxiliary relays outputs

Conventional Zones:

Each conventional zone can be connected to a maximum of 32 devices. According to EN54 -2 clause 12.5.2, in case of a short circuit or interruption of a detection zone, only a maximum of 32 detectors and/ or call points per zone can be prevented at any one time of transmitting a fire alarm.

RECOMMENDED CABLES

Conventional Zones, Conventional Sounders and Data Loops

Fire rated Cables for Zones and Sounder Circuits

AEI type Firetec Multicore Ref. F1C1 (1 mm^2) to F1C2.5 (2.5 mm^2) in 2 core
AEI type Firetec Armoured Ref. F2C1 (1.5 mm^2) to F2C2.5 (2.5 mm^2) in 2 core
AEI type Mineral Insulated Cable (all types up to 2.5 mm^2
BICC types Mineral Insulated twin twisted conductor cables, Ref. CCM2T1RG and CCM2T1.5 RG
BICC types Mineral Insulated Pyrotenax (all types up to 2.5 mm^2)
CALFLEX type Calflam CWZ 2 core type up to 2.5 mm^2
PIRELLI type FP200 Gold 2 core type from 1 mm^2 to 2.5 mm^2
FIRETUF (OHLS) FTZ up to 2.5 mm^2. Manufactured by Draka

All cables must be screened

Minimum detection zone conductor section size is 0.5 sq.mm
Maximum detection zone conductor section size is 2.5 sq.mm

There should only be one conventional zone per shielded cable.
Conventional Detection Zones and conventional sounders should not run in the same shielded cable.

If the system requires one or more repeaters, it will be necessary to use a four core data cable to create a data loop between the panel and the repeater. Alternatively, it is possible to use multi-mode dual-core fibre-optic cable or a TCP/IP connection for the same purpose.

Data loop cable should be RS422/485 grade data cable, eg:

Signal cables for RS485 Communication Links (twisted pair) to Repeater panels

12 AWG Signal 88202 Belden 9583 WPW999
14 AWG Signal 88402 Belden 9581 WPW995
16 AWG Signal 88602 Belden 9575 WPW991
18 AWG Signal 88802 Belden 9574 WPW975
FIRETUF FDZ1000 by Draka 2 core
PIRELLI type FP200 Gold 2 core
PIRELLI type FP-PLUS

Fibre-Optic

Multi.mode Dual Core sheathed fire proff with 62,5µ/125µ fibre terminated in ST connectors

LIMITATIONS

A fire alarm system can provide early warning of a developing fire but it does not assure protection against damage or loss resulting from a fire. The fire alarm system should be designed and installed in accordance with all relevant regulations and codes of practice. To ensure maximum protection the system should be regularly tested and inspected by qualified fire alarm installation personnel. Inspection and testing should be carried out in accordance with the appropriate local standards.

DEFINITIONS

Cable form	A connecting lead. Typically a length of flat cable with connectors at both ends.
Conventional Sounder	A Conventional Sounder is an audible output device that is connected to the Conventional Sounder outputs on the Panel.
Data Loop	This may take the form of RS485, a fibre optic link or by TCP/IP. It provides communications between the Panel and Repeaters.
Detector	Any type of fire sensor (heat, smoke) that is connected to a zone.
Device	A detector, sounder, interface module or call-point connected to a zone.
Evacuate	A system state where all sounders are activated simultaneously. Pressing SOUND ALARMS will generate an evacuate condition.
Fibre Optic Link	A connection method for data that uses light instead of electrical signals. The connection is made using fibre optic cables rather than copper electrical cables. Fibre optic signals can travel far greater distances than electrical signals with less risk of electromagnetic interference.
Flash	Non-volatile memory inside the panel used to store the program and the customer site data. Flash data storage is very robust and needs no power at all to retain the data.
Local Sounder	A local conventional sounder is an audible output device (bell or sounder) that is connected to the local bell output on the panel.
NVRAM	Non-volatile Random Access Memory. Any information stored in this memory will not be cleared when power is removed from the system.
PCB	Printed Circuit Board.
Repeater	A Repeater is a remote terminal to the Panel. Everything that is displayed on the Panel, with the exception of zonal LEDs, is also displayed on the Repeater. Any LEDs illuminated on the Panel are illuminated on the Repeater. Key presses at the Repeater are sent directly to the Panel, as if the input were actually occurring at the Panel.
The System	The Panel, Repeaters and all devices.
Zone	A situational group of devices. A Zone can consist of a collection of any of the devices connected to the system.

INSTALLATION

INTRODUCTION

This section covers the physical installation of the system. It primarily focuses on the parts that are required and how they should be connected together. Do not connect the mains power or the batteries at this stage; commissioning the system is covered in the next section of this manual. Installation should always be performed in accordance with a system plan.

PANEL

The control panel should be located where access to the internal components is not restricted and where the unit is not exposed to high levels of temperature, moisture, vibration and shock.

Any metal swarf could damage the PCBs if it is still present when the panel is powered up so it is recommended that all PCBs are removed from the box whilst the box is being installed. Make a note of the positions of the PCBs before removal.

Mains Power connection

The panel must be earthed. The LIVE connection must be made to the fused input on the power supply module. This input will also have a BLACK or BROWN wire leading into the power supply unit.

The connector with a BLUE wire leading into the power supply unit is the NEUTRAL.

Other Panel connections

These are detailed in the relevant following sections. Most connections are made from the ORION PLUS mainboard.

REPEATERS

Repeaters are installed in a similar manner to the Panel. Each ORION PLUS panel can supply a maximum of 4 Repeaters.

The Repeater should be located where access to the internal components is not restricted and where the unit is not exposed to high levels of moisture, vibration and shock.

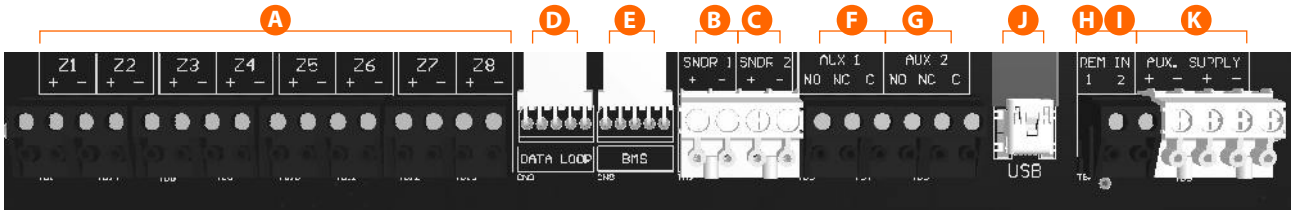
Avoid placing the Repeater in direct sunlight as this may impair reading of the LCD display.

Any metal swarf could damage the PCBs if it is still present when the Repeater is powered up so it is recommended that all PCBs are removed from the box whilst the box is being installed. Make a note of the positions of the PCBs before removal.

ELECTRO-STATIC SENSITIVE DEVICES (ESD)
TAKE SUITABLE ESD PRECAUTIONS WHEN REMOVING OR INSTALLING PRINTED CIRCUIT BOARDS.

WARNING - observe ESD precautions when handling the PCBs.

PANEL MAIN BOARD - CONNECTION DEFINITIONS



- **A** Conventional Zone connections
- **B** Conventional sounder circuit 1
- **C** Conventional sounder circuit 2
- **D** Data Loop for RS485, Fibre-optic or TCP/IP (LAN) connection with repeater panel
- **E** BMS/ Odyssey Connector
- **F** Auxiliary change-over relay output 1
- **G** Auxiliary change-over relay output 2
- **H** Remote Input 1
- **I** Remote Input 2
- **J** USB connector for upload/download interface (GFE Connector software required)
- **K** 24V auxiliary power supply output for powering external devices
  Max 460 mA power limited and monitored

DATA LOOPS

If the system includes repeaters to allow remote viewing and control of the system, an RS422/485, Fibre Optic or TCP/IP connection may be used.

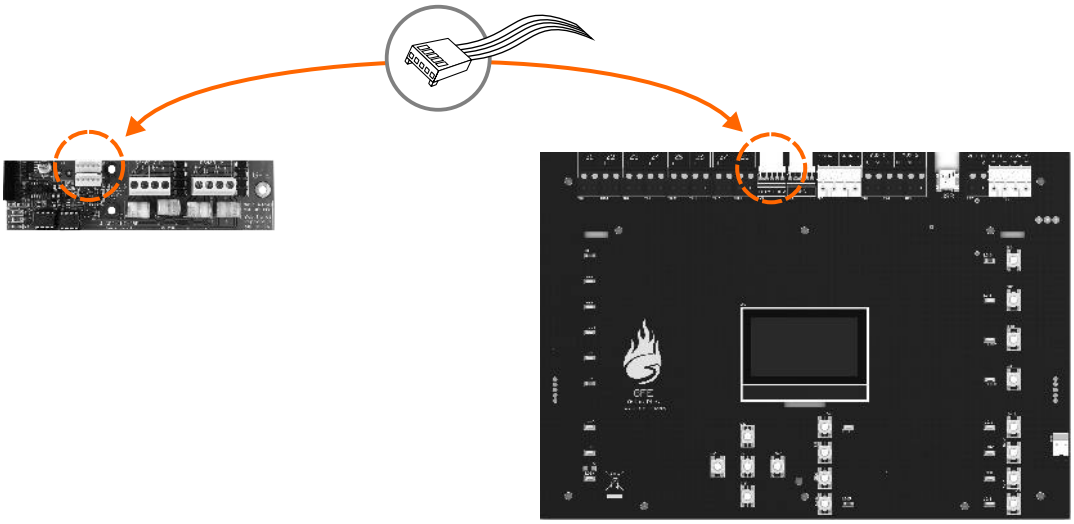
For redundancy in the case of RS422/485 and Fibre Optic this can be wired in the form of a Loop, thus protecting the Data Loop from interruptions or short circuits by creating a bi-directional communications flow. If the panel loses communications with the repeater it will try via the opposite path.

RS422/485 may be used for distances of up to 1200 m. For longer distances (up to 4,5km) Fibre Optic Data connections should be used.

PANEL RS485

NOTE: Make all connections with the power turned off to avoid risk of permanent damage to the circuit boards.

If a repeater panell is required, the appropriate interface board for the desired communications media must be installed in both the panel and repeater.



ORION PLUS PANEL CONNECTIONS

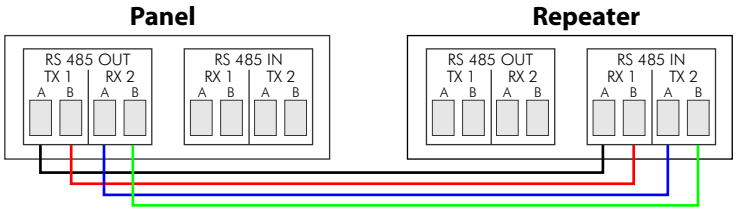
2-WAY DIL SW

PANEL = OFF	The interface inside the Orion Plus panel must have switches in OFF position.
REPEATER = ON	The interface inside the Mini-Repeater must have switches in ON position.

RS485 External Connection

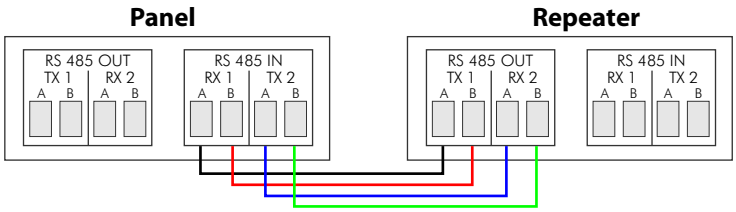
The 4 wire external RS485 connections should be made as follows:

Panel	Repeater
LOOP OUT	LOOP IN
TX1 A	RX1 A
TX1 B	RX1 B
RX2 A	TX2 A
RX2 B	TX2 B



Then continue to connect OUT of one Repeater to IN of the next Repeater following the same connection rules as above. When you reach the last Repeater in the loop make the connections as follows:

Panel	Repeater
LOOP IN	LOOP OUT
RX1 A	TX1 A
RX1 B	TX1 B
TX2 A	RX2 A
TX2 B	RX2 B

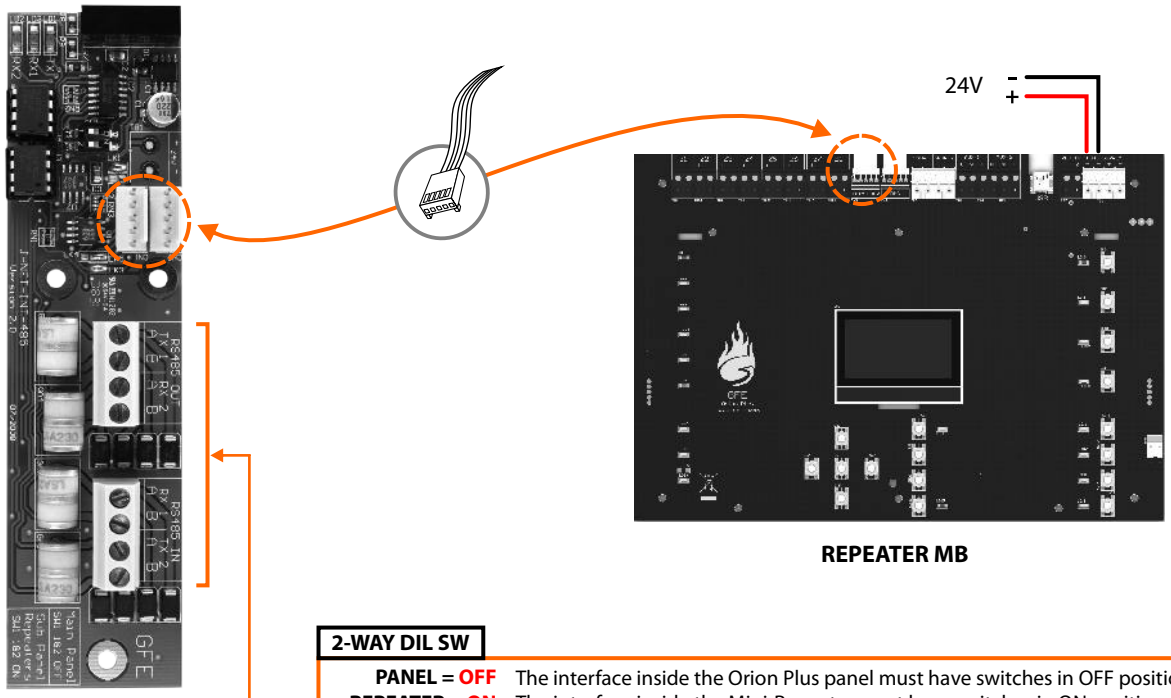


NOTE: Connections shown are for a redundant Loop circuit. If Radial circuit must be used please contact technical support for information.

REPEATER RS485

NOTE: Make all connections with the power turned off to avoid risk of permanent damage to the circuit boards.

The repeater connections to the RS485 Interface are basically the same as for the Panel. The placement of the RS485 interface inside the Mini-repeater differs from the ORION PLUS, since it is placed vertically. The main board has an horizontal placement and does not require a loop card.



REPEATER MB

J-NET-INT-485

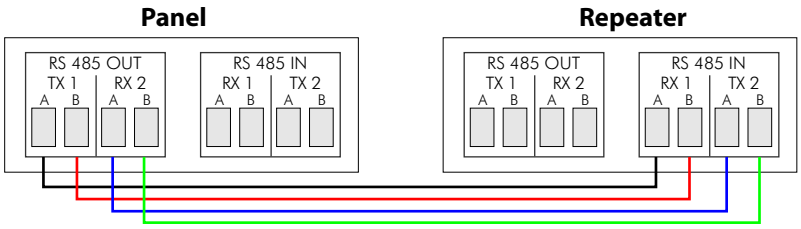
2-WAY DIL SW

PANEL = OFF	The interface inside the Orion Plus panel must have switches in OFF position.
REPEATER = ON	The interface inside the Mini-Repeater must have switches in ON position.

RS485 External Connection

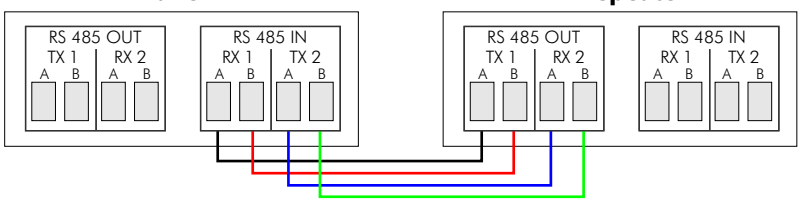
The 4 wire external RS485 connections should be made as follows:

Panel		Repeater
LOOP OUT	——	LOOP IN
TX1 A	——	RX1 A
TX1 B	——	RX1 B
RX2 A	——	TX2 A
RX2 B	——	TX2 B



Then continue to connect OUT of one Repeater to IN of the next Repeater following the same connection rules as above. When you reach the last Repeater in the loop make the connections as follows:

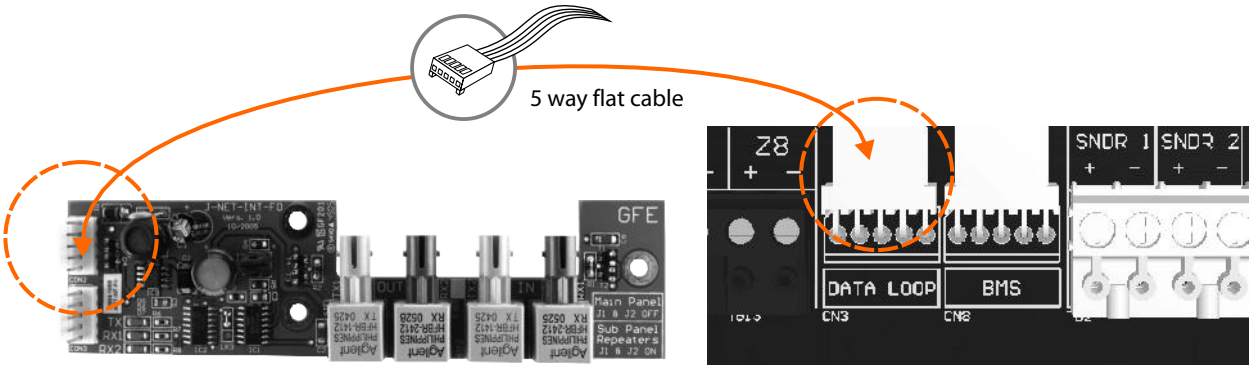
Panel		Repeater
LOOP IN	——	LOOP OUT
RX1 A	——	TX1 A
RX1 B	——	TX1 B
TX2 A	——	RX2 A
TX2 B	——	RX2 B



PANEL FIBRE-OPTIC

NOTE: Make all connections with the power turned off to avoid risk of permanent damage to the circuit boards.

Connection is made using fibre optic cable instead of copper cable. The ends of the fibre must be terminated with ST™ type Fibre-optic connectors.



ORION PLUS PANEL CONNECTIONS

2-WAY DIL SW	
PANEL = OFF	The interface inside the ORION PLUS panel must have switches in OFF position.
REPEATER = ON	The interface inside the Mini-Repeater must have switches in ON position.

Fibre-Optic External Connection

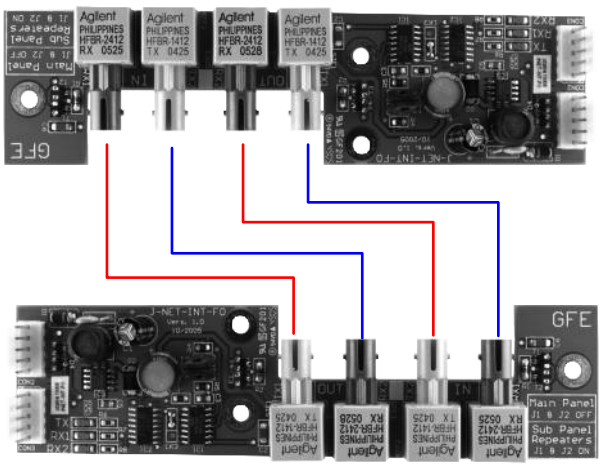
The dual fibre external fibre-optic connections should be made as follows:

Panel		Mini-Repeater
LOOP OUT	———	LOOP IN
TX1	———	RX1
RX2	———	TX2

Then continue to connect OUT of one Repeater to IN of the next Repeater following the same connection rules as shown. When you reach the last Repeater in the loop make the connections as follows:

Panel		Mini-Repeater
LOOP OUT	———	LOOP IN
TX1	———	RX1
RX2	———	TX2

Panel

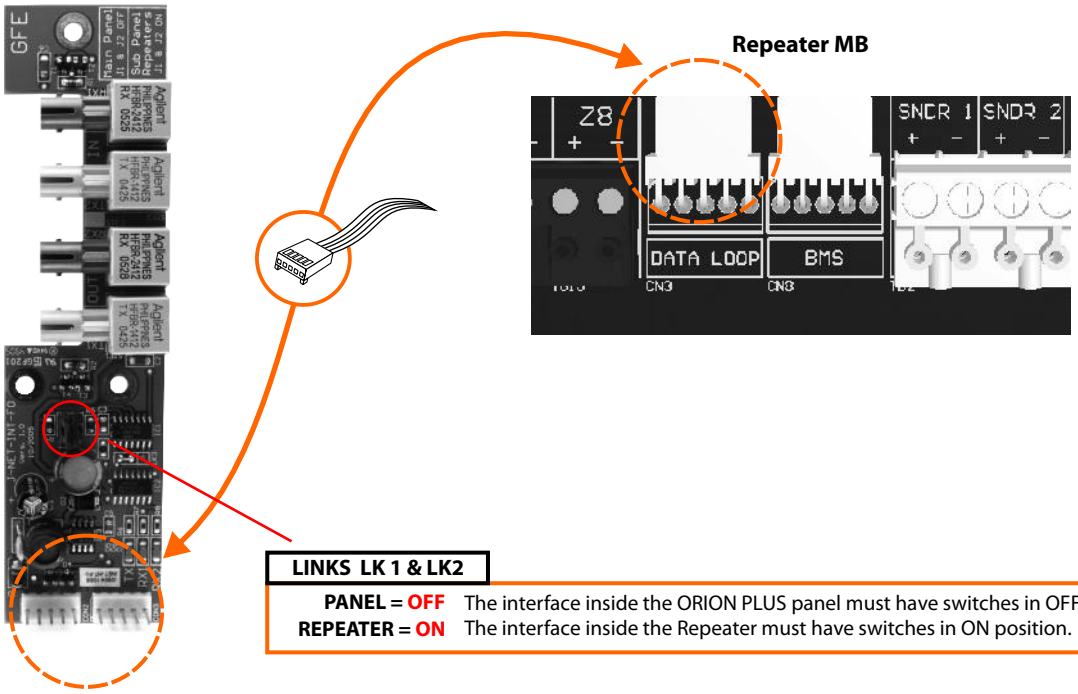


Repeater

REPEATER FIBRE-OPTIC

NOTE: Make all connections with the power turned off to avoid risk of permanent damage to the circuit boards.

The repeater connections to the Fibre-Optic Interface are basically the same as for the Panel.



LINKS LK 1 & LK2

PANEL = OFF The interface inside the ORION PLUS panel must have switches in OFF position.
REPEATER = ON The interface inside the Repeater must have switches in ON position.

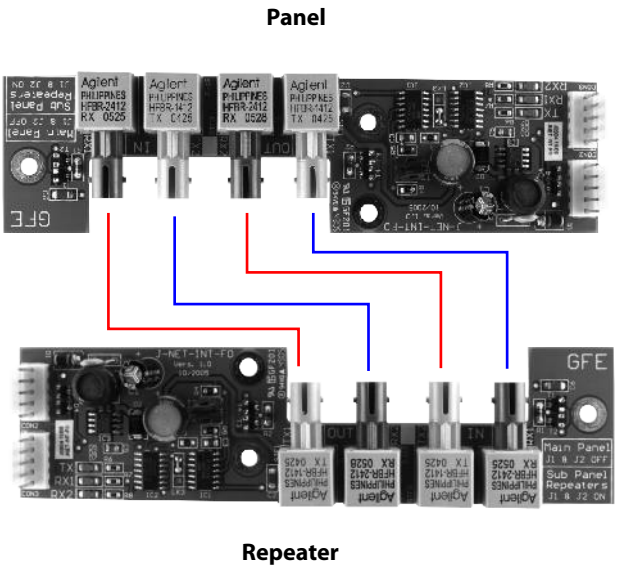
Fibre-Optic External Connection

The dual fibre external fibre-optic connections should be made as follows:

Panel		Repeater
LOOP OUT	——	LOOP IN
TX1	——	RX1
RX2	——	TX2

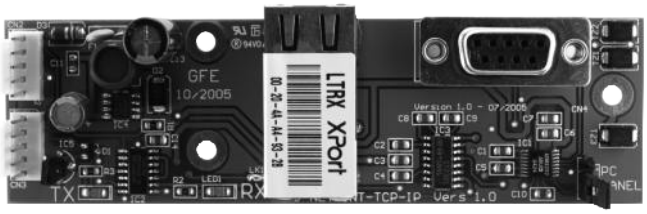
Then continue to connect OUT of one Repeater to IN of the next Repeater following the same connection rules as shown. When you reach the last Repeater in the loop make the connections as follows:

Panel		Repeater
LOOP OUT	——	LOOP IN
TX1	——	RX1
RX2	——	TX2



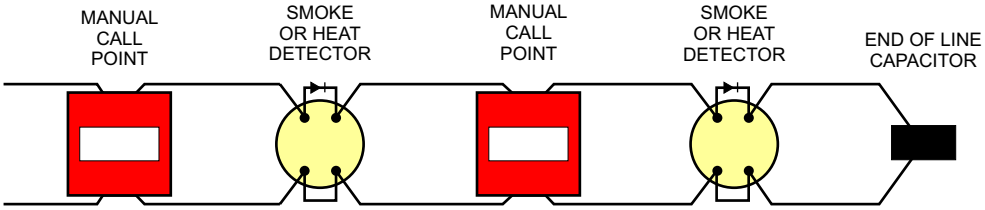
TCP/IP Connection

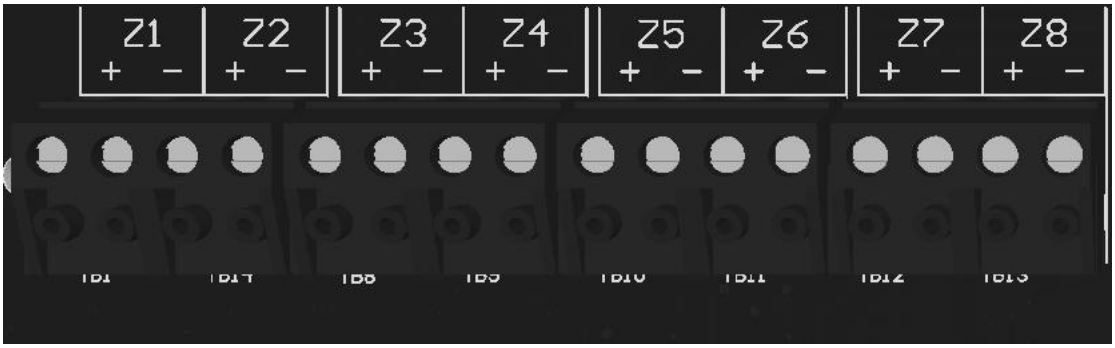
The use of a TCP/IP network may require the support and co-operation of the end users IT department. Be sure that this support is available before deciding on this communications method.



For detailed TCP/IP connection information please refer to TCP/IP specific technical information and/or contact technical support.

ZONE CONNECTIONS





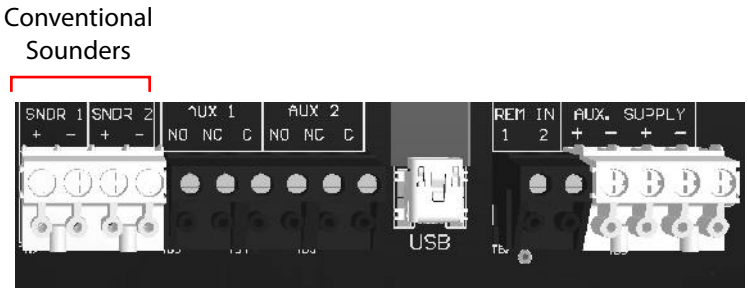
NOTE: According to EN54-2 a maximum of 32 DEVICES (Detectors and Manual Call Points) can be fitted to a ZONE.

CONVENTIONAL SOUNDERS

Conventional Sounders is the term used to describe conventional alarm sounders (or bells) connected directly to a Panel. Two Conventional Sounder circuits are provided on the Panel. More than one Conventional Sounder may be connected to each circuit. Max. Current rating/Output is 500 mA @ 27.5 V DC nominal.

All Conventional Sounder circuits are monitored for open and short circuit faults. If a Conventional Sounder output is not used, then a 10K resistor must be connected across its output terminals.

WARNING: The total current load of all detection zones, sounder circuits and auxiliary supply outputs should not exceed the maximum power rating of the panel. Please refer to the technical specification tables.



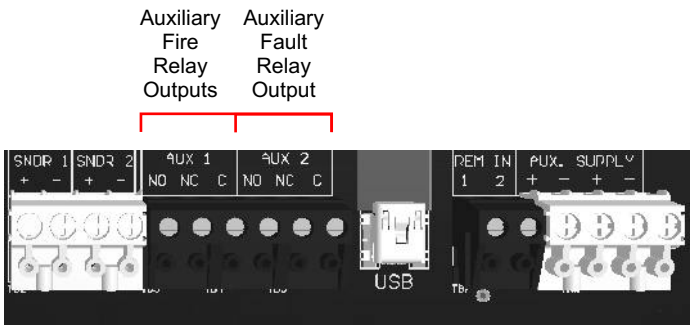
AUXILIARY FIRE RELAY (1) AND FAULT RELAY (1)

One auxiliary fire relay output is provided on the ORION PLUS Main board. This output is activated when a fire is detected (unless specifically inhibited). It is labeled AUX1. Under the presence of any Fire Alarm condition, this relay will be energized. Both set of contacts are of the change-over type. Max. Contact current rating for each set of relay contacts is 1 Amp @ 50 V AC/DC resistive.

One auxiliary fault relay output, labelled as AUX 2, is also provided. This relay output will remain closed while there are no faults present in the system. Under any fault condition present, the relay will be deenergized and the relay contact will be open. The Fault relay is change-over type and will open on any fault on the system.

The contact ratings are : 1A, 50V AC/DC (min 100mA, 6V) .

WARNING: Relay outputs are not supervised. Please ensure that any wiring connected to these outputs is power limited.



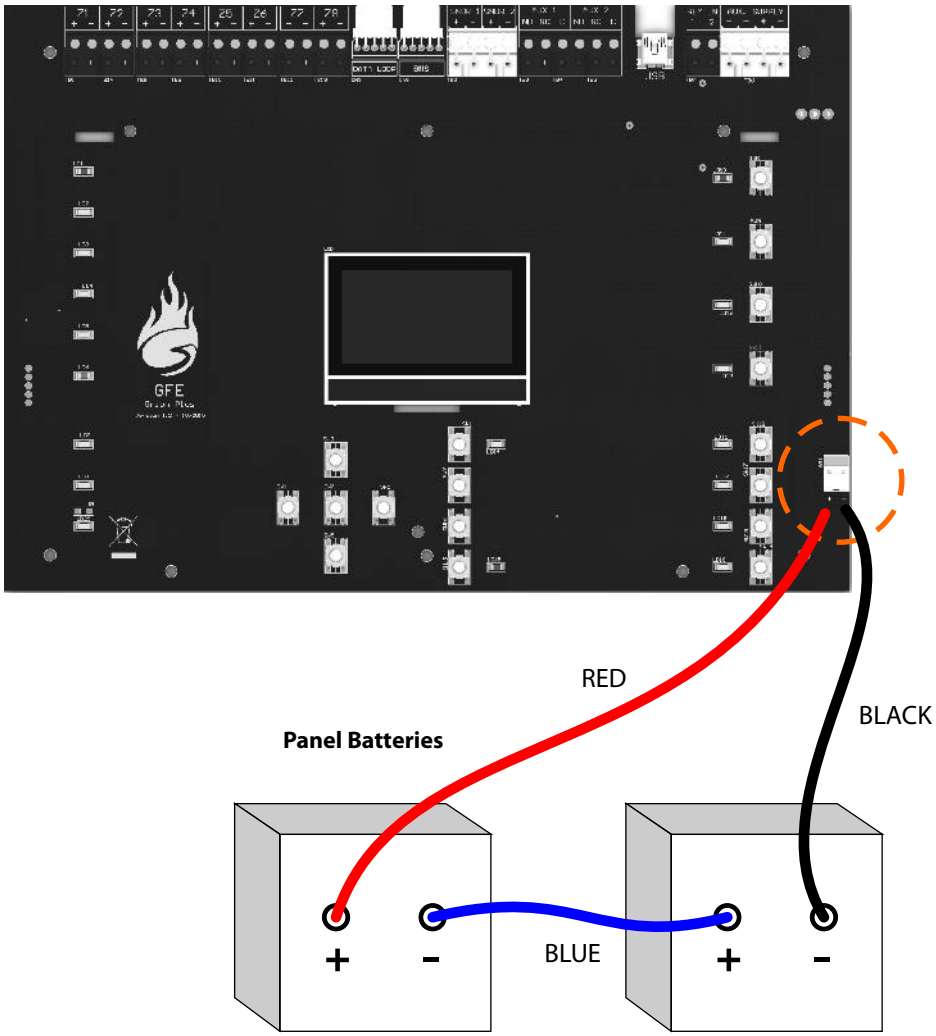
PANEL BATTERIES

It is recommended that the batteries are fitted at the end of commissioning the system otherwise it can be difficult to remove the power quickly if there is a problem.

The batteries are connected to the ORION PLUS main board in the Panel. This battery connection not only supplies the panel with power if the primary supply should fail, it also provides a charging output to maintain the batteries in a fully charged state.

Before connecting the batteries check the voltage across the battery connection terminals. It should be 27.5V +/- 0.5V.

NOTE: Arcing and fire risk. Never short circuit the battery terminals. Always connect the blue wire between the batteries last.



COMMISSIONING

INTRODUCTION

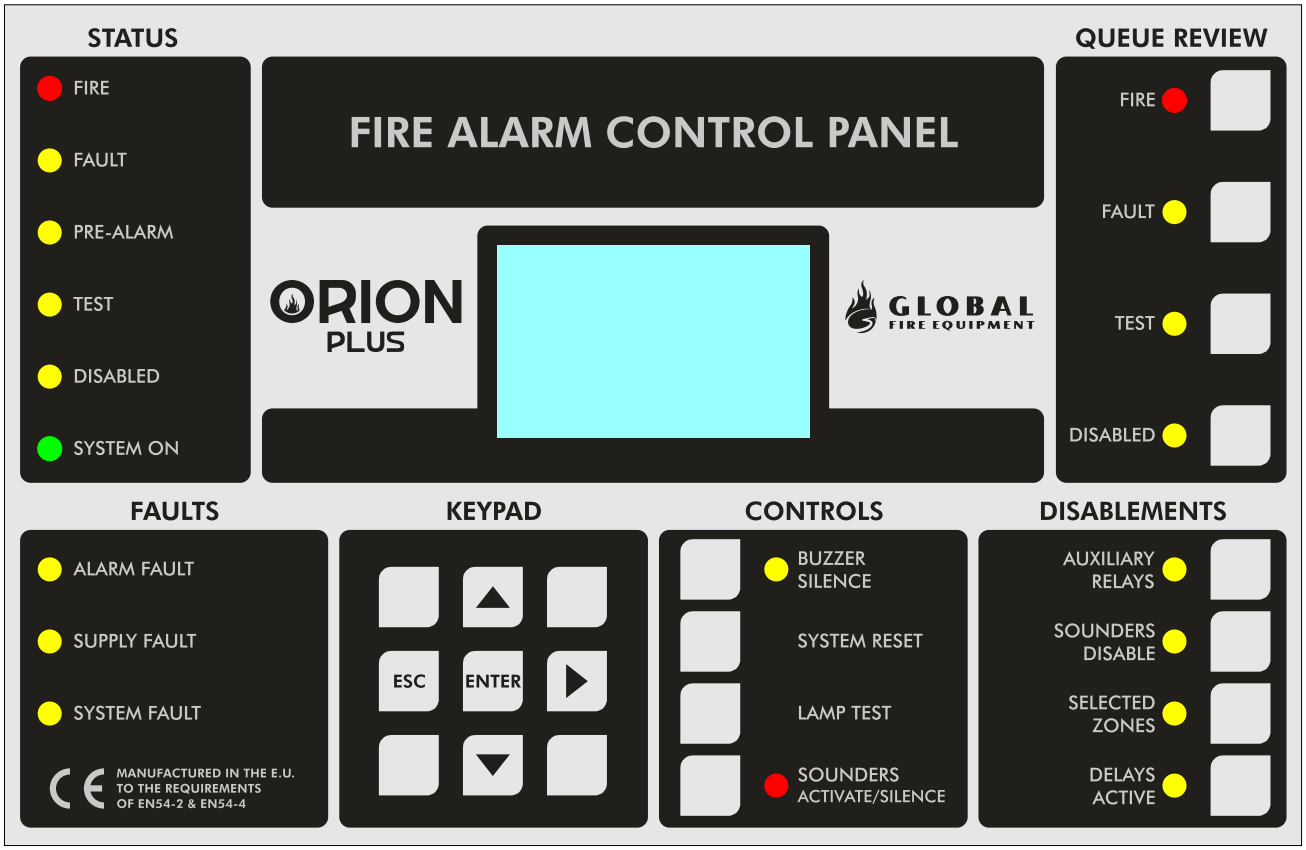
Commissioning involves checking that all connections have been made properly and that all hardware is functioning correctly. This means the system must first be installed in accordance with the previous section of this manual.

The panel is supplied set to 'Installation mode'. In Installation Mode the green SYSTEM ON LED will flash ON and OFF. The panel will automatically detect and memorize all 4-zone expansion boards in the system.

The default settings of the system mean that the unit will be ready to operate and detect a Fire incident from the moment power is switched on. Therefore, the system will be fully functional without any additional setting up. All further actions will tailor it to the requirements of the specific installation at hand.

Once the connections and hardware have been checked it is possible to get the basic fir e alarm system up and running very quickly - it is only necessary to have the system in Installation Mode for 90 seconds, then set the system to 'Active Mode'. Programming of the system to provide more advanced functionality is covered in the next section.

THE PANEL BUTTONS



CONTROLS

BUZZER SILENCE

The occurrence of any new fire or fault condition will initiate the operation of the internal buzzer. By pressing this switch, the operation of the buzzer will be stopped until a new fire or fault appears on the system.

SYSTEM RESET

Soft resets the entire system. A soft reset should be satisfactory under almost all circumstances however a Master Reset can be performed by cycling the power on the Panel (removing both primary AC and secondary DC supplies).

NOTE: If an alarm has been detected it is necessary to silence the alarms using SOUNDER SILENCE before the SYSTEM RESET button will operate.

LAMP TEST - General User Access (no code entry required)

Lights all the LEDS, turns on the LCD back light and sets all display pixels to black.
Lamp test only operates whilst the key is depressed.

SOUNDERS ACTIVATE / SILENCE

Activates all sounders. A second press deactivates all sounders.
The adjacent LED is illuminated whilst the sounders are activated.
It is possible to define if pressing the SOUND ALARMS button will activate the systems Fire I/O's.

DISABLEMENTS

AUXILIARY RELAYS

When this button is activated all relays and I/O modules connected to the system have their outputs disabled. This includes the normally energised FAULT relay, the FAULT I/O group and all ALARM I/O groups. When these outputs are disabled the button LED is illuminated. Pressing the button again restores normal relay and I/O module operation.

SOUNDERS DISABLE

When this button is activated, all sounders will be disabled and the LED will be lit. Pressing it again will reenable the sounders and the LED will turn off.

SELECTED ZONES

Via the programming menus individual sensors may have selective disablement turned on. When this button is activated those sensors that have selective disablement turned on will not generate a fire alarm condition.
If no zones have selective disablement turned on, then pressing this button will have no effect. Pressing the button again restores normal sensor operation.

DELAYS ACTIVE

Only when this button is activated (and the adjacent LED illuminated) will the sounder and I/O module delays operate. Pressing the button again will deactivate the delays and will result in immediate sounder and I/O operation.
Under any fire condition the delays will be activated. If during the course of these delays this button is pressed the delays will be overridden and the sounders together with any other fire indicating equipment, will be activated.

QUEUE REVIEW

FIRE - General User Access (no code entry required)

If more than one fire has been detected then the LED next to this button will flash. Press the button to step through all detected fires. Once all fires have been reviewed the LED will be constantly illuminated. Subsequent fires will be added to the end of the queue and the LED will start to flash again.

After each button press the information will be displayed for 20 seconds. After that time the screen will revert back to the first fire.

FAULT - General User Access (no code entry required)

If more than one fault has been detected, or if a fault and fire have been detected, then the LED next to this button will flash. Press the button to step through all reported faults. Once all faults have been reviewed the LED will be constantly illuminated. Subsequent faults will be added to the end of the queue and the LED will start to flash again.

After each button press the information will be displayed for 20 seconds. After that the screen will revert back to the first fault (or fire).

TEST - General User Access (no code entry required)

If the LED next to this button is illuminated then a test mode has been selected via the programming menus. Pressing the button will show which sounders and zones have been set to test mode. If there are more zones under test that can be displayed then pressing the button again will show the next set of zones under test.

The information is displayed for 15 seconds before the default display is restored.

NOTE: A SYSTEM RESET will clear all test modes.

DISABLED - General User Access (no code entry required)

If the LED next to this button is illuminated then there is at least one disablement active in the system. Pressing the button will display the disablements. If there are more disablements that can be displayed then pressing the button again will show the next set of disablements and so on.

The information is displayed for 15 seconds before the default display is restored.

Possible disablements include - auxiliary relays, loops, zones, detectors and sounders.

GETTING THE PANEL RUNNING

Apply AC power to the Panel.

The LCD should display the software version and the message 'INITIALIZING'. This will be followed by the date and time. Within a few seconds faults will be reported, these will overwrite the date and time.

The SYSTEM ON LED on the fascia of the panel should be flashing green. This indicates that the system is in Installation Mode. If the LED is solid green the system is in Active Mode and needs to be put into Installation Mode - refer to the programming section for details on how to do this.

If the SYSTEM ON LED is flashing and information is being displayed on the LCD then the Panel is functional.

GETTING A REPEATER RUNNING

The supply to the repeater is obtained directly from the auxiliary power supply output on the panel.
Apply power to the repeater.

If the panel is powered up and the data loop connections between panel and repeater(s) are properly made, the information shown on the LCD display as well as the LED indicator status from the panel will replicate itself on the repeater.

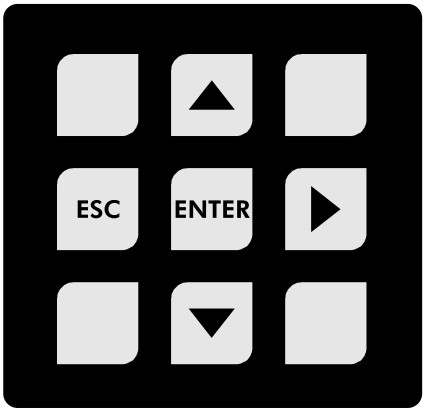
Press the SYSTEM RESET switch and you should see on the LCD display the message "ORION PLUS" as well as the software version number, followed by the word, "INITIALIZING".

If after a few seconds upon completion of the initialization phase the LCD display shows the message, "NO COMMS TO PANEL" and the FAULT Led is lit-up, verify the condition of the panel. If it is powered up and working properly then verify the data loop connections.

GETTING INTO PROGRAMMING MODE (ACCESS LEVEL 3)

When the Panel is powered up it will be necessary to enter the panel programming mode. Familiarize yourself with this section before proceeding to the next section in the manual and powering up the panel. Programming mode is accessed via the front panel keypad as pictured below. To program device and zone text messages, it is essential to use the Loader PC based software.

KEYPAD



Logging In

To enter programming mode you need to log in.

The Panel must be powered up and must have initialized itself i.e. NOT be showing the 'INITIALIZING' message.

Press ENTER on the Keypad. You must now input your Installer access code. See page 6 Access Levels. You have unlimited attempts but if code entry is not started within 10 seconds then the panel will revert back to it's default screen. While entering the code you are allowed up to 5 seconds between key presses.

Function Selection

The programming functions are arranged using a menu system.

To select a function or sub-menu use either ▲▼ and ENTER.
ESC takes you up a menu level.

The top level menus are:

1 Review Historic Log
3 Zones
4 Sounders
5 Relay Outputs
7 Monitor Zones Counts & Test
8 General

Most functions operate in a consistent manner using the standard keys. The item that is being changed is usually highlighted with a flashing cursor.

GETTING THE SYSTEM RUNNING

Ensure all connectors are firmly in place. Ensure that all connections are tight, with no stray strands of wire. If an ORION PLUS Expansion Board has been added to the panel, please ensure that it is securely fitted to the back of panel's Main Board.

Power up the Panel.

Ensure that the Panel is in Installation Mode (SYSTEM ON LED flashing). If not, enter programming mode and select function 8-4-1 Active/Installation Mode and put the panel into Installation Mode.

Press SYSTEM RESET.

Communications Check

Confirm that all Repeaters are showing identical information (LEDs and LCD) to that displayed by the Panel.

Panel Check

Press and hold LAMP TEST on the Panel.

All the LEDs should light, the LCD backlight should turn on and all pixels on the LCD should be black. (See chapter Lamp Test).

Learning Which Zones Are Fitted

Enter programming mode by introducing the Installer Access Code.

If site specific data has NOT been pre-programmed then select function 8-3-1 Clear Customer Flash Memory and clear the customer flash.

Select function 8-3-2 Clear Non-Volatile RAM and clear the NVRAM.

Exit Programming mode.

Press SYSTEM RESET.

Wait 90 seconds for the system to automatically learn which devices are present and report any faults.

A SYSTEM RESET in Installation Mode results in a zone power off period of 15 seconds [reset].

Review the faults (using the FAULT (QUEUE REVIEW) key if there is more than one). Note down the messages then remove power and rectify the faults.

Power up the system, let it initialize and enter programming mode.

Select function 7-1 Zone Status

Use ▲▼ to select the device confirm that all Zones are present. If a Orion Plus Expansion Board has been added to the panel, use the ▼ to select zones in the range 9 to 16.

Once all faults have been cleared and the system has been in Installation Mode for 90 seconds then the system can be put into Active Mode.

Note that there is no clear end to Installation mode because the system is constantly looking and learning. However if the system is put into Active Mode and Installation Mode hasn't had time to identify all system components you will very quickly be greeted with error reports regarding unexpected devices.

If expansion boards are ever removed, replaced or added then Installation Mode must be selected so that the system can learn the new configuration. If you do not do this the system will report a fault.

Sounder Audibility Check

If the building is unoccupied then press SOUND ALARMS. All sounders should operate until the button is pressed again. Confirm that this is the case.

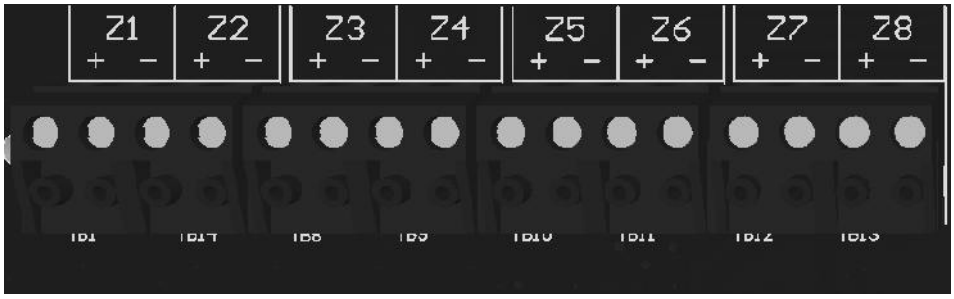
If the building is occupied it is strongly recommended that the test sounders functions in programming mode are used. Enter programming mode and select 7-2 Test Sounders. Using this function, all the sounders can be checked.

The Panel Conventional Sounders will sound for 1 second then be silenced for 9 seconds.

Zone Monitoring

Check that a short circuit or open circuit is detected on any of the Zones.

Open Circuit Test
Disconnect either the + or the - OUT connection for the Zone. The connection is found on the Panel's Main board. Within a few seconds, a circuit fault should be reported. Reconnect the wires and press SYSTEM RESET to clear the fault reports.



NOTE: Zones in the range 9-16 are only available if Orion Plus Expansion Card has been fitted.

Conventional Sounder Monitoring

Panels have two Conventional Sounder circuits.

Check the Conventional Sounder circuits for open and short circuit fault detection.

To perform the Open-Circuit test, disconnect either the + or - connection at each conventional sounder circuit.

To perform the Short-Circuit test, connect for each sounder circuit a wire link, connecting both the + and - terminals together.

With either test, after a few seconds, a fault message will appear on the LCD display of both the panel and repeater(s) indicating that the conventional sounder circuit is at fault.

Both the FAULT and ALARM FAULT Led indicators will be lit.

Restore the original connections and press SYSTEM RESET to clear all the error reports.

WARNING: if the Conventional Sounder outputs are short circuited while the sounders are active, the electronic overload protection is tripped and the system will report a sounder fault illuminating the ALARM FAULT LED simultaneously. Once the short circuit is cleared, a system reset will clear the faults.

Detector Tests

Detector Tests By Zone

Before starting clear all faults, put the system into Active Mode, and press SYSTEM RESET.

Enter programming mode and select function 7-3 Sounders on Test Activation. This allows you to choose an audible confirmation that a device has detected a fire. The audible confirmation consists of a 1 second period of sounder operation.

ALL SOUNDERS ON DETECTOR TEST activate the Panel Conventional Sounders.

Now select function 7-4 Test Zones to select the Zones which will be tested.

Exit programming mode, but DO NOT press SYSTEM RESET as this clears all test modes.

In test mode whenever a detector is activated the LED on that detector will be illuminated and the event will be reported on the panel for 15 seconds. If selected, the sounders will also operate for 1 second.

Pressing TEST (QUEUE REVIEW) will report the Zones that are in Test Mode.

Unassigned Detector Tests

If the detectors have not been assigned to a Zone then they can only be tested in normal (Active) mode. Using the programming menu ensure the system is set to Active Mode then exit programming mode and press SYSTEM RESET.

Carry out a fire test on each detector. Confirm the LED lights on the detector under test. Confirm that the fire is reported correctly at the Panel (and any Repeaters). Confirm that the sounders operate.

Note that sounders and detectors can be inhibited or delayed using the advanced features in the programming menus. If the sounders do not operate as expected first verify all the settings for the sounders and the device under test.

WRAPPING UP INSTALLATION AND COMMISSIONING

At this stage you may program the more advanced features of the system. The basic minimum usually involves assigning text labels to the Zones. Once you have completed this then do not forget to carry out the following steps:

Connect the batteries to the Panel as described in the Installation section of this manual.

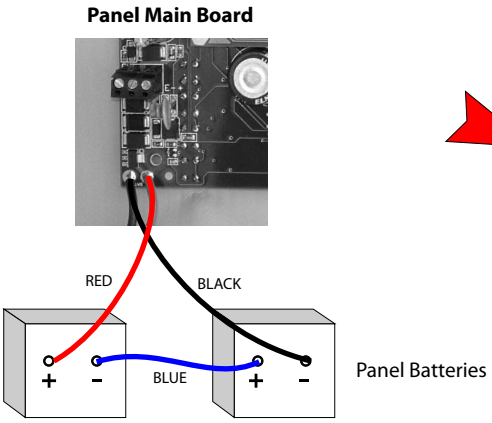
Test that the battery monitoring is functional by temporarily removing the blue wire between the batteries. After a few seconds the fault should be reported on the Panel. When the blue wires are reconnected pressing SYSTEM RESET should clear the fault report.

Test that the primary supply monitoring is functional and that the battery system works. Switch off the AC supply to each power supply unit in the Panel. After a few seconds the fault should be reported on the Panel.

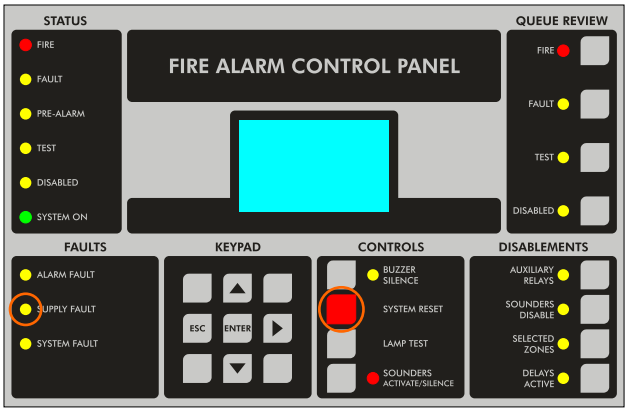
Reconnect the AC supplies and press SYSTEM RESET. Confirm that the system is in Active Mode - the SYSTEM ON LED is permanently lit.

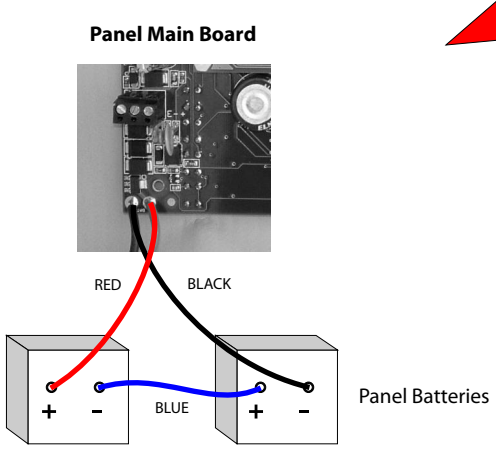
Battery Fault Message Test

This test should be performed for each set of batteries. Test only the actual battery connections.



Remove the blue link from between the 2 batteries





After a short delay, the SUPPLY FAULT LED illuminates, the panel buzzer sounds and the "Battery Fault" message appears on the LCD Display.

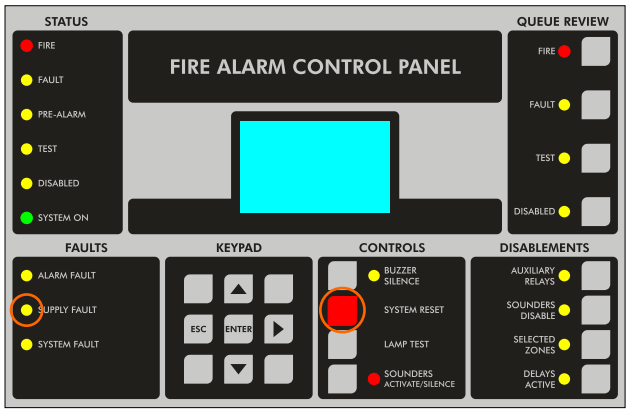
Replace the link between the batteries and reset the panel (SYSTEM RESET) to clear the fault indication.

Power Failure Test

Carry out this test to check that the battery system works correctly when power fails.

Switch off the mains supply to the panel. After a short delay, the SUPPLY FAULT LED illuminates amber and the LCD displays the message "Primary Supply Fault". The fault buzzer sounds.

Switch the mains supply back on and press the SYSTEM RESET switch. The SUPPLY FAULT LED extinguishes, the fault message is removed from the LCD, and the buzzer stops sounding.



PROGRAMMING FUNCTIONS

Keys To Use Within Functions

Most functions use some or all of the following keys:

▲▼ are used to browse through items

▶ is often used to change fields (move the cursor). It will also be used, when required to toggle between Loops 1 and 2.

ENTER is used to select items and store changes

ESC is used to abort changes and exit

The cursor is often shown to highlight the item that is being changed.

Help

Where possible, help is displayed automatically.

General

Because of the flexibility and functionality of this panel it can sometimes be quite hard to establish your desired configuration. Zone and group events interact as do the various timers.

If the system does not seem to operate as intended please take your time and review the various sections in this manual. Some settings need the front panel buttons to be activated whilst others can be inhibited for specific devices.

The basic functionality of the panel is readily available and the fire alarm system will be operational just by supplying it with electrical power. Exercising cause and effect capability is what this section is all about. The best way to become familiar with all the programming facilities of this panel will be a hands-on approach aided closely by this manual.

NOTE: If a fire occurs whilst the panel is in programming mode then programming mode will automatically be exited. If a fault occurs whilst in programming mode the fault will be reported but it is necessary to manually exit programming mode to read the fault details the LCD.

1 Review Historic Log

All the functions associated with reviewing or events and settings.

1-1 Display Historic Log

The panel logs all events in an internal event log. It can store a rolling 10000 entries. When it is full the latest entry is added and the oldest entry discarded.

Help is automatically displayed on entry to the function because it is not possible to display a log entry and help at the same time.

To select a specific entry, use the ▲ ▼ keys.

1-3 Clear Historic Log

Clears the Historic Log.

1-4 Read/Clear Autostart Count

Every time the Panel's power is cycled, the Autostart count is incremented. SYSTEM RESETs from the front panel button do not increment the Autostart count.

3 Zones

All the functions associated with managing Zones

3-1 Disable Zones

Allows you to disable or enable Zones. All devices in disabled Zones will cease to operate. Any Zones that are disabled will also be indicated when programming mode is exited. They can then be reviewed using the DISABLED (QUEUE REVIEW) button.

To select a specific zone, use the ▲ ▼ keys. Press ENTER and use again the ▲ ▼ in order to select enable or disable zone.

3-2 Select Zones for Selective Disablement

Select zones to be disabled while Selective Disablements is ACTIVE. To select a specific zone, use the ▲ ▼ keys. Press ENTER and use again the ▲ ▼ in order to select either UNAFFECTED or ENABLED.

3-3 Select Zones for Coincidence

Select zone pairs for Coincidence Mode. Zone coincidence only affects the FIRE relay.´When coincidence mode is enabled for one specific zone pair the FIRE relay will only be activated when both zones are in FIRE condition. In order to select a specific zone pair, use the ▲ ▼ keys. Press ENTER and use again the ▲ ▼ in order to select either INDEPENDENT or IN COINCIDENCE.

3-5 Select Zones for Evacuation options

Determine operation Mode for zone. To select a specific zone, use the ▲ ▼ keys. Press ENTER and use again the ▲ ▼ in order to select one of three options available:

a) Normal
b) Start Evacuation Timer
c) Immediate Evacuate

3-6 Two zones to Immediate Evacuation

When enabled and any 2 zones are in FIRE condition, the panel goes into immediate EVACUATION state overriding any programmed delays.

3-7 Select Zones for Non-Latching

Non-Latching Zones do not activate the Alarm relays. Sounder circuits will activate at the end of any programmed delay and remain active until the Zone returns to normal state. If the input returns to the normal state during the delay period, the sounders will not sound. Pressing Sounders Activate/Silence while the sounders are activated will silence the sounders and extinguish the adjacent LED. Pressing again will reactivate the sounders if the Zone is still in Alarm. To select a specific zone, use the ▲ ▼ keys. Press ENTER and use again the ▲ ▼ in order to select either LATCHING or NON-LATCHING.

3-8 Select zones Event in Short-Circuit

By default, any zone with a short-circuit is classified as a fault by the panel. When this function is set for ALARM, when there is a short circuit in the zone the panel report an ALARM condition. To select a specific zone, use the ▲ ▼ keys. Press ENTER and use again the ▲ ▼ in order to select either FAULT or ALARM.

4 Sounders - Disable & Assign

4-5 Sounder Delay Set-up

Program the sounder delay in minutes and seconds and finally ENABLE/ DISABLE.

5 Input/Output - Disable & Assign

5-5 RELAY OUTPUTS Delay Set-up

Program the RELAY OUTPUT delay in minutes and seconds and finally ENABLE/ DISABLE.

7 Monitor Zones, Counts & Test

7-1 Zone Status

Use this function to check that all zonesare present.

Note that in Installation Mode all information is live i.e. the zone count and status of each zone is updated automatically. Scroll to a specific zone, using the ▲ ▼ keys.

7-2 Test Sounders

Use this function to test the audibility of the sounders in a more comfortable manner than pressing SOUND ALARMS. The Panel Conventional Sounders will sound for 1 second then be silenced for 9 seconds.

7-3 Sounders on Test Activation

This function allows you to choose an audible confirmation that a zone has detected a fire. The audible confirmation consists of a 1 second period of sounder operation. ALL SOUNDERS ON DETECTOR TEST activates the Panel Conventional Sounders.

7-4 Test Zones

Select the Zones you wish to put into test mode.

Exit programming mode, but DO NOT press SYSTEM RESET as this clears all test modes.

In test mode when a detector is activated the LED on the detector will be illuminated and the event will be reported on the Panel (and Repeaters) for 15 seconds. If selected then the sounders will also operate for 1 second. Pressing TEST QUEUE REVIEW will report the zones that are in Test Mode.

8 General

8-1 Time/Date & Timers

8-1-1 Set Date & Time

Allows the date and time for the system to be set. The date and time is displayed on the LCD whilst the system is not in fault or fire.

Press ENTER to skip an entry and after each entry.

It is important to set the date and time because it is used in the event logging and may also be used to change to disable delays at night.

There is only one clock in the system. Setting the date and time at a Repeater is actually setting the Panel clock.

8-1-2 Define Day & Night

Defines sunrise and sunset for the system.

The system considers a day to start at sunrise. If delays have been set to be switched off at night (function 8-1-3) then this will happen at the sunset time defined here.

8-1-3 Delays Off at Night

This function allows the delays for Sounders and I/O activation to be overridden at night.

There are two options: OFF and UNAFFECTED.

UNAFFECTED means that the system settings will remain the same at night as they are during the day.

OFF means that at night time the Sounder, I/O module and Fire Brigade Transmission delays are all turned off and the outputs will activate after a fire is detected.

This function has exactly the same effect as using the ACTIVE DELAYS button on the front panel to disable the delays at sunset, then using the same button to restore the day setting at sunrise.

Sunrise and sunset are defined using function 8-1-2.

8-1-4 Configure Evacuate Timer

Allows the evacuate timer to be enabled and the duration of the timer to be set.

The evacuate timer runs in parallel to all other events. Once triggered it starts counting down, when it expires all sounders are activated. This means various sounder groups may be activated in the meantime (and even silenced) but when the evacuate timer expires all sounders not sounding are activated.

10 minutes is the maximum duration.

The Evacuate Timer can be set to:

DISABLED
ZONAL MODE
GLOBAL MODE

In ZONAL MODE the evacuate timer is started only when zone is set to start evacuate timer using function 3-5.

In GLOBAL MODE the Evacuate Timer is started when any ZONE detects a fire.

NOTE:

- **Once started the evacuate timer is not stopped by pressing ALARM SILENCE, although ALARM SILENCE will still silence the sounders once they have been activated.**
- **Disabled sounders are never activated by the evacuate timer.**

NOTE: Disabled sounders will not be activated.

8-3 Memory - BEWARE, ENGINEERS ONLY

Programming functions that are associated with management of the Panel memory.

8-3-1 Clear Customer Flash Memory

This function erases all of the site specific data. This is the majority of the programmed settings.
DO NOT erase this data if you were supplied with pre-programmed site data.

If the Customer Flash Memory is cleared:

- All Zone text will be cleared
- All Zone definitions will be cleared
- Zone sounder delay settings will be cleared
- The company name will be cleared
- All delay settings will be cleared
- The language will be reset to English
- All I/O group definitions will be cleared

NOTE: The Installer Access Code will not be cleared.

8-3-2 Clear Non-Volatile RAM

Clearing the NVRAM clears all the installation settings and the system is automatically put into Installation Mode.
On the Panel this will result in:

- All disabled Zones will be enabled
- All disabled sounders will be enabled
- The event log will be cleared
- The auto-reset count will be cleared
- All checksums will be cleared and recalculated

After clearing the NVRAM it is essential to perform a system Master Reset.

8-3-3 Calculate Customer Flash Checksum

Calculates and stores the checksum for all the data in the customer Flash memory.

When settings are changed using the programming functions this checksum will be re-calculated as required. Downloads of customer data also result in an automatic update of the checksum.

This stored checksum is regularly (approximately every 2 minutes) compared with a freshly calculated checksum to check for memory corruption.

8-3-4 Calculate Program Flash Checksum

Unlikely to be required in normal circumstances, this function calculates and stores a checksum for the program Flash memory.

Downloaded Software upgrades are detected by the Panel and automatically result in a new checksum being calculated and stored.

This stored checksum is regularly (approximately every minute) compared with a freshly calculated checksum to check for memory corruption.

8-4 Other Features

These are programming functions that do not fall into any other category.

8-4-1 Active/Installation Mode

An essential function. The system should always be left in ACTIVE mode, unless the system is being installed and debugged. When the system is set to Installation Mode the green SYSTEM ON LED on the front panel of the Panel and Repeaters will flash.

Whilst in Installation Mode the system will automatically detect and record the presence of all connected 4-zone expansion boards.

To install the system first ensure all 4-zone expansion boards are connected and are powered. Next select Installation Mode using this function, exit programming mode and press SYSTEM RESET.

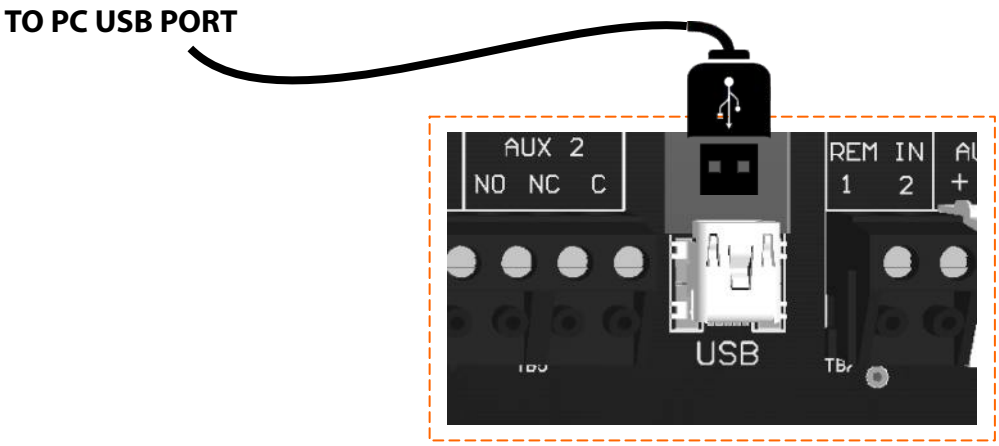
Once the system has been in Installation Mode for 90 seconds then the system can be put into Active Mode.

Note that there is no clear end to Installation mode because the system is constantly looking and learning. However if the system is put into Active Mode and Installation Mode hasn't had time to identify all system components you will very quickly be greeted with error reports regarding the presence of unexpected devices.

If these expansion boards are ever removed, replaced or added then Installation Mode must be selected so that the system can learn the new configuration. If you do not do this the system will report a fault.

8-4-2 Upload/Download Link to PC

Use this function to download or upload Orion Plus Configurations via USB using the connector provided on the panel´s main board. Please consult Orion Plus Connector software manual.



8-4-4 Display Contrast Adjustment

Use arrow keys UP and DOWN to adjust LCD contrast.

8-4-7 Set User Access Code

This function allows the installer to change the customer Access Code. Use up, down and right arrow keys to change code sequence.

8-4-8 Set Installer Access Code

This function allows changing the Installer Code without requiring knowledge of the Factory Code. Use up, down and right arrow keys to change code sequence.

Display will show:

ENTER PRESENT CODE and PRESS OK
ENTER NEW CODE and PRESS OK

8-4-8 Set Master Access Code

This function allows changing the Installer Code without requiring knowledge of the Factory Code. Use up, down and right arrow keys to change code sequence.

Display will show:

ENTER PRESENT CODE and PRESS OK
ENTER NEW CODE and PRESS OK
CONFIRM NEW CODE and PRESS OK

TECHNICAL SPECIFICATIONS

Please note that these specifications apply to the Orion Plus conventional panel, 8, 12 and 16 zones, equipped with a 2.4 Amp power supply @ 28.5V DC nominal.

Weight	Empty: 1.6 Kg Including sealed lead acid batteries: 2 x 12 V 7 AH - 7.0 Kg
Operating temperature	-5ºC to + 40ºC
Relative Humidity	85% (non-condensing)
Conventional Sounder Circuits	2 individually programmed. Both circuits current limited and monitored for both open and short circuit fault conditions. 10k Ohm E.O.L. resistors are used. Maximum current rating per circuit 500mA.
Auxiliary Relay Outputs	1 voltage free changeover relay output used for fire indication. 1 voltage free changeover relay output for fault indication. Remains energised (normally closed) under normal condition and de-energises when any fault condition appears on the system. Maximum current rating for each relay contact 1A @ 50 V AC/DC resistive.
Conventional Zones	Max. number of devices per zone: 32 Supports conventional devices over a 2 wire . Maximum Zone current : 40 mA Loop short circuit (trip) current: 60 mA Maximum recommended zone length is 500 m with 1.5 mm2 wire cross-section. Maximum cable capacitance 120 pF/m. Minimum cable cross-section: 0.5 mm2 Maximum cable cross-section: 2.5 mm2

Power Supply and Charger

Primary Supply Input Operating Voltage	230V +10%/ -15% V AC. 4 Amp - Surge protected (slow blow) 20 mm HRC
Mains electrical fuse	Fuse located on electrical mains connector TB, placed above the PSU inside the box.

WARNING: In case of a short circuit or interruption of the detection zone, only a maximum of 32 detectors or call points (per loop) can be prevented, at any given time, of transmitting a fire alarm.

Maximum Continuous Primary

Power Supply Rating	2.4 Amps @ 28,5 V DC nominal, comprising: 1 Amp max. temperature compensated, short circuit protected, battery charger. 1.4 Amp used for internal electronic circuits and external ancillary circuits: A maximum of 500 mA is available for conventional zone power. Maximum of 100 mA for internal electronic circuits. 300 mA for auxiliary power supply outputs. Under alarm conditions a maximum of 1 Amp current available for conventional sounder circuits.
Power Budget Quiescent Condition	a - 100 mA internal circuits b - 300 mA auxiliary supply outputs c - 500 mA for zones d - 1 Amp for battery charger
Alarm Condition	1000 mA for conventional sounder circuits +a+b+c
DC Output Voltage	Maximum 28,5 V DC Minimum 21 V DC
Max. Ripple Voltage	400 mV peak-to-peak @ Maximum output loading
Battery Charger Output	27,5 V DC nominal @ 20ºC
Secondary Supply	24 V sealed lead acid batteries Maximum capacity 2 x 7 AH Both fitted internally Min. Voltage 21,0 V DC (Vb min) Max. Voltage 27,2 V DC Max. Currenct Output 1.85 Amp Battery Fuse 1.85 A - Resettable Electronic Fuse Maximum Internal Resistance 1 Ohm

DECLARATION OF CE CONFORMITY

GFE S.A., manufacturer of addressable fire detection equipment, declares, that the **ORION PLUS** fire control panel and repeater panels conform to the following directives of the EEC commission:

Construction Products Directive 89/106/EEC amendment 93/68/EEC
Low Voltage directive and amendment 2006/95/EC
EMC Directive and amendments 2004/108/EC

and comply with the following standards:

EN55022 class B, EN61000-4-22,3,4,5,6,8,11
EN61000-3-2,3 EN54-2 and EN54-4

We, Global Fire Equipment S.A. hereby declare, for the effects of the requirements laid down with EN54-4 paragraph 6.1, that the power supply equipment included in our conventional fire alarm panel named ORION PLUS, has been designed in accordance with a quality management system which incorporates a set of rules for the design of all elements of the p.s.e., and that its components have been selected for the intended purpose and expected to operate within their specification when the environmental conditions outside the cabinet comply with class 3k5 EN60721-3-3:1995

We, Global Fire Equipment S.A. hereby declare, for the effects of the requirements laid down with EN54-2 paragraph 12.1, that the control and indicating equipment which is our conventional fire alarm panel named ORION PLUS, has been designed in accordance with a quality management system which incorporates a set of rules for the design of all elements of the c.i.e. and its components have been selected for the intended purpose , and are expected to operate within their specification when the environmental conditions outside its cabinet comply with class 3k5 EN60721-3-3:1995

We, Global Fire Equipment S.A. hereby declare, for the effects of the requirements laid down with EN-54 -4 paragraph 6.3.2, that the power supply equipment included in our analogue addressable fire alarm panel named ORION PLUS, is in accordance with EN 60950-1:2006 with the A11:2009 and A1:2010 amendments for protections against direct and indirect contact, for the separation of the extra low voltage DC circuits from the low voltage AC circuits and for earthing of metal parts.

João Paulo Galvão
Managing Director

This panel is CE marked to show that it conforms to the requirements of the above European Community Directives:

It is assumed that the user of this manual is a suitably-trained operator/maintainer.

WARNING **THIS PANEL CONTAINS (LIVE) VOLTAGE. ALWAYS DISCONNECT THE MAINS SUPPLY FROM THE PANEL BEFORE REMOVING OR INSTALLING COMPONENTS.**

ELECTRO-STATIC SENSITIVE DEVICES (ESD) TAKE SUITABLE ESD PRECAUTION WHEN REMOVING OR INSTALLING PRINTED CIRCUIT BOARDS.

GLOBAL FIRE EQUIPMENT S.A.
Sítio dos Barrabés, Armazém Nave Y, Caixa Postal 908-Z, 8150-016 São Brás de Alportel - PORTUGAL
Tel: +351 289 896 560 • **Sales:** sales@globalfire.pt • **Technical Support:** techs@globalfire.pt • **www.**globalfire.pt