



Protec Algo-Tec™ 6500 Open Protocol Interactive Digital Addressable Fire Control System

Protec

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The Protec Algo-Tec™ 6500 is a high specification, feature rich, economical, interactive digital addressable fire detection and alarm system ideally suited for small, medium and large sized buildings and sites. The control panel is designed and manufactured by Protec and complies to the latest EN54-2 & EN54-4. The control panel is available for surface or recess mounting with an aesthetically pleasing moulded polycarbonate hinged door finished in storm grey.

Scalable in every aspect, the 6500 system offers tailor made engineered solutions for all applications, from single panel systems to large multi panel networks. Modular design backed by powerful cause and effect programming enables 6500 systems to be configured exactly to the needs of any commercial or industrial site.

Secure Network - The innovative redundant peer to peer network is a high speed data transfer, fail safe, fault tolerant communication channel allowing up to 64 Algo-Tec™ 6500 Fire alarm panels to operate as though they are a single distributed fire system and complies with BS5839-1.

No single network fault can disable the system and in the event of multiple faults, each panel will function independently. The network can be wired using copper or fibre optic connections.

Loops - Each 6500 control panel is equipped with 1, 2 or 4 high capacity Algo-Tec™ 6000PLUS digital addressable data loops, with up to 200 addresses per loop, totalling 800 addressable devices per panel, 51,200 addressable devices network wide and compliant with EN54 pt2 clause 13.7.

Interactive - The Algo-Tec™ 6000PLUS protocol evaluates the data of each fire sensor and is able to learn from the information received. This may simply be to recognise that a sensor is becoming contaminated or in a dirty environment and to automatically adjust the alarm threshold to compensate for the background levels (Threshold Compensation).

More complex Algo-Tec™ functions include the ability to discriminate between certain fire and non-fire conditions, filtering out certain environmental stimuli, such as steam from a hotel bathroom, and increasing the sensitivity of a sensor when an increase in temperature is detected.

The net effect of the interaction between the sensors and the Algo-Tec™ decision making is enhanced performance, through immunity to false alarms and more responsive fire detection.

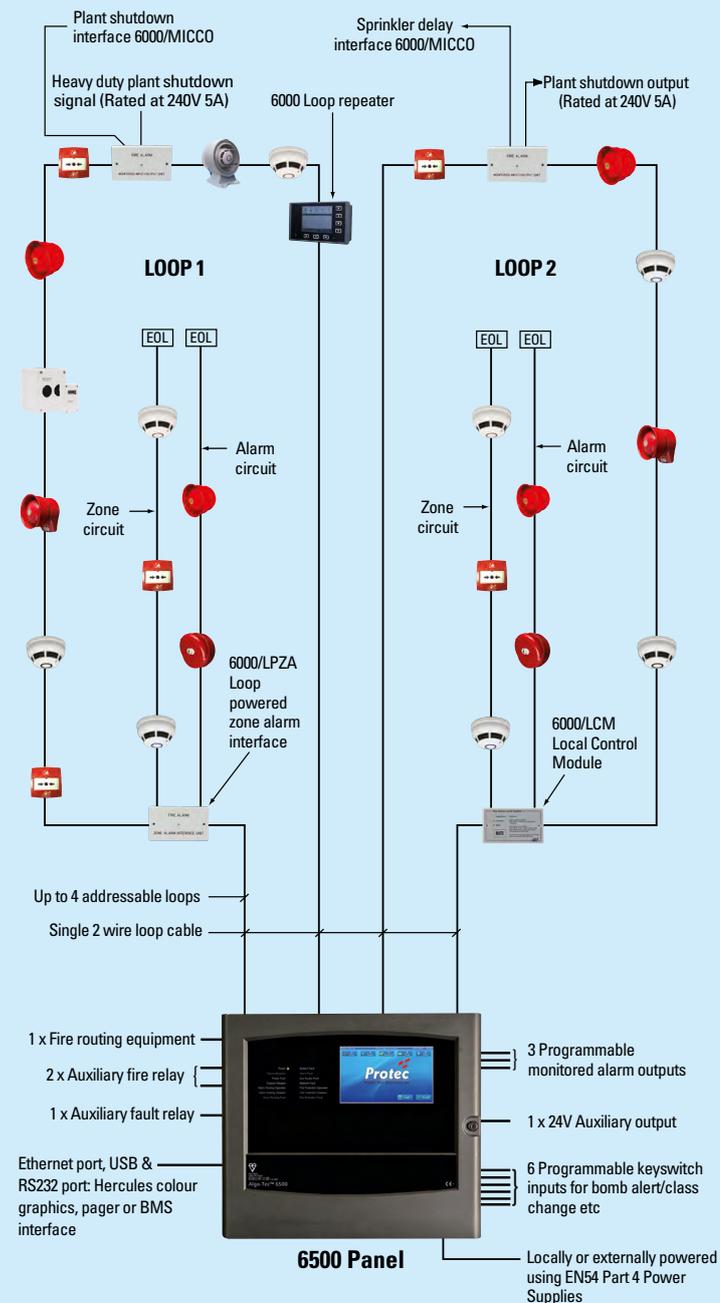


Algo-Tec™ 6000PLUS Interactive Decision Making Algorithms - Typical Applications

<p>Office Mode (High Performance)</p> <p>DISCRIMINATING ALGORITHM Cigarette Smoke</p> <p>ALARM Computer Fire</p> <p>ALARM Bin Fire</p>	<p>Clean Mode (Extra High Performance)</p> <p>ALARM Computer Room Fire</p> <p>ALARM Printer Paper Fire</p> <p>ALARM Chemical Fire</p>
<p>Day/Night Mode</p> <p>Offices Factory Loading Bay</p> <p>Day Mode: Office mode (high performance) Day Mode: Heat detection only (6000PLUS/OPHT)</p> <p>Night Mode: Clean mode (Extra high performance) Night Mode: Smoke & Heat detection</p>	<p>Bedroom Mode</p> <p>DISCRIMINATING ALGORITHM Steam From Bathroom</p> <p>DISCRIMINATING ALGORITHM Aerosols in Bedroom</p> <p>ALARM Smoldering Fire</p>

NOTE: The above examples give an indication of system reaction to intermittent contaminants and typical fire sources in a correctly designed BS5839 system. They by no means detail the full complexity of the systems decision making algorithms. Examples are for 6000PLUS/OPHT.

Typical 6500 System



KEY:



System Overview

Controls and Display (LCD) - All the functions of the Control Panel are accessed via a full colour 7" touch screen graphical display. Under normal quiescent conditions the display shows the current date, time and a programmable logo. In an alarm or fault condition the graphical touch screen will display the following:

- Device Address
- Loop number
- Zone number
- 60 characters of user definable device location text
- 40 characters of device alarm text
- 20 characters of panel text
- 20 characters of device loop text

All text is fully programmable on site.

The touch screen provides a simple select and touch programming aid for engineer configuration and end user operation. The panel is also equipped with 40 or 100 separate zonal fire LED's (expandable to 10,000) and 18 system LED's for mandatory requirements and information purposes. An optional integral low noise thermal printer is also available.

Device Location Text - Windows based text software is available to download from our website to enable the location text to be prepared in advance and then handed to the commissioning engineer for loading into the panel during commissioning. This simple process allows you more flexibility enabling you to make any last minute changes & speed up the entire process.

Printer - The optional integral printer is a 40-character low noise thermal printer. In operation the printer will provide on demand real time data of fire and fault conditions including time and date of events along with the device number and location text. By accessing the appropriate function from the user menu facility a variety of reports can be printed including the previous 5000 fire events and 5000 non fire events from the event log, the system device configuration and programming matrix, devices nearing their contamination limit and the current status of all devices.

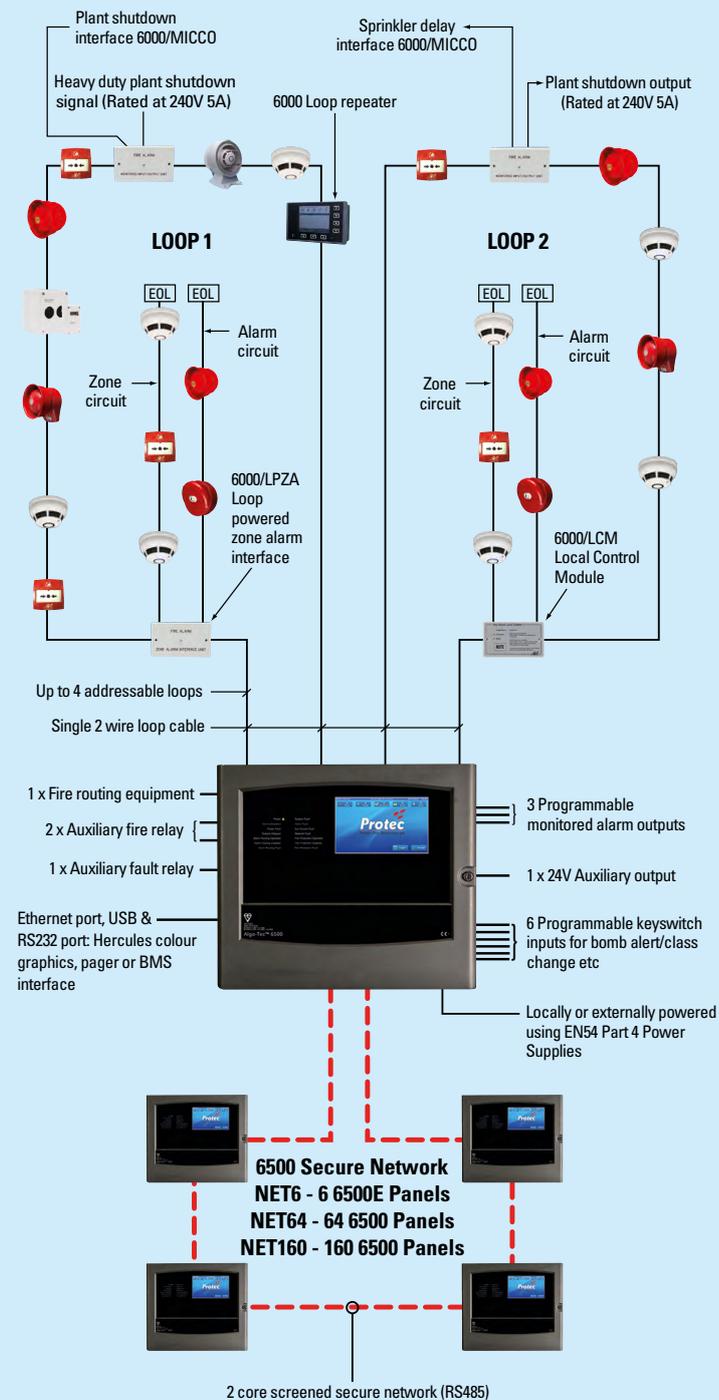
Power Supply - The range of 6500 and 6600 control panels can be supplied with an integral 3A dc switch mode charger and 2 x 12V 12Ah sealed lead acid batteries. The system is also suitable for use with Protec 9300EN and 9800EN range remote power supplies with an extensive range of battery and charger sizes.

On Site Programming - The Protec Algo-Tec™ 6500 system is on site programmable. All of the commissioning configuration data can be entered and/or backed up using the Protec 6500/WINPROG windows based programming software via a PC. This feature enables the system to be re-configured and checked prior to attending site simplifying commissioning works on site, enabling text amendments to be carried out whilst on site and providing an invaluable remote backup should the need arise.

Features & Benefits

- Open Protocol** - The 6500 Commissioning software, User and Commissioning manuals are available to download from our website www.protec.co.uk.
- Design Flexibility** - Scalable, the 6500 system offers tailor made engineered solutions for all applications, from single panel systems (6500E) to large multi panel networks.
- Secure Local Network** - Up to 6 (NET6), 64 (NET64) or 160 (NET160) Algo-Tec™ 6500 control panels, repeaters and illuminated zonal mimics can be interconnected in a loop configuration to create a secure local network.
 - NET6 - Local NET6 network card allows up to 6 panels to be networked.
 - NET64 - Local NET64 network card allows up to 64 panels to be networked.
 - NET160 - Local NET160 network card allows up to 160 panels to be networked.
- Easy to Install** - An extensive range comprising Loop Powered Alarm Sounders, Loop Powered Talking Sounders, Visual Alarm Devices, Interfaces, Manual Call Points and Multi Criteria Sensors can all be connected to the nearest control panel using a single 2-core cable for each of the high capacity Loops (up to 4 loops), accommodating up to 200 devices per Loop, 800 maximum per panel, 51,200 addressable devices network wide.
- Easy to Address** - 'FAST' addressing (Firmware Addressed Secure Technology) ELIMINATES troublesome and time consuming setting of address cards and DIL switches.
- Enhanced Performance** - The Protec Algo-Tec™ 6000PLUS sensors learn from their environment, applying interactive decision making algorithms to provide stability, threshold compensation and optimised performance.
- Devices Display Address Number** - 'RVAV' Remote Visual Address Verification. Confirmation of the correct location of each device can be easily identified, using the devices in-built LED to indicate the device address number.
- On Site Flexibility** - Configuration of all system functions is fully site programmable.
- Simple to Operate** - Accessing information is easy using the large colour versatile touch screen interface.
- RS232 & Ethernet Ports** - Typically used to connect to a colour graphics system, pager system or BMS interface.
- True System Management** - As each device incorporates a unique Fast serial number encoded during manufacture, TRUE SYSTEM MANAGEMENT is achievable, providing precise DEVICE history in addition to LOCATION history for a specific site system and total traceability of all devices manufactured from our commissioning files for quality management, using optional PC package.
- Approved to the latest EN 54-2 & 4 supporting up to 800 devices** (in compliance with Clause 13-7 of EN54 pt2).

Typical 6500 Local Network System Schematic



KEY:

- | | | | |
|--|-----------------------------------|--|-------------------------------------|
| | Heat Sensor | | Local Control Module |
| | Optical Smoke and Heat Sensor | | Monitored Input CC Output Interface |
| | Optical Smoke, Heat and CO Sensor | | Electronic Sounder |
| | Duct Probe Unit c/w Smoke Sensor | | Visual Alarm Device (VAD) |
| | Manual Call Point | | Electronic Sounder with VAD |
| | Beam Detector | | 6000 Loop Repeater |
| | Loop Powered Zone Alarm Interface | | 6500 Panel |

Additional Products

6000 Loop Repeater



The 6000/LOOP/REPEATER can be connected directly to the local Algo-Tec™ digital addressable data loop and takes up just one address. Events from the main panel are displayed on the repeater's large LCD display, providing system indication of any loop connected location on site. The low power consumption allows numerous repeat devices to be fitted, greatly increasing system visibility.

The power consumption of the repeater has been minimised through energy efficient design, preserving loop current and capacity. Quiescent 1.6mA, Alarm 12.7mA

The repeater can be surface or flush mounted as standard, allowing gland or conduit entrance through the rear, top or bottom of the enclosure. The device only requires a loop connection to provide both power and data, no network cabling, or external power supply is required.

6500 Repeat Panel



The Protec 6500 repeat panel can be connected to the secure local network. The repeat panel has an identical display to the control panel including a full colour 7" touch screen graphical display, zonal fire LED's and system LED's for information purposes and mandatory functions. The repeat panel is available as surface or recessed mounted with a moulded polycarbonate hinged door finished in storm grey.

Illuminated Zonal Mimic



The Protec Network Mimic Panel provides a flexible platform for system indication and control solutions. A Mimic Panel can be configured for zonal indication, plant shutdown, fan control, damper control or other custom solutions.

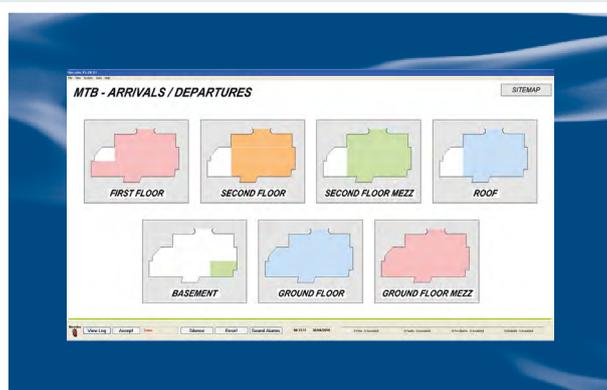
The Mimic Panel is connected to the 6500 secure local network as part of a single distributed fire system, representing a single node. Multiple Mimic Panels can be placed on the local network.

Custom panel graphics are produced using industry standard graphical design software. Coloured architectural drawings, plans and custom logos can be directly imported.

A single Mimic Panel can support up to 1,000 RGB LEDs, 500 key/push/rotary switches and 5 clean contact outputs. The intensity of the LED outputs can be controlled by an ambient light sensor and each indicator is fault monitored.

An in-built setup feature of the Standard 6500 Windows based Commissioning Software is used to configure the Mimic Panel (allocating the system input/outputs to an LED indicator). The Software significantly reduces configuration time, increases information integrity and simplifies ongoing changes. The Commissioning Software provides a fully interactive graphical representation of Mimic Panel setup.

Hercules Colour Graphics System



The Protec Colour Graphics System is a Windows based PC package providing a graphical representation of the site enabling the precise location of an incident to be readily identified enabling a prompt response. Using touch screen or mouse, the operator can track an incident and zoom from a site plan to intermediate plan listing floor levels, then zoom to a specific floor plan and if necessary then zoom to a specific detailed area within the floor plan showing the device in question. Colour prints of the maps can be printed automatically or on demand.

Loop Devices

The Protec Algo-Tec™ 6000PLUS protocol utilises FAST™ addressing (Firmware Addressed Secure Technology). Every FAST™ device is manufactured with a unique serial number.

FAST™ addressing ELIMINATES troublesome and time consuming address cards and DIL switching whilst being far more secure than “soft addressing”.

The Protec Algo-Tec™ 6000PLUS sensor range has been developed to incorporate advanced fire sensing technology, electronic sounders, high intensity visual alarm and speech enhanced talking sounder capability, all integrated within the sensor head and powered from the loop.

Typical Sensor Variants

6000PLUS/OPHT/S = c/w Sounder

6000PLUS/OPHT/VAD = c/w Visual Alarm Device

6000PLUS/OPHT/S VAD = c/w Sounder and Visual Alarm Device

6000PLUS/OPHT/TS = c/w Talking Sounder

6000PLUS/OPHT/TS VAD = c/w Talking Sounder and Visual Alarm Device



6000PLUS/HT - FAST™ Interactive Heat Sensor - Interactive addressable heat sensor with low thermal mass thermistor, giving fast response to temperature increases. Other Heat Sensor variants include: 6000PLUS/HT/S, 6000PLUS/HT/SVAD, 6000PLUS/HT/TSVAD



6000PLUS/OP - FAST™ Interactive Optical Smoke Sensor - Interactive addressable high performance optical smoke sensor provide efficient reliable detection using the light scatter sensing principle with rapid response to a fire signal. Other Optical Sensor variants include: 6000PLUS/OP/S



6000PLUS/OPHT - FAST™ Interactive Optical Heat Sensor - Interactive addressable high performance optical smoke and heat multi-sensor. Other Optical Heat Sensor variants include: 6000PLUS/OPHT/S, 6000PLUS/OPHT/VAD, 6000PLUS/OPHT/SVAD, 6000PLUS/OPHT/TS, 6000PLUS/OPHT/TSVAD



6000PLUS/OPHTCO - FAST™ Interactive Optical Heat CO Sensor - Interactive addressable high performance optical smoke heat and carbon monoxide multi-sensor. Other Optical Heat Sensor variants include: 6000PLUS/OPHTCO/S, 6000PLUS/OPHTCO/VAD, 6000PLUS/OPHTCO/SVAD, 6000PLUS/OPHTCO/TSVAD



6000PLUS/BASE Low Profile Common Mounting Base - Compatible with the above range of Algo-Tec™ 6000PLUS Sensors.



6000PLUS/FFBASE Fast Fixed Base - Fast fixed recessed base is designed to recess the sensor into a false ceiling to give a lower profile view of the sensor.



6000/LOOP/REPEATER - Connected directly to the local data loop and takes just one address. The large LCD display provides clear indication of system fire and fault events.



6000/MCP - FAST™ Addressable Manual Call Point - Key operated test facility, a loop short circuit isolator is incorporated.



6000PLUS/UG4DP - Ventilation Duct Smoke Sensor Assembly - Single pipe air sampling unit for air speeds from 0.5 to 20m per sec. supplied with 6000PLUS/BASE suitable for use with 6000PLUS/OP FAST™ interactive optical smoke sensor.



6000/FIREBEAM - FAST™ Addressable Loop Powered Beam Detector - Combined transmitter/receiver unit and separate low level controller. With a beam range of 5-100 metres.



6000/SSR - FAST™ Addressable Loop Powered High Output Electronic Sounder - utilises a Piezo driver unit to enable high sound output and very low current consumption.



6000/VAD/W/RED - FAST™ Addressable Loop Powered High Intensity VAD - Approved to EN54-23 the wall mounted VAD has a unique lens that distributes the white light in a cuboid pattern to achieve 7.5m x 7.5m coverage @ 2.4m high.



6000/VAD/C/RED - FAST™ Addressable Loop Powered High Intensity VAD - Approved to EN54-23 the ceiling mounted VAD has a unique lens that distributes the white light in a cylindrical pattern to achieve 7.5m dia coverage @ 3m high.



6000/SSR/VAD - FAST™ Addressable Loop Powered High Output Electronic Sounder with VAD - Approved to EN54-3, 17 & 23 the wall mounted combined sounder/VAD has a sound output of 100dB(A) @ 1m plus VAD light output of 7m x 7m coverage @ 2.4m high.



6000PLUS/TSR2 - FAST™ Addressable Loop Powered Talking Sounder - The 6000PLUS/TSR2 enhanced talking sounder is available with seven voice messages plus ‘bell’ sound in addition to the three fire alarm tones compatible with the Protec range of electronic sounders.



6000/FIU - Flush Mounted Short Circuit Isolator Unit - To isolate a short circuit fault on either the incoming or outgoing loop cables. Suitable for a 30mm deep electrical mounting box.



6000/LPZA - FAST™ Addressable Flush Mounted Loop Powered Zone Alarm Interface Unit - With a monitored detection circuit suitable for use with Protec 3000 series detection devices. Monitored alarm output circuit rated at 24Vdc 50mA max. A loop short circuit isolator is included.



6000/LCM - FAST™ Addressable Flush Mounted Local Control Module - Allows easy integration of Protec addressable fire detection systems into houses of multiple occupancy and offers novel features to reduce false alarms. The interface drives a zone of 3000 series detection devices and provides a supply to a local alarm circuit.



6000/MICCO - FAST™ Addressable Flush Mounted Loop Powered Monitored Input, Clean Contact Output Interface Unit - With a monitored input circuit suitable for use with simple switch devices and the output is a clean changeover contact 5amp rated at 240V ac. A link can be cut to provide a 7-second delay to the input. A loop short circuit isolator is incorporated.



Multi-way Input/Output Interfaces - A range of 16 way input/output interfaces are available with monitored alarm outputs or clean changeover contacts. All interfaces are FAST™ addressable.



6000/2IO - FAST™ Addressable DIN Rail Mounted Loop Powered Interface - with 2 x monitored inputs and two volt free changeover contacts.



KM575025
0086-CPR-575026
EN54-2 & 4

TECHNICAL SPECIFICATION

	Standalone	Networked
	6500E	6500
Rated Voltage	230Vac + 10% - 15% (50/60Hz)	
Working Voltage	21.5 - 30Vdc	
Temperature Range	-10° to +55° C	
Humidity	5% to 95% RH (no condensation, or icing)	
IP Rating	IP30	
Standby Load	185mA (2 loop) 226mA (4 loop) ¹	215mA (2 loop) 256mA (4 loop) ¹
Alarm Load	220mA (2 loop) 261mA (4 loop) ²	250mA (2 loop) 291mA (4 loop) ²
Display Type	Full colour, 7" touch screen graphical display	
Number of Loops	1, 2 or 4	
Max Number of Addressable Devices Per Loop	200	
Total Loop Load	1A per loop including all loop connected devices	
Printer	Optional	
Integral Charger / Remote Charger	Both (Internal or External Charger)	
Maximum Battery Capacity	Internal charger: 2 x 12V 12Ah	
Number of Zones	40	100 expandable to 10,000
Number of Input Groups	4,000	
Number of Output Groups	255 per panel	
Auxiliary Fire Relay (Single pole change over contacts, rated 1A @ 24V resistive load)	2	2
Auxiliary Fault Relay (Single pole change over contacts, rated 1A @ 24V resistive load)	1	1
Monitored Fire Routing Equipment Output (monitored for open and short circuit wiring faults)	1	1
Monitored Fire Protection Equipment Output (uses 1 of the programmable alarm outputs)	None dedicated but a programmable alarm output may be configured for this function	
Monitored Fault Routing Equipment Output (uses 1 of the programmable alarm outputs)	None dedicated but a programmable alarm output may be configured for this function	
Monitored Programmable Alarm Outputs (monitored for open and short circuit wiring faults)	3	3
Auxiliary 24 Volt Output (monitored for short circuit fault, maximum 150mA)	1	1
Programmable Clean Contact Outputs	0	0
Number of Keyswitch Input(s)	6 (3 terminal board & 3 display board)	
Secure Network NET6	Optional	Yes
Secure Network NET64	Optional ⁴	Yes
Secure Network NET160	Optional ⁴	Yes
Communication Port(s)	USB (for commissioning use only) / RS232	
Dimensions (mm)	440(W) x 385(H) x 144(D)	
Weight (Excluding batteries)	7kg	7kg
Device, Alarm, Loop & Panel Text	60 characters device location text, 20 characters device alarm text, 20 characters panel text, 20 characters device loop text	

¹ Measured on the internal power connector at 24V dc, power fault LED on, buzzer on, fault relay deactivated, screen backlight dimmed.

² Measured on the internal power connector at 24V dc, power fault LED on, buzzer on, fault relay deactivated, general fire LED on, one fire routing output active, one fire contact active.

³ 3 programmable clean contacts are provided which may be configured using the PC configuration tool.

⁴ A 6500E panel can be upgraded to 6500 panel by adding a NET64KIT.

⁵ Supplied via the 'External PSU 1' and 'External PSU 2' supply input. Measured with Voltage set to 24V dc, power Fault LED on, buzzer on, fault relay deactivated, screen backlight dimmed.

⁶ Supplied via the 'External PSU 1' and 'External PSU 2' supply input. Measured with Voltage set to 24V dc, power Fault LED on, buzzer on, fault relay deactivated, General fire LED on, one fire routing output active, one fire contact active.



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Company Policy is one of continuous improvement, we reserve the right to change specification without prior notice

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