



Protec Algo-Tec<sup>™</sup> 6300 Interactive Digital Addressable Fire Control System



Protec Fire Detection plc

Protec Algo-Tec<sup>™</sup> 6300

# INTERACTIVE DIGITAL ADDRESSABLE

#### **FIRE CONTROL SYSTEM**

The Protec Algo-Tec™ 6300 Interactive Digital Addressable System unwrapped:

The Protec Algo-Tec<sup>TM</sup> 6000 protocol developed by Protec's in-house Research and Development team is utilised by the Protec Algo-Tec<sup>TM</sup> 6300 interactive digital addressable fire control systems. Immunity to false alarms, more responsive fire detection, and ease of use has all been achieved to develop one of the most reliable systems available.

#### Protec Algo-Tec™ 6300

The name Algo-Tec $^{\text{TM}}$  is a derivative of Protec algorithms. Algorithms are logical mathematical procedures for solving problems. Protec have developed fire detection algorithms coupled with fuzzy logic specifically designed to reduce unwanted fire alarms and to enhance the sensitivity of the system to true fire phenomenon. The Algo-Tec $^{\text{TM}}$  algorithms are exclusively utilised by the Protec Algo-Tec $^{\text{TM}}$  6400 and 6300 Interactive Digital Addressable Fire Control Systems.

#### Interactive

Algo-Tec $^{\text{TM}}$  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 increase 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, and increasing the sensitivity of a sensor when an increase in temperature is detected.

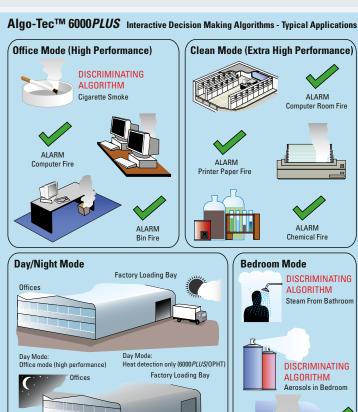
The net effect of the interaction between the sensors and the Algo-Tec $^{\text{TM}}$  decision making is enhanced performance, through immunity to false alarms and more responsive fire detection.

#### **Digital Addressable**

The data communication between the sensors and the control equipment is Digital.

The Algo-Tec<sup>TM</sup> protocol utilised by the 6000 system enables high levels of data to be transferred, providing far more detailed information than was previously achievable with analogue addressable systems. It should however be noted that many analogue addressable systems use digital communication but do not transfer the high levels of data associated with the Algo-Tec<sup>TM</sup> protocol. Speed, stability, excellent EMC and security all serve to enhance the Algo-Tec<sup>TM</sup> Digital signalling. Why go analogue addressable when you can now choose Algo-Tec<sup>TM</sup> Digital Addressable.



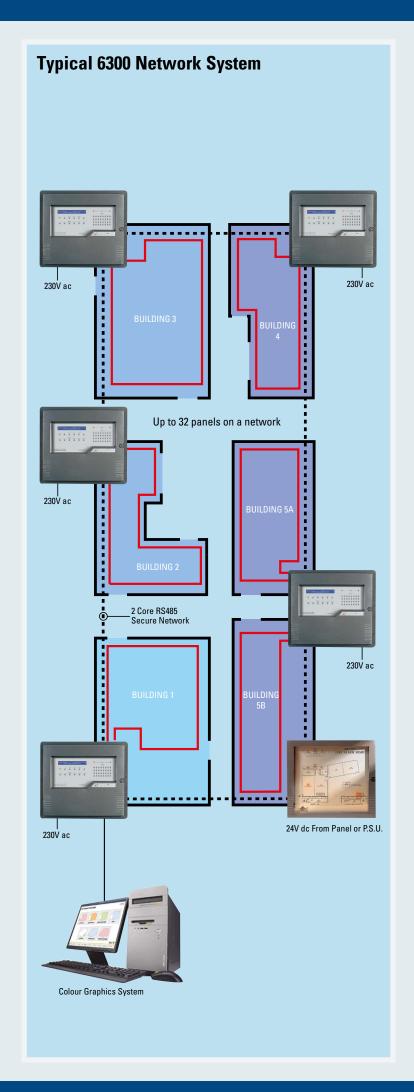


Night Mode: Smoke & Heat detection

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 6000 PLUS/OPHT.

Night Mode: Clean mode (Extra high performance) ALARM



#### **FEATURES & BENEFITS**

#### Cost Effective -

High specification interactive digital addressable fire detection and alarm system, providing a cost effective solution for small, medium and large sized buildings and sites.

#### Design Flexibility -

Up to 32 control panels, repeats and illuminated zonal mimics can be networked enabling system design and expansion to be easily achieved to suit the site for economic wiring and operational convenience.

#### • Secure Network -

Wired as a loop, the network's dual channel RS485 link ensures that no single fault will affect the system.

#### • Easy to Install -

An extensive range comprising Loop Powered Alarm Sounders, Visual Alarm Devices, Interfaces, Manual Call Points and 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), accommodating up to 191 devices per Loop, 512 maximum per panel.

# • Reduced False Alarms -

The Protec Algo-Tec™ 6000 interactive fire sensors utilise advanced discriminating algorithms for maximum reliability and immunity to false alarms.

#### • Enhanced Performance -

The Protec Algo-Tec™ 6000 sensors learn from their environment, applying interactive decision making algorithms to provide stability, threshold compensation and optimised performance.

#### • Secure Detection Loops -

Many Protec Algo-Tec $^{\rm TM}$  6000 devices incorporate built-in short circuit isolator units. These can be located as required.

# • Easy to Address -

'FAST' addressing (Firmware Addressed Secure Technology) ELIMINATES troublesome and time consuming setting of address cards and DIL switches.

# 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.

#### Reduced Maintenance Costs -

Early indication and reporting of sensors approaching contamination level reduce false alarms and enable dirty sensors to be cleaned or replaced.

# • Optional RS232 Port -

Typically used to connect to a colour graphics system, pager system or BMS interface. Allows PC connection for backup and programming.

### Designed to EN 54-2 & 4



# Protec Fire Detection plc

Protec Algo-Tec™ 6300

# **INTERACTIVE DIGITAL ADDRESSABLE**

#### FIRE CONTROL SYSTEM

#### **CONTROLS & DISPLAYS**

#### **System Features**

The Protec Algo-Tec™ 6300 is an interactive digital addressable fire detection and alarm system ideally suited for small , medium & large sized buildings such as nursing homes, hotels and offices. The control panel is designed and manufactured by Protec to comply with EN 54-2 & 4. The control panel is available as surface or recessed mounted with a moulded polycarbonate hinged door finished in storm grey, or optionally with polished solid brass or brushed stainless steel finish for recess mounting only.

#### **Secure Network**

Up to 32 Algo-Tec™ 6300 control and repeat panels and illuminated zonal mimics can be interconnected using the optional add in 6300 network card. Wired as a loop the networks dual channel fault tolerant RS485 ensures that no single fault can disable the system. In the event of multiple faults, each panel will function independently. The network can be wired using copper or fibre optic cables.

#### **Non Networked Stand Alone System**

For small single panel systems, the serial communication link can be utilised to signal, up to 4 repeat panels using a 4 core screened cable. A network card is not required.

### Loops

Each 6300 control panel is equipped with 1, 2 or 4 high capacity Algo-Tec™ digital addressable data loops, with up to 191 address capacity per loop. Total panel devices is restricted to 512 inputs to comply with EN54 part 2. In addition to sensors, interfaces and manual call points the loop can also support loop powered SOUNDERS, VISUAL ALARM DEVICES and OPTICAL BEAM DETECTORS. Loop powered sounder bases adopt the sensor address to increase the capacity of the loops still further, resulting in reduced cabling requirements, simplified installation and associated cost savings.

#### **Alarms**

In addition to loop powered sounders and Visual Alarm Devices (VAD's), 4 programmable fully monitored alarm outputs are provided at the panel for alternative wiring arrangements.

### **Auxiliary Contacts**

One set of double pole changeover contacts, which are programmable.





6300 Loop LCD Display



**Zoned Mimic Panel** 

#### 6300 Loop Powered LCD Repeat Display

The 6300/LOOP/LCD can be connected directly to the local Algo-Tec $^{\text{TM}}$  digital addressable data loop and takes up just one address. The facia displays power, fire, fault, disablement and more alarms.

Fire and fault events are displayed on the 2x40 character LCD display and automatically scroll. A backlight ensures that the events can be read in all lighting situations. Fire events have highest priority and inhibit the display of fault events. A new event initiates the internal buzzer and a mute button allows the internal buzzer to be muted. Loop standby/Alarm load 60mA.

#### 6300 Illuminated Zonal Mimic

The Protec 6300 customised, illuminated zonal mimic can be connected to the 6300 control panel in the same way as the 6300 repeat panel. The Illuminated mimic is housed in a matching enclosure to the control and repeat panels. The fascia is manufactured from Kemco finished in anodised aluminium effect and can be engraved to our clients scaled drawing typically detailing the building outline and zonal areas and has a viewing area of 360(W)mm x 340(H)mm . Up to 32 LED's can be placed on the fascia and will be illuminated by the appropriate zone activation. The illuminated mimic is available as surface or recessed mounted with a hinged door finished in storm grey, or optionally with a polished solid brass or brushed stainless steel finish recess mounting enclosure and an engraved Kemco fascia in anodised aluminium or brushed brass effect finish.





**Repeat Panel** 



6300 Hercules Colour Graphics System

#### 6300 Repeat Panel

The Protec 6300 repeat panel can be connected to the 6300 control panel's serial communications link connection, using a 4-core screened cable.

If the 6300 secure network is utilised then the repeat panel should be connected to the secure network by adding the integral 6300 network card. The repeat panel has an identical display to the control panel including 80 character LCD and 32 zone fire LED's. Full control of silence, accept, sound alarms and reset is included and can be disabled. The repeat panel is available as surface or recessed mounted with a moulded polycarbonate hinged door finished in storm grey, or optionally with polished solid brass or brushed stainless steel finish for recess mounting only.

#### **6300 Hercules Colour Graphics System**

The Protec Colour Graphics System is a Windows based PC package providing a graphical representation of large sites 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.

#### **Controls and Display**

All the functions of the Control Panel are accessed via a modern styled hinged lockable door, moulded from polycarbonate with a clear display viewing window. When opened the door reveals the panel controls and easy to follow operating instructions. These controls are SILENCE, SOUND ALARMS, RESET and ACCEPT plus a MENU push button to enable access to the user menu facilities. The control panel display consists of an 80 large character liquid crystal display, twin common fire LED indicators, 32 separate zonal fire LED's, power on, pre-alarm, system fault, common fault, test and disablement LED's. An optional integral low noise thermal printer is also available.

#### **Liquid Crystal Display**

The 80, large character liquid crystal display will under normal quiescent conditions display the current date and time with the option to also display a 40-character user's message such as site name.

In an alarm or fault condition the LCD will display the device loop, address and zone number and up to 40 characters of user definable location text, programmable on site using Protec 6300/WINTEXT windows based software.

### **Device Location Text**

Windows based text software is supplied free of charge to our clients to enable you to enter the location text on to the disk supplied and hand to our 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 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 100 incidents from the event log, the system devices configuration and programming matrix, devices which are becoming due for cleaning and the current status of all devices.

#### **Power Supply**

The 6301, 6302 and 6304 control panels can be supplied with an integral 3A dc switch mode charger and a 24V 10Ah sealed lead acid battery. The system is also available, suitable for use with Protec 9000/BC range remote power supplies with an extensive range of battery and charger sizes.

#### **On Site Programming**

The Protec Algo-Tec™ 6300 system is on site programmable. All of the commissioning configuration data can be entered and/or backed up using the Protec 6300/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. The system configuration data can also be printed using the control panels optional in-built thermal printer.



# Protec Fire Detection plc

Protec Algo-Tec™ 6300

## INTERACTIVE DIGITAL ADDRESSABLE

#### FIRE CONTROL SYSTEM

#### **Loop Devices**

The Protec Algo-Tec  $^{\text{\tiny{IM}}}$  6000 PLUS protocol utilises FAST  $^{\text{\tiny{IM}}}$  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 $^{\text{TM}}$  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**

6000*PLUS*/OPHT/**S** = c/w Sounder 6000*PLUS*/0PHT/**VAD** = c/w Visual Alarm Device

6000 PLUS/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

#### 6000 PLUS/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: 6000 PLUS/HT/S, 6000 PLUS/HT/SVAD 6000 PLUS/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/0P/S

6000 PLUS/OPHT



FAST™ Interactive Optical Heat Sensor -Interactive addressable high performance optical smoke and heat multi-sensor. Other Optical Heat Sensor variants include:

6000*PLUS*/0PHT/S, 6000*PLUS*/0PHT/VAD, 6000PLUS/OPHT/SVAD, 6000PLUS/OPHT/TS, 6000 PLUS/OPHT/TSVAD

#### 6000PLUS/OPHTCO FAST™ Interactive Optical Heat CO Sensor -



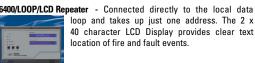
Interactive addressable high performance optical smoke heat and carbon monoxide multi-sensor. Other Optical Heat Sensor variants include: 6000PLUS/OPHTCO/S, 6000PLUS/OPHTCO/L, 6000PLUS/OPHTCO/SL, 6000PLUS/OPHTCO/TSL

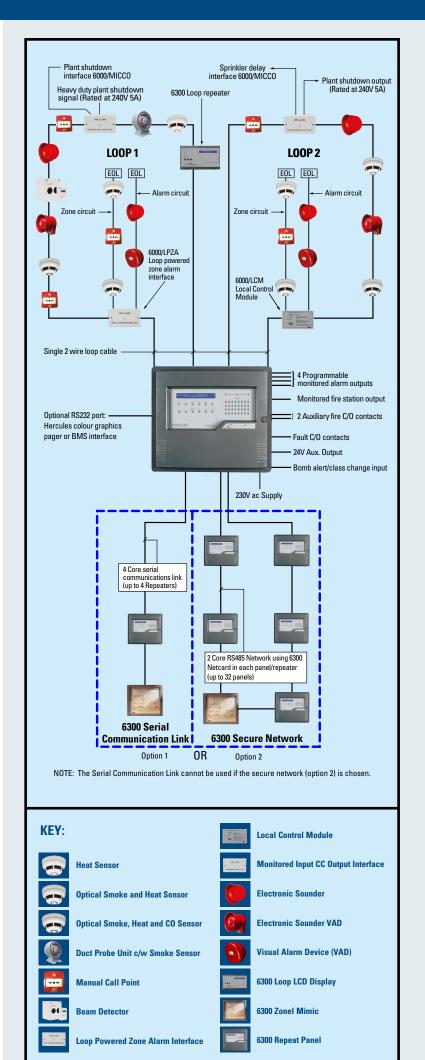


Low Profile Common Mounting Base Compatible with the above range of Algo-Tec™ 6000 PLUS Sensors.



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.





# Guide to loop cable conductor sizing for the Protec 6300 system.

		Loop Length (Metres)											
		500	550	600	650	700	750	800	850	900	950	1000	
	50												
	100												
	150												
	200												
	250												
	300												
	350												
Total Loop Load in Alarm (mA)	400												
	450												
	500												
	550												
	600												
	650												
	700												
	750												
	800												
	850												
	900												
	950												
	1000								n/a	n/a	n/a	n/a	

	Loop Length (Metres)										
		1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
	50										
	100										
	150										
	200										
	250										
	300										
	350										
Total	400										
Loop	450										
Load	500										
in	550										n/a
Alarm	600								n/a	n/a	n/a
(mA)	650					n/a	n/a	n/a	n/a	n/a	n/a
	700				n/a						
	750		n/a								
	800	n/a									
	850	n/a									
	900	n/a									
	950	n/a									
	1000	n/a									

The conductor size required as follows:

1.0mm<sup>2</sup> 1.5mm<sup>2</sup> 2.5mm<sup>2</sup>

MAXIMUM LOOP RESISTANCE 16 OHMS PER CONDUCTOR

# Table detailing the loop standby and alarm load for typical Algo-tec<sup>™</sup> 6000 devices.

Product	Description	No of Addresses	Loop Standby Load mA	Loop Alarm Load mA	
6000/MCP	Manual Call Point	1	0.45	0.85	
6000/FIREBEAM	Loop Beam	1	3.65	7	
6000 <i>PLUS</i> /HT	Heat Sensor	1	0.2	0.2	
6000 <i>PLUS</i> /HT/S	Heat Sensor c/w Sounder	1	0.4	5.4	
6000 <i>PLUS</i> /0PHT	Optical Smoke and Heat Sensor	1	0.2	0.2	
6000 <i>PLUS</i> /0PHT/S	Optical Smoke and Heat Sensor c/w Sounder	1	0.4	5.4	
6000 <i>PLUS</i> /OPHT/SVAD	Optical Smoke and Heat Sensor c/w Sounder and Visual Alarm Device	1	0.55	24	
6000 <i>PLUS</i> /OPHT/TSVAD	Optical Smoke and Heat Sensor c/w Talking Sounder and Visual Alarm Device	1	0.55	25	
6000 <i>PLUS</i> /OPHTCO	Optical Smoke, Heat, and CO Sensor	1	0.45	0.45	
6000 <i>PLUS</i> /OPHTCO/S	Optical Smoke, Heat, and CO Sensor c/w Sounder	1	0.45	5.45	
6000/VAD/W	Loop Visual Alarm Device	1	0.8	19	
6000/SSR	Loop Sounder	1	0.7	5	
6000/SSR/VAD	Loop Sounder Visual Alarm Device	1	0.7	24	
6000/LCM	Local Control Module	1	0.7	5	
6000/MICCO	Monitored Input CC Output	1	0.55	5	

Note: The following Loop Parameters should be observed

- 1) The total number of addressable devices should not exceed 191 per loop.
- 2) Add 20mA to total loop alarm load to allow for fire indicator LED's on devices
- 3) The total loop alarm load should not exceed 600mA per loop.

#### 6000/MCP



FAST™ Addressable Manual Call Point - Kev 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 6000 PLUS/ BASE suitable for use with 6000 PLUS/OP FAST™ interactive optical smoke sensor.



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



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



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.

6000*PLUS*/TSR2



FAST™ Addressable Loop Powered Talking Sounder - The 6000PLUS/TSR2 voice 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. Line continuity maintained. Monitored alarm output circuit rated at 24Vdc 50mA max. Suitable for a 45mm deep electrical mounting box. 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 occupany 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. Suitable for a 45mm deep electrical

mounting box. 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  $^{\!\scriptscriptstyle\mathsf{TM}}$  addressable.

# **Technical Specification** 6300 Control Panel

Models:-

Specification:-

Power Supply Working Voltage Temperature Range Maximum Humidity

Panel Model

Standby Load (Mains Fail Condition) Alarm Load (Mains Fail Condition)

Display

Digital Addressable Loops

Total Loop Load Zones Integral Charger Integral Battery Remote Power Supply

Programmable Alarm Outputs

Alarm Load Fault Monitoring Fault Output

Serial Communications Interface

Secure Network

Auxiliary Output Supply
Common Fire Output (fire station)
Common Fault Output (fire station)
RS232 Communications Interface
Optional Integral Printer
Dimensions (mm)
Approvals

#### **Programmability**

96 Input Groups System Wide 96 Output Groups per Panel

32 Zonal Output Groups per Panel

#### 6300 Repeat Panel/ 6300 Illuminated Zonal Mimic

Power Supply Standby Load Alarm Load

Serial Communications Link

Secure Network

Dimensions (mm)

6300 Netcard

Standby/Alarm Load

Complies with EN 54-2 & 4

**6301** - Single Loop Panel **6302** - 2 Loop Panel **6304** - 4 Loop Panel

Mains 230V ac nominal ± 10%.

21.5 - 30V dc. 0 - 40°C.

85% Non-condensing.

**6301 6302 6304** 90mA 115mA 170mA 210mA 260mA 345mA

Backlit liquid crystal display 2 lines of 40 characters.

1,2 or 4 loops, each with 191 address capacity. Total panel capacity is restricted to 512 Input addresses

LPCB ref. no. 201ad

to comply with EN 54-2. Algo-Tec™ 6000 Protocol. 600mA per loop including all loop connected devices. 32 Zone LED's plus twin red common fire indicators.

3A dc Switch-mode.

10Ah 24V sealed lead acid.

The Protec 9000/BC range of power supplies are compatible with the 6300 panels.

Dual path outputs and fault signalling, (4 wire plus 2 wire, 2 primary power, 2 signals, 2 secondary power).

4 Monitored - Internal sounder circuits (1A rated @ 24V).

1 Set of non-monitored double-pole changeover contacts (1A rated @ 24V). Up to 191 alarm outputs per loop with the use of additional loop O/P devices.

Maximum 3A with integral power supply unit.

Fully fault monitored to EN 54-2.

Single pole changeover contacts (1A rated @ 24V). 4 wire (2 power, 2 data) for up to 4 repeat/mimic panels.

To replace above serial interface when optional 6300 network card fitted to allow up to 32 panels /

repeaters to be securely networked (2 wire loop).

24V dc fused at 250mA.

24V dc fully monitored output rated at 20mA. 1K EOL. 24V dc fully monitored output rated at 20mA. 1K EOL.

9 way 'D' type connector (Male). For program/text software upload/download.

40 character low noise thermal printer.

440(W) x 385(H) x 144(D).

(6301) LPCB Certificate No: 201ad/07, EC Certificate No: 0832-CPD-1474, Relevant Standard: EN 54-2 & 4. (6302) LPCB Certificate No: 201ad/08, EC Certificate No: 0832-CPD-1475, Relevant Standard: EN 54-2 & 4. (6304) LPCB Certificate No: 201ad/09, EC Certificate No: 0832-CPD-1476, Relevant Standard: EN 54-2 & 4.

First 32 have an independent programmable time-out delay.

First 32 have an independent programmable delay for first 32 input groups.

Each is programmable as an alarm or control output.

Each is activated by a separate zone input for zones 1 to 32.

Programmable master time-out.

Selectable coincidence detection.

24 programmable Non-latching addresses.

24 programmable Non-latching Fire addresses.

24V dc from local power supply or internal charger and battery (230V ac required).

50mA. 50mA.

4 wire (2 power, 2 data) for up to 4 repeat/mimic panels.

To replace above serial interface when optional 6300 network card fitted to allow up to

32 panels/repeats to be securely networked (2 wire loop).

440(W) x 385(H) x 144(W).

Optional network card fitted to each control panel and repeat to be networked.

The network card replaces the serial communication link. Up to 32 panels/repeats can be securely

networked (2 wire loop). 70mA per network card.



Protec: Scotland Tel: 0845 456 5390 Fax: 0845 456 5391 Protec: North East Tel: 0845 456 5396 Fax: 0845 456 5397 Protec: Yorkshire Tel: 0845 456 5388 Fax: 0845 456 5389

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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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