

Protec Fire Detection plc

Protec Algo-Tec™ 6300

INTERACTIVE DIGITAL ADDRESSABLE

FIRE CONTROL SYSTEM

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INTERACTIVE DIGITAL ADDRESSABLE
FIRE CONTROL SYSTEM

6300

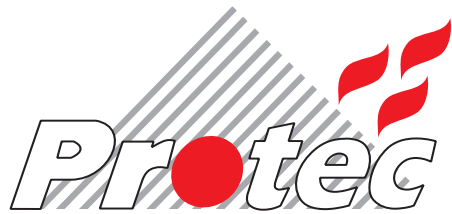
Protec Algo-Tec™



Algo-Tec



ADDRESSING SAFETY SYSTEMS WITH INTELLIGENCE



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FIRE CONTROL SYSTEM

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

The Protec Algo-Tec™ 6000 protocol developed by Protec's in-house Research and Development team is utilised by the Protec Algo-Tec™ 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™ 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™ algorithms are exclusively utilised by the Protec Algo-Tec™ 6400 and 6300 Interactive Digital Addressable Fire Control Systems.

Interactive

Algo-Tec™ 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.

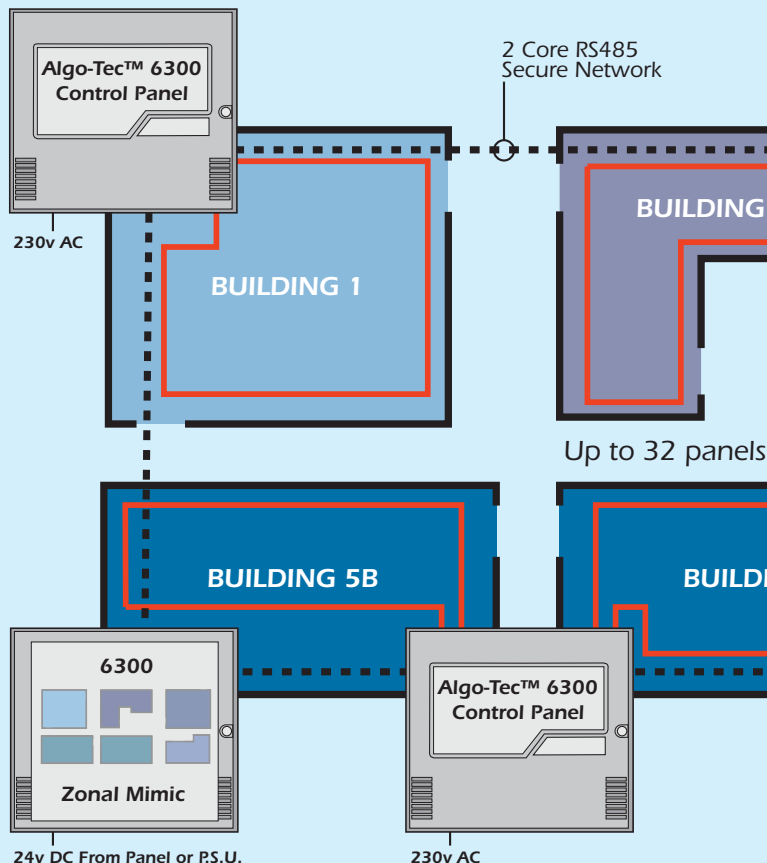
The net effect of the interaction between the sensors and the Algo-Tec™ decision making is enhanced performance, through immunity to false alarms and more responsive fire detection.

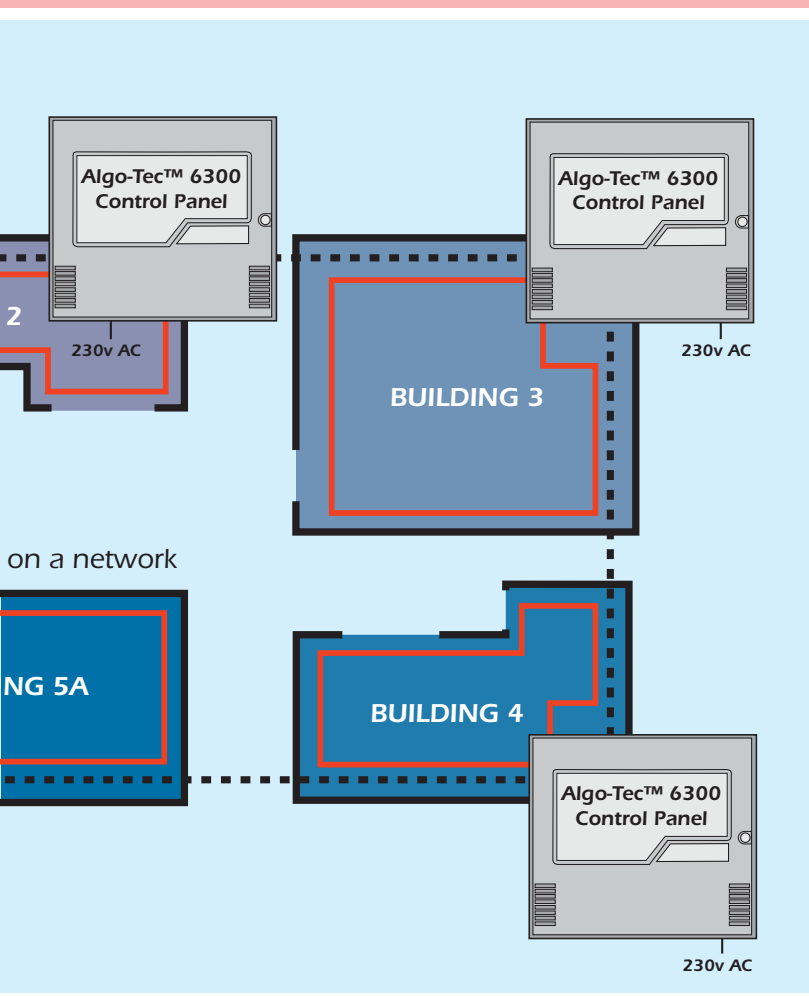
Digital Addressable

The data communication between the sensors and the control equipment is Digital. The Algo-Tec™ 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™ protocol. Speed, stability, excellent EMC and security all serve to enhance the Algo-Tec™ Digital signalling. Why go analogue addressable when you can now choose Algo-Tec™ Digital Addressable.



Typical 6300 Network System





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, Beacons, 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™ 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.

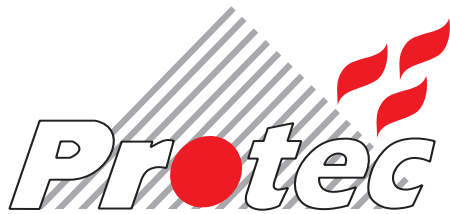
Designed to EN54 parts 2 & 4 1998

INTERACTIVE DIGITAL ADDRESSABLE
FIRE CONTROL SYSTEM

6300

Protec Algo-Tec™





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 EN54 parts 2 & 4 1998. 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, BEACONS 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 beacons, 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.



Isolation Menu	Set-up Time	Advanced Options	Clear Proc. Fault
Isolate Address	Printer Menu	Display	Event log
View Address Isolated	Analogue Data	Printer Menu	Read Analogue Data
Fire Link Disabling	Event Log	Active Event	View Text
Isolate Zone	Device Data	Program Matrix	Engineers Test RVAV
View Zones Isolated	Normalise Delay	Abort Print-Out	Exchange Devices

Simple Menu Structure



Zoned Mimic Panel

User Menu

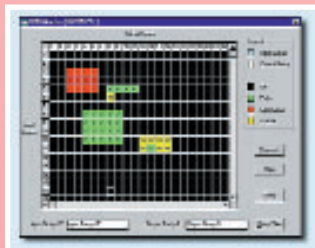
The MENU button enables the user to access the user menu functions. The functions available include isolation menu, set up time and walk test and advanced options which include printer menus, display the event log, read analogue data and view device address text. The isolation menu enables the user to easily isolate individual devices or zonal areas. During any isolation the disablement indicator will turn on accompanied by details of the isolations displayed on the LCD.

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 360mm W x 340mm H. 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



On-Site Programming

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.

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 P.C. 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.

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.

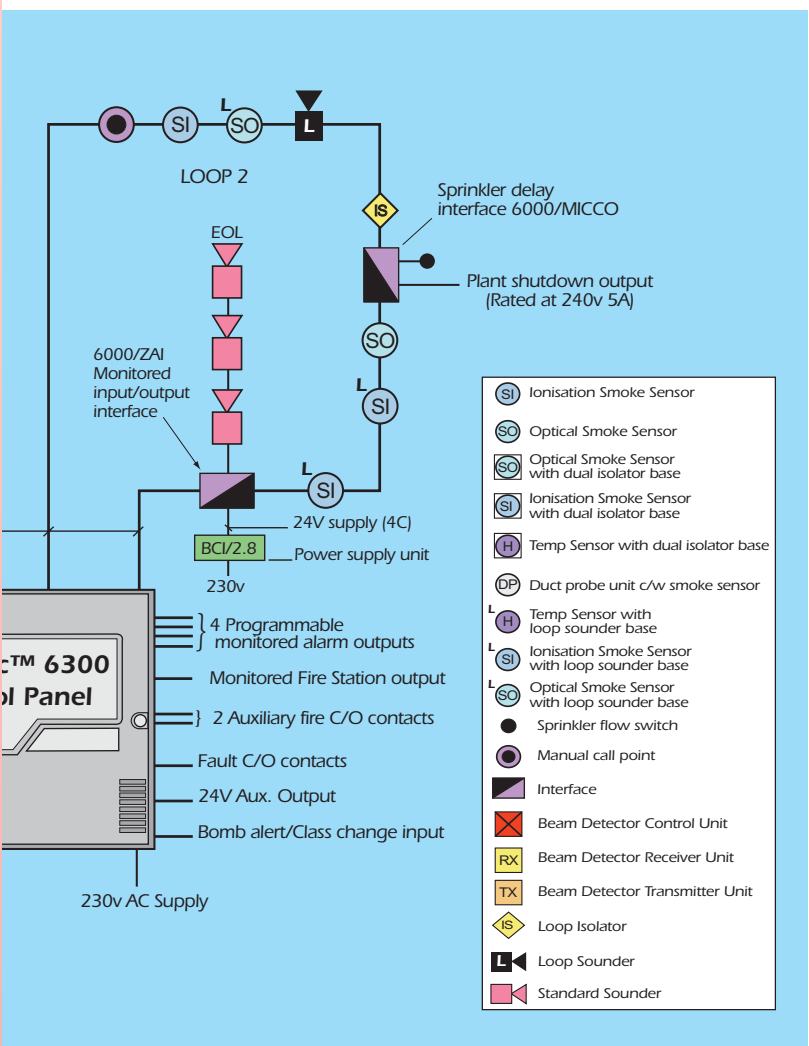
Printer

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 10 a/h sealed lead acid battery. The system is also available, suitable for use with Protec 6000/BC range remote power supplies with an extensive range of battery and charger sizes.





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

		Loop Length (Metres)									
		500	550	600	650	700	750	800	850	900	950
Total Loop Load In Alarm (mA)	50	1.0mm ²									
	100	1.0mm ²									
	150	1.0mm ²									
	200	1.0mm ²									
	250	1.0mm ²									
	300	1.0mm ²									
	350	1.0mm ²									
	400	1.0mm ²									
Alarm (mA)	450	1.5mm ²									
	500	1.5mm ²									
	550	1.5mm ²									
	600	1.5mm ²									
	600	1.5mm ²									
	600	1.5mm ²									

		Loop Length (Metres)									
		1000	1050	1100	1150	1200	1250	1300	1350	1400	1450
Total Loop Load In Alarm (mA)	50	1.0mm ²									
	100	1.0mm ²									
	150	1.0mm ²									
	200	1.0mm ²									
	250	1.0mm ²									
	300	1.0mm ²									
	350	1.0mm ²									
	400	1.0mm ²									
Alarm (mA)	450	1.5mm ²									
	500	1.5mm ²									
	550	1.5mm ²									
	600	1.5mm ²									
	600	1.5mm ²									
	600	1.5mm ²									

The conductor size required is as follows

- 1.0mm² Conductor required.
- 1.5mm² Conductor required.
- 2.5mm² Conductor required.

MAXIMUM LOOP RESISTANCE 16 OHMS PER CONDUCTOR

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



6000/DP Ventilation Duct Smoke Sensor Assembly - Single pipe air sampling unit for air speeds from 0.2 to 15m per sec. supplied with 6000/BASE suitable for use with 6000/OP FAST™ interactive optical smoke sensor.



6000/BEAM FAST™ Addressable Loop Powered Beam Detector - Comprising of a control unit, receiver unit and transmitter unit. With a beam range of 10-100 metres.



6000/SYM2R FAST™ Addressable Loop Powered Electronic Sounder - 100dBA sound output at 1m, 8mA loop alarm load. 3 sounder tone options; constant, pulse or warble, selectable by the control panel.



6000/SRZ2R FAST™ Addressable Loop Powered Weatherproof Electronic Sounder - 100dBA sound output at 1m, 20mA loop alarm load. 3 sounder tone options; constant, pulse or warble, selectable by a DIL switch on the unit.



6000/SRZ4R FAST™ Addressable 4-Wire Weatherproof Electronic Sounder - 100dBA sound output at 1m, 20mA auxiliary 24vdc from local power supply. 3 sounder tone options; constant, pulse or warble, selectable by a DIL switch on the unit.



6000/PVR2R FAST™ Addressable Loop Powered Xenon Beacon - 0.4J flash energy, 45mA loop alarm load. Red beacon body and lens.



6000/SRZ/PVR2R FAST™ Addressable Loop Powered Sounder/Beacon - 98dBA sound output at 1m. 0.7J flash energy, 75mA alarm load.



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/ZAI FAST™ Addressable Flush Mounted 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 1A max. Suitable for a 45mm deep electrical mounting box. A loop short circuit isolator is included.



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 240Vac. 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.



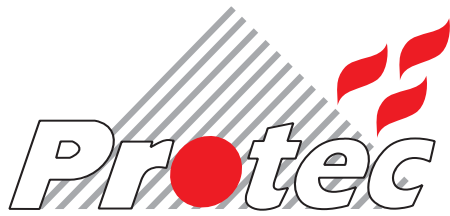
Multi-way Input/Output Interfaces - A range of 16 way input/output interfaces are available with monitored alarm outputs or clean changeover contacts. All interfaces are FAST™ addressable.



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Loop Devices

The Protec Algo-Tec™ 6000 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".

6000/OPHT **FAST™ Interactive Optical Smoke and Heat Multi-Sensor** - Utilising Protec Algo-Tec™ 6000 interactive programmable algorithms, the sensors are suitable for use in all smoke detection applications.



6000/OP **FAST™ Interactive Optical Smoke Sensor** - Utilising Protec Algo-Tec™ 6000 interactive programmable algorithms, the sensors are an ideal general purpose smoke sensor.



6000/ION **FAST™ Interactive Ionisation Smoke sensor** - Utilising Protec Algo-Tec™ interactive programmable algorithms, the sensors are particularly responsive to clean burning fires.



6000/TEMP **FAST™ Interactive Temperature Sensor** - Utilising Protec Algo-Tec™ interactive programmable algorithms, the sensors give a fast response to temperature increases.



6000/BASE **Low Profile Common Mounting Base** - Compatible with the above range of Protec Algo-Tec™ 6000 sensors.



6000/DIB **Dual Loop Short Circuit Isolator Base** - To isolate a short circuit fault on either the incoming or outgoing loop cable and maintain the operation of the sensor head inserted into the dual isolator base.



6000/ASB2 **FAST™ Addressable Loop Powered Electronic Sounder Base** - 90dBA sound output at 1m, 5mA loop alarm load. 3 sounder tone options; constant, pulse or warble, selectable by the control panel. A loop short circuit isolator is incorporated.



6000/ASBEA2 **FAST™ Addressable Loop Powered Electronic Sounder Beacon Base** - 90dBA sound output at 1m, beacon flash rate: 0.25 sec on, revolving LED light pattern. 11mA loop alarm load. 3 sounder tone options, constant, pulse, or warble, selectable by the control panel. A loop short circuit isolator is incorporated.



6000/ASB4 **FAST™ Addressable 4-Wire Electronic Sounder Base** - 90dBA sound output at 1m, 8mA auxiliary 24vdc from local power supply. 3 sounder tone options; constant, pulse or warble. A loop short circuit isolator is incorporated.

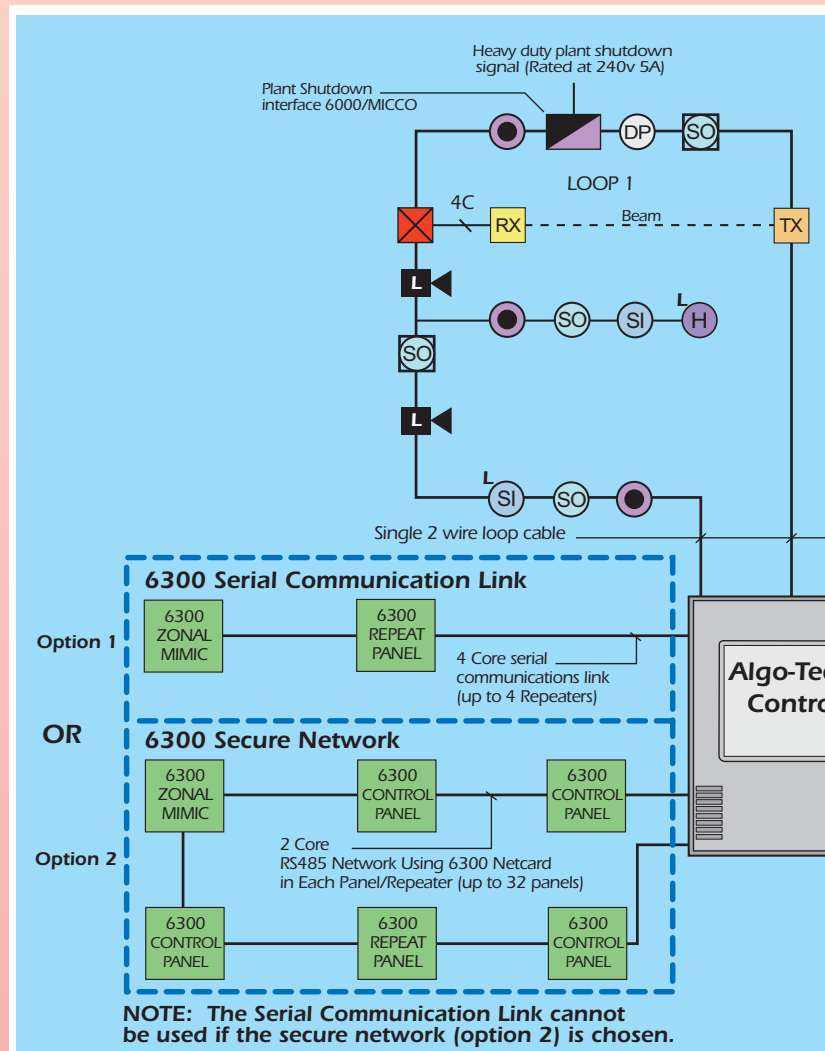


Table detailing the loop standby and alarm load for typical Algo-tec™ 6000 devices.

Product	Description	Number of Addresses	Loop Standby Load mA	Loop Alarm Load mA
6000/BGK	Break Glass	1	0.5	0.8
6000/BEAM	Loop Beam	1	15	25
6000/OPHT	Optical Smoke & Heat Sensor	1	0.58	0.88
6000/OP	Optical Smoke Sensor	1	0.55	0.85
6000/ION	Ionisation Smoke Sensor	1	0.52	0.82
6000/TEMP	Heat Sensor	1	0.48	0.78
6000/BASE	Sensor Base	-	-	-
6000/ASB2	Addressable Loop Sounder Base	Adopts Sensor	0.55	5 on Constant
6000/ASBEA2	Addressable Loop Sounder/beacon Base	Adopts Sensor	0.55	11 on Constant
6000/DIB	Isolator Base	-	0.12	0.12
6000/SYM2R	Addressable Loop Sounder	1	0.5	8 on Constant
6000/ZAI*	Zone Alarm Interface	1	2	4
6000/MICCO	Monitored Input CC Output	1	1.3	5
6000/FIU	Flush Isolator Unit	-	0.12	0.12

Note: The following Loop Parameters should be observed

1) The total number of addressable devices should not exceed 191 per loop.

2) The total loop alarm load should not exceed 600mA per loop.

* Auxiliary 24Vdc supply required.

**Technical Specification
6300 Control Panel**

Models:-

Complies with EN54 parts 2 & 4 1998

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

Specification:-

- Power Supply
- Working Voltage
- Temperature Range
- Maximum Humidity
- Panel Model
- Standby Load (Mains Fail Condition)
- Alarm Load (Mains Fail Condition)

Mains 230V AC nominal \pm 10%.
21.5 - 30V DC.
0 - 40 degrees centigrade.
85% Non-condensing.

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

- Display
- Digital Addressable Loops

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 to comply with EN54 part 2. Algo-Tec™ 6000 Protocol.

- Total Loop Load
- Zones
- Integral Charger
- Integral Battery
- Remote Power Supply

600mA per loop including all loop connected devices.
32 Zone LED's plus twin red common fire indicators.
3Amp DC Switch-mode.

Programmable Alarm Outputs

10 ampere-hour 24V sealed lead acid.

- Alarm Load
- Fault Monitoring
- Fault Output
- Serial Communications Interface
- Secure Network

The Protec 6000/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).

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

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.

Programmability

- 96 Input Groups System Wide
- 96 Output Groups per Panel
- 32 Zonal Output Groups per Panel

Maximum 3A with integral power supply unit.
Fully fault monitored to EN 54 Pt 2 1998.

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 X 385 X 144mm.

**6300 Repeat Panel/
6300 Illuminated Zonal Mimic**

- Power Supply
- Standby Load
- Alarm Load
- Serial Communications Link
- Secure Network

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.

Dimensions

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

6300 Netcard

Standby/Alarm Load

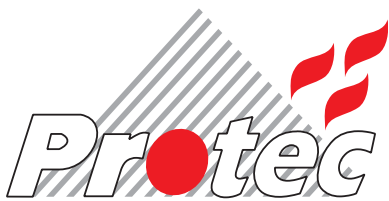
Programmable master time-out
Selectable Coincidence Detection
24 programmable Non-latching addresses
24 programmable Non-latching Fire addresses

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 X 385 X 144mm.

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 Fire Detection plc

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BS EN ISO 9002
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INTRUDER ALARMS
Cert. No. 100316



ISO 9001 Certificate
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Company policy is one of continuous improvement, we reserve the right to change specifications without prior notice.

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