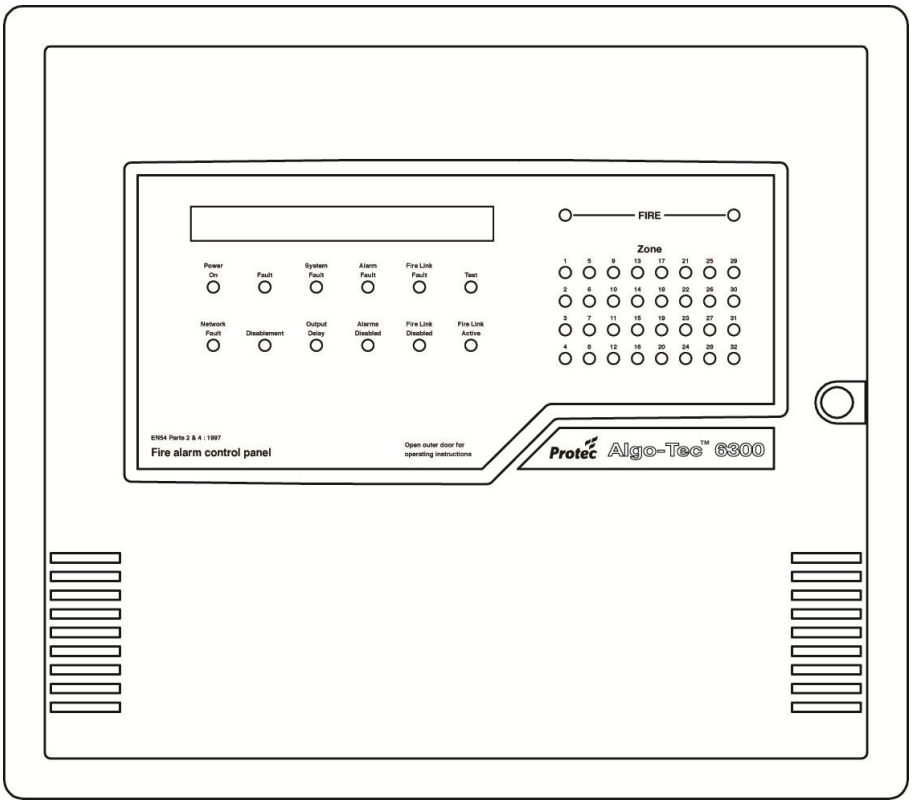
Algo-Tec™ 6300 INTERACTIVE DIGITAL ADDRESSABLE FIRE CONTROL SYSTEM (1-4 LOOPS)

INSTALLATION MANUAL



Protec Fire Detection PLC, Protec House, Churchill Way, Nelson, Lancashire, BB9 6RT.

Telephone: +44 (0) 1282 717171
Fax: +44 (0) 1282 717273
Web: www.protec.co.uk
Email: sales@protec.co.uk

Document Revision Details

Issue	Modification Detail	Author	Date
1	Original Issue	-	04/07/01
2	Revised Tables	PWD	21/11/02
2a	Environment Information, Battery Type Fuse Ratings & Cable Type	PWD	17/12/03
2 Rev 2	Added 6000PLUS devices to table 2 Removed loop device PIDs	PWD	14/05/10
2 Rev 3	Refer to ECN 3380	AH	28/06/13

CE

0832

Protec Fire Detection plc, Nelson, Lancashire, England BB9 6RT

11

PFD-CPR-0007

BS EN 54-2:1997+A1:2006
BS EN 54-4:1997 + A1 + A2:2006

6301 Fire Alarm Control Panel

Control / Indicating and Power Supply equipment for fire detection and fire alarm systems for buildings

Control & Indicating:
Performance under fire conditions: Pass
Response delay (response time to fire): Pass
Operational reliability: Pass
Durability of operational reliability, Temperature resistance: Pass
Durability of operational reliability, Vibration resistance: Pass
Durability of operational reliability, Electrical stability: Pass
Durability of operational reliability, Humidity resistance: Pass

Power supply:
Performance of power supply: Pass
Durability of operational reliability, Temperature resistance: Pass
Durability of operational reliability, Vibration resistance: Pass
Durability of operational reliability, Electrical stability: Pass
Durability of operational reliability, Humidity resistance: Pass

CE

0832

Protec Fire Detection plc, Nelson, Lancashire, England BB9 6RT

11

PFD-CPR-0008

BS EN 54-2:1997+A1:2006
BS EN 54-4:1997 + A1 + A2:2006

6302 Fire Alarm Control Panel

Control / Indicating and Power Supply equipment for fire detection and fire alarm systems for buildings

Control & Indicating:
Performance under fire conditions: Pass
Response delay (response time to fire): Pass
Operational reliability: Pass
Durability of operational reliability, temperature resistance: Pass
Durability of operational reliability, temperature resistance: Pass
Durability of operational reliability, Electrical stability: Pass
Durability of operational reliability, temperature resistance: Pass
Performance of power supply: Pass
Operational reliability: Pass

Power supply:
Durability of operational reliability, temperature resistance: Pass
Durability of operational reliability, temperature resistance: Pass
Durability of operational reliability, Electrical stability: Pass
Durability of operational reliability, temperature resistance: Pass

CE

0832

Protec Fire Detection plc, Nelson, Lancashire, England BB9 6RT

11

PFD-CPR-0009

BS EN 54-2:1997+A1:2006
BS EN 54-4:1997 + A1 + A2:2006

6304 Fire Alarm Control Panel

Control / Indicating and Power Supply equipment for fire detection and fire alarm systems for buildings

Control & Indicating:
Performance under fire conditions: Pass
Response delay (response time to fire): Pass
Operational reliability: Pass
Durability of operational reliability, Temperature resistance: Pass
Durability of operational reliability, Vibration resistance: Pass
Durability of operational reliability, Electrical stability: Pass
Durability of operational reliability, Humidity resistance: Pass

Power supply:
Performance of power supply: Pass
Durability of operational reliability, Temperature resistance: Pass
Durability of operational reliability, Vibration resistance: Pass
Durability of operational reliability, Electrical stability: Pass
Durability of operational reliability, Humidity resistance: Pass

INTRODUCTION

This document describes the methods to be employed when installing and connecting equipment associated with the PROTEC 6300 FIRE ALARM CONTROL PANEL. The 6300 panel is produced with 1, 2 or 4 loops and this manual is suitable for all versions.

1.1 THE 6300 SYSTEM

(REFER TO PID 203 – 6300 Example System Diagram)

Each addressable loop device has a unique Serial Number. The 6300 panel communicates with each device by this Serial Number, and the device replies with an analogue value. This analogue value is interpreted by the panel to determine the state of the device. The panel is therefore able to track accurately any changes in device reply values and initiate any necessary actions.

The 6300 panel can drive up to 4 loops, each containing a maximum of 191 devices. No more than 512 detectors and manual call points, spread across all four loops, may be fitted in order to comply with En54. Each device can actuate an on-site-programmable set of outputs. 8 internal outputs are available (4 monitored, 2 non monitored changeover contacts, a monitored 24V fire station output and a non-monitored fault changeover contact). It is also possible to have an output on any address point using ZONE/ALARM interface units and 16 Way I/O Boards.

It is possible to network up to 31 panels/repeaters. Networked panels/repeaters use a separate network card mounted on top of the terminal board. They are connected together using an RS485 loop (refer to PID 194).

If networking is not used then a 4 core communication link (2 data + 2 power) can be used to provide an RS485 serial link to a maximum of 4 repeat panels.

1.2 '6000 SERIES' LOOP

Each 6300 has the capability to communicate with Protec '6000 Series' loops.

Each addressable loop device has a unique Serial Number. The 6300 panel communicates with each device by this Serial Number and the device replies with an analogue value. This analogue value is interpreted by the panel to determine the state of the device. The panel is therefore able to track accurately any changes in device reply values and initiate any necessary actions.

The installer must mark up on the 'as fit' drawings the panel number (if more than one), loop number and address of each device. This information will be required in section 6.2.

1.2.1 LOOP SHORT CIRCUIT OR LOOP INTERRUPTION

It must not be possible to have a short circuit or interruption in the loop that prevents the indication of a fire alarm from more than one zone. To comply with this instruction, the installer must fit at least one isolator per zone. The 6000 series loop has been designed with this in mind and so all addressable sounder bases, 6000/MICCO and 6000/MCP devices have a built-in isolator. Check device literature for other devices with an isolator. If further isolators are required then loop isolator bases and loop isolation units are available (see table 4).

1.2.2 DELAYS TO OUTPUTS

En54-2:1997 + A1:2006 clause 7.11d states that it must be possible to override the delays and immediately action the delayed outputs at access level one. Since access level one means that the outer panel door is locked then if delays are to be used this clause can be met in several ways. If option (3) is chosen then this will affect the installation.

1. No delays are programmed for manual call points.
2. System programming permits a second activation to cancel delays and immediately activate outputs thus allowing any manual call point to be pressed upon confirmation of a fire.
3. Programming at least one manual call point to activate all delayed outputs. This should be placed adjacent to each 6300 panel and its purpose clearly labelled.

1.2.3 DOUBLE ADDRESSING

‘Double Addressing’, where a detection device and a sounder are assigned to the same address, is not supported by the 6300 panel.

CABLING

All external wiring associated with the system must conform to the current I.E.E Regulations and cabling must conform to the relevant BS specifications. ECA recommended Cable Separation for Electromagnetic Compatibility in Buildings, must be followed.

All cabling must be fully phased (Identify and mark ends of cables).

Although no connections are to be made to the 6300 panel until the commissioning stage it is important that cables are left long enough to connect directly to the relevant terminals. To ensure that cable tails are left with sufficient length all cable tails must be a minimum of 500mm. Locate the termination positions using Product Information Drawings: -

PID 201 - 6300 TERMINAL BOARD CONNECTIONS
PID 202 - 6300 REPEAT TERMINAL BOARD CONNECTIONS

2.1 POWER SUPPLY CABLING (REMOTE CHARGER ONLY)

If the 6300 panel has an external charger then it will require two separate +24V supplies. This is a requirement of En54-4 clause 6.4. These two supplies must not be wired in the same fire rated cable. In addition there is a fault signal 'SF' from the charger to the panel and a charger inhibit signal 'CI' from the panel to the charger. These two signals can be combined with one of the +24V supplies into a 4-core fire rated cable.

The maximum length of cable between the charger and the 6300 panel will depend upon the volt drop along the cable. No more than 3A must be supplied to a panel and no more than two panels must be fed from the same charger.

2.2 NETWORK / SERIAL CABLING (RS485)

A 6300 panel requires the RS485 network to be wired as a loop. This is because the RS485 network is wired as a loop in order to continue to indicate a fire alarm from any device on the system should a single break or short circuit occur in one of the RS485 circuits.

The maximum length of cable between any two 6300 panels on the RS485 network is 1km using a minimum standard of 1.5mm^2 fire rated cable. The maximum length of the whole RS485 network loop is 5km.

The maximum length of cable from the 6300 panel to all of the RS485 serial repeat panels is 1km using a minimum standard of 1.5mm^2 fire rated cable.

In countries where local standards permit, the network can be wired in 'Twin Figure 8' cable but the cable length will have to be reduced in accordance with the lower conductor size.

EACH OF THE RS485 CIRCUITS MUST BE WIRED IN A SEPARATE PAIR. WHEN THE CABLE HAS A SCREEN THEN THE SCREEN MUST BE EARTHED AND CONTINUOUS OVER THE CABLE RUN.

2.3 LOOP CABLING

The main consideration for the loop cable is the loop length. This length must include all sub-loops and spurs. For example, a loop of 800m with three spurs of 150m must be considered as being 1250m in length.

Notes :-

1. The loop cabling must be wired in fire rated cable. The minimum conductor size is shown in the tables of section 2.3.1. In countries where local standards permit, the loops can be wired in 'Twin Figure 8' cable but the loop length and load will have to be reduced in accordance with the lower conductor size.
2. Maximum loop resistance = 16Ω per conductor.
3. It is assumed that devices are evenly spread on the loop. If a large load, eg a number of sounders, is located at the end of the loop then the volt drop along the cable must be calculated to ensure that the input voltage to the loop devices remains within the range of 16 to 30V (peak).

Each address point must be numbered. Sequential address allocation of devices on the loops is not necessary with a 6300 system but it may prove advantageous for fault finding.

EACH OF THE LOOPS MUST BE WIRED IN A SEPARATE PAIR. WHEN THE CABLE HAS A SCREEN THEN THE SCREEN MUST BE EARTHED AND CONTINUOUS OVER THE CABLE RUN.

2.3.1 GUIDE TO LOOP CABLE CONDUCTOR SIZES (mm^2)

		Loop Length (metres)										
		500	550	600	650	700	750	800	850	900	950	1000
Total Loop Load in Alarm (mA)	50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	150	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	200	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	250	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	300	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	350	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	400	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
	450	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
	500	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	2.5
	550	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5
	600	1.0	1.0	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5

		Loop Length (metres)										
		1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
Total Loop Load in Alarm (mA)	50	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	100	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	150	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	200	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	250	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	300	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	350	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	400	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
	450	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	500	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	N/A
	550	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	N/A
	600	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	N/A	N/A	N/A

2.4 ALARM CABLING

The main consideration for the alarm cable is the length. This length must include all spurs. For example, an alarm circuit of 800m with three spurs of 150m must be considered as being 1250m in length.

Notes :-

1. The alarm cabling must be wired in a minimum standard of 2.5mm^2 fire rated cable.
2. If however, the total alarm cabling length is less than 1km, then the alarm circuit may be wired in a minimum standard of 1.5mm^2 fire rated cable. In countries where local standards permit, the alarm circuit can be wired in 'Twin Figure 8' cable but the cable length and load will have to be reduced in accordance with the lower conductor size.
3. The maximum permissible alarm circuit length is limited by volt drop.

EACH OF THE ALARM CIRCUITS MUST BE WIRED IN A SEPARATE PAIR. WHEN THE CABLE HAS A SCREEN THEN THE SCREEN MUST BE EARTHED AND CONTINUOUS OVER THE CABLE RUN.

TABLE 1 - CABLING, NUMBER OF CORES

CABLE	Number of Cores
1. Supply 230 volts 50Hz	3
2. Network Data	2
Repeat Panel Data	2
3. Loop Circuit	2 (per loop)
Alarm Circuit	2 (per circuit)
4. Power Pair For: -	
Zone/Alarm Interface Units	2
I/O Interface Units	2
Repeat Panel Power Supply	2
Remote Chargers Only	
5. 24V Supply circuit 1	2
24V Supply circuit 2	2
SF & CI Signals	2

CURRENT CONSUMPTION

It is necessary to calculate current consumption figures for the system in standby (mains fail) and alarm conditions in order to select the correct battery capacity.

3.1 PANEL CURRENT

Details of panel currents for standby and alarm are shown in the 6300 specification later in this manual.

3.2 LOOP CURRENT

Figures for the loop device current for battery capacity calculations are contained in tables 2, 3 and 4. These provide details of the quiescent and alarm currents of both the addressable and non-addressable loop devices.

Note: -

1. Loop isolators, devices that isolate sections of the loop if short circuit wiring faults occur, are available as separate units. Some '6000 series' devices contain an isolator. Check device literature.

2. When using Zone interfaces the current per detector / sounder must be added to the current requirement of the Interface Units (refer to note 2 of table 3).

3. The alarm loop current figures may differ from the figures quoted in other Protec literature. The figures here assume a limit on the number of devices lighting their fire led so this reduced led current is averaged across all the loop devices.

TABLE 2 – ADDRESSABLE '6000' LOOP EQUIPMENT CURRENT DETAILS

ADDRESSABLE DEVICES	QUIESCENT LOOP CURRENT (mA)	ALARM LOOP CURRENT (mA)
OPTICAL SMOKE DETECTOR 6000/OP	0.35	0.55
OPTICAL HEAT SMOKE DETECTOR 6000/OPHT	0.35	0.55
TEMPERATURE DETECTOR 6000/TEMP	0.35	0.55
OPTICAL HEAT CO SMOKE DETECTOR 6000/OP/HT/CO	0.45	0.65
CO HEAT DETECTOR 6000/HT/CO	0.35	0.55
IONISATION SMOKE DETECTOR 6000/ION	0.52	0.82
BREAK GLASS 6000/MCP	0.5	0.85
SOUNDER BASE 6000/ASB2	0.6	6
SOUNDER BASE WITH FLASHING XENON BEACON - 6000/ASBEA2	0.6	10
RED SYMPHONY SOUNDER 6000/SYM2R	0.5	5
SOUNDER 6000/SSR2	0.65	5
SOUNDER 6000/SRZ2	0.5	20
BEACON 6000/PVR2	0.5	45 (Xenon) 5 Av / 12 pk (LED)
SOUNDER XENON BEACON 6000/SRZ2/PVR	0.5	75
MONITORED INPUT CLEAN CONTACT OUTPUT BOARD - 6000/MICCO	1.3	5
CLEAN CONTACT OUTPUT BOARD 6000/CCO	0.6	10
MONITORED INPUT BOARD 6000/MIP	0.65	4
MONITORED INPUT WITH CLEAN CONTACT OUTPUT - 6000/MIPCCO	0.7	15

TABLE 2b – ADDRESSABLE '6000' LOOP EQUIPMENT CURRENT DETAILS continued

ADDRESSABLE DEVICES	QUIESCENT LOOP CURRENT (mA)	ALARM LOOP CURRENT (mA)
6000Plus Optical Detector	0.2	0.55
6000Plus Heat Detector	0.2	0.55
6000Plus Optical Heat Detector	0.2	0.55
6000Plus Optical Heat Detector with Isolator	0.4	2.53
6000Plus Optical Heat Detector with Sounder	0.4	9.23
6000Plus Optical Heat Detector with Sounder and LED Beacon	0.4	14.23
6000Plus Optical Heat Detector with Talking Sounder	0.4	12.53
6000Plus Optical Heat Detector with Talking Sounder and LED Beacon	0.4	17.53
6000Plus Optical Heat Detector with LED Beacon	0.4	7.53
6000Plus Optical Heat CO Detector	0.45	0.65
6000Plus Optical Heat CO Detector with Sounder	0.45	9.28
6000Plus Optical Heat CO Detector with Sounder and LED Beacon	0.45	14.28
6000Plus Optical Heat CO Detector with Talking Sounder and LED Beacon	0.45	17.58
6000Plus Optical Heat CO Detector with LED Beacon	0.45	7.6
6000Plus Optical Detector with Sounder	0.4	9.23
6000Plus Heat Detector with LED Beacon	0.4	7.53
6000Plus Heat Detector with Sounder	0.4	9.23
6000Plus Heat Detector with Sounder and LED Beacon	0.4	14.23
6000Plus Heat Detector with Talking Sounder and LED Beacon	0.4	17.53
6000Plus Talking SSR	0.4	9.4
6000Plus Talking SSR with LED Beacon	0.45	14.42

TABLE 2c – ADDRESSABLE '6000' LOOP EQUIPMENT CURRENT DETAILS continued

ADDRESSABLE DEVICES	QUIESCENT LOOP CURRENT (mA)	ALARM LOOP CURRENT (mA)
LOOP BEAM DETECTOR 6000/BEAM – (MIP)	0.65	7
TALKING SOUNDER BASE 6000/ATSB2	0.7	17 (Bell tone)
6400 LOOP LCD	86 (No disablement)[1] 93 av. (+Disablement) 96 pk	98 (No disablement)[1] 101av. (+Disablement) 103pk
CIRRUS PRO INTERFACE 6000/CPRO	10	10
LOCAL CONTROL MODULE	0.7 + detectors + EOL	67mA

[1] Figure assumes a supply fault, buzzer on and both LCD backlights on

TABLE 3 – ADDRESSABLE LOOP EQUIPMENT WITH AUXILIARY SUPPLY

CURRENT DETAILS

ADDRESSABLE DEVICES	QUIESCENT (mA)		ALARM (mA)	
	LOOP	24V	LOOP	24V
LOOP ADDRESSED SOUNDER BASE WITH AUXILIARY SUPPLY (6000/ASB4)	0.58	-	1.5	8
LOOP ADDRESSED SOUNDER BASE WITH FLASHING BEACON (AUXILIARY SUPPLY) (6000/ASBEA4)	0.58	-	1.5	25 average 80 peak[1]
LOOP ADDRESSED SOUNDER WITH AUXILIARY SUPPLY 6000/SRZ4	0.5	-	2	20
LOOP ADDRESSED BEACON WITH AUXILIARY SUPPLY 6000/PVR4	0.5	-	2	45
LOOP ADDRESSED SOUNDER BEACON WITH AUXILIARY SUPPLY 6000/SRZ4/PVR	0.5	-	2	75
ZONE ALARM INTERFACE 6000/ZA	0.6	4 + zone load	4	35 + alarm load (1A max)
16 WAY INTERFACE 6000/16WAY[2]	7	18 + zone load + output board load (5A max)	7	18 + zone load + output board load (5A max)

TABLE 4 – NON-ADDRESSABLE LOOP EQUIPMENT CURRENT DETAILS

NON-ADDRESSABLE DEVICE	QUIESCENT (mA)		ALARM (mA)	
	LOOP	24V	LOOP	24V
24V SOUNDER BASE (6000/SB)	-	-	-	7
24V SOUNDER BASE WITH BEACON (6000/SBEA)	-	-	-	25 average 80 peak[1]
FLUSH ISOLATOR UNIT 6000/FIU	0.12	-	0.12	-
BOXED ISOLATOR UNIT 6000/IU	0.12	-	0.12	-
DUAL ISOLATOR BASE 6000/DIB	0.12	-	0.12	-
STANDARD BASE 6000/BASE	-	-	-	-
RELAY BASE 6000/RBNC or 6000/RBNO	0.05	-	15	-

[1] The peak values occur when the beacon is at its 'on' stage during flashing.
[2] There are variants of this product depending upon the monitoring requirements.

INSTALLATION PROCEDURE

4.1 CONTROL PANEL

The 6300 is supplied complete and fully assembled in one box. The box also contains an installation template showing mounting hole & cable entry positions with spirit level and plumb bob references.

1) Unpacking.
Remove the installation template from the packaging - leaving the 6300 unit in the box for protection.

2) Preparing the Mounting Position.
Use the installation template together with a spirit level etc. to mark, drill and plug the 3 mounting holes in the desired position.

3) Removal of the Plastic Door.
Remove the 6300 unit from the packaging. Use the key supplied to unlock the outer plastic door, remove the plastic door by extracting the hinge pins and place the door back in the box for protection.

4) Removal of the Inner Door.
Unscrew the 3 fixings on the metal inner door at the lock side of the door. Open the inner door and disconnect the earthing point on the door and the wide ribbon cable that connects the main board on the door to the back of the enclosure. Close the door and extract the 2 remaining hinge pins. Carefully remove the inner door from the unit including all circuit boards fitted to it and place it back in the box for protection.

5) Removal of the battery clamp and gear-tray.
Remove the two screws holding the battery clamp (if supplied) and carefully withdraw the clamp ensuring that it cannot short out the battery terminals. Remove the 2 screws from the bottom of the gear-tray (in the back of the enclosure) and loosen the two at the top (key-hole fixings). Disconnect the earth connection from the gear-tray to the enclosure. Remove the gear-tray from the enclosure including the attached circuit boards.

6) Preparing and Fixing The Unit.
Using the installation template, mark out suitable positions for cable entry on the back of the enclosure **i.e. not behind the gear-tray**. Cut out the cable entry positions and mount the enclosure at the position prepared in (2) feeding cables through into the box.

7) Re-fitting the gear-tray and battery clamp
Re-fit the gear tray (re-fit is reversal of 5). Ensure that the earth removed in (5) is re-connected **DO NOT CONNECT ANY NON-EARTH TERMINALS**. Refit the battery clamp (refit is reversal of 5) ensuring that the clamp cannot touch the battery terminals. **DO NOT CONNECT THE BATTERIES**

8) Re-fitting the Inner Door
Re-fit the inner door (re-fit is reversal of 4) **ENSURE THAT ALL EARTHING POINTS ARE RE-CONNECTED**.

9) Re-fitting the Plastic Door
Re-fit the outer plastic door by offering the door up to the hinges and inserting the 2 hinge pins.

4.2 FIELD EQUIPMENT

All metal termination boxes and detector bases should be securely fastened to the mounting surface and earth bonded.

FIELD EQUIPMENT MUST NOT BE CONNECTED AT THIS STAGE.

CABLE TEST

Before connecting external cables to any field device, tests must be carried out using a 500V DC insulation tester (Megger). The readings between each cable core, and each core and earth must be greater than 10M ohms (record the readings). Equipment connected to the cabling during insulation tests could be damaged with the high voltages produced. Great care must be taken during insulation tests to discharge the cables, since charged cable may damage the control equipment upon connection.

CONNECTION

For general wiring details see Product Information Drawings - see 'REFERENCES' section.

6.1 CONTROL EQUIPMENT

Wiring details are supplied for reference only. DO NOT MAKE ANY CONNECTIONS TO THE CONTROL PANEL.

6.2 FIELD EQUIPMENT

In order to perform the commissioning of devices correctly, the following procedure needs to be carried out upon installation of each addressable loop device: -

- Remove one of the unique Serial Number bar code labels.
- Place this label at the chosen Node, Loop and Address position in the 'Commissioning Booklet' provided. (The address position was defined in section 1).

With reference to the relevant connection diagrams, connect the remaining field equipment. Note: Insulation tests MUST NOT be carried out after this point and the mains or standby supply MUST NOT be connected.

6.3 ALARM CIRCUITS

Each of the four alarm circuits requires a 10K end-of-line resistor for open and short circuit monitoring.

6.4 FIRE STATION OUTPUT

This output is the 'Output to Fire Alarm Routing Equipment' defined by En54.
It is designed to drive 24V into an 1100Ω load. This output is open and short circuit monitored by the use of a 1K 0.5W end-of-line resistor.

COMMISSIONING REQUIREMENTS

Refer to the supplied copy of COMMISSIONING STANDARD TERMS for details of requirements before commissioning can take place.

Note: The Fire Alarm Commissioning Application form must be completed and returned 14 days before a commissioning engineer can attend.

6300 SPECIFICATION

POWER SUPPLY MAINS	230V AC Nominal ± 10% (T1A 250V HBC Fuse)
WORKING VOLTAGE	21.5 - 30V DC
CURRENT CONSUMPTION	180mA WITHOUT LOOP LOAD @ 24V DC MAINS FAILED, PRINTER STATIONARY
MAXIMUM LOOP CURRENT	600mA per loop
ANALOGUE ADDRESSES	4 LOOPS, 191 ADDRESSES PER LOOP (Maximum of 512 Detectors and Manual Call Points to comply with En54)
ZONES	32
ALARM OUTPUTS	i) 4 MONITORED 24V DC (T1A 250V FUSES) ii) 2 NON MONITORED - (CONTACTS 1A RATED @ 24V DC) iii) LOOP ADDRESSABLE OUTPUT DEVICES, SUBJECT TO THE FOLLOWING PARAMETERS NOT BEING EXCEEDED: - THE MAXIMUM NUMBER OF DEVICES PER LOOP THE MAXIMUM LOOP LENGTH THE MAXIMUM LOOP CURRENT.
MAXIMUM ALARM LOAD	3A WITH INTEGRAL POWER UNIT (INCLUDING LOOP CURRENT AND INTERNAL PANEL CONSUMPTION).
FIRE STATION OUTPUT FAULT OUTPUT	MONITORED 24V DC OUTPUT RATED @ 20mA max SINGLE POLE CHANGEOVER CONTACTS - (1A RATED @ 24V DC)
SERIAL COMMUNICATIONS NETWORK	2 WIRE RS485 COMMS + 2 WIRE POWER 2 WIRE RS485 LOOP
INTEGRAL CHARGER INTEGRAL BATTERIES (Lynteck OL Models)	3A SWITCH MODE (Protec series 9000 PSU) 4 x 6V 10Ah Sealed lead acid 2 x 12V 26Ah Sealed lead acid (when using the external battery box mounted beneath the panel)
AUXILIARY 24V OUTPUT INTERNAL PRINTER SUPPLY	24V DC (F1A 250V FUSE) 24V DC (F1A 250V FUSE)
TEMPERATURE RANGE	0-40°C
HUMIDITY LIMIT	85% NON-CONDENSING
ENVIRONMENT	The 6300 meets IP30. It must be mounted in a dry position that does not exceed the temperature or humidity limits specified above.
DIMENSIONS	385(H) x 440(W) x 145(D)
ENCLOSURE	Storm grey textured enclosure smooth inner door with molded v-rated polycarbonate lockable front door
MOUNTING	3 points surface mount

APPENDIX A

The following Product Information Drawings (PIDs) are attached :-

PID 194	-	6300 Network connections
PID 201	-	6300 Terminal Board Connections
PID 202	-	6300 Repeat Terminal Board Connections
PID 203	-	6300 Example System Diagram

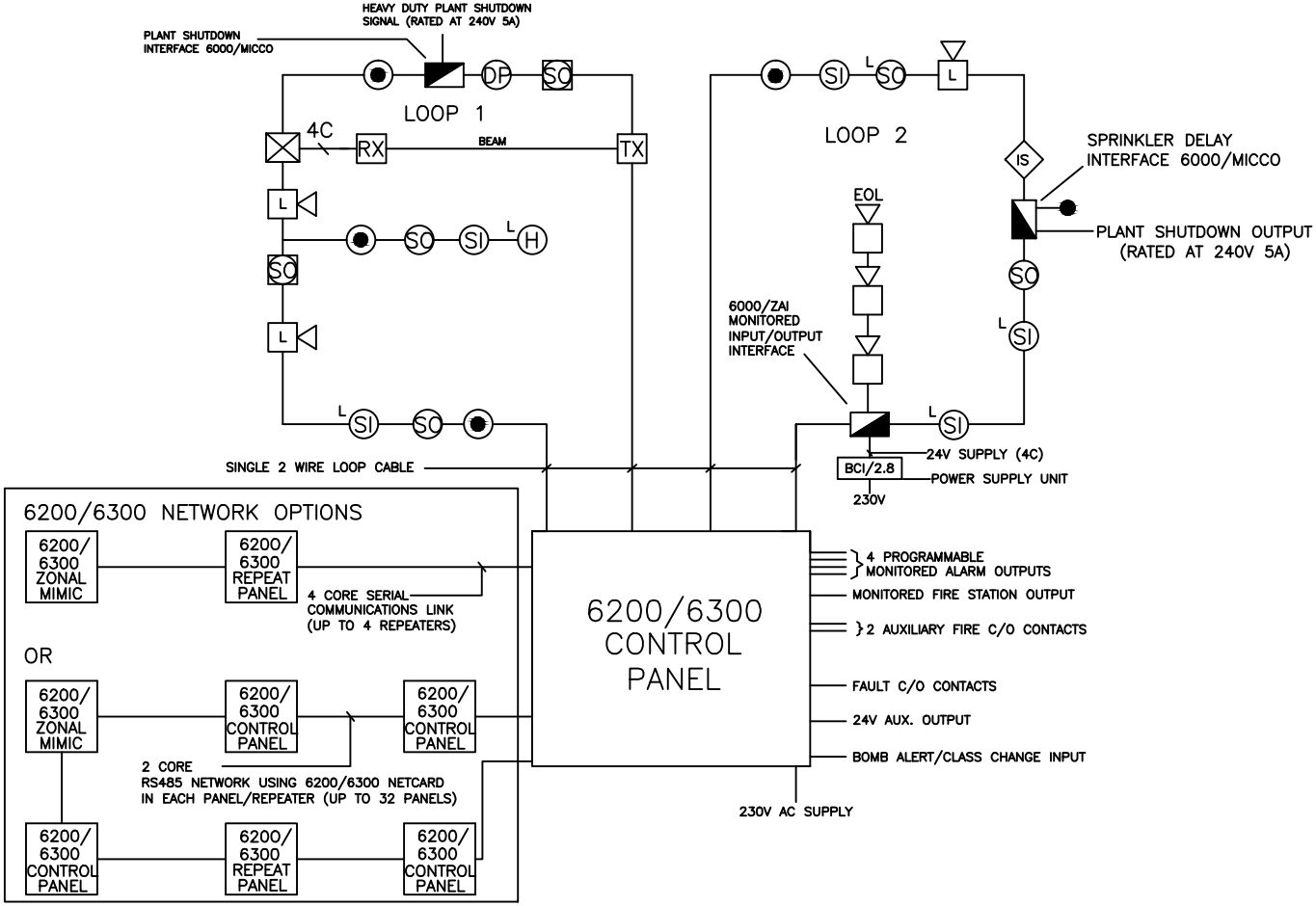
PIDs for loop devices are supplied with the individual products and also available from the website www.protec.co.uk

If in doubt contact Protec Fire Detection plc.

BLANK PAGE

BLANK PAGE

ISSUE	ALTERATIONS	DRAWN	APP'D	MOD No.	DATE
1	MINOR MODS	JH	RPO	A6025	10.7.01



KEY

- SI — IONISATION SMOKE SENSOR
- SO — OPTICAL SMOKE SENSOR
- SO — OPTICAL SMOKE SENSOR WITH DUAL ISOLATOR BASE
- SI — IONISATION SMOKE SENSOR WITH DUAL ISOLATOR BASE
- H — TEMP SENSOR WITH DUAL ISOLATOR BASE
- DP — DUCT PROBE UNIT C/W SMOKE SENSOR
- L H — TEMP SENSOR WITH LOOP SOUNDER BASE
- L SI — IONISATION SMOKE SENSOR WITH LOOP SOUNDER BASE
- L SO — OPTICAL SMOKE SENSOR WITH LOOP SOUNDER BASE
- SPRINKLER FLOW SWITCH
- MANUAL CALL POINT
- INTERFACE
- BEAM DETECTOR CONTROL UNIT
- RX — BEAM DETECTOR RECEIVER UNIT
- TX — BEAM DETECTOR TRANSMITTER UNIT
- IS — LOOP ISOLATOR
- L — LOOP SOUNDER
- STANDARD SOUNDER

Protec Fire Detection plc
Protec House, Churchill Way, Lomeshaye Ind. Est
Nelson, Lancashire, U.K. BB9 6RT
Tel (01282) 717171 Fax (01282) 717273

SCALE	DESIGNED		
NTS	DRAWN	J. HACKING	28.3.01
	CHECKED	R.P.OLDLAND	30.3.01
	APPROVED	P.DEW	30.3.01

TITLE 6204/6300 EXAMPLE SYSTEM DIAGRAM (SHOWING 2 LOOPS)

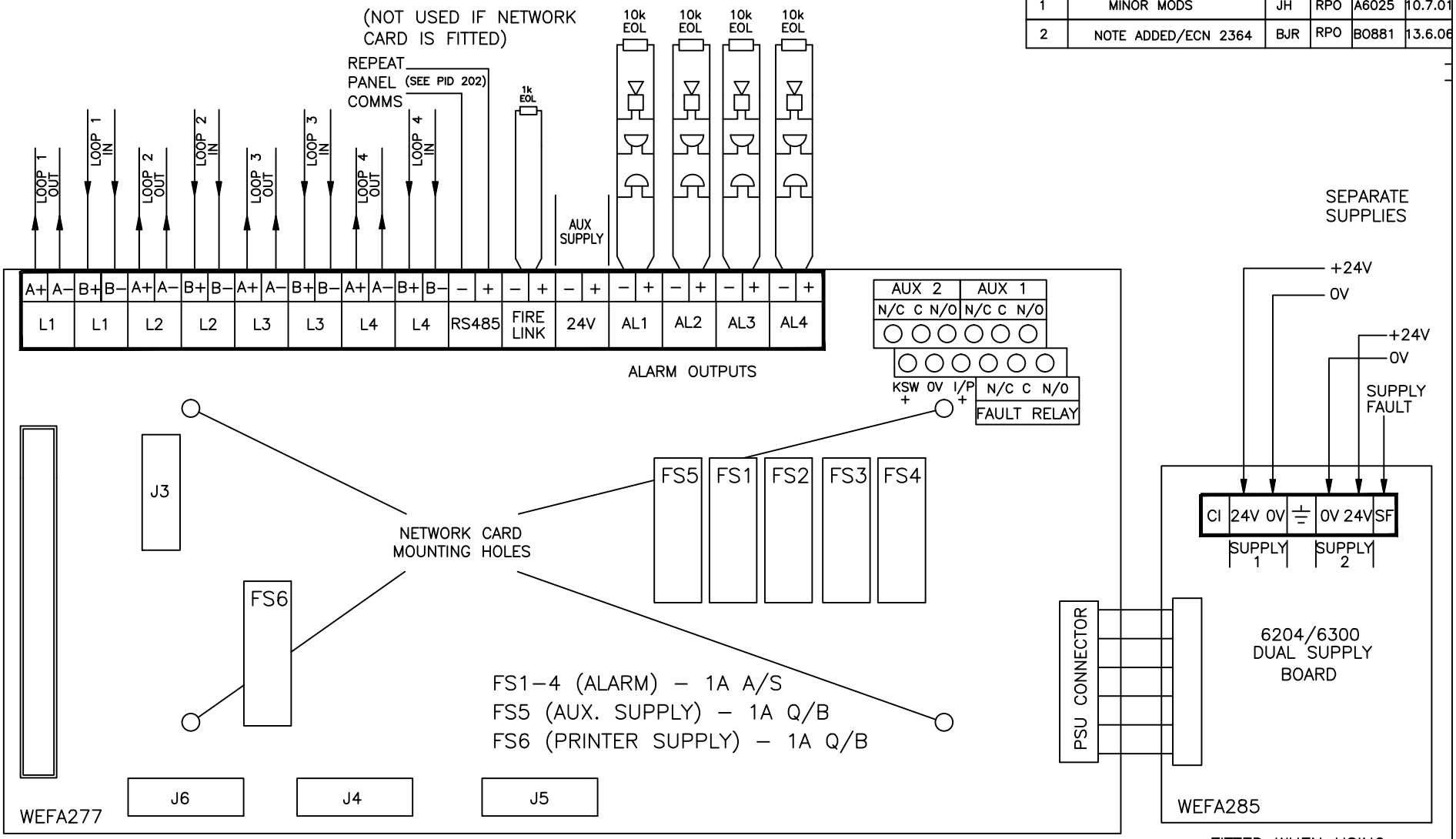
DRAWING No. PID 203

JOB No.

ISSUE 0 1

A4

ISSUE	ALTERATIONS	DRAWN	APP'D	MOD No.	DATE
1	MINOR MODS	JH	RPO	A6025	10.7.01
2	NOTE ADDED/ECN 2364	BJR	RPO	B0881	13.6.06



NETWORK CARD UPGRADE

1) FIT THE 4 STANDOFFS TO THE FIXING HOLES.
2) MOUNT THE NETWORK CARD ONTO THE STANDOFFS.
3) FIT POWER LEAD (SUPPLIED) FROM J3 TO NETWORK CARD J1.
4) FIT 232 LEAD (SUPPLIED) FROM J4 TO NETWORK CARD J4.
5) USE THE RS485 TERMINALS ON THE NETWORK CARD AND NOT THOSE ON THE TERMINAL BOARD.

Protec
Protec Fire Detection plc
Protec House, Churchill Way, Lomeshaye Ind. Est
Nelson, Lancashire, U.K. BB9 6RT
Tel (01282) 717171 Fax (01282) 717273

SCALE	DESIGNED		
N.T.S.	DRAWN	J HACKING	26.3.01
	CHECKED	R.P.OLDLAND	28.3.01
	APPROVED	P.DEW	28.3.01

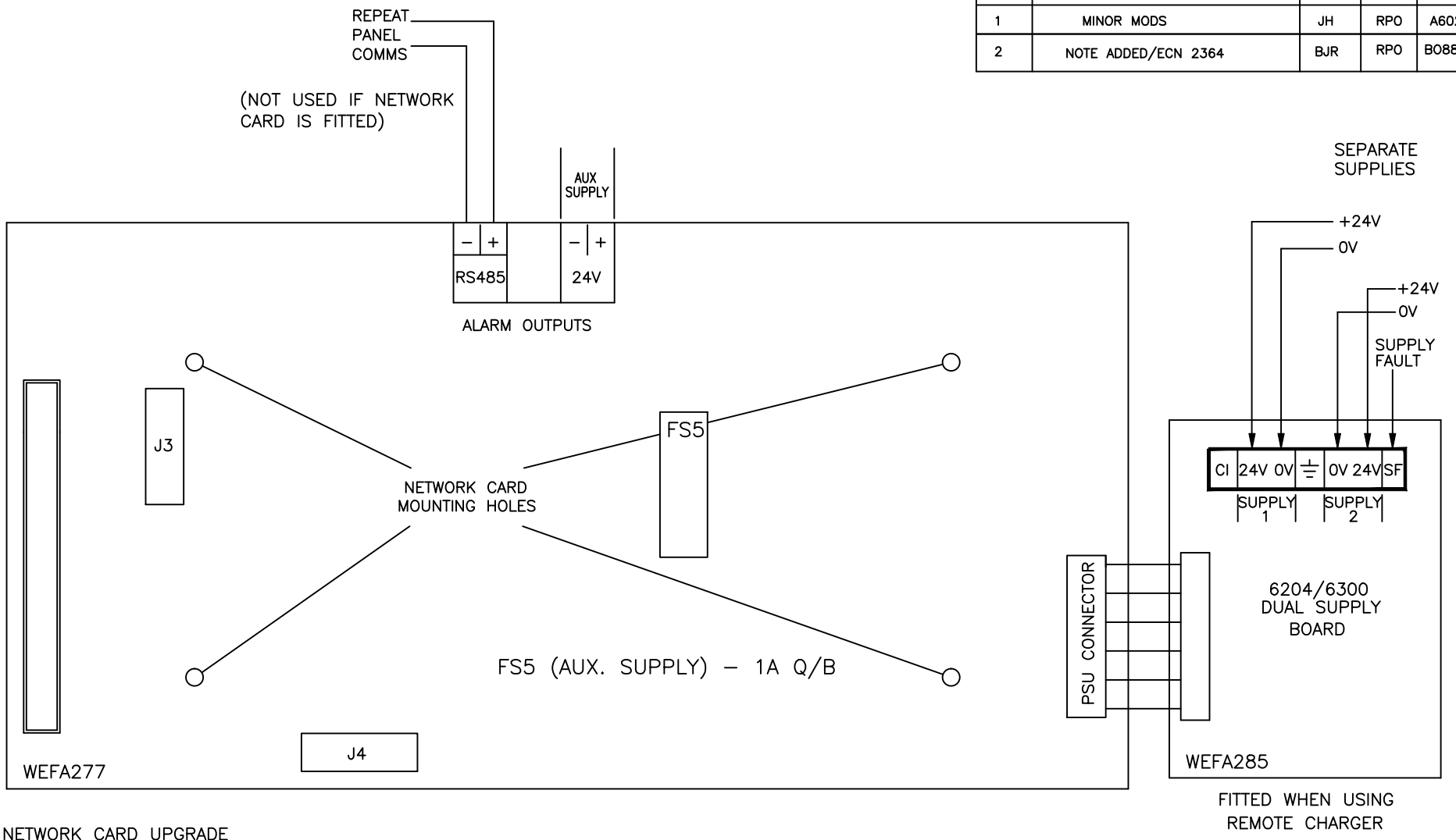
TITLE
6204/6300
TERMINAL BOARD CONNECTIONS

DRAWING No. PID201

JOB No.

ISSUE 0 1 2

ISSUE	ALTERATIONS	DRAWN	APP'D	MOD No.	DATE
1	MINOR MODS	JH	RPO	A6025	12.7.01
2	NOTE ADDED/ECN 2364	BJR	RPO	B0881	13.6.06



NETWORK CARD UPGRADE

1) FIT THE 4 STANDOFFS TO THE FIXING HOLES.
2) MOUNT THE NETWORK CARD ONTO THE STANDOFFS.
3) FIT POWER LEAD (SUPPLIED) FROM J3 TO NETWORK CARD J1.
4) FIT 232 LEAD (SUPPLIED) FROM J4 TO NETWORK CARD J4.
5) USE THE RS485 TERMINALS ON THE NETWORK CARD AND NOT THOSE ON THE TERMINAL BOARD.

Protec
Protec Fire Detection plc
Protec House, Churchill Way, Lomeshaye Ind. Est
Nelson, Lancashire, U.K. BB9 6RT
Tel (01282) 717171 Fax (01282) 717273

SCALE	DESIGNED		
NTS	DRAWN	J HACKING	28.3.01
	CHECKED	R.P.OLDLAND	28.3.01
	APPROVED	P.DEW	28.3.01

TITLE

6204/6300 REPEAT TERMINAL BOARD CONNECTIONS

DRAWING No. PID202

JOB No.

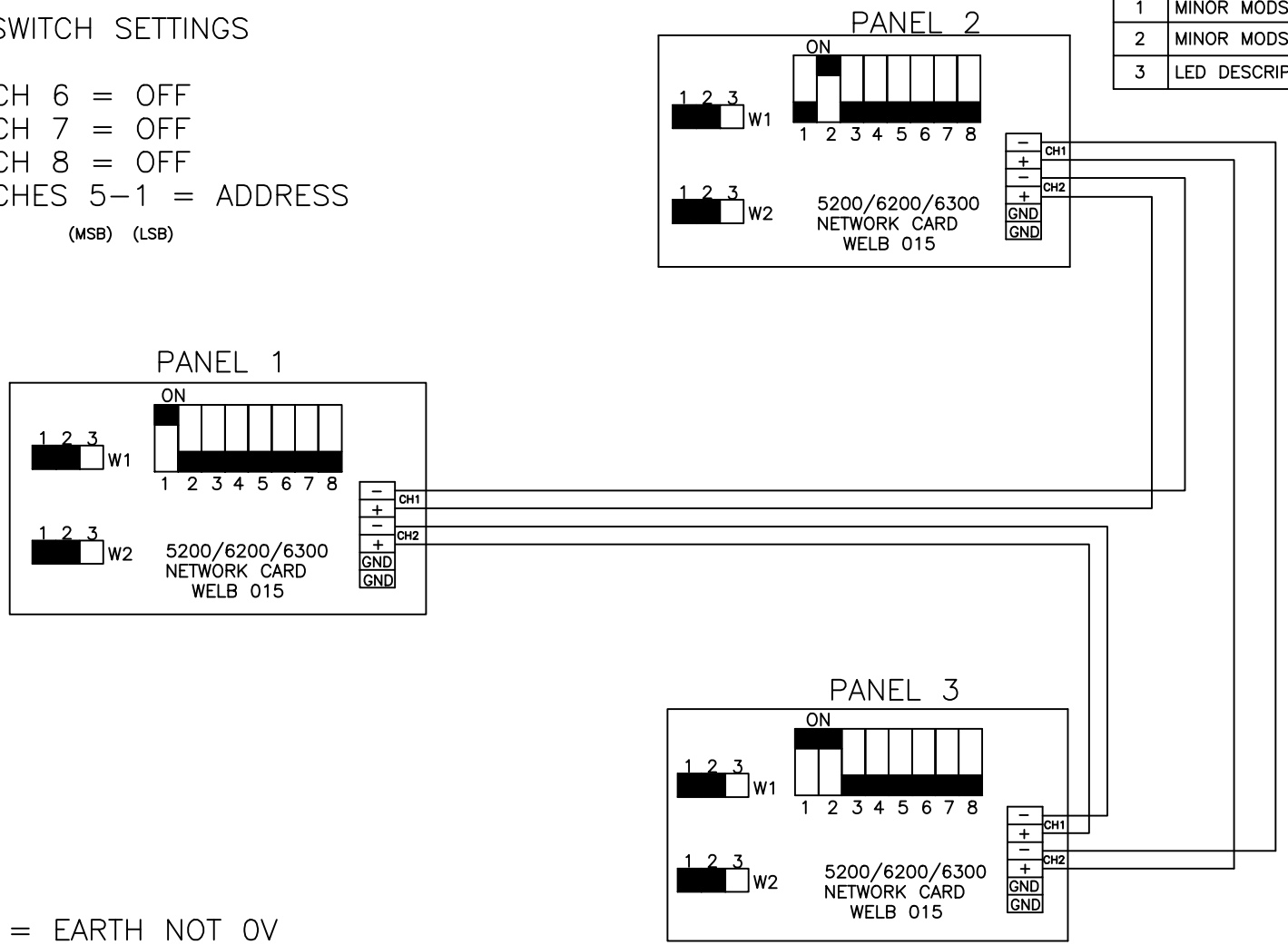
ISSUE 0 1 2

A4

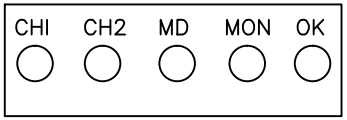
ISSUE	ALTERATIONS	DRAWN	APP'D	MOD No.	DATE
1	MINOR MODS	CLW	JW	A5164	15.8.00
2	MINOR MODS	JH	RPO	A6025	10.7.01
3	LED DESCRIPTIONS ADDED	LMc	RPO	A7106	23.9.02

DIL SWITCH SETTINGS

SWITCH 6 = OFF
SWITCH 7 = OFF
SWITCH 8 = OFF
SWITCHES 5–1 = ADDRESS
(MSB) (LSB)



NETWORK CARD LEDS



CH1 LIT WHEN RECEIVING ON RS485 CH1 OR WHEN SENDING A NEW EVENT TO THE HOST

CH2 LIT WHEN RECEIVING ON RS485 CH2

MD LIT WHEN THIS CARD IS TRANSMITTING OR WAITING TO TRANSMIT ON THE NETWORK

MON LIT WHEN THIS CARD IS MONITORING BOTH RS485 CHANNELS

OK FLASHING 0.5 SECONDS ON 0.5 SECONDS OFF

NOTE:
1)GND = EARTH NOT 0V
2)A COMMON 0V IS NOT REQUIRED, OPTO–ISOLATION OF BOTH CHANNELS IS PROVIDED AS STANDARD
3)ADDRESSES MUST BE CONSECUTIVE AROUND THE LOOP.
4)ADDRESSES MUST BE THE SAME AS THOSE ASSIGNED ON EACH PANEL.

Protec
Protec Fire Detection plc
Protec House, Churchill Way, Lomeshaye Ind. Est
Nelson, Lancashire, U.K. BB9 6RT
Tel (01282) 717171 Fax (01282) 717273

SCALE	DESIGNED		
N.T.S.	DRAWN	G.INGHAM	27.6.00
	CHECKED	P.STRICKLAND	29.6.00
	APPROVED	P.DEW	29.6.00

TITLE 5200/6200/6300 NETWORK CONNECTIONS

DRAWING No. PID194

JOB No.

ISSUE 0 1 2 3

A4

Protec Fire Detection PLC, Protec House, Churchill Way, Nelson, Lancashire, BB9 6RT.

Telephone: **+44 (0) 1282 717171**
Fax: **+44 (0) 1282 717273**
Web: **www.protec.co.uk**
Email: **sales@protec.co.uk**