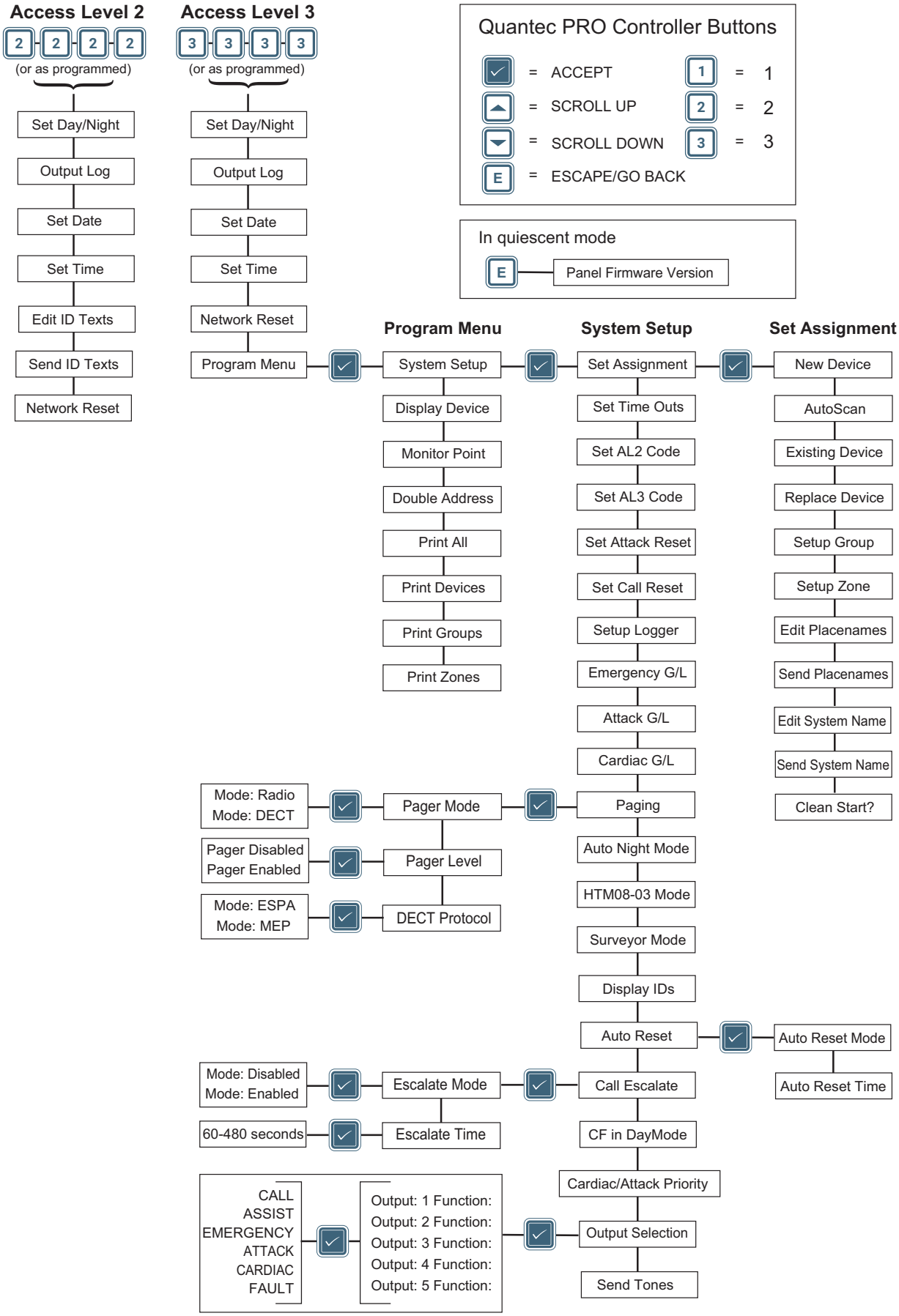
QP901
Quantec PRO
Controller

installation and programming manual

Approved Document No. DNU9010000 Rev 1 15/03/2025

C-TEC
Quantec PRO

Overview of Access Levels



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Manufacturer: Computionics Limited (C-TEC), Challenge Way, Martland Park, Wigan, Lancashire WN5 0LD. www.c-tec.com

ITEMS SUPPLIED

- Electrical accessory pack containing the following:

  1 x Allen key for unfastening/securing the panel lid
  1 x Primary fuse (T 1A H 250V, ceramic, 20mm)
  1 x Set of battery connection leads.

IMPORTANT NOTES

This equipment must only be installed and maintained by a suitably skilled and technically competent person.

- This Installation & Programming manual (Document No. DNU9010000) **MUST NOT be accessible to the general user.**
- This equipment is a piece of Class 1 equipment and MUST BE EARTHED.
- No responsibility can be accepted by the manufacturer, or distributors of this equipment for any misinterpretation of an instruction, or guidance note, or for the compliance of the system as a whole.
- The manufacturer's policy is one of continuous improvement and we reserve the right to make changes to product specifications at our discretion and without prior notice. E&OE.
- **Important Note: When Quantec PRO is powered up for the first time, the controller may need to reset its configuration data to default values. The message 'Fit NVM Link', or 'E' to Abort' will be displayed. When the NVM link is fitted, the message 'INITIALISING DATA, PLEASE WAIT' will flash on the display. This procedure may take up to 1 minute and MUST be completed before Quantec PRO will operate properly.**

System Design

Addressable call system design is beyond the scope of this document. A basic understanding of addressable call system components and their use is assumed.

We strongly recommend that a suitably qualified and competent person is consulted in connection with the design of the call system and that the system is commissioned and serviced in accordance with the contract specification and national standards. The building manager responsible for the property should be contacted at an early stage in case he/she has any special requirements.

Equipment Guarantee

This equipment is not guaranteed unless the complete system is installed and commissioned in accordance with the laid down national standards by an approved and competent person, or organisation.

SUMMARY OF SYSTEM ENHANCEMENT FUNCTIONS - QUANTEC PRO

Improved Power Efficiency

New Quantec PRO devices have been designed with improved network power consumption/efficiency, potentially increasing the number of devices that can be connected on the Quantec network. The new QP902RS Call Points/QP904 Monitor Points are more efficient and the ODLs, both Slave and Addressable, are much more efficient when lighting the bright LEDs.

New Cardiac Call Level

Cardiac call level is reported on new Quantec PRO devices, including the QP908C Corridor Displays, QP906A Addressable ODL and QP906 Slave ODL. A blue LED has been added to indicate cardiac calls.

Cardiac call level can only be raised at the Quantec PRO Cardiac Call Point (QP902CP) or Multipurpose Programmable Device (QT611). Cardiac calls can only be cleared at the Quantec PRO Cardiac Call Point (QP902CP) itself.

By default, cardiac calls have a higher priority than attack calls when active on the system. The cardiac/attack priority may be changed by an engineer to suit the application.

Cardiac calls cannot be raised via an Infrared call device, Panic Transmitter, etc.

Increased Corridor Display Placenames

An increased number of placenames are available on the QP908C Corridor Displays and QT608CD1S Large Corridor Displays.

Up to 255 custom placenames are available, with the first 40 defaulting to preset placenames on a ‘clean start’. Previously this was 40 fixed placenames & 45 custom placenames.

Each placename may have 20 characters + 4 suffixes. Previously this was 11 characters + 4 suffixes (suffix is the device address as default).

Improved Programming Tools

The Quantec PRO Programming Tools now incorporate the Device Configurator application. The tools are a downloadable app available on ‘Microsoft Store’ and require a QP907 programming lead.

The improved tools can import previously saved configurations and supports new panel features such as longer placenames, enhanced routing equations and cardiac call level.

Global tones can be edited to update Corridor Displays/ Addressable Over Door Lights.

Improved QP901 Quantec PRO Controller

- 5 x Volt-free outputs are now selectable as more call levels (including cardiac) are available than outputs available. **Note: The corridor display section ‘mimicked’ on the LCD has now been removed on the QP901 controller. You now have to buy a separate Corridor Display.**
- Added new menus: Cardiac G/L (Global/Local), Cardiac/ Attack Priority, Output Selection and Send Tones.
- Longer, editable placenames (see previous).
- Global tones added for the new QP908 Corridor Displays and the new QP906A Addressable OD Lights.
- AutoScan function now sets the device suffix to #xxx, where xxx is the device address as default (This can be changed when editing the device placename for that device later.)

Routing Equations

The number of terms available in the Group configuration equation has been increased from 8 to 16.

The number of terms available in the Zone configuration equation has been increased from 8 to 16.

More Advanced Paging

Allows any call on the Quantec PRO system to be routed to handheld alphanumeric pagers. Paging transmitter and pagers support longer 20 character + 4 suffix placenames.

New Quantec PRO Devices

QP902RS Quantec PRO Call Point
- New larger style.
- c/w Infrared receiver and call follower sounder.
- Includes 2 x RJ11/12 connectors allowing two ancillary devices to be plugged in.

QP902D Quantec PRO Slave Call Point
- New larger style.
- Includes 2 x RJ11/12 connectors allowing two ancillary devices to be plugged in.

QP902CP Quantec PRO Cardiac Call Point:
- Pull-on, push-off actuator switch.
- Raises and clears cardiac calls.
- Blue LED added to indicate cardiac calls.

QP904 Quantec PRO Monitor Point
- New larger style.

QP908C Quantec PRO Corridor Display
- New larger style.
- Supports longer placenames. The displayed text automatically changes size to accommodate longer placenames.
- Improved readability and sounds from internal speaker.
- Internal jumper link disables the 3 front buttons.

QP906A Quantec PRO Addressable Overdoor Light
- Improved sounds/tones. Global tones added.
- Blue LED added to indicate cardiac calls.

QP906 Quantec PRO Slave Overdoor Light
- Improved sounds/tones. Global tones added.
- Blue LED added to indicate cardiac calls.

THE QUANTEC CONCEPT

The Quantec addressable call system is ideal for nursecall, general call and 'staff attack' applications.
In healthcare environments, it is usual for nursing homes and hospital staff to be responsible only for certain areas of the building depending on factors such as layout, care type, staff-to -patient ratios. Therefore, to create an effective call system, all call points and monitor points within the building need to have their messages 'routed' only to the corridor displays relevant to certain staff.

Quantec PRO does this by setting all the call points within one part of the nursing home as one 'Area', and all the call points within another part of the building as another Area. Similarly, corridor displays are set as members of different 'Groups', again dependent on their location within the building. The object of grouping devices in this manner is to allow simple routing equations which describe how messages are directed around the system by the Quantec PRO Controller.

However, before being set as members of an Area or Group, all networked addressable devices (except ancillary devices) must be given a unique device ID address so the Quantec PRO Controller may identify them.
Addressable devices include Call Points, Cardiac Call Points, Corridor Displays, Monitor Points, Addressable Overdoor Lights, Addressable Hi-Op Sounders and Radio Receivers. Ancillary devices include Slave Overdoor Lights, Ceiling Pulls and Slave IR Ceiling Receivers.

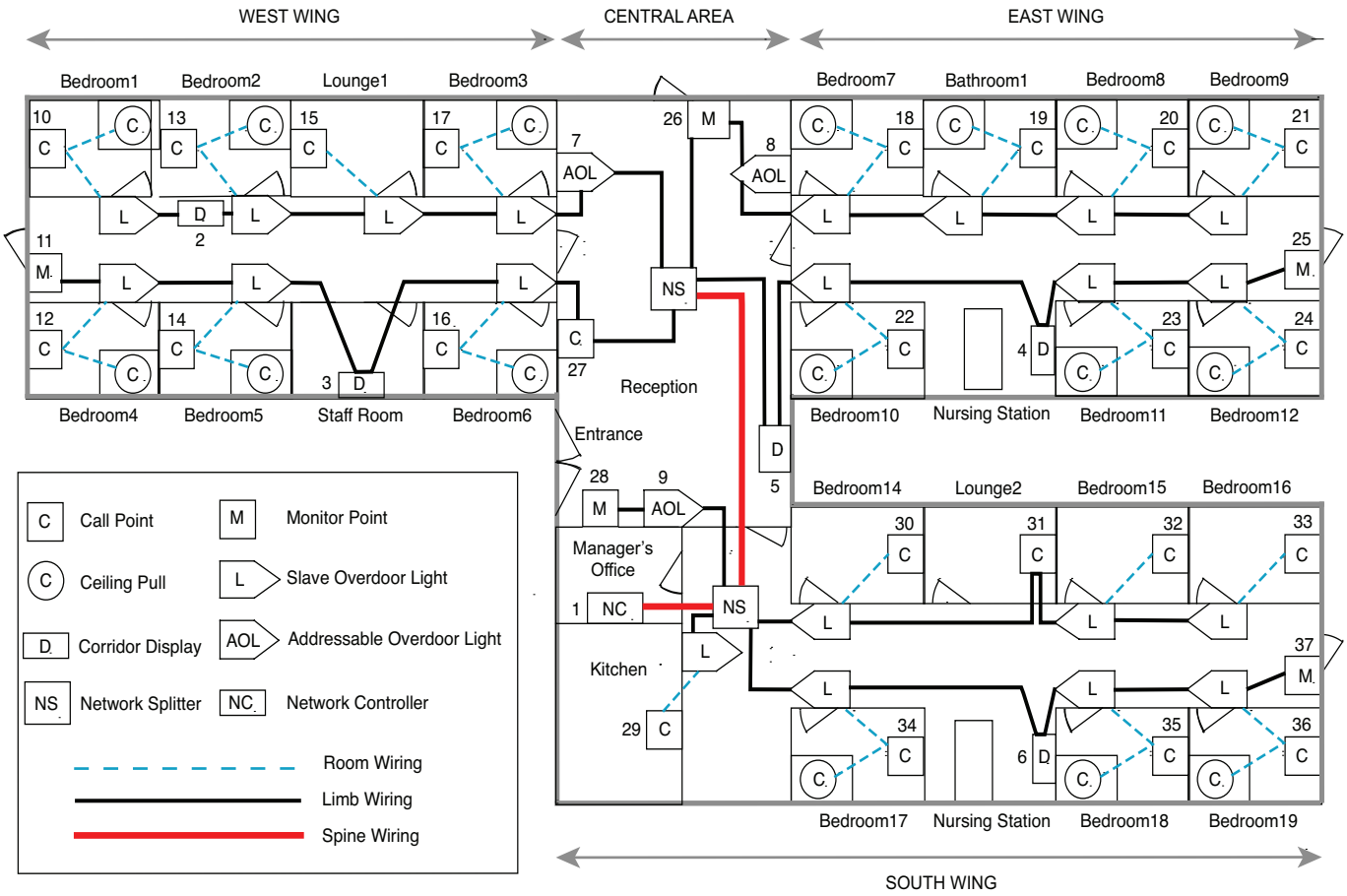
The example illustration of a fictional nursing home (below) explains how the Quantec concept can be applied.

All calls made from Bedrooms 1 to 6 and Lounge 1 will be dealt with by staff located in West Wing. Therefore, all the call points/ monitor points in the West Wing (devices 10-17) are assigned as members of one Area (Area A) and all corridor displays in West Wing (devices 2 and 3) are assigned as members of one Group (Group 1). A similar scenario applies to the East Wing, the Central Area and the South Wing.

Also, it is possible to program the addressable overdoor light outside the West Wing (device 7) so it will indicate when a call has been made from any calling devices in Area A. To do this, each addressable overdoor light needs to be assigned as a member of a 'Zone'. (If used, addressable Hi-Op sounders should also be assigned as members of a Zone.)

By referring to the nursing home installation plans, it is possible to determine the Area, Group and Zone 'sets' for the entire site and plot them onto a Device Assignment Table, similar to the one shown on the following page.

Note: Templates for Device Assignment Tables are at the back of this document.



The Device Assignment Table (below) can be used as a reference aid when programming Quantec PRO. However, before programming can begin, the day-to-day requirements of the call system must be learnt from the client to enable the routing relationships between the various Areas, Groups and Zones.

Example Requirement 1: At night, when less staff are on duty, calls need to go to different nursing stations than during the day, i.e. from unmanned nursing stations to staffed locations.

Example Solution 1: Two different routes can be programmed into Quantec PRO - a primary (day) route to specify which call Areas sound during daytime hours and a night route to specify which call Areas sound at night.

Quantec PRO can be programmed to enter and exit night mode either automatically (by an engineer) or manually (by an authorised user).

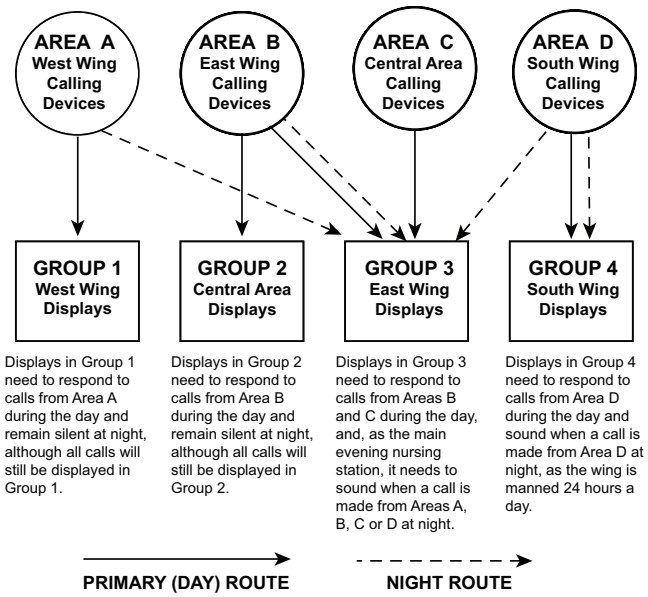
QUANTEC PRO DEVICE ASSIGNMENT TABLE

DEVICE		Call Point AREA (A to Z)	Corridor Display GROUP (1 to 32)	Addressable Overdoor Light ZONE (1 to 64)	PLACE DESCRIPTION	
Number	Type				Placename	Suffix
1	MAIN		4		Display	NET1
2	D		1		Display	1
3	D		1		Staff Room	1
4	D		2		Display	2
5	D		3		Display	3
6	D		4		Display	1D
7	Z			1	OD Light	1
8	Z			2	OD Light	1
9	Z			3	OD Light	6
10	C	A			Bedroom	WW1
11	M	A			Exit	WW1
12	C	A			Bedroom	WW4
13	C	A			Bedroom	WW2
14	C	A			Bedroom	WW5
15	C	A			Lounge	WW1
16	C	A			Bedroom	WW6
17	C	A			Bedroom	WW3
18	C	B			Bedroom	EW7
19	C	B			Bathroom	EW1
20	C	B			Bedroom	EW8
21	C	B			Bedroom	EW9
22	C	B			Bedroom	EW10
23	C	B			Bedroom	EW11
24	C	B			Bedroom	EW12
25	M	B			Exit	EW1
26	M	C			Exit	CEN1
27	C	C			Annexe	CEN2
28	M	C			Entrance	CEN3
29	C	D			Kitchen	1
30	C	D			Bedroom	SW14
31	C	D			Lounge	SW2
32	C	D			Bedroom	SW15
33	C	D			Bedroom	SW16
34	C	D			Bedroom	SW17
35	C	D			Bedroom	SW18
36	C	D			Bedroom	SW19
37	M	D			Exit	SW1
38	R	D			Car Park	EXT

D = Corridor Display; Z = Addressable Overdoor Light or Sounder; C = Call Point; M = Monitor Point; R = Radio Receiver

Max. no. of Addressable Devices = 255; Max. no. of Areas = 26; Max. no. of Groups = 32; Max. no. of Zones = 64

For example in the nursing home highlighted earlier, it may be decided that the routing relationship between Areas and Groups needs to be as follows:



It should be noted that in night mode, displays not programmed to sound when a call is made will still display ALL calls visually on the system.

In night mode, any call point that has a 'call follower sounder' installed (optional) and is in the 'presence' state will indicate that another call has been initiated by emitting a soft tone.

Example Requirement 2: Although each wing of the nursing home will be staffed independently if a call is not answered within a certain time period, it must be automatically flagged elsewhere in the building to ensure a response. Similarly, if a nurse has to leave her nursing station, she must be able to manually divert calls in her absence.

Example Solution 2: Quantec PRO can be programmed to divert calls from one Group of corridor displays to Groups located elsewhere, either automatically (after a pre-determined time) or manually. For instance, if any call signalled to Group 1 corridor displays is not answered after 1-8 minutes (adjustable), it can be programmed to automatically divert to corridor displays in, say, Groups 2 and 3. Once the routing relationships between Areas and Groups have been decided, they should be programmed into a Group Routing Table, similar to the example shown below (for details of how to set the time-outs for automatic divert, see 'Programming Quantec PRO' section).
Note: Templates for Group Routing Tables are located at the back of this document.

QUANTEC PRO GROUP ROUTING TABLE (max.16 Areas/Groups per equation)

Group	Primary Areas	Night Areas (Beep)	Divert to Groups
1	A		2, 3
2	B		
3	B, C	A, B, C, D	
4	D	D	

Example Requirement 3: In addition to standard slave overdoor lights (positioned outside rooms), a method of visually guiding staff along small off-shoot corridors to the source of a call is also required.

Example Solution 3: Quantec PRO's addressable overdoor lights can be programmed to respond to calls from any Area(s) just as Groups of corridor displays can. For instance, the addressable overdoor light in Zone 1 of the example illustration needs to respond to all calls from Area A. It is possible to program a series of strategically placed addressable overdoor lights to lead staff directly to the source of a call by putting Areas in the Area equation, i.e. 'Follow My Leader' lights.

For each Zone there are, in fact, two equations - one for Areas and one for devices. The device equation would be used if an addressable overdoor light was positioned outside a room with more than one call point or where (say, in a refurbishment) only two wires are available. By including the device numbers of the relevant call points within that room in the device equation, the addressable overdoor light will illuminate when a call is made.

Once the routing relationships between Zones, Areas and (if applicable) devices have been decided, they should be programmed into a Zonal Routing Table (see example below).
Note: Templates for Zonal Routing Tables are located at the back of this document.

QUANTEC PRO ZONAL ROUTING TABLE (max. 16 Areas/Devices per equation)

Zone	Area Equation	Device Equation
1	A	
2	B	
3	D	

Example Requirement 4: Although STANDARD patient and ASSIST (HELP REQUIRED) calls should be flagged in each independently staffed wing to ensure a swift response to any EMERGENCY or ATTACK calls, these should be flagged throughout the nursing home as soon as they are made.

Example Solution 4: EMERGENCY and ATTACK calls can be sent either locally or globally during the day, depending on each client's specific requirements. If 'Local' is chosen, the calls are sent only to the corridor display Groups set up in the routing table. Alternatively, if 'Global' is selected, the calls are sent out to every corridor display on the network. (See 'Programming Quantec PRO' section for further details.)

Example Requirement 5: To assist in the efficient running of the nursing home and to combat any accusations from patients' relatives that calls are not being answered quickly enough, a reliable form of evidence is required to prove that nurses are attending to patients as soon as possible.

Example Solution 5: Quantec PRO's Controller includes a built-in datalogger which, if selected, will record all activities on the call system, including calls, resets and faults.

QUANTEC PRO SYSTEM WIRING OVERVIEW

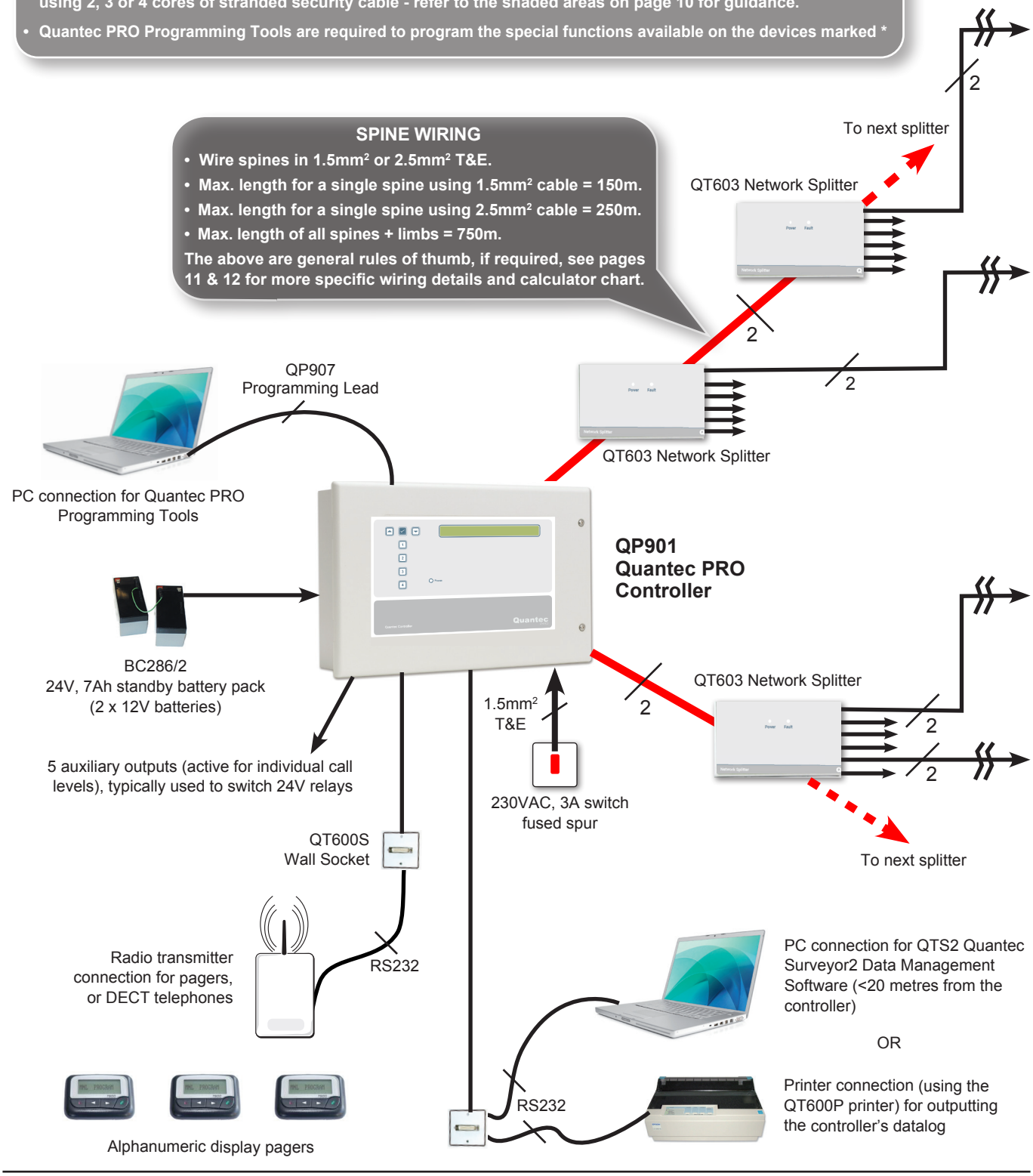
GENERAL WIRING RULES

- Quantec PRO utilises a unique data protocol that works down just two wires.
- All system wiring is made in a 'Spine' and 'Limb' configuration, using network splitters.
- Distribute splitters evenly throughout the site and locate at an accessible height.
- A maximum of 255 addressable devices can be connected on a Quantec PRO system.
- Slave devices such as slave ceiling pulls, slave overdoor lights and slave infrared ceiling receivers connect to Quantec PRO via a master call point, master ceiling receiver, monitor point or universal programming device using 2, 3 or 4 cores of stranded security cable - refer to the shaded areas on page 10 for guidance.
- Quantec PRO Programming Tools are required to program the special functions available on the devices marked *

SPINE WIRING

- Wire spines in 1.5mm² or 2.5mm² T&E.
- Max. length for a single spine using 1.5mm² cable = 150m.
- Max. length for a single spine using 2.5mm² cable = 250m.
- Max. length of all spines + limbs = 750m.

The above are general rules of thumb, if required, see pages 11 & 12 for more specific wiring details and calculator chart.



QT616 IR/RF Fall Sensor *

QT302RXS Slave IR Receivers (max. 3 per master IR receiver)

QT432 IR/RF Pendant *

QT412 IR/RF Transmitter *

QP908C Corridor Display

QT302RX Master IR Receiver *

QP906 Slave Overdoor Light

QT688/2 Addressable Hi-Op Sounder *

To the magnetic contacts on a fire exit/ drug cupboard, or to the switch on a door bell.

QP904 Monitor Point

QT608CD1S Large Corridor Display

RS232 <30 metre length

QP902RS Call Point *

QP915 Large Display Interface

QP906 Slave Overdoor Light

To third-party strobe, auto-dialler or BMS

QP908C Corridor Display

QP902CP Cardiac Call Point

QT612 Programmable Relay Output Device *

QT422RX Radio Receiver

QT421 Integrity Transmitter

QP906A Addressable Overdoor Light

LIMB WIRING

- **Wire limbs in a minimum of 4 core cable (7/0.2mm² strand) twisted into pairs to reduce voltage drop.**
- **Number of limbs per splitter = 6; Max. length per limb = 60 metres.**
- **Max. number of addressable devices per limb = 15; Max. number of addressable devices per splitter = 60.**
- **If possible, distribute devices at approximately equal distances along the length of the limb.**
- **Addressable devices require 2 network connections, slave devices require 2, 3 or 4 cores, as shown.**

The above are general rules of thumb, if required, see pages 11 & 12 for more specific wiring details.

QP906 Slave Overdoor Light

To third-party switch assembly or Day/Night switch

QP902CP Cardiac Call Point

QP908C Corridor Display

QP902RS Call Point *

QT611 Universal Programming Device *

QP902RS Call Point *

QT302RXS Slave IR Receiver (max. 3 per master call point)

QP906 Slave Overdoor Light

Slave Panic Button

QP902RS Call Point *

QT607 Slave Ceiling Pull (max. 3 per master call point)

If slave overdoor lights are fitted in corridors, good practice is to loop the network in and out of the overdoor lights and then spur off into the relevant addressable call point inside the room.

QT688/2 Addressable Hi-Op Sounder *

QP902D Slave Call Point (max. 5 call points/ceiling pulls per master call point)

QP902RS Call Point *

QP908C Corridor Display

QP906 Slave Overdoor Light (max. 4 per master call point)

QT302RXS Slave IR Receiver (max. 3 per master call point)

QT607 Slave Ceiling Pull (max. 5 call points/ ceiling pulls per master call point)

QT32 IR/RF Pendant *

QT12 IR/RF Transmitter *

Planning an Installation

The **Quantec PRO Controller** can be located anywhere on the network. However, it is standard practice to install it centrally to reduce wiring runs, ideally in a manager's or supervisor's office. If Quantec's QTS2 Surveyor Data Management Software is required, the PC used to run the software must be located within 20 metres from the controller.

Network splitters are best located in corridors where they can be easily accessed. In addition to protecting the system from open and short circuit faults, the more that are fitted, the easier it is to install, commission and maintain the system.

As a general rule of thumb, install one splitter per corridor junction (located at the end of the corridor nearest to the Quantec PRO Controller). However, if the corridor is longer than 50 metres, install the network splitter in the centre of the corridor to reduce the wiring runs required for each limb.

Note that the **ONLY** recommended method of wiring Quantec PRO involves using network splitters. **DO NOT** wire any devices to the spine other than network splitters. The more splitters you use, the easier and quicker it is to program/fault-find.

Refer to the splitter PCB layout drawing (below).

Each network splitter has the following:

- one network input and one network output 'spine' connection (both unfused).
- six fused (400mA) output 'limbs' for wiring individual circuits containing Quantec devices.

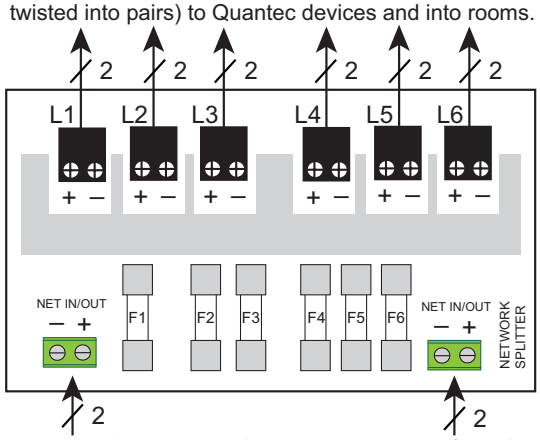
When wiring to a network splitter, **ALWAYS** remove the plug-on connectors from the PCB and reconnect them when the wiring is secure in the terminal block. Failure to do so could result in the terminal block twisting and the PCB being damaged.

Each splitter has two indicators, green 'Power' indicates power is being supplied to the network and yellow 'Fault' indicates one of the splitter's circuits has a blown fuse. (**N.B**. unused circuits may have their fuses removed without showing a fault).

A maximum of 60 addressable devices can be connected to each network splitter.

Quantec Network Splitter PCB Layout

2-core 'Limb' wiring (e.g. 4 or 6-core security cable twisted into pairs) to Quantec devices and into rooms.



2-core 'Spine' wiring (e.g. 1.5mm² - 2.5mm² T&E) from Network Controller to other Network Splitters.

General Purpose Wiring Instructions

With Quantec PRO a limiting factor is voltage drop, which should be limited to 5 volts in the worse case. As call points and overdoor lights take different amounts of current depending on whether they are in a calling or quiescent state, it is difficult to predict the exact consequences of voltage drop without knowing the exact configuration.

The System Wiring Overview on pages 9 & 10 lists general rules of thumb for wiring a Quantec PRO system. In addition, the following is assumed:

1. Network splitters will be used throughout the network.

2. All spines will be wired in 1.5mm² or 2.5mm² c.s.a. cable.

3. All limbs will be wired in 7/0.2mm² stranded cable. Use a minimum of 4 core cable, doubling up by parallelling 2 cores for the positive (NET+) and 2 cores for the 0 volt (NET-).
Don't use single strand cable, as it breaks too easily!

4. If overdoor lights are used or devices are installed at the end of a limb, use 6 core cable, twisted into pairs.

5. A maximum of 15 networked devices may be connected to any limb, with the most distant device no further than 60 metres from the network splitter.

6. If possible, devices should be distributed at approximately equal distances along the length of each limb.

First Fix

1. Plan cable routes and site the network splitters in strategic positions as previously described. Please note, as the system is addressable, the programming of devices is not dependent on their location on the network. Therefore, devices that are difficult to access do not have to be connected to the same network splitter as other call points in the same area. For reference purposes, an example of the planned cable routes for a fictional nursing home is shown on page 6.

Care should be taken when planning cable routes to stay within voltage drop limitations detailed above.

Spine Length Calculator

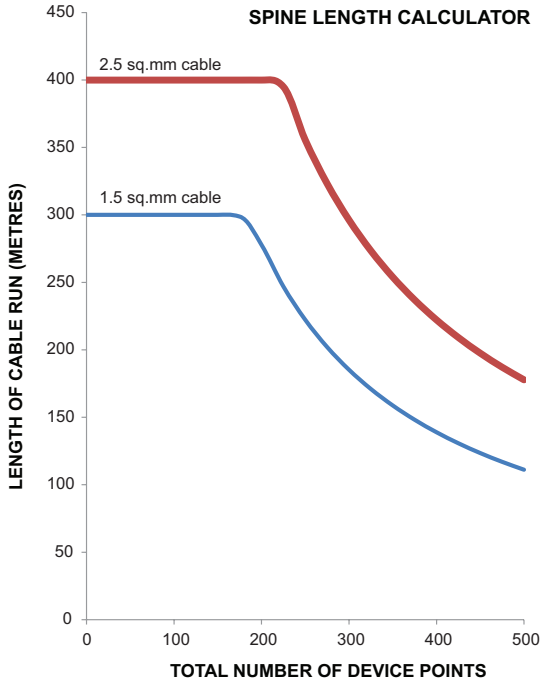
Use the Spine Length Calculator (below) to work out the maximum spine cable lengths, taking into account the number and type of devices connected to any network splitter(s) on that spine. If several splitters are connected to one spine, then the calculation is for every device connected to that run of 1.5mm² or 2.5mm² cable on all splitters.

All spines wired from the Quantec PRO Controller should be calculated separately.

For the fictional nursing home highlighted earlier (see page 6), which has two splitters connected to one 'spine', the points calculation (with reference to the Spine Length Calculator) would be as follows:

Corridor Displays (5 x 4 points)	20 points
Addressable OD Lights (3 x 7 points)	21 points
Call Points (23 x 1 point)	23 points
Monitor Points (5 x 1 point)	5 points
Slave OD Lights (21 x 1 point)	21 points
Ceiling Pulls (16 x 0 point)	0 points
Total Number of Device Points	**90 points**

Therefore, the maximum cable run length for this particular spine would be 300 metres of 1.5mm² cable or 400 metres of 2.5mm² cable.



Device Point Values

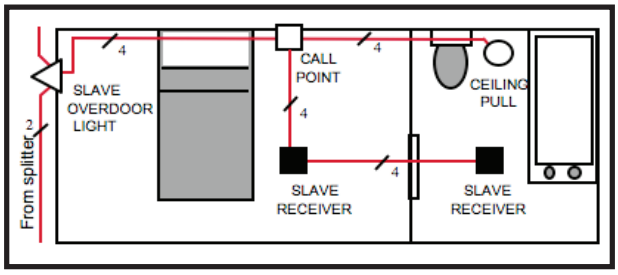
All Quantec PRO devices have a 'points' rating, which takes into account their current consumption and voltage drop risk:

Call Point = 1	Addressable ODL/Hi-Op Sounder = 7
Monitor Point = 1	Corridor Display = 4
IR Slave = 0.5	Large Display Interface = 1.5
Slave OD Light = 1	Ceiling Pull = 0

To determine the maximum length of a particular spine, calculate the total point value of all the devices that will be connected to any network splitter(s) on that spine and read off the relevant figure on the graph above.

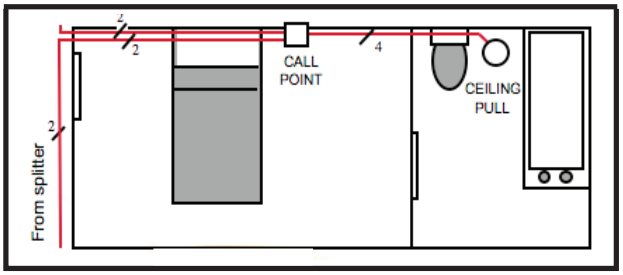
2. Connect 'spines' and fix wiring to overdoor lights (call points if overdoor lights are not used) and mark up the Splitter Connection Record Sheet (located at the back of this document).

3. Wire 'limbs' in each room as required. Typical room wiring diagrams are shown below:



Device wiring when Overdoor Lights are used

Loop the network through the slave overdoor lights, then wire spurs to the call points. This wiring method tends to reduce the cable run to the furthest point.



Device wiring when Overdoor Lights are not used

Second Fix: 1st Stage

1. Fit the Quantec PRO Controller.

2. Connect the network splitters and spines of the network.

3. Power up the system and check that all the network splitter green 'power' lights are on. If they are all off, there is probably a short. If only one is off, there is an open circuit. Rectify any faults. The integrity of the basic network is now proven.

4. Connect the rest of the equipment (call points, ceiling pulls, overdoor lights, monitor points, etc.) as detailed in the wiring diagrams supplied with each device.

5. Plug the limbs onto the network splitters one at a time. For each limb, in turn, check that the green power light on the network splitter is lit and that the furthest networked point on that limb goes into an unassigned call when the device is operated. Rectify any wiring faults as necessary.

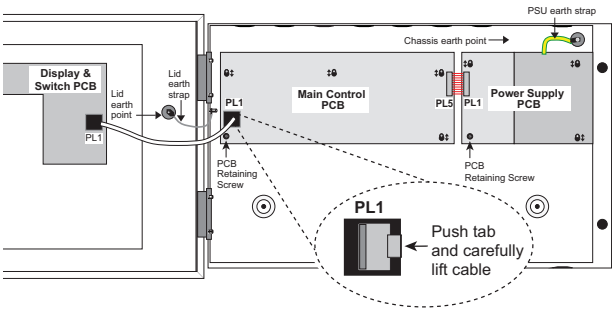
Second Fix: 2nd Stage

See Pre-Commissioning Instructions (Appendix 5) and Programming Quantec PRO section (pages 16 to 27).

MOUNTING THE ENCLOSURE

The Quantec PRO Controller is supplied with a plastic hinged lid, a metal back box and three separate PCBs, the relative location of which is indicated in Figure 1 below.

Figure 1 : Controller PCBs layout



The controller **MUST** be sited indoors in an area that is **NOT** subject to conditions that are likely to affect its performance, e.g. damp, salt-air, water ingress, extremes of temperature, physical abuse, near sources of electromagnetic interference, such as high current machines, welding equipment, etc.

The Quantec PRO Controller can be surface or semi-flush mounted (see Figure 3, bottom right) onto a vertical wall, ≤2 m mounting height.

Exposing the Base Mounting Holes

To expose the Quantec PRO Controller's base mounting holes, its two base PCBs must first be removed. It is recommended that the hinged lid is also removed to prevent accidental damage during the fixing process.

To Remove the Lid:

• Take the controller out of its box and undo the two screws on the right-hand side of the lid using the Allen key provided.

• Hinge the lid 180° to the left (do not overbend the hinges).

• Disconnect the lid/base connecting cable (PL1) from the Main Control PCB. Care should be taken when detaching this connector to depress the telecoms-style locking tab to prevent damage (refer to the inset in Figure 1 above).

• Carefully remove the four M4 retaining nuts that secure the hinges.

To Remove the Base PCBs:

• Ensure power has been removed from the controller and that the Power Supply PCB is safe to handle.

• Disconnect the connector cable (PL5) on the Main Control PCB.

• Pull the PSU earth strap off the spade connector at the main chassis earth point.

• Carefully undo the PCB retaining screw located at the bottom left-hand side of the relevant PCB using a crosshead screwdriver.

• Push the PCBs up and then forward over the mounting pillars, taking care not to damage any of the components.
The controller's lid and base PCBs can now be removed to prevent accidental damage.
Note: The base PCBs are static-sensitive and relevant anti-static handling precautions must be observed when handling them. See Appendix 3 for further details.

Decide carefully how the wiring will be fed into the panel with reference to Figure 2 below and remove the required knock-outs for cable entry. Always ensure that if a knock-out is removed, the hole is filled with a good quality strain relief, cable gland. Any unused knock-outs must be securely blanked off.

It is essential that the 230V AC cable is fed into the enclosure via one of the inlets at the top right-hand corner of the enclosure. For further CRITICAL information on mains connection, please see page 14.

Using the four mounting holes, securely fix the base onto/into a vertical wall, ≤2 m mounting height. The mounting holes are suitable for use with No.8 roundhead or countersunk woodscrews. Always assess the condition and construction of the wall and use suitable screw fixings for the in-service weight of the product. Any dust or swarf created during the fixing process must be kept out of the base.

Figure 2 : Internal view of back box (with PCBs removed) showing mounting holes, knockouts and earthing points

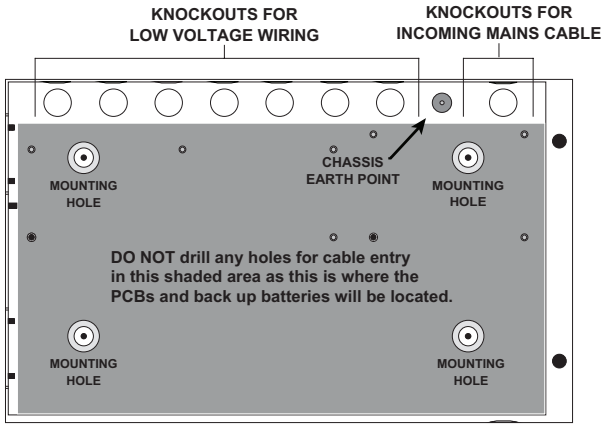
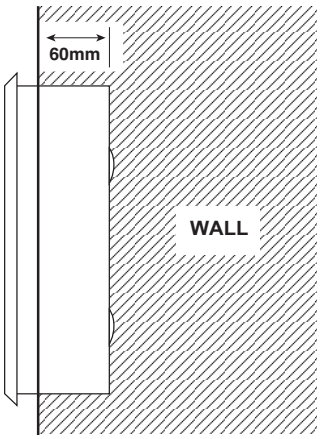


Figure 3 : Semi-flush mounting diagram



CONNECTING THE PANEL

The Power Supply PCB

THIS UNIT MUST BE EARTHED!

The controller's PSU combines the functions of a power supply unit, battery charging unit and battery monitoring unit.
It is a 230V AC, 50-60Hz, switched mode PSU, which stores hazardous voltages of up to 400V DC.

Mains Connection

DO NOT connect mains to the PSU until the installation is complete and all PCBs are correctly attached, the lid/base connecting cable is in place, and all retaining screws are firmly fastened down.

The general requirement for the mains to the controller is fixed wiring, 3-core cable (no less than 0.75mm^2, no more than 2.5mm^2) or a suitable three-conductor system that meets the appropriate national wiring regulations.

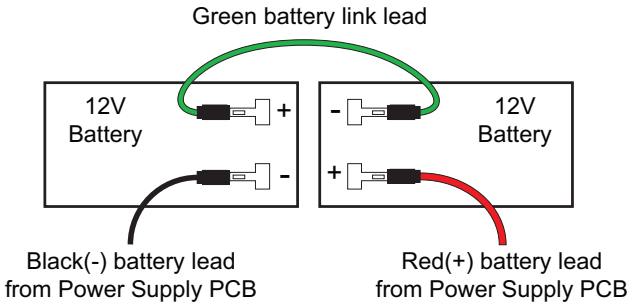
The controller should be fed from an isolating switch fuse spur, fused at 3A, or a 6A Type B circuit breaker to IEC/EN60898-1. This should be secure from unauthorised operation and be marked "CALL SYSTEM : DO NOT SWITCH OFF". The mains must be exclusive to the Quantec PRO Controller.

Correctly terminate the incoming cables, as shown in Figure 4 below. If required, the 5mm connector block (CONN1) can be pulled from the PCB for ease of installation. Ensure the incoming mains earth is connected directly to this connector block and **NOT** to the chassis earth point.

Standby Battery Connection

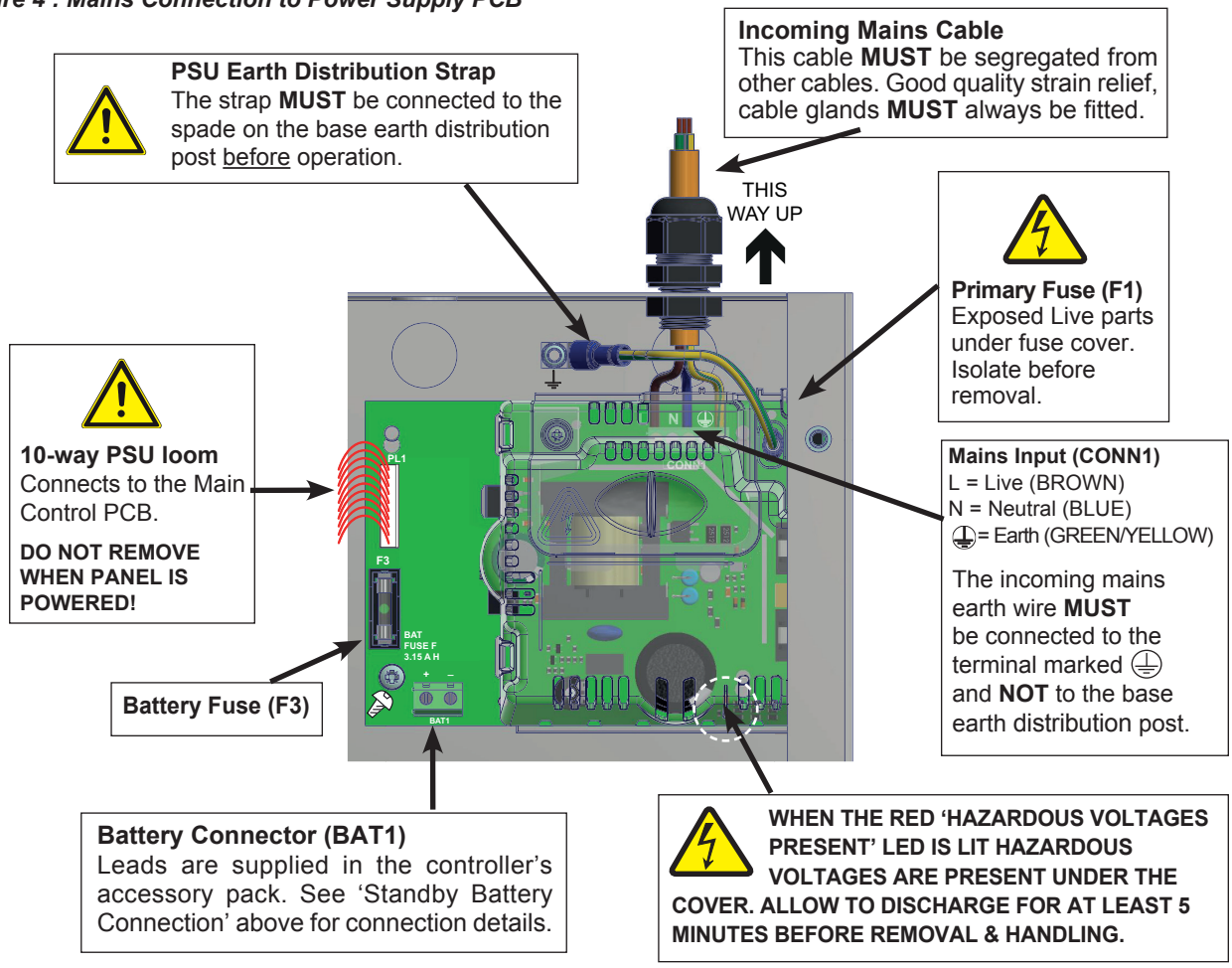
The power supply PCB contains circuitry that not only charges stand-by batteries but also measures their condition to protect against deep discharge.

One feature of this circuitry is allowing the installer to power the system without connecting the mains supply. For this to work, two fully charged 12V VRLA batteries should be connected in series, as shown below (always ensure correct polarity connection).



Important Note: When Quantec PRO is powered up for the first time, the controller may need to reset its configuration data to its default values. The message 'Fit NVM Link', or 'E' to Abort' will be displayed. When the NVM link is fitted, the message 'INITIALISING DATA, PLEASE WAIT' will flash on the display. This procedure may take up to 1 minute and MUST be completed before Quantec PRO will operate correctly.

Figure 4 : Mains Connection to Power Supply PCB



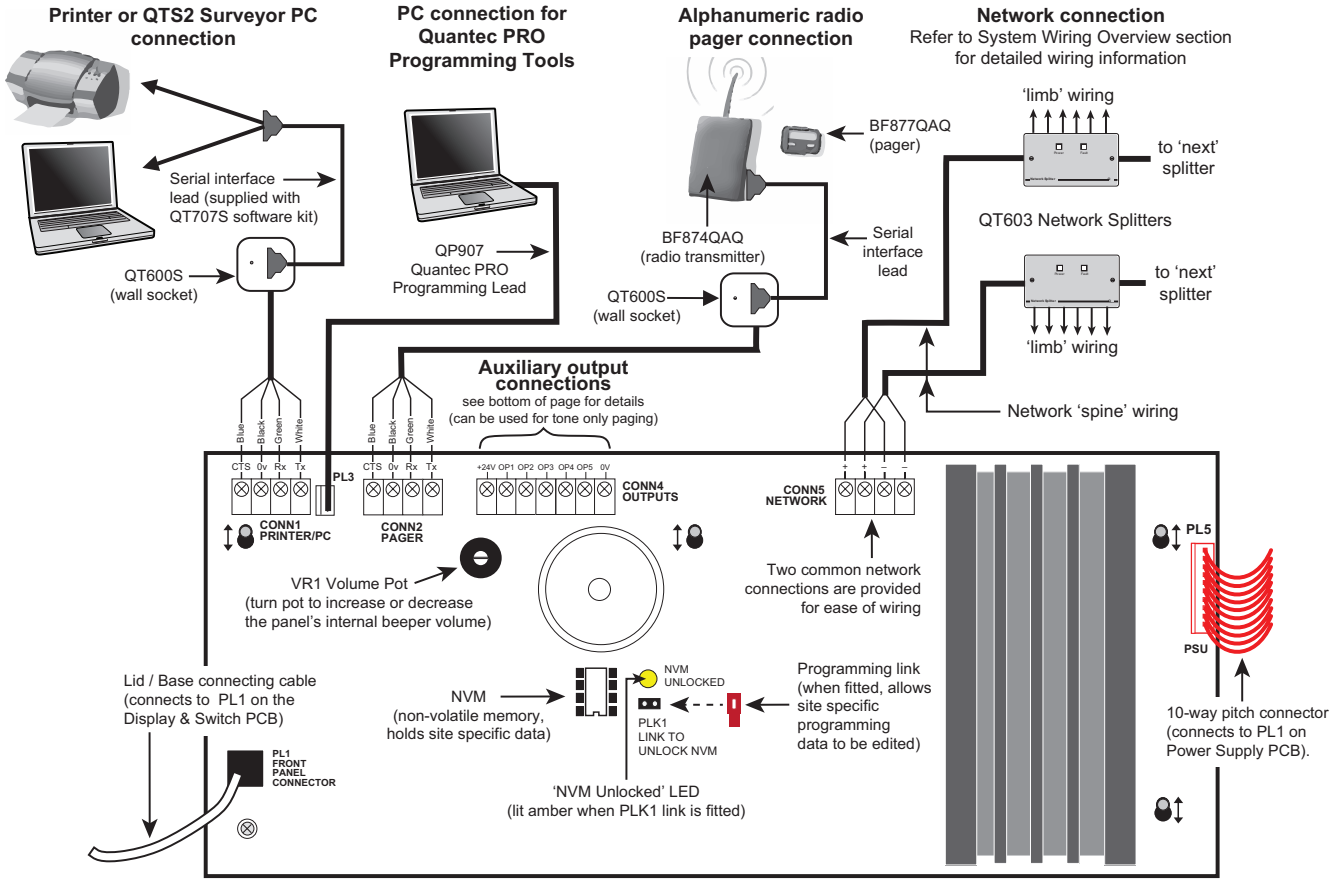
The Main Control PCB

The Main Control PCB includes all the terminals required to connect the network wiring and optional system ancillaries such as printer/PC/paging equipment. It also features a 4-way pitch connector to connect of a Windows PC/laptop for programming purposes.

Information on how to wire all of the above can be found in Figure 5 below.

The Main Control PCB is connected to the Power Supply PCB via a 10-way connector (PL5), the front panel display, and the Display & Switch PCB via an 8-way telecoms style cable (PL1).

Figure 5 : Main Control PCB Connection Details



Printer/PC Connection

CONN1 is provided for the connection of a standard 80-column RS232 printer (required if you wish to keep a permanent record of data from the controller's datalogger) or a PC (required if you want to utilise Quantec's QTS2 Surveyor Data Management Software).

The Surveyor software requires a Windows PC and is supplied with a memory stick, QT600S wall socket and interface lead.

Most 80-column RS232 printers will work if they are set up as follows: data word = 8 bit; stop bit = 1; baud rate = 9600; parity = none. If in doubt, a pre-tested Printer Kit c/w printer, wall socket and interface lead is available (Order Code: QT600P).

Laptop PC Connection (for programming)

If you wish to program Quantec PRO using the Quantec PRO Programming Tools, a laptop/PC should be connected to the PCB (PL3) as shown. The QP907 Quantec PRO programming lead (with link to Microsoft Store) is required.

Radio Pager Connection

Alphanumeric radio paging can be achieved using a BF874QAQ transmitter connected to the PCB (CONN2) via a QT600S wall socket, as shown above (the BF874QAQ kit includes the wall socket and a serial interface lead). Alphanumeric display pagers are also available separately (Order Code: BF877QAQ).

Auxiliary Output Connection

A typical application for the controller's auxiliary outputs is to introduce tone only paging equipment onto the system to drive 24V relays or interface to other systems. See Appendix 4 for typical wiring information.

PROGRAMMING QUANTEC PRO

Before programming commences, we recommend you read 'The Quantec Concept' section on pages 6 to 8.
Commissioning is the most critical part of the installation and a basic understanding of how Quantec works and the concept behind it is essential.

Programming Methods

The Quantec PRO Controller can be programmed using two methods:

1. Using the controller's front panel buttons and LCD display.

Although time consuming, all aspects of programming can be performed using this method and no other piece of equipment is required.

2. Using the Quantec PRO Programming Tools.

Important Note: The recommended method of programming is using the Quantec PRO Programming Tools.
This method allows quick and easy input of data and routing arrangements via a PC/laptop. It is much quicker than method 1 and provides the added bonus of allowing off-site programming and the archiving of programming information for future reference.

Only the first method is detailed in this manual.

The efficiency with which the programming function is carried out depends on:

- The accuracy of information received regarding the wiring and devices fitted.
- The freedom of the installation from faults and errors.
- The completeness of the information received from the client/specifier regarding text information and the manner in which the equipment is to operate.

To help ensure that the information received is as complete as possible, we recommend that the installing contractor is provided with a copy of this document before starting the job. This document contains sections that should be completed by the installing contractor before system handover, specifically in the System Wiring Overview section and Pre-Commissioning Instructions (see Appendix 5).

Typical Programming Sequence

A full explanation of Quantec PRO's programming functions can be found on pages 17 to 27 of this manual. The actual commissioning sequence used will vary depending on the information available and personal preference. However, we recommend it follows a similar pattern to that described below:

1. Power up the system and assign the devices on the limbs. The easiest way to do this is using the controller's AutoScan function. This sequentially assigns the next available device ID to unassigned devices as they are operated allowing the system to be programmed very quickly. See AutoScan section 1.2.

Hint: When auto assigning the system, plan your route around the building on a drawing, marking the device ID numbers you anticipate will be assigned to each networked device. It is advisable to assign each limb one at a time, periodically stopping the AutoScan function to check that a particular device is programmed as anticipated. A handy way of doing this is to program a corridor display and then press the 'Accept' button, which will show its ID number. Whilst the AutoScan function is active, pressing a call button on any unassigned device will automatically assign the next available device number to it.

2. Verify that the devices are programmed correctly by checking the last assigned number at the controller, or using the Display Device function (see section 3.1). Once a device is programmed, it retains its device ID even when power is removed. If programmed by mistake, you must reset the device ID to unassigned by shorting the 'Reset ID' pins on the device's PCB whilst it is powered up.
Important Note: Once a device's ID number has been reset, it enters the unassigned state. At this point, the old ID number must be deleted from the controller, as it will try to scan for the device, not be able to find it, and display 'device missing'. To delete the device ID number, see Existing Device function (section 1.3).

3. Print off a list of devices (see section 3.5).
If you don't have a printer, this information must be recorded by scrolling through the controller menus and manually filling in the Quantec PRO Device Assignment Tables (located at the rear of this manual). This initial list (if you are using a printer) will show no placenames attached to the devices and can be given to the client so they can write down what they wish to call each device.
Note: 255 custom placenames, including 40 pre-set placenames are available. See Edit Placenames (section 1.7).

4. Discuss with the client all the routing options for calls (e.g., day/night mode operation, splitting the network into manageable areas, routing calls to different corridor displays, divert/autodivert functions, timeouts, logging options, etc.). Most options are highlighted in the Quantec Concept section of this manual.

5. Program the placenames, operating modes and routing tables, etc. as agreed with the client (see sections 1.3 - Existing Device, 1.5 - Setup Group, 1.6 - Setup Zone, 1.7 - Edit Placenames and section 2 - System Setup menu.

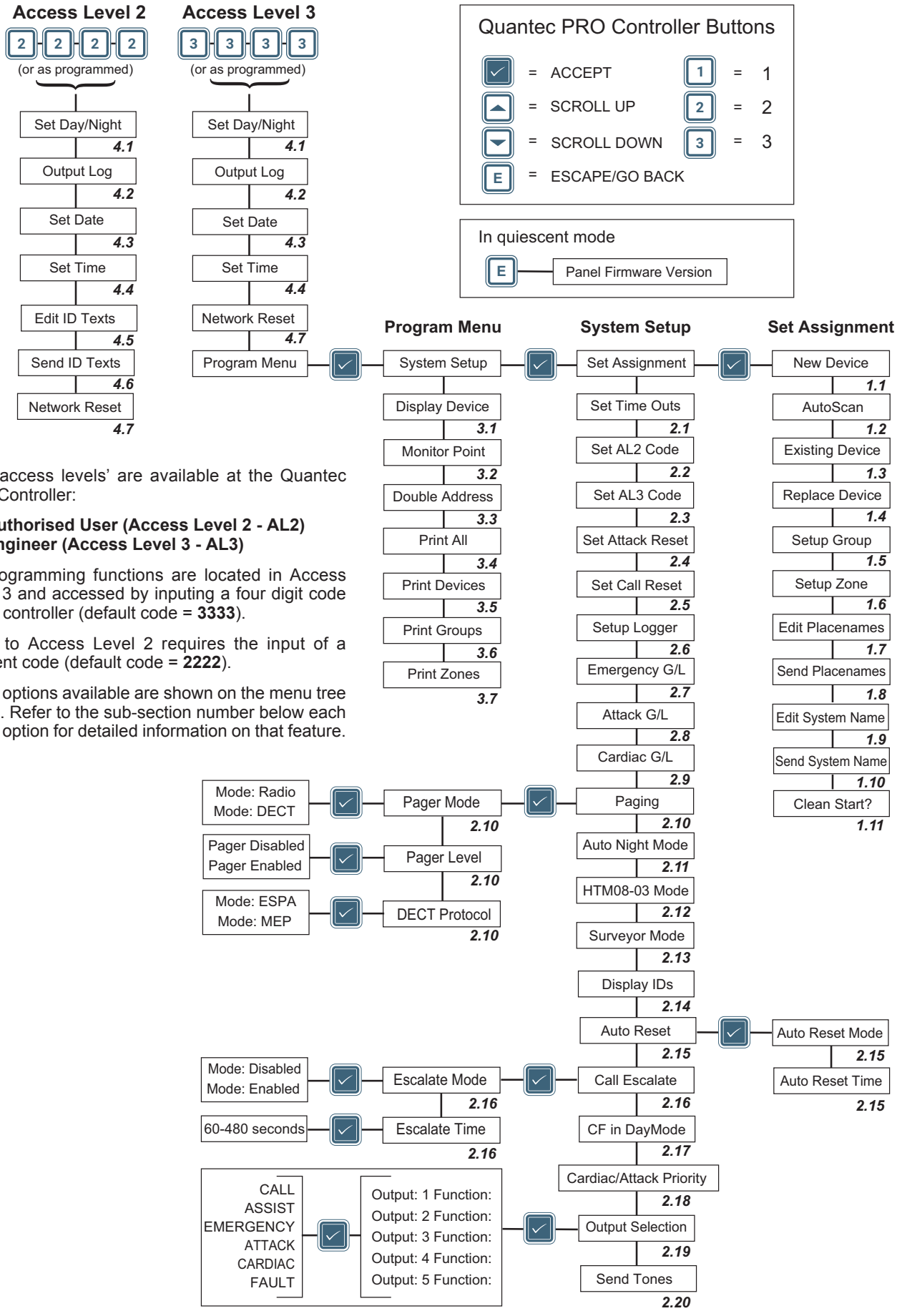
Routing Notes:

- All Call Points/Cardiac Call Points/Monitor Points/Radio Receivers default to Area A.
- All Corridor Displays default to Group 1.
- All Addressable Overdoor Lights/Addressable Hi-Op Sounders default to Zone 1.
- Group 1's routing equation defaults to Area A, Group 2's routing equation defaults to Area B, etc.
- Zones have no routing data by default.

6. Print off a complete list of the network devices and programming set-up data and verify it is as planned. Correct any errors as necessary. Print and keep a copy of the set-up for reference.

Hint: If you don't have a printer, the above lists must be recorded by scrolling through the controller's menus and manually filling in the Quantec PRO forms (located at the rear of this manual).

Overview of Access Levels



Two 'access levels' are available at the Quantec PRO Controller:

- **Authorised User (Access Level 2 - AL2)**
- **Engineer (Access Level 3 - AL3)**

All programming functions are located in Access Level 3 and accessed by inputing a four digit code at the controller (default code = **3333**).

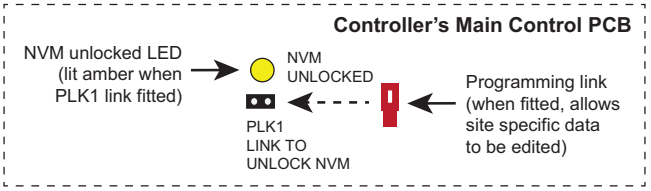
Entry to Access Level 2 requires the input of a different code (default code = **2222**).

Menu options available are shown on the menu tree (right). Refer to the sub-section number below each menu option for detailed information on that feature.

Access Level 3 Programming Functions

Important Programming Note:

When programming in Access Level 3, the 'NVM' link (located on the controller's Main Control PCB) must be fitted. This unlocks the non-volatile memory on the controller and allows site specific programming data to be modified. It is recommended that this link is permanently fitted when programming the Quantec PRO Controller and removed after programming is completed.



1.0 Set Assignment Menu

The Set Assignment menu allows the introduction of unassigned devices (2 to 256) onto the network and the setting up of routing arrangements for Areas (A to Z), Groups (1 to 32) and Zones (1 to 64). It also allows the parameters of any existing device, including its name, to be changed.

1.1 New Device

Note: Ensure devices are unassigned and device IDs are cleared at the controller.
To assign individual devices, move through the menus to the Set Assignment menu and select the 'New Device' prompt. The next unused device ID number will be presented:

New Device to be 002 Scroll address or press Accept

This ID can be altered using the scroll buttons, but it is usual to accept this prompt. (Network devices can be assigned any ID number from 2 to 256. Address 1 is always allocated to the Quantec PRO Controller.) After pressing the Accept button, the next prompt is to activate the new device:

Activate Device 002 or press Escape

To activate unassigned network devices, refer to the individual device's datasheet.

When the unassigned device is activated, the controller will respond by showing the type of device, e.g.:

Device: 002 Call Point

Addressable device type options displayed include:

- Call Point (Call Point, Cardiac Call Point)
- Display (Corridor Display)
- Monitor Point
- Zonal Ind. (Addressable OD Light or Addressable Hi-Op Sounder)
- Radio Receiver

Check that the device type is correct, then press Accept button. Enter the appropriate Area, Group or Zone referencing the 'Device Assignment Table' on pages 36 to 37.

Device: 002 Call Point Select Area A

Press Accept button and a placename prompt will appear, e.g.:

Device 002	Call Point	
Placename:	Bedroom	#002

Using the scroll and Accept buttons, the device can now be given a placename (see Appendix 1 for a list of Quantec PRO's 40 preset placenames and note that it is also possible to program up to 255 custom placenames using the 'Edit Placenames' function (see section 1.7).

On pressing the Accept button, your choice will be confirmed, e.g.:

Device 002	Call Point	
Placename:	TV Room	#002

Using the scroll and Accept buttons, four single characters can now be tagged onto the end of the placename, i.e. a suffix. All four terms must be accepted, even if they are blank, e.g. a TV room in the East Wing could be TV Room EW01. **Note:** Exiting this option before the final character has been accepted will cancel the description change.

When the final character has been accepted, the 'Assign New Device' prompt reappears.

Important Note:
After using this function, always use the 'Send Placenames' function (see section 1.8) to ensure that the system's corridor displays have received the latest placenames.

1.2 AutoScan

Assigning many individual devices using the 'New Device' function can be time consuming. Therefore, an 'AutoScan' method is available to assign multiple devices.

Move through the menus to the Set Assignment menu and select the 'AutoScan' prompt. The controller will then wait for a call from any unassigned device:

AutoScan Mode Waiting for call

Activate the first unassigned device in the sequence to be programmed, at which point the controller will assign the next available device ID number. (Network devices can be assigned any ID number from 2 to 256. Address 1 is always allocated to the Quantec PRO Controller.)

To activate unassigned network devices, refer to the individual device's datasheet.

In AutoScan mode, the Area, Group or Zone set membership and placename description are not entered immediately.
As each device is activated sequentially, it is assigned a device ID number automatically, and, for reference purposes, the last device ID number is displayed on the controller.

HINT: When programming a site with many devices, it is recommended that you keep a list of each ID number as each device is activated and check at regular intervals with the controller that the last ID numbers entered correspond. If they do not, either a mistake has been made or someone has operated an unassigned device elsewhere in the building. (If this is the case, see sections 1.3 - Existing Device and 3.1 - Display Device.)

When the AutoScan sequence is complete, exit the AutoScan option. At this point all assigned devices have default set memberships and no placename descriptions. To add/change these, see section 1.3 - Existing Device.

1.3 Existing Device

Existing addressable devices on the system can be reassigned at any time. Alternatively, addressable devices may be temporarily disabled (for maintenance purposes) or deleted from the system altogether. One of the primary uses of the 'Existing Device' function is to change the default (blank) settings given to devices entered into the system via the AutoScan function.

To edit, move through the menus to the Set Assignment menu and select the 'Existing Device' prompt. The details of one of the devices on the system will then appear, e.g.:

```
Edit existing device: 002      Call Point
Placename:          Conservatory      #002
```

Use the scroll buttons to select the ID address number of the device you wish to edit and press the Accept button. Several options will then appear, e.g.:

```
Device:002   Reassign Delete Disable Esc
Placename:          Conservatory      #002
```

Use the buttons to either reassign, delete, or disable the device. (Please note, if the device has previously been disabled, an 'Enable' option will appear.) If the 'Reassign' prompt is accepted, the controller responds by showing the type of device, e.g.:

```
Device: 002                    Call Point
```

Addressable device type options available include:

- Call Point (Call Point, Cardiac Call Point)
- Display (Corridor Display)
- Monitor Point
- Zonal Ind. (Addressable OD Light or Addressable Hi-Op Sounder)
- Radio Receiver

Use the buttons to change the device type and press Accept button. Enter the appropriate Area, Group or Zone with reference to the 'Device Assignment Table' on pages 35 to 36.

```
Device: 002                    Call Point
Select Area: A
```

Press Accept button and a placename prompt will appear, e.g.:

```
Device: 002                    Call Point
Placename:          Conservatory      #002
```

Using the scroll and Accept buttons, the device can now be given a placename (see Appendix 1 for a list of Quantec PRO's 40 preset placenames and note that it is also possible to program up to 255 custom placenames using the 'Edit Placenames' function (see section 1.7). On pressing the Accept button, your choice will be confirmed, e.g.:

```
Device 002                     Call Point
Placename:          TV Room           #002
```

Using the scroll and Accept buttons, four single characters can now be tagged onto the end of the placename, i.e. a suffix. All four terms must be accepted, even if they are blank, e.g. a TV room in the East Wing could be TV Room EW01.
Note: Exiting this option before the final character has been accepted will cancel the description change. When the final character has been accepted, the 'Existing Device' prompt reappears:

```
Edit existing device: 002      Call Point
Placename:          TV Room           #002
```

Additional devices can now be edited, or to return to the Set Assignment menu, press Escape button.

Important Note:
After using this function, always use the 'Send Placenames' function (see section 1.8) to ensure that the system's corridor displays have received the latest placenames.

1.4 Replace Device

This maintenance function allows you to replace a faulty device with a new one without deleting its device type, placename and Area, Group or Zone details from the system.

To execute, select the 'Replace Device' prompt from the Set Assignment menu. The controller will respond with a message similar to the one below:

```
Replace Device: 002            Call Point
Placename:          Conservatory      #002
```

Use the scroll buttons to select the ID number of the device you wish to replace.

Replace the faulty device and press Accept button. Depending on the ID number you have selected, a message simlar to the one below will appear:

```
Activate Device: 002 or Escape
Placename:          Conservatory      #002
```

Activate the new device and await confirmation that it has been assigned.

To activate unassigned network devices, refer to the individual device's datasheet.

To check the replaced device's details are as expected, use the 'Existing Device' function described in section 1.3.

1.5 Setup Group

This menu option is used to assign or edit Area/Group relationships. In order to route Areas (calling devices) to relevant Groups (corridor displays), routing equations must be programmed into the Quantec PRO Controller. Move through the menus to the Set Assignment menu and accept the 'Setup Group' prompt. The following will be displayed:

```
Select Group: 01
Primary or Night or Divert or Escape
```

Use the scroll buttons to select a Group, then press Accept. To set up or change the 'Primary' (Day) equation for Group 1, press Accept. This equation describes to which Area(s) of calling devices the Group of corridor displays will respond when Quantec PRO is in day mode. For example, the following will appear:

```
Assigning Group: 01          Primary Mode
A
```

Note: By default, Group 1 corridor displays respond to Area A calling devices, Group 2 to Area B, etc. These may be altered to suit the system.

Use the scroll and Accept buttons to enter the appropriate Area(s) with reference to the 'Group Routing Table' on page 38. Up to 26 Areas (A-Z) can be selected for one Group. All 26 terms must be accepted, even if they are blank. Pressing Escape before this process is complete will abort editing without making changes. When the 26th term has been accepted, the 'Select Group' prompt will appear again:

```
Select Group: 01
Primary or Night or Divert or Escape
```

To set up or change the Night equation for Group 1, use the scroll buttons to highlight "Night" and press Accept.

When in night mode, Quantec PRO routes all Areas to all Groups, but only the corridor display Groups that are programmed to beep in the 'Night' mode will do so. Use the scroll and Accept buttons to enter the appropriate Area(s) with reference to the 'Group Routing Table' on page 38. All 26 terms must be accepted, even if they are blank, as pressing Escape before this process is complete will abort editing without making changes.

When the 26th term has been accepted, the 'Select Group' prompt will appear again:

```
Select Group: 01
Primary or Night or Divert or Escape
```

To set up or change the Divert equation for Group 1, use the scroll buttons to highlight "Divert" and press Accept.

This equation describes where calls from the selected Group should be diverted to if a call has not been accepted before a pre-determined time has elapsed or manual divert has been selected from a corridor display's menu. By default, Divert equations are blank (i.e. divert will not operate). Use the scroll and Accept buttons to enter the appropriate Group(s) with reference to the 'Group Routing Table' on page 38. Up to eight terms are available and all eight terms must be accepted, even if they are blank. Pressing Escape before this process is complete will abort editing without making changes.

1.6 Setup Zone

This menu option is used to set up addressable overdoor lights and addressable Hi-Op sounders. To route a call to the relevant addressable overdoor lights or addressable Hi-Op sounders, routing equations must be programmed into the Quantec PRO Controller. Move through the menus to the Set Assignment menu and Accept the 'Setup Zone' prompt. The following display will appear:

```
Select Zone: 01
Areas or Devices
```

Use the scroll and Accept buttons to enter the appropriate Areas/ Devices with reference to the 'Zonal Routing Table' on page 39. The Zone (1-64) equation describes to which Areas (A-Z) and/ or devices (1-256) the Zone will respond to in both primary (day) and night mode.

Note: Addressable overdoor lights and addressable Hi-Op sounders can include both Areas and individual calling devices in their routing equations. By default, these equations are blank which means addressable overdoor lights and addressable Hi-Op sounders will not function until their routing equations have been defined.

1.7 Edit Placenames

Important Note: The recommended method of editing placenames is using the Quantec PRO Programming Tools.

Up to 255 editable placenames are available, including the first 40, which default to preset placenames. Each placename may have up to 20 characters plus 4 suffixes. By default, the suffix is the device address. See Appendix 1 for a listing of preset placenames).

To add or edit a placename, move through the menus to the Set Assignment menu and accept the 'Edit Placenames' function. The following will appear:

```
Edit Placename 002
Annexe
```

Use the scroll and Accept buttons to select the placename text you wish to change. After pressing the Accept button you can type over the existing text with up to 20 alpha-numeric characters using the scroll, Accept and Escape buttons.
To help speed up the text entry process, in addition to upper and lower case letters A to Z, numbers 0 to 9 and symbols '/', '-', ':' and '@', Quantec PRO's text editing function has several special characters, as listed below:

C This clears the character you have selected and ALL characters to the right of it.

E This allows you to select the end input character on a particular field, i.e. SURGERY **E**. When accepted, this saves you from having to enter blank characters all the way to the end of a text field.

D This deletes the character you have selected and moves ALL text to the right of it one position to the left.

I This inserts one space BEFORE the character you have selected.

When the final character has been entered, fit the NVM link to make the placename change or press Escape to abort.

Use the scroll and Accept buttons to add/edit any additional placenames or press Escape to return to the previous menu.

Important Note:
After using this function, always use the 'Send Placenames' function (see section 1.8) to ensure that the system's corridor displays have received the latest placenames.

1.8 Send Placenames

Important Note:

This function sends new and edited placenames to the system's corridor displays. Always use this function if any placenames have been added or edited at the controller to ensure that the system's corridor displays have received the latest placenames.

To use this function, move through the Set Assignment menu to the 'Send Placenames' function and press Accept. The following message will appear:

```
Sending Placenames
   Please Wait
```

This process can take a few minutes to complete.

When the sending process is complete, the controller will automatically return to the Set Assignment menu. The renamed placenames will now be available for the appropriate device naming functions (e.g. 'New Device' and 'Existing Device').

1.9 Edit System Name

This option allows a custom site name of up to 16 characters to be assigned to all corridor displays. The system name is displayed on the top line of each corridor display when in normal mode.

Edit the system name in the same manner as previously described in section 1.7. Once edited, the system name is automatically transmitted to network devices.

1.10 Send System Name

This option is used to transmit the system name to network devices if say, a new corridor display has been added to the system.

1.11 Clean Start?

Selecting this function forces the controller to reset all site data to the factory default settings.
Note: Device IDs are not cleared. To clear and unassign network devices, refer to the individual device's datasheet.

To prevent accidental use of this feature, a warning prompt and special code is required before a clean start action can occur.
Move through the menus to the Set Assignment menu and Accept the 'Clean Start?' function. The following prompt will appear:

```
  Clean Start?
Enter code?
```

If you wish to proceed, the following sequence of buttons should be entered very quickly:

When the final button is entered, the following message will appear for approximately three seconds:

```
All data will be lost! Continue?
```

Pressing the Accept button after the above message appears will instigate the clean start process. Depending on the amount of data stored, this could take some time.

2.0 System Setup Menu

The System Setup menu allows you to tell the Quantec PRO Controller specific details about how the system will work.

2.1 Set Time Outs

This option allows you to tell Quantec PRO the time that should elapse before a call is diverted from one Group of corridor displays to another, i.e. Divert, or an unanswered 'accepted' call is returned to the corridor displays, i.e. Accept. On selecting the 'Set Time Outs' prompt, the following window will appear:

```
Divert: 1 mins
Accept: 1 mins
```

Use the scroll and Accept buttons to enter the appropriate time outs. The range for each function is 1 to 8 minutes in steps of 1 minute. Any changes will be saved automatically and return you to the System Setup menu.

2.2 Set AL2 Code

This option allows you to change the four digit access code required to enter Access Level 2 (this can be any combination of the 1, 2 and 3 buttons). On selecting the 'Set AL2 Code' prompt, the following window will appear:

```
Access Level 2
Code:
```

Enter the new code as required. When the fourth button has been pressed, the controller automatically registers the code and returns you to the System Setup menu.

2.3 Set AL3 Code

This option allows you to change the four digit access code required to enter Access Level 3 (this can be any combination of the 1, 2 and 3 buttons). On selecting the 'Set AL3 Code' prompt, the following window will appear:

```
Access Level 3
Code:
```

Enter the new code as required. When the fourth button has been pressed, the controller automatically registers the code and returns you to the System Setup menu.

2.4 Set Attack Reset

For systems utilising Quantec PRO's infrared 'attack call' level, this option allows the four digit 'attack reset' code to be changed (this can be any combination of the scroll up, scroll down and Accept buttons). When the system receives an attack call, the reset code is entered at corridor displays. On selecting the 'Set Attack Reset' prompt, the following window will appear:

```
Set Attack Reset
Code:
```

Enter the new code as required. When the fourth button has been pressed, the controller automatically registers the code and returns you to the System Setup menu.

Note: The Quantec PRO Controller cannot reset calls.

To input the code, press  button at a corridor display.

Enter the attack reset code (default shown below):

2.5 Set Call Reset

This option allows Quantec PRO's four digit 'call reset' code to be changed (this can be any combination of the scroll up, scroll down and Accept buttons). When the system receives a non-emergency call, i.e. Standard, Assist (Help Required), Ensuite call, the reset code is entered at corridor displays. On selecting the 'Set Call Reset' prompt, the following window will appear:

```
Set Call Reset
Code:
```

Enter the new code as required. When the fourth button has been pressed the controller automatically registers the code and returns you to the System Setup menu.

Note: The Quantec PRO Controller cannot reset calls.

To input the code, press  button at a corridor display.

Enter the call reset code (default shown below):

2.6 Setup Logger

This option allows Quantec PRO's datalogging function to be set up. Select the 'Setup Logger' prompt and use the scroll and Accept buttons to choose one of the following options:

Logging OFF	this disables the logging function so no events are logged or can be printed.
Logging Man Only	this enables the logger to print when manually selected to do so.
Logging Man/Auto Output on: 010	this enables the logger to print automatically after 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 events.

Note: If 'Man Only' is selected and the log record is not printed, the datalogger's memory will fill to capacity (as the datalogger only records 500 events). When this occurs, a warning message will appear on the controller and any new events will not be logged until the existing events have been printed.

Important Note: When 'Surveyor' mode is active, logging settings cannot be altered (see section 2.13).

2.7 Emergency G/L

This option allows you to set the system up so that emergency calls are sent to all corridor display Groups either Globally or Locally, regardless of how the Group/Area routing arrangements have been set up.

On selecting the 'Emergency G/L' prompt, it is possible to scroll through the following two options:

Emergency Calls Sent: Locally	Emergency Calls Sent: Globally

When you have selected the required option, press Accept and you will be returned to the System Setup menu.

2.8 Attack G/L

This option allows you to set the system up so that infrared attack calls are sent to all corridor display Groups either Globally or Locally, regardless of how the Group/Area routing arrangements have been set up. On selecting the 'Attack G/L' prompt, it is possible to scroll through the following two options:

Attack Calls Sent: Locally	Attack Calls Sent: Globally

When you have selected the required option, press Accept and you will be returned to the System Setup menu.

2.9 Cardiac G/L

This option allows you to set the system up so that cardiac calls are sent to all corridor display Groups either Globally or Locally, regardless of how the Group/Area routing arrangements have been set up. On selecting the 'Cardiac G/L' prompt, it is possible to scroll through the following two options:

Cadiac Calls Sent: Locally	Cardiac Calls Sent: Globally

When you have selected the required option, press Accept and you will be returned to the System Setup menu.

2.10 Paging

If radio paging equipment is connected to the controller's RS232 pager terminal, this menu must be selected to set up and enable paging to operate. On selecting the 'Paging' prompt, it is possible to scroll through the following options:

Pager Mode:

Pager Mode	On selecting the 'Pager Mode' prompt, it is possible to scroll through the following two options:
Set Paging Mode: Radio	accepting this allows connection to a pager transmitter.
Set Paging Mode: DECT	accepting this allows connection to a DECT system.

Pager Level:

Pager Level	On selecting the 'Pager Level' prompt, it is possible to scroll through the following options:
Pager DISABLED	accepting this disables all paging functions (no calls of any type will be sent to pagers).
Pager ENABLED on ATTACK & CARDIAC	accepting this enables paging on ATTACK and CARDIAC calls only
Pager ENABLED on CARDIAC only	accepting this enables paging on CARDIAC calls only.
Pager ENABLED on ATTACK only	accepting this enables paging on ATTACK calls only.
Pager ENABLED on EMERG & Higher	accepting this enables paging on EMERGENCY, ATTACK and CARDIAC calls only.
Pager ENABLED on CALL & Higher	accepting this enables ALL levels of calls (except PRESENCE).
Pager ENABLED on ASSIST & Higher	accepting this enables paging on ASSIST (HELP REQUIRED), EMERGENCY, ATTACK and CARDIAC calls only.
Pager ENABLED on PRESENCE & Higher	accepting this enables ALL levels of calls.
Pager ENABLED on RESET & Higher	accepting this enables paging on RESET and ALL levels of calls.

Note: Different levels of calls are <u>not</u> prioritised by pagers. For example, if a standard call is triggered followed by an emergency call, the emergency call will not be displayed until the standard call has been accepted and the next message called up. However, calls received at corridor displays are still be prioritised in the usual manner, i.e. highest priority calls first.

DECT Protocol:

DECT Protocol	On selecting the 'DECT Protocol' prompt, it is possible to scroll through the following two options:
DECT Protocol Mode: MEP	accepting this selects DECT MEP protocol.
DECT Protocol Mode: ESPA	accepting this selects DECT ESPA protocol.

2.11 Auto Night Mode

This function allows Quantec PRO's automatic night mode function to be enabled or disabled and for preset entry and exit times to be programmed into the controller. On selecting the 'Auto Night Mode' prompt, one of the following options will appear:

Auto Night Mode Enabled?: NO	Auto Night Mode Enabled?: YES

Use the scroll buttons to select the required option and press Accept button. Accepting 'YES' enables the auto night mode function and allows you to enter the time you want the system to automatically enter night mode:

Entry Time 07:00 pm

Use the scroll and Accept buttons to select the relevant hour, minute and am or pm. When the am/pm field has been accepted, the controller prompts you to select an exit time at which the system will automatically return to day mode:

Exit Time 07:30 am

Use the scroll and Accept buttons to select the relevant hour, minute and am or pm. When the am/pm field has been accepted the controller automatically returns you to the System Setup menu.

Notes:

1. If the Auto Night Mode function is disabled, it is still possible to manually switch night mode on/off at Access Level 2 (see section 4.1).
2. When HTM08-03 mode is active, Auto Night Mode is disabled (see section 2.12).

2.12 HTM08-03 Mode

This function allows Quantec PRO's HTM08-03 function to be enabled or disabled. On selecting the 'HTM08-03 Mode' prompt, one of the following options will appear:

Set HTM08-03 Mode: Disabled	Set HTM08-03 Mode: Enabled

Use the scroll buttons to select the required option and press Accept. When enabled, the controller meets certain aspects of the HTM08-03 standard and the following changes occur:

1. Auto Night Mode is disabled.
2. Day/Night Mode cannot be entered using the controller's front panel menus. Instead, you must use a single remote Day/Night Mode Switch (a QT611 Multi-Purpose Programmable Device configured as a Day/Night Mode Switch).
3. The controller's internal sounder is disabled for call type signalling.

2.13 Surveyor Mode

This function allows Quantec's Surveyor mode to be enabled or disabled. On selecting the 'Surveyor Mode' prompt, the following two options are available:

Set Surveyor Mode: Enabled	Set Surveyor Mode: Disabled

This mode is used in conjunction with Quantec's Surveyor Data Management Software (Order Code: QTS2). When enabled, the controller's logging output is set to "output on every event" and cannot be changed. The "printer fault" message on the controller is suppressed when the PC is turned off or disconnected from the controller.

2.14 Display IDs

Patient's infrared neck pendant or an infrared staff attack transmitter may be given a unique User ID and custom name (see section 4.5).

On selecting the 'Display IDs' prompt, the following two options are available:

Display IDs IDs: Enabled	Display IDs IDs: Disabled

This function, if enabled, sends User ID details to the corridor displays when a call is presented on the system with the information available. If disabled, this information is not presented on the corridor displays. This function may be required for security reasons. User ID information is still presented on the log, if enabled.

2.15 Auto Reset

Note: The 'Auto Reset' function and the 'Call Escalate' function (see section 2.16) are mutually exclusive.

This function is only used on a system with pagers connected and no corridor displays or addressable overdoor lights/addressable Hi-Op sounders. Calls are paged but automatically reset after the assigned time.

On selecting the 'Auto Reset' prompt, the following options are available:

Auto Reset Mode	Auto Reset Time

Auto Reset Mode can be either enabled or disabled and the Auto Reset Time can be changed between 10 to 60 seconds (at 10 second intervals).

2.16 Call Escalate

Note: The 'Call Escalate' function and 'Auto Reset' function (see section 2.15) are mutually exclusive.

On selecting the 'Call Escalate' prompt, the following options are available:

Escalate Mode	Escalate Time

Escalate Mode can be either enabled or disabled and the Escalate Time can be changed between 60 to 480 seconds (at 10 second intervals).

When enabled, Call Escalate will automatically raise the level of a Call (only a 'Standard Call') to Assist (Help Required) after a manually set time period.

Note: If the call is manually accepted before call escalation starts, then the escalation timer will stop, reset and start at the end of the 'Accept' time period.

2.17 CF in DayMode

Call Follow (CF) day mode functionality can be enabled/disabled using this menu option.

On selecting the 'CF in DayMode' prompt, the following two options are available:

CF in DayMode Mode: Enabled	CF in DayMode Mode: Disabled

CF sounder in a call point, which is in the PRESENCE state, is sounded when the controller is in Day mode. The call has to be present at a call point in the same call point Area.

When the controller is in Night mode, any call on the system is sounded at a call point (in the Presence state), in other words globally.

2.18 Cardiac/Attack Priority

This function is used to set the call level priority from cardiac to attack and vice versa.

On selecting the 'Cardiac/Attack Priority' prompt, use the scroll buttons to set the default, then press the Accept button to return to the System Setup menu.

2.19 Output Selection

Note: The Quantec PRO Controller has five available auxiliary output functions. Any of these auxiliary outputs can be set individually from a selection of six functions, i.e. Call, Assist (Help Required), Emergency, Attack, Cardiac and Fault.

On selecting the 'Output Selection' prompt, scroll through the five output functions, then press the Accept button to change the associated function.

2.20 Send Tones

Note: Setting and sending tones would usually be done using the Quantec PRO Programming Tools. This function is provided at the controller as a quick fix, say for example, a device's tone has been changed manually and you need to get the device working in a basic manner before it is properly configured later.

On selecting the 'Send Tones' prompt, the following is displayed:

Sending Tones Please Wait...

Tone settings will be sent globally to all field devices.

3.0 Program Menu

3.1 Display Device

Note: The QP901 Quantec PRO Controller does not display incoming calls on the system during normal operation; these calls are only displayed on corridor displays.

For diagnostic purposes, this function enables the controller's display to show the device type, device ID and the placename of a calling device on the system.

Move through the menus to the Program menu and accept the 'Display Device' prompt. The following will appear:

```
Display Device          Press Escape to exit
Waiting for Call
```

Activate a device and the controller's display will show details of the calling device, e.g.:

```
Display Device          Press Escape to exit
Last add.:005      Dining Room      #005
```

To activate network devices, refer to the individual device's datasheet.

Ensure the calling device is reset, then press Escape button to exit this function. The network resets itself in order to return the controller to normal operation.

3.2 Monitor Point

This function allows polling of any addressable network device at the controller. When polling the address, the selected device's LED will flash, or in the case of addressable overdoor lights and sounders, their beepers will sound.

This function is helps to find unnamed devices, or if you are doing a retrofit and do not have the building layout.

Select the 'Monitor Point' prompt from the System Setup menu. A window similar to the one below will appear:

```
Monitor Device add.: 002    Call Point
State=1  OK       Bathroom          #002
```

Use the controller's scroll buttons to select the device ID number you wish to monitor (do not press Accept button, as this will perform a network reset).

If 'State = 1 OK', the controller has found the device and its confidence LED will be lit, or in the case of an addressable overdoor light or sounder, its beeper will also sound.
If 'State = 0 OK', the controller has found the device but it does not have a confidence LED or sounder that can be switched on, i.e. the device is probably a corridor display.
If the state field is replaced by a message reading "No Response", the controller cannot find a device with the ID number you have selected.

Pressing Escape or Accept at any time will perform a network reset and return you to the Program menu.

3.3 Double Address

This function is used to find the location of any network devices that are incorrectly doubly addressed. Any doubly addressed devices are automatically flagged on the right-hand side of the controller's display, e.g.:

```
                        DISABLED WC  (2)
                        Double Addressed
```

The bracketed number (in this example, '2') is the device ID address of the doubly addressed device (if there are more than one set of doubly addressed devices, these will also be displayed).

To find the exact location of the doubly addressed devices, select the 'Double Address' option from the Program menu.
A window similar to the one below will appear:

```
Device add.: 002        Call Point
State=1  OK       Bathroom          #002
```

All devices with the device ID address shown will be polled from the controller and their confidence LEDs will flash, or in the case of addressable overdoor lights and addressable Hi-Op sounders, their beepers will sound.

Pressing the controller's scroll buttons will move you onto the next set of doubly addressed devices (if there are any) and their confidence LEDs and sounders will activate instead.

Pressing Accept performs a network reset and returns you to the Program menu.

3.4 Print All

Selecting this function sends a list of <u>all</u> site-specific data to a printer (if connected).

3.5 Print Devices

Selecting this function sends a list of <u>all</u> network devices to a printer (if connected).

3.6 Print Groups

Selecting this function sends a list of <u>all</u> Groups (corridor displays) to a printer (if connected).

3.7 Print Zones

Selecting this function sends a list of <u>all</u> Zones (addressable overdoor lights and addressable Hi-Op sounders) to a printer (if connected).

4.0 Authorised User Menu

4.1 Set Day/Night (AL2 & AL3 Users)

This function sets the controller to day or night mode, i.e., the routing of calls is to be changed from the programmed day mode (primary) configuration to the night mode configuration, or vice versa. Enter Access Level 2 or 3 and accept the 'Set Day/Night' prompt. One of the following two displays will appear:

Set Day/Night Mode is : Day	Set Day/Night Mode is : Night

Use the scroll buttons to select the required option and press Accept button.

4.2 Output Log (AL2 & AL3 Users)

See Appendix 2 for the Log Report format.

This function is not applicable if Quantec's Surveyor mode is enabled. It will only work if the controller's datalogger has been programmed to print manually (see section 2.6 - Setup Logger) and a printer is properly connected to its RS232 printing port.

Note: If manual printing has been selected as the default dataloggger setting and the log record is not printed, the datalogger's memory will fill to capacity as it only records 500 events. When this occurs, a warning message will appear on the controller's display and any new events will not be logged until the existing events have been printed.

This function allows information stored in the controller's datalogger to be outputted to a standard RS232 printer (if connected). To execute, enter Access Level 2 or 3 and accept the 'Output Log' prompt.

When printing is complete, the controller will return to the previous menu.

4.3 Set Date (AL2 & AL3 Users)

This function allows the date to be programmed into the controller and is important if Quantec PRO's datalogging function is used. To execute, enter Access Level 2 or 3 and accept the 'Set Date' prompt. Use the scroll and Accept buttons to select the correct day, month and year.

4.4 Set Time (AL2 & AL3 Users)

This function allows the time to be programmed into the controller and is important if Quantec PRO's datalogging function is used. To execute, enter Access Level 2 or 3 and accept the 'Set Time' prompt. Use the scroll and Accept buttons to select the correct hour and minute.

4.5 Edit ID Texts (AL2 Users)

Patient's infrared neck pendant or a worker's infrared staff attack transmitter may be given a unique User ID and custom name.

This function allows User ID names to be individually edited at the controller. A maximum of 255 User IDs are available and each User ID name may have up to 16 characters.

Note: After each User ID has been edited, the controller automatically updates the ID on the system.

To execute, enter Access Level 2 and accept the 'Edit ID Texts' prompt. Use the scroll and Accept buttons to select and edit names. Edit the User ID names in the same manner as previously described for custom texts (see section 1.7 - Edit Placenames).

User IDs displayed on the system can be enabled or disabled (see section 2.14 - Display IDs).

4.6 Send ID Texts (AL2 Users)

This function globally sends User IDs from the controller.
Note: Only use this option if a corridor display has been changed, for example. This process can take a few minutes to complete.

To execute, enter Access Level 2 and accept the 'Send ID Texts' prompt.

4.7 Network Reset (AL2 & AL3 Users)

This function reduces the network voltage to zero in order to reset all network devices and cancel any calls on the system. The network is powered down for approximately 5 seconds.

To execute, enter Access Level 2 or 3 and accept the 'Network Reset' prompt.

APPENDICES

Appendix 1 - Miscellaneous

Index of Placenames

Up to 255 editable placenames are available, including the first 40, which default to preset placenames (listed below). Each placename may have up to 20 characters plus four suffixes. By default, the suffix is the device address. Placenames may be edited at Access Level 3 (see section 1.7- Edit Placenames).

Annexe
Area
Bathroom
Bedroom
Conservatory
Corridor
Dining Room
Disable WC
Display
Door
Doorbell
Drugs Cabinet
Entrance
ESMIUnit
Exit
Fire Exit
Flat
Floor
Gents WC
Hairdresser
Kitchen
Ladies WC
Laundry
Lift
Lounge
Meeting Room
OD Light
Phone
Quiet Room
Reception
Room
Shower
Sluice
Special
Staff Room
Toilet
Treatment Room
TV Room
Ward
Zone
Custom 1
⇓⇓⇓
Custom 215

Important Note:
If a panel menu function is used to add or edit a placename, always use the 'Send Placenames' function (see section 1.8) to ensure that the system's corridor displays have received the latest placenames.

Set Ranges

User ID Set Range: 1-255

Device ID Set Range: 2-256 (Address 1 is allocated to the Quantec PRO Controller).

Area Set Range: A-Z (26 Areas of call points, cardiac call points, monitor points and radio receivers). Default = Area A.

Group Set Range: 1-32 (32 Groups of corridor displays).
Default = Group 1.

Zone Set Range: 1-64 (64 Zones of addressable overdoor lights and addressable Hi-Op sounders).
Default = Zone 1.

Routing Equations

Group 1 routing equation defaults to Area A; Group 2 routing equation defaults to Area B, etc. By default, Zones have no routing data.

Group Routing Table = 3 (Primary Area, Night Area and Divert to Group)

Zone Routing Table = 2 (Area Equation and Device Equation)
A maximum number of 16 terms is allowed in each equation.

Time Outs

Time before divert: Adjustable in steps 1, 2, 3, 4, 5, 6, 7, 8 minutes (default 1 minute)

Accept time out: Adjustable in steps 1, 2, 3, 4, 5, 6, 7, 8 minutes (default 1 minute)

Communication to the Output Device

Type: Serial - RS232
Data Rate: 9600 Baud
Protocol: 8 Data Bits, 1 Stop Bit, No Parity

Quantec PRO Call Levels

Call Level	Call Type
1	RESET, FAULT
2	CALL
3	PRESENCE
4	ASSIST (HELP REQUIRED), ENSUITE, EMERGENCY
5	ATTACK, CARDIAC

By default, cardiac calls have a higher priority than attack calls when active on the system. The cardiac/attack priority may be changed by an engineer to suit the application (see section 2.18 - Cardiac/Attack Priority).

Controller Firmware Version

Quantec PRO Controller firmware version: 11A00 or above

Quantec PRO Programming Tools (requires Quantec PRO Programming Lead, Order Code: QP907)

Quantec PRO Programming Tools firmware version: 6.1.17 or above. Only compatible with the Quantec PRO Controller.

The tools incorporate the QT423 Quantec Device Configurator application.
Hardware required: QT423 Configurator and QT423A adaptor.

The tools are available as downloadable app on 'Microsoft Store'.

Appendix 2 - The Datalogging Function

Log Record Format

Note: It is recommended to use Quantec Surveyor2 Data Management Software (Order Code: QTS2) instead of using this function.

The first line states the time that the log output was started. After that, the records are extracted from the log, the oldest first, and are downloaded to the output device,e.g. Printer, PC, in the following form:
(a) date; (b) time; (c) placename; (d) call level & call type; (e) low battery signals (from infrared neck pendants and infrared staff attack transmitters).

Example of printed records:
Log output on 01/11/22 at 11.05:10

				Call Level & Call Type				
				1	2	3	4	5
Date	**Time**	**Placename (plus suffix)**						
30/09/22	16:36:10	Dining Room	1 2 3 4		Call			
30/09/22	16:39:20	Ward	W A 2 3		Call			
30/09/22	16:40:30	Dining Room	1 2 3 4			Presence		
30/09/22	16:40:40	Toilet	G F 1 4		Call			
30/09/22	16:41:50	Dining Room	1 2 3 4	Reset				
30/09/22	16:42:10	Ward	W A 2 3		Call		Ensuite	
30/09/22	16:42:20	Toilet	G F 1 4			Presence		
30/09/22	16:43:30	Ward	W A 2 3				Assist	
30/09/22	16:40:40	Toilet	G F 1 4	Reset				
30/09/22	16:45:50	Ward	W A 2 3			Presence		
30/09/22	16:46:10	Ward	W A 2 3	Reset				
01/11/22	09:02:10	Lounge	2					Attack
01/11/22	09:02:20	Lounge	2	Reset				
01/11/22	10:15:30	Bedroom	G F 4		Call			
01/11/22	10:15:40	Bedroom	G F 4				Emergency	
01/11/22	10:18:50	Bedroom	G F 4			Presence		Cardiac
01/11/22	10:18:10	Bedroom	G F 4	Reset				

Fault messages are presented as follows:

				Call Level & Call Type
				1
Date	**Time**	**Placename (plus suffix)**		
16/06/22	13:13:10	Log full!		
02/10/22	13:02:20	Display	1 F 2	Device 14 Fault
23/04/22	15:30:30	Mains supply failure!		
23/04/22	18:23:40	Mains supply restored		

When the Output Log function is selected (see section 4.2), the contents of the datalogger are transmitted to the output device. When each record has been sent, it is deleted from the datalogger and its place is taken by a new event. When all the records have been deleted, the datalogger is empty and the output session is completed.

Failure to output the log: If the printer cannot accept the data, or Automatic Output is disabled, and there has been no Manual start command, the datalogger's memory will fill to capacity. When this occurs, a warning message will appear on the controller's display and a record of the warning message will be entered into the log in the last empty record. New events after this time are lost. This function continues until the log is outputted normally.

Appendix 3 - Anti-Static Handling Guidelines

Before handling PCBs or any other static-sensitive components, please ensure that the following electro-static handling precautions are taken.

Operators should remove of any personal electro-static charge by momentarily touching any of the earth studs in the Quantec PRO Controller's metal back box with all circuit boards and connections correctly in place. This should be done immediately before handling the sensitive components. If not near the back box, any other sound connection to safety earth may be touched.
Static-sensitive items may now be handled with care.
Important Note: DO NOT touch the legs of any component and always handle PCBs by their sides.

PCBs should be stored in a clean, dry place that is free from vibration, dust and excessive heat. Retaining the PCBs in a suitable cardboard box will guard them against mechanical damage.

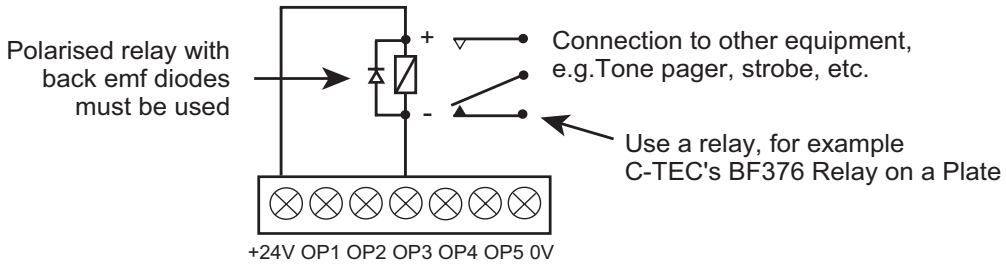
Appendix 4 - Auxiliary Outputs

Auxiliary outputs are provided at the Quantec PRO Controller, as listed below. Outputs 1-5 can be set individually from a selection of six functions, i.e. Call, Assist (Help Required), Emergency, Attack, Cardiac and Fault.

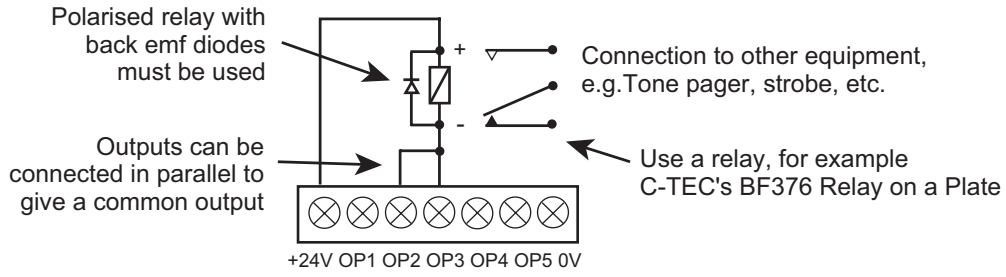
+24V	+24V (protected by 100mA resettable fuse)
Outputs 1-5 (OP1-5) **Note:** Output functions are individually selectable at the Quantec PRO Controller. See section 2.19 (Output Selection)	Activated when any standard CALL is active on the system. Maximum current = 25mA
	Activated when any ASSIST (HELP REQUIRED) call is active on the system. Maximum current = 25mA
	Activated when any EMERGENCY call is active on the system. Maximum current = 25mA
	Activated when any ATTACK call is active on the system. Maximum current = 25mA
	Activated when any CARDIAC call is active on the system. Maximum current = 25mA
	FAULT Output. Normal = ON, Fault = OFF. Maximum current = 25mA
0V	0V

The auxiliary outputs can be used for driving peripheral equipment, typically to switch 24V relays, as per the following examples:

Example 1 : Activating a relay when an ATTACK call is present on the system (OP3 function selected as an ATTACK call at the controller).



Example 2 : Activating a relay when an EMERGENCY or ATTACK call is present on the system (OP2 function selected as an EMERGENCY call and OP3 function selected as an ATTACK call at the controller).



Appendix 5 - Pre-Commissioning Instructions

General Note

Quantec PRO systems should be installed using network splitters. These pre-commissioning instructions are based on their use for the following reasons:

- They ensure voltage drop problems are substantially avoided.
- They blow a fuse and keep most of the system working if a network limb is shorted.
- They allow cable and equipment faults to be easily found and isolated.
- They allow the system to be connected a section at a time.
- The plug-on limb connectors supplied with splitters mean easier commissioning and fault finding.

Using other wiring schemes may work, but installation errors will be more difficult to detect and voltage drop may be a problem.
DO NOT MEGGAR the wiring with **ANY** devices connected.

Pre-Commissioning

The installing contractor should carry out the following tests so that the commissioning engineer can get the system operating quickly. If these are not done, commissioning may be refused or extra charges may be made.

Things you will need:

Quantec PRO main instructions (this document) ; ❒ ; Individual instructions supplied with each device ❒ ; Terminal screwdriver ❒ ; 5mm flat blade screwdriver ❒ ; 3mm Allen key ❒ ; Side cutters ❒ ; Wire strippers ❒ ; Digital multimeter ❒ .

Things you will be expected to have done:

1. All spine wiring from the Quantec PRO Controller to the network splitters should be in place, checked & certified correct.
2. All limb wiring from the network splitters to network devices should be in place, checked & certified correctly.
3. The spine and limb cables should be left connected to the splitters.
4. All limb wiring should be labelled so you know which devices are connected to where. Use the Network Splitter Connection Record Sheet (located at the rear of this manual).
5. All room wiring to ceiling pulls, overdoor lights and slave call points (if fitted) should be in place, checked & certified correct.

Checking the Spine Wiring

- Power up the Quantec PRO Controller. Several messages will flash quickly on the controller's display before the words 'Quantec PRO' and the time in hours and minutes appear constantly (please note, the time shown may not be correct).
- Do not connect batteries. Look at the green power lights on the network splitters.
- If none are lit, check the spine voltage at the Quantec PRO Controller – you should see a changing reading in the range of 16 to 17 volts DC. If the voltage is much lower, disconnect the spine and recheck the voltage. If the reading jumps up, you have a wiring fault. If you fix this fault and the reading still remains low, you may have another wiring fault. If you suspect the Quantec PRO Controller may be faulty, disconnect the spine wiring at the controller and check the voltage at the Quantec PRO Controller with no wires connected. If the voltage is okay (i.e. within the range 16 to 17 volts DC), you still have wiring faults.
- A short on the spine will not blow a fuse, but nothing will work except the display on the Quantec PRO Controller.
- If any one splitter is not lit, it is probably not connected, or the wiring to it is shorted.
- Sort out any wiring problems and repeat the tests until all green lights are lit on the splitters.

Checking the Limb Wiring

- Go to a network splitter and connect one limb at a time, carrying out the following tests.
- If any fault lights are lit, check the fuses at that splitter. The limb connected to a blown fuse is probably a short circuit. Fix the fault and replace the fuse (always fit 400mA 20mm quick blow fuses). Note that if the limb wires are very long, it is possible that a short will not blow a fuse. However, the fault can be found by disconnecting limbs in turn (when the short circuit limb is disconnected, the network should spring into life).

Checking the Devices

Call Points, Overdoor Lights, Ceiling Pulls, Slave Call Points and Tail Call Leads

- Press the call button on the call point. After a three second delay, the light should pulse rapidly through red, green & orange.
- If the light goes steady red, the call point is already programmed and will confuse the commissioning engineer. It should be reset by shorting the 'Reset ID' pins on its PCB with a shorting link. Ensure you do not short the pins to any other point on the PCB, as this will damage the call point and can be factory detected, so it will not be covered by the warranty. Use a shorting link to short the pins. Do not use any other device.
- Overdoor lights connected to a call point will follow the pulsing light as the call point (when the orange light shows on the call point, both red and green will be lit at the overdoor light).
- The red lights on any ceiling pull(s) and/or slave call point(s) will follow the red light on the call point.
- If everything is working okay, press the Reset button on the call point twice to return to the passive state.
- Check the continuity of ancillary devices: ceiling pulls, slave call points and tail call leads with a multimeter. (You cannot test the correct operation of these devices before commissioning.)
- After testing, reset the system at the Quantec PRO Controller to ensure all devices are returned to the passive state.

Infrared Ceiling Receivers

- Short the 'Call' link on the ceiling receiver's PCB. The ceiling receiver's LED should pulse rapidly through red, green & orange. If the light goes steady red, the ceiling receiver is already programmed which will confuse the commissioning engineer. Reset the ceiling receiver by shorting the 'RESET ID' link. If everything is working okay, short the 'RESET' pins twice to return the receiver to the passive state.

Corridor Displays

- An unassigned corridor display beeps intermittently and shows the unassigned message:

UNASSIGNED Accept to ASSIGN

  This message means that the corridor display has been installed correctly.
- If the corridor display shows the time, it is assigned and should be reset by linking the 'ID RESET' pins on its PCB.
- The call and assist (help required) volume levels can be adjusted using the pot controls on the PCB control marked 'VOLUME A' and 'VOLUME B'. (ATTACK, EMERGENCY and CARDIAC calls will always come through at full volume.)

Monitor Points

- Turn the monitor point's keyswitch to 'Isolated' position '0'. The light will flash red and green. Turn the keyswitch to 'Active' position 'I' and press the 'Reset' button to clear the lights.
- Ensure the monitor point's links are correctly fitted for their function (refer to the device instructions).

Addressable Overdoor Lights and Addressable Hi-Op Sounders

- Check that the network voltage of the system stands at 16-17V by placing a multimeter across the input terminals of these devices. (**You cannot test the correct operation of these devices before commissioning**.)

General

- If any device does not work, swap it with a device that does work elsewhere on the network. If the fault moves with the device, you probably have a faulty device. If the new device shows the same fault as the one you have moved, you probably have a wiring fault.

Finishing Pre-Commissioning

- When you have successfully completed all of the above checks, power the system down. Any limbs with faults still present should be disconnected and relevant information left for the commissioning engineer. Pre-commissioning is now complete. **Note**: Any limbs left with faults present may require extra visits by the commissioning engineer and additional cost may be incurred.

Things the Commissioning Engineer will Need

- A set of plans suitable for marking up.
- Information from the client about the naming of each room. If this is not available, the commissioning engineer will set the system up as he thinks best and there may be a charge for altering the system at a later date should this be required.
- Information from the client about routing calls (Areas & Groups) – if possible.
- Quantec PRO Main manual (this document), including programming forms.
- Individual instruction supplied with each device.
- Pre-Commissioning Certificate signed by the installation contractor.

Pre-Commissioning Certificate

When the Installation Contractor has carried out the various tests/checks highlighted in these Pre-Commissioning Instructions, this certificate should be completed, signed and left for the attention of the Commissioning Engineer:

Checks carried out to the following:

	Tested and working correctly	Faults found and not corrected
Spine Wiring	❒	❒
Limb Wiring	❒	❒
Call Points	❒	❒
Overdoor Lights	❒	❒
Ceiling Pulls	❒	❒
Slave Call Points	❒	❒
Tail Call Leads	❒	❒
Infrared Ceiling Receivers	❒	❒
Corridor Displays	❒	❒
Monitor Points	❒	❒
Addressable Overdoor Lights	❒	❒
Addressable Hi-Op Sounders	❒	❒
Cables clearly labelled?	❒	❒

SIGNED:_____ DATE: _____

CONTRACTORS NAME: _____

COMPANY: _____

ADDRESS: _____

TELEPHONE: _____ FAX: _____

DETAILS OF ANY FAULTS: _____

_____

_____

_____

_____

Appendix 6 - Technical Specification

POWER SUPPLY SPECIFICATION	
Mains supply	230V AC 50/60Hz. Rated current 0.68A
Internal Power Supply	18.7V DC to 29.0V DC (Ripple voltage 500mV p-p)
Maximum rated current	2.5A @ 230V AC (2.5A - battery only with mains off)
Supply and battery charger monitored for failure	Yes
Batteries monitored for disconnection and failure	Yes
Batteries protected against deep discharge	Yes
Max. battery size and type	1.2Ah to 7Ah. Use 2 x 12V VRLA batteries (Order Code: BC286/2)
AUXILIARY OUTPUTS	
Type	Open Collector
Max. switching current	25mA
Max. switching voltage	30V DC
OP1-5 **Note:** Output functions are individually selectable at the Quantec PRO Controller.	Activated when any standard CALL is active on the system
	Activated when any ASSIST (HELP REQUIRED) call is active on the system
	Activated when any EMERGENCY call is active on the system
	Activated when any ATTACK call is active on the system
	Activated when any CARDIAC call is active on the system
	FAULT Output. Normal=ON, Fault=OFF.
+24V Aux. power output	19.5V minimum, 28V maximum. Max. current 100mA. Self-resetting fuse.
FUSES (to IEC - EN60127 Pt2)	
Primary fuse (F1)	1 x T 1A H 250V 20mm ceramic (T=Time Delay, H=High Breaking Current)
Battery fuse (F3)	1 x 3.15A F (20 x 5mm). This limits the current drawn from the battery.
PANEL INDICATORS AND CONTROLS	
Control and menu access buttons	✓ (Accept), ▲ (Scroll Up), ▼ (Scroll Down), E (Escape), Code Entry buttons (1, 2, 3).
Liquid crystal display (LCD)	Two lines x OLED display, backlit
LED indicator	Power Present (LED lit), No Power Present (LED extinguished)
PHYSICAL DIMENSIONS	
QP901 Quantec PRO Controller	435 (W) x 270 (H) x 85 (D) mm (metal base, plastic lid)
Cutout required for flush mounting using QT385 bezel	412 (W) x 255 (H) x 50 (D) mm
Flush mount depth	60mm
Approx. weight (without batteries)	3.5kg
NETWORK CABLING/SPECIFICATION	
Connection	QP901 Quantec PRO Controller to QT603 network splitters
Spine cable	1.5mm^2 or 2.5mm^2 (e.g. twin and earth cable)
Max. cable length per spine using 1.5mm^2	150m
Max. cable length per spine using 2.5mm^2	250m
Max. cable length of all spines and limbs	750m
Limb cable	Min 4-core stranded security cable, twisted into pairs (to reduce voltage drop)
Number of limbs per splitter	6
Max. cable length per limb	60m
Max. number of addressable devices per splitter	60
Max. number of addressable devices per limb	15
Max. number of addressable devices per system	256 (Address 1 is allocated to the Quantec PRO Controller)
Network voltage	24V (nominal)
Network max. current	3A
PC/PRINTER/PAGING INTERFACE	
Quantec Surveyor2 (QTS2) PC/Printer connection	CONN1 provides RS232 connection using QT600S wall socket
Quantec PRO Programming PC connection	PL3 provides connection using Quantec PRO programming lead (Order Code: QP907)
Pager connection	CONN2 provides RS232 connection using QT600S wall socket
OPERATING CONDITIONS	
The enclosure is designed for indoor use only. The components are selected to operate within their specification when the environmental conditions outside the enclosure comply with class 3k5 of IEC 721-3-3. Temperature range: -10^{o}C to +40^{o}C. Maximum humidity: 95% non-condensing.	

Appendix 6 - Technical Specification (continued)

ORDER CODES - QUANTEC PRO CONTROLLER, ENCLOSURES, PROGRAMMING SOFTWARE & INSTALLATION AIDS	
QP901	Quantec PRO Controller
QT385	Flush mounting bezel for Quantec PRO Controller
BF359/3S	Stainless steel glazed enclosure for Quantec PRO Controller, requires BF359/3CL or BF359/3SL lock kit
BF359/3CL	Cam lock kit for BF359/3S
BF359/3SL	Electromagnetic solenoid lock kit for BF359/3S
QP907	Quantec PRO Programming Lead (with link to Microsoft Store)
QT423 + QT423A	Quantec device configurator c/w lead + adaptor. Used with QP901 to program special functions on Quantec PRO devices.
BF395	USB to RS232 programming lead
QTS2	Quantec Surveyor2 Data Management Software
QT603	Quantec network splitter
QT600S	Quantec wall socket
BC286/2	24V 7Ah VRLA battery pack (2 x 12V including link wire)

QUANTEC PRO FORMS

Quantec PRO Device Assignment Table

DEVICE		Call Point/ Monitor Point/ Radio Receiver AREA (A to Z)	Corridor Display GROUP (1 to 32)	Addressable ODL/Hi-Op Sounder ZONE (1 to 64)	PLACE DESCRIPTION	
Number	Type				Placename	Suffix

Quantec PRO Device Assignment Table

DEVICE		Call Point/ Monitor Point/ Radio Receiver AREA (A to Z)	Corridor Display GROUP (1 to 32)	Addressable ODL/Hi-Op Sounder ZONE (1 to 64)	PLACE DESCRIPTION	
Number	Type				Placename	Suffix

Quantec PRO Group Routing Table (max. 16 Areas/Groups per equation)

GROUP (1 to 32)	PRIMARY DAY AREAS (A to Z)	NIGHT AREAS (BEEP) (A to Z)	DIVERT TO GROUPS (1 to 32)

Quantec PRO Zonal Routing Table (max. 16 Areas/Devices per equation)

ZONE (1 to 64)	AREA (A to Z) EQUATION	DEVICE EQUATION

Quantec PRO Network Splitter Connection Record Sheet

Quantec PRO Controller

6 m

NETWORK SPLITTER No.1	**Limb**	**Device ID Numbers**	**Length**
	1	29	5m
	2	6, 34-37	25m
Location: South Wing. Above suspended ceiling near corridor doors.	3	30-33	25m
	4	9, 28	15m
	5	-	-
	6	-	-

15 m

NETWORK SPLITTER No.2	**Limb**	**Device ID Numbers**	**Length**
	1	11, 12, 14, 16, 27, 3	35m
	2	7, 10, 13, 15, 17, 2	30m
Location: Central Area. Reception area above suspended ceiling.	3	26, 8, 18, 19-21	30m
	4	4, 5, 22-25	30m
	5	-	-
	6	-	-

An example of a Splitter Connection Record for the fictional nursing home (see page 6) is shown above.

NETWORK SPLITTER No.	**Limb**	**Device ID Numbers**	**Length**
	1		
	2		
Location:	3		
	4		
	5		
	6		

NETWORK SPLITTER No.	**Limb**	**Device ID Numbers**	**Length**
	1		
	2		
Location:	3		
	4		
	5		
	6		

NETWORK SPLITTER No.	**Limb**	**Device ID Numbers**	**Length**
	1		
	2		
Location:	3		
	4		
	5		
	6		

NETWORK SPLITTER No.	**Limb**	**Device ID Numbers**	**Length**
	1		
	2		
Location:	3		
	4		
	5		
	6		

NETWORK SPLITTER No.	**Limb**	**Device ID Numbers**	**Length**
	1		
	2		
Location:	3		
	4		
	5		
	6		

NETWORK SPLITTER No.	**Limb**	**Device ID Numbers**	**Length**
	1		
	2		
Location:	3		
	4		
	5		
	6		