

# QT630

## QUANTEC DEMENTIA CARE CONTROLLER



# installation, commissioning and configuration manual

Approved Document No. DNU6300000 Rev 2 01/03/21

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## IMPORTANT NOTES



THIS EQUIPMENT MUST ONLY BE INSTALLED AND MAINTAINED BY A SUITABLY SKILLED AND TECHNICALLY COMPETENT PERSON. THE CONTROLLER IS A PIECE OF CLASS 1 EQUIPMENT AND MUST BE EARTHED. THIS IS A 12V SYSTEM AND REQUIRES A 12V VRLA BATTERY (NOT SUPPLIED) FITTING IN THE CONTROLLER.

### Items supplied with the Controller

- Installation, Commissioning & Configuration Manual (i.e. this manual) - explains how to install, commission and configure the Quantec Dementia Care Controller. **This manual must not be left accessible to unauthorised users.**
- Electrical accessory pack containing the following:
  - 1 x Torx key for unfastening / securing the unit's lid
  - 1 x Mains fuse (1T 1 A H 230 V, 20 mm ceramic) for the Power Supply PCB
  - 1 x Battery fuse (3 A MINI® automotive blade fuse) for the Power Supply PCB
  - 1 x 10K resistor for the QT637 Enuresis Interface Socket
  - 1 x set of PLK1 & PLK2 links for the main controller PCB
  - 1 x set of battery connection leads

### System design

Refer to the main Quantec Manual (Document No. DNU6012001) for system design information. 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.

© Errors & Omissions Excepted. The manufacturer of this product operates a policy of continuous improvement and reserves the right to alter product specifications at its discretion and without prior notice. All of the instructions covered in this manual have been carefully checked prior to publication. However, no responsibility can be accepted by the manufacturer for any inaccuracies or for any misinterpretation of an instruction or guidance note.

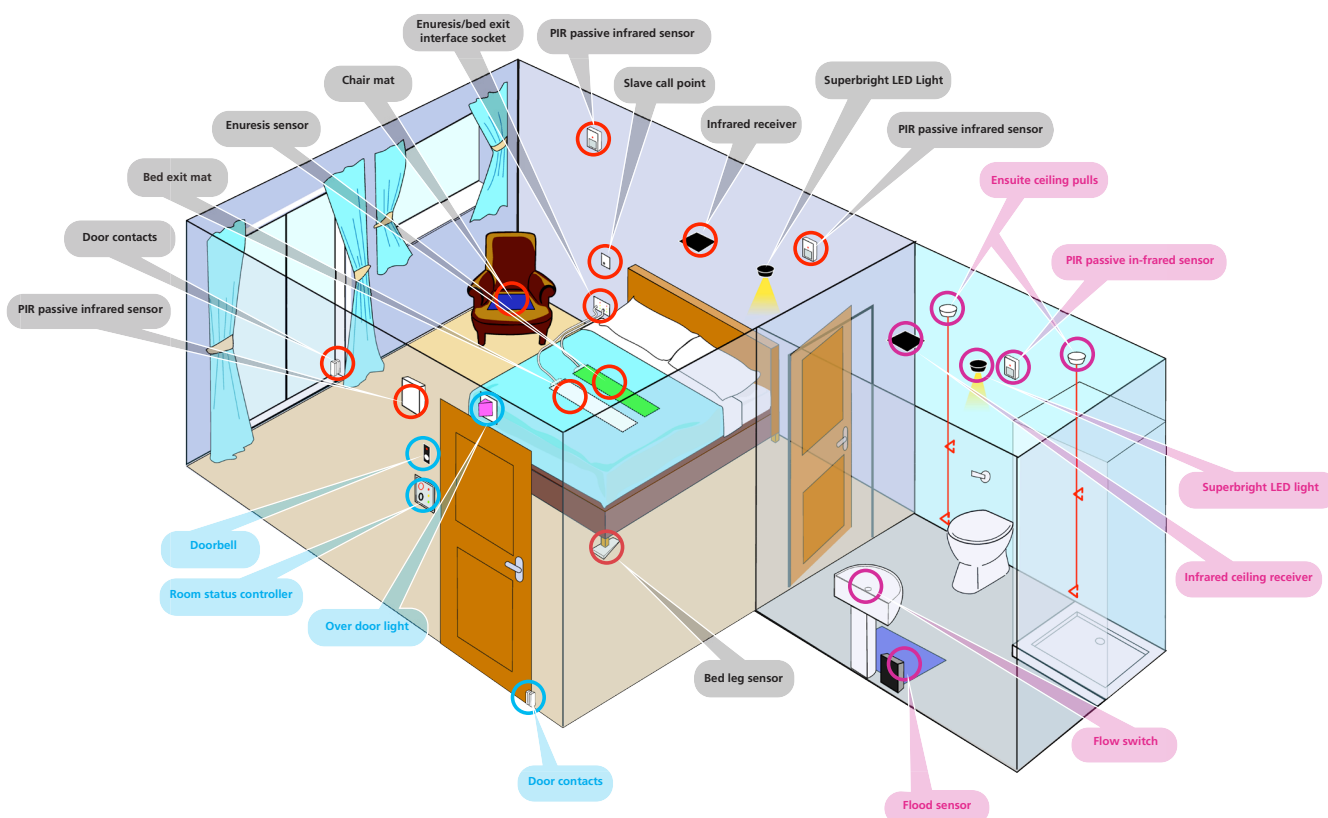


Manufacturer: Computationics Limited (C-TEC), Challenge Way, Martland Park, Wigan, Lancashire WN5 0LD. [www.c-tec.com](http://www.c-tec.com)

## SYSTEM CAPABILITY SCHEMATIC

The diagram below is for illustrative purposes only to help you understand the capability of the QT630 controller. It shows the many and varied slave devices that can be connected to the controller. It should be noted that not all of the devices shown can be connected to the Controller at the same time and some, such as ceiling pull units, will not normally be used in dementia care-type applications.

In practice, a relatively small number of devices will be connected to the controller depending on the level of care required. To assist system setup/planning, the QT630 comes with a number of different pre-set configurations which can be engineer selected via a DIP switch located inside the Controller. These are described in detail in the "Overview / Planning a System" section on pages 5 to 12).



### Dementia Care Controller

Usually mounted in an engineer accessible cupboard inside the bedroom

## OVERVIEW / PLANNING A SYSTEM

The QT630 Dementia Care Controller allows care providers to enhance the level of care they provide for patients suffering from dementia, Alzheimers and other degenerative illnesses.

The Controller can be programmed to suit the exact requirements and/or behaviour patterns of an individual patient/bedroom and includes all of the inputs, outputs, timers and power needed for the connection of PIR movement detectors, an enuresis sensor, bed exit mats, low voltage LED lighting, door monitoring contacts, slave infrared ceiling receivers, slave overdoor lights, a room status controller and more.

Effectively a very sophisticated addressable call point that requires its own 230V a.c. mains connection, the QT630 comes with a number of pre-set DIP-switch selectable configurations, all geared towards giving patients the freedom and dignity they need to live their lives as normally as possible with as little intervention from carers as their condition will allow.

Typically, one QT630 is required per bedroom (usually located inside the bedroom in an engineer accessible cupboard) and its options include:-

**3 x Medium Intensity Monitoring configurations:** These options utilise a bed exit mat and timers to switch lights on as soon as the patient gets out of bed and allows them a period of 4, 6 or 8 minutes before generating a call. Should the patient return to bed within the allocated time period, the system will return to normal and the lights will go out without the need for staff/carers intervention.

**3 x Medium Intensity/Ensuite Ushering configurations:** These options utilise a bed exit mat, PIRs and timers to automatically switch lights on and off when movement is detected and to safely guide patients in and out of ensuite areas. The length of time the patient is allowed out of bed before a call is generated varies depending on the configuration/behaviour pattern selected. Should the patient return to bed within the allocated time period, the system will return to normal and the lights will go out without the need for staff/carers intervention.

**4 x High Intensity Monitoring configurations:** These options utilise PIRs to detect patient movement and switch lights on / generate a call the moment the patient gets out of bed.

As a patient's condition changes, the configuration/behaviour pattern selected can be easily altered at the Controller to help ensure the level of care provided matches the needs of the patient at all times.

To arm or isolate the Controller (e.g. to disable PIRs during daytime hours), to put the system into presence mode and/or reset calls, each QT630 requires a QT631K keyswitch-operated Room Status Controller or a QT631M magnetic-swipe operated Room Status Controller, which is usually located outside the bedroom door.

Should the care facility have a policy of keeping bedroom doors locked from the outside (with a failsafe open function for the patient) to prevent confused patients wandering into other patients' bedrooms, an optional doorbell can be interfaced to the QT631M or QT631K. The activation of the doorbell will generate a 'Doorbell' call which staff can respond to by either opening the door or directing the patient to the correct bedroom as appropriate.

The addition of a slave overdoor light above the bedroom door can help staff determine the status of the dementia care system at a glance from the corridor. It should be noted that ALL calls generated by the QT630 will be reported clearly on ALL relevant Quantec displays (e.g. BEDROOM 2, ENURESIS CALL or BEDROOM 5, BED EXIT CALL, etc.) and be sent to the main Quantec Controller for optional output/logging via our Surveyor data management software.

As carers often need to call for extra assistance (e.g. to help put a patient back into bed), a QT302RXRS slave infrared ceiling receiver should be installed in all bedroom and ensuite areas to allow staff to generate a 'help required', 'emergency' or 'staff attack' call using an appropriate infrared pendant or transmitter. Up to three slave IR receivers can be connected to each QT630.

Such is the flexibility of the QT630, many other devices can be connected to the system including flood sensors, flow switches and more. This installation guide covers the most common scenarios and focuses mainly on the 10 pre-set configurations and devices described above. Should you require any additional assistance, please do not hesitate to contact our technical department for advice.

Each Controller operates at 12V d.c., includes space for 1 x 12V 7Ah battery providing up to 8 hours standby time and connects to the Quantec network via its two network connections.

## DESIGNING A MEDIUM INTENSITY MONITORING SYSTEM

### Configs 4, 5 & 6 (DIP switch selectable from inside the Controller)

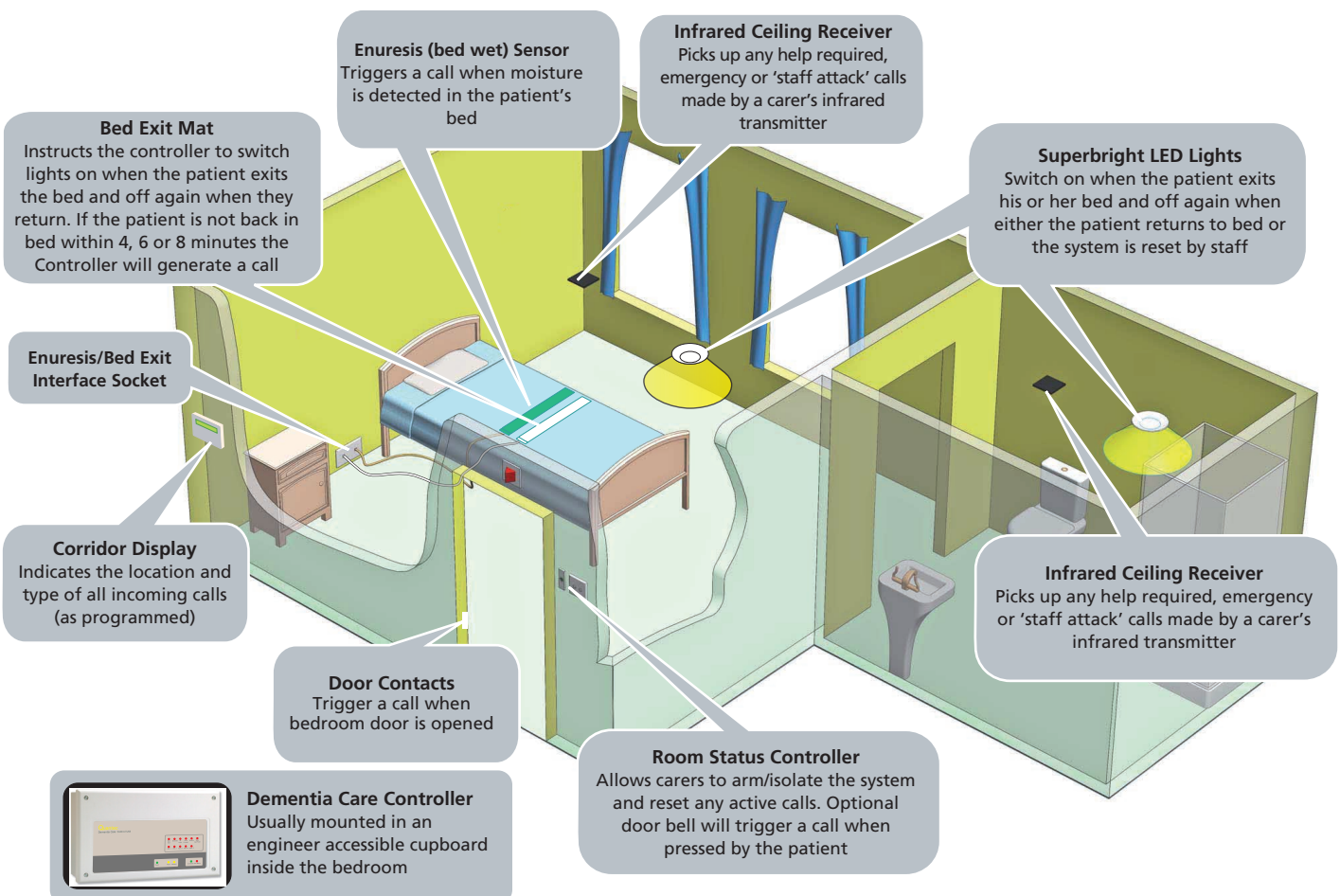
This mode allows patients to be out of bed for either 4, 6 or 8 minutes before a call is raised. During this time the patient can do whatever they like, e.g. visit the ensuite, without a call being raised. However, should they be out of bed for more than the allotted time a call will be raised. Lamps1&2 switch on full as soon as the bed is exited and don't turn off until 30 seconds after the patient has returned to bed, or until the call is reset by staff. Note that no ushering of patients into an ensuite is covered in this option.

The following detail applies:

- In isolate and presence mode, all inputs (except IR receivers) are isolated.
- Enuresis: Always active (except in presence mode). When triggered (i.e. moisture detected) a call is raised.
- Door contacts: These trigger a call immediately (assuming they are connected to an external patio door or the main bedroom entrance).
- Bed exit (via bed exit mat): Always active (except in presence or isolate mode). When triggered (i.e. patient gets out of bed):
  - > No call raised immediately but a timer starts and Lamps1&2 switch on full immediately,
  - > If patient returns to bed within the allotted time (i.e. the bed mat senses they have returned), Lamps1&2 stay on for an extra 30 seconds and then go off. The system returns to its normal mode (i.e. any call timers are cancelled),
  - > If patient has not returned to bed after the allotted time, then a call is raised.

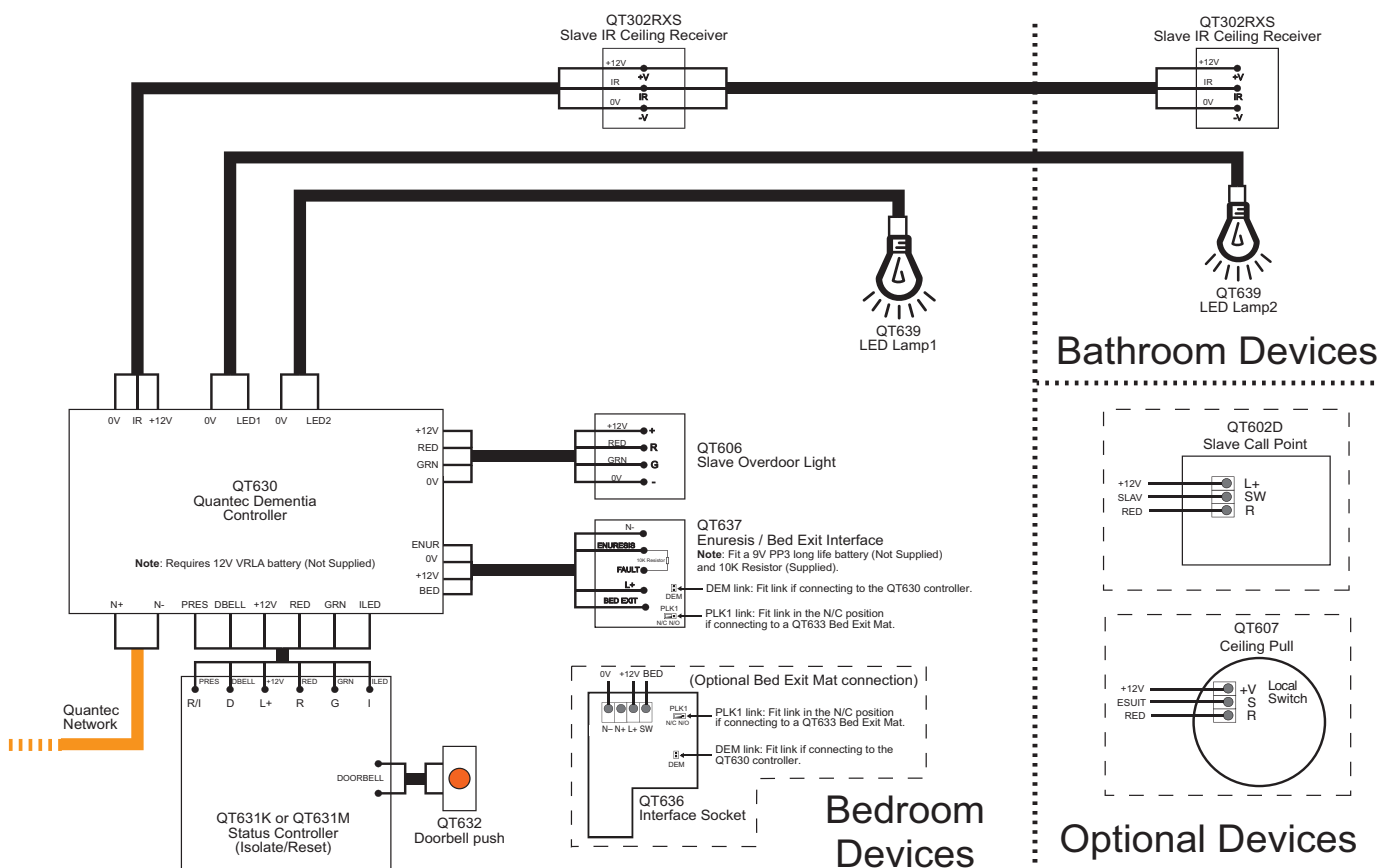
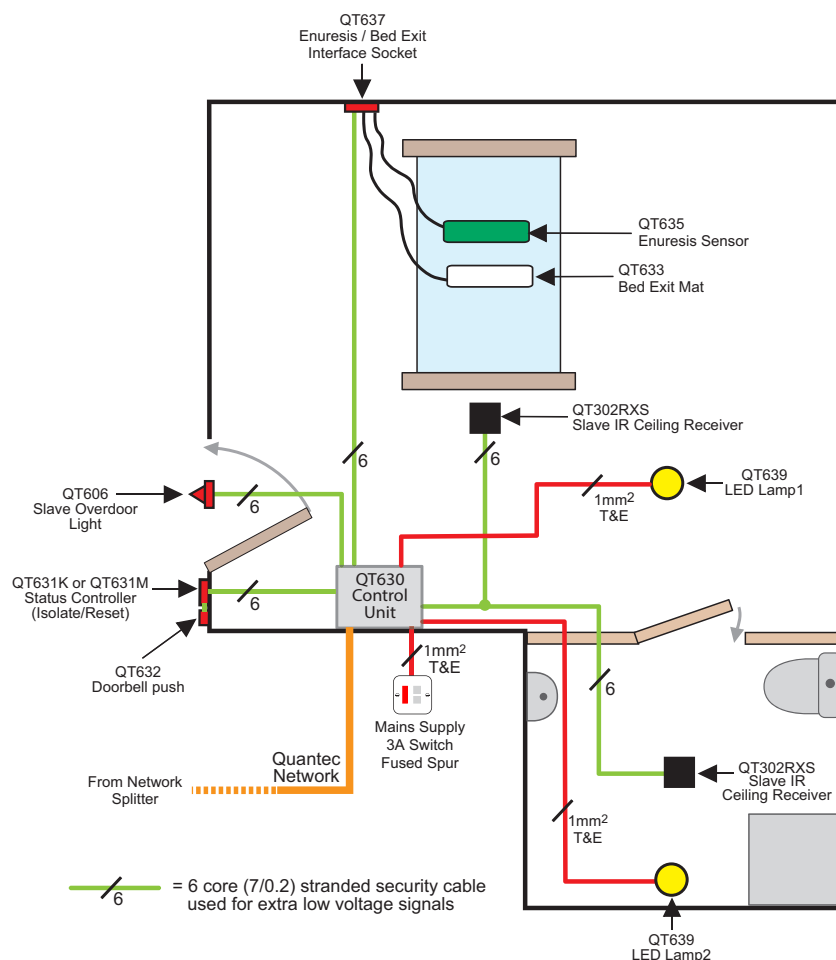
**Note:** PIRs not fitted. Lamp1 is located in the bedroom, Lamp2 is located in the bathroom/ensuite.

Config	DIP	Config Description
4	0 0 1 0	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and a timer starts. If patient gets back into bed before 4 minutes, Lamps1&2 go off after 30 seconds once back in bed. If patient does <u>not</u> get back into bed after 4 minutes, a Standard Call is sent and Lamps1&2 stay on.
5	1 0 1 0	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and a timer starts. If patient gets back into bed before 6 minutes, Lamps1&2 go off after 30 seconds once back in bed. If patient does <u>not</u> get back into bed after 6 minutes, a Standard Call is sent and Lamps1&2 stay on.
6	0 1 1 0	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and a timer starts. If patient gets back into bed before 8 minutes, Lamps1&2 go off after 30 seconds once back in bed. If patient does <u>not</u> get back into bed after 8 minutes, a Standard Call is sent and Lamps1&2 stay on.



## Medium Intensity Monitoring wiring

- Connection to the Quantec network is via the QT630 which is assigned as a Call Point (with a single address) by the Main Quantec Controller (QT601-2).
- In the example shown, Lamp1 is located in the bedroom and Lamp2 is located in the bathroom/ensuite.





## DESIGNING A MEDIUM INTENSITY MONITORING SYSTEM WITH ENSUITE USHERING

### Configs 7, 8 & 9 (DIP switch selectable from inside the Controller)

This mode is similar to the Medium Intensity Monitoring configuration (pages 6 & 7) but in addition to allowing patients to be out of bed without raising a call for up to 10 minutes, it also uses lamps to usher the patient in and out of the ensuite.

The scenario detailed below has the following timer settings:

T1 - Time allowed out of bed but not entered bathroom.

T2 - Time allowed in bathroom before a call is made; associated with this is the time before bathroom Lamp2 dims, i.e. T2 - X minutes.

T3 - Time allowed to get back into bed after leaving bathroom.

T4 - Time before Lamps1&2 go off once back in bed, provided a call hasn't been raised or reset.

The following detail applies:

- In isolate and presence mode, all inputs (except enuresis and IR receivers) are isolated.
- Enuresis: Always active (except in presence mode). When triggered (i.e. moisture detected) a call is raised.
- Door contacts: These trigger a call immediately (assuming they are connected to an external patio door or the main bedroom entrance).

Bed exit (via bed exit mat): Always active (except in presence or isolate mode). When triggered (i.e. patient gets out of bed):

- No call raised immediately but a timer (T1) starts and Lamps1&2 switch on full immediately,
- If patient returns to bed within the allotted time (T1), i.e. the bed mat senses they have returned, Lamps1&2 stay on for an additional time (T4) and then go off. The system returns to its normal mode, i.e. any call timers are cancelled.
- If patient has not returned to bed after the allotted time (T1) then a call is raised.

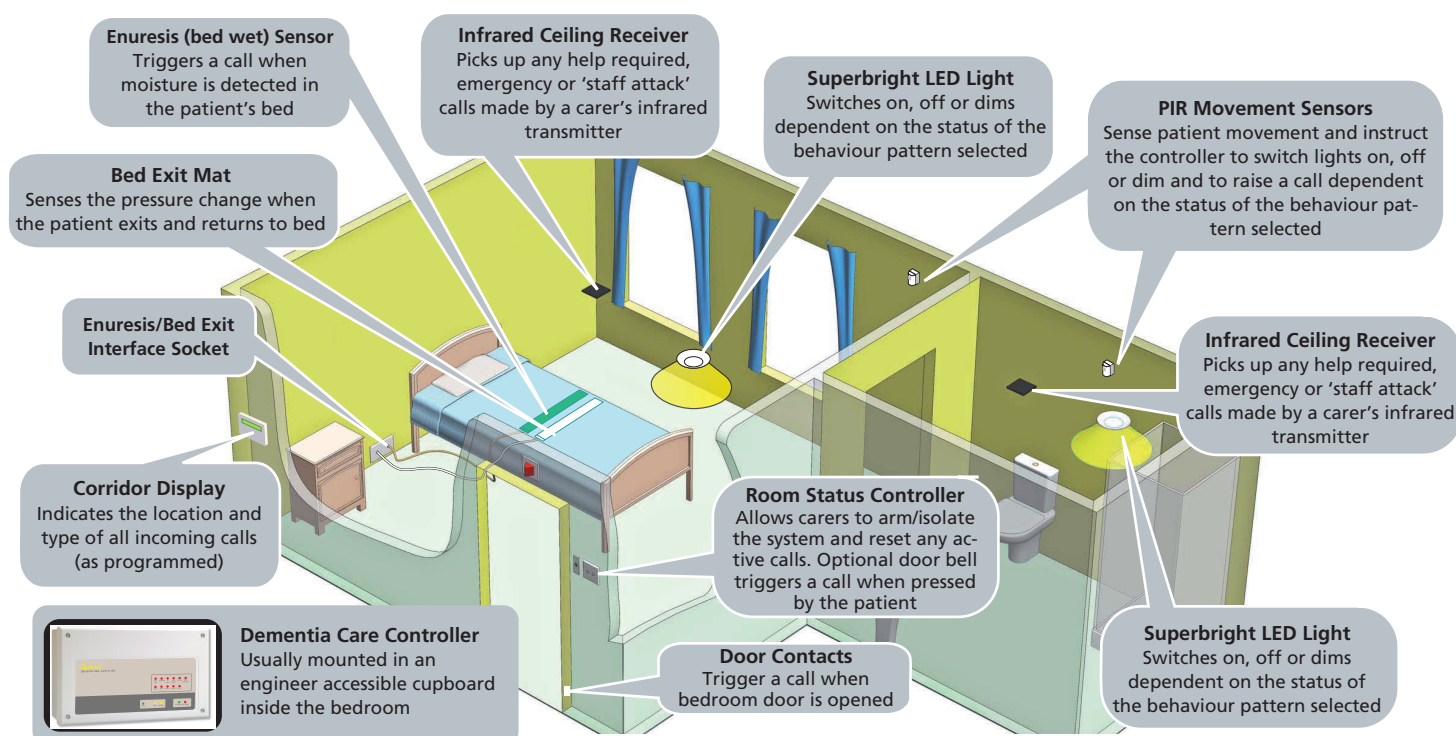
PIR2 (in ensuite): Always active (except in presence or isolate mode)

- If the ensuite PIR2 detects that the patient has entered the ensuite, the timer (T1) in the bedroom clears, the bedroom Lamp1 dims to half intensity and a new timer (T2) for the ensuite starts.
- If patient remains in the ensuite (i.e. they have not re-entered the bedroom which would be detected by the bedroom PIR1 activating) after the allotted time (T2 - X minutes), the ensuite Lamp2 dims to half intensity and the bedroom Lamp1 illuminates fully to prompt the patient to leave the ensuite.
- If the bedroom PIR1 has not detected that the patient has returned to the bedroom from the ensuite after the allotted time (T2) then a call is raised.

PIR1 (in bedroom): Always active (except in presence or isolate mode)

- If the Bedroom PIR1 detects that the patient has left the ensuite within the allotted time (T2), the timer (T2) in the ensuite clears and the ensuite Lamp2 dims to half intensity (if not already dimmed). A new timer (T3) starts allowing time for the patient to get back into bed.
- If patient returns to bed within the allotted time (T3), i.e. the bed mat senses they have returned, Lamps1&2 stay on for an additional time (T4) and then go off. The system returns to its normal mode, i.e. any call timers are cancelled.
- If patient has not returned to bed after the allotted time (T3) then a call is raised.

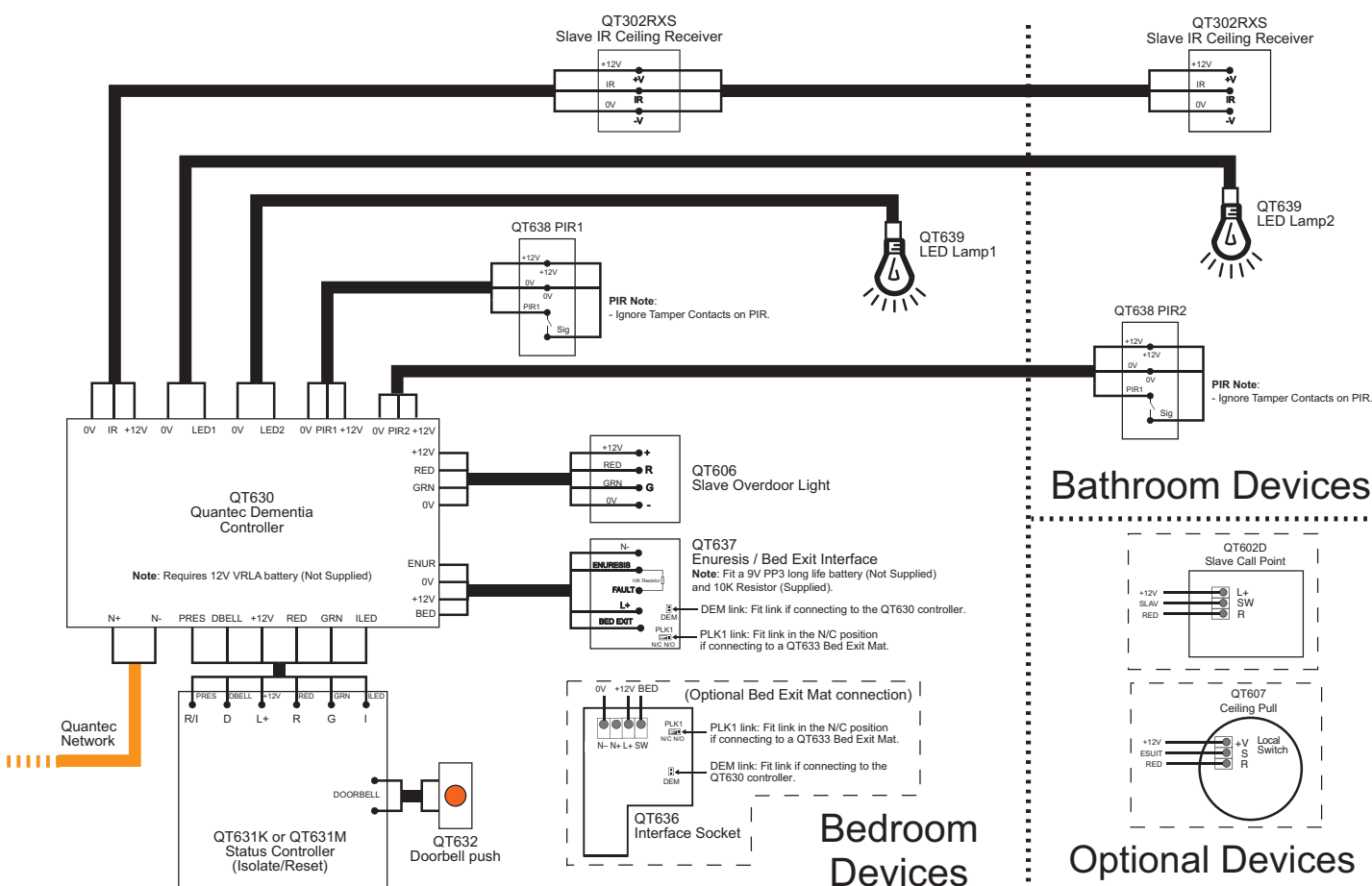
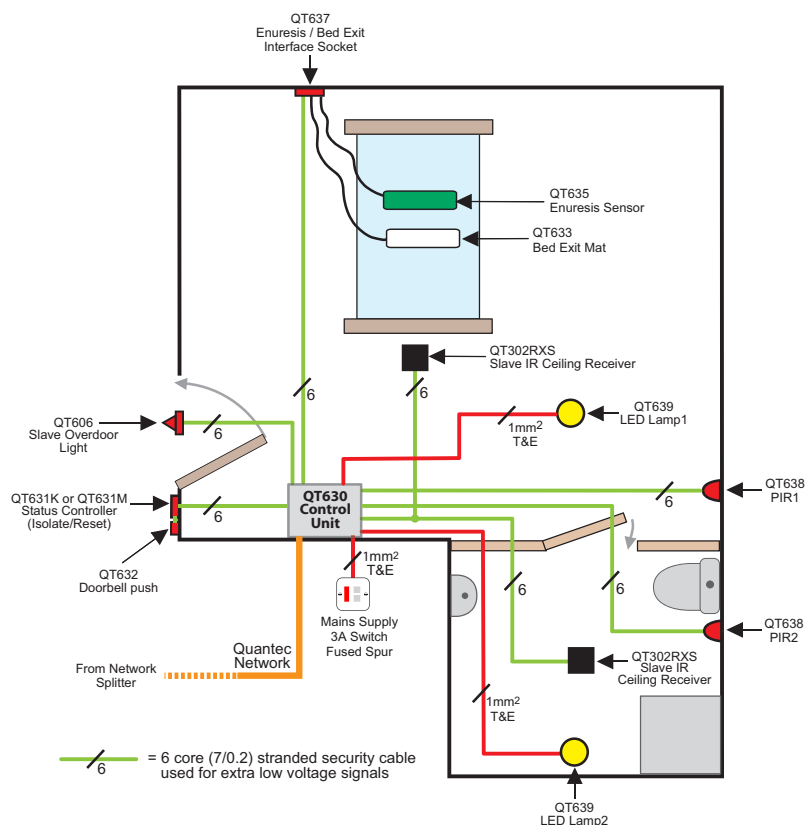
Config	DIP	Config Description
7	1 1 1 0	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and start timers. T1 = 4 minutes; T2 = 6 minutes (-1 minute Lamp2 time); T3 = 1 minute; T4 = 30 seconds.
8	0 0 0 1	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and start timers. T1 = 4 minutes; T2 = 8 minutes (-1.5 minutes Lamp2 time); T3 = 1 minute; T4 = 30 seconds.
9	1 0 0 1	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and start timers. T1 = 4 minutes; T2 = 10 minutes (-2 minutes Lamp2 time); T3 = 1 minute; T4 = 30 seconds.





## Medium Intensity Monitoring with Ensuite Ushering wiring

- Connection to the Quantec network is via the QT630 which is assigned as a Call Point (with a single address) by the Main Quantec Controller (QT601-2).
- In the example shown, Lamp1 and PIR1 are located in the bedroom, with PIR1 positioned near to the bathroom/ensuite door. Lamp2 and PIR2 are located in the bathroom/ensuite.



## DESIGNING A HIGH INTENSITY MONITORING SYSTEM

### Configs 0, 1, 2 & 3 (DIP switch selectable from inside the Controller)

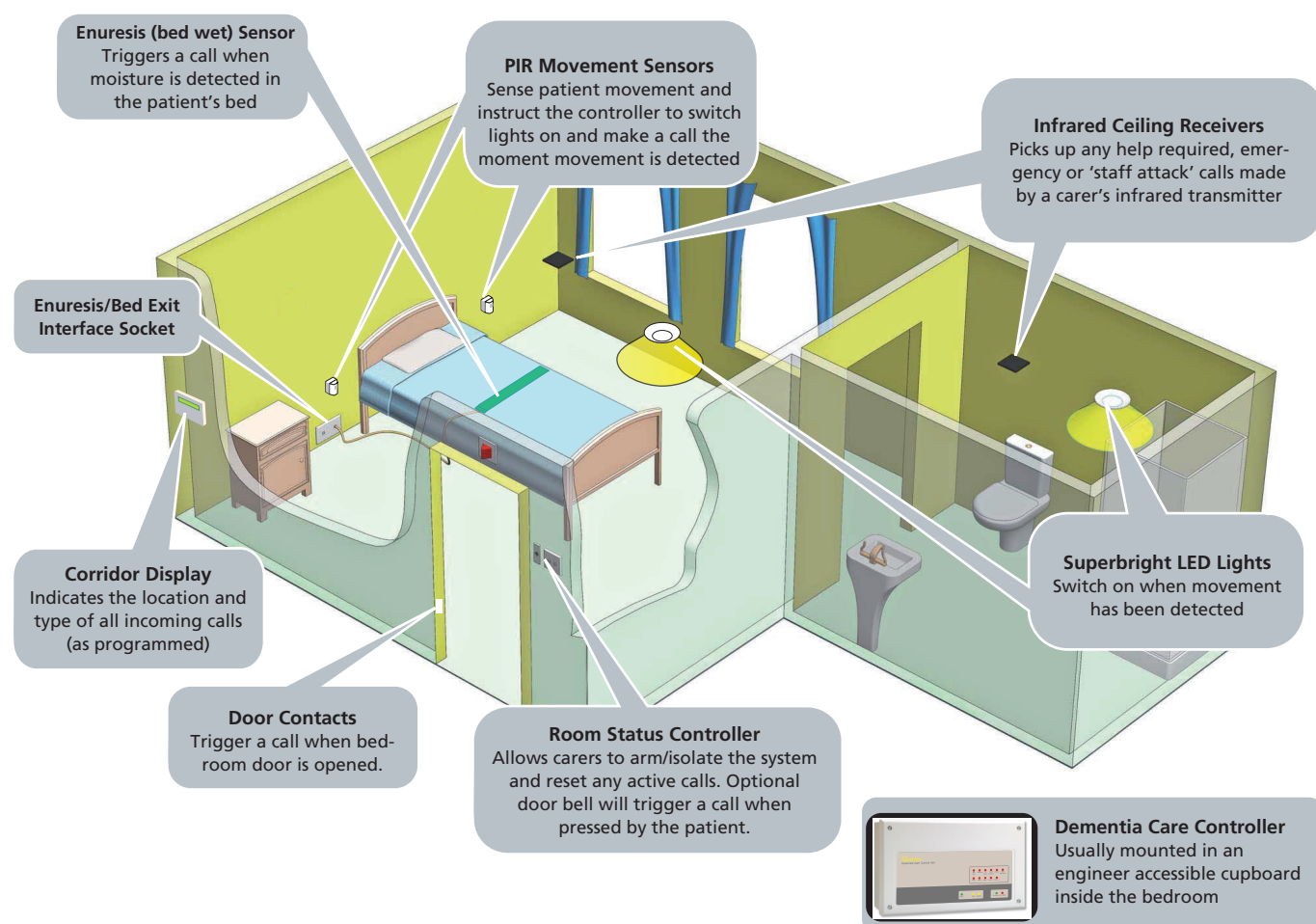
This mode is used to inform staff immediately when a patient gets out of bed using PIR1 activation. Lamps1&2 switch on full as soon as the bed is exited and don't turn off until the call is reset by staff.

The following detail applies:

- In presence mode, all inputs (except IR receivers) are isolated. In isolate mode, only PIR1 is isolated.
- System does not return to normal until a call is reset by staff.
- Enuresis: Always active (except in presence mode). When triggered (i.e. moisture detected) a call is raised.
- Door contacts: These trigger a call immediately (assuming they are connected to an external patio door or the main bedroom entrance).
- Bed exit (via PIR1 monitoring): Always active (except in presence or isolate mode). When triggered (i.e. movement detected) Lamps1&2 switch on full immediately and a call is raised.

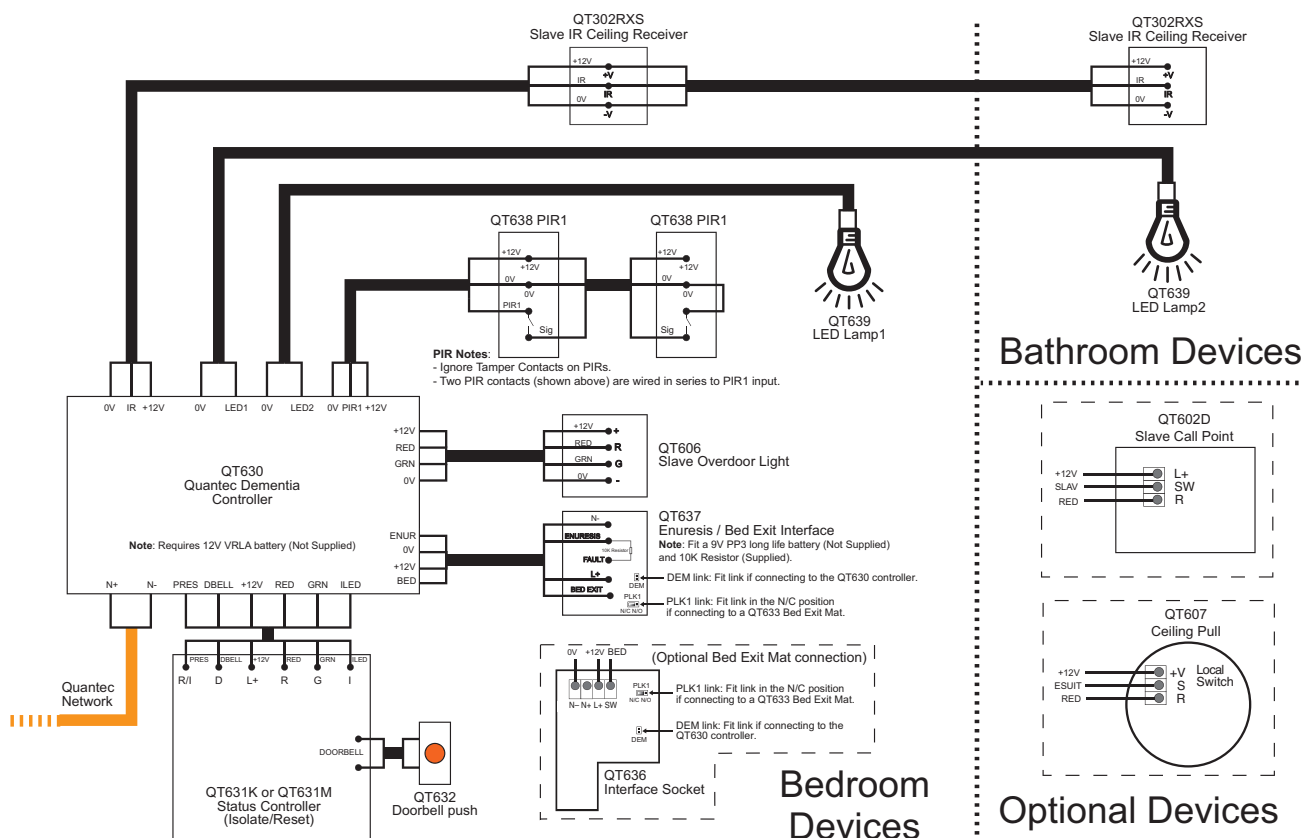
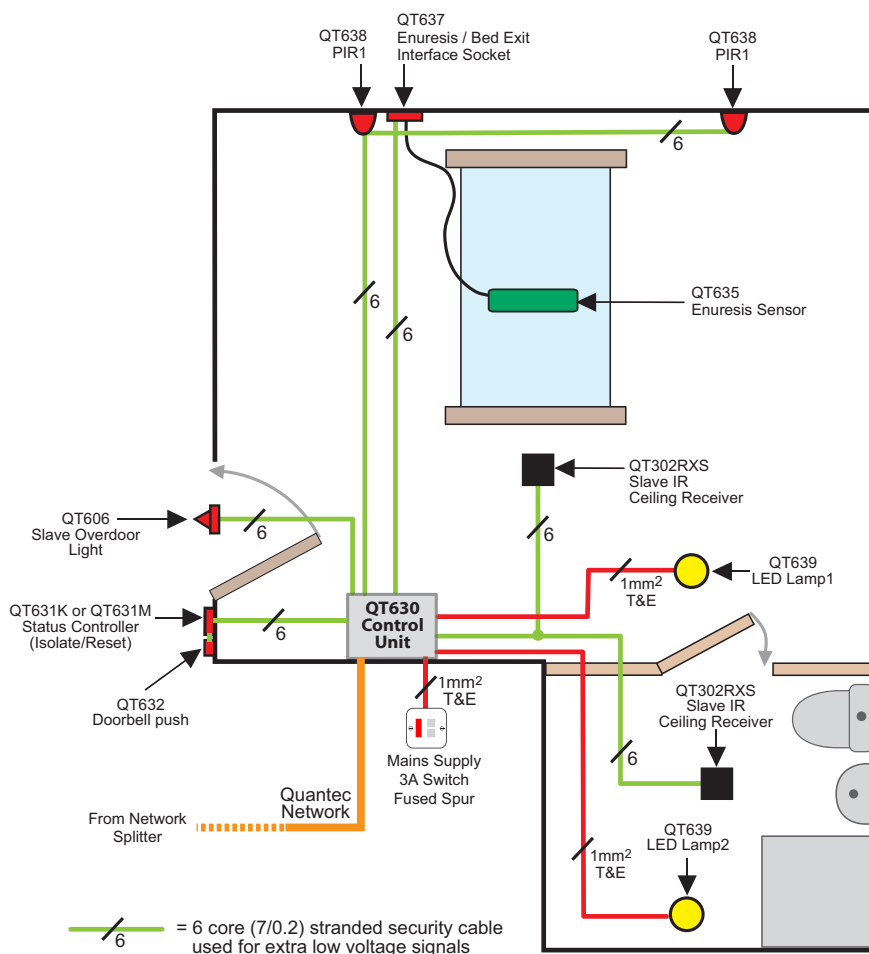
**Note:** PIR1 and Lamp1 are located in the bedroom, Lamp2 is located in the bathroom/ensuite.

Config	DIP	Config Description
0	0 0 0 0	On PIR1 activation, a Standard Call is sent immediately, Lamps1&2 switch on full immediately and stay on until reset by staff.
1	1 0 0 0	On PIR1 activation, a Standard Call is sent immediately, Lamps1&2 switch on full immediately and stay on until reset by staff. Doorbell is disabled.
2	0 1 0 0	On PIR1 activation, an Emergency Call is sent immediately, Lamps1&2 switch on full immediately and stay on until reset by staff.
3	1 1 0 0	On PIR1 activation, an Emergency Call is sent immediately, Lamps1&2 switch on full immediately and stay on until reset by staff. Doorbell is disabled.



## High Risk Monitoring wiring

- Connection to the Quantec network is via the QT630 which is assigned as a Call Point (with a single address) by the Main Quantec Controller (QT601-2).
- In the example shown, two PIR contacts are wired in series to the PIR1 input at the QT630.



## OTHER CONFIGURATION OPTIONS (e.g. Demonstration Mode)

The Controller has five additional configuration options - a demonstration mode and four spare scenarios that are not currently used. Demonstration mode is the Medium Intensity with Ensuite Ushering scenario described on pages 8 and 9 but with shorter time periods (as detailed below).

### Demonstration Mode (with ensuite ushering) - Config 15

Lamp1 and PIR1 are located in the bedroom, with PIR1 positioned near to the bathroom/ensuite door. Lamp2 and PIR2 are located in the bathroom/ensuite.

**Note:** Refer to Configs 7, 8, 9 (Medium Risk Monitoring) for an explanation of timer settings T1, T2, T3 & T4 (page 8).

Config	DIP	Config Description
15	1 1 1 1	Patient exits bed and activates Bed Exit Mat (or Mat in Bed). Lamps1&2 switch on full immediately and start timers. T1 = 12 seconds; T2 = 24 seconds (-12 seconds Lamp2 time); T3 = 12 seconds; T4 = 6 seconds.

### No Calls, IR Active - Configs 10, 11, 12, 13 & 14

Config	DIP	Config Description
10	0 1 0 1	Infrared (IR) receivers located in the bedroom and bathroom are active and put calls on the system. No calls are raised from other room devices.
11	1 1 0 1	
12	0 0 1 1	
13	1 0 1 1	
14	0 1 1 1	

## FIRST FIX

### MOUNTING THE CONTROLLER

The Dementia Care Controller is supplied with a plastic detachable lid, a plastic back box and two separate PCBs (Power Supply PCB and Main Control PCB). The relative location of these PCBs is indicated in the diagram below.

The Controller can be surface or semi-flush mounted. It must be sited indoors in an area not subject to conditions likely to affect its performance, e.g. damp, salt-air, water ingress, extremes of temperature, physical abuse, etc. Usually the Controller is mounted in an engineer accessible cupboard inside the bedroom.

#### Removing the lid and base PCBs

To protect the electronics from damage and to expose the base mounting holes, the QT630's lid and PCBs should be removed prior to first fix installation.



#### Anti-static handling guidelines

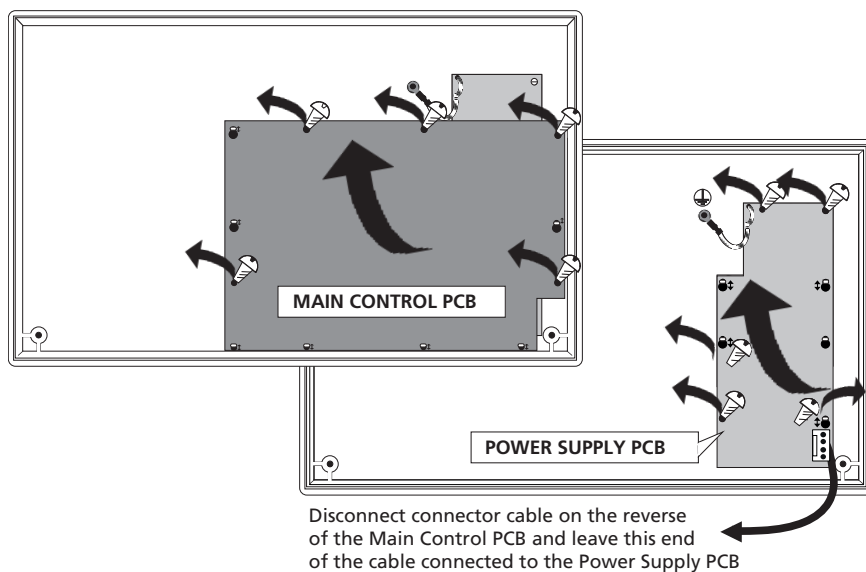
Please ensure that the following electro-static handling precautions are taken immediately prior to handling the Controller's PCBs or any other static-sensitive components:

Before handling any static-sensitive items, operators should rid themselves of any personal electro-static charge by momentarily touching any sound connection to safety earth, e.g. a radiator.

Always handle PCBs by their sides and avoid touching the legs of any components.

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

#### Location of the QT630's base PCBs and removal details



1. Take the Controller out of its box and undo the two lid screws using the Torx key (supplied). Remove the lid to expose the Main Control PCB (the Power supply PCB is located underneath).
2. Carefully remove the five retaining screws on the Main Control PCB and slide the PCB up and over the mounting pillars, taking care not to damage any of the components.
3. Disconnect the connecting cable on the reverse of the Main Control PCB, making sure that the cable remains connected to the Power Supply to prevent it being misplaced.
4. Pull the Power Supply's earth strap off the spade connector at the main chassis earth point.
5. Carefully remove the five retaining screws on the Power Supply PCB and slide the PCB up and over the mounting pillars, again taking care not to damage any of the components.

## MAINS AND LOW VOLTAGE WIRING



All system wiring should be installed to meet the recommendations below and BS 7671 (Wiring Regulations). Other national standards of installation should be used where applicable.

### Separated or Safety Extra-Low Voltage (SELV) Wiring

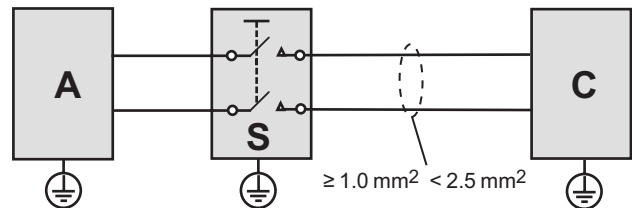
All SELV wiring must be carefully planned before starting the job. Always segregate SELV wiring from Mains wiring. Typically six core (7/0.2) stranded security cable can be used for most installations allowing positive, negative and signal connections.

### Mains wiring

All wiring should be installed in accordance with the current edition of the IEE Wiring Regs. (BS 7671), or relevant local & national standards. The requirement for the mains supply to the panel is fixed wiring (no less than 1mm<sup>2</sup> and no greater than 2.5mm<sup>2</sup>), either using 3-core cable, or a suitable three conductor system fed from an isolating switched fused spur at 3 A, or a 6 A Type B circuit breaker to IEC/EN 60898-1.

The mains supply **MUST** be exclusive to the panel and be reliably earthed at the indicated earthing post.

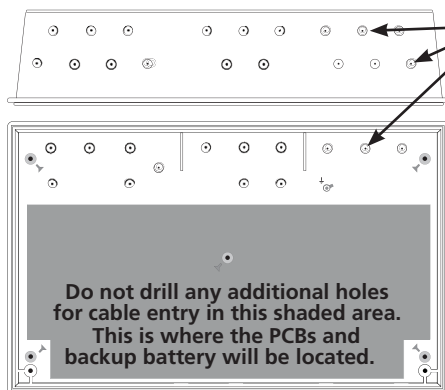
**Hint!** As an alternative to a switched fused spur, a double-pole isolating switch (S), with 3mm air gaps on the contacts & switching L & N only, may be used in the mains feed from the Main Distribution Board (A) to the Panel (C), providing it meets the appropriate wiring regulations (see drawing right).



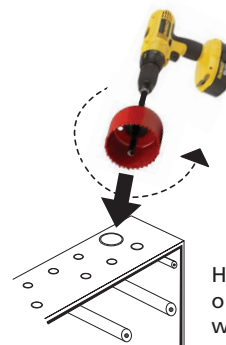
### Planning the cable entry into the Controller

The cabling for the room devices is classed as extra low voltage and should be segregated away from Mains voltages. Careful planning is needed to ensure this, see below for guidance. Drill centre points are provided in the Controller base to aid drilling tools. Cut out suitable holes in the Controller using a hole saw directed by a pilot bit in the centre of the hole saw. Always ensure that if a hole is cut out it is filled with a good quality cable gland. Any unused holes must be securely blanked off.

### Location of centre points for hole removal



Drill centre points are provided for cable entry

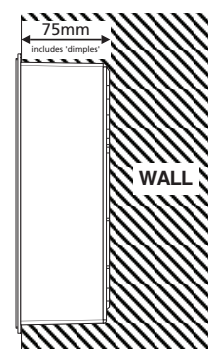
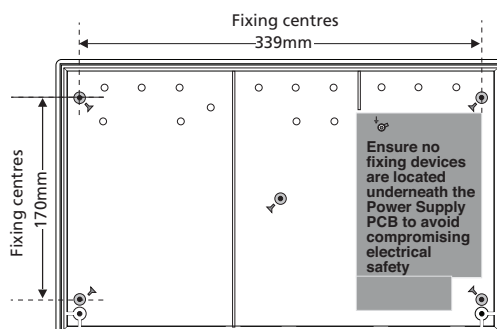


Holes should be cut out using a hole saw with a pilot bit.

### Fixing the base to the wall

Using the five mounting holes provided, see below, fix the base securely onto/into the wall. The mounting holes are suitable for use with No.8-10, or 4-5mm countersunk screws. Assess the condition and construction of the wall and use a suitable screw fixing. Any dust or swarf created during the fixing process must be kept out of the Controller and care must be taken not to damage any wiring or components.

### Internal view of the back box with PCBs removed / side view for flush mounting





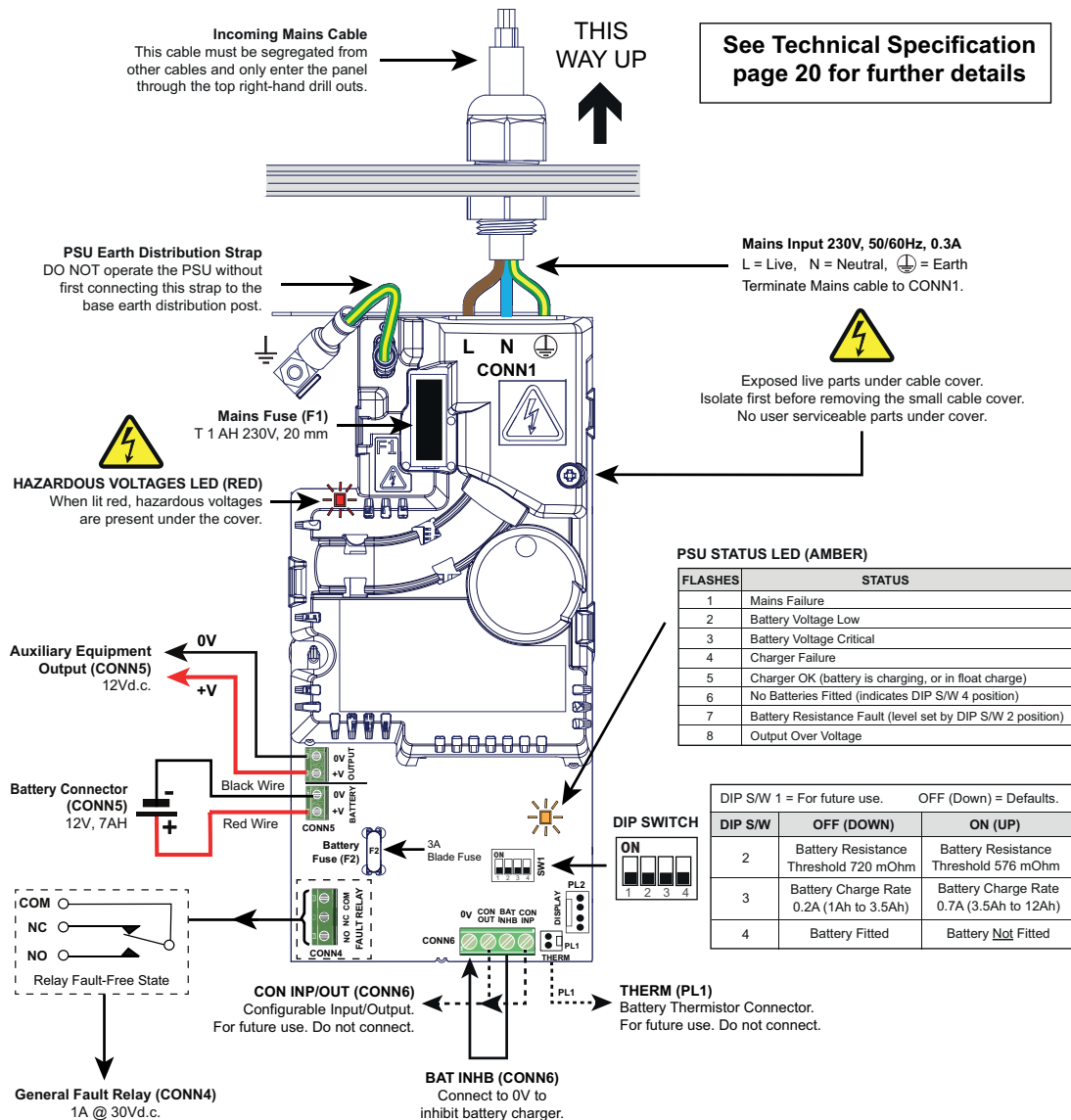
## SECOND FIX

Connecting the Controller's internal connections and PCBs should be undertaken immediately before commissioning. Before you begin, check all the bedroom and ensuite circuits are correctly connected and ensure cable integrity is verified throughout the installation. DO NOT use a high voltage insulation tester with any electronic devices connected.

### Installing the Power Supply PCB

The Controller's Power Supply PCB combines the functions of a mains to d.c. switched mode power supply unit, battery charging unit and battery monitoring unit. WHEN CONNECTED, THE POWER SUPPLY PCB STORES VOLTAGES AT UP TO 400Vdc AND MAY BE LETHAL IF TOUCHED. DO NOT TOUCH THE PCB WHILST THE RED 'HAZARDOUS VOLTAGES PRESENT' INDICATOR IS LIT.

#### Power Supply PCB layout and Mains connection details



### Connecting the Mains Supply

The general requirement for the Mains supply to the Controller is described on page 14 (Mains wiring). The incoming Mains cable should be brought into the QT630 at the top right hand side of the enclosure and terminated at the connector CONN1 on the Power Supply PCB, as shown above. Make sure the Mains earth wire is connected directly to this connector and NOT to the secondary base earth post which is provided for making off circuit screens.



**The earth strap on the Power Supply PCB MUST be connected to the spade on the chassis earth post before operation.** The spade is compressed against a shoulder on the post via the lowest nut. The earth post may appear loose, this is intended by design.

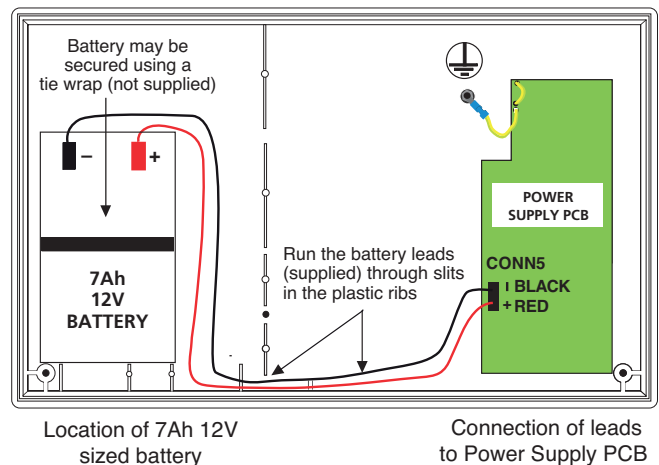
## Connecting the standby battery

For the emergency standby power supply for the Controller, only use a good quality sealed VRLA battery. Position and connect a single 7Ah 12V battery to connector CONN5 on the Power Supply PCB, as shown right. The recommended battery model is type NP7-12. The battery connection leads and link wire are provided in the Controller's accessory pack. The battery may be secured using tie wraps (not supplied) if required.



**Caution:** There is a risk of explosion if an incorrect battery is used. **DO NOT** use any type of battery other than that specified. Always dispose of used batteries in accordance with the manufacturer's instructions. Also, the battery may be secured using a tie wrap (not supplied).

## Battery location and connection details



The Controller's sophisticated battery monitoring unit protects the battery against deep discharge by activating a cut off circuit when the standby supply voltage reaches 9V approx. If the battery is not fitted, is discharged or in poor condition, a Power fault will be indicated at the Controller.

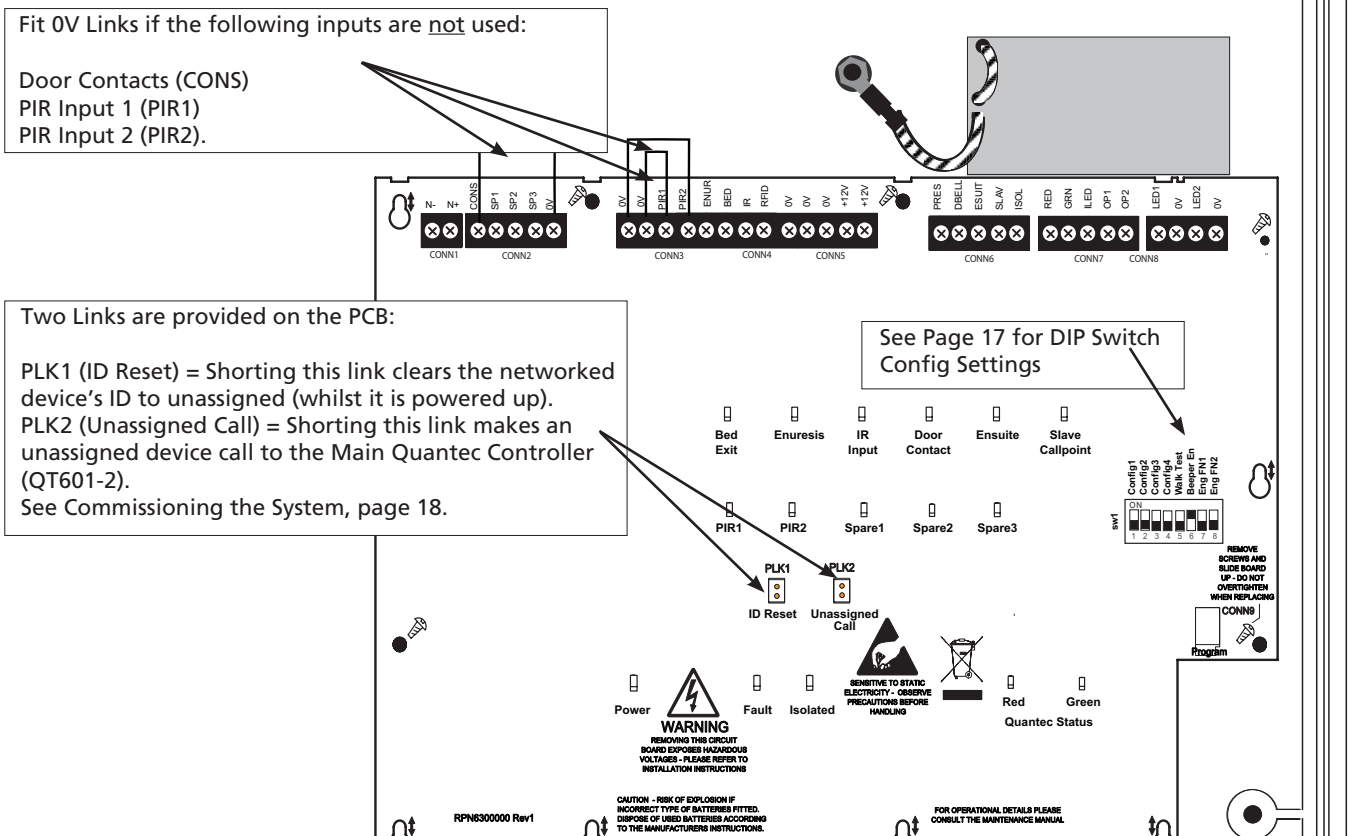
The battery is capable of powering the system for 8 hours in standby and 3 hours with the LED Lamps1&2 illuminated.

## Installing the Main Control PCB and Connecting Room Devices

Before any device connections are made, the Main Control PCB must first be securely positioned inside the QT630 using the five retaining screws, see below. As the PCB is fitted to the Controller, remember to attach the connecting cable between the reverse of the Main Control PCB and the Power Supply PCB. The QT630's Main Control PCB provides 5mm connector blocks for connecting to the room devices and the Quantec network. Incoming room devices should be connected to the relevant connector block on the Main Control PCB as shown below.

This PCB also provides the engineer with access to DIP switch settings which alter system configuration settings.

## Main Control PCB layout (see page 17 for Input and Output functionality details)



### QT630 INPUT FUNCTIONALITY

CONNECTOR FUNCTION	LEGEND	SWITCH CONNECTION	CONTACT TYPE	COMMENT
Door Contacts	CONS	CONS - 0V	N/C	Puts CALL on system. Link to 0V if <u>not</u> used.
Spare I/P 1	SP1	SP1 - 0V	N/O	Puts CALL on system.
Spare I/P 2	SP2	SP2 - 0V	N/O	Puts CALL on system.
Spare I/P 3	SP3	SP3 - 0V	N/O	Puts CALL on system.
0V (x 4)	0V			0V DC common ground for input devices.
PIR Input 1	PIR1	PIR1 - 0V	N/C	Configuration dependent. Link to 0V if <u>not</u> used.
PIR Input 2	PIR2	PIR2 - 0V	N/C	Configuration dependent. Link to 0V if <u>not</u> used.
Enuresis	ENUR	-	-	Connects to QT637.
Bed Exit	BED			Configuration dependent. Connects to QT637 or QT636.
Infrared	IR			Connects to QT302RXS / QT302RXRS
RFID	RFID			Serial Data connection for future use.
Presence	PRES			Connects to QT631M / QT631K
Doorbell	DBELL			Connects to QT631M / QT631K
Ensuite	ESUIT			Connects to QT607
Slave	SLAV			Connects to QT602D
Isolate	ISOL			For future use.

### QT630 OUTPUT FUNCTIONALITY

CONNECTOR FUNCTION	LEGEND	SWITCH CONNECTION	CONTACT TYPE	COMMENT
Network -ve	N-			Quantec Network connection.
Network +ve	N+			Quantec Network connection.
Red Indicator	RED			Connects to QT606, QT631M / QT631K.
Green Indicator	GRN			Connects to QT606, QT631M / QT631K.
Isolation Indicator	ILED			Yellow Isolation LED. Connects to QT631M / QT631K.
Spare O/P 1	OP1			For future use.
Spare O/P 2	OP2			For future use.
0V (x 4)	0V			0V DC common ground for output devices.
Auxillary +12V O/P 1	+12V			100mA max. Not monitored.
Auxillary +12V O/P 2	+12V			100mA max. Not monitored.
Lamp1	LED1	LED1 - 0V		Bedroom light (if independently operated). Connects to QT639.
Lamp2	LED2	LED2 - 0V		Bathroom/Ensuite light (if independently operated). Connects to QT639.

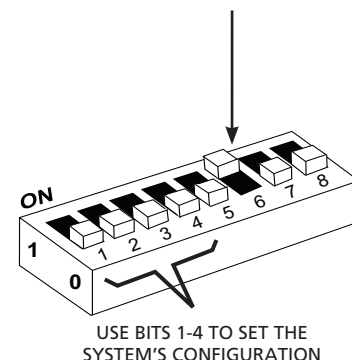
### DIP Switch Settings

- Bits 1, 2, 3, 4 = Sets Configuration Settings (see below)  
 Bit 5 = Walk Test. Checks each input into the QT630 (beeper sounds and LEDs light).  
 Bit 6 = Beeper En. Turns the QT630's beeper on/off.  
 Bit 7 = Eng FN1. Not used (MUST be set to off).  
 Bit 8 = Eng FN2. Not used (MUST be set to off).



### Configuration Settings (Set using bits 1 to 4 on the DIP switch SW1)

Config Setting	DIP switch position 1 2 3 4	Config Description	Refer to:
0	0 0 0 0	High Intensity Monitoring	Page 10
1	1 0 0 0	High Intensity Monitoring	Page 10
2	0 1 0 0	High Intensity Monitoring	Page 10
3	1 1 0 0	High Intensity Monitoring	Page 10
4	0 0 1 0	Medium Intensity Monitoring	Page 6
5	1 0 1 0	Medium Intensity Monitoring	Page 6
6	0 1 1 0	Medium Intensity Monitoring	Page 6
7	1 1 1 0	Medium Intensity Monitoring with ushering	Page 8
8	0 0 0 1	Medium Intensity Monitoring with ushering	Page 8
9	1 0 0 1	Medium Intensity Monitoring with ushering	Page 8
10	0 1 0 1	DO NOT USE (No Calls on any inputs. IR active)	Page 12
11	1 1 0 1	DO NOT USE (No Calls on any inputs. IR active)	Page 12
12	0 0 1 1	DO NOT USE (No Calls on any inputs. IR active)	Page 12
13	1 0 1 1	DO NOT USE (No Calls on any inputs. IR active)	Page 12
14	0 1 1 1	DO NOT USE (No Calls on any inputs. IR active)	Page 12
15	1 1 1 1	Demonstration mode	Page 12



## COMMISSIONING THE SYSTEM

Before commissioning commences, we recommend you read the 'Programming Quantec' section of the main Quantec Manual, Document No. DNU6012001. The following sequence of tests are provided as a general guideline only.

Ensure that the Mains supply is connected to the Dementia Controller, internal batteries are connected, the Power LED is lit on the QT630 and no faults are present on the system.

### (1) Set ID Texts at the Main Quantec Controller (QT601-2).

At the Main Quantec Controller (QT601-2) ensure the following ID Texts have been set so that they correctly indicate the inputs asserted at the Dementia Controller.

#### ID Text Settings:

ID No. 240 = PIR1; ID No. 241 = PIR2; ID No. 242 = Enuresis; ID No. 243 = Bed Exit; ID No. 244 = Door Contacts; ID No. 245 = Spare 1; ID No. 246 = Spare 2; ID No. 247 = Spare 3; ID No. 248 = Doorbell; ID No. 249 = Ensuite; ID No. 250 = Slave.

**Note:** These IDs will automatically be displayed at any currently connected displays. If any new displays are connected, then use the 'Send ID Texts' menu option at the Main Quantec Controller (QT601-2).

### (2) Assign the Device Address of the Dementia Controller.

Set the Main Quantec Controller (QT601-2) to Assignment mode (either 'New Device' or 'AutoScan' menu option).

Short the 'Unassigned Call' link (PLK2) at the Dementia Controller to make a call to the Main Quantec Controller (QT601-2).

**Note:** The Dementia Controller will be assigned and recognised at the Main Quantec Controller (QT601-2) as a Call Point (CLPT).

If assigned successfully, the Red/Green Controller Call Status LEDs on the Dementia Controller should stop flashing and be lit steady momentarily. The beeper also sounds to confirm.

If not assigned successfully, the same LEDs stop flashing and beeper does not sound.

#### **Note:** Device ID Reset

You can clear the Device ID to unassigned by shorting the 'ID Reset' link (PLK1) at the Dementia Controller. Holding the link in place, the Red/Green Controller Call Status LEDs will flash simultaneously to confirm. If the Device ID is already cleared, then the Red/Green LEDs will not flash.

### (3) Pre-Checks before testing device operations.

Before checking device operations (listed in Steps 4 to 7 below), ensure the following:

- A random 4 digit 'Call Reset' code has been allocated at the Main Quantec Controller (QT601-2) so that all calls, apart from Attack Calls, have to be reset locally at the room Status Controller.
- Dementia Controller is in normal state with no faults present on the system.
- All input devices are inactive.
- PIRs are isolated. The PIRs can be isolated using the key at the room Status Controller. The corresponding yellow Isolated LED is lit when the PIRs are isolated.

### (4) Check QT632 Doorbell (if fitted).

Press the doorbell.

Check a call is placed on the system and annunciated at a display with the correct ID Text 'Doorbell'.

Reset using the key at the room Status Controller (the key will have to be operated twice).

### (5) Check QT637 Enuresis Interface (if fitted).

**Note:** Before testing, ensure a 9V PP3 long life battery (not supplied) and 10K resistor (supplied) are fitted in the unit.

Press the TEST button on the Enuresis unit and check that the Enuresis Active LED (on the Enuresis Interface) flashes red. Make a test call by disconnecting the enuresis sensor from the interface socket.

Check the Enuresis LED flashes at the QT630 and a call is placed on the system and annunciated at a display with the correct ID Text 'Enuresis'.

Reset using the key at the room Status Controller (the key will have to be operated twice).

### (6) Check QT302RXS Slave IR Ceiling Receivers (if fitted).

Using a Quantec 'Staff Attack' IR transmitter, make two separate test calls; one from the bedroom, one from the bathroom.

Check a call is placed on the system and annunciated at a display with the correct ID Text 'xxxxxx' (if an ID has been assigned to the transmitter).

Reset using the key at the room Status Controller (the key will have to be operated twice).

### (7) Check QT638 PIR (if fitted), QT639 Lamps (if fitted) and QT633 Bed Exit Mat (if fitted).

Wait approx. 10 seconds before entering the room to activate the PIRs. **Note:** On initial power up (Mains or battery), there is a 60 second delay before the PIRs become active.

Check operation of the PIRs, Lamps and Bed Exit in accordance with the configuration selected (configuration settings are detailed on Page 17). Check calls are placed on the system and annunciated at a display with the correct ID Text.

Reset using the key at the room Status Controller (the key will have to be operated twice).

## Ancillary devices

Listed below are details of the main components typically used in a Quantec dementia care system. Many other devices are compatible and can be connected to the QT630 depending on the application - refer to our full Quantec trade price list for further details.



### QT638 PIR movement sensor

Can be programmed at the QT630 to make a call when movement is detected (e.g. when a patient exits his or her bed) and to automatically switch lights on to ensure their safety. A maximum of two QT638s can be connected per PIR channel.



### QT639 Ultrabright 3W LED lamp

Can be programmed at the QT630 to switch on, off or dim as per the configuration/behaviour pattern selected. Timer options are also available to guide patients in and out of ensuites. Up to two QT639s can be connected per lighting circuit. LED housings are not included.



### QT637 Enuresis/bed exit interface socket

Includes two remote jack sockets, one for a QT635 enuresis sensor and one for a QT633 bed exit mat or other ancillary calling device. Fully isolated and medical directive compliant. Requires a PP3 battery (not supplied).



### QT635 Enuresis/Bedwet sensor

Triggers a call when moisture is detected in a patient's bed. Typically placed between the bedsheet and mattress. Measures 80cm x 12cm and connects to a QT637 Enuresis/bed exit interface socket. Can be wiped clean using a non-caustic sanitiser making it suitable for multiple use.



### QT636 Interface unit

Includes a remote jack socket that can be configured for normally open or normally closed operation. Typically used to connect QT633 bed exit mats or other ancillary calling devices to systems that do not wish to use Quantec's enuresis (bed wet) sensing function.



### QT633 Bed exit mat

Senses the pressure change when a patient exits or returns to bed. Measures 80cm x 10cm and connects to a QT637 Enuresis/bed exit interface socket or a QT636 interface unit. Typically placed horizontally between the bedsheet and mattress.



### QT634 Chair exit mat

Senses the pressure change when a patient exits or sits back down on a chair. Measures 40cm x 25cm and connects to a QT637 Enuresis/bed exit interface socket or QT636 interface unit. Note that QT644 floor pressure mats are also available.



### QT412 Infrared Transmitter

Allows staff to call for extra assistance or signal an 'attack' situation via a QT302RXRS infrared ceiling receiver. Typical transmitting range is 10m line of sight. Single-way (QT424/1) & 10-way (QT424/10) battery chargers are also available



### QT302RXRS Slave IR Receiver

Designed to accept calls for extra assistance and/or 'staff attack' notifications generated by a member of staff's QT412 infrared transmitter. Typical receiving range is 10m line of sight. Max. 3 slave ceiling receivers per QT630



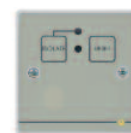
### QT606 Slave Overdoor Light

Indicates the status of the QT630 master dementia controller by pulsing red and/or green as appropriate. Allows staff to see at a glance if assistance is required. Pulsing frequency and light sequence changes/increases with call level



### QT608C Corridor Display

Designed to indicate incoming calls in corridors, staff rooms, etc. Shows call type (e.g. PIR Call), location (e.g. Bedroom 2) and depending on the device making the call the name of the person calling. Connects anywhere on the two wire Quantec network.



### QT631M Room Status Controller

Allows staff to isolate certain functions (e.g. PIRs during daytime hours), to put the room into 'Presence' and to reset calls using a magnetic swipe key. Can also be interfaced to a doorbell unit (when the patient presses the doorbell a call is activated). QT631K Keyswitch versions also available.



## TECHNICAL SPECIFICATION

### ELECTRICAL SPECIFICATION

Mains supply	230 V ~, 50/60 Hz
Internal Power Supply	12 V d.c. (nominal)
Maximum continuous output current (including charging)	2 A
Quiescent state	108mA @ 12 V
Supply and battery charger monitored for failure	Yes
Battery monitored for disconnection and failure	Yes
Battery protected against deep discharge	Yes
Max. battery size and type	7 Ah. Use 1 x 12 V VRLA battery (Part No. NP7-12)
Battery backup	8 hours in standby, 3 hours with LED Lamps1&2 lit.

### QT630 INPUT FUNCTIONALITY

CONNECTOR FUNCTION	LEGEND	SWITCH CONNECTION	CONTACT	COMMENT
Door Contacts	CONS	CONS - 0V	N/C	Puts CALL on system. Link to 0V if <u>not</u> used.
Spare I/P 1	SP1	SP1 - 0V	N/O	Puts CALL on system.
Spare I/P 2	SP2	SP2 - 0V	N/O	Puts CALL on system.
Spare I/P 3	SP3	SP3 - 0V	N/O	Puts CALL on system.
0V (x 4)	0V			0V DC common ground for input devices.
PIR Input 1	PIR1	PIR1 - 0V	N/C	Configuration dependent, Link to 0V if <u>not</u> used.
PIR Input 2	PIR2	PIR2 - 0V	N/C	Configuration dependent, Link to 0V if <u>not</u> used.
Enuresis	ENUR	-	-	Connects to QT637.
Bed Exit	BED			Configuration dependent, Connects to QT637 or QT636.
Infrared	IR			Connects to QT302RXS / QT302RXRS
RFID	RFID			Serial Data connection for future use.
Presence	PRES			Connects to QT631M / QT631K
Doorbell	DBELL			Connects to QT631M / QT631K
Ensuite	ESUIT			Connects to QT607
Slave	SLAV			Connects to QT602D
Isolate	ISOL			For future use.

### QT630 OUTPUT FUNCTIONALITY

CONNECTOR FUNCTION	LEGEND	SWITCH CONNECTION	CONTACT	COMMENT
Network -ve	N-			Quantec Network connection.
Network +ve	N+			Quantec Network connection.
Red Indicator	RED			Connects to QT606, QT631M / QT631K.
Green Indicator	GRN			Connects to QT606, QT631M / QT631K.
Isolation Indicator	ILED			Yellow Isolation LED. Connects to QT631M / QT631K.
Spare O/P 1	OP1			For future use.
Spare O/P 2	OP2			For future use.
0V (x 4)	0V			0V DC common ground for output devices.
Auxiliary +12V O/P 1	+12V			100mA max. Not monitored.
Auxiliary +12V O/P 2	+12V			100mA max. Not monitored.
Lamp1	LED1	LED1 - 0V		Bedroom light (if independently operated). Connects to QT639.
Lamp2	LED2	LED2 - 0V		Bathroom/Ensuite light (if independently operated). Connects to QT639.

### FUSES (to IEC - EN60127 Pt2)

Mains fuse	T 1 A H 230 V, 20 mm ceramic (T = Time Delay; H = High Breaking Capacity)
Battery fuse	3 A MINI® automotive blade fuse)

### CONTROLLER INDICATORS

LED indicators (16 off)	Bed Exit (Red), Enuresis (Red), IR Input (Red), Door Contact (Red), Ensuite (Red), Slave Call Point (Red), PIR1 (Red), PIR2 (Red), Input 1 (Red), Input 2 (Red), Input 3 (Red), Power (Green), Fault (Yellow), Isolated (Yellow), Main Quantec Controller (QT601-2) Call Status (Red), Main Quantec Controller (QT601-2) Call Status (Green)
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### PHYSICAL

Controller Overall Dimensions	380 (W) x 235 (H) x 90 (D) mm (plastic base, plastic lid)
Hole required for flush mounting (no bezel required)	367 (W) x 220 (H) x 75 (D) mm
Fixing Centres in base (5 in total)	One hole in centre point of base; four holes at 339 (W) x 170 (H) mm
Weight (without batteries)	1.75 kg
Material / RAL finish	Plastic detachable lid and plastic back box / RAL7035 textured

### WIRING

Mains wiring	Fixed wiring, 2 or 3 core cable (no less than 1mm <sup>2</sup> , no more than 2.5mm <sup>2</sup> )
SELV wiring (room wiring)	6 core (7/0.2) stranded security cable
Network Connection	Via QT630 Dementia Controller

### OPERATING CONDITIONS

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 : 1978. Temperature range: -5 to +40°C. Maximum relative humidity: 95%.