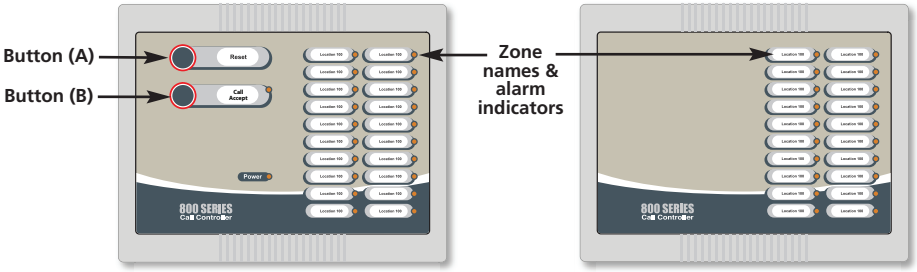
# 800 SERIES

**10 Zone Call Controller (NC910F, NC910S)**
**10 Zone Expansion Unit (NC910EF, NC910ES)**
**20 Zone Call Controller (NC920F, NC920S)**
**20 Zone Expansion Unit (NC920EF, NC920ES)**

**IMPORTANT NOTES:**

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

**The Call Controller is a piece of Class 2 equipment. However, any metal parts used during installation (i.e. the metal back box) MUST be earthed.**




**10 or 20 Zone Call Controller** **10 or 20 Zone Expansion Unit**

The 10 and 20 Zone Call Controllers are compatible with all 800 Series call points, ceiling pulls, infrared ceiling receivers, monitoring points, overdoor lights and remote sounders. Depending on how the Controller is configured and the devices connected to it, both Standard and Emergency calls can be indicated at the Controller. Buttons (A) & (B) allow the user to Reset, Mute or Accept standard calls, as detailed in the OPERATION section below.

## OPERATION

**STANDARD CALLS:** when triggered by a calling device, the Controller's internal buzzer sounds continuously and the relevant zone indicator(s) illuminate steady.

Pressing the Controller's **Reset** Button (A), if enabled, cancels all standard calls. Note, in certain circumstances there is a specific requirement for standard calls to be reset at their point of origin and in such applications this function should be disabled.

Pressing the Controller's **Mute** Button (B), if enabled, silences the Controller's internal buzzer. However, if a new call (standard or emergency) is triggered anywhere on the system, the buzzer will resound.

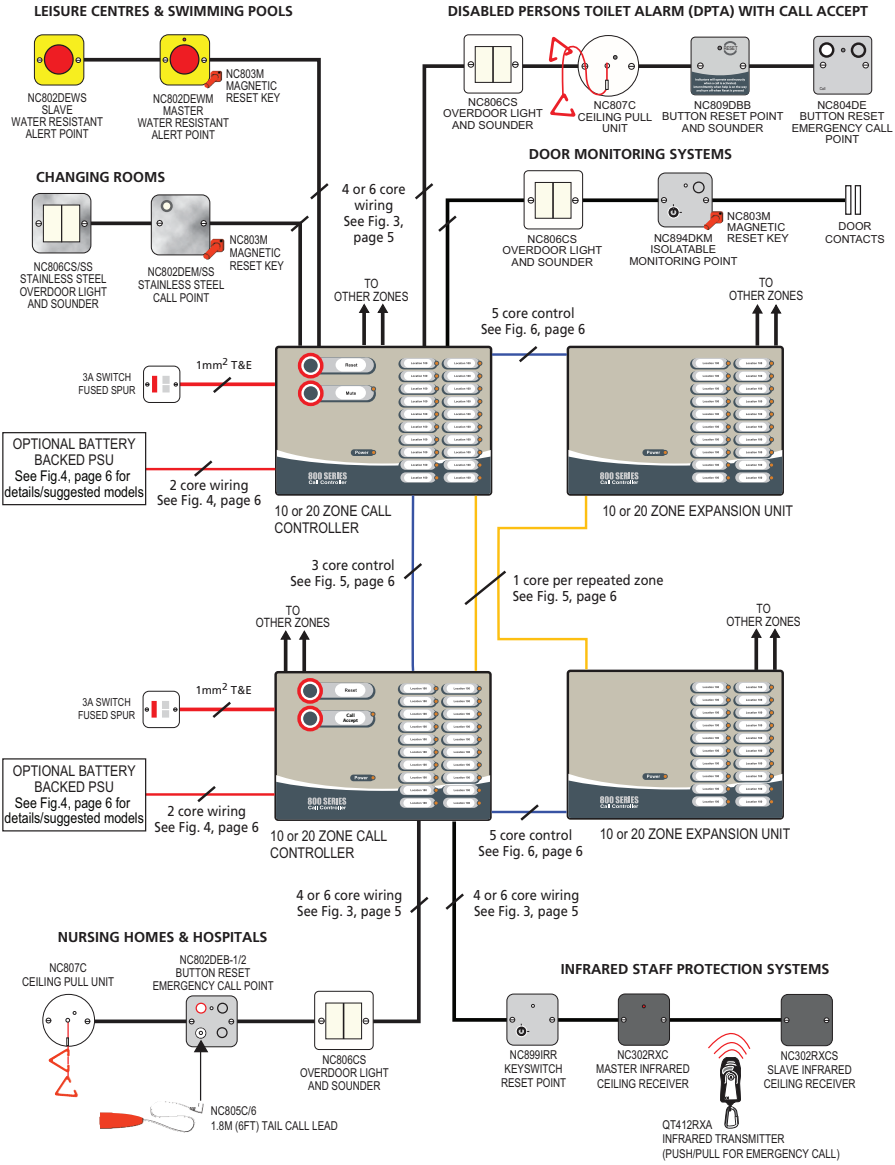
Alternatively, instead of muting calls, Button (B) can be configured as a **Call Accept** Button. Pressing Call Accept sends a slow pulsing acknowledgement signal to overdoor lights and reset points c/w sounder, wired as shown in Fig. 3, page 5. Should a new call (standard or emergency) be triggered anywhere on the system, any zones in the acknowledgement state will revert to a standard call.

**EMERGENCY CALLS:** when triggered by a calling device, the Controller's internal buzzer pulses on and off and the relevant zone indicator(s) flash.

This level of call takes priority over standard calls and cannot be muted, accepted or reset at the Controller. An emergency call can only be reset at the device from which it was triggered or via a reset point, wired on the same zone.

# INSTALLATION INSTRUCTIONS

# Fig. 1 - Example System Overview and Typical Applications




Design General Rules of Thumb:

Maximum No. of Zones per system = 40, assuming 1 x Overdoor Light per Zone.
Maximum No. of Zones in call (using Mains supply) = 5.
Maximum No. of Zones in call (using optional PSU) = 8.
Maximum No. of Controllers that can be connected to repeat zone signals = 3.
Maximum of 100 metres per zonal wiring (from controller to last device).
We recommend you leave about 20-25% spare cores in each cable run.

SEE TECHNICAL SPECIFICATION (PAGE 7) FOR ADDITIONAL INFORMATION

= 4 or 6 core (7/0.2) stranded security cable

Notes:
Zone wiring shown above for the DPTA is with the addition of an Emergency Call Point.
Additional devices are available that can be mixed and matched to suit virtually any application.

# INSTALLATION

ALWAYS ENSURE THE MAINS SUPPLY IS ISOLATED BEFORE MAKING ANY CONNECTIONS.

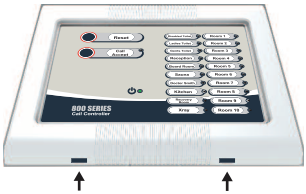
## Location

The Call Controllers (and Expansion Units, if applicable) must be sited indoors and must not be subjected to conditions likely to affect their performance. The ambient light and sound levels should allow the indicators to be clearly visible and the internal buzzer clearly heard.

## Removing the bezel

The Controller's front bezel must be removed to access the unit's internal components and PCBs.

Using a small flat bladed screwdriver, push in the two tabs to release the bezel, as shown right.



## Inserting the 'slide-in' labels and Controller configuration

Insert the slide-in labels for the Controller's Buttons (A) & (B) and zone names (supplied in the accessory pack), as shown left.

**Note**: The label inserted for the Controller's Buttons (A) & (B) depends on how the Controller has been configured (see below and Fig. 2 for details).

**Reset PLK1**
Fitting this link configures the Controller's Button (A) as 'Reset'. With no link fitted, pressing Button (A) has no effect.

**Accept Call PLK2**
Fitting this link configures the Controller's Button (B) as 'Call Accept'.

**Mute Call PLK2**
Fitting this link configures the Controller's Button (B) as 'Mute'.

**'No effect' PLK2**
With no link fitted, pressing the Controller's Button (B) has no effect.

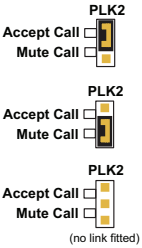
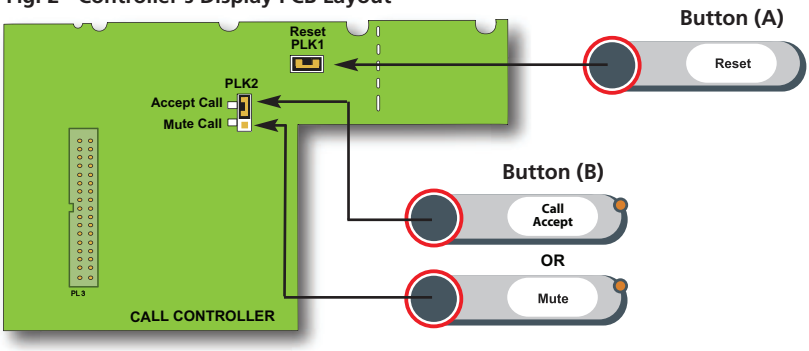



**Fig. 2 - Controller's Display PCB Layout**



## Mounting Back Boxes

The Controller is supplied with either a flush or surface mounted back box and must be securely fixed to a wall using the four (Ø4.7mm) mounting holes provided. The mounting holes are suitable for use with No.8 round head or countersunk screws. Assess the condition and construction of the wall and use suitable screw fixings. Any dust or swarf created during the fixing process must be kept out of the electrical and electronic systems.

**Note**: Due to the overhang of the bezel, ensure there is adequate space when mounting flush units next to each other. Spacers are available (supplied separately) which provide easy alignment for both horizontal and vertical flush mount.

## Mains Wiring

**The Controller is a piece of Class 2 equipment and, as such, any metal parts used during installation (i.e. the metal back box) MUST be earthed.**

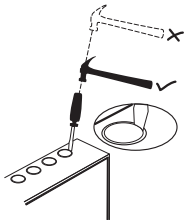
All Mains wiring should be installed in accordance with the current edition of the IEE Wiring Regs. (BS7671), or relevant national standards.

The general requirement for the Mains supply to the Controller is fixed wiring, using three core cable of not less than 1mm$^2$. This should be fed from an isolating switched fused spur, fused at 3A. Live, Neutral and Earth should be connected to the L, N and E terminals (CONN3), see Fig. 3, page 5. An Earth tag is provided for connection to the earth bonding point on the metal back box. **Note**: The Expansion Unit MUST NOT be connected to Mains but an earth terminal on CONN3 is provided on this unit if required.

Should a battery back up supply be required, this can be achieved by powering the Controller using a separate battery backed PSU. Terminal CONN12 is provided for this optional connection, see Fig. 4, page 6 for details/suggested models.

Remove knockouts in the back box with a sharp, light tap using a 6mm flat bladed screwdriver (flush mounted back box shown right).

Always ensure that if a hole is knocked out, it is filled with a good quality cable gland. Any unused holes must be securely blanked off.

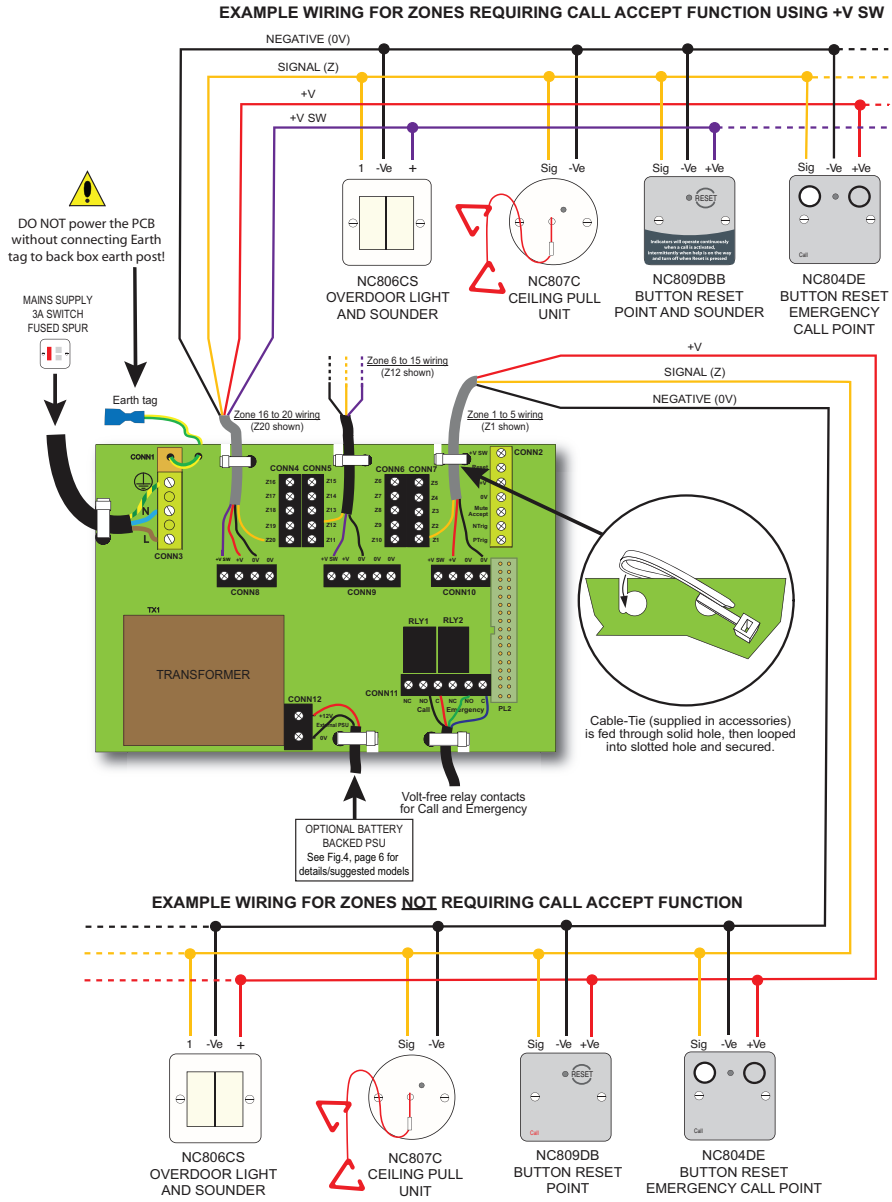


## Separated or Safety Extra-Low Voltage (SELV) Wiring

All SELV wiring must be carefully planned before starting the job. Always segregate SELV wiring from Mains wiring. See Fig. 3, page 5 for example wiring configuration.

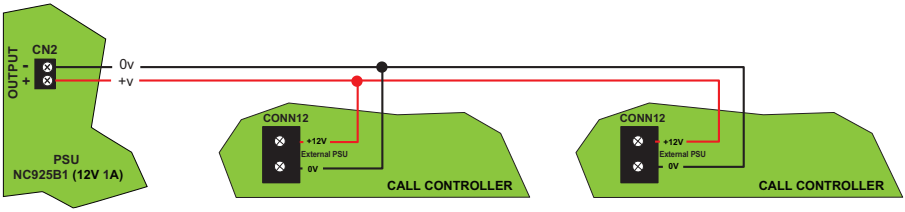
Typically four or six core (7/0.2) stranded security cable can be used for most installations allowing positive, negative and signal connections.

## Fig. 3 - Example Wiring Connections to the Controller's Main Control PCB



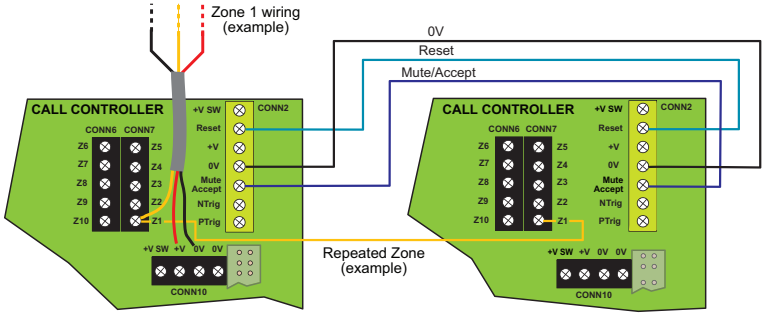

Notes:
Zone wiring shown above is for Disabled Persons Toilet Alarms with the addition of an Emergency Call Point. Emergency Call Points or IR Call Points are connected to +V and not +V SW.
Additional devices are available that can be mixed and matched to suit virtually any application.

**Fig. 4 - Connection of Optional Battery Backed Power Supply to Call Controller(s)**



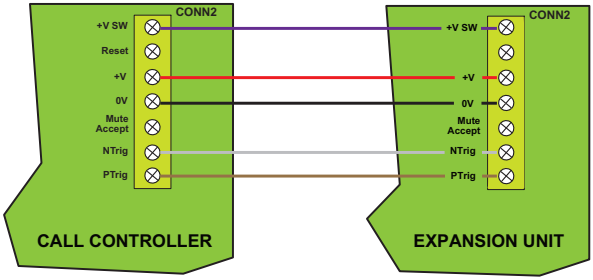

An NC925B1 12V 1A PSU can be connected to CONN12 (shown above) to supply a maximum of two Controllers, depending upon the battery size.
Alternatively, a BF360-12 12V 2A PSU can be connected to CONN12 to supply a maximum of three to five Controllers, dependent upon the battery size.
Note: If this method is used, Mains should not be connected to any Controller(s).

**Fig. 5 - Call Controller Connections for Repeating Zone Signals**




Connections between Call Controllers are wired in parallel for each repeated zone. Zone 1 is shown as an example above. The maximum number of controllers that can be connected for repeating zone signals is 3.

**Fig. 6 - Call Controller Connections to Expansion Unit**




A 10 or 20 Zone Call Controller can be extended by 10 or 20 zones using Zone Expansion Units. The maximum number of calling zones per system is 40.

Connect Mains to the Call Controller only. An earth connection (CONN3) is provided on the Expansion unit, if required.

# TECHNICAL SPECIFICATION

| | |
|---|---|
| **Electrical Specification** | |
| Mains supply | Voltage 230Va.c., Maximum current 36mA, Frequency 50/60Hz |
| Supply output | Voltage 11Vd.c., Current 300mA (when powered by Mains) |
| External PSU input | +9 to +15Vd.c.@400mA when using a NC925B1 (12V 1A boxed PSU with space available for a 12V 7Ah battery backup) |
| Controller quiescent current | 16mA (with no calls on the system) |
| Controller current in call | 85mA (excludes zone current) |
| Zone current | 10mA per zone in call plus 30mA per overdoor light |
| **Controls and Indicators** | |
| Indicators | Zone alarm red LEDs, Power green LED, internal buzzer |
| Controls | 'Reset' Button (A); 'Mute' or 'Call Accept' Button (B) - both buttons are link selectable |
| **Main Control PCB Connections** | |
| CONN1 | PSU Earth tag. Connects to back box earth post. |
| CONN2 | Repeater/Expansion Unit connector |
| CONN3 | Mains input: L (Live), N (Neutral), ⏚ (Earth). |
| CONN4, CONN5, CONN6, CONN7 | Zone wiring connectors. CONN4 (Z16 to Z20), CONN5 (Z11 to Z15), CONN6 (Z6 to Z10), CONN7 (Z1 to Z5) |
| CONN8, CONN9, CONN10 | +V SW: +V SWITCH output to enable Call Acknowledge on overdoor lights and reset points |
| | +V: local +V supply output for emergency call points, overdoor lights, etc. |
| | 0V: 0V termination points for each zone connection |
| CONN11 | 2 x volt-free relay contacts (NO/C/NC). Activates when a standard or emergency call is received by the Controller. Both relays rated at 30Vd.c.@1A. |
| CONN12 | External PSU connector. See Fig. 4, page 6. |
| PL2 | 34-pin ribbon connector. Connects the Controller's Main Control PCB to its Display PCB. |
| **Display PCB Connections and Link Functions** | |
| PL2 | 34-pin ribbon connector. Connects the Call Controller's Display PCB to its Main Control PCB. |
| Links (PLK1, PLK2) | See Fig. 2, page 3 |
| **Wiring** | |
| Mains wiring | Fixed wiring, 2 or 3 core cable (no less than 1mm$^2$, no more than 2.5mm$^2$) |
| SELV wiring | 4 or 6 core (7/0.2) stranded security cable |
| **Physical** | |
| Materials / RAL colour | 1 x plastic detachable lid and plastic bezel (all versions). RAL7035.<br>1 x metal back box for flush mounting (NC910F, NC920F, NC910EF, NC920EF). RAL7035.<br>1 x metal back box for surface mounting (NC910S, NC920S, NC910ES, NC920ES). RAL7035. |
| Weights (unpacked) | Call Controller (surface version) 1.47Kg; Call Controller (flush version) 1.27Kg;<br>Expansion Unit (surface version) 1.28Kg; Expansion Unit (flush version) 1.08Kg |
| Dimensions | Overall dimensions (all versions): 214mm (W) x 178mm (H) x 70mm (D);<br>Back box (flush version): 176mm (W) x 162mm (H) x 55mm (D);<br>Back box (surface version): 214mm (W) x 178mm (H) x 55mm (D) |
| Fixing centres | Back box (flush version): four holes (Ø4.7mm) at 140mm (W) x 126mm (H);<br>Back box (surface version): four holes (Ø4.7mm) at 175mm (W) x 126mm (H) |
| Cable entry knockouts | Four knockouts (Ø20mm) in top, four in bottom, eight in rear of back box (flush version);<br>Eight knockouts (Ø20mm) in rear of back box (surface version) |
| Temperature range: -5$^0$C to +40$^0$C | Maximum relative humidity: 95% non-condensing |
| Ingress Protection (EN 60529): IP41 when correctly installed | |
| **Part Nos.** | |
| NC910F | 10 Zone Call Controller, flush version, c/w 12V 300mA PSU |
| NC910S | 10 Zone Call Controller, surface version, c/w 12V 300mA PSU |
| NC920F | 20 Zone Call Controller, flush version, c/w 12V 300mA PSU |
| NC920S | 20 Zone Call Controller, surface version, c/w 12V 300mA PSU |
| NC910EF | 10 Zone Expansion Unit, flush version. Can be used with NC910F or NC920F. |
| NC910ES | 10 Zone Expansion Unit, surface version. Can be used with NC910S or NC920S. |
| NC920EF | 20 Zone Expansion Unit, flush version. Can be used with NC910F or NC920F. |
| NC920ES | 20 Zone Expansion Unit, surface version. Can be used with NC910S or NC920S. |
| NC925B1 | 12V 1A boxed PSU. Optionally connected to a Controller to provide battery backed power. |
| BF360-12 | 12V 2A boxed EN54-4 PSU. Optionally connected to a Controller to provide battery backed power. |
| **Accessory Pack** | |
| 1 x Installation Instructions – DNU0920000 (this document); 1 x bezel; Pack of 'slide-in' text labels to allow customisation of the Zone names and Buttons (A) & (B); Pack of 'call accept' instruction labels; 6 x cable ties for cable management. | |

E&OE. No responsibility can be accepted by the manufacturer or distributors of this Controller for any misinterpretation of this instruction, or for the compliance of the system as a whole. The manufacturers policy is one of continuous improvement and we reserve the right to make changes to product specifications at our discretion and without prior notice.