WIRING DETAILS

WHAT IS CALLCARE ?
CALLCARE is an Addressable Call System which only requires two common connections to operate (We call this the *Network*). This makes it ideal for upgrading an older system using the existing wiring and new installations are very straight forward. Expansion is also simple as new units only require a connection to the nearest or most convenient part of the network.

The heart of the system can either be the **CPSU MASTER POWER SUPPLY HUB** or for smaller systems, we recommend the **CLED32 DISPLAY CONTROLLER** which is a combined LED Display and Power Supply in a single unit. **CALL POINTS** are located in the bedrooms, lounges and common rooms where a call is to be generated. All call points can generate two levels of call (standard patient call & emergency staff call) **PEAR LEADS** plug onto the call points to provide a portable call button and generate a standard call. In toilets and bathrooms **CEILING PULL SWITCHES** are fitted over the toilet and/or bath. They are connected directly back to a call point to provide the reset. Locate Call Points away from the bath/shower/sink or outside the room. The **LED DISPLAY UNITS** show the number of the call point(s) which are calling, together with sounding an alarm. Any number of Display Units may be connected to a system and they are generally located around the building in corridors and/or at nurses stations depending on the establishment. **OVERDOOR LIGHTS** are an optional item and are generally located above the door outside a room to indicate the call point inside. These mimic the confidence LED on the call point and are available with an integral sounder fitted. Doors can be monitored with the use of the **DOOR MONITORING POINT** connected to door contacts**.** This unit is similar to the call point with a keyswitch which can be used to isolate the unit when the door is in use. The confidence LED lights green to indicate the door is isolated. On very large systems or systems with great cable loading, an additional **BOOSTER POWER SUPPLY** may be required. This is similar to the Power supply and houses an additional battery. Radio tone pagers, auxiliary sounders, strobe lights etc. may be connected to the system via the Display unit, which has an output for this purpose.

IMPORTANT
The Social Services and Health Authorities control Nursing & Residential Homes and the requirements vary depending on the area. Please check that the equipment you have specified and the location of the equipment is acceptable before you start installation.

GENERAL
Ceiling pull switches connect directly to a call point which provides the reset facility. Any closing contact will need a call point to trigger the system and this becomes the reset point.
Standard Overdoor Lights require an additional connection from the call point(s) they are to operate with. *(This could be one of the 'spare' cores in the 4 core cable)*
Remote Reset is available on the CLED32 Display Controller & CPSU by connecting a switch to the reset pints. (This function is not normally allowed in nursing & residential homes)

WIRING GENERAL
Locate the power supply hub near the centre of the building and run 'spurs' from this point via each call point, overdoor light and display in each area. Avoid running cables alongside fluorescent lighting, mains switchgear, lift machinery or high voltage cables. We do not recommend cable 'rings' as this increases cable loading and makes fault finding more complicated. To calculate how many 'spurs' you will require depends upon the amount of equipment you have on the network. Please read the section on CABLE RESTRICTIONS for more information.

CABLE
Do not use solid core cable as it is fragile and not flexible. Four core stranded security alarm cable (7/0,2) is ideal for all parts of the system wiring.

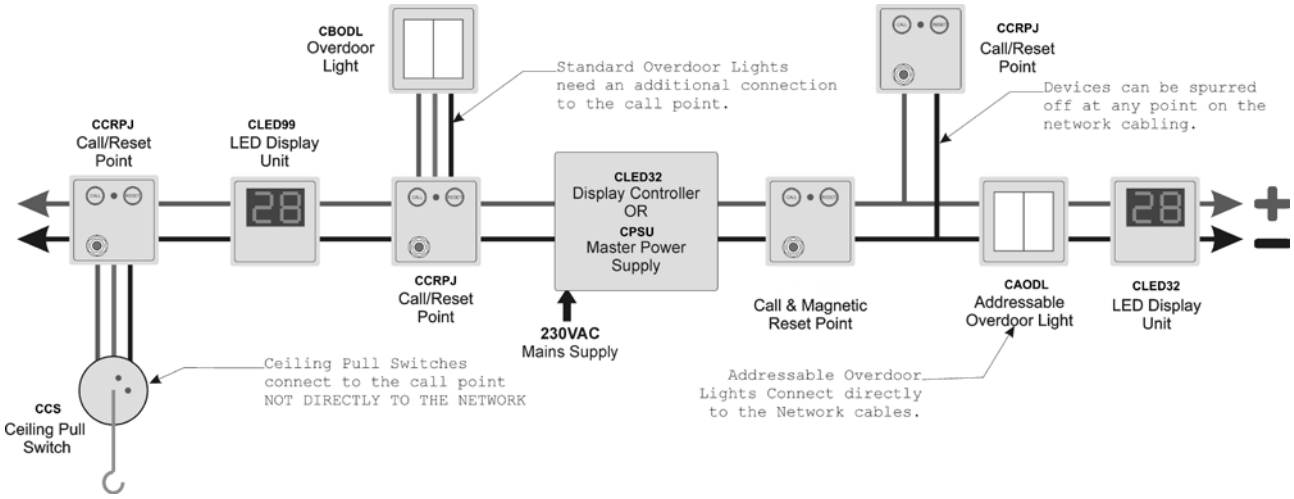
EXISTING CABLE
The CALLCARE system is ideal for use where the existing cable may be used. Check the cables are in good condition mechanically & Electrically.

1ST FIX
Call Points, Overdoor Lights & LED Displays require 1 Gang 25mm depth plastic backbox (Crabtree 9047 or similar) or metal backbox for flush mounting. The CLED32 Display Controller requires a 3 Gang 30mm depth plastic backbox (MK K2153) for surface mounting or a 35mm depth metal backbox (VOLEX VX7301) for flush mounting.

EQUIPMENT LOCATION
Mount Call Points above final bed head height to stop damage to pear leads when beds are moved. Avoid locating call points above radiators or any heat source as this may affect the front panel.
CLED99 Display & CLED32 Display Controller should be mounted in a suitable location to attract attention. CPSU & CPSUB are supplied in surface mounting boxes measuring W230x180x85mm. You should mount these units in an accessible position.

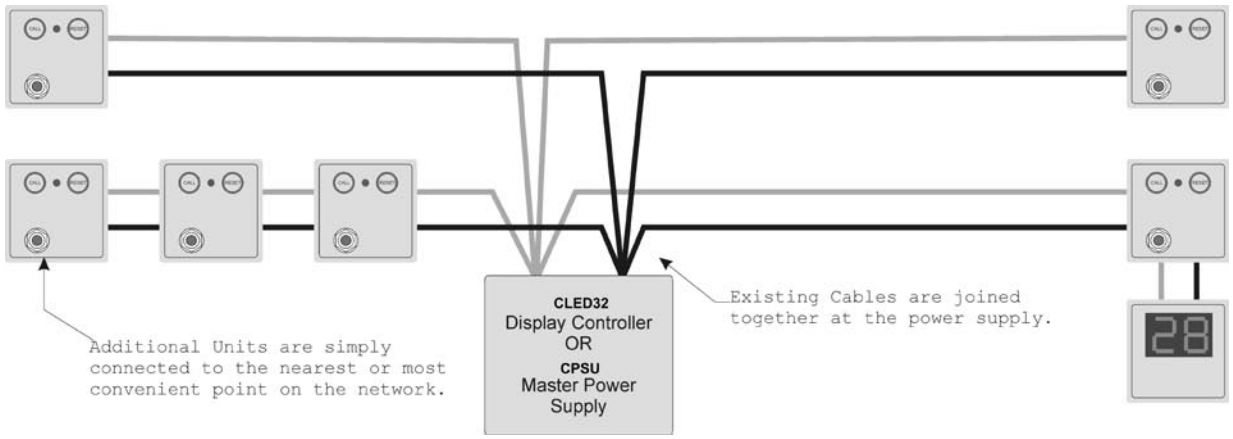
After first fix, remove units from site and cover mounting boxes with plank plates until 2nd fix.

NEW INSTALLATIONS



Locate the CPSU or CLED32 Power supply near the centre of the building and run 'spurs' from this point via each call point, overdoor light and display in each area. A typical new installation with two 'spurs' from the Power Supply.

EXISTING WIRING INSTALLATIONS



The CALLCARE system is ideal for use in older buildings where the existing cable may be used. A typical upgrade using the existing wiring with the addition of an extra display & call points simply connected to the nearest call points.

SYSTEM OPERATION

The resident calls by pressing the call area on the call point, operating the button on the pear lead, removing the pear lead from the call point or operating the ceiling pull switch. The call point confidence light operates and the display unit(s) indicate the number of the call point and pulse the alarm slowly. The overdoor light will operate with the confidence light on the call point.

Emergency calls are generated only at the call point by pressing both *call* and *reset* areas at the same time. The call point confidence light flashes and the display shows the number as before but the alarm pulses rapidly indicating an emergency call. Emergency calls take priority over standard calls which are held but not displayed until the emergency call is cancelled.
When no calls are active on the system, the display flashes two confidence lights to indicate the system is functioning correctly. **Important: The CALLCARE system uses soft touch switches and should only be operated with light pressure from a finger.**

SYSTEM INFORMATION

A system must comprise of ; 1 x **CLED32** Display Controller and 1 x **CCRPJ** Call Point **OR**
1 x **CPSU** Master Power Supply Hub, 1 x **CLED99** Display Unit and 1 x **CCRPJ** Call Point.

You may wish to connect up the above equipment on a short length of wire to familiarise yourself with the working of the system. Please read the Cabling Restrictions on page 12 before proceeding with the installation.
We recommend a backup battery in the event of a mains failure and this fits into the **CPSU Power Supply** enclosure. The **CLED32 Display Controller** is supplied with a 9Volt Ni-MH rechargeable battery which fits into the battery holder located on the printed circuit board of the CLED32.

ORDERING INFORMATION

POWER SUPPLY CONTROLLERS

CPSU

Master Power Supply Unit with space for 12V 1.9/2.4 Ah Sealed Lead Acid Battery.
Supports up to 80 CCRPJ Call Points and up to 99 Call Point Addresses.
Space for a backup battery 12Volt 1.9/2.4 Ah Sealed Lead Acid
Self contained surface mounting enclosure: W230mm x H 180mm x D95mm
No User Controls but should be located in an accessible position.

CPSUB

Booster Power Supply Unit with space for 12V 1.9/2.4 Ah Sealed Lead Acid Battery.
For larger systems used in conjunction with CPSU.
Space for a backup battery 12Volt 1.9/2.4 Ah Sealed Lead Acid
Self contained surface mounting enclosure: W230mm x H 180mm x D95mm
No User Controls but should be located in an accessible position.

CLED32

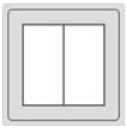
Display Controller with Mute and Reset buttons.
Combined Power Supply and Display unit for systems of up to 32 Call Point Addresses. Supplied with back up battery 8.4Volt 200mAh Ni-MH which fits into battery holder on rear of unit.
Requires 3Gang backbox MK-K2136 (or similar) for surface mounting or
VOLEX VX7301 (or similar) 35mm depth metal backbox for flush mounting
Locate in a suitable position to attract staff attention and to allow operation of controls.

CALL POINTS / ADDRESSABLE CALLING DEVICES

CCRPJ

Call Point with two levels of call (Call & Emergency)
Required for each calling location on the system.
Requires 1Gang 25mm depth backbox (Plastic Round Cornered or metal flushing box)
Locate above final bed height to prevent damage to unit. Do not locate over heat source.

CAODL



Room Controller with sounder, used with Ceiling Pull Switch & Slave Call / Resets
Combines the functions of an addressable call point and overdoor light in one unit. Ideally suited to multiple disabled toilets when used in conjunction with CCS Ceiling Pull Switch and CRP Slave Reset Point.
Requires 1Gang 25mm depth backbox (Plastic Round Cornered or metal flushing box)
Locate in a suitable position to attract staff attention outside the room or toilet.

DISPLAY UNITS

CLED99

LED Display Unit with integral sounder.
Any number may be used on a single system to identify the calling Call Points.
Requires 1Gang 25mm depth backbox (Plastic Round Cornered or metal flushing box)
Locate in a suitable position to attract staff attention with the audible sounder.

OVERDOOR LIGHTS

CBODL

Simple Overdoor Light with Sounder.
Optional item located outside the room to indicate the status of the call point within. Integral sounder.
Requires 1Gang 35mm depth backbox (Plastic Round Cornered or metal flushing box)
Locate in a suitable position to attract staff attention outside the room.
Requires additional connection back to the call point.

CAMODL

Addressable Overdoor Light.
Ideal for use as a 'follow the light' or 'end of corridor' indicator or to monitor several call points with one single unit. Connects directly to the network and does not require additional cabling. Jumper to enable unit to indicate emergency calls only.
Requires 1Gang 25mm depth backbox (Plastic Round Cornered or metal flushing box)

CELING PULL SWITCH

CCS

Ceiling Pull Switch with twin confidence LED's
Used to generate call from bathroom, toilet or shower room.
This unit must be connected to an addressable calling device to provide the address on the system.
Self contained surface mounting enclosure – No Backbox Required.

SLAVE RESET POINT

CRP

Slave Reset Point with confidence LED
Used in conjunction with the CCS and CAODL to provide the reset function or
used with CCRPJ as an additional slave reset point. This unit must be connected to an addressable calling device to provide the address on the system.
Requires 1Gang 25mm depth backbox (Plastic Round Cornered or metal flushing box)

PEAR LEAD

CPL2

Pear Lead 2 Metre
Pear Leads plug into the front of the CCRPJ Call Point to provide a portable, easy to operate call button. They are supplied in two and four metre lengths with a clip which can be secured to bedding or clothing etc.

SYSTEM OPERATION

Making a Standard Call

A Standard Call may be generated by any of the following:

- Pressing the **Call Button** on the front of the Call Point
- Pressing the **Pear Lead** plugged into the front of the Call Point
- Un-plugging the **Pear Lead** from the front of the Call Point.
- Pulling the **Ceiling Pull Switch** connected to the Call Point.

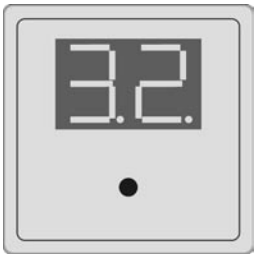
To Confirm a standard call has been generated, the **Confidence LED** will light.

Making an Emergency Call

An Emergency Call may be generated by any of the following:

- Pressing the **Call Button** & **Reset Button** simultaneously on the Call Point.
- Pulling the **Ceiling Pull Switch** connected to the Call Point if configured by the installer to operate in this way.

To Confirm an emergency call has been generated, the **Confidence LED** flashes.



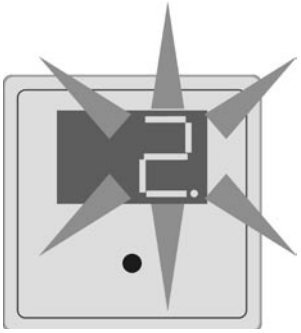
Resetting a Call

Make sure that the pear lead is not being activated and the call button is not being pressed and press the **Reset Button** on the call point.

The **Confidence LED** will switch off to confirm the call is reset.

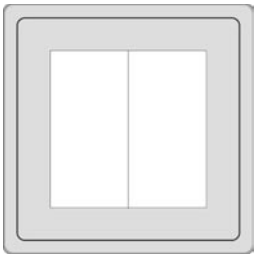
Showing a Standard Call

A Standard Call is shown on the LED displays with the calling point numbers(s) scrolling automatically on the display. They may flash slowly or remain steady on the display and the Sounder operates with a short interrupted tone.



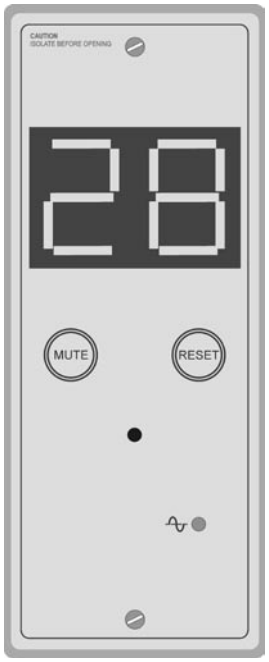
Showing an Emergency Call

An Emergency Call is shown on the LED displays with the calling point numbers(s) scrolling automatically on the display. They will flash rapidly and the Sounder operates with a continuous pulsing tone. Emergency calls take priority over standard calls which are held in memory and only displayed once all Emergency Calls are reset.



Overdoor Lights

Overdoor lights mimic the confidence LED on the call points flashing slowly or steady for the standard call and rapidly flashing for Emergency calls.

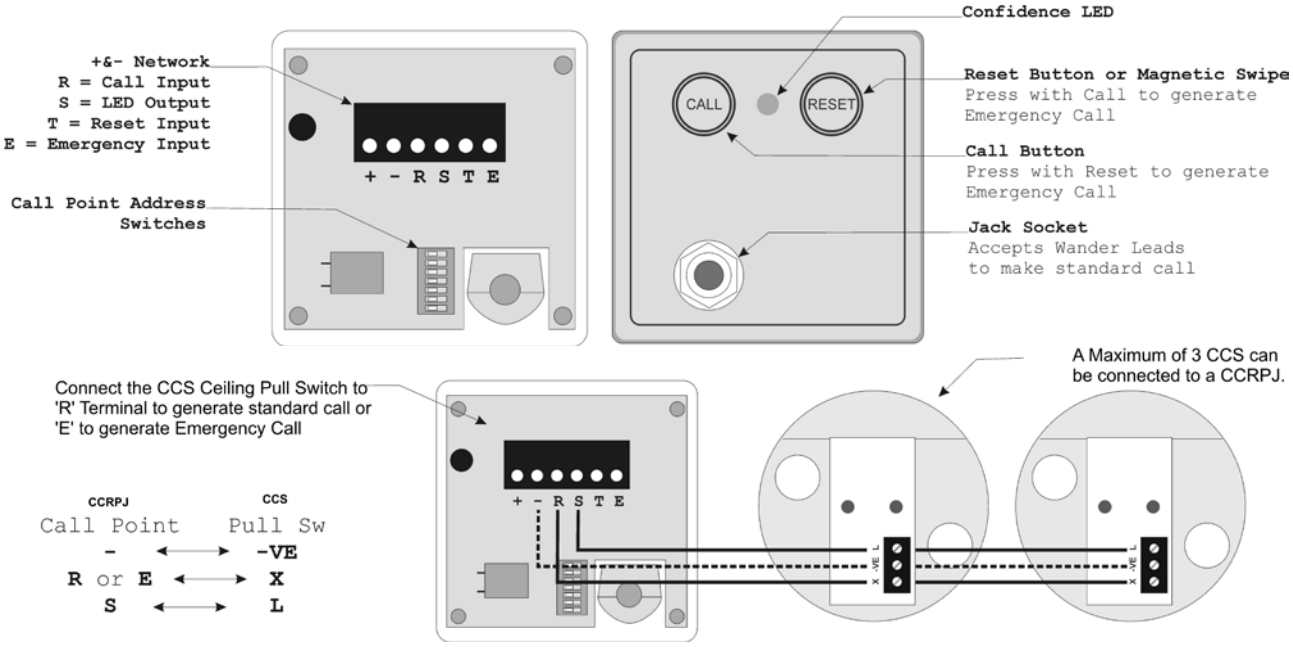


Remote Reset on the CLED32 Display Controller

It is possible to remotely reset any active call using the **Reset Button** on the front of the Display Controller. This will reset all active calls on the system and may be disabled using by your installer.

CCRPJ STANDARD CALL POINTS

Call Points are used to make calls and should be installed in every position where a call is to be reset or where access to the emergency call is required. A standard call can be generated by the call button on the call point, ceiling pull switch, pear lead and the removal of the pear lead, but emergency calls and call reset can only be made at the call point. A maximum of 3 Ceiling pull switches (or any closing contact) may be connected to operate one call point.



CALL POINT NUMBER SWITCHES

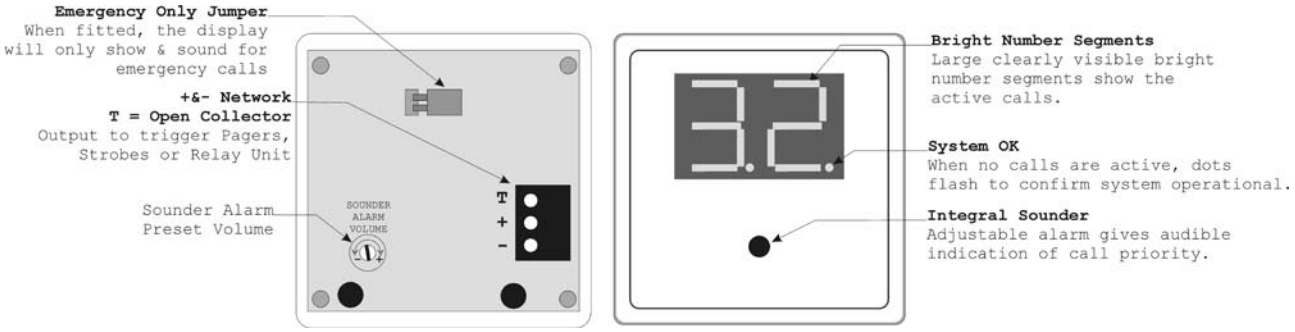
The 7 DIL switches set the number which is displayed when the call point is calling. Call Points may share the same address, however calls can only be reset at the point from which they were generated. There is a full list of the Call Point Address Switch Settings on page 14.

CCS CEILING PULL SWITCHES

A maximum of 3 **CCS** Ceiling Pull Switches may be connected to a single CCRPJ Call Point.

CLED99 LED DISPLAY UNITS

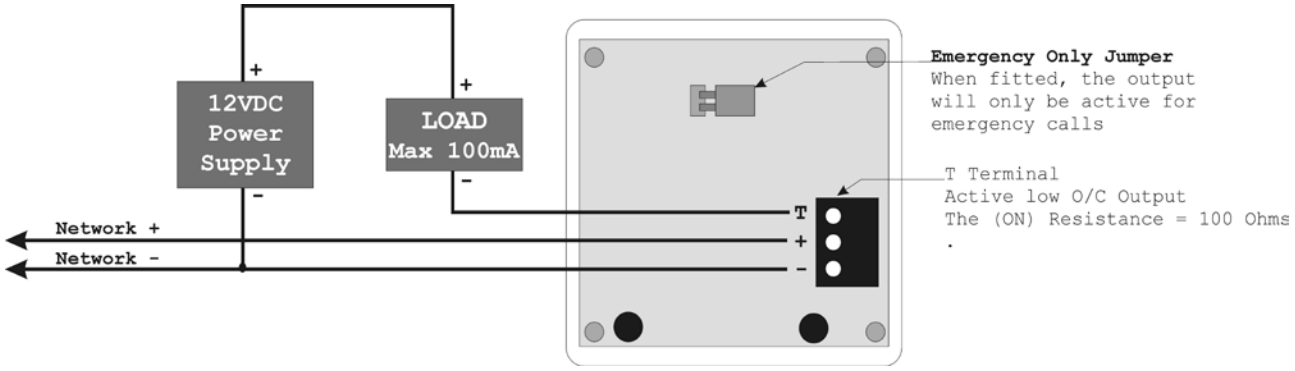
Display units are used to alert staff and to indicate the calling room(s). They have a built in adjustable alarm which has two distinctive sounds to indicate standard and emergency call. The call number is displayed with two large numeric LED displays. There is practically no limit to the number of displays on a system provided the cabling guidelines and restrictions are correctly followed. The display can store in memory and scroll up to 16 calls at any time and emergency calls take priority over standard calls. The display can be configured to sound for emergency calls only for use in Matrons office etc. The unit is fitted with an output, which can be used to drive radio tone pagers or auxiliary equipment.



OUTPUT FOR AUX EQUIPMENT

The 'T' or Open Collector output on the display may be used to drive external equipment such as pagers etc. It is possible to connect a relay to this terminal (See Diagram below) but an external 12volt DC supply will be required as the +ve rail of the network is unsuitable. If the display is configured to only sound for emergency calls, the 'T' output will only respond to emergency calls. The output is active continuously while the display is sounding for normal and/or emergency calls there is no change of state if more than one call is active.

*The MAX loading on the 'T' terminal is **100mA at 12volts** DC and the minimum [ON] resistance is **100Ohms.***



In the diagram above the LOAD could be a lamp, 12v Beeper or a relay coil if larger loads require switching. This may be connected to the 'R' terminal of a call point on a separate system for zone indication. You will also need to connect the network negative (-) on the two systems.

The Emergency Only Jumper also controls the output from the display and if this jumper is fitted then the open collector output will only respond to emergency calls.

RADIO TONE PAGERS

Radio pagers are boxed with their own power supply, aerial and installation instructions. They are triggered from the CALLCARE system via the 'T' terminal on the Display Unit (via a relay if necessary). If the display is configured to only sound for emergency calls, the pager(s) will only respond to emergency calls. Please read the section on the Display unit for more information.

CLED32 DISPLAY CONTROLLER

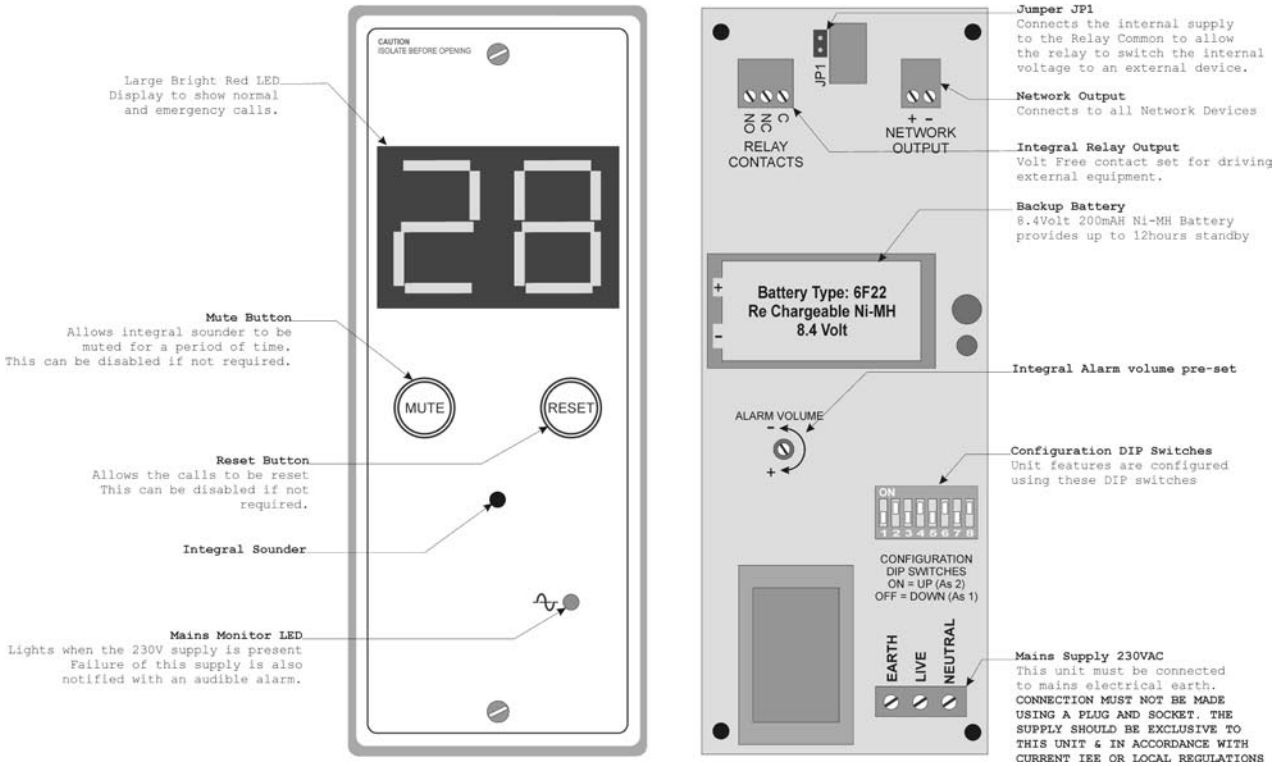
The **CLED32** is a combined addressable power supply & LED display unit, providing a flexible, cost effective solution for small & medium sized call systems with a maximum of 32 Call Points. The unit is designed to be flush or surface mounted into standard electrical backboxes. Always segregate low voltage & mains wiring.

MUTE AND RESET BUTTONS

The CLED32 Brings new features to the CALLCARE system with the addition of the RESET and MUTE buttons. The mute button silences the audible alarm for a period of time. If a new call is generated, the audible alarm immediately returns and the mute button must be pressed again to silence the new call audible alarm. There are four mute button options set by the DIP switches. The reset button will reset all active calls on the system, if enabled by the DIP switches. This button also serves as a self-test function.

INTEGRAL BACK UP BATTERY

The backup battery is continuously recharged from the mains supply and will typically support the system for 12 hours in standby mode. The battery may be replaced using a **Re-Chargeable Type 6F22 Ni-MH 8.4 Volt** battery.



MAXIMUM SYSTEM SIZE USING CLED32

The **CLED32** will support a maximum of 32 call points & 32 Overdoor lights **or** 22 Call Point with 22 Overdoor lights and 1 LED display *(The CLED99 LED Display will not respond to the mute function)*. The Call Points must be addressed between Address 1 – Address 32 **Any call point above address 32 will be ignored by the CLED32**.

FUNCTION / FEATURE	DIP SW **1=UP 0=DOWN**							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Mute Button Disabled	1	1	-	-	-	-	-	-
Mute Timer = 2.5 minuets	0	0	-	-	-	-	-	-
Mute Timer = 7.5 minutes	1	0	-	-	-	-	-	-
Mute Timer = 15 minutes	0	1	-	-	-	-	-	-
Reset Button Disabled	-	-	1	1	-	-	-	-
Reset Button for Call Only	-	-	1	0	-	-	-	-
Reset Button Resets Calls & Emergency	-	-	0	0	-	-	-	-
Relay Operates for Calls & Emergency	-	-	-	-	0	-	-	-
Relay Operates for Emergency Only	-	-	-	-	1	-	-	-
Relay Relaxes when alarm muted	-	-	-	-	-	0	-	-
Relay Continues regardless of mute	-	-	-	-	-	1	-	-
Sound Using Call & Emergency Patterns	-	-	-	-	-	-	-	0
Sound Using continuous tone for all calls	-	-	-	-	-	-	-	1

CONFIGURATION DIP SWITCHES

The features of the CLED32 are controlled with the use of on-board DIP switches as shown below.

INTEGRAL RELAY OUTPUT

The **CLED32** is fitted with an on-board relay, which is configured via the DIP switches, and provides a volt free, N.O or N.C contact set or voltage output. The Relay only operates when the device is running from mains power. This relay may be used to drive sounders, pagers, strobe lights, auto diallers or to integrate with BMS or SMS systems.

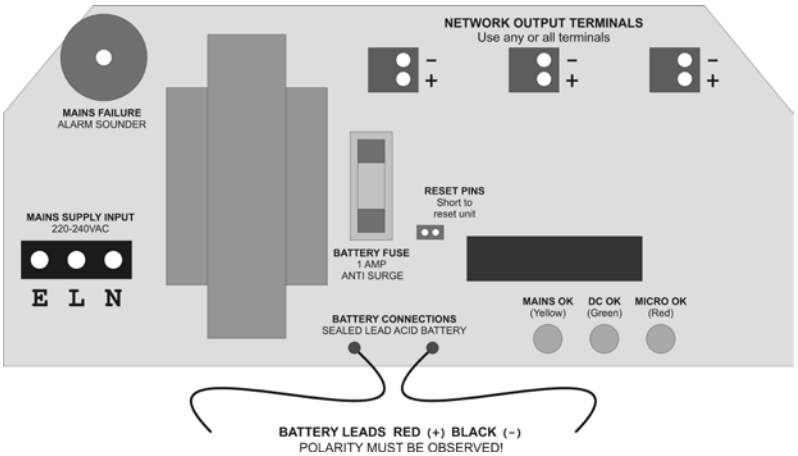
JUMPER JP1 – CONNECT INTERNAL 9-18V SUPPLY TO RELAY 'C' TERMINAL

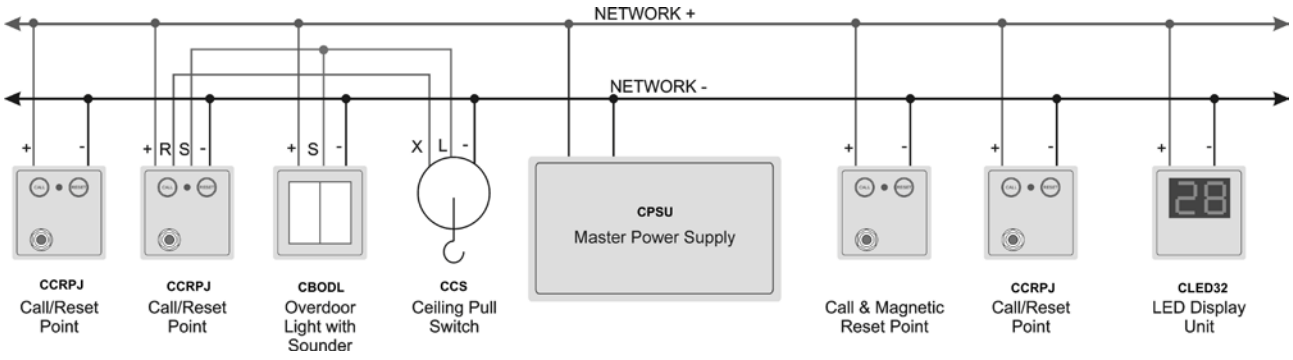
Fit jumper JP1 to connect the internal supply to the Relay 'C' terminal to provide voltage switching output from the NO & NC terminals. **Remove this jumper when using an external power source**. Max current draw = 20mA.

IMPORTANT: The relay will only operate when the unit is powered from the mains supply. The internal supply is unregulated and may vary between 9-18v DC depending upon system load. Driving external loads from the internal power source will dramatically reduce backup battery life.

CPSU MASTER POWER SUPPLY HUB

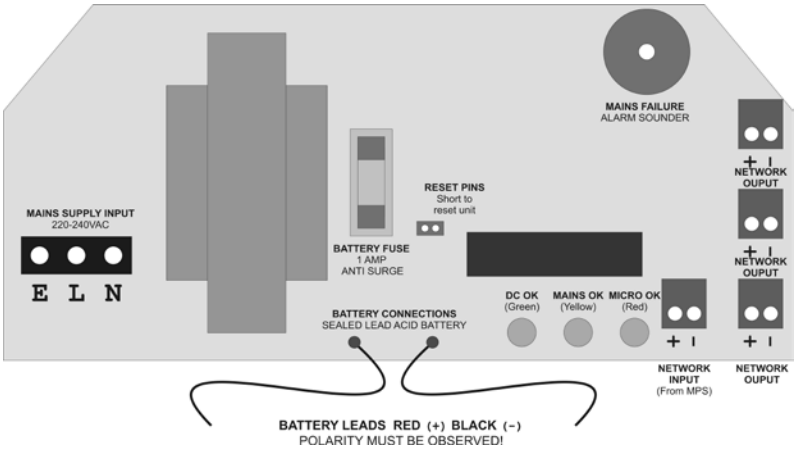
The Power Supply Hub provides the master signals and power for the network. The Power Supply requires a mains supply connection and it houses the backup battery (**12volt 1.9Ah/2.4Ah**). There is a mains failure alarm and unit status LED, the Yellow Mains LED is lit when mains supply is present, the DC LED indicates the 12v and the red Micro LED flashes to indicate the unit is operating. Always segregate low voltage wiring from mains wiring.

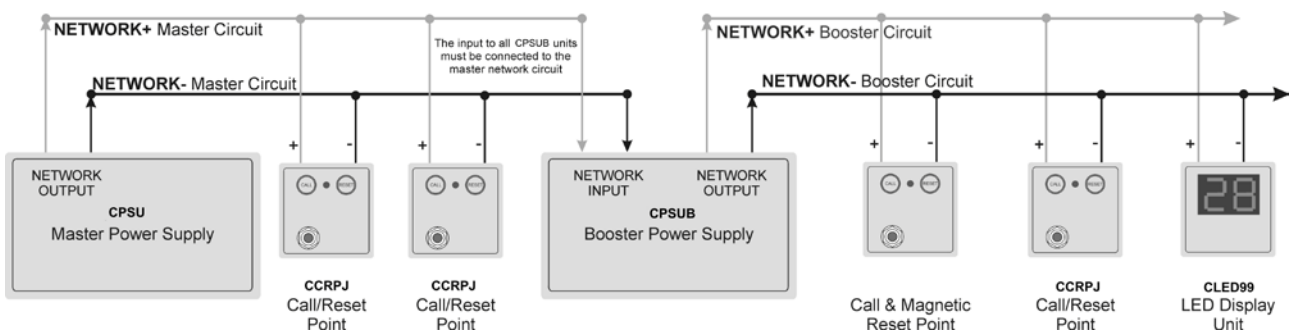




CPSUB BOOSTER POWER SUPPLY

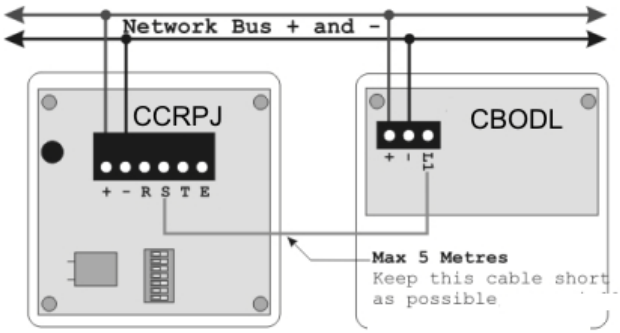
The Booster Power Supply is used to increase the amount of equipment and cable permitted on a system and reproduces the signals from the Master Power Supply Hub. The Booster PSU requires a mains supply connection and it houses the backup battery (**12volt 1.9Ah/2.4Ah**). A booster power supply may be required on existing wiring installations because of the amount of cable loading, please read the cable restrictions section of this leaflet for more information. The input to the Booster Power Supply MUST come directly from the output of the MPS unit. Always segregate low voltage wiring from mains wiring.





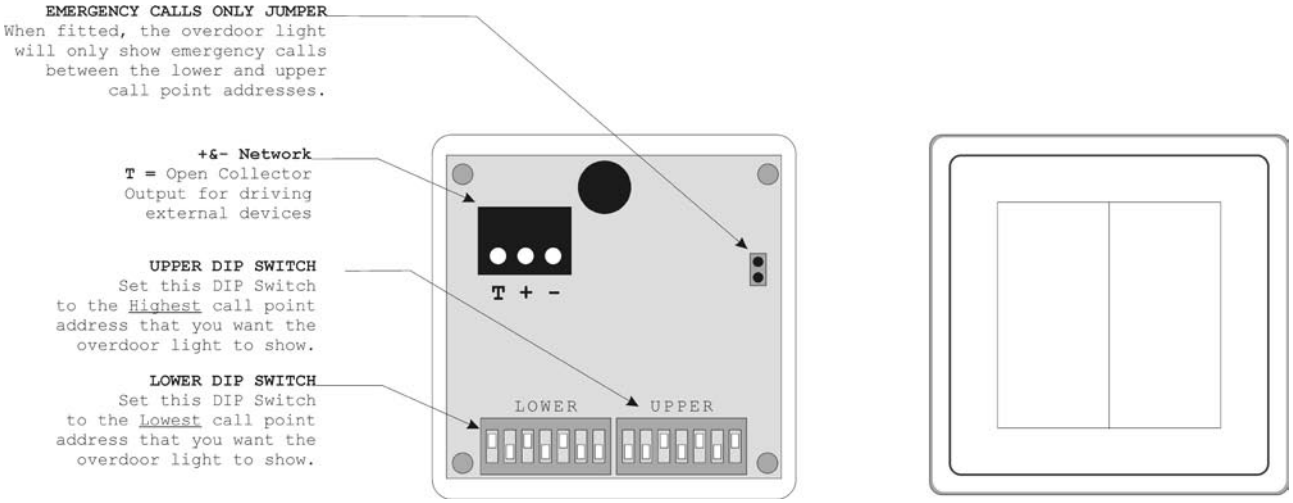
CBODL SIMPLE OVERDOOR LIGHT

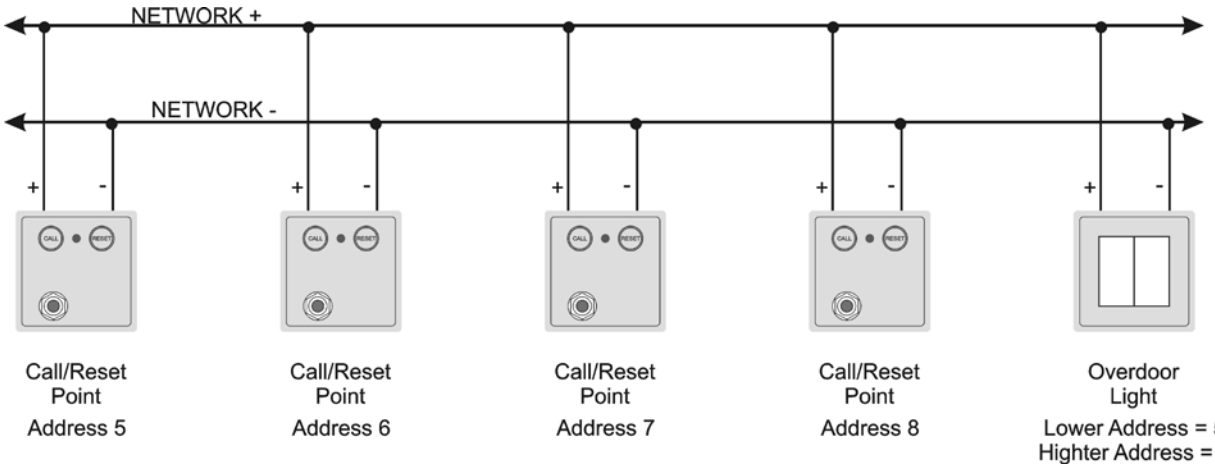
The Overdoor Light is generally sited above a door to indicate the status of the call point in the room. The CBODL only operates with a single call point and mimics the confidence indicator on the call point. For monitoring several call points or where the light is over 5M from the call point use the **CAMODL** Addressable Overdoor Light.



CAMODL ADDRESSABLE OVERDOOR LIGHT

The Addressable Overdoor Light is physically identical to the standard overdoor light but being addressable, does not require an additional connection to the call point. It may be used to monitor a range of consecutive call points as an area indicator or to monitor several call points in one room. There are two banks of switches which set the lowest & highest address that the unit is to respond to & is available with optional sounder, order code **CAMODL**. An open collector output is provided to trigger auxiliary equipment.

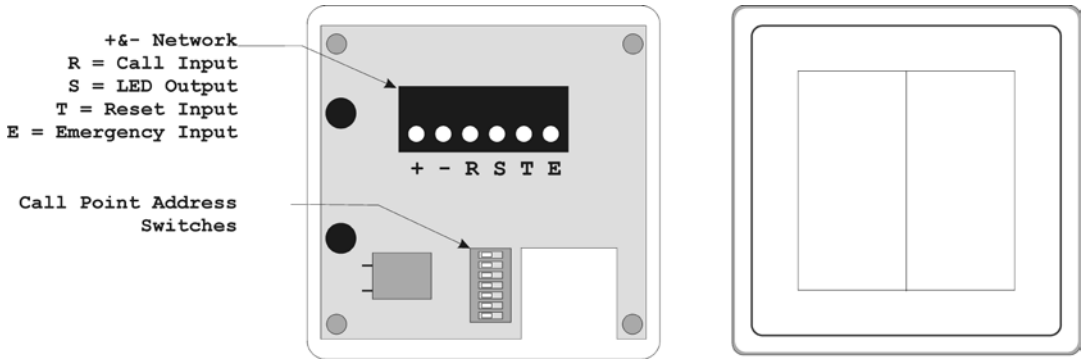




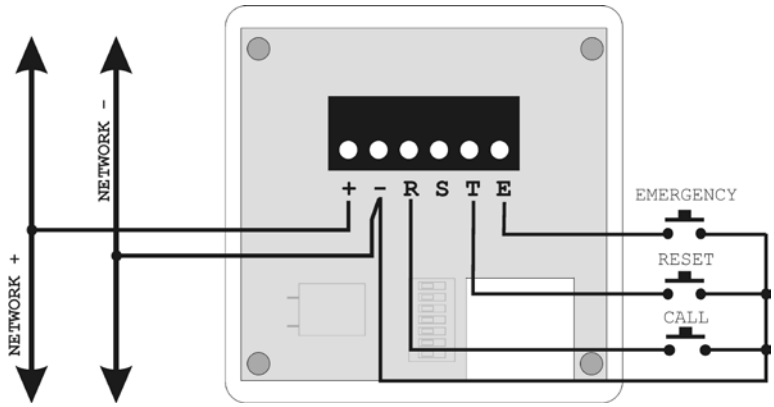
Applications for this unit include monitoring exit doors or critical call points such as drug cupboards etc. Exit doors are usually monitored and when activated, and the staff need to be alerted immediately. Set all door points to consecutive addresses (say 90 to 99) and the unit can be configured to light and sound when any doors are open.

CAODL OVERDOOR LIGHT ROOM CONTROLLER WITH SOUNDER

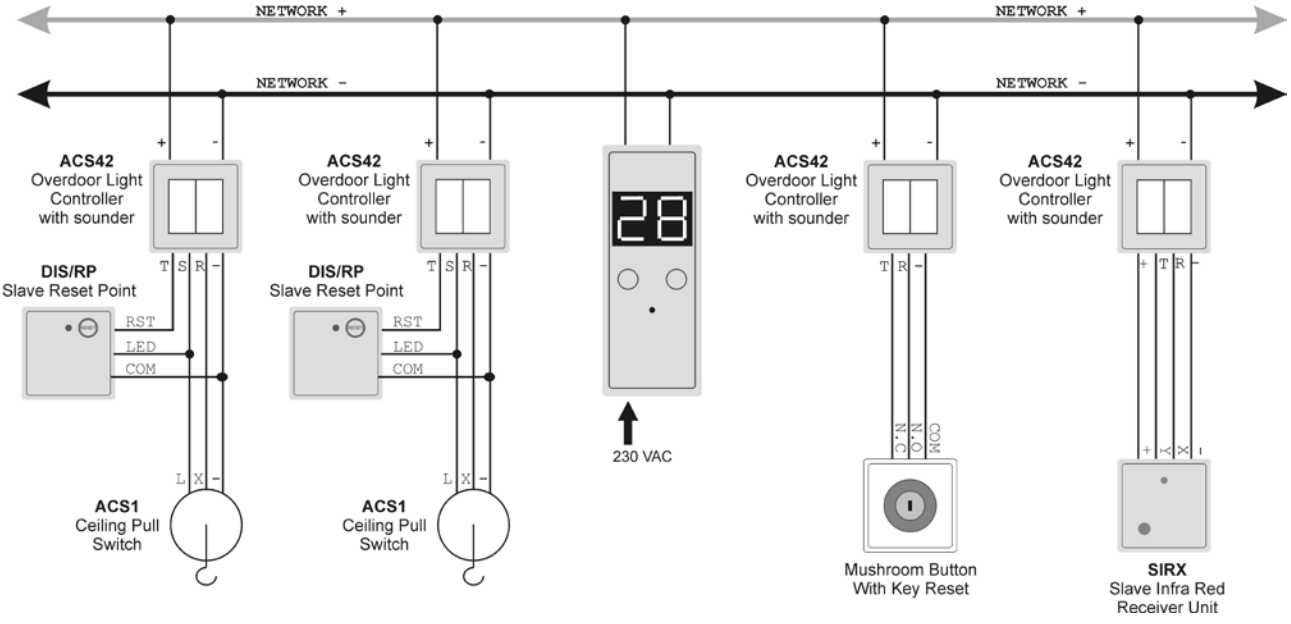
The CAODL combines the functions of an addressable call point and overdoor light with sounder in an overdoor light style unit. As can be seen from the diagram below, the circuit board is the same as a CCRPJ Call Point while externally, the unit is a CBODL Overdoor Light. When used in conjunction with a Ceiling Pull Switch and Slave Reset Point the unit becomes the ideal solution for multiple disabled toilets etc.



Any closing contact device can be connected to the CAODL to provide the call, reset and emergency signal to the unit. The diagram on the left shows the connection method. The switches must be normally open momentary close operation. Activation of the CALL and RESET buttons simultaneously will generate an emergency signal.



When used in conjunction with a **CCS Ceiling Pull Switch** and **CRP Slave Reset Point** the unit becomes the ideal solution for multiple disabled toilets etc, as can be seen in the diagram below.

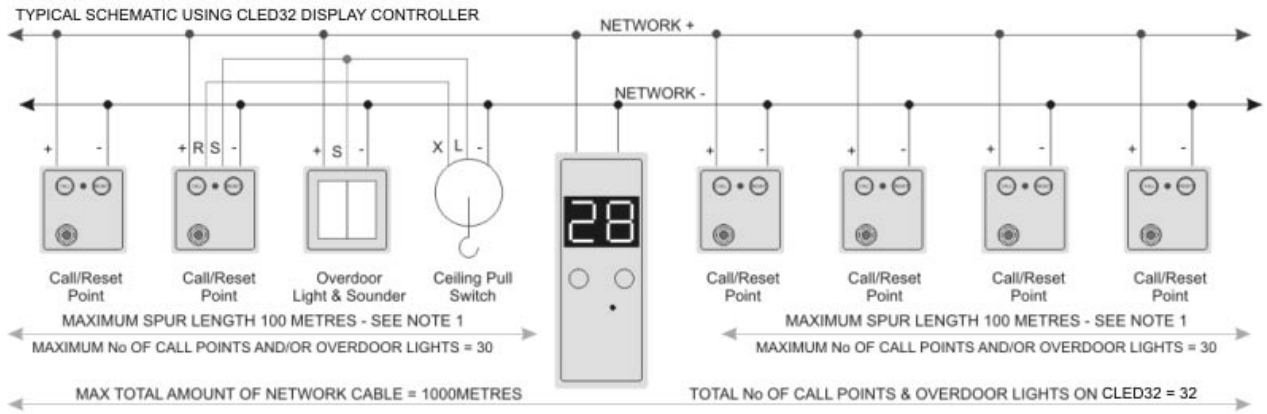


The CAODL can be used with mushroom “STOP” type buttons with key reset using both the normally open and normally closed contact set in the button to generate the call and reset signals. Also, the unit can be connected to a slave infra red receiver to allow emergency, call and reset from a wireless portable trigger.

CABLE RESTRICTIONS

Locate the CPSU or CLED32 in a central location and run several spur cables from it in a 'star' format to minimise cable runs. 'Ring' circuits are not recommended and should be avoided as they complicate installation. Run one cable back to the PSU terminals from each corridor or wing etc, depending on the quantity of equipment. Please read and adhere to the following restrictions:

- **Do Not 'Double up' the cable cores used for the Network.**
- **The maximum single spur cable run must not exceed 100 Metres using 0.22mm^2 CSA Cable.** (See Note 1)
- **The maximum number of Call Points and/or Overdoor Lights per spur must not exceed 30.** (Notes 1 & 2)
- **The maximum number of Displays per spur must not exceed 3.** (See Note 1)
- **The maximum number of Call points per CPSU = 80 and for the CLED32 = 32.** (See Note 3)
- **The total amount of cable on the system is limited to 1200metres.** (See Note 4 & 5)
- **Avoid running cables near fluorescent lighting, mains switchgear, lift machinery or high voltage cables**
- **The mains supply connection MUST NOT be made with a plug socket & should be exclusive to the unit.**



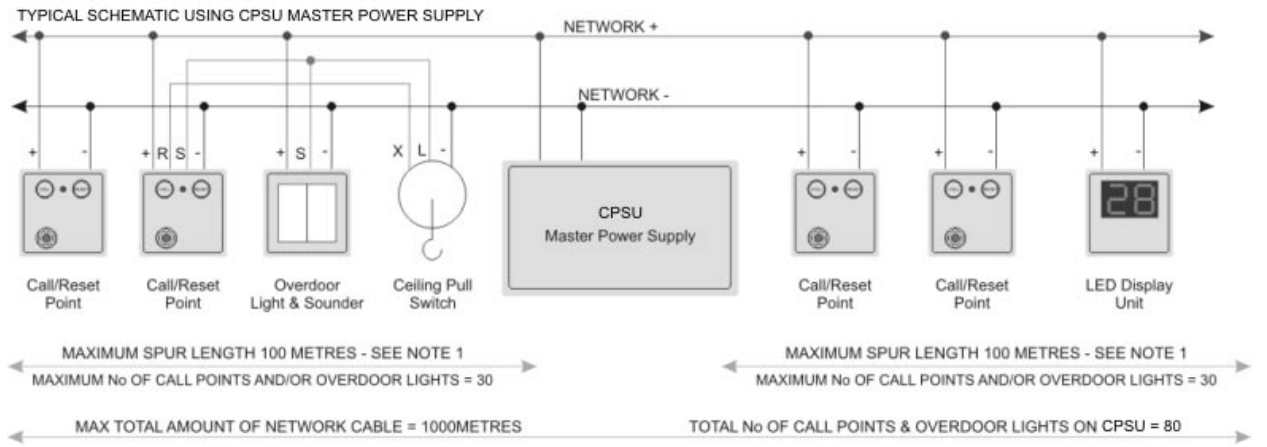
Note 1 Maximum limit for Security Alarm Cable with a **CSA of 0.22mm^2 is 100M.** Maximum limit for **0.5mm^2 flex is 200M**. This limit is for cable volt drop purposes and assumes that units are located at regular intervals along the length of the cable. If in doubt – use larger cable, however the largest cable you can use with the plug on terminals supplied is 2 x 0.5mm^2

Note 2. 'Call Points' include CCRPJ Points. The Ceiling pull switches with LED confidence indicators consume very little current and are not usually restricted in number.

Note 3. If your system requires more than 80 Call Points, fit a CPSUB Booster power supply.

Note 4. This is calculated using security alarm cable with a conducting area of 7/0,2. Multi core cables & Twin & Earth cable have a lower total cable loading limit. If you need to exceed this value you will need to fit a CPSUB Booster Power Supply to split the cable loading.

Note 5 If you are using multi-core cable, only use two cores within it's length to make the network connection. Every time another network +ve and -ve are connected within a multi-core cable, we are increasing the cable loading on the system. For example 10 call points connected on a 20 metre run of multi-core cable on separate pairs is equivalent to 200 metres of cable loading on the network.



2ND FIX

TESTING & COMMISSIONING - MASTER POWER SUPPLY HUB & DISPLAY CONTROLLER *(See Page 9 & Page 8)*

- Connect the unit to the mains supply via a 3 amp spur unit DO NOT USE A PLUG & SOCKET.
- With no outputs connected, switch the power on & the unit will bleep or run through the display segments*.
- After a pause, the Yellow and Green LED will be lit and the red LED or display dots* will be flashing.
- When running the unit from the battery, the Yellow LED will not be lit & the alarm will sound intermittently.
- Do not switch on by connecting the battery, the surge may blow the fuse.
- Switch the power supply off and connect one of the spurs to one of the output terminals ready to test the first call point. * - *CLED32 Display Controller Only.*

CALL POINTS/DOOR POINTS *(See Page 3)*

Before we can test a call point, we will need to set the number switches. (See Page 14) As an example, we will set this call point to address 1. (Set Switch 1 OFF and all others ON)

- Connect the first call point to the network +ve and -ve.
- Switch the Power Supply on and wait for the call point confidence LED will flash once.
- Press the call area on the call point and the confidence LED will flash about once a second.
- Press the reset area and the confidence LED will stop flashing.

DISPLAY UNITS *(See Page 7)*

- Switch the power supply off and connect the first display to the network +ve and -ve.
- Switch the Power Supply on and the display will perform a self test.
- When this is complete, two dots will flash slowly on the display to confirm the system is operating correctly.
- You may configure any display to only respond to emergency calls by fitting a jumper *(See Page 7)*

STANDARD CALL TEST

- Press the call area on the call point and the confidence LED will flash about once a second.
- After a short delay, the display will flash '1' and the alarm will sound every three seconds.
- Press the reset area and the confidence LED will stop flashing.
- The display alarm will stop sounding and the two confidence lights will flash slowly.

EMERGENCY CALL TEST

- Press the call and reset area on the call point at the same time and the confidence LED will flash rapidly.
- After a short delay, the display will flash '1' and the alarm will sound twice a second.
- Press the reset area and the confidence LED will stop flashing.
- The display alarm will stop sounding and the two slow flashing dots will return.

OVERDOOR LIGHTS AND CEILING PULL SWITCHES *(See Page 3 and Page 9)*

- Connect and test the call point before connecting the overdoor lights and/or Ceiling pull switches.
- The Overdoor lights & Ceiling Pull Switch confidence LED will mimic the confidence LED on the call point.
- Test all ceiling pull switches connected to each call point.

BOOSTER POWER SUPPLY *(See Page 9)*

- Before connecting the Booster Power Supply input, connect & test the Master power supply circuit.
- Connect the master circuit to the Booster Power Supply input terminals.
- Connect the Booster Power Supply to the mains supply via a 3 amp spur unit.
- With no outputs connected, switch the power on and the unit will bleep for about four seconds.
- Providing the input is connected & the master circuit is running, the red LED will be pulsing once a second.
- When running the unit from the battery, the Yellow LED will not be lit and the alarm will sound continuously.
- Switch the power supply off and connect a spur to the output terminals ready to test the next call point.

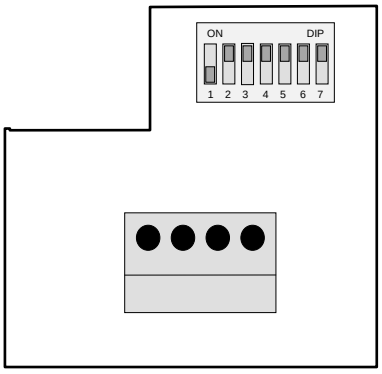
ALWAYS CHECK ALL CALL POINT ADDRESSES ARE CORRECT BEFORE LEAVING SITE!

If you are in any doubt about the operation of a unit, please refer to the fault finding section on page 14.

ALL UNITS ARE FITTED WITH REVERSE POLARITY PROTECTION AND WILL BLOW THE FUSE OR CAUSE THE POWER SUPPLY TO PERMANENTLY RESET IF CONNECTED INCORRECTLY!

SWITCH SETTINGS

Each call point has a bank of seven switches which set the number displayed and recorded on the printer when the unit is calling. Several call points can have the same number, but a call can only be reset at the call point where it was initiated. The table below shows the available number settings. To set the number, turn the call point upside down and set the switches as follows : ON is upwards (towards the word 'ON') & OFF is down (away from the word 'ON') *The call point below is set to address 1 (Switch 1 OFF and Switches 2-7 ON)*



Always check that all call points are set to the correct address before leaving site as this is a very common reason for returning.

Call points addresses can be set while the unit is powered and connected to the system. Only the settings in the following list are valid address settings. Illegal address settings are indicated with the Call Point confidence LED permanently lit or flashing rapidly. The Call Point will not operate when the unit is set to an illegal setting.

Important: Call Points connected to the **CLED32 Display Controller** will only operate between the address 1 and address 32. If you required addresses 1-99, you must use the **CPSU Master Power Supply**.

Address Switches							
1	2	3	4	5	6	7	ADD
OFF	ON	ON	ON	ON	ON	ON	**1**
ON	OFF	ON	ON	ON	ON	ON	**2**
OFF	OFF	ON	ON	ON	ON	ON	**3**
ON	ON	OFF	ON	ON	ON	ON	**4**
OFF	ON	OFF	ON	ON	ON	ON	**5**
ON	OFF	OFF	ON	ON	ON	ON	**6**
OFF	OFF	OFF	ON	ON	ON	ON	**7**
ON	ON	ON	OFF	ON	ON	ON	**8**
OFF	ON	ON	OFF	ON	ON	ON	**9**
ON	OFF	ON	OFF	ON	ON	ON	**10**
OFF	OFF	ON	OFF	ON	ON	ON	**11**
ON	ON	OFF	OFF	ON	ON	ON	**12**
OFF	ON	OFF	OFF	ON	ON	ON	**13**
ON	OFF	OFF	OFF	ON	ON	ON	**14**
OFF	OFF	OFF	OFF	ON	ON	ON	**15**
ON	ON	ON	ON	OFF	ON	ON	**16**
OFF	ON	ON	ON	OFF	ON	ON	**17**
ON	OFF	ON	ON	OFF	ON	ON	**18**
OFF	OFF	ON	ON	OFF	ON	ON	**19**
ON	ON	OFF	ON	OFF	ON	ON	**20**
OFF	ON	OFF	ON	OFF	ON	ON	**21**
ON	OFF	OFF	ON	OFF	ON	ON	**22**
OFF	OFF	OFF	ON	OFF	ON	ON	**23**
ON	ON	ON	OFF	OFF	ON	ON	**24**
OFF	ON	ON	OFF	OFF	ON	ON	**25**
ON	OFF	ON	OFF	OFF	ON	ON	**26**
OFF	OFF	ON	OFF	OFF	ON	ON	**27**
ON	ON	OFF	OFF	OFF	ON	ON	**28**
OFF	ON	OFF	OFF	OFF	ON	ON	**29**
ON	OFF	OFF	OFF	OFF	ON	ON	**30**
OFF	OFF	OFF	OFF	OFF	ON	ON	**31**
ON	ON	ON	ON	ON	OFF	ON	**32**
OFF	ON	ON	ON	ON	OFF	ON	**33**
ON	OFF	ON	ON	ON	OFF	ON	**34**
OFF	OFF	ON	ON	ON	OFF	ON	**35**
ON	ON	OFF	ON	ON	OFF	ON	**36**
OFF	ON	OFF	ON	ON	OFF	ON	**37**
ON	OFF	OFF	ON	ON	OFF	ON	**38**
OFF	OFF	OFF	ON	ON	OFF	ON	**39**
ON	ON	ON	OFF	ON	OFF	ON	**40**
OFF	ON	ON	OFF	ON	OFF	ON	**41**
ON	OFF	ON	OFF	ON	OFF	ON	**42**
OFF	OFF	ON	OFF	ON	OFF	ON	**43**
ON	ON	OFF	OFF	ON	OFF	ON	**44**
OFF	ON	OFF	OFF	ON	OFF	ON	**45**
ON	OFF	OFF	OFF	ON	OFF	ON	**46**
OFF	OFF	OFF	OFF	ON	OFF	ON	**47**
ON	ON	ON	ON	OFF	OFF	ON	**48**
OFF	ON	ON	ON	OFF	OFF	ON	**49**
ON	OFF	ON	ON	OFF	OFF	ON	**50**

Address Switches							
1	2	3	4	5	6	7	ADD
OFF	OFF	ON	ON	OFF	OFF	ON	**51**
ON	ON	OFF	ON	OFF	OFF	ON	**52**
OFF	ON	OFF	ON	OFF	OFF	ON	**53**
ON	OFF	OFF	ON	OFF	OFF	ON	**54**
OFF	OFF	OFF	ON	OFF	OFF	ON	**55**
ON	ON	ON	OFF	OFF	OFF	ON	**56**
OFF	ON	ON	OFF	OFF	OFF	ON	**57**
ON	OFF	ON	OFF	OFF	OFF	ON	**58**
OFF	OFF	ON	OFF	OFF	OFF	ON	**59**
ON	ON	OFF	OFF	OFF	OFF	ON	**60**
OFF	ON	OFF	OFF	OFF	OFF	ON	**61**
ON	OFF	OFF	OFF	OFF	OFF	ON	**62**
OFF	OFF	OFF	OFF	OFF	OFF	ON	**63**
ON	ON	ON	ON	ON	ON	OFF	**64**
OFF	ON	ON	ON	ON	ON	OFF	**65**
ON	OFF	ON	ON	ON	ON	OFF	**66**
OFF	OFF	ON	ON	ON	ON	OFF	**67**
ON	ON	OFF	ON	ON	ON	OFF	**68**
OFF	ON	OFF	ON	ON	ON	OFF	**69**
ON	OFF	OFF	ON	ON	ON	OFF	**70**
OFF	OFF	OFF	ON	ON	ON	OFF	**71**
ON	ON	ON	OFF	ON	ON	OFF	**72**
OFF	ON	ON	OFF	ON	ON	OFF	**73**
ON	OFF	ON	OFF	ON	ON	OFF	**74**
OFF	OFF	ON	OFF	ON	ON	OFF	**75**
ON	ON	OFF	OFF	ON	ON	OFF	**76**
OFF	ON	OFF	OFF	ON	ON	OFF	**77**
ON	OFF	OFF	OFF	ON	ON	OFF	**78**
OFF	OFF	OFF	OFF	ON	ON	OFF	**79**
ON	ON	ON	ON	OFF	ON	OFF	**80**
OFF	ON	ON	ON	OFF	ON	OFF	**81**
ON	OFF	ON	ON	OFF	ON	OFF	**82**
OFF	OFF	ON	ON	OFF	ON	OFF	**83**
ON	ON	OFF	ON	OFF	ON	OFF	**84**
OFF	ON	OFF	ON	OFF	ON	OFF	**85**
ON	OFF	OFF	ON	OFF	ON	OFF	**86**
OFF	OFF	OFF	ON	OFF	ON	OFF	**87**
ON	ON	ON	OFF	OFF	ON	OFF	**88**
OFF	ON	ON	OFF	OFF	ON	OFF	**89**
ON	OFF	ON	OFF	OFF	ON	OFF	**90**
OFF	OFF	ON	OFF	OFF	ON	OFF	**91**
ON	ON	OFF	OFF	OFF	ON	OFF	**92**
OFF	ON	OFF	OFF	OFF	ON	OFF	**93**
ON	OFF	OFF	OFF	OFF	ON	OFF	**94**
OFF	OFF	OFF	OFF	OFF	ON	OFF	**95**
ON	ON	ON	ON	ON	OFF	OFF	**96**
OFF	ON	ON	ON	ON	OFF	OFF	**97**
ON	OFF	ON	ON	ON	OFF	OFF	**98**
OFF	OFF	ON	ON	ON	OFF	OFF	**99**

Address settings shown in grey are not available when using the CLED32 Display Controller

FAULT FINDING
Please refer to the fault finding chart on page 16 for more information before reading network faults

NETWORK FAULTS - WHERE TO START?
The best approach to fault finding on the network is to start from the Master Power Supply Hub and disconnect each spur in turn to establish where the fault is. This will instantly reduce the amount of units and wiring which will require further investigation.

NETWORK FAULTS - VOLT DROP
Volt Drop faults are only likely to occur at installation, if the cable restrictions have not been adhered to or if there are any bad or loose connections on the Network wiring. A cable short down a long run may appear to be a volt drop fault but the units nearer to the short will have no supply and appear 'dead'.

Typical volt drop symptoms are:

- LED displays fading or dim (especially when many segments are alight e.g. '88')
- LED displays alarm tone fading or quiet.
- No operation from call point or call points resetting themselves automatically.
- Overdoor lights fading or dim (especially when more than one call active)

NETWORK FAULTS - SIGNAL CORRUPTION
Signal corruption occurs where the signals from the call points are prevented from getting to the displays. This is achieved by having a slight short across the network - not enough to blow the fuse or cause the power supply to reset. The most likely causes are damp, cable damage or non CALLCARE unit connected to the network (e.g. Lamps Buzzers etc) This often occurs on existing wiring installations where not all of the old parts of the system have been removed from the wiring.

Typical signal corruption symptoms are:

- LED displays confidence lights permanently lit. *(See Page 7)*
- LED displays confidence lights permanently off. (But volts present on Network)
- Numbers 'frozen' on displays.
- LED display alarm sounding continuously.

**It is possible for signal corruption to appear only locally so that only some displays are displaying the faults, although this is very unlikely and will only occur on systems with large cable runs.*

NETWORK FAULTS - CABLE LOADING
This is very similar to signal corruption but is unlikely to occur on systems with less than 50 call points unless multi-core cable has been used extensively. The total cable loading prevents the signals from the call points getting through to the displays. It can not be traced down to one spur but appears when all wiring is connected. *It is possible for damp cable to exhibit the symptoms of a cable loading fault but this can be traced down to one spur.*

Typical capacitance symptoms are:

- Call Point confidence LED flashing but does not sound on displays.
- Displays sound for calls then go back to dots, then show call number again intermittently.
- Faults similar to signal corruption but can not be found on one single cable 'spur'.
- Number's 'frozen' on displays.
- LED display alarm sounding continuously.

If you have more than one CPSUB Booster Power Supply on the system, check that the input to both boosters comes directly from the Master circuit. (not from another booster) The cure is straightforward - either remove some cable from the system or fit a CPSUB Booster Power Supply to supply one of the cable spurs. The CPSUB Booster Power Supply may be fitted alongside the CPSU Master Power Supply.

POWER SUPPLY FAULTS	SYMPTOM	REMEDY
Yellow LED off and/or Mains Failure Alarm Sounding	No Mains Supply to unit Transformer Damaged (ie with a drill!)	Check Mains Supply Check holes in boxes!
CPSU Green LED off or Red LED not flashing and/or Alarm sounding continuously	On board 1 Amp fuse blown On board fuse holder loose around fuse	Check Fuse Check Fuse Holder
	Short on Network wiring Flat or faulty battery	Remove or elliminate Output connections Check Battery

CALL POINT FAULTS	SYMPTOM	REMEDY
Confidence LED on continuously but not indicating on Display	Illegal switch setting on call point See NETWORK FAULTS page 14	See Page 14 See page 3
Confidence LED on continuously or Call point will not reset. Call Point Generates Emergency when reset pressed Phantom calls from call point	Ceiling pull switch permanently shorted Pear Lead shorting Condensation or damp on ceiling pull switch Damaged cable to ceiling pull switch	Remove or eilliminate ceiling pull switch Remove or eilliminate pear lead Check for water damage or stains on plaster Remove or elliminate ceiling pull switch cable
No Operation from call point	No Supply to call point Network voltage below 7 volts See NETWORK FAULTS on page 14	Check Supply on Network Measure network supply
Call point resets on its own	Intermittent supply to call point Intermittent connection on power supply No input to Booster Power Supply	Check connections Check master power supply connections Check master circuit

DISPLAY FAULTS	SYMPTOM	REMEDY
No confidence dots flashing on display or display 'locks up' showing number or dots permanently lit but not flashing	No Supply to display See NETWORK FAULTS on page 14	Check supply
Display shows number but does not sound	Emergency calls only jumper fitted	Remove jumper (See Page 7)
No output from 'T' terminal.	Wiring error Emergency calls only jumper fitted	See Page 7 Remove jumper (See Page 7)

BOOSTER SUPPLY FAULTS	SYMPTOM	REMEDY
CPSUB Yellow LED off and/or Mains Failure Alarm Sounding continuously	No Mains Supply on CPSUB Transformer Damaged with a drill	Check Mains Supply Check holes in boxes!
CPSUB Green LED off or Red LED not flashing and/or Alarm sounding continuously	On board 1 Amp fuse blown On board fuse holder loose around fuse	Check Fuse Check Fuse Holder
	Short on Network wiring Flat or fulty battery	Remove or elliminate Output connections Check Battery
CPSUB Red LED off or flashing slowly (about one flash every two seconds)	No input signals from Master Circuit	Check master circuit (See Page 9)