

REFUGE CALL

(CDC/L/RS8 LOOP WIRED)



- Remote units – Hands free or telephone handset options available
- Master to remote and remote to master calling
- Fully monitored for open and short circuit cable failures.
- Remotes connected via : 4 core (+ screen) addressable loop.
- DESIGNED TO MEET THE APPROPRIATE REQUIREMENTS OF BS5839 Pt.9 2002

**Disabled Refuge Call
CDC/L/RS8 Loop Wired
Installation manual**

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- 1) Installation Procedure**
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Note: In all cases please use Drawing C51145/C (at the back of this manual) for reference to the above sections.

Loop Wired CDC/L/RS8 Central Enclosure

1) Installation Procedure (refer to Dwg. C51145/C)

Install central enclosure, **with cable entry gland at top**, at a height of approx 1.5 metres above floor height. Ensure fixings can support a load of 20 Kg.

The field cabling described below **must** be installed via top entry to the enclosure.

The system batteries will sit on the lower edge of the enclosure, and the entire space below the main PCB assembly must be kept clear to accommodate these items.

1.1 Connect Field Cabling:

A - Connect 5A (lighting rated) A.C. Mains supply (220 - 240V) to appropriate (L)ive, (N)eutral and (E)arth terminals on the modular PSU unit DSP60, located on DIN Rail fixings at the right of the main enclosure (Max system load is 40 Watts).

N.B. Earth terminal must be connected to building earth.

B1 – Connect 4 core (+screen) enhanced fire rated cable **out** to first remote loop location.

Observe colour coding on PCB ident for cable cores:

GY (Grey)	: COM (0V common reference)
BN (Brown)	: PWR (+ 24VDC)
BK (Black)	: LIN (loop cable audio line)
BU (Blue)	: DAT (loop cable data line)
SCN	: Cable screen (connected to system earth and COM internally)

This cable is then connected, in a 'daisy chain' configuration, sequentially to all remote node locations, and terminated to the appropriately identified terminals on the PCB subassembly CS807/6 located in the back box at each remote location. Continue to observe colour coding as listed above.

B2 - Connect loop cable returns from the last remote node location to these terminals. Observe the same polarities as the B1 terminations listed above.

The following connections are optional, and are fitted only when the system specification requires these functions:

C – Volt free ‘Fault Out’ changeover contacts, for remote fault reporting. (Fault relay is normally energised).

D – Volt free changeover contact – changes state with any call on the system. Use if remote call indication is required. The adjacent 24v (+) and either or both of the two (- -) terminals may be used, in conjunction with these volt free terminals, to power a remote 24v DC audible and/ or visual external alarm. Up to 100mA @ 24V may be drawn from this DC output.

E – Short these terminals with a volt free closing contact (rated 50mA or higher) to enable the system ‘Anti Tamper’ feature.

(The ‘Anti Tamper’ feature enables the system to automatically disable incoming calls, whilst retaining system monitoring of the remote cabling and outstations. The system is returned to full operation with this contact opened).

1.2 Connectors J and K

The two Cat5 (RJ45) sockets immediately below the 16 way ribbon connector **G** are only used where a remote control panel (repeater) is fitted. These are intended to be connected via standard (non fire rated) UTP Cat 5 cables, to a cable junction box adjacent (within the same fire zone) to the main control panel.

From that location, the control functions are serialised, and forwarded to the remote control panel location via a four pair (+screen) enhanced fire rated cable.

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2) Commissioning Procedure (refer to Dwg C51145/C)

Fit battery loom as indicated on this drawing. CHECK RED LEAD IS CONNECTED TO THE RED (+) BATTERY TERMINAL. CONNECTING THE BATTERY LEAD WITH REVERSE POLARITY WILL DAMAGE THE EQUIPMENT.

Plug the two way cable loom terminal to the 'Batt. +/-' terminals, located at the lower right edge of the main control PCB type CS869. (N.B. note that the system will not power up, until A.C. power is applied).

2.1 Jumper Links

There are a number of jumper links located on the main PCB, and these will need to set correctly to ensure a fault free system.

L1 – Fit to enable repeater sync clock (only used with remote repeater fitted)
L2 – Fit for single handset operation.

N.B. L1 and L2 are mutually exclusive. L1 is fitted under normal (single control panel) operation.

L9 – Fit to enable fault sounder.
L10(A) – fit to enable battery load timer (Normal setting)
L10(B) – fit to enable shortened (c.1 minute) battery load timer (Test setting only)
L11 – fit to disable battery load timer (NOT NORMALLY FITTED)

2.2 'Set Unit Count' rotary switch (L)

This rotary hexadecimal switch should be set to allow data to be received from the expected number of remote node units.

The switch should be set to correspond to the number of remote node units fitted.

The table below illustrates the settings required.

Number of Remote Nodes fitted	Unit Count Switch Setting
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

N.B. Please note that the switch settings described are different from the remote **address** switch settings listed in section 2.3 below.

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2.3 'Enable Remote Units' switch (M)

This 8 way DIL switch is fitted to allow activation of those units fitted to the remote loop nodes.

Switches relating to remote nodes addressed should be switched ON.
Switches relating to remote nodes not addressed **must** be turned OFF.

N.B. The remote nodes are assigned one of 8 addresses. The table below specifies the address ident on the hexadecimal switch fitted to each remote node PCB (type CS802). This list is repeated on the sheet supplied with each remote node PCB.

Loop Address	Hexadecimal switch setting
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7

The list appears a little confusing at first, but is a function of the vagaries of binary mathematics! Careful adherence to correct addressing is vital for correct system function.

2.4 'Enable Remote Unit Faults' switch (N)

This 8 way DIL switch is fitted to allow faults from remote loop locations to be reported. Like the 'Enable Remote Units' switch described above, only switches relating to connected remote addresses should be switched ON. All other switches should be turned OFF

Thus, the two switches M and N will have identical settings.

It is very important to confirm the correct setting of these switches. Any that are incorrectly switched OFF will prevent the control system from receiving data responses from that location. Moreover, switches incorrectly switched ON can cause false data decoding, and random incorrect status reporting.

2.5 Apply A.C. power to the system.

Check if any fault indications are active. Refer to section 4 to identify any indicated faults, and correct if necessary. Note that the 'H.SET FAULT' LED will remain illuminated until the front panel is connected. The 'UNIT' LED's (1-8), located vertically at the right hand edge of the main PCB assembly, should illuminate sequentially, as the associated remote node units respond. Confirm that the expected units are responding. There is no response from unused locations.

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2.6 Control Panel Connection

Once all cable terminations are complete, the link and switch settings above confirmed as correct, and all fault indications (except 'H.SET FAULT') are out, connect the front control panel to the main PCB by plugging in the 16 way ribbon connector to the master handset socket **G**, located along the left hand edge of the main PCB. Note that this is not a locking connector. It is monitored such that a disconnection will register a fault condition to the fault relay, but is deliberately not supplied as a locking connector, to prevent damage in the event of the front panel being removed without consideration of the interconnecting cable. The provided connector will simply separate without causing any damage.

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3) System Test (refer to Dwg. C51145/C)

Once the installation and commissioning procedures are complete, test for correct system operation, and fault reporting functions:

- Test all locations for correct call in / call out functions, by following the operational instructions listed on the Central control front panel.
- Remove primary power, to check correct operation of battery support supply. Central control will report a fault condition.

The fault sounder will be activated on the main control panel, and the fault LED's will be illuminated with a slow flash pattern.

The fault out relay will be de-energised.

Press the 'silence fault / lamp test' switch on the control panel momentarily, to silence the fault sounder to an intermittent state.

Open the main enclosure to confirm display of the 'mains fail' and 'charge fail' fault LED's located near the bottom edge of the main PCB ref. CS867.

Reconnect primary power.

Where utilised, check the function of the anti-tamper feature by applying a volt free closed contact (or temporary wire link) across the Anti-tamper terminals.

Under this condition, any call made from a remote hands free outstation will be automatically cancelled by the central controller.

The system will remain inactive from remote calling for c.30 seconds, to minimise nuisance recalling.

An open circuit at the anti-tamper terminals will allow normal system operation.

Note that making a call out from the master is not affected by the anti-tamper status.

Note that use of the anti-tamper facility is not recommended where telephone type remote outstations are used.

If a remote telephone is maliciously left off hook, the anti tamper circuitry will continue to attempt to clear the call until the handset is replaced. This will disable the remote fault monitoring system, until such time as the system is activated.

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4) Fault Indications (refer to Dwg. C51145/C)

The LED function references on Dwg. C51145/C, and on PCB CS869, identify the function of all fault indications within the central enclosure. Note that any fault condition will cause the front panel fault Light Emitting Diodes (LED's) to indicate with a slow flashing pattern, and will activate the audible fault sounder as a continuous tone.

Pressing the 'Lamp Test / Silence Fault' switch will change the sounder function to intermittent. (A short 'reminder' bleep approx every 90 seconds). Generation of a second fault condition will reactivate the fault sounder to a continuous tone.

The following table lists the various fault LED's, and describes the action to be taken to help identify specific faults.

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Fault LED Description	Nature of Fault	Action required to assist fault location	Action required to clear fault state, after correction
1 – 'Com Fail'	Loop common cable open circuit	Press and hold 'Loop Reset' switch P , to force loop out only – note last loop response led on line card. Break is between that unit and next remote node location	Press P momentarily, to clear fault latch.
2 – 'Power Fail'	Loop Power cable open circuit		
3 – 'Lin Fail'	Loop Lin(e) cable open circuit	D.C. volts measured between com and lin will be 0 Volts up to line break, and +5 Volts between break and lin return. Measurements need to be made at remote locations. Start in centre of loop, and proceed logically to find last location measuring 0 Volts, and first location measuring +5 volts.	After correction, press P momentarily to clear fault latch. Confirm D.C. voltage as 2.5V between Lin and com at both out and return loop terminations, with loop connected.
4 – 'H.SET Fault'	Master Handset short circuit or disconnected	Check master handset connections. Check 16 way ribbon connection to front panel	-
5 – 'Unit Count Fail'	Failure of one (or more) remote units to respond	Check for missing responses on 'UNIT' LEDS.	-
6 – 'Data Loop Fail'	Data loop cable open circuit	Press and hold 'Loop Reset' switch P to force loop out only – note last loop response led 'UNIT' LEDS. Break is between that unit and next remote node location.	Press data loop reset P momentarily to clear latched fault state.
7 – 'Load'	Indication of periodic battery load test	No Fault	-
8 – 'Mains Fail'	Failure of primary supply	Check for primary power to enclosure – check for + 28V DC out from DSP60 Din Rail PSU	Replace faulty DSP60 power supply if necessary.
9 – 'Batt Fail'	Failure of support battery(s) under load condition	Move L10 to position 'B' to reduce load interval to approx 1 minute. Momentarily press reset switch R to start new test sequence, and allow 2 minutes for repeat test. If 'Batt Fail' indicator illuminates again, replace batteries	Press Reset switch R after replacement batteries are fitted. Return L10 to position A
10 – 'Charge fail'	Failure of battery connection, or failure of primary supply	Check battery connection loom, including the inline protection fuse Replace if necessary (5A anti-surge)	-

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