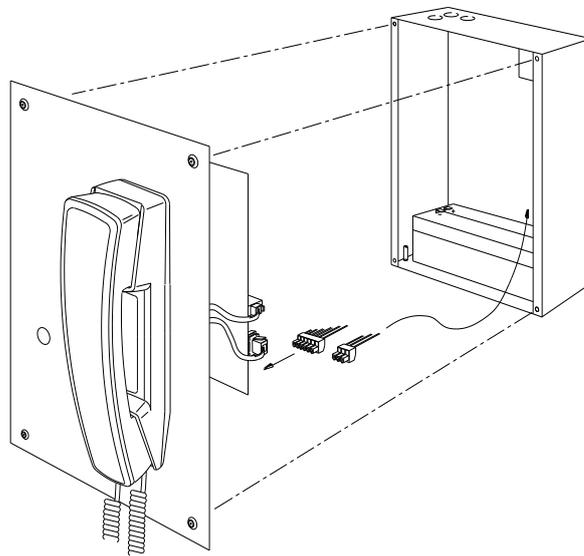# REFUGE CALL

**(ORB/R/RS2/TA2 Radial WIRED)** Rev.6



**Orbital**

- Remote units – Hands free Stainless Steel or Green options available

- Master to remote and remote to master calling

- Fully monitored for open and short circuit cable failures

- Remotes connected via : '2' core Radial cable

- Compliant to BS5839 Pt.9 2011 & BS9999

# Installation manual

## Disabled Refuge Call
## ORB/R/RS2TA Radial Wired

**Contents**

**1)      Installation Procedure**

**2)      Commissioning Procedure**

**3)      System Test**

**4)      Fault Indications**

**Note:  In all cases please use Drawing C51581/A (at the back of this manual) for reference to the above sections.**

**1) INSTALLATION PROCEDURE** (refer to Dwg. C51581/A)

Install central enclosure, **with cable entry gland at top/knock outs**, at a height of approx 1.5 metres above floor height. Ensure fixings can support a load of 6 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 DRL30-24-1, located on DIN Rail fixings at the top right of the main control unit (Max system load is 30 Watts).

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

**B –** Connect 2 core (+ screen) enhanced or standard grade FIRE rated cable **out** to each remote outstation location.

Observe colour coding on PCB ident for cable cores:

BN (Brown)              + : PWR (+ 24VDC)
BU (Blue)               - : DAT (Data / Line)
Screen SCN : Cable screen (connected to system earth and COM internally)

This cable is then connected, in a 'Radial' configuration; each remote outstation is required to have the same address as the terminated location on the main control panel.

i.e          Unit 1  Address 01 : to terminals 'OUTSTATION 1' on rear CS1059 termination pcb.
             Unit 2  Address 02 : to terminals 'OUTSTATION 2' on rear CS1059 termination pcb.

The PCB sub-assembly CS1008 located in the back box of each remote location must continue to observe colour coding as listed above.

**H –** Connect 2 core alarm type cable to each remote Toilet alarm PSU/Overdoor module. **POLARITY IS** essential on these connections when connecting directly back to the master control panel.

If the Toilet alarm cabling is being connected into a local refuge point then observe polarity + / - on the CS1008 connection pcb.

***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.

**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 Set-up Switch*

The setup switch is located on the front of the control panel. Ident 'Lamp Test / Silence Fault'. This is used to initially set up and commission the system.

## 2) COMMISSIONING PROCEDURE (refer to Dwg C51581/A)

### 2.1 Batteries

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.

### 2.2 Remote Outstation Addressing

Remote outstation addressing: CS965. Each outstation requires an address which relates to the switch position on the master control panel.

SW1 & SW2 are located on CS965 as below.
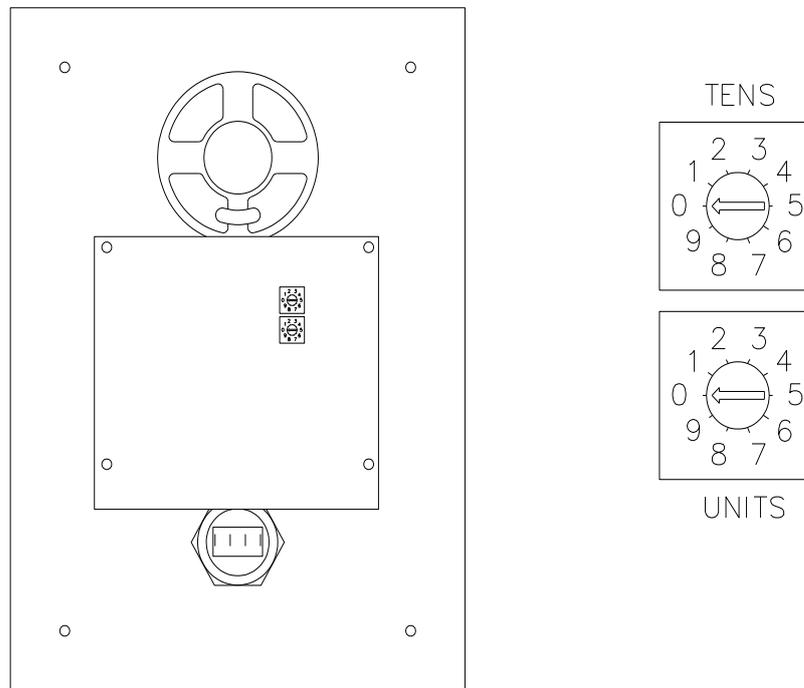


The remote outstation address is SW1 Tens and SW2 Units

### Examples

| Switch No. | Switch Set | Address |
|---|---|---|
| SW2 (Tens) | 0 | |
| SW1 (Units) | 1 | (Unit 1) |
| | | |
| SW2 (Tens) | 0 | |
| SW1 (Units) | 2 | (Unit 2) |

### 2.3 Radial Cable Testing

Remote outstation wiring tests:

Ensure cables are connected correctly both ends.  These are polarity conscious and the screen of the cable MUST be connected both ends.

Toilet alarm wiring tests:

Ensure cables are connected correctly both ends.  Note.  Connections are polarity conscious when connecting into a Disabled Refuge point.

### 2.4 Apply A.C. Power to the system

Connect all remotes to CS1059 pcb terminations B.

Check before power up that the master control panel is plugged in.

Connect the supplied 'Orange' and 'White' Cat5e patch leads to the appropriate RJ45 sockets.  See Dwg. C51581/A.  Terminals F and G. (NB. System must have A.C. power to enable correct set up of system).

On power up the system will display all faults. Pressing the Lamp Test / Silence Fault button will mute the fault sounder. All control panel Led's will illuminate in time with the fault indicators.

## 2.5 System Setup

Press and hold the setup button 'Lamp test / Silence Fault' on the front of the control panel until the setup switch illuminates, then release. This can take approx.. between 7 to 10 seconds. The front control panel will sound three times to signify that the system is in a setup mode and switch will stay illuminated.

In this mode the system will send out addresses for one or both outstations. The system will click off and on whilst in set up mode. With a response from an outstation a solid illumination will appear on the front control panel. Depending on whether there is one or two refuge points will determine which led's illuminate. If connected correctly 'REFUGE POINT 1' or / and 'REFUGE POINT 2' will illuminate. Once all outstations are correctly displaying on the control panel front the system is correctly set up and ready to operate.

Please ensure that each outstation address number matches the PCB termination idents 'OUTSTATION 1 and OUTSTATION 2). **IF** the units are not wired into the correct terminals, the system will not acknowledge them onto the panel.

Press the setup button again until the setup switch illumination goes out. The front control panel will sound twice to signify that the system has come out of the setup mode.
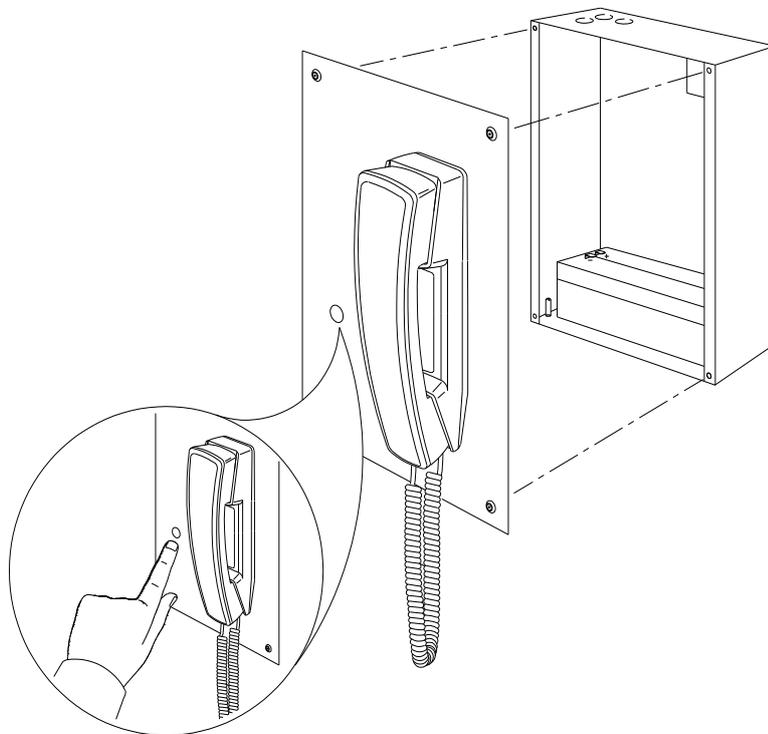
## 3) SYSTEM TEST (refer to Dwg. C51581/A)

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

- Test each of the locations for correct call in / call out functions, by following the operational instructions listed on the Central control front panel.

- Test each of the toilet alarm locations for correct call status. Pull cord on 'pull cord' unit. Alarm should signal locally and back to the master panel. On pressing toilet alarm 'reset' unit the alarm should stop and reset at all locations.

- Remove primary power, to check correct operation of battery support supply. Central control will report a fault condition for the 'Refuge' part.

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

Open the main control panel to confirm display of the 'mains fail' and 'charge fail' fault LED's located on the top edge of the main PCB ref. CS1018.

Reconnect primary power. To reset the fault press and hold the setup button on the front of the control panel until the fault clears from CS1018.

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.10 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 effected 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.*

## 4)   FAULT INDICATIONS <small>(refer to Dwg. C51581/A)</small>

The LED function references on Dwg. C51581/A, and on PCB CS1018, 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.

| Fault LED Description | Nature of Fault | Action required to assist fault location | Action required to clear fault state, after correction |
|---|---|---|---|
| **D13** - Master H/S Fault | Master Handset short circuit  or disconnected | Check master handset connections. | - |
| **D15** – 'PSU/Batt fault' | Failure of primary supply | Check for primary power to enclosure – check for + 28V DC out from DRL30-24-1 Din Rail PSU | Replace faulty DRL30-24-1 power supply if necessary. |
| | Failure of support battery(s) under load condition | Press setup switch to start new test sequence, and allow 2 minutes for repeat test. If 'Batt Fail' indicator illuminates again, replace batteries | Press setup switch after replacement batteries are fitted.  Re-test. |
| | Failure of battery connection, or failure of primary supply | Check battery connection loom, including the in-line protection fuse Replace if necessary (5A anti-surge) | - |
| Front panel fault led flashing only.  No internal fault led's on | Remote fault.  Failure of one (or more) remote units to respond | Check for missing responses on 'UNIT' LEDS in setup mode | Likely open or short circuit cable fault.  Locate and repair. Faulty outstation.  Replace or swap with known good unit. |

### *4.1 Jumper Links*

There are three jumper links located on the main CS1018 display PCB.

L1 - Fit to enable piezo fault sounder
L2 - Programming enable (do not remove or alter)
L3 - Fit to defeat Master handset cord monitor (NOT NORMALLY FITTED)

# RS2 ASSEMBLY

## FRONT PANEL

L3

| D13 | D12 | D11 | D15 |
|-----|-----|-----|-----|
| MAST.H/S FAULT | RESET | MASTER RING | PSU/BATT FAULT |

L2

J8

J9

ORANGE     WHITE

L1

CS1018

## BACK BOX

POWER SUPPLY DRL30-24-1

LIVE
NEUTRAL

EARTH

CS1059

NC C NO FAULT — C

TOILET A/A RM 1 2 — H

SCN SCN BN BL OUTSTATION 1 — B

SCN SCN BN BL OUTSTATION 2 — B

24V IN OV 0V +

E — ANTI-TAMPER

NC C NO 24V OV — D — CALL ON SYSTEM

ORANGE — F     WHITE — G     BATT + −

2.1Ah 12V BATTERY TYPE NP2.1-12

+           −

NOTE: BATTERIES TO STAND UPRIGHT WITH TERMINALS ON TOP

2.1Ah 12V BATTERY TYPE NP2.1-12

−           +

C51581/A
04/07/2017