ZITON RADIO HUB PROGRAMMING MANUAL
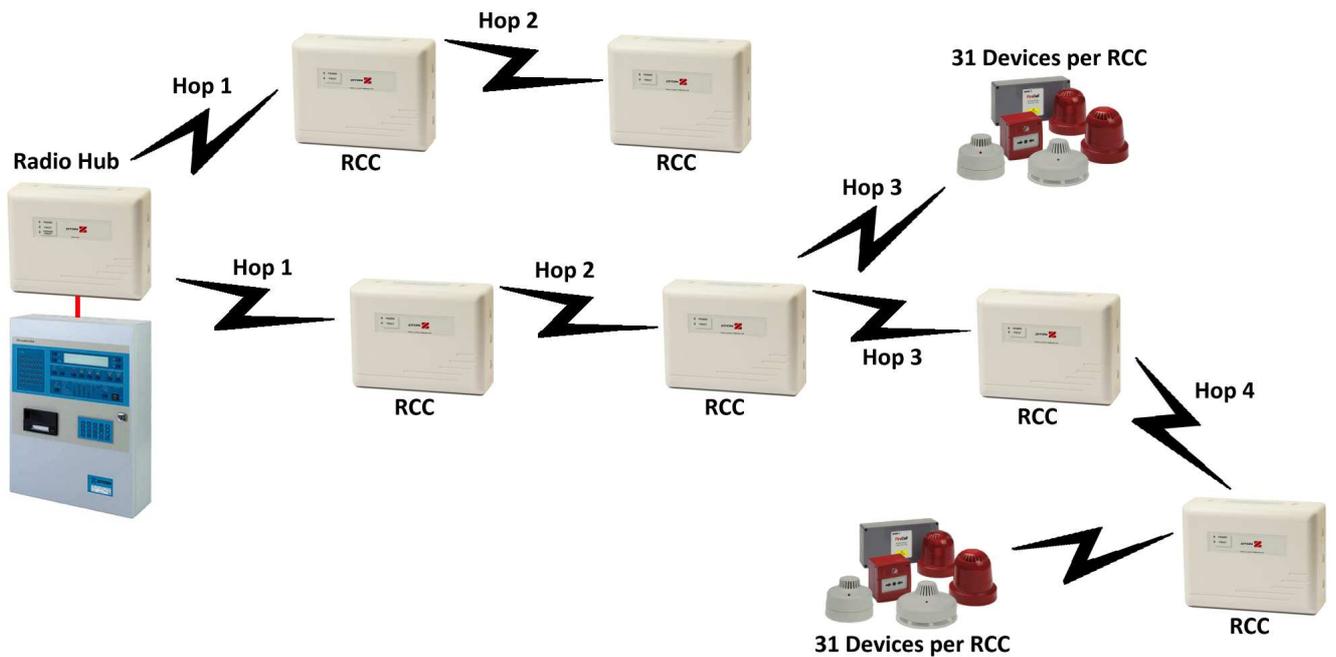
Contents

Section   Page No

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1.0 INTRODUCTION

- This manual provides a comprehensive guide to the programming of the Ziton Radio Hub.

- The System comprises of a Radio Hub capable of receiving information from a maximum of 31 Radio Cluster Communicators (RCC's). The RCC's are each capable of receiving information from up to 31 radio devices. The radio devices include Multisensor Smoke Detectors, Call Points, Sounders, Sounder Beacons, Input/Output Units and Combined Sounder/Multisensor Detectors.

- The communication between devices to RCC and RCC's to Radio Hub is bi-directional and utilises the 868 MHz frequency. The maximum amount of Radio Hops between RCC's and the Radio Hub is four. This is shown overleaf in the system overview.

- The Radio Hub is available in two variations: - Ziton Radio Hub - 4 Loop c/w Wire Aerials and Ziton Radio Hub - 4 Loop c/w SMA Aerials. The Radio Hub communicates to a protocol compatible Fire Alarm Control panel via its loop wiring connection.

- An LCD display is provided on the Radio Hub along with function buttons to allow programming and diagnostics to be carried out for all associated devices and RCC's.

- The RCC is a wire-free device requiring only a mains power connection. The unit transmits data from up to 31 radio devices to the Radio Hub which in turn passes this information to the Fire Alarm Control Panel.

- Should any future radio equipment installations be carried out on site, please contact Technical Support with proposed equipment frequencies and locations, so advice can be given and therefore ensure no detrimental effects are encountered with the systems performance.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   4

1.1 System Overview

1.2 System Design

- All installation work should be carried out in accordance with the survey and system design.

- It is recommended that the Radio Hub, Radio Cluster Communicators and radio devices are located in accordance with the radio survey and system design. This should be established before installation work commences.

1.3 Handling Precautions

- General: Care should be taken when handling all products. Avoid dropping any of the parts onto hard surfaces, as damage may occur to the case and internal circuitry.

- ESD Precautions: all products include components that are susceptible to damage from Electro-Static Discharge (ESD). Permanent damage may be caused to these components through routine handling if precautions are not observed. To reduce the risk of damage from ESD, the following precautions should be observed.

- Minimise the handling of PCB's which contain static sensitive components.

- Where handling is unavoidable, always ensure that you have taken adequate earthing precautions. An earthed wrist strap is recommended.

- When storing or transporting a "loose" PCB, always use a container, which has been designed and manufactured with ESD protective properties.

- Avoid placing static sensitive devices on any surfaces, which may increase the risk of a static discharge

1.4 Packaging

- All products should be kept in their packaging until they are due to be installed, to minimise the risk of damage. Retain all packaging until the installation activities have been completed. Should any product be found to be surplus to requirements, or require returning, the original packaging should be used.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   5

1.5 Equipment Familiarisation

It is important to establish which devices have been supplied for the installation. Examples of each compatible device are shown below:

Radio Hub   **Radio Cluster Communicator (RCC)**   **Radio Input/Output Unit**

Multisensor Detector   **Combined Sounder/Multisensor Detector**

Radio Sounder   **Sounder Beacon**   **Radio Call Point**

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   6

1.6 Device Power, Logon & Ident Orientations

Radio Callpoint

Log On & Alarm LED

Ident Number

Log On Button

Power Jumper

Radio Multisensor Detector

Power Jumper

Log On Button & LED

Ident Number

Radio Sounder

Power Jumper

Log On Button & LED

Ident Number

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   7
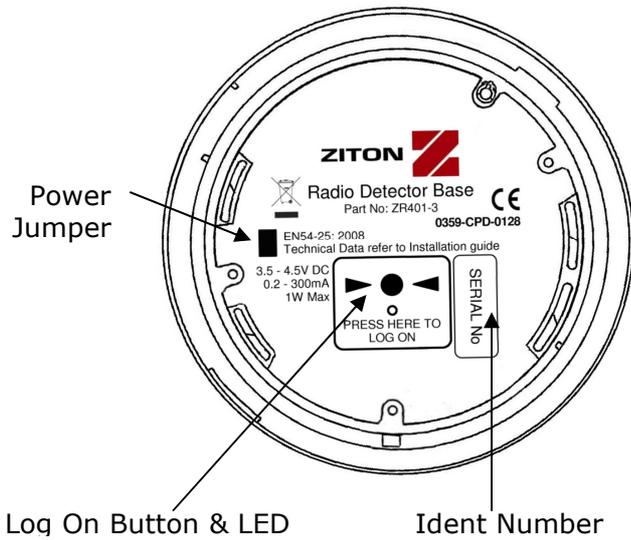
Input/Output Unit

Log On Button & LED   Ident Number
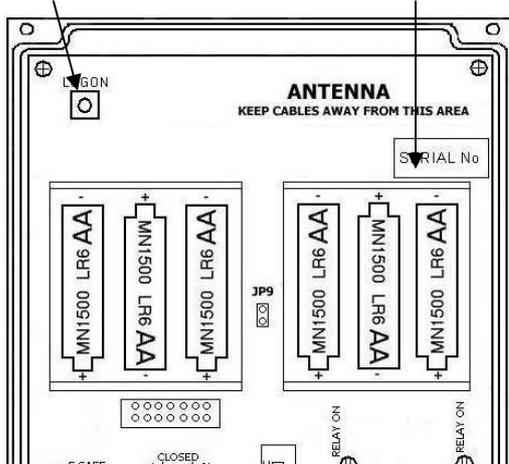
Power Jumper
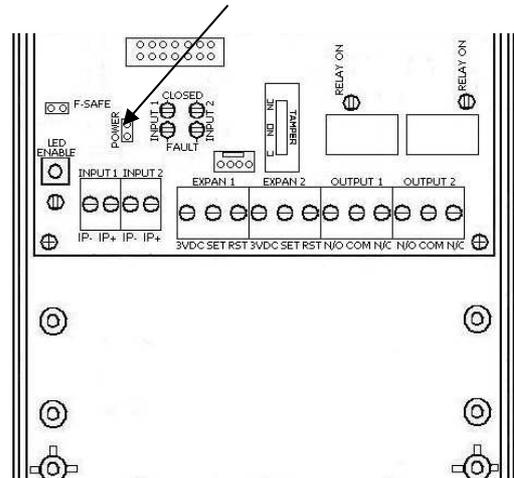
Radio Cluster Communicator (RCC)

Log On Button

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   8
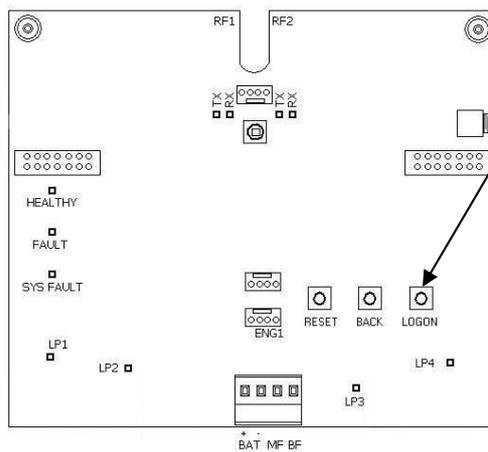
2.0 QUICK STEP BY STEP GUIDE TO SYSTEM PROGRAMMING

The programming step by step guide provides a recommended procedure into the installation and programming of the system.

Before commencing with the installation, the survey report should be available detailing where the Control Panel and radio infrastructure is to be fitted.

Ensure the correct type of equipment is to be fitted in the correct locations. See the 'Equipment Familiarisation section' for more details.

Ensure the Loop and Address numbers which are to be allocated to the devices and radio control equipment is known, as they are required when programming. The Radio Hub defaults to Loop 1 Address 1 if this is required to be changed. See 'Set Hub Address' within the 'Menu Explanation' section.

When using the quick guide, the following symbols are shown for the internal controls on the Radio Hub. All programming is undertaken for the system at the Radio Hub.

 = Turn & Press Rotary Button to select relevant menu option.

 = Press the Back Button to exit the menu.
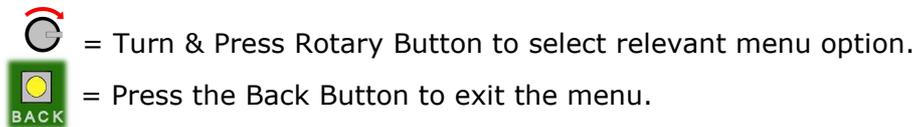
Step 1:- Control Panel & Radio Hub Installation

The Control Panel and the Radio Hub require installing in their proposed locations. Installation instructions are supplied with each unit and should be followed.

Step 2:- Allocate Hub Radio Communication Channels

The Radio Channels used to communicate between the Radio Hub and the RCCs are factory set. It is however recommended that they are re-configured to suit the sites environment. This must be performed before any RCC'S are added to the system.

From Front Display **Radio Channels** **RCC ➔ RCC Ch** **Auto Select**

 Are You Sure Y? **Scan Time 1min** **Decrementing Timer**

followed by **Auto Ch *01* Ch *32*.**   *To Exit*

Note: The longer duration selected for the scan time, the more accurate the results will be. Available times are between 1-60 minutes. For more information, see 'Radio Channels' within the 'Menu Structure' section.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   9

Step 3:- Radio Cluster Communicator (RCC) Installation and Programming

The RCC's require installing in their proposed locations. Installation instructions are supplied with each unit and should be followed.

A unique ident number is shown on the side of each RCC. This number should be noted given that this is required when adding the RCC to the Radio Hub.

From Front Display ↻ **Hub/RCC Options** ↻ **Add RCC** ↻ *Select Desired Signal Path* *****

↻ *Select Desired Loop & Device Address* ↻ **Add By Ident** ↻ **Add Dev *12345* Y?**

'Enter the RCCs ident ↻ **New Addr L*1* A*002*.** [BACK] *To Exit*

* = *If the RCC's signal path is to be direct to the Radio Hub then Radio Hub should be selected. If the RCC's signal path is via another RCC, then the relevant RCC will need to be selected. Each option can be chosen by turning the rotary switch.*

Step 4:- Assigning the RCC'S

The newly added RCC's should now be assigned.

From **Un-Assigned Dev** ↻ **Assign Device** ↻ **Dev *000* of *001***

changing to **Done *001* of *001*** *(once complete).* [BACK] *To Exit*

Step 5:- Allocate Device Radio Communication Channels

The Radio Channels used to communicate between the RCC's and the Devices are factory set. It is however recommended that they are re-configured to suit the sites environment. This must be performed before any devices are added to the system.

From Front Display ↻ **Radio Channels** ↻ **Device →RCC Ch** ↻ **Auto Select** ↻ **All** ↻

Are You Sure Y? ↻ **Scan Time 1min** ↻ **Decrementing Timer** ↻ **Auto Ch *03* Ch *28***

↻ **View Results Y/N?** [BACK] *To Exit*

Note: The longer duration selected for the Scan Time the more accurate the results will be. Available times are between 1-60 minutes. For more information, see 'Radio Channels' within the 'Menu Structure' section for more information.

Note: Having assigned the Radio Channels we must now re visit 'Step 4 – Assign RCCs' to re assign the RCCs.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   10

Step 6:- Device Programming and Installation

Radio Devices can be programmed to their relevant RCC prior to their installation. The devices require to powering and adding to their relevant RCC's by pressing their log on buttons for more information on where these are located on the devices see 'Device Power, Logon & Ident Orientations' section.

From Front Display ⟳ **Add New Device** ⟳ *Select Desired* **RCC 01** ⟳ **Set Loop** *1* ⟳

Addr *003* ⟳ **Add By Log On** ⟳ **Press Dev Log On** *followed by* **Add Dev** *03456* **Y?** ⟳

New Addr L*1* **A***003*. *To Exit*

The device has now been added to the Radio Hub and should be installed in its location prior to the next step of assigning the device to its relevant RCC. See the relevant device's installation instructions for more information.

Step 7:- Assigning Radio Devices

The newly added devices must now be assigned. This can be achieved by selecting;

From **Un-Assigned Dev** ⟳ **Assign Device** ⟳ **Dev** *000* **of** *003* *changing to*

Done *003* **of** *003* *(once complete).* *To Exit*

Step 8:- Adding all Devices to the Control Panel

The Radio Hub, RCC's and all radio devices must now be added to the control panel ensuring the Loop number and addresses programmed at the Radio Hub correspond to that programmed at the Control Panel.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   11

3.0 CONTROLS AND INDICATIONS

The Controls and Indications section details the various features of the Radio Hub, Radio Cluster Communicator and Radio Devices.

3.1 Radio Hub

The Radio Hub has 3 visible LED indicators from the front of the housing and also internal LED indicators, controls, display and connectors. This section explains their functionality.
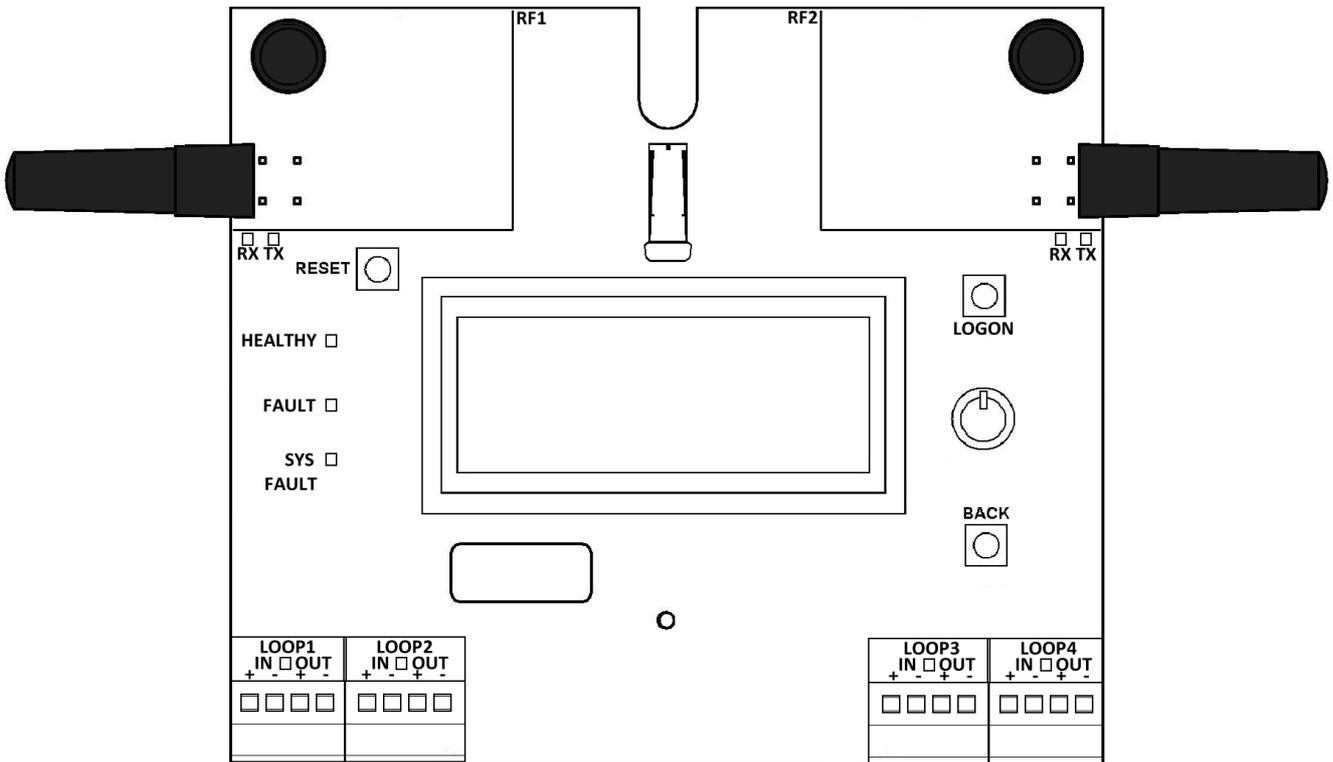
External Indications

Healthy LED
A green LED will be visible on the front plate of the Radio Hub. This will be illuminated constantly whilst power is supplied to the Radio Hub from the control panel via the Loop 1 connection.

Fault LED
A yellow LED will be visible on the front plate of the Radio Hub. This will illuminate constantly in the event of an aerial tamper fault on the Radio Hub.

Sys Fault LED
A yellow LED will illuminate constantly if a checksum error is detected in either the software program or configuration data.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   12

Internal Indications

RF1 RX LED   A green LED will flash when data is received from a Radio Cluster Communicator using receiver 1.

RF2 RX LED   A green LED will flash when data is received from a Radio Cluster Communicator using receiver 2.

RF1 TX LED   A yellow LED will flash when data is transmitted to a Radio Cluster Communicator using receiver 1.

RF2 TX LED   A yellow LED will flash when data is transmitted to a Radio Cluster Communicator using receiver 2.

Loop 1 LED   A yellow LED will illuminate constantly whilst there is an active, healthy connection on loop 1. The LED will also flash when data is being passed on the loop.

Loop 2 LED   A yellow LED will illuminate constantly whilst there is an active, healthy connection on loop 2. The LED will also flash when data is being passed on the loop.

Loop 3 LED   A yellow LED will illuminate constantly whilst there is an active, healthy connection on loop 3. The LED will also flash when data is being passed on the loop.

Loop 4 LED   A yellow LED will illuminate constantly whilst there is an active, healthy connection on loop 4. The LED will also flash when data is being passed on the loop.

LCD Display   The Radio Hub incorporates a 16 character LCD display which is used for displaying the number of devices on the system along with current alarm and fault totals. This is also used for programming functions.

Rotary Control   A Rotary Control is used to scroll through and enter menu options for programming purposes.

Reset Button   The reset button is used to reset the Radio Hub.

Back Button   The back button is used to move back a step in the menu.

Log On Button   The log on button is not used on the Radio Hub and is for future use.

ENG 1 Port   The engineers port is used to establish connection to a computer based terminal program. This is used for programming purposes using the FireCell Configuration Tool.

Loop 1 -4 Connections   These are used for Loop IN and OUT connections to the fire alarm control panel. The loop connections are used for passing device data to the control panel. Note; Loop 1 connections are used to apply power to the Radio Hub.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   13

3.2 Radio Cluster Communicator

The Radio Cluster Communicator has 2 visible LED indicators from the front of the housing and also internal LED indicators, controls, display and connectors. This section explains their functionality.
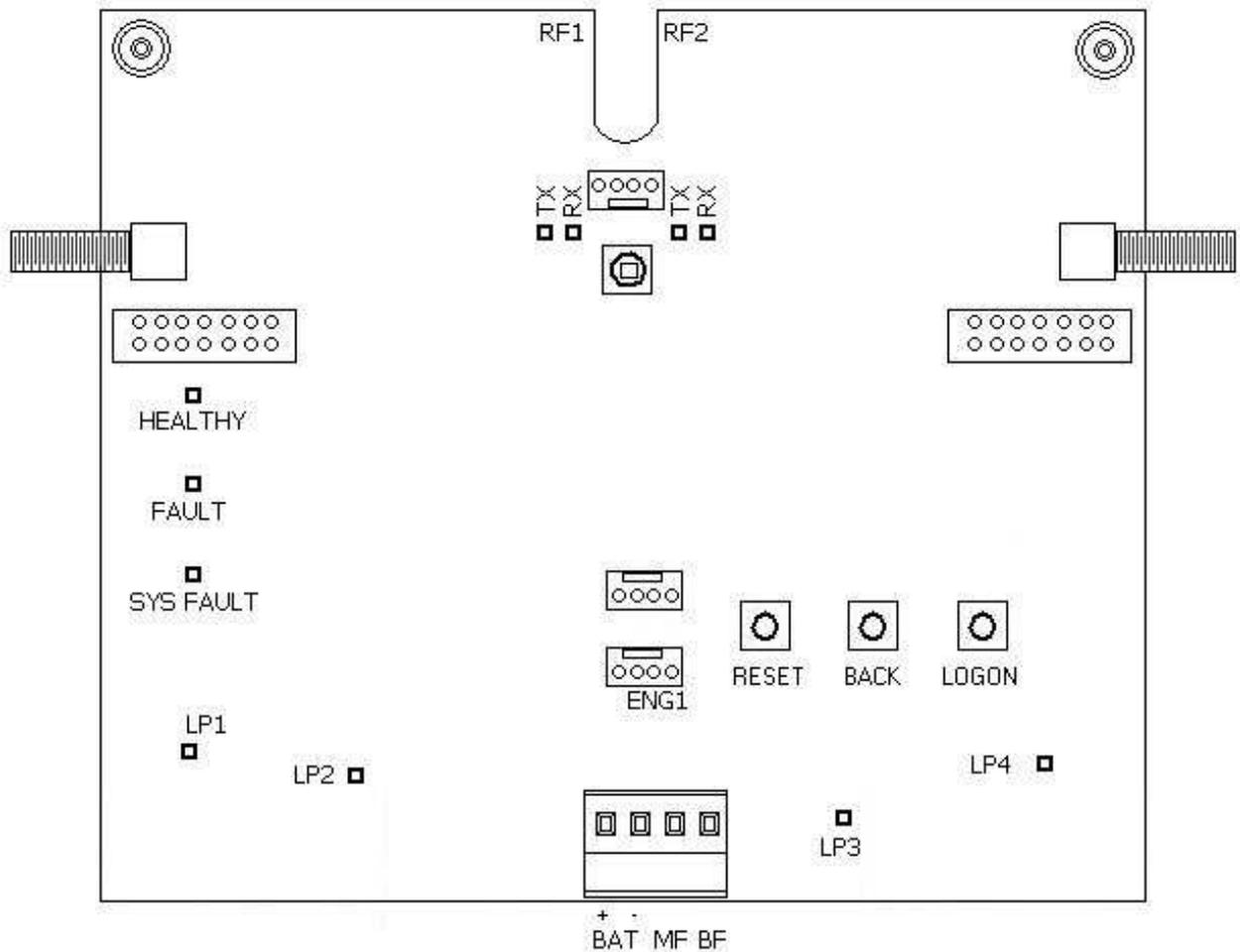
External Indications

Power LED   A green LED will be visible on the front plate of the Radio Cluster Communicator and will illuminate constantly whilst sufficient power to the Radio Cluster Communicator is present from either the mains supply or the back up battery.

Fault LED   A yellow LED will be visible on the front plate of the Radio Cluster Communicator and will illuminate constantly in the event of a mains fail, battery fail or aerial tamper.

Internal Indications

RF1 RX LED   A green LED will flash when data is received from radio devices.

RF2 RX LED   A green LED will flash when data is received from a Radio Hub or Radio Cluster Communicators.

RF1 TX LED   A yellow LED will flash when data is transmitted to radio devices.

RF2 TX LED   A yellow LED will flash when data is transmitted to a Radio Hub or Radio Cluster Communicators.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   14

Reset Button   The reset button is used to reset the Radio Cluster Communicator.

Back Button   The back button is not used on the Radio Cluster Communicator.

Log On Button   The log on button is used to log the Radio Cluster Communicator on to the Radio Hub.

ENG 1 Port   The engineers port is used to establish connection to a computer based terminal program. This is used for programming purposes using the FireCell Configuration Tool.

Battery/Mains Connections
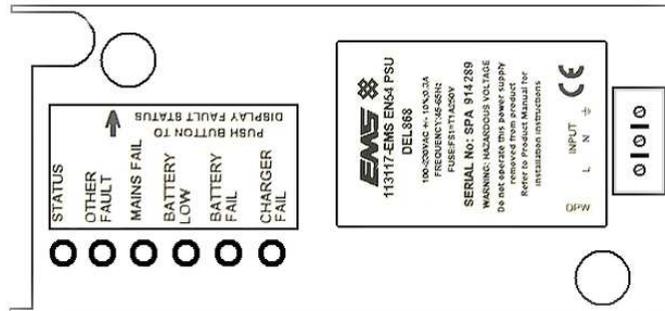
Power Supply PCB

Status   The green LED flashes to indicate the Radio Cluster Communicator's power status. Flashing on for 0.6 seconds and off for 0.2 seconds indicates mains supply is present, flashing on for 0.2 seconds and off for 0.6 seconds indicates the unit has no mains present and is currently running on the 6V 4Ah back up battery.

Other Fault   The yellow LED will illuminate to indicate the following faults:
                            Battery Charging Fail
                            Battery Missing Fault
                            Low Battery

Mains Fail   A yellow LED will illuminate in the event of a mains fail. This will only be displayed when pressing the fault status button on the power supply pcb.

Battery Low   A yellow LED will illuminate to indicate a low battery.

Battery Fail   A yellow LED will illuminate to indicate that the battery is missing/not connected.

Charger Fail   A yellow LED will illuminate to indicate that the battery is not charging.

Input L, N ⏚   Mains Connections

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   15

3.3 Radio Devices

The Radio devices have LED indicators and log on buttons which perform certain functions. This section explains their functionality.

Log On Button

The Log On button is used for adding devices to the system. The required procedure for achieving this is detailed within the 'Quick Step by Step To System Programming Guide' section of this manual. The action of pressing the log on button for 2 seconds will revert the device to its commissioning frequency channels to allow addition to the system, and also illuminate the log on LED.

NOTE: Care should be taken not to press this button when the unit is already added to the system and operating on its allocated frequencies as this frequency information will be lost and defaulted back to the devices commissioning channels.

Log On LED

The LED is allocated next to the Log On button on the detector and sounder. This will illuminate when the log on button has been pressed for two seconds. On a call point the Alarm LED on the front of the device is utilised as indication that the Log On button has been pressed for 2 seconds.

Alarm LED

The Alarm LED will switch on in the event of an alarm condition detected by the device. The device controls this indication for the first 10 seconds of the alarm condition. After the initial 10 seconds the LED indication is completely controlled by the connected Fire Alarm Control panel and will therefore turn on and off as instructed to do so by the programming in the panel.

Audio Detect Enable Switch

An audio detect switch is located on the sounder base. This feature can be enabled for each of the sounder output stages 1 or 2 using the corresponding number on the 2 way switch. When enabled the unit carries out tests when operated, by checking the actual sound output. If no sound is detected within 10 seconds of the sounder base being switched on a fault will be indicated at the control panel. This feature should be disabled for a beacon only unit (Switch 1 and 2 off).

Output LED

An Input/output device has a red LED associated with each relay output. If the LED enable button is pressed and the output is activated the LED will illuminate. The LED's will be illuminated for a time period of 10 minutes and then automatically time out.

Input Fault

An Input/output device has a yellow fault LED associated with each input. If the LED enable button is pressed and the input is in a fault condition the LED will be illuminated. The LED's will be illuminated for a time period of 10 minutes and then automatically time out.

Input Switch Closed

An Input/Output device has a red switch closed LED associated with each input. If the LED enable button is pressed and the input is closed the LED will be illuminated. The LED's will be illuminated for a time period of 10 minutes and then automatically time out.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   16

4.0 MENU STRUCTURE & LAYOUT

Front Screen Text or Un-Assigned Dev

| Device Status |
| Add New Device |
| Assign Device |
| Remove Devices |
| Hub /RCC Options |
| Radio Channels |
| Advanced |

Device loop/ Address/status/ Type

| Fault Status |
| Alarm Status * |
| Battery Level |
| Signal Level |
| Manual Update |
| RCC Number & Ident |
| Software Version |

| Set Hub Addr |
| Add RCC |
| Remove RCC |
| Hub /RCC Status |

| Fault Status |
| Signal Level |
| Manual Update |
| Background Level |
| Radio Channels |
| Ident |
| Software Version |

| RCC ➔ RCC Ch |
| Device ➔ RCC Ch |

| Currently Used |
| Auto Select |
| Manual Select |

| Currently Used |
| Auto Select |
| Manual Select |

| Change Address |
| Dev ➔ RCC Listing |
| Global Batt Stat |
| Global Sig Stat |
| Individual Test |
| Start Fast test |
| RCC Comms Path |
| Chg RCC Comm Path |
| Replace RCC |
| Sounder Mode |
| Call In Verify |
| Audio Detect |
| Batt Smooth |

* Alarm Status shown as I/O Status for Input/Output Device Types

4.1 Front Display

Once the Control Panel and the Radio Hub are installed and powered up, the Radio Hub will show the following default screen:

TOT001 A000 F000

Where:

TOT001   = The Total number of devices logged to the Hub (including the Radio Hub itself) across all 4 possible loop options.
A000   = The number of alarm conditions on the system across all 4 loop options.
F000   = The number of faults currently on the system across all 4 loop options.

Note: As default, the Radio Hub will be set as device address 001 on loop 1. This can be changed if required within the 'Set Hub Address' menu option.

Note: If there are any unassigned devices, the screen will change to show;

Un-assigned Dev

4.2 Accessing The Menu Options

Entry to the menu and into the required menu options can be achieved by pressing the rotary control. The menu options can be browsed by turning the rotary control to scroll through the menu. Exiting from a menu option is achieved automatically after 30 seconds or by pressing the back button located on the Radio Hub.

To access the Users menu's from the front display screen, follow the steps listed below:

TOT186 A000 F000

Press the rotary control. The display will change to show;

Device Status

The menus can be easily navigated by rotating the rotary control until the desired option is highlighted and pressing the rotary control to enter the selected option. See the 'MENU LAYOUT' section for navigation assistance.

The menu structure section details each of the menu options, highlighting their effect within the system. A quick step by step guide is shown at the end of each of the menu descriptions to aid navigation.

= *Turn and Press Rotary Button to select relevant option:*

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   18

5.0 MENU EXPLANATION

5.1 Device Status

The device status menu lists all of the devices assigned to all the loops. Devices can be scrolled through using the rotary controller. The allocated Loop and address numbers are shown along with the device type and its current status. The devices are displayed in Loop and Address number order.

Front Display ◯ **Device Status**

A typical display is shown below;

> **L1 A003 L Optic**

The descriptions for the shown display are as follows;

L1 – In this example this indicates that the device is assigned to loop 1.

A003 - In this example this indicates that the device is assigned to address 003. Available options are between 1 and 127.

L - This field indicates the devices current status.

Available options are: L = Logged On to the RCC and in normal condition.
                        U = Device is unassigned to an RCC.
                        ! = Fault present. (See fault status descriptions).
                        🔥 = Fire present.
                        〽 = Pre alarm present.

Optic – This field indicates the device type.

Available options are: Multi = Multi-sensor Detector
                        Optic = Optical Detector
                        Heat = Heat Detector
                        MCP = Manual Callpoint
                        Sound = Sounder Device
                        I/O = Input/Output Device

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   19

Fault Status

When entered, this shows the devices fault condition information. To view the actual fault for a particular device, the rotary control can be pushed to display a fault description. If multiple faults are outstanding for a device then by turning the rotary control they can be individually viewed.

Front Display ⟳ **Device Status** ⟳ *Select Desired Device No* ⟳ **Fault Status**

The available fault descriptions are described below;

No Device Faults – this description indicates that the device is not in any fault condition and is operating correctly.

In Tamper – this indicates that the devices tamper switch is not currently making contact against the ceiling or wall mounted base plate.

Head Missing – this indicates that the detectors head, sounder, strobe only or sounder/strobe head is not currently fitted on the radio base.

Signal Fault – this is indicated for two reasons. Firstly it indicates that there has currently not been any communication between the device and its associated Radio Cluster Communicator (RCC) for 300 seconds. Secondly if the signalling path is poor and although communication is being achieved it is not at an acceptable level for reliable communication.

Battery Fault – this shows that the device has a low battery and has a minimum operational life of less than 30 days.

Battery Missing - this shows that the device has missing battery.

Head Dirty – this shows that the device viewed currently has a head reading which is deemed as dirty/contaminated.

No Sndr Audio – this indicates that a sounder device has given no audio output or a low audio output when sounding. This is selectable via a DIP switch on the sounder head and must be disabled when using strobe only devices.

Head Fault – this indicates that a detectors head has a fault i.e. no communication between the head and the radio base.

Short Circuit – this indicates a short circuit wiring fault on the input of an I/O unit.

Open Circuit – this indicates an open circuit wiring fault on the input of an I/O unit.

Un-Assigned – this description indicates that the device is un-assigned to the system. Assigning the device is possible by pressing the rotary control to assign or visiting the Assign Devices option from the main menu.

Alarm Status

When entered, this shows the devices alarm condition information. To view the actual alarm for a particular device, the rotary control can be pushed to select the device and this will then display the alarm description.

Front Display ⟳ **Device Status** ⟳ *Select Desired Device No* ⟳ **Alarm Status**

The available alarm descriptions are described below;

In Fire – this indicates the device is currently in a fire alarm condition.

In Pre-Alarm – this indicates the device is currently in a Pre-alarm condition.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   20

I/0 Status

This shows the current Input and Output information on Input/Output devices. To view the status of the inputs and outputs for a particular device, the rotary control can be pushed to select the device and this will then display the status information description.

Front Display ◯ **Device Status** ◯ *Select Desired Device No* ◯ **IN: *-* OUT: *-***

The available descriptions are shown below;

    IN: 0-0 – this indicates that input 1 and 2 is in the open (normal) state.

    IN: 1-0 – this indicates that input 1 is in the closed (activated) state.

    IN: 0-1 – this indicates that input 2 is in the closed (activated) state.

    IN: 1-1 – this indicates that input 1 and 2 is in the closed (activated) state.

    OUT: 0-0 – this indicates that output 1 and 2 is in the open (normal) state.

    OUT: 1-0 – this indicates that output 1 is in the closed (activated) state.

    OUT: 0-1 – this indicates that output 2 is in the closed (activated) state.

    OUT: 1-1 – this indicates that output 1 and 2 is in the closed (activated) state.

Battery Level

This menu when entered shows information on the selected device's battery status. The status of the pack is updated whenever there is a status change or automatically updated every 6 hours. This is broken down into five sections.

Front Display ◯ **Device Status** ◯ *Select Desired Device No* ◯ **Battery Level**

Each device will show the status of its two battery packs. The battery status information is displayed as follows;

Pack 1 OK – this indicates a good battery voltage is present in Pack 1. This is represented by displaying a full battery icon.

Pack 1 Fault – this indicates the battery voltage is low in Pack 1 and is a 30 day warning indication. The batteries must be changed on the device within 30 days for continued reliable operation. This is represented by displaying a half full battery icon.

Pack 1 Missing – this indicates a battery from Pack 1 is missing. The battery must be inserted on the device for continued reliable operation. This is represented by displaying an X symbol.

Pack 2 OK – this indicates a good battery voltage is present in Pack 2. This is represented by displaying a full battery icon.

Pack 2 Fault – this indicates the battery voltage is low in Pack 2 and is a 30 day warning indication. The batteries must be changed on the device within 30 days for continued reliable operation. This is represented by displaying a half full battery icon.

Pack 2 Missing – this indicates a battery from Pack 2 is missing. The battery must be inserted on the device for continued reliable operation. This is represented by displaying an X symbol.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   21

Signal Level

This menu allows the signal levels for devices to be viewed. When entered detailed signalling information is displayed on the two signalling channels used by the device in both directions, as the devices are bi-directional. The received signal strength at the devices associated RCC is shown as a D➔RCC01 level, therefore indicating the signal that has been sent from the device to the RCC (the 01 represents the RCC number). The D➔RCC01 level is updated on every poll response (123 seconds). The forward signal strength received at a device from the RCC is shown as a D⬅RCC01 level, therefore indicating the signal that has been sent from the RCC to the device. The D⬅RCC01 level is updated automatically every 6 hours or immediately when requested by selecting the Manual Update Option from the menu. Turning the rotary control will change the display between the 2 channels. Pressing the rotary control switch will revert between the D➔RCC01 level display and D⬅RCC01 signal levels for each channel. Signal strengths are shown in dB. The levels displayed are already calculated taking into account the background level away from the received signal strength, therefore no further calculations are required.

Front Display ⭘ **Device Status** ⭘ *Select Desired Device No* ⭘ **Signal Level**

Ch^1 D➔RCC02 – this indicates the received signal strength at the devices associated RCC (in this example RCC number 02) from the device on the first frequency channel used by the system. A level from 0 - 45 is shown to indicate the levels, a table of which is shown at the end of this section.

Ch^2 D➔RCC02 – this indicates the received signal strength at the devices associated RCC (in this example RCC number 02) from the device on the second frequency channel used by the system. A level from 0 - 45 is shown to indicate the levels, a table of which is shown at the end of this section.

Ch^1 D⬅RCC02 – this indicates the forward signal strength received at the device from the associated RCC (in this example RCC number 02) on the first frequency channel used by the system. A level from 0 - 45 is shown to indicate the levels, a table of which is shown at the end of this section.

Ch^2 D⬅RCC02 – this indicates the forward signal strength received at the device from the associated RCC (in this example RCC number 02) on the second frequency channel used by the system. A level from 0 - 45 is shown to indicate the levels, a table of which is shown at the end of this section.

24dB or greater	Indicates a Good Signal Level
20-23dB	Indicates a Medium Signal Level
13-19dB	Indicates a Low Signal Level
8-12dB	Indicates a Caution Signal Level
12dB or less	Indicates a Fault Signal Level
0dB	Indicates No Signal Level Received

Manual Update

This menu allows individual devices to update the system with their current signal levels. To send a signal request, press the rotary control button with the device shown on the display. The menu will change to show that it's updating the signal level. Once completed check the new signal level by entering the Signal Level menu.

Front Display ⭘ **Device Status** ⭘ *Select Desired Device No* ⭘ **Manual Update** *followed by* **Update Requested**

RCC** ID*****

This displays the RCC number that the selected device is currently assigned to along with the devices ident. You can also change the RCC that the device is logged onto by pressing the Rotary Control when the RCC number is displayed and then selecting a new RCC from the available list.

Front Display ⭘ **Device Status** ⭘ *Select Desired Device No* ⭘*RCC** ID*****

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   22

Software V**.**

This displays the devices software version.

Front Display ⭕ **Device Status** ⭕ *Select Desired Device No* ⭕ *Software V**.***

5.2 Add New Device

This menu allows all radio device types to be added to the system. The function allows the device to be added using either the log on button situated on the device or by programming the devices unique identification number into the Radio Hub via the Rotary Controls. The Loop address number associated for the device along with the devices allocated Radio Cluster Communicator are also allocated at this stage of adding the device to the system. Note: The number of Loops available to be programmed will depend upon the type of Radio Hub. Available variants are 1, 2 and 4 Loop Radio Hubs. A guide to adding devices is shown in the 'Quick Step by Step Guide To System Programming' section of this manual.

Front Display ⭕ **Add New Device**

5.3 Assign Device

This menu assigns any unassigned radio devices to their associated Radio Cluster Communicators. This must be performed once a device has been added to the system and the device has been installed in its correct location.

Front Display ⭕ **Assign Device**

5.4 Remove Device

This section allows radio devices to be removed from the system. A list of devices already allocated to the system are shown, these can be scrolled through by turning the rotary control. When the device required to be removed is shown on the display the rotary control can be pushed to select this device. This will show the devices unique identification number, if correct, selecting 'Yes' will remove the device from the system.

Front Display ⭕ **Remove Device**

5.5 Hub/RCC Options

This menu allows access to the configuration of the Radio Hub and Radio Cluster Communicators.

Front Display ⭕ **Hub/RCC Options**

Set Hub Address

This section allows the Radio Hub to be allocated to a particular loop and Loop Address number. As default the Radio Hub will be set as device address 001 on loop 1.

Front Display ⭕ **Hub/RCC Options** ⭕ **Set Hub Address**

Add RCC

This section allows a Radio Cluster Communicator (RCC) to be added to the system. The function allows the unit to be added using either the log on button situated on the unit or via the devices unique identification number. The associated Loop number i.e. 1-4, Loop address number for the RCC and its signal path are all programmed within this menu.

Front Display ⭕ **Hub/RCC Options** ⭕ **Add RCC**

Remove RCC

This section allows an RCC to be removed from the system. A list of RCC's already allocated to the system are shown, these can be scrolled through by turning the rotary control. When the RCC requiring removal is shown on the display, the rotary control can be pushed to select this device. Once the rotary control has been rotated to display 'Remove Device Yes', pressing the rotary control will remove the RCC from the system.

NOTE: RCC's can only be removed from the system when no devices are allocated to that particular RCC.

Front Display ⭕ **Hub/RCC Options** ⭕ **Remove RCC**

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   23

Hub / RCC Status

When entered, this menu lists the Radio Hub and all of the Radio Cluster Communicators added to the system. These can be scrolled through using the rotary controller. The allocated loop and address numbers are shown along with their current status.

Front Display ⊙ **Hub/RCC Options** ⊙ **Hub/RCC Status**

A typical display is shown below;

L1 A003 L RCC01

The descriptions for the shown display are as follows;

L1 – In this example this indicates that the device is assigned to loop 1.

A003 - In this example this indicates that the device is assigned to address 003.

L - This field indicates the devices current status.

Available options are: L = Logged On to the Radio Hub and in normal condition.
U = RCC is unassigned to the Radio Hub.
! = Fault present. (See fault status descriptions).
🔥 = Logged On with a fire alarm present.
〽 = Logged On with a pre alarm present.

RCC – This field indicates the device type.

Available options are: RCC01 = Radio Cluster Communicator numbered from 01-31
Hub = Radio Hub

Fault Status

This menu when entered shows information on any Radio Hub or Radio Cluster Communicator that are currently in a fault condition. To view the actual fault for a particular unit, the rotary control can be rotated and pushed to select the relevant address and this will then display a fault description.   If multiple faults are outstanding, then by turning the rotary control they can be individually viewed.

Front Display ⊙ **Hub/RCC Options** ⊙ **RCC/Hub Status** ⊙ *Select Desired Device No* ⊙ **Fault Status**

The available fault descriptions are described below;

No Device Faults – this description indicates that there are not any faults present on the Radio Hub or RCC's.

Mains Fault – this description indicates that there is no mains present on the RCC.

No Signal/PSU – this description indicates that there has been no communication between the Radio Hub and Radio Cluster Communicator (RCC) for 300 seconds, or that communication is being achieved but not at an acceptable level for reliable communication. This fault may also indicate total loss of power to the Radio Cluster Communicator (RCC).

Battery Fault – this description indicates that there is either no battery present, the battery is low or there is a battery charger fail on an RCC.

Processor Fail – this description indicates that the on board processor on an RCC or Radio Hub is in a failure condition.

Receiver Fail – this description indicates that the one of the onboard radio receivers on an RCC or Radio Hub is in a failure condition.

Aerial Tamper – this description indicates that a remote aerial on the RCC or Radio Hub is not attached or damaged.   Internal aerials are not required to be monitored however all remote aerials have a monitoring resistance of 47KΩ.   If this resistance is not present on any of the remote aerial connections then an aerial tamper fault will be displayed.

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   24

RCC Ch1 RFI Det – this description indicates that a radio frequency interference signal has been detected on radio channel 1 that the RCC network communication path is operating on.

RCC Ch2 RFI Det– this description indicates that a radio frequency interference signal has been detected on radio channel 2 that the RCC network communication path is operating on.

DEV Ch1 RFI Det – this description indicates that a radio frequency interference signal has been detected on radio channel 1 that the radio device to RCC communication path is operating on.

DEV Ch2 RFI Det– this description indicates that a radio frequency interference signal has been detected on radio channel 2 that the radio device to RCC communication path is operating on.

Un-Assigned – this description indicates that the device is un-assigned to the system. Assigning the device is possible by pressing the rotary control to assign or visiting the previously detailed 'Assign Devices' option from the main menu.

Signal Level

This menu allows the signal levels for selected Radio Cluster Communicator to be viewed. When entered detailed signalling information is displayed on the two signalling channels used by the RCC in both directions, as the devices are bi-directional. The received signal strength at the Hub from the associated RCC is shown as a R01➜Hub level, therefore indicating the signal that has been sent from the RCC to the Hub (the 01 represents the RCC number). The R01➜Hub level is updated on every poll response (30 seconds). The forward signal strength received at an RCC from the Hub is shown as a R01⬅Hub level, therefore indicating the signal that has been sent from the Hub to the RCC. This level is also updated on every poll response or immediately when requested by selecting the Manual Update Option from the menu. Turning the rotary control will change the display between the 2 channels. Pressing the rotary control switch will revert between the R01➜Hub level display and R01⬅Hub signal levels for each channel. Signal strengths are shown in dB. The levels displayed are already calculated taking into account the background level away from the received signal strength, therefore no further calculations are required.

Front Display ⟳ **Hub/RCC Options** ⟳ **Hub / RCC Status** ⟳ *Select Desired Device No* ⟳ **Signal Level**

Ch^1 R01➜Hub 070dB – this indicates the received signal strength at the Radio Hub from the RCC 01 on the first frequency channel used by the system. A level from 0 - 105 is shown to indicate the levels, a table of which is shown at the end of this section.

Ch^2 R01➜Hub 070dB – this indicates the received signal strength at the Radio Hub from the RCC 01 on the second frequency channel used by the system. A level from 0 - 105 is shown to indicate the levels, a table of which is shown at the end of this section.

Ch^1 R01⬅Hub 070dB – this indicates the forward signal strength received at the RCC 01 from the Radio Hub on the first frequency channel used by the system. A level from 0 - 105 is shown to indicate the levels, a table of which is shown at the end of this section.

Ch^2 R01⬅Hub 070dB – this indicates the forward signal strength received at the RCC 01 from the Radio Hub on the second frequency channel used by the system. A level from 0 - 105 is shown to indicate the levels, a table of which is shown at the end of this section.

20dB or greater	Indicates a Good Signal Level
13-19dB	Indicates a Low Signal Level
8-12dB	Indicates a Caution Signal Level
7dB or less	Indicates a Fault Signal Level
0dB	Indicates No Signal Level Received

Manual Update

This menu allows individual RCC's to update the system with their current signal levels. To send a signal request, press the rotary control button with the relevant RCC shown on the display. The menu will change to show 'Update Requested'. Once completed, check the new signal level by entering the Signal Level menu.

Front Display ◉ **Hub/RCC Options** ◉ **Hub / RCC Status** ◉ *Select Desired Device No* ◉ **Manual Update**

Background Level

When entered, this menu allows the Radio Hub or Radio Cluster Communicators background level to be viewed. The levels are shown for each of the two channels being used by the unit. The second channel can be viewed by turning the rotary control. Background levels are shown in - dB.

Front Display ◉ **Hub/RCC Options** ◉ **Hub / RCC Status** ◉ *Select Desired Device No* ◉ **Background Level**

Radio Channels

This menu allows you to view the radio channels currently used by the Radio Hub and Radio Cluster Communicators.

Front Display ◉ **Hub/RCC Options** ◉ **Hub / RCC Status** *Select Desired Device No* ◉ **Radio Channels**

Ident

This menu allows the units unique ident number to be viewed.

Front Display ◉ **Hub/RCC Options** ◉ **Hub / RCC Status** ◉ *Select Desired Device No* ◉ **Ident**

Software Version

This menu allows the software version to be viewed.

Front Display ◉ **Hub/RCC Options** ◉ **Hub / RCC Status** ◉ *Select Desired Device No* ◉ **Software Version**

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   26

5.6 Radio Channels

This menu allows you to view or alter the frequency channels currently used by the system. NOTE: Alterations to the Radio Hub and RCC communication channels can only be undertaken when no RCC's are allocated to the system. Alterations to the RCC and Device communication channels can only be undertaken when no devices are allocated to that particular RCC.

This can be achieved either manually or automatically. Two channels are required to be selected for the Radio Hub to RCC communication path and two separate channels for the Device to each RCC communication path. It is not possible to select the same channels for these communication paths. When selecting the radio channels, one channel must be from the Low Band range and the other must be from the High Band range. This will ensure a minimum of 100 KHz spacing between channels. The Radio Channels used to communicate between the Radio Hub and the RCC's are factory set. It is however recommended that it is re-configured to suit the sites environment. This must be performed before any RCC'S are added to the system. The Radio Channels used to communicate between the Devices and the RCC's are also factory set. It is however recommended that it is re-configured to suit the sites environment. This must be performed before any devices are added to the system. An example of channel allocation is shown in the next section.

Front Display ⭕ **Radio Channels**

32 channels are available for use on the system and these are as follows;

Low Bands		High Bands
Low Band 1		**High Band 1**
Ch1: 868.047 MHz		Ch17: 868.749 MHz
Ch5: 868.147 MHz		Ch21: 868.849 MHz
Ch9: 868.248 MHz		Ch25: 868.949 MHz
Ch13: 868.348 MHz		Ch29: 869.049 MHz
Low Band 2		**High Band 2**
Ch2: 868.072 MHz		Ch18: 868.774 MHz
Ch6: 868.173 MHz		Ch22: 868.874 MHz
Ch10: 868.273 MHz		Ch26: 868.974 MHz
Ch14: 868.373 MHz		Ch30: 869.075 MHz
Low Band 3		**High Band 3**
Ch3: 868.097 MHz		Ch19: 868.799 MHz
Ch7: 868.198 MHz		Ch23: 868.899 MHz
Ch11: 868.298 MHz		Ch27: 869.000 MHz
Ch15: 868.398 MHz		Ch31: 869.100 MHz
Low Band 4		**High Band 4**
Ch4: 868.122 MHz		Ch20: 868.824 MHz
Ch8: 868.223 MHz		Ch24: 868.924 MHz
Ch12: 868.323 MHz		Ch28: 869.024 MHz
Ch16: 868.423 MHz		Ch32: 869.125 MHz

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   27

Multiple RCC Channel allocation example:-

The example below shows a multiple RCC installation using different frequency channels. The channels used in the example are colour coded and also shown in the table below. Having a system setup in this way ensures the two device channels used for each RCC are taken from the low and from the high band and are not duplicated. The system setup in this way also shows that the Radio Hub to RCC channels are selected from the low and high bands are also not duplicated across the system.
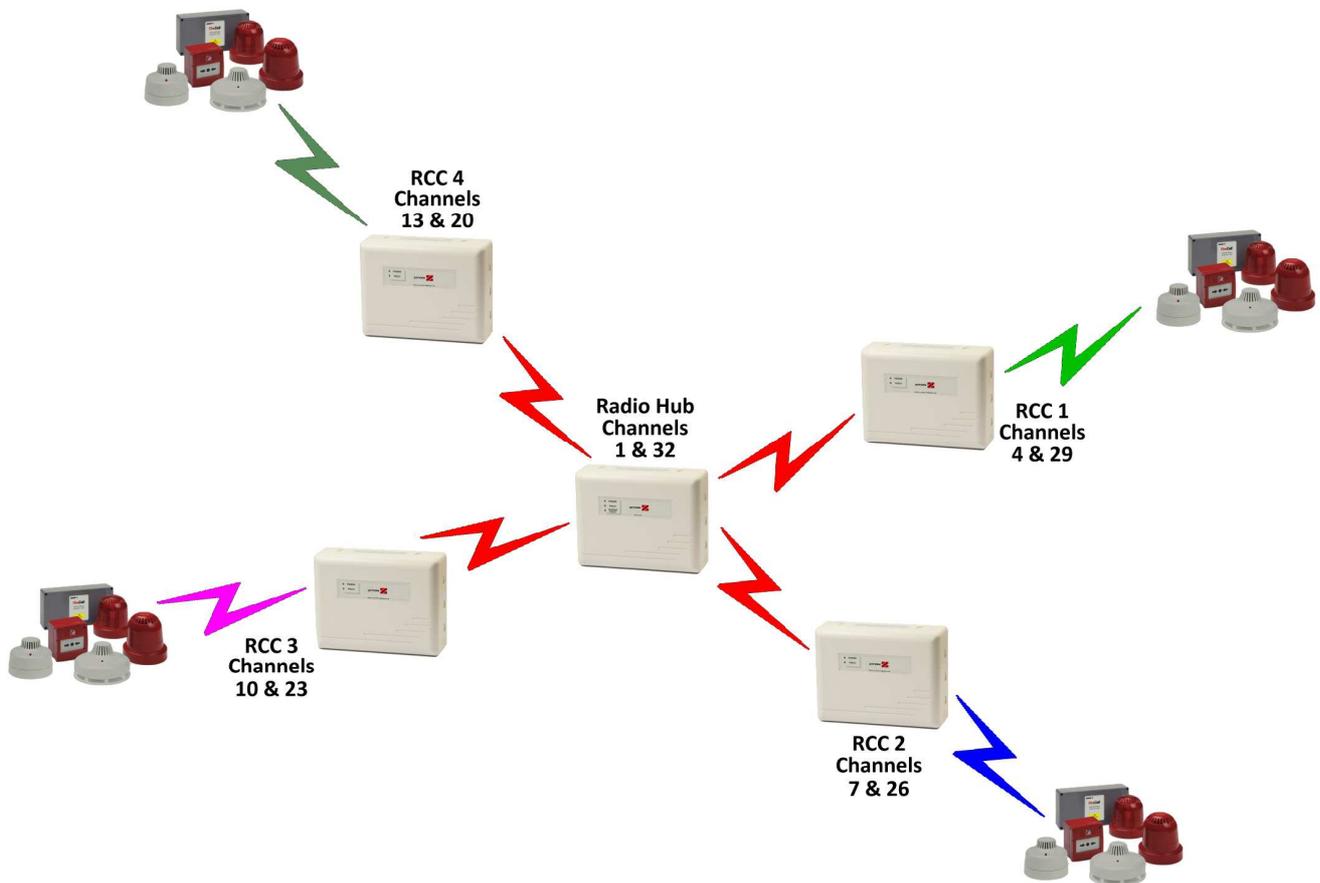
Low Bands			High Bands	
Low Band 1			**High Band 1**	
Ch1: 868.047 MHz	Radio Hub to all RCC's		Ch17: 868.749 MHz	
Ch5: 868.147 MHz			Ch21: 868.849 MHz	
Ch9: 868.248 MHz			Ch25: 868.949 MHz	
Ch13: 868.348 MHz	RCC 4 to Devices		Ch29: 869.049 MHz	RCC 1 to Devices
Low Band 2			**High Band 2**	
Ch2: 868.072 MHz			Ch18: 868.774 MHz	
Ch6: 868.173 MHz			Ch22: 868.874 MHz	
Ch10: 868.273 MHz	RCC 3 to Devices		Ch26: 868.974 MHz	RCC 2 to Devices
Ch14: 868.373 MHz			Ch30: 869.075 MHz	
Low Band 3			**High Band 3**	
Ch3: 868.097 MHz			Ch19: 868.799 MHz	
Ch7: 868.198 MHz	RCC 2 to Devices		Ch23: 868.899 MHz	RCC 3 to Devices
Ch11: 868.298 MHz			Ch27: 869.000 MHz	
Ch15: 868.398 MHz			Ch31: 869.100 MHz	
Low Band 4			**High Band 4**	
Ch4: 868.122 MHz	RCC 1 to Devices		Ch20: 868.824 MHz	RCC 4 to Devices
Ch8: 868.223 MHz			Ch24: 868.924 MHz	
Ch12: 868.323 MHz			Ch28: 869.024 MHz	
Ch16: 868.423 MHz			Ch32: 869.125283 MHz	Radio Hub to all RCC's

RCC ➜ RCC Ch

Once entered, options for currently used, auto select and manual selection of channels will be available. To check what channels are being used for the RCC to RCC and to the Hub communication path the currently used menu can be entered and scrolled through to show Channels currently being used.

Front Display ⟲ **Radio Channels** ⟲ **RCC-> RCC Ch** ⟲ **Currently Used**

If the two radio channels are required to be selected automatically the Auto select option should be selected. This will allow a time duration to be set between 1-60 mins. In this time the frequency channels will be scanned and at the end of the timer the two best channels for use will be selected. This option must only be undertaken if no RCC's are on the system and is not allowed if an RCC has already been allocated to the Radio Hub.

Front Display ⟲ **Radio Channels** ⟲ **RCC-> RCC Ch** ⟲ **Auto Select**

If the two radio channels are required to be selected manually the Manual select option should be selected. Care must be taken to select one channel from the High band and one from the Low band as described in the Radio Channels section. This option must only be undertaken if no RCC's are on the system and is not allowed if an RCC has already been allocated to the Radio Hub.

Front Display ⟲ **Radio Channels** ⟲ **RCC-> RCC Ch** ⟲ **Manual Select**

For example:-

Radio Hub to RCC Communication path **Low Band Ch1 High Band Ch32**

Device ➜ RCC Ch

Once entered, options for currently used, auto select and manual selection of channels will be available. To check what channels are being used for the Device to RCC communication path the currently used menu can be entered and scrolled through to show Channels currently being used for each RCC.

Front Display ⟲ **Radio Channels** ⟲ **Device-> RCC Ch** ⟲ **Currently Used** ⟲ *Select desired RCC number*

If the two radio channels are required to be selected automatically the Auto select option should be selected. This will allow a time duration to be set between 1-60 mins. In this time the frequency channels will be scanned and at the end of the timer the two best channels for use will be selected. This option can only be undertaken if no Devices are already added to the RCC.

Front Display ⟲ **Radio Channels** ⟲ **Device-> RCC Ch** ⟲ **Auto Select**

If the two radio channels are required to be selected manually the Manual select option should be selected. Care must be taken to select one channel from the Low band and one from the High band as described in the Radio Channels section. This option can only be undertaken if no Devices are already added to the RCC.

Front Display ⟲ **Radio Channels** ⟲ **Device-> RCC Ch** ⟲ **Manual Select**

For example:-

Device to RCC Communication path **Low Band Ch 4 High Band Ch 29**

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   29

5.7 Advanced

Within this menu, a selection of advanced options are available.
Front Display ⟳ **Advanced**

Change Address

This menu allows the Loop number and address of a device to be changed if required.
Front Display ⟳ **Advanced** ⟳ **Change Address**

Device ➔ RCC Listing

This menu allows you to view all of the devices assigned to each RCC. Once the desired RCC has been selected, devices can be viewed by scrolling through the list of devices.
Front Display ⟳ **Advanced** ⟳ **Device ➔ RCC Listing**

Global Batt Stat

This menu allows the radio devices battery statuses to be viewed. The devices are listed in loop and address order.

Each device will show the status of its two battery packs. The battery status information is displayed as follows;

   P1 and a full battery icon – this indicates a good battery voltage is present in Pack 1.

   P1 and a half full battery icon – this indicates the battery voltage is low in Pack 1 and is a 30 day warning indication.

   P1 and an X symbol – this indicates a battery from Pack 1 is missing.

   P2 and a full battery icon – this indicates a good battery voltage is present in Pack 2.

   P2 and a half full battery icon – this indicates the battery voltage is low in Pack 2 and is a 30 day warning indication.

   P2 and an X symbol – this indicates a battery from Pack 2 is missing.
Front Display ⟳ **Advanced** ⟳ **Global Batt Stat**

Global Sig Stat

This menu will display the signal level in dB's for each device and RCC over a 24 hour period. This is listed in Loop and Address Number order. After the system has been running for a 24 hour period the device signal levels should display 24dB or above and the RCC signal levels should displayed 20dB or above.   If any devices are under the signal level requirements check the 'Flowchart On How to Improve Device Signal Levels' section for guidance.
Front Display ⟳ **Advanced** ⟳ **Global Sig Stat**

Individual Test

In this menu, output tests can be performed on individual devices. This will allow the LED's to be turned on for detectors and call points, individual sounder operation and relay output operation on Input /Output units.
Front Display ⟳ **Advanced** ⟳ **Individual test**

Start Fast Test

In this menu, loops can be entered into fast test for ease of testing. This allows the detectors on the selected loops to be triggered into an alarm condition quicker than normal. The led on the device will flash to indicate it is in this fast test mode. A time period of between 1 and 30 minutes is selectable which decrements and is then re-generated on a fire alarm event. The devices automatically come out of fast test mode when the timer expires or the fast test mode is exited.
Front Display ⟳ **Advanced** ⟳**Start Fast Test**

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   30

RCC Comms Path

This menu allows you to view to path of communication between Radio Cluster Communicator (RCC) to the Radio Hub whether it is direct from the RCC to the Radio Hub or from the RCC to the Radio hub via another RCC. The loop number and address number is shown along with the number of hops the RCC uses to communicate to the Hub. Pressing the rotary control with the required RCC shown will then show the RCC or Hub that particular RCC is communicating to.

Front Display ⟳ **Advanced** ⟳ **RCC Comms Path**

Chg RCC Comms Path

This menu allows you to change to path of communication between Radio Cluster Communicator (RCC) to the Radio Hub whether it is direct from the RCC to the Radio Hub or from the RCC to the Radio Hub via an RCC.

Front Display ⟳ **Advanced** ⟳ **Chg RCC Comms Path**

Replace RCC

This menu allows you to replace the RCC with a new unit.

Front Display ⟳ **Advanced** ⟳ **Replace RCC**

Sounder Mode

This menu allows the auto silencing of radio sounders to be programmed. Available options are Continuous which disables any auto silencing rules and 30 min cut off. The default setting is to 30 min cut off which will turn all radio sounders off after 30 minutes to conserve battery life. Any subsequent fire alarm activations will re-activate the sounders again.

Front Display ⟳ **Advanced** ⟳ **Sounder Mode**

Call In Verify

This menu allows the device call in time to be changed via pin entry. Should a device call in not be received within the selected time, a disconnected fault will be displayed until a subsequent call in is received. The default is set to 5 minute call in time.

Front Display ⟳ **Advanced** ⟳ **Call in Verify**

Audio Detect

This menu allows the No Sndr Audio fault reporting to be selectable between On and Off on the interface and the Control Panel. If On is selected the Analogue value slot 3 244 and slot 6 152 which is the No Sndr Audio fault description will be displayed on the interface and the Control Panel if this fault type occurs on a sounder device. If Off is selected the above fault will not be displayed on the interface or the Control Panel. The default is set to Off as there are no requirements to display this message type.

Front Display ⟳ **Advanced** ⟳ **Audio detect**

Batt Smooth

This menu allows the Battery Low fault reporting to be selectable so verification of the low battery can be ascertained before the fault Analogue Value Slot 6 213 Fault type is displayed on the interface and the Control Panel. Available smoothing options are selectable between N = No smoothing and 1-5 days smoothing in one day steps. If this feature is implemented the systems performance is not compromised and the 30 day battery low warning is still achieved. The default is set to N so no smoothing is implemented and the fault type is displayed instantly.

Front Display ⟳ **Advanced** ⟳ **Batt Smooth**

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   31

6.0 SYSTEM ANALOGUE VALUES

Product Type	Condition	Slot 1/ Val 1	Slot 2/ Val 2	Slot 3 / Val 3	Slot 4	Slot 5 / Val 4	Slot 6 / Val 5
Hub	Normal Low BG	149	181	244	N/A	90	244
Hub	Normal Medium BG	149	181	244	N/A	85	N/A
Hub	Normal High BG	149	181	244	N/A	80	N/A
Hub	Normal V High BG	149	181	244	N/A	75	N/A
Hub	Aerial Tamper	149	181	244	N/A	213	118
Hub	CH 1 RF Detected	149	181	244	N/A	90	244
Hub	CH 2 RF Detected	149	181	244	N/A	090	244
Hub	CH 1+2 RF Detected	149	181	244	N/A	181	118
All Radio Devices	Good Signal	N/A	N/A	N/A	N/A	90	N/A
All Radio Devices	Medium Signal	N/A	N/A	N/A	N/A	85	N/A
All Radio Devices	Low Signal	N/A	N/A	N/A	N/A	80	N/A
All Radio Devices	Signal Strength Caution	N/A	N/A	N/A	N/A	75	N/A
All Radio Devices	No Radio Comms	N/A	N/A	N/A	N/A	20	N/A
All Radio Devices	Tamper	N/A	N/A	N/A	N/A	N/A	181
Radio Detector	Head Missing	N/A	N/A	N/A	N/A	N/A	118
Radio Sounder	Sounder Missing	N/A	N/A	244	N/A	N/A	118
All Radio Devices	Battery Low	N/A	N/A	N/A	N/A	N/A	213
All Radio Devices	Battery Missing	N/A	N/A	N/A	N/A	N/A	20
Radio Sounder	No Sndr Audio	N/A	N/A	244	N/A	N/A	152
Radio Detector	Head Fault	N/A	N/A	244	N/A	N/A	152
Radio I/O Unit	Open/Short Circuit	N/A	N/A	N/A	N/A	N/A	118
Radio Detector	In Fire	N/A	N/A	N/A	N/A	181	N/A
Manual Callpoint	In Fire	N/A	N/A	N/A	N/A	181	N/A
Radio I/O Unit	In Fire	N/A	N/A	N/A	N/A	213	N/A
Radio Detector	Pre Alarm	N/A	N/A	N/A	N/A	152	N/A

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   32

6.1 Signal Level Requirements

To ensure the signal levels for each device and each RCC are at an acceptable level the Global Sig Stat menu should be checked. This menu will display the signal level in dB's for each device and RCC over a 24 hour period. This is listed in Loop and Address Number order. After the system has been running for a 24 hour period the device signal levels should display 30dB or above and the RCC signal levels should displayed 20dB or above.   If any devices are under the signal level requirements check the 'Flowchart On How to Improve Device Signal Levels' section for guidance.

Front Display ◯ **Advanced** ◯ **Global Sig Stat**

An example of a display showing the levels for a system which does have the required signal levels is shown below:-

FireCell System Setup	Loop Number		Shown on Menu Display	Acceptable Level
Radio Hub	Loop 1 Address 1		N/A	
Radio Cluster Communicator	Loop 1 Address 2		L1 A002 21dB	✓
Optical Detector	Loop 1 Address 3		L1 A003 35dB	✓
Optical Detector	Loop 1 Address 4		L1 A004 45dB	✓
Manual Callpoint	Loop 1 Address 5		L1 A005 35dB	✓
Optical Detector	Loop 1 Address 6		L1 A006 38dB	✓
Optical Detector	Loop 1 Address 7		L1 A007 30dB	✓
Manual Callpoint	Loop 1 Address 8		L1 A008 32dB	✓
Optical Detector	Loop 1 Address 9		L1 A009 31dB	✓
Heat Detector	Loop 1 Address 10		L1 A010 45dB	✓
Optical Detector	Loop 1 Address 11		L1 A011 45dB	✓
Multisensor Detector	Loop 1 Address 12		L1 A012 45dB	✓
Optical Detector	Loop 1 Address 13		L1 A013 42dB	✓
Sounder	Loop 1 Address 14		L1 A014 38dB	✓
Sounder	Loop 1 Address 15		L1 A015 45dB	✓
Sounder Beacon	Loop 1 Address 16		L1 A016 30dB	✓

An example of a display showing the levels for a system which does not have the required signal levels is shown below:-

FireCell System Setup	Loop Number		Shown on Menu Display	Acceptable Level
Radio Hub	Loop 1 Address 1		N/A	
Radio Cluster Communicator	Loop 1 Address 2		L1 A002 19dB	✗
Optical Detector	Loop 1 Address 3		L1 A003 35dB	✓
Optical Detector	Loop 1 Address 4		L1 A004 45dB	✓
Manual Callpoint	Loop 1 Address 5		L1 A005 25dB	✓
Optical Detector	Loop 1 Address 6		L1 A006 28dB	✓
Optical Detector	Loop 1 Address 7		L1 A007 30dB	✓
Manual Callpoint	Loop 1 Address 8		L1 A008 32dB	✓
Optical Detector	Loop 1 Address 9		L1 A009 31dB	✓
Heat Detector	Loop 1 Address 10		L1 A010 25dB	✓
Optical Detector	Loop 1 Address 11		L1 A011 45dB	✓
Multisensor Detector	Loop 1 Address 12		L1 A012 45dB	✓
Optical Detector	Loop 1 Address 13		L1 A013 42dB	✓
Sounder	Loop 1 Address 14		L1 A014 38dB	✓
Sounder	Loop 1 Address 15		L1 A015 45dB	✓
Sounder Beacon	Loop 1 Address 16		L1 A016 20dB	✗

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   33

6.2 Flowchart on How to Improve Device Signal Levels

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Ziton Radio Hub – 4 Loop Programming Manual (Iss1)   34

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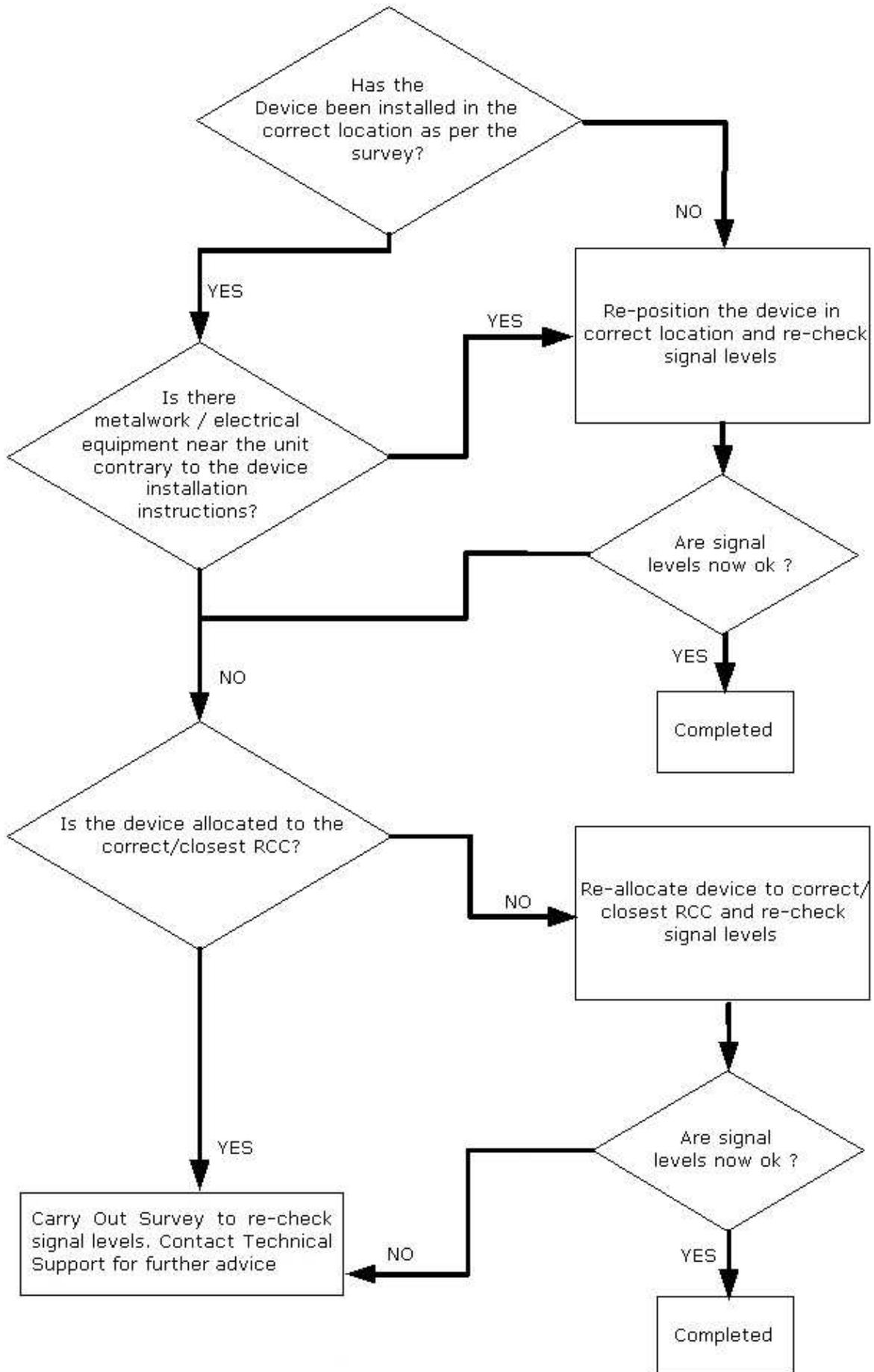
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