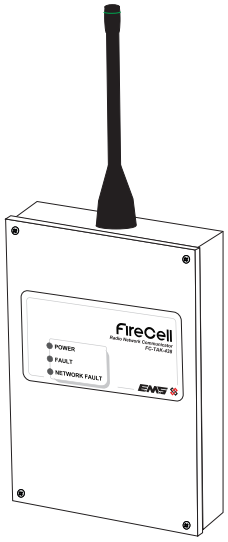
FireCell

Radio Network Communicator For Taktis®

Programming Guide

Contents

1 Introduction



The Radio Network Communicator (RNC) for Taktis® is for use with Taktis control panels only and is clearly marked on the front label with 'FC-TAK-438', to indicate that Taktis compatible software is installed.

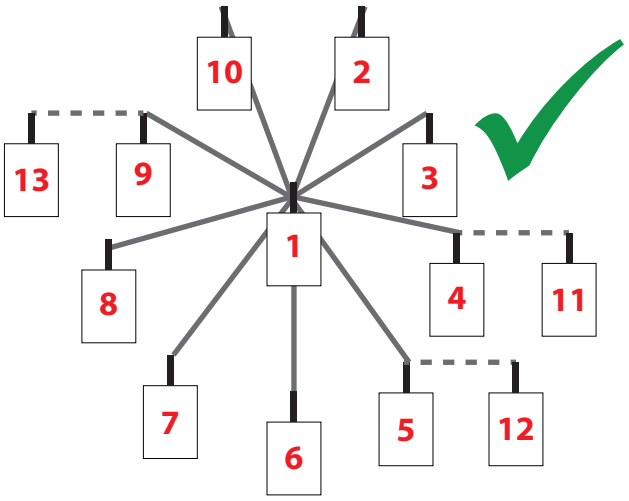
The RNC For Taktis part number is FC-TAK-438-001.

An alternative RNC version is also available for use with Syncro and Syncro AS panels. Please contact EMS technical support for further details.

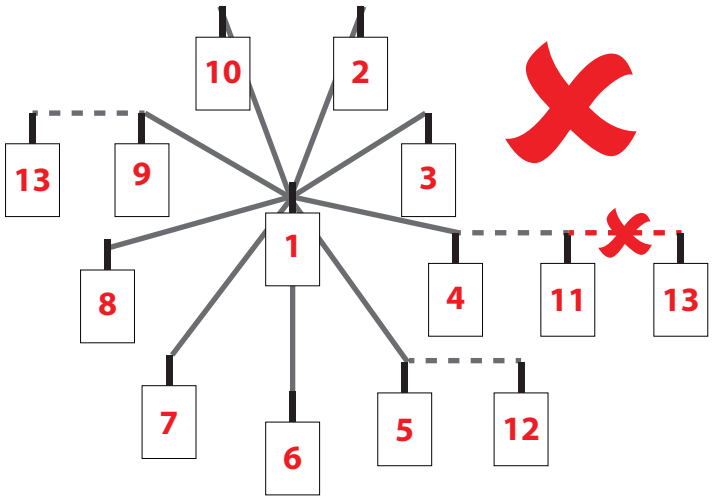
System Operation

RNCs allow 16 Taktis control panels to be wireless networked.

All RNCs report to one central master RNC, which is Node 1 (Panel 1). Should range extension be required, nodes can be programmed to repeat a node (max 3 repeaters per system).



Example 13 panel network, with node 4 set as a repeater for node 11, node 5 set as a repeater for node 12 and node 9 set as a repeater for node 13.



As previous example, however a repeated node MUST NOT be selected as a repeater, as detailed above.

Note: Before radio networks are programmed, ensure all RNCs are correctly installed as per the site survey and mounting location guidelines to achieve optimum wireless performance. See the Taktis RNC Installation Guide (MK281) for more information.

About This Document

This document explains the RNC menus and basic operation. This document also details steps with screens shots on how the system is programmed. A radio network will be supplied unprogrammed unless otherwise specified.

Note: this revision is intended for use with RNCs for Taktis only, as other versions of RNC menu structures may vary.

2 Menu Structure Screen Shots & Explanations

Front Screen Overview

The RNC will show 1 of 5 front screens once powered.

Screen 1

Unprogrammed RNC front screen:

Unprogrammed

Screen 2

Programmed but un-configured RNC front screen:

Not Configured

Screen 3

Programmed and configured RNC node 1 front screen, with no faults present:

Node 01 TOT16

Or

Programmed and configured RNC node 2 front screen, with no faults present:

Node 02 TOT16

Or

Programmed and configured RNC node 2 front screen, that has been configured as a repeater, with no faults present:

Node 02 R TOT16

Screen 4

Programmed and configured RNC node 1, with no radio comms front screen:

Node 01 Offline

Or

Programmed and configured RNC node 2, with no radio comms front screen:

Node 02 Offline

Screen 5

Programmed and configured RNC node 1, with fault condition* front screen:

Node 01 Fault →

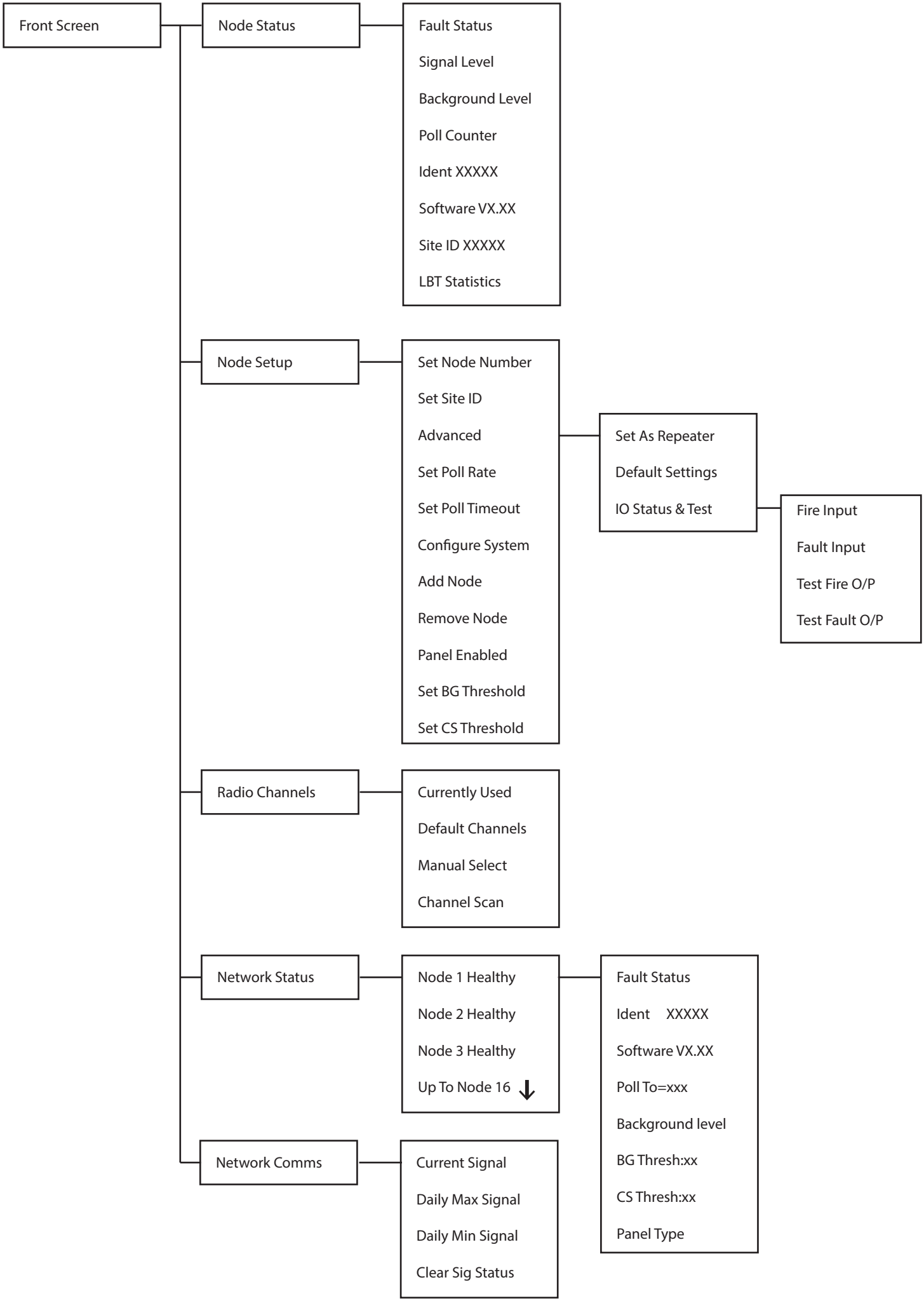
Or

Programmed and configured RNC node 2, with fault condition* front screen:

Node 02 Fault →

**** additonal RNC fault monitoring is available, via the RNC's fault output. Local RNC node faults as detailed on 'Screen 5 'above (such as an RNC aerial tamper fault) can be reported via the output and subsequently connected to an input at the Taktis control panel. Refer to the RNC For Taktis Installation Guide (MK281) for more information.***

3 Menu Overview



4 Node Status Overview

The 'Node Status' menu allows the user to view the current status of the RNC. Faults, Signal and Background Levels, Missed Communication Polls, Identification Number and Software Versions can all be viewed from this menu.

Node Status

The Node Status sub menus are:-

1. Fault Status – Shows all device faults.

Fault Status

2. Signal Level – Shows the radio signal levels of the best communication path in dB.

Signal Level

3. Background Level – Show the background interference levels in dB. Back ground levels vary between 0dB (most interference) and -120dB (no interference).

Background Level

4. Poll Counter – Shows how many times the RNC has missed communication polls, within a time period of 24 hours.

Poll Counter

5. Ident – Shows the individual identification number of the RNCs.

Ident XXXXX

6. Software – Shows the RNC's current software version.

Software VX.XX

7. Site ID – Shows the system's Site ID.

Site ID XXXXX

8. LBT Statistics – The transmission protocol implements a 'listen before talk' process, to minimise the risk of packet loss and maximise network transmission success.

LBT Statistics

Each time that the RNC's background interference level meets or exceeded its 'Carrier Sensor threshold', transmissions will be stopped until the background interference level has sufficiently cleared. Information on the 'Carrier Sensor Threshold' can be found within the 'Set BG Threshold' section of the 'Node Setup Overview'.

The 'LBT Statistics' screen will consist of 3 values. For example:

0001 0033 0005

Where the first four digits represent the number of times the 'Carrier Sensor Threshold' has been permanently exceeded for 2 seconds before the message sent.

The middle four digits represent the amount of times the 'Carrier Sensor Threshold' has been intermittently exceeded for 3 seconds before the message sent.

The final four digits represent the number of times the 'CS threshold' was constantly exceeded for 10 seconds, before the 'listen before talk' feature was disabled and the message sent. The 'Listen Before Talk' feature will be disabled until the background interference level has sufficiently cleared.

Note; values are recorded over a rolling 72 hour period.

5 Node Setup Overview

The 'Node Setup' menu allows the user to program an RNC to the system. Node Numbers, Site ID, Communication Poll Rate and Timeout settings can be programmed or changed in this menu.

Node Setup

The Node Setup sub menus are:-

1. Set Node Number – Allows the user to setup and chose RNC's node number. There must be an RNC set to node number 1 for the system to operate correctly.

Set Node Number

2. Set Site ID – Allows the user to set up a Network Number. Each site will have its own Site ID; this will stop two neighbouring sites from interfering with each other. The Network Number must be the Identification Number taken from RNC node 1.

Set Site ID

This can be found on the small barcode label on the unit. Using the identification number taken from RNC node 1 will ensure no two sites have the same ID.

3. Advanced - the Advanced sub menus are:

Advanced

Repeater - Allows the node to be selected, which this node will repeat messages for, therefore extending the range of the system.

Repeater

Default - Returns the node to factory settings.

Default

IO Status & Test - the IO Status & Test sub menus are:

IO Status & Test

Fire Input - Allows the status of the fire input to be checked.

Fire Input

Fault Input - Allows the status of the fault input to be checked.

Fault Input

Test Fire O/P - Allows the status of the fire output to be toggled between set (fire) and clear conditions, for testing purposes.

Test Fire O/P

Test Fault O/P - Allows the status of the fault output to be toggled between set (fault) and clear conditions, for testing purposes.

Test Fault O/P

4. Set Poll Rate – Allows the user to program the communication poll rate. A communication poll is a message that's sent around the system to prove the communication paths are operational. The time is set to 2 minutes as standard and can set between 1 and 60 minutes.

Set Poll Rate

5. Poll Timeout – Allows the user to program the communication timeout period. When the communication timeout timer expires, a 'No Signal' fault is generated. If a communication poll is seen the poll timeout timer is reset. The poll timeout is set to 5 minutes as standard and can be set between 5 and 120 minutes.

Set Poll Timeout

6. Configure System – Allows the user to add one or all of the RNCs to the system. This can be carried from any RNC provided all necessary programming has been carried out.

Configure System

7. Add Node – Allows the user to add an individual RNC to the system.

Add Node

8. Remove Node – Allows the user to remove an RNC from system. This must be carried out from a node that is online and communicating with the system.

Remove Node

9. Panel Enabled – Should only be changed when the RNC is not connected to a control panel.

Panel Enabled ->

10. Set BG Threshold – Allows the user to alter the background threshold that will prompt a background fault when the set level is met. Note; this would normally be set 20dB higher than the background (background found within the 'Node Status' menu). For example, with a background level found to be at a level of -110, we would set the BG threshold to -90.

Set BG Threshold

11. Set CS Threshold – Allows the user to alter the carrier sensor threshold, so when the ambient background interference level is met, the RNC will halt transmissions until the background interference level has suitably cleared.

Set CS Threshold

Note; this would normally be set 3dB Higher than the BG Threshold and 23dB higher than the background. For example, with a background level found to be at a level of -110, and the BG Threshold is set to -90, we would set the CS threshold to -87dB.

Note: The Site ID 1, Poll Rate, Poll Timeout and Baud Rate must be programmed the same on all RNCs across the Network.

6 Radio Channels Overview

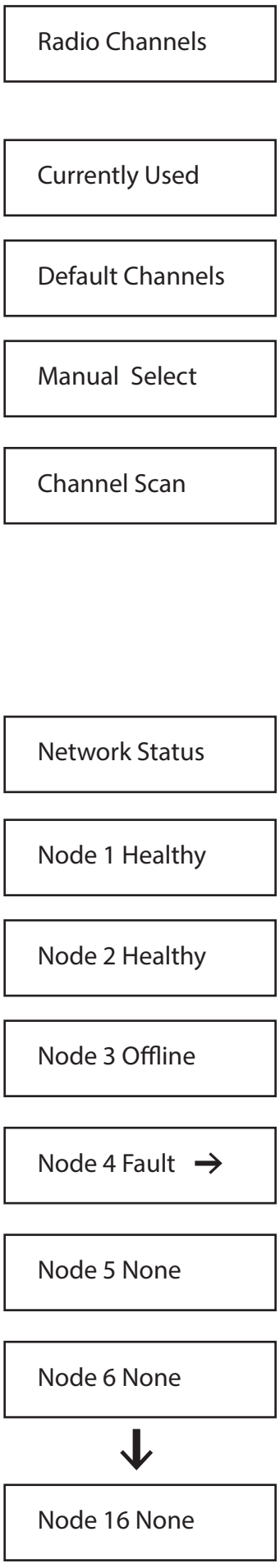
The 'Radio Channels' menu allows the user to program the frequency of the radio network. Two of 32 radio channels can be programmed between the frequencies of 458.5125 and 458.9375. As default, the radio channels will be automatically programmed when the 'Set Site ID' is programmed.

1. Currently Used – Allows the user to view the currently used radio frequency channels.

2. Default Channels – Allows the user to default the frequency channels, which is dependant on what the Site Node 1 ID is set to.

3. Manual Select – Allows the user to manually select operational frequency channels. There are 32 selectable channels.

4. Channel Scan – Allows the user to scan the network and allocate the best frequency channels for the system to use.
   Note: This feature can only be used once the system is running.



7 Network Status Overview

The 'Network Status' menu allows the user to view the status of the other RNCs across the system in a list format.

Note; All 16 RNC nodes will be listed even if not in use.

8 Network Comms Overview

The 'Network Comms' menu allows the user to view and monitor the radio signal strengths being received from all RNCs across the system.

Network Comms

1. Current Signal - Allows the user to view the last signal received from all RNC nodes.

Current Signal

2. Daily Max Signal – Allows the user to view the highest radio signals received from all RNC nodes, over the last 24 hour period.

Daily Max Signals

3. Daily Min Signal – Allows the user to view the lowest radio signals received from all RNC nodes, over the last 24 hour period.

Daily Min Signals

4. Clear Sig Status – Allows the user to reset all the signal levels to 0.

Clear Sig Status

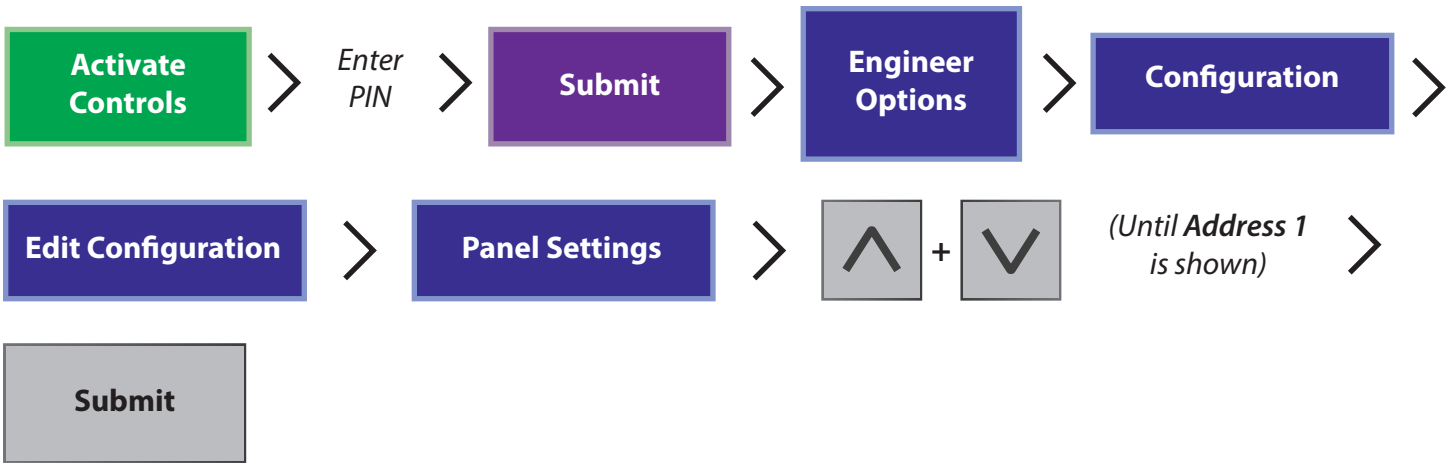
9 Setting Up An Unprogrammed Radio Network

Note; if the system has been supplied pre-programmed, go straight to section 12.

A radio network must have at least 2 RNC nodes to communicate. RNCs connect directly into the control panel, via their RS485 network connection.

The control panel 1's network address must be set to 1.

With the write switch enabled and the control key switch in the enabled position;



Once the panel is set up, we can now program the RNC node 1 - see overleaf.

First RNC Programming Steps

RNC node 1 should be programmed first in the following way:-

Setup Node Number

From the front screen:	Unprogrammed
Press the **Enter** Key to access the menus:	Node Status
Press the **Down** Key to display:	Node Setup
Press the **Enter** Key:	Set Node Number
Press the **Enter** Key to display:	New Num = 01 Y?
Press the **Enter** Key:	Updated
Keep pressing the **Back** Key to return to the front screen:	Not Configured

The RNC node 1 has now been set as node address 1. When the RNC is set as node address 1, the site ID is automatically set as the unit's unique ident number. Default radio channels will also be automatically selected.

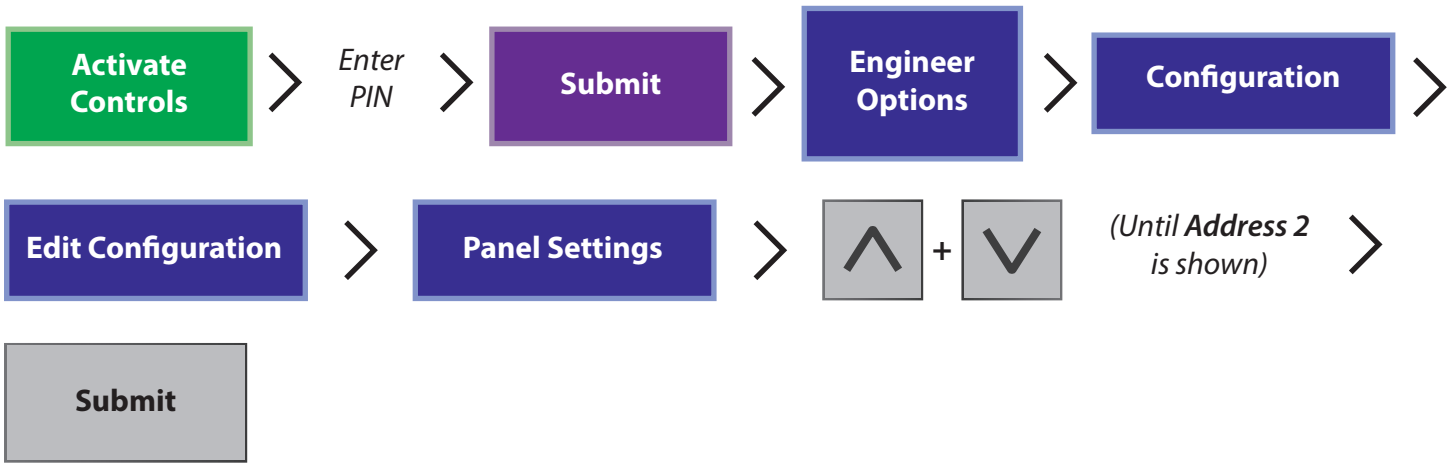
Before leaving RNC node 1, we must record the site ID. This will need to be programmed at all RNC nodes on the system.

Note: The RNC's ident number) can be found on the RNC's PCB, on the ident barcode label For example id '0C03B' is shown:

9 Setting Up An Unprogrammed Radio Network

The control panel 2's network address must now be set to 2.

With the write switch enabled and the control key switch in the enabled position;



Once the panel is set up, we can now program the RNC node 2 .

RNC node 2 can now be programmed in the following way:-

Setup Node Number

From the front screen:	Unprogrammed
Press the **Enter** Key to access the menus:	Node Status
Press the **Down** Key to display:	Node Setup
Press the **Enter** Key to show:	Set Node Number
Press the **Enter** Key to display:	New Num = 01 Y?
Press the **Up** Key to show:	New Num= 02 Y?
Press the **Enter** Key to display:	Updated
Press the **Back** Key to show:	Set Node Number
Press the **Down** Key to show:	Set Site ID
Press the **Enter** Key to show:	ID= 00000 Chg N?

Press the **Down** Key so **Y** is shown:

ID= 00000 Chg **Y**?

Press the **Enter** Key:

ID= **0**0000 Chg N?

Using the **Up**, **Down** and **Enter** Keys, type in the **Site Node 1 ID**:

ID= 0C03B Chg **Y**?

Note: This number should have been previously noted at Node 1 and from the barcode on RNC node 1.

Press the **Down** Key so **Y** is shown:

ID= 0C03B Chg **N**?

Press the **Enter** Key:

Updated

Press the **Back** Key until the front screen is shown:

Not Configured

Note: Repeat this on all RNCs across the system to ensure all 'Site IDs' match and also network card & node addresses are set accordingly between 3 and 16.

10 Configuring RNCs to the System

It is recommended that this feature is only used on an unconfigured system. When adding an RNC to the system, this should be done individually.

From RNC Node 1's front screen:	Not Configured
Press the **Enter** Key to access the menus:	Node Status
Press the **Down** Key to show:	Node Setup
Press the **Enter** Key to show:	Set Node Number
Press the **Down** Key until 'Configure System' is shown:	Configure System
Press the **Enter** Key to show:	Configure N?
Press the **Down** Key so **Y** is shown:	Configure Y?
Press the **Enter** Key to show:	Searching …01
Wait for screen to show 'Configured 01':	Configured 01
Press the **Back** Key until front screen is shown:	Node 01 TOT16

In the above example, we are viewing node 01 on a 16 node network.

11 View Which RNCs are Online

From the front screen:	Node 01 TOT16
Press the **Enter** Key to access the menus:	Node Status
Press the **Down** Key until the display shows:	Network Status
Press the **Enter** Key to show:	Node 1 Healthy
Using the **Up** and **Down** keys scrolls through the nodes:	Node 2 Healthy

Press the **Back** Key until the front screen is shown.

12 Configuring an RNC as a Repeater

From the Front Screen (of the node that is to communicate with the repeater):	Node 02 TOT16
Press the **Enter** Key to access the menus:	Node Status
Press the **Down** Key until 'Node Setup' is shown:	Node Setup
Press the **Enter** Key to show:	Set Node Number
Press the **Down** Key until 'Advanced' is shown:	Advanced
Press the **Enter** Key to show:	Set As Repeater
Press the **Enter** Key to show:	For none Chg N?
Press the **Up** Key to show:	For none Chg Y?
Press the **Enter** Key to show:	Set none Chg Y?
Press the **Up** Key until the node that is to be repeated is shown:	Set N16 Chg Y?
Press the **Enter** Key to show:	Updated
Press the **Back** key, until the front screen is shown:	Node 02 R TOT16

13 Removing an RNC

From the Front Screen:	Node 01 TOT16
Press the **Enter** Key to access the menus:	Node Status
Press the **Down** Key until to show:	Node Setup
Press the **Enter** Key to show:	Set Node Number
Press the **Down** Key until 'Remove Node' is shown:	Remove Node
Press the **Enter** Key to show:	Node 1 Healthy
Using the **Up** and **Down** keys, scroll through the node list until the desired node is displayed:	Node 3 Healthy
Press the **Enter** Key:	Remove Node N?
Press the **Down** Key so **Y** is shown:	Remove Node Y?
Press the **Enter** Key and the screen will display:	Removed
Press the **Back** key, until the front screen is shown:	Node 01 TOT15

14 Adding An RNC

From the Front Screen of the node that you wish to add:

Not Configured

Press the **Enter** Key to access the menus:

Node Status

Press the **Down** Key until 'Node Setup' is shown:

Node Setup

Press the **Enter** Key to show:

Set Node Number

Press the **Down** Key until 'Remove Node' is shown:

Add Node

Press the **Enter** Key to show:

Join Network N?

Press the **Down** Key so Y is shown:

Join Network Y?

Press the **Enter** Key to show the following sequence:

Searching…

followed by...

Accepting…

followed by...

Node Added

Press the **Back** Key until the front screen is shown:

Node 03 TOT16

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