Rondish Company Limited

Nexus Call System

User Instructions

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1. PRODUCT OVERVIEW

Nexus is a wireless call system designed for various applications including nurse and emergency call, assisted living, elderly care homes, rapid deploy for hospitals, and bathroom alarms. The system integrates emergency alarm call, wander prevention, bed alarms for fall management, and mobile calling devices for residents to wear on their wrist or around the neck.

A tablet allows up to three calls to be displayed at a time, with higher priority calls automatically moved to the top of the alarm display. Priority levels include Call (lowest), Bath/Bed/Door, Emergency, and Code Blue (highest). If more than three calls happen to be active at the same time, the three highest priority events will be shown; and lower priority calls will display as events are reset, or can be seen by scrolling down the alarm screen. All events are logged with a record of event location, call type, time of trigger and duration.

Optional Over-Door lights show Call, Bath or Emergency status. Each light has an internal buzzer with adjustable volume, and can repeat the signal to greatly extend range and improve the reliability of wireless coverage.

Nexus is supervised for lost connections, fault or battery low; and a software watchdog will restart the application in the event of a system crash. A junction controller box goes even further and includes a hardware watchdog as the ultimate safety feature (available for Nexus 2.3.0 and higher).

Messaging options include remote monitor displays large or small, mobile phones and pagers.

1.1 Compatible Equipment

Model	Description	Image
NDP-21	Rugged Tablet • Operate Nexus as a desktop touch screen • Connect either DON-30 or ZP-01(M) to establish a wireless network for your facility • Docking station (DOCK-01) includes three USB ports for paging transmitter or external memory drive • Ethernet port allows networking multiple stations	
TVB-21	Control Box • Operate Nexus as a desktop computer or touch screen • Bluetooth compatibility for mouse and keyboard • Connect DON-30 or ZP-01(M) to establish a wireless network for your facility • Connect with GP2009TR to enable remote corridor displays and/or paging • Ethernet port allows network of multiple stations	
NCON-11	Junction Box • Includes TVB-21 • Includes GP2009TR • Connect DON-30 or ZP-01(M) to establish a wireless network for your facility • Surge protection and watchdog functionality to restart Nexus if system becomes unresponsive • Connects to touch screen monitor through USB connection.	
DON-30	Receiver Dongle • Links with ILB-21 for smaller areas • Suitable for individual wards, outpatient surgical centers, or small care homes.	
ZP-01(M) ZP-01(S)	Master Controller & Network Repeaters • ZP-01(M) Master connects with Rugged Tablet, Control Box or Junction Box to operate the system • ZP-01(S) Repeater expands wireless coverage of your system (up to 2km open space) • Allows use of bed monitoring, door monitoring, and patient pendants	

GP2009TR	Paging Transceiver • Signals to data pagers • Used to receive signals for remote displays • Alarm escalation to supervisor or neighboring wards	
GP2009N	Data Pager • Notifies nursing staff of active events • Alarm details match what is set on Nexus	
WCP-11C	Bedhead Call Point • Call and reset buttons • Double press sends Emergency call • RJ10 input for NEC-12 handset (shown) • Handset remove alert • Includes mounting screws • Replaceable CR2477 lithium batteries • Back plate available to cover 1-gang back boxes • Low battery indication	
NEC-12	Patient Handset • Call button for patient access from the bed • RJ10 plug connects with WCP-11C • USB break connection • Includes wall-mount bracket and screws	
WCP-11	Bathroom Call Point • Call and reset buttons • Pull cord with dual triangles • Includes mounting screws • Replaceable CR2477 lithium batteries • Back plate available (BP-01) to cover 1-gang back boxes • Low battery indication • Rated IP65	
NEC-05	Wireless Patient Handset • Call and reset buttons • Includes wall-mount bracket and screws • Uses 2 x AAA alkaline batteries • Low battery indication	
ILB-21	Over-Door Light • Dual-color LED light – shows RED for normal call devices or WHITE for bath units • Buzzer with adjustable volume • Call forward function to extend range • Includes wall-mount bracket and screws • Uses 6 x C-type alkaline batteries • Low battery indication	

TXP-11(V2)	Patient Transmitter • Mobile call button for active residents • Wearable as wristband or pendant • Man-down alert in case of falls (wristband only) • Replaceable CR2450 lithium battery • Low battery indication • Rated IP65	
DMS-21	DoorWatcher Sensor • Triggers audible and visual alert when an at-risk patient approaches a protected doorway • Configurable with door lock to restrict access or delay egress • Allows caregivers to escort patients through protected doors without alarming	
TXP-21	DoorWatcher Resident Tag • Faux leather with removable clasp • Triggers alert on DMS-21 if area matches • Low battery indication • Rated IP67	
NGM-21	CordFree Bed Monitor • Room controller for integrated falls management system • Pause & reset alarms • Works with bed/chair/floor sensormats • Motion sensor and door/window compatible • Uses 3 x AA alkaline batteries • Low battery indication	
TM-11(V3)	Transmitter Module • Insert into Cordless sensorpad or floor mat to connect with NGM-21 Cordfree monitor • 15 months battery life	
WMBP-20	Cordless Under-Mattress Sensorpad • Triggers alarm from patient bed exit • Paired with NGM-21 monitor • Invisible to residents for improved comfort • More hygienic than sensorpads that may come into contact with the skin • Durable and long-lasting • Low battery indication (from TM-11 transmitter module)	

CCP-01	Cordless Chair Sensorpad • Triggers alarm from patient chair exit • Paired with NGM-21 monitor • Durable and long-lasting • Low battery indication (from TM-11 transmitter module)	
CMAT-02	Cordless Floor Sensormat • Triggers alarm when stepped upon • Paired with NGM-21 monitor • Durable and long-lasting • Low battery indication (from TM-11 transmitter module)	
PIR-21	Motion Sensor • Narrow-angle detection for bedside use • Paired with NGM-21 monitor	

1.2 System Layout Options

Nexus uses a proprietary wireless format to direct signals from call points and sensory devices to a nurse station, where calls are displayed on the main Nexus panel. Once received, this panel can direct messaging to staff using a paging transmitter, where messages can be displayed on Remote displays, pagers or Android phones.

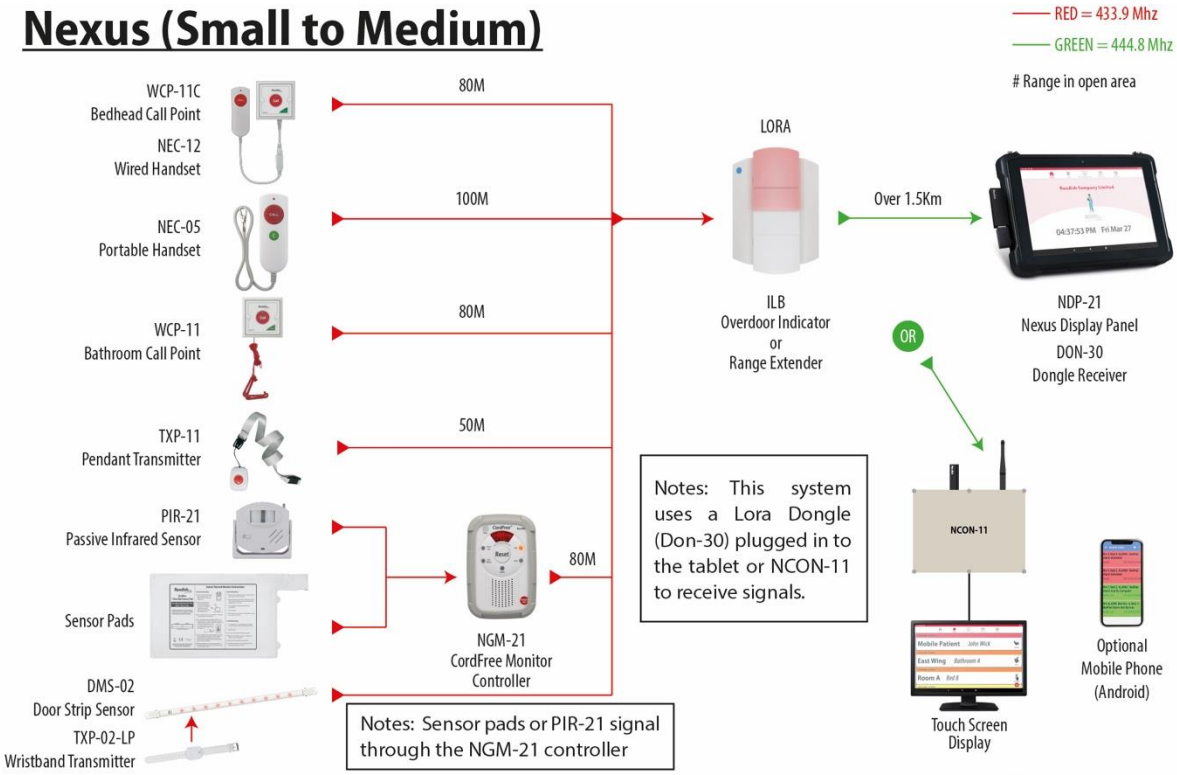
Receiving options are available to cover buildings of various sizes. Signals are brought into the Android device using a Receiver Dongle (DON-30) for smaller areas, or Master Controller and Network Repeaters (ZP-01(S)), which relay the call points and sensory devices status. When using Network Repeaters, signals can be “hopped” from one repeater to another to further extend the wireless coverage.

The following layout diagrams give an overview to the options available depending on the complexity and size of the building and type of equipment required.

1.2.1 Receiver Dongle & Over-Door Lights

Over-Door lights (ILB-21) receive local signals from a variety of calling units, and can either be configured as lights/sounder by reading into memory the calling unit, or configured as basic signal repeaters to extend system coverage. The ILB-21 communicates with a Receiver Dongle (DON-30) plugged into a Rugged Tablet (NDP-21), Nexus Control Box (TVB-21), or Nexus Junction Box (NCON-11).

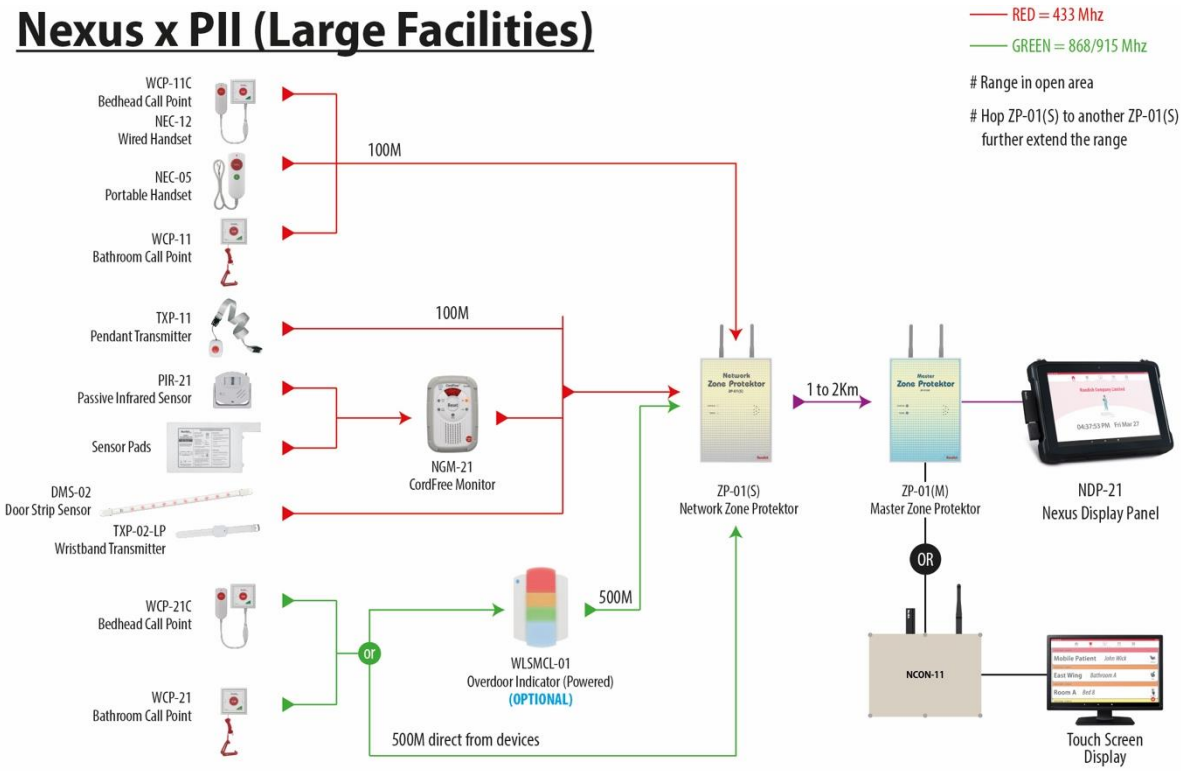
When used as a range extender the ILB-21 transmitter uses LoRa on a separate 400MHz channel to the calling device. When connecting the ILB-21 you can trigger a range by touching a magnetic key to the program point – this reduces the signal by 3bB to ensure the connection is secure. The open-air ranges of the devices are shown on the diagram below.



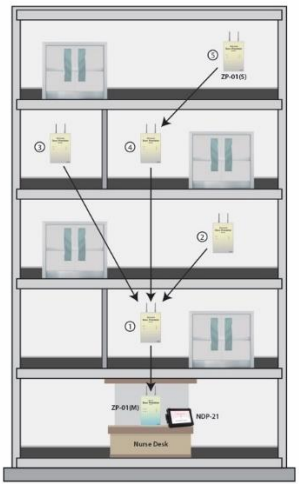
The ILB-21 can be battery operated with a standby life of 18 months – ideal for a fast deploy or bathroom alarms – or powered from a 12V supply with batteries used as backup.

1.2.2 Master & Network Repeaters

Medium to Large systems can be set up using a Master and Network Repeater (ZP-01(M) and ZP-01(S)) configuration. Each repeater has a range in excess of one mile in open space, and repeaters can be programmed to "hop" through other repeater units, allowing multiple floors or a campus of buildings to be covered.



Example: Multi-floor building



This example is a five storey building but similar procedure is used on each floor to optimize the coverage.

In this example would suggest setting ③ → ④ to improve RSSI level (Target)

Up to 3 hops can be used on the system, and using the RSSI readings viewable through the Event log on Nexus this can be optimized for the best layout.

There may be a bit of trial and error to achieve the best RSSI levels by changing the target address and seeing if the RSSI level is higher or lower.

You will be able to cover large areas and multi-floor buildings using this method to configure the system.

1.3 Site Testing

Conducting a site survey can help you determine how many signal repeaters are needed for your facility, and ideal locations for them to be installed. Two pieces of equipment are available from Rondish for measuring effective range on site.

Due to the long-distance signaling between ZP-01(S) to ZP-01(M), and ability to hop between repeater units, the main limitation on a site survey is the distance from the call points and sensory devices to the nearest ZP-01(S).

For this we offer NGM-21T handheld testers with a range equivalent to -3dBm, as is recommended by UL guidance. To perform a survey, use the tester to receive and alarms and reset at the locations you propose to install the ZP-01(S) repeater units and test at the extremes of that particular zone. If your calling device can be received by the tester at the proposed install location, you can be confident that it will reliably work when a more sensitive ZP-01(S) is used for the actual installation.

For smaller facilities the ILB-21 Over-Door Lights can serve as the repeaters – the TTEST-01 can be used for surveying these sites if necessary.

Model	Description	Image
NGM-21T	Pegasus Monitor • Use for testing signal reliability into ZP-01(S)	
TTEST-01	Tag Tester • Audio headphones can detect transmissions and interference on 433.92MHz that may affect the reception of alarm signals • Check call points and sensory devices are transmitting - shows the ID of the unit transmitting • Use for testing signal reliability into ILB-21	

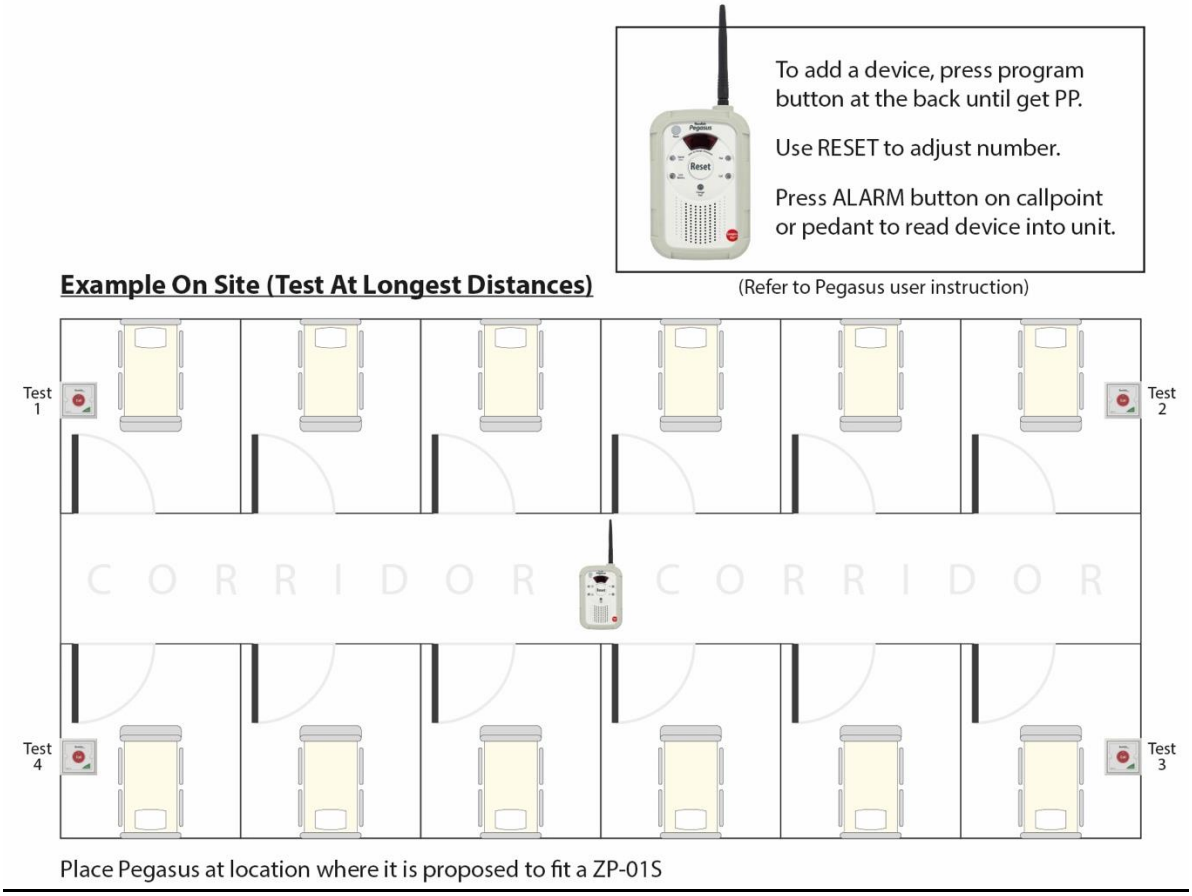
The free space distance from devices is around,

Alarm Device	Range to ZP-01(S)	… to NGM-21T	… to ILB-21	… to TTEST-01
TXP-11(V2)	120m	90m		
WCP-11	180m	120m	70m	55m
NGM-21	120m	90m		

1.3.2 Pre-Install Survey

Rondish recommends using floor plans to propose locations for ZP-01(S) signal repeaters in corridors at regular intervals, around 40-50m apart. For a multi-story building operating as a single system, you can offset the positions of repeaters on different floors (if you don't care about locating mobile alarms). The distances achievable will depend vary according to the structure of the building, with steel and concrete much lower than wood and drywall.

Once you have proposed installation positions for the ZP-01(S) repeater units, you can visit the site with your map and test out a few of the locations with the Pegasus range tester.



Place a WCP-11 at the furthest distances from the proposed ZP-01(S) location and test the Pegasus can receive the signal. If the Pegasus tester will receive alarm and reset signals you can be confident about the signal reliability into a ZP-01(S) repeater. In particular check the locations in the corners and make sure the nearest ZP-01(S) is well within range. Pay particular attention when going through multiple walls.

If TXP-11 are being used on this site, repeat using this device at the furthest distance it will be used, and/or where there are obstacles blocking the path.

Note:

If using a Receiver Dongle & ILB-21 Over-Door Lights, use the TTEST-01 instead of an NGM-21T

- Use TTEST-01 where you propose to place the ILB-21
- Use the TXP-11 to test for itself or the NGM-21
- Use the WCP-11 for its range
- Use the head set to listen for any noise on the site

1.3.3 Installation

Based on the site survey you should have a good idea if your original ZP-01(S) positioning will cover the area and can start the installation.

Place each ZP-01(S) at the proposed locations and then power up the repeaters. When the Nexus is launched, it will attempt to establish the repeater network, linking to each ZP-01(S) in turn. Make sure each ZP-01(S) is programmed correctly using the same Network ID, Frequency Channel, and each has a unique address (See Section 2.2).

When the link is established, a Relative Signal Strength Indication (RSSI) value will be recorded in the Nexus Event Log, which will be a number between 0-255. An RSSI value of 80 or above is OK, however Rondish recommends that readings below 100 be programmed to hop through a ZP-01(S) with a higher RSSI reading for the most reliable performance. You are allowed to hop through 2 x ZP-01(S) units (3 hops).

Once the network is optimized you can start to install call points or other alarm devices throughout the building. The main thing to ensure is that the units have different ID codes and that the site code is set correctly, if applicable.

Once the WCP-11 is installed in the position required you can do a range safety check using the magnet keychain device (or any magnet) to send a signal ~ -3dB to trigger the system. This is done by placing a magnetic key on the reset button and pressing the call button.

The TXP-11 units should be tested at the extremes of the area to ensure they can be received and detailed records of the tests kept.

Note:
If using a Receiver Dongle & ILB-21 Over-Door Lights, you can test the network by touching a magnet to the blue dot on the ILB-21 to reduce the signal transmission by -3dB. This will confirm the signal strength between ILB-21 & DON-30 is sufficiently strong.

In the event you cannot reach the Nexus main station you will need to add a Range extender or reposition the position of the ILB-21 units.

Finally check all the call points are working correctly.

1.3.4 Full System Test

Test all call points throughout the building. You can check the RSSI reading on the computer to see if any readings are low to give a guide, especially the pendant TXP-11 units. Keep a record of all test results for future reference.

Test all units for call and reset.

It is important to be methodical in this testing and keep good records so it is recommended to make a matrix of test results to ensure all units are tested and in good order. Check all the worst-case positions to ensure calls can be received.

The test procedures are similar to the ZP-01(S) except the range to an ILB-21 Over-Door light is more limited, requiring a different range tester must be used. This is achieved but using the TTEST-01 unit above.

2. INSTALLATION

Nexus is designed for a straightforward installation process that minimizes your time spent on site. Following these steps will have your system up and running in just a few hours:

1. Switch on the NDP-21/TVB-21 and connect the DON-30 Receiver Dongle or ZP-01(M) Master Controller – the application will automatically open to a splash screen displaying the version of Nexus installed on this device
2. Change the PIN and enter name of your organization (optional) in the Settings menu. If a DON-30, skip to Step 5. If repeaters are used you must configure the Network ID and Channel.
3. Program ZP-01(S) Repeaters to use the same Network and Channel selected at ZP-01(M) Master Controller – Refer to section 2.2 for details. When all Repeaters in the network are initialized by the Master, power up or connection, check the RSSI values shown in the Event Log. Rondish recommends programming a signal hop if recorded RSSI values are below ***100***
4. Add and mount call points (Section 2.3) and sensors in Device Management and define how each should display during a call – refer to Section 3.3 for details of adding and renaming devices.
5. Pair call points and sensors with Over-Door lights (optional)
6. Mount Over-Door lights (if used), call buttons and brackets for patient handsets
7. Test all of the call points three times (call & reset) to ensure that signals are reliably received by the Nexus

2.1 Master Station

Start your installation by powering up the device you will use for the Master Station. There are two current hardware options:

2.1.1 Station Hardware

Nexus can operate on a Rugged Tablet (NDP-21) for an easily configurable desktop solution, or on a versatile Control Box (TVB-21) that allows a monitor or any size to be connected. A System Controller (NCON-11) includes a Control Box, Paging Transmitter, USB hub and failsafe circuitry in one housing, and will allow the user to interface with Nexus using a touch screen or wireless keyboard & mouse.

Nexus Rugged Tablet (NDP-21)

The Rugged Tablet comes with a docking station that allows convenient placements on a nurse desk. The back of the docking station includes three USB connections, allowing a DON-30 or ZP-01(M) to connect a network, and a GP2009TR paging transmitter to signal paging signals. The ethernet port allows for a LAN and central database of multiple Nexus stations.

The docking station has three USB ports for a receiver, paging transmitter and data backup. The LAN allows connecting to a central database.

Setup

- Connect the power adapter provided
- Insert DON-30 or connect ZP-01(M) to launch Nexus

Nexus Control Box (TVB-21)

Nexus Control Boxes can be configured with software to function as remote displays mounted on a wall or corridor. An ethernet port allows multiple stations to be networked with a central database. For details, see Section 2.5.3.

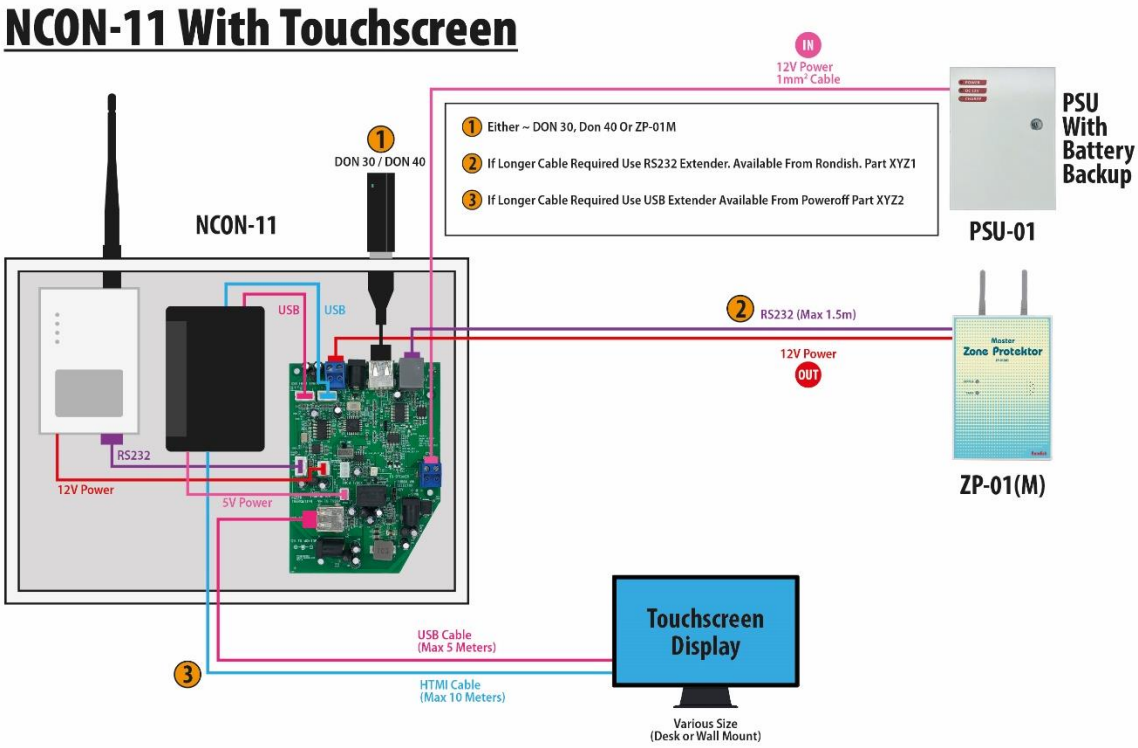
Setup

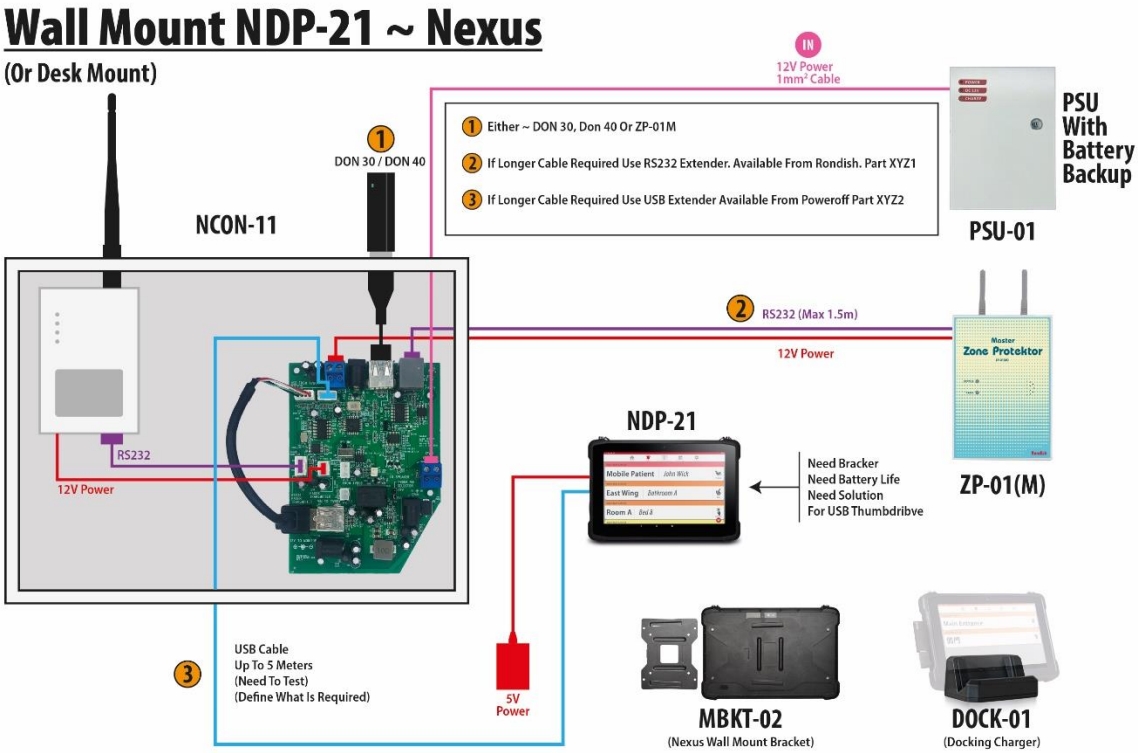
- Connect the power adapter provided
- Connect with HD monitor using HDMI cable
- Connect Bluetooth keyboard and mouse in Setting -> Connected Devices -> Pair new devices, then follow the instruction
- Insert DON-30 or ZP-01(M) to launch Nexus
- Disable AC Lost/Low battery Warning is turned OFF in the Settings menu

Nexus Junction Box (NCON-11)

The Nexus Junction Box (NCON-11) has been designed as a control box so that you can simply plug into the box the items that you require, including DON-30, ZP-01(M). It includes a TVB-21 to run Nexus – which can be connected to computer monitors of various sizes through an HDMI cable – and a GP2009TR transmitter for messaging.

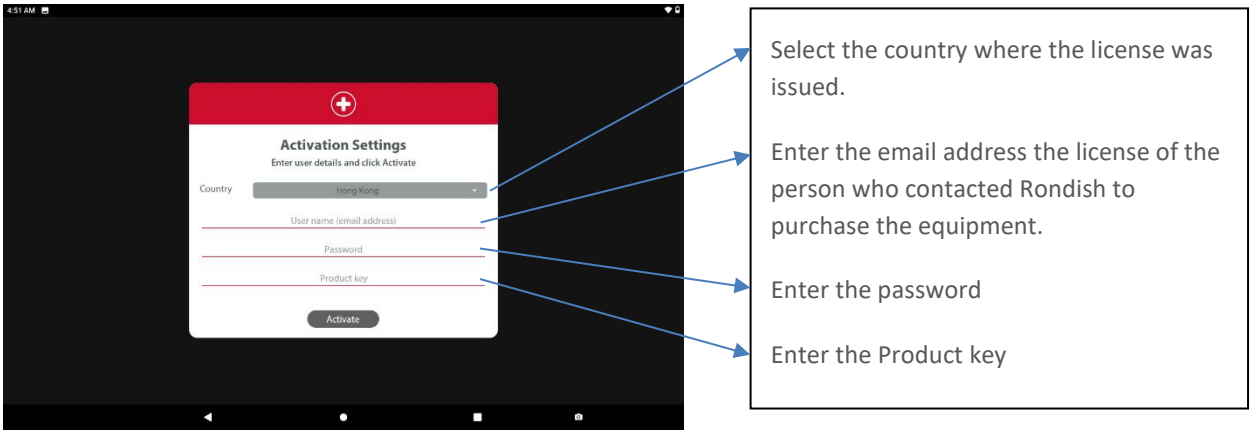
The NCON-11 includes power handling (surge suppression, fuses, regulators) with outputs for the various items, AC lost and battery low detection, and a hardware watchdog to reset the system in the unlikely event of a system crash. For Master Station we recommend a touchscreen for ease of use, although a Bluetooth mouse or keyboard can also be used.




Wall Mount NDP-21 ~ Nexus
(Or Desk Mount)
IN
12V Power
1mm² Cable
1 Either ~ DON 30, Don 40 Or ZP-01M
2 If Longer Cable Required Use RS232 Extender. Available From Rondish. Part XYZ1
3 If Longer Cable Required Use USB Extender Available From Poweroff Part XYZ2
PSU
With
Battery
Backup
PSU-01
1
DON 30 / DON 40
NCON-11
2 RS232 (Max 1.5m)
12V Power
Master
Zone Protektor
ZP-01(M)
RS232
12V Power
NDP-21
Need Bracker
Need Battery Life
Need Solution
For USB Thumbdribve
3
USB Cable
Up To 5 Meters
(Need To Test)
(Define What Is Required)
5V
Power
MBKT-02
(Nexus Wall Mount Bracket)
DOCK-01
(Docking Charger)

2.1.2 Registering Nexus

Nexus will automatically launch when you connect a receiver dongle DON-30 or ZP-01(M) into the USB port of an Android device with the app installed. If you have purchased a device from Rondish it will come with Nexus pre-installed with a registered software license for your organization. If you are loading Nexus onto a device not purchased from Rondish you will be prompted to enter a registration key the first time Nexus is launched.



The email address and password used for the software registration will allow you to update Nexus as new features are implemented. See Section 4.2 for details.

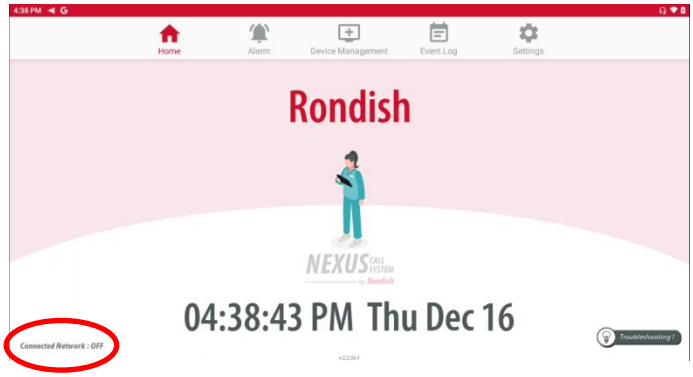
2.1.3 Activating/Deactivating Kiosk Mode

Enabling this feature will ensure that a user cannot exit Nexus and use other applications once Nexus has been launched.

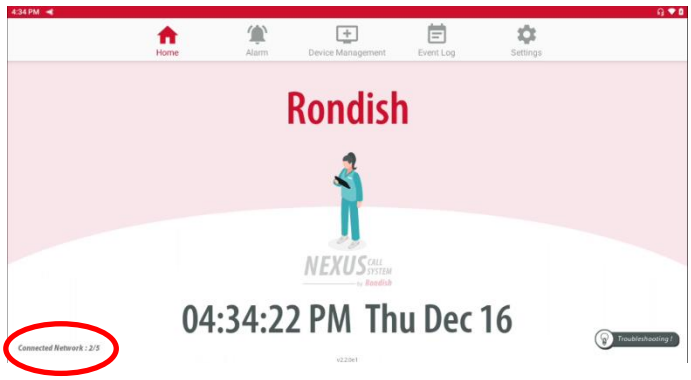
To exit kiosk mode, press “Device Management” or “Settings” and key in passkey 930329 to temporarily disable the function.

2.2 Configuring a Repeater Network

Connect the ZP-01(M) into the Nexus controller and configure the network settings (refer to Section 3.6.4). The repeater units ZP-01(S) installed around the facility must match the Network ID and Frequency Channel selected for the Master. When you have configured the Master unit, but have not yet programmed a network, the Home Screen will show the network as OFF.



As repeaters are added to the network, the Home Screen will display how many are included within the network, and whether they are currently active. In the example below there are five repeaters in Nexus memory, but only two are currently detected.

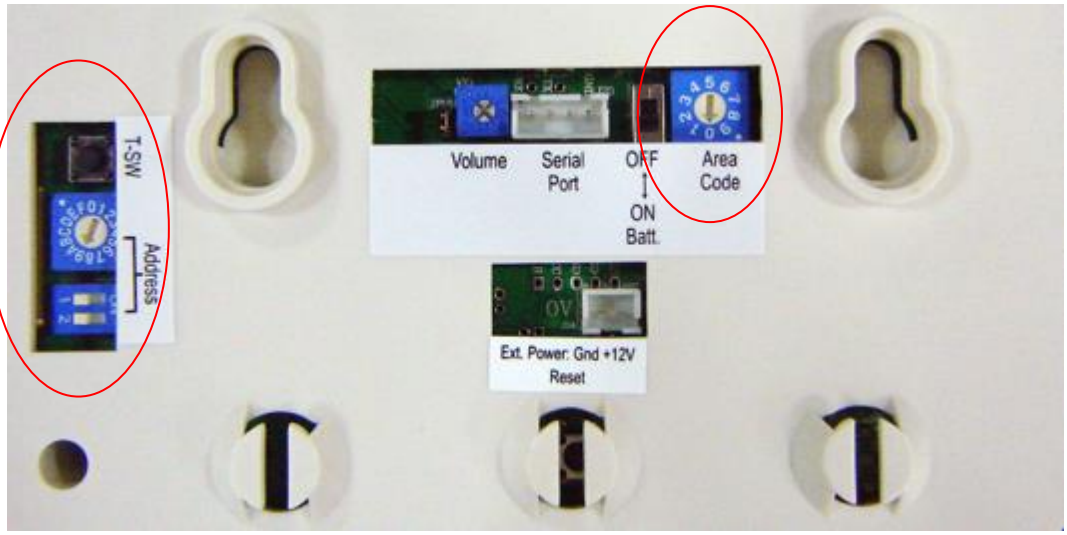


To program each ZP-01(S), you must set several parameters, each of which should be consistent with what you have set on the ZP-01(M) master unit (Section 3.6.4).

1. Set Network ID
2. Set Frequency Channel
3. Set Target Address
4. Set Data Rate
5. Set Repeater Address

To enter programming on a ZP-01(S), press and hold the T-SW button on back until the Tx/Rx LED on the front panel flashes and remains on. To enter a digit, use a screwdriver to select a number using the

Address dial, and enter the digit by pressing T-SW. Each time a digit is entered the ZP-01(S) will beep in acknowledgment.



2.2.1 Network ID

The Network ID setting must be the same for all ZP-01(S) and ZP-01(M) communicating on the same Network. This prevents receiving unwanted calls from a nearby system, and allows multiple networks to operate on the same site.

Adjust the “Address” rotary switch to the required Network ID:

0-3 (factory default = “0”)

Press the T-SW button once and the Tx/Rx LED will flash once to accept the input.

2.2.2 Frequency Channel

Using the rotary switch at “Address” to set a new digit and press T-SW button to confirm the setting. The table below shows the specific frequencies of each channel.

Channel	EU Freq.	Asia Freq.	US Freq.
0	869.45	920	911
1	869.5	920.4	912
2	869.55	920.8	913
3	869.6	921.2	914
4	869.65	921.6	915
5	N/A	923.4	916
6	N/A	923.8	917
7	N/A	924.2	918

8	N/A	924.6	919
9	N/A	925	910
A	N/A	919.63	910
B	N/A	919.72	910
C	N/A	919.75	910
D	N/A	919.83	910
E	N/A	919.87	910
F	N/A	919.92	910

2.2.3 Target Address

If the ZP-01(S) is set to signal the ZP-01(M) this should be set to “48” (i.e. = the address set during 3.6.4). To program this,

1. Adjust the rotary switch to “4” and press the T-SW button,
2. Adjust the rotary to “8” and press T-SW again.
3. The Tx/Rx LED will then come back on and stay on “steady” briefly to indicate “programming finished”.
4. The ZP-01(S) then automatically exits programming mode, reboots itself and returns to normal operating mode.

If you are programming a signal “hop”, the target address should instead be the ZPID of the ZP-01(S) where you will relay the signal (See Section 2.2.6).

2.2.4 Data Rate

Make sure to set this to ‘0’ for Nexus 2.0 and higher

2.2.5 Repeater Address

This tells the ZP-01(M) where to find this particular repeater. The ZP-01(S) address (0-47) must be unique within the system so it can be individually called by the Master and Call Points.

The ZP-01(S) unique address is set by adjusting the rotary and DIP switches shown at “Address” in the picture in Section 2.2 above. This setting can be selected without entering programming. When this is changed the ZP-01(S) should be turned off and then back on before the Repeater Address will be registered by the Master unit with the new ZPID.

The RSSI value of the connection to the ZP-01(M) will be recorded in the Event Log, which will help installers determine whether a call point has a strong enough connection. Rondish recommends a value of >100 to ensure a reliable wireless network.

The chart below can be referred to when adjusting the rotary and DIP switches to set the required Address.

ZPID Selection

Rotary Switch Code	DIP-Switch Positions		
	1: OFF 2: OFF	1: ON 2: OFF	1: OFF 2: ON
0	0	16	32
1	1	17	33
2	2	18	34
3	3	19	35
4	4	20	36
5	5	21	37
6	6	22	38
7	7	23	39
8	8	24	40
9	9	25	41
A	10	26	42
B	11	27	43
C	12	28	44
D	13	29	45
E	14	30	46
F	15	31	47

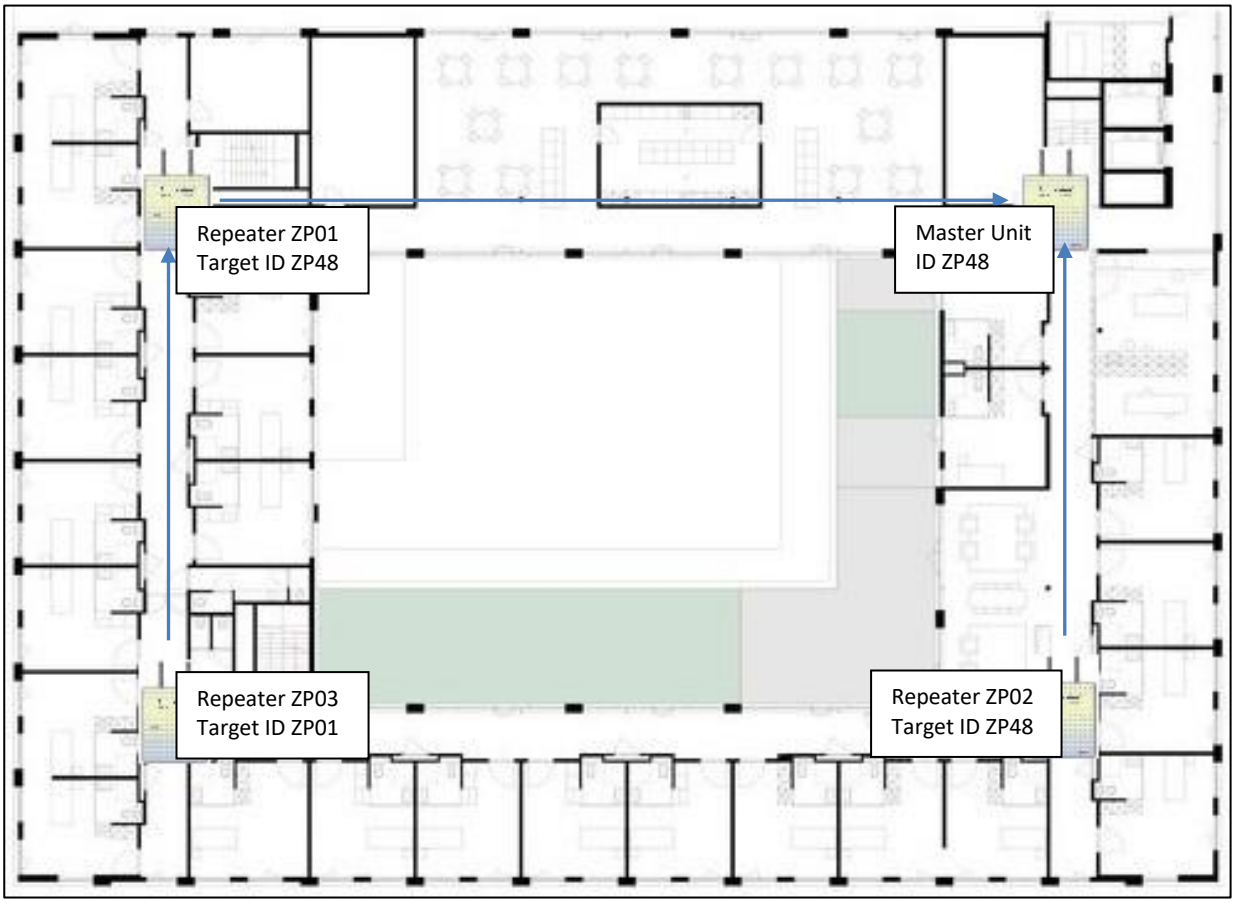
Example:

To set a ZP-01(S) Address to “18”:

- Set the rotary switch to “2”
- Set DIP1 to ON
- Set DIP2 to OFF
- Power down the ZP-01(S) and reboot
- Check RSSI value in Event log

2.2.6 Programming a Signal Hop

If the RSSI value of a Network Repeater shown in the Event log (Section 3.5) shows a value below 100, you may consider setting the target address to the ZPID of another ZP-01(S) to relay the signal to the central display. In the illustration below, Repeater ZP03 will likely have a more reliable connection with Master ZP48 if a "hop" is programmed through ZP01. This will direct the signal down the corridor instead of trying to penetrate through several walls.

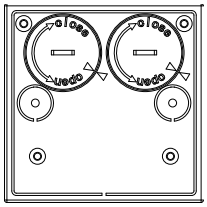


When planning the network if your facility, good locations for the Network Repeaters are at corridor intersections. This allows signals to pass down unobstructed hallways instead of penetrating through walls that can weaken or block the signal. Each repeater can cover a radius of ~25m for the purposes for site planning, so if you have long corridors additional repeaters may be required – you can place them at intervals of 40-50m in most building environments.

2.3 Call Points

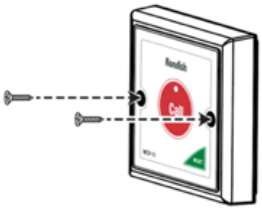
Nexus call points have minimal programming and installation required for a functional call system.

Follow the steps below to configure call points:

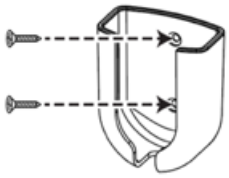


Step 1: Insert Batteries – Nexus call points come with batteries pre-installed. You will need to change these periodically based on usage.

Step 2: Add to Nexus – Refer to Section 3.4 for how to pair and rename a call point. Press the Call button to send the Device ID to the system



Step 3: Mounting – Use the call point to mark the position of the screw holes on the wall. Drill guide holes before screwing the call point into place



Step 4: Connect Handsets – A similar process can be followed for the handset mounting brackets

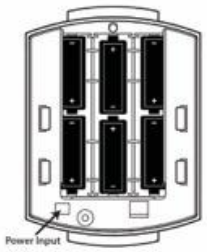
2.4 Over-Door Lights

Over-Door lights provide a visual indication when a call is active in the area, have a buzzer with adjustable volume for audible indication, and will expand the wireless range of Nexus.

Light Displays:
White – bath, bed/chair/floor, door, motion sensor
Red – bedhead, pendent
Alternating Red/White – emergency

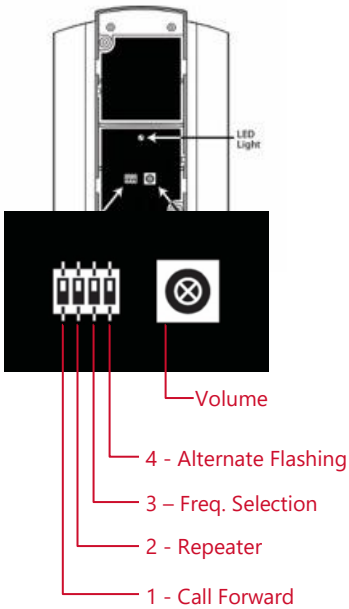
Follow the below steps to configure lights with your Nexus system.

Step 1: Power the light – Insert 6 x C-type alkaline batteries into the ILB-21. A lead is also provided to connect with a 12V power source if the alarm will be frequently used as a call light with multiple calls a day. In this case batteries may only last weeks or months, so connecting to a DC supply is recommended.



When used as a bathroom light with infrequent calls (e.g. 1 minute per day) the batteries can last up to 1 year. Note: Standby battery life (no alarms) is more than 18 months.

Step 2: Select settings – Remove front lens using a 2mm flat-head screwdriver and select light settings. The dip switches control whether the ILB-21 will forward alarms to a central monitor unit. The buzzer has maximum volume pf 108dB, and can be silenced



Switch 1 – far left: Call Forward (On/Off)

- Controls whether alarms from paired devices are forwarded

Switch 2 – left center: Repeater (On/Off)

- When ON, the light will forward signals from all devices to extend the range into the Nexus display. This setting allows use of mobile devices such as bed monitors or patient pendants that move between rooms

Switch 3 – right center: Frequency Selection (On/Off)

- When set to ON, 434.50MHz is selected
- When set to OFF, 434.79MHz is selected

Switch 4 – far right: Alternate Flashing (On/Off)

- When ON the two segments will alternately flash during alarm
- When OFF, the Red segment indicates a Call, and White indicates a Bath

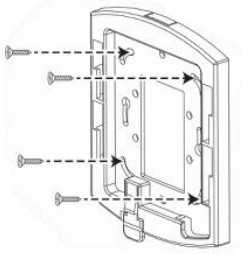
Volume Dial – adjustable to a maximum 108dB

Step 3: Enter pairing – Hold the Program button on the back of the ILB-21. The red and white sections will both stay ON to indicate the light is ready for pairing.

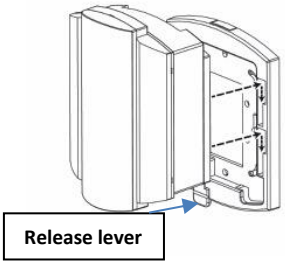
Step 4: Read-in wireless devices – Trigger the device you want to add into memory. If the device code is accepted into memory the ILB-21 will beep three times and flash both the red or white section.

The ILB-21 has memory capacity for 15 devices. In the event the light memory is already full, an attempt to read in another device will result in a long beep to indicate is has not been accepted.

Step 5: Exit pairing – Press the Program button on the back of the indication light. The red and white sections will both flash three times to indicate the light is ready for operation.



Step 6: Secure mounting plate – Screw the plastic mounting plate to the wall where you will want to locate the ILB-21. Make sure the plate is secured before mounting the light.



Step 7: Mount the light – Snap the ILB-21 onto the mounting plate. You will hear a “click” when the light is securely in place.

Note: To remove light to change batteries, press the release level at the bottom of the mounting bracket and lift.

Step 8: Send learn code – The ILB-21 can be read into Nexus memory while in Device Management (Section 3.4). To trigger the learn code, hold a magnet over the blue trigger point. This will allow Nexus to monitor the battery status of a light.

2.5 DoorWatcher

DoorWatcher monitors offer protection against wandering from at-risk patients, especially useful for facilities with memory care residents. The monitors provide a visual alarm indication when a resident tag moves within range, can activate a door lock for delayed egress, and signal event details to Nexus for a caregiver to respond.

Refer to DoorWatcher User Instructions for further details of how this equipment operates.

2.5.1 DoorWatcher Settings

To use a DoorWatcher sensor with Nexus, the sensor strip should first be programmed, and it can then be added to Nexus in Device Management (Section 3.4). Remove the end cap of a DMS-21 sensor and pull out the PCB to access switches and to program the sensor

Switches – Basic Setup
Volume: Set switch to Hi/Lo/Off
Detection distance: Set to Short/Med/Long
Extension: Set as Primary/Secondary
Night mode:

Programming – Advanced Setup
Enter programing by holding the magnetic button for 3s. Select the value of each parameter using the rotary dial, and trigger the magnetic button to enter the programming value. In total you should be inputting five digits, at which point the DMS-21 will automatically exit programming.

Door ID (two digits) (01 default)

Site code: 0-9 (0 default)

Lock timer – this will control how long a door lock is active to delay or prevent egress through a protected door.

Setting	Lock Time
0	Indefinite (Default)
1	10s
2	15s
3	20s
4	25s
5	30s
6	35s
7	40s

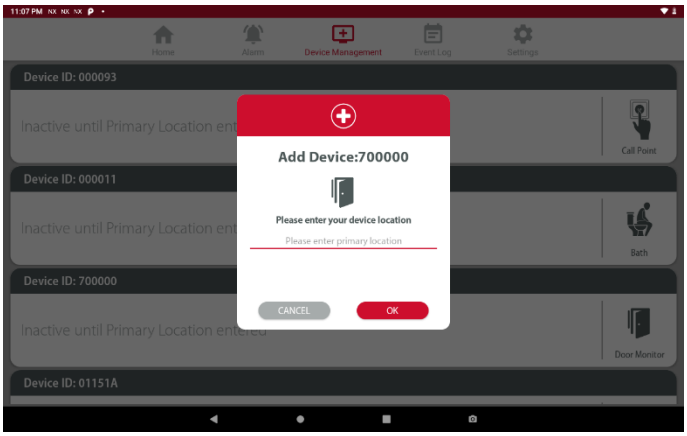
8	45s
9	50s

Door Open timer – door monitor will alarm if the door remains open after this duration, whether a tag is present or not. To escort a resident through a door, trigger Reset before opening the door. The caregiver has 15s to open the door, at which point you will have this amount of time to pass through and close the door before triggering an alert.

Setting	Open Time
0	Indefinite
1	15s
2	25s
3	35s (Default)
4	45s
5	55s
6	65s
7	75s
8	85s
9	95s

2.5.2 Adding DoorWatcher to Nexus

Add monitor to Nexus:



When the door monitor has been programmed, enter Device Management and trigger a learn code by touching a magnet to the blue dot on the side of the door monitor.

Assign a display location; e.g. “Main Entrance”

2.5.3 Mounting DoorWatcher

Mount door bar
Connect magnetic switch to door frame
Connect door lock
Connect power supply

2.5.4 Activate Patient Tags

2.5.5 Adjust Detection Distance

- Default detection is ~1m

2.6 BedWatcher

Rondish NGM-21 CordFree monitors can be used with Nexus to provide bed/chair exit notifications; they also allow resetting of alarms from resident pendants or door/window sensors that are paired with the NGM-21.

Sensor options for NGM-21 room controller

- Wireless bed/chair sensorpads
- Floor sensormats
- Door/window sensors
- Motion sensors

2.6.1 Adding Monitors to Nexus

Setup procedure

- Add bed monitor to Device Management by pressing the Reset button (Section 3.4)
- Synch room sensors to NGM-21
- Mount sensors and monitors

2.6.2 Synch Sensory Devices with Monitor

Press Program button on back of NGM-21 to enter sensor pairing

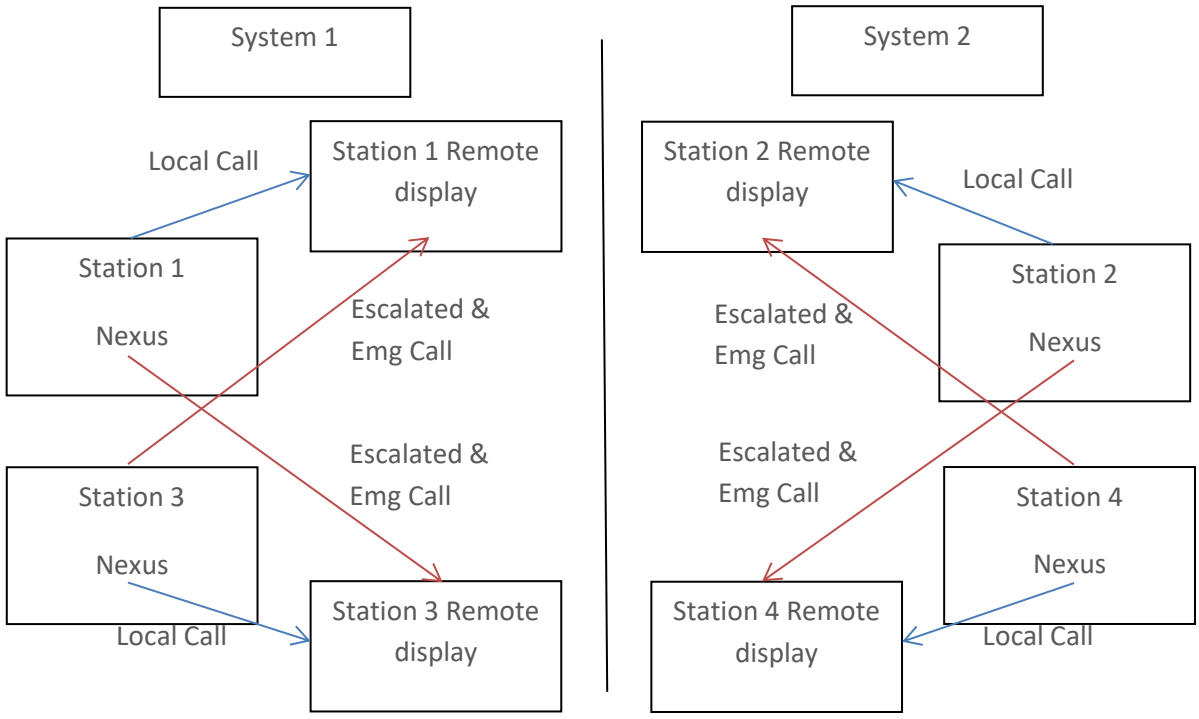
- Trigger sensorpad or other device to add into memory
- Re-enter pairing if you want additional devices to be synched
- With recommended settings a maximum of three devices can be paired with an NGM-21 monitor

2.7 Messaging

Each Nexus Station can be programmed to send signals to data pagers and/or remote displays using POCSAG codes. The paging transmitter can be connected to a USB port on the Android device you are using to operate Nexus (See Section 2.1.1). This transmitter has a range up to several km/miles.

Each Nexus station will send messages to a primary responder or display area. Unanswered calls, or high priority events like Emergency or Code Blue alarms, can be escalated to additional capcodes, which allows supervisors or remote displays outside of the immediate area to see urgent events (configurable Section 3.6.7). This setup is useful when neighboring wards want to filter alarms from other areas, but still see urgent events.

Each Nexus Station is assigned a Station ID, and Call Escalation is flexible to suit different cases. Escalation criteria for each Remote Display can be configured for emergency and/or cardiac alarms, as shown in an example below:



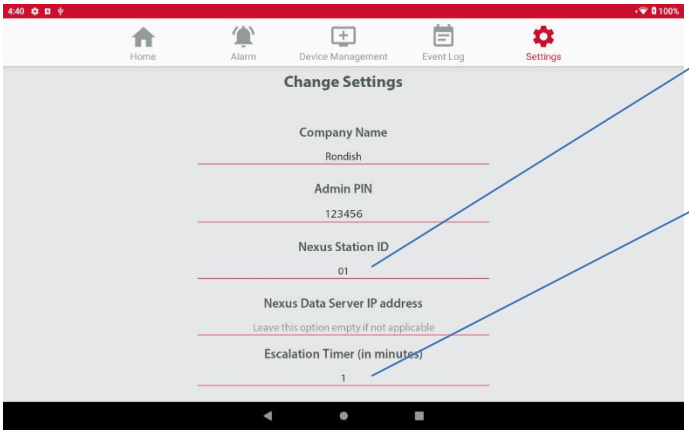
In this setup there are four nurse stations, each of which is locally managed for basic calls. Unanswered and emergency calls will be escalated to be visible on a remote display located in a neighboring ward.

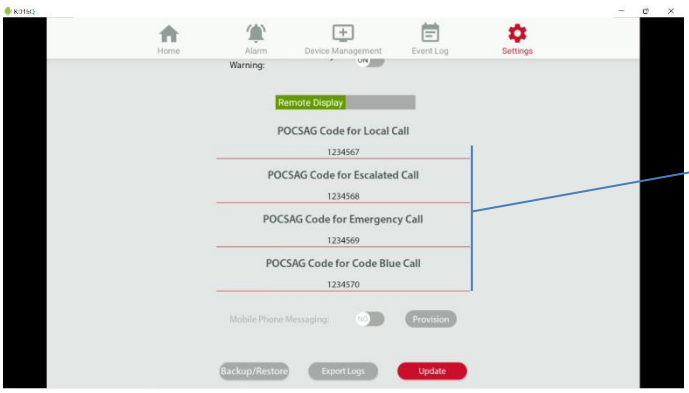
	Station 1	**Station 2**	**Station 3**	**Station 4**
Station ID	01	02	03	04
Local Calls	01 only	02 only	03 only	04 only
Escalated Call	01, 03	02, 04	01, 03	02, 04

Emg Call	01, 03	02, 04	01, 03	02, 04

2.7.1 Configuring Nexus

To configure your messaging, each Nexus Station should be assigned a unique Station ID in the Settings tab – this defaults to 01.





Assign a 2-digit Nexus Station ID for each Nexus terminal. The Station ID must be unique for each station

Set Escalation Timer (in minutes) to enable alarm escalation. If a call has not been reset after this period of time it will be escalated and made visible on other displays or pagers. Escalation time ranges from 1 to 99 min. Set the timer to 0 to disable Call Escalation function.

Assign POCSAG codes for Local, Escalated, Emergency and Code Blue events.

2.7.2 Transmitter Setup

The paging transmitter settings affect communication between the GP2009TR transmitter and GP2009N pagers, or another GP2009TR paging repeater when used for remote displays.

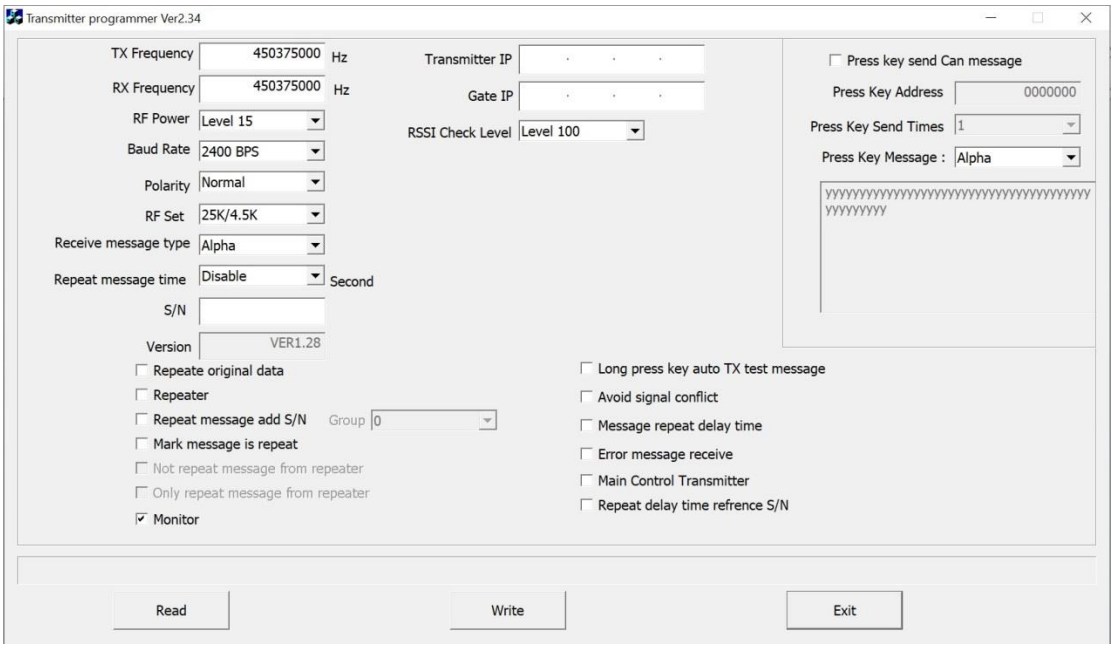
It is recommended to set one frequency channel for each system on site to avoid signal traffic. Product delivered from Rondish is centered on 450.375MHz, and should be kept within a band between 446.375MHz and 454.375MHz.

The configuration screen for GP2009TR is shown below with default settings:

TX Frequency: Pager system communication frequency (450.375 default)
RX Frequency: Pager system communication frequency (450.375 default)

Baud Rate: 2400 bps
Repeat message time: Disable
Repeater: Disable (if you would like paging messages to be repeated at intervals, you can adjust this here)
Avoid signal conflict: Enabled

GP2009TR Settings



2.7.3 Pager Setup

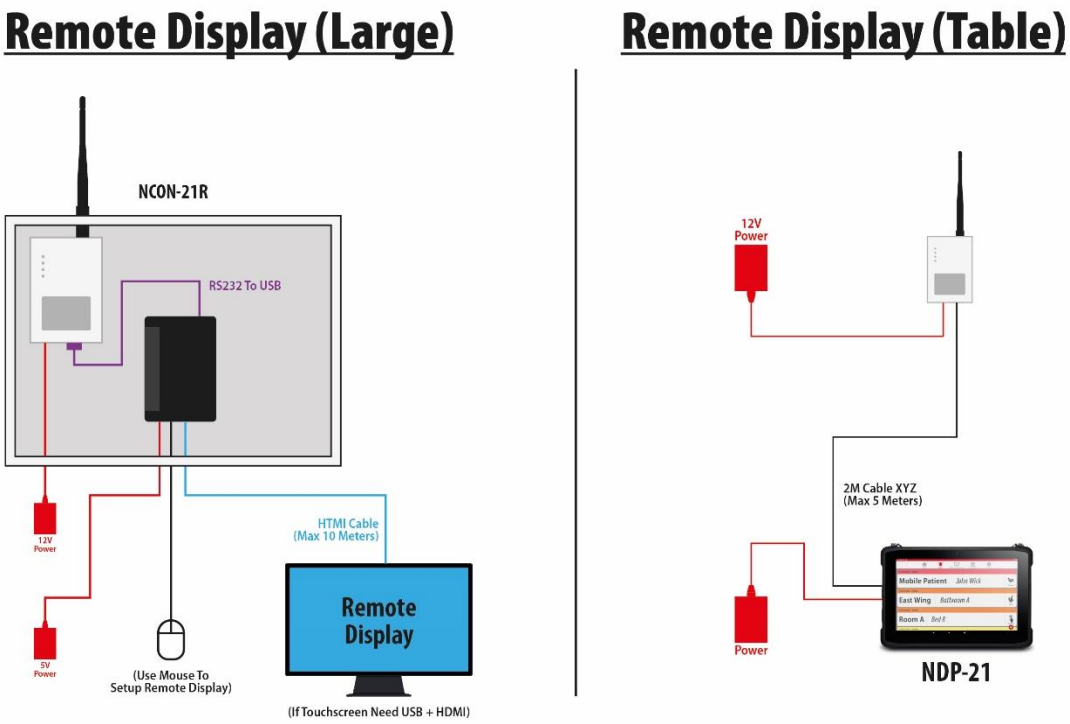
Refer to GP2009TR_UI

Default settings:

- Frequency: 450.375MHz
- Baud Rate: 1200mbs
- Capcode: 1234567

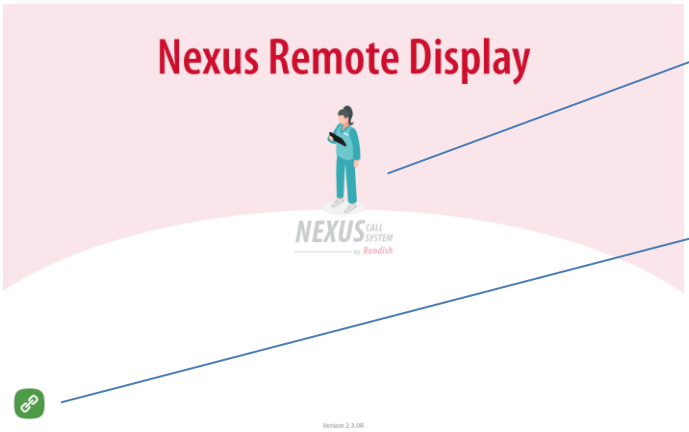
2.7.4 Remote Display Setup

Remote displays ordered from Rondish will be pre-configured with a suitable software. Just connect a GP2009TR, along with a monitor using an HDMI cable, and alarms will display in a similar format as the Nexus Alarm Screen (Section 3.3)



If you are using a computer monitor, connect a mouse to configure the Remote Display.

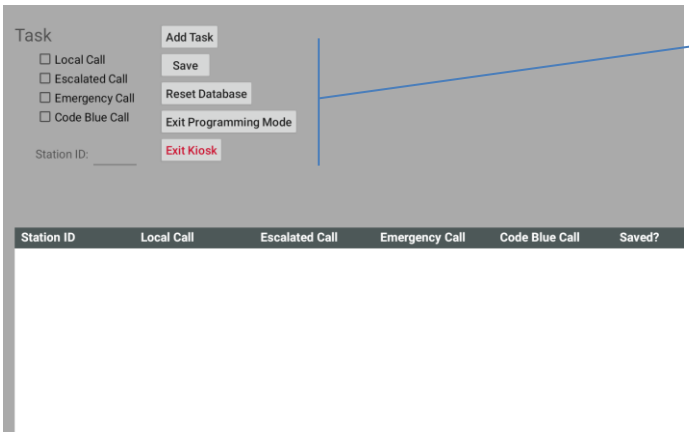
Remote displays can be configured to display escalated or high-priority alarms from neighboring wards.

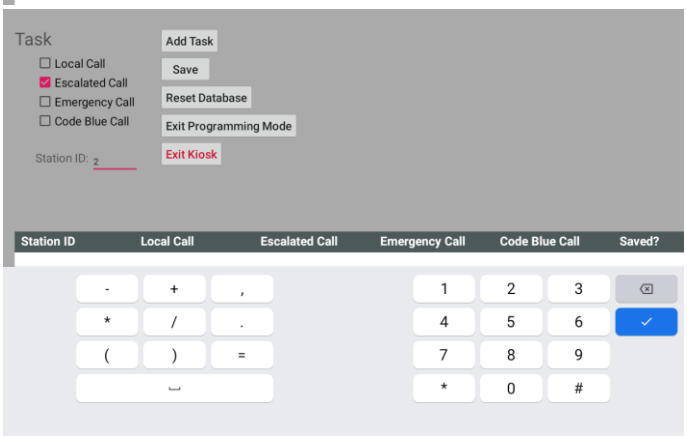


Double-click or double-tap on the nurse icon to enter Remote Display configuration

The chain icon indicates this display is connected with the Master Station. If you have lost connection this will appear in red as a broken chain.

Input settings





Input tasks to tell the Remote Display when it should alarm:

Key in Station ID (e.g. 1 for Station ID 01, 12 for Station ID 12, etc.) and select the type(s) of calls this remote display should pick up.

If additional Station IDs should display, add these as a separate task.

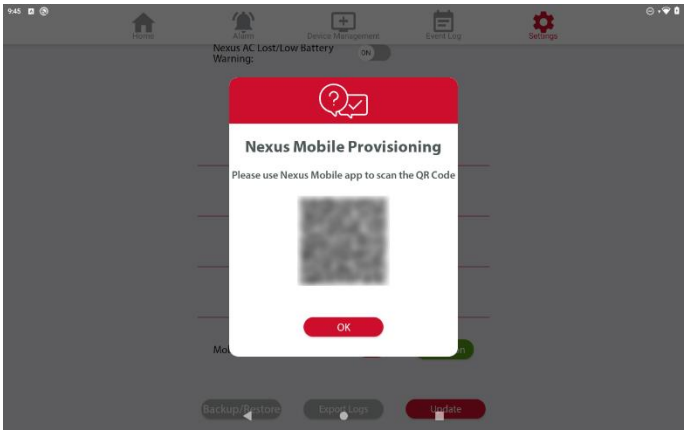
Confirm new settings

If additional Station IDs should display, add these as a separate task.

Make sure to Save the tasks – the final column should have a green checkmark.

2.7.5 Smartphones

This feature is available with the purchase of a Nexus Mobile license, and allows Android phones to be used for receiving and acknowledging messages.



*Requires internet connection

Turn Mobile Phone messaging ON (requires Nexus Mobile license)

Tap on Mobile Phone Provisioning

Scan the QR code using your Android mobile phone

3. USING NEXUS

Nexus was designed according to generally accepted principles of a nurse call system. Patient calls should be reset at location by the nurse or caregiver as soon as can reasonably be achieved. Nexus prioritizes alarms in several levels of importance, and there is a built-in record of events to aid management if there is an adverse event or response times are tracked over time.

The user interface was designed to be streamlined for ease of use. If a touch screen monitor is used the app is navigated similar to how you use a smartphone, using taps and swipes for general operation. A virtual keyboard will pop up when entering text or an access PIN is required. A Bluetooth keyboard and mouse will allow you to operate Nexus more like a traditional desktop computer.

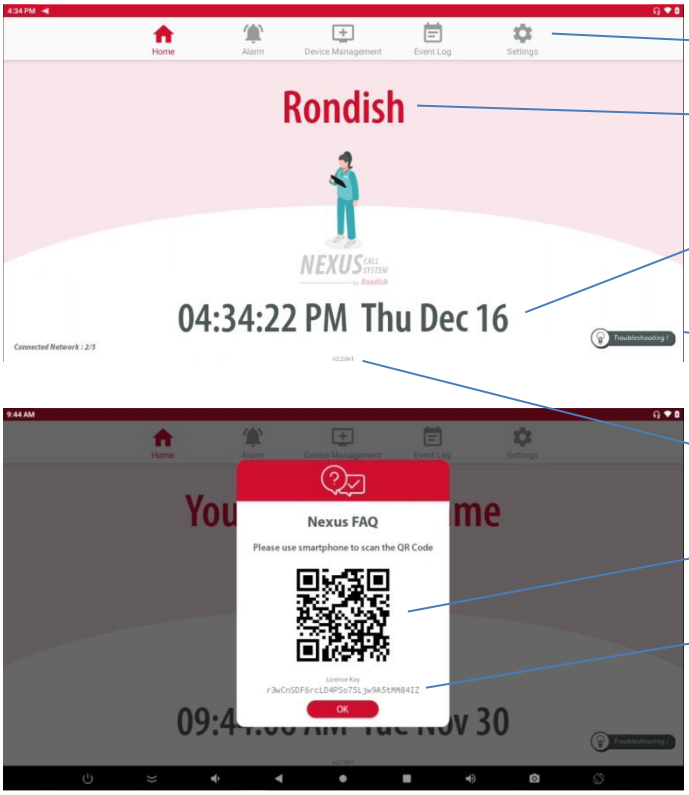
3.1 Behavior Table

The table below summarizes how Nexus interprets and displays signals from various devices:

Device	Alarm Trigger	Alarm Type	Nexus Display	Over-Door Light	Cancel Alarm by…
WCP-11C	Single press	Call	Yellow, 10s beep intervals	Red	Reset on WCP-11C
WCP-11C	Double press	Emergency	Red, Rapid beeping	Alternating Red/White	Reset on WCP-11C
NEC-12	Press button	Call	Yellow, 10s beep intervals	Red	Reset on WCP-11C
WCP-11	Press button	Bath	Amber, 4s beep intervals	White	Reset on WCP-11
WCP-11	Pull cord	Bath	Amber, 4s beep intervals	White	Reset on WCP-11
TXP-11	Press button	Call	Yellow, 10s beep intervals	Red	Magnetic fob on TXP-11
TXP-11	Patient fall	Emergency	Red, Rapid beeping	Alternating Red/White	Magnetic fob on TXP-11
NEC-05	Press button	Call	Yellow, 10s beep intervals	Red	“C” button on NEC-05
DMS-02	Door exit	Door	Amber, 4s beep intervals	White	Magnetic fob on DMS-02 or press TXR-02 button
NGM-21	Bed/Chair exit	Bed exit/ Chair exit	Amber, 4s beep intervals	White	Reset on NGM-21 or Pad return

3.2 Home Screen

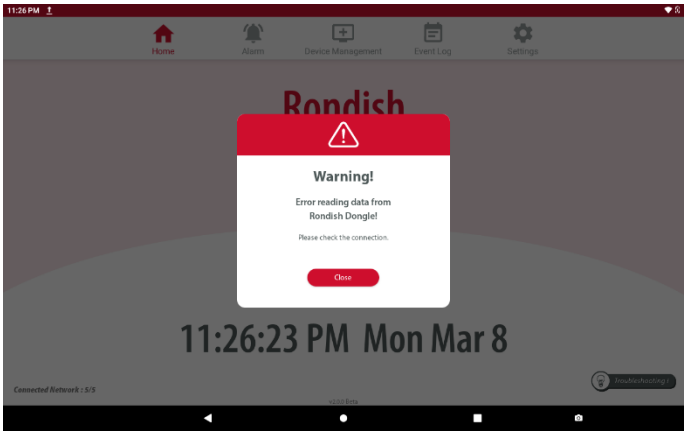
This is the default view of the application, and Nexus will return to this screen after alarms have been reset.



- Icons at show the Nexus screens
- The organization name can be configured in Settings (Section 3.6)
- Date and time will automatically match your device
- Troubleshooting - Tapping the icon brings up a QR Code
- Software Version
- Scan using a smartphone camera to download a FAQ document
- Product licensing key information is shown here if you want to enable smartphone messaging or centralized database features

3.2.1 Network Repeater Status

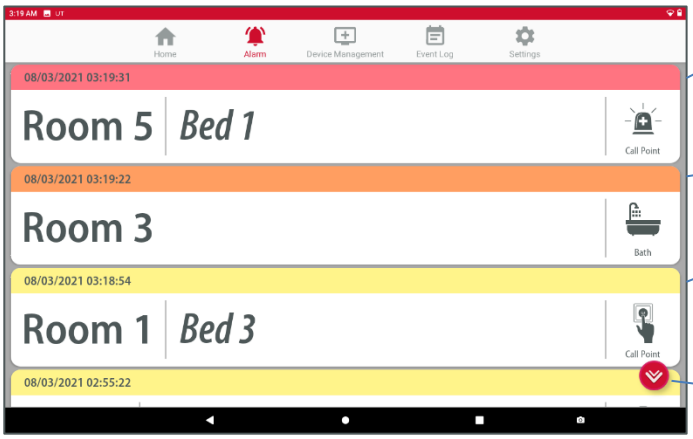
If using ZP-01(S) repeaters, the network status will display at the bottom left. If the ZP-01(S) or DON-30 becomes disconnected, Nexus will alert you as below:



3.3 Alarm Screen

The alarm screen will pop up when any event requires a response. If you tap on this icon when no alarms are present, the screen will be greyed out, and automatically return to the Home tab after several seconds. Up to three alarms can be displayed on the screen at once, however additional active alarms are indicated by the red arrow below and can be viewed by scrolling down the screen.

Alarms are ordered top to bottom by priority, with older alarms listed first.



Emergency alarms display in RED, and will automatically be moved to the top of the queue.

Bath alarms display in AMBER, and have higher priority than a standard call.

Normal Calls display in YELLOW, and will be prioritized according to the first call received.

Double arrow facing downward indicates additional calls are active

3.3.1 Display Details

Includes time of the event with priority level, location, and type of alarm. When all alarms have been reset, Nexus will automatically revert to the Home Screen after several seconds.

Color band – this indicates the alarm priority, with a time stamp shown on the left side

- Code Blue – BLUE band, 0.25s high/low beeping
- Emergency – RED band, 0.5s high/low beeping
- Bathroom – AMBER band, 4s beep interval
- Standard Call – YELLOW band, 10s beep interval

Location 1 – this is typically a room or ward number, and is defined in Device Management

Location 2 – this is typically a bed or bathroom number or patient name, and is defined in Device Management

Display Types & Priority

Code Blue		Priority 1
Emergency		Priority 2
Man-down		Priority 2
Bath		Priority 3
Monitor*		Priority 3
Bed		Priority 3
Chair		Priority 3
Floor		Priority 3
Door		Priority 3
Pendant		Priority 4
Call point		Priority 4
Sensor		Priority 4
Cord removed		Priority 4
AC lost		Priority 4
Low battery		Priority 5

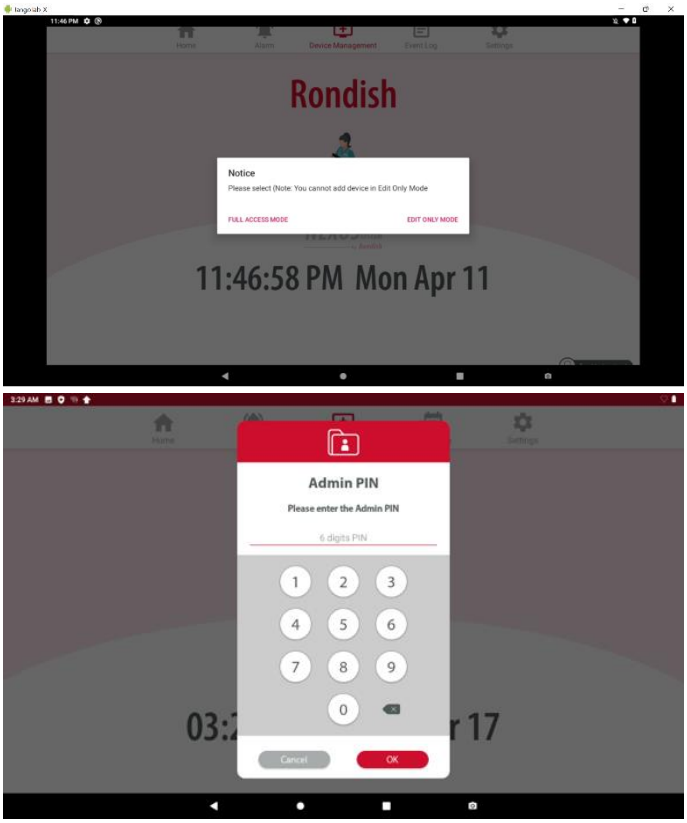
* A bed monitor displays when pairing the device to Nexus so the software can provide low battery and device lost alerts. During an alarm Nexus will display either a bed, chair, sensor or floor type alarm.

3.3.2 Admin Reset

There may be times when an event needs to be cleared from the central display panel. This can be achieved by a long-press on the event and entering the Admin PIN that has been assigned for the system. Note that this call may come up again if it has not been reset at the call point.

3.4 Device Management

This tab is where you add/delete devices from Nexus, and define how each should display when an alarm is triggered.



Tapping on Device Management will prompt the user for Full Access or Edit Only Mode.

Selecting Edit Only allows mobile devices (bed alarms or pendants) to be renamed without entering a PIN, however no devices can be added or deleted from Nexus while in this mode.

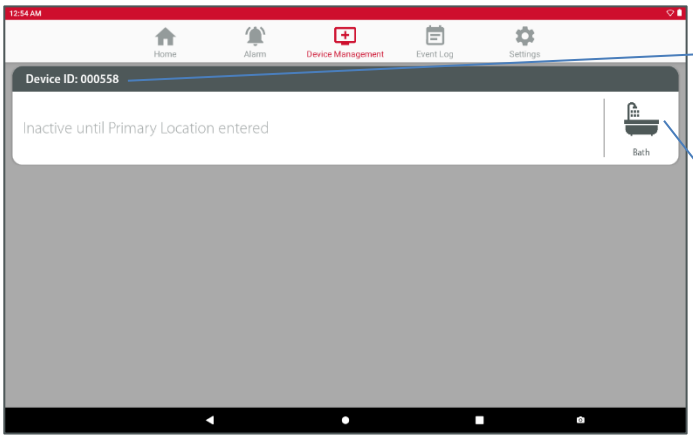
Selecting Full Access will prompt the user to first enter the 6-digit PIN for access. After doing so, they will be able to add/delete devices, or rename existing devices in memory.

If a PIN has not been set in the Settings tab, the default is 123456.

3.4.1 Add New Device

From this screen, triggering a device can have two effects:

If Nexus does not already have this device in memory it will create a new entry with the 6-digit device ID, device type and notification that new hardware has been detected.



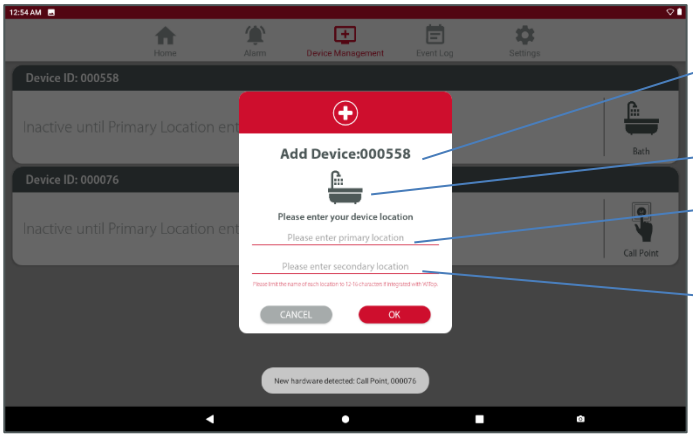
The device ID will show on the grey color band at the top. This will typically match the serial label on the back of a call point.

The device type icon will display on the right

If Nexus already recognizes a device that is triggered while in Device Management, it will exit to the Alarm Screen as if a patient has normally triggered an alarm. This ensures the call system continues to function if a patient needs help.

3.4.2 Device Location

Tapping on the Device you have just added will bring up the screen below, prompting you to enter a Primary and Secondary location. The text you enter here will display when this device is in alarm state.



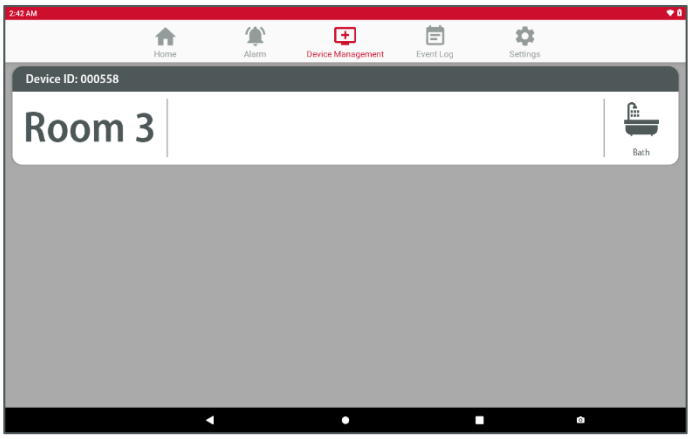
Device ID – usually matches the serial label on back of call point.

Device Type icon

Location 1 – to be configured by user (must be defined)

Location 2 – to be configured by user (optional)

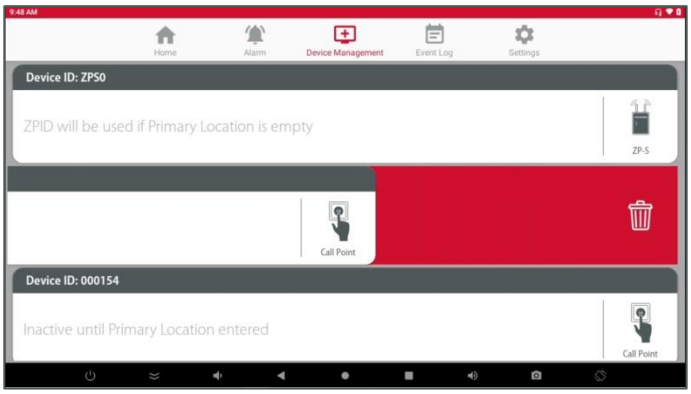
Click OK to confirm the location details, and these will now display on the Device Management screen.



If you want to change how the alarm is displayed you can just tap on the entry again to make amendments.

3.4.3 Delete Device

If you need to remove something from memory, swipe left over the device.

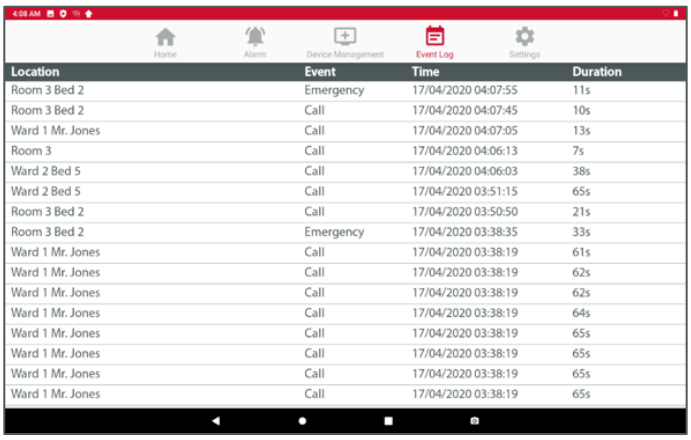


Nexus will then prompt you to confirm or cancel the device removal

3.5 Event Log

The Event Log will show the location, event type, time of initiation and duration of all events from the previous 24 hours. Alarms prior to the previous 24 hours will be stored in a data file that can be accessed by exporting and opening using Excel, or the complete log can be accessed by tapping the screen seven times.

Your response time is logged as the duration between an alarm triggering and being reset. Refer to Section 3.6.3 for instructions on how to export the data log.



Location	Event	Time	Duration
Room 3 Bed 2	Emergency	17/04/2020 04:07:55	11s
Room 3 Bed 2	Call	17/04/2020 04:07:45	10s
Ward 1 Mr. Jones	Call	17/04/2020 04:07:05	13s
Room 3	Call	17/04/2020 04:06:13	7s
Ward 2 Bed 5	Call	17/04/2020 04:06:03	38s
Ward 2 Bed 5	Call	17/04/2020 03:51:15	65s
Room 3 Bed 2	Call	17/04/2020 03:50:50	21s
Room 3 Bed 2	Emergency	17/04/2020 03:38:35	33s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	61s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	62s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	62s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	64s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	65s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	65s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	65s
Ward 1 Mr. Jones	Call	17/04/2020 03:38:19	65s

Event Types

- Call
- Emergency
- Visit
- Low battery
- Signal lost
- Acknowledge

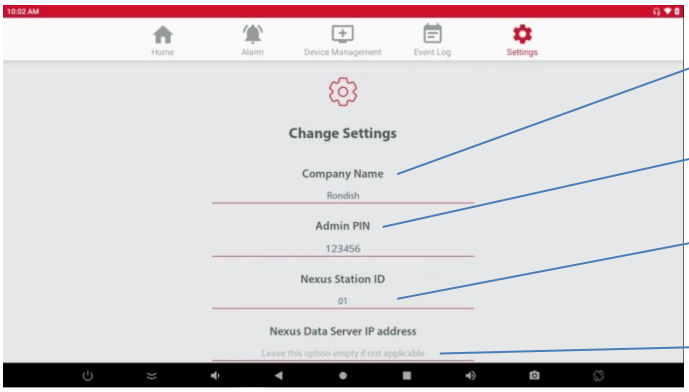
Users with a Nexus Pro license will have the ability to connect multiple Nexus Stations with a server, allowing a more granular level of data analysis.

3.6 Settings

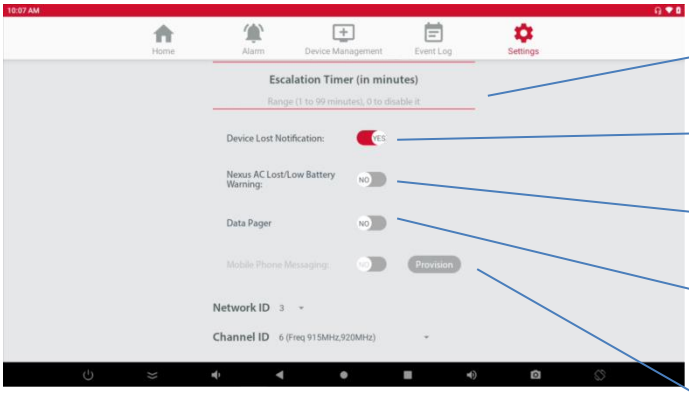
The Settings tab is where you will set the default name to display on the Home screen, change the Admin PIN, or export the data log. Pressing this tab requires inputting a 6-digit Admin PIN to access. If using Nexus for the first time the default code is 123456

3.6.1 Change Settings

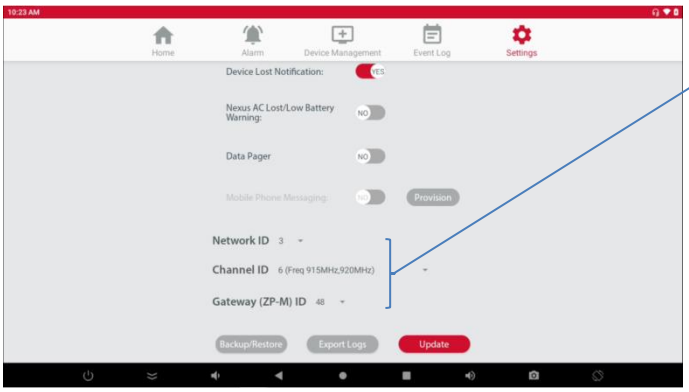
This will allow you to add a company name to display on the Home Screen or update the Admin PIN. Press the Update button to make any changes take effect.



- Company Name – displays on Home Screen
- Admin PIN – used to access Device Management and Settings
- Nexus Station ID – Set for alarm escalation feature. Set to “01” for simple remote display setup
- Nexus Data Server IP address – used to connect to central database for event record and data analysis. Only enable for Nexus Pro license key



- Escalation Timer – Set the time to send escalated call (in minute)
- Device Lost Notification – Set to enable Device Lost Notification
- Nexus AC Lost/Low Battery Warning – Set to enable AC Lost/Low Battery Warning
- Data Pager – Enable to configure Data Pager system. Disable to configure Remote Display system.
- Mobile Phone Messaging – Enable to use mobile messaging



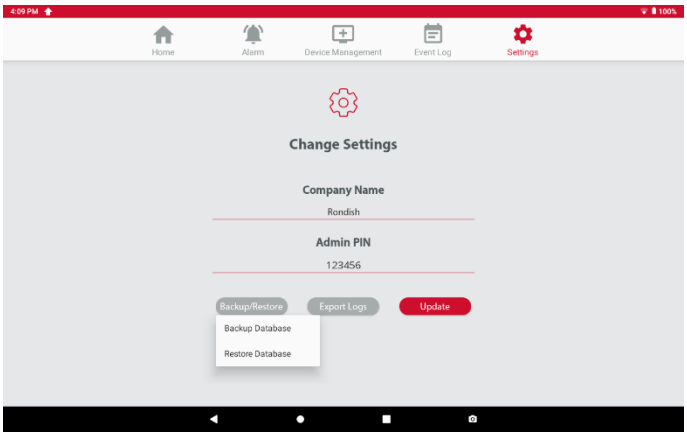
Network Settings – used if system repeaters are connected (Section 3.6.4)

- Network ID
- Channel
- Gateway ID

Update – makes changes take effect

3.6.2 Backup/Restore

After programming your system, the settings and Event log can be saved to a download folder and later exported to a USB drive. This allows the programming to be restored on a second panel if the primary unit goes down. Nexus will remind you periodically to back-up the system.



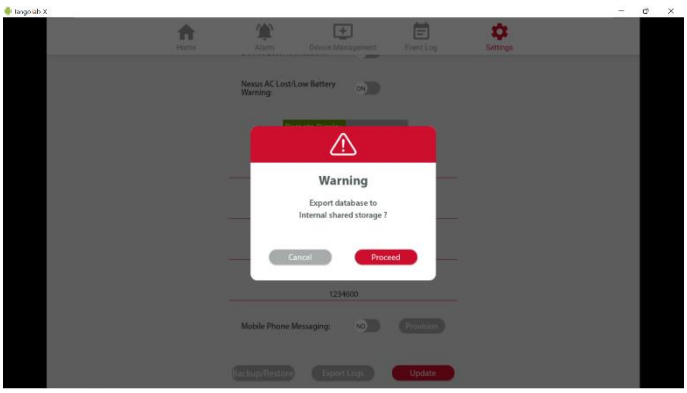
Tap Backup/Restore, then Backup Database

The file will be saved to Internal Storage/Download/Nexus/backup

Confirm

3.6.3 Export Log

This will allow you to transfer the Event Log to a CSV file that is openable using MS Excel.



Tap Export Log

Nexus will prompt you to confirm the data export

The file will be saved to Internal Storage/Download/Nexus/

3.6.4 Network Settings

These settings will only be visible if a ZP-01(M) is connected with Nexus, and allows the Network settings to be configured. If there are multiple networks operating on the same site Rondish recommends using different Network and Channel settings on each to ensure the systems do not affect the performance of each other.

Network ID – Select 0-3
Channel ID – Select 0-15
Gateway ID – The default of "48" is recommended for most applications

Note: The settings selected here must be matched by ZP-01(S) network repeaters used at your facility. These are covered in Section 2.2.

3.6.5 Target IP Address

This option will appear if you have a Nexus Pro license. By connecting the Nexus Station with a LAN, the alarm details will be sent in real time to a central database.

3.6.6 Mobile Phone Provisioning

The slider can be activated if you have a Nexus Mobile license. By activating this the Nexus Station will direct messaging to an Android phone that has been paired. See Section 2.7.5 for additional details.

3.6.7 Messaging Settings

These settings will determine where and when messages are directed. Refer to Section 2.7.4 for additional details.

- Primary Responder
- Secondary Responder
- Emergency
- Code Blue

4. MAINTENANCE

Nexus provides alerts for any component that is not operating correctly or is on low battery status (Refer to Section 3.2.1). Regular maintenance will prevent an unexpected loss of functionality in your equipment.

4.1 Battery Life

Rondish recommends changing batteries on a regular schedule to ensure that Nexus operates at an optimum level. The expected battery life of each component will depend on actual usage – the below table is given below for reference only, assuming each call lasts 1min before reset.

Component	1 Call/Day	5 Calls/Day	10 Calls/Day
NEC-05	3+ years	18 months	10 months
WCP-11C	3+ years	18 months	10 months
WCP-11	3+ years	18 months	10 months
ILB-21*	18 months	10 months	5 months

*Battery life assumes volume set to silent, alarm duration is 1min each, and signal bump function turned ON.

WARNING: Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type.

CAUTION: Lithium batteries should not be disposed of with normal household waste. For disposal or recycling instructions please contact your local authorities.

4.2 Lost Device Detection

Nexus will display any faults that are detected within the local network. Warnings display according to the schedule below:

- Calling devices – 24hrs
- Door alarms – 24hrs
- Bed alarms – 24hrs
- Signal repeaters – 15mins

4.3 Nexus Updates

There may be updates to the Nexus app since your purchase – the version number is displayed at the bottom of the Home screen. If you would like to update the software, visit www.rondish.com/nexus-upgrade and follow the instructions to access the latest version. You will be prompted to enter the email address and password your software license was issued to access this page.

5. TROUBLESHOOTING

The below table addresses a number of possible issues with solutions for resolving them.

Symptom	Possible Solutions
The ZP-01(S) repeaters won't connect	The settings of each Network repeater must match those set on the ZP-01(M) • Check the Network ID • Check the Channel • Check the Target Address – usually "48" if linked with the Master • Check the Data Rate is set to "0". Older versions of Nexus used a different data rate
Wireless signals not receiving	• Check that each device is properly powered • Check that each device has been synched with Nexus and defined how to display – refer to section 3.4 – Device Management • Trigger the "learn code" on the call point that is displaying as "signal lost" • Move the device closer to the display panel – if this fixes the problem you may need to install a signal repeater to improve wireless coverage • Check for possible sources of interference – refer to section 1.3 – Site Survey • Consider moving the Nexus tablet to a different location
Dongle not receiving – LEDs flash but nothing happens on the screen	• Disconnect and reconnect the dongle • Re-start the NDP-21/TVB-21
AC Lost warning keeps showing up	If using a TVB-21 to operated Nexus, you may need to disable the AC Lost/Low Battery Warning in the settings menu. Disabling this warning is not recommended for everyday use with a tablet
Audible alarm not loud enough	• Increase volume setting – this can be done on Over-Door Lights and/or the Nexus tablet • Use Bluetooth to connect a wireless sounder for active alarms
Unrecognized device in Management tab	Nexus may have received a signal from a 3rd party device while the system was being programmed. Just remove this device from memory
Smartphone provisioning won't turn ON	This feature is only available with an upgraded license with annual fee. Please press the troubleshooting icon on the home screen and provide the license details to your distributor for assistance in activating this feature.
Forgotten PIN	Contact your distributor for assistance
Other	• Visit YouTube/Rondish to view a product tutorial • Contact your local distributor for assistance

Appendix: FCC & CE statements

Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Note: The equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The individual device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) The device may not cause harmful interference, and (2) the device must accept any interference received, including interference that may cause undesired operation.

RF exposure statements

1. The Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body or nearby persons.

Hereby, Rondish Company Ltd declares that the above radio equipment types are in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.rondish.com .