

869MHz Network Receiver (NTR) Installation Guide



Aidcall operates a policy of continual product improvement and reserves the right to modify the specification of its products.

If any variation to the details in this document are suspected, please contact Aidcall's Technical Support.

CONTENTS

Section	Topic	Page
1	Product Overview	2
2	Important Safety Instructions	3
3	Regulatory Information	4
4	Maintenance & Care	4
5	NTR Features	5
5	NTR Installation	6
7	NTR Setup	9
8	PSU Battery Replacement	10
9	Specification	11

1. PRODUCT OVERVIEW

Touchsafe Pro 869MHz Telecare Network Receivers (NTR's) provide the interface between Telecare radio devices and the Nursecall system. A maximum of 32 NTR's can be installed per site.

All NTR's require connection to the Master Panel (ID1) RS485 data bus and a separate 12V DC battery backed power supply. Multiple PSU's may be required on large installations. *Note: if AVI's are installed then NTR's can be powered from the AVI PSU's provided care is taken not to exceed the PSU rating.*

An extensive range of 869MHz Telecare devices are available to personalize the Nursecall system to specific needs of staff and patients.

For personal wellbeing there are 869MHz radio devices to detect falls, bed occupancy, chair occupancy, wandering, personal attack and epilepsy.

For environmental monitoring there are 869MHz radio devices to detect smoke, heat, carbon monoxide and flood.

Please contact Aidcall customer services for full details of all devices available and their applications.

2. IMPORTANT SAFETY INSTRUCTIONS

	Read and understand these instructions before use. Keep these instructions for future reference.
	Take care when working on step ladders during installation or service.
	Do not disassemble this product or attempt to repair it yourself.
	No user serviceable parts inside. Refer all servicing to qualified service personnel.
	This product should only be powered by a separate 12V DC battery backed PSU.
	Danger of explosion if the PSU rechargeable battery is incorrectly replaced. Use only manufacturer approved battery as identified in this manual. Refer replacement to qualified service personnel.
	This product should be located at least 2 metres away from other electronic equipment. Failure to provide this separation may result in reduced radio range.
	Do not locate this product above a radiator or other heat source.
	Do not expose to direct sunlight.
	Do not submerge in water and do not use in damp or humid conditions.
	Do not expose this product to dripping or splashing water. Liquids can cause a failure and/or a fire hazard.
	Clean with a hard-surface disinfectant wipe or a damp cloth and a non-abrasive cleaning product. Polish with a dry duster. DO NOT use a wet cloth.
	Avoid using harsh, abrasive, or corrosive cleaning agents or detergents (e.g. scouring powders, bleaches, polishes, etc.) when cleaning this product.
	At the end of its life this product should be disposed of and recycled in accordance with the environmental regulations. See the Regulatory Information in section 3 below.

3. REGULATORY INFORMATION

	We declare this product complies with the relevant UK legislation on condition that it is used in the manner intended, and in accordance with the current installation standards and/or the manufacturer's recommendations. A copy of the full UKCA Declaration of Conformity is available on request.
	We declare this product complies with the relevant European legislation on condition that it is used in the manner intended, and in accordance with the current installation standards and/or the manufacturer's recommendations. A copy of the full CE Declaration of Conformity is available on request.
	This symbol on the product indicates it is classed as Electrical or Electronic Equipment and should not be disposed of with other commercial waste at the end of its working life. The Waste of Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU) has been put in place to recycle products using the best available recovery and recycling techniques to minimise impact on the environment, treat hazardous substances and avoid increasing landfill. For product disposal please contact your supplier and check the terms and conditions of the purchase contract and ensure this product is not mixed with other commercial waste for disposal.
	This symbol on batteries indicates separate collection. Batteries contain chemicals that can be hazardous to health and the environment and should not be disposed of in the waste bin. The EU Directive (2006/6/EC) has been put in place to ensure the safe disposal and recycling of batteries. Return used batteries to your supplier or drop-off at your local municipal waste recycling depot.

4. MAINTENANCE & CARE

For peace of mind and to ensure your system is maintained to the highest standard Aidcall recommend an annual maintenance contract. This will provide vital assistance in times of need from a nationwide team of trained Service Engineers who specialise in wireless Nursecall systems.

A preventative maintenance visit (PMV) is also available from Aidcall, this covers the replacement of all batteries, a full system test, software updates (where applicable) and a Service Certificate.

For more information on Maintenance Contract Packages and PMV's please contact our customer services team on 01670 357431 or visit our website; <https://www.aidcall.co.uk/maintenance/>

MONTHLY MAINTENANCE

NTR's require no regular maintenance. If any NTR's show signs of external damage, they should be replaced immediately by a Service Engineer. Products needing repair can be returned via the website; <https://www.aidcall.co.uk/returns-procedure/>

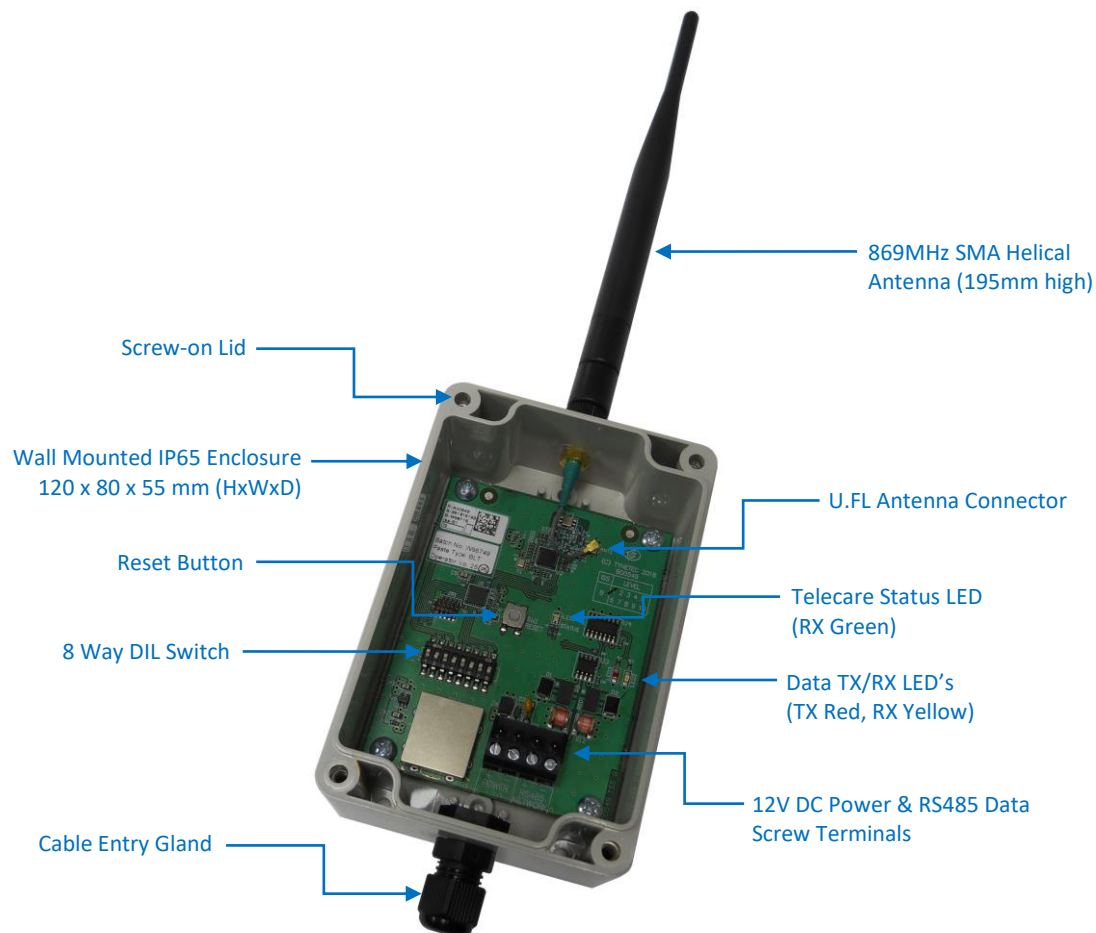
ANNUAL MAINTENANCE

The rechargeable standby batteries in the NTR PSU's should be tested every year by a Service Engineer and replaced every 5 years. See Section 8 for details of battery type.

5. NTR FEATURES

The key features of the NTR's are identified below.

Aidcall Part No. ZXT910



6. NTR INSTALLATION

NTR's are designed for internal wall mounting only – they are not suitable for external applications.

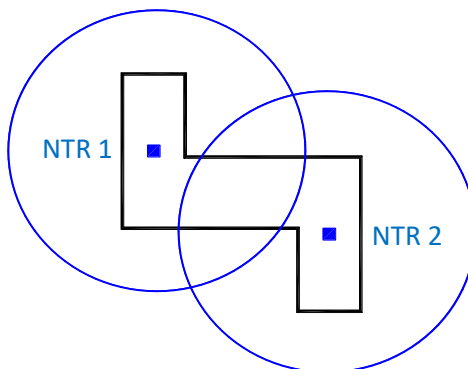
Up to 32 NTR's can be installed throughout a scheme to provide radio coverage for 869MHz Telecare devices. NTR's are wired on a 2 pair bus cable: 1 pair power and 1 pair data. The data connection must be taken from the RS485 Port on the Master Panel (ID 1) and is common to all NTR's (and AVI's) on the site. NTR's should be powered from a separate 12V DC power supply.

- The maximum number of NTR's per site is 32
- Up to 255 devices (RFE + NTR's + AVI's) can be connected to the RS485 bus
- The total length of the RS485 bus wiring should not exceed 1200 metres
- A maximum of 4 NTR's can be powered per 12V/1A battery backed PSU
- The total length of each power leg should not exceed 400 metres
- A maximum of 4 NTR's can be connected per 400 metre power leg

6. NTR INSTALLATION

The total number and positioning of the NTR's will be determined by site conditions; a typical indoor radio range of 75 metres radius can be expected. See the building plan below with 2 NTR's giving full coverage.

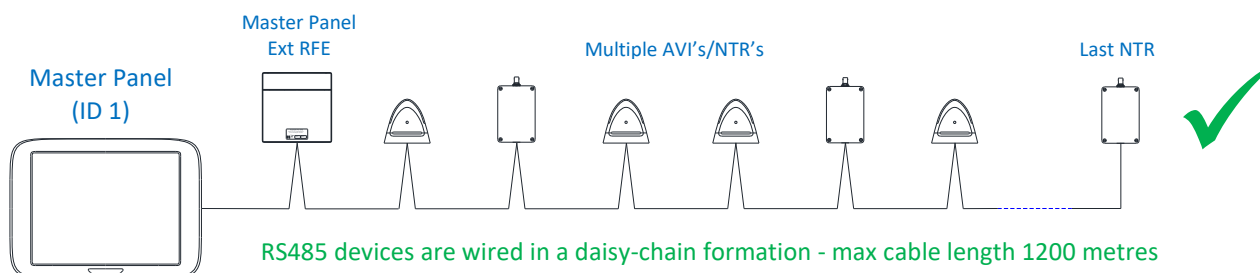
NTR's give approx. 75 metres radius radio coverage.



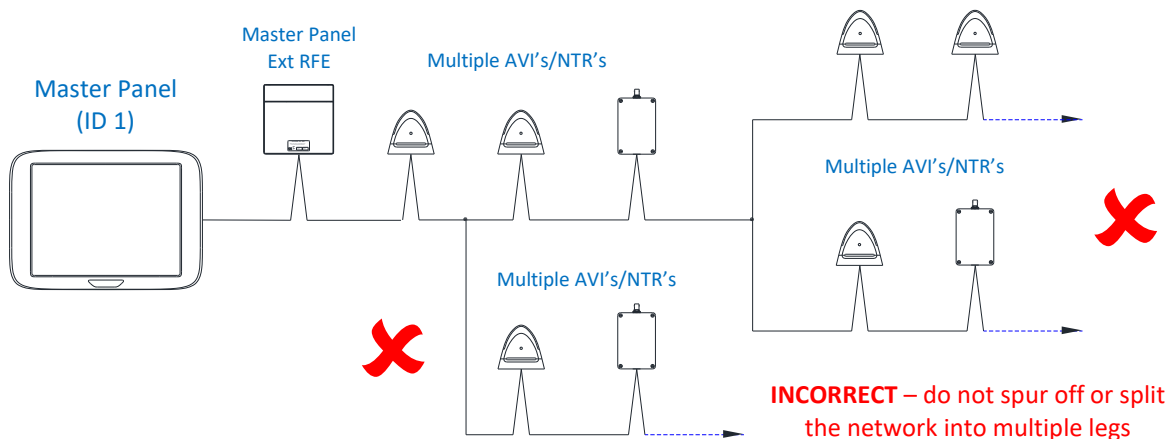
Construction materials such as foil backed plasterboard, reinforced concrete or stone walls will reduce range. Environmental conditions such as high levels of transmission at nearby frequencies or emissions from other electrical equipment may further reduce range. Clear line-of-sight will give best range.

RS485 BUS

It is important that the RS485 data bus wiring network is connected in one continuous “daisy-chain” through all NTR's (plus optional Master Panel RFE and AVI's) installed on the scheme...



The RS485 data bus must not be split into multiple legs from a mid-point in the wiring and small groups of devices should not be spurred-off at any point in the network...

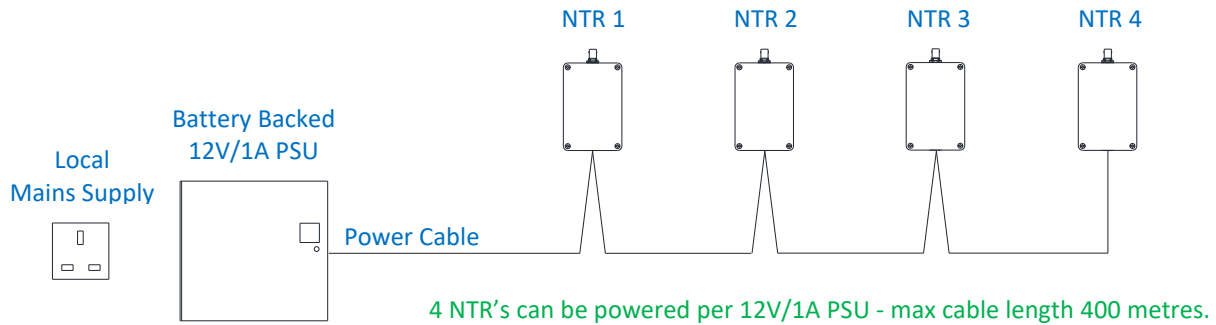


Note: NTR antennas omitted for clarity

6. NTR INSTALLATION

SITE WIRING

NTR's require a power and data connection on a 2 pair bus cable. The data connection must be taken from the RS485 Port on the Master Display Panel (ID 1) and is common to all NTR's (and AVI's) on the site. Up to 4 NTR's can be powered from a 12V DC 1A battery backed PSU.



Up to 32 NTR's can be fitted per site – these should be split over multiple power legs with a maximum of 4 NTR's on 400 metres cable length per leg. The RS485 data must be connected in one continuous leg from the Master Panel (ID 1) – cable length should not exceed 1200 metres.

6. NTR INSTALLATION

INSTALLATION

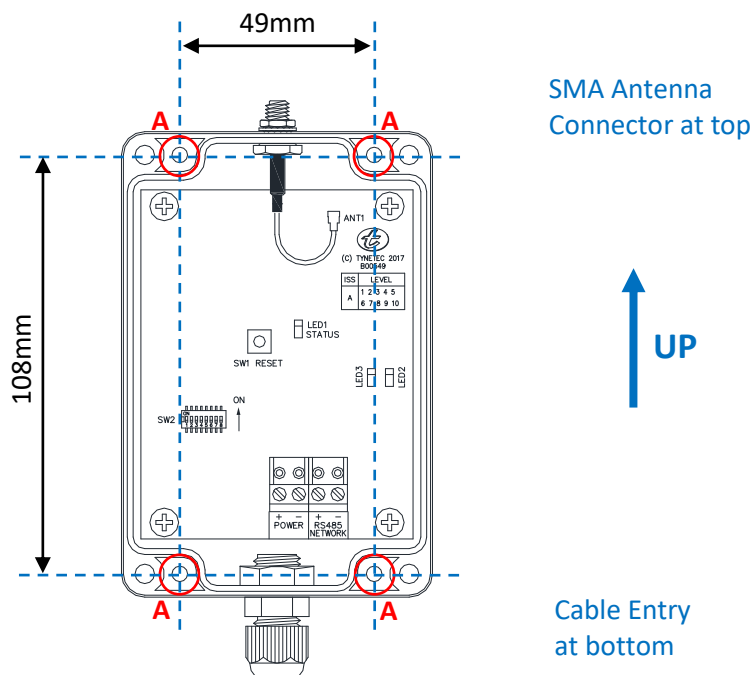
Undo the 4 fixing screws and remove the NTR lid.

NTR's should be sited in a dry secure area, they are NOT suitable for outdoor locations.

NTR's should be mounted so the antenna is vertical, they should be sited as high as possible and free of immediate obstruction from concrete, steel work or other electrical equipment.

Fix the NTR to the wall with 4 x No.6 x 1" Pozi screws through the 4 fixing holes "A" shown below.

Carefully screw the 869MHz Helical Antenna onto the SMA connector on the top face of the NTR.



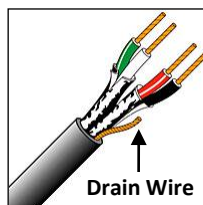
CABLE ENTRY

Cable entry should be via the cable gland on the lower face of the NTR.

CABLE SPEC & COLOUR CODE

The NTR/AVI power & data bus should be wired using LSF (Low Smoke and Fume) 2 Pair 22AWG individually screened pairs of data cable (Belden Type 8723 or equivalent).

Pair No.	Colour	Terminal
1 (Power)	Red	12V
	Black	0V
2 (Data)	Green	RS485+
	White	RS485-



Note Ref. Drain Wire...

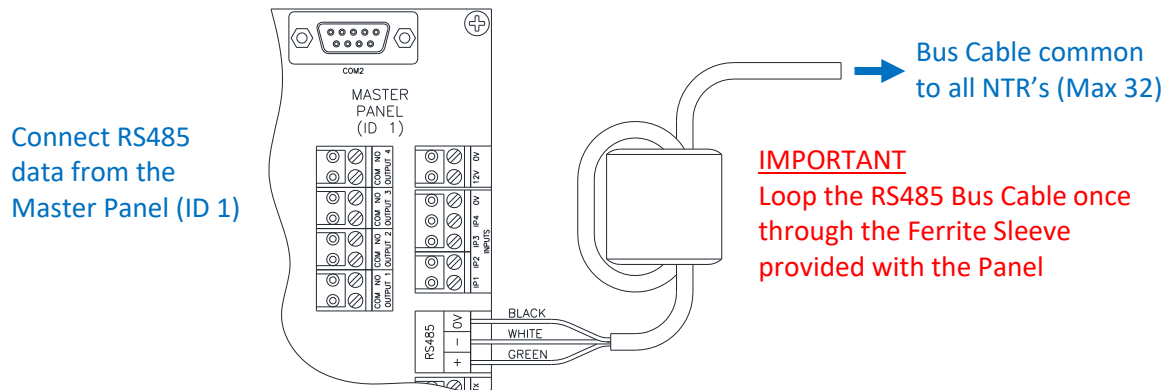
The drain wire is NOT connected. Do not cut-off, sufficient length should be left during installation for possible future use. Ensure the un-used drain wire is well insulated.

This cable is available from Aidcall in 100m reels; Part No. YW1715.

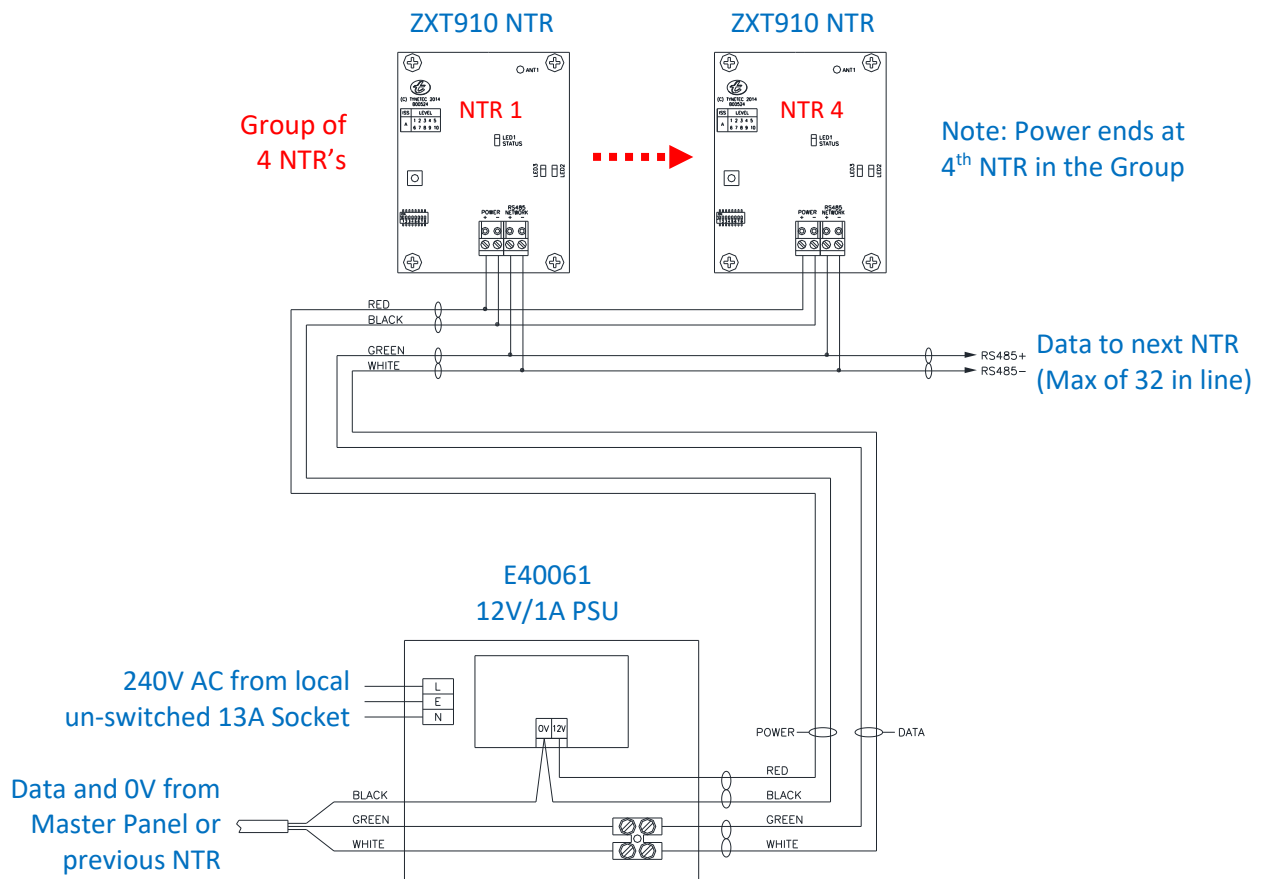
6. NTR INSTALLATION

CONNECTION DETAILS

Connect the NTR data bus direct to the Master Panel (ID 1) as shown below.



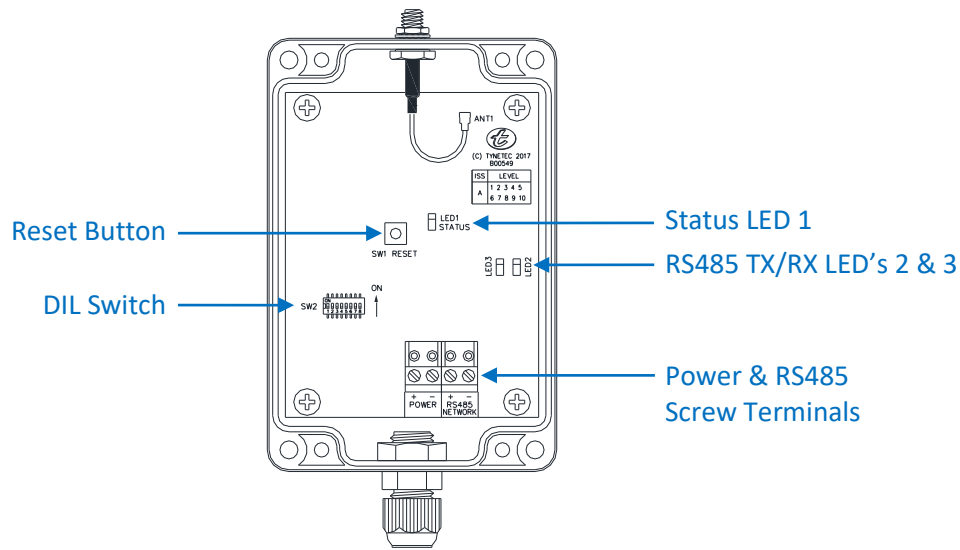
Connect the NTR power in groups of 4 from a separate 12V/1A PSU as shown below;



When the system is operational check the last NTR in each power leg has a minimum of 9V DC across its power terminals. If less than 9V then the power leg should be split into two and an additional PSU fitted at a convenient point.

7. NTR SETUP

NTR PCB



DIL SWITCH

DIL switches 1 to 5 are used to set the NTR ID (see table below).

DIL switch 6 is not used and should be **OFF**.

DIL switch 7 must be **OFF** to “Ack all” transmissions (Touchsafe Pro does not support intelligent learning).

DIL switch 8 must be **ON** for Touchsafe Pro protocol.

NTR ID's are set in Binary, start at 0 and run sequentially to 31 max – do not duplicate ID's.

DIL Switch No.	1	2	3	4	5	6	7	8
Binary Code	1	2	4	8	16	N/A	N/A	N/A
ID 0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
ID 1	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
ID 2	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
ID 3	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
ID 4	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
	↓	↓	↓	↓	↓	↓	↓	↓
ID 31	ON	ON	ON	ON	ON	OFF	OFF	ON



All NTR's must be assigned in the Display Panel(s) as House Code 000 with ID's starting at 065 for NTR 1 and running sequentially to 096 for NTR 32. See “ADD ATX” in the System Configuration section of the Display Panel Installation Guide Doc No. FM5500.

LED's

Status LED1 on the PCB will flash green when a Telecare radio transmission received.

LED's 2 & 3 on the PCB indicate the NTR is connected to the RS485 Bus. LED2 (yellow) should be permanently illuminated; LED3 (red) will flash when data is sent to the Master Panel.

RESET BUTTON

Always press the RESET button after DIL switch settings have been changed.

PROGRAMMING

Telecare devices must be allocated to a Call Point from the Telecare option on the Master Panel setup. See the Touchsafe Pro Display Panel Installation Guide (Aidcall Doc No. FM5500) for details.

Note: an Engineers Logon is required.

8. PSU BATTERY REPLACEMENT

Up to 4 NTR's can be powered from a 12V DC 1A power supply unit (Aidcall Part No. E40061). Each PSU includes a 12V 1.2Ah rechargeable battery that will maintain normal operation for several hours in the event of a mains power failure.

12V DC 1A
Power Supply



12V 1.2Ah Lead Acid
Rechargeable Battery

The rechargeable battery should be removed and tested by a Service Engineer on an annual basis and replaced every 5 years.

With the battery disconnected; check the charge voltage across the battery leads is between 13.6V DC and 14.2V DC (13.8V nominal).

If the battery shows any signs of damage, swelling or leakage during an annual inspection it should be replaced immediately.

Only replace with the Manufacturers Approved battery type:

Yuasa NP1.2-12: 12V 1.2Ah Sealed Lead Acid Rechargeable Battery

Replacement batteries are available from Aidcall; order Part No. F00619

IMPORTANT: always mark the battery with the date it was replaced for reference on future Service visits.



See section 3 of this manual for Regulations regarding the safe disposal of used batteries.

9. SPECIFICATION

869MHz NTR & Antenna	
Safety	Compliance to Safety Requirements EN IEC 62368-1:2020+A11:2020
EMC	Compliance to Electromagnetic Compatibility Directive 2014/30/EU
Radio	Compliance to Radio Equipment Directive 2014/53/EU
Materials	Compliance to EU Directive RoHS 2011/65/EU
Radio Frequency	869.2125MHz
Radio Range	75 metres typical (indoor)
Max No. NTR's per Site	32
Data Connection	RS485 (115200 Baud)
Power Requirement	12V DC 14mA
Antenna	869MHz SMA Helical Antenna (195mm long)
8 Way DIL Switch	Switches 1 to 5 = Binary ID, 6 = OFF (Not Used), 7 = OFF for Ack All and 8 = ON for Touchsafe Pro protocol
LED Indicators	LED1: Green RF RX, LED2: Yellow RS485 RX, LED3: Red RS485 TX
Enclosure Material	ABS - Light Grey RAL 7035
Flammability Rating	UL 94 V-0
Dimensions	120mm x 80mm x 55mm (LxWxD)
Weight	222 grams (including Antenna)
Relative Humidity	Non-condensing
Operating Humidity Range	10% to 90% RH
Operating Temperature Range	0°C to 40°C

12V/1A PSU	
Manufacturer/Model	Elmdene G13801N-A
Compliance	Low Voltage: 2006/95/EC, EMC 2004/96/EC, WEEE 2002/96/EC
Type	Switch Mode PSU with Electronic Overload Protection
Input Voltage	90V to 264V AC 50/60Hz
Output Voltage/Current	13.6V to 14.2V DC @ 1A (Nominal 13.8V)
Output Ripple	150mV peak to peak
LED Indicators	Green = Mains Supply Healthy, Red = Fault (Fuse Blown)
Mains Fuse Protection	T2.0A 20mm HRC
Load Fuse Protection	F1.0A 20mm Glass
Battery Fuse Protection	F1.0A 20mm Glass
Enclosure Material	Mild Steel with Hinged Lid
Enclosure Finish	Stove Enamelled White
Dimensions	200mm x 230mm x 80mm (HxWxD)
Weight	1.85 kilograms (excluding battery)
Relative Humidity	95% RH non-condensing
Operating Temperature Range	-10°C to 40°C

PSU Standby Battery	
Manufacturer/Model	Yuasa NP1.2-12
Type	12V 1.2Ah Rechargeable Lead Acid
Dimensions	97mm x 48mm x 54.5mm (LxWxH)
Weight	580 grams
Operating Temperature Range	-15°C to 50°C

PSU Mains Lead	
Approvals	BS 1363/A, VDE and KEMA
Cable	2 metres long 3 core 0.75 ² mm (Colour: Black)
Plug	BS 1363 moulded non-rewireable 13A UK Plug
Fuse Type/Rating	BS 1362 1" 240V AC 5A