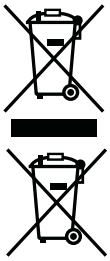
Installation Guide
teleCARE IP
Emergency Call System

10 FEB 2014 / Ver A

Copyright	
Disclaimer	The information in this document is subject to change. Use this product only in accordance with the instructions provided in the installation and user guide manuals. Use this product only in accordance with the purposes for which it is designed. For the latest version of all Ascom teleCARE documentation, contact your local supplier or visit the Ascom Partner Website at https://www.ascom-ws.com.
Trademarks and patents	The teleCARE name and logo are trademarks of Ascom. Other trade names used in this document may be trademarks or registered trademarks of the manufacturers or vendors of the respective products. This publication may contain examples of screen captures and reports used in daily operations. Examples may include fictitious names of individuals and companies. Any similarity to names and addresses of actual businesses or persons is entirely coincidental.
HIPAA disclaimer	All examples of personal or protected health information in this document are fictitious. Any resemblance to a real person or facility is purely coincidental. The owners and users of this product are solely responsible for complying with all applicable protected health information privacy laws. The users, by their use of this product, agree to indemnify the manufacturer or seller of this product against all claims, litigation, and suits filed for protected health information violations.
European Union directives 	The European directive "Waste Electrical and Electronic Equipment" (WEEE) aims to minimize the impact of electrical and electronic equipment waste on the environment and human health. To conform to this directive, electrical equipment marked with this symbol must not be disposed of in European public disposal systems. European users of electrical equipment must now return end-of-life equipment for disposal. Further information may be found on the following website: www.recyclethis.info.
Battery Disposal	This product may use sealed lead-acid batteries. Please refer to manufacturer instructions and all state, provincial, and local codes for information, instructions and requirements regarding proper disposal.
Environmental Requirements	Refer to the installation guide and product data sheet for complete product ratings and information. Avoid exposing the device to direct sunlight or other heat sources. Do not expose the device to open flame. Keep the device away from excessive heat and moisture. Protect your device from aggressive liquids and vapors. Keep the device away from strong electromagnetic fields.
Terms used in this manual	Specialized terms are used throughout this manual. The first time a term is used it is defined in the text.
Regulatory Compliance (EU/EFTA)	This equipment is intended to be used in the whole EU & EFTA. This equipment is in compliance with the essential requirements and other relevant provisions of EMC Directive 2004/108/EC and RoHS Directive 2011/65/EU. For NIRX/NITX/NILF/NICR/NIRD products: R&TTE Directive 1999/5/EC and RoHS Directive 2011/65/EU. The Declaration of Conformity may be consulted at: http://www.ascom-ws.com/doc/

Regulatory Compliance (US/CAN)	**Safety Compliance** The equipment described herein complies with: ANSI/UL 2560 Emergency Call Systems for Assisted Living and Independent Living Facilities CAN/CSA C22.2 No. 205 Signal Equipment **Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio or television technician for help. **Information to user** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: i) this device may not cause harmful interference, and ii) this device must accept any interference received, including interference that may cause undesired operation. This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. CAN ICES-3 (B)/NMB-3(B) **Modifications** Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. **NIRC3 (only)** **Note:** This 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. This 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 this 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. CAN ICES-3 (A)/NMB-3(A)

1 Introduction

The installation guide covers the mechanical and electrical installation of the teleCARE IP Emergency Call System. The teleCARE IP "System Description" (TD 92608GB) should be read before reading this manual to gain a general understanding of the teleCARE IP system.

Throughout this document there are "cross-references" in the text which indicate that further details can be found in another section of this document. The cross-references are colored blue and linked to the relevant place in the document. Positioning the cursor over the "cross-reference" then click the left mouse button to go to the relevant section of the document. The product illustrations in this document represent the products when the illustrations were created. The actual appearance of the products may vary due to subsequent technical modifications and component changes.

1.1 General

teleCARE IP is a Local Area Network (LAN) based Emergency Call System for assisted living and independent living facilities. The LAN/WLAN infrastructure is used to communicate the information generated in the emergency call system, such as calls for help or assistance, staff presence, emergency alarms, technical alarms, etc. The IP integration is at room level with at least one IP port per room.

teleCARE IP operates on a Ethernet LAN based on 10/100 BaseT, using a Cat 5 (or higher) structured wiring for 100 BaseT. The network shall be a dedicated network.

The teleCARE IP system is modular, scalable and built around the Room Controller (NIRC). Power is supplied using an external 24Vdc power supply.

teleCARE IP peripherals are connected to the room controller by a digital room bus. Each room controller includes 3 room buses with 8 addresses per bus.

The modularity of teleCARE IP makes it easy to extend and add new functions to already installed systems. The LAN technology allows easy installation of new room controllers and peripherals in order to extend the existing teleCARE IP system.

1.2 Installation and Commissioning

The installation and commissioning of teleCARE IP should only be undertaken by qualified technicians and carried out in accordance with all regulations. Only original teleCARE IP parts and components are to be used in any teleCARE IP installation. In order for the system to function properly these parts must be installed in accordance with the appropriate teleCARE IP installation instructions.

The teleCARE IP equipment should only be installed when the building work is completed and when the environment is clean, dry and totally weatherproof. All control and distribution equipment must be accessible for commissioning and servicing.

The acceptable environmental conditions for the teleCARE IP system, associated power supplies and related equipment are all listed systems and components and are in compliance with the safety requirements of ANSI/UL 2560 Standard for Safety, Emergency Call Systems for Assisted Living and Independent Living Facilities and CAN/CSA No. 205-12, Signal Equipment.

WARNING: The teleCARE IP equipment should not be installed in areas where the air pressure is below 850 millibar (approximate maximum altitude of 6100ft (2000m).

WARNING: teleCARE IP components, including all handsets, are not intended for use in oxygen enriched environments.

WARNING: teleCARE IP components, including all handsets, are not intended for use in rooms where flammable (anesthetic) gases are used.

1.3 teleCARE IP With Speech

The basic installation for a teleCARE IP system with speech is the same as for teleCARE IP without speech with the exception that room controllers with speech support and a supplementary VoIP gateway are required. In addition each location where speech is required must have a teleCARE IP speech module. The speech module can only be used in combination with the teleCARE IP door side module (NIDM), the bedside module (NIBM), and the pull cord module (NIPC).

1.3.1 Compatible Ascom IM Handsets

teleCARE IP with speech is designed to work with Ascom Interactive Messaging using the Ascom handsets which support multi-layer interactive messaging. At the time of publication of this document the Ascom handsets which support multi-layer interactive messaging are:

9d24 / mkII (software 3.71 or higher)

d62 (software 3.0.5 or higher)

d81 (software 2.0.5 or higher)

i75 (software 1.7.7 or higher)

1.3.2 System Overview teleCARE IP with Speech

The following illustration shows a typical example of a teleCARE IP speech system. The options and system components depend on the specific project requirements.

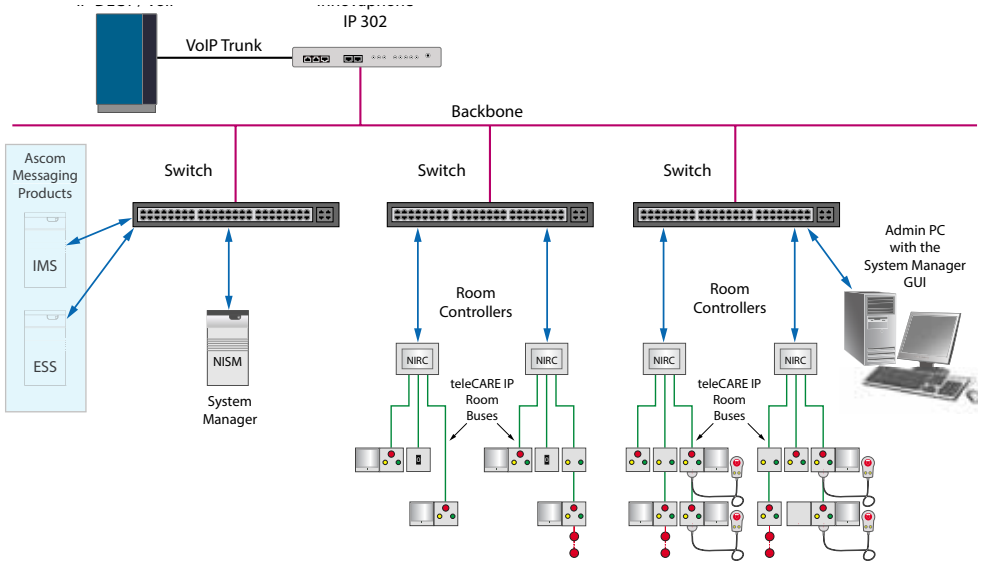


Figure 1. System overview teleCARE IP with speech

1.3.3 Innovaphone VoIP Gateway

The teleCARE IP system uses the supplementary Innovaphone VoIP gateway to support VoIP speech functionality. The Innovaphone VoIP gateway is an IP based gateway providing the VoIP based solution which supports all the features of a traditional PBX. For the teleCARE IP VoIP the SIP Trunk must be used for the interface to the main PBX. The SIP trunk must be set to "Early offer".For more information refer to the teleCARE IP Configuration Manual TD 93019US.

The Innovaphone VoIP gateway power supply can be sourced from the LAN (VoIP gateway Class 3 IEEE 802.3af) or by a mains adapter power supply (output 40Vdc 375mA). It is connected and integrated in the existing telephone system network directly using SIP protocol. It is configured with the project specific requirements using the teleCARE IP System Manager.

A license is required for the Innovaphone VoIP gateway. For this an activation code has to be ordered from Ascom before downloading the license from the Innovaphone Customer Portal (https://my.innovaphone.com/).

2 Practical Engineering Parameters

In order to ensure the optimal performance of a teleCARE IP system it is important to consider certain parameters and limitations. The following tables show the most important practical values which can have an influence on the teleCARE IP system performance.

WARNING: Any deviation from the values and recommendations shown in the following tables can significantly reduce the performance of the teleCARE IP system.

2.1 General Limitations

teleCARE IP Items	Practical Limits
NIRCs per NISM	Max. 200
Active peripherals per room bus (addressable - 0 to 3)	Max. 4
Active peripherals per room bus (fixed address - 4 to 7)	Max. 4
Pull cord peripherals on a passive bus	Max. 1
Toilet cancel peripherals on a passive bus	Max. 1
Total cable length of an NIRC IP room bus	Max. 100 feet (30 meters)
Minimum IP room bus voltage	4.5 Vdc
Minimum NIWC room bus voltage	18.6 Vdc

2.2 Network Expectations

Network Expectations
The LAN must be dedicated and isolated from any general purpose LAN
The LAN installation should be in accordance with ANSI/TIA/EIA-568-A
LAN cable type: Category 5 (or higher)
Maximum LAN cable length: 328 ft (00 meters)
A switch port is required for each room controller
Existing customer LANs must be assessed by Ascom before committing
For details of the teleCARE IP load and performance see document TD92636GB, (IP Infrastructure Requirements)

2.3 VoIP Requirements (Supplementary)

VoIP Considerations
The Innovaphone VoIP gateway version 8 is required for teleCARE IP with speech, as the interface to the PBX.
An interoperability test between the VoIP gateway and main PBX must be performed.
The connection between the PBX and the Innovaphone can be BRI or SIP Trunk
teleCARE IP only supports CODEC G.711 (a-law)
SIP trunk to the VoIP gateway must be set to "Early offer"
teleCARE VoIP shall use the Emergency Call System LAN only.
Ascom Testimonials: Delay - less than 50 ms is good Jitter - less than 30 ms is good Packet Loss - 1% is good (up to 4% is acceptable)
The maximum capacity of the network used for voice should not exceed 25% of the total network capacity
The maximum capacity of the network used for used for data and voice together should not exceed 75% of the total network capacity

2.4 teleCARE IP Compatible Ascom Handsets (Supplementary)

teleCARE IP Compatible Ascom Handsets
9d24 / mkII (software 3.71 or higher) d62 (software 3.0.5 or higher) d81 (software 2.0.5 or higher) i75 (software 1.7.7 or higher)

3 System LAN Cabling

3.1 Ethernet Switch

The 8-port Ethernet Switch, Ascom part number APS5001, shall be used with the teleCARE IP system and can be purchased through Ascom.

WARNING: Use of any Ethernet Switch other than Ascom part number APS5001 violates the UL 2560 listing.

3.1.1 Ethernet Switch DIN Rail Mounting

The Ethernet Switch shall be mounted on a 1.5in (35mm) DIN-rail, which can be mounted on a wall. See instructions inside the Ethernet Switch Installation Guide provided with the switch.

3.1.2 Ethernet Switch 19" Rack and Cabinet Mounting

The Ethernet Switch can be mounted into a 19in (483mm) rack secured to a DIN Rail, which must be attached with screws or other fixtures to the rack and must not be easily movable.

3.1.3 Ethernet Switch Installation – Seismic

For installations requiring seismic considerations, refer to OSHPD Installation Requirements and Instructions, document number 3101998, for selection, sourcing, and installation of racks and cabinets. After the racks or cabinets are installed, the Ethernet Switch can then be installed into a cabinet or rack, in accordance with the instructions described in 3.1.2.

WARNING:

- Use only the cabinets or rack listed in the OSHPD Installation Requirements and Instructions document (P/N 3101998).
- Do not use the uninterruptible power supplies described in the OSHPD installation document. The battery backup for the teleCARE IP system must be provided by the power supply described in section 4.2, 24Vdc / 8 Amp Power Supply (Seismic).
- Use the rack mounting accessories described in section 3.1.2 to mount the Ethernet switch to the rack or cabinet.
- Do not apply the OSHPD Label to the rack, cabinet or, Ethernet Switch. If an OSHPD label is required, contact your Ascom Sales Representative.

3.1.4 Ethernet Switch Power

The Ethernet Switch must be powered by the 24Vdc / 3 Amp Power Supply Ascom model APS5000 described in Section 4 of this manual. The power conductors must be in accordance with the requirements specified in section 4.4 and connected to the four-pin removable keyed connector provided with the unit. Power connections to the Ethernet Switch shall be in accordance with the Figure 2.

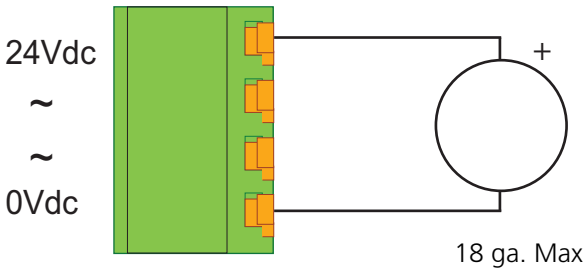


Figure 2. Ethernet Switch Power Connection

3.1.5 Ethernet Switch Operation

When properly installed and operating, LED indicators on the Ethernet Switch will be observed as follows:

PWR (green)	Illuminates steady when proper power is supplied to the Ethernet Switch.
LINK (green)	Each port has a LINK LED which indicates that a valid Ethernet link has been established. The LED flashes when data transfer is occurring.
HS (yellow)	Each port has a DATA RATE LED which illuminates steady indicating that data is transferring at 100 Mbps.

3.2 Ethernet LAN and Room Bus Cables

High quality cables must be used to install the teleCARE IP system. The individual wire cores of the cables should be color coded. Care should be taken when stripping cables from the outer mantle to avoid damaging the insulation of the wire cores.

The system wiring is classified as low voltage and therefore cabling must be separated from higher voltage system through the use of separate conduits or divided cable trays.

A minimum of 19.75in (50cm) of free cable should be left at the location of the room controllers, and corridor lamps. For the room peripherals a minimum of 6in (15cm) of free cable should be left at the location of each peripheral. All cables should be clearly marked at both ends.

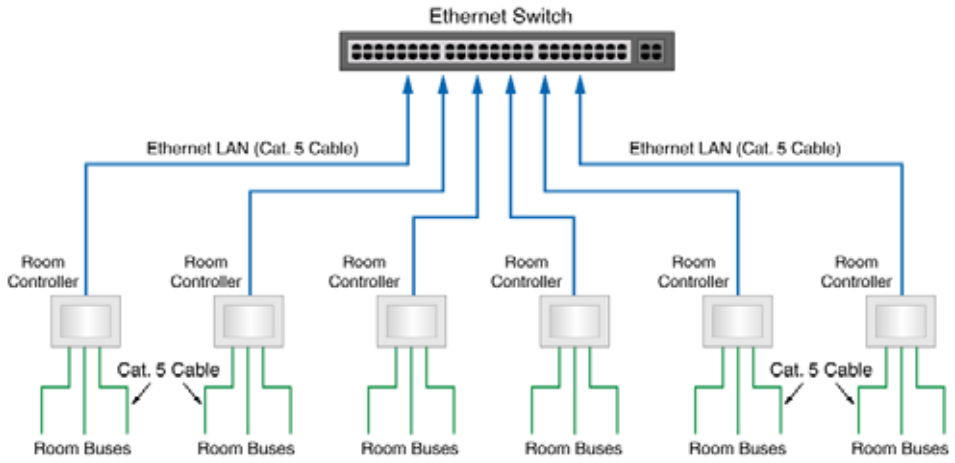


Figure 3. Ethernet LAN and room bus cabling

Note: *Suitable existing wiring could be also be used for the room bus. Contact your local representative for further information.*

3.2.1 Ethernet LAN Cable

The cable required for the Ethernet LAN must comply with the specification TIA/IEA 568-A Category 5 or higher. This is a standard 4 x unshielded twisted pair (UTP) solid bare copper with a diameter of 24 gauge (0.5mm).

Cable Type	Wire Size Diameter / AWG	Max. Cable Length
TIA/IEA 568-A, Category 5 or higher (4 x UTP)	24 gauge (0.5mm)	328ft (100m)

Table 1. Recommended Ethernet LAN cable

Caution: *The maximum length of the Cat 5 (or higher) Ethernet LAN cable is 328 feet/100 meters.*

3.2.2 Room Bus Cable

The room bus cable connects the room controller to the associated teleCARE IP peripherals. It consists of four wires which carry 5.5 volts, Data, Voice and Ground.

The recommended cable for the room bus is TIA/IEA 568-A Category 5 or higher. It is also acceptable to use 2 x twisted pairs of solid copper wires each 0.10in (0.6mm) diameter. The table below shows the recommended cable types with the preferred cable type in bold italics.

Cable Type	Wire Size Diameter / Area	Max. Cable Length
TIA/IEA 568-A Category 5 or higher (4 x UTP)	24awg (0.5mm) / (0.25mm²)	98.4ft (30m)

Table 2. Recommended teleCARE room bus cable

Room Bus Cable Considerations

It is important to consider the factors of cable length and load when installing the room bus for the following reasons:

- The resistance of the wires in the room bus cable increases with the length and this causes the voltage to decrease progressively along the length of the cable.
- The room bus voltage also drops in proportion to the load.
- The effect of "cross-talk" increases as the cable length increases.

Room Bus Power Considerations

The room bus power supply output from the room controller is limited to 300mA per room bus but the maximum acceptable load on the room bus decreases significantly as the distance from the room controller increases due to the resistance of the room bus cable.

Room Bus Voltage Considerations

The power supply to the room bus at the output from the room controller is >5.5Vdc without load but this will drop as the room bus cable length and/or the load increases. The minimum acceptable voltage at any point on the room bus cable is 4.5Vdc.

Room Bus Cable Length and Power Limitations

The IP Room Controller offers up to three room buses. The load of any room bus must not exceed 300mA and the minimum acceptable voltage anywhere along the room bus is 4.5 volts.

When UTP category 5 cable (or higher) is used the length of any room bus cable should not exceed 98.4ft (30m), irrespective of the load. Below 98.4ft (30m), the maximum acceptable length of the room bus cable depends on the load (including third-party devices).

4 System Power

The teleCARE IP system power supply shall be sourced from an external 24Vdc power supply, utilizing a dedicated 2-wire power distribution bus. The external power requirement for teleCARE IP is 24Vdc, with an acceptable range of 21.6Vdc to 26.4Vdc.

WARNING: Use of any Power Supply other than those which are specified in this manual violates the UL 2560 listing.

4.1 24Vdc / 3 Amp Power Supply (Standard)

The 24Vdc / 3 Amp Power Supply, Ascom part number APS5000, must be used with the teleCARE IP system and can be purchased through Ascom.

The teleCARE IP Standard Power Supply shall be used to power the teleCARE IP system. This power supply converts 115Vac / 60Hz input power to a 24Vdc / 3 Amp, Class 2 Rated regulated output.

There is a built-in charger to charge sealed lead acid batteries. The batteries provide the Secondary Power to the teleCARE IP system in the event of mains AC power failure. There is an automatic switchover to the batteries when input AC power fails. During switchover, there is zero voltage drop at the power output. The power output fuse is rated at 15A/32Vdc.

WARNING:

- Do not use the Standard Power Supply for installations that require seismic considerations. Use the 24Vdc / 8 Amp Power Supply (Seismic) described in section 4.2 instead.
- Make certain that the AC circuit breaker is off before making any wiring connections between the circuit breaker and the power supply.
- Always de-energize the power supply prior to servicing.
- When servicing, the AC mains circuit breaker should be in the off position and locked out to prevent accidental activation.
- When necessary, always replace the fuse with the same type and rating (15A/32Vdc).
- This power supply is intended for indoor use only. Do not expose the unit to rain or moisture.
- After installation or servicing make sure that the cover is secured with the provided Key Lock.

4.1.1 Power Supply (Standard) Installation

The teleCARE IP Standard Power Supply is provided with an Installation Guide that is packaged with the unit. The unit is intended for wall mounting at a fixed location. Follow the instructions in the Installation Guide for mounting the power supply to a wall.

Note: *Power distribution is best organized with the power supply unit located as close as possible to the rooms which it powers. This minimizes the voltage drop caused by the length of the power supply wires and the load of the powered teleCARE IP system devices.*

For setup and configuration, refer to the illustrations in the Installation Guide to identify the switch which must be set for 24Vdc operation, and to identify the terminals for connecting the power supply board to the batteries and teleCARE IP system.

WARNING:

- Batteries must be secured within the HPFF8 cabinet enclosure.
- Batteries must be lead acid and must comply with UL 2054. (See Section 4.3, Secondary Power.)
- Before applying power, inspect the Power Supply Board (Figure 1 in the Power Supply Installation Guide) to ensure that SW1 is set to the Open position, to configure the unit for 24Vdc operation.
- Before applying power, inspect the Power Supply Board to ensure that jumper J1, AC Delay, is in place.
- The Power Supply Board is not wired to chassis ground. When connecting the mains AC grounding conductor, DO NOT connect to the G terminal on the Power Supply Board.
- Use a crimping wire nut of appropriate size to connect the mains AC grounding conductor to the green with yellow stripe grounding conductor lead attached to the power supply cabinet backpan.
- Measure the output voltage at the [+BAT-] and [+DC-] terminals before connecting the batteries or teleCARE IP system. Improper high voltage will damage the connected devices.
- Always de-energize the power supply unit prior to connecting the batteries and teleCARE IP system.
- Refer to sections 4.4 and 4.5 in this manual before connecting and powering the teleCARE IP system.

Connect the AC mains power (115Vac/60Hz) to the terminals marked [L, N] on the Power Supply Board. Apply mains AC power. Measure and confirm 20Vdc to 26.4Vdcat the [+BAT-] and [+DC-] terminals. Adjust the potentiometer next to SW1 to get 26.4Vdc at the [+BAT-] terminals. De-energize the power supply, connect the batteries and teleCARE IP system, and re-energize the power supply.

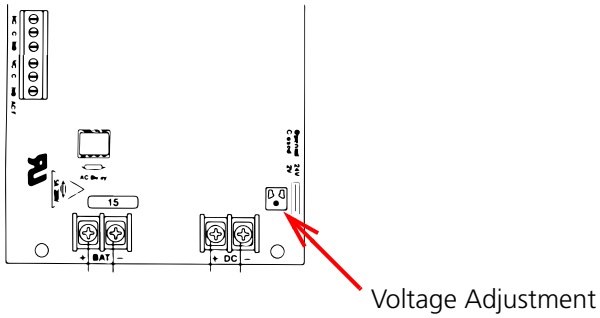


Figure 4. Adjust the voltage to 26.4 Vdc

4.1.2 Power Supply (Standard) Operation and Maintenance

The teleCARE IP Standard Power Supply should be tested at least once a year for proper operation. Under normal load conditions, the DC output voltage should be checked for proper voltage level, which is 24Vdc for the teleCARE IP system.

Under normal load conditions, check that the battery is fully charged. Check for the specified voltage (24Vdc) at both the battery terminals and power supply board terminals marked [+BAT-] to ensure there is no break in the battery connection wires.

Note:

- The maximum charging current under discharge is 0.7 amperes.
- Expected battery life is 5 years. However, it is recommended to change the batteries in 4 years, or less if needed.

Red (DC)	Green (AC)	Power Supply Status
ON	ON	Normal operating condition.
ON	OFF	Loss of AC, Stand-by battery supplying power.
OFF	ON	No DC output.
OFF	OFF	Loss of AC. Discharged or no stand-by battery. No DC output.

Table 3. Power Supply Board LED Diagnostics (Red DC / Green AC)

Red (BAT)	Battery Status
ON	Normal operating condition
OFF	Battery fail/low battery

Table 4. Power Supply Board LED Diagnostics (Red BAT)

4.2 24Vdc / 8 Amp Power Supply (Seismic)

For installations requiring Seismic compliance, the only external power supply which is certified for use with the teleCARE IP system is model HPFF8 by Honeywell Power Products, which can be purchased through an electrical supplier such as, Graybar or Arrow.

Note: *The HPFF8 is listed under OSHPD Special Seismic Certification Pre-Approval: OSP-0071-10.*

The HPFF8 power supply converts 115Vac / 60Hz input power to 24Vdc / 8 Amps of continuous power output, distributed through four supervised power limited output circuits. The maximum current for any one output circuit is 3.0 Amperes. Each power output circuit has built in fault detection and automatic recovery when faults are removed.

There is a built-in charger to charge sealed lead acid batteries. The batteries shall provide Secondary Power to the teleCARE IP system in the event of mains AC power failure. There is an automatic switchover to the batteries when input AC power fails. During switchover, there is zero voltage drop at the power output.

WARNING:

- Batteries must be secured within the HPFF8 cabinet enclosure using Seismic Installation Kit (SEISKIT-COMMENC).
- Batteries must be lead acid and must comply with UL 2054. (See section 4.3, Secondary Power.)
- The HPFF8 Power Supply is a UL 864 listed power supply, normally intended to power and function with a Fire Alarm System (FAS). When used to power the teleCARE IP system, the features normally required to make the power supply operational as a FAS unit are not supported by Ascom.
- Except for the instructions for mounting the unit to a wall, which are provided in the HPFF8 Installation and Operation Manual, follow only the instructions provided in this manual for safety, setup, configuration, and wiring to the teleCARE IP system.
- Make certain that the AC circuit breaker is off before making any wiring connections between the circuit breaker and the power supply.
- Always de-energize the power supply prior to servicing.

- When servicing, the AC mains circuit breaker should be in the off position and locked out to prevent accidental activation.
- This power supply is intended for indoor use only. Do not expose the unit to rain or moisture.
- After installation or servicing make sure that the cover is secured with the provided Key Lock.

4.2.1 Power Supply (Seismic) Installation

The HPFF8 Power Supply is provided with an Installation Manual that is packaged with the unit. The unit is intended for wall mounting at a fixed location. Follow the instructions for Backbox Mounting of a Standard Cabinet provided in the Installation Manual.

Note: *Power distribution is best organized with the power supply unit located as close as possible to the rooms which it powers. This minimizes the voltage drop caused by the length of the power supply wires and the load of the powered teleCARE IP system devices.*

For setup and configuration, use the illustrations provided in the HPFF8 Installation Manual to identify the locations of jumpers and terminals. Follow the instructions in this manual for connecting the power supply board to the batteries and teleCARE IP system

Inspect the Control Circuit Board (Figure 1.1 in the HPFF8 Installation Manual) to ensure that the Charger Disable Jumper (J1) and Ground Fault Disable Jumper (J2) are both installed.

Install the Reference Resistor to the REF+ and REF- terminals on TB3. Use either a 3.9K or 4.7k ohm, ¼ watt resistor as the Reference Resistor.

Caution: *The same value resistor used for the Reference Resistor must be used as the End of Line (EOL) resistor for the teleCARE IP system power bus.*

Before connecting and powering the teleCARE IP system, refer to sections 4.4 and 4.5 in this manual. Install the EOL resistor at the last NIRC unit on the teleCARE IP power bus.

Caution: *Measure the output voltage at the [+BAT-] and [+DC-] terminals before connecting the batteries or teleCARE IP system. Improper high voltage will damage the connected devices.*

Caution: *Always de-energize the power supply unit prior to connecting the batteries and teleCARE IP system.*

Caution: *Maintain vertical separation where power-limited (i.e., DC power to teleCARE IP) and non-power-limited circuits (i.e., mains AC and battery wiring connections to the Control Circuit Board) appear to cross.*

Before connecting and powering the Secondary Power Batteries, the batteries must be secured within the HPFF8 cabinet enclosure using the Seismic Installation Kit. Follow the instructions provided with Honeywell model SEISKIT-COMMENC.

Connect the AC mains power (115Vac/60Hz) to the TB1 terminals marked [L1, Ground, L2] on the HPFF8 Power Supply Board.

Apply mains AC power. Measure and confirm 24Vdc at the [+BAT-] and [1L1/1L2 through 4L1/4L2 and A+/A-] terminals.

De-energize the power supply, connect the batteries and teleCARE IP system (to the 4L1/4L2) terminals.

Caution: *Connect the negative (-) lead of the teleCARE IP System to the 4L1 terminal and the positive (+) lead to the 4L2 terminal.*

Re-energize the power supply.

4.2.2 Power Supply (Seismic) Operation and Maintenance

The HPFF8 Power Supply should be tested at least once a year for proper operation. Under normal load conditions, the DC output voltage should be checked for proper voltage level, which is 24Vdc for the teleCARE IP system.

Under normal load conditions, check that the battery is fully charged. Check for the specified voltage (24Vdc) at both the battery terminals and power supply board terminals marked [+BAT-] to ensure there is no break in the battery connection wires.

Note:

- The maximum charging current under discharge is 0.75 amperes.
- Expected battery life is 5 years. However, it is recommended to change the batteries in 4 years, or less if needed.

The HPFF8 provides supervised functions of the field wiring for the following adverse conditions:

- Field-wiring fault (short or open) on the teleCARE IP power bus.
- AC failure or brownout at the power supply.
- Battery failure (no battery or battery voltage less than 20.5Vdc) condition at the power supply.
- Battery charger failure on the power supply.
- Ground fault condition.
- +/- Reference Resistor

There are 8 LEDs on the Control Circuit Board for indicating normal and trouble operation of the HPFF8 Power Supply (see Figure 1.1 in the HPFF8 Installation Manual.) When viewed from top to bottom, the LEDs operate as follows:

LED	Label	Condition	Illumination	Reset
1	PWR ON	Power On	Steady	Auto
		Loss or Brownout	Blink	
2	AUX TRBL Note 1	Normal	Off	Auto
		Excessive load or short	Steady	
3	BAT TRBL Note 2	Normal	Off	Auto
		Charger Fault	Blink	
		No battery or <20.5Vdc	Steady	
4	GF TRBL	Normal	Off	Auto
		Ground Fault	Steady	
5	SIG4 TRBL Note 3	Normal	Off	Auto
		Short or Open Present	Steady Note	
		Short or Open Past Note	Blink	Note 6
6	SIG3 TRBL Note 3	Normal	Off	Auto
		Short or Open Present	Steady Note	
		Short or Open Past Note	Blink	Note 6
7	SIG2 TRBL Note 3	Normal	Off	Auto
		Short or Open Present	Steady Note	
		Short or Open Past Note	Blink	Note 6
8	SIG1 TRBL Note 3	Normal	Off	Auto
		Short or Open Present	Steady Note	
		Short or Open Past Note	Blink	Note 6

Table 5. Control Circuit Board LED Diagnostics

Note:

1 Relates to the A+/A- terminals on TB4. Not used in teleCARE IP.

2 A battery fail indication can occur if there was an AC failure within the first 24 hours after initial power-up and the battery voltage had been discharged to a voltage of 20.5Vdc or less. The BAT TRBL LED may also illuminate steady, after a certain delay during charging, to indicate the battery was discharged and may not support full load. The delay is based on operational conditions (time remaining in the first 24 hours and time in stand-by) and will automatically reset if the battery charging has time to reach its full float voltage.

3 SIG4 TRBL through SIG1 TRBL associate with TB4 terminals 4L1/4L2 through 1L1/1L2 respectively.

4 The HPFF8 has Trouble Memory for the supervised outputs. This is useful as an aide in knowing when past troubles have occurred and if intermittent problems are present on the SIG4 through SIG1 output circuits.

5 If all four SIG TRBL LEDs are illuminated steady, check if the Reference Resistor is missing or doesn't match the EOL resistor used to terminate the teleCARE IP Power Bus. Otherwise, each power circuit probably has a trouble.

6 To restore a SIG4 – SIG1 blinking LED to normal, press SW2 on the Control Circuit Board or, power cycle the HPFF8 OFF/ON.

4.3 Secondary Power

Secondary Power for the teleCARE IP system shall be provided by two teleCARE IP Batteries installed in the primary power supply. The batteries are each rated for 12Vdc, 7 ampere hours (AH) and can be purchased through an electrical supplier such as Graybar.

WARNING:

- Batteries must be secured within the power supply cabinet as described in section 4.2.1.
- The teleCARE IP Batteries shall be lead acid and must comply with UL 2054.
- When installing or servicing the teleCARE IP Batteries, follow the instructions for installation of the appropriate power supply and observe all WARNINGS and CAUTIONS described in sections 4.1 and 4.2.

Use the following table to determine the total Standby and Active load in amperes hours for Secondary Power, when used with the teleCARE IP Standard Power Supply for standard installation and the HPFF8 Power Supply for seismic installations.

100% Load (3A)	1 Hour Battery Life
10% Load (.3A)	3 Hours Battery Life

Table 6. Total Secondary Power at 24Vdc

4.4 teleCARE IP Power Supply Wiring

It is important to use the correct wire sizes and to consider the length of the 24Vdc power supply wires. The minimum acceptable wire size of the 24Vdc bus is 18 gauge (1mmØ) (0.8mm²).

For the stub wiring between the 24Vdc bus and the control module wire size 18 gauge (1mmØ) (0.8mm²) must be used.

Warning: *Incorrect wire size can result in dangerous overheating of the wires!*

Caution: *Excessive 24Vdc bus length can result in unacceptable voltage drop! The lowest acceptable voltage at any point in the 24Vdc distribution is 21.6Vdc.*

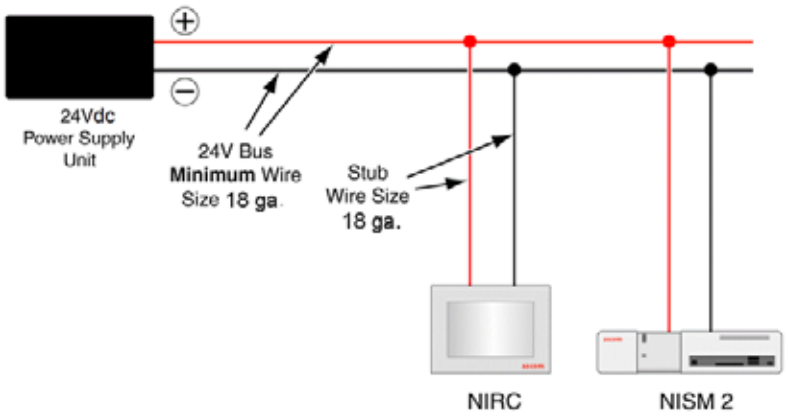


Figure 5. teleCARE IP 24Vdc power supply wiring

4.5 Power Supply Unit (24Vdc) with Multiple Power Buses

The output of the power supply unit can be divided over multiple buses. This method is recommended as it will reduce the power cable lengths.

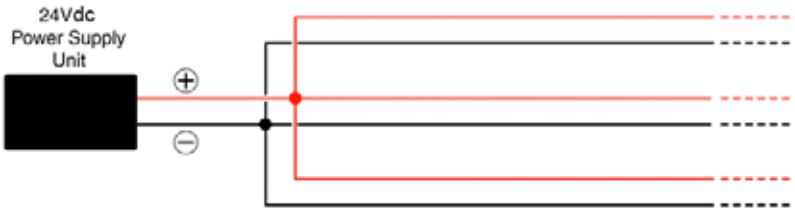


Figure 6. Multiple power buses

4.5.1 Power Supply Basic Installation

The 24Vdc power is carried on a two-wire bus that loops from room controller to room controller. The minimum wire size for the 24Vdc power supply bus is 18 gauge (1mmØ) (0.8mm²).

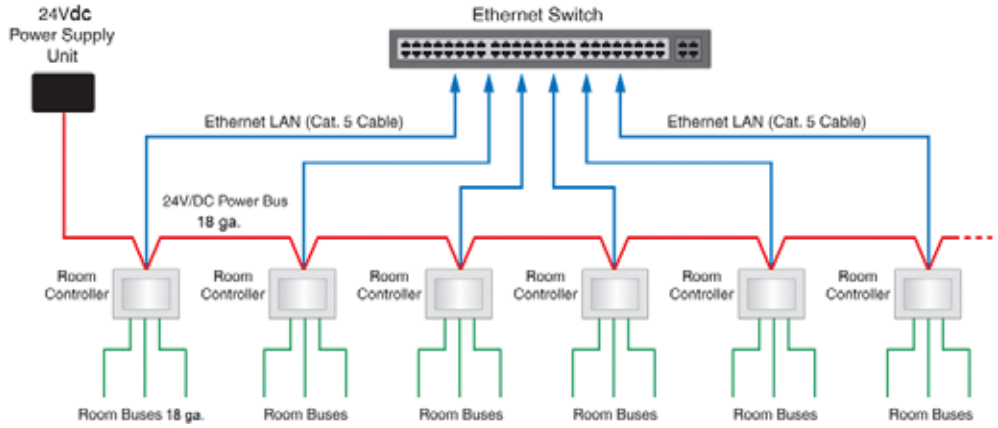


Figure 7. LAN and room bus cables with power supply (24Vdc)

4.5.2 Power Supply for Systems with Slave Corridor Lamps

Each slave corridor lamp receives its 24Vdc power supply from the power output connections of the associated room controller - not directly from the external power supply bus. The room controller can support two corridor lamps.

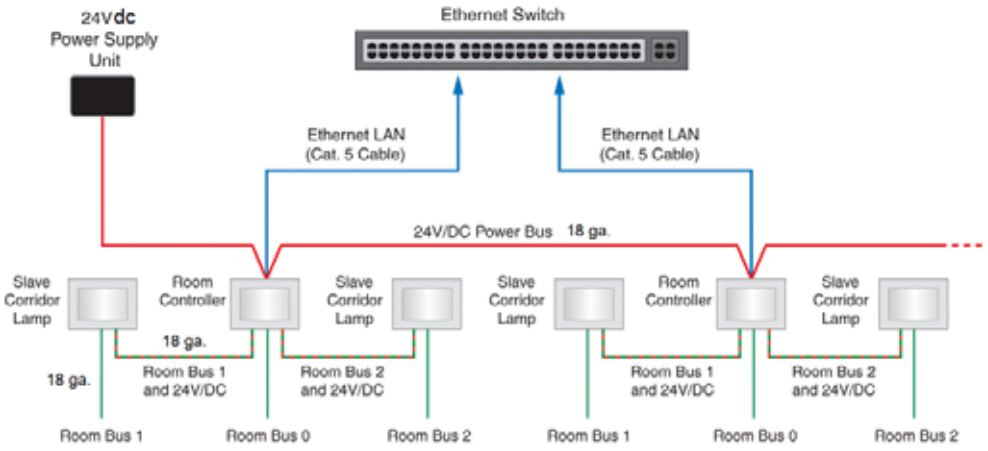


Figure 8. Power supply (24Vdc) for room controllers with corridor lamps

5 Control Equipment

This section describes the installation instructions for the following products:

5.1 Preparation

It is important to refer to the following teleCARE IP control module installation instructions for complete electrical connection and assembly details before starting the installation.

The Ingress Protection of the control modules is IP40, therefore the areas in which the teleCARE equipment is to be installed must be clean, dry and weatherproof.

The walls on which the control modules are to be installed should be finished (painted, wall papered etc.) before the control module is installed.

It is important to have the appropriate length of free cable pulled out at every location where the control module is to be installed. The length of stripped cable and length of exposed copper wire must conform to the relevant installation instructions. Electrical power to the equipment must be off before connecting any devices.

5.2 Room Controller

5.2.1 NIRC

Note: *Except when specifically mentioned otherwise, the references to "room controller" used in this document are applicable to both the NIRC and NIRC3.*

The Room Controller (NIRC) has been tested and found to comply with the emission levels for a Class B device as described in EN55022:2010.

The input power for the NIRC shall be supplied over an external 24Vdc power supply bus,. The external power supply input requirement is 24Vdc ± 10%. The power input has an on-board, self-resetting fuse.

Each room bus has four wires, consisting of: data, voice, power (5.5Vdc) and ground (0V). The room bus power output is used for the power supply to the connected peripheral device. Each room bus power output has a self-resetting 650mA fuse.

The NIRC has a 6-pole output connector for an external corridor lamp with 4 LEDs. These outputs are in parallel to the NIRC's on-board LED connectors. Additionally, the NIRC has an internal buzzer for optional audible signaling of calls and faults.

The NIRC can support up to 3 slave corridor lamps, however, the NIRC is capable of providing the power supply for no more than 2 slave corridor lamps. Each room bus can accept one corridor lamp and each corridor lamp has the fixed room bus address 5.

The NIRC can accommodate 4 LED Lamp Boards (NILDs), enabling the NIRC to be used as a corridor lamp. The NIRC also has the provisions to provide 24Vdc power for up to two teleCARE IP Corridor Lamps (NICLs).

When an NICL data bus is connected to one of the three NIRC room buses, it becomes an active corridor lamp that operates independently of the NIRC. In this configuration, the NICL takes up fixed

Room Bus Address 5 on the NIRC bus. When connected to the NIRC External Corridor Lamp Outputs bus, an NICL becomes a passive corridor lamp and the LEDs operate in parallel with the NIRC display lamps.

5.2.2 NIRC3

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Improved technology gives the NICR3 more speed and additional functionality. This includes the addition of a fourth room bus and the integrated Power over Ethernet (PoE) capability.

The NIRC3 can be extended with an optional voice piggyback module (NIVP) to include speech and with an optional transceiver module (NIRX) for wireless nurse call functionality.

The NIRC3 is compatible with all the existing teleCARE IP peripherals except for the corridor lamp (NICL) which cannot be used together with the NIRC3.

IMPORTANT: *The NIRC3 is not compatible with the corridor lamp (NICL). The corridor lamp (NICL2) must be used when connected to an NIRC3 room bus. Therefore it is necessary to replace the NICL with an NICL2 whenever you replace an NIRC with an NIRC3.*

5.2.3 Room Bus Addresses

Each room bus of the NIRC supports eight addresses. The lowest four addresses (0 - 3) are for teleCARE IP peripherals and the highest four address (4 - 7) are dedicated for devices, such as the duty selector, card reader and the corridor lamp.

The total room bus address applications are summarized in the following table:

Room Bus Address	Active Peripheral	Address Setting
0 - 3	Door side Modules Bed side Modules Pull Cord Modules Medical Rail Socket	Set by DIP switch
4	Toilet Cancel Module	Fixed
5	Slave Corridor Lamp Duty Selector	
6	Card Reader	
7	Room Display	

Table 7. Room bus addresses and applications

5.2.4 NICR Room Controller with Corridor Lamp

Figure 11. The teleCARE IP room controller with corridor lamp

The NIRC printed circuit board has four connectors for LED boards (which must be ordered separately). The LED board is available in five colors: red, green, yellow, white and blue. The LEDs are used for the signaling of calls, staff presence and faults.

The Room Controller with corridor lamp is available in gray or white and includes a translucent dome cover. Alternatively a blank cover is available if lamps are not required.

The IP room controller with corridor lamp consists of a housing, a printed circuit board, a cover and a lamp dome, as shown in the following illustration:

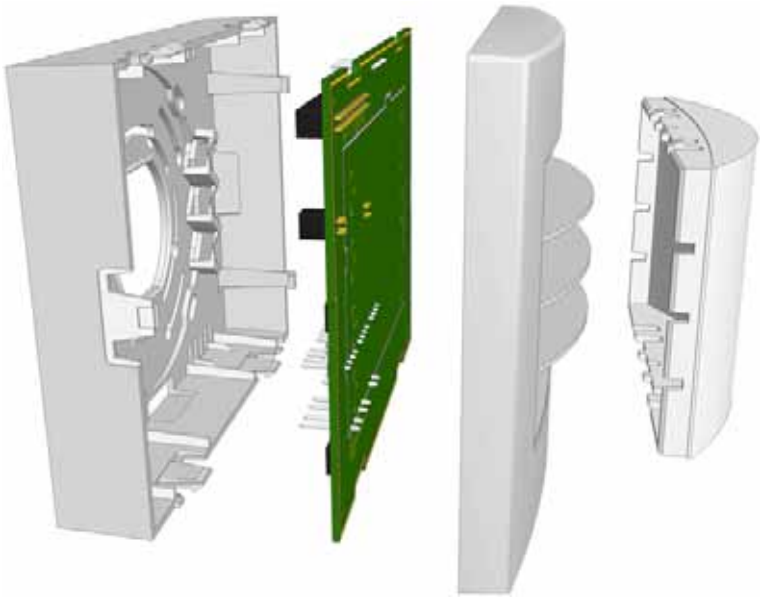


Figure 12. Room controller (NIRC) parts

5.2.5 Blank Front Cover for the Room Controller

A blank solid plastic front cover for the room controller is available in gray and white. The blank front cover is fitted to the room controller in place of the standard front cover with a translucent dome cover. It is used when there is no requirement for LED lamps on the room controller.

Figure 13. Room controller with blank front cover

Note: *The blank front cover must be ordered separately.*

5.2.6 Installing the Room Controller

When installing the Room Controller the first step is to separate the top section (cover, PC board and lamp dome) from the housing. To do that simply grip the top edge of the cover and pull it away from the housing, as shown in the following illustration:

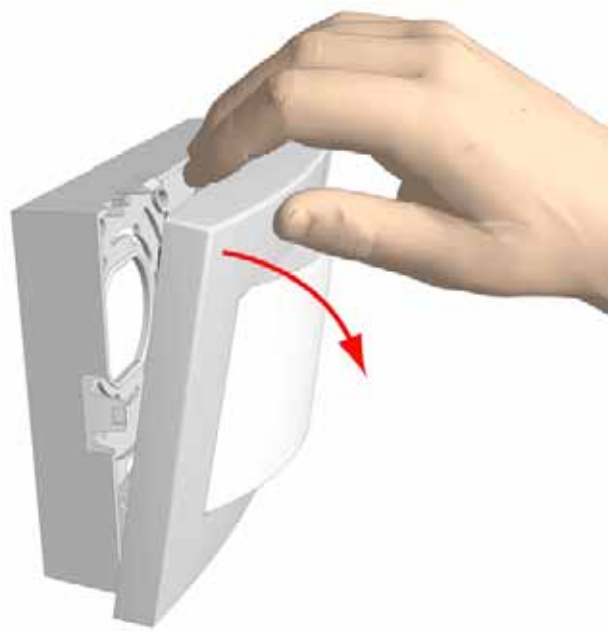


Figure 14. Separating the top section from the housing

5.2.7 Removing the Room Controller Printed Circuit Board

To remove the circuit board from the housing, press the holding clip outwards (1) until it releases the circuit board, as shown in the following illustration:

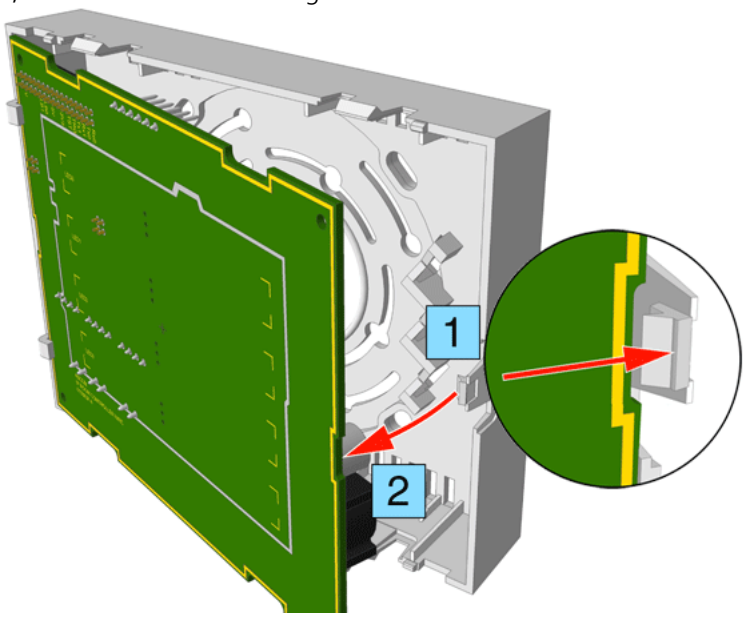


Figure 15. Removing the circuit board from the housing

With the printed circuit board released from the holding clip (2), partly rotate the circuit board and remove it from the housing.

5.2.8 Room Controller Housing

The room controller housing is designed to be surface mounted. It can be mounted over a back box or fixed directly on to a wall surface. The same housing is used for the IP room controller with LED lamps and with blank cover and for the corridor lamp.

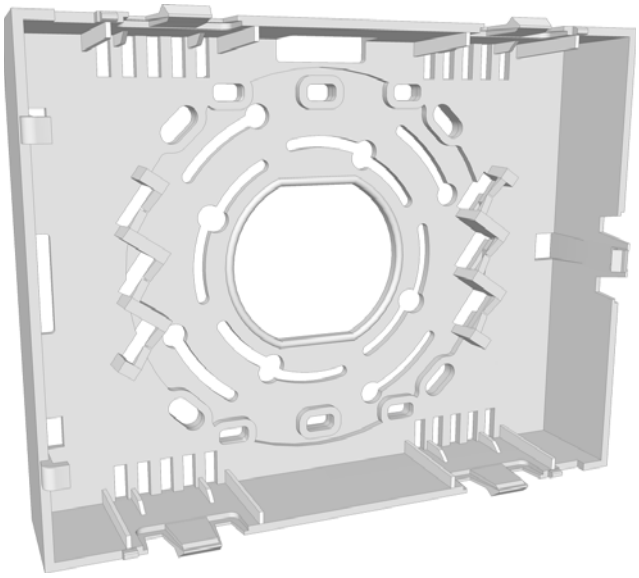


Figure 16. Room controller housing

5.2.9 Mounting the Housing over a Back Box

To mount the housing over a back box, start by partially unscrewing the fixing screws (1) in the back box so that they extend at least 0.2in (5mm) outside the wall surface.

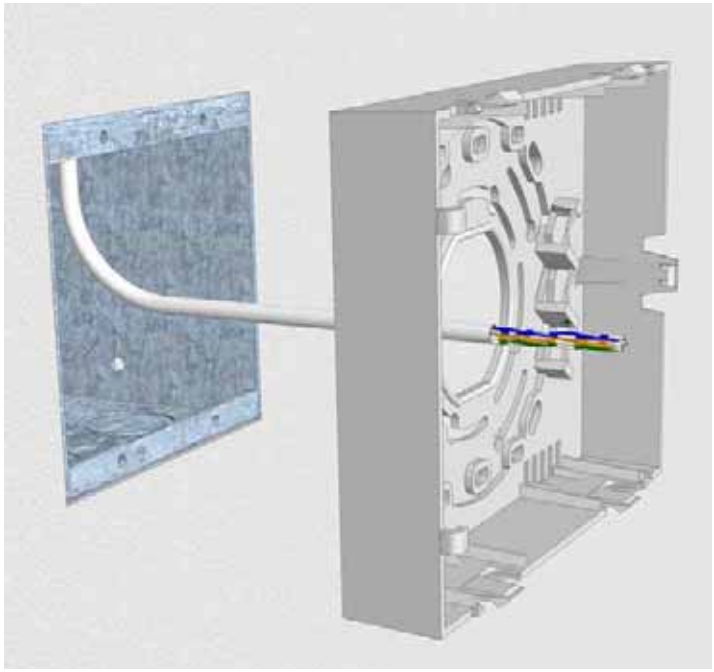


Figure 17. Lining up the housing with a back box

Place the housing over the back box so that the long sides are at the top and bottom. Pass the heads of the screws through the appropriate "key-hole" slots (2) in the base of the housing, as shown in the following illustration:

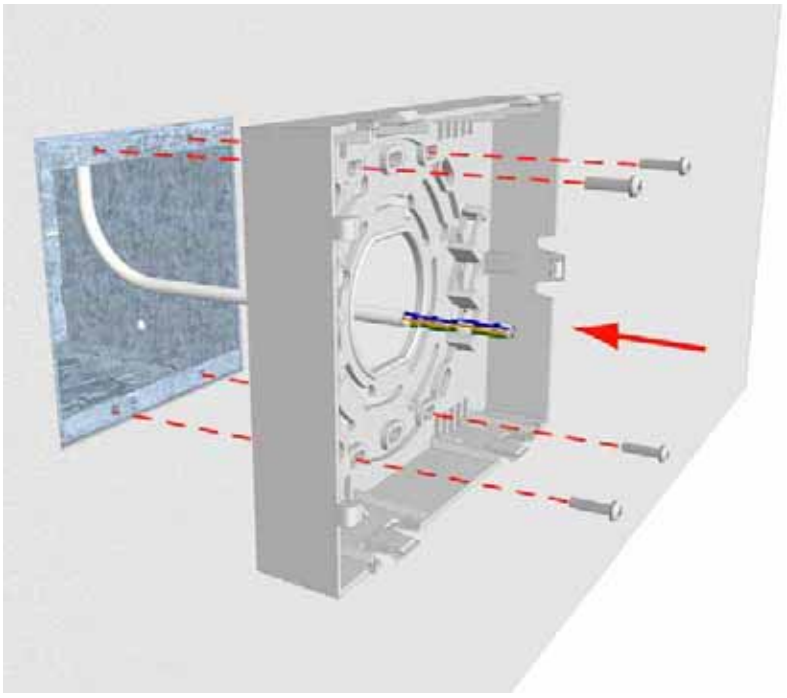


Figure 18. Positioning the screws in the keyhole slots

Turn the housing (3) until the long sides are horizontal, then tighten the back box fixing screws to secure the housing.

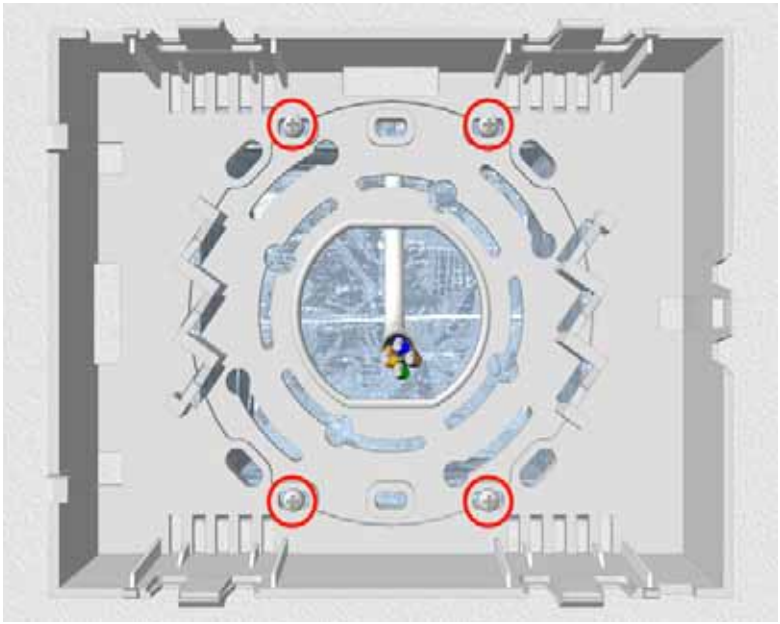


Figure 19. Fixing the housing

5.2.10 Mounting the Housing without a Back box

The housing can be mounted on a flat surface, without a back box, using four suitable screws in the outer fixing holes, as shown in the illustration below. When the NIRC housing is without a back box the cables should enter and leave the housing through the two knock-outs in the sides of the housing.

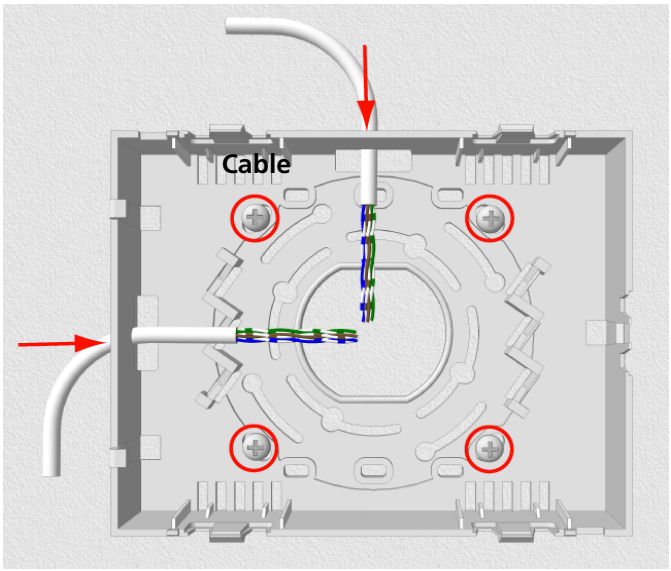


Figure 20. Mounting the NIRC housing without a back box

Caution: *Do not distort the NIRC housing when it is mounted with or without a back box. To prevent distortion only mount the NIRC housing on a smooth, level surface and do not over-tighten the fixing screws! If the housing is distorted the top section will not fit properly and could fall off.*

5.3 Preparing the Room Bus and Power Cables

It is important to prepare the cables appropriately and to guide the wires correctly inside the housing in order to avoid the wires pressing on the printed circuit board which could result in damage and also prevent the top section from closing properly.

The following instructions apply to the room bus cables, the power supply cable and the corridor lamp cables.

5.3.1 Stripping the Outer Jacket of the Cables

The first step is to strip the outer jacket of the cables to a length of 6.0in (150mm), then position the cable in the back box so that only the stripped wires enter the NIRC housing.

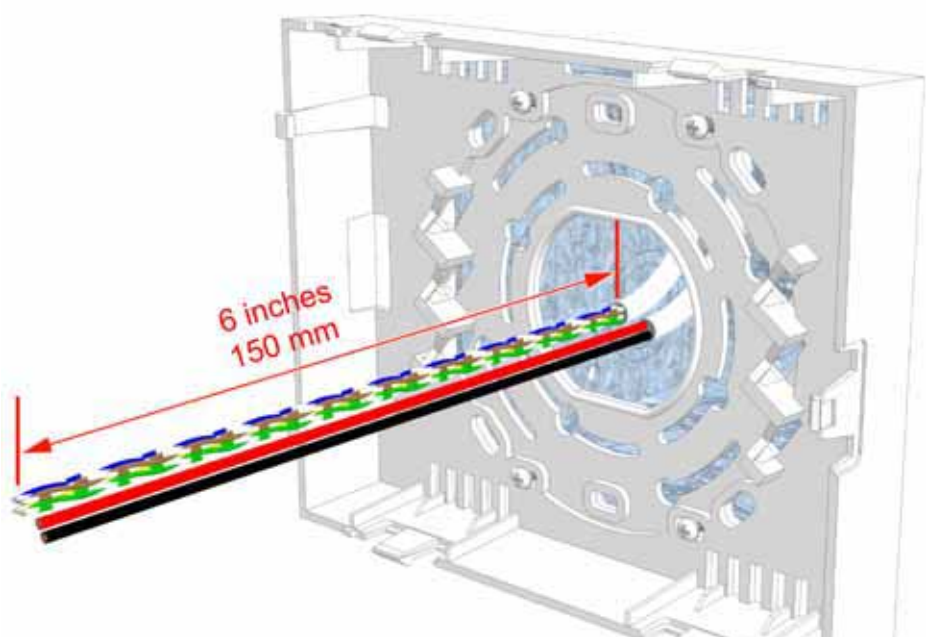


Figure 21. Stripping and positioning the cables for the NIRC

Caution: *Each room bus requires four wires. If the cable contains more than four wires the excess wires should be carefully stowed in the back box, away from the printed circuit board and other components to avoid electrical faults and safety problems.*

Details of the room bus connections are given in 5.4.1, 4-Pole Connector Terminal (NICT-4AA), page 31.

Details of the 24Vdc power supply and corridor lamp connections are given in 5.4.2, 2-Pole Connector Terminal (NICT-2BA), page 33.

Note: *The 4-pole and the 2-pole connector terminals required for the room bus and the 24V power supply are not supplied with the IP room controller. The connectors are available as accessories and must be ordered separately.*

Details of for connecting the LED lamp boards are given in section 5.6, LED Lamp Boards, page 43.

5.3.2 Room Controller PCB Connections (NIRC-GMS and NIRC-WMS with Speech)

The electrical connections on the component side of the IP room controller printed circuit board are shown in the following drawing of the NIRC circuit board.

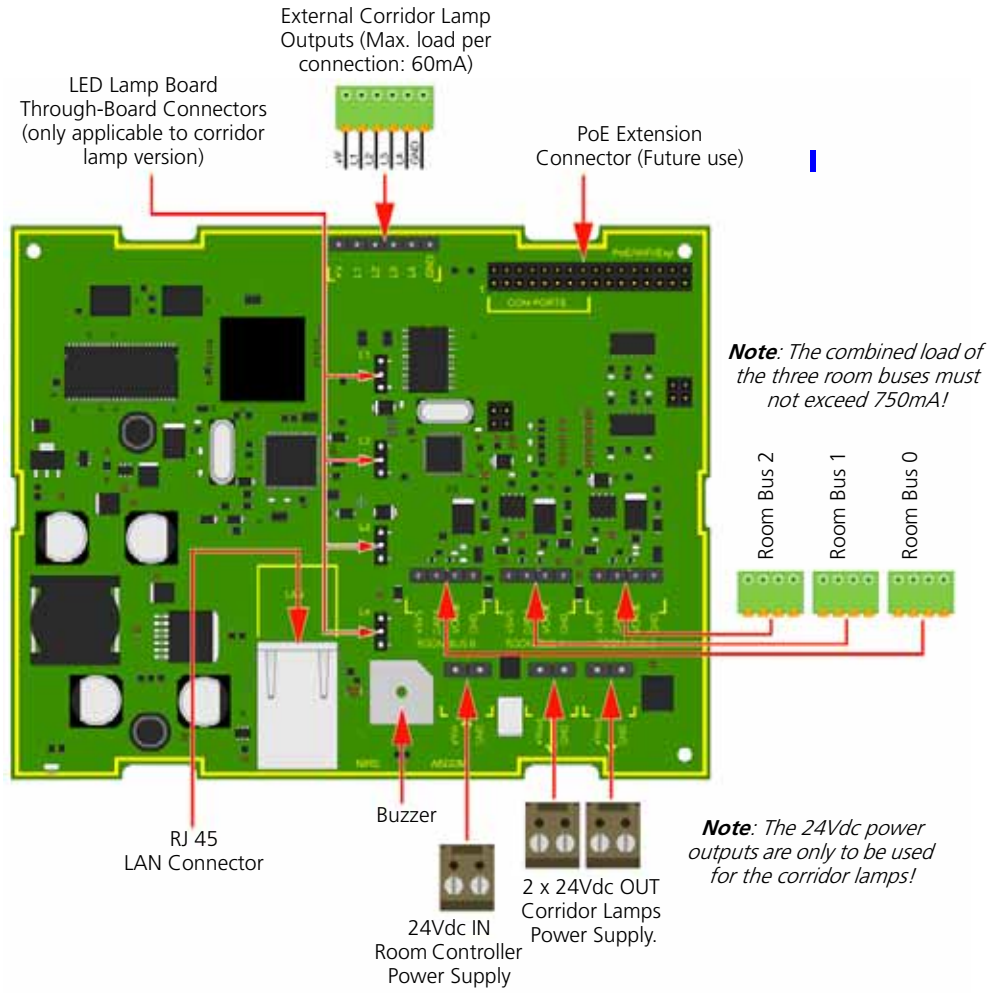


Figure 22. IP room controller (with speech) PCB electrical connections

Details of the room bus connections are given in 5.4.1, 4-Pole Connector Terminal (NICT-4AA), page 31.

Details of the 24Vdc power supply and corridor lamp connections are given in 5.4.2, 2-Pole Connector Terminal (NICT-2BA), page 33

Note: *The 6-pole, 4-pole and the 2-pole connector terminals required for the external corridor LED lamps, the room bus and the 24V power supply are not supplied with the IP room controller. The connectors are available as accessories and must be ordered separately.*

Details of for connecting the LED lamp boards are given in section 5.6, LED Lamp Boards, page 43.

Details of for connecting external corridor lamp LEDs are given in section 5.6.4, External Corridor Lamp Connections, page 47

5.3.3 IP Room Controller (NIRC) Printed Circuit Board Back View

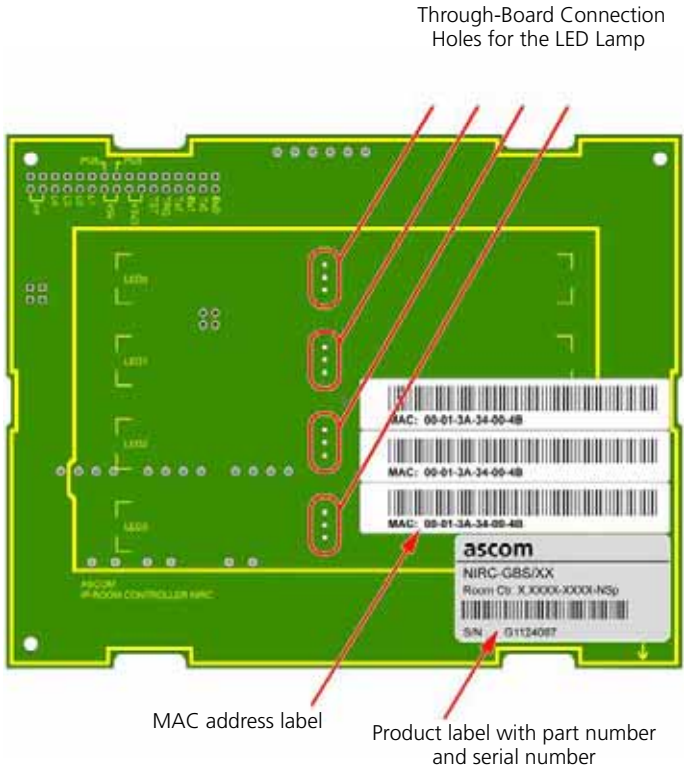


Figure 23. NIRC printed circuit board back view

On the back of the printed circuit board there are four sets of through-board connection holes for LED lamp boards. Details of for connecting the LED lamp boards are given in section 5.6, LED Lamp Boards, page 43.

Also on the back of the IP room controller printed circuit board there is a set of three identical MAC address labels and a product label which includes the part number and serial number.

The three MAC labels are self-adhesive and can be removed from the printed circuit board. One of the labels should be left on the room controller printed circuit board. The other two can be removed and one can be stuck on the cover of the room controller, so the board can be identified without opening the room controller. The other can be used in a list of all room controller locations, for example, for administration purposes.

5.3.4 Room Controller (NIRC3) PCB Connections

The electrical connections on the component side of the room controller printed circuit board are shown in the following drawing of the NIRC3 circuit board.

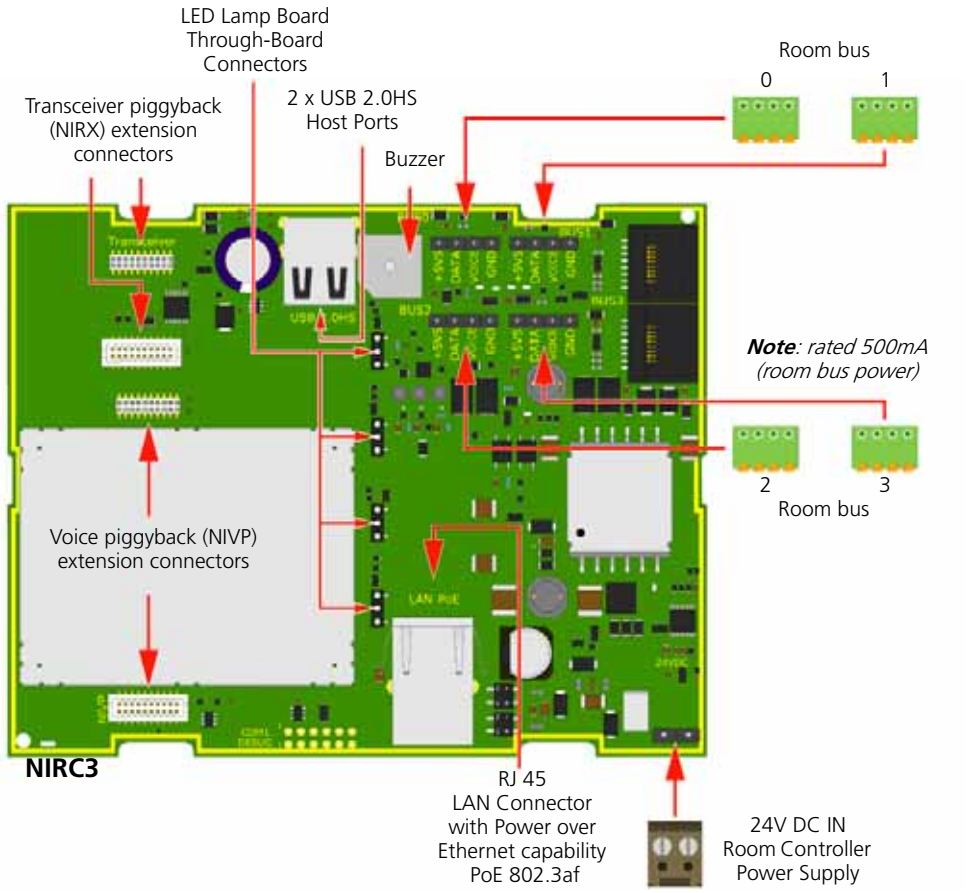


Figure 24. Room controller (NIRC3) PCB electrical connections

Details of the room bus connections are given in 5.4.1, 4-Pole Connector Terminal (NICT-4AA), page 31.

The NIRC3 can be powered directly from a Power over Ethernet (PoE 802.3af or 802.3at) switch or through an external 24V DC power supply.

Details of the 24V DC power supply connections are given in 5.4.2, 2-Pole Connector Terminal (NICT-2BA), page 33

The NIRC3 has two USB2.0HS host ports. Will be used in a future release to support WiFi functionality.

Note: *The 4-pole and the 2-pole connector terminals required for the room bus and the 24V power supply are not supplied with the room controller. The connectors are available as accessories and must be ordered separately.*

Details of the LED lamp boards are given in section 5.6, LED Lamp Boards, page 43.

Details on how to install the transceiver piggyback module (NIRX) are given in section "NIRX teleCARE IP Transceiver" on page 172.

5.3.5 Room Controller (NIRC3) Printed Circuit Board Back View

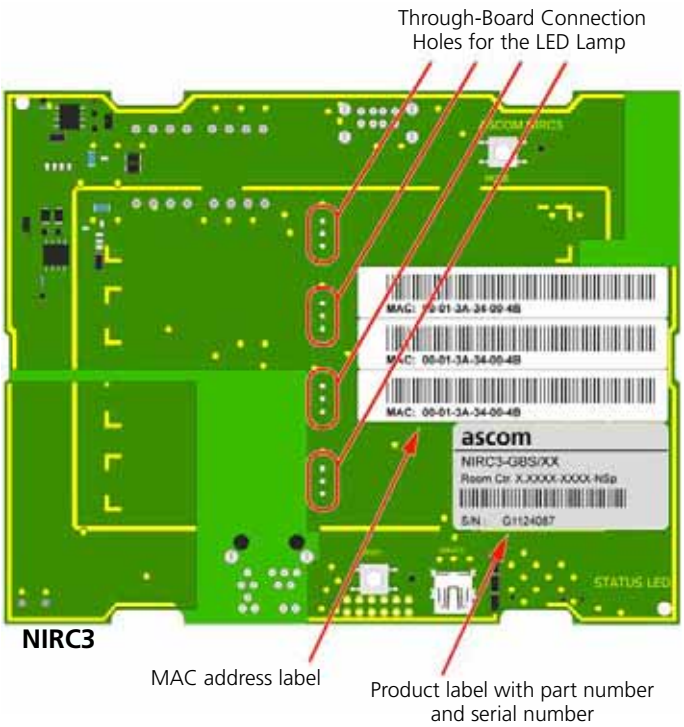


Figure 25. NIRC3 printed circuit board back view

On the back of the NIRC3 printed circuit board there are four sets of through-board connection holes for LED lamp boards. Details of for connecting the LED lamp boards are given in section 5.6, LED Lamp Boards, page 43.

5.4 Connection Terminals

The 4-pole and the 2-pole connector terminals required for the room bus and the 24Vdc power supply are not supplied with the IP room controller. The connectors are available as accessories and must be ordered separately.

5.4.1 4-Pole Connector Terminal (NICT-4AA)

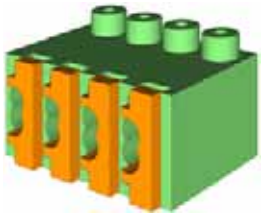


Figure 26. 4-pole connector terminal

The 4-pole connector terminal is used for connecting the room bus. It has a screw-less “spring-cage” connection technique and each terminal has two connection points.

The designation of the required four wires is as shown in the following illustration.

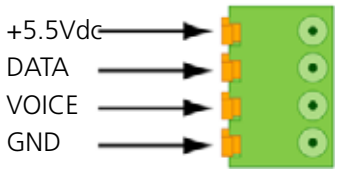


Figure 27. 4-pole connector terminal with the room bus

Preparing the Wires for the 4-pole Connector Terminal

The 4-pole connector terminal has four terminals with two connection points at each terminal. Each connection point accepts one solid wire of maximum wire size 20 gauge (0.5mm²) (0.8mmØ).

To connect the wires first strip the jacket from the cables and pull the wires through the housing leaving a length of 6in (150mm) free, as described in section 5.3, Preparing the Room Bus and Power Cables on page 26. Then strip 0.25in (6.5mm) of the insulation from the end of each wire which is to be connected.

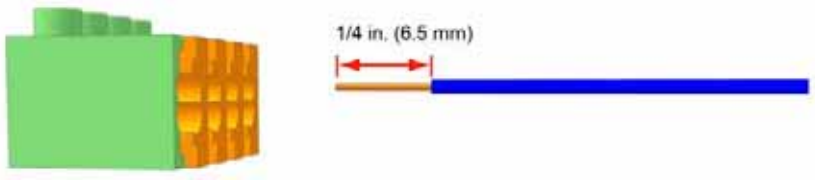


Figure 28. Stripping the wires for insertion in the connection terminal

After stripping the wire to expose 0.25in (6.5mm) of conductor, insert the wire in the appropriate opening of the connection point by pressing the wire firmly into the terminal, as illustrated below.

Note: *Each connection point in the connector terminal accepts only one wire. Maximum wire size 24 gauge (0.5mm²) (0.8mmØ).*

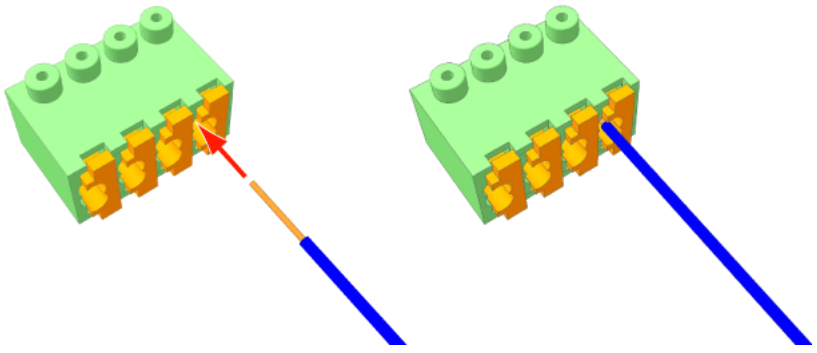


Figure 29. Inserting a wire in the connection point

Check that a good connection has been made by gently pulling on the wire after it has been inserted. The wire should stay fixed in the terminal.

Four wires are required for the room bus, passive bus and light relay outputs, so repeat the above illustrated procedure on the remaining three wires.

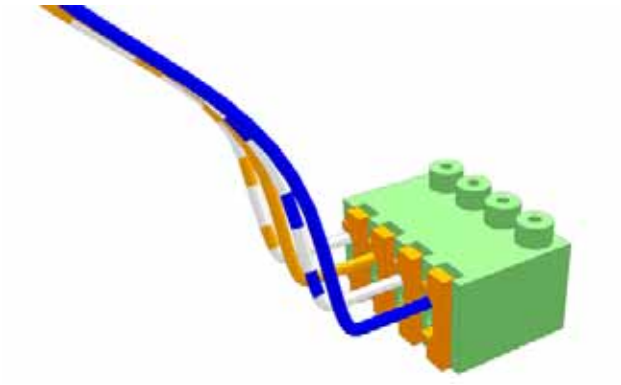


Figure 30. Connector terminal complete with four wires

Disconnecting a Wire from the Connector Terminal

First carefully place the point of a small screw driver (point approximately 0.1in (2.5mm) wide) on the relevant orange colored release key of the connection terminals and press the key in firmly to open the spring-cage connector (1). With the release key pressed in pull the wire from the terminal (2) then remove the screw driver.

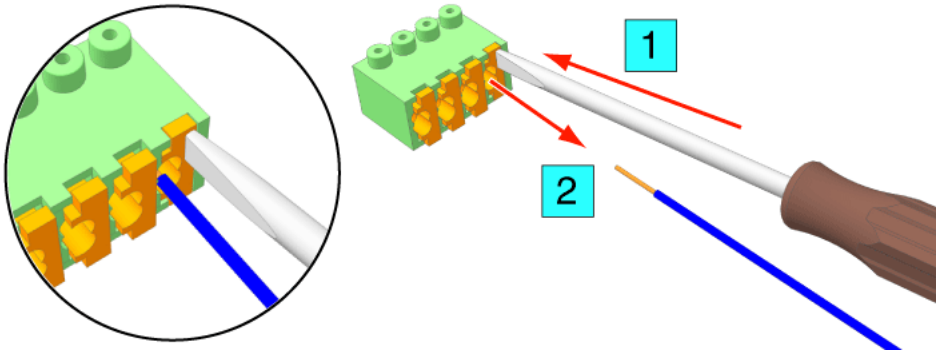


Figure 31. Removing a wire from a connection point

5.4.2 2-Pole Connector Terminal (NICT-2BA)

Figure 32. 2-pole connector terminal

The 2-pole connector terminal is used for connecting the 24Vdc power supply when a separate power supply is used. It is also used for the 24Vdc power supply from the room controller to the corridor lamp.

The 2-pole terminal connector has two screw terminals. Each terminal accepts one wire (up to wire size 14 gauge (1.5mm²) (1.4mmØ) or two wires (each up to 18 gauge (1mm²) (1.15mmØ).

Note: *The recommended maximum wire size for the teleCARE power supply is 18 gauge (1mm²) (1.15mmØ).*

Preparing the Wires for the 2-pole Connector Terminal

To connect the wires first pull the wires through the housing leaving a length of 6in (150mm) free, as described in section 5.3, Preparing the Room Bus and Power Cables on page 26. Then strip 0.25 inch (6.5mm) of the insulation from the end of each wire which is to be connected.

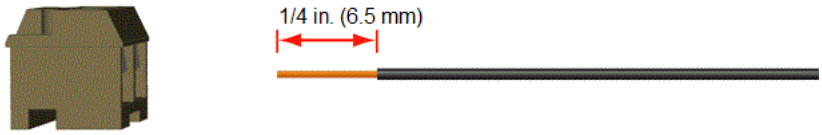


Figure 33. Stripping the wires for insertion in the connection point

After stripping the wire insert the wire in the appropriate opening of the connector terminal and tighten the terminal screw.

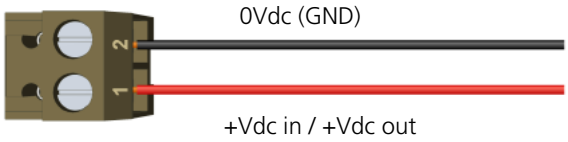


Figure 34. 2-pole connector terminal wiring

Note: *If stranded wire is used for the power supply cabling then a suitable ferrule (barrel outer diameter > 0.04in (1mm) should be used over the wire cores to ensure a reliable connection.*

2-Pole Connector Terminal with Looped Wiring

In cases where the power supply cable loops from room controller to room controller, the incoming and outgoing wires are connected in the same screw terminal, as shown in the following illustration:

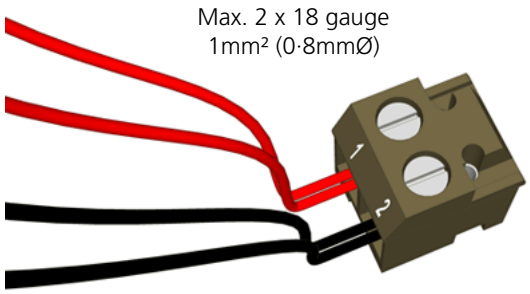


Figure 35. Connector terminal with looped wiring

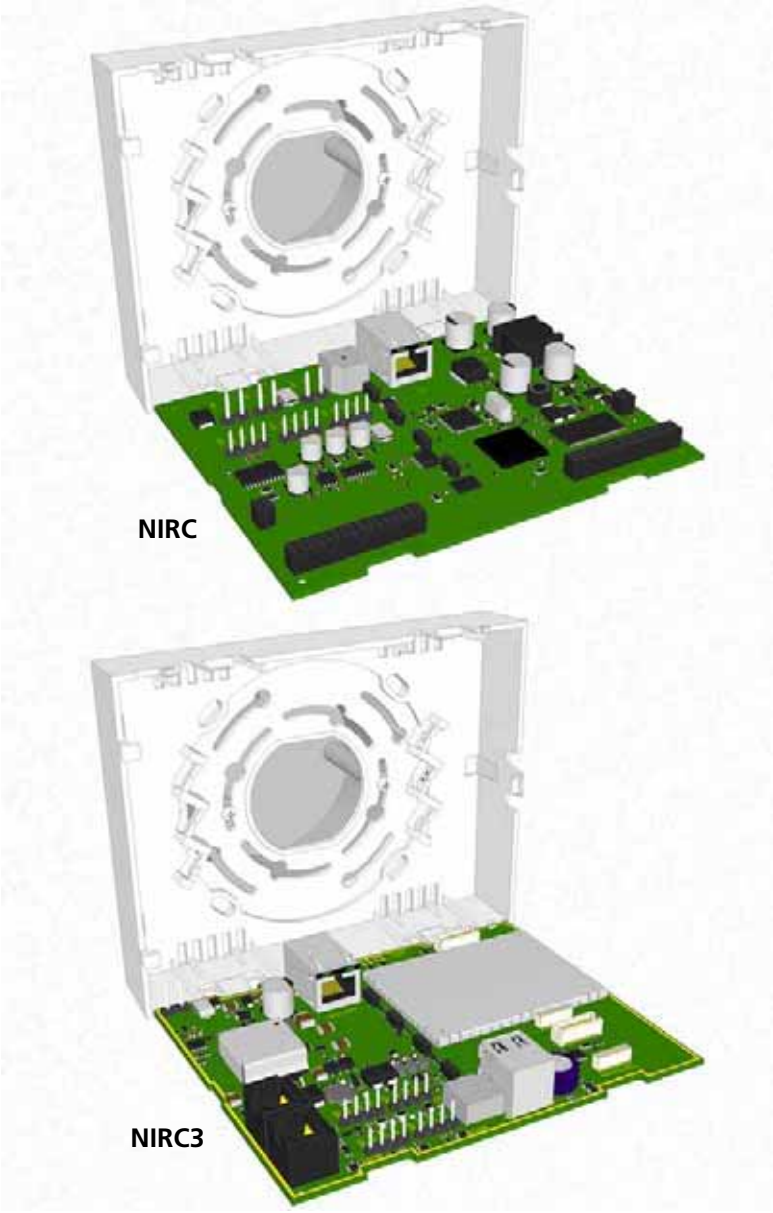
Note: *The maximum size of each wire when two wires are inserted in one screw terminal of the 2-pole connector terminal is 18 gauge (1 mm²) (1.15 mmØ).*

5.5 Connecting the IP Room Controller Printed Circuit Board

When preparing the wiring for connecting the printed circuit board of the IP room controller make sure that the power supply wires and the room bus wires are stripped of the cable outer jacket and that the wires are long enough, as described in section 5.3, Preparing the Room Bus and Power Cables on page 26.

It is best to arrange the wires and cables neatly and securely inside the housing. The power wires and the room buses should be guided around sides of the room controller housing and held in place by the wire holding clips.

The instructions will include the procedures for both the NIRC and the NIRC3 room controller.

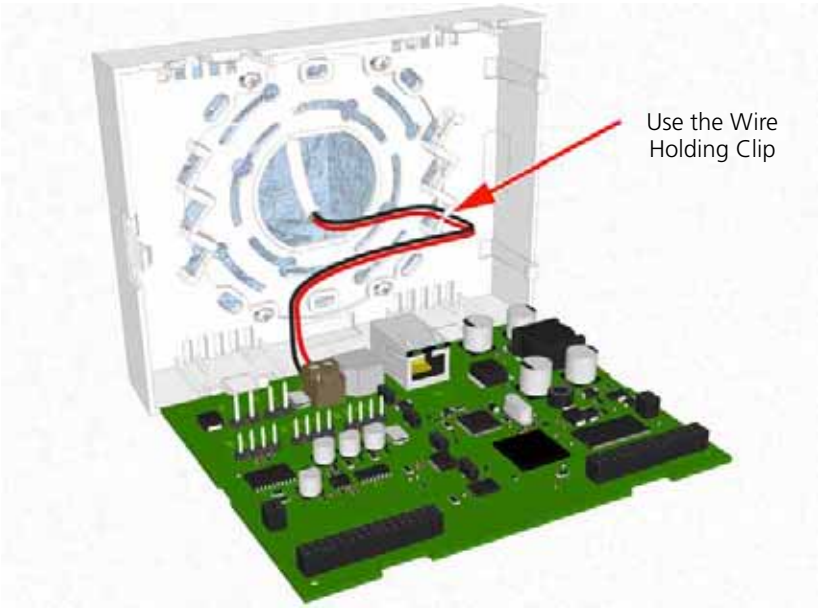


5.5.1 Connecting the 24Vdc Power Supply

The 24Vdc power supply uses a 2-pole connection terminal as described in section 5.4.2 on page 33. The connection point on the room controller circuit board for the power supply is shown in section 5.3.2 on page 28.

The power supply wires should be guided around the sides of the room controller housing and held in place by the wire holding clip, as shown in the following illustration:

Figure 36. Connecting the 24V/DC power supply



The connection point on the room controller circuit board for the power supply of the NIRC3 is shown in section 5.3.5 on page 37.

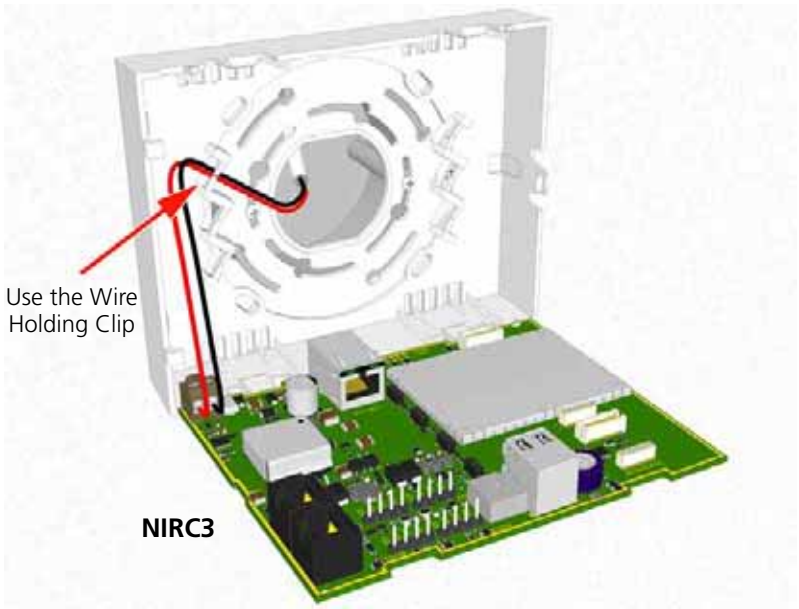


Figure 37. NIRC3 - Connecting the 24V DC power supply

Note: *An external power connection is not required when Power over Ethernet - PoE is used to power the NIRC3.*

5.5.2 Connecting the Power Supply and Corridor Lamp Power Outputs

The room controller supports two corridor lamps and each has a 2-pole connector similar to the 24Vdc power supply, as described in section 5.4.2 on page 33. The connection points on the room controller circuit board for the power supply and corridor lamps are shown in section 5.3.2 on page 28.

The power supply wires and the corridor lamp power supply wires should be guided around the sides of the room controller housing and held in place by the wire holding clip, as shown in the following illustration:

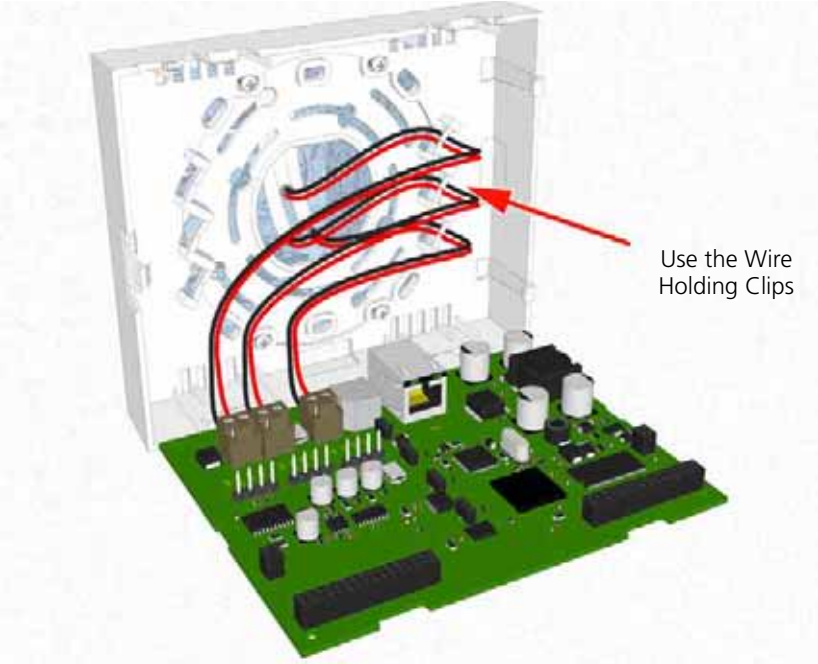


Figure 38. Power supply and corridor lamp power connections

NIRC3

The corridor lamp (NICL2) that must be used with the NIRC3 is powered directly from the 5.5V room bus power and does not require a separate 24 volt power connection, therefore the NIRC3 is not equipped with the 24 volt power outputs.

IMPORTANT: *Because the NIRC3 does not have 24V power outputs, the corridor lamp (NICL) should not be connected to the NIRC3. Only connect corridor lamps (NICL2) to the NIRC3 room buses.*

5.5.3 Connecting the Room Bus

The room bus uses a 4-pole connection terminal as described in section 5.4.1 on page 31. The connection point on the room controller circuit board for the room bus is shown in section 5.3.2 on page 28.

The room bus wires should be guided around sides of the room controller housing and held in place by the wire holding clip, as shown in the following illustration:

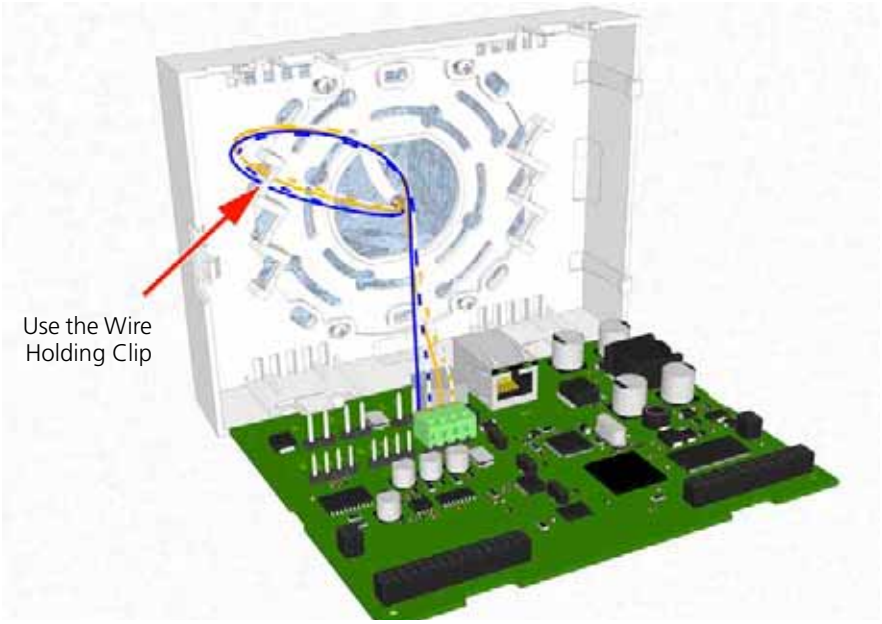


Figure 39. Connecting the room bus

The connection point on the room controller circuit board for the room bus of the NIRC3 is shown in section 5.3.5 on page 37

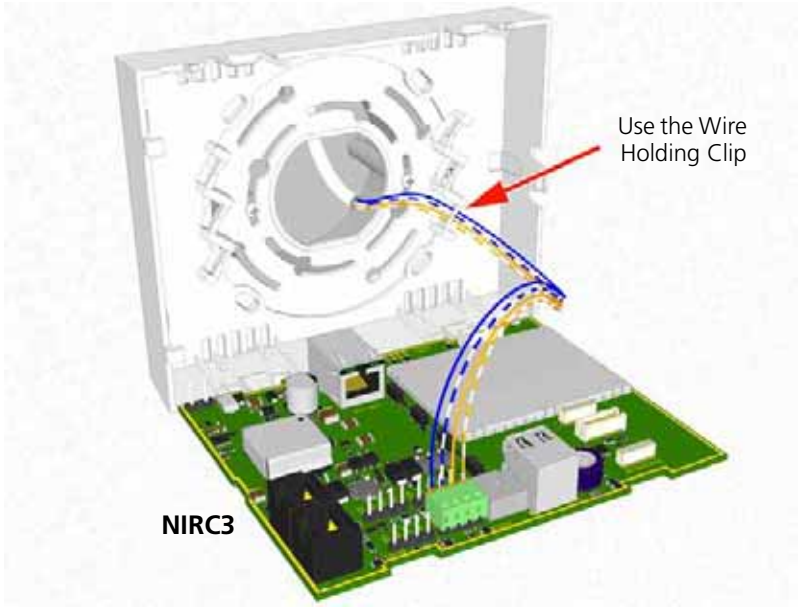


Figure 40. NIRC3 - Connecting the room bus

5.5.4 Connecting Multiple Room Buses

The IP room controller supports three room buses and each has a 4-pole connection terminal which is wired as described in section 5.4.1 on page 31. The connection points on the room controller PCB for the room buses are shown in section 5.3.2 on page 28.

The room bus wires should be guided around the sides of the room controller housing and held in place by the wire holding clip, as shown in the following illustration:

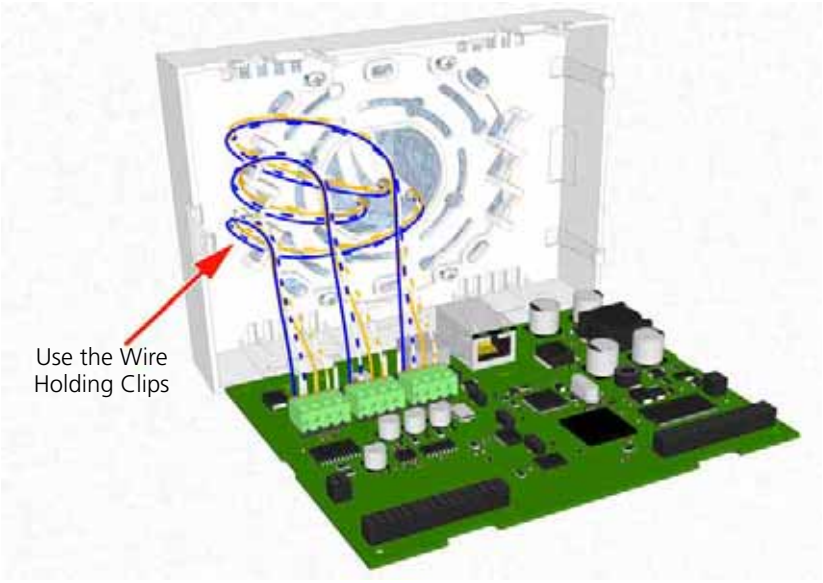


Figure 41. Connecting multiple room buses

The connection points on the room controller PCB for the room buses of the NIRC3 are shown in section 5.3.5 on page 37.

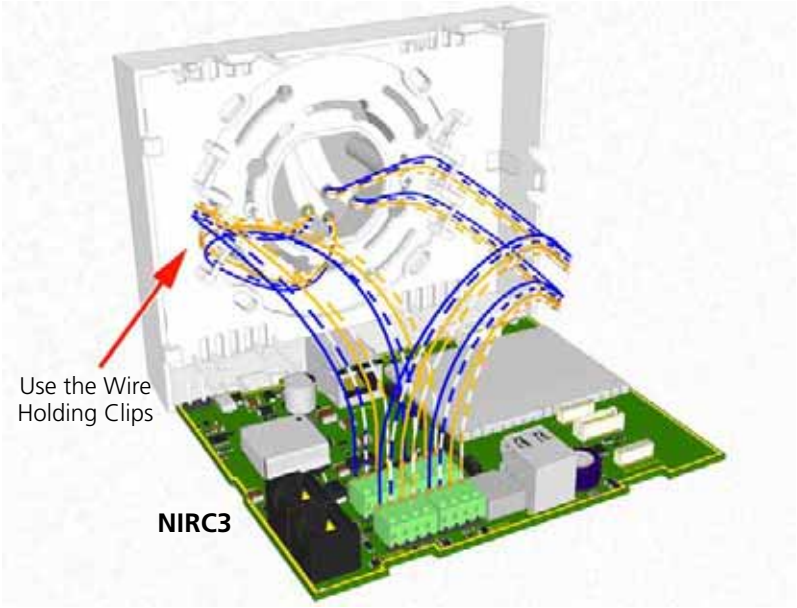


Figure 42. NIRC3 - Connecting multiple room buses

5.5.5 Connecting LAN Cable

The LAN cable has an RJ45 plug which connects to the socket on the room controller printed circuit board shown in section 5.3.2 on page 28. The LAN cable should not be guided through the wiring clips inside the room controller housing. It should be plugged directly into the RJ45 connector on the printed circuit board with enough cable to avoid straining the LAN connection.

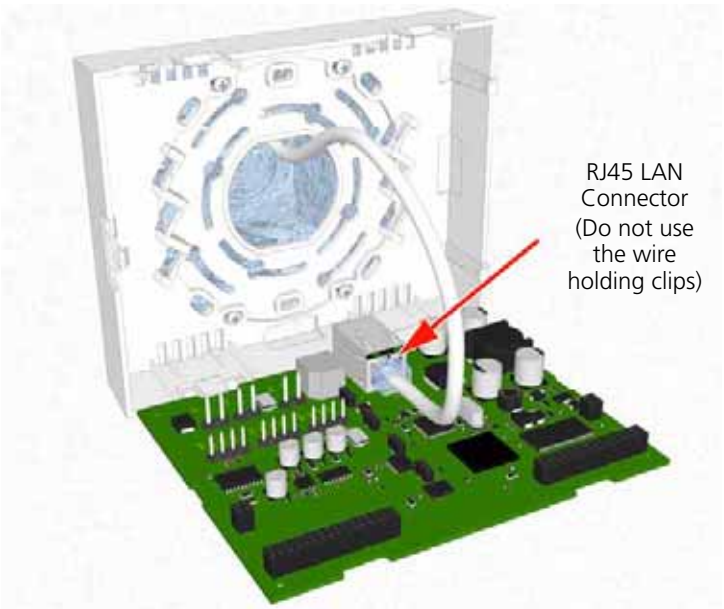


Figure 43. Connecting the LAN cable

5.5.6 Fully Wired IP Room Controller

The following illustration shows how the room controller should look with all wiring connected when external power is used:

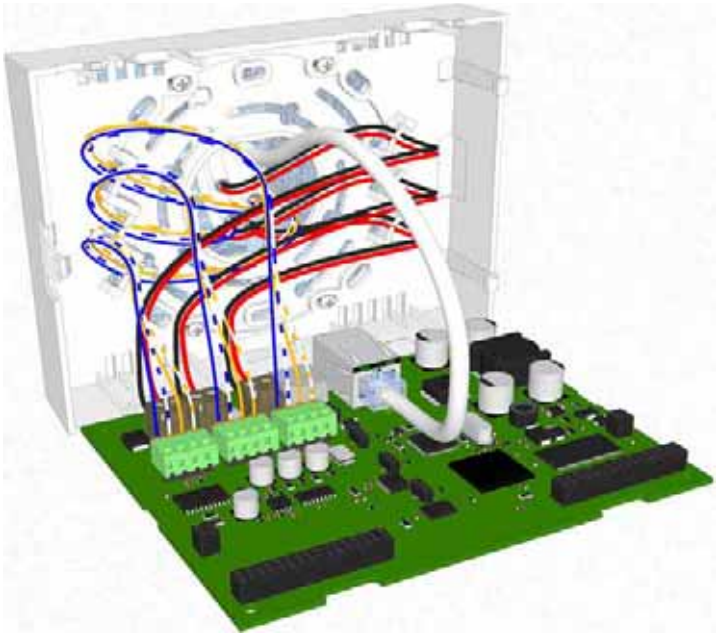


Figure 44. Fully Wired IP room controller

The following illustration shows how the room controller (NIRC3) should look with all wiring connected when external power is used:

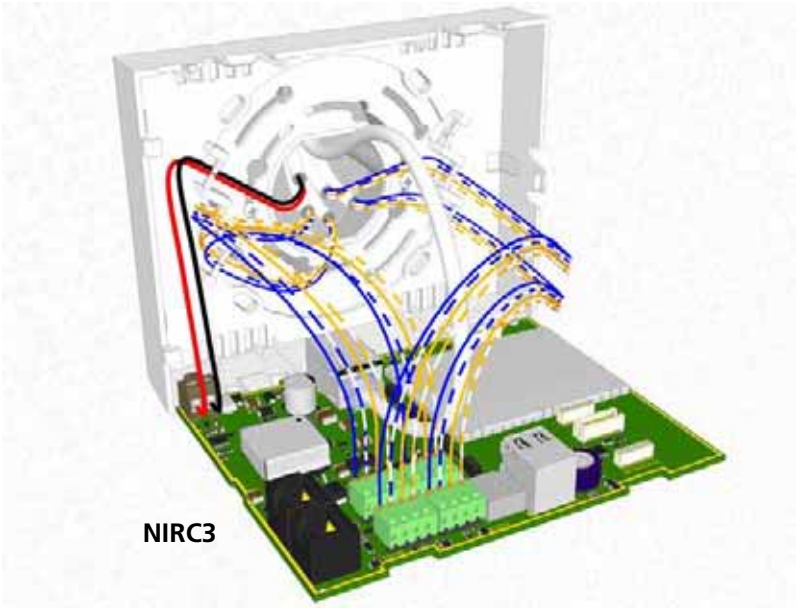


Figure 45. Fully Wired room controller - NIRC3

5.6 LED Lamp Boards

The LED lamp board contains four high intensity LED lamps which are used in the corridor lamp of the room controller and corridor lamp. The three pins in the back side of the board are used to connect the LED lamp board through holes in the back side of the room controller or corridor lamp printed circuit board. The room controller and the corridor lamp each accept up to four LED lamp boards.

Figure 46. LED lamp board front and back view

Note: *The LED lamp boards are not delivered as part of the IP room controller and therefore, must be ordered separately.*

The LED lamp board is available in five colors: red, green, yellow, white and blue. The LEDs are used for the signaling of various types of call, as well as staff presence and faults. The functions of the LEDs are determined by the system setup.

The color of the LEDs is determined during manufacture and cannot be changed. A resistor on the component side (front) of the board indicates the color of the LEDs, as shown in the following illustration:

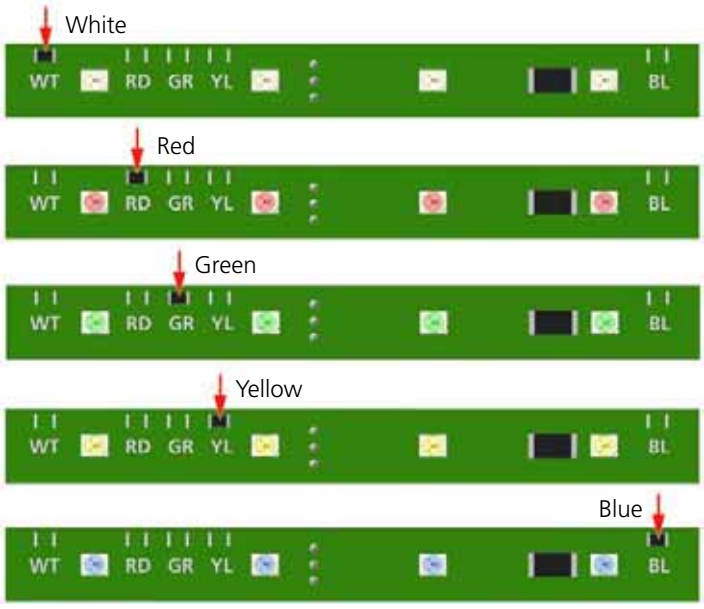


Figure 47. LED lamp boards: white, red, green, yellow and blue

The LED lamp boards can be plugged into any of the LED connection points on the room controller board and the corridor lamp but it is normal to have each color in the same position in every room controller board. The functioning of the LEDs colors is determined by the system setup.

5.6.1 Auxiliary Lamp Connection - NILD2

The green LED board (NILD2-GAA) has a galvanically separated output that can be used to connect to an auxiliary lamp. It has a maximum switching capacity of 0.4A at 60V peak.

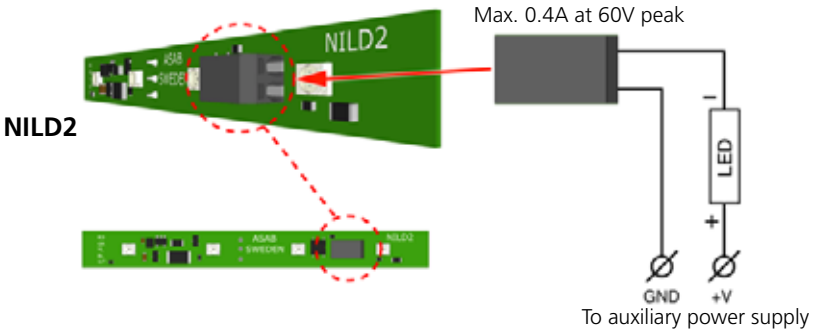


Figure 48. External corridor lamp connections through the NILD2-GAA

IMPORTANT: *In order to retain the galvanic separation, it is not allowed to connect the GND (-) of the auxiliary power supply to the GND (-) of the NIRC3.*

5.6.2 Connecting the Wires to the NILD2-GAA

The 2-pole connector terminal on the green LED lamp board (NILD2-GAA) has two terminals with one connection point at each terminal. A connection point accepts one solid wire of maximum wire size 0.5MM² (0.8mmØ). To connect the wires first strip 6 mm of the insulation from the end of each wire which is to be connected.

After stripping the wire, insert the wire in the appropriate opening of the connection point by pressing the wire firmly into the terminal, as illustrated below:

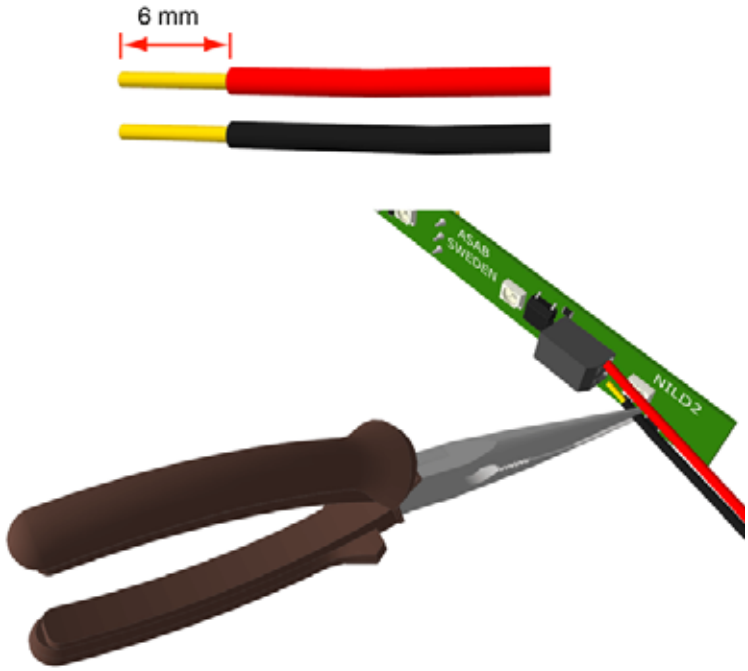


Figure 49. Connecting the wires of an external lamp

Note: *Each connection point in the connector terminal accepts only one solid wire. Maximum wire size 0.5MM² (0.8mmØ).*

5.6.3 Installing the LED Lamp Boards on the IP Room Controller Board

On the back side of the IP room controller PCB there are the four sets of through-board connections for the LED lamp boards. Each through-board connector has three holes which accept the three connecting pins on the LED lamp board.

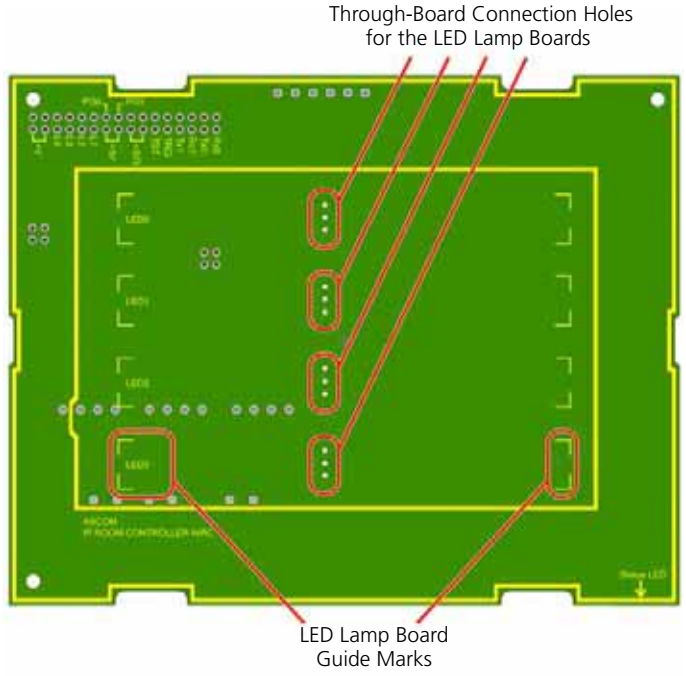


Figure 50. LED through-board connectors and guide marks

The LED lamp connection points are labeled LED0, LED1, LED2 and LED3. Any color LED board can be plugged into any of the connection points in the IP room controller. The appropriate position of the LED color is determined during the system setup.

Caution: *The pins on the LED lamp board are not in the center of the board so it is important to make sure that the LED lamp board lines up with the guide marks on the IP room controller PCB when the pins are inserted.*

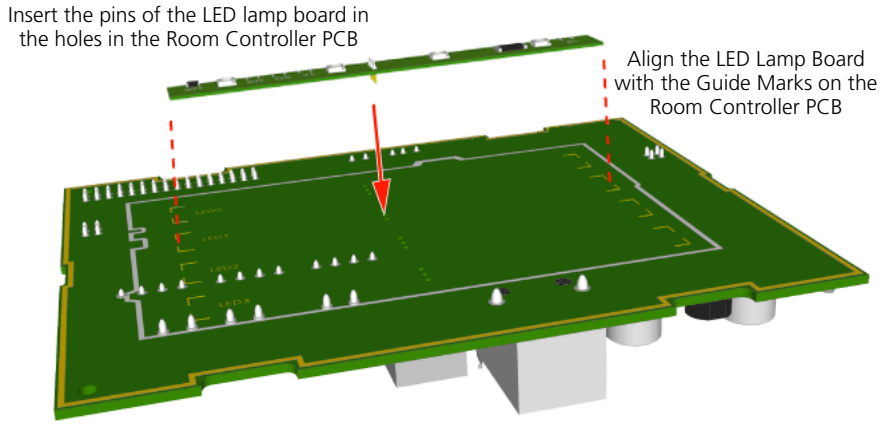


Figure 51. Plugging LED lamp board into the room controller PCB

With the three pins inserted and the LED lamp board lined up with the guide marks, firmly press the LED lamp board into the IP room controller PCB. Repeat the procedure on the other required LED lamp

boards.

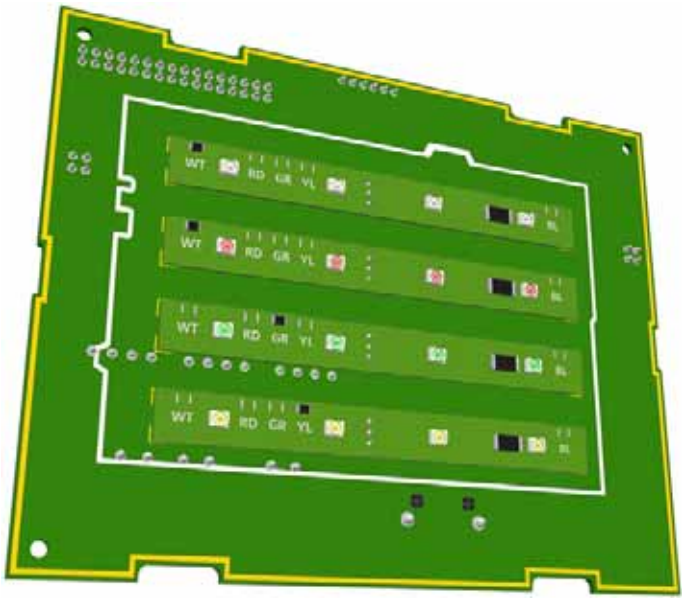


Figure 52. NIRC room controller PCB with 4 LED lamp boards

Example of the second generation LED lamp boards (NILD2) mounted on the NIRC3.

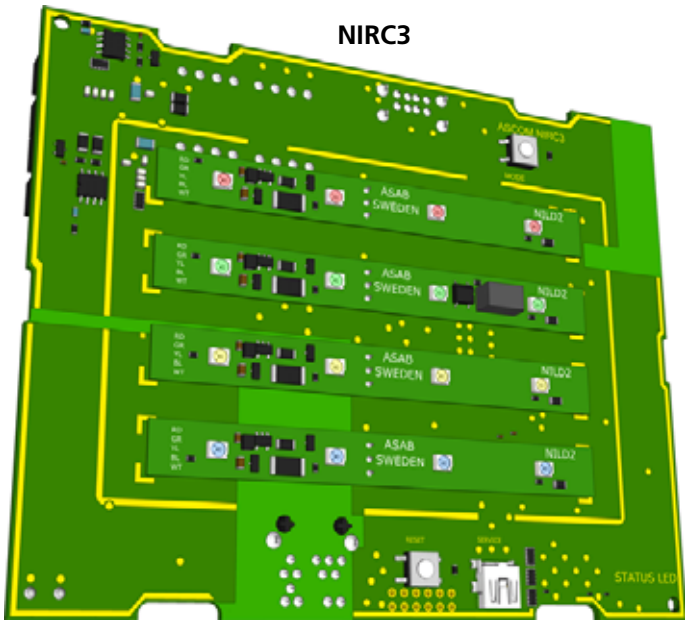


Figure 53. NIRC3- room controller PCB with 4 LED lamp boards

5.6.4 External Corridor Lamp Connections

The NIRC has a 6-pole connector for connection of an external corridor lamp with up to four separate LEDs.

The outputs L1, L2, L3 and L4 are parallel circuits to LED connections on the NIRC printed circuit board. Each external LED must be connected between the lamp connector (L1, L2, L3 or L4) and +V on the 6-pole connector.

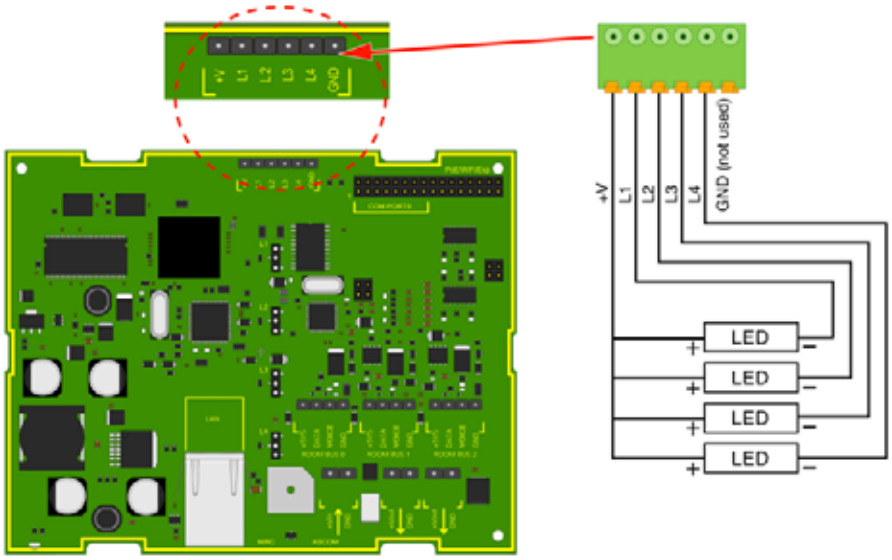
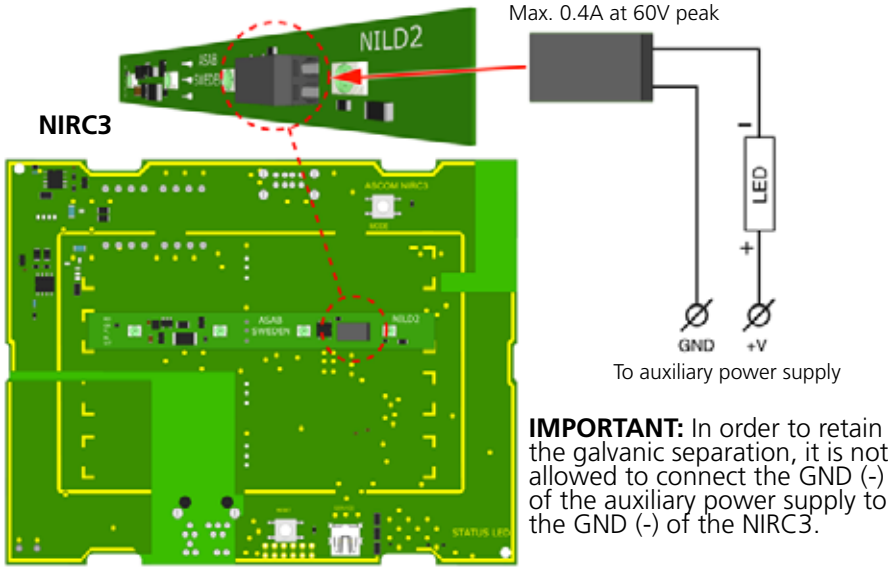


Figure 54. External corridor lamp connections of the NIRC

Caution: *The maximum load on each external LED circuit is 60mA.*

IMPORTANT: *The maximum load on each external LED circuit is 60mA.*

The room controller (NIRC3) circuit board does not support an external corridor lamp directly, however an external lamp can be connected through a green LED lamp board (NILD2-GAA) which has a galvanically separated output with a maximum switching capacity of 0.4A at 60V peak.



IMPORTANT: In order to retain the galvanic separation, it is not allowed to connect the GND (-) of the auxiliary power supply to the GND (-) of the NIRC3.

Figure 55. External corridor lamp connections through the NILD2-GAA

See "Auxiliary Lamp Connection - NILD2" on page 52. for detailed information.

5.7 Corridor Lamp (NICL)

The Corridor Lamp (NICL) is controlled by the IP room controller (NIRC only) and one IP room controller can support two corridor lamps. Each Corridor Lamp is connected to one of the three room buses of the IP Room Controller and it always has the fixed address 5.

IMPORTANT: *The room controller NIRC3 does not support the 24 volt output that is required to power the NICL, therefore the NICL should not be used in combination with the NIRC3.*

Figure 56. The teleCARE IP corridor lamp

The Corridor Lamp consists of a back box, a printed circuit module, a cover plate and translucent dome cover that can accept up to four LED boards, as shown in the following illustration:

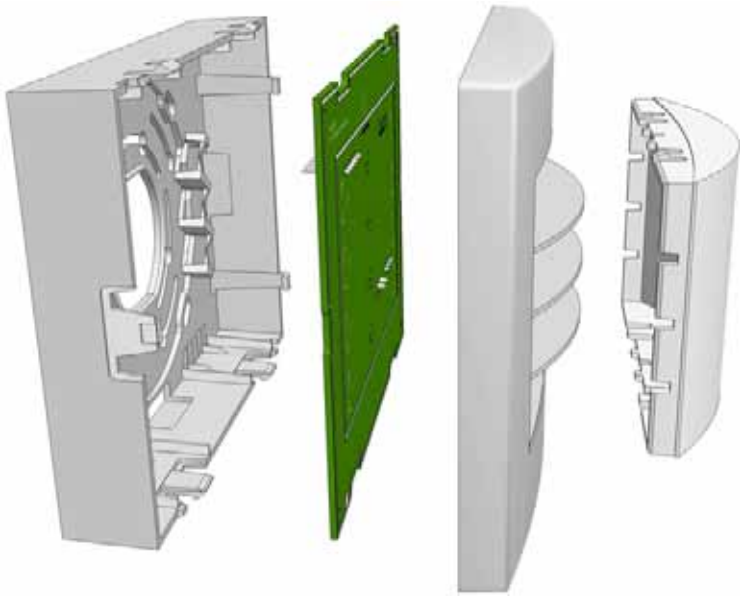


Figure 57. Corridor lamp (NICL) parts

5.7.1 Installing the Corridor Lamp

When installing the Corridor Lamp the first step is to separate the top section (cover, PC board and lamp dome) from the housing. To do that simply grip the top edge of the cover and pull it away from the housing, as shown in the following illustration:

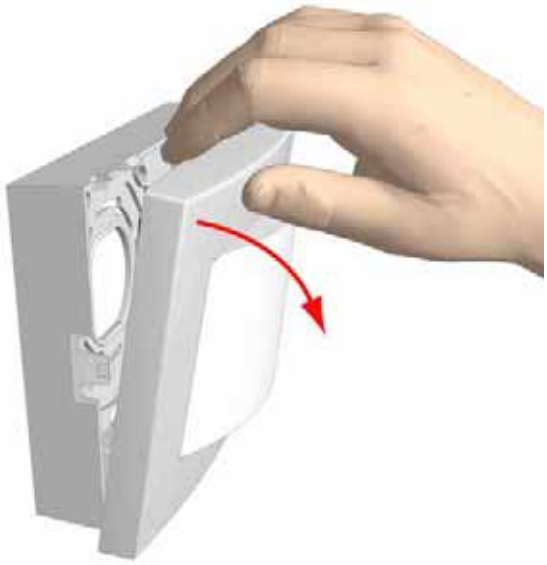


Figure 58. Separating the top section from the housing

5.7.2 Removing the Corridor Lamp Printed Circuit Board

To remove the circuit board from the housing, press the holding clip outwards until it releases the circuit board, as shown in the following illustration:

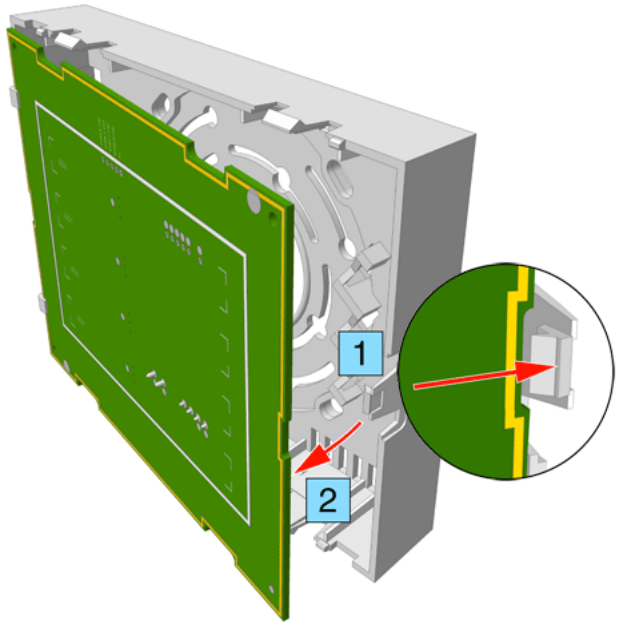


Figure 59. Removing the circuit board from the housing

With the printed circuit board released from the holding clip, partly rotate the circuit board and remove it from the housing.

5.7.3 Corridor Lamp Housing

The corridor lamp has the same housing as used for the IP room controller which is designed to be surface mounted. Refer to section 5.2.8, Room Controller Housing on page 24 for details of mounting

the housing.

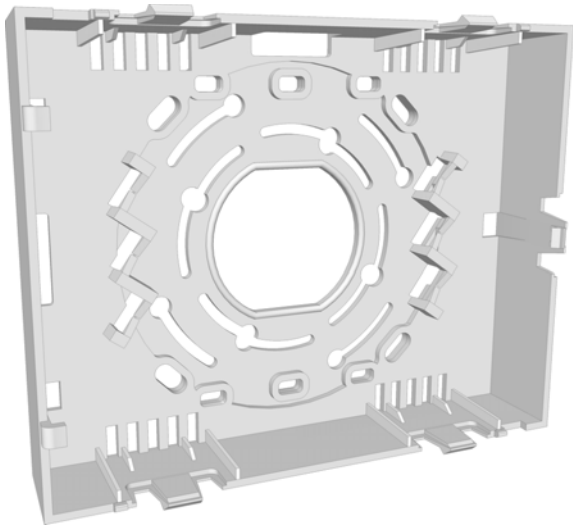


Figure 60. IP room controller housing

5.7.4 Corridor Lamp Electrical Connections

The wiring between NIRC Room Controller and the NICL Corridor Lamp consists of the teleCARE IP four-wire room bus plus two additional wires for 24Vdc to power the corridor lamp LEDs.

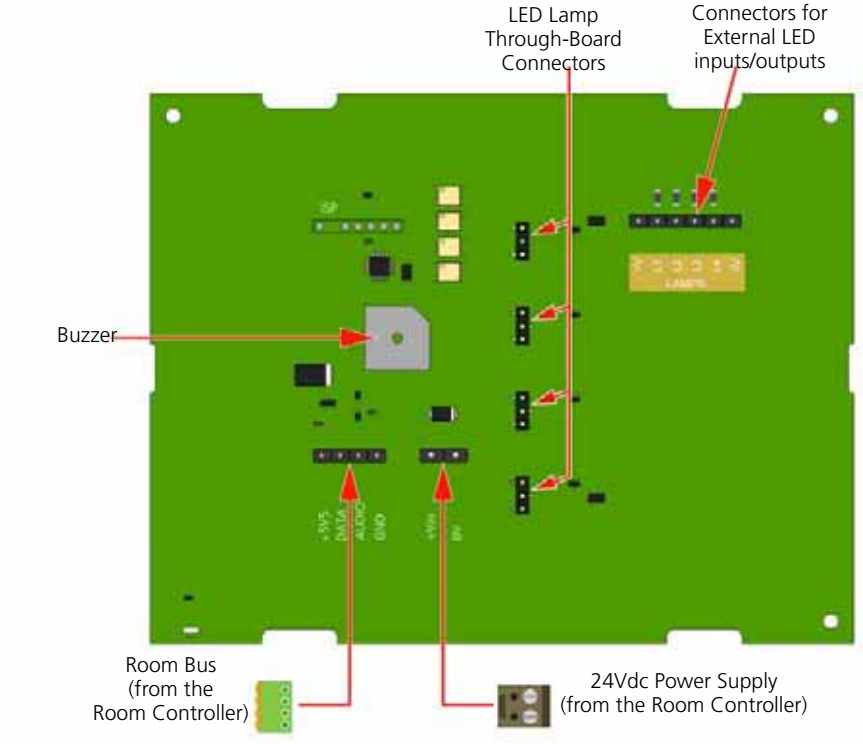


Figure 61. Corridor lamp PCB component side electrical connections

5.7.5 4-Pole Connector Terminal

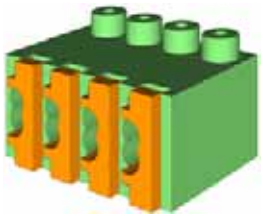


Figure 62. 4-pole connector terminal

The 4-pole connector terminal is used for connecting the room bus. It has a screw-less "spring-cage" connection technique and each terminal has two connection points.

The designation of the required four wires is as shown in the following illustration.

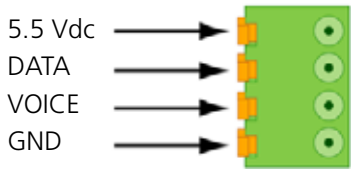


Figure 63. 4-pole connector terminal with the room bus

Preparing the wires and connecting the 4-pole connection terminal is described in section 5.4.1, 4-Pole Connector Terminal (NICT-4AA) on page 31.

5.7.6 2-Pole Connector Terminal

Figure 64. 2-pole connector terminal

The 2-pole connector terminal is used for connecting the 24Vdc power supply from the room controller to the corridor lamp. The designation of the required power supply wires is as shown in the following illustration.

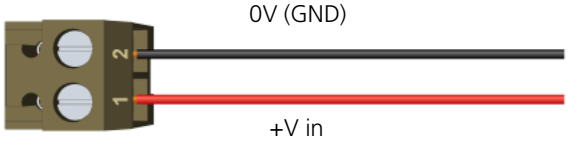


Figure 65. 2-pole connector terminal wiring

Preparing the wires and connecting the 2-pole connection terminal is described in section 5.4.2, 2-Pole Connector Terminal (NICT-2BA) on page 33.

5.7.7 Connecting the Corridor Lamp Printed Circuit Board

When preparing the wiring for connecting the printed circuit board of the corridor lamp make sure that the power supply wires and the room bus wires are stripped of the cable outer jacket and that the wires are long enough, as described in section 5.3, Preparing the Room Bus and Power Cables on page 26.

It is best to arrange the wires and cables neatly and securely inside the housing. The power wires and the room bus should be guided around the sides of the corridor lamp housing and held in place by the wire holding clips.

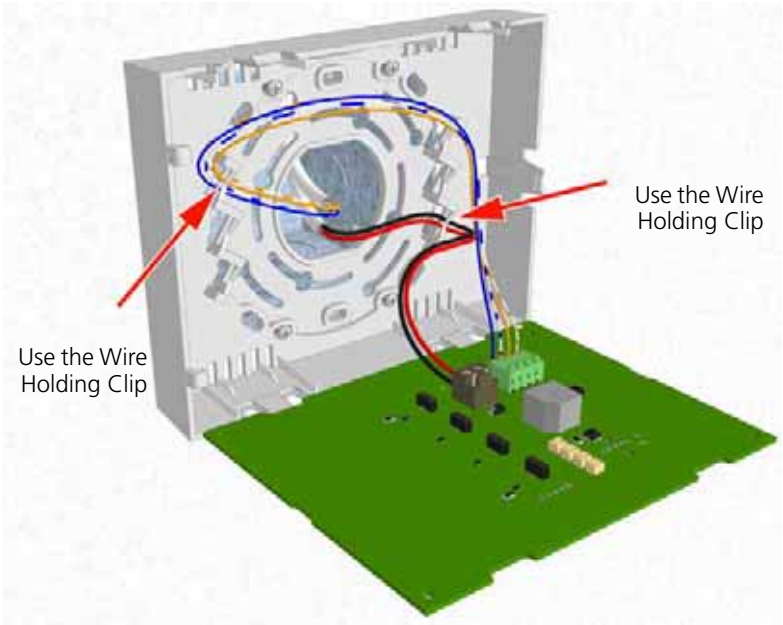


Figure 66. Connecting the corridor lamp

5.7.8 LED Lamp Boards for the Corridor Lamp

Note: *The LED lamp boards are not delivered as part of the corridor lamp and therefore, must be ordered separately.*

The LED lamp board contains four high intensity LED lamps which are used for the signaling of various types of calls including staff presence and system faults.

The three pins in the back side of the LED board are used to connect the LED lamp board through holes in the back side of the corridor lamp printed circuit board. The corridor lamp accepts up to four LED lamp boards.

The LED lamp connection points are labeled LED0, LED1, LED2 and LED3. Any color LED board can be plugged into any of the connection points on the IP room controller. The appropriate position of the LED color is determined during the system setup.

The LED lamp board is available in five colors: red, green, yellow, white and blue. The functions of the LEDs are determined by the system setup.

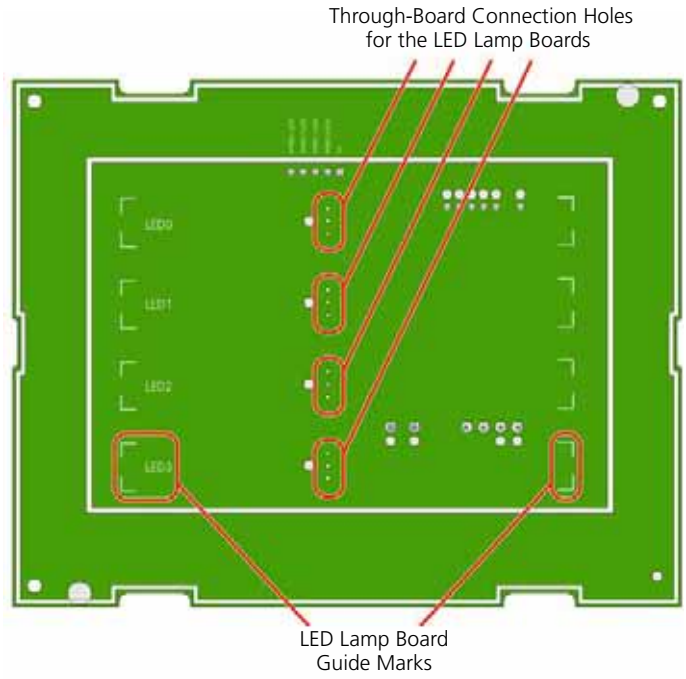


Figure 67. LED through-board connectors and guide marks

For full details of the LED lamp boards refer to section 5.6, LED Lamp Boards, page 43.

5.7.9 Connecting the LED Lamp Boards

To connect the LED lamp board, insert the three pins of the LED lamp board into the appropriate three holes in the back side of the corridor lamp PCB.

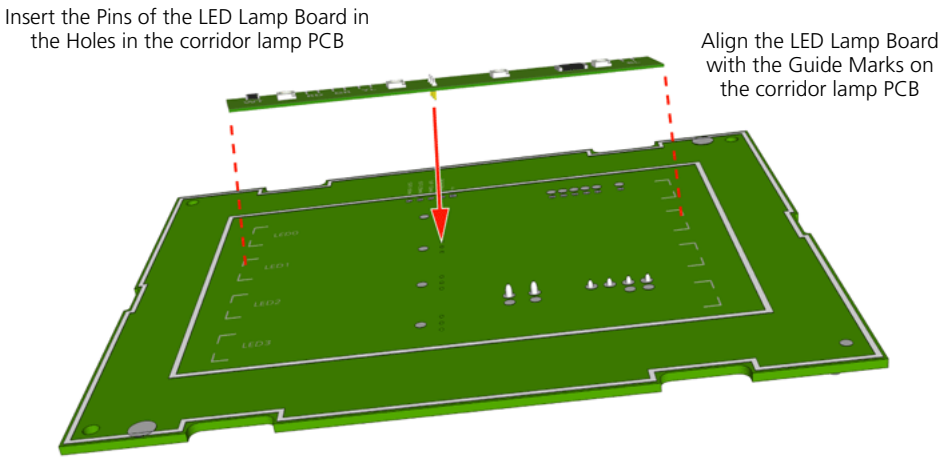


Figure 68. Plugging LED lamp board into the corridor lamp PCB

With the three pins inserted and the LED lamp board lined up with the guide marks, firmly press the LED lamp board into the corridor lamp PCB. Repeat the procedure on the other required LED lamp boards.

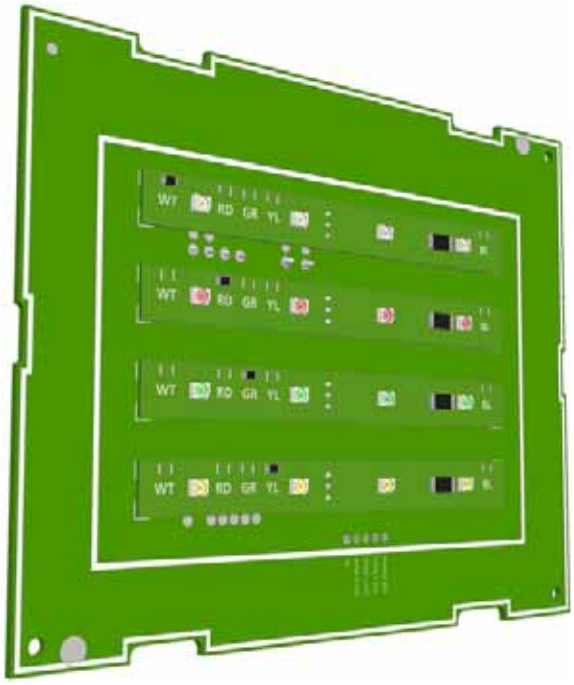


Figure 69. Corridor lamp PCB with 4 LED lamp boards

Caution: *The pins on the LED lamp board are not in the center of the board so it is important to make sure that the LED lamp board lines up with the guide marks on the corridor lamp PCB when the pins are inserted.*

5.7.10 External Corridor Lamp Connections

External Corridor Lamp Inputs

The NICL corridor lamp can be used as a passive LED corridor lamp connected to the NIRC External Corridor Lamp Outputs bus. When connected as such, the NICL LED display lamps operate in parallel with the NIRC display lamps.

The NICL corridor lamp can be used as a passive external LED corridor lamp (not connected to a room bus). It has a 6-pole input/output connector which can accept inputs from an external source (such as a NIRC room controller).

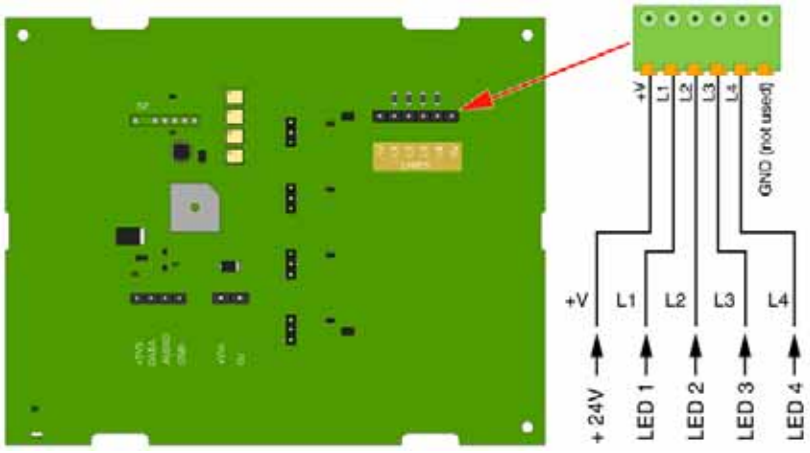


Figure 70. External LED inputs to the NICL corridor lamp

External Corridor Lamp Outputs

When the NICL corridor lamp is used as a passive slave to the room controller, a cable with 6-pole connectors is used to connect the NICL with the NIRC External Corridor Lamp Outputs bus. The +V pole from the bus applies continuous 24Vdc from the NIRC to the four LEDs on the NICL. Each LED is individually switched to 0 volts by the NIRC via the L1, L2, L3, L4 poles. In this configuration, the NICL LEDs operate in parallel to the LEDs on the NIRC.

5.8 System Manager (NISM2)

The teleCARE IP System Manager (NISM2) is an Ascom ELISE3 application. The ELISE3 module serves as the interface to a 100base-T Ethernet LAN and it contains a Linux based web server.

The NISM2 is the management tool for centrally managing the teleCARE IP system. It is used to setup and maintain the teleCARE IP system and it also includes a staff GUI for creating and maintaining staff assignments.

The NISM2 is connected to the IP network and stores the configurations for each of the teleCARE IP Room Controllers that are connected to the IP network.

In teleCARE IP installations which include NIRD Room Displays but do not include Ascom Messaging, the NISM2 is used as the Interactive Messaging server for the room displays.

A Java based graphical user interface (GUI) is supplied with the NISM2. The setup of the teleCARE IP system is done using a web browser. Any Internet browser that can interpret Java ™ script 1.2 (CSS-2) is acceptable. Microsoft Internet Explorer 7.0 or higher with Sun Java ™ Runtime Environment 1.6 or later is recommended.

Figure 71. System Manager (NISM2)

The NISM2 power requirement is 100Vac to 240Vac 50-60Hz for the internal power supply. Optionally the 12-24Vdc power connection can be used to connect to an external power supply.

Note: *Refer to the "Installation Guide ELISE3" (TD 92679GB) for ELISE 3 general information and mounting instructions.*

5.8.1 NISM2 Electrical Connections

After connecting the power to the NISM2 the appropriate type of power supply should be selected in the NISM Advanced Configuration of the NISM System Setup. These settings are located under "Common" on the "Power supply" page.

There are four options available:

- Internal PSU only
- External PSU only
- Internal and external PSU
- Internal PSU and external battery

Note: *For UL 2560 installations, select External PSU only.*

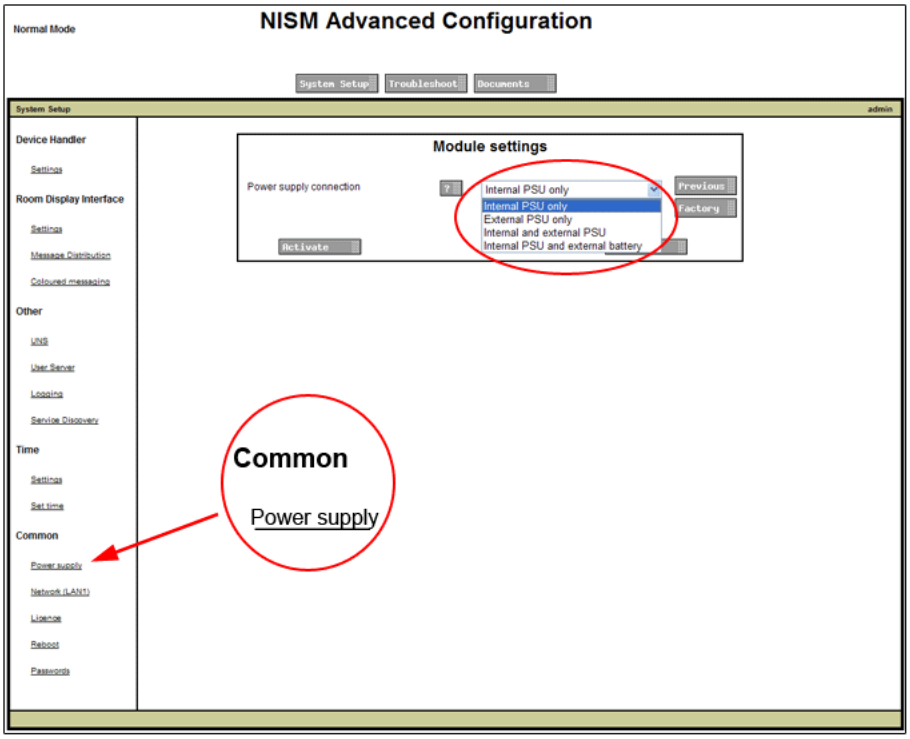


Figure 72. NISM power supply connection settings

When the correct power supply is set in the NISM System Setup the power LED on the front of the NISM2 will show a steady blue indication.

If there is a conflict between the NISM System Setup and the type of power supply then the NISM2 power LED will show a red flashing indication.

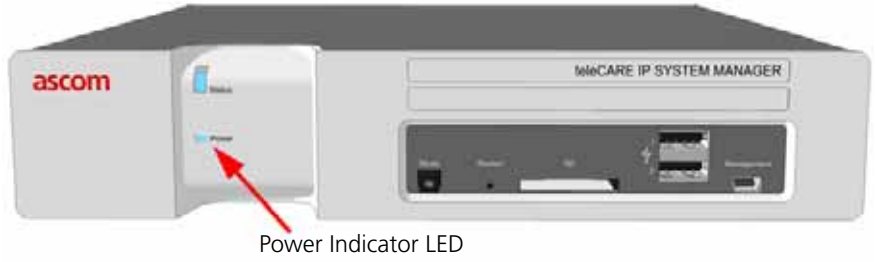


Figure 73. NISM power indicator LED

5.8.2 External DC Power Supply

In place of the internal power supply, the NISM2 can be connected to an external 12 - 24Vdc power supply.

Connect the Ethernet LAN cable to the "LAN 1" port and connect the external 12 - 24Vdc power supply to the "12-24Vdc 1A" connector on the NISM2 (ELISE 3) module.

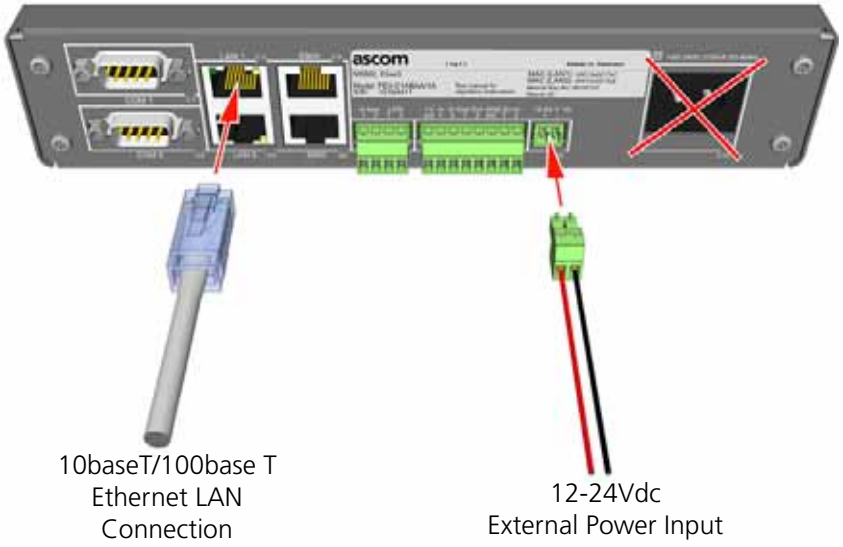


Figure 74. NISM2 with external 12-24Vdc power input

6 Peripherals

The switch modules all have the same basic format and can be mounted as a single unit on a single backplate or as a double unit on a double backplate.

The switch modules have one, two or three buttons with LEDs and a some switch modules have a buzzer. The functions of the buttons and buzzer are determined by the software when system is configured using the system manager (NISM).

6.1 Preparation

It is important to refer to the following teleCARE IP switch module installation instructions for complete electrical connection and assembly details before starting the installation.

Ensure that the electrical power to the equipment is switched off before connecting the switch modules.

The Ingress Protection of the switch modules is IP40, therefore it is important that the area in which the teleCARE equipment is to be installed must be clean, dry and weatherproof.

The walls on which the switch modules are to be installed should be finished (painted, wall papered, etc.) before the switch modules are installed.

It is important to ensure that a minimum of 14in (35cm) of free cable is pulled through at every location where teleCARE IP switch modules are to be installed.

It is important to have the appropriate lengths of stripped cable and exposed copper wire.

6.2 Installation Instructions

This section describes the basic installation of the following devices:

- “Bedside Module (NIBM2)” on page 72
- “Medical Rail Socket (NIMS2)” on page 77
- “Door Side Module (NIDM)” (details on page 81)
- “Pull Cord Module - Active (NIPC-G3A and NIPC-W3A)” (details on page 82)
- “Toilet Cancel Module - Active (NITC-XXA)” (details on page 84)
- “Pull Cord Module - Passive (NIPC-XXP)” (details on page 85)
- “Toilet Cancel Module - Passive (NITC-XXP)” (details on page 86)
- “Pull Cord Module (NIPC2) Active and Passive” (details on page 87)
- “Duty Selector (NIDS)” (details on page 97)
- “Card Reader (NICR)” (details on page 86)
- “Speech Module (NISP)” (details on page 104)
- “Room Display (NIRD)” (details on page 106)
- “Television Interface Module” (details on page 113)
- “Sunblind Control Module” (details on page 115)

6.3 Backplates and Surface Mounting Spacer

The teleCARE IP switch modules are designed to be mounted on flat walls using the teleCARE backplate. The backplate is designed to be mounted over flush fitted back boxes and an array of holes in the backplate allows it to be mounted over various international back boxes.

As an alternative to the backplate a spacer is available for surface mounting the teleCARE switch modules, with or without a back box. The spacer can be mounted directly on to a flat wall surface or alternatively, the holes in the base of the spacer allows it to be mounted over various international back boxes.

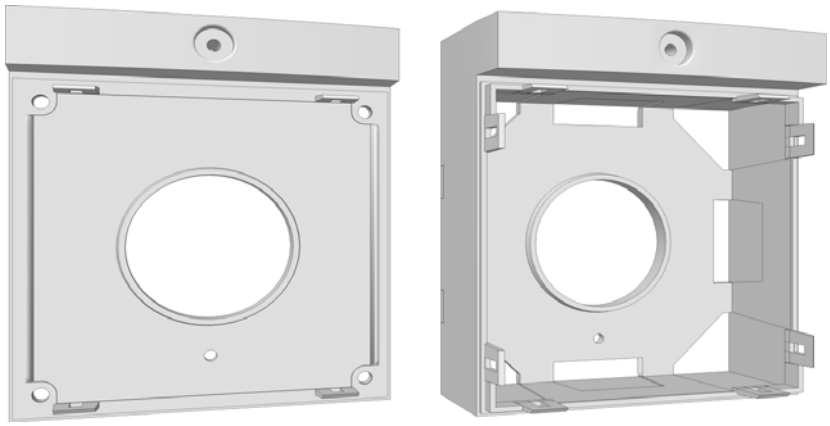


Figure 67. Backplate and surface mounting spacer

Note: *The duty selector can only be mounted on a surface mounting spacer, not on a switch module backplate.*

6.3.1 Mounting the Backplate on a Back box

To mount the backplate on a back box the mounting screws in the back box should not be removed but partially unscrewed to extend at least 0.2in (5mm) above the wall surface.

Important: Use only the plastic back boxes listed in Table 8.

Single	**Raco 7887RAC or equivalent**
Dual	**Raco 7488RAC or equivalent**

Table 8. Plastic Back Box Manufacturer/Model/Part Number

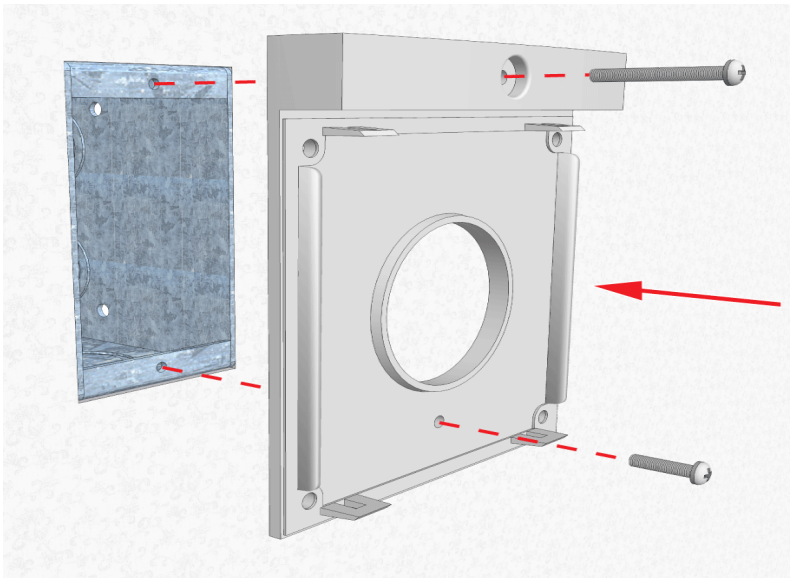


Figure 68. Mounting the backplate (or spacer) on the back box

The backplate should be placed over the back box with the side marked "TOP" at the top. Then turn the backplate so that the heads of the screws pass through the eyes of the appropriate "key-hole" slots (1). The backplate must then be turned (2) until the side marked "TOP" is up. Finally the back box screws should be tightened (3).

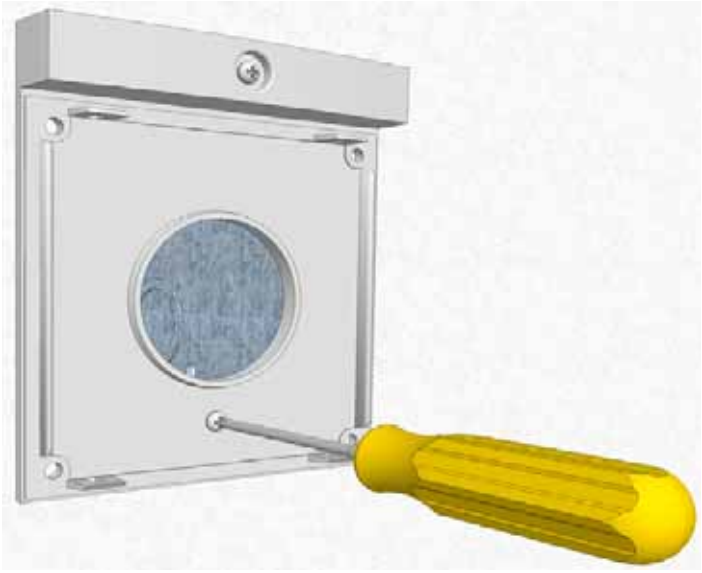


Figure 69. Securing the backplate (or spacer) to the back box

6.3.2 Surface Mounting Spacer

The surface mounting spacer is available for surface mounting the teleCARE IP bgv switch modules, with or without a back box. The spacer can be mounted directly on to a flat wall surface or alternatively, the holes in the base of the spacer allows it to be mounted over various international back boxes.

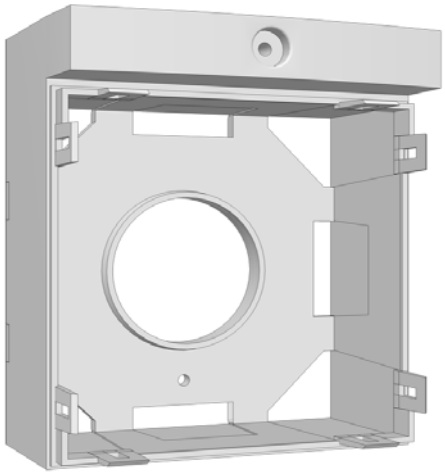


Figure 70. Surface mounting spacer

Note: *When no back box is available it is best to use the screw holes furthest from the center to mount the spacer on a flat surface.*

6.3.3 Mounting the Spacer on a Back Box

To mount the spacer on a back box the mounting screws in the back box should not be removed but partially unscrewed to extend at least 0.2in (5mm) above the wall surface.

The spacer should be placed over the back box so that the side marked "TOP" will be up. Then pass the heads of the screws through the eyes of the "key-hole" slots in the base of the spacer (1). The spacer must then be turned until the side marked "TOP" is uppermost (2) and finally the back box screws should be tightened.

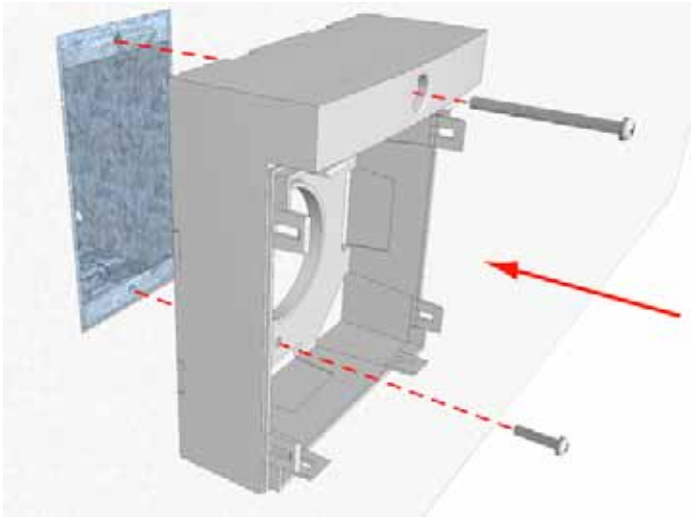


Figure 71. Mounting the spacer on the back box

6.4 Switch Module Electrical Connections

It is important to ensure that a minimum of 14in (35cm) of free cable is pulled out of the back box at every location where teleCARE peripherals are to be installed.

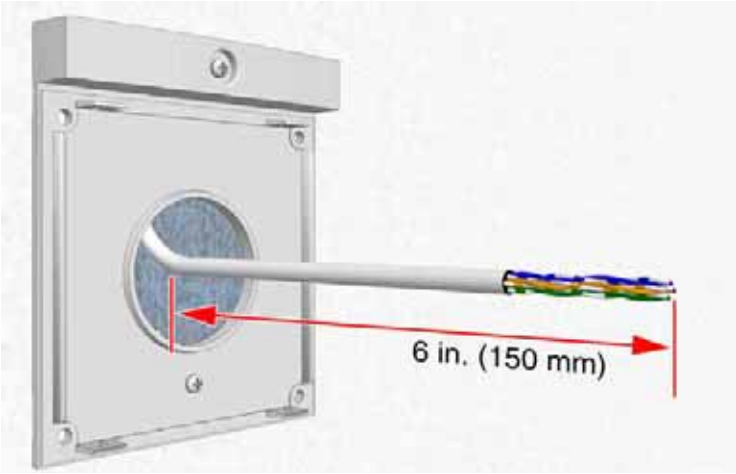


Figure 72. Connecting the switch module

Refer to the relevant switch module description in the following sections for details of the electrical connections.

6.4.1 4-Pole Connector Terminal

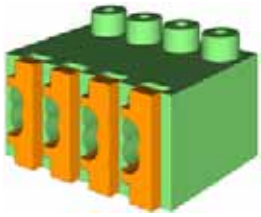


Figure 73. 4-pole connector terminal

The 4-pole connector terminals required for the room bus and also for the connection of a passive bus or the bed light switching relays. It has a screw-less "spring-cage" connection technique and each terminal has two connection points.

The 4-pole connector is not supplied with the switch modules but they are available as accessories and must be ordered separately.

The designation of the room bus wires is shown in the following illustration.

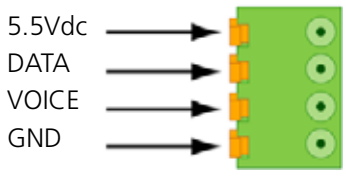


Figure 74. 4-pole connector terminal with the room bus

The designation of the passive bus wires is shown in the following illustration.

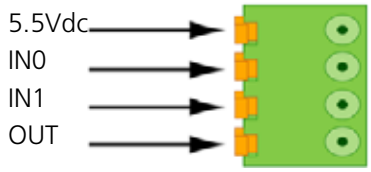


Figure 75. 4-pole connector terminal with the passive bus

The designation of the light switching relay connections is shown in the following illustration.

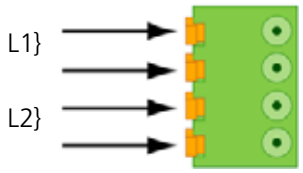


Figure 76. 4-pole connector terminal for the light relay

6.4.2 Preparing the Wires for the 4-pole Connector Terminal

The 4-pole connector terminal has four terminals with two connection points at each terminal. Each connection point accepts one solid wire of maximum wire size 24 gauge (0.5mm²) 0.03inØ (0.8mmØ).

To connect the wires first strip the jacket from the cables and pull the wires through the housing leaving a length of 6in (150mm) free, as described in section 5.3, Preparing the Room Bus and Power Cables on page 26. Then strip 0.25in (6.5mm) of the insulation from the end of each wire which is to be connected.

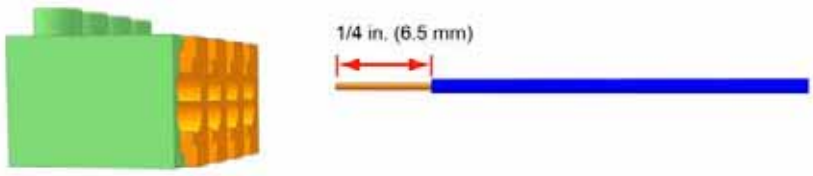


Figure 77. Stripping the wires for insertion in the connection terminal

6.4.3 Connecting the wire in the 4-pole Connector Terminal

After stripping the wire to expose 0.25in (6.5mm) of conductor, insert the wire in the appropriate opening of the connection point by pressing the wire firmly into the terminal, as illustrated below.

Note: *Each connection point in the connector terminal accepts only one wire. Maximum wire size 24 gauge (0.5mm²) (0.8mmØ).*

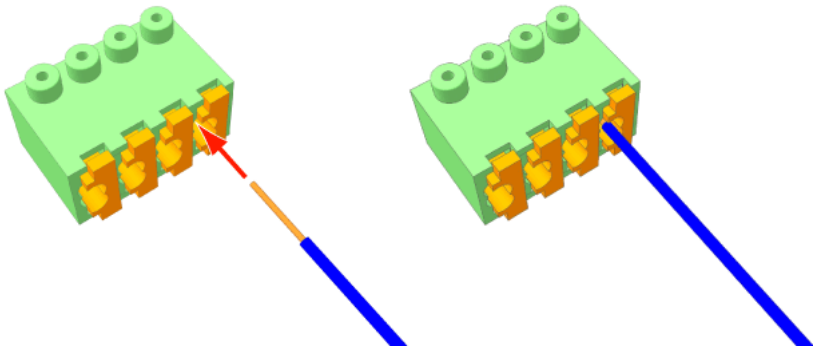


Figure 78. Inserting a wire in the connection point

Check that a good connection has been made by gently pulling on the wire after it has been inserted. The wire should stay fixed in the terminal.

Four wires are required for the room bus, passive bus and light relay outputs, so repeat the above illustrated procedure on the remaining three wires.

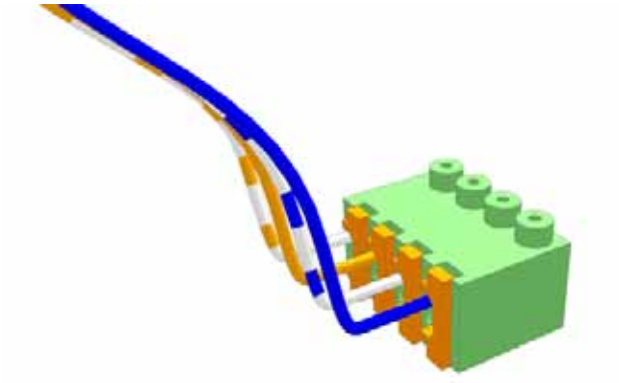


Figure 79. Connector terminal complete with four wires

6.4.4 4-Pole Connector Terminal with Looped Wiring

In cases where the cable loops from peripheral to peripheral (with incoming and outgoing wiring) one set of wires should be inserted in the top connection points and the other set in the lower connection points, as shown in the following illustration:

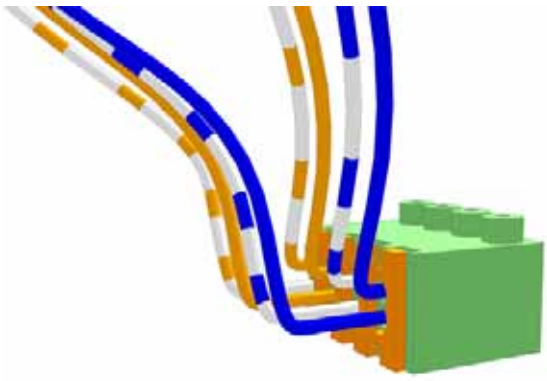


Figure 80. Connector terminal with looped wiring

6.4.5 Disconnecting a Wire from the Connector Terminal

First carefully place the point of a small screw driver (point approximately 0.10in (2.5mm) wide on the relevant orange colored release key of the connection terminals and press the key in firmly to open the spring-cage connector (1). With the release key pressed in pull the wire from the terminal (2) then remove the screw driver.

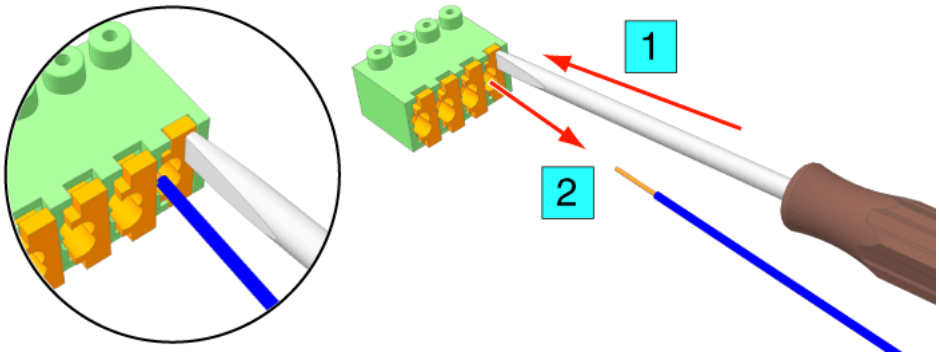


Figure 81. Removing a wire from a connection point

6.4.6 Mounting the Switch Module to the Backplate

To mount the switch module onto the backplate or spacer, after connecting the switch module place the lower edge of the switch module on the two lower snap fasteners of the backplate (1). Next place the switch module on to the two top fasteners (2) and press the switch module firmly so that it snaps closed on the backplate.

Figure 82. Mounting the switch module on the back plate

6.4.7 Mounting the Switch Module to the Surface Mounting Spacer

To mount the switch module onto the spacer, place the lower edge of the switch module on the two lower snap fasteners of the spacer (1). Next place the switch module on to the two top fasteners (2) and press the switch module so that it snaps closed on the spacer.

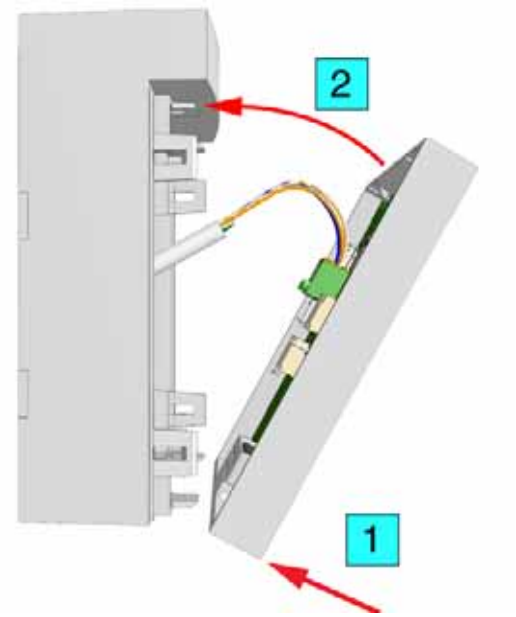


Figure 83. Mounting the switch module on the spacer

6.4.8 Dismantling the Switch Modules

To separate the switch module from the backplate, a screwdriver with a point of approximately 0.25in (6mm) wide should be used.

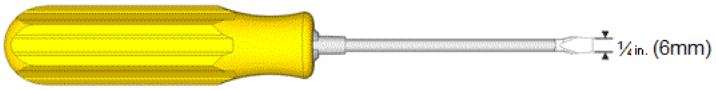


Figure 84. Suitable screwdriver for dismantling switch modules

Insert the point of the screwdriver into the groove at the side of the switch module between the faceplate and the back plate at about 0.4in (10mm) down from one of the top corners.

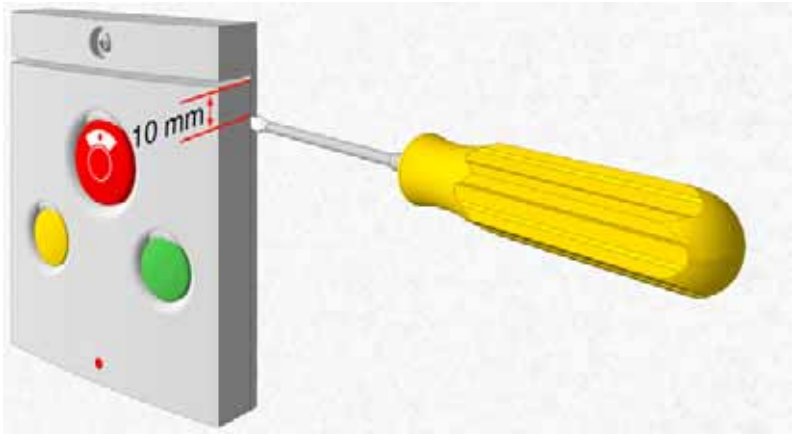


Figure 85. Inserting the screwdriver

Gently push and turn the screwdriver until the switch module releases from the back plate.

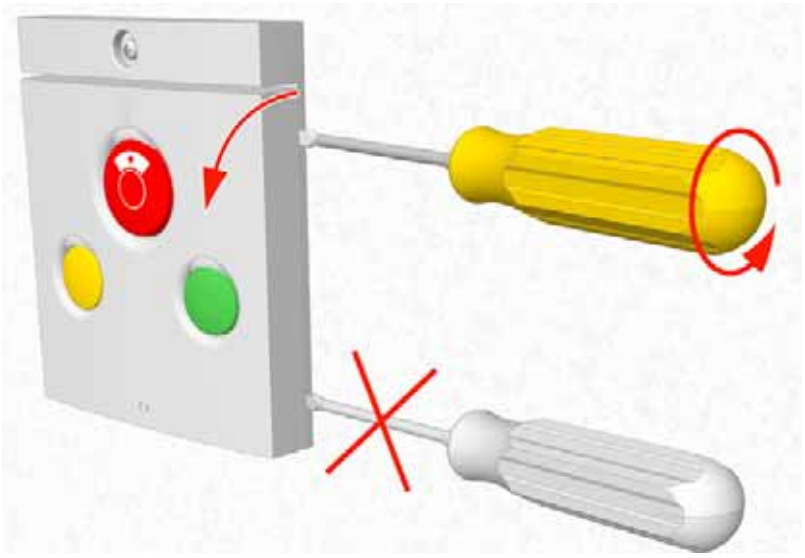


Figure 86. Removing the switch module from the back plate

Note: *Do not insert the screwdriver into the bottom corner of the faceplate.*

6.4.9 Dismantling a Switch Module from a Spacer

Insert the point of the screwdriver into the groove at the side of the switch module between the faceplate and the spacer at about 0.40in (10mm) down from one of the top corners.

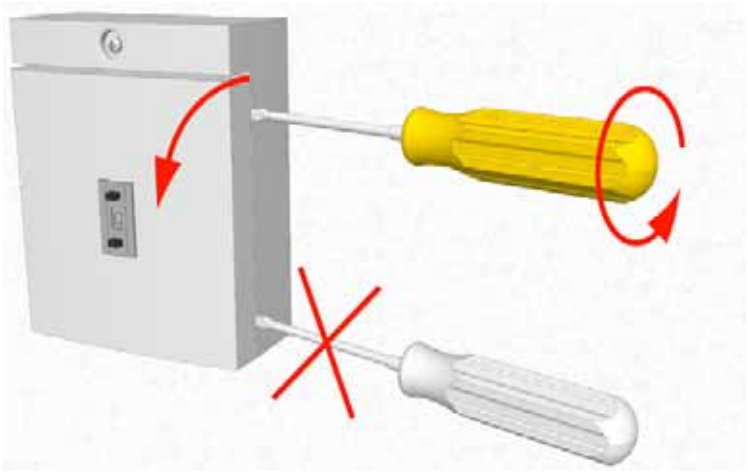


Figure 87. Inserting the screwdriver

Gently push and turn the screwdriver until the switch module releases from the spacer.

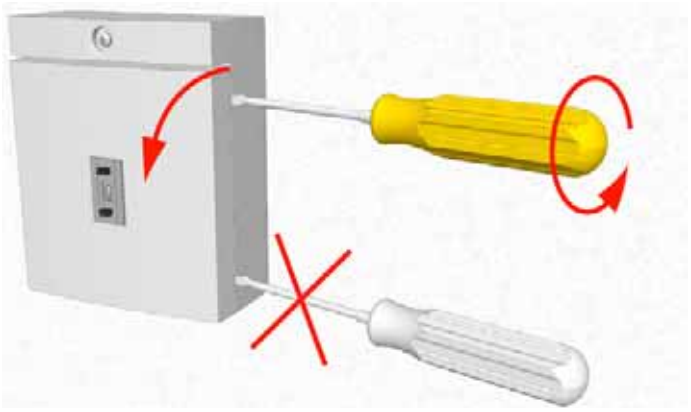


Figure 88. Removing the switch module from the backplate

Caution: *Do not insert the screwdriver into the bottom corner of the faceplate.*

6.4.10 Dip Switch Settings

Each room bus provides eight addresses for the connection of teleCARE IP switch modules. The lower four of these addresses are set by a DIP switch that is located on the PCB of the certain switch module. The upper four addresses cannot be set as they are dedicated to certain switch modules which have the appropriate address permanently set in the switch module.

The image below shows the location of the DIP switch which is in the same place on all active switch modules.

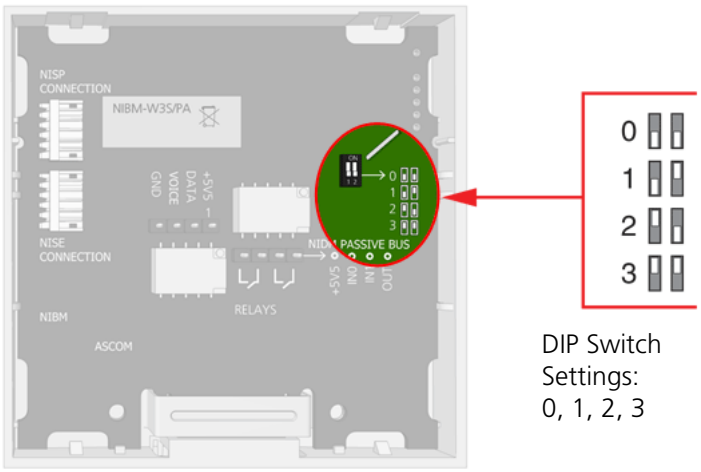


Figure 89. Active switch module DIP switch location

The the DIP switch allows 4 addresses to be set: 0, 1, 2 and 3. These settings are only used for active switch modules and active socket modules.

Address 4 is used for the toilet cancel module and this module has the address fixed and it is not set by a DIP switch.

The addresses 5 to 7 are used for special teleCARE IP peripherals consisting of the corridor lamp and the duty selector. These module have the address fixed and it is not set by a DIP switch. Addresses 6 and 7 are reserved for future extensions.

The room bus address assignments are summarized in the following table:

Room Bus Address	Active Peripheral	Address Setting
0 - 3	Door side Modules Bedside Modules Pull Cord Modules Medical Rail Socket	Set by DIP switch
4	Toilet Cancel Module	Fixed
5	Corridor Lamp Duty Selector	Fixed
6	Card reader	Fixed
7	Room Display	Fixed

6.5 Bedside Module (NIBM2)

The Bedside Module (NIBM2) is designed for use in the teleCARE IP system. It is suitable for use with all teleCARE IP handsets and it supports teleCARE IP speech and entertainment.

The NIBM2 has a Safe Release connection socket for the handset and it is available with three or one button. The NIBM2-G3S and NIBM2-W3S have three function buttons: red, green and yellow. The NIBM2-W1S and NIBM2-G1S have one red button.

Figure 90. Bedside module NIBM2: front and back view

In addition to the a 4-pole connector for the room bus, the NIBM2 has connectors for the following inputs and outputs:

- Control outputs for 2 light switching relays
- Stereo TV audio input from the television interface module
- External call input with a reassurance LED output
- NISP speech module

6.5.1 NIBM2 Electrical Connections and DIP Switch Settings

The Bedside Module (NIBM2) is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector. The room bus connector includes the 5.5Vdc power supply for the NIBM2.

Each room bus offers individual addresses for up to four switch modules. The address is selected using the DIP switch on the switch module printed circuit board.

The NIBM2 requires a single switch module back-plate. Alternatively, a spacer with installation kit is available for surface mounting. A double backplate is required when the NIBM2 is combined with a speech module.

For details of the backplates and surface mounting spacer see 6.3, Backplates and Surface Mounting Spacer on page 62.

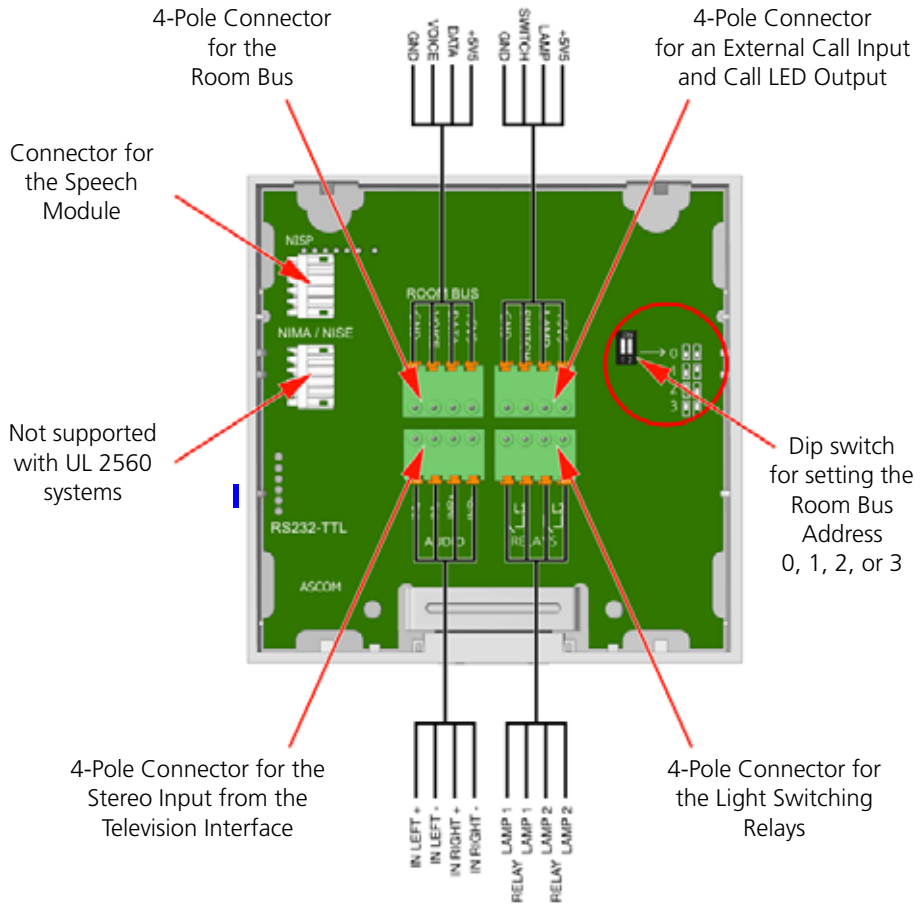


Figure 91. Bedside module NIMB2 electrical connections and address setting

The address is selected using the DIP switch on the switch module printed circuit board. For details of the DIP switch settings see 6.4.10, Dip Switch Settings on page 71.

For details of the 4-Pole connector see 6.4.1, 4-Pole Connector Terminal on page 65.

For light switching relay details see 6.5.2, Light Switching Relay Maximum Load and Surge Damping Diode on page 75.

For details of connecting a speech module see 6.15.1, Connecting the Speech Module on page 104.

For details of connecting the external call see 6.5.3, External Call Contact with Call Lamp Output on page 75.

Note: *The 4-pole connector terminals required for the room bus and other inputs and outputs are not supplied with the switch module. They are available as accessories and must be ordered separately.*

6.5.2 Light Switching Relay Maximum Load and Surge Damping Diode

The teleCARE switch module NIBM2 with a socket and bed light control include 2 light switching circuits. Each circuit is suitable for switching a bi-stable 24Vdc relay. The maximum switching current for each relay must not exceed 0.3A at maximum 30Vdc.

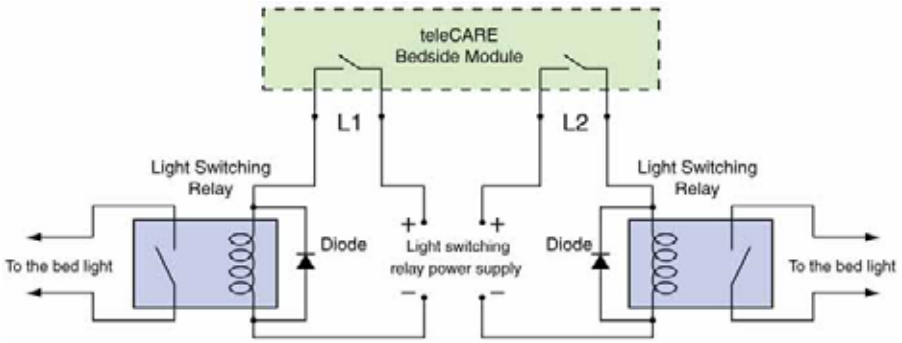


Figure 92. Light switching relay with surge damping diode

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- Do not connect the bed light circuitry directly to the L1 and L2 switch contacts on the NIBM2.
- The Light Switching Power Supply and Relay must be UL listed or recognized components.
- The maximum switching current for the L1 and L2 contacts on the L1 and L2 contacts on the NIBM2 must not exceed 0.3A at 30Vdc.
- A diode (1N4004 or equivalent) must be connected across the coil of the bed light switching relay to prevent surges caused by the relay coil.

6.5.3 External Call Contact with Call Lamp Output

The external call connection allows an external normally open third-party contact to activate a teleCARE call in parallel to the red button of the bedside module.

The 4-pole connector provides SWITCH and GND terminals for connection to a normally open contact of an external switching device. These terminals provide 5.5Vdc at 0.6mA, for monitoring the external device contact.

The 4-pole connector also provides a +5.5V output and an open collector driver on the Lamp terminal. Together, the +5.5V and Lamp terminals provide power and switching for an external LED lamp. The external LED lamp will be switched on when the contact on the external switching device connected to the SWITCH and GND terminals closes.

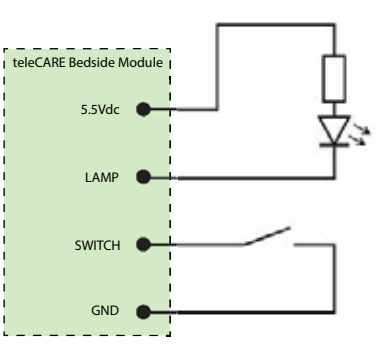


Figure 93. External Call Contact with Call LED

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- The SWITCH and LAMP circuits are not electrically isolated.
- The cable length for the SWITCH circuit must not exceed 33ft (10m) and the cable must be appropriately separated from power cables and sources of electromagnetic interference.
- The LAMP circuit is power limited to 5.5Vdc at 06.mA.
- The SWITCH circuit is power limited to 5.5Vdc at 06.mA.

6.6 Medical Rail Socket (NIMS2)

The Medical Rail Socket (NIMS2) is a teleCARE IP peripheral. The NIMS2 is designed to be flush mounted by two screws in an opening in a medical rail.

The NIMS2 supports teleCARE IP speech and stereo TV audio input from the television interface module.

Figure 94. Medical Rail Module NIMS2 (top, front, bottom)

The NIMS2 is connected to the teleCARE IP room bus by a 4-pin connector. The room bus connector includes the 5.5Vdc power supply for the NIMS2.

The medical rail socket is functionally compatible with the teleCARE IP bedside module. It includes the teleCARE Safe Release Socket.

The medical rail socket is supplied with two self-tapping screws which are used to mount the socket in the medical rail.

In addition to the a 4-pole connector for the room bus, the NIBM2 has connectors for the following inputs and outputs:

- Control outputs for 2 light switching relays
- Stereo TV audio input from the television interface module
- External call input with a reassurance LED output
- NISP speech module

6.6.1 NIMS2 Electrical Connections and DIP Switch Settings

The medical rail socket (NIMS2) is an "active peripheral" which must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector. The room bus connector includes the 5.5Vdc power supply for the NIMS2.

Each room bus offers individual addresses for up to four switch modules. The address is selected using the DIP switch on the switch module printed circuit board. Details of the DIP switch settings are given in 6.4.10, Dip Switch Settings on page 71.

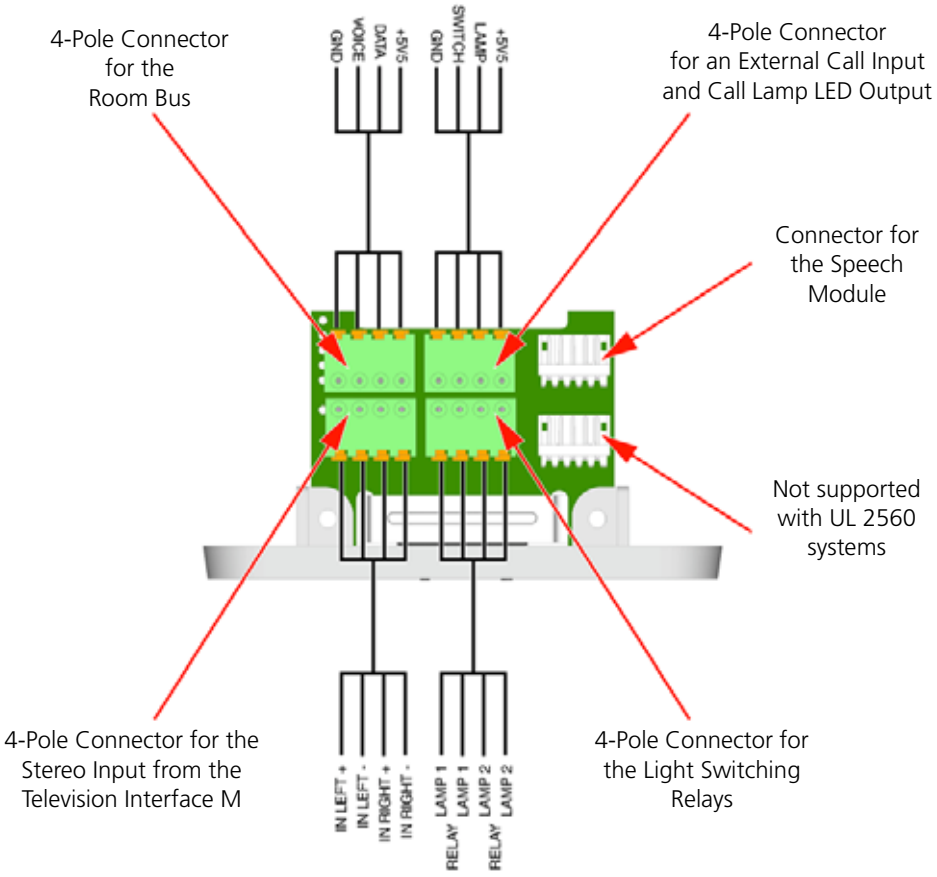


Figure 95. Medical Rail Socket NIMS2 electrical connections and address setting

For details of the 4-Pole connector see 6.4.1, 4-Pole Connector Terminal on page 65.

For light switching relay details see 6.5.2, Light Switching Relay Maximum Load and Surge Damping Diode on page 75.

For details of connecting a speech module see 6.15.1, Connecting the Speech Module on page 104.

For details of connecting the external call see 6.5.3, External Call Contact with Call Lamp Output on page 75.

Note: *The 4-pole connector terminals required for the room bus and other inputs and outputs are not supplied with the switch module. They are available as accessories and must be ordered separately.*

6.6.2 NIMS2 Room Bus Address Setting

The room bus address of the medical rail socket is selected using the DIP switch on the top side of the printed circuit board. For details of the DIP switch settings see 6.4.10, Dip Switch Settings on page 71.

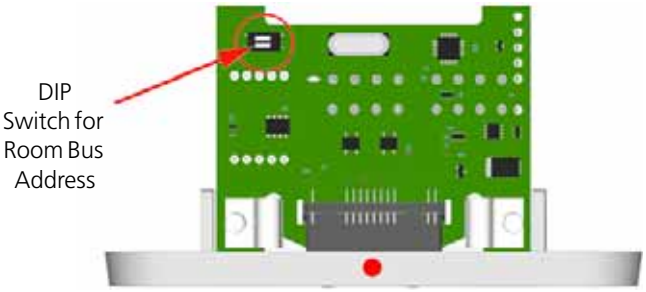


Figure 96. NIMS2 DIP switch

6.6.3 Light Switching Relay Maximum Load and Surge Damping Diode

The medical rail socket NIMS2 includes 2 light switching circuits with normally open (N/O) contacts. The contacts are potential free and galvanically isolated. Each circuit is suitable for switching a bi-stable 24 volt DC external relay. The maximum switching current for each relay must not exceed 0.3A at maximum 30Vdc.

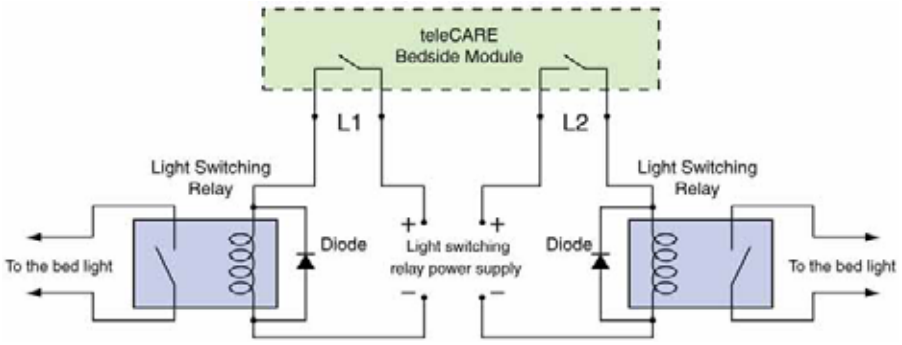


Figure 97. Light switching relay with surge damping diode

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- Do not connect the bed light circuitry directly to the L1 and L2 switch contacts on the NIMS2.
- The Light Switching Power Supply and Relay must be UL recognized components.
- The maximum switching current for the L1 and L2 contact on the NIMS2 must not exceed 03.A at 30Vdc.
- A diode (1N4004 or equivalent) must be connected across the coil of the bed light switching relay to prevent surges caused by the relay coil.

6.6.4 External Call Contact with Call LED Output

The external call connection allows an external normally open third-party contact to activate a teleCARE call in parallel to the red button of the bedside module.

The 4-pole connector provides SWITCH and GND terminals for connection to a normally open contact of an external switching device. These terminals provide 5.5Vdc at 0.6mA, for monitoring the external device contact.

The 4-pole connector also provides a +5.5V output and an open collector driver on the Lamp terminal. Together, the +5.5V and Lamp terminals provide power and switching for an external LED lamp. The external LED lamp will be switched on when the contact on the external switching device connected to the SWITCH and GND terminals closes.

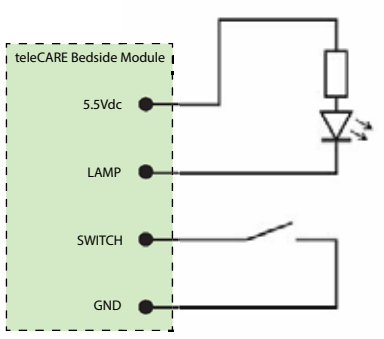


Figure 98. External Call Contact with Call LED

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- The SWITCH and LAMP circuits are not electrically isolated.
- The cable length for the SWITCH circuit must not exceed 33ft (10m) and the cable must be appropriately separated from power cables and sources of electromagnetic interference.
- The LAMP circuit is power limited to 5.5Vdc at 06.mA.
- The SWITCH circuit is power limited to 5.5Vdc at 06.mA.

6.6.5 Mounting the Medical Rail Socket

The following illustration shows how the medical rail socket is mounted in the underside of a medical rail.

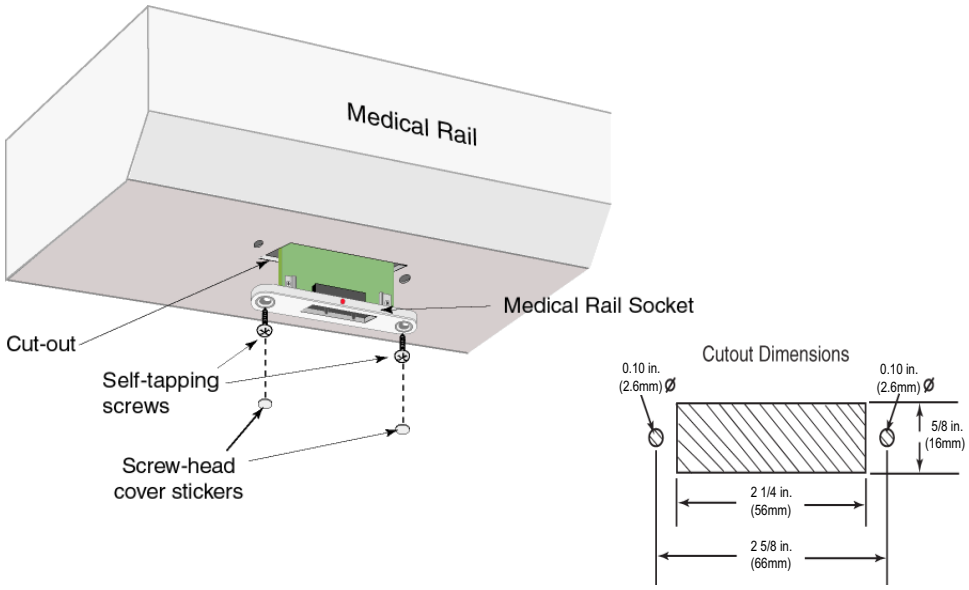


Figure 99. Medical rail socket mounting and cut-out dimensions

6.7 Door Side Module (NIDM)

The Door Side Module (NIDM) is a three-button switch module which is connected to the teleCARE IP room bus. It has a buzzer which can be used to signal calls, a 4-pole connector for the room bus, a 4-pole connector for a passive bus and connector for speech module.

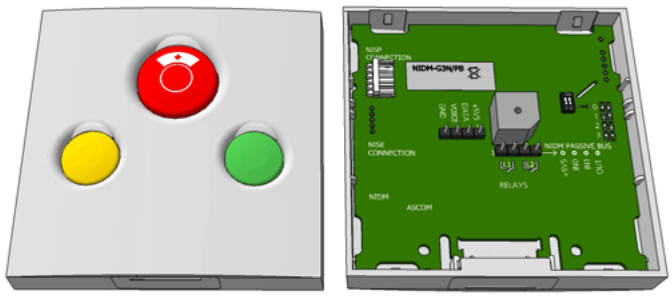


Figure 100. Door-Side module: front and back view

6.7.1 Door Side Module Electrical Connections and DIP Switch Settings

The Door Side (NIDM) Module is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector (see 6.4.1, 4-Pole Connector Terminal on page 65).

Each room bus offers individual addresses for up to four switch modules. The address is selected using the DIP switch on the switch module printed circuit board. The door Side module also has another 4-pole connector for a "passive bus" which is used to connect a passive pull cord switch module and a

passive cancel switch module.

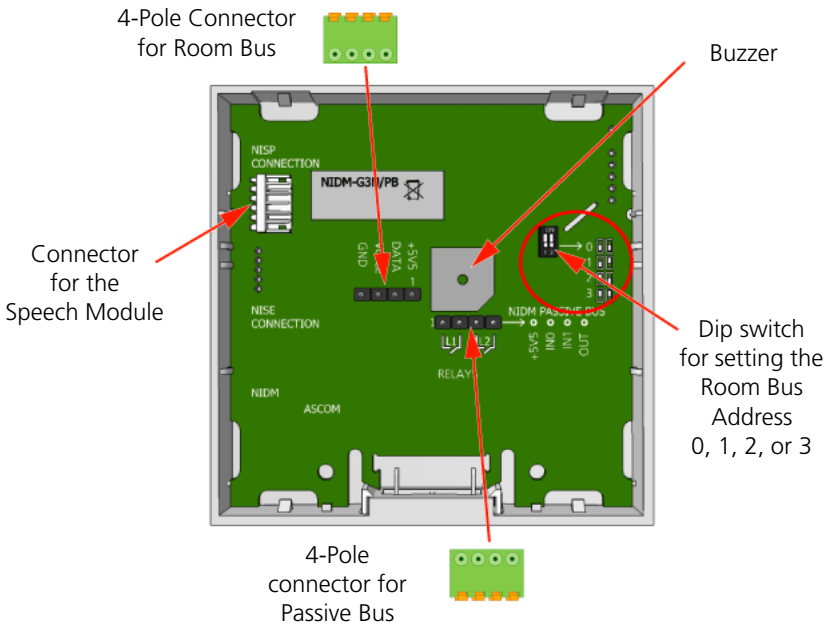


Figure 101. Door Side module electrical connections and address setting

The NIDM has a 5-pin connector for connecting a speech module. Refer to 6.15.1, Connecting the Speech Module on page 104 for details of the speech module.

Note: *The 4-pole connector terminals required for the room bus and the passive bus connections module must be ordered separately.*

6.8 Pull Cord Module - Active (NIPC-G3A and NIPC-W3A)

The Pull Cord Module (NIPC) is intended for use in the teleCARE IP system, in areas such as bathrooms and toilets. It is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller.

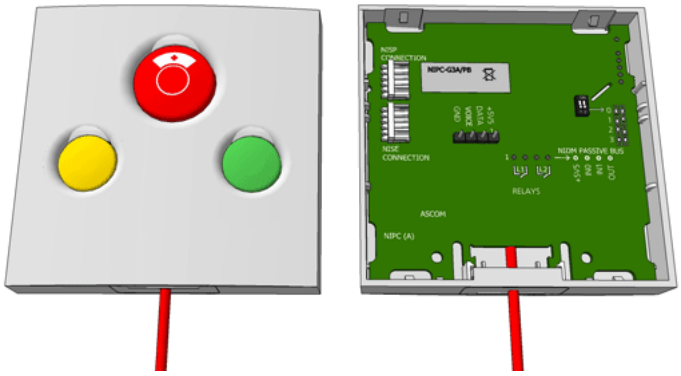


Figure 102. Pull cord module (active)

The NIPC has a 4-pin connector for the room bus, a 5-pin connector for the speech module and a 5-pin connector for future use.

Each room bus offers individual addresses for up to four switch modules. The address is selected using the DIP switch on the switch module printed circuit board.

The NIPC has a 2 meter long pull cord for call activation with two safety break plastic balls, and it is available with three function buttons: red, green and yellow.

Important: At least one active NIPC module must be permanently located in the bathroom of each resident apartment.

Note: *The 4-pole connector terminal required for the room bus is not supplied with the switch module. It is available as an accessory and must be ordered separately.*

The NIPC requires a single backplate which must be ordered separately. The backplate enables this switch module to be mounted over different types of back-boxes. Alternatively, a spacer with installation kit is available for surface mounting the switch module.

6.8.1 Pull Cord Module (Active) Electrical Connections and DIP Switch Settings

This pull cord module is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector (see 6.4.1, 4-Pole Connector Terminal on page 65).

Each room bus offers individual addresses for up to four switch modules. The address is selected using the DIP switch on the switch module printed circuit board.

For details of connecting a speech module refer to 6.15.1, Connecting the Speech Module on page 104

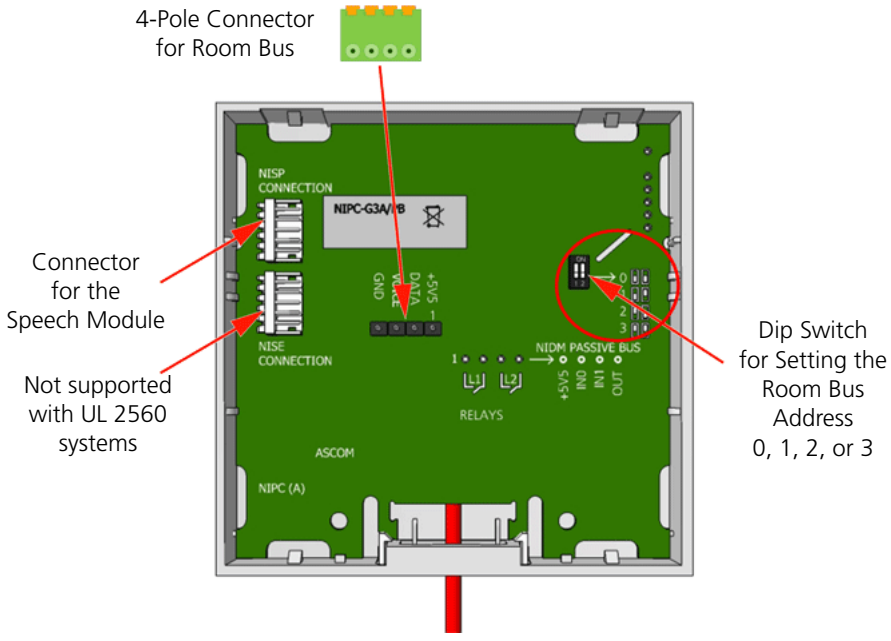


Figure 103. Pull cord module electrical connections and address setting

Note: *The 4-pole connector terminals required for the room bus connections is not supplied with the switch module. It is available as accessories and must be ordered separately.*

6.8.2 Assembling and Attaching the Pull Cord

It is important to assemble and attach the pull cord to the pull switch module correctly to ensure the cord is securely attached and that the "safety break" mechanism works reliably. The following illustrations show how to attach the pull cord:

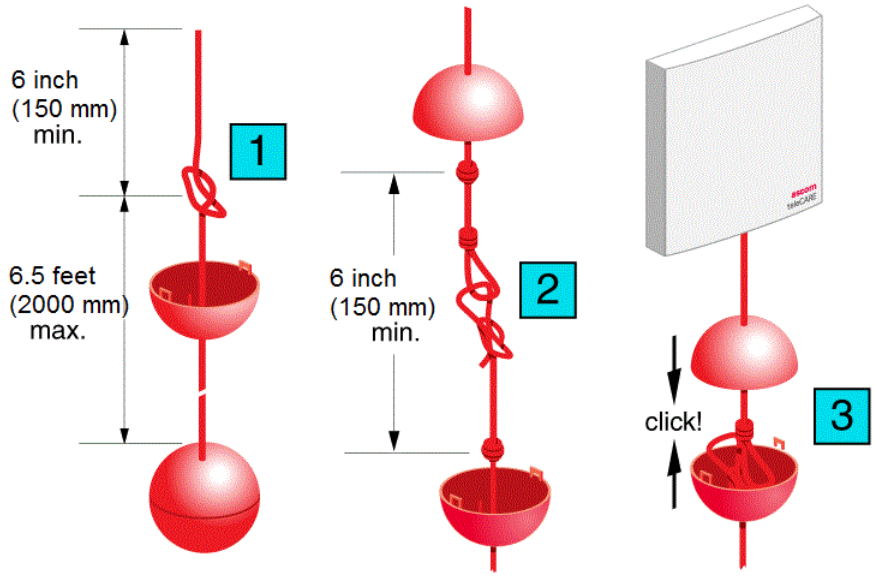


Figure 104. Assembling and attaching the pull cord

6.9 Toilet Cancel Module - Active (NITC-XXA)

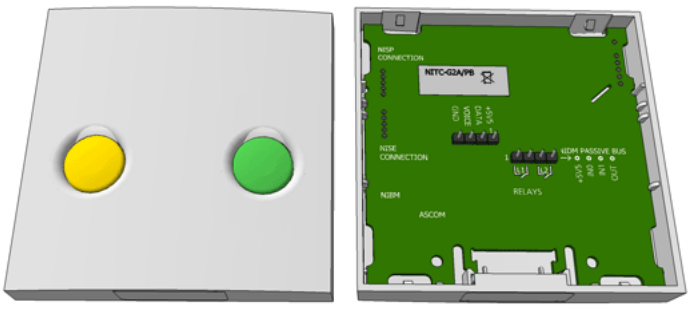


Figure 105. Toilet cancel module (active)

The Toilet Cancel Module is designed for use in the teleCARE IP system. It is a wall mounted single switch module used to cancel toilet calls made by linked toilet call devices.

Each room bus offers individual addresses for up to four switch modules. The address is of the active toilet cancel module is fixed at number 4 and cannot be changed.

The toilet cancel module requires a single backplate which must be ordered separately. The backplate enables this switch module to be mounted over different types of back-boxes. Alternatively, a spacer with installation kit is available for surface mounting.

6.9.1 Toilet Cancel Module (Active) Electrical Connections

The toilet cancel module is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector (see 6.4.1, 4-Pole Connector Terminal on page 65).

The toilet cancel module also has a 4-pole connector for the passive bus to which a passive pull-cord call module can be connected (see 6.10.1, Pull Cord Module (Passive) Electrical Connections on page 86).

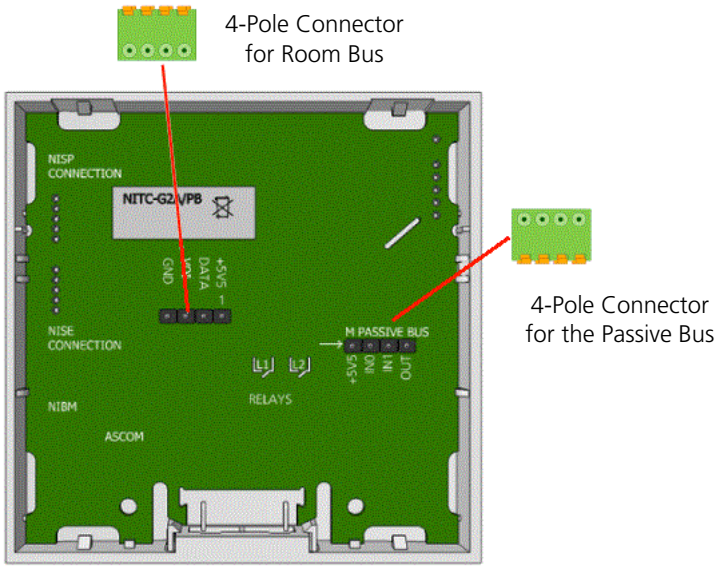


Figure 106. Toilet cancel module electrical connections

Note: *The 4-pole connector terminals required for the room bus and the passive bus must be ordered separately as accessories.*

6.10 Pull Cord Module - Passive (NIPC-XXP)

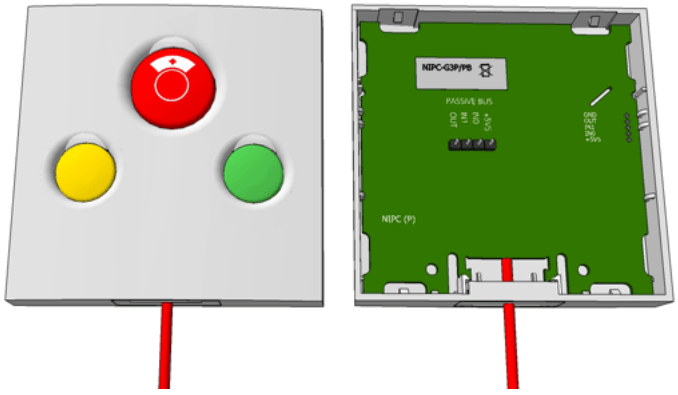


Figure 107. Passive pull cord module 3 buttons

The Passive Pull Cord Module is intended for use in the teleCARE IP system, in areas such as bathrooms and toilets. It must be connected to the passive bus of a door side module or active pull cord cancel module. When connected to the door side module, it can be combined with the passive toilet cancel module on the same passive bus. The passive bus consists of four wires (see 6.4.1, 4-Pole Connector Terminal on page 65).

For assembly and attaching instructions for the pull cord refer to 6.8.2, Assembling and Attaching the Pull Cord on page 84.

The Passive Pull Cord Module requires a single backplate which must be ordered separately. The backplate enables this switch module to be mounted over different types of back boxes. Alternatively, a spacer with installation kit is available for surface mounting.

6.10.1 Pull Cord Module (Passive) Electrical Connections

The passive pull cord module is a "passive peripheral" therefore it must be connected to the passive bus of the linked door side module or active pull cord module by the 4-pole passive bus connector (see 6.4.1, 4-Pole Connector Terminal on page 65).

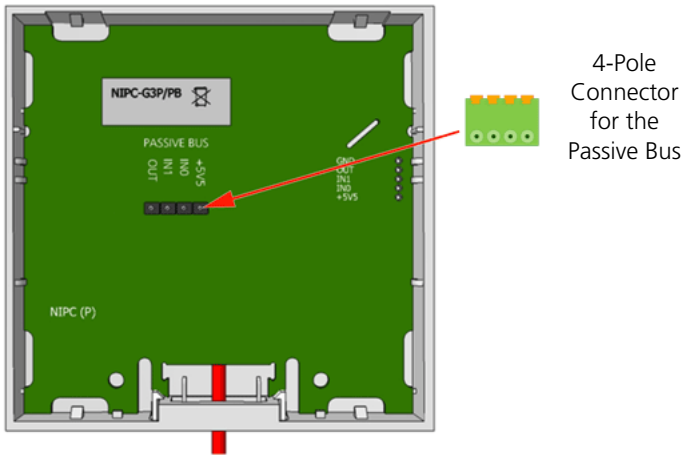


Figure 108. Passive pull cord module electrical connections

6.11 Toilet Cancel Module - Passive (NITC-XXP)

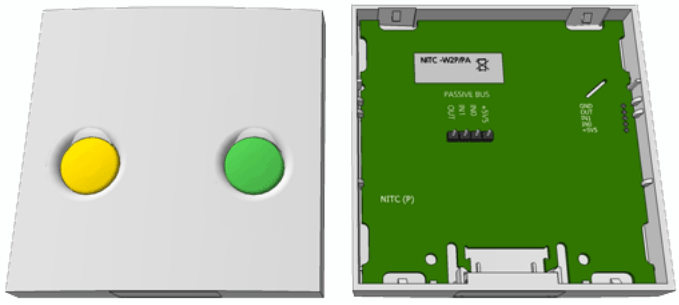


Figure 109. Passive toilet cancel module

The Passive Toilet Cancel Module is intended for use in the teleCARE IP system, in areas such as bathrooms and toilets. It must be connected to the passive bus of a door side module or a room display module.

IMPORTANT: *Together with the passive toilet cancel module a passive pull cord module which contains the line break detection circuitry must be installed. The passive pull cord module must be connected at the end of the passive bus.*

The Passive Toilet Cancel Module requires a single backplate which must be ordered separately. The backplate enables this switch module to be mounted over different types of back boxes. Alternatively, a spacer with installation kit is available for surface mounting the switch module.

6.11.1 Passive Toilet Cancel Module (Passive) Electrical Connections

This toilet cancel module is a "passive peripheral" therefore it must be connected to the passive bus of the linked door side module by the 4-pole passive bus connector (see 6.4.1, 4-Pole Connector Terminal on page 65).

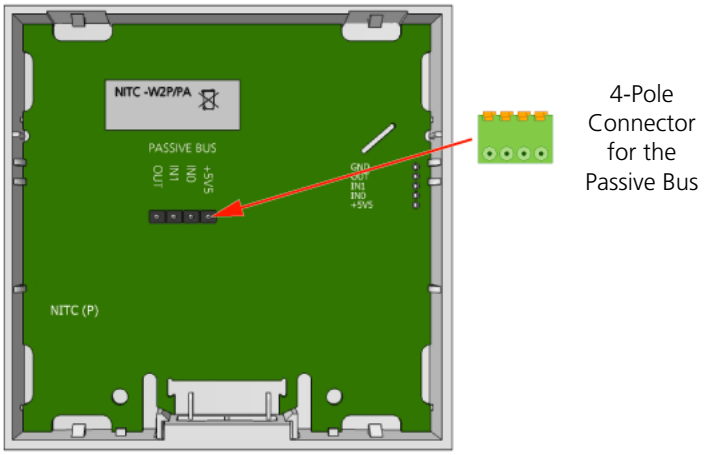


Figure 110. Passive toilet cancel module electrical connections

Note: *The 4-pole connector terminal for the passive bus is not supplied with the switch module. It is available as an accessory and must be ordered separately.*

6.12 Pull Cord Module (NIPC2) Active and Passive

The NIPC2 Pull Cord Modules are designed for use in the teleCARE IP system. They are IP44 splash proof and therefore suitable for use in rooms with showers, baths and in similar wet areas. They are available as an "active" module and a "passive" module.

The NIPC2 is available in gray or white and has a pull cord of length 2 meter with two plastic balls. The top ball acts as a safety break by splitting in half when the cord is pulled with excessive force.

Figure 111. NIPC2 Pull cord module (exploded/assembled)

The active version of the NIPC2 is connected to one of the room buses of the IP Room Controller. It has a 4-pin connector for the connection of the room bus, consisting of: 5.5Vdc, data, voice and ground (0V). The room bus address is set by DIP switches.

The passive version must be connected to the passive bus of a door side module, a room display or a toilet cancel module. It has a 4-pin connector for the connection of the passive bus, consisting of: 5.5Vdc, Aux-In0, Aux-In1 and Aux-out.

Note: *The 4-pole connector terminal required for the room bus is not supplied with the switch module. It is available as an accessory and must be ordered separately.*

The NIPC2 Pull Cord Module includes a special backplate with two urethane foam gaskets which makes the NIPC2 splash water resistant to IP44 standard. The backplate must be mounted on a flat wall surface using the four corner holes in the backplate.

The module is fixed on to the backplate by two latches and two screws through the cover plate. The screws are supplied with the module.

WARNING: The NIPC2 can only be mounted on the supplied IP44 backplate. It is not compatible with the standard teleCARE switch module backplate and it is not compatible with the teleCARE surface mounting spacer.

6.12.1 Mounting the NIPC2 Pull Cord Module

In order to avoid physical damage to the module and to reduce the risk of exposure to excessive spray water in shower rooms, bathrooms and similar wet areas, the NIPC2 should be installed with the pull cord module mounted above the height of any water source.

The NIPC2 should be mounted in a location which ensures that the pull cord hangs free of any obstructions, is clearly seen and within easy reach so that it can be pulled to activate a call by residents or staff in an emergency or when assistance is required.

The NIPC2 should be mounted at a minimum height of 90.5in (2300mm) above the floor and at least 8in (200mm) above the highest position of the shower head. Where possible the pull cord should extend down to approximately 9in (200mm) above the floor.

The following illustration shows some examples of suitable locations for the pull cord module.

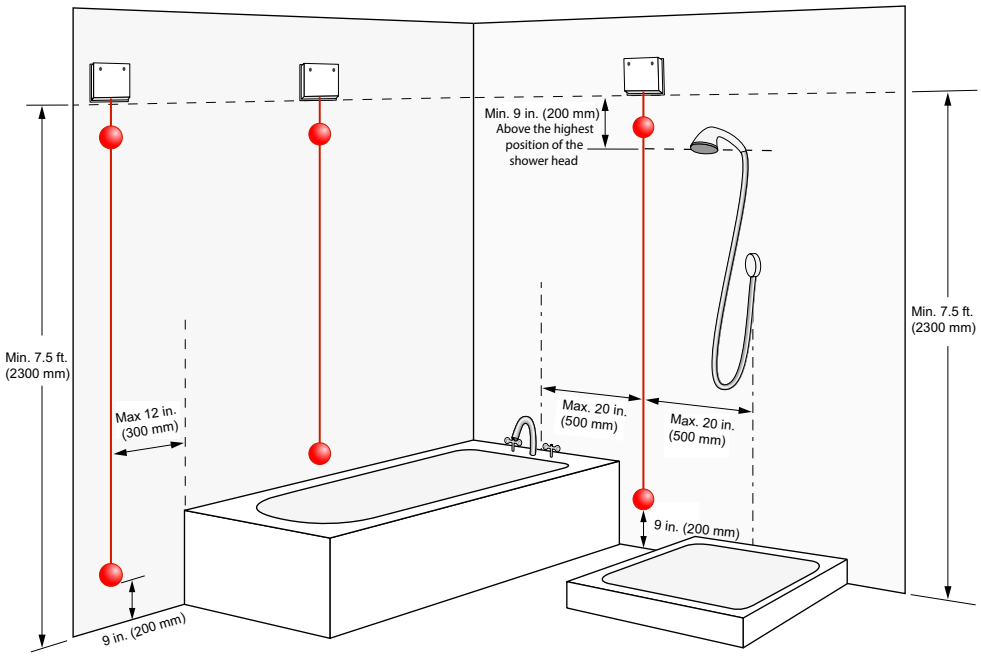


Figure 112. Examples of suitable locations for mounting the NIPC2

6.12.2 Positioning the Back box for the Pull Cord Module

The NIPC2 pull cord module must be mounted on a smooth flat surface in order to ensure that it is splash water proof in accordance with IP44. The ideal surface is a ceramic tiled wall with the back box for the NIPC2 situated in the center of a tile so that the pull cord module backplate does not sit over a gap between tiles, as shown in the following illustration:

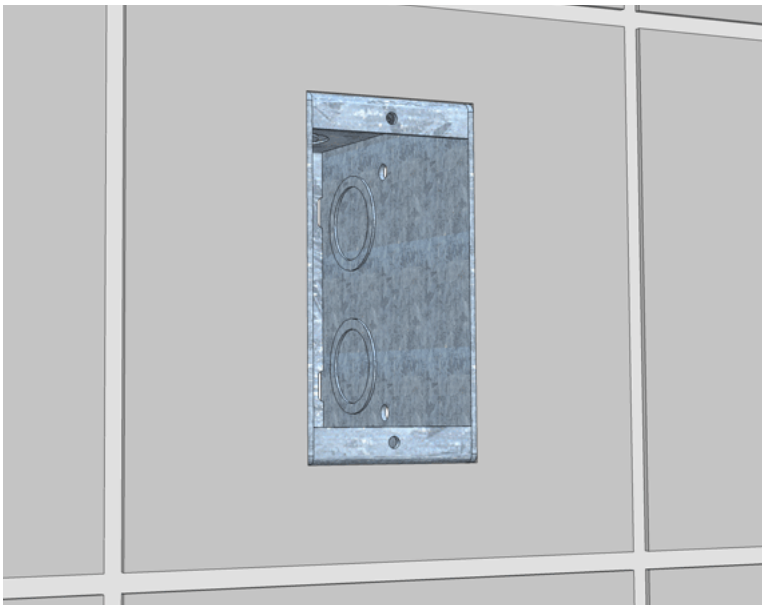


Figure 113. Positioning the back box on a tiled wall

6.12.3 NIPC2 Back plate

The NIPC2 back plate has a urethane foam gasket on both sides to prevent water entering the pull cord module. With the NIPC2 switch module mounted correctly on the back plate the switch module conforms to the ingress protection rating of IP44.

Figure 114. NIPC2 backplate

6.12.4 Mounting the NIPC2 Backplate

The backplate of the NIPC2 must be mounted over the back box using the holes in the corners of the backplate in order to ensure that the NIPC2 is IP44 splash water proof.

Caution: *The screws inside the back box must not be used to mount the backplate. Four holes must be drilled in the wall surface and fitted with suitable wall plugs to allow the backplate to be mounted using the four corner holes.*

6.12.5 Drilling the Backplate Mounting Holes

Four suitably sized holes should be drilled around the back box at 3in (77mm) between the centers (1). A wall plug which will accept a screw of diameter 0.14in (3.5mm) to 0.15in (3.8mm) should be inserted in each hole (2).

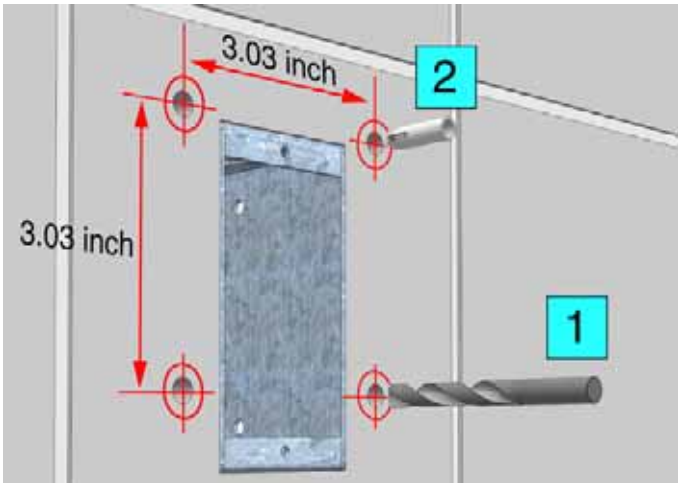


Figure 115. Drilling the backplate mounting holes

Note: *The type and length of the screw depends on the type of wall and the wall plugs. The diameter of the screw must not exceed 0.15in (3.8mm).*

6.12.6 Mounting the Backplate on the Wall

The backplate should be placed over the back box, with the four holes in the corners of the backplate lining up holes in the wall and with the side marked "UP" at the top.

Figure 116. Fixing the backplate to the wall

The four screws should be tightened carefully so that just enough pressure is applied on the gasket to compress it evenly all around between the backplate and the wall surface.

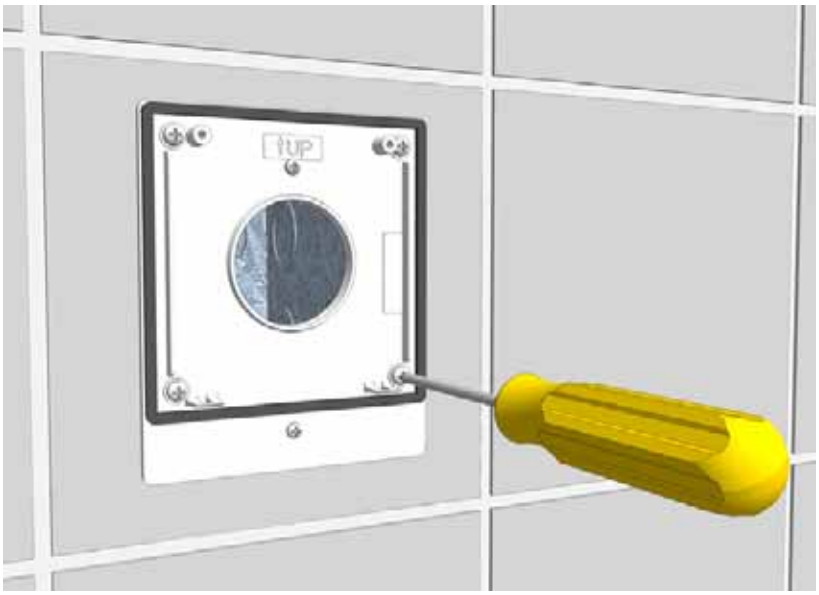


Figure 117. Fixing the backplate to the wall

Caution: *Do not excessively tighten the fixing screws as this will distort the backplate and the foam gasket resulting in an ineffective waterproof seal.*

6.12.7 Preparing the Cable for the Pull Cord Module

After fixing the backplate to the back box, pull the cable through. It is important to ensure that a minimum of 6in (15cm) of free cable is pulled out of the back box where teleCARE pull cord switch module is to be installed.

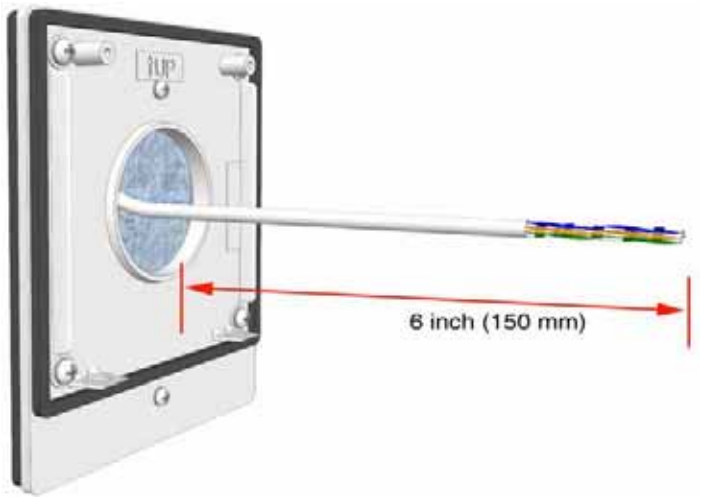


Figure 118. Preparing the cable for the pull cord module

6.12.8 Room Bus Electrical Connections

The NIPC2 GAA and NIPC2 WAA are active teleCARE IP peripherals which must be connected to the 4-pin room bus connector on the switch module.

Refer to section 6.4.2, Preparing the Wires for the 4-pole Connector Terminal on page 66). in order to correctly strip the cable and prepare the wires for the 4-pole connector.

The connections of the room bus wires in the 4-pole connector are shown in the following illustration.

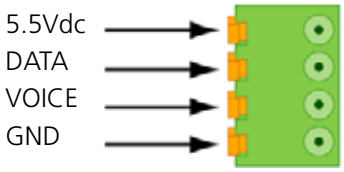


Figure 119. 4-pole connector terminal with the room bus

6.12.9 Room Bus Address DIP Switch Settings

The NIPC2 (GAA and WAA) uses one of the first four addresses (0, 1, 2 and 3) of the room bus. The address is set by a DIP switch.

The illustration below shows the location of the room bus connector and the location of the DIP switch with the address settings.

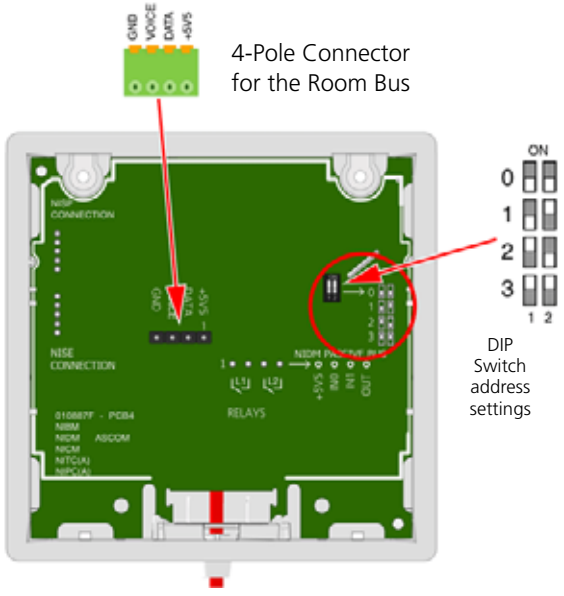


Figure 120. Room bus connector and DIP switch location

6.12.10 Passive Pull Cord Module Electrical Connections

The NIPC2 GAP and NIPC2 WAP are passive teleCARE IP peripherals which must be connected to the passive bus of a door side module or a toilet cancel module.

Refer to section 6.4.2, Preparing the Wires for the 4-pole Connector Terminal on page 66). in order to correctly strip the cable and prepare the wires for the 4-pole connector.

The connections of the passive bus wires is shown in the following illustration.

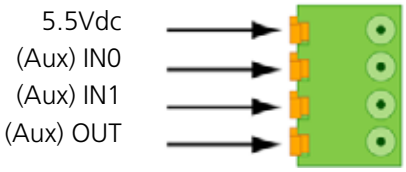


Figure 121. 4-pole connector terminal with the passive bus

The illustration below shows the location of the passive bus connector:

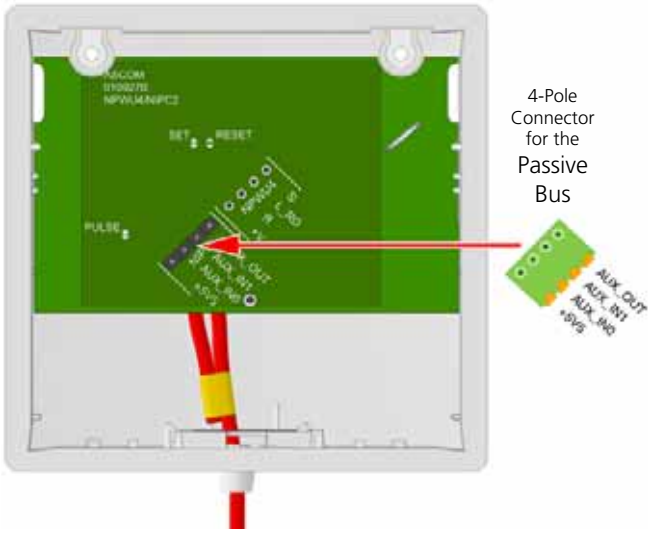


Figure 122. Passive bus connector location

6.12.11 Mounting the NIPC2 Pull Cord Module to the Backplate

The method described for mounting the switch module to the backplate is basically the same for the active and the passive pull cord switch modules. The following illustration shows the back plate mounted on the back box with the cable pulled through and connected to the 4-pole connection terminal.

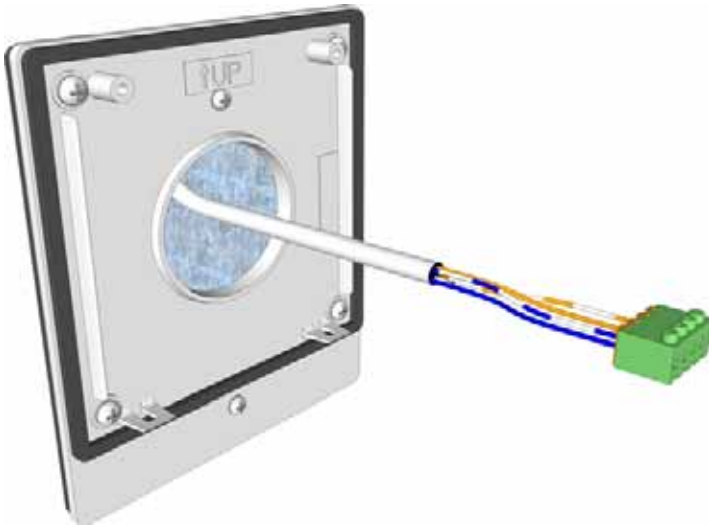


Figure 123. Cable of the pull cord module with the 4-pole connector

Plug in the connection terminal to the appropriate 4-pin connector of the pull cord module (active = room bus connector, passive = passive bus connector).

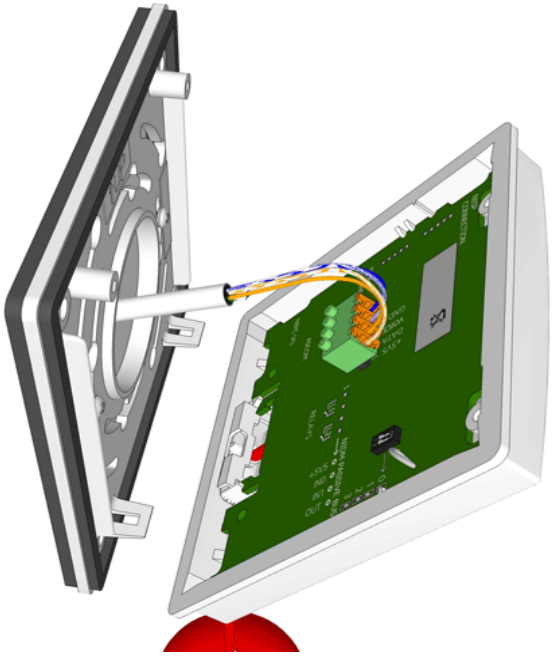


Figure 124. Connecting the room bus to the switch module

Mount the switch module on the backplate by first position the two latch fasteners of the backplate over the two teeth on the inside of the lower edge of the cover plate (1). Next rotate the pull cord module up to the backplate (2) so that the screws line up with the fixing posts on the back plate.

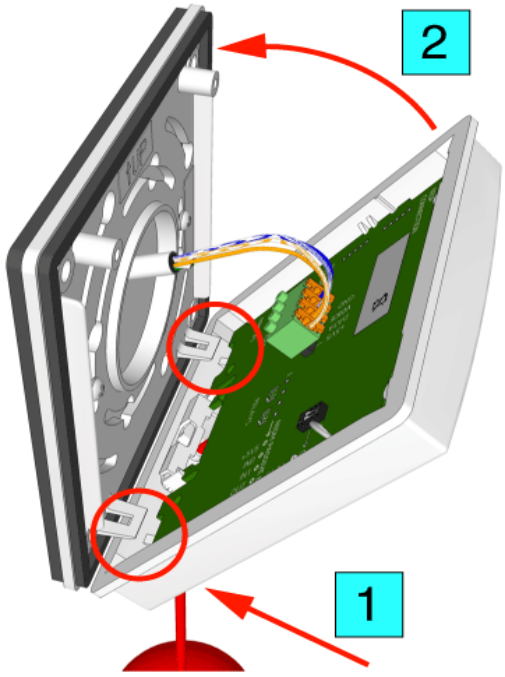


Figure 125. Mounting the switch module on the backplate

Press the pull cord module on to the backplate (making sure that the latch fasteners stay engaged) and carefully tighten the two fixing screws. The screws should be tightened to apply just enough pressure on the gasket to compress it evenly all around between the cover plate and the backplate.

Figure 126. Tightening the pull cord fixing screws

Caution: *Do not excessively tighten the fixing screws as this will distort the cover plate and the foam gasket resulting in an ineffective waterproof seal.*

6.12.12 Assembling and Attaching the Pull Cord

It is important to assemble and attach the pull cord to the pull switch module correctly to ensure the cord is securely attached and that the "safety break" mechanism works reliably. The following illustrations show how to prepare the pull cord:

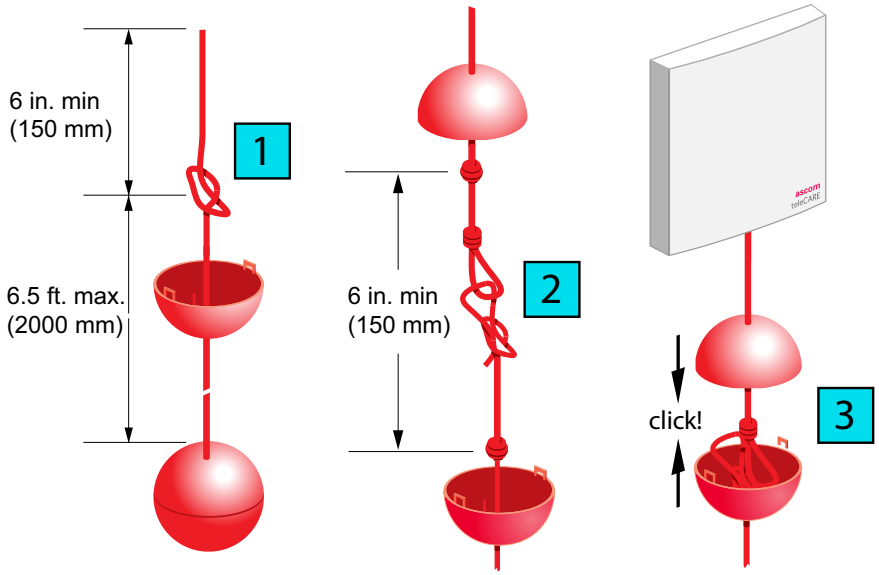


Figure 127. Assembling and attaching the pull cord

6.13 Duty Selector (NIDS)

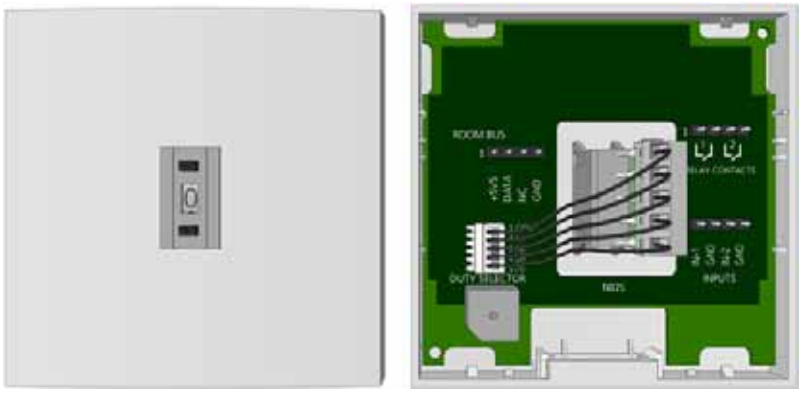


Figure 128. Duty Selector front and back view

The Duty Selector is an auxiliary peripheral which can be connected to any one of the three room buses from the room controller. It has a fixed address number 5 on the room bus which cannot be changed.

It has the same basic housing as the teleCARE IP switch modules but it must be mounted on a surface mounting spacer which is delivered with the Duty Selector (see 6.3.2, Surface Mounting Spacer on page 63 for details).

The Duty Selector decides the call forwarding groups and response sequences according to the duty configurations which have been configured in the system setup.

It has a push-button selector switch allowing up to 10 pre-programmed duties to be selected. The numbers from 0 to 9 are displayed in the window at center of the unit to indicate the selected duty.

The Duty Selector includes a buzzer which can be configured in the system setup to signal calls etc. when a specific selection on the duty selector.

It also has two inputs and two galvanically isolated outputs via relays. The two input circuits and the two output circuits are available as interfaces to external devices. These inputs and outputs can be controlled over the LAN via the room controller.

6.13.1 Duty Selector Electrical Connections

The duty selector is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector. It has the fixed room bus address of 5 and this address cannot be changed.

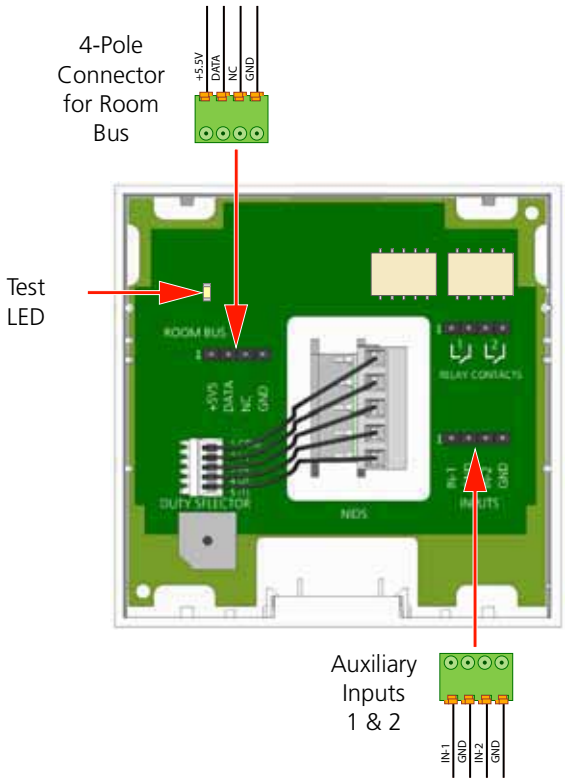


Figure 129. Duty selector electrical connections

Note: *The 4-pole connector terminals required for the room bus and the inputs/outputs are not supplied with the duty selector. They are available as accessories and must be ordered separately.*

6.13.2 Auxiliary Inputs

The third 4-pole connector is used for auxiliary inputs. It has two input circuits which are available as interfaces to external devices. These terminals provide 5.5Vdc at 0.6mA, for monitoring the external device contacts, as shown in Figure 130.

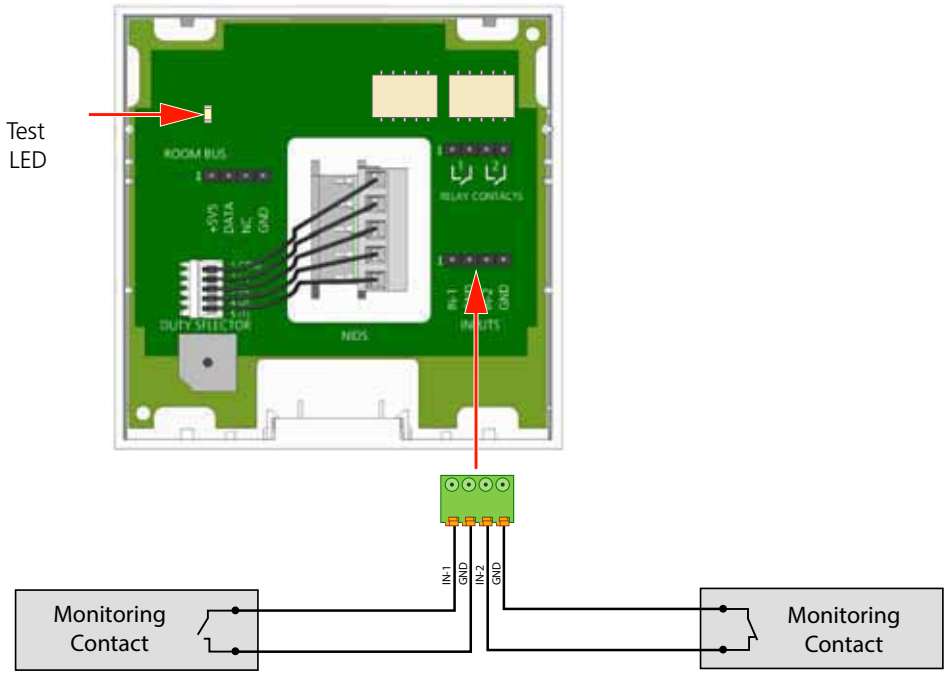


Figure 130. Auxiliary Inputs

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- The Auxiliary Monitoring circuits are not electrically isolated.
- The cable length for the Auxiliary Monitoring circuits must not exceed 33ft (10m) and the cables must be appropriately separated from power cables and sources of electromagnetic interference.
- The Auxiliary Monitoring circuits are power limited to 5.5Vdc at 0.6mA.

6.14 Card Reader (NICR)

The Card Reader Module (NICR) is a single switch module suitable for use in the teleCARE IP system. It is an RFID device operating at a frequency of 13.56 MHz for use with contactless smart cards (Mifare Classic technology).

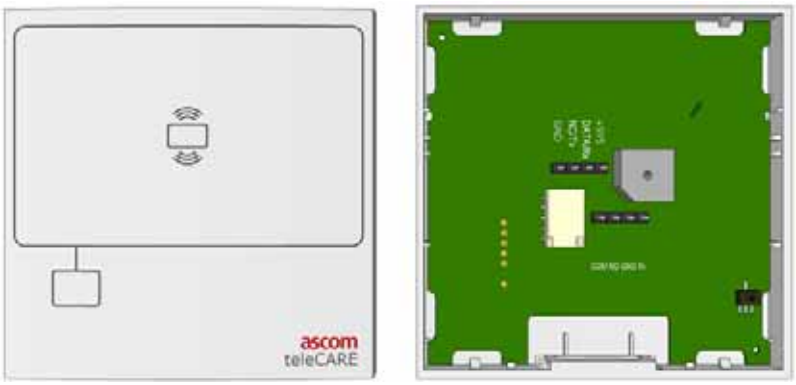


Figure 131. Card reader front and back view

The NICR allows staff members to register their presence in a room or to open an electrically locked door through a contactless proximity authorized smart card.

The NICR should be mounted in an accessible location (usually next to the entrance door of the room) so that the smart card can be held close to the reader when the staff member enters or leaves the room.

The NICR will read the smart card when it is at a distance of up to 0.8in (20mm) in front of the card reader. When a card is detected a buzzer in the NICR sounds.

The NICR has a red LED and a green LED which shine through the cover plate. The green LED shows for two seconds when an authorized card is detected, the red LED shows for two seconds when an unauthorized card is detected, and flashes for two seconds when the card reader is unconfigured. A short flash repeated every second on the red LED indicates that an error has been detected by the watchdog.

The NICR offers two auxiliary functions: a relay circuit for switching an external device, such as an electrically operated door lock, and a connection for monitoring, such as door open detection. The relay connection is a "normally open" potential-free contact and the monitoring connections consist of ground (GND) and an input line (IN).

A tamper alarm switch is mounted on the NICR printed circuit board detects when the card reader is removed from the backplate. The system can be configured, using the System Manager, to generate an alarm call when the tamper switch is operated.

The NICR is available in gray or white and it requires a single backplate which must be ordered separately. A spacer with installation kit is also available for surface mounting the switch module (see 6.3.2, Surface Mounting Spacer on page 63 for details).

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- The Axillary monitoring circuits are not electrically isolated.
- The cable length for the Axillary Monitoring circuits must not exceed 33ft (10m) and the cables must be appropriately separated from power cables and sources of electromagnetic interference.

- The Auxiliary Monitoring circuits are power limited to 5.5Vdc at 0.6mA.

Caution: *The tamper alarm function is not possible when the spacer is used.*

6.14.1 Card Reader Electrical Connections

The NICR has two connectors consisting of the room bus and the auxiliary connections. It is an "active peripheral" therefore it must be connected to one of the three room buses of a teleCARE IP room controller by the 4-pole room bus connector (see 6.4.1, 4-Pole Connector Terminal on page 65).

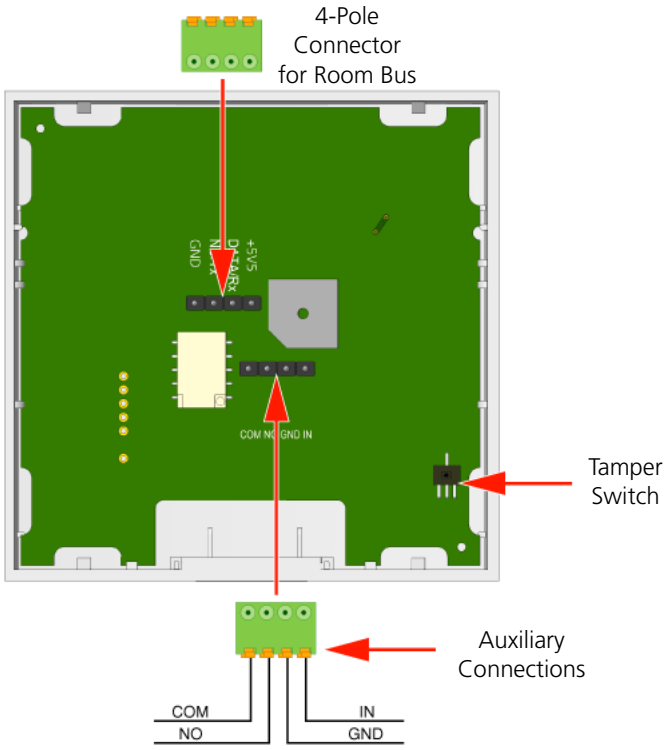


Figure 132. Card reader electrical connections

Note: *The two 4-pole connector terminals required for the room bus and the auxiliary connections are not supplied with the card reader. They are available as accessories and must be ordered separately.*

NICR Room Bus Address

The NICR can be connected to any of the room buses of the IP room controller, in the same way as all other teleCARE IP peripherals. Each room bus supports one NICR and the address of the NICR is fixed at 6.

It is highly recommended to place the NICR as the first teleCARE IP peripheral on the room bus, closest to the room controller, to minimize the risk of a voltage drop on the room bus power lines caused by

the NICR power fluctuations.

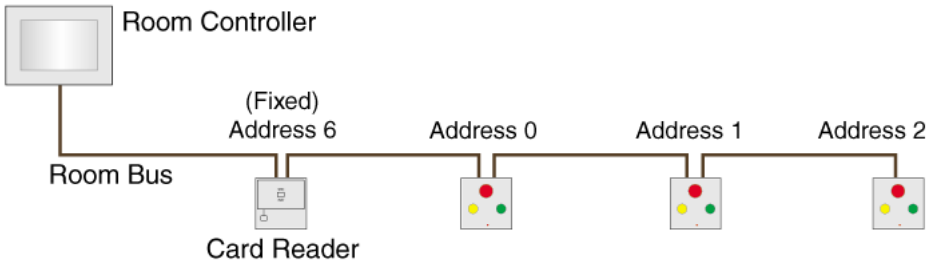


Figure 133. Typical installation with card reader

6.14.2 Card Reader Auxiliary Connections

The NICR has auxiliary connections which provide for the control of external functions such as activating an electrically operated door locks and monitoring door-open alarm contacts or other suitable purposes. The applications of the relay contacts and the auxiliary connections are configured in the System Manager.

Relay Connections

The relay connections (COM and NO) offers a normally open, potential-free relay contacts which can be used to control a remotely operated electrical door lock, or similar applications. The relay contact is rated at a maximum voltage of 30Vdc with a maximum switching current of 1A.

Monitoring Connections

The auxiliary monitoring connections (GND and IN) can be used to monitor a potential-free contact, such as a door open monitoring contact. The monitoring contact can be “normally open” or “normally closed”. The functionality of the monitoring connections is configured in the System Manager (NISM).These connections provide 5.5Vdc at 0.6mA, for monitoring the external device contacts.

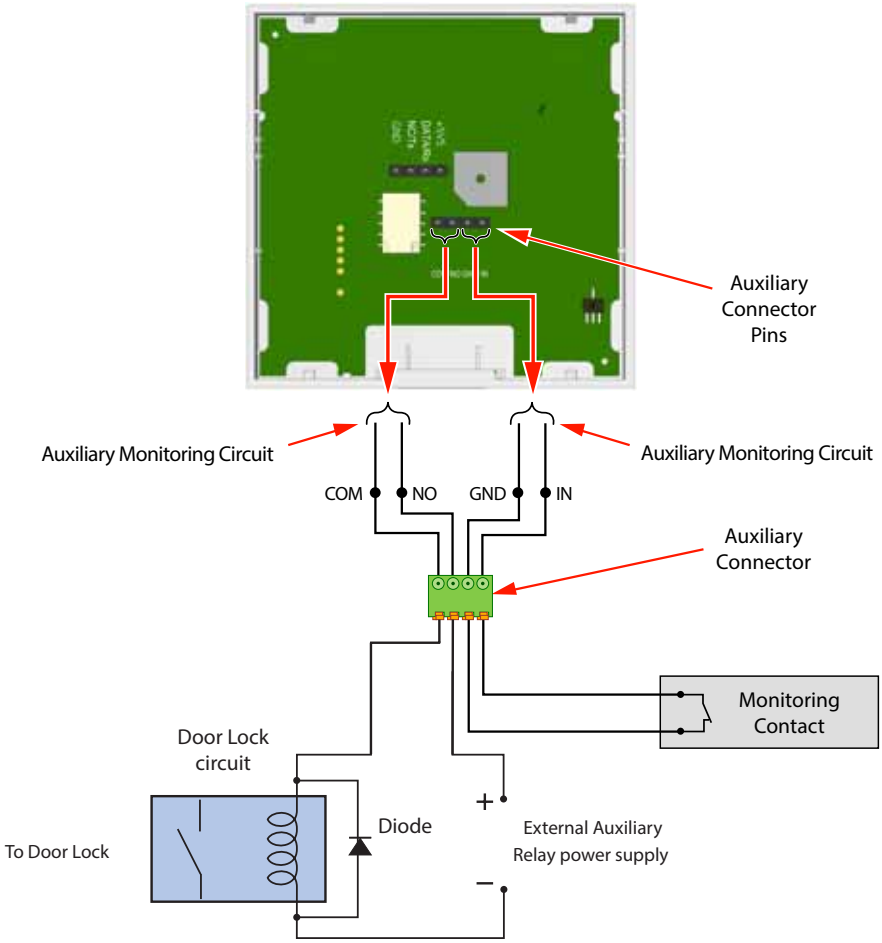


Figure 134. NICR auxiliary connections

WARNING:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- The Auxiliary Monitoring circuit is not electrically isolated.
- The cable length for the Auxiliary Monitoring circuit must not exceed 33ft (10m) and the cable must be appropriately separated from power cables and sources of electromagnetic interference.
- The Auxiliary Monitoring circuit is power limited to 5.5Vdc at 0.6mA.
- The external Auxiliary Relay Power Supply and Relay must be UL listed or recognized components.
- The maximum switching current for the NICR Auxiliary Relay contact must not exceed 30Vdc at 1A.
- A diode (1N4004 or equivalent) must be connected across the coil of the external Auxiliary Relay to prevent surges caused by the relay coil.

- There must be a minimum distance of 1in (30mm) in all directions between the room display and any metal objects to avoid the degradation of the card reader antenna.

6.15 Speech Module (NISP)

The Speech Module (NISP) is a teleCARE IP peripheral which facilitates speech in combination with Ascom Interactive Messaging (IM). It consists of a gray or white plastic body, a printed circuit board and a perforated anodized aluminum face plate.

Figure 135. Speech Module (NISP) front and back view

The NISP incorporates a pre-amp circuit and a speaker amplifier and includes two loudspeakers and an electric microphone. It has a two-color LED which shows red to indicate that the speech direction from staff to resident is active and green to indicate that the speech direction from resident to staff is active.

The NISP can only be used in combination with the teleCARE IP Door side Module (NIDM), the bedside module (NIBM2), the Medical Rail Socket (NIMS2) the active Pull Cord Module (NICP), and the Room Display (NIRD.

6.15.1 Connecting the Speech Module

The 5-wire cable with two 5-pole plugs is required to connect the speech module to the associated switch module. It is available in three lengths: 7.0in (170mm) (R190192), 8.0in (200mm) (R190193) and 15.75in (400mm) (660313). The 15.75in (400mm) long cable is used when the speech module is mounted separately from the associated switch module.

For a two-module combination with the speech module mounted to the right side of the switch module (viewed from the front) the R190192 cable 7.0in (170mm) is required.

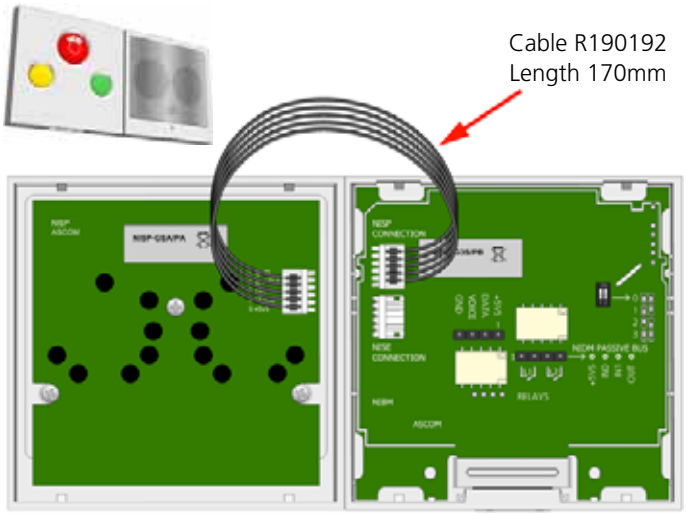


Figure 136. Speech module to the right of the switch module

For a two-module combination with the speech module mounted to the left side of the switch module (viewed from the front) the R190193 cable 8.0in (200mm) is required.

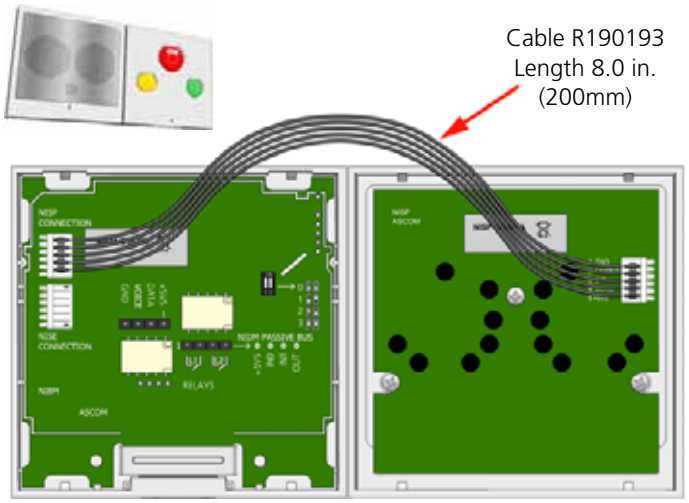


Figure 137. Speech module to the left of the switch module

For a three-module combination the R190192 cable (length 7.0in (170mm) and the R190193 cable length 8.0in (200mm) are both required

.

6.16 Room Display (NIRD)

The NIRD Room Display (NIRD) combines Ascom interactive messaging (IM) functionality, with a teleCARE door side module and an RFID card reader in a wall mounted module which is suitable for use in residents rooms and staff rooms. It has an EBA polyester film membrane which covers the display and incorporates the buttons, keys and the LEDs.

Important: At least one NIRD serving the property must be permanently installed in a fixed location.

Figure 138. Room Display

The NIRD includes three teleCARE function buttons (red, yellow and green). Each of these buttons has an LED which illuminates to indicate the activated condition. Three function keys and a scroll button are included for controlling the display and speech.

The LCD screen measures 2.5in (63mm) x 1.3in (35mm). It displays large, easy to read characters showing calls and the locations of staffs. Above the LCD screen is a three-color LED which illuminates to emphasize the type or category of calls received.

The NIRD also includes a buzzer speaker which signals the configured beep codes for the received messages.

The integrated card reader is an RFID device operating in the 13.56 MHz frequency range. It is used in combination with contactless smart cards.

The NIRD is an active module and must be connected to the teleCARE IP room bus. It uses two fixed room bus addresses 6 and 7.

The NIRD has a 5-pole connector for the teleCARE IP speech module and a 4-pin connector for supporting a passive peripheral bus.

Note: *The 4-pole connector terminal required for the room bus and the 8-pole connector terminal which is required to connect the room bus and a passive peripheral bus are not supplied with the NIRD. They are available as accessories and must be ordered separately.*

There are two dedicated backplates available for the NIRD: a short backplate for mounting the NIRD as a single module and a long backplate for combining the NIRD with the NISP speech module. These backplates must be ordered separately.

Note: *The NIRD is not compatible with the standard teleCARE switch module backplates and it is not compatible with the teleCARE surface mounting spacer.*

6.16.1 Room Bus Electrical Connections

The NIRD is an active teleCARE IP peripheral which must be connected to teleCARE IP room bus by a 4-pole connector, as shown below.

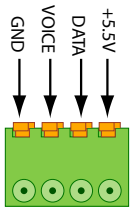


Figure 139. 4-pole connector terminal for the room bus

6.16.2 Room Bus with Passive Peripheral Bus Electrical Connections

When a passive peripheral bus is required the room bus and the passive peripheral bus must be combined in an 8-pole connector, as shown below.

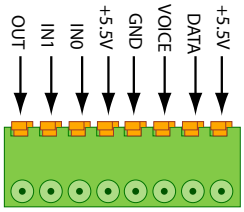


Figure 140. 8-pole connector terminal for the room bus and passive peripheral bus

6.16.3 Connector locations

The locations of the room bus connector, the passive peripheral bus connector and the NISP speech module connector are shown below:

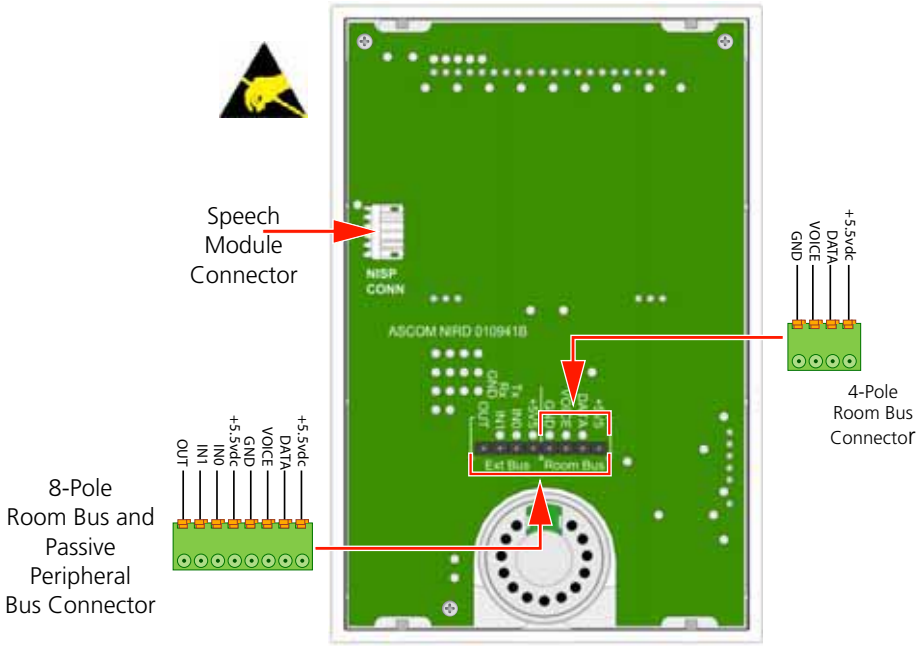


Figure 141. Room display electrical connections

6.16.4 Room Display Backplate (Short)

To mount the NIRD as a single module the short backplate must be used: Figure 141 indicates the location of a hole which needs to be drilled for mounting purposes.

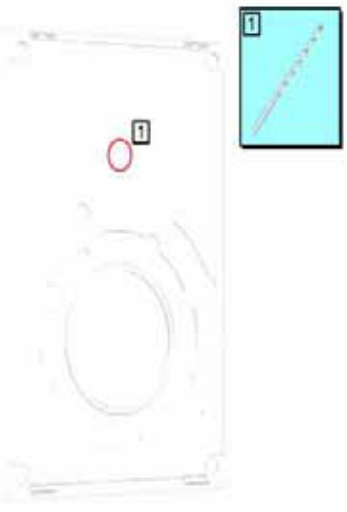
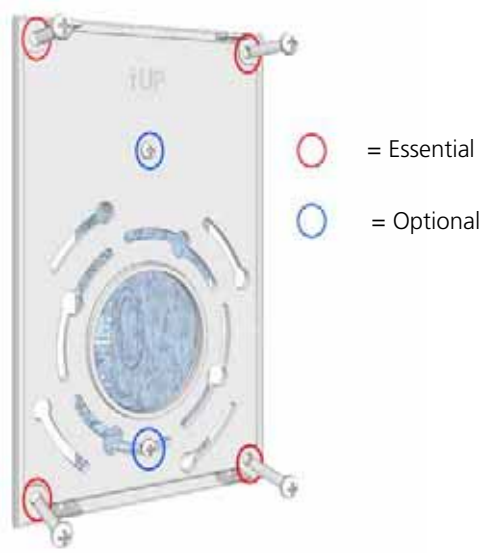


Figure 142. Room display backplate (short)

The backplate must be fixed to the wall using the four corner holes (indicated in the drawing below by red circles).



CAUTION!
DO NOT MOUNT THE ROOM DISPLAY CLOSE TO OR OVER METAL OBJECTS.

There must be a minimum distance of 1 in (30mm) in all directions between the room display and any metal objects to avoid the degradation of the card reader antenna performance.

Figure 143. Mounting the room display backplate

The backplate has an arrangement of fixing holes (indicated in the drawing above by blue circles) which make it suitable for mounting on various international back boxes.

Caution: *Even when the backplate is mounted on a back box it must also be fixed to the wall with the corner holes.*

6.16.5 Room Display Combined with the Speech Module

The NIRD can be combined with the NISP Speech Module in teleCARE IP systems with speech. The NIRD is used to select calls, control voice communication and cancel calls. The NISP facilitates two-way voice communication via a press-to-talk function on the NIRD.

(For details of the NISP speech module refer to chapter 6.15 "Speech Module (NISP)" on page 104.)

Figure 144. Room display combined with the speech module

6.16.6 Room Display Backplate (Long)

The long backplate must be used to mount the NIRD combined with the NISP. Figure 144 indicates the location of a hole which needs to be drilled for mounting purposes.

Figure 145. Room display backplate (long)

Mounting the Backplate and Installing the NIRD and NISP

It is important to insert the NIRD to NISP connection cable through the backplate before the backplate is screwed to the wall, as shown in the following illustration:

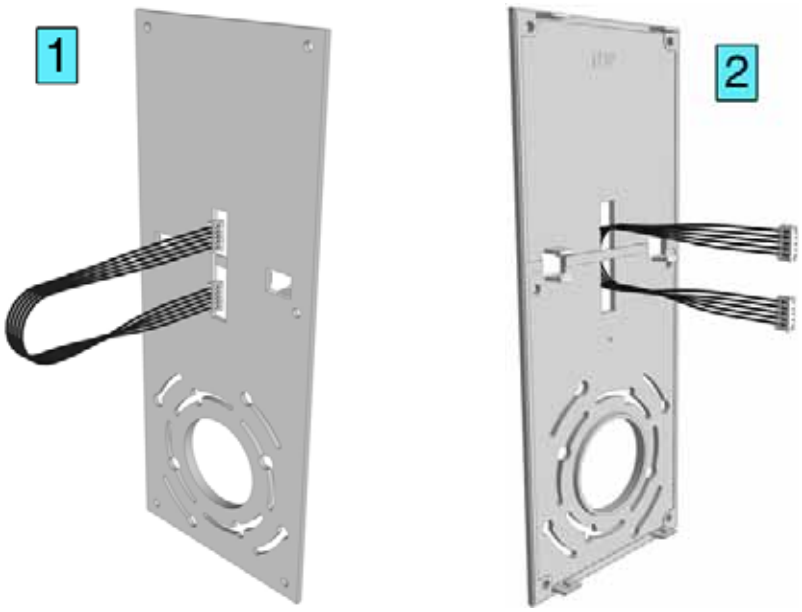
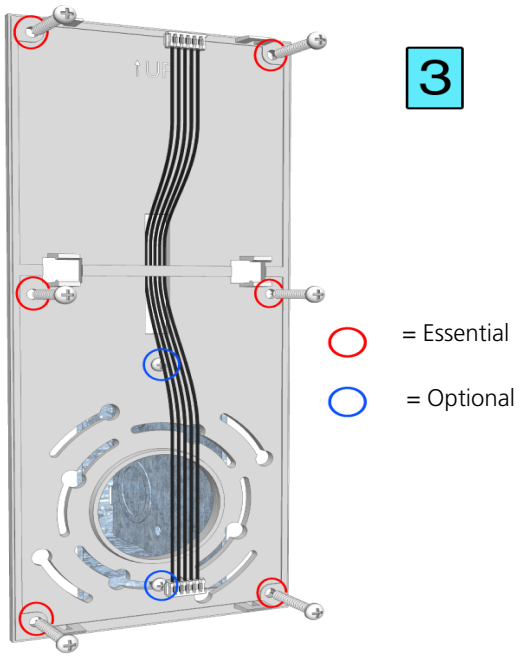


Figure 146. Inserting the connection cable through the backplate

Note: *Make sure that the cable lies in the recess under the strip in the middle of the backplate to avoid trapping the cable under the backplate when it is screwed to the wall.*

The backplate must be fixed to the wall using the four corner holes and the two holes in the middle of the backplate (indicated in the drawing below by red circles).



CAUTION!
DO NOT MOUNT THE ROOM DISPLAY CLOSE TO OR OVER METAL OBJECTS.

There must be a minimum distance of 1 inch (30mm) in all directions between the room display and any metal objects to avoid the degradation of the card reader antenna performance.

Figure 147. Mounting the room display long backplate

The backplate has an arrangement of fixing holes (indicated in the drawing above by blue circles) which make it suitable for mounting on various international back boxes.

Caution: *Even when the backplate is mounted on a back box it must also be fixed to the wall with the corner holes and the middle holes.*

When the backplate is screwed to the wall connect the NISP and snap fit it to the backplate.

Figure 148. Connecting the NISP and mounting it on the backplate

Next connect the NIRD room display to the NISP and plug in the room bus connector.

Figure 149. Connecting the NIRD to the NISP and connecting the room bus

Refer to 6.16.1, Room Bus Electrical Connections on page 107 for full details.

Next, snap fit the room display to the backplate.

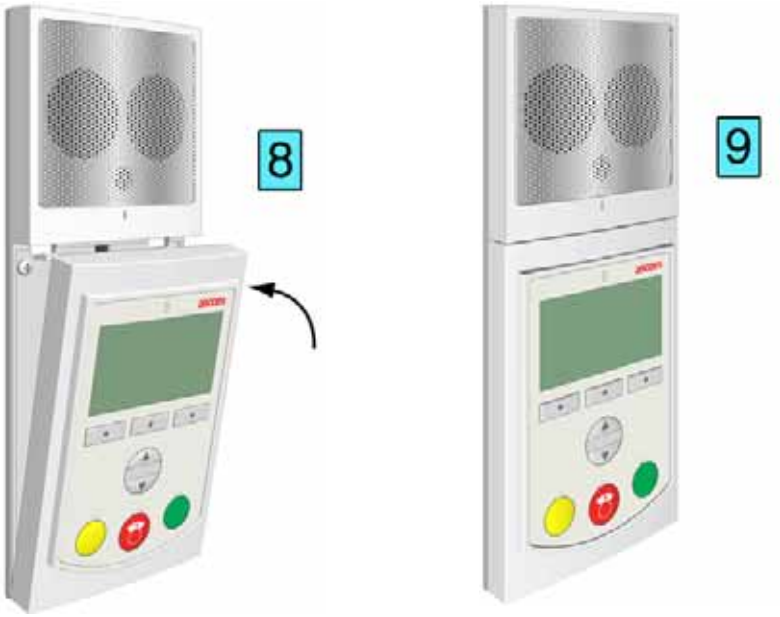


Figure 150. Mounting the NIRD on the backplate

6.17 Television Interface Module

The television interface module is the interface between the television stereo audio output and the teleCARE IP system. It provides the necessary galvanic separation between the television and the teleCARE peripherals. In the teleCARE IP application the television interface module is a passive device requiring no power supply.

Figure 151. Television interface module: front and back view

The television interface module mounted on the supplied surface mounting spacer. See 6.3.2, Surface Mounting Spacer on page 63 for details.

The stereo audio input to the television interface module is taken from the headphone jack socket of the television and connected to the television interface module at J1. The output from J2 of the

television interface module is connected to the "Audio" connector of the NIBM2 bedside module.

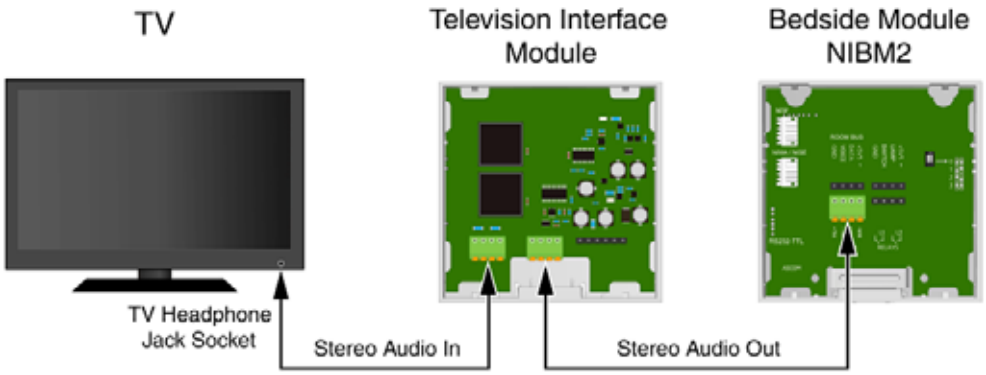


Figure 152. Television audio connections

WARNING: The equipment that is connected to this interface is not considered to be part of the teleCARE IP system UL listing.

The handset NIPH-AES is required to listen to the TV audio. The audio can be broadcasted through the speaker of the handset or listened to through stereo headphones plugged into the jack socket in the cable of the handset.

General Considerations

- The maximum audio input voltage is 2Vp-p.
- The maximum audio input impedance is 2k ohms.

6.17.1 Television Interface Module Electrical Connections

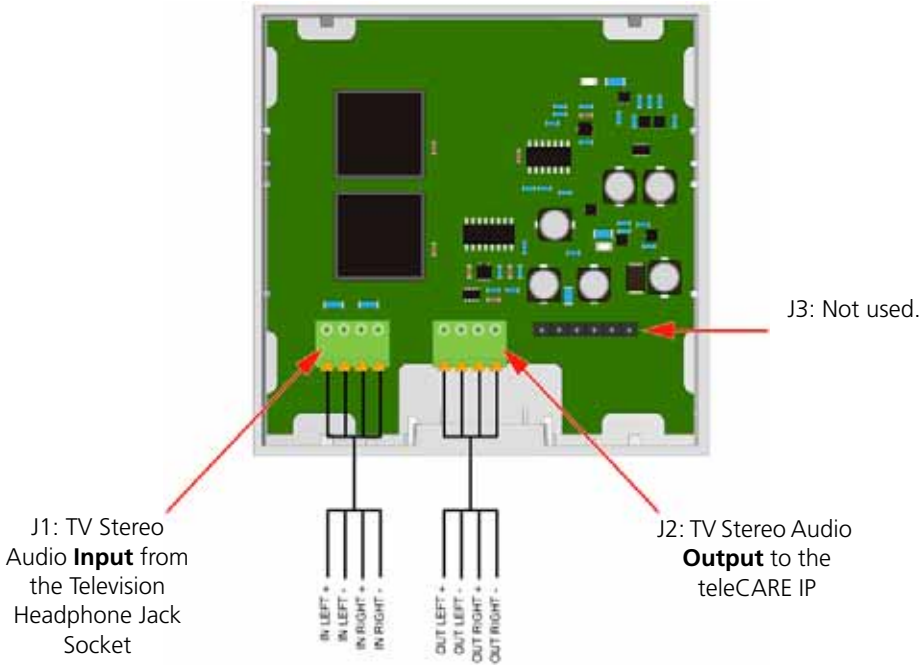


Figure 153. Television interface module electrical connections

Note:

- The equipment that is connected to this interface is not considered to be part pf the system configuration unless the equipment complies with ANSI/UL 2560 standard for Emergency Call Systems for Assisted Living and Independent Living Facilities.
- The Television Interface Module provides electrical isolation between the Television and the teleCARE IP Emergency Call System.
- Television audio in teleCARE IP requires the bedside module NIBM2. For details of the NIBM2 refer to chapter 6.5"Bedside Module (NIBM2)" on page 72.
- The 4 pole connector terminals must be ordered separately.

6.18 Sunblind Control Module

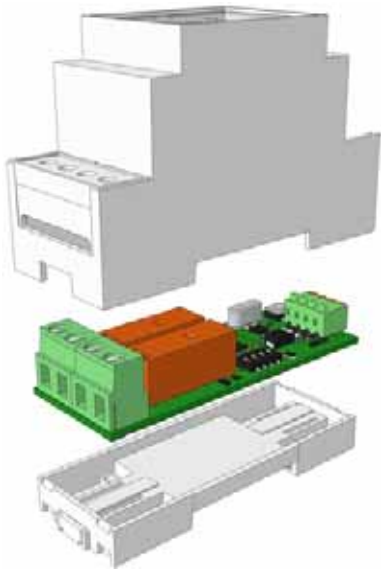


Figure 154. Sunblind Control Module

The Sunblind Control Module is a passive device on the teleCARE IP room bus. It has two heavy duty relays with normally open contacts to control the sunblind motor.

The sunblind control module is compatible with the bedside module NIBM2 and the medical rail socket NIMS2. It is used in combination with the NIPH3-A7A and NIPH3-AES handsets to control the up and down motors of sunblinds.

6.18.1 Sunblind Motor Controller

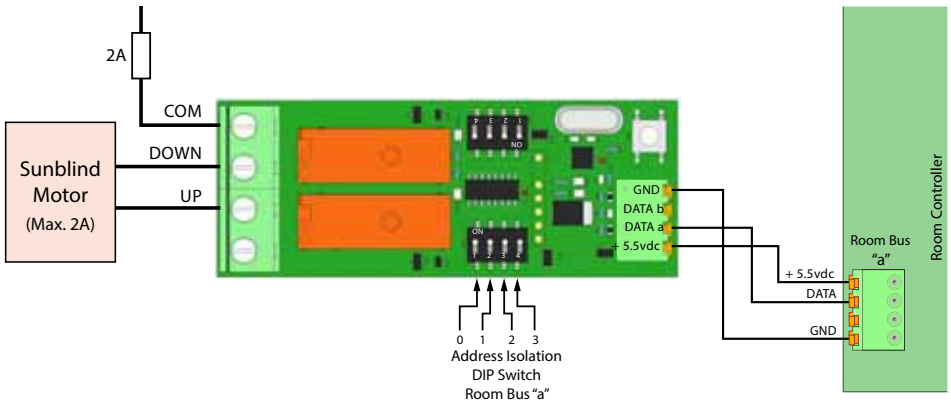


Figure 155. Sunblind control module electrical connections

The sunblind control module can be connected to one room bus and will only respond to room bus addresses 0 to 3 of the connected room bus. The Room Bus "a" DIP switches are used to prevent the sunblind control module from responding to specific room bus addresses. Setting a DIP switch to the ON position selects that particular address, 0 to 3 to control the module.

WARNING: Up to 230Vac power to the sunblind motor control relay must be fused at 2 Amps. Appropriate cable for the voltage and current must be used for the sunblind motor control.

WARNING: The equipment that is connected to this interface is not considered to be part of the teleCARE IP system.

7 Corridor Equipment

7.1 Corridor Display (NICD)

The NICD is a supplemental IP based corridor display suitable for use in teleCARE IP, and contains a LAN interface for connection to the teleCARE IP LAN network.

The NICD has a large character, 3-color (Red/Green/Amber) message display and a signaling buzzer. It is available as a single or double sided unit with a 6-character or a 12-character display.

Figure 159. 6 and 12 character Corridor Display (NICD)

WARNING: The NICD equipment described in this section is for supplementary purposes only, is not evaluated to UL 2560 and is not part of the teleCARE IP system UL listing.

From the built-in web interface the basic configuration of the NICD can be adjusted, for example the IP address, host name and communication port.

General text display settings can be set in the NISM2. Up to 50 NICDs can be added to a single NISM2.

The NISM2 is used to define such things as message display time, number of stored messages, the color of the displayed message depending on message priority and buzzer options. The NICD display mode can be constant or scrolling.

The display mode can be set to constant (with short blank period in between) or to scrolling (from bottom to top) when there are two or more active calls to be displayed. The NICD can display up to 30 different messages. If the maximum number of messages is reached, the oldest message with the lowest priority will be cleared first. When the display is not showing any messages (idle), it can be configured to show the time/date or any other type of welcome message.

7.1.1 Corridor Display Network Requirements

- Ethernet 10 BaseT
- half duplex
- no auto-crossing
- no auto-negotiation
- no auto-polarity

Note: *The display will not work on non-standard (reversed polarity) switches using a normal straight cable. Reversed polarity switches require a special Reverse Polarity Cable.*

7.1.2 Preparing Single-Sided Displays Prior to Mounting

Before a single-sided display can be mounted, the LAN cable must be connected to the rear of the display first. The first step is to remove the metal strain reliever plate from the back of the display by unscrewing the 2 screws.

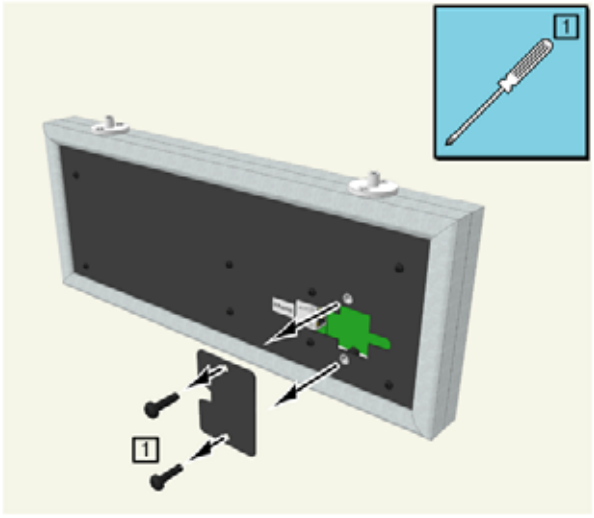


Figure 160. Remove the strain reliever plate

Plug the RJ-45 connector of the network cable into the ethernet socket of the display and place the strain reliever plate back in place.

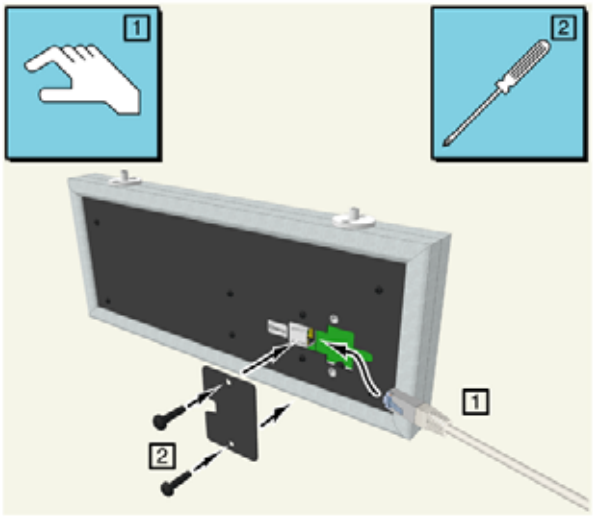


Figure 161. Plug in the RJ-45 connector

7.1.3 Mounting the Corridor Display

The NICD is prepared for wall mounting using a special wall mounting bracket which is available as an accessory.

Figure 162. Wall mounted NICD

NICD Wall Mounting Bracket

The NICD wall mounting bracket is available in two sizes, for the 6-character display and for the 12-character display.

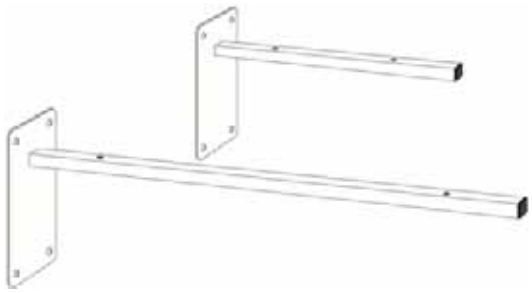


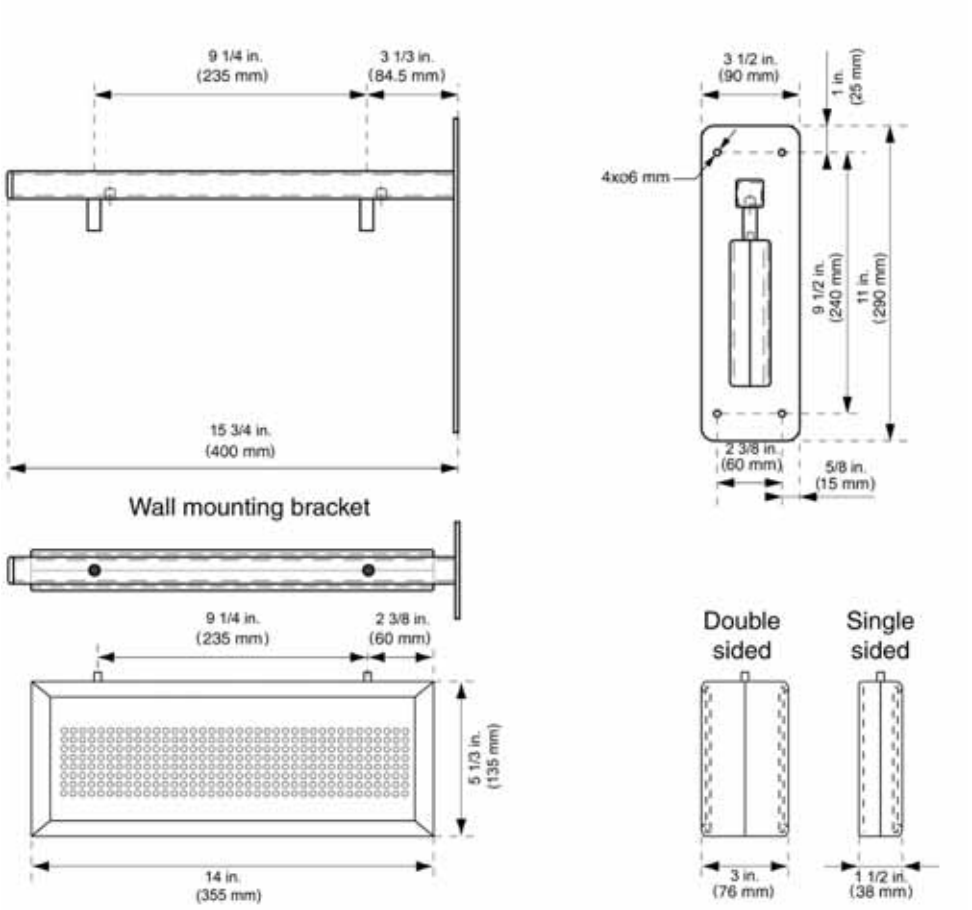
Figure 163. 6 and 12 character mounting brackets

Dimensions & Weights

The method used to fix the mounting bracket to the wall must be capable of safely supporting the combined weight of the NICD and the mounting bracket.

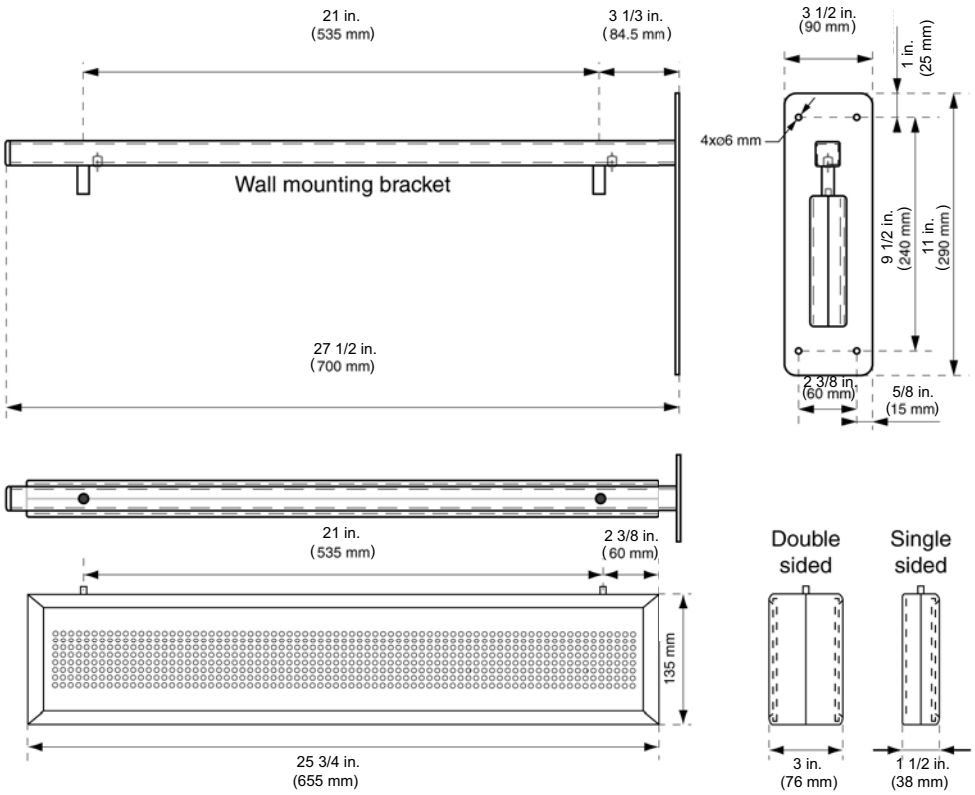
6 Character NICD

- Weight of the 6 character single-sided display = 3.7 pounds/1.7 kg
- Weight of the 6 character double-sided display = 4.4 pounds/2 kg
- Weight of the 6 character mounting bracket = 3.3 pounds/1.5 kg



12 Character NICD

- Weight of the 12 character single-sided display = 6.2 pounds/2.8 kg
- Weight of the 12 character double-sided display = 7.3 pounds/3.3 kg
- Weight of the 12 character mounting bracket = 4.4 pounds/2 kg



When placing the wall mounting bracket on the wall, consider the minimum height at which the display should be mounted. The minimum installation height depends on things like opening a door in the vicinity of a display or an object transported through the corridor. Make sure that in none of these circumstances the object will hit the display.

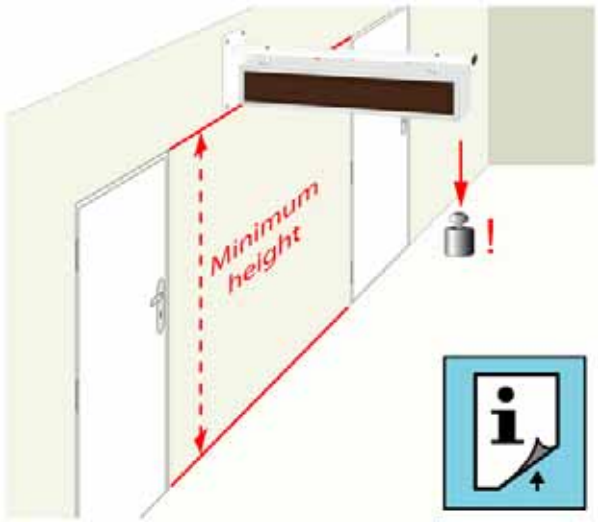


Figure 164. Minimum installation height

To mount the bracket on the wall, drill four holes according to the dimensions of the 6 or 12 character mounting bracket.

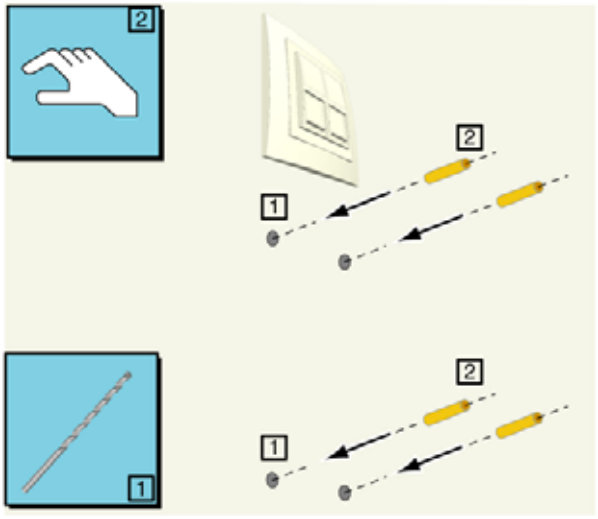


Figure 165. Drilling four holes for mounting the bracket

Fix the mounting bracket on the wall by using four well-fitted screws capable of carrying the weight of both the display and the mounting bracket.

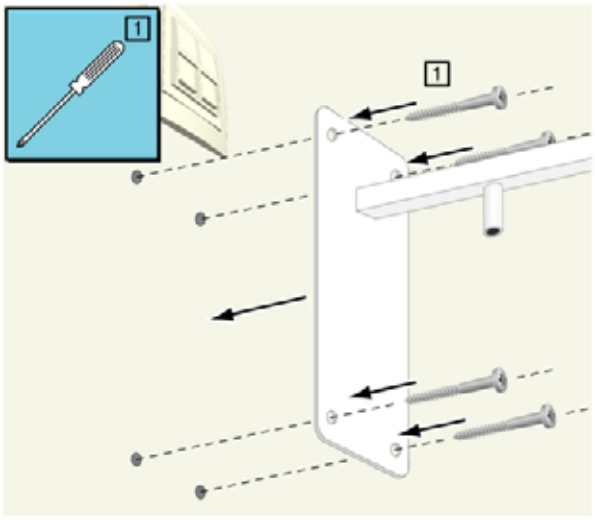


Figure 166. Fixing the wall mounting bracket

The next step is to mount the display on the wall mounting bracket. First start by removing the two hex screws at the top of the display using an allen key (Hex key wrench).

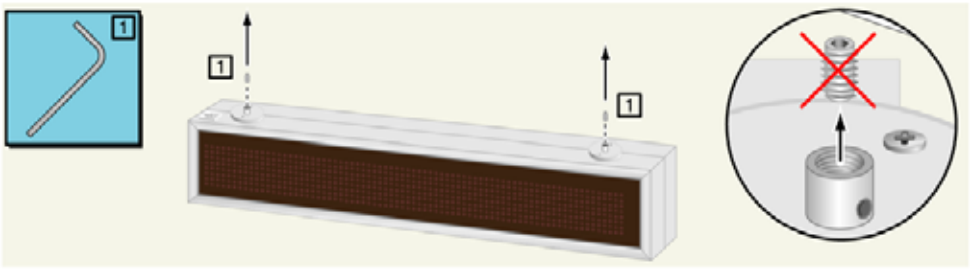


Figure 167. Use the included accessories to mount the display on the bracket.

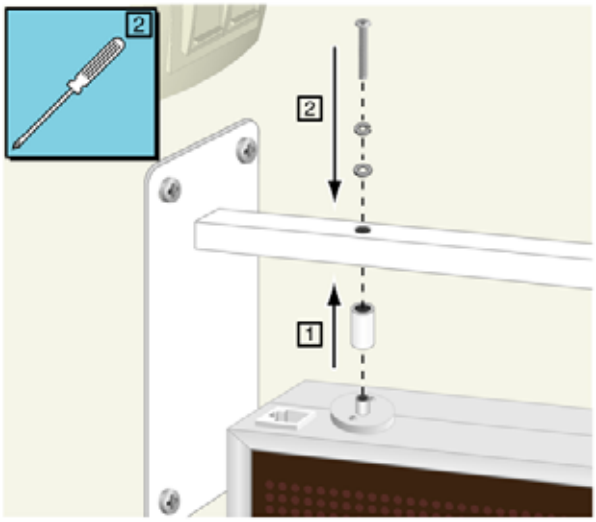


Figure 168. Mount the display on the bracket

Finally connect the ethernet cable from the outlet to the corridor display.

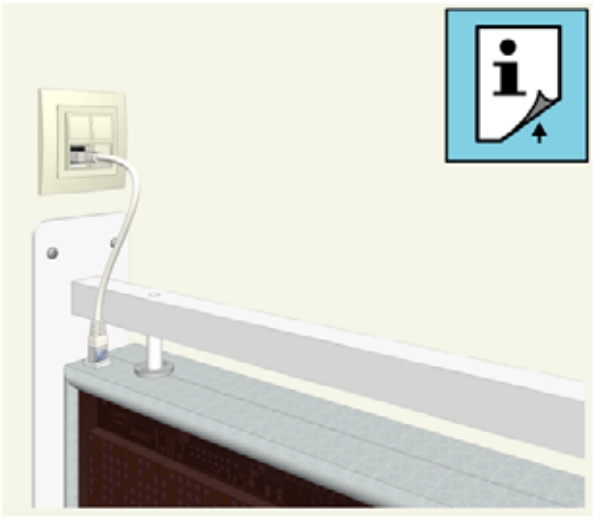


Figure 169. Connecting the displays ethernet cable

Direct Wall Mount

With the direct wall mount holder, single sided displays can be mounted directly onto the wall by sliding the displays holding slots onto the wall mount holder that is fixed to the wall.

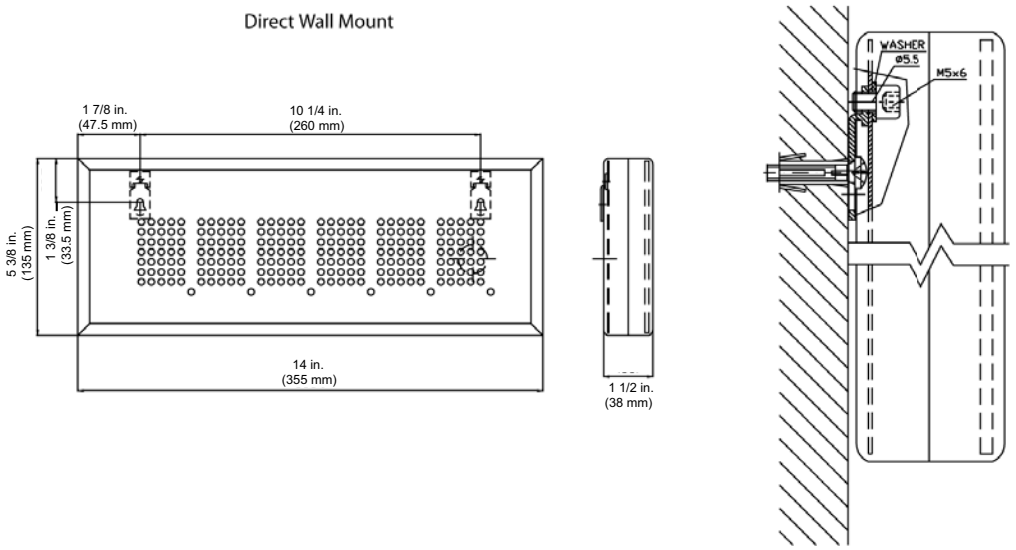


Figure 170. Close the loop and tighten the suspension wire

7.1.4 Corridor Display Electrical Connections

The NICD can be powered using Power over Ethernet (PoE) through a PoE switch or through an external 24Vdc power supply using a shielded PoE injector with the 24V negative lead "-" connected to the shield.

A standard T-568B straight-through shielded ethernet cable is used to connect the NICD to the LAN network.

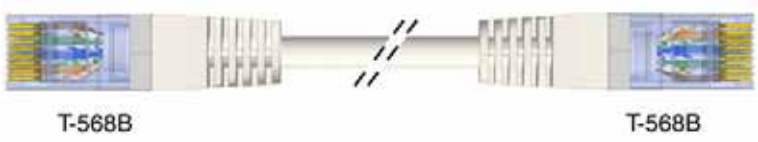


Figure 171. T-568B straight-through shielded ethernet cable

RJ-45	color (T-568B)	Name	Ext. Power Supply
1	white / orange	TX+	
2	orange	TX-	
3	white / green	RX+	
4	blue	SP1	24 Vdc either polarity
5	white / blue	SP1	
6	green	RX-	
7	white / brown	SP2	24 Vdc polarity opposite to SP1
8	brown	SP2	

Table 9. T-568B cable specification

Caution: *The display will not work on supplementary non-standard (reversed polarity) ethernet switches using a normal straight cable. A "Reverse Polarity Cable" is required when connecting to a reversed polarity switch.*

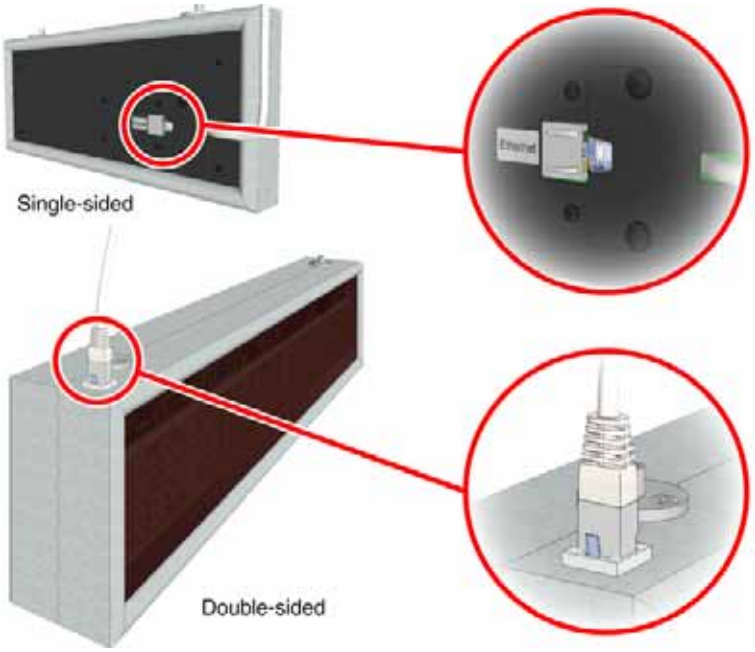


Figure 172. Single and double sided display network connection

Corridor Display Power Requirements

The following table shows the power requirements for the various corridor displays.

Display Type	PoE type	PoE Class	Power Consumption		
			Ext. Supply	PoE Supply	
			24 Vdc	42 Vdc	57 Vdc
6 character Single Sided	PoE (802.3af)	Class 2 < 6.49 W	7.6 W 0.31 A	7.5 W 0.17 A	7.9 W 0.14 A
6 character Double Sided	PoE (802.3af)	Class 0 < 12.94 W	15 W 0.62 A	13.8 W 0.32 A	14.0 W 0.24 A
12 character Single Sided	PoE (802.3af)	Class 0 < 12.94 W	11.3 W 0.47 A	10.8 W 0.25 A	11.0 W 0.19 A
12 character Double Sided	PoE+ (802.3at)	Class 4 < 25.50 W	22.7 W 0.94 A	21.2 W 0.50 A	21.4 W 0.37 A

Table 10. Corridor display power requirements

When using an external power supply to power the display, a shielded PoE injector is required with the 24Vdc negative lead "-" connected to the shield. The 24Vdc from the external supply will be injected on the spare wires of the network cable (SP1 and SP2 pairs).

8 Wireless Functionality

8.1 General

teleCARE IP with wireless functionality is intended for use in nursing homes and in assisted living facilities.

teleCARE IP is able to support wireless functionality through the NICR3 teleCARE IP room controller combined with the NIRX transceiver, which is piggy-back mounted on the circuit board of the NIRC3.

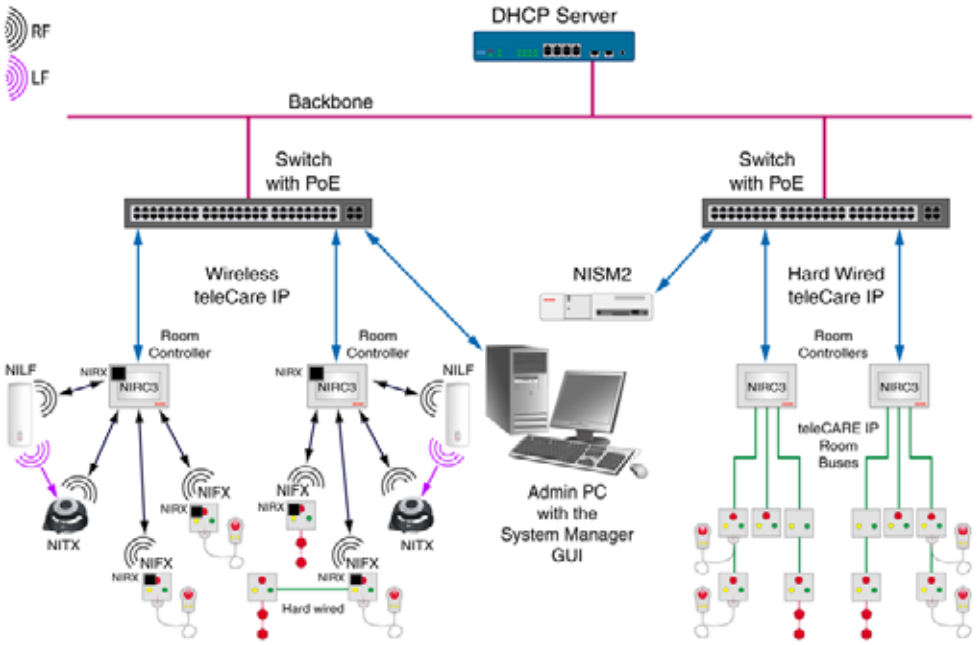


Figure 173. Wireless teleCARE IP and hard-wired teleCARE IP

The wireless call peripherals consist of the NIFX fixed transceiver, the NITX mobile transceiver and an optional low frequency beacon NILF.

The NIFX fixed wireless transceiver is a three-button wall mounted switch module. It comes as a socket version used for the connection of a patient handset or equipped with a pull-cord. Both variants of the NIFX include a 125 kHz LF receiver and an NIRX 916 to 921 MHz Class 1 transceiver which is piggy-back mounted on the circuit board of the NIFX. The fixed wireless transceiver switch modules can be powered by two AA disposable alkaline batteries, or connected to an external 12 - 24Vdc power supply.

The NITX mobile call transceiver can be attached to a wrist strap, or to a neck pendant. It can also be used as a mobile alarm transmitter connected to third party equipment. The NITX is powered by an internal three volt replaceable lithium battery. It includes a 916 to 921 MHz transceiver and a 125 kHz LF receiver for receiving the location update information from LF beacons.

The NILF low frequency beacon includes a 125 kHz transmitter and can be extended with the piggy-back mounted NIRX 916 to 921 MHz transceiver. The LF Beacon NILF is contained in a white plastic enclosure with a slim design that is suitable for surface mounting on walls or at a door post. The NILF can be powered by three C size disposable alkaline batteries, or connected to an external 24Vdc power supply.

8.2 Principle of the teleCARE IP with Wireless Functionality

The system is configured using the teleCARE IP System Manager - NISM2. The wireless server is a Unite application on the NISM2 serving as the central controller for all wireless devices in the teleCARE IP system with wireless functionality.

The wireless server has similar functions to those found in the teleCARE IP room controller, such as event handling, assignment handling and linking, with additional functions such as signal strength comparison. The main difference between the wireless server and the teleCARE IP room controller is that the wireless server controls all wireless devices in the system, whereas each room controller is responsible for only the devices which are hard-wired to it.

The NIRC3 room controller requires the piggy-back mounted NIRX transceiver module to give it wireless compatibility. When combined with the NIRX the room controller also serves as a base station and portal for the wireless devices.

The NIFX fixed transceiver has a piggy-back mounted NIRX transceiver, whereas the NITX mobile transceiver has its' own internal transceiver.

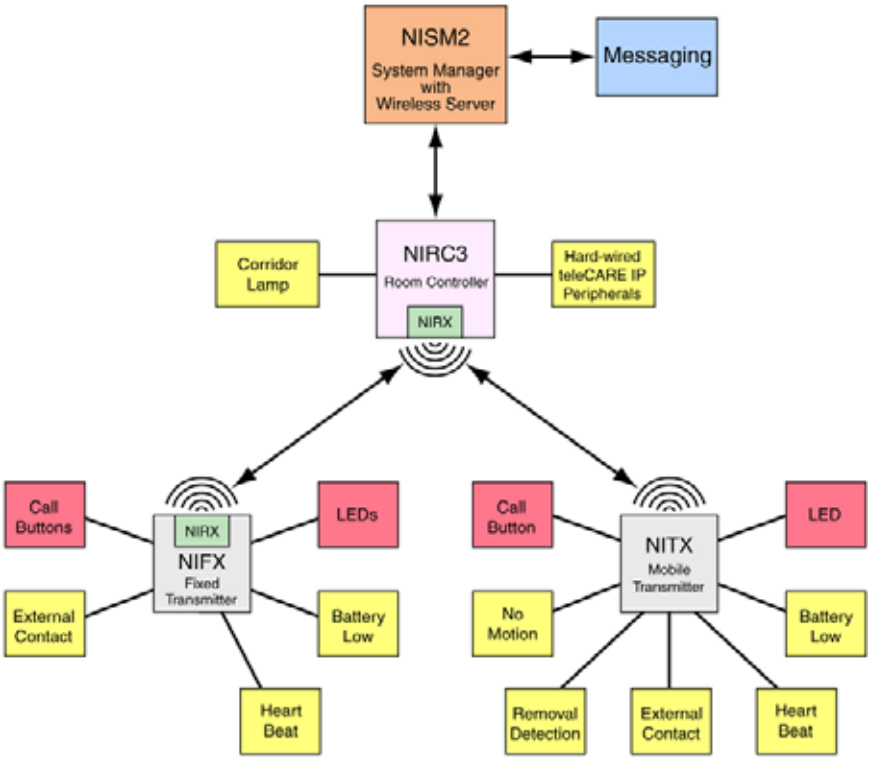


Figure 174. Principle diagram of teleCARE IP wireless functionality

8.2.1 Location Based Wireless Nurse Call Using LF Beacons

The addition of the NILF low frequency beacons gives location based wireless functionality available including access control. The NILF will send out its ID, including location information, at regular intervals using a low frequency 125 kHz signal that will be picked up by the wireless transceiver modules that pass by the NILF.

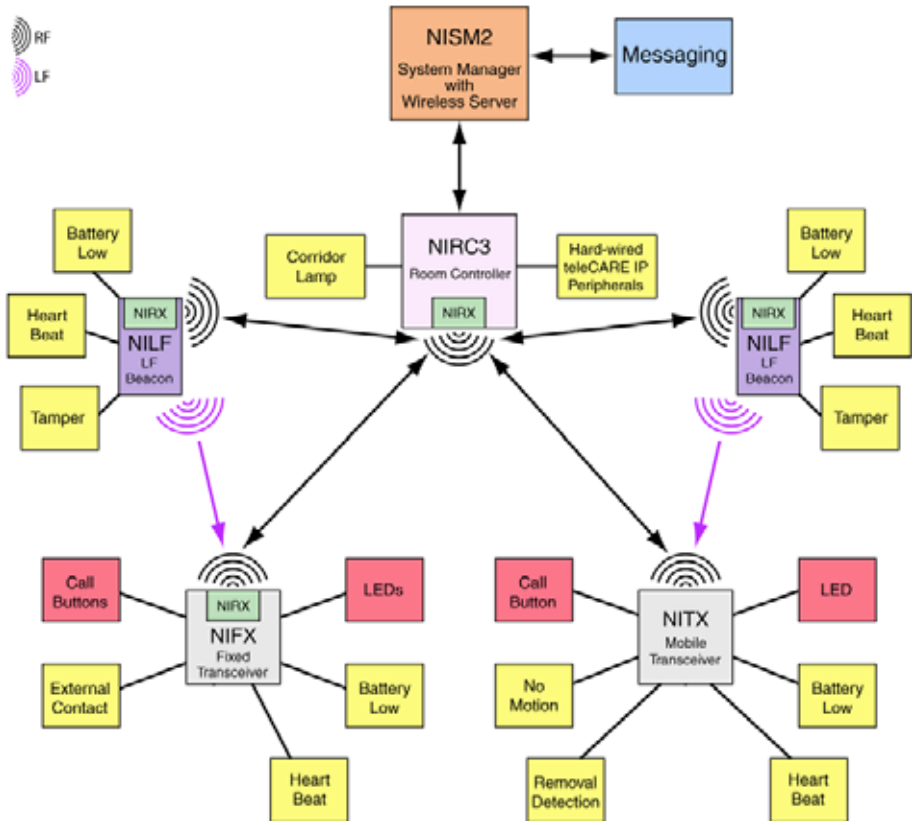


Figure 175. Location based wireless functionality

The range of an LF beacon is adjustable and can be up to approximately 6.5 feet (2 meters) with battery power and approximately 10 feet (3 meters) with external power.

When a wireless device comes within range of a passive NILF location beacon it will receive the beacon ID with the location information. It then stores the location as the last known location. The stored last known location will be added to the next event that is transmitted from the wireless device, like a button press, battery low alarm, etc.

When a wireless device comes within range of an active NILF location beacon, it sends a location update message to the wireless server. In addition, based on the received location information, the wireless server can check to see if the person carrying the wireless device is allowed to access that location. Doors can be opened or stay closed depending on the access rights. Automatic alarms can be generated when a person leaves or enters a certain location.

Whenever a call is made from a wireless module the location will be transmitted to the wireless server, when the wireless module is not in range of an LF beacon the last two known locations will be transmitted.

8.2.2 Wireless Nurse Call with Speech

Wireless transceivers can be used to generate calls to notify the staff that help is needed. These devices don't support speech themselves. To be able to set up a speech session with a person that initiated a wireless nurse call, the wired teleCARE IP speech modules are required.

To be able to support speech for wireless call, a phone number will be included in the message towards the messaging devices, including speech options. When selecting the IM option "speech" on the messaging device, a speech session will be started with the wired peripheral that is configured with that phone number.

For wireless speech, hard-wired speech modules are required at all the locations that contain wireless transceivers that are configured to use static locations. In static location mode, calls from the wireless transceiver are always linked to the location that is selected in the configuration of the wireless transceiver.

When the wireless device is configured to use dynamic locations, speech modules are also required at, or close to the locations that are covered by location beacons NILF. When in range of a location beacon the wireless device will store the location information which will be used the next time a call is made.

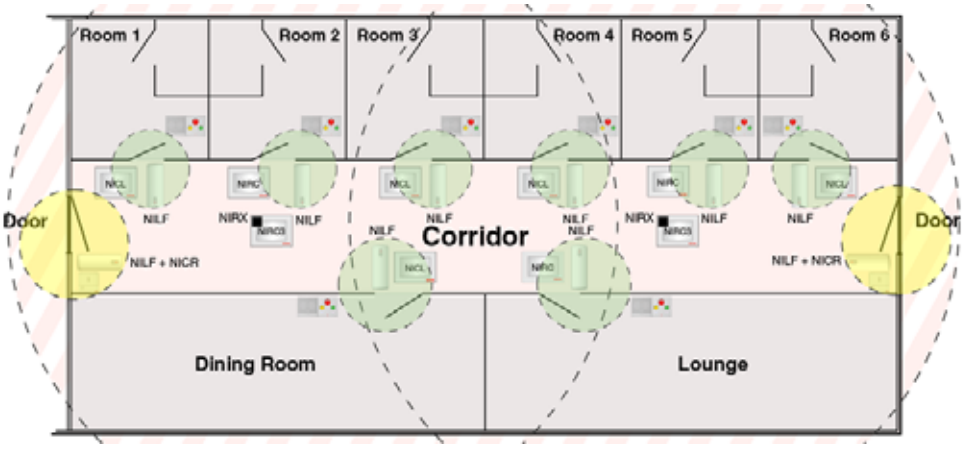


Figure 176. Wireless nurse call example with speech

This example consists of two room controllers (NIRC3) with transceiver module (NIRX) mounted for the wireless communication and three room controllers (NIRC) with five corridor lamps from an existing teleCARE IP configuration with speech. Each location has a doorside module with speech unit and a passive location beacon. The two main entry doors to the corridor are controlled by an active location beacon with access control unit.

Wireless speech will be based on the location of the wireless transceiver.
For wireless transceivers that are configured to use a static location, the phone number of the hard-wired teleCARE IP speech module at the location that is assigned to the wireless transceiver will always be used in the IM "speech" option.

For wireless transceivers that are configured to use dynamic locations, the phone number for the IM "speech" option will be automatically updated when the wireless transceiver moves between locations that are covered by active location beacons NILF.

When using passive location beacons, the IM options will not be updated when moving between passive locations, and the speech location will be the location where the wireless call was first made.

The table below shows the speech handling for wireless transceivers based on their static or dynamic location mode setting in combination with passive or active location beacons.

Transceiver Location mode	**Location Beacon (NILF)**	**Location at the start of a New call**	**IM "Speech" location change update**		
			Before speech	**During speech**	**After speech**
Static	NA	Fixed default location	No	No	No
Dynamic	Passive	Last known	No	No	No
	Active	Last known	Yes	No	No

8.3 teleCARE IP Wireless Components

8.3.1 NIRX teleCARE IP Transceiver

The NIRX transceiver is a printed circuit module which is piggy back mounted on the NIRC3 room controller and the NIFX fixed transceiver. Mounting the NIRX will add wireless nurse call functionality to the NIRC3 room controller and the fixed transceiver. Optionally the NIRX can also be mounted on the NILF location beacon for actively monitoring the state of the NILF, such as tamper and low battery alarm conditions.

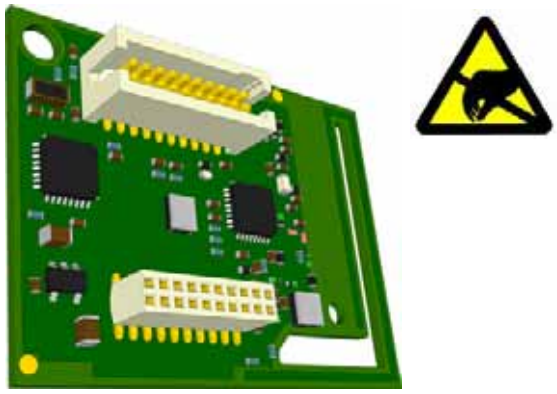


Figure 177. Transceiver piggyback module (NIRX)

Connecting the Transceiver Module

The NIRX is piggyback mounted on the NIRC3 room controller, on the NIFX fixed transceiver and on the NILF low frequency beacon printed circuit boards:

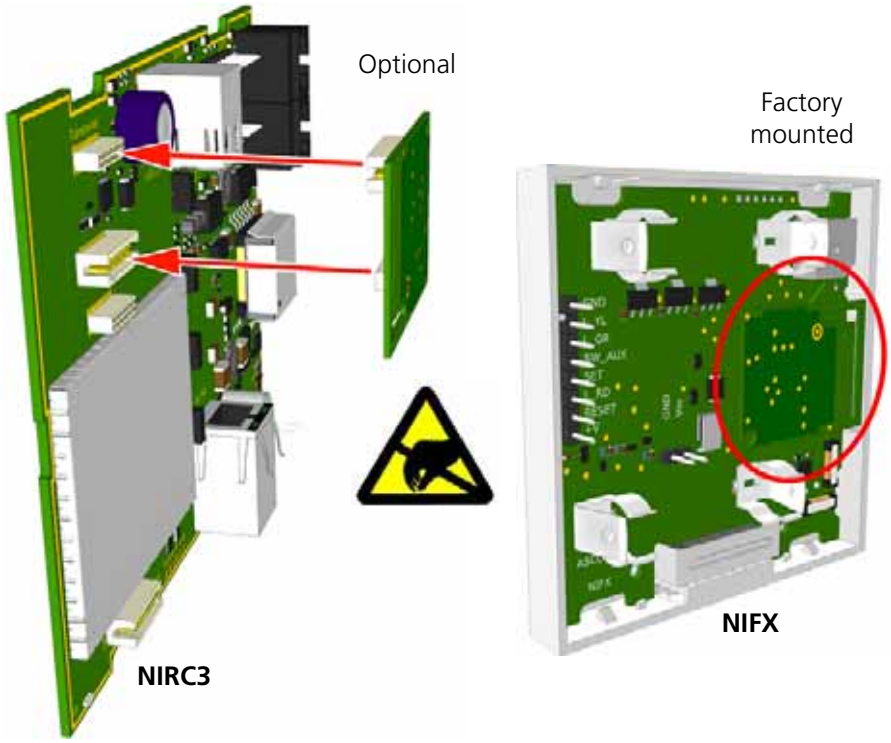


Figure 178. Piggyback mounting of the transceiver module on the NIRC3 and NIFX

Note: *The NIFX is delivered with an NIRX mounted from the factory.*

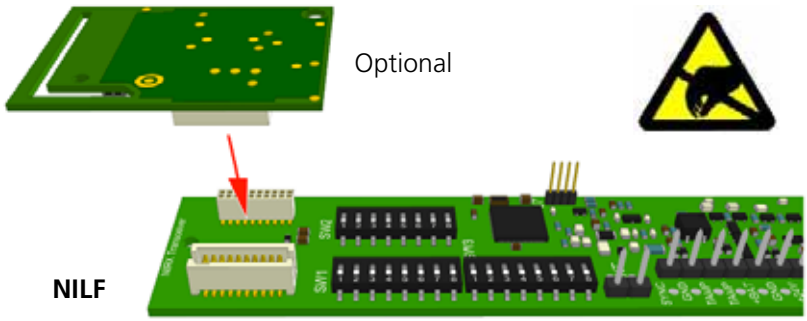


Figure 179. Piggyback mounting the transceiver module on the NILF

8.3.2 NIFX Fixed Transceiver

The NIFX series fixed transceiver is a wireless teleCARE IP switch module which is available as socket module or pull cord module. It has 3 function buttons, a white plastic body and includes a spacer for surface mounting. The pull cord version includes the cord with two red balls but no socket.

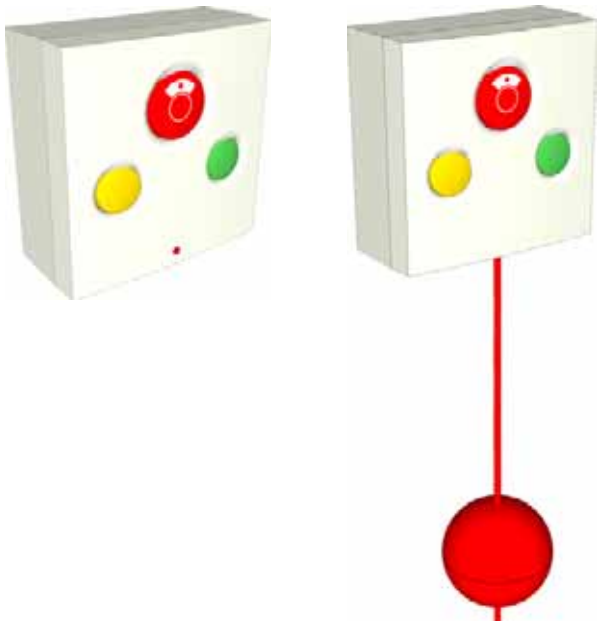


Figure 180. NIFX wireless switch module and pull-cord module

The NIFX socket variant supports the connection of a passive patient handset, see "Handset Connection" on page 134.

Replacing the Batteries

The fixed transceiver requires 2 x 1.5V AA disposable alkaline batteries. The battery voltage is continually monitored and if low voltage is detected a "low battery" alarm is transmitted and the low battery status is included in every heartbeat transmission of the unit. Under normal circumstances the battery life is 1 to 1½ year.

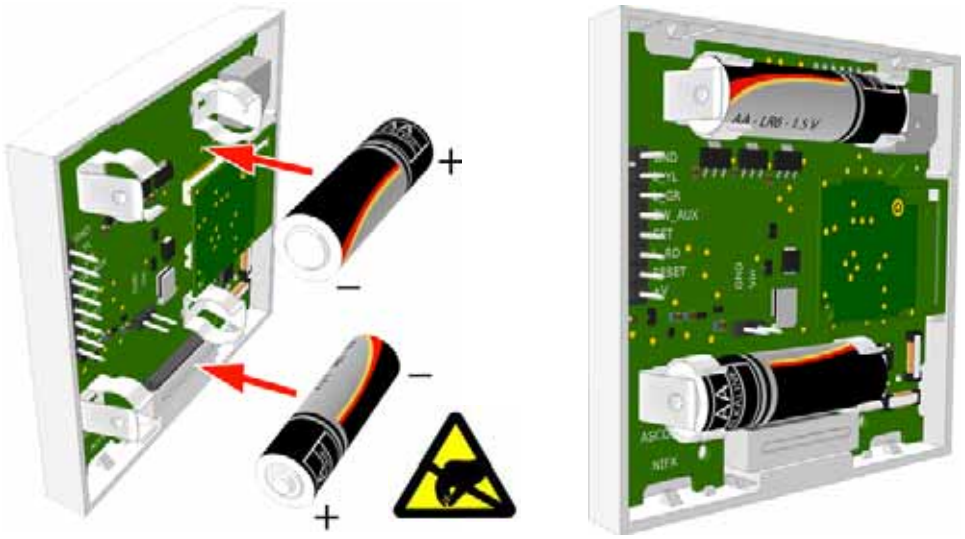


Figure 181. Replacing the batteries

When battery powered the fixed transceiver LEDs stay active for a period of 30 seconds after a call has been made.

Connecting a DC Power Adapter

Alternatively, an external CE certified 12-24Vdc power adapter can be used.

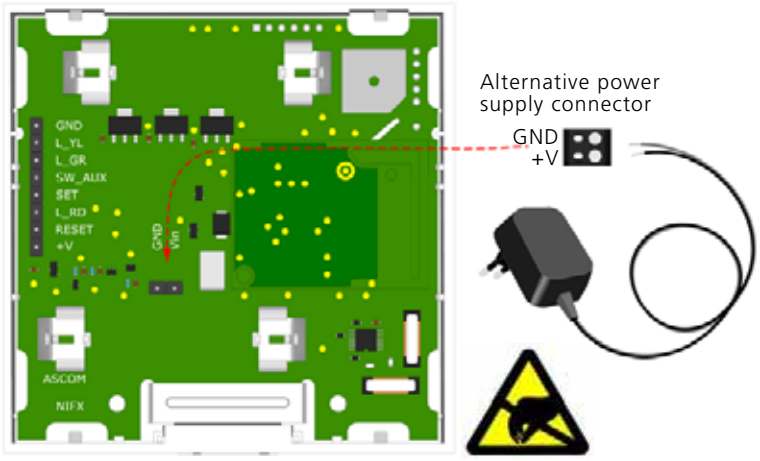


Figure 182. Connecting an external 12-24Vdc power adapter

When externally powered the red, yellow and green LEDs will permanently emit a low intensity light for locating and identification in the dark.

Handset Connection

The socket module version of the fixed transceiver includes a teleCARE Safe Release socket for connecting the NIPH2-A1A handset with handset disconnect alarm functionality. Speech/ Entertainment handsets are not supported.

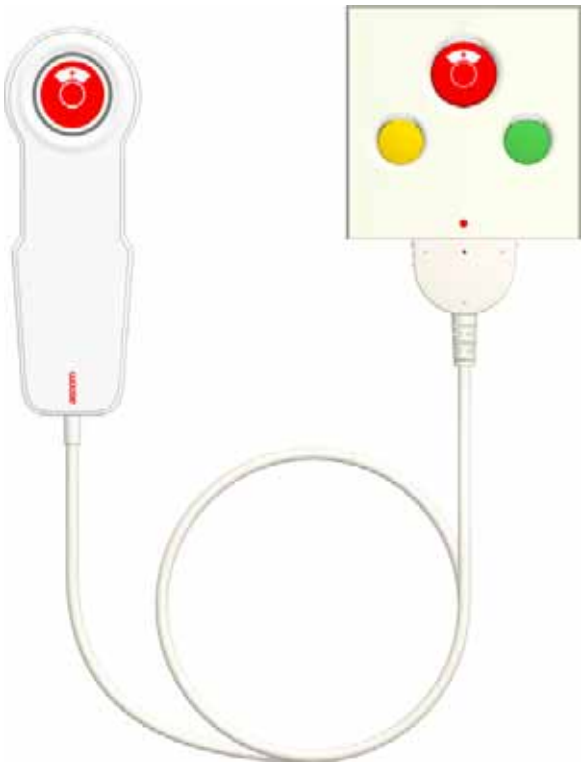


Figure 183. NIPH2-A1A handset connected to the NIFX

8.3.3 NITX Mobile Transceiver

The NITX mobile transceiver is a wireless call unit for residents. It is robust and water resistant (IP 65).

The NITX (AAA and BAA) contains a 916 to 921 MHz RF transceiver, a call button and a reassurance LED. The NITX-BAA also includes a 125 kHz LF receiver used for call cancellation using a cancel pendant and for location determination using LF beacons. Each mobile transceiver has a unique identity (ID) which is transmitted with every event from the mobile transceiver.

Figure 184. teleCARE IP mobile transceiver

The mobile transceiver can be fitted with a wrist strap so that it can be worn like a wrist watch. Alternatively, it can be attached to a lanyard so that it can be worn around the neck. The wrist strap and lanyard must be ordered separately.

Removing the Rear Cover

Removing the rear cover of the NITX is necessary when replacing the battery or when connecting an external alarm contact to the NITX circuit board.

Remove the four torx screws at the back of the NITX using A special screwdriver (T3) or bit (IP-3). When the screws are removed, gently pull off the rear cover.

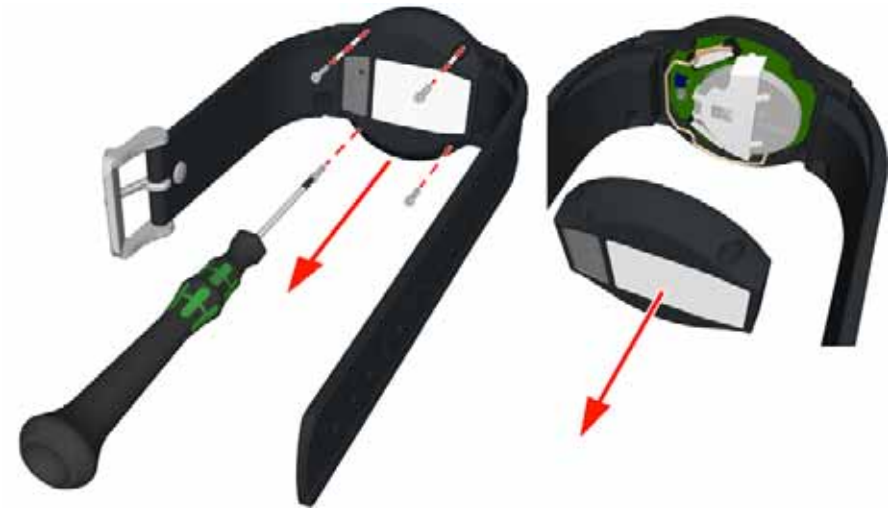


Figure 185. Removing the rear cover

Note: *Removing the rear cover will wear out the screw holes of the NITX front cover, therefore the NITX can be opened and closed approximately three times.*

Replacing the Battery

The mobile transceiver is powered by a 3 volt lithium replaceable battery. The battery voltage is continually monitored and if low voltage is detected a "low battery" alarm is transmitted as part of the heartbeat transmission of the unit. Under normal circumstances the battery life is 1 to 1½ year.

Start by removing the rear cover, see "Removing the Rear Cover" on page 135, then remove the printed circuit board by pulling it out of the body of the NITX.

Figure 186. Remove the NITX circuit board

Remove the empty battery from the NITX circuit board by sliding it in the direction of the arrow. Place the new battery with the positive"+" terminal facing upwards and slide it into place.

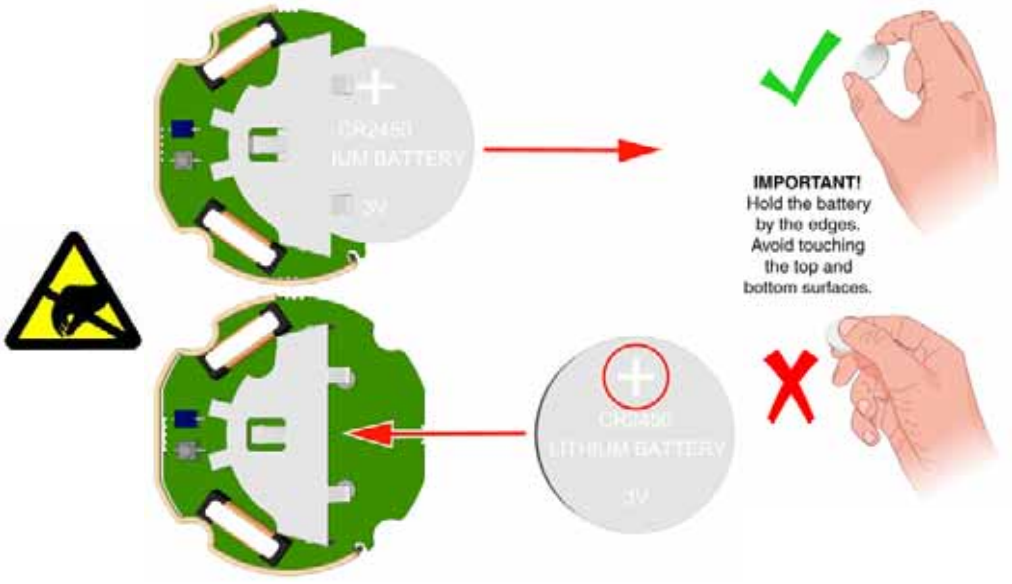


Figure 187. Removing the old and placing the new battery

Mobile Transceiver Accessories

Interchangeable rings, buttons and strap loops make it possible to customize the mobile transceiver body. The four rings and six buttons including a ring mounting tool are available as customization kit and the five strap loops including a rivet are available as an accessory kit.

Figure 188. Mobile transceiver accessories

8.3.4 NILF Low Frequency Beacon

The low frequency beacon NILF is contained in a white plastic enclosure with a slim design that is suitable for surface mounting on walls or at a door post. The NILF is powered by three 1.5V "C" (R14) alkaline batteries. In situations where battery power is not suitable a 24Vdc external power supply can be used.

An optional transceiver module NIRX can be mounted on the NILF circuit board used to monitor the NILF through a heartbeat signal, The NIRX will send out a tamper alarm upon front cover removal detection or send a low battery alarm.

Figure 189. NILF - Low Frequency Beacon

The NILF operates at 125 kHz producing a spherical magnetic field with a range of up to 6.5 feet (2 meters) when battery powered or 10 feet (3 meters) when powered from an auxiliary 24Vdc power supply. The magnetic field strength can be adjusted to suit the requirements. A master/slave configuration can be used to extend the range of the LF field.

DIP switches are used to set the 12bit ID code, to select the transmission rate allowing a suitable interval between 0.1 - 2s and to set the output power, ranging from 0.30m to 3m.

NILF Installation

The slim design makes the NILF suitable for surface mounting on walls or at a door post at approximately 4 feet (1.2 meters) from the ground.

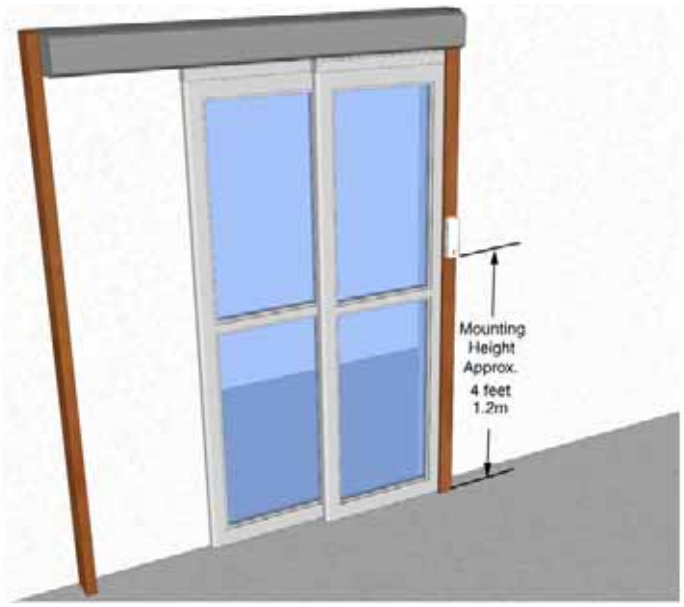


Figure 190. NILF installation example

WARNING: The NILF produces a low frequency magnetic field. Installing the NILF in proximity of metal objects or electrical cables can negatively influence the magnetic field which reduces the LF field coverage.

Open the NILF by removing the screw that is located at the bottom of the housing. To remove the front cover slightly lift it up and gently pull it off of the rear cover.

Figure 191. Removing the front cover of the NILF

Place the NILF onto the door post or the wall at approximately 4 feet (1.2 meters) from the ground and mark the holes for drilling with a sharp pencil.

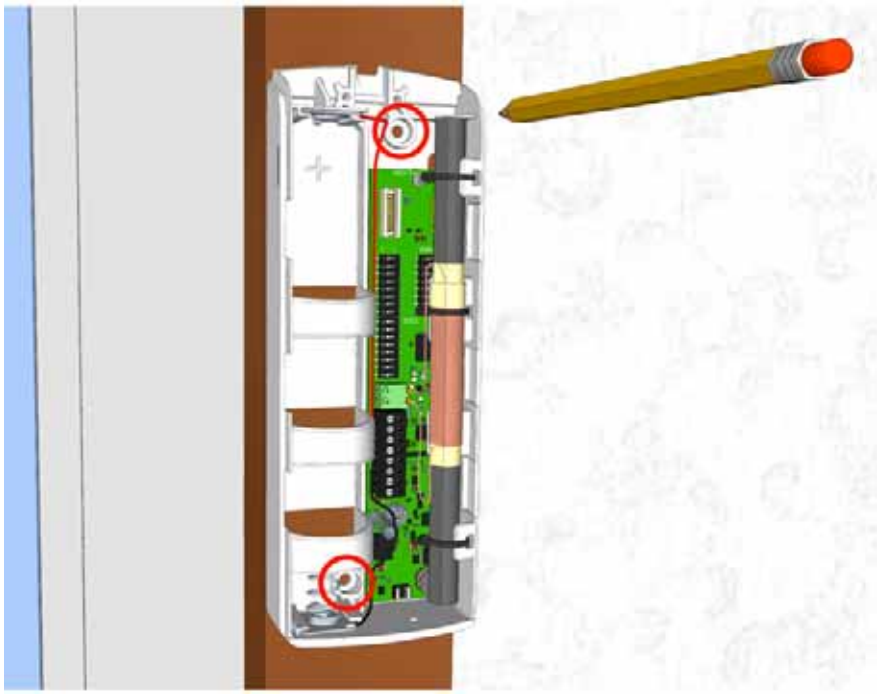


Figure 192. Mark the holes for drilling

Screws with a diameter of 1/8 in. (3.8mm) should be used to mount the NILF to the door post or the wall. Two suitably sized holes should be drilled at the marked spots. In a wooden door post holes should be drilled that are slightly smaller than the size of the screws that are used. When mounting

the NILF on a wall, holes should be drilled that accept a wall plug suitable for using screws with a diameter of 1/8 in. (3.8mm).

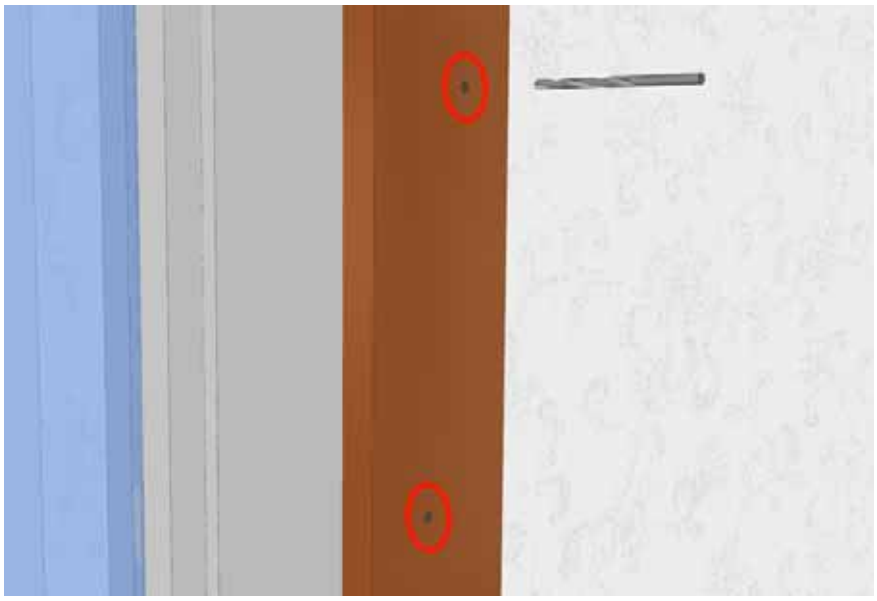


Figure 193. Drill the two holes with the proper drill

Mount the NILF on the door post or wall.

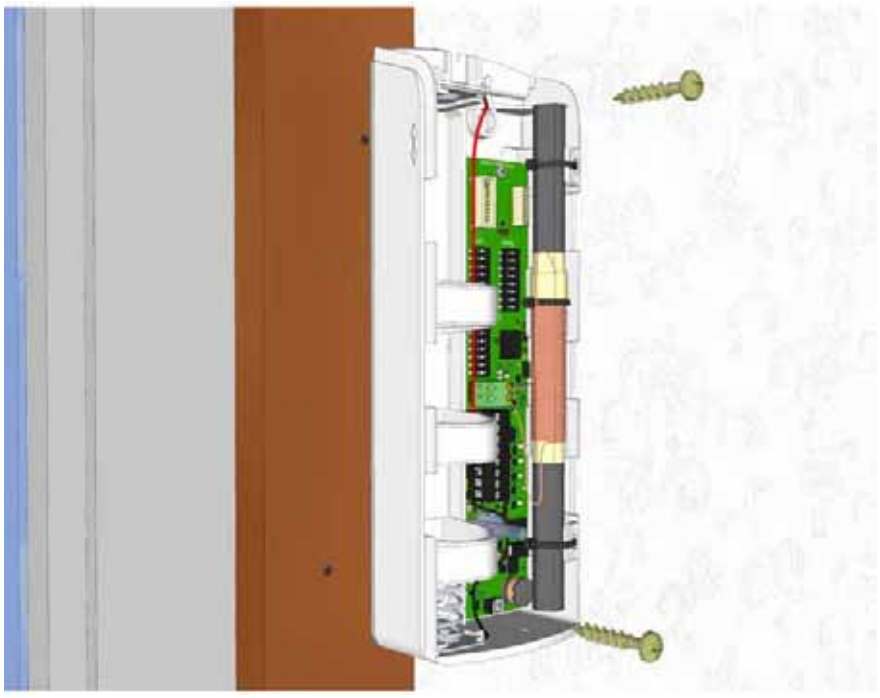


Figure 194. Placing the NILF on the door post

The two screws should be tightened carefully using the appropriate screwdriver. Make sure that the NILF does not bend when tightening the screws.

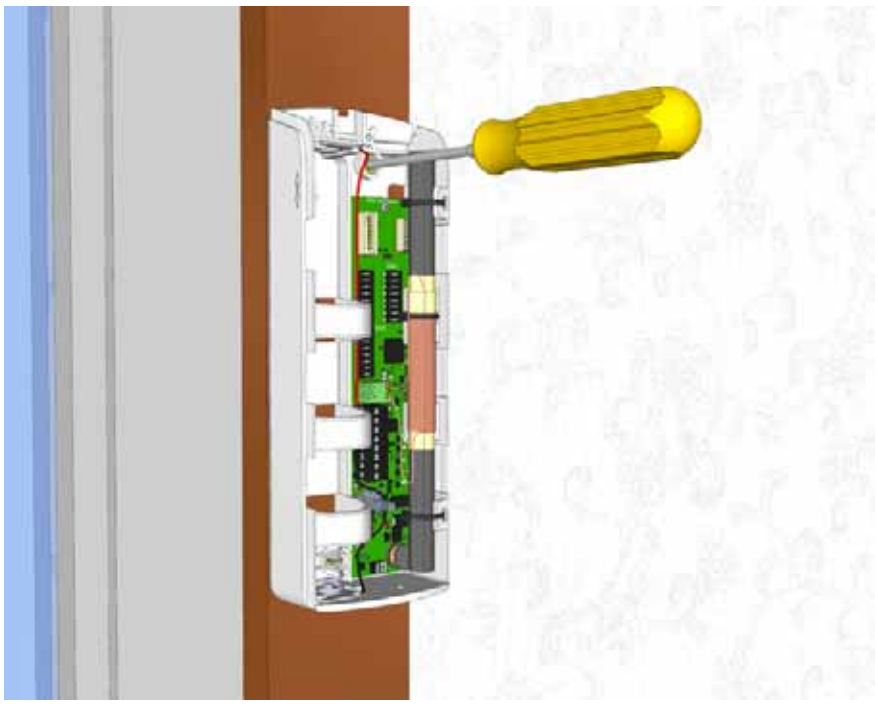


Figure 195. Tightening the two screws.

8.3.5 NILF Electrical Connections

The electrical connections on the component side of the low frequency beacon printed circuit board are shown in the following drawing of the NILF circuit board.

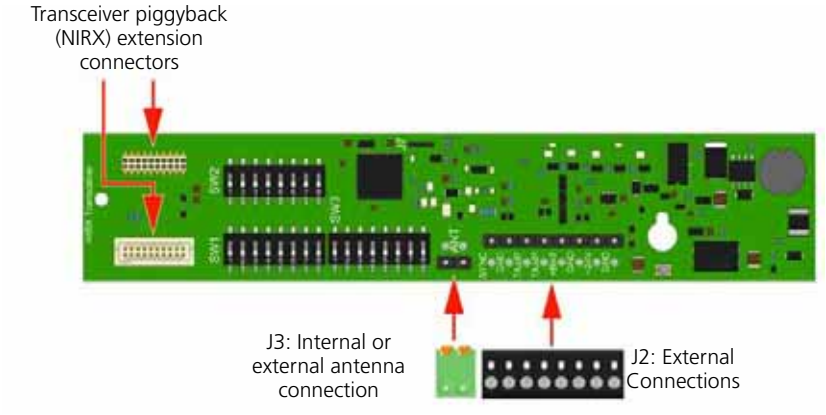


Figure 196. Low frequency beacon NILF electrical connections

NIRX Placement

The NIRX transceiver module can be piggyback mounted on the (NIRX) extension connectors.

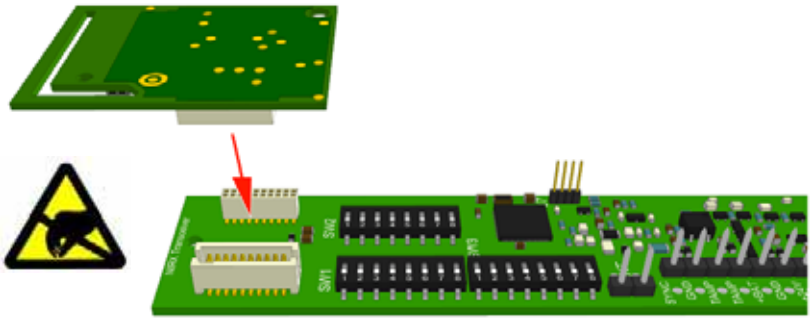


Figure 197. Placing the NIRX on the NILF board

Note: *To place an NIRX module it is necessary to remove the internal LF antenna*

Antenna Connection

The 2-pole antenna connection (J3) is connected to the internal LF antenna.

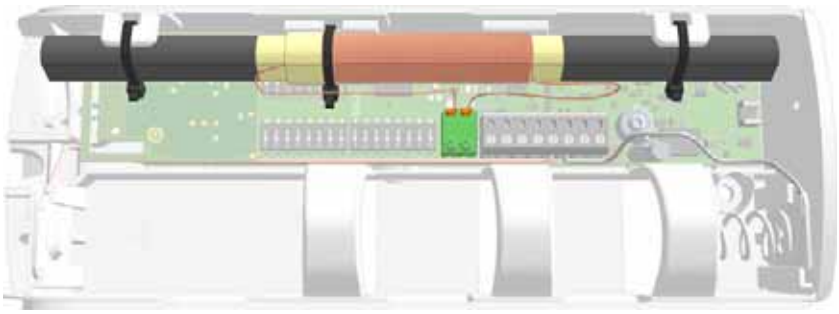


Figure 198. NILF internal antenna connected

External Connections

The 8-pole external connector (J2) has connections for a second beacon used for range extending in a master/slave configuration, a galvanically separated tamper alarm relay output, the internal battery and an external 24 Vdc power supply input.

Figure 199. External connections - J2

External Connector		Description
1	SYNC	Master / Slave interconnection Beacon synchronization
2	GND	
3	TAMP	Tamper alarm relay output (galvanically separated)
4	TAMP	
5	+BAT	Battery connection
6	GND	
7	+24V	External 24Vdc power supply connection
8	GND	

For master / slave connection see “Master / Slave Beacon Interconnection” on page 147.

For tamper alarm relay connection see “Tamper Alarm” on page 150.

For 24Vdc external power supply connection see “External Power Supply Connection” on page 150.

8.3.6 NILF DIP Switch Settings

The NILF uses three sets of 8-pole DIP switches to set the ID, output power and transmission rate, master/slave mode and the active location functionality.

NILF ID

DIP switches SW1 (1-8) and SW2 (1-4) are used to set the 12 bit ID code of the NILF.

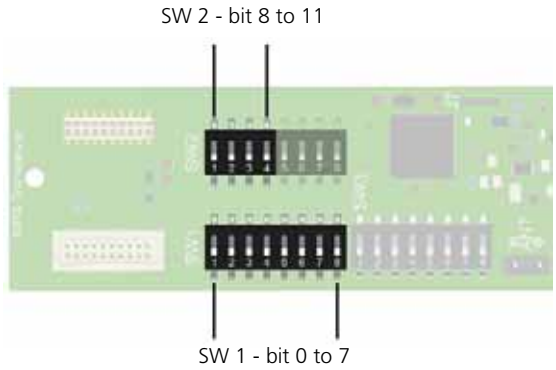


Figure 200. NILF 12 bit ID - DIP switch settings

NILF ID Settings			
SW1	**Low byte**	**SW2**	**High nibble**
1	Bit 0	1	Bit 8
2	Bit 1	2	Bit 9
3	Bit 2	3	Bit 10
4	Bit 3	4*	Bit 11
5	Bit 4		
6	Bit 5		
7	Bit 6		
8	Bit 7		

* When the highest bit (bit 11) of the NILF ID is set the NILF will function as an active location beacon. See “Beacon Mode” on page 148. for detailed information.

Output Power and Transmission Rate DIP Switch Settings

With the 4 bit output power DIP switch SW3 (1-4) selection the range of the LF field can be adjusted. In relation with the output power the repetition rate of the low frequency transmissions can be set to normal, high, low and very low using 2 bit DIP switch setting on SW2 (5 and 6).

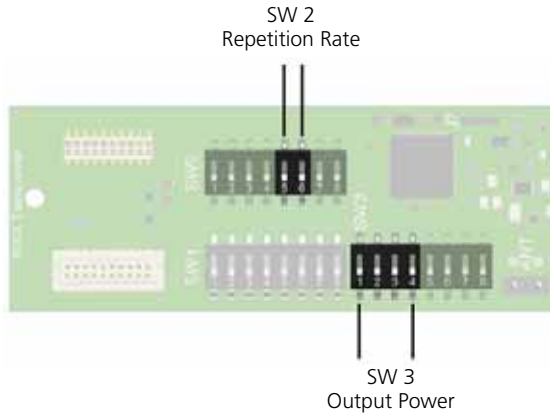


Figure 201. Output Power and Repetition Rate DIP switch settings

Lowering the output power to decrease the range of the LF field will increase the repetition rate of the transmissions. The table below shows the relation between the output power and the repetition rate.

Output Power			**Repetition Rate (transmissions/s)**			
			Normal	**High**	**Low**	**Very Low**
SW3 (4 - 1)	**Range**		**SW2 (6 - 5)**			
	meters	**feet**	00	01	10	11
0000	0.3	1	10	20	5	1
0001	0.35	1.15	8	16	4	0.8
0010	0.4	1.3	6.7	13.4	3.35	0.67
0011	0.55	1.8	5.0	10	2.5	0.5
0100	0.7	2.3	4.0	8	2	0.4
0101	0.85	2.8	3.3	6.6	1.65	0.33
0110	1.05	3.5	2.7	5.4	1.35	0.27
0111	1.2	4	2.4	4.8	1.2	0.24
1000	1.35	4.4	2.1	4.2	1.05	0.21
1001	1.6	5.2	1.8	3.6	0.9	0.18
1010	1.7	5.6	1.7	3.4	0.85	0.17
1011	1.9	6.2	1.5	3	0.75	0.15
1100	2.15	7	1.3	2.6	0.65	0.13
1101	2.4	8	1.2	2.4	0.6	0.12
1110	2.7	9	1.1	2.2	0.55	0.11
1111	3	10	1.0	2	0.5	0.10

External 24Vdc power supply required.

Master / Slave Mode DIP Switch Settings

With DIP switch SW2 (8) the master / slave mode of the NILF can be set.

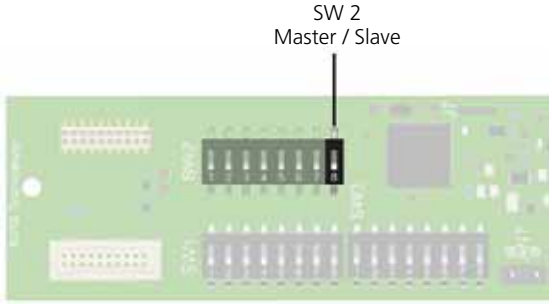


Figure 202. Master / Slave DIP switch settings

NILF Master / Slave Settings	
SW2 (8)	**Mode**
Off = 0	Master
On = 1	Slave

A master/slave configuration can be used to extend the range of the LF field (when master and slave use same ID) or to synchronize LF transmissions between two beacons when there is an overlap in the LF fields (when master and slave use different IDs).

Refer to "NILF ID" on page 145 for setting the ID of the slave NILF.
Refer to "Beacon Mode" on page 148 for setting the mode of the slave NILF.
Refer to "Output Power and Transmission Rate DIP Switch Settings" on page 146 to set the output power of the slave NILF. Note that the transmission rate is decided by the master synchronization, and setting this option on the slave will have no effect.

Master / Slave Beacon Interconnection

Connector J2 pin1 (SYNC) and pin 2 (GND) are the interconnection pins used for beacons operating in master / slave mode. Interconnect the "Sync / GND" connections between the master and slave beacon as depicted below.

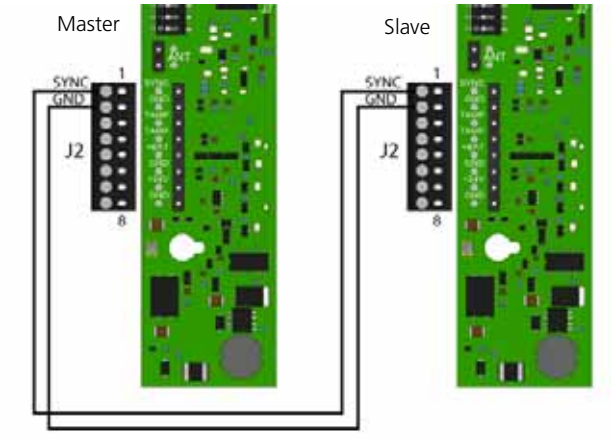


Figure 203. NILF master / slave interconnection

Note: *Minimum recommended cable requirements (twisted pair) for example CAT5. Length < 100m.*

Beacon Mode

With DIP switch SW3 (5) the mode of the LF location beacon can be set to passive or active.

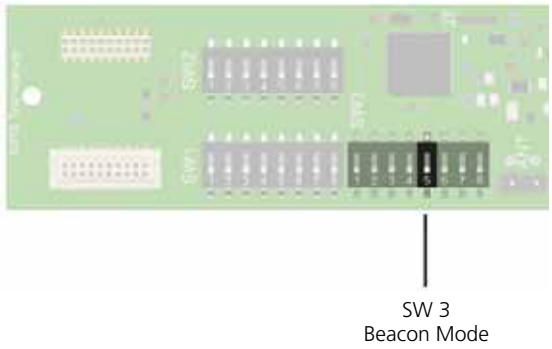


Figure 204. Beacon Mode DIP switch settings

NILF Location Beacon Mode		
SW3 (5)	**Mode**	**NILF ID**
Off = 0	Passive	000 - 7FF
On = 1	Active	800 - FFF

Note: *Setting the beacon mode to "Active" will automatically set the most significant bit (bit 11) of NILF ID, therefore the ID range for active location beacons will be from 800 to FFF,* see "NILF ID" on page 145.

Passive Location Beacon

Wireless devices that enter the LF field of a passive location beacon will receive a location update message that is stored locally by the wireless device as the last known location. When a call is made the last known location will be added to the message for linking and messaging.

Active Location Beacon

Wireless devices that enter the LF field of an active location beacon will be triggered to send out the location update message directly to the wireless server whenever the wireless device enters or leaves an LF field. Depending on the system configuration the location update messages can be used for access control, wanderer control and automatic location updates when moving from one active location to the other.

Placing the Batteries

The NILF requires three 1.5V "C" (R14) alkaline batteries. The battery voltage is continually monitored. A red LED will indicate low battery status (1 flash per minute) and tamper alarm (continuous rapid flashing). Under normal circumstances the battery life is minimum one year.

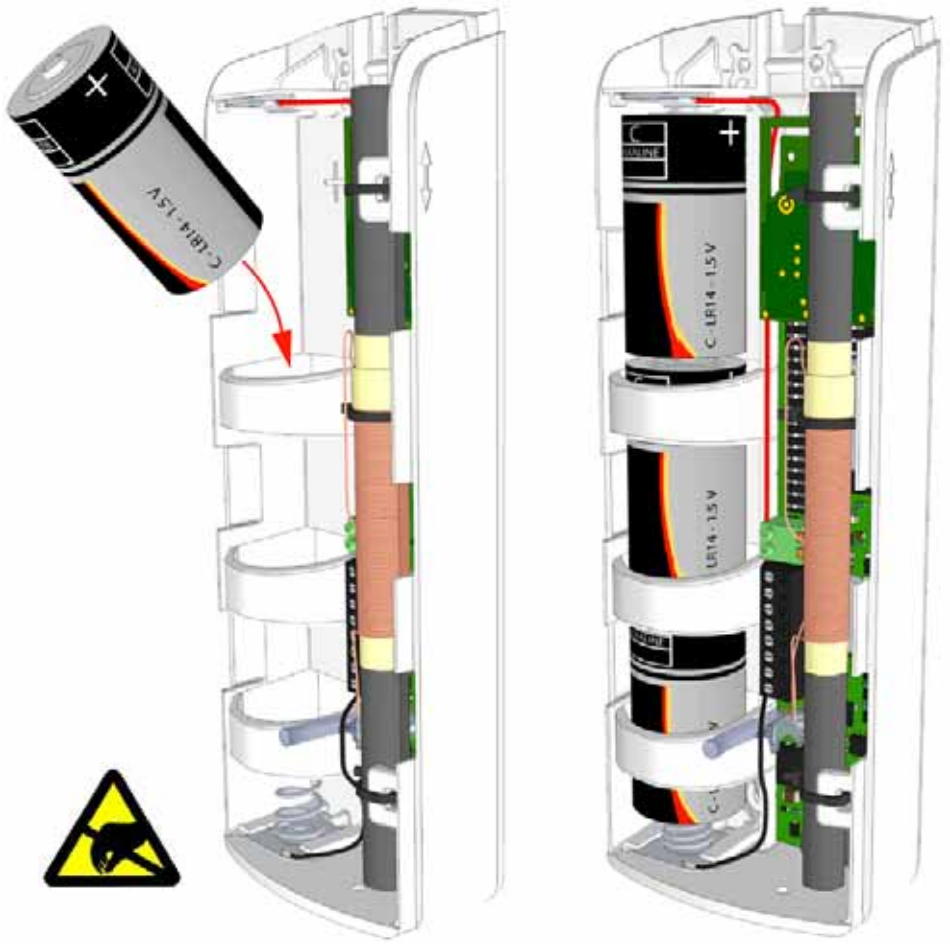


Figure 205. Placing the three 1.5V "C" (R14) alkaline batteries

Note: *Optionally an NIRX transceiver module can be mounted on the LF location beacon - NILF for actively monitoring the state of the NILF like tamper and low battery alarm conditions.*

External Power Supply Connection

Alternatively an external 24Vdc power supply can be connected to power the NILF.

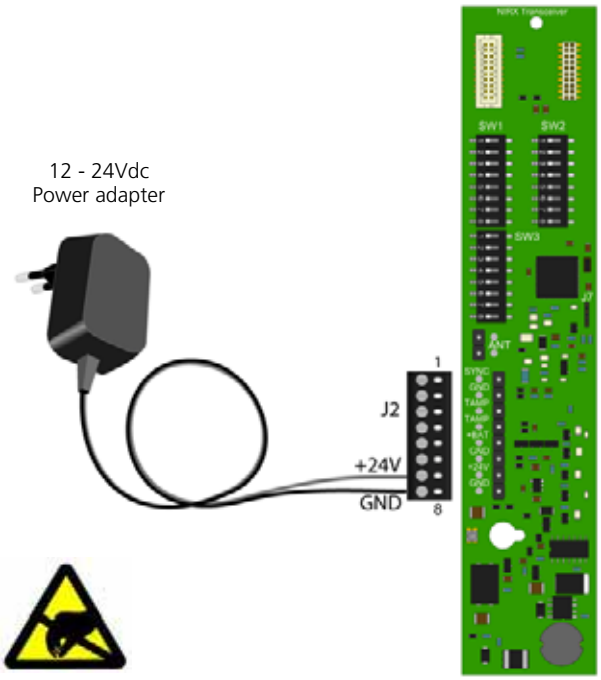


Figure 206. External 24Vdc power supply connection

Tamper Alarm

The tamper alarm output has a galvanically separated normally closed contact. The tamper alarm output can be connected to a third-party system for generating an alarm when the NILF is tampered with.

IMPORTANT: *The tamper alarm output is only functional when an external 24Vdc power supply is used to power the NILF.*

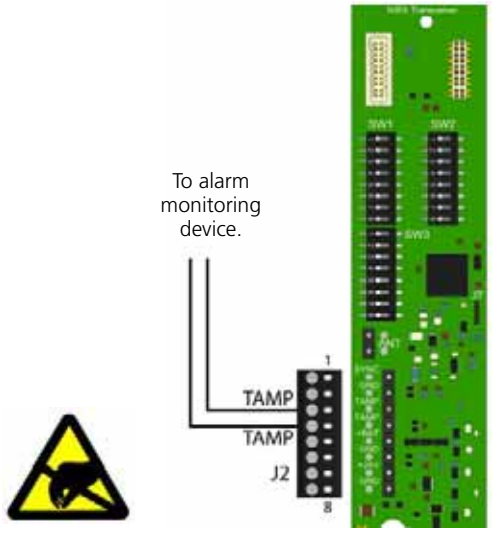


Figure 207. Galvanically separated normally closed tamper alarm output

9 Installation Examples

9.1 2-Bed Room with Active Toilet Cancel and Active Pull Cord Peripherals

A typical basic installation of a teleCARE IP system consists of one room controller with integrated corridor lamp (NIRC) to which the peripherals are connected. The room controller offers three room buses which connect the peripherals to the room controller

The example shown in the Illustration below is a 2-bed room with active peripherals for the toilet and shower. Each bed is equipped with a bedside module, and a handset.

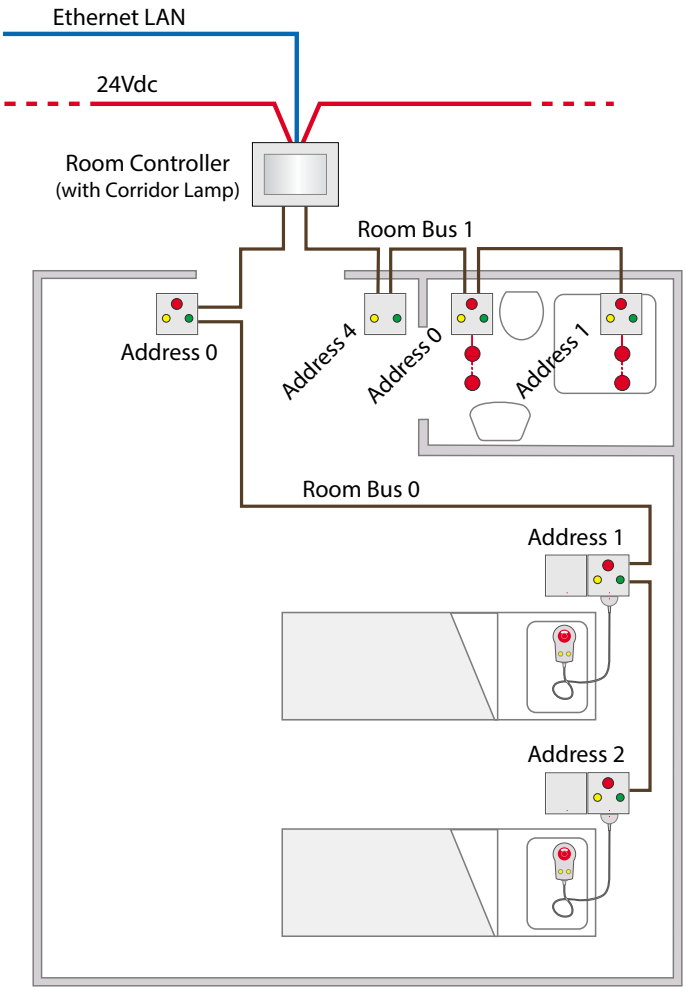


Figure 173. Typical 2-bed room with active toilet and shower peripherals

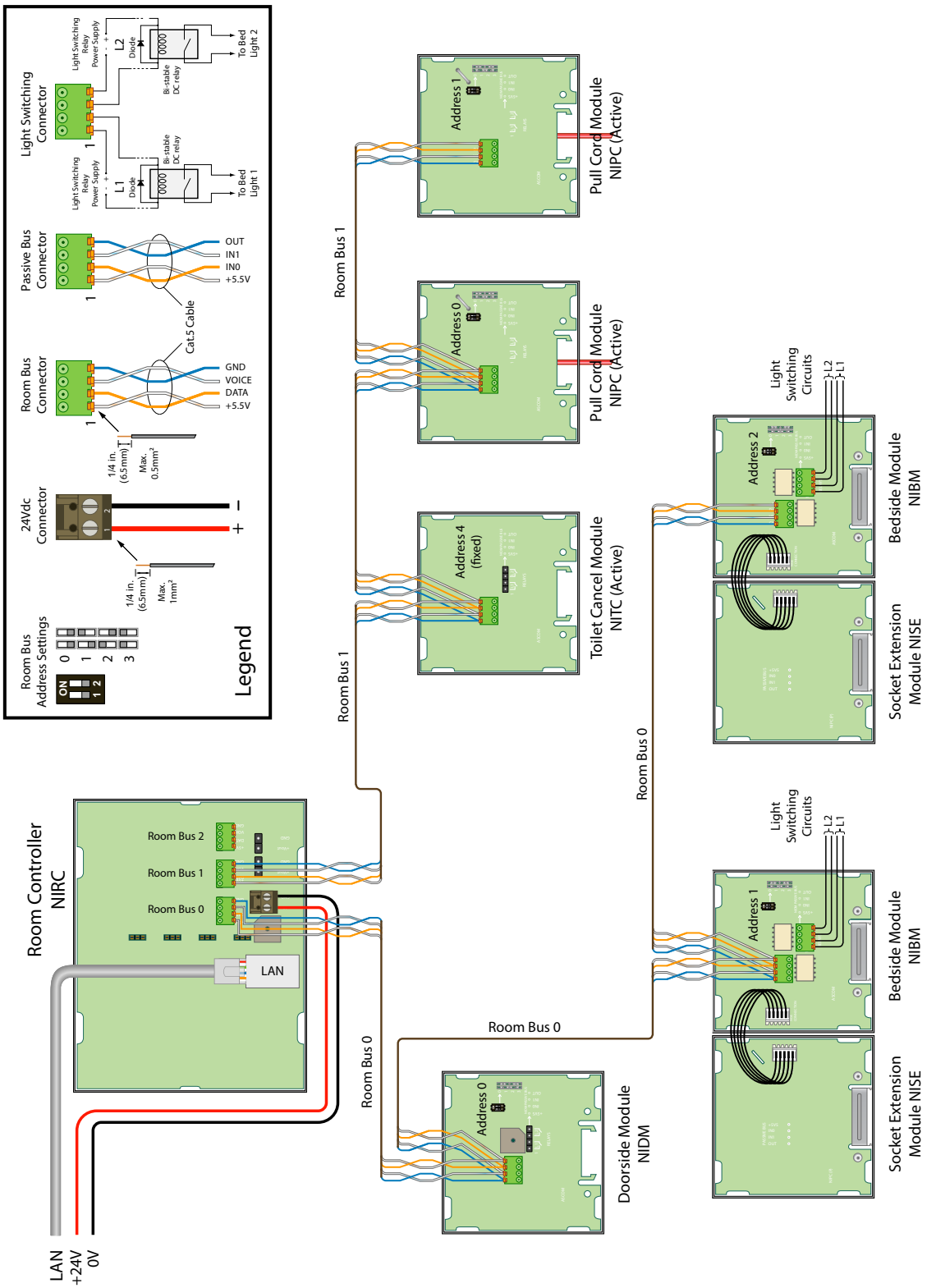


Figure 174. Wiring for 2-bed room with active toilet and shower peripherals

9.2 2-Bed Room with Passive Toilet Cancel and Passive Pull Cord Peripherals

The following installation of a teleCARE IP system consists of one room controller with integrated corridor lamp (NIRC) to which the peripherals are connected. The room controller offers three room buses which connect the peripherals to the room controller

The example shown in the Illustration below is a 3-bed room with a toilet and shower. Each bed is equipped with a bedside module, and a handset.

Passive peripherals are used for the toilet and shower. These peripherals are connected to a passive bus from the door side module.

Note:

1).In the examples that follow, all references to the NISE socket extension module and NIMS medical rail socket do not apply for UL 2560 systems.

2). References to the NISE socket extension module can be interpreted as applying to the speech module (NISP) instead.

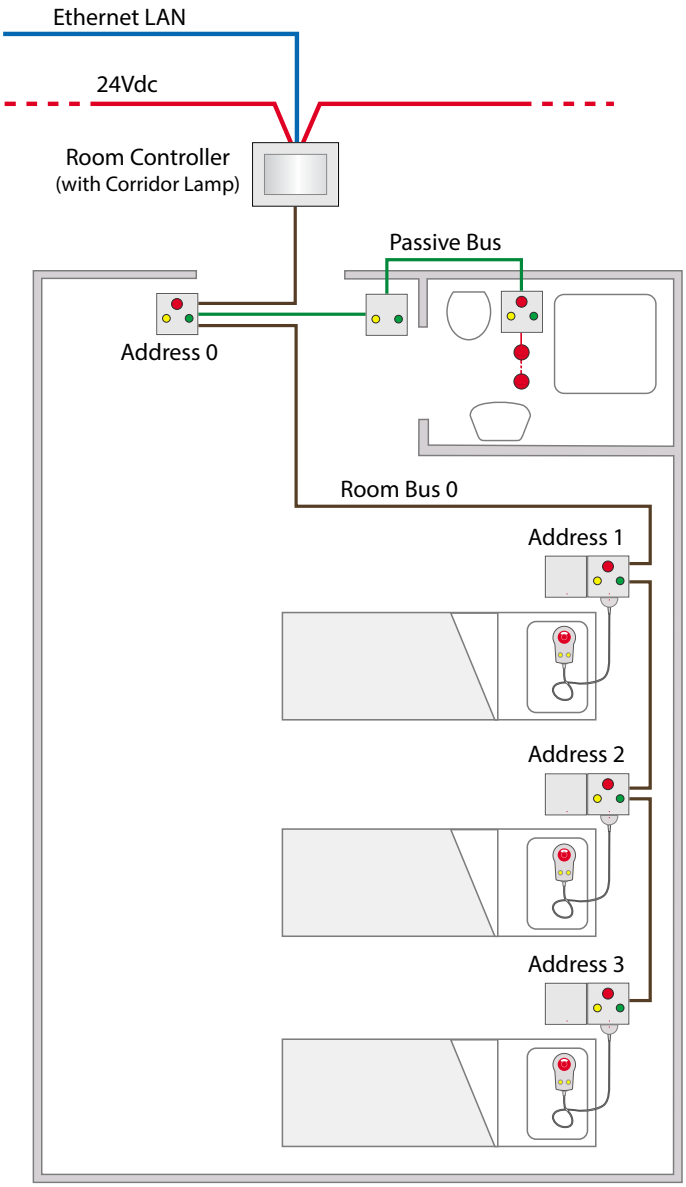


Figure 175. Typical 2-bed room with passive toilet and shower peripherals

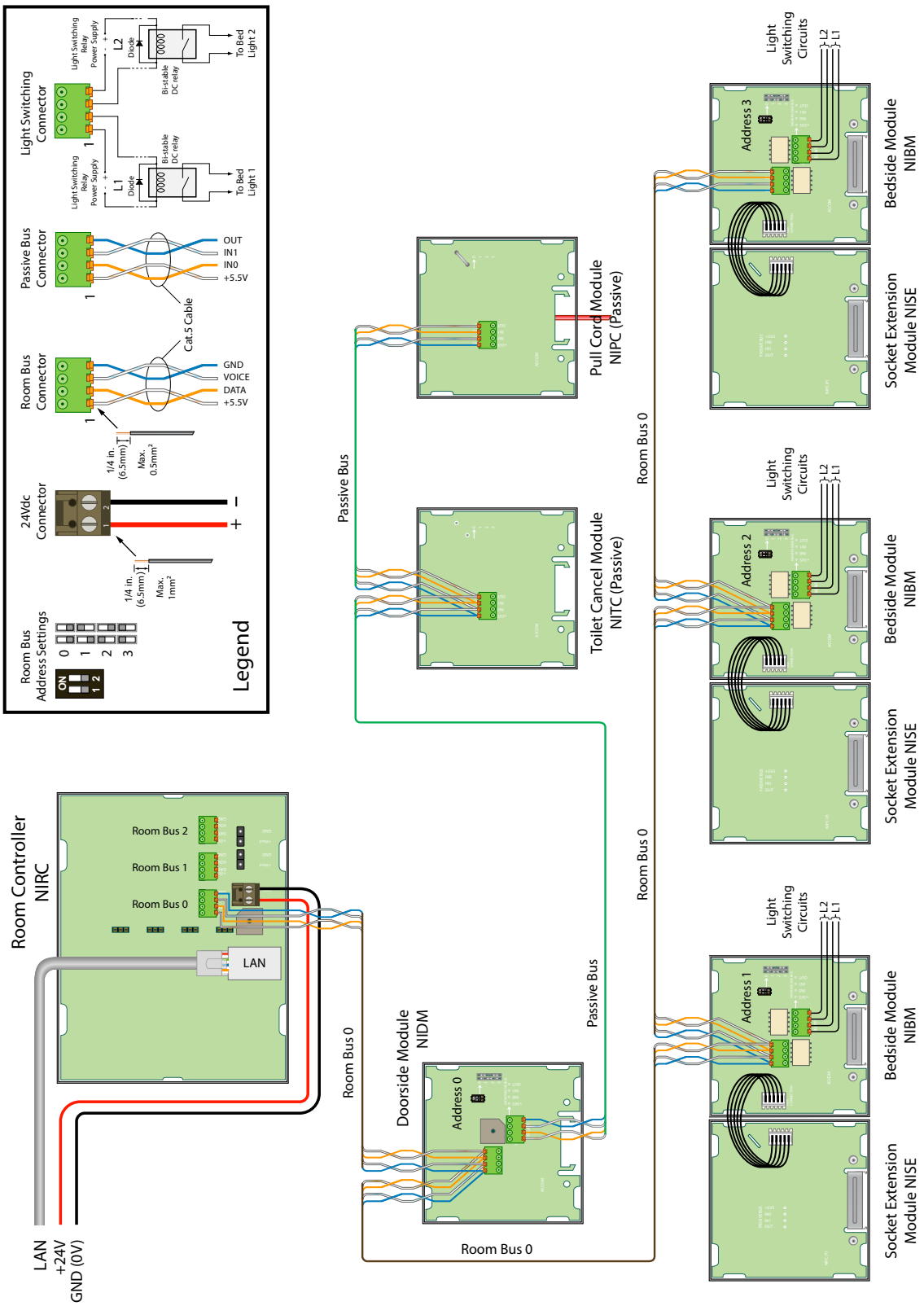


Figure 176. Wiring for 3-bed room with passive toilet cancel and passive pull cord

9.3 2-Bed Room with a Medical Rail Socket at each Bed

The example shown in the Illustration below is a 2-bed room with peripherals for the toilet and shower. Each bed is equipped with a medical rail socket (which is usually installed in the medical rail above the bed) and a handset.

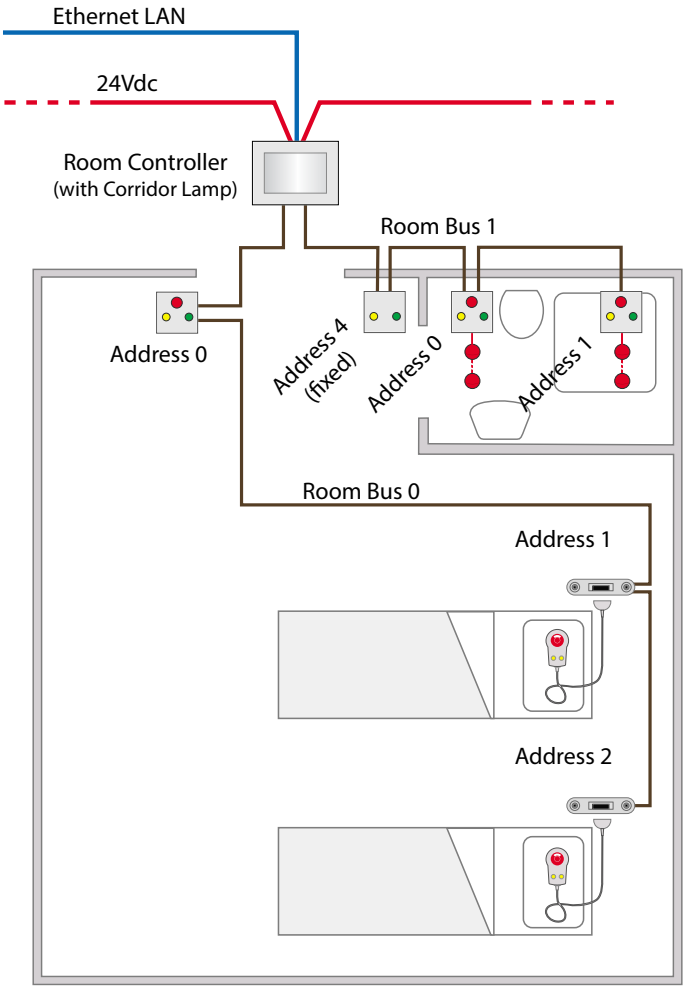


Figure 177. 2-Bed Room with medical rail sockets

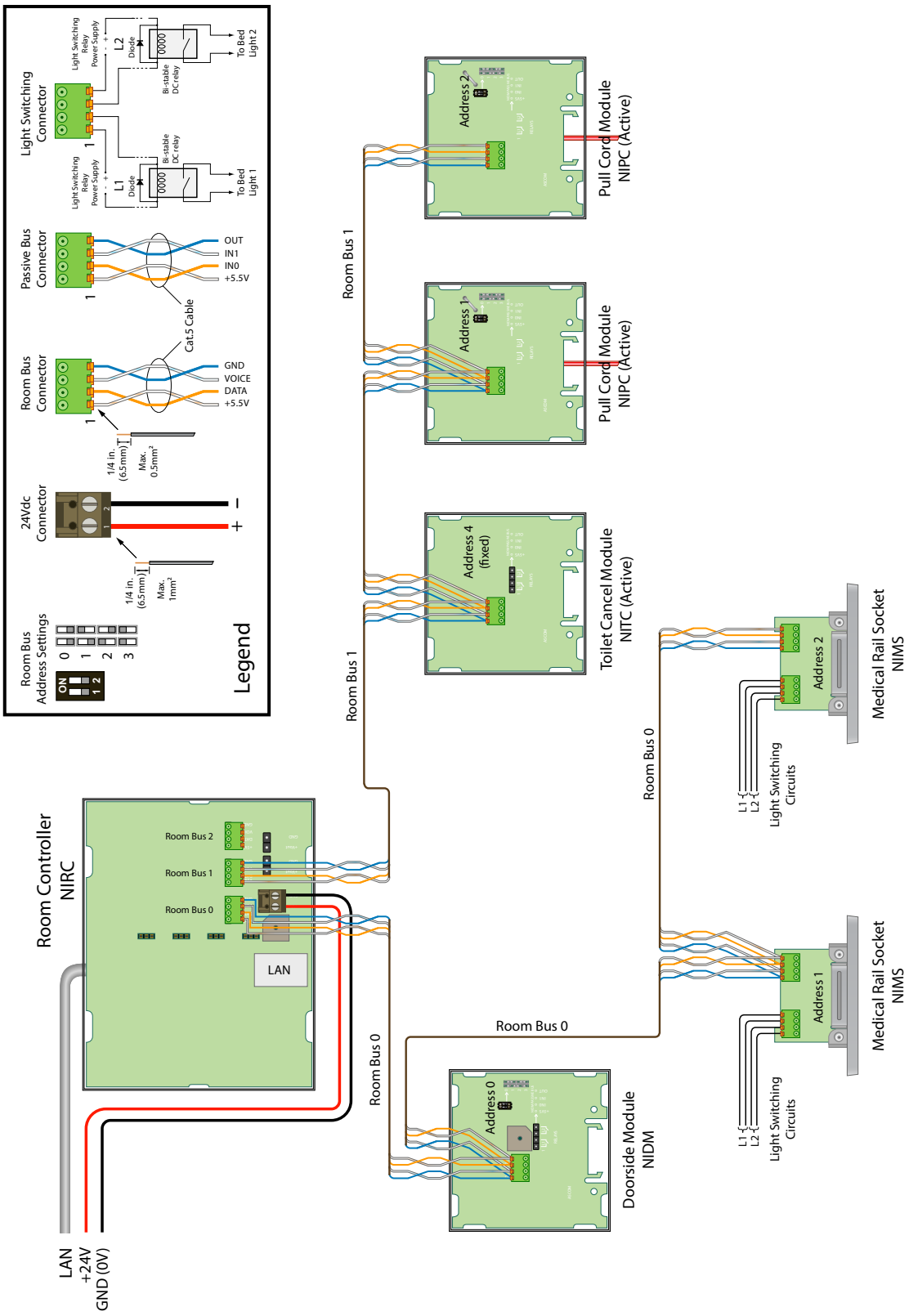


Figure 178. Wiring for a 2-bed room with medical rail sockets

9.4 Room Controller with Corridor Lamps (Master/Slave)

The example below shows the combination of a room controller and 2 corridor lamps. In the example there are three resident rooms, each containing 3 beds and a toilet with shower.

One of the rooms is connected to the room controller and each of the other rooms is connected to a corridor lamp. Each corridor lamp is connected to one of the room buses of the room controller.

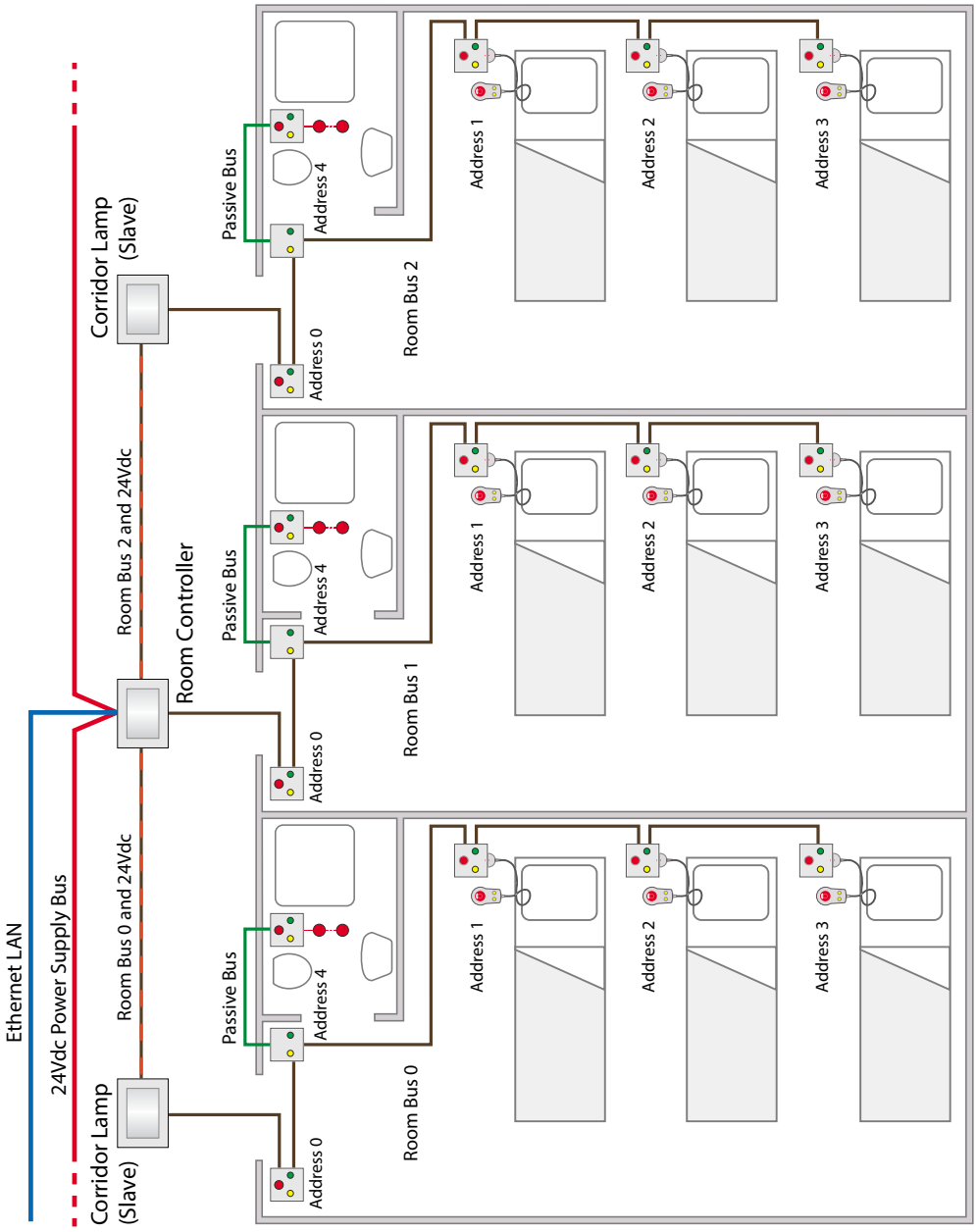


Figure 179. Room controller with corridor lamps installation

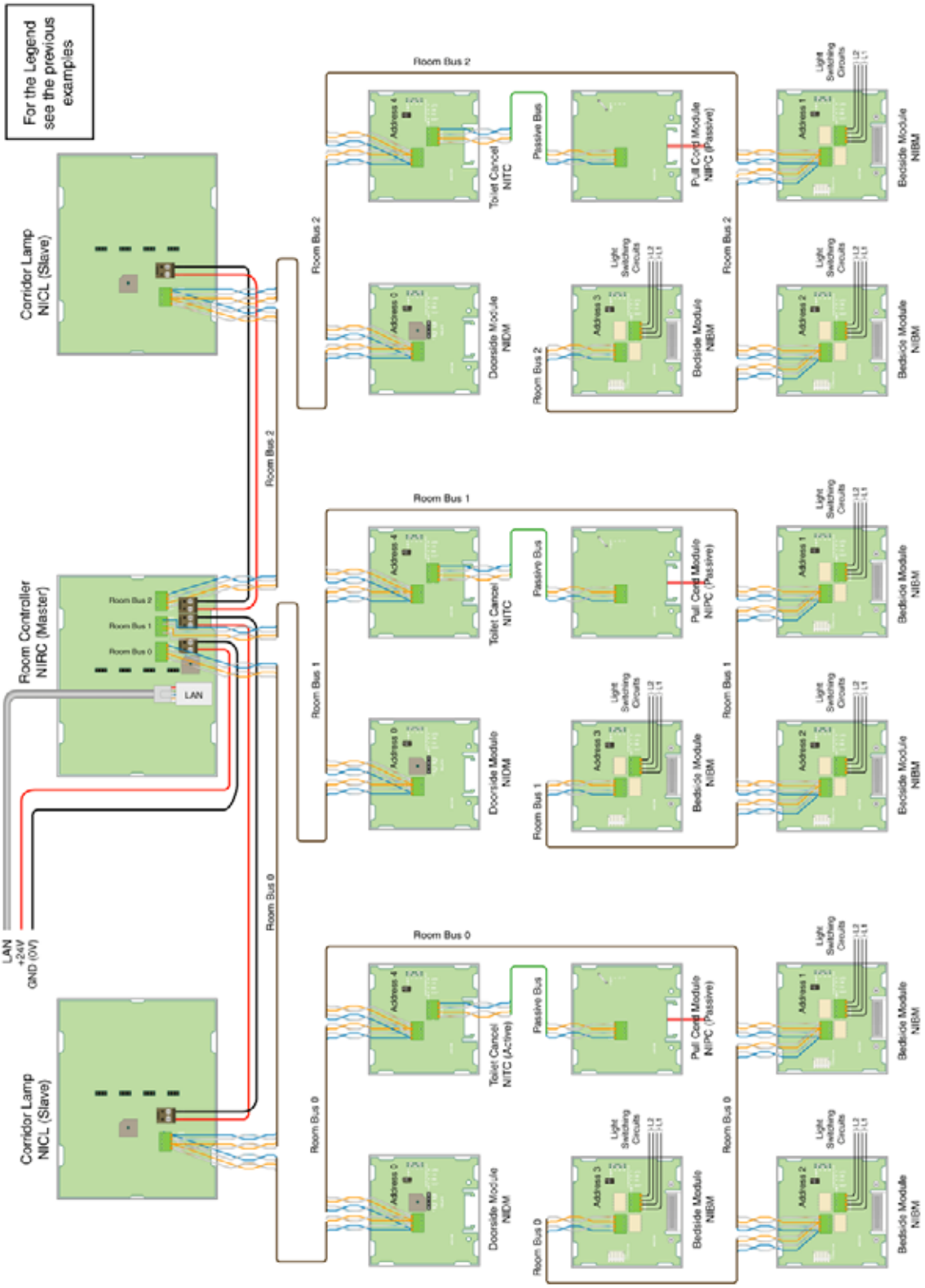


Figure 180. Wiring for three rooms with a room controller with two corridor lamps

9.5 4-Bed Room with Speech

The installation of a teleCARE IP system with speech is basically the same as without speech except that the teleCARE IP Speech Module is added at each active peripheral where speech communication is required.

The speech module can only be used in combination with the following active teleCARE IP peripherals: the door side module (NIDM), the bedside module (NIBM), the medial rail socket, active pull cord module (NIPC-XXA), and the room display (NIRD).

The example shown consists of one room controller with integrated corridor lamp to which only active peripherals are connected. The room controller handles the speech communication and all the signaling of the related room. Each bed location has a speech module.

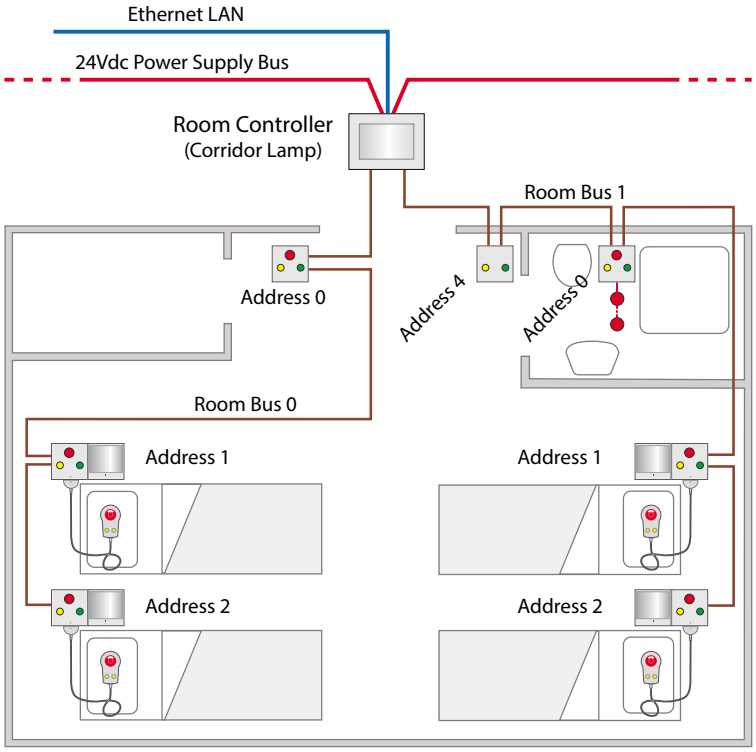


Figure 181. 4-bed room with speech

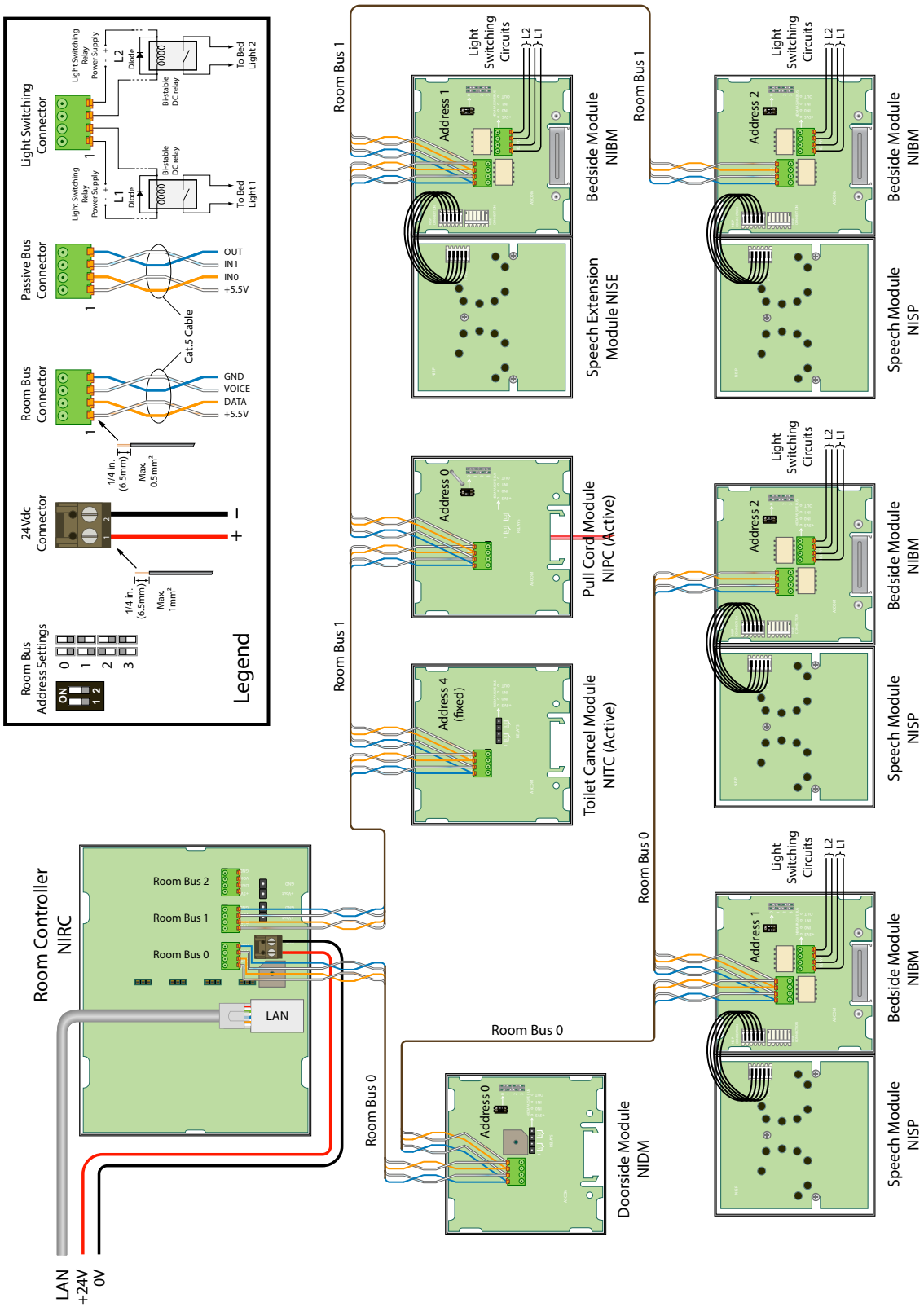


Figure 182. Wiring for 4-bed room with Speech at each bed

9.6 Duty Selector at a staff Station

The Duty Selector is an peripheral which can be connected to any one of the three room buses from the room controller. It has a fixed address number 5 on the room bus which cannot be changed.

It also has two inputs and two galvanically isolated outputs via relays. The two input circuits and the two output circuits are available as interfaces to external devices. These inputs and outputs can be controlled over the LAN via the room controller.

The duty selector is typically located at the staff station (as shown in the illustration below) where it is used to select the call forwarding groups and response sequences according to the duty configurations which have been configured in the system setup.

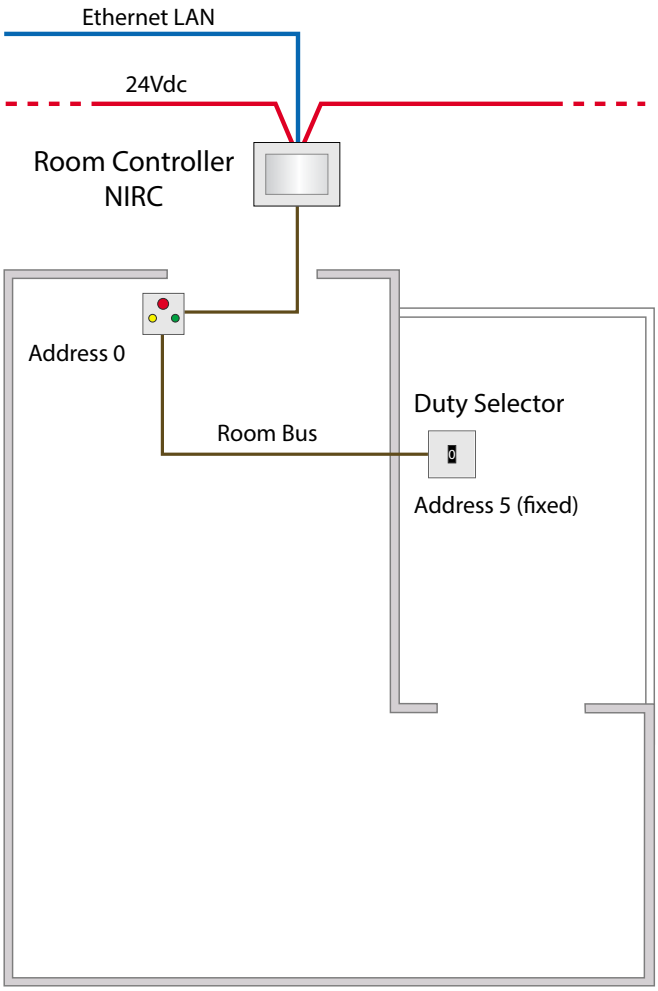


Figure 183. Staff station with duty selector and door side module

IMPORTANT: *A room controller (not a corridor lamp) must be installed at the staff station for room fault and LAN fault signaling.*

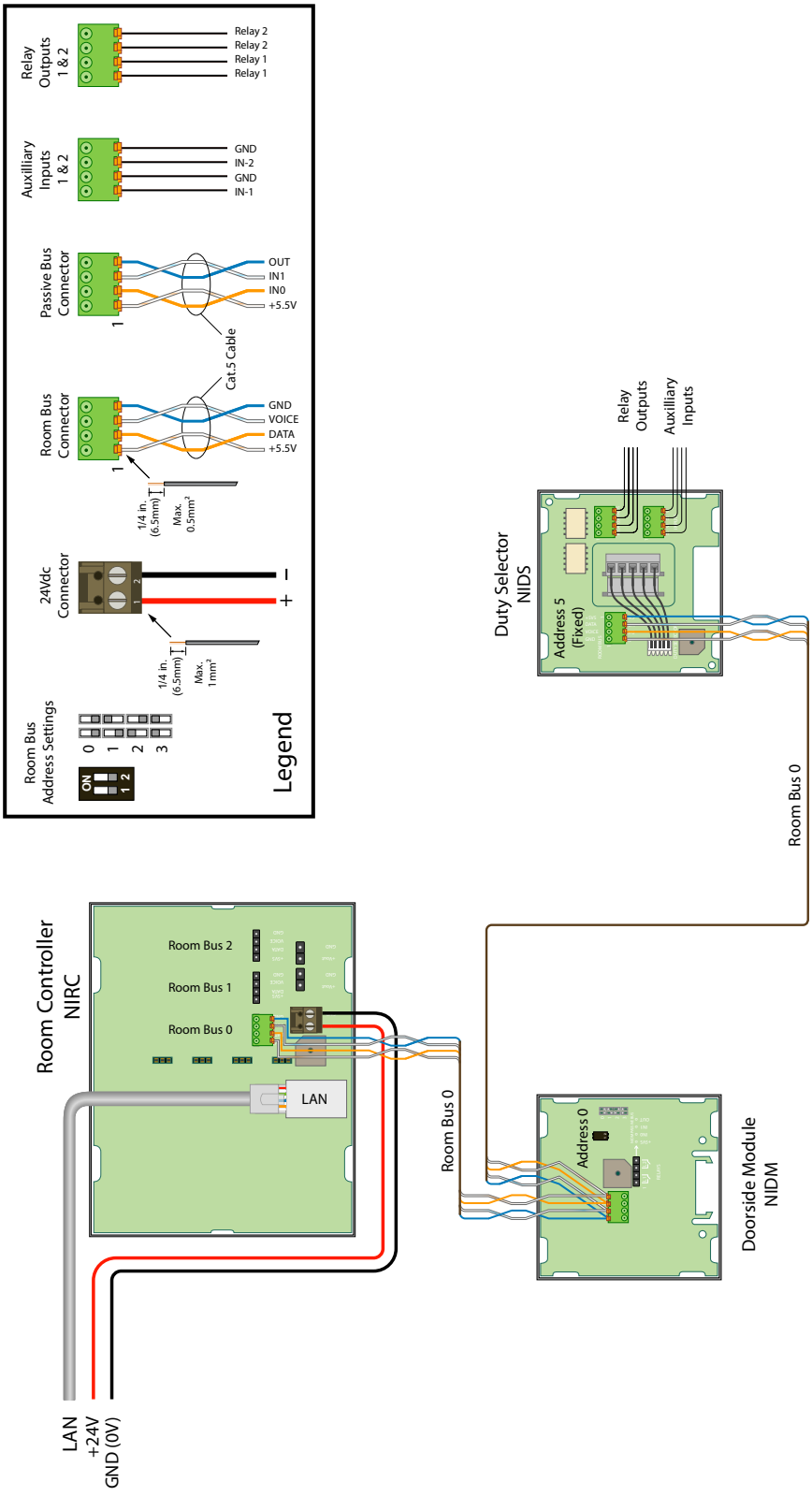
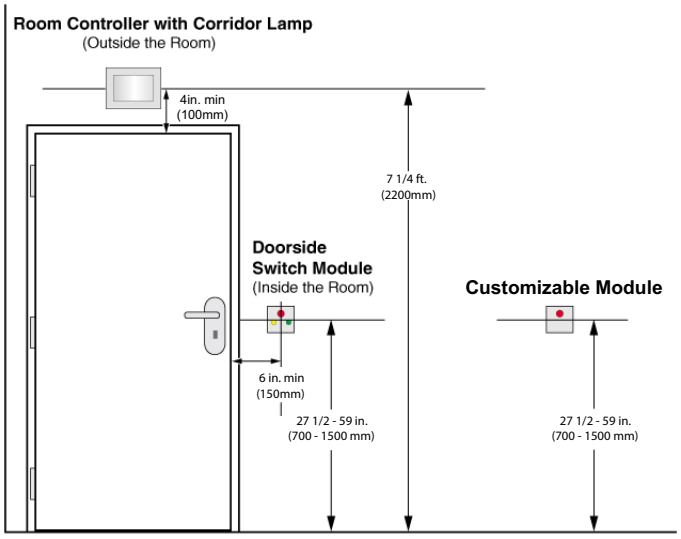


Figure 184. Wiring for staff station with duty selector and door side module

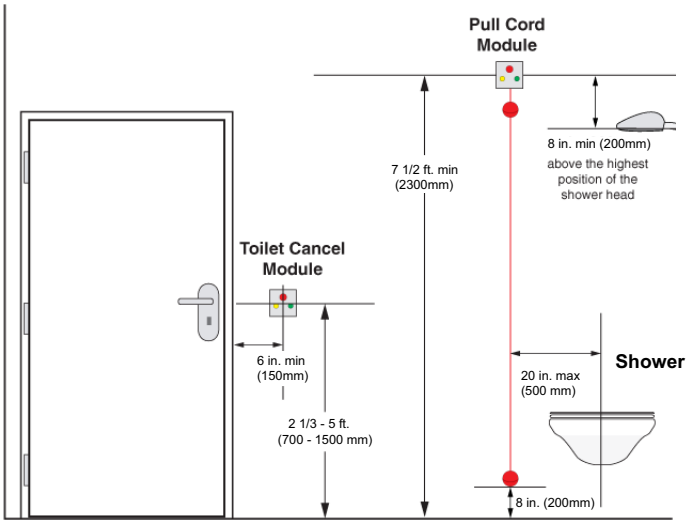
9.7 Positioning of the teleCARE IP Peripherals

The following illustrations show typical room installations with recommended locations for the teleCARE equipment.

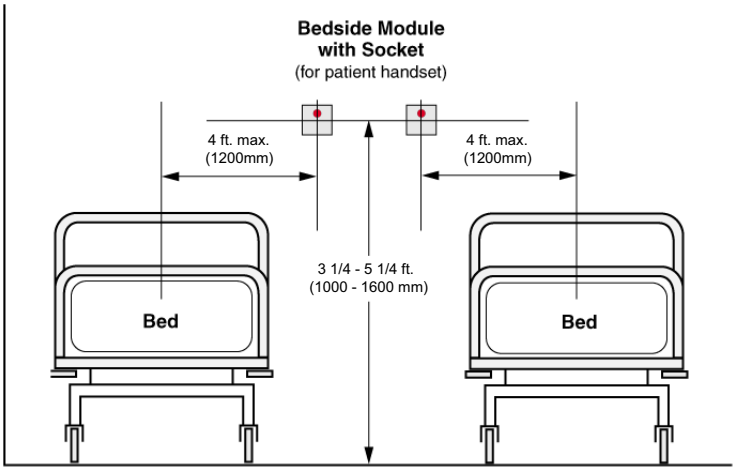
9.7.1 Room Controller, Door side Module and Customizable Module:



9.7.2 Toilet Cancel Module and Pull Cord Module



9.7.3 Bedside Module



Document History

Version	Date	Description
A	10 FEB 2014	• First released U.S.version A
		•
		•
		•
		•
		•
		•
		•
		•
		•
		•
		•
		•
		•