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:
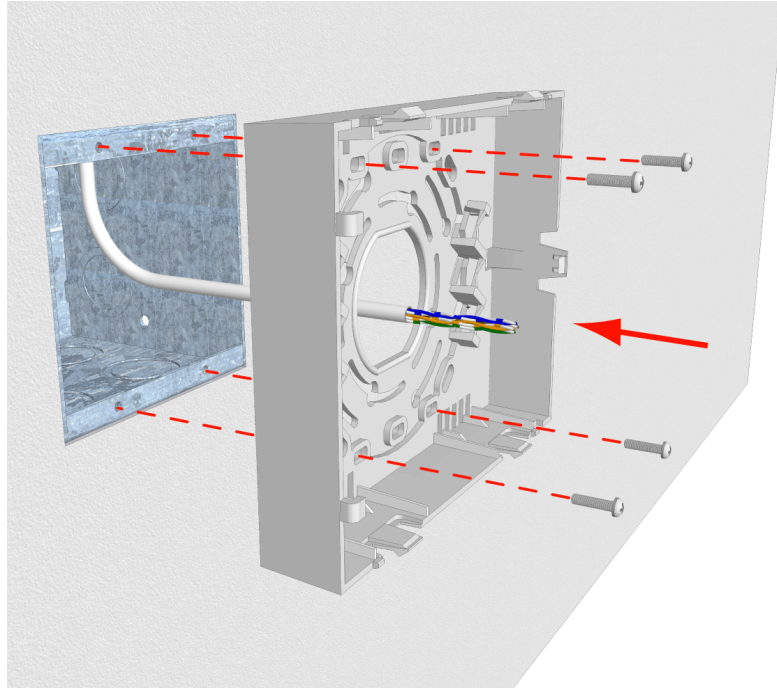

Figure 18. Positioning the screws in the keyhole slots

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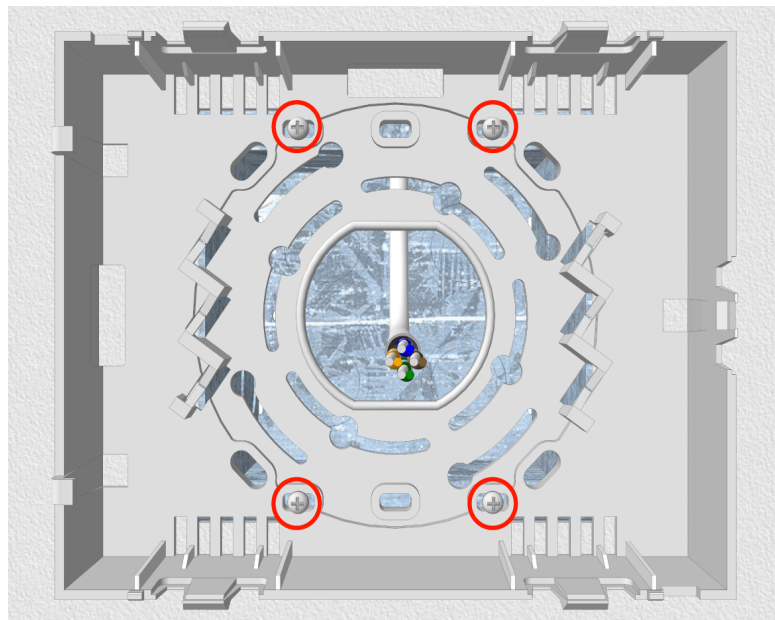

Figure 19. Fixing the housing

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.
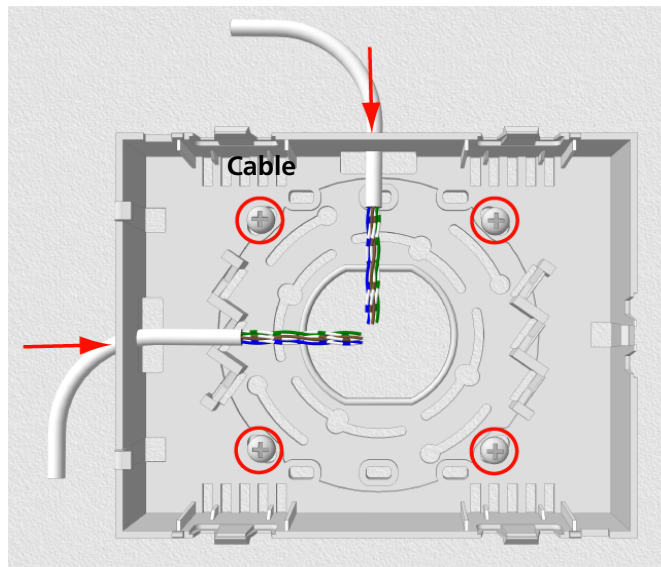

Figure 20. Mounting the NIRC housing without a back box

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.
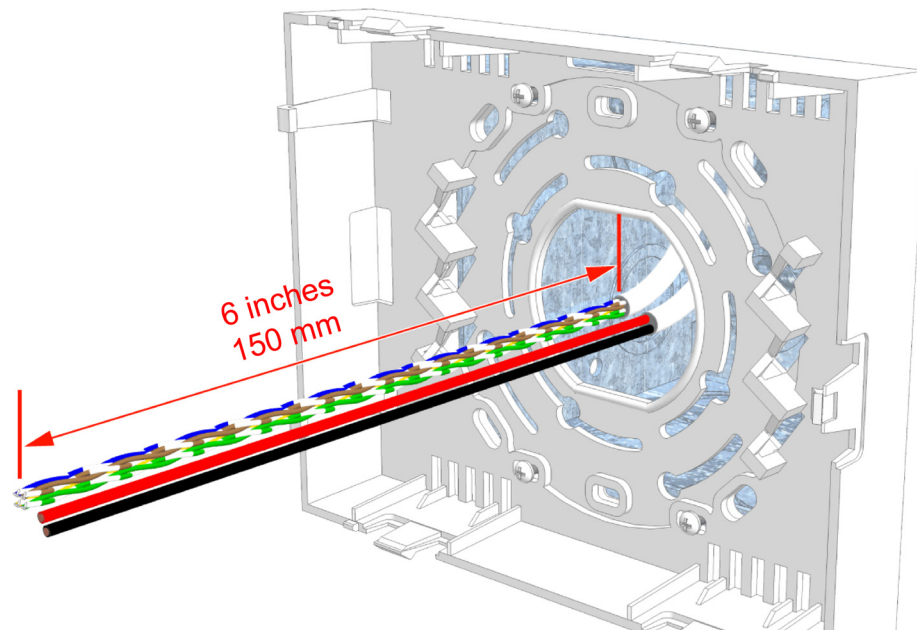
Figure 21. Stripping and positioning the cables for the NIRC

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.
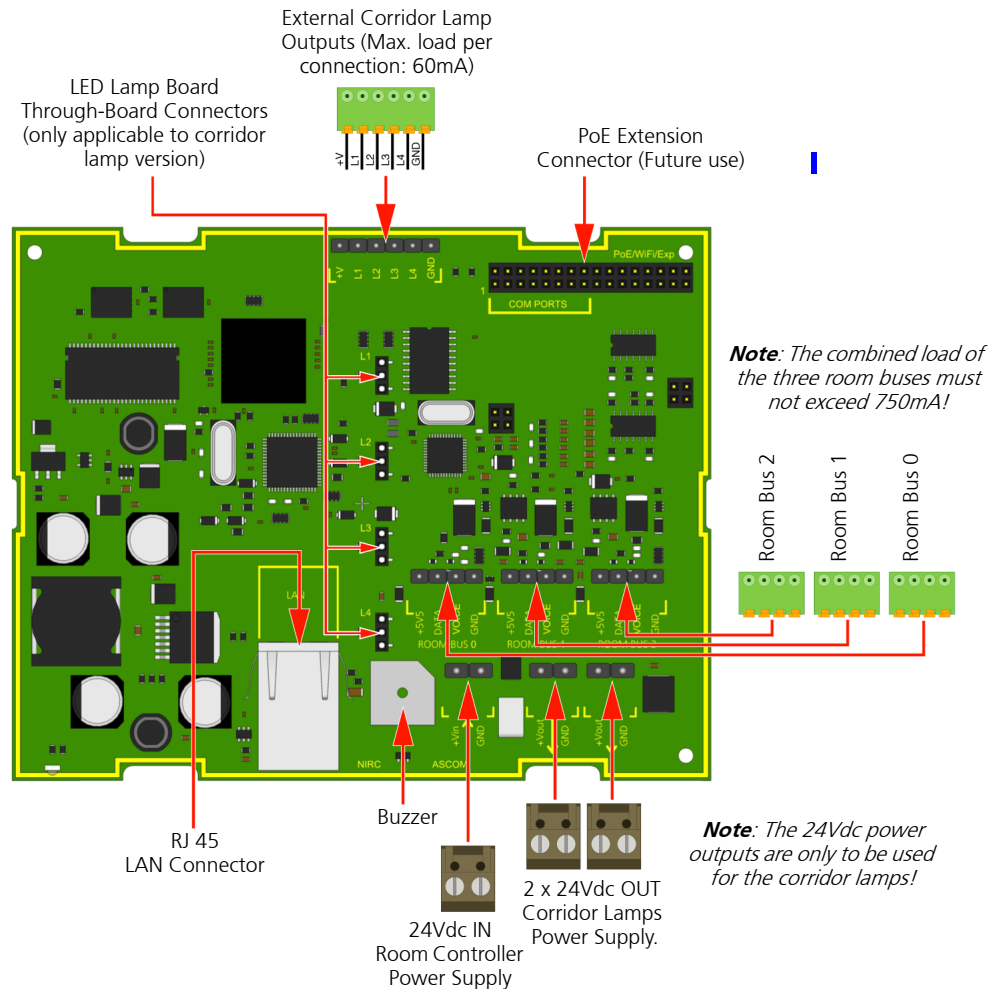

Figure 22. IP room controller (with speech) PCB electrical connections

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

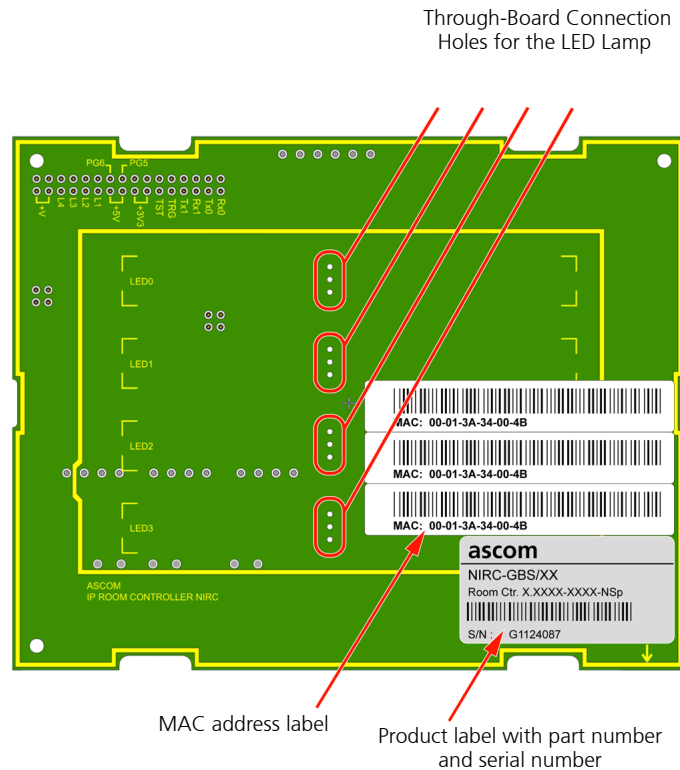### 5.3.3 IP Room Controller (NIRC) Printed Circuit Board Back View

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.
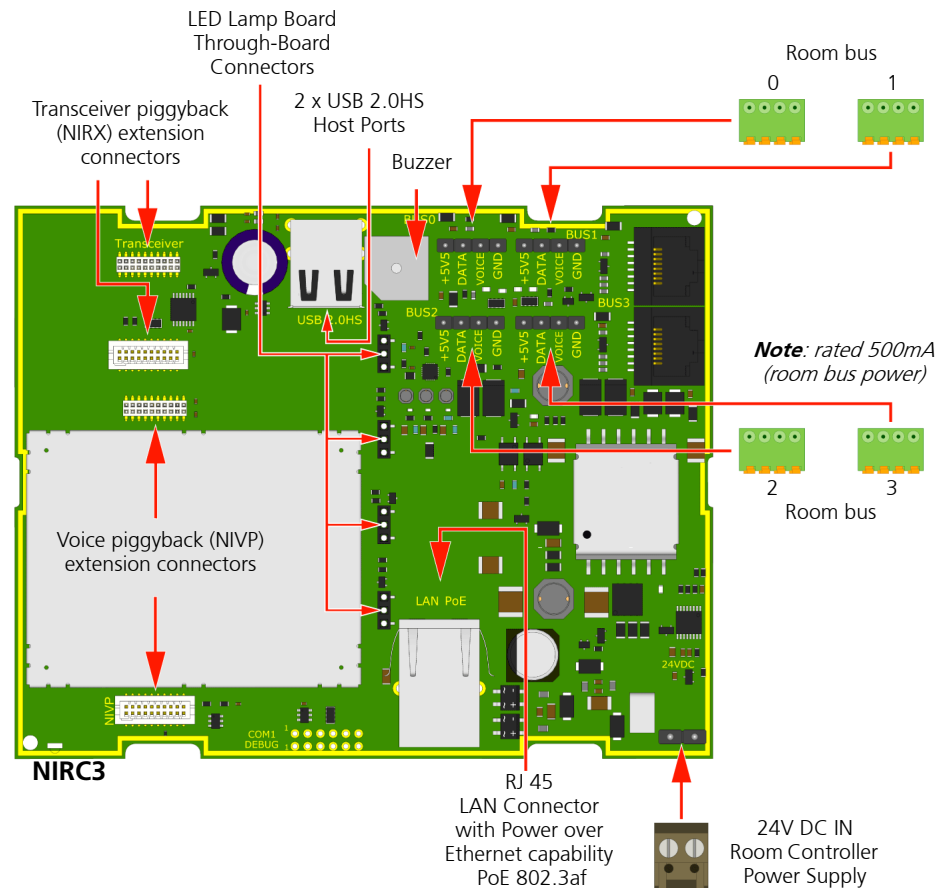

Figure 24. Room controller (NIRC3) PCB electrical connections

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
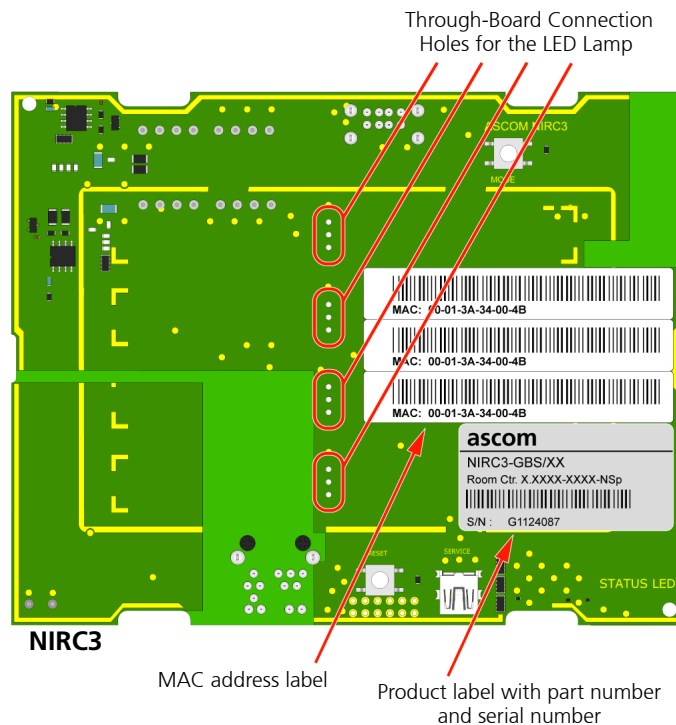

Figure 25. NIRC3 printed circuit board back view

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)
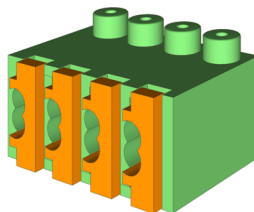

Figure 26. 4-pole connector terminal

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.

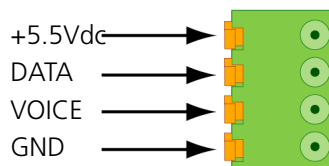The designation of the required four wires is as shown in the following illustration.

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.
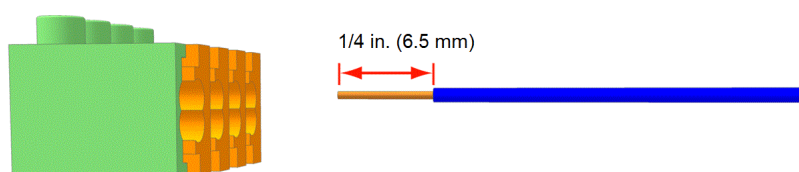

1/4 in. (6.5 mm)

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).*
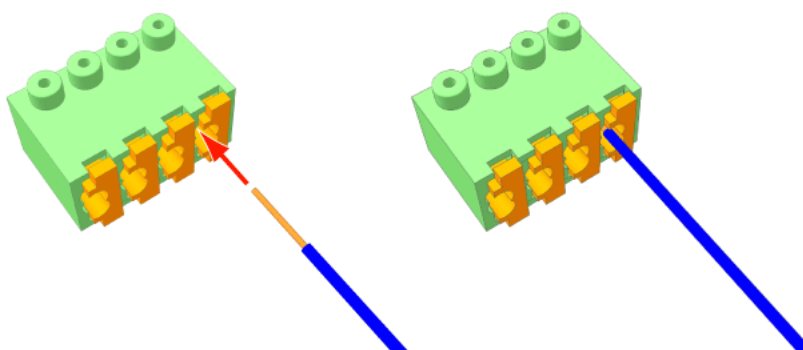

Figure 29. Inserting a wire in the connection point

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.
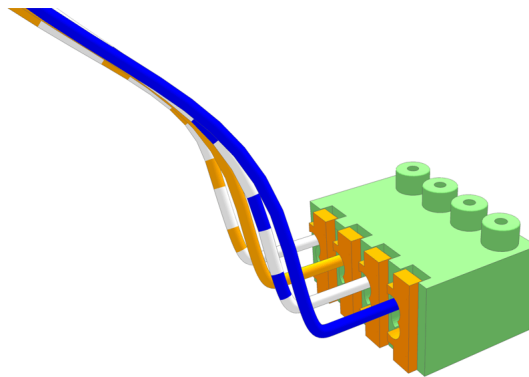

Figure 30. Connector terminal complete with four wires

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.
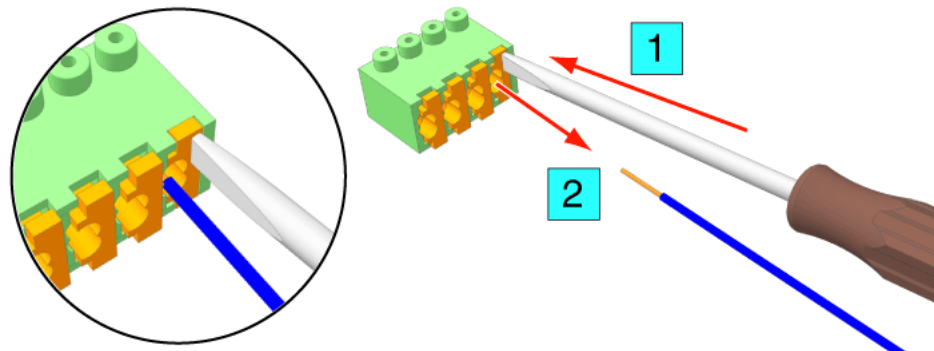

Figure 31. Removing a wire from a connection point
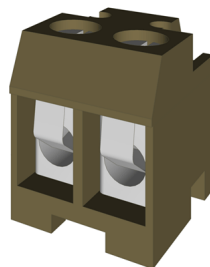
5.4.2 2-Pole Connector Terminal (NICT-2BA)

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.
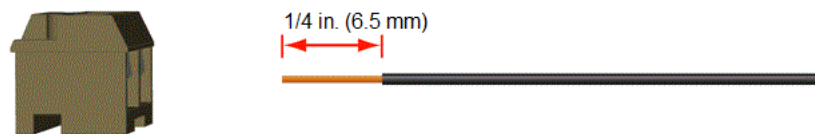

Figure 33. Stripping the wires for insertion in the connection point

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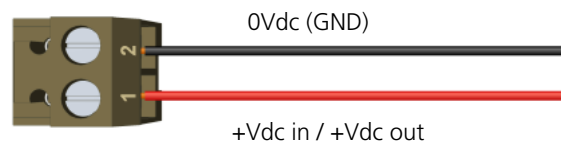

Figure 34. 2-pole connector terminal wiring

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:
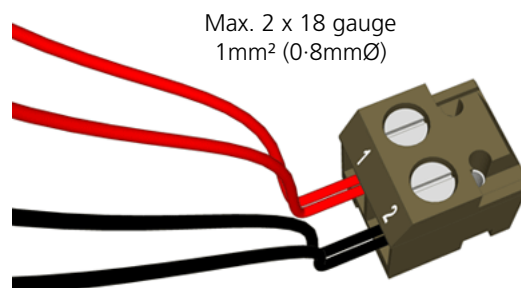

Figure 35. Connector terminal with looped wiring

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.

NIRC

NIRC3