NOTIFIER®
by Honeywell

Installing the Network Gateway Unit (NGU)

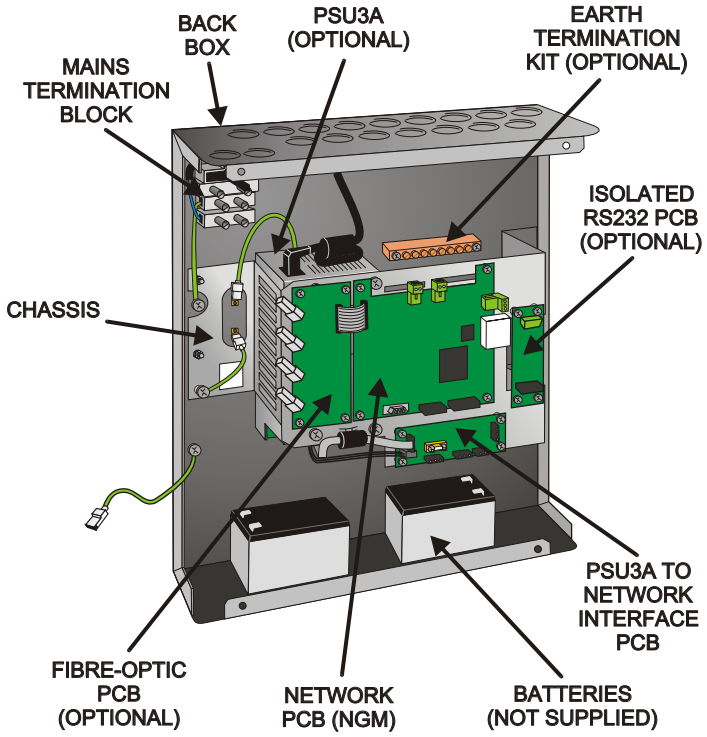
The Network Gateway Unit (PN: 002-467) consists of a Back Box (with cover) with the following fitted on a chassis: a PSU3A to Network Interface PCB and a Network Gateway Module (NGM) PCB. There is space for a PSU3A and two 12Ah batteries. This basic configuration is used as an ID²net Network Booster. The chassis allows a Fibre-optic PCB and RS232 PCB (for connection of a network repeater) to be fitted.

The PSU3A provides a 28V output and a battery charger. The PSU3A to Network Interface PCB provides battery and PSU fault monitoring, controls the battery charger and converts 28V dc to 5V dc (for the Network PCB). Alternatively, the NGU can be powered by an external 28V supply connected at the PSU3A to Network Interface PCB.

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

Your Network Gateway Unit, PN: 002-467 should contain:

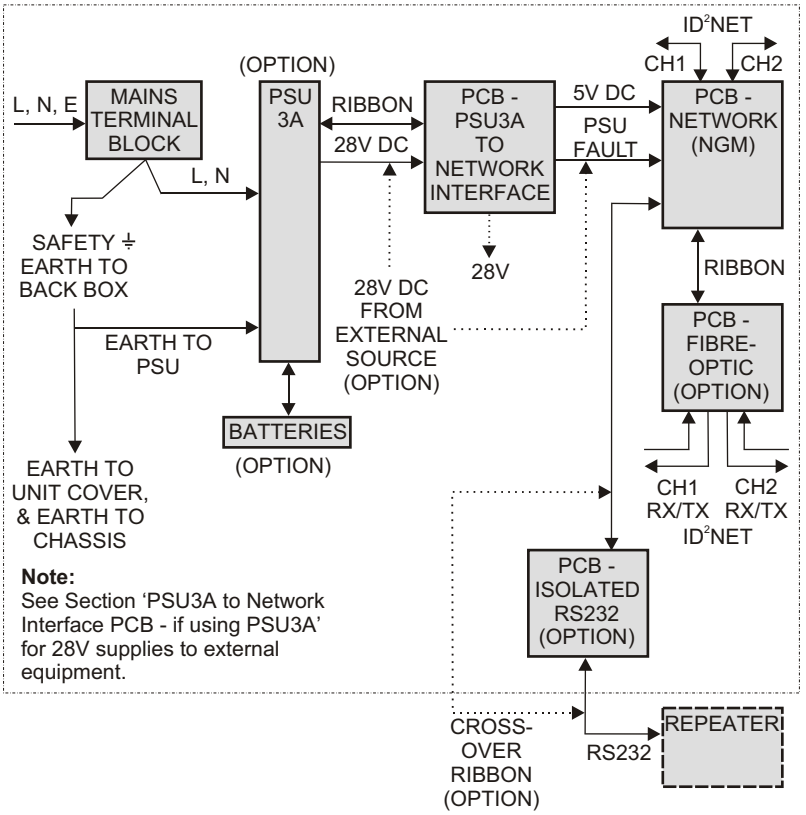
Back box, NGU, with electronics and cover.	
Anti-static Warning Instructions	PN: 997-180
Accessory kit, NGU	PN: 020-685
The Accessory kit should contain:	
Battery interlink assembly	PN: 082-082-002
Screw M3 x 6mm button head (8 off)	PN: 775-059
Hex key 2mm	PN: 334-051
Fuse T 2A H 250V (2 off)	PN: 570-106
Fuse T 500mA 250V	PN: 570-105
Ferrite (5 off)	PN: 670-068
Cable tie (1 off)	PN: 233-144
NGU EN54-compliant label	PN: 345-497 or PN: 345-499
Cable Assembly (PSU3A dc power)	PN: 082-244
Cable Assembly (short: NGM/RS232)	PN: 082-177-001
Cable Assembly (x-over: NGM/repeater)	PN: 082-255



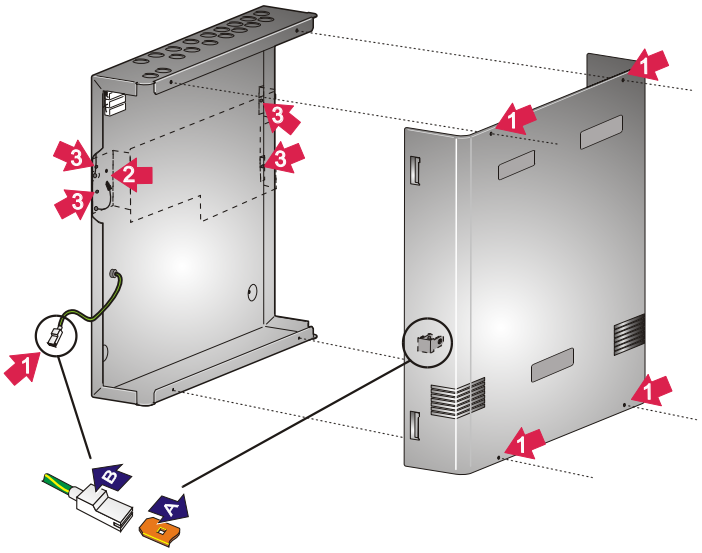
Check your equipment....

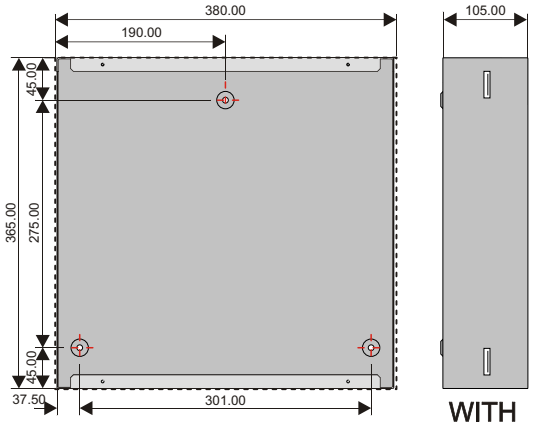
Take suitable anti-static precautions, such as wearing a grounded wrist strap, when following ALL instructions. Remove all packaging from the kit and ensure that it has not been damaged in transit (and that no items are missing - see checklist on the left) before proceeding any further. If no damage is evident, proceed using the instructions below. In the unlikely event that damage has occurred or items are missing, DO NOT PROCEED, contact your supplier and refer to the panel's **Installation & Commissioning Manual**.

To install the Network Gateway Unit it is necessary to remove the supplied electronics chassis (to prevent damage), fit the back box to the wall, re-install the supplied electronics chassis, and fit any required options. Instructions are given on the following pages.



FOR CLARITY, INTERNAL EQUIPMENT IS NOT SHOWN.





Preparing the Back Box

1 Remove and retain the four screws that secure the front cover. Disconnect the cover earth lead from the blade on the cover. Place the cover in a protective bag and store safely.

2 At the back box, disconnect the chassis earth lead from the blade terminal.

3 Remove and retain the 4 nuts and washers that secure the chassis to the back box, and remove the chassis together with the electronics mounted on it. Place in anti-static bag and store safely.

Note: All blade connections to earth incorporate a locking barb. To make a connection push the shrouded receptacle on to the earth blade (A). To remove this connection, pull the shroud (B), NOT the earth wire.

Fitting the Back Box to the Wall

Wall Flatness

To prevent distortion, the back box MUST be installed on the wall as flat as possible, i.e. with a maximum flatness deviation between any two points of 3mm. Where the wall is out of tolerance, use appropriate packing pieces when installing the back box to meet the above requirements.

Failure to comply with this requirement will result in the misalignment of the cover's securing screws, which may cause difficulties in fitting the cover.

All dimensions are in millimeters. Fixing hole diameters are 6mm.

Procedure

When a suitable location has been found for installing the back box, and the Network Gateway Module electronics have been removed, fix the back box to the wall as follows:

DO NOT use the back box as a guide when drilling.

1 Using a suitable-sized drilling bit - for holes to take up to 6mm (No. 12-sized) wood screws - drill a hole at position A in the wall. Fit a suitable-sized wall-plug, or equivalent.

2 Hold the back box in position at hole A (ensure the panel is level) and mark the position of the remaining fixing holes (B). Remove the back box and store safely.

3 Drill two holes at positions B in the wall, and fit suitable-sized wall-plugs, or equivalent.

4 Prepare apertures (20mm knockouts) required for cable access. Make sure paint is scraped from the area surrounding the knockouts, to ensure good earthing for glands, or use earth termination kit 020-453 (see previous page for mounting position). Use the 2 top front knockouts for fibre-optic cables.

5 Secure the back box to the wall using all three fixing holes and appropriate-sized screws (up to 6mm [No. 12-sized] round or pan-head screws - do **not** use countersunk screws).

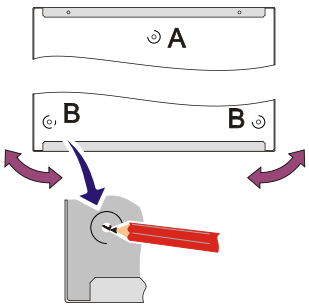
6 If a PSU3A is to be fitted, follow the procedure given on the next page.

7 Reverse the 'Preparing the Back Box' procedure to refit all items except the cover. **Ensure chassis earth connections are made correctly.**

8 If an RS232 or Fibre-optic PCB is to be fitted, follow the appropriate 'Fitting Optional PCBs' procedure given on following pages.

9 Refit the cover (**ensure earth lead is connected**).

1 - 3



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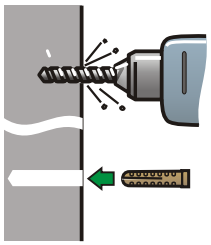

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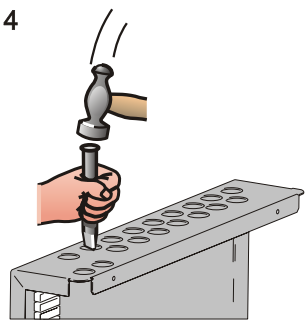

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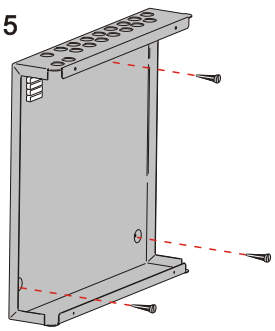
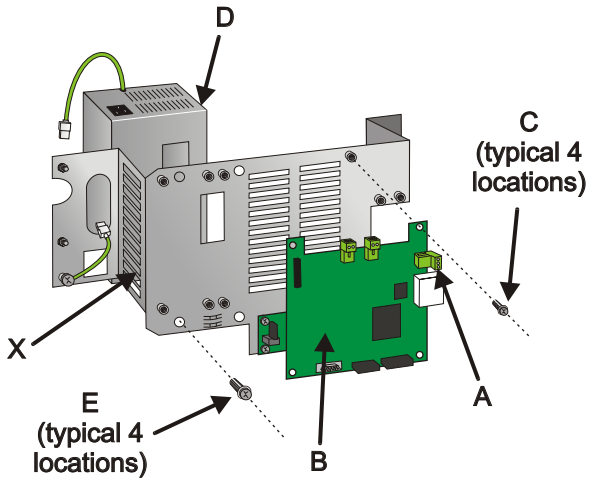




Fitting a PSU3A (Kit PN: 020-648) - Optional

TRANSIT CABLE CLIP: Before proceeding, CAREFULLY cut the cable clip that secures the ferrite cable loop to the chassis (at 'X' on drawing).

This procedure assumes that the chassis has been removed from the back box - see 'Preparing the Back Box'.

1 Disconnect the dc connector (A) from the Network Gateway Module (NGM) - (B).

2 Remove and retain the four M3 X 8 SEM screws (C) that secure the NGM to the chassis, then remove the NGM and store it safely (take anti-static precautions).

3 Orientate the PSU3A (D) as shown and secure it to the chassis using the M4 x 8 SEM screws (E) supplied with the PSU3A.

4 Replace the NGM onto the chassis (by reversing steps 2 and 1 above), then replace the chassis in the back box. **Ensure the chassis earth connection is remade.**

5 Push the connector of the PSU3A mains cable (F) into the socket on the PSU3A [the other end of the mains cable is factory-fitted to the mains terminal block (G)]. Ensure the mains cable is routed as shown in the illustration. Pull tight the cable clip at the side of the back box.

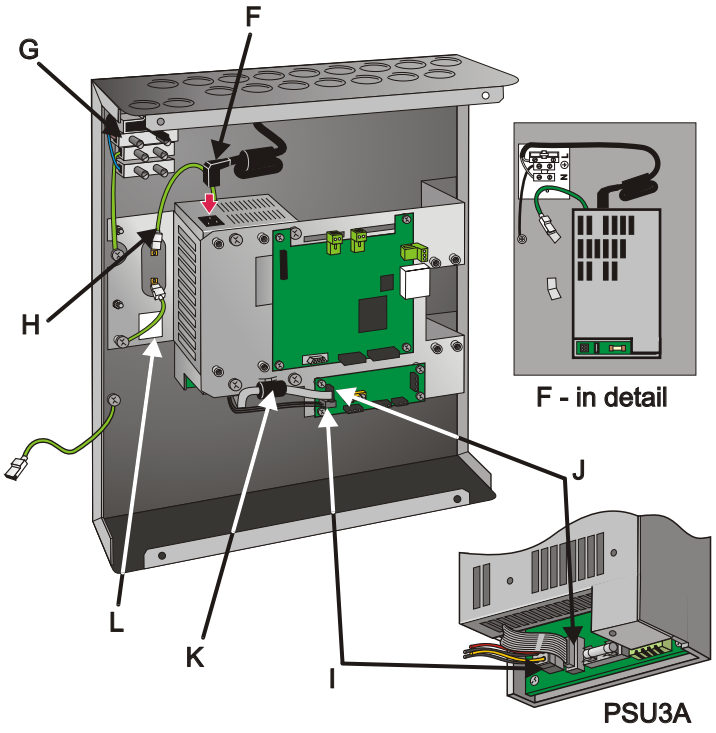
6 Connect the PSU earth lead (H) to the upper blade on the back box.

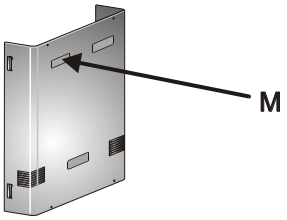
7 Connect the 4-way power cable (I) and 10-way ribbon cable (J) (supplied with the NGU) between the PSU3A and the PSU3A to Network Interface PCB.

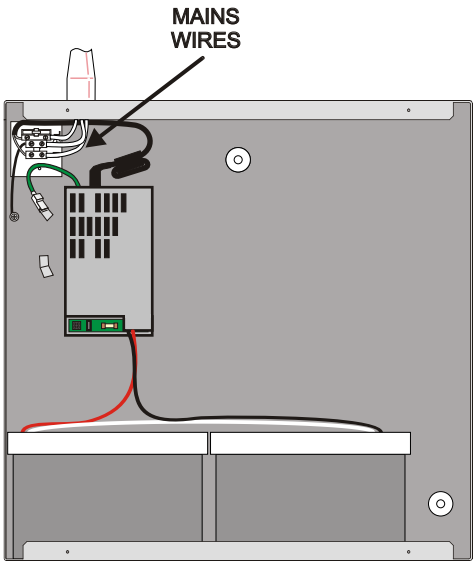
8 Use the supplied cable tie to secure the ribbon cable's ferrite (K) to the tie point on the chassis.

9 Remove and discard the PSU rating label (L) from the chassis.

10 Remove and discard the NGU product label (M) from the cover. Peel off the backing from the NGU EN54-compliant label supplied in the NGU accessory kit, and attach the label to the cover in place of the removed label.





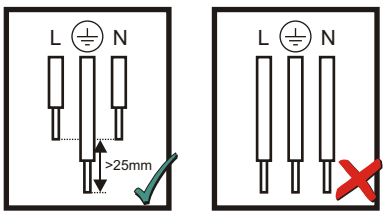


FOR CLARITY, SHOWN WITH CHASSIS REMOVED

Wiring Connections - Mains and Safety Earth

Live and Neutral must only be connected if the PSU3A is fitted. **The earth connection must always be connected.** Cables are to be brought into the back box using 20mm knockouts and appropriate glands - (refer to the panel's Installation & Commissioning manual) in accordance with local standards. Terminate the mains/earth at the terminal block; connections are labelled.

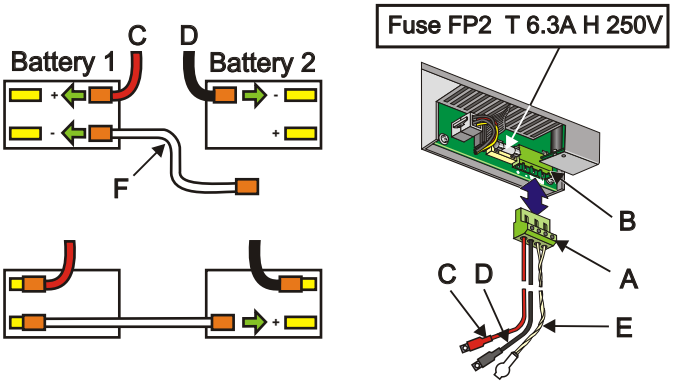
Segregate mains wiring from all other wiring.
When terminating mains leads, ensure that the earth lead is longer than L and N.



Wiring Connections - Batteries

This procedure only applies if the PSU3A is fitted.

CAUTION - ENERGY HAZARD! NEVER short the battery terminals.



Use valve-regulated, lead-acid type12V, 12Ah batteries.

1 Externally isolate the mains supply at the third-party-supplied isolation unit.

2 Connect the battery supply wiring plug (A) to the power socket (B).

3 Place the batteries temporarily in position (with their terminals outermost) and measure from the PSU's 4-way output socket to the rear terminal of each battery (i.e. one positive and one negative). Disconnect the leads from the output socket. Cut the battery leads supplied to length. Measure from the socket to a position on the side wall - NOT the top plate - of the right-hand battery and cut the thermistor lead to length. In both cases make the leads as short as possible. Reconnect the leads to the socket. Remove the batteries from the back box.

4 Connect the red wire (C) to the positive terminal of battery 2 and the black wire (D) to the negative terminal on battery 1.

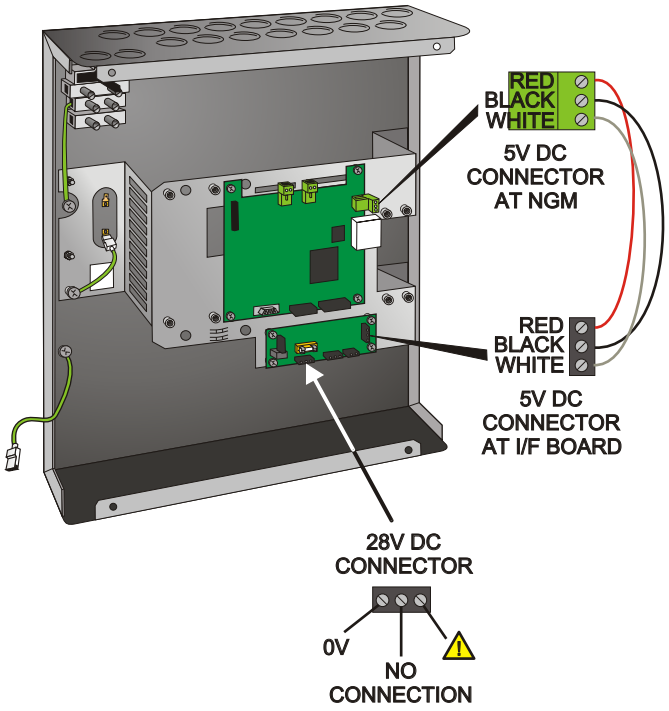
5 Fit the batteries in the back box. Use a suitable silicon-based sealant to secure the thermistor (E) to the side wall - NOT the top plate - of the right hand battery.

6 Connect the interlink cable (F) between battery 1 positive and battery 2 negative terminal. This will power up the NGU, so do this AFTER wiring to the PCBs has been connected (see following pages).

7 When all wiring connections have been completed, fit the cover to the back box (ensure the interlink cable is not squashed), and then apply power.

Using an External 28V dc Power Supply - Optional

The external dc power supply must satisfy the ratings given in the section 'NGU Electrical Specifications'. **The mains block earth connection must still be connected to earth** - see 'Wiring Connections - Mains and Safety Earth' on the previous page.



1 Bring the 28V dc cable into the back box via a 20mm knockout. Route the cable behind the chassis, as close as possible to the rear wall of the back box. **Never route the cable across the front of the NGM.**

2 Connect the dc supply to the 0V and ⚠ terminals of the 28V connector TB2 on the PSU3A to Network Interface PCB. The use of 1.5mm² cable is recommended. See EMC requirements warning below.

3 Remove the white wire (PSU FAULT) between the PSU3A to Network Interface PCB 5V connector TB1 and the NGM 5V connector. Connect the fault output from the external supply to the removed connection at the NGM. (Open circuit = fault, Short circuit to 0V = OK). If the external supply does not have a fault output, jumper between this removed connection and the black wire (0V) at the NGM.

EMC requirements: a ferrite (supplied with the NGU) is required for the dc power input cable and for the fault signal cable. Fit the ferrite directly under the gland at the back box knockout. The screen (if plastic glands are used) and all cores (plastic or metal glands) of the cable must pass through the ferrite.

Use of an external dc power supply does not comply with EN54 Part 4.

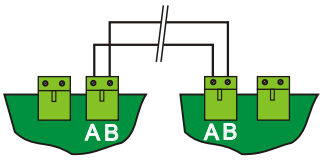
Wiring Connections - Network PCB (NGM)

Network cables - Conventional wire cables are terminated at connectors J1 (Channel 1) and J2 (Channel 2). Fibre-optic cable connections are made using the optional Fibre-optic interface PCB (see following pages).

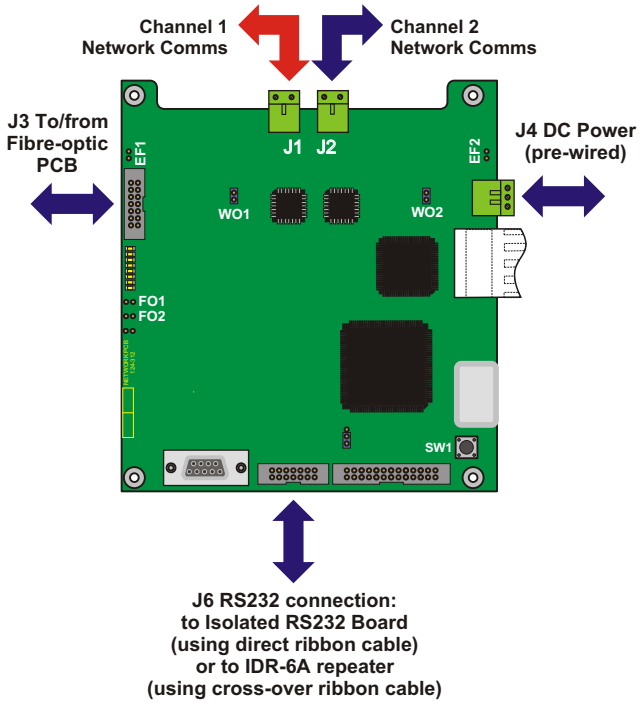
Cables are to be brought into the back box using 20mm knockouts and appropriate glands - (refer to the panel's Installation & Commissioning manual) in accordance with local standards. Cable shields MUST be terminated at the gland or back box using the optional earthing blocks (PN: 020-453).

EMC requirements: a ferrite (supplied with the NGU) is required for each conventional wire network cable. Fit the ferrite directly under the gland at the back box knockout. The screen (if plastic glands are used) and both cores (plastic or metal glands) of the cable must pass through the ferrite.

CONNECTION BETWEEN TWO NETWORK PCBs



Connect terminal A toA and B to B.



Jumper Link Setting

If cables are connected at J1 and/or J2, ensure jumper links are fitted as follows:

Channel 1 - WO1
Channel 2 - WO2

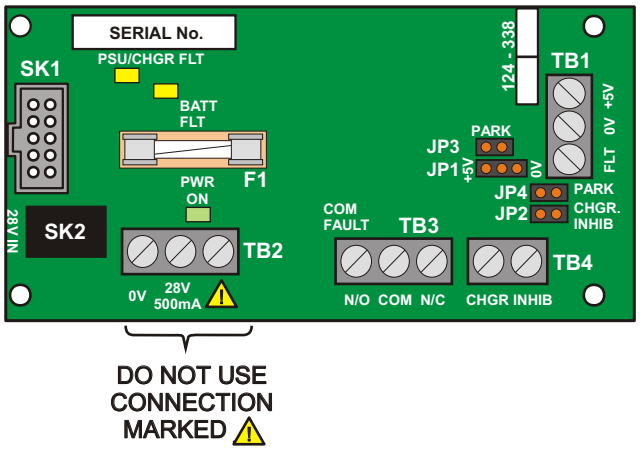
When using fibre-optic cables, ensure jumper links are fitted in the following positions instead:

Channel 1 - FO1
Channel 2 - FO2

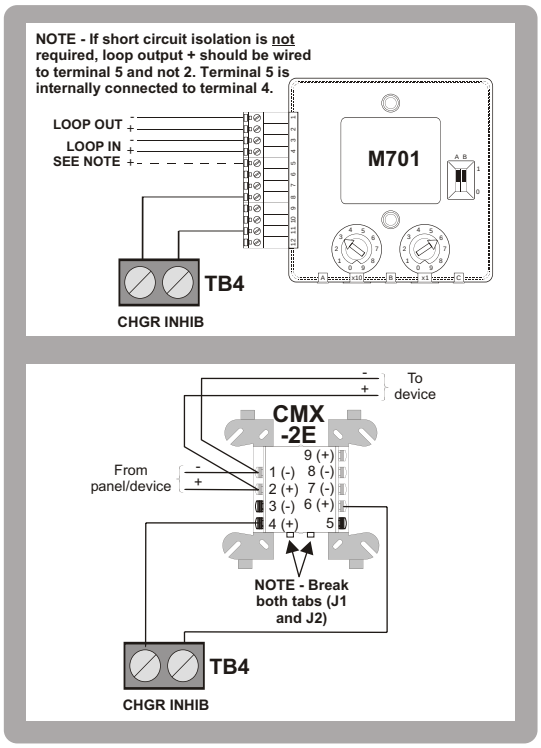
Note: For further details refer to the Fibre-optic PCB installation instructions.

Earth Fault Monitoring (EFM)

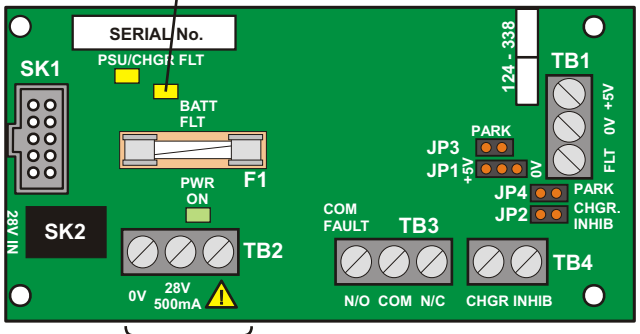
No action needs to be taken at the NGU as EFM must be set at the adjacent panels. Ensure that jumper links JP1 and JP2 are NOT fitted.



DO NOT USE CONNECTION MARKED ⚠



IGNORE THIS LED WHEN USING AN EXTERNAL POWER SUPPLY



0V & ⚠ CONNECTIONS USED WITH EXTERNAL PSU

Wiring Connections - PSU3A to Network Interface PCB - if using PSU3A

SK1 is used with the PSU3A (ribbon connector).

SK2 is used with the PSU3A (four-wire dc output connector).

TB1 is pre-wired to the Network PCB (5V dc supply and fault signal).

TB2 provides either a 500mA or 2A dc power output - **the latter is only available for limited periods, e.g. during alarm**. To use the 500mA supply, simply connect to the 0V and 28V 500mA contacts - this supply is suitable for a repeater. To use the 2A supply, proceed as follows:

i Remove fuse F1 and replace with one of the supplied T 2A H 250V fuses.

ii Connect to the 0V and 28V 500mA contacts. **The supply cannot charge the batteries while delivering 2A,** so you must temporarily inhibit the charger by joining together both contacts of TB4 (see examples opposite - remember to add the control module to the control matrix!). **Whenever the charger is inhibited there will be no charge replenishment to the batteries. The charger inhibit link must be at JP4 (PARK) NOT JP2 (CHRG INHIB) - if charging is permanently inhibited the batteries will discharge resulting in a battery fault message at the fire panel.**

Never use the terminal marked ⚠ as an output.

TB3 is a common fault output. The relay de-energises if there is a PSU or battery fault. With link JP3 fitted (PARK position) the output takes the form of volt-free contacts rated at 30Vdc, 1A (resistive load). With the link removed from JP3 and fitted to the '+5V' position, the common contact is taken to 5V dc via a 1k resistor. With the link removed from JP3 and fitted to the '0V' position, the common contact is taken to 0V via a 1k resistor.

TB4 allows application of an external charger inhibit signal as described above.

EMC requirements: a ferrite (supplied with the NGU) is required for the dc power output cable, for the fault signal cable, and for the remote charger inhibit signal cable. Fit the ferrite directly under the gland at the back box knockout. The screen (if plastic glands are used) and all cores (plastic or metal glands) of the cable must pass through the ferrite.

Jumper Link Setting

JP1 and JP3 are used in conjunction with TB3 as described above.

JP2 is used to permanently inhibit the charger. JP4 is used if the charger is not to be inhibited. Always place link on JP4. See the description of TB2 above.

Wiring Connections - PSU3A to Network Interface PCB - if using External Power Supply

TB1 is pre-wired to the Network PCB (5V dc supply and fault signal). This connector will require re-wiring as described in the Section 'Using an External 28V Power Supply - Optional'.

TB2 is used as described in the Section 'Using an External 28V dc Power Supply - Optional'.

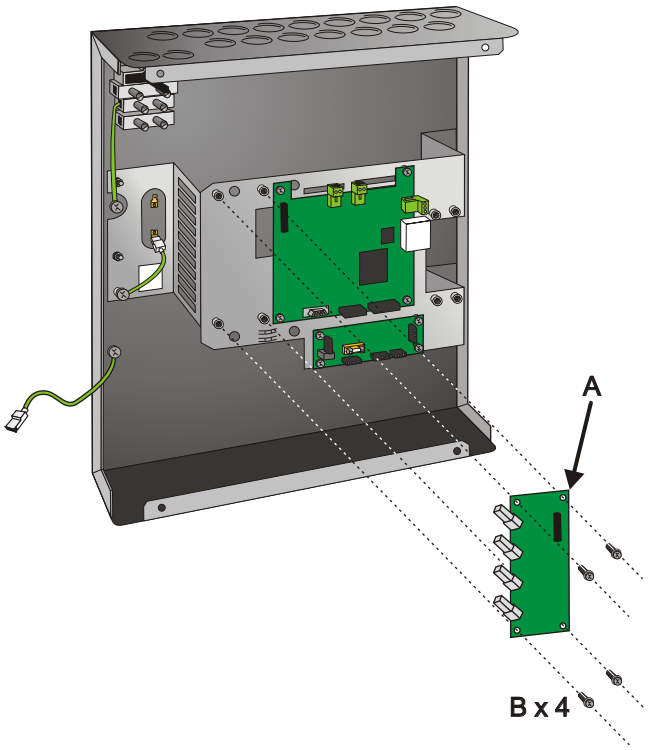
SK1, SK2, TB3 and TB4 are not used in this application. Do not make any connections.

Jumper Link Setting

In this application, links should be placed on JP3 and JP4. Do not place links on JP1 and JP2.

Fitting Optional PCBs

CAUTION - Isolate mains and battery power or external power before installing or removing the optional PCB.

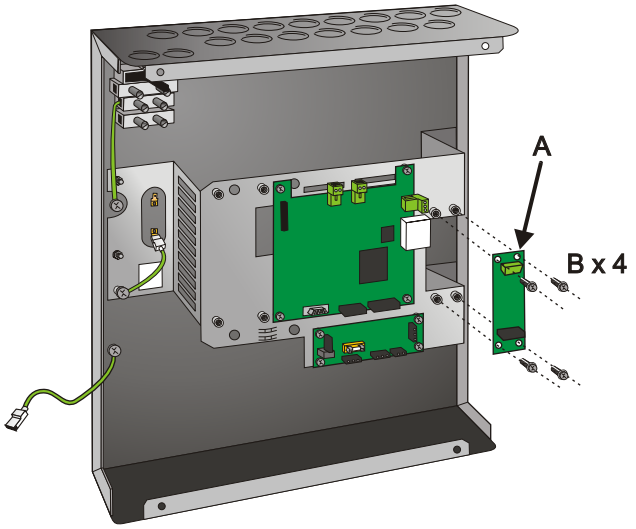


Fibre-Optic PCB (Kit PN: 020-643, PCB PN: 124-319)

1 Position the Fibre-Optic Board (A) as shown and secure it to the chassis using the four M3 x 8 SEM screws (B) supplied with the PCB.

2 Fit the cables and wiring and configure jumper links as described in the instructions supplied with the PCB.

Note: Cables are to be brought into the back box using the top front two 20mm knockouts and appropriate glands. Ensure that the bend radius of the fibre-optic cable is within the limit specified for the cable type being used.

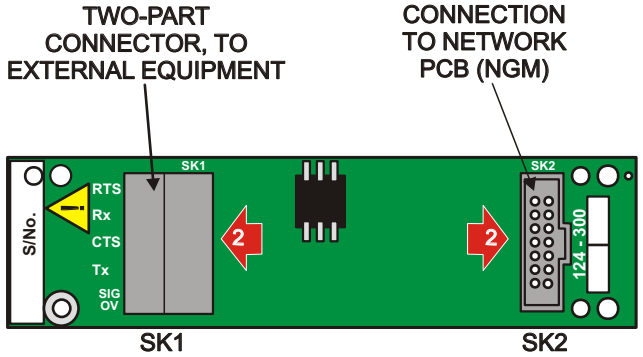


Isolated RS232 PCB (Kit PN: 020-478, PCB PN: 124-300)

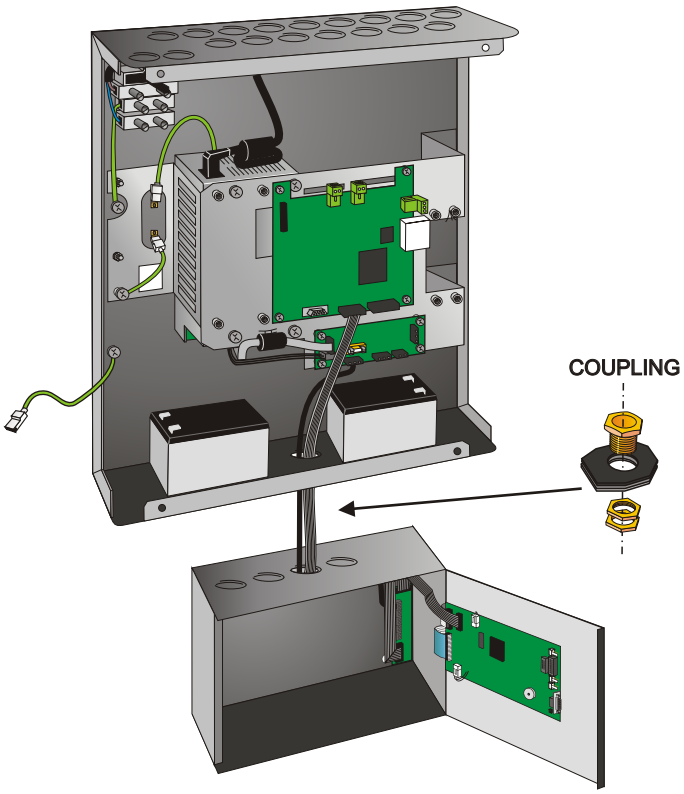
1 Position the Isolated RS232 Board (A) as shown and secure it to the chassis using the four M3 x 8 SEM screws (B) supplied with the PCB. The spacers supplied with the PCB are not required and can be discarded.

2 Connect the wiring (see drawing below). Use the straight ribbon cable (NOT the cross-over cable) supplied with the NGU to connect to the RS232 port on the NGM. Network repeater: use screened multi-core cable to connect SK1 on the NGU's Isolated RS232 PCB to connector SK1 on the Isolated RS232 PCB in the repeater.

EMC requirements: a ferrite (supplied with the NGU) is required for the RS232 cable. Fit the ferrite directly above the back box knockout. The screen and all cores of the cable must pass through the ferrite.



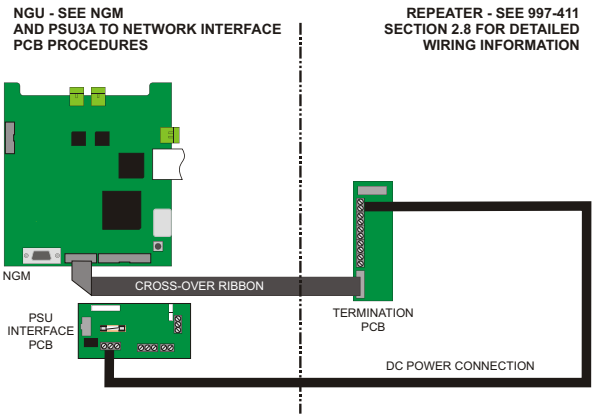
CAUTION: Equipment connected to this RS232 port must be suitably protected against electric shock. Voltages on the interconnections must not exceed 42V peak or 60V dc under normal or single fault conditions.



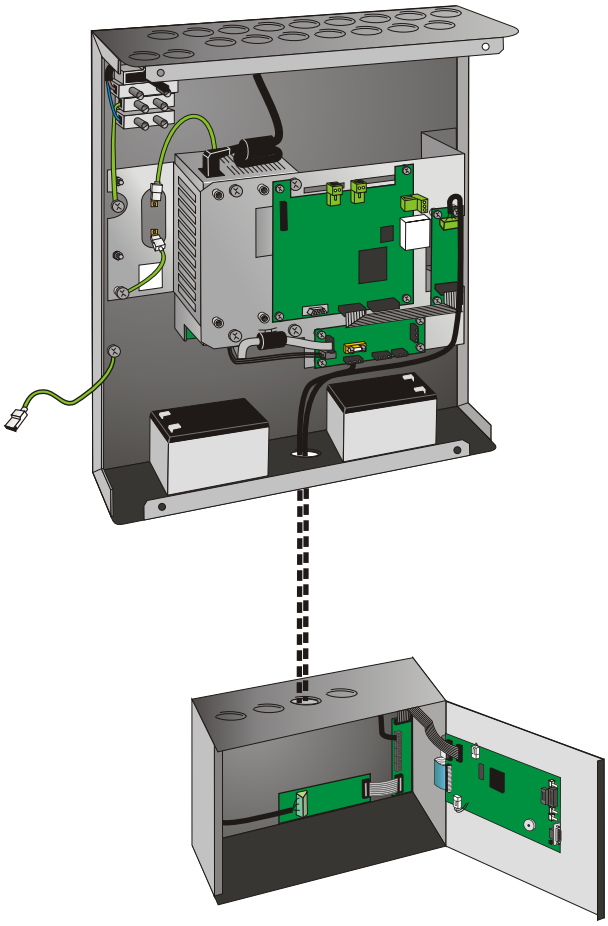
Connecting an IDR-6A Network Repeater

To achieve the transmission path integrity required by EN54-2: 12.5.3, the repeater and NGU must be physically connected as shown opposite to create a single enclosure.

1. Prepare one knockout at the top of the repeater and one knockout at the base of the NGU.
2. Install the NGU and repeater with the repeater directly below the NGU and with the prepared knockouts aligned.
3. Connect the repeater and NGU using a suitable **short** coupling through the knockouts.
4. Route the cross-over ribbon cable (supplied with the NGU) through the coupling. Connect one end to the RS232 connector on the NGM and the other end to the RS232 connector on the repeater's termination board. A ferrite is required immediately above the coupling.
5. Route the dc power wiring to the repeater through the coupling (use the NGU's 500mA output).



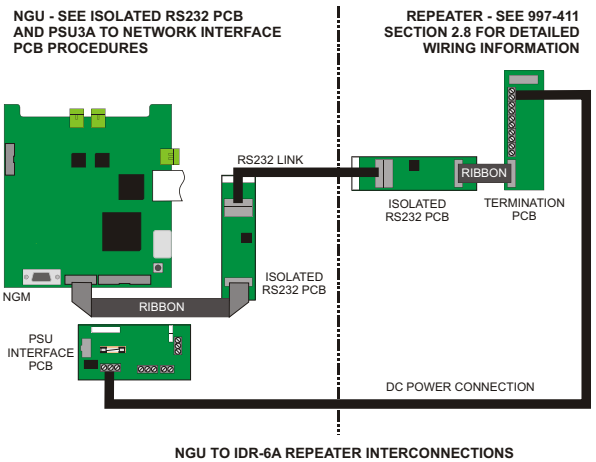
NGU TO IDR-6A REPEATER INTERCONNECTIONS



NON-COMPLIANT LONGER-RUN CONNECTION

1. Prepare one knockout at the top of the repeater and one knockout at the NGU (illustration shows the base, but a top knockout can be used).
2. Install Isolated RS232 Boards in the repeater and NGU. Route the wiring (max. 15m) between them through the knockouts (CTS and RTS are not needed). A ferrite is required immediately adjacent to the knockout.
3. Route the dc power wiring to the repeater through the knockouts (use the NGU's 500mA output).

Use appropriate glands on all knockouts.



NGU TO IDR-6A REPEATER INTERCONNECTIONS

NGU Electrical Specifications

Input Rating when used with external PSU:

Input voltage:	22V - 28Vdc
Maximum current consumption:	100mA

Input Rating when used with PSU3A:

Voltage, frequency:	230Vac, ±15%, 50/60Hz
Maximum current consumption:	1.6A (Protection by 2A mains supply fuse in terminal block)

Output Rating when used with PSU3A:

Output voltage:	26V - 28Vdc
Maximum output current:	500mA (with battery charger available) or 2A (without battery charger), dependent upon the fuse fitted

Battery Charger Output Ratings (PSU3A):

Battery voltage when charged:	27.3V at 20°C (Charge float voltage)
Temperature compensation:	-3mV/°C/cell
Battery fuse rating:	T 6.3A H 250V
Final end battery voltage:	21V
Charger ripple voltage:	140mV RMS

Low Voltage Shut Down

If the battery voltage drops below 21V, then the batteries are disconnected automatically to avoid system malfunction and deep discharge causing permanent damage. Battery capacity should be selected to ensure sufficient backup time in the event of mains power failure.

Battery Capacity

Sealed valve regulated lead-acid battery types MUST be used. Battery lifetime depends on the ambient temperature. Refer to the battery manufacturer's technical specification for guidance. When using multiple batteries, all batteries should be from the same Manufacturer, of the same type and date code and be mounted in the same cabinet.

Two 12V batteries must be connected in series.