

INNOTECH REPEATER

IR11 - Repeater, Single Channel Auto Detect Baud Rate
IR12 - Repeater, Dual Channel Auto Detect Baud Rate

Overview

The Innotech Repeater expands the network capabilities of the INNOTECH product range. Two models are available:

- 1)IR11 - Single channel repeater designed to expand an SSG or REM network
- 2)IR12 - Dual channel repeater designed to expand both NET and GLOBAL comms networks.

The Innotech Repeater is 24V AC or DC powered.

Features

- Galvanic isolation of both ports to eliminate ground loop and potential difference problems.
- Data regeneration increases resistance to interference and increases network cabling distances.
- Choice of single channel model (for example: SSG or REM comms) or dual channels (for example: NET and GLOBAL comms)
- Automatic baud rate detection
- Input protection against spikes and noise.
- LED indication of comms activity on all connected networks..
- 24V AC or DC powered.
- All wire connections by pluggable screw terminals.



Applications

- In situations where multiple Digital Controllers are mounted in a switchboard, followed by a long cable run.
- In situations where galvanic isolation is required such as multiple Digital Controller networks running between buildings or powered from different electrical switchboards.

Application Notes

The *Innotech Repeater* is designed for use with networks which possess one or more of the following characteristics:

- Any network that extends over a cable which is **longer** than the maximum cable length for the baud rate used.

Baud Rate	Maximum Cable Length (in meters)	Network
4800	1000 m	Global
9600	1000 m	Net
38400	600 m	Global or REM
57600	400 m	Net
115200	200 m	SSG

- 32 or more nodes are connected to the network
- Devices on the network are powered from different electrical switchboards
- Devices reside in separate buildings

Approvals

The Innotech Repeater conforms to:

- EN 61326:1998 for CE Marking and C-Tick Labelling
- Title 47 CFR, Part 15 Class A for FCC Marking
- UL listed to UL916, File Number E242628

Specifications

Power Supply

- 24VAC \pm 10% @ 50/60Hz.
- Power consumption: ~ 3VA
Transformer nominal rating of 5VA
- 24VDC \pm 15%
- Power consumption: ~2W

The operating voltage must meet the requirements of Safe Extra Low Voltage (SELV) to EN60730. The transformer used must be a Class 2 safety transformer in compliance with EN60742 and be designed for 100% duty. It must also be sized and fused in compliance with local safety regulations.

Inputs/Outputs

IR11: 2 x Single RS485 ports (4 way plug in connector)

IR12: 2 x Dual RS485 ports (5 way plug in connector)

Baud Rate Options

Depending on the mode the repeater operates in, it can automatically detect the following baudrates on startup:

IR11: 38400 Baud (REM Comms)
115000 Baud (SSG Comms)

IR12: 9600 or 56700 Baud (NET Comms)
4800 or 38400 Baud (GLOBAL Comms)

NOTE: *In order to use the repeater in a different mode or switch to another baudrate, the device must be restarted by cycling power.*

LED Indication

- Power LED (Red): Indicates 24VAC/DC power being present
- Comms LEDs: Indicates general comms activity on the RS485 network. Transmit (Red); Receive (Green)

The LEDs correspond to the comms channels in the following way:

IR11 Single Channel	IR12 Dual Channel	LED Label
N/A	PORT 1 GBL	P1-1
PORT 1	PORT 1 NET	P1-2
N/A	PORT 2 GBL	P2-1
PORT 2	PORT 2 NET	P2-2

Temperature Ratings

- Storage 0 to 50°C non-condensing.
- Operating 0 to 40°C non-condensing.

Enclosure

The *Innotech Repeater* is housed in a rectangular case suitable for DIN Rail mounting.

The housing is moulded from flame retardant plastics recognised by UL as UL 94-V0.

Colour: Grey

Dimensions (max): 71mm x 115mm x 67mm

Installation

- Mount the *Innotech Repeater* in a dry and clean location free of excessive vibration.
- Wire in accordance with INNOTECH connection diagrams and local bylaws or refer to your local distributor.

Wiring

- Note the polarity of the RS485 signal lines.
- The tails of the cable screens should be made as short as possible (max 30mm) to maintain signal integrity and effective protection against electrical interference.
- 0VAC/DC Supply terminal *must* be earthed.
- Since repeaters are mostly used to isolate sections of installations from each other, care should be taken when connecting the isolated communications ports. Those sections in a building installation are all referenced to Earth and therefore safe under normal circumstances. Major electrical faults in an installation however, i.e. short circuit to Earth in one section of a building only, may temporarily produce hazardous potential differences within the installation and therefore between the communications ports 1 & 2 on the Innotech Repeater.

RS485 Comms Termination

The use of End of Line Jumpers (EOL) is determined by the type of network and connected devices.

The Innotech Cabling Network Manual DS99.04 contains valuable information and examples on how to correctly setup your network wiring.

Incorrect use of End of Line Jumpers can cause unreliable communication or total network failure.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

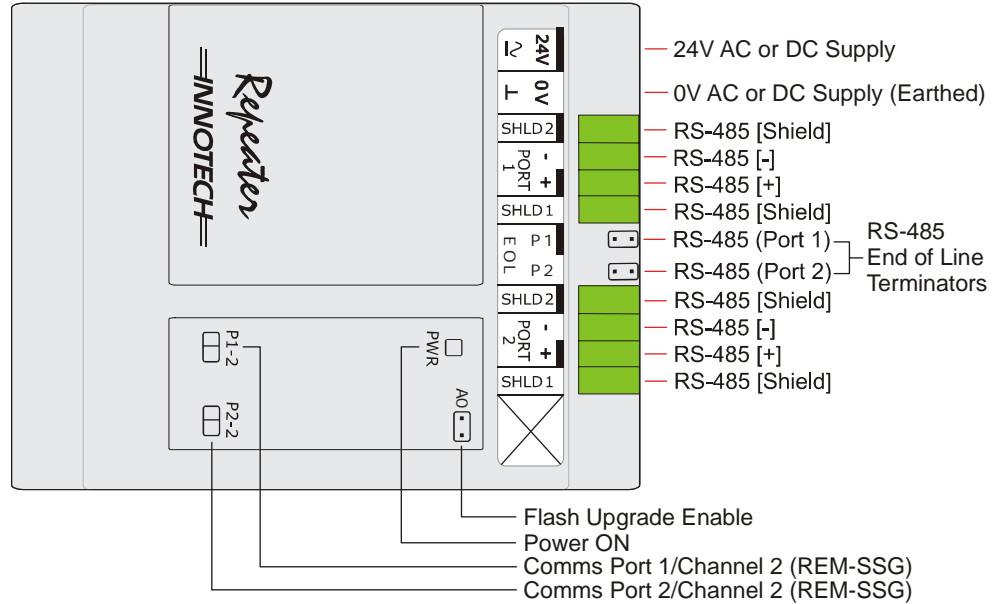
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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.

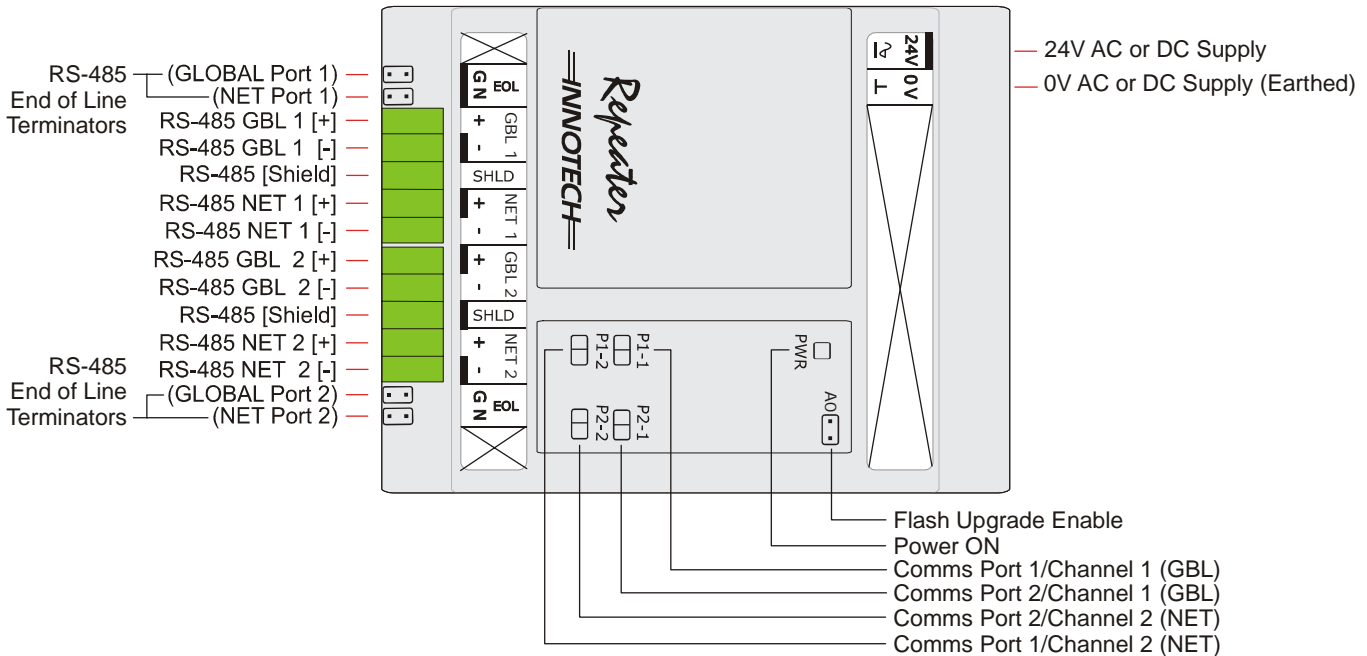
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications to this device, may void the authority granted to the user by the FCC to operate this equipment.

IR11 Single Channel Innotech Repeater Module



IR12 Dual Channel Innotech Repeater Module



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Innovative technology

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 by Mass Electronics Brisbane

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