Models:

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

Innotech Repeater

Overview

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

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

The Innotech Repeater is 24VAC 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 received 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 posess 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.

IR11 & IR12

Network Information		
Baud Rate	**Maximum Cable Length (m)**	**Network**
4800	1000	Global
9600	1000	Net
38400	600	Global or REM
57600	400	Net
115200	200	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 61326:2013 for CE Marking and RCM Labelling
- Title 47 CFR, Part 15 Class A for FCC Marking
- UL listed to UL916, File Number E242628

Specifications

Power Supply

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

The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a Class 2 safety transformer that has the energy and voltage limiting characteristics as described in the National Electrical Code, ANSI/NFPA70. 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 baud rates on startup:

IR11 38400 Baud (REM Comms)
115000 Baud (SSG Comms)
IR12 9600 or 56700 Baud (NET Comms)
4800 or 38400 Baud (GLOBAL Comms)

In order to use the repeater in a different mode or switch to another baud rate, 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 & IR12

LED Indicators		
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 temporary produce hazardous potential differences within the installation and therefore between the communications ports 1 & 2 on the Innotech Repeater.

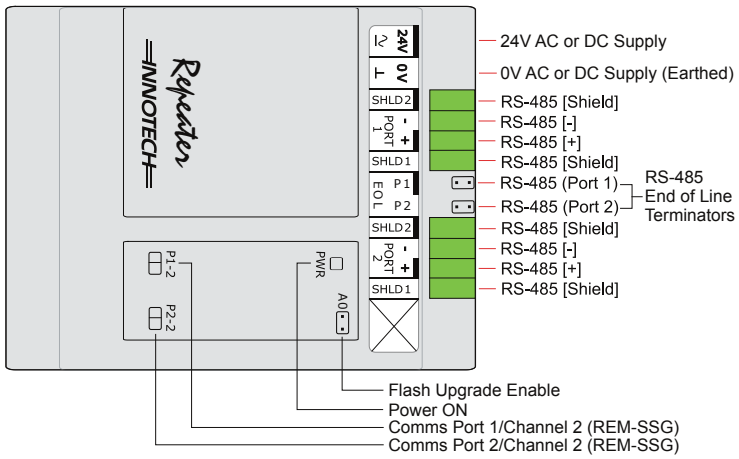
RS485 Comms Termination

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

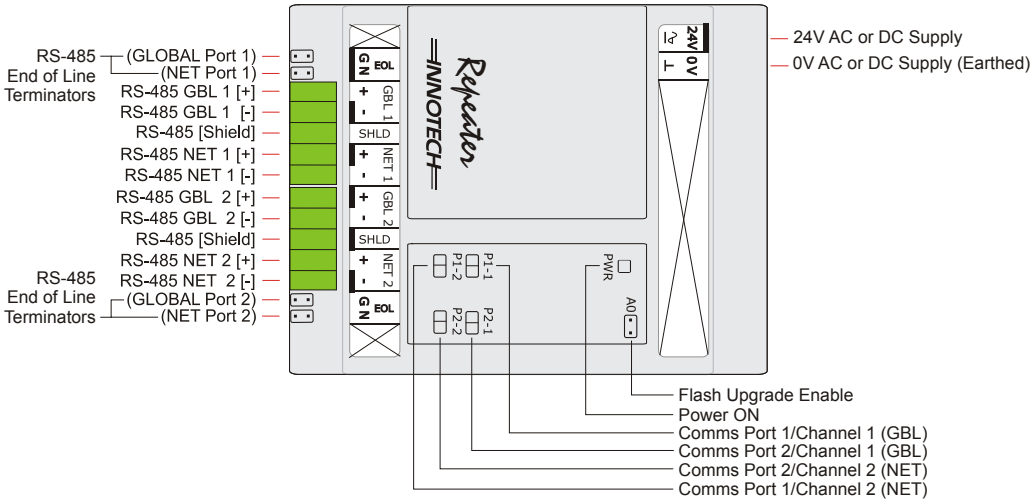
The Innotech Cabling Network Manual DS99.04 contains valuable information and examples on how to correctly setup your network wiring.

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

IR11 Single Channel Innotech Repeater Module



IR12 Dual Channel Innotech Repeater Module



FCC Class A Notice

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

- This device may not cause harmful interference.
- 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.

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