

INTRODUCTION

The INS003 can be used as either a 'passive' plug and play medium converter or an 'active' medium converter, which analyses and commissions optic fibre installations without the need for any additional expensive equipment.

The INS003 (Active Mode), Fibre Optic Redundancy Node for radial and Ring Topology Networks, has been developed to facilitate dynamic network management through the provision of an independent communication layer.

The equipment is designed to improve the Quality of Service (QoS) of critical communication networks while operating under the performance criteria required by EN54-13 and BS5839 part 1.

The INS003 is a two-port fibre optic node module allowing for fibre optic Class A redundant ring topologies.

The fibre optic ports connected to the communications ring are continuously monitored to ensure optimum signal quality. This continuous

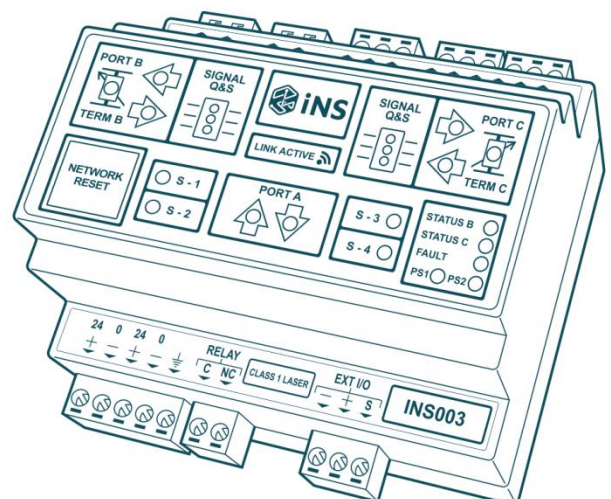
signal monitoring allows for the system to adjust the communication paths in the event of physical cable parameter changes.

ADVANTAGES

- Standards compliant commissioning of all the nodes in the network transmission layer
- Supports the generation of system performance reports for Installation commissioning (Active Mode only)
- Graphical interface provided by IVIEW, the Graphical User Interface with Monitoring, Diagnostics and Reporting options (Active Mode only)
- Enables preventative maintenance management through system degradation monitoring (Active Mode only)
- Visual status and data flow indication presented in simple format via LEDs
- Supports a range of SFP transceivers:
 - Multi-mode and single-mode cable types
 - Fibre Cable lengths up to 160km
 - Supports a range of SFP transceivers to suit
 - Bi-Di SFP transceivers
 - Coarse Wave Division Multiplexing (CWDM) SFP

PRODUCTS

- INS003
 - Independent Reporting with Class A communication redundancy Multiple fault tolerance 2.5 kV isolation on all ports
 - Dual and single Industrial Equipment RS-485 connection
 - Can operate on Hosted Fibre / Ethernet links Simple LED System Status indication Signal quality and amplitude visual indication
 - Wireless Connectivity for remote monitoring using a Bluetooth or WIFI communication connection
 - Configuration and commissioning parameters are stored allowing for system performance tracking over time
 - Baud rate selectable from 9600-115kbits/sec



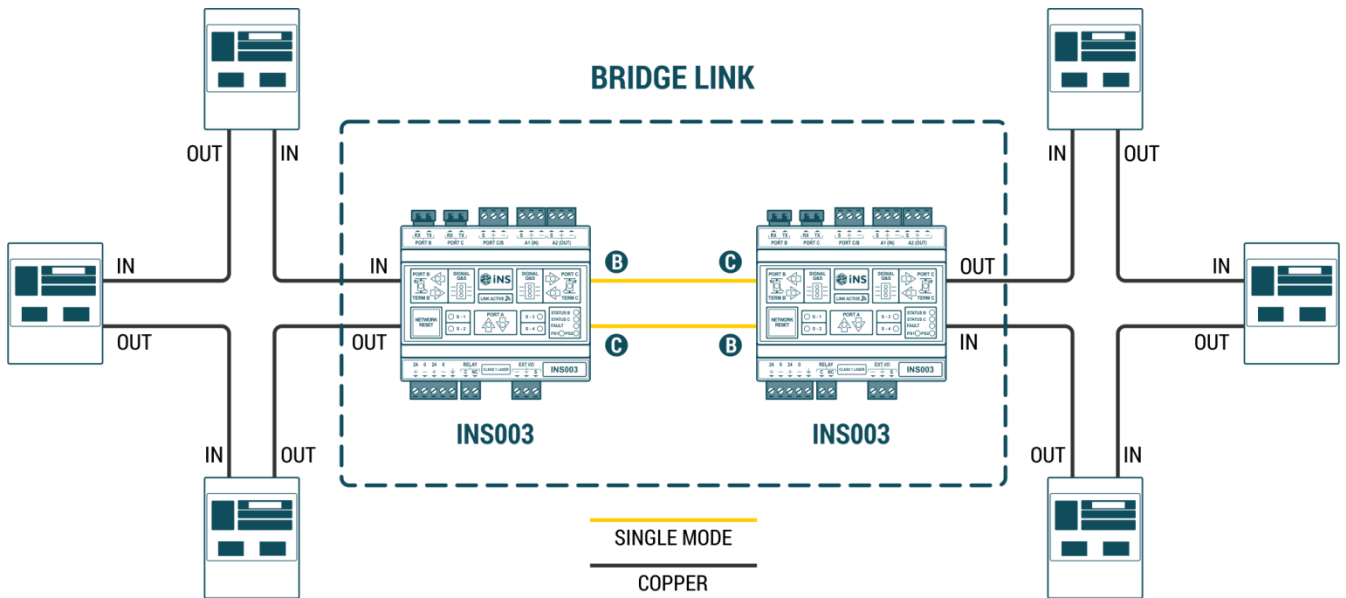


FIGURE 1: CONFIGURATION FOR OPTIC FIBRE BRIDGE LINK

WIRING DIAGRAMS

POSITION	DESCRIPTION	INPUT / OUTPUT VALUES
1	RX – LC connector interface for fibre - PORT B	Data Rate: 100 Mb/s – 125 MBd. Fibre Drive Distance: M: Multi-mode – up to 2km S: Single-mode – 10 / 15 / 20 / 40 / 80km / 160km variants M: 850nm / 1310nm S: 1310 / 1550nm BiDi: 1310 & 1550nm
2	TX – LC connector interface for fibre - PORT B	
3	RX – LC connector interface for fibre - PORT C	
4	TX – LC connector interface for fibre - PORT C	
5	Screen/Shield RS-485/ARCNET - PORT B or C	U _{max} = ± 5V _{pk} I _{max} = ± 60 mA
6	In / Out / + line RS-485/ARCNET - PORT B or C	
7	In / Out / - line RS-485/ARCNET - PORT B or C	
8	Screen/Shield RS-485/ARCNET - PORT A1 (Panel IN Port)	Data rate: 4.8 to 115.2 kbit/s
9	In / Out / + line RS-485/ARCNET - PORT A1 (Panel IN Port)	
10	In / Out / - line RS-485/ARCNET - PORT A1 (Panel IN Port)	
11	Screen/Shield RS-485/ARCNET - PORT A2 (Panel OUT Port)	
12	In / Out / + line RS-485/ARCNET - PORT A2 (Panel OUT Port)	
13	In / Out / - line RS-485/ARCNET - PORT A2 (Panel OUT Port)	

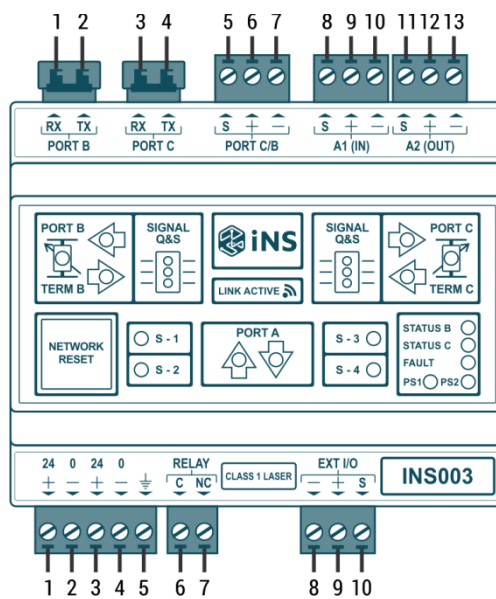


FIGURE 2: INS003 CONFIGURATION

SPECIFICATIONS

POWER	
Rated voltage	18 to 36 VDC
Connection	RJ45
Rated current	170 mA @ 24 VDC
Rated frequency	DC
Polarity	Reverse polarity protection
Connection	Detachable screw terminal
Connection size	0.2 – 2.5 mm ² (AWG 24-12)
RS-485 Port A1, A2 & B/C INS003	
Electrical specification	RS-485 / ARCNET
Data rate	4.8 kbit/s – 312 kbit/s (as per selection in table)
Data format	7 or 8 Data bits; Odd, Even or None parity; 1 or 2 Stop bits (RS-485)
Connection	Detachable screw terminal
Connector size	0.2 – 2.5 mm ² (AWG 24-12)
Transmission range	In accordance with EIA RS-485 ≤ 1200 m, depending on data rate and cable type
RS-485 Termination settings	IN/OUT Switchable termination (Manual via DIP switch 2)
RS-485 Failsafe setting	Failsafe biasing 820 Ω
Protection	Installation Fault Tolerant (up to ± 44 V)
Optic Fibre Port B & C	
Electrical specification	LC Type - Optic Fibre connectors
Data rate	100 Mb/s – 125 MBd. (as per selection in table)
Data format	Proprietary format
Connection	LC Type - Optic Fibre connectors
Connector description	LC type – push-pull latching mechanism
Fibre cable type	3.0mm jacketed or 900µm buffered
Transmission range	Multi-mode – M: 1 to 2 km, Single-mode – S: 1 to 15km, Single-mode - L: 1 to 160 km, depending on losses due to in-line connectors, splices and optical switches
USB	
Electrical specification	USB version 2.0
Data rate	Full speed device mode as per USB 2.0 specification
Data format	As per USB specification
Connector type	USB micro B (device) - cable type micro B required
Implementation mode	Slave
Protection	Transient voltage protection

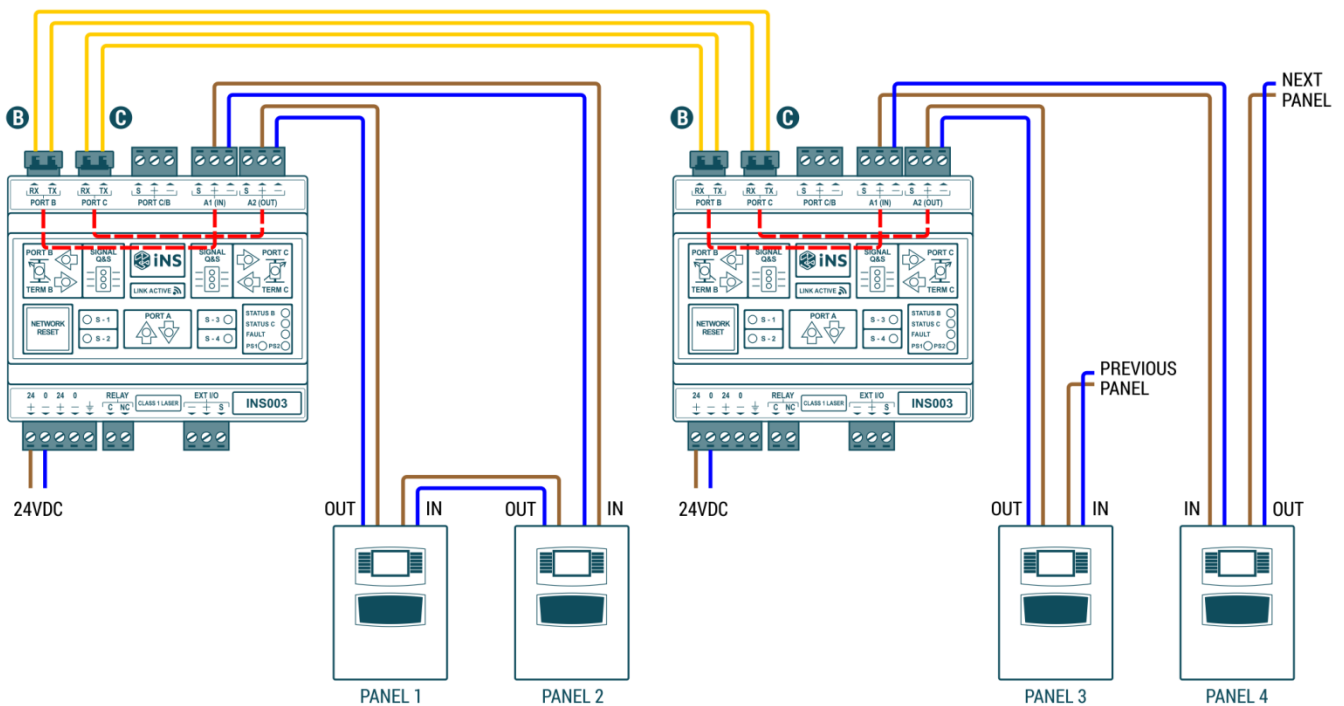


FIGURE 3: OPTIC FIBRE MODEMS ROUTING CONFIGURATION