INS003

Intelligent Optic Fibre Communication Interface

- The Only Preventative Maintenance Modem For Fibre Infrastructure
- The Only Commissioning Modem For Fibre Infrastructure
- For Reliable Data Communication And Easy System Diagnostics To Support An Improved QoS (Quality of Service) for Life-safety networks

CE UK CA RoHS 2002/95/EC

MAINTENANCE COMMISSIONING

The INS003 Node for both Radial and Ring Topology Networks, has been developed by INS Technologies to facilitate dynamic network management. 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.

FEATURES

- Intelligent Optic Fibre Communication Interface
- Independent Reporting with Class A communication redundancy with multiple fault tolerance
- 2.5 kV Galvanic Isolation on all Ports
- Support of single and dual port industrial equipment RS-485 connections
- Supports a range of SFP transceivers to suit
- Simple LED status indication for Fibre and RS-485
- SFP transceivers implemented with DOM support, providing information on: Tx/Rx Power(dBm), Laser Current(mA), Temp(°C) and Supply voltage(V) to monitor, qualify and maintain optic fibre infrastructure
- Wireless Connectivity for remote monitoring using a Bluetooth or WIFI interface
- Supports the generation of system performance reports required for installation commissioning
- Visual interface provided by IVIEW, the Instance Global Graphical User Interface with monitoring, diagnostics and reporting options
- Enables preventative maintenance management through system degradation monitoring
- Configuration and commissioning parameters are stored allowing for system performance tracking over time
- Ports B or C with RS-485 transceivers have adjustable termination to correctly match the loop cabling segment
- Baud rate selectable from 9600 - 115200 bits/sec
- DIN rail mountable

Active and Passive Mode Support

The INS003 can function in the DNP (Passive) and DNA (Active). The Passive mode is plug 'n Play whereas the active mode allows intelligent monitoring through recording information used to commission, diagnose and Qualify the network bus. The product can be purchased as a Passive mode product and if required, upgraded to support Active mode by purchasing a license activated through the USB port on the module.

Class A Hybrid Medium Networks

The INS003 is supplied without the Small Form Factor Pluggable (SFP) transceivers, which can be purchased separately from Instance Global. (Note: only transceivers signed by INS are valid for use in the INS003). When using the product as a INS003C, only a single transceiver is required since the second inside port B/C is routed through the RS-485 port B/C. When used as a INS003C, it functions as a Hybrid RS-485 to Optic Fibre medium converter with support for DOM and Class A hybrid networks. A hybrid medium network is one that supports Class A redundancy with a mixture of metallic and optic fibre cables.

SFP Transceiver Support

The INS003 and INS003C support the use of a range of transceivers, allowing transceivers with different specifications to be used on Port B and C, for example, using Multi-Mode on one port and Single Mode on the other.

This feature supports full optimisation of transceiver selection as required to support a range of different fibres across the network.

Intelligent DOM Support

The INS003 is a dual port RS-485 to Optic Fibre medium converter with support for Digital Optical Monitoring (DOM) diagnostics.

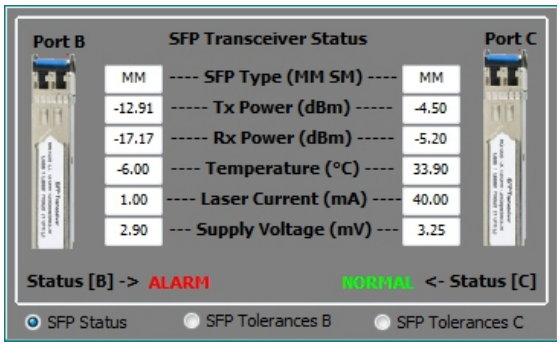
SFP Transceiver DOM information includes:

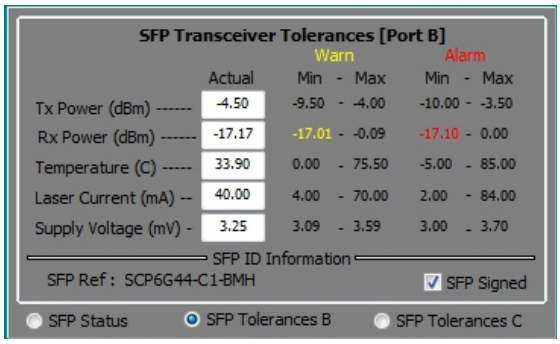
- Optical Fibre Tx & Rx Power (dBm)
- Bias Current of laser (mA)
- Temperature (°C)
- Supply Voltage (Volts)
- Transceiver operating Limit Warnings
- Transceiver operating Limit Alarms

The Optic Fibre ports of the INS003 and INS003C modules monitor and record the DOM data to analyse the optic fibre cables, transceivers and host module for purposes of tracking any degradation of the infrastructure. Any anomalies will be displayed on the LED fascia of the module, with the option of a simpler graphical representation, which can be generated as a report in the IVIEW application tool.

Display of DOM Information (per Module)

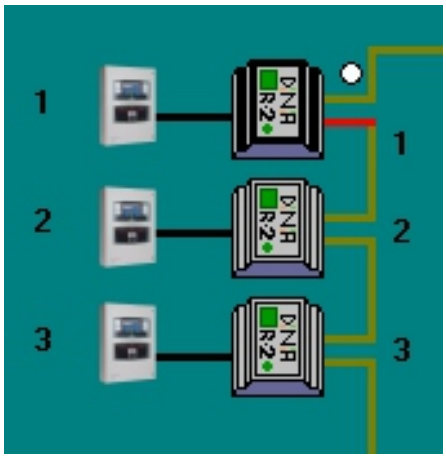
The DOM information is displayed on the fascia of the INS003 and in graphics with the IVIEW PC based application tool.





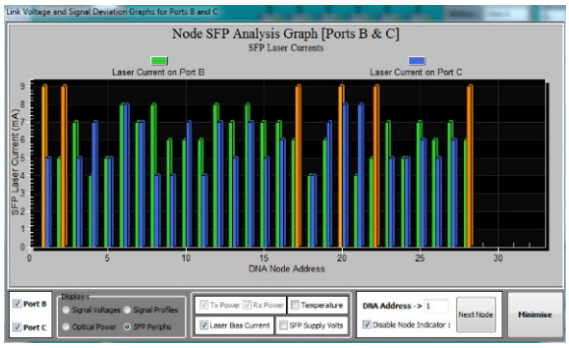
Display of DOM Information (Network)

The network DOM information also can be displayed in basic visual representation supported with more detailed graphs using the IVIEW tool.

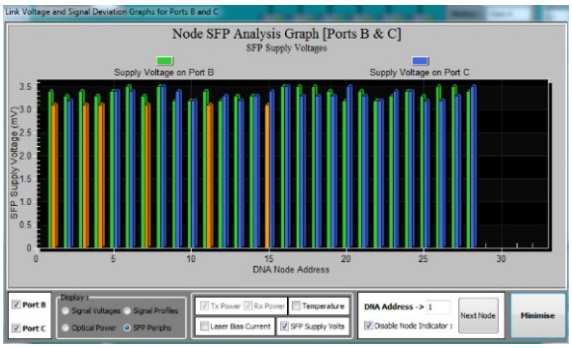


Graphical Representation of System Status

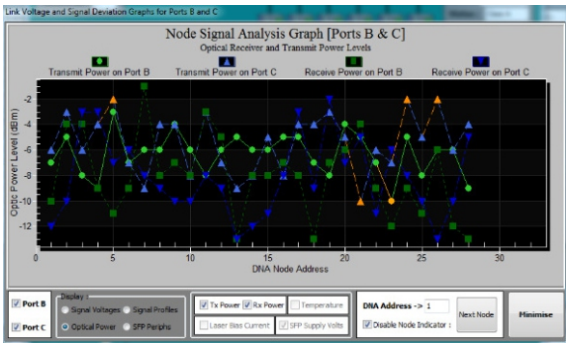
The network DOM information is available in graphical form in the IVIEW application tool. See below for examples.



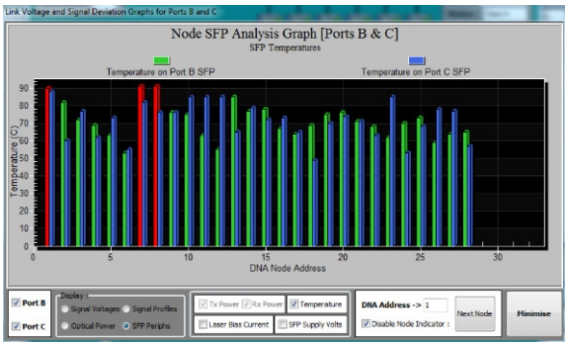
Transceiver Laser Currents



Transceiver Supply Voltages



Transceiver Tx and Rx Power



Transceiver Temperature

Preventative Maintenance

The DOM information captured is used by the module to indicate whether any warnings and/or Alarm limit levels have been exceeded.

Exceeding a warning level is a good indication of pending failure and should be addressed as soon as possible prior to any system downtime.

Qualification and Maintenance Reporting

System qualification is easy to perform with reliable information continually sampled and recorded during normal operation. The results are automatically formulated and presented in a comprehensive report generated in a few seconds using the IVIEW application tool. The report serves as a maintenance tool to capture the state of the network, highlighting any potential exceptions, either present or likely to occur in the future.

SPECIFICATIONS

DIMENSIONS

Dimensions:	115 X 105 X 58 mm
Weight:	200g
Mounting:	DIN Rail EN60715 (width 35 mm)

POWER

Operating voltage:	18 - 36V (24V DC nominal)
Rated current:	250mA (at 24V)

INTERFACES

RS-485:	Port A1 - Selectable Fixed Termination, in accordance with EIA RS-485
	Port A2 - Selectable Fixed Termination, in accordance with EIA RS-485
Optic Fibre /RS-485:	Port B - Fibre Optic, SFP Connector (Specification as per selected SFP transceiver)
[INS003]	Port C - Fibre Optic, SFP Connector (Specification as per selected SFP transceiver)
[INS003C]	Port C - Dynamic Termination
	Port A1, A2 (& Port C -FC model) - Isolated (2.5kV)
	Baud Rate - 9600 to 115200 (selectable/configurable)
USB:	USB Micro-B connection (Device/Slave Mode)
Module:	Proprietary Interface Card connection (Bluetooth / WIFI / GPRS)

TEMPERATURE

Operating:	-10 to 50°C
Storage:	-40 to 70°C

AGENCY APPROVALS AND STANDARDS

CE, UKCA, RoHs, WEEE compliant
EMC: EN 61000-6-2
EMC: EN 61000-6-4
Safety: EN 60950

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