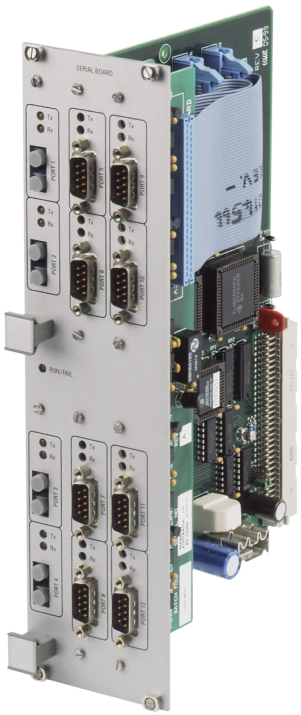
FOXBORO®

PSS 21H-8C4 B4

I/A Series® Remote Terminal Unit (RTU)
RTU 50 12 Channel Serial Module



The RTU 50 12 Channel Serial module provides a flexible and cost effective method for communicating to a multitude of intelligent field devices. The module features a range of interface types, including glass and plastic fiber optics, RS-232-C serial, and dedicated FoxCom (4 to 20 mA current loop with signal modulated VF) which can be connected to a vast range of sensors, transmitters, positioners, analytical devices, relays, breakers, and other intelligent devices. When combined with the RTU 50's powerful programming capabilities, the 12 Channel Serial module provides a powerful interface for gathering data from OEM devices.

FEATURES

Key features include:

- Up to 12 serial channels per module
- Range of platform boards to provide modular expansion and interface types, namely:
  - Glass fiber optic
  - Plastic fiber optic
  - RS-232-C serial (DB9 connector)
  - FoxCom (internal or external loop power)
- Range of optical to electrical interface modules
- LED indication of communications activity on each channel
- Standard connectors (ST for glass fiber, Hewlett-Packard Versatile Link for plastic fiber)
- Support for user-definable and industry standard protocols including Modbus master/slave
- Easy installation plugging into any file I/O slot without the need for physical hardware configuration.

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Product Specifications

OVERVIEW

The RTU 50 12 Channel Serial module provides the solution for applications where communication to multiple intelligent electronic devices is required.

This module provides communication options to the RTU 50 in addition to the communication ports on the Master Processor and Dual Communications modules (refer to PSS 21H-8C5 B4 for details).

The RTU 50 12 Channel Serial module provides up to 12 fiber, electrical, or current loop communication ports which are typically configured on a site-related basis and combined with the optical to electrical interface modules to provide isolated links.

The module occupies one slot in the RTU 50 file and each RTU can support multiple modules.

HARDWARE MODULES

The RTU 50 12 Channel Serial module comprises a base 4 Channel Serial module (0303415) to which may be attached a variety of platform boards to deliver various combinations of serial interface. These platform boards comprise the following interfaces:

- Four pairs of plastic fiber optical transmitters and receivers (0303416)
- Four pairs of glass fiber optical transmitters and receivers (0303417)
- Four RS-232-C type DB9 connectors (0303424)
- Four FoxCom ports (4 to 20 mA loop powered from RTU 50) (0303423)
- Four FoxCom ports (4 to 20 mA loop powered externally) (0303425).

The required platform boards are mounted within the 12 Channel Serial module to provide totally integrated packaging. The base 4 Channel Serial module also features four integral plastic fiber optic ports on board.

In addition, a variety of separate optical to electrical interface modules are available to allow communication between the optical ports on the 12 Channel Serial module and remote electrical (RS-232-C DB25) devices. This configuration is designed for harsh electromagnetic environments where it is desirable to utilize fiber cabling for field devices to reduce interference and communication errors.

The connectors available are:

- Plastic Fiber Optic to RS-232-C Female DB25 (1025101) (DB9-DB25 cable required)
- Glass Fiber Optic to RS-232-C Female DB25 (1025100) (DB9-DB25 cable required)
- Plastic Fiber Optic to RS-232-C Male DB25 (1025105) (DB9-DB25 cable required)
- Glass Fiber Optic to RS-232-C Male DB25 (1025104) (DB9-DB25 cable required).

Module Specifications

The 12 Channel Serial module (0303415) is double Eurocard sized and contains an interrupt controller, chip select generator, three quad UARTS and four pairs of plastic fiber optical transmitters and receivers. To increase reliability, the 12 Channel Serial module does not have its own processor, as programmable logic devices have been utilized to emulate the Electrobus interface found on other RTU 50 family input/output processing modules.

FLEXIBLE PACKAGING

The range of platform boards allows many different packaging options. To simplify ordering, the most common combinations are detailed in the Ordering Information section in this Product Specification Sheet. Other combinations may be ordered, but may be subject to special project pricing and delivery conditions.

OEM INTERFACE MODULES

It should be noted that some third-party devices modulate optical signals, while others multiplex the control signals into the optical signal. These devices are suitable for use with the RS-232-C platform board (assuming correct connector size and gender), however; neither works with the optical platform board.

The Foxboro optical devices have the following characteristics. For the interface modules (1025100, 1025101, 1025104, and 1025105), the light is on when TXD is at a positive voltage and off when at a negative voltage. For the platform modules (0303415, 0303416, and 0303417), the ports can be individually configured using links that are either the same as the interface modules, or of the opposite sense.

PHYSICAL SPECIFICATIONS

Physical Size
COMPLETE MODULE
187 mm x 261.8 mm x 71 mm (comprising 12 Channel Serial module, platform boards, and RTU 50 front handle)

Physical Size
OPTICAL INTERFACE MODULES
65 mm x 52 mm x 21 mm

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature
0°C to +60°C (to -20°C with production test)

Humidity
10 to 95% (noncondensing)

FUNCTIONAL SPECIFICATIONS

Optical

PLASTIC (APPLICABLE TO 0303415, 0303416, 1025101, 1025105)

Transmitter
HFBR 1523

Receiver
HFBR 2523

Wavelength
665 nm

Connectors
Hewlett-Packard's Versatile Link connector on 1 mm plastic fiber

Distance
50 m

Transmit and Receive LED
Each port

Link Selectable Data Polarity
Idle-on or idle-off per port

Maximum Data Rate
19200 Baud

GLASS (APPLICABLE TO 0303417, 1025100, 1025104)

Transmitter
HFBR 1414

Receiver
HFBR 2412

Wavelength
850 nm

Connectors
ST Connectors on 62.5/125 multimode fiber

Distance
2 km

Transmit and Receive LED
Each port

Link Selectable Data Polarity
Idle-on or idle-off per port

Maximum Data Rate
57600 Baud

Base

12 CHANNEL SERIAL BOARD (0303415)

UARTS
3xTL16C554-FN Quad UART devices which have a 16-character FIFO on each transmitter and receiver

Interface
2x50 way connectors with ejectors to connect via ribbon cable to the platform boards

Plastic Fiber Optic Ports
Four

EMC
EN 6/326:1998

Platform Modules

EMC FOR ALL PLATFORM MODULES
EN 6/326:1998

PLASTIC FIBER OPTIC PLATFORM BOARD (0303416)

Interface
50 way ribbon cable with IDC connector to 0303415

Plastic Fiber Optic Ports
Four

GLASS FIBER OPTIC PLATFORM BOARD (0303417)

Interface
50 way ribbon cable with IDC connector to 0303415

Glass Fiber Optic Ports
Four

RS-232C PLATFORM BOARD (0303424)

RS-232-C Ports (ITUT V.24/V.28)
Four

Maximum Data Rate
115.2 Kbaud

Maximum Distance
15 m

Electrical Interface
Male DB9 Connector, DTE wiring
50 way ribbon cable with IDC connector to 0303415

FUNCTIONAL SPECIFICATIONS (Cont.)

Platform Modules (Cont.)

FoxCom PLATFORM BOARD (0303423, 0303425)
- 4 isolated and independent channels
- *Communications*
  - Non-redundant, point-to-point, master/slave, asynchronous, half-duplex at a software selectable baud rate of 600 or 4800 baud
- *Distance*
  - 600 m at 4800 baud (shielded twisted pair), 1800 m at 600 baud (shielded twisted pair)
- *Loop Resistance*
  - 500 ohm
- *Isolation*
  - 600 V ac channel to channel
  - 600 V ac channel to frame
- *Power*
  - 0303423 internal power from 0303415, or 0303425 external 24 V ±10%
- *Interface*
  - 50 way ribbon cable with IDC connector to 0303415
- *Termination*
  - Four, three-pin terminal blocks, one block per channel; one, two-pin terminal block for external 24 V
- *Terminal Blocks*
  - Plug-in screw type (Phoenix MVSTBW series)
- *Indicators*
  - Transmit and receive LEDs per channel
- *EMC*
  - IEC 255-5 Impulse 1 kV
  - IEC 255-22-1 High Frequency Disturbance 1 kV
  - EN 6/326:1998

Interface Modules

EMC FOR ALL INTERFACE MODULES
- EN 6/326:1998

GLASS TO RS-232-C INTERFACE MODULE (1025100, 1025104)
- *Glass Port*
  - One (no LED Rx and Tx indicators, device is always idle-off)
- *Passively Powered*
  - RTS/DSR and TXD
- *Actively Powered*
  - +12 V on pin 9
- *Electrical Interface*
  - Female DB25 Connector (1025100), Male DB25 Connector (1025104), both DTE/DCE selectable

PLASTIC TO RS-232 INTERFACE MODULE (1025101, 1025105)
- *Plastic Port*
  - One (no LED Rx and Tx indicators, device is always idle-off)
- *Passively Powered*
  - RTS/DSR and TXD
- *Actively Powered*
  - +12 V on pin 9
- *Electrical Interface*
  - Female DB25 Connector (1025101), Male DB25 Connector (1025105), both DTE/DCE selectable

ORDERING INFORMATION

Part Number	Description	Constituent Platform Boards
SY-0399053	12 Channel Serial Fiber Plastic	2 x 0303416
SY-0399054	12 Channel Serial (8P/4G)	0303416, 0303417
SY-0399055	12 Channel Serial (4P/8G)	2 x 0303417
SY-0399056	12 Channel Serial (4P/8 RS-232-C)	2 x 0303424
SY-0399057	12 Channel Serial (4P/8 FoxCom internally powered)	2 x 0303423
SY-0399058	12 Channel Serial (4P/8 FoxCom externally powered)	2 x 0303425
SY-1025100	Optical/RS-232 Converter Glass (Female) Connector	
SY-1025104	Optical/RS-232 Converter Glass (Male) Connector	
SY-1025101	Optical/RS-232 Converter Plastic (Female) Connector	
SY-1025105	Optical/RS-232 Converter Plastic (Male) Connector	

NOTE

Constituent platform boards are included for descriptive purposes only. Only higher level SY part numbers are available for purchase.

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