

Modbus Router/B A-MBR/B

The Modbus® Router/B provides intelligent data routing between Logix controllers/PLCs and Modbus devices via Modbus RTU (RS232 / RS485) or Modbus TCP. The Router can operate as either a Modbus Client (Scheduled Mode) or Modbus Server (Reactive Mode).

Communications with a Logix controller (e.g., ControlLogix® or CompactLogix™) can be achieved via EtherNet/IP™ or USB. Direct-to-Tag technology enables the router to exchange data directly with Logix Tags, thus requiring no Logix programming.

When using USB, a redundant system can be configured using one Router for each Logix controller. Only the Router connected to the Primary Logix controller will respond to the Modbus TCP requests.

The Router also supports the MicroLogix™ and SLC™500 platforms.

The Router hosts two Ethernet ports which can be configured in a Device Level Ring or Linear topology.



Features

- ◆ The A-MBR/B can operate as a Modbus Client or Modbus Server.
- ◆ Modbus Client mode can communicate with up to 100 Modbus Servers.
- ◆ Supports Modbus passthrough messaging.
- ◆ Modbus Server mode supports full Modbus data range.
- ◆ Modbus Server mode supports emulating multiple Modbus nodes.
- ◆ Configurable Modbus TCP Port numbers.
- ◆ Supports EtherNet/IP Target and Originator modes:
 - EtherNet/IP Target (Class 1 connection)
 - EtherNet/IP Originator (Class 1 connection with up to 10 EtherNet/IP devices and Explicit Messaging, including Direct-To-Tag Logix tag access, with up to 10 EtherNet/IP devices)
- ◆ Supports CIP USB interface for Logix controllers.
- ◆ EtherNet/IP Class 1 target connections support 2kbyte input and 2kbyte output data to Logix input and output assemblies.
- ◆ Supports Modbus media conversion allowing for a transparent link from one media to another (e.g., Modbus TCP to Modbus RTU232).
- ◆ Slate provides a Modbus packet capture utility for better diagnosis.
- ◆ Dual Ethernet ports which support Device-Level-Ring (DLR).
- ◆ Network Time Protocol (NTP) supported for external time synchronization.
- ◆ Small form factor – DIN rail mounted.

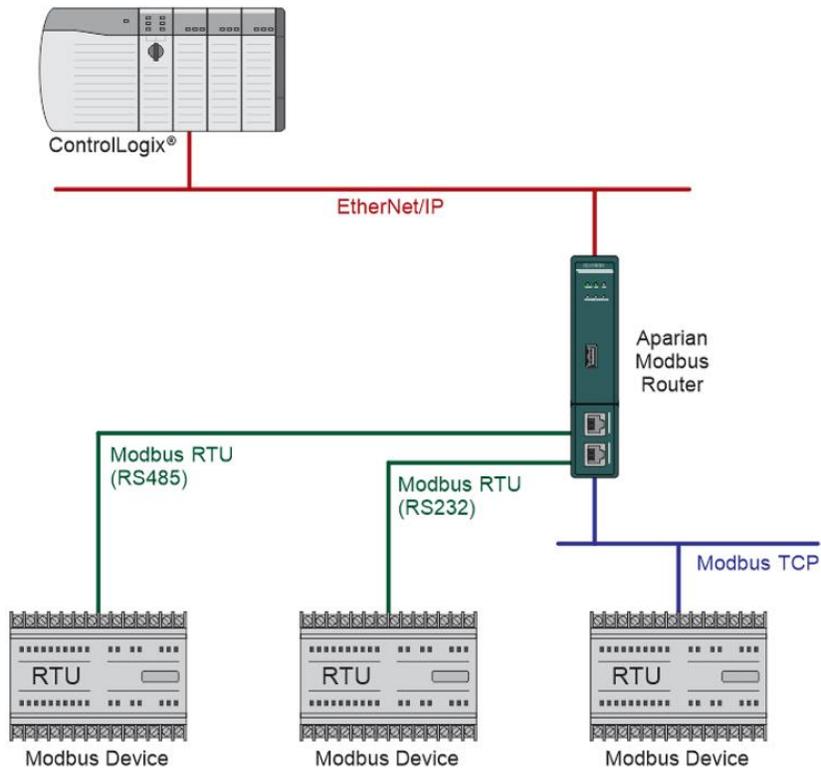


Figure 1 – Enhanced mode as a Modbus Client and EtherNet/IP Target

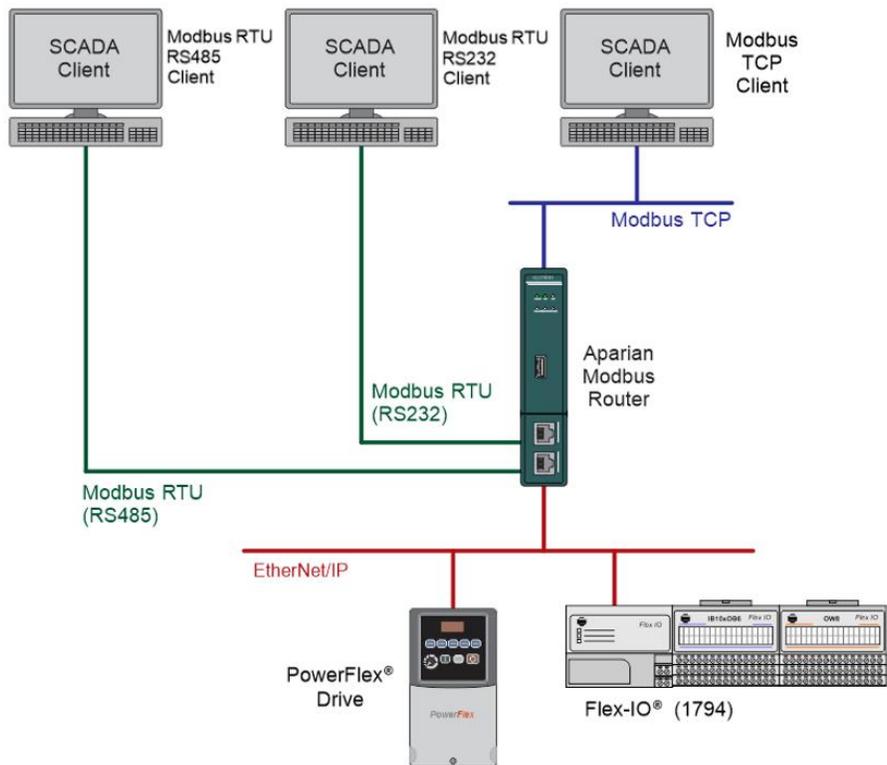


Figure 2 - Enhanced mode as a Modbus Server and EtherNet/IP Originator

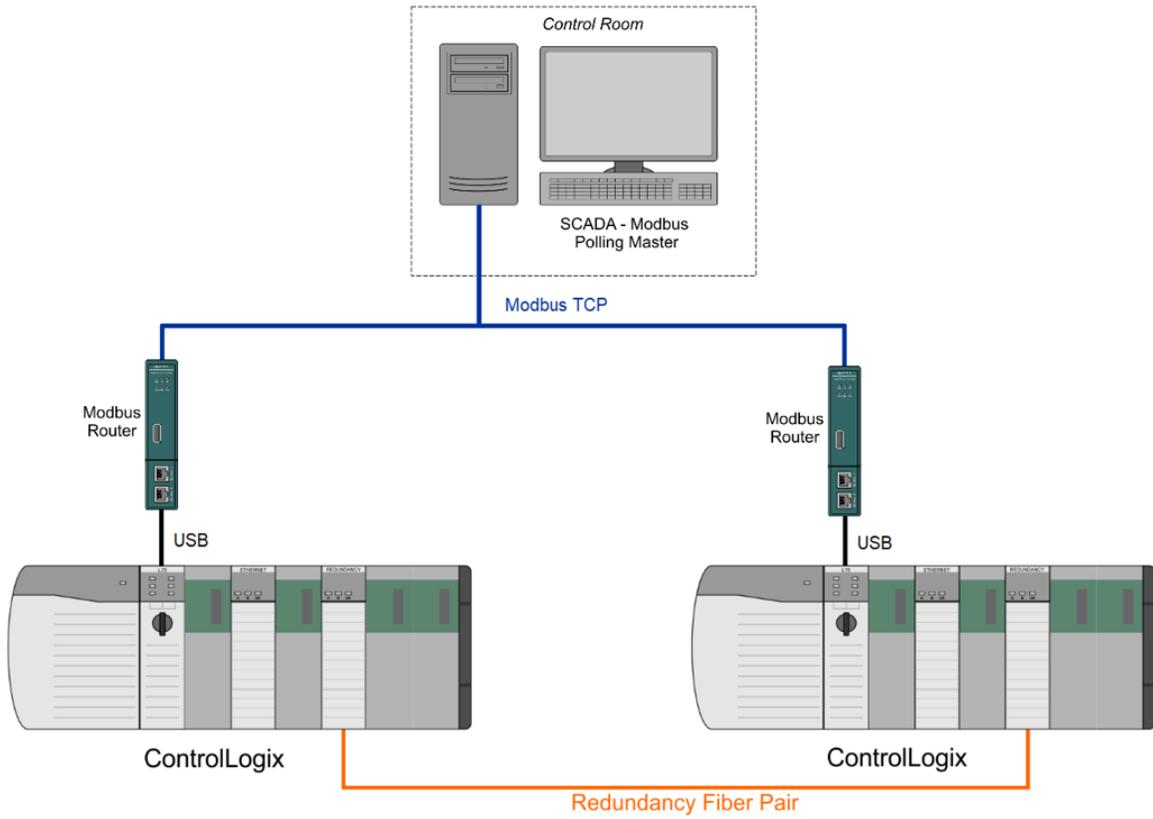


Figure 3 – Redundant Logix Controller communicating with Modbus Router over USB

Specifications

Ethernet

Specification	Description
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	200 max.
TCP Connections	200 max.
CIP Connections	20 max.
Communication Rate	10/100 Mbps
Duplex Mode	Full / Half
Auto-MDIX	Supported
Controller Support	ControlLogix, CompactLogix, MicroLogix, SLC
Embedded Switch	Yes, 2 x Ethernet ports
Device Level Ring (DLR)	Supported
Network Time Protocol (NTP)	Supported

Serial Ports (RS232, RS485)

Specification	Rating
Connector	9-way terminal (shared)
Conductor	24 to 18 AWG
Electrical Isolation (RS232)	1000 VDC
Electrical Isolation (RS485)	1500 Vrms (1 minute)
Baud Rate (bps)	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Parity	None, Even, Odd
Data, Stop Bits	8, 1

USB Port

Specification	Description
USB Supported	USB2.0
Module USB Connector	Type-A
Recommended USB Cable	Type-A (male) to Type-B (male)

Modbus – Reactive / Scheduled Mode

Specification	Rating
Reactive Tag mode	Max 100 mapping items
Scheduled Tag mode	Max 100 mapping items
Application Functions Supported	Read Coil, Read Discrete Input, Read Holding Register, Read Input Register, Write Coil, Write Register
Maximum Logix Controller support	3 (when using Ethernet) 1 (when using USB)
Protocols	Modbus RTU (RS232 or RS485), Modbus TCP

Modbus Client - Enhanced Mode

Specification	Description
Modes Supported	Modbus TCP, Modbus RTU232, Modbus RTU485
Modbus RTU485 Termination	125 Ω - Software Enabled
Modbus Server Devices	100 max.
Modbus Mappings	100 max.
Mapping Ranges	Holding Register: 0 to 65535 Input Register: 0 to 65535 Input Status: 0 to 65535 Coil Status: 0 to 65535
Base Offset	Modbus (base 0), PLC (base 1)
Configurable Modbus TCP Port	Yes
Data Re-formatting Supported	BB AA BB AA DD CC CC DD AA BB DD CC BB AA



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Modbus Server - Enhanced Mode

Specification	Description
Modes Supported	Modbus TCP, Modbus RTU232, Modbus RTU485 (simultaneous)
Modbus RTU485 Termination	Software set
Mapping Ranges	Holding Register: 0 to 65535 Input Register: 0 to 65535 Input Status: 0 to 65535 Coil Status: 0 to 65535
Base Offset	Modbus (base 0), PLC (base 1)
Configurable Modbus TCP Port	Yes

EtherNet/IP Target

Specification	Description
Class 1 Cyclic connection count	5
Logix Direct-to-Tag Supported	Yes

EtherNet/IP Originator

Specification	Description
Class 1 Cyclic Connections Supported	Yes
Class 3 / UCMM Connections Supported	Yes
Class 1 Connection Count	10
Class 3 / UCMM Target Device Count	10
Class 3 / UCMM Mapping Count	50

Hardware

Specification	Description
Power Supply	Input: 10 to 32 VDC, (121 mA @ 24 VDC)
Voltage Fluctuations	Voltage fluctuations < ±10% Transient Over-voltages up to the levels of OVERVOLTAGE CATEGORY 1
Power Consumption	3.1 W (Including full load on USB of 200mA), 300 mA maximum
USB Power	5V, maximum load of 200 mA (1W)
Dimensions (H x W x D)	149.0 x 34.0 x 116.0 mm
Connector	3-way terminal
Conductors	24 to 18 AWG
Enclosure Rating	IP20, NEMA/UL Open Type Indoor use only
Temperature	-20 to 70 °C
Relative Humidity	5% to 90% - No condensation
Pollution Degree	2
Altitude	< 2000 m
Earth Connection	Yes, terminal based
Emissions	IEC 61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	IEC 61000-4-3
EFT/B Immunity	EFT: IEC 61000-4-4
Surge Immunity	Surge: IEC 61000-4-5
Conducted RF Immunity	IEC 61000-4-6

Agency Approvals & Certifications

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