

DATASHEET

A-IBR INTERBUS Router

The A-IBR INTERBUS Router provides intelligent data routing between either EtherNet/IP™ or Modbus® TCP and an INTERBUS master.

INTERBUS is a fast sensor–actuator bus for transmitting process data in industrial environments. Due to its transmission procedure and ring topology, INTERBUS features a fast, cyclic, and time-equidistant process data transmission.

The A-IBR can emulate up to 15 INTERBUS slave devices and map the INTERBUS input and output data to EtherNet/IP or Modbus devices. Each (virtual) INTERBUS device can be configured for a specific Device Class, Type, Data Direction and Data Width.

The A-IBR is configured using the Aparian Slate application which can be downloaded from www.aparian.com free of charge.



Each slave device has a bidirectional input and output port allowing a ring structure with only a single cable between each device.

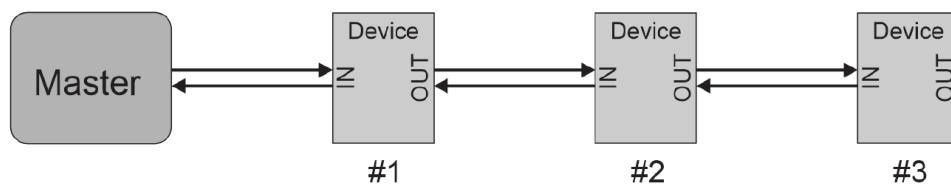


Figure 1.1 – Example of connecting to a Logix Controller

Features

- ◆ The A-IBR can emulate up to 15 INTERBUS slaves
- ◆ Supports both INTERBUS Baud Rates (500 kb & 2 Mb)
- ◆ Supports various Primary Interfaces:
 - EtherNet/IP Target (Class 1 connection)
 - Modbus Server (TCP)
 - Modbus Client (TCP)
 - EtherNet/IP Originator (Class 1 connection with up to 15 EtherNet/IP devices and Explicit Messaging, including Direct-To-Tag Logix tag access, with up to 10 EtherNet/IP devices)
- ◆ Slate software provides a Modbus packet capture utility for better diagnosis of issues
- ◆ Dual Ethernet ports which support Device-Level-Ring (DLR)
- ◆ Small form factor – DIN rail mounted

Configuration

- ◆ The Slate Configuration Utility software is used for configuration and troubleshooting of the module. The stand-alone configuration utility allows users to define the setup and configuration of the INTERBUS Router module, connections with controllers and devices.
- ◆ The Slate Configuration Utility software can be downloaded from www.prosoft-technology.com

The A-IBR can use one of four Primary Interface modes:

EtherNet/IP Target

As an EtherNet/IP target, a remote EtherNet/IP device (e.g. a Logix controller) establishes several Class 1 connections to the module. INTERBUS data can be mapped into 4 separate input and output class 1 cyclic connections to the Logix controller (allowing up to 2KB input and 2KB output to be exchanged at the requested packet interval – RPI).

EtherNet/IP Originator

As an EtherNet/IP originator, the module can use one of the following methods to read and write data to and from the INTERBUS master:

- **EtherNet/IP Explicit Messaging**
This allows an INTERBUS master to exchange data with up to 10 EtherNet/IP devices. The module can use either Class 3 or Unconnected Messaging (UCMM) to Get and Set data in the remote EtherNet/IP devices.
- **Direct-To-Tag technology**
This allows the INTERBUS master to exchange data with a Logix controller without the need to write any application code (e.g. ladder) in Studio 5000. The INTERBUS slave data is directly read from, or written to, Logix tags.
- **EtherNet/IP Class 1 connection**
INTERBUS data can be mapped to a maximum of 15 EtherNet/IP devices using input and output class 1 cyclic connections. This will allow the INTERBUS Router to “own” the EtherNet/IP target device and exchange INTERBUS slave data using the EtherNet/IP device's input and output assemblies.

Modbus Server

The diagnostics and INTERBUS data will be written to, or read from, the module's internal Modbus Registers (Holding or Input Registers). These registers can be accessed by a remote Modbus Client using Modbus TCP.

Modbus Client

The diagnostics and INTERBUS data will be written to, or read from, the module's internal Modbus Registers (Holding or Input Registers). The Modbus Auxiliary Map can then be used to configure the Modbus data exchange between multiple remote Modbus Server devices and the module's internal Modbus registers via Modbus TCP.

The following figures provide examples of networks with INTERBUS devices connected to either EtherNet/IP or Modbus TCP devices.

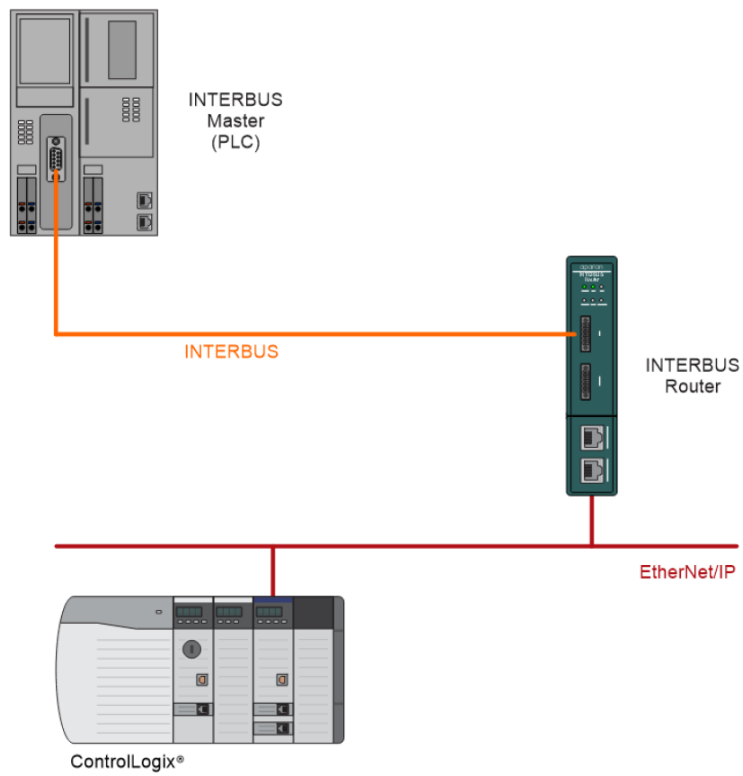


Figure 1.2 – Example of connecting to a Logix Controller

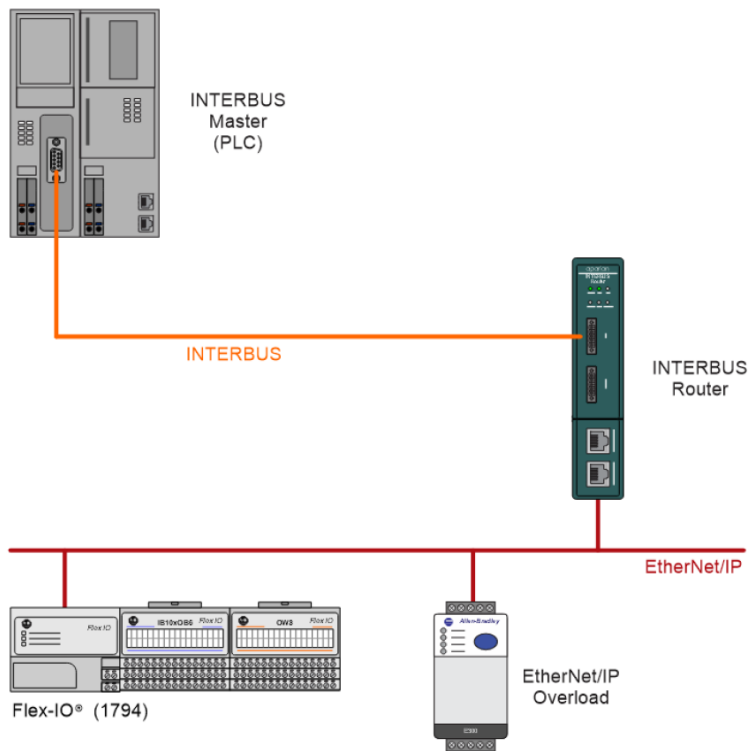


Figure 1.3 – Example of connecting EtherNet/IP I/O

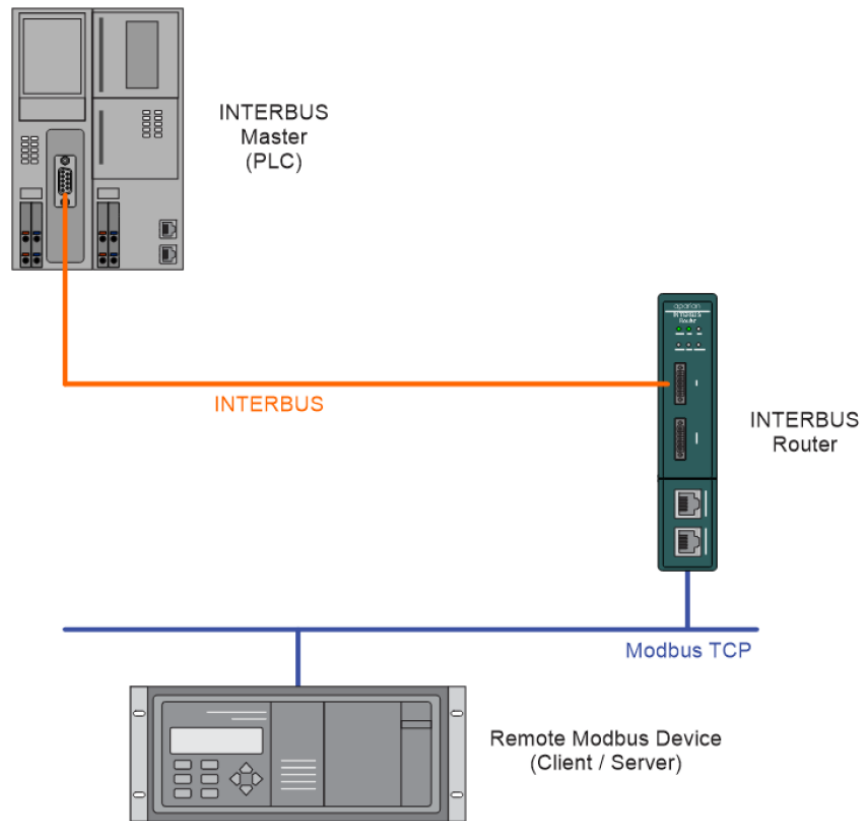


Figure 1.4 –Example of connecting to a Modbus TCP Client or Server

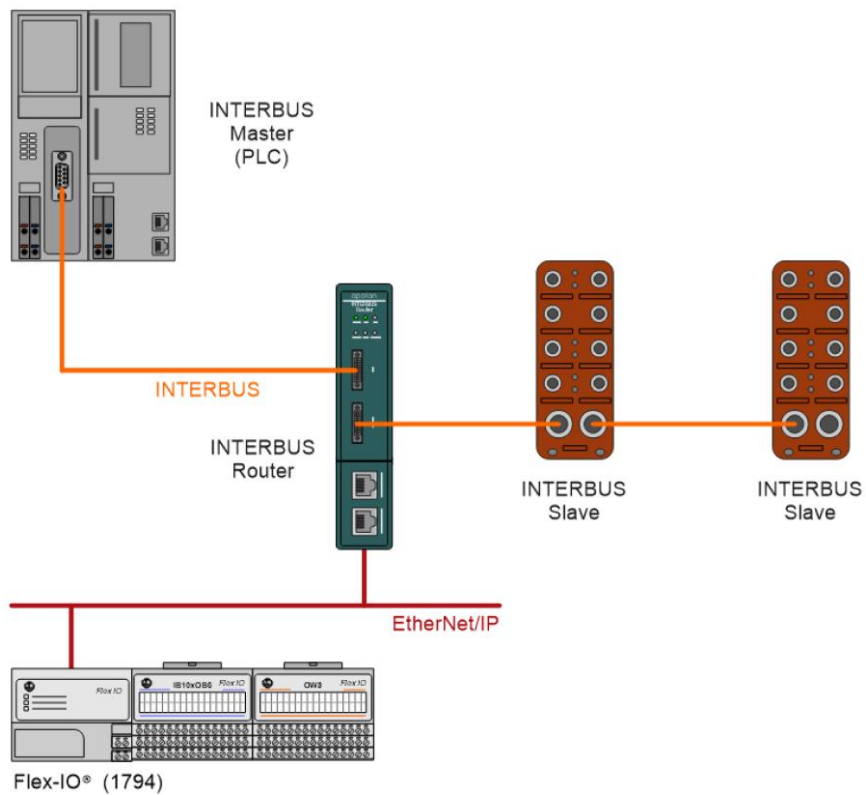


Figure 1.5 – Example of extending INTERBUS to additional INTERBUS slaves

Electrical

Specification	Description
Power Supply	Input: 10 to 32 VDC
Power Consumption	3.0 W (Max.) Current: 260 mA @ 10 VDC Current: 120 mA @ 24 VDC
Dimensions	149.0 x 34.0 x 116.0 mm (H x W x D) 5.86 x 1.33 x 4.56 in
Connector	3-way terminal
Conductors	24 to 18 AWG
Enclosure Rating	IP20, NEMA/UL Open Type
Temperature	-20° to 70°C, -4° to 158°F
Earth Connection	Yes, terminal based
Emissions	IEC61000-6-4
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

Ethernet

Specification	Description
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	Max 20
TCP Connections	Max 20
CIP Connections	Max 15
Communication Rate	10/100Mbps
Duplex Mode	Full/Half
Auto-MDIX Support	Yes
Embedded Switch	Yes, 2 x Ethernet ports
Device Level Ring (DLR)	Supported
Network Time Protocol (NTP)	Supported

INTERBUS Ports

Specification	Description
Connector	5-way terminal
Conductor	24 to 18 AWG
Electrical Isolation	1000 Vrms for 1 minute

INTERBUS

Specification	Description
Type	Slave
Max. Device Count	15
Max. Total INTERBUS Data	128 bytes
Max. Summation Frame	128 bytes
Parameter Channel (PCP)	Not Supported
Supported BAUD Rates	500kbps, 2Mbps

EtherNet/IP™ Target

Specification	Description
Class 1 Cyclic Connection Count	4
Logix Direct-to-Tag Supported	Yes



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EtherNet/IP™ Originator

Specification	Description
Class 1 Cyclic Connections Supported	Yes
Class 3 / UCMM Connections Supported	Yes
Class 1 Connection Count	15
Class 3 / UCMM Target Device Count	10
Class 3 / UCMM Mapping Count	50

Modbus® Client

Specification	Description
Modes Supported	Modbus TCP
Max. Modbus Server Devices	20
Max. Modbus Mapping	100
Mapping Ranges	Holding Register 0 to 4999 Input Register 0 to 4999 Input Status 0 to 4999 Coil Status 0 to 4999
Base Offset	Modbus (Base 0) PLC (Base 1)
Configurable Modbus TCP Port	Yes
Data Reformatting Supported	BB AA BB AA DD CC CC DD AA BB DD CC BB AA

Modbus® Server

Specification	Description
Modes Supported	Modbus TCP
Mapping Ranges	Holding Register 0 to 4999 Input Register 0 to 4999 Input Status 0 to 4999 Coil Status 0 to 4999
Base Offset	Modbus (Base 0) PLC (Base 1)
Configurable Modbus TCP Port	Yes

Agency Approvals & Certifications

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