

DATASHEET

PROFIBUS DP Master/Slave to EtherNet/IP™, Modbus TCP/IP®, or Modbus® Serial Gateway PLX51-PBM

The PLX51-PBM gateway provides connectivity to EtherNet/IP™, Modbus TCP/IP®, or Modbus® Serial networks for PROFIBUS DP networks by operating as either a Master or Slave device on the PROFIBUS DP network.

For easy integration to a Rockwell Automation Controller, the gateway and configuration software create dynamic AOI's based on the user configuration to add logical tag names to the PLC project file. Thus, reducing the overall programming time for EtherNet/IP applications.

For configuration of Modbus TCP/IP or Modbus Serial Networks, the module will automatically map PROFIBUS DP data points to registers on a Modbus network.

With advanced tools such as PROFIBUS device discovery and a built-in PROFIBUS DP packet capture utility, PROFIBUS DP network commissioning time can be greatly reduced.

Dual Ethernet ports of the module can support either DLR (Device Level Ring) topology, or can be used as an embedded switch for flexible installation options.

With support for up to 1536 bytes of Input and Output data, and up to 4 EtherNet/IP connections to the processor, this module provides performance and data throughput back to the processor for even the most demanding of PROFIBUS applications.

When used as a PROFIBUS DP slave, the module can operate as 1 to 10 slaves, providing up to 1536 bytes of Input and Output Cyclic I/O data between EtherNet/IP, Modbus TCP/IP, or Modbus Serial devices and a PROFIBUS DP master.



Features

- ◆ Supports DLR for EtherNet/IP networks
- ◆ Support for either EtherNet/IP, Modbus TCP/IP, or Modbus Serial Communication networks
- ◆ PROFIBUS master or slave (with multi-slave support)
- ◆ Built-in PROFIBUS packet capture tool

Configuration

The PLX50 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 PROFIBUS DP network, connections with Rockwell Automation controllers and devices over EtherNet/IP, and build custom Add-On Instructions (AOIs) to be imported into Studio 5000 applications.

With the ability to import custom AOI's into the Studio 5000 environment and advanced PROFIBUS DP tools such as the packet capture utility, commissioning time of a network can be greatly reduced.

EtherNet/IP Server (Class 1 Adapter)

As an EtherNet/IP server, the gateway operates as an Adapter with up to 4 Class 1 I/O connections to a Controller (Scanner) on an EtherNet/IP network. The use of EtherNet/IP Class 1 I/O connections for transfer of PROFIBUS DP cyclic data, provides fast data transfer between networks for increased performance on time critical PROFIBUS DP applications.

Modbus TCP/IP

On a Modbus TCP/IP network, the module will operate as either a Modbus TCP/IP Client or Server device.

As a Modbus TCP/IP client the module can be configured to automatically read/write all PROFIBUS DP data with a slave device for easy setup and configuration, or the Modbus Auxiliary Map feature will allow you to configure data transfer to customize the mapping to meet specific application requirements.

As a Modbus TCP/IP Server all information from the PROFIBUS DP network is stored in continuous registers in the module for easy configuration and efficient mapping of data to a Modbus TCP/IP client.

Modbus Serial

On a Modbus Serial network the module will operate as either a Master or a Slave device supporting either RS232 or RS485 communication networks.

As a Modbus Serial Master the module can be configured to automatically read/write all PROFIBUS DP data with a slave device for easy setup and configuration, or the Modbus Auxiliary Map feature will allow you to configure data transfer to customize the mapping to meet specific application requirements.

As a Modbus Serial Slave all information from the PROFIBUS DP network is stored in continuous registers in the module for easy configuration and efficient mapping of data to an attached master device.

PROFIBUS DP Master V1

Cyclic or acyclic data can be transferred with Class 1 or Class 2 DPV1 services, allowing communication with slave devices supporting PROFIBUS DPV0 or V1 protocols. The gateway acts as an input/output link between the PROFIBUS network and the EtherNet/IP protocol. Data transfer by the EtherNet/IP protocol is asynchronous from data transfer on the PROFIBUS network.

- ◆ Easy-to-use drag and drop configuration interface via ProSoft PLX50 Configuration Utility
- ◆ GSD file import library
- ◆ Monitoring and Modification of process data and DPV1 acyclic data
- ◆ Multi-drop on a PROFIBUS DPV1 network with other compatible devices
- ◆ Automatic project documentation, and Bus Parameter calculation
- ◆ Supports online slave diagnostics, and extended diagnostic data (DPV1)
- ◆ Auto baud detection at all valid PROFIBUS DPV1 rates up to 12 Mbps
- ◆ Master Status LED Indicators for Operations, Network Communication, Master Token-Hold and Network Configuration.
- ◆ Up to 125 Slaves can be connected with a repeater
- ◆ Up to 1536 cyclic bytes input and 1536 bytes output data
- ◆ Supports Extended Diagnostic Data
- ◆ Alarm Handling (DPV1)
- ◆ Supports Sync and Freeze commands
- ◆ Supports PROFIdrive 3.1 compliant parameter read and write operations
- ◆ Supports Multicast and Broadcast telegrams (DPV1)



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Specifications

EtherNet/IP™	
Mode	Adapter
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	Max 40
TCP Connections	Max 40
CIP Connections	Max 10
Communication Rate	10/100Mbps
Duplex Mode	Full / Half / Auto Negotiate
Auto MDIX	Yes
Modbus TCP/IP	
Mode	Client or Server
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	Max 40
Communication Rate	10/100Mbps
Duplex Mode	Full / Half / Auto Negotiate
Auto MDIX	Yes
Modbus Serial	
Mode	Master or Slave
Media	RS232 or RS485
Baud Rate	1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k
Data Bits	8
Stop Bits	1
Parity	None, Odd, Even
PROFIBUS DP	
Protocol	PROFIBUS DP Master or Slave
Baud Rate	9600, 19.200, 45.5 kbps, 93.75 kbps, 187.5 kbps, 500 kbps, 1.5 Mbps, 3 Mbps, 6 Mbps, 12 Mbps
Support	DPV0 or DPV1
Cyclic I/O data	Input: 1536 bytes, Output: 1536 bytes
Stop bits	1
Physical	
Enclosure Rating	IP20, NEMA/UL Open Type
Temperature	-20 to 70 °C
Earth Connection	Yes, terminal based
Dimensions (H x W x D)	5.86 x 1.33 x 4.56 in, 149 x 34 x 116 mm
Power Requirements	Input: 10 to 36V DC
Power Consumption	85mA @ 24V => 2.04W
Power Connector	3-way terminal
Conductors	24 to 18 AWG

Hardware Specifications

Specification	Description
Emissions	IEC 61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	IEC 61000-4-3
EFT/B Immunity	IEC 61000-4-4
Surge Immunity	IEC 61000-4-5
Conducted RF Immunity	IEC 61000-4-6

Agency Approvals & Certifications

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EtherNet/IP™, Modbus
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PLX51-PBM

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