DATASHEET

Distributed Network Protocol (DNP3) Master Gateway

PLX51-DNPM

The PLX51-DNPM gateway provides intelligent routing between DNP3 (Distributed Network Protocol) and either EtherNet/IP™ or Modbus® protocols. The gateway supports Ethernet and Serial communications.

The PLX51-DNPM gateway is a DNP3 Master.

The gateway allows the user to integrate DNP3 devices over a secure link into a Rockwell Automation® Logix system with minimal effort. No copying or mapping of data in the Logix controller is required, as the PLX51-DNPM writes directly into Logix tags.

The PLX51-DNPM allows users to integrate the gateway into a Modbus TCP/IP or serial network. The gateway supports Modbus TCP/IP Client and Server and Modbus RTU protocols.

The module provides DNP3 Secure Authentication v5, which enables the user to connect DNP3 devices to a Logix platform securely. The module also provides a range of diagnostics and statistics, as well as a DNP3 traffic analyzer to assist with fault-finding.

The PLX51-DNPM can be configured to operate in these modes:

- Master – The PLX51-DNPM communicates to DNP3 slave devices and transfers the data to an EtherNet/IP- or Modbus-based PLC.
- Data Concentrator – The PLX51-DNPM will act as a master and outstation. The module will be a master to other DNP3 slave devices and then an outstation to the DNP3 SCADA Master.

Features

- Peer-to-peer communications
- Supports DNP3 Secure Authentication v5
- Supports EtherNet/IP, and Modbus Master and Slave protocols (TCP/IP and RTU)
- Supports DLR (Device Level Ring) for EtherNet/IP Networks – enables ring topology with provides network resiliency
- Onboard storage for > 1.3M DNP3 Events
- Support for unsolicited reporting
- Disaster recovery via the microSD Card
- DNP3 Level 3 compliant
- 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 PLX51-DNPM gateway, and connections with controllers and devices.
- The configuration utility can be downloaded from www.prosoft-technology.com

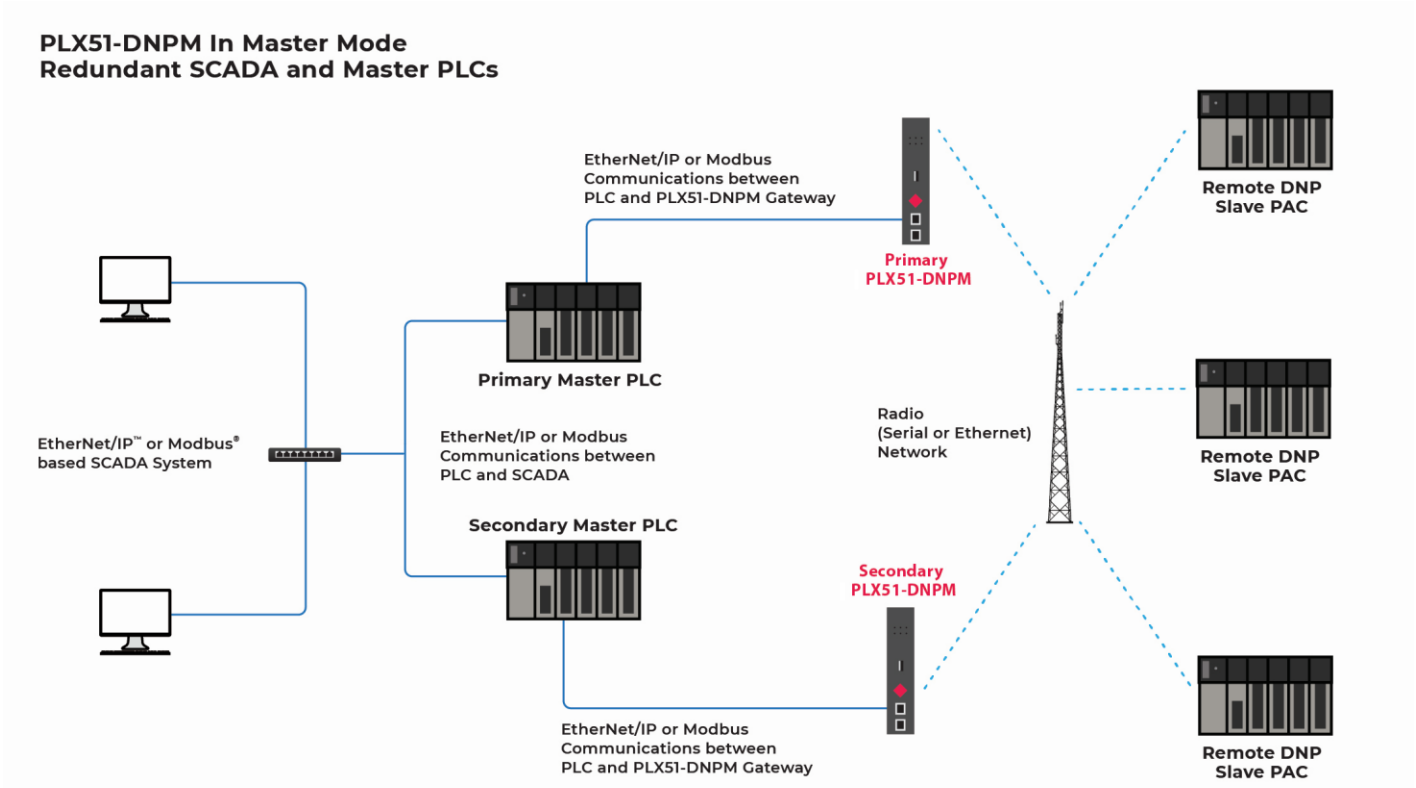

Figure 1 – PLX51-DNPM in Master mode

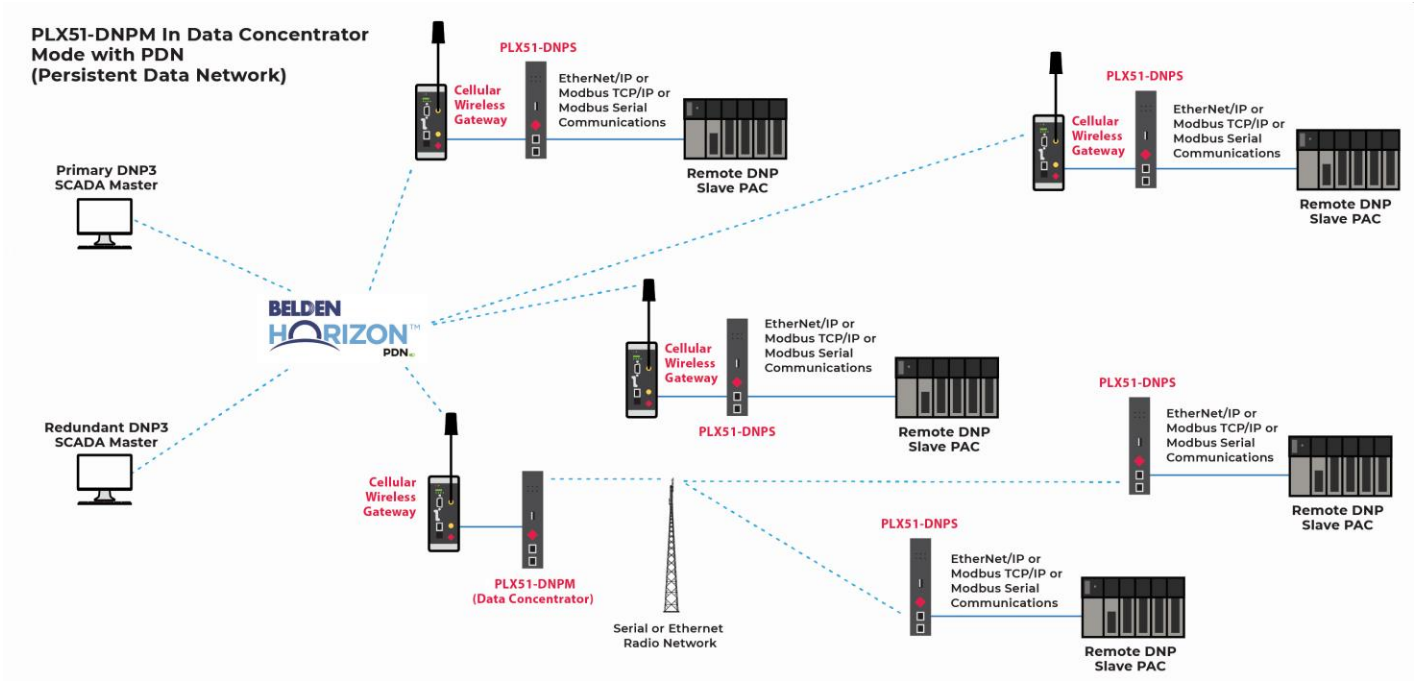

Figure 2 – PLX51-DNPM in Data Concentrator Mode

DNP3 Specifications

Specification	Description
Mode Supported	Master, Data Concentrator, Unscheduled
Application Functions Supported*	• Read • Write • Select Before Operate • Direct-Operate • Direct-Operate-No-Response • Authentication Request and Response • Freeze, Freeze-No-Response, Freeze and Clear • Unsolicited Response
DNP3 Secure Authentication	Yes (v5)
DNP3 Events Supported	Yes
DNP3 Class Supported	0, 1, 2, 3
DNP3 Groups and Variations	Yes (see manual and device profile document)
DNP3 Unsolicited Responses	Yes
DNP3 Time Sync	Yes
DNP3 Objects*	Binary, 16-bit Analog, 32-bit Analog, Counters, Octet Strings, Unsigned Integers
Event Buffer	>1.3 million events (50K per DNP3 Group per DNP3 Event Class)
DNP3 Secure Authentication**	• Pre-shared key change method supported • AES-128 and AES-256 Key Wrap Algorithms supported • HMAC-SHA-1, HMAC-SHA-256, AES-GMAC MAC Algorithms supported • Aggressive Mode supported

*Please refer to the DNP Master Device Profile document and product manual for a full list of all supported functions.

**Please refer to the product manual for a detailed description on DNP3 Secure Authentication v5.

EtherNet/IP Specifications

Specification	Description
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	Max 250
TCP Connections	Max 250
CIP Connections	Max 10
Communications Rate	10/100 Mbps
Duplex Mode	Full / Half / Auto Negotiate
Auto MDIX	Yes
Embedded Switch	Yes, 2 x Ethernet ports

Modbus TCP/IP Specifications

Specification	Description
Mode	Client or Server
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	Max 40
TCP Connections	Max 40
Communications Rate	10/100 Mbps
Duplex Mode	Full / Half / Auto Negotiate
Auto MDIX	Yes

Modbus RTU Specifications

Specification	Description
Mode	Master or Slave
Connector	9-pin (RS232/485)
Communications Rate	115,200 bps (maximum)

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Physical Specifications

Specification	Description
Enclosure Rating	IP20, NEMA/UL Open Type, DIN Rail Indoor-Use Only
Dimensions (H x W x D)	5.86 x 1.33 x 4.56 in 149 x 34 x 116 mm
Ethernet Port	(2) 10/100 Base-T, RJ45 connector
Serial Port	(2) RS232, RS485 (1 x 9-way terminal)
USB	(1) USB2.0, Type A Recommended USB Cable: Type-A (male) to Type-B (male)
microSD Card	Yes

Electrical Specifications

Specification	Description
Power	Input: 10 to 32V DC, (121 mA @ 24 VDC)
Power Consumption	3.1 W (Including full load on USB of 200mA) 300 mA maximum
USB Power	5V, maximum load of 200 mA (1W)
Connector	3-way terminal
Earth connection	Yes, terminal based

Environmental Specifications

Specification	Description
Operating Temperature	IEC 60068 -4°F to +158°F (-20°C to +70°C)
Relative Humidity	IEC 60068-30 5% to 95%, with no condensation
Altitude	<2000 m

Hardware Specifications

Specification	Description
Earth Connection	Yes, terminal based
Emissions	IEC 61000-6-4
ESD Immunity	EN 61000-4-2
Radiated 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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Ordering Information

To order this product, please use the following:

Distributed Network Protocol (DNP3) Master Gateway

PLX51-DNPM

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to: www.prosoft-technology.com and select *Where to Buy* from the menu.

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