DNP 3.0 Master/Slave Communication Module

PTQ-DNPQ

The PTQ-DNP module is the ideal solution for many applications where DNP 3.0 Master/Slave protocol connectivity must be added to a Quantum or Unity system.

The DNP solution is designed to address the expanding interest in the DNP 3.0 protocol. The protocol was developed for the Power Utility industry and is recommended by the IEEE for RTU-IED communication applications. Additional industrial applications are quickly arising in the Water/Wastewater and Oil and Gas industries.

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DNP 3.0 Master/Slave Communication Module

PTQ-DNPQ

The DNP 3.0 Master/Slave Communication Module is a single slot, backplane compatible DNP 3.0 interface solution for the Schneider Electric Quantum or Unity platform. This module provides highly configurable support of both DNP 3.0 Master and Slave implementations.

Features and Benefits

The module supports DNP Subset Level 2 features and some of the Level 3 features allowing the many SCADA and field devices supporting the DNP protocol to be integrated into the Quantum or Unity platform. The module acts as an input/output module between the DNP network and the Modicon backplane. The data transfer from the Quantum or Unity processor is asynchronous from the actions on the DNP network. Databases are user defined and stored in the module to hold the data required by the protocol.

General Specifications

- Single Slot - Quantum backplane compatible
- The module is recognized as an Options module and has access to PLC memory for data transfer
- Configuration data is stored in non-volatile memory in the ProTalk module
- Up to six modules can be placed in a rack
- Local rack - The module must be placed in the same rack as processor.
- Compatible with common Quantum / Unity programming tools.
- Quantum data types supported: 0x, 1x, 3x, 4x
- High speed data transfer across backplane provides quick data update times.
- Sample function blocks available.

Hardware Specifications

Specification	Value
Backplane Current Load	800 mA @ 5 V
Operating Temperature	0 to 60°C (32 to 140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5% to 95% (non-condensing)
Vibration	Sine vibration 4-100 Hz in each of the 3 orthogonal axes
Shock	30G, 11 mSec. in each of the 3 orthogonal axes
Dimensions (HxWxD), Approx.	250 x 103.85 x 40.34 mm / 9.84 x 4.09 x 1.59 in
LED Indicators	Module Status Backplane Transfer Status Serial Port Activity Serial Activity and Error Status

Specification	Value
Debug/Configuration Port (Debug)	
CFG Port (DEBUG)	DB-9M PC Compatible RS-232 only No hardware handshaking
Application Ports	
Application Serial Ports (PRT1, PRT2)	DB-9M PC Compatible RS-232/422/485 jumper selectable RS-422/485 screw termination included RS-232 handshaking configurable 500V Optical isolation from backplane
Certifications	cULus, ATEX, CE

Functional Specifications

The module has two DNP protocol ports that can be configured to operate in a Master/Slave or Slave/Slave redundant port configuration. User defined internal register space is accessible to the protocol driver and to the Quantum processor memory.

Redundant Slave Port Operation

When configured in the Slave/Slave port configuration, the module's slave ports operate in a primary and secondary fashion. In this mode, a single host polls the module via redundant physical layer connections.

DNP 3.0 Slave Protocol Specifications

The DNP Slave port accepts DNP commands to control and monitor data stored in the module's DNP Slave databases. If a DNP Master port is configured, a portion of the slave databases can be derived from or can control IED devices connected to the DNP master port.

- Report-by-Exception data is logged to the module's database
- Supports unsolicited messaging
- Each DNP point type is user configurable by point
- Class assignments are completely user-definable on a Type and point basis (BI, AI, FI, DI point types)
- Supports clock synchronization from a master or from the processor
- Support for four octet-strings are supported (object type 110) in the slave driver to return version and other module information
- Up to 400 events are stored for Floats, Binary In, Analog In and Double Inputs
- Configurable event buffer transmission threshold based on count and/or time since last event transmission
- Collision avoidance for redundant port switching
- Special modem AT command string and timing support for dialing out on redundant port

DNP 3.0 Master Protocol Specifications

The DNP 3.0 Master port can be configured as a virtual DNP Master device that actively issues user-defined DNP commands to nodes on the network.

- Supports 300 user defined commands
- Master port logically supports up to 40 slave devices
- Individual command configuration includes conditional or continuous polling, Poll Delay Time
- Slave status and Command status available for transfer to the processor
- Event data received from the slave devices updates the module database (Date and Time stamping is not stored or used by module)
- Special command handling for Digital Output CROB under processor control for pulse output control
- Supports Report-by-Exception and Unsolicited Responses on a Time Interval basis or on a user determined Event Count basis. Analog and Binary input points are supported

DNP 3.0 ports (PRT1 & PRT2)

- User-definable module memory usage
- Full radio, modem and multi-drop support
- Support for the storage and transfer of all DNP data types across the backplane

Additional Products

ProSoft Technology offers a full complement of hardware and software solutions for a wide variety of industrial communication platforms. Compatible products in the ProTalk product line also include:

IEC 60870-5-101 Master Communication Module (PTQ-101M)
IEC 60870-5-101 Slave Communication Module (PTQ-101S)
IEC 60870-5-103 Master Communication Module (PTQ-103M)
DNP 3.0 Slave Communication Module (PTQ-DNPS)

Visit our web site at http://www.prosoft-technology.com for a complete list of products.

Ordering Information

To order this product, please use the following:

PTQ-DNPQ	DNP 3.0 Master/Slave Communication Module

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft distributors near you, go to http://www.prosoft-technology.com

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April 07, 2008