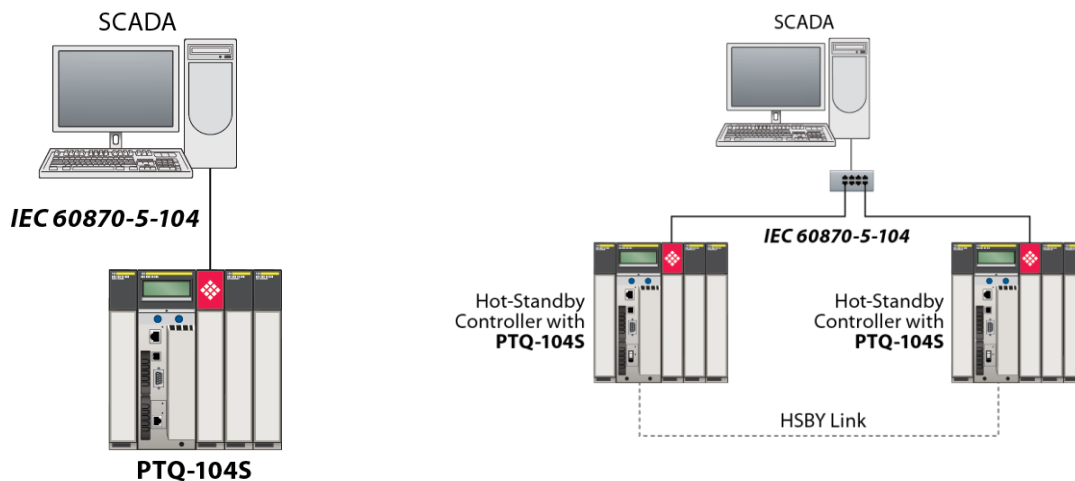![ProSoft Technology logo - ProSoft® TECHNOLOGY]

DATASHEET

IEC 60870-5-104 Server for Quantum PTQ-104S

The IEC 60870-5-104 Server Communication Module allows compatible processors to interface easily with IEC 60870-5-104 protocol-compatible hosts. Developed under license from Schneider Electric, the module incorporates proprietary backplane technology that enables powerful data access to the Quantum processor.

The PTQ-104S module acts as an input/output module between the IEC-60870-5-104 Ethernet network and the processor. Data transfer between the module and the processor is asynchronous from the actions on the network. Databases are defined by the user for the module to hold data as required by the protocol.

Features	Benefits
Hot-Standby	♦ Allows module to be controlled by a secondary Quantum processor in the event of a main processor failure.
Personality Module	♦ Incorporates a non-volatile Compact Flash memory for storing the module's setup and network configuration data (or personality) ♦ Allows restoring of a module by simply exchanging the Personality Module with no need to use PC or re-configure.
Supports unsolicited messages, either cyclic or spontaneous	♦ Optimized communicating for efficient bandwith usage on WAN networks
Event time-stamping configurable by type	♦ More accurate information for sequence of events reporting

Configuration

ProSoft Configuration Builder (PCB) provides a PC-based software configuration solution for quick and easy management of module configuration files, as well as viewing communication and network diagnostics.

PCB is not only a powerful solution for new configuration files, but also allows you to import information from previously installed (known working) configurations into new projects.

General Specifications

- Single Slot - Quantum backplane compatible
- The module is recognized as an Options module and has access to PLC memory for data transfer
- Local rack - The module must be placed in the same rack as processor
- Compatible with all common Quantum programming packages, including Concept (version 2.6 or higher), Unity Pro (version 2.2 or higher), ProWORX (version 2.20 or later), and ModSoft
- Quantum data types supported: 3x and 4x
- High speed data transfer across backplane provides quick data update times
- Personality Module - a non-volatile industrial-grade Compact Flash (CF) card used to store network and module configuration for easy disaster recovery, allowing quick in-the-field product replacement by transferring the CF card.
- Supports Hot-Standby processors or applications using Unity Pro

Functional Specifications - PTQ-104S

The PTQ-104S module accepts data read/write commands from a Master/Client on the network. In addition, the module can be configured to generate unsolicited messages in either a spontaneous or cyclic fashion.

The module has 4000 words of user defined internal register space that are accessible to the protocol driver and to the Quantum processor memory. Any of the supported database types can be individually located (within the total database size limit of 4000 words) and each database point is mapped within the module and can be assigned to one or more groups. The supported database point types are:

Database Type	Description	Event Generation	Point Size
M_SP_NA	Monitored single-point database	State Change	1 bit
M_DP_NA	Monitored dual-point database	State Change	2 bits
M_ST_NA	Monitored step-point database	State Change	1 byte
M_BO_NA	Monitored 32-bit Bitstring database	State Change	2 words
M_ME_NA	Monitored normalized-point database	Dead-band	1 word
M_ME_NB	Monitored scaled-point database	Dead-band	1 word
M_ME_NC	Monitored short-float point database	Dead-band	2 words
M_IT_NA	Monitored integrated total database	N/A	2 words
C_SC_NA	Command single-point database	N/A	1 bit
C_DC_NA	Command dual-point database	N/A	2 bit
C_RC_NA	Command step-point database	N/A	1 byte
C_BO_NA	Command 32-bit Bitstring database	N/A	2 words
C_SE_NA	Command normalized-point database	N/A	1 word
C_SE_NB	Command scaled-point database	N/A	1 word
C_SE_NC	Command short-float point database	N/A	2 words

IEC 60870-5-104 Server Specifications

Operating in the Server mode, the module accepts commands from a Client(s) to read/write data stored in the module's internal registers. This data is easily and continuously transferred between the module and the Quantum processor's data registers.

The IEC 60870-5-104 Server functionality supported by the module includes:

- The IEC 60870-5-104 communication driver is built in accordance to the approved IEC specification
- The module functions as a Server on the network supporting data read/write commands from an IEC 60870-5-104 Client on the network
- One TCP server socket
- Supports unsolicited messages, either cyclic or spontaneous (cyclic rate is configurable)
- Supports clock synchronization commands from client or from the Quantum
- Supports Group interrogation (Global, General 1 to 16, Global Counters, Counters 1 to 4)
- Event time-stamping configurable by type (None, 24 bit, 56 bit)
- Event queue supports 99 points for each data type
- Optional user defined list of acceptable client host IP addresses

Hardware Specifications

Specification	Value
Backplane Current Load	1100 mA maximum @ 5 Vdc ± 5%
Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Relative Humidity	5% to 95% (without condensation)
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 40.34 x 103.85 mm 9.84 x 1.59 x 4.09 in
LED Indicators	Module Status Backplane Transfer Status Serial Port Activity LED Serial Activity and Error LED Status
Debug/Configuration Port (Debug)	
CFG Port (DEBUG)	DB-9M PC Compatible RS-232 only No hardware handshaking
Application Ports	
Application Ethernet port	RJ45 Connector Link and Activity LED indicators Electrical Isolation 1500 V rms at 50 Hz to 60 Hz for 60 s, applied as specified in section 5.3.2 of IEC 60950: 1991 Ethernet Broadcast Storm Resiliency = less than or equal to 5000 [ARP] frames-per-second and less than or equal to 5 minutes duration

Agency Approvals & Certifications

CSA/cUL
CSA CB Certified
ATEX