

### SY/MAX® – Modicon™ Integration Products

- Quantum-SY/MAX-Ethernet Network Option Module
- BM85Y Modbus® Plus to SY/MAX Gateway
- Class 8030 Type CRM931 RIO Adapter Module

SY/MAX Integration Products have been developed to provide connectivity between the Modicon and SY/MAX product lines. These products give customers the ability to link both Modicon and SY/MAX controllers in either a single solution or network multiple applications. The products are designed to work individually or together, depending on the application.

This Technical Overview provides a brief introduction to the products that are available. For additional information and more complete product specifications, refer to the product instruction bulletins listed on the back of this document.

#### Quantum-SY/MAX-Ethernet (QSE) Module

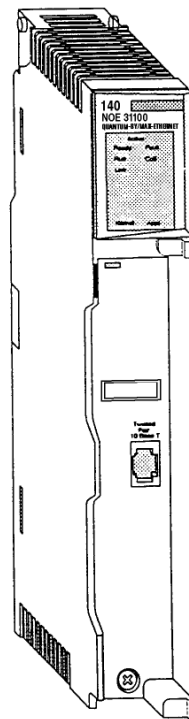
The **Quantum-SY/MAX-Ethernet (QSE) Module** is a network option module that resides in a Quantum backplane, or rack, and allows communication between Quantum programmable logic controllers (PLCs) and SY/MAX devices using SY/MAX 802.3 protocol and applications. Two models are available:

- **140 NOE 311 00** provides a 10Base-T compatible port for connecting to Ethernet twisted pair networks
- **140 NOE 351 00** provides a 10Base-FL port for connecting to fiber optic networks.

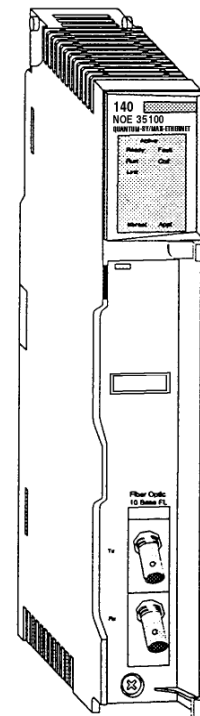
SY/MAX devices provide 10Base-2 ThinWire compatible ports. A 10Base-2/10Base-T converter used with the QSE Module (Model 140 NOE 311 00) enables SY/MAX-Quantum communication over Ethernet twisted pair networks. A 10Base-FL/10Base-2 converter used with the QSE Module (Model 140 NOE 351 00) enables SY/MAX-Quantum communication over fiber optic networks.

The QSE Module provides the following features:

- Eight front-panel LEDs for module and communication status, and easier troubleshooting
- FLASH memory for easier upgrading
- Support for SY/MAX priority/non-priority reads/writes
- Quantum MSTR Block initiated register read/write from SY/MAX
- MSTR Block to change drop number
- Field-upgradability via Modsoft® software
- Quantum reads/writes to SY/MAX at 8000 registers/sec
- SY/MAX reads/writes to Quantum at 10,000 registers/sec



140 NOE 311 00



140 NOE 351 00

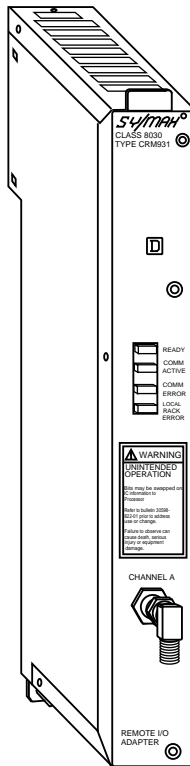
## Class 8030 Type CRM931 RIO Adapter Module

The **Class 8030 Type CRM931 RIO Adapter Module** is a module that resides in Slot 1 of a SY/MAX Class 8030 Type RRK100, -200, or -300 register rack or Class 8030 Type HRK100, -150, or -200 digital rack. The adapter module allows a Quantum processor to control SY/MAX Class 8030 discrete and intelligent I/O.

The CRM931 module is compatible with a Modicon Quantum or E984 PLC when the module resides in a remote SY/MAX rack that is part of a Modicon S908 RIO System.

The CRM931 RIO adapter module provides the following features:

- User-selectable rotary switches that identify the RIO drop module as one of up to 31 drops per RIO head
- 128 addressable registers (64 input, 64 output) per RIO drop
- 4 LEDs to indicate status of the RIO adapter module (READY, COMM ACTIVE, COMM ERROR, LOCAL RACK ERROR)
- A data transfer rate of 1.544 Mb/s with 16-bit CRC
- "F" type female connector with right angle adapter providing one channel external communication
- Continuous I/O updates even when power or communication is lost to 1 or more additional drops
- Field-upgradability via Modsoft software
- Easy migration path; supports both SY/MAX and Modicon I/O
- Connectivity for MMI and motion solutions



## BM85Y Modbus Plus to SY/MAX Gateway

The **NW-BM85Y422 Modbus Plus to SY/MAX Gateway** is a Modicon™ communications interface module that provides a communications bridge between SY/MAX or PowerLogic® systems and a Modbus Plus LAN. The NW-BM85Y422 Gateway supports the following SY/MAX protocols on all four serial ports:

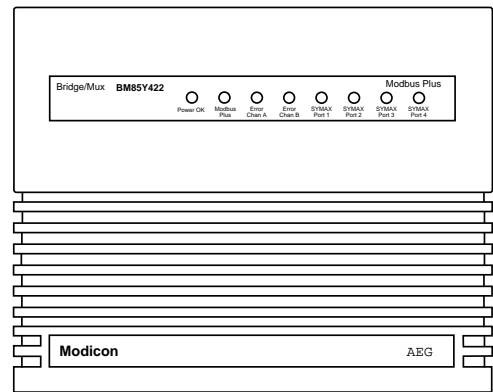
- SY/MAX point-to-point
- SY/MAX net-to-net
- PowerLogic NIM

The BM85Y Gateway has a Modbus Plus port. The four configurable ports on the Gateway are RS-422 compatible for direct pinout to SY/MAX devices; each port supports communications from 300-14.4K baud.

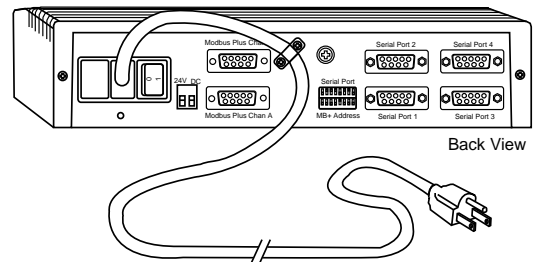
Dip switch settings determine the mode of operation, either protocol conversion mode or configuration mode. Protocol conversion mode is the usual operation mode. Configuration mode allows communication parameters for the Gateway (for example, baud rates, time-out value) to be programmed and stored in the Gateway's FLASH memory. The protocol conversion mode then uses the stored parameters.

Gateway communications parameters can be set in any of three ways:

- With an ASCII terminal or PC using a terminal emulation program on serial port 1
- Using MSTR block instructions
- Using TREAD or TWRTE instructions through serial ports 2, 3, or 4



Top View



Back View



# Specifications

## CRM931

**Agency Compliance** ..... UL 508, CSA C22-2, Factory Mutual Class 1 Division 2 Hazardous Locations

### Electrical Specifications

Current Draw On SY/MAX  
 Power Supply ..... 750 mA (typical); 900 mA (max.)  
 Undervoltage Lockout  
 Circuit..... Halts and resets the module and removes it from the RIO network when incoming DC supply voltage falls below approximately 4.6 VDC

### Environmental Specifications

Ambient Temperature  
 Operational ..... 32 to 140°F (0 to 60°C)  
 Storage ..... -13 to 176°F (-25 to 80°C)  
 Humidity ..... 5-95%, non-condensing

### Backplane Compatibility

Must be in slot 1 of SY/MAX Class 8030 Type RRK100, -200, or -300 register racks or Type HRK100, -150, or -200 digital racks

## BM85Y422 Gateway

**Agency Compliance**..... UL ML File Number 532F (Industrial Control Equipment) CSA ML File Number LR326 CE

### Electrical Specifications

Power Source..... 115/230 VAC or 24 VDC

### Environmental Specifications

Ambient Temperature  
 Operational..... 32 to 140°F (0 to 60°C)  
 Storage..... -40 to 212°F (-40 to 80°C)  
 Humidity ..... 0-95%, non-condensing

## QSE Module

**Agency Compliance**..... UL 508, CSA C22-2, Factory Mutual Class 1 Division 2 Hazardous Locations

### Electrical Specifications

Current Draw On  
 Power Supply ..... 750 mA (typical); 900 mA (max.)

### Environmental Specifications

Ambient Temperature  
 Operational..... 32 to 140°F (0 to 60°C)  
 Storage..... -13 to 176°F (-25 to 80°C)  
 Humidity ..... 5-95%, non-condensing

### Backplane Compatibility

May be placed in a 3-, 4-, 6-, 10- or 16-position Quantum backplane

## ORDERING INFORMATION

Product	Description
8030 CRM931	Class 8030 CRM931 RIO Adapter Module
NW-BM85Y422	Modbus Plus to SY/MAX Gateway
140 NOE 311 00	QSE Module: Ethernet twisted pair connector
140 NOE 351 00	QSE Module: fiber optic connectors

For additional information about the QSE Module, refer to the Modicon *QSE Module User's Manual* (Modicon #840 USE 111 00). For additional information about the CRM931 Module, refer to the *Class 8030 Type CRM931 RIO Adapter Module Instruction Bulletin* (Square D part number 30598-822). For additional information about the BM85Y Gateway, refer to the *Modicon Modbus Plus to SY/MAX Gateway Programmable Bridge Mux User Guide* (Modicon #840 USE 110 00).

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