NR&D

SERM

SY/MAX® Ethernet Rack Master

Overview

The Niobrara R&D SERM module is a SY/MAX® Ethernet Rack Master. It replaces the CPU in the CPU slot of a SY/MAX® rack and maps its I/O to Modbus/TCP. The SERM can then be controlled via Ethernet from another PLC or SCADA.

Upgrading from SY/MAX to Unity or Concept is now as simple as adding entries to the Quantum's (or Premium or M340 or Compact or Momentum) Ethernet I/O Scanner for each SERM controlled rack. The SERM's powerful internal register mapper may be configured using a standard web browser or included PC software. This mapper allows the SY/MAX input and output modules to be logically grouped together to minimize the number of Modbus/TCP messages required for control. Most systems will only need a single combination read+write I/O Scanner entry per SERM. The SY/MAX status of each module register is available to Modbus/TCP for monitoring blown fuses, analog over-range, etc. Each output register has its own default value that the SERM provides when there is a loss of remote control.

Several features of the SERM address security concerns. The potential Ethernet master of the SERM is limited to a list of allowed IP addresses. A keyswitch on the front panel allows the rack to be halted or memory protected to prevent unwanted modifications to the configuration through the Ethernet network. The SERM may be placed in "Disable Outputs" mode for testing without actually controlling the I/O. The configuration is stored in FLASH memory for long term power outages and storage of replacement units.

The 10BaseT Ethernet port provides a standard Cat5 connection to the LAN. A standard SY/MAX pinout RS-422 serial port that supports both SY/MAX and Modbus/RTU protocols allows easy configuration of the IP address and troubleshooting with the included PC software. LEDs are provided to indicate module Power, Run, Program, Memory Error, I/O rack Error, Outputs Disabled, Mapper Configuration Error, Ethernet Error, Serial port RX and TX, Ethernet Link, Collision, RX, and TX.

The SERM does not, however, support Remote I/O from the local rack. Installations with Remote I/O drops require an SERM installed in each Remote I/O rack.

Features

- Web interface for configuration and troubleshooting
- PC program for online/offline configuration and troubleshooting
- Flexible register mapper allows I/O to be arranged logically
- Supports Register and Digital racks:
  RRK-100, RRK-200, RRK-300, HRK-100, HRK-150, HRK-200
- Supports Discrete I/O Modules:
  HIM-101, HOM-221, RIM-101, RIM-331, RIM-731, ROM-221, ROM-271
- Supports Intelligent I/O Modules:
  RIM-121, RIM-125, RIM-126, RIM-131, RIM-144, ROM-121, ROM-122, ROM-141
- Reverts to default values on loss of communication
- Default values configurable for every output word
- Configuration stored in flash memory
- Supports a list of four allowed controlling IP Addresses
- Supports the combined Read+Write message from Modicon PLC I/O Scanners
- Supports "Disable Outputs" feature of SY/MAX rack for system testing
- Upgrade SY/MAX® PLC control system without rewiring I/O

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Ordering Information

The SERM is available as:

- **SERM-T** SY/MAX Ethernet Rack Master, 10BaseT Ethernet

Related Equipment

The SERM has the following equipment available:

- **SC902** 6' programming cable with **TR92** transformer

Specifications

Dimensions	Standard SY/MAX register module. 1.5" wide by 13" tall by 6.5" deep. Approximately four pounds net. Rugged welded steel enclosure with baked on finish.
Power Requirements	From SY/MAX bus. 5 volts, 0.8 A.
Keyswitch	Three position keyswitch (Run, Run/Program, and Halt) on front panel allows lockout of changes once configured.
Ethernet Port	10BaseT twisted pair Ethernet. Link and Collision indicators on module front panel. Modbus/TCP and HTTP protocols.
Serial Port	SY/MAX compatible RS-422 with same pinout as SY/MAX processor. DB9 female connector with slide lock posts. 9600 baud, even parity, SY/MAX or Modbus/RTU. Diagnostics, configuration, and firmware updates only.
Indicators	Power, Run, Program, Memory Error, I/O Error, Outputs Disabled, Configuration Error, Ethernet Error (all on top panel). Transmit and Receive indicators for serial port. Transmit, Receive, Link, and Collision indicators for Ethernet, on bottom of front panel. Fourteen indicators total.
Setup Registers	Processor equivalent registers store the configuration of the unit. These registers are maintained by rack power when present. Setup is restored from flash memory after power cycle.

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