

NR&D



“...controlling devices on an Allen-Bradley Remote I/O (RIO) network from a Schneider Automation Quantum PLC.”

“...ideal for upgrading to a Quantum PLC without replacing Remote I/O.”

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QRIO

Quantum™ Remote I/O Scanner

Description

The QRIO is a scanner card for controlling devices on an Allen-Bradley® Remote I/O (RIO) network from a Schneider Electric Quantum™ PLC. It is ideal for customers that have an installed Remote I/O network and want to upgrade to a Quantum PLC without changing out all of their Remote I/O. It can also be used to add specialty RIO devices to an existing Quantum PLC system.

The QRIO is a Quantum form factor, single-width module with two RIO ports and an RS-232 serial port on the front. The QRIO is a Quantum PLC option module and must be used in local racks. It is compatible with all Quantum PLC programming packages that support the NOE771 Ethernet Option module, including Unity, Concept, Modsoft and ProWorx.

Applications

The QRIO supports three different mechanisms for communicating with RIO devices: Discrete I/O, Block Transfer I/O, and Block Transfer Messaging. The QRIO can use any or all of the mechanisms, depending upon the capabilities of the Remote devices.

Discrete I/O is updated via the PLC's I/O scanning table. Block Transfer I/O and Block Transfer Messaging are accomplished using the Quantum's MSTR instructions. This is similar to Allen-Bradley's mechanism for accessing devices that use these message types.

When using the I/O scanning table, data from the Discrete I/O devices are placed into the PLC's 4x, 3x, 1x, or 0x memory. The Discrete I/O devices are written with data coming directly from the Quantum's PLC registers.

The QRIO is configured via the PLC programming software; no new configuration software or MDC files are required. When configuring the QRIO, the user selects the NOE771 Ethernet Option module for the QRIO's module type. The baud rates of the serial ports are configured in the IP address area of the module configuration. The I/O scanner table is also configured and stored in the PLC. Since the entire configuration of the QRIO is stored in the PLC, a QRIO can be replaced without requiring a laptop to configure the new one.

Remote I/O Ports

The QRIO has two independent RIO ports. Each port will support up to 32 RIO devices, so each QRIO can support up to 64 RIO devices on two networks. The QRIO scans the Remote I/O network under the control of the PLC, but it is important to note that Remote I/O scans and PLC scans are asynchronous.

The RIO ports use removable screw-terminal connectors to allow for fast module changes. The baud rates of the two ports are independently configurable.

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Serial Port

FLASH memory allows the firmware in the QRIO to be updated in the field. The serial port of the QRIO is an RS-232 port with an RJ45 connector. It has the same pinout as Modicon's Compact, Micro and Momentum PLCs. The programming cable for the listed PLCs can be used when upgrading the QRIO firmware, or purchase a Niobrara MM1 cable. A firmware load/run switch is located on the back of the module.

Notes

The QRIO comes with a manual on CD, a one-year warranty and one-year free firmware upgrades.

Ordering Information

The QRIO is available as:

- **QRIO-002** with 2 Remote I/O Ports

Specifications

Dimensions	Standard Quantum module. 1.59" wide by 9.84" tall by 4.09" deep (40 x 250 x 104 mm). Approximately 12 oz. (340 g.) net. All connectors and indicators are front-mounted except the Quantum bus card edge connector on the back.
Power Requirements	From Quantum bus; 5 VDC, 500mA max (400mA typical).
Operating Conditions	0 to 60 degrees C; humidity up to 90% noncondensing; pressure altitude -200 to +10,000 feet MSL.
Serial Port	RS-232 serial data port. RJ45 female connector, Modicon Micro pinout
Remote I/O Ports	Two 3-position removable connectors with screw terminals. 57.6, 115.2 or 230.4 Kbaud, software configurable.
Indicators	LED indicators for Module Active, Ready, Run, and Fault; Network Comms; and serial port TX and RX.