

NR&D

LIMITORQUE

QUCM Application

Description

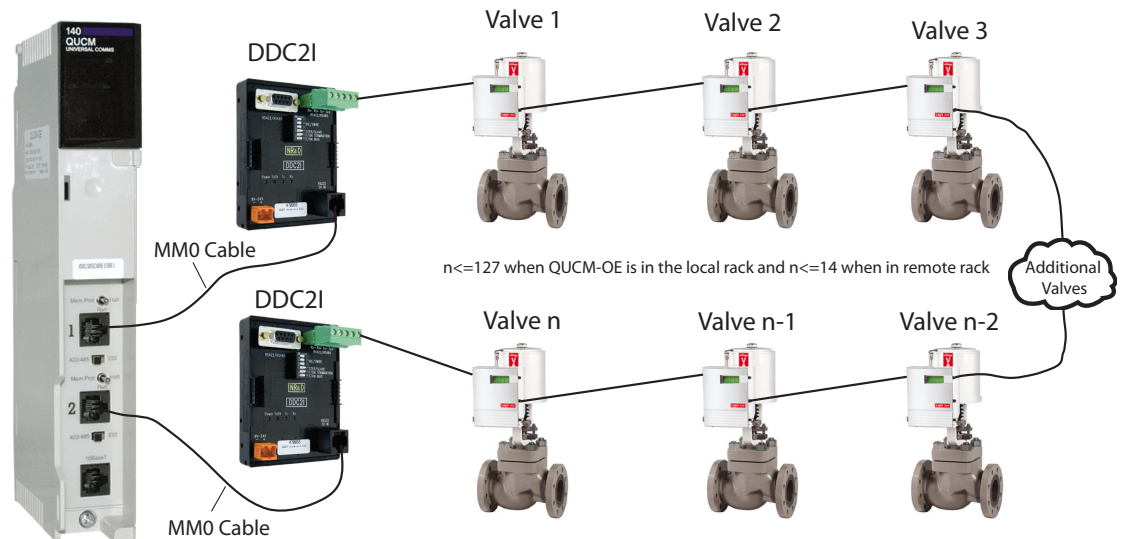
The QUCM Limitorque application allows a Quantum PLC to easily control a self-healing Modbus serial ring loop of Limitorque valve actuators. Both serial ports of the QUCM are connected to an RS-485 ring through a pair of DDC21 optically isolated RS-232<->RS-485 converters.

This application is compatible with Quantum PLCs running Unity Pro, Concept, or ProWorx.

The QUCM automatically communicates with each actuator from both directions and can determine if the ring is complete and which actuators are accessible from either QUCM port. This ring network topology allows for the breaking of the network in one location while still providing full control of all the actuators. Diagnostic registers can be used to determine the location of the cable break.

"... automatic cable break detection while retaining control of the actuators.."

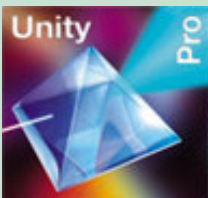
"... built-in Web server for easy troubleshooting.."



Local PLC Rack Operation

The QUCM may be used in the local Quantum CPU rack and supports up to 127 actuators on its ring network. The module is configured as an NOE-771-01 in the PLC and the I/O Scanner table is used to define the actuators to be polled. Each entry in the I/O Scanner table determines the PLC registers for each actuator. Seven words of data are read from each actuator to provide the position, status, and alarms. One word of output is used to control the actuator including: start, stop, reset, and move to a % open position. The I/O Scanner Device Control Block may be used to disable polling of individual actuators.

The normal I/O Scanner Health block is expanded to provide health status of each actuator on each QUCM serial port. Additional status registers are provided immediately following the health block for QUCM port 2 and provide the most recently polled valve number, status of the ring, valve write enable for the QUCM, scan time for the primary port in mS, and scan time for the secondary port in mS.



Collaborative Automation
by
Schneider Electric

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Remote Rack Operation

The QUCM may be mounted in a remote PLC rack and control a ring network of up to 14 actuators. The QUCM operates as an I/O module with 32 words of inputs and outputs. These I/O words configure the polling list, provide the valve setpoints, and report the valve position and status.

Ethernet Support

The QUCM-OE module includes a 10BaseT Ethernet port and this application includes a Modbus/TCP server to access individual actuators directly from Ethernet and a Web server to aid troubleshooting.



Entry	Modbus Slave	QUCM Port 1	QUCM Port 2	Valve Setpoint (Reg 1)	Valve Position (Reg 8)	Valve Status (Reg 9)	P1 Timeout Count	P2 Timeout Count
1	1	OK	Offline	19205 (5%)	0	0000100000000110 Full CLOSE Stopped Channel B Fault	0	0
2	2	OK	Offline	0 (NULL Command)	0	0000100000000110 Full CLOSE Stopped Channel B Fault	1	0
3	3	Offline	OK	0 (NULL Command)	0	0000010000000110 Full CLOSE Stopped Channel A Fault	4	0
4	4	Offline	OK	0 (NULL Command)	0	0000010000000110 Full CLOSE Stopped Channel A Fault	4	0
5	5	Offline	OK	0 (NULL Command)	0	0000010000000110 Full CLOSE Stopped Channel A Fault	4	1

"... control Limatorque actuators from a Quantum Local or Remote Rack.."

Ordering Information

This application may be obtained for free from the following link:

<http://www.niobrara.com/html/apps/qucm/limitorque.html>

This application may be preloaded into a QUCM when ordered as:

- **QCP726** Includes one QUCM-OE with the Limatorque app and two DDC2I converters

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