RMC Ethernet
Fieldbus Communications for RMC100 Motion Controllers

Ethernet, formerly reserved only for office local area networks, is rapidly becoming a major dedicated industrial network. The RMC Ethernet module connects the high-performance RMC motion controller family into these networks.

Delta's goal is to support all major PLC and PC-based control Ethernet devices. However, all Ethernet and TCP/IP devices are not necessarily compatible because these terms refer to electrical and routing standards and do not define the format of the transferred data: the application protocol. See *RMC Ethernet Compatibility* for our current list of supported devices.

Refer to other RMC data sheets and the RMCWin online help for more information. Download RMCWin from Delta's web page at **www.deltamotion.com**.

Applications

- Presses
- Injection/RIM/blow molding
- Packaging equipment
- Indexing/transfer lines
- Edgers/headrigs/veneer lathes
- Pinch rollers/winders/wrappers
- Casting/forging
- Palletizers/stackers
- Flying cutoff/curve sawing
- Cyclic testing
- Robotics/animatronics
- Pneumatic press rolls
- Tube bending/forming

RMC Ethernet Features

- 10Mbit/s data transfer
- Allows direct access to all RMC registers:
  - Axis status registers
  - Axis command registers
  - Axis parameters
  - Discrete I/O status registers
  - Event Step Table
  - Input to Event Table
  - Axis graphs
- Support for a variety of Ethernet TCP/IP devices. See *RMC Ethernet Compatibility*.
- Scheduled I/O data through ***EtherNet/IP***.
- Supports BOOTP and DHCP dynamic configuration protocols as well as manual configuration through the included RMCWin software package.
- Use the RMCENET ActiveX® Control to control the RMC from your Visual Basic®, Visual C++®, Java, and VBA (e.g. Excel) programs.

RMC Ethernet Compatibility

Delta currently supports the application protocols of the following devices:

- **Allen-Bradley SLC 5/05**, **PLC-5**, **CompactLogix**, **MicroLogix**, **ControlLogix**, **SoftLogix 5** and **5800**. Ethernet is either built-in or requires an Ethernet module on each of the above controllers. (www.ab.com)
- **Automationdirect.com DirectLogic DL205/405**
  Use with the H2-ECOM and H4-ECOM Ethernet modules. (www.automationdirect.com)
- **GE Fanuc Series 90-30**
  Requires Ethernet TCP/IP module IC693CMM321 revision GH or higher. (www.gefanuc.com)
- **Modicon® Quantum**, **Modicon® Premium**. An Ethernet TCP/IP module is required. (www.modicon.com)
- **Omron CS1 and CV PLCs**
  Use with the CS1W- or CV500-ETN01 Ethernet module. (www.omron.com/oei)
- **Siemens Simatic S7-300/400**
  Use with the CP 343-1 TCP and CP 443-1 TCP modules. (www.sea.siemens.com)
- **SoftPLC Corp.'s SoftPLC**
  This PC-based controller comes standard with Ethernet support. (www.softplc.com)
- **PC**
  PC-based SCADA or control software that supports any of the above controllers can also communicate with the RMC.

Call Delta to inquire about support for other Ethernet devices.

DELTA COMPUTER SYSTEMS, INC.

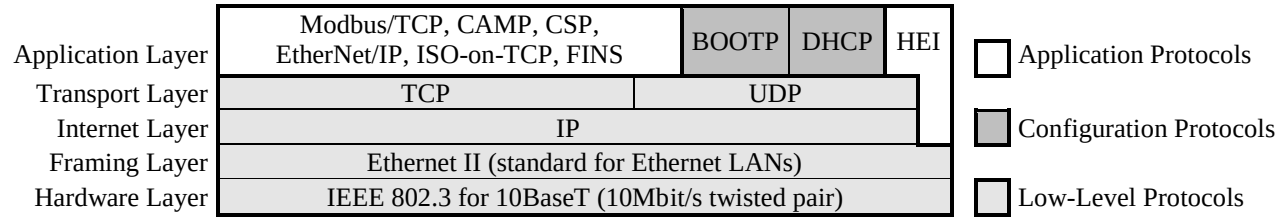
RMC Ethernet

Specifications

Ethernet Interface	Data Rate	10Mbit/s
	Hardware interface	IEEE 802.3 for 10BaseT (twisted pair)
	Connector	RJ-45
Configuration	Configuration parameters	IP address, subnet mask, and gateway address
	Configuration methods	Manually using included RMCWin software, or BOOTP or DHCP dynamic configuration protocols
Protocol Support	Framing protocol	Ethernet II
	Internet protocol	IP (includes ICMP and ARP)
	Transport protocols	TCP, UDP
	Application protocols	Modbus/TCP, CAMP, CSP, EtherNet/IP (CIP), S7 Fetch/Write (via ISO-on-TCP), Omron FINS, Automationdirect.com (HEI) (Call Delta for availability of other protocols)
	Certifications	EtherNet/IP conformance tested
Environment	Operating temperature	+32 to +140 °F (0 to +60 °C)
	Storage temperature	-40 to +185 °F (-40 to +85 °C)
	Agency compliance	CE, UL, CUL

Protocol Diagram

It is important to understand that before two Ethernet devices can communicate, they must agree on *all* protocol layers. The following diagram shows many of the protocols supported by the RMC Ethernet and illustrates the layer to which each belongs and protocols on which each is based. For example, Modbus/TCP uses TCP, which uses IP, which uses Ethernet II, which uses IEEE 802.3 for 10BaseT:



NOTE: The application protocol defines the content and format of the data transmitted by TCP or UDP.

Third-party devices such as bridges may be used to convert to other framing types—such as Token Ring—and/or hardware types—such as 10Base2 (BNC or coax), 10BaseFL (fiber optic), and 100BaseT (100Mbit/s twisted pair).

Ordering Information

Any combination of transducers supported by the RMC is available with the Ethernet communications interface. Append **-ENET** to the part number to indicate Ethernet, as shown in this example:

- **RMC100-M1-ENET**

Company Profile

Delta Computer Systems, Inc. manufactures motion controllers, color sensors/sorters, and other industrial controls providing high-performance automation solutions to a wide range of industries.

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