



RMC Serial RS-232/422/485 Communications for RMC100 Motion Controllers

Use the RMC Serial module as a cost-effective interface between the high-performance RMC motion controller and your process controller—whether a PC, PLC, or custom system. The Serial module combines multiple communication protocols with optical isolation and software-selectable RS-232, RS-422, and RS-485 transceivers to form a versatile and industrial-hardened communication platform. The RS-232 and RS-422 options provide full-duplex point-to-point communications, while RS-485 allows full- or half-duplex multi-drop networking with up to 128 RMCs.

The Serial module is recommended in applications where the RMC's Event Step Table controls the majority of the process, and the communication is only needed for low-bandwidth monitoring or modifications to the process. In applications where higher throughput is necessary, consider one of Delta's other communication modules.

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 Serial Features

- 9600-115200 baud data transfer
- Supports 7 or 8 data bits
- Supports odd, even, or no parity
- Optically-isolated signals
- Software select RS-232, RS-422, or RS-485 transceivers
- Software select biasing and termination for RS-422 and RS-485 networks
- Software select flow control for RS-232 networks
- DB-9 and 6-pin terminal block connectors included
- 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

Supported Serial Protocols

Serial ports are capable of communicating in a wide variety of protocols. The RMC Serial module currently supports the following protocols:

- **Allen-Bradley DF1**
Full- and half-duplex DF1 are supported by most Allen-Bradley PLCs and HMIs including the CompactLogix, ControlLogix, MicroLogix, PLC-2, PLC-3, PLC-5, SLC 5/05, and SoftLogix 5800. Also supported is any PC-based software that supports DF1.
- **Modicon Modbus/RTU**
This protocol is supported by DirectLogic DL205/405, Modicon 800 Series, Modicon Premium, Modicon TSX Momentum, Modicon TSX Quantum and a number of third party products. Also supported is any PC-based software that supports Modbus/RTU.
- **No Protocol Mode**
The RMC100 uses this custom protocol to communicate with the Mitsubishi FX2N.

Call Delta to inquire about support for other protocols.



RMC Serial

Specifications

Serial Interface	Transceivers	Software-selectable: RS-232, RS-422, RS-485
	Baud Rates	9600, 19200, 38400, 57600, 115200 baud
	Start Bits	1
	Stop Bits	1
	Data Length	7 or 8 bits
	Parity	None, Odd, or Even
	Isolation	750 VDC
Electrostatic Discharge (ESD) Protection	15 kV	
RS-232 Interface	Type	Single-Ended
	Flow Control	Software-selectable: None or Hardware
	Connector	DB-9
	Communication Distance	50 ft (12 m)
Network Type	Point-to-Point	
RS-422/485 Interface	Type	Differential
	Termination	Software-selectable: 120 Ω
	Biasing	Software-selectable: 1500 Ω
	Connector	Six-Position Terminal Block
	Communication Distance	4000 ft (1200 m)
	Network Type	RS-422/485: Point-to-Point RS-485: Multi-drop up to 128 nodes
RS-485 Input Impedance	48 k Ω (1/4 unit load)	
Protocol Support	Allen-Bradley DF1	Supported by Allen-Bradley PLCs and other products
	Modbus/RTU	Supported by Modicon PLCs and other products. (Call Delta for availability of other protocols)
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 pending

Serial Wiring

DB-9:

Pin	RS-232 Function
1	DCD
2	RxD - Receive Data
3	TxD - Transmit Data
4	DTR
5	RS-232 Common
6	DSR
7	RTS - Ready To Send
8	CTS - Clear To Send
9	NC

NOTE: The RMC does not use DCD, DTR, and DSR and connects them together internally.

Six-position Terminal Block:

Pin	RS-422 Function	RS-485 Function
Tx A	Xmit (-)	NC
Tx B	Xmit (+)	NC
Rx/Tx A	Rcv (-)	Xmit/Rcv (-)
Rx/Tx B	Rcv (+)	Xmit/Rcv (+)
Cmn	RS-422 Common	RS-485 Common
Case	Controller Chassis Ground (Shield)	Controller Chassis Ground (Shield)

Ordering Information

This module can be used as the communications module in any RMC configuration. Append **-SERIAL** to the part number to indicate this module, as shown in this example:

- **RMC100-M1-SERIAL**

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.

