



RMC DI/O

Discrete I/O Communications for RMC100 Motion Controllers

The Discrete I/O communications module can be used to connect directly to switches in stand-alone applications or to connect to any PLC. For high data-transfer applications, Delta recommends one of the RMC's fieldbus communication solutions.

This module is also available as a Sensor DI/O module, which adds discrete I/O capabilities to the RMC with any communications option, including DI/O.

Each DI/O module adds eight discrete outputs and eighteen discrete inputs to the RMC CPU's two inputs and two outputs. DI/O modules also provide either an edge or quadrature counter.

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 Communication DI/O

This module acts as the RMC's primary communication module. The user may select one of the following modes of operation:

- **Input to Event Mode**

This mode can be used either with a PLC or switches. Each of the DI/O's first sixteen inputs can be used to trigger programmable event sequences on any number of axes on the RMC. The outputs can be configured to indicate in-position and error status or to be program controlled.

- **Parallel Event Mode**

This mode uses 9 inputs per axis for up to two axes (up to four with the Sensor DI/O) to select any programmable event sequence. The outputs can be configured to indicate in-position and error status or to be program controlled.

- **Parallel Position Mode**

In this mode, the PLC sends 16-bit positions or open-loop drive values to the DI/O module and, at the same time, uses three other inputs to select the axis and motion profile. Outputs indicate in-position and error status.

- **Command Mode**

This flexible mode allows a PLC to send commands to the RMC and request any status word from the module—including actual position, drive, status bits, etc.

RMC Sensor DI/O

This module provides additional discrete I/O to the RMC's primary communication module. The Sensor DI/O can be used for the following purposes:

- Inputs can be used to trigger event sequences as in Input to Event mode described to the left (this is not available if a Comm DI/O is already running Input to Event mode)
- Event sequences can be programmed to wait for an input
- Inputs 16 and 17 can be used as a quadrature counter to delay event sequences or index spline curves
- Outputs can be turned on and off from the event sequences and user-issued commands

For detailed technical information on these modes, see the application notes and technical briefs on Delta's Web page.



Specifications

Discrete Inputs

Inputs	18; sinking (sourcing driver) 6 mA max at 5 V; 10 mA max at 24 V 26.4 VDC maximum
Logic Polarity	Software configurable (True High default)
Isolation	2500 VAC RMS optically isolated
Threshold voltage	2.75 VDC typical, 3 VDC maximum
Threshold current	2.7 mA typical, 3.2 mA maximum
Filtering	Inputs 0-15: 500 μ s Inputs 16-17: 250 μ s
Edge counter	Input 17 4000 counts/second (2 kHz) maximum
Quadrature counter	Inputs 16 (A input) and 17 (B input) 8000 counts/second maximum

Discrete Outputs

Outputs	8; Solid State Relay
Logic polarity	Software configurable (True High default)
Isolation	2500 VAC RMS optically isolated
Maximum voltage	\pm 30 V (DC or peak AC voltage rating of SSR)
Maximum current	\pm 100 mA
Maximum propagation delay	1.5 ms
Logic 1	Low impedance (50 Ω maximum)
Logic 0	High impedance (<1 μ A leakage current at 250 V)

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

DI/O Wiring

Discrete Outputs:

Pin	Function
0-7	General outputs 0-7
Output Cmn	Common (high or low side)

Discrete Inputs:

Pin	Function
0-15	General inputs 0-15
16	General input 16 or A phase of quadrature encoder
17	General input 17, B phase of quadrature encoder, or edge counter
Input Cmn	Common (must be low side)

Ordering Information

Any combination of transducers supported by the RMC is available with the DI/O communications interface. To order a Communication DI/O, append **-DI/O**, as shown in this example:

- **RMC100-H1-DI/O**

To order a Sensor DI/O, insert **-DI** in the part number:

- **RMC100-M1-D1-PROFI**

DI/O modules use high-density 0.15" unpluggable terminal blocks. The standard rising-clamp style terminal blocks offer quality connections in a compact space, but require a smaller screwdriver than the 0.2" terminal blocks used on other RMC modules. DI/O modules can be ordered with barrier style terminal blocks, which stagger the terminals to 0.3" centers. These are bulkier, but allow use of larger screwdrivers. There is no cost difference. To order with barrier style terminal blocks, specify **Option B** after the part number. For example:

- **RMC100-M1-DI/O Option B**

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.

