

RMC150/151 DATASHEET

Two, Four, Six, and Eight Axis Motion Controllers

The RMC150/151 delivers high-performance motion control to hydraulic, electric servo, and pneumatic industrial applications. With powerful control modes—including dual-loop position-pressure algorithms—and connectivity to many transducer types, the RMC provides optimum control for a wide range of motion applications.

As Delta's most advanced motion controller, the RMC150/151 CPU module comes standard with Ethernet, supporting protocols such as EtherNet/IP, PROFINET, and Modbus/TCP, and is designed to integrate easily with your favorite PLCs, PCs and HMIs.

Equipped with excellent graphing features and easy-to-use wizards, the RMCTools software handles setup, programming, tuning and diagnostics for both the RMC150 and RMC70 series controllers.

Flexible Multi-axis Capability

Modules can be "mixed and matched" to support up to 8 control axes for tightly synchronized motion, and additional reference axes up to a total of 16 control, reference or virtual axes.

Feedback Types

- ▲ **Magnetostrictive Linear Displacement Transducer (MDT)**
RS-422 Start/Stop and PWM signals
- ▲ **Synchronous Serial Interface (SSI)**
Linear and single- or multi-turn rotary
- ▲ **Analog**
±10 V and 4-20 mA
- ▲ **Quadrature Encoder**
5 V differential only (RS-422)
- ▲ **Resolver**
Wide range of frequencies and ratios

Communications

- ▲ **Ethernet** (10/100 Mbps), built-in on CPU.
 - ▲ EtherNet/IP
 - ▲ PROFINET
 - ▲ Modbus/TCP
 - ▲ CSP (Allen-Bradley)
 - ▲ FINS (Omron)
 - ▲ Procedure Exist (Mitsubishi Q-series)
- ▲ **USB Port**
For use with the RMCTools software.
- ▲ **PROFIBUS-DP**



Industrial Applications

- ▲ Forest products
- ▲ Testing
- ▲ Metals
- ▲ Energy / Oil and gas
- ▲ Automotive
- ▲ Aerospace
- ▲ Plastics and rubber
- ▲ Entertainment
- ▲ Food processing
- ▲ Mining
- ▲ Petrochemical
- ▲ Textile

More application notes at deltamotion.com/applications.



Features

Axes

- ▲ Up to 8 control axes, including dual-loop position-pressure axes.

Controlled Quantities

- ▲ Position, velocity, acceleration, pressure, force, torque

Dual-Loop Control

- ▲ Position–pressure, position–force, velocity–pressure, velocity–force, position–torque, velocity–torque
- ▲ Seamless transition from position/velocity to pressure/force
- ▲ Position/velocity with pressure/force limit
- ▲ Cascade Loop

Motion Features

- ▲ Point-to-point motion
- ▲ Gearing
- ▲ Curves (Cams, Splines)
- ▲ Sinusoidal
- ▲ PID or I-PD
- ▲ Active Damping
- ▲ Full parameter set supports high performance motion control

Setup and Programming

- ▲ Command-based—for easy program development and maintenance
- ▲ Flexible User Programs—advanced step sequencer with user-named variables and mathematical expressions

- ▲ Extensive, context-sensitive Help

Tuning and Diagnostics

- ▲ Tuning Wizards
- ▲ Powerful motion graphing for optimizing motion
- ▲ Event Log shows real-time activity

All RMC motion controllers are backed by a company legacy of more than 25 years of excellent product support. Responsive 24/7 customer service is just a telephone call away.

DELTA

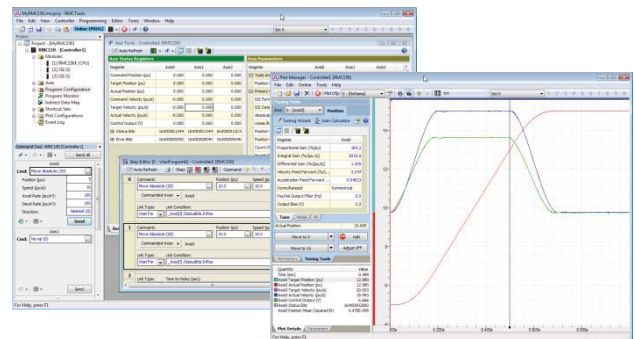


RMCTools Software

RMCTools is a powerful motion control software package for setting up, tuning, troubleshooting, programming, and controlling all features of Delta's multi-axis RMC150/151 controllers from a PC. RMCTools also supports the RMC70 controllers.

Delta's intuitive and easy-to-use RMCTools software features flexible User Programs with extensive commands and the ability to embed mathematical expressions. Setup and tuning wizards reduce startup times, and the graphical diagnostics tools speed troubleshooting of the entire motion system. Extensive, context-sensitive help is included in RMCTools, giving you the information you need at your fingertips.

RMCTools is included on a CD with all RMC150/151 controllers and is also available for download from www.deltamotion.com.



PC Requirements:

- ▲ Operating System*: Windows® XP/Vista/7
- ▲ Processor: Minimum OS requirement
- ▲ Memory: Minimum OS requirement
- ▲ Hard Disk Space: 20MB

*Windows XP requires Service Pack 2 or newer. RMCTools versions 3.37.0 (May 2010) and older support Windows® 2000.

Communication Software

RMCLink ActiveX Control and .NET Assembly

RMCLink enables full monitoring and control of RMC150/151 motion controllers via Ethernet communications from custom applications on Windows®-based PCs. RMCLink supports numerous languages, such as Visual Basic, C++, C#, VBScript, VBA (Microsoft Excel®), LabVIEW™.

RMCLink comes with fully-functioning sample projects to help you get up and running quickly. The help includes detailed walk-throughs and numerous code snippets.

RMCLink, with extensive examples, is available for download from www.deltamotion.com.

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Instrument Driver for Use with LabVIEW

VIs created by Delta for use with LabVIEW™ software provide full-fledged examples including plot uploading and trending. The VIs are available from the Instrument Driver portion of National Instruments' website and from www.deltamotion.com.

LabVIEW is a trademark of National Instruments. Neither Delta, nor any software programs or other goods or services offered by Delta, are affiliated with, endorsed by, or sponsored by National Instruments.

RMCTools Features

Delta's powerful RMCTools software makes setup, tuning, and troubleshooting motion systems easier than ever.

Setup

- ▲ **Wizards**
Easy-to-use wizards include New Project, New Controller, Scale & Offset, and Autotuning.

- ▲ **Full Parameter Set**
Monitor all axis status registers and modify parameters.

Tuning and Diagnostics

- ▲ **Plots**
Plot any register in the RMC, up to 16 registers per plot, sampled as fine as the control loop resolution.
- ▲ **Autotuning Wizard**
Quickly and accurately tune your axes, using a slider bar to choose from a range of gains appropriate for your system.
- ▲ **Event Log**
Speed troubleshooting by recording events such as parameter changes, commands, errors, and communications.
- ▲ **Program Monitor**
Monitor User Program execution and variables.

Programming

- ▲ **Commands**
Issue commands directly from RMCTools. Use Shortcut Command Sets to quickly issue commands to speed the tuning process.
- ▲ **User Programs**
Easily create programs to issue sequences of commands.
- ▲ **PreScan Table**
Use wizards to set up immediate response to internal conditions or external events (discrete I/O, etc.)
- ▲ **Mathematical Expressions**
Expressions provide flexible programming capability for advanced calculations and machine control sequences.



Part Numbers

Backplane sizes are 3, 4, 5, and 6 slots. Modules can be mixed and matched according to the table below.

Controller CPU. The CPU is always in slot 1 (second slot from left). Details

RMC150E Motion Control CPU (Includes Ethernet, RMCTools Software)	p. 4
RMC151E RMC150E with Dual-Loop Pressure/Force Control Option*	p. 4

RMC150E-M2-H1-DI/O-HZ

(Multiple options possible)

Slots 2-5 Modules. Select 1-4 modules. $n = 1 - 4$.

Mn Magnetostrictive Displacement Transducer (MDT) for Start/Stop or PWM signals: two inputs, two ± 10 V outputs	p. 6
Sn Synchronous Serial Interface (SSI) for linear and single- or multi-turn rotary: two inputs, two ± 10 V outputs	p. 7
Qn Quadrature for 5V differential encoder signals: two inputs, two ± 10 V outputs	p. 8
Rn Resolver: two inputs, two ± 10 V outputs	p. 9
Hn Analog:, four 16-bit ± 10 V or 4-20 mA inputs, two ± 10 V outputs.....	p. 10
An Analog:, four 12-bit ± 10 V or 4-20 mA inputs.....	p. 11
Gn Analog: two 16-bit ± 10 V inputs, two ± 10 V outputs.....	see note on p. 10
Dn Discrete I/O: 8 discrete outputs, 18 discrete inputs, 24 VDC.....	p. 12
Un Universal reference: two 16-bit ± 10 V or 4-20 mA inputs, six discrete I/O, two high speed quadrature or SSI channels	p. 13
SON SSI input/output (specialty): one SSI input, one SSI output, two ± 10 V outputs.....	p. 16
BLn Blank slot cover, allows for future expansion	

Slot 0 Modules

DI/O Discrete I/O module, 8 discrete outputs, 18 discrete inputs, 24 VDC.....	p. 12
UI/O Universal reference: two 16-bit ± 10 V or 4-20 mA inputs, six discrete I/O, two high speed quadrature or SSI channels	p. 13
PROFI PROFIBUS-DP communication.....	p. 15
Blank Blank slot cover - no part number designation needed for blank cover in slot 0	

Options

HZ Hazardous location designation Class I, Division 2, Groups A, B, C, D (not available for all modules)	p. 17
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* The Dual-Loop Pressure/Force Control Option is required only for dual-loop control, such as position-pressure, position-force, velocity-pressure, or velocity-force. It is not required for pressure-only control or force-only control. The Dual-Loop option also enables advanced control algorithms with two inputs per axis such as Active Damping or Acceleration control using pressure or accelerometer feedback.

Accessories and More

Voltage-to-Current Converters	p. 17
Cable Assemblies	p. 18
Terminal Blocks	p. 18
Mounting Dimensions	p. 19

Online Configuration Tool

Create your own RMC150 controller and request a quote!
Go to Delta's website at www.deltamotion.com and choose **Request a Quote Online**.



Example Part Numbers

RMC150E-S2-Q2

4 axes with SSI feedback, 4 axes with quadrature feedback and a blank cover on the left-most slot

RMC151E-H4-PROFI

8 axes with analog feedback (8 drive outputs and 16 analog inputs) and a PROFIBUS module, 8 axes dual-loop enabled

RMC150E-M2-Q1-D1-DI/O

4 axes with MDT feedback, 2 axes with quadrature feedback, 2 discrete I/O modules, one of which is in slot 0.



RMC150E and RMC151E CPUs

2-8 Axes Controllers

The RMC150E and RMC151E CPUs are capable of controlling up to 8 control axes plus additional reference axes. These CPUs provide an on-board Ethernet port, a USB port for connection to the RMCTools software, two 24 VDC discrete outputs, and two 12-24 VDC discrete inputs.

RMC150E - 8 Axes

Control 8 axes, built-in Ethernet, USB monitor port, 2 discrete inputs, 2 discrete outputs.

RMC151E – 8 Axes with Dual-Loop

RMC150E with dual-loop. Dual-loop is the ability to control two quantities—such as position and pressure—on the same axis. Notice that controlling only pressure or only force on an axis does not require the RMC151E.



RMC150E/RMC151E CPU Specifications

Motion Control	
Control loop times	250 μ s, 500 μ s, 1 ms, 2 ms, or 4 ms
USB Monitor Port (for setup, programming and maintenance only)	
Connector	USB "B" Receptacle
Data Rate	Full-speed (12 Mbps)
Discrete Inputs (2)	
Input type	12-24 VDC inputs; polarity independent
Logic polarity	True "High"
Isolation	500 VAC
Input "High" range	7 to 26.4 VDC, 3 mA maximum
Input "Low" range	0 to 3.5 VDC, <1 mA
Maximum propagation delay	160 μ s
Discrete Outputs (2)	
Output type	Solid State Relays (SSR)
Isolation	500 VAC
Rated voltage	max \pm 30 V (DC or peak AC voltage)
Maximum current	\pm 75 mA (\pm 50 mA for Class I Div 2)
Maximum propagation delay	1.5 ms
Logic 1 (True, On)	Low impedance (50 Ω maximum)
Logic 0 (False, Off)	High impedance (<1 μ A leakage current at 250 V)
Power	
Voltage	+24 VDC \pm 15%
Current	3 slots Typical 290 mA, max 375 mA 4 slots Typical 385 mA, max 500 mA 5 slots Typical 485 mA, max 625 mA 6 slots Typical 585 mA, max 750 mA
DC-DC converter isolation	500 VAC
Mechanical	
Mounting	Symmetrical DIN 3 or panel-mount
Dimensions (see pg. 19 for drawings)	3 slots 4.12 x 5.95 x 4.75 in (WxHxD) (10.5 x 15.0 x 12.1 cm) width increases by 1.0 in for each slot 6 slots 7.12 x 5.95 x 4.75 in (WxHxD) (18.1 x 15.0 x 12.1 cm)
Weight	3 slots 2 lb (0.9 kg) max 6 slots 3 lb (1.4 kg) max



RMC150E/RMC151E CPU Specifications (continued)

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. Optional: Class I, Division 2, see pg. 17


Ethernet Interface

Hardware interface	IEEE 802.3 for 100BASE-T (twisted pair)
Data Rate	10/100 Mbps
Duplex	Full/Half-Duplex
Features	Auto-negotiation, Auto-crossover (MDI/MDI-X)
Connector	RJ-45
Cable	CAT5, CAT5e or CAT6, UTP or STP

Ethernet Configuration

Configuration parameters	IP address, subnet mask, gateway address, enable/disable auto-negotiation
Configuration methods	BOOTP, DHCP, or static

Ethernet Protocol Support

Application protocols (Call Delta for availability of other protocols)	EtherNet/IP, Modbus/TCP, PROFINET, CSP (DF1 over Ethernet), Omron FINS, Procedure Exist (Mitsubishi Q-series)	
Framing protocol	Ethernet II	
Internet protocol	IP (includes ICMP, ARP, and Address Collision Detection)	
Transport protocols	TCP, UDP	

Pin-out

Discrete I/O Connector

+In 0	General-purpose input 0
-In 0	
+In 1	General-purpose input 1
-In 1	
+Out 0	General-purpose output 0
-Out 0	
+Out 1	General-purpose output 1
-Out 1	

Power connector

+24 V	Power for entire controller
24 Cmn	Power common
Case	Protective earth ground

Ordering Information

The CPU part number is the first part of the entire controller part number. Specify RMC150E, or RMC151E for the dual-loop option.
For example, **RMC150E-M2**: RMC150 motion controller with 4 axes of MDT position control.



MDT Module

Two Axes, Magnetostrictive Linear Displacement Transducers

The two-axis MDT module interfaces to magnetostrictive linear displacement transducers (MDTs) with Start/Stop or Pulse Width Modulated (PWM) outputs. These absolute-position transducers are especially well suited for hydraulic applications because of their non-contact design, robustness, modularity, and resistance to contaminants.

Magnetostrictive linear displacement transducers with the SSI interface provide higher resolution than Start/Stop or PWM outputs and are supported by the RMC SSI module.

Features:

- Two axes of MDT feedback per module
- Up to 0.001 in (25.4 μ m) resolution using Start/Stop
- Up to 0.0001 in (2.54 μ m) resolution using PWM transducers with multiple recirculations
- Supports internal transducer recirculations
- Transducer length up to 398 in (10.1 m) (4 ms loop time)
- Differential (recommended) or single-ended interface
- Two isolated, ± 10 V, 12-bit drive outputs per module
- Current output up to ± 200 mA with VC2124 converter option

MDT Specifications

Start/Stop and PWM Interface

Axes	Two per module
Return inputs	Two RS-422 differential
Interrogation outputs	Two RS-422 differential (External interrogation required)
ESD protection	15 kV Electrostatic Discharge (ESD) protection
Resolution	0.001 in (25.4 μ m) Start/Stop, 0.0001 in (2.54 μ m) PWM
Count rate	120 MHz

Drive Interface

Outputs	Two ± 10 V, 5 mA maximum, 12-bit DAC
Isolation	500 VAC
Current Output Accessory	VC2124 voltage-to-current converter output range is adjustable from ± 10 mA to ± 200 mA in 10 mA steps

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. Optional: Class I, Division 2, see pg. 17



MDT Pin-out

MDT 0 Connector

+Int 0	+ Interrogation
-Int 0	- Interrogation
MDT Cmn	Transducer Common
+Ret 0	+ Return
-Ret 0	- Return
Case	Chassis Ground (shield)

MDT 1 Connector

+Int 1	+ Interrogation
-Int 1	- Interrogation
MDT Cmn	Transducer Common
+Ret 1	+ Return
-Ret 1	- Return
Case	Chassis Ground (shield)

Drive Connector

Drv 0	± 10 V Drive Output
Drv Cmn	Drive Common
Drv 1	± 10 V Drive Output
Case	Chassis Ground (shield)

MDT Ordering Information

To specify an MDT interface module, insert **-Mn** into the part number, where **n** indicates the number of modules. Up to four MDT modules can be ordered in a single RMC unit. The MDT module can be used in slots 2-5. Refer to the SSI module for Magnetostrictive LDTs with a Synchronous Serial Interface (SSI) output.

For example, **RMC150E-M2-A1**: 4 axes of MDT position control and 4 analog inputs.



SSI Module

Two Axes, Synchronous Serial Interface

The two-axis SSI module interfaces to transducers with the Synchronous Serial Interface (SSI) output. Many types of transducers are available with SSI, including magnetostrictive linear displacement transducers, absolute encoders, and laser measuring devices.

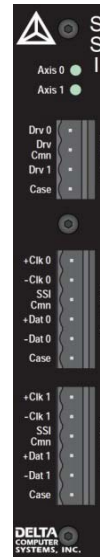
SSI has a number of advantages over other interfaces:

- Higher noise immunity
- Absolute positions
- Available on a wide variety of transducers
- Many SSI devices offer higher precision.

For example, magnetostrictive LDTs offer higher resolutions with SSI interface than for other interface types, such as Start/Stop, PWM, voltage, or current.

Features:

- Two axes of SSI feedback per module
- Binary or gray code
- 8 to 31 data bits
- Differential RS-422 SSI interface
- Two isolated, ± 10 V, 12-bit drive outputs per module
- Current output up to ± 200 mA with VC2124 converter option



SSI Specifications

SSI Interface

Axes	Two per module
Data inputs	Two RS-422 differential, 150 Ω input impedance
Clock outputs	Two RS-422 differential
Clock frequency	User-selectable 230 kHz or 921 kHz
Cable type	Twisted pair, shielded, low capacitance communication cable
Cable length maximum	Transducer dependent (approx. 300-600 ft)
ESD protection	15 kV Electrostatic Discharge (ESD) protection
Resolution	Transducer dependent (up to 2 μ m or approximately 0.00008 in for magnetostrictive LDTs)
Count encoding	Binary or Gray Code
Data bits	8 to 31 bits

Drive Interface

Outputs	Two ± 10 V, 5 mA maximum, 12-bit DAC
Isolation	500 VAC
Current Output Accessory	VC2124 voltage-to-current converter output range is adjustable from ± 10 mA to ± 200 mA in 10mA steps

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. Optional: Class I, Division 2, see pg. 17

SSI Pin-out

SSI 0 Connector

+Clk 0	+ Clock Output
-Clk 0	- Clock Output
SSl Cmn	Transducer Common
+Dat 0	+ Data Input
-Dat 0	- Data Input
Case	Chassis Ground (shield)

SSI 1 Connector

+Clk 1	+ Clock Output
-Clk 1	- Clock Output
SSl Cmn	Transducer Common
+Dat 1	+ Data Input
-Dat 1	- Data Input
Case	Chassis Ground (shield)

Drive Connector

Drv 0	± 10 V Drive Output
Drv Cmn	Drive Common
Drv 1	± 10 V Drive Output
Case	Chassis Ground (shield)

SSI Ordering Information

To specify an SSI interface module, insert **-Sn** into the part number, where **n** indicates the number of modules. Up to four SSI modules can be ordered in a single RMC unit. The SSI module can be used in slots 2-5.

For example, **RMC150E-S3-A1**: 6 axes of SSI position control and 4 analog inputs.



Quadrature Module

Two Axes, 5 V differential (RS-422) A, B, and Z

The two-axis Quadrature module interfaces to linear and rotary transducers and encoders with 5 V differential (RS-422) A, B, and Z outputs. Many types of transducers and encoders are available with quadrature outputs.

In addition to A, B, and Z (index) inputs, each axis includes a high-speed homing input, a drive enable output, a drive fault input, and two high-speed inputs for limit switches or high-speed position latching.

Features:

- Two axes of quadrature feedback per module
- 4,000,000 counts per second
- High-speed inputs: home, position latch, travel limits
- Digital noise filters on all inputs
- All discrete inputs are isolated
- Drive fault inputs, Drive enable outputs
- Two isolated, ± 10 V, 14-bit drive outputs per module
- Current output to ± 200 mA with VC2124 converter option

Quadrature Specifications

Inputs and Outputs

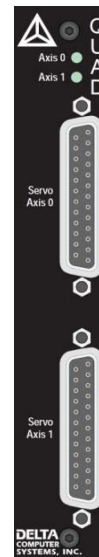
Axes	Two per module
Inputs	Two 5 V differential (RS-422), 215 Ω input impedance, A, B and Z
ESD Protection	15 kV Electrostatic Discharge (ESD) Protection
Maximum Encoder Frequency	4,000,000 counts/s
Fault Inputs, Home Inputs, and high-speed Limit or Registration Inputs	Input "High" range: 3.2 to 26.4 VDC, 3.5 mA min., 10 mA max. Input "Low" range: 0 to 2 VDC, < 1 mA Max input voltage: 26.4 V, 500 VAC isolation, compatible with most limit switches, TTL, and CMOS outputs
Home input response time	50 μ s
Index (Z) input response time	125 ns
Drive Enable output	Solid State relay, 50 Ω , 30 V, 75 mA (50 mA for Class I, Div 2), 1.5 ms, 500 VAC isolation

Drive Interface

Outputs	Two ± 10 V, 5 mA maximum, 14-bit DAC
Isolation	500 VAC
Current Output Accessory	VC2124 voltage-to-current converter output range is adjustable from ± 10 mA to ± 200 mA in 10mA steps

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. Optional: Class I, Division 2, see pg. 17



Quadrature Pin-out

Pin	Function
1	A-
2	A+
3	B-
4	B+
5	No connection
6	Registration X / Neg Limit -
7	Registration X / Neg Limit +
8	Registration Y / Pos Limit -

Pin	Function
9	Registration Y / Pos Limit +
10	No connection
11	No connection
12	± 10 V Drive Output
13	Drive Output Common
14	Z- Index from encoder
15	Z+ Index from encoder
16	Encoder Common

Pin	Function
17	No connection
18	Home Input -
19	Home Input +
20	Fault Input -
21	Fault Input +
22	No connection
23	No connection
24	Enable Output
25	Enable Output

Quadrature Ordering Information

To specify a Quadrature module, insert **-Q n** into the part number, where **n** indicates the number of modules. Up to four Quadrature modules can be ordered in a single RMC unit. The Quadrature module can be used in slots 2-5.

For example, **RMC150E-Q2-A1**: 4 axes of quadrature position control and 4 analog inputs.



Resolver Module

Two Axes, Resolvers 800 Hz to 5 kHz, ratios 0.42 to 1.41

The two-axis Resolver module interfaces to resolvers. These single-turn absolute-position transducers are well-suited for hazardous and harsh environments due to the simplicity and robustness of the transducer construction.

Features:

- Two axes of resolver feedback per module
- 14 or 16 bit resolution
- Reference frequency from 800 Hz to 5 kHz
- Resolver Transformation Ratios from 0.42 to 1.41
- Custom frequency and transformation ratios options available – contact Delta
- Two isolated, ± 10 V, 14-bit drive outputs per module
- Current output up to ± 200 mA with VC2124 converter option

Resolver Specifications

Inputs

Axes	Two per module
Reference Frequency	800 Hz to 5 kHz
Reference Output Voltage	1.41 to 4.8 V RMS
Reference Output Current	28 mA max.
Resolver Transformation Ratio (SINMAX/Reference)	0.42 to 1.41
Resolution	14 or 16 bits
Maximum Speed	3000 RPM at 14 bits and 600 RPM at 16 bits
Maximum Acceleration	1200 RPS per second at 14 bits, 60 RPS per second at 16 bits
Accuracy	4 Minutes +1 LSB

Drive Interface

Outputs	Two ± 10 V, 5 mA maximum, 14-bit DAC
Isolation	500 VAC
Current Output Accessory	VC2124 voltage-to-current converter output range is adjustable from ± 10 mA to ± 200 mA in 10 mA steps

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. Optional: Class I, Division 2, see pg. 17



Resolver Pin-out

Resolver 0 Connector

R1 0	Reference Output +
Ref In 0	Reference In (normally not used)
R3 0	Reference Output -
S1 0	Sine Input +
S3 0	Sine Input -
S2 0	Cosine Input +
S4 0	Cosine Input -
Case	Chassis ground (shield)

Resolver 1 Connector

R1 1	Reference Output +
Ref In 1	Reference In (normally not used)
R3 1	Reference Output -
S1 1	Sine Input +
S3 1	Sine Input -
S2 1	Cosine Input +
S4 1	Cosine Input -
Case	Chassis ground (shield)

Drive Connector

Drv 0	± 10 V Drive Output
Drv Cmn	Drive Common
Drv 1	± 10 V Drive Output
Case	Chassis Ground (shield)

Resolver Ordering Information

To specify a Resolver module, insert **-Rn** into the part number, where **n** indicates the number of modules. Up to four Resolver modules can be ordered in a single RMC unit. The Resolver module can be used in slots 2-5.

For example, **RMC150E-R2**: 4 axes of resolver position control.



Analog (H) Module

Two Axes, Four Voltage or Current Inputs

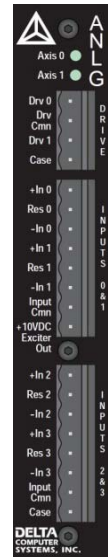
The two-axis H module interfaces to ± 10 V, ± 5 V, and 4-20 mA transducers. This module includes two drive outputs and four 16-bit inputs for controlling position, velocity, pressure, or force. The four inputs provide flexibility in your system, and can be used for such things as reference inputs (e.g. a joystick input), connecting to two pressure transducers to control the resultant force on a hydraulic cylinder, or for dual-loop position-pressure or position-force control (requires the RMC151E CPU).

Features:

- Four isolated 16-bit inputs
- 8 times oversampling
- ± 10 V, ± 5 V, and 4-20 mA input ranges
- +10 V exciter output
- Two isolated, ± 10 V, 12-bit drive outputs per module
- Current output up to ± 200 mA with VC2124 converter option

Analog Specifications

Inputs	
Inputs	Four 16-bit differential
Isolation	500 VAC
Oversampling	8 times per control loop
Offset drift with temperature	0.2 LSB/ $^{\circ}$ C typical (± 10 V range)
Gain drift with temperature	20 ppm/ $^{\circ}$ C typical (± 10 V range)
Non-linearity	12 LSB (counts) typical (± 10 V range)
Exciter output	10 VDC \pm 2%, 8 mA (for use with potentiometers only)
Drive Interface	
Outputs	Two ± 10 V, 5 mA maximum, 12-bit DAC
Isolation	500 VAC
Current Output Accessory	VC2124 voltage-to-current converter output range is adjustable from ± 10 mA to ± 200 mA in 10mA steps
Environment	
Operating temperature	+32 to +140 $^{\circ}$ F (0 to +60 $^{\circ}$ C)
Storage temperature	-40 to +185 $^{\circ}$ F (-40 to +85 $^{\circ}$ C)
Agency compliance	CE, UL, CUL. Optional: Class I, Division 2, see pg. 17



Note: Analog (G) Module

The Analog (G) module has two ± 10 V inputs and two ± 10 V drive outputs.

Delta recommends using the H module instead of the G module. The similarly-priced H module has four analog inputs instead of two and supports 4-20 mA feedback.

For detailed specifications on the G module, refer to the RMC100 datasheets at www.deltamotion.com/downloads.

Analog Pin-out

Inputs 0&1 Connector	
+In 0	Differential analog input 0+
Res 0	Connect to +In 0 for 4-20 mA
-In 0	Differential analog input 0-
+In 1	Differential analog input 1+
Res 1	Connect to +In 1 for 4-20 mA
-In 1	Differential analog input 1-
Input Cmn	Analog common (Isolated)
+10 VDC	+10 VDC output for use with
Exciter Out	potentiometers only

Inputs 2&3 Connector	
+In 2	Differential analog input 2+
Res 2	Connect to +In 2 for 4-20 mA
-In 2	Differential analog input 2-
+In 3	Differential analog input 3+
Res 3	Connect to +In 3 for 4-20 mA
-In 3	Differential analog input 3-
Input Cmn	Analog common (Isolated)
Case	Chassis Ground (shield)

Drive Connector	
Drv 0	± 10 V Drive Output
Drv Cmn	Drive Common
Drv 1	± 10 V Drive Output
Case	Chassis Ground (shield)

Analog Ordering Information

To specify an H module, insert **-Hn** into the part number, where **n** indicates the number of modules. Up to four H modules can be ordered in a single RMC unit. The H module can be used in slots 2-5.

For example, **RMC150E-H2-DI/O**: Two H modules and one discrete I/O module.



Analog (A) Module

Four Voltage or Current Inputs

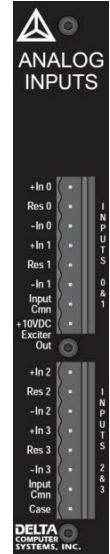
The A module provides four 12-bit analog inputs, individually configurable as ± 10 V, ± 5 V, or 4-20 mA. The inputs provide flexibility in designing your system, and are typically used in the following applications:

- Dual-loop position-pressure or position-force control. The A module is typically used to provide the analog inputs for the pressure transducers or force load cells.
- Reference inputs, such as joystick inputs.

Differential force input from two pressure transducers on a hydraulic cylinder.

Features:

- Four isolated 12-bit inputs
- 8 times oversampling
- ± 10 V, ± 5 V, and 4-20 mA input ranges
- +10 V exciter output



Analog Specifications

Inputs	
Inputs	Four 12-bit differential
Isolation	500 VAC
Overvoltage protection	± 40 V
Input ranges	± 10 V, ± 5 V, 4-20 mA (each input independently configurable)
Input impedance	1 M Ω
Input filter slew rate	25 V/ms
Oversampling	8 times per control loop
Offset drift with temperature	0.01 LSB/ $^{\circ}$ C typical (± 10 V range)
Gain drift with temperature	20 ppm/ $^{\circ}$ C typical (± 10 V range)
Non-linearity	1 LSB (count) typical (± 10 V range)
Exciter output	10 VDC $\pm 2\%$, 8 mA (for use with potentiometers only)
Environment	
Operating temperature	+32 to +140 $^{\circ}$ F (0 to +60 $^{\circ}$ C)
Storage temperature	-40 to +185 $^{\circ}$ F (-40 to +85 $^{\circ}$ C)
Agency compliance	CE, UL, CUL. Optional: Class I, Division 2, see pg. 17

Analog Pin-out

Inputs 0&1 Connector	
+In 0	Differential analog input 0+
Res 0	Connect to +In 0 for 4-20 mA
-In 0	Differential analog input 0-
+In 1	Differential analog input 1+
Res 1	Connect to +In 1 for 4-20 mA
-In 1	Differential analog input 1-
Input Cmn	Analog common (Isolated)
+10 VDC	+10 VDC output for use with potentiometers only
Exciter Out	

Inputs 2&3 Connector	
+In 2	Differential analog input 2+
Res 2	Connect to +In 2 for 4-20 mA
-In 2	Differential analog input 2-
+In 3	Differential analog input 3+
Res 3	Connect to +In 3 for 4-20 mA
-In 3	Differential analog input 3-
Input Cmn	Analog common (Isolated)
Case	Chassis Ground (shield)

Analog Ordering Information

To specify an A module, insert **-An** into the part number, where **n** indicates the number of modules. Up to four A modules can be ordered in a single RMC unit (four is rare, as the RMC would have no drive outputs for control). The A module can be used in slots 2-5.

For example, **RMC150E-M2-A1-DI/O**: 4 axes of MDT position control, 4 analog inputs, and one discrete I/O module.



Discrete I/O Module

18 Discrete Inputs, 8 Discrete Outputs

The Discrete I/O module provides 8 discrete outputs and 18 discrete inputs, supporting 5 V to 24 V signal levels.

The discrete I/O can be used for many tasks, for example, starting motion sequences, providing interlocks, starting external events, simple communications, and more.

Discrete I/O Specifications

Discrete Inputs	
Inputs	18, compatible with signal levels from 5V to 24V
Input Characteristics	5-24 VDC, sinking (requires sourcing driver)
Logic Polarity	True high
Isolation	500 VAC
Input "High" Range	3 to 26.4 VDC 3.2 mA minimum, 10 mA maximum
Input "Low" Range	0 to 2 VDC < 1 mA
Filtering	Inputs 0-15: 500 μ s Inputs 16-17: 250 μ s
Maximum Propagation Delay	100 μ s + filtering
Outputs	
Outputs	8, Solid State Relay
Logic polarity	True On
Isolation	500 VAC
Maximum voltage	\pm 30 V (DC or peak AC voltage rating of SSR)
Maximum current	\pm 75 mA (\pm 50 mA for Class I, Div 2)
Maximum propagation delay	1.5 ms
Logic 1 (True, On)	Low impedance (50 Ω maximum)
Logic 0 (False, Off)	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. Optional: Class I, Division 2, see pg. 17



Discrete I/O Pin-out

Discrete Outputs		Discrete Inputs	
0-7	General Outputs 0-7	0-17	General Inputs 0-17
Output Cmn	Common (high or low side)	Input Cmn	Common (must be low side)

Discrete I/O Ordering Information

The part number depends on the slot in which the Discrete I/O module is installed. The Discrete I/O module for slot 0 is not interchangeable with the Discrete I/O module for slots 2-5.

Slot 0: Append **-DI/O** to the part number.

Slots 2-5: Insert **-Dn** to the part number, where **n** indicates the number of modules.

For example, **RMC150E-M2-D1-DI/O**: 4 axes of MDT position control and 2 discrete I/O modules, one of which is in slot 0.



Universal I/O Module

2 Analog Inputs, 6 Discrete I/O, 2 Quadrature/SSI Channels

The Universal Input/Output module provides two analog inputs, six discrete inputs/outputs, and two high-speed channels that can be configured for quadrature inputs, SSI inputs, or even inter-controller communications for synchronizing axes between RMCs.

Analog Input Features:

- Two 16-bit analog inputs, ± 10 V or 4-20 mA

Discrete I/O Features:

- Six I/O, individually configurable as input or output
- Inputs: 12 to 24 VDC, sinking or sourcing
- Outputs: Solid state relay, 75 mA
- Inputs 0 and 1 can be used as high-speed registration inputs in conjunction with the quadrature inputs.

High-Speed Channel Features

Each of the two RS-422 channels is independently configurable as Quadrature or SSI.

Quadrature Channels

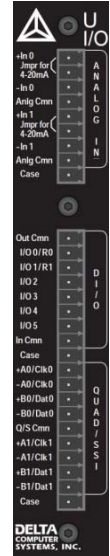
Each high-speed channel can be configured as quadrature.

- A and B quadrature inputs
- Requires 5 V differential (RS-422) signals
- Discrete inputs 0 and 1 can be used as high-speed registration or homing inputs in conjunction with quadrature inputs 0 and 1, respectively.

SSI Channels

Each high-speed channel can be configured to do the following SSI tasks:

- **Receive SSI Input from a Transducer**
This is a standard SSI input for obtaining data from an SSI transducer or encoder.
- **Send Data Out Via SSI (Slave)**
The SSI channel behaves as a transducer or encoder and will return data to the requesting master.
- **Synchronize Multiple RMCs to One Transducer**
The SSI channel can monitor the data that another RMC is receiving from an SSI device. This makes it possible to synchronize multiple RMCs to one SSI transducer.
- **Communicate between RMCs**
The SSI channels can exchange data between RMCs every loop time of the controller, providing the ability to tightly synchronize axes between RMCs.



Specifications

See next page.

Universal I/O Pin-out

Analog In Connector

+In 0	Differential analog input 0+
Jmpr for 4-20 mA	Connect to +In0 for 4-20 mA
-In 0	Differential analog input 0-
Input Cmn	Analog common (Isolated)
+In 1	Differential analog input 1+
Jmpr for 4-20 mA	Connect to +In0 for 4-20 mA
-In 1	Differential analog input 1-
Input Cmn	Analog common (Isolated)
Case	Chassis Ground (shield)

DI/O Connector

Out Cmn	Common to one side of all outputs
I/O 0/RO	Input or Output
I/O 1/R1	Input or Output
I/O 2	Input or Output
I/O 3	Input or Output
I/O 4	Input or Output
I/O 5	Input or Output
In Cmn	Common to one side of all inputs
Case	Chassis Ground (shield)

Quad/SSI Connector

+A0/Clk0	Channel 0: A Input, Clock Output, or Clock Input
-A0/Clk0	
+B0/Dat0	Channel 0: B Input, Data Input, or Data Output
-B0/Dat0	
Q/S Cmn	Quad/SSI Common
+A1/Clk1	Channel 1: A Input, Clock Output, or Clock Input
-A1/Clk1	
+B1/Dat1	Channel 1: B Input, Data Input, or Data Output
-B1/Dat1	
Case	Chassis Ground (shield)

Universal I/O Ordering Information

The part number depends on the slot in which the Universal I/O module is installed. The Universal I/O module for slot 0 is not interchangeable with the Universal I/O module for slots 2-5.

Slot 0: Append **-UI/O** to the part number.

Slots 2-5: Insert **-Un** to the part number, where *n* indicates the number of modules.

For example, **RMC150E-M2-UI/O**: 4 axes of MDT position control and one Universal I/O module in slot 0.



Universal I/O Specifications

Analog Inputs

Inputs	Two 16-bit differential inputs
Isolation	500 VAC
Overvoltage protection	±40 V
Input ranges	±10 V and 4-20 mA (each input independently configurable)
Input impedance	5 MΩ
Input filter frequency	1.2 kHz
Input filter slew rate	25 V/ms
Sampling rate	60 kHz
Offset drift with temperature	0.2 LSB/°C typical
Gain drift with temperature	20 ppm/°C typical
Non-linearity	12 LSB (counts) typical over full 16-bit range

Discrete I/O – General

Discrete I/O points	6; each is individually configurable as input or output
---------------------	---------------------------------------------------------

Isolation	500 VAC
-----------	---------

Discrete I/O – Inputs

Input characteristics	12-24 VDC, sinking or sourcing
-----------------------	--------------------------------

Logic polarity	True “high”
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Input “high” range	7 to 26.4 VDC (polarity independent), 3mA maximum
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Input “low” range	0 to 3.5 VDC (polarity independent), <1 mA
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Maximum propagation delay	160 μs + filtering
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Filtering	50 μs (value stable for 7 samples @ 8 μs interval)
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Registration	Inputs 0 and 1 can be used as high-speed registration inputs in conjunction with the quadrature inputs. For this use, filtering can be set to 100ns (max propagation delay is still 160 μs).
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Discrete I/O – Outputs

Output characteristics	Solid State Relay
------------------------	-------------------

Logic polarity	True On
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Maximum voltage	±30 V (DC or peak AC rating of SSR)
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Maximum current	±75 mA
-----------------	--------

Maximum propagation delay	1.5 ms
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Logic 1 (True, On)	Low impedance (25 Ω typ, 50 Ω max)
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Logic 0 (False, Off)	High impedance (<1 μA at 250 V)
----------------------	---------------------------------

Environment

Operating temperature	+32 to +140°F (0 to +60°C)
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Storage temperature	-40 to +185°F (-40 to +85°C)
---------------------	------------------------------

Agency compliance	Contact Delta
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High-Speed Channels

Channels	2, independently configurable
Transducer types	MDT with SSI output, single- or multi-turn absolute SSI encoders, quadrature encoders.

Note: Linear MDTs with SSI output should be of the synchronized type. Non-synchronized is not well-suited for motion control.

Modes	Quadrature input – ±A and ±B inputs SSI Standard input – for interfacing to transducers and encoders
-------	---------------------------------------------------------------------------------------------------------

SSI Monitor input – for monitoring SSI communication on another device

SSI Slave output – emulates a transducer

SSI Master output – for sending data to another controller

Input type (Data/Clock/Quad)	RS-422 (5 V differential) (Single-ended encoders not supported due to low noise immunity)
------------------------------	----------------------------------------------------------------------------------------------

Output type (Clock/Data)	RS-422 (5 V differential)
--------------------------	---------------------------

Clock frequency	250 kHz, 500 kHz, or 971 kHz, user-selectable
-----------------	-----------------------------------------------

Resolution	Transducer dependent (typically down to 2μm or approximately 0.00008” for MDTs)
------------	---------------------------------------------------------------------------------

SSI count encoding	Binary or Gray code
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SSI count data length	8 to 32 bits
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Termination	215 Ω – user-selectable on all inputs
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Registration	Discrete inputs 0 and 1 can be used as high-speed registration for channels 0 and 1 respectively.
--------------	---------------------------------------------------------------------------------------------------

Registration response time	160 μs
----------------------------	--------

Max encoder frequency	8,000,000 quadrature counts per second
-----------------------	----------------------------------------

Maximum cable length	1000 ft (Low capacitance, shielded, twisted pair computer communication cable)
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Electrostatic discharge (ESD) protection	15 kV (human body model)
------------------------------------------	--------------------------

Isolation	500 VAC
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PROFIBUS Module

PROFIBUS-DP Communications

The RMC150 PROFIBUS-DP module supports data rates up to 12 Mbaud, which permits high-speed transfer of any data to and from the RMC, including position commands, parameters, and status information.

The RMC's PROFIBUS interface gives the flexibility of several modes, including I/O Modes with in/out data of 4, 8, 16, or 32 registers. Select the mode that best fits your application and PROFIBUS master's capabilities.

With the PROFIBUS module installed, the RMC150/151 supports simultaneous Ethernet and PROFIBUS communications.



PROFIBUS Specifications

PROFIBUS-DP Interface	
Data Rate	9.6 kbaud up to 12 Mbaud
Isolation	2500 VAC
Product Identifier Number	0x0AC6
Features Supported	Sync Mode, Freeze Mode, Auto-baud rate detect
Valid Station Addresses	0-126 (set by software or Set Slave Address function)
Connector	Standard PROFIBUS-DP DB-9 (use termination in cable connectors as per PROFIBUS specification)
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. Optional: Class I, Division 2, see pg. 17

PROFIBUS Ordering Information

To specify a PROFIBUS interface module, append **-PROFI** to the part number. The PROFIBUS module can only be used in slot 0.

For example, **RMC150E-M2-PROFI**: 4 axes of MDT position control and PROFIBUS communications.



SO Module

SSI Input/Output

The SSI Input/Output module allows for synchronizing multiple RMCs to a single SSI position transducer, such as gearing multiple axes to a feed chain.

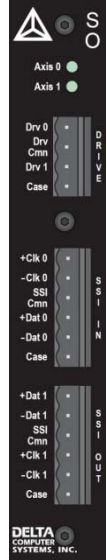
The SO module's two $\pm 10V$ drive outputs and SSI input can be used for machine control. The SSI output retransmits the position data received from the SSI input as though it were itself an SSI transducer.

This allows the SSI output on one SO module to be fed into an SSI input on another RMC's SSI or SO module. Both RMCs will see the same SSI position data, although the retransmission incurs one loop time of delay in the position data on the second RMC. Many RMCs can be chained together in this way, with an additional delay introduced for each retransmission.

Note: Consider using the Universal I/O module instead, as it supports the same SSI output retransmission functionality as the SO module. However, there are some cases when the SO module may be more cost-effective, since it also provides drive outputs.

Features:

- One SSI input
- One SSI output which retransmits the SSI input data.
- Supports SSI devices with Binary or Gray Code data from 8 to 31 bits in length
- Differential RS-422 SSI interface
- Two isolated, $\pm 10 V$, 12-bit drive outputs per module
- Current output up to ± 200 mA with VC2124 converter option.



SO Specifications

SSI Interface

Data and Clock inputs	RS-422 differential, 150 Ω input impedance
Data and Clock outputs	RS-422 differential
Clock frequency	User-selectable 230 kHz or 921 kHz
Cable type	Twisted pair, shielded, low capacitance communication cable
Cable length maximum	Transducer dependent (approx. 300-600 ft)
ESD protection	15 kV Electrostatic Discharge (ESD) protection
Resolution	Transducer dependent (up to 2 μ m or approximately 0.00008 in for magnetostrictive LDTs)
Count encoding	Binary or Gray Code
Data bits	8 to 31 bits

Drive Interface

Outputs	Two $\pm 10 V$, 5 mA maximum, 12-bit DAC
Isolation	500 VAC
Current Output Accessory	VC2124 voltage-to-current converter output range is adjustable from ± 10 mA to ± 200 mA in 10mA steps

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. Optional: Class I, Division 2, see pg. 17



SO Pin-out

SSI 0 Connector

+Clk 0	+ Clock Output
-Clk 0	- Clock Output
SSI Cmn	Transducer Common
+Dat 0	+ Data Input
-Dat 0	- Data Input
Case	Chassis Ground (shield)

SSI 1 Connector

+Dat 1	+ Data Output
-Dat 1	- Data Output
SSI Cmn	Transducer Common
+Clk 1	+ Clock Input
-Clk 1	- Clock Input
Case	Chassis Ground (shield)

Drive Connector

Drv 0	$\pm 10 V$ Drive Output
Drv Cmn	Drive Common
Drv 1	$\pm 10 V$ Drive Output
Case	Chassis Ground (shield)

SO Ordering Information

To specify an SO interface module, insert **-SO n** into the part number, where **n** indicates the number of modules. Up to four SO modules can be ordered in a single RMC unit. The SO module can be used in slots 2-5.

For example, **RMC150E-S1-SO-A1**: 3 axes of SSI position control, one SSI output, and 4 analog inputs.



Class I Division 2 Compliance

Hazardous location designation Class I, Division 2, Groups A, B, C, D is available for the RMC150E. Class I Division 2 compliance is not available for the G and UI/O modules.

- Products marked "Class I Division 2, Group A, B, C, D" are suitable for use in Class I Division 2, Groups A, B, C, and D hazardous locations and nonhazardous locations only.
- **WARNING—EXPLOSION HAZARD—DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.**
- **WARNING—EXPLOSION HAZARD—SUBSTITUTION OF ANY COMPONENT MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**
- Maximum surrounding air temperature of 60° C.
- The RMC150E USB port is intended for configuration, programming, and troubleshooting purposes only. It should not be connected during normal operation.
- Wire gauge, screw clamp torque and wire type requirements are listed in the RMC Startup Guide and RMCTools help.

Class I Division 2 Ordering Information

To specify Class I, Division 2, append "-HZ" to the entire RMC part number. Class I Division 2 compliance is not available for RMC configurations with the G and UI/O modules.

Voltage-to-Current Converters

Delta's voltage-to-current converters are designed for converting a voltage drive output to a current drive output in order to control a servo valve. Delta offers several voltage-to-current converters to fit your needs. The maximum output current is adjustable in increments of 10 mA up to the maximum output current range.

Part Number	Description	Output Current Range*	Power Supply
VC2124	2-channel voltage-to-current converter	±100 mA per channel	24V DC
VC2100	2-channel voltage-to-current converter	±100 mA per channel	±15 VDC
VC2100-HS	2-channel voltage-to-current converter – high speed**	±100 mA per channel	±15 VDC



VC2124



VC2100



VC2100-HS

* Channels can be connected in parallel to provide higher current. For example, two ±100 mA channels connected in parallel will provide ±200 mA.

**Most hydraulic control applications do not require the high-speed converter.



Cable Assemblies

Delta 's provides cable assemblies for certain products. The table below lists the available cables:

Cable Part No	Cable Description
RMC-CB-QUAD-01-06	6 ft long, for Quadrature module. 1 DB25 to 3 individual pig-tailed cables for drive, encoder, and limits.
RMC-CB-QUAD-01-10	10 ft long, for Quadrature module. 1 DB25 to 3 individual pig-tailed cables for drive, encoder, and limits.
RMC-CB-QUAD-01-15	15 ft long, for Quadrature module. 1 DB25 to 3 individual pig-tailed cables for drive, encoder, and limits.
RMC-CB-QUAD-01-20	20 ft long, for Quadrature module. 1 DB25 to 3 individual pig-tailed cables for drive, encoder, and limits.

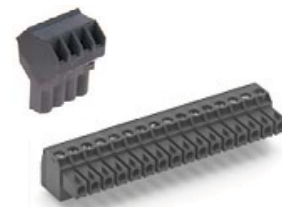


Custom lengths are available per request. A drawing of RMC-CB-QUAD-01-xx is available on the Downloads page of Delta's website at www.deltamotion.com/downloads.

Terminal Blocks

All RMCs ship with connectors. Connectors are also available for order individually from Delta. The table below lists the available connectors. These parts are also available from connector manufacturers Amphenol Pcd or WECO using these part numbers.

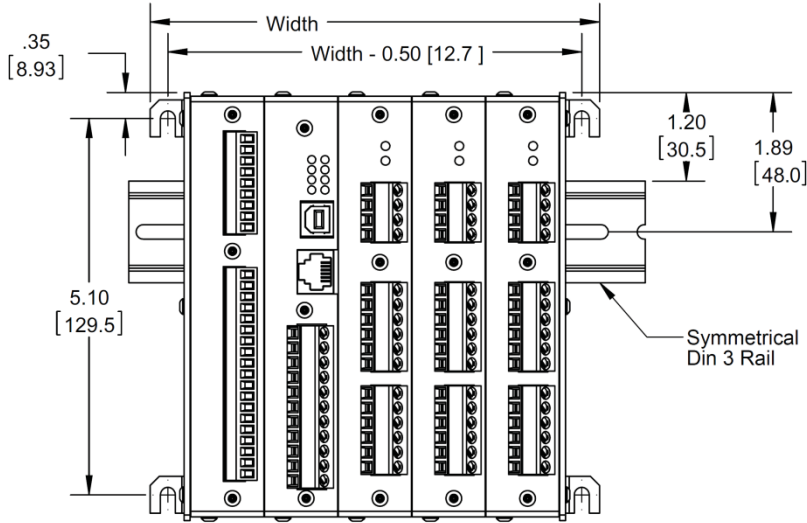
Connector Part No	Connector Description	For Modules
10.808.304 (WECO)	RMC100/150 4-pin Terminal Block	M, S, H, G, R
10.808.306 (WECO)	RMC100/150 6-pin Terminal Block	M, S
10.808.308 (WECO)	RMC100/150 8-pin Terminal Block	H, A, G, R
10.808.311 (WECO)	RMC100/150 11-pin Terminal Block	RMC150/151E
ELVP09100 (Amphenol Pcd)	RMC100/150 9-pin Terminal Block	DI/O, UI/O
ELVP19100 (Amphenol Pcd)	RMC100/150 19-pin Terminal Block	DI/O, UI/O





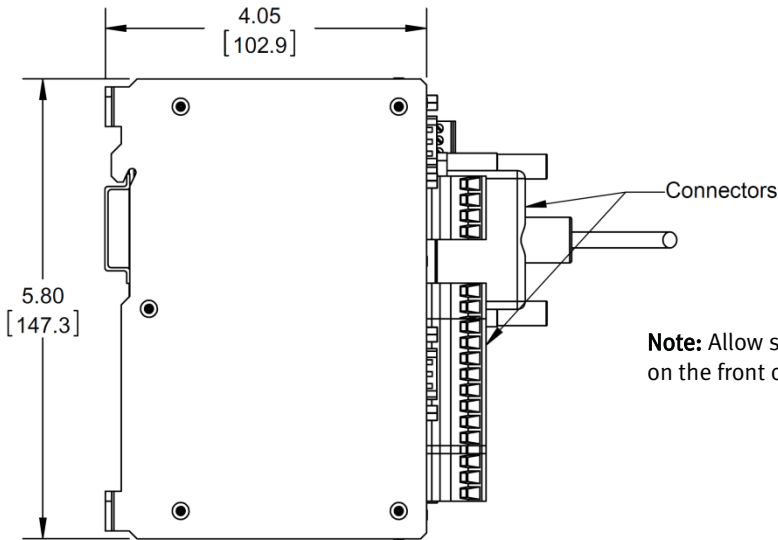
Mounting Dimensions

The width of the RMC depends on the number of slots in the backplane.
 CAD drawings of the RMC are available at www.deltamotion.com/downloads.
 Units are in inches [mm].



Chassis Front View

Slots	Width
3	4.12 in [105 mm]
4	5.12 in [130 mm]
5	6.12 in [155 mm]
6	7.12 in [181 mm]



Chassis Side View

Note: Allow space for the connectors on the front of the RMC.



The RMC Family of Motion Control



Connect. Control. Optimize.

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