



# RMC Servo Simulators

## Servo System and Position/Pressure

The **RMC Servo Simulator (RMC-SS)** simulates linear hydraulic servo systems. It accepts a  $\pm 10V$  drive input and closes the loop to provide a position output. The drive null, system gain, and system response can be adjusted to accurately simulate a variety of systems.

The position signal is 0-10V analog or a simulated magnetostrictive displacement transducer (MDT).

The **Pressure Extension (-PE)** option outputs a 0-10V signal for simulating a position/pressure system and includes pressure gain, threshold, and response adjustments.

The **Bar Graph (-BG)** option displays the simulated position. When used with the Pressure Extension, a pushbutton switch allows displaying the pressure threshold as well.

When used with Delta's motion controllers and accompanying software tools, graphs of the simulated motion may be used as a powerful analysis and demonstration tool.

The RMC-SS series of Servo Simulators shares its DIN-rail package with Delta's RMC motion controllers, but may be used with other similar controllers.

### Applications

- Test motion controller programs before hydraulics and/or mechanical systems are available
- Optimize motion control and position/pressure control offline
- Demonstrate servo control principles
- Compare motion controllers

### Servo Simulator Features

- Accepts  $\pm 10V$  drive input
- Generates simulated position jumper-selectable as:
  - 0-10V analog
  - RS-422 PWM MDT
  - RS-422 Start/Stop MDT
- Full control of hydraulic servo system parameters:
  - Drive Null
  - System Response
  - System Gain
- Jumper selectable simulation of long and high-recirculation MDTs.
- Red/green LED indicates drive polarity and amplitude
- Jumper selectable simulation of drive dead-band ( $\pm 0.5V$ )
- Available in single or multiple axes
- Compact DIN-rail mount package
- Same packaging as RMC family

### Pressure Extension Features

- Generates simulated pressure as 0-10V analog signal
- Full control of position/pressure system parameters:
  - Pressure Threshold
  - Pressure Gain/Polarity
  - Pressure Response
- LED indicates pressure output amplitude
- Powered from RMC-SS

### Bar Graph Features

- Displays simulated position on 30-element bar graph
- Displays pressure threshold on command when used with Pressure Extension
- Powered from RMC-SS



# RMC Servo Simulators

## Specifications

<b>Servo Simulator (-SS)</b>	Drive Input	±10V range, 20kΩ impedance
	Drive LED	Green = positive drive, Red = negative drive, intensity indicates drive magnitude
	Drive Null Adjustment	±1.2V (12% of total range) with drive connected ±2.5V (25% of total range) with drive disconnected
	System Response Adjustment	2.2Hz to 500Hz
	System Gain Adjustment	10 to 50 in/sec
	Analog Position Output	0-10V, 5mA (jumper Analog)
	Pulse Width Modulated MDT Output	RS-422 (jumper MDT and PWM)
	Start/Stop Pulse MDT Output	RS-422 (jumper MDT and S/S)
	Interrogate Pulse MDT Input	RS-422 100Ω, also single-ended compatible— drive +Int, leave -Int open (200Ω, 1.2V)
	Extended MDT Time	User-adjustable MDT time to simulate long transducers and/or multiple recirculations
	Power Input	+24VDC ±5%, 50mA max (100mA with bar graph). Delta recommends a dedicated linear power supply for noise control
	Power Supply Isolation	750VDC (no other isolation; simulator common connected to metal enclosure to reduce noise)
	<b>Pressure Extension (-PE)</b>	Above Threshold LED
Pressure Threshold Adjustment		Adjustable over entire position range
Pressure Response Adjustment		10Hz to 2.5kHz
Gain/Polarity Adjustment		Center zero; CW causes pressure output to increase when position above threshold, CCW when position below threshold
Display Pressure Threshold Switch		Momentary PB switches bar graph from position to pressure threshold display
Analog Pressure Output	0-10V, 5mA	
Power Input	Powered from Servo Simulator	
<b>Bar Graph (-BG)</b>	Position Bar Graph	30-element LED (switches to pressure threshold display with pushbutton switch on Pressure Extension)
	Power Input	Powered from Servo Simulator

## RMC Servo Simulator Wiring

### Servo Simulator (-SS)

Pin	Function
Drive Input	±10V Drive Input
SS Cmn	Simulator Common (drive and transducer)
+Int/Analog	Interrogate + / Analog Position
-Int	Interrogate -
+Ret	Return +
-Ret	Return -
+24VDC	+24VDC Power Input
24 Cmn	Power Supply Return

### Pressure Extension (-PE)

Pin	Function
Option	Not Connected
Press Output	Pressure Output
Cmn	Simulator Common

## Ordering Information

The following general part number formats are used to order servo simulators:

- **RMC-SSn**
- **RMC-SSn-BGn**
- **RMC-SSn-PEn**
- **RMC-SSn-PEn-BGn**

where n is the number of axes (1 to 4). Example:

- **RMC-SS1-PE1-BG1** - one-axis simulator with pressure extension and bar graphs (shown in photo on front)

Contact Delta for availability of configurations.

## 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.

