RMC SSI
Synchronous Serial Interface
for RMC100 Motion Controllers

The SSI module allows the use of a wide variety of feedback devices using the Synchronous Serial Interface (SSI) standard. Many types of transducers are available with SSI, including magneto-strictive displacement transducers (MDTs), absolute encoders, and laser measuring devices.

SSI has a number of advantages over other transducer interfaces. First, it offers higher noise immunity. Second, it gives absolute positions. Third, it supports a wide variety of transducers. Finally, many SSI devices offer higher precision; for example, MDTs are available with resolutions to 2µm.

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

Applications
- Presses
- Injection/RIM/blow molding
- Edgers/headrigs/veneer lathes
- Pinch rollers/winders/wrappers
- Casting/forging
- Palletizers/stackers
- Flying cutoff/curve sawing
- Cyclic testing
- Mechanical animation
- Tooling/tool handling
- Tube bending/forming

SSI Module Features
- Two axes of SSI feedback per module
- Supports SSI devices with Binary or Gray Code data from 4 to 32 bits in length
- Differential RS-422 SSI interface
- Two isolated, ±10V, 12-bit drive outputs per module
- Current output up to ±200mA with VC2100 converter option

SSI Device Manufacturers
The following is a partial list of manufacturers of transducers with SSI interfaces:

- **Balluff**
  Phone: 800-543-8390
  (www.balluff.com)
  SSI products: MDTs (specify a BTL5-SxxxB-Mxxxx-x-xxxx SSI Synchronous transducer for motion control)

- **Baumer Electric Ltd.**
  Phone: 800-937-9336
  (www.baumerelectric.com)
  SSI products: Absolute encoders

- **Heidenhain**
  Phone: 847-490-1191
  (www.heidenhain.com)
  SSI products: Absolute encoders

- **MTS Systems Corp Sensors Division (Temposonics)**
  Phone: 800-633-7609
  (www.mtssensors.com)
  SSI products: MDTs (specify Synchronous Mode—output type Sxxxx02—for motion control)

- **Stegmann Inc**
  Phone: 800-811-9110
  (www.stegmann.com)
  SSI Products: Absolute encoders

- **TR Electronic**
  Phone: 800-709-3300
  (www.trelectronic.com)
  SSI Products: MDTs, Absolute encoders, Laser measuring devices

RMC SSI

Specifications

SSI Interface

Axes	Two per module
Inputs	Two RS-422 differential, 150 Ω input impedance
Clock outputs	Two RS-422 differential
Clock frequency	User-selectable 230kHz or 920kHz
Cable type	Twisted pair, shielded
Cable length maximum	Transducer dependent (approx. 300-600ft)
Electrostatic Discharge (ESD) protection	15kV
Resolution	Transducer dependent (up to 2µm or approximately 0.00008" for MDTs)
Count encoding	Binary or Gray Code
Count data length	4 to 32 bits

Drive Interface

Outputs	Two ±10V, 5mA maximum, 12-bit DAC
Isolation	750VDC
Current Output Accessory	VC2100 voltage-to-current converter output range is adjustable from ±10mA to ±200mA 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

Power Requirements

All RMC modules are powered from the RMC controller.	The user must supply power to the transducers. Refer to the manufacturer's specifications for the transducer power requirements.

SSI Wiring

Axis 0:

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

Axis 1:

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

Drive Outputs:

Pin	Function
Drv 0	Axis 0 Drive
Drv Cmn	Drive Common
Drv 1	Axis 1 Drive
Case	Controller Chassis Ground (shield)

Ordering Information

Up to four SSI modules can be ordered in a single RMC unit. To specify an SSI module, insert **-S*n*** into the part number, where *n* indicates the number of modules (4 maximum). Each module includes two axes. For example:

- **RMC100-S1-DI/O:** 2 axes of SSI position control with a Communication DI/O module.
- **RMC100-S2-MB+:** 4 axes of SSI position control with a Modbus Plus communication module.

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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