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 magnetostrictive 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/headrags/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
Specifications

### SSI Interface

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

### Drive Interface

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outputs</td>
<td>Two ±10V, 5mA maximum, 12-bit DAC</td>
</tr>
<tr>
<td>Isolation</td>
<td>750VDC</td>
</tr>
<tr>
<td>Current Output Accessory</td>
<td>VC2100 voltage-to-current converter output range is adjustable from ±10mA to ±200mA in 10mA steps</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>+32 to +140 °F (0 to +60 °C)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40 to +185 °F (-40 to +85 °C)</td>
</tr>
<tr>
<td>Agency compliance</td>
<td>CE, UL, CUL</td>
</tr>
</tbody>
</table>

### 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.

### Ordering Information

Up to four SSI modules can be ordered in a single RMC unit. To specify an SSI module, insert -S\text{n} into the part number, where \text{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.