The MSP family of analog I/O blocks offers the freedom to use any analog sensor with many models of PLC. Each MSP block provides a single analog input (or output) interface between the PLC and the analog world. Communications between the MSP unit and the PLC is through a protocol that provides truly “open” architecture for analog signals to be processed digitally.

The MSP is factory preconfigured to support specific analog input or output signals, depending on the model. Optionally, the MSP signal range can be reconfigured in the field using the windows based configuration software model SCC-CC-A1 (sold separately). Signal Conditioners used in panels for isolation and converting signals for Boilers and Controls Systems.

**Input Analog Signal**
The analog input signal is isolated, filtered, amplified, scaled and/or linearized by the MSP micro-processor and converted to a 16-bit, binary weighted, digital word which is transmitted serially (one bit at a time) at 24VDC signal levels to the PLC’s discrete I/O port. At the PLC, each binary-weighted bit sent to the discrete input is temporarily stored until all 16 bits have been received. The digital word is then reassembled and its value (proportional to the analog signal) is placed in a working register of choice for decision making by the PLC program.

**Output Analog Signal**
The numerical value representing a desired analog output signal is placed into a PLC working register of choice. This value is transmitted serially (one bit at a time) at 24VDC signal levels to the MSP through the PLC’s discrete I/O port. The MSP scales, linearizes and proportionally converts the digital signal to the voltage or current output signal. The signal is then sent to the isolated output channel for use by a analog actuator connected at the output channel.

### SPECIFICATIONS
- **Isolation:** 1500 VAC continuous (3-way, 2-way for excitation).
- **Inputs:** See range chart.
- **Input Impedance:** 1G ohm (mV/TC), 55K ohm (V), 82 ohm (C).
- **Output Impedance:** >10M ohm (C), 0 ohm (V).
- **Power Requirements:** 15-32 VDC @ 25 mA - 45 mA.
- **Accuracy:** 0.05% F.S.
- **CJC Accuracy:** 0.2°C over 15 to 55°C (ambient); 1.0°C over -40 to 14°C; 3°C over 56 to 75°C.
- **Drift:** 0.01% F.S. per °C (offset + gain).
- **Dimensions:** 88 mm (H) x 68 mm (D) x 12 mm.
- **Ambient Operating Temperature:** -40 to 167°F (-40 to 75°C).
- **Storage Temperature:** -49 to 185°F (-45 to 85°C).
- **Humidity Conditions:** 95% non-condensing.
- **Mounting:** DIN rail (32 mm-G and 35 mm-H).
- **Connections:** Screw terminals for 14-22 AWG.
- **Weight:** 1.4 oz (40 g).
- **Agency Approvals:** UL, cUL, CSA, CE.

### APPLICATION
Signal conditioners used in panels for isolation and converting signals for boilers and controls systems.

### ACCESSORIES
- SCC-4W, Power Supply 85 - 265 VAC @ 50/60 Hz ........................................... $126.00
- SCC-CC-A1, Windows® Software and Cable .............................................. 154.00

### Input/Output Ranges

<table>
<thead>
<tr>
<th>Input Type</th>
<th>Range °F</th>
<th>Range °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type J Thermocouple</td>
<td>-32 to 32° &amp; 32 to 140°</td>
<td>-20 to 0° &amp; 0 to 760°</td>
</tr>
<tr>
<td>Type K Thermocouple</td>
<td>-32 to 32° &amp; 32 to 2498°</td>
<td>-200 to 0° &amp; 0 to 1370°</td>
</tr>
<tr>
<td>Type T Thermocouple</td>
<td>-32 to 32° &amp; -256 to 752°</td>
<td>-200 to 0° &amp; -160 to 400°</td>
</tr>
<tr>
<td>Type E Thermocouple</td>
<td>-32 to 32° &amp; -148 to 1832°</td>
<td>0 to 1768°</td>
</tr>
<tr>
<td>Type R Thermocouple</td>
<td>32 to 3214°</td>
<td>0 to 1768°</td>
</tr>
<tr>
<td>Type S Thermocouple</td>
<td>32 to 3214°</td>
<td>0 to 1768°</td>
</tr>
<tr>
<td>Type B Thermocouple</td>
<td>32 to 3232°</td>
<td>0 to 1832°</td>
</tr>
<tr>
<td>Type N Thermocouple</td>
<td>-32 to 32° &amp; 32 to 2373°</td>
<td>-200 to 0° &amp; 0 to 1300°</td>
</tr>
<tr>
<td>100 Ohm Pt. 0.00385 DIN RTD</td>
<td>-32 to 1562°</td>
<td>-200 to +850°</td>
</tr>
<tr>
<td>120 Ohm Nickel 0.00828 US RTD</td>
<td>-112 to +382°</td>
<td>80 to +200°</td>
</tr>
<tr>
<td>1000 Ohm Pt. 0.00385 DIN RTD</td>
<td>-32 to +1562°</td>
<td>-200 to +850°</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>0 to 5000 mV min.; 0 to 100K max.; 0 to 20 mA DC/0 to 10 VDC</td>
<td></td>
</tr>
</tbody>
</table>

**Price**
- MSP-TC-IN: $204.00
- MSP-RFD-IN: $204.00
- MSP-V-IN: $204.00
- MSP-V-OUT: $204.00
- MSP-C-IN: $204.00
- MSP-C-OUT: $204.00
- MSP-POT-IN: $204.00