Where Do I Find Everything I Need for Process Measurement and Control? OMEGA...Of Course!

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- Wire: Thermocouple, RTD & Thermistor
- Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

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- Transducers & Strain Gauges
- Load Cells & Pressure Gauges
- Displacement Transducers
- Instrumentation & Accessories

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- Rotameters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- Turbine / Paddlesheel Systems
- Totalizers & Batch Controllers

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- Benchtop/Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
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- Communications-Based Acquisition Systems
- Plug-in Cards for Apple, IBM & Compatibles
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- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

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- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments
WARNING: These products are not designed for use in, and should not be used for, patient connected applications.

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OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA’s Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA’s WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; missapplication; misuse or other operating conditions outside of OMEGA’s control. Component which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA’S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

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FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:
1. P.O. number under which the product was PURCHASED
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

It is the policy of OMEGA to comply with all worldwide safety and EMCEE regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

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The Proper Installation & Maintenance of TX802SG.

MOUNTING.
(1) Mount in a clean environment in an electrical cabinet on DIN or EN mounting rail.
(2) Do not subject to vibration or excess temperature or humidity variations.
(3) Avoid mounting in cabinets with power control equipment.
(4) To maintain compliance with the EMC Directives the LPI-B is to be mounted in a fully enclosed steel cabinet.
The cabinet must be properly earthed, with appropriate input / output entry points and cabling.

WIRING.
(1) All cables should be good quality overall screened INSTRUMENTATION CABLE with the screen earthed at one end only.
(2) Signal cables should be laid a minimum distance of 300mm from any power cables.
(3) For 2 wire current loops and 2 wire voltage signals or 2 wire current signals, Austral Standard Cables B5102ES is recommended. For 3 wire transmitters Austral Standard Cables B5103ES is recommended.
(4) It is recommended that you do not ground current loops and use power supplies with ungrounded outputs.
(5) Lightning arrestors should be used when there is a danger from this source.
(6) Refer to diagrams for connection information.

COMMISSIONING.
(1) Once all the above conditions have been carried out and the wiring checked apply power to the TX802SG loop and allow five minutes for it to stabilize.
(2) Take a low (approx 10%) and high (approx 90%) reading of the variable being measured by the transducer supplying the signal to the TX802SG, and ensure that this agrees with the level being indicated by the PLC or indicator, etc, that the TX802SG is connected into. Adjust for any difference using the Zero & Span trimpots in the top of the TX802SG enclosure with a small screw driver, until the two levels agree. (Clockwise to increase the output reading and anti-clockwise to decrease the output reading.)

MAINTENANCE.
(1) Repeat (2) of Commissioning.
(2) Do it regularly - at least once every 12 months.

<table>
<thead>
<tr>
<th>INPUT RANGES</th>
<th>mV</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–1mV</td>
<td>1</td>
<td>0–200mV</td>
</tr>
<tr>
<td>0–2mV</td>
<td>2</td>
<td>0–500mV</td>
</tr>
<tr>
<td>0–3mV</td>
<td>3</td>
<td>0–750mV</td>
</tr>
<tr>
<td>0–4mV</td>
<td>4</td>
<td>0–1000mV</td>
</tr>
<tr>
<td>0–5mV</td>
<td>5</td>
<td>2–6mV</td>
</tr>
<tr>
<td>0–6mV</td>
<td>6</td>
<td>5–10mV</td>
</tr>
<tr>
<td>0–8mV</td>
<td>7</td>
<td>15–20mV</td>
</tr>
<tr>
<td>0–10mV</td>
<td>8</td>
<td>30–35mV</td>
</tr>
<tr>
<td>0–12mV</td>
<td>9</td>
<td>30–40mV</td>
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<td>0–15mV</td>
<td>10</td>
<td>30–45mV</td>
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<td>11</td>
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<td>0–25mV</td>
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<td>13</td>
<td>100–200mV</td>
</tr>
<tr>
<td>0–35mV</td>
<td>14</td>
<td>-2–4mV</td>
</tr>
<tr>
<td>0–40mV</td>
<td>15</td>
<td>-4–6mV</td>
</tr>
<tr>
<td>0–50mV</td>
<td>16</td>
<td>-5–7mV</td>
</tr>
<tr>
<td>0–60mV</td>
<td>17</td>
<td>-10–20mV</td>
</tr>
<tr>
<td>0–75mV</td>
<td>18</td>
<td>-50–70mV</td>
</tr>
<tr>
<td>0–80mV</td>
<td>19</td>
<td>-100–300mV</td>
</tr>
<tr>
<td>0–100mV</td>
<td>20</td>
<td>-200–800mV</td>
</tr>
</tbody>
</table>

| Special Input Range | Z |

Graph Of Maximum Load Versus Power Supply.

Enclosure Dimensions.

Quality Assurance Programme.
The modern technology and strict procedures of the ISO9001 Quality Assurance Programme applied during design, development, production and final inspection grant the long term reliability of the instrument.
### TX802SG Specifications.

- **Input**
  - ±mV: Field Programmable: 1~1000 mVdc and Bipolar.
  - Minimum Input Resistance = 1MΩ.
  - Maximum Over-range = 30Vdc Continuous.
  - 3 Second Input Damping Selectable With S3-1.

- **Output**
  - ±mA: 2 Wire 4~20mA (Loop Powered).
  - ±mV: 40~200mV = 4~20mA, (Indicative Test Signal Only).
  - Other Output Voltages Available, eg 1~5V.

- **Power Supply**
  - 8~40Vdc.

- **Supply Voltage Sensitivity**
  - <0.005%/V FS.

- **Output Load Resistance**
  - 800Ω @ 24Vdc. (500Ω Above 8Vdc.)

- **Maximum Output Current**
  - Limited to <28mA.

- **Accuracy**
  - ±0.1% FSO Typical.

- **Linearity & Repeatability**
  - ±0.1% FSO Typical.

- **Ambient Drift**
  - <0.02%/C FSO Typical.

- **Noise Immunity**
  - 125dB CMRR Average. (2.0kVac RMS Limit.)

- **R.F. Immunity**
  - <1% Effect FSO Typical.

- **Isolation Voltage**
  - 2.0kVac Input to Output for 60sec.

- **Response Time**
  - 200msec Typical. (10 to 90% 50msec Typical.)

- **Operating Temperature**
  - 0~70°C.

- **Storage Temperature**
  - -20~80°C.

- **Operating Humidity**
  - 90%RH Max. Non-Condensing.

- **Construction**
  - 2.6 Polyamide Thermoplastic Rail Mount Enclosure.

**Note 1.** Specifications based on Standard Calibration Unit, unless otherwise specified.

**Note 2.** Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. No liability will be accepted for errors, omissions or amendments to this specification.

### Examples of Input Connection.

#### Terminations.

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

**Note:** Only use precision regulated power supply for bridge power supply.

### Plan View of TX802SG Adjustments.

**Input Terminals**

**S1-Zero**

- Gain = 1
- Gain = 2
- Gain = 4
- Gain = 8
- Gain = 16
- Gain = 32

**S2-Span**

- Gain = 1
- Gain = 2
- Gain = 4
- Gain = 8
- Gain = 16
- Gain = 32

**S3-Function**

- Off
- On

**Power Supply Terminals**

**LED Indication of Loop Current.**

### TX802SG Input Programming.

If the input range is not listed in the programming table, use the following formulae to work out the Zero and Span DIP switch settings for gain.

#### Span Gain = 80 X Pregain

#### Zero Gain = 5 x Signal Low

**Gain Switch No. 1 2 3 4**

<table>
<thead>
<tr>
<th>Gain Value</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-2mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-3mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-4mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-5mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-6mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-8mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-10mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-12mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-15mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-20mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-25mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-30mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-35mV</td>
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<td>0</td>
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<td>X</td>
</tr>
<tr>
<td>0-40mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-50mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-60mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-75mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-100mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-150mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-200mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>0-250mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
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</tr>
<tr>
<td>0-400mV</td>
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</tr>
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<td>0-500mV</td>
<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>0-750mV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

**Notes:**

1. Switch status 1 = ON, 0 = OFF, X = DON T CARE.
2. Input ranges with "<<" beside them require more adjustment with the Span trimpot.

**TX802SG Input Range Programming Table.**

#### Effective Input Range (i.e. Signal High - Signal Low).

<table>
<thead>
<tr>
<th>S3-2</th>
<th>S3-3</th>
<th>Pregain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1mV</td>
<td>&lt;=</td>
<td>Range</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Gain Value Table.

<table>
<thead>
<tr>
<th>Gain Value</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Gain</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Span Gain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

**Notes:**

1. Enter ranges as their mV value, eg. Enter 100mV as 100.
2. Use the same pregain value in both the Span and Zero gain formulae.
3. Enter the Zero or Span gain value into the appropriate Zero or Span DIP switch.

**TX802SG Output Range Programming Table.**

So if a gain value of 28 is required, put DIP switch No.3,4,5 OFF (ie, gains of 4 + 8 + 16 = 28) and all the other DIP switches ON.

Dip switches are accessed by separating the two halves of the TX802SG enclosure.