Iso Verter®II
Model SC448 and SCL448
INSTALLATION INSTRUCTIONS
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Description

The SC/SCL448 accepts a strain gauge input as a part of a Wheatstone Bridge. The internal power supply can be set up to produce a fixed 5Vdc, fixed 10Vdc, or adjustable voltage in ranges from 0 to 2.5 or 0 to 10Vdc.

Calibration of the SC/SCL448 is done by selecting the excitation voltage and input range with DIP switches, and making fine adjustments with the excitation, zero and span adjustments on the front of the unit. Output selection is made through DIP switch selection.

The input may be configured for a minimum span of 10 mV to a maximum of 200 mV in a number of selectable ranges. The following table indicates the available ranges.

<table>
<thead>
<tr>
<th>Range</th>
<th>Span (zero based)</th>
<th>Span (bi-polar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10mV</td>
<td>0 to 10</td>
<td>-5 to +5</td>
</tr>
<tr>
<td>20mV</td>
<td>0 to 20</td>
<td>-10 to +10</td>
</tr>
<tr>
<td>50mV</td>
<td>0 to 50</td>
<td>-25 to +25</td>
</tr>
<tr>
<td>100mV</td>
<td>0 to 100</td>
<td>-50 to +50</td>
</tr>
<tr>
<td>200mV</td>
<td>0 to 200</td>
<td>-100 to +100</td>
</tr>
</tbody>
</table>

Note: The spans can be adjusted within their minimum and maximum values.

Required Equipment

The SC448/SCL448 is designed to accept a signal from strain gauge sensors. You will need a device to actuate the sensing end of the strain gauge sensor. In the case of pressure sensors, you will need a pressure pump and accurate gauge to supply the input variable.

One Digital Multimeter (DMM) with resolution to 4 1/2 digits or better with an accuracy of 0.1% or better.

If you plan to use an external excitation power supply, you will need a short length (≈ 5 cm (2 in)) of 20 to 24 gauge insulated wire.

The transmitter may be calibrated on the bench or while installed in the panel.

WARNING: Do not attempt to operate this device with the cover removed. Potentially lethal voltage is present on some of the internal components. Do not open the unit. There are no internal adjustments or user serviceable parts in the unit.

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Output Programming -- Hardware

MODE SELECTION SWITCH BANK (SW-3)
1. For VOLTAGE OUTPUT turn switches one and two ON and switch three OFF.
2. For CURRENT OUTPUT turn switches one and two OFF and switch three ON.
3. For UNIPOLAR OUTPUT (zero based) turn switch four ON and switch five OFF.
4. For BIPOLAR OUTPUT (minus to plus) turn switch four OFF and switch five ON.
5. For ZERO BASED OUTPUT (e.g., 0 TO 20 mA) turn switch six ON and switch seven OFF.

6. For ZERO SUPPRESSION (e.g., 4 TO 20 mA) turn switch six OFF and switch seven ON. If BIPOLAR is selected, do not use the ZERO SUPPRESSION switch. Use the ZERO adjustment to suppress the output.
7. Switch eight is always OFF. (It is not connected to any circuitry. If switch eight is turned ON there is no effect on the operation of the device.)

RANGE SELECTION SWITCH BANK (SW-4)
Turn ON the switch for the scale desired. All other switches should be OFF. If BIPOLAR OUTPUT is selected, the scale will be from MINUS-SELECTION to PLUS-SELECTION (e.g., -10 TO +10 VDC)
Input Programming -- Hardware

RANGE SELECTION, MODE SELECTION, EXCITATION SELECTION, SWITCH BANK (SW-1)

1. Turn ON switches 1 through 5 as appropriate to select the desired input range.
2. For direct acting input (as input increases, the output will increase), turn switch 6 ON. For reverse acting input (as the input increases, the output will decrease), turn switch 6 OFF.
3. For an adjustable Excitation Voltage from 0 to 2.5V, turn OFF switches 7 and 8.
   For an adjustable Excitation Voltage from 0 to 10V, turn switch 7 ON and turn switch 8 OFF.
   For a fixed Excitation Voltage of 5V, turn switch 7 OFF and turn switch 8 ON.
   For a fixed Excitation Voltage of 10V, Turn ON switches 7 and 8.

![Figure 2. Input Selection Switches](image)

Mounting
Mount the unit in a panel that will not be subject to excessive temperature, shock, or vibration. All models are designed for mounting on an industry standard 35 mm DIN rail. An optional surface mounting kit is available from the factory (P/N 35DINADPTR).

To install hold the SC448 so that is the front is higher than the rear. Place the upper slot on the rear of the SC448 on the top edge of the DIN rail. Slowly rotate the front down until the bottom spring clip snaps over the bottom edge of the DIN rail.

To remove from the DIN rail, place a small slotted screwdriver in the slot in the spring clip under the housing. Pry the slot downward to release the SC448/SCL448 from the bottom of the rail.

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Wiring
The wiring terminals for the SC448 and SCL448 are compression type. To open the wiring terminal, turn the screw for that terminal counterclockwise. Slide the wire into the terminal space. While holding the wire in place, turn the screw clockwise to tighten. Do not overtighten. The wire should be held snugly in place.

Power for SC448 is 85 to 265 Vdc/Vac 50 to 400 Hz. Power for SCL448 is 12 to 28 Vdc/Vac 50 to 400 Hz. Wire the input, output, and power as shown on the wiring label. **Do not run Class 2 signal wires adjacent to or in the same conduit as power wires.**

Wire the four wires from the strain gauge to the transmitter. Connect the input wires to terminals 1 (positive) and 2 (negative). Connect the excitation wires to terminals 6 (positive) and 3 (negative).

If you are using an external excitation power supply, **DO NOT** connect the excitation wires to the SC448/SCL448. Connect the excitation wires to the external power supply and connect a wire jumper between terminals 2 and 3 of the SC448/SCL448.

**WARNING:** Do not attempt to operate this device with the cover removed. Potentially lethal voltage is present on some of the internal components. Do not open the unit. There are no internal adjustments or user serviceable parts in the unit.
Calibration

1. Apply power and allow the transmitter to warm up for 30 minutes.

2. If the Excitation Voltage is selected as either 5V fixed or 10V fixed then skip to step 4.

3. If an adjustable bridge excitation mode (0 to 2.5 Vdc or 0 to 10 Vdc) has been selected, measure the excitation voltage at terminals 6 (positive) and 3 (negative). Adjust the EXCITATION adjustment pot until the desired voltage is present.

4. Apply the appropriate input for the low end of the scale. Adjust the ZERO adjustment pot for the desired low end output.

5. Apply the appropriate input for the high end of the scale. Adjust the SPAN adjustment pot for the desired high end output.

Recheck the excitation, zero and span settings. Repeat procedure as necessary.

![Figure 6 Position of LED and Adjustment Pots]

Specifications

**Power Supply:** SC448: 85 to 265 Vdc/ Vac 50 to 400 Hz.  
SCL448: 12 to 28 Vdc/Vac 50 to 400 Hz. ±20%

**Power Consumption:** 2VA.

**Isolation:** 1800 VAC

**Ambient Temperature Range:**
- **Operating:** 0° to 55° C (32° to 131° F)
- **Storage:** -40° to +80°C (-40° to +176°F)

**Humidity Conditions** (non-condensing): 0 to 90% up to 40 °C , 10 to 50% at 55 °C.

**Linearity:** 0.1% of span.

**Drift:** ±0.02% per °C typical, ±0.05% maximum.

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Specifications, continued

**Response Time:** 2mS, 90% step change.
**Input:** ±10 mV to ±200 mV, direct or reverse acting.
**Input Impedance:** >10 Megohms.
**Zero Adjustment:** 50% of full scale (-25% to +25%).
**Span Adjustment:** 60% of full scale (-50% to +10%).
**Output Ranges:** 0 to 1V, 0.2 to 1 V, 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V, 0 to 1mA, 0.2 to 1mA, 0 to 5mA, 1 to 5mA, 0 to 10mA, 2 to 10mA, 0 to 20 mA, 4 to 20mA.
Current output compliance: 12V
**Maximum current output load:** 600 ohms.
**Maximum voltage output current (Minimum voltage output load):** 20mA (500 ohms).
**Weight:** 128g (4.5 oz.)

Dimensions