### Warnings

Connect the power supply and the display/output device according to the safety regulations for electrical equipment.

> Risk of injury, damage to or destruction of the controller and/or the sensor

Avoid shocks and impacts to the sensor and controller.

> Damage to or destruction of the controller and/or the sensor

The supply voltage must not exceed the specified limits.

> Damage to or destruction of the controller and/or the sensor

Protect the sensor cable against damage.

> Destruction of the sensor, failure of the measuring device

### Notes on CE Marking

The following apply for the induSENSOR MSC7802:


The sensor satisfies the requirements if the guidelines in the operating instructions are maintained in installation and operation.

### Proper Environment

- **Temperature range:**
  - Storage: ± 40 °C to ± 185 °F
  - Operation: ± 40 °C to ± 185 °F

- **Humidity:**
  - 5 - 95% (non-condensing)

- **Ambient pressure:**
  - Atmospheric pressure

- **Protection class:**
  - IP 67

- **Vibration/Shock:**
  - EN 60068-2

### Installation

**Fasten the controller of series MSC7802 by means of two M4 screws.**

The position of the mounting holes is shown in the drawing below. The tightening torque for the cover screws is 0.9 Nm. The maximum tightening torque for the SW15 (M12) cable gland is 1.5 Nm and for the SW19 (M16) cable gland is 3 Nm.

Please note that less torque should be applied for cable glands with various cable sheath materials.

**> Damage to the cable sheath**

### Power and signal connection:

- **Cable gland SW19**:
  - Clamping range: 4.5 mm ... 10 mm
  - Alternative: M12x1 5-pole, A-coded
  - Ø 7.5 (.29 dia.)
  - Sensor model: Series 712 (Binder)

- **Cable gland WS19**:
  - Clamping range: 4.5 mm ... 10 mm
  - Alternative: M16x1 5-pole, A-coded
  - Ø 10 (.41 dia.)

### Power Supply, Sensor and Signal Output

The minimum bending radius of the PC7400-6/4 and PC5/5-IWT power supply and output cables (available as accessories) is ten times the cable diameter. All of the connections for the power supply/sensor/signal output are on the controller.

#### Connections

- **Power supply/output side**:
  - Cable gland: SW19; clamping range 4.5 mm ... 10 mm
  - Screw terminal connection; AWG 16 up to AWG 24; up to AWG 28 with cable sheath
  - Alternatively: Connector M12x1, 5-pole, A-coded
  - Sensor side:
    - Cable gland: SW15; clamping range 1 mm ... 5 mm
    - Screw terminal connection; AWG 16 up to AWG 24; up to AWG 28 with cable sheath

  **See also:**
  - Male M12 series, series 712, Co, Binder

### Wiring

The housing must be open to connect the sensors and wire the output and signal cables through the cable glands.

**Loosen the screws.**

**Pass the sensor and signal cables through the cable glands.**

**Connect the cables to the terminals according to the pin assignments.**

### Pin assignment for power supply and signal

#### Pin Table

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shield</td>
<td>Sensor cable</td>
</tr>
<tr>
<td>Secondary center tap</td>
<td>2</td>
</tr>
<tr>
<td>Secondary +</td>
<td>3</td>
</tr>
<tr>
<td>Secondary -</td>
<td>4</td>
</tr>
<tr>
<td>Primary +</td>
<td>5</td>
</tr>
<tr>
<td>Primary -</td>
<td>6</td>
</tr>
</tbody>
</table>

**Note:**

- **For the SW15 (M12) cable gland** the tightening torque is 1.5 Nm and for the SW19 (M16) cable gland it is 3 Nm.

**> Damage to the cable sheath**

### Button/LED

- **Button**
  - Enter the menu level
  - Confirmation
- **LED**
  - Channel display
  - Value display

**Note:**

- The LED in the corresponding color indicates the actual parameter.

### Initial Operation

- **Connect the sensor before starting the controller.**

  **Ensure that the wiring of the sensor connections, signal cable and power supply connections are correct before connecting the controller to the power supply and turning it on.**

  **Then switch on the power supply.**

  **Set the controller to its basic setting.**

### Control and Display Elements

#### Button/LED

**Note:**

- The LED in the corresponding color indicates the actual parameter.

- **LED**
  - Channel display
  - Value display

**Note:**

- The LED in the corresponding color indicates the actual parameter.

### Pin assignment for power supply and signal

#### Pin Table

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supply voltage</td>
</tr>
<tr>
<td>2</td>
<td>Analog output for channel 2</td>
</tr>
<tr>
<td>3</td>
<td>GND supply/signal ground</td>
</tr>
<tr>
<td>4</td>
<td>Analog output for channel 1</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**

- **View on pin side**

### Sensor pin assignment

#### Pin Table

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Secondary +</td>
</tr>
<tr>
<td>2</td>
<td>Secondary -</td>
</tr>
<tr>
<td>3</td>
<td>Primary +</td>
</tr>
<tr>
<td>4</td>
<td>Primary -</td>
</tr>
<tr>
<td>5</td>
<td>Secondary center tap</td>
</tr>
</tbody>
</table>

**Note:**

- **View on pin side**

### Initial Operation

**Note:**

- Connect the sensor before starting the controller.

**Ensure that the wiring of the sensor connections, signal cable and power supply connections are correct before connecting the controller to the power supply and turning it on.**

**Then switch on the power supply.**

**Set the controller to its basic setting.**

### Setting

The controller can be easily set using buttons, LEDs or a software (see operating instructions, Chap. A3).
### Menu Structure for the MSC7802 Controller

<table>
<thead>
<tr>
<th>D1: Channel</th>
<th>D2: E1</th>
<th>D3: E2</th>
<th>D4: Value</th>
<th>Next menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment</td>
<td>Ent</td>
<td>Ent</td>
<td>E1 level</td>
<td></td>
</tr>
<tr>
<td>2-point adjustment</td>
<td>Ent</td>
<td>E1 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory settings</td>
<td>Ent</td>
<td>E1 level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero-Point Search</td>
<td>Ent</td>
<td>E1 level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend of the Menu Structure**
- LED orange
- LED red
- LED orange flashing
- LED red flashing
- LED green
- LED off
- SMR Start of measuring range
- MMR Mid of measuring range
- EMR End of measuring range

**Adjustment**
- Move the measuring object to position X1, and change the output signal U1 with
- Flashes orange when the measuring object is in the electrical center of the sensor.

**Zero-Point Search**
- Set the output signal U0.
- The LED flashes and color changes depending on the output signal (green = too low, red = too high).
- Move the measuring object to position X0 until the output has reached U0.
- Lights orange when the measuring object is in the electrical center of the sensor.

### Menu Structure for the MSC7802 Controller, Adjustment Mode: 2-point Adjustment

**Fig. 8 Menu structure for the MSC7802 controller, adjustment mode: 2-point adjustment**
1) Position X2 must be > 10% of the measuring range away from X1.

### Menu Structure for the MSC7802 Controller, Adjustment Mode: Zero-point Search

**Fig. 9 Menu structure for the MSC7802 controller, adjustment mode: Zero-point search**
1) Position X0 must be > 10% of the measuring range away from X1.