### Intended Use

The optoCONTROL CLS1000-QN is designed for use in industrial environments and domestic areas. It is used for optical and non-contact detection of the presence of a part in position detection of small parts, for position and assembly control in automatic assembly machines and feeding systems, presence control and for length and diameter inspection. The system must only be operated within the limits specified in the technical data, see Operating Instructions, Chap 2. The system must be used in such a way that no persons are endangered or machines and other material goods are damaged in the event of malfunction or total failure of the system. Take additional precautions for safety and damage prevention in case of safety-related applications.

### Warnings

Connect the power supply according to the safety regulations for electrical equipment. The supply voltage must not exceed the specified limits.

- **Risk of injury, damage to or destruction of the sensor**
- **or and/or the optical fiber**

Avoid shocks and impacts to the controller and the sensor (optical fiber). Protect the sensor against damage. Never fold the optical fiber. Never fold the optical fiber in tight radii. Protect the ends of the sensor (optical fiber) against contamination (use protective caps).

- **Damage to or destruction of the optical fiber, failure of the sensor**

### Controller Mounting, Dimensional Drawing

1. Ensure careful handling during installation and operation.

2. Mount the controller only to the existing through-holes of the housing on a flat surface or a DIN rail. Any type of clamping is not permitted.

### Proper Environment

- Protection class: IP67
- Operation range: -5 °C +55 °C (+23 °F +131 °F)
- Storage: -10 °C +70 °C (+14 °F +158 °F)
- Humidity: 5% ... 95% (non-condensing)
- Ambient pressure: Atmospheric pressure

In addition, the following applies to all models: When used in environments with particularly strong high-frequency influences, deviations from the specified accuracy tolerances may occur at individual frequencies.

### Unpacking/Included in Delivery

1. Controller
2. Assembly instruction

Optional accessories (not included but required to connect the controller):
1. Signal / supply cable PC1000-5, with straight connector (or open ends), unshielded
2. Signal / supply cable PC1000-2-T for CLS1000 with trigger function, 5-pin, M12, straight connector, 2m, open ends

Various suitable signal / supply cables and optical fibers can be found under Optional Accessories, see Operating Instructions.

1. Alternatively PC1000-90-5 with 90° angled connector (or open ends), unshielded, see Optional Accessories, Operating Instructions.
2. Only for controller with trigger function

### Pin Assignment / Supply Voltage 4-Pin or 5-Pin (only with Trigger Function)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
<th>Comments, circuitry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V&lt;sub&gt;s&lt;/sub&gt;</td>
<td>Supply voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 ... 30 VDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I&lt;sub&gt;max&lt;/sub&gt; &lt; 50 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brown</td>
</tr>
<tr>
<td>2</td>
<td>OUT2</td>
<td>Switching output QN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V&lt;sub&gt;max&lt;/sub&gt;, 12 ... 30 VDC, I&lt;sub&gt;max&lt;/sub&gt; = 100 mA, signal level depends on supply voltage. Programmable switching characteristic: NPN, PNP, PP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ground for supply, switching output QN, analog output Q and trigger (IN)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blue</td>
</tr>
<tr>
<td>4</td>
<td>OUT1</td>
<td>Switching output Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V&lt;sub&gt;max&lt;/sub&gt;, 12 ... 30 VDC, I&lt;sub&gt;max&lt;/sub&gt; = 100 mA, signal level depends on supply voltage. Programmable switching characteristic: NPN, PNP, PP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Black</td>
</tr>
<tr>
<td>5&lt;sup&gt;*&lt;/sup&gt;</td>
<td>TRG&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Trigger (IN)&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max. 30 VDC, input current I&lt;sub&gt;max&lt;/sub&gt; &lt; 1 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gray&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

### Initial Operation

1. Connect the controller according to the pin assignment.
2. Connect the optical fiber to the controller and lock it using a union nut.

### Assembly Instructions

- Optical fiber
- Socket for optical fibers

- Union nut

Various suitable optical fibers can be found under Optional Accessories, see Operating Instructions.

1. Connect the PC1000-5 signal/connection cable or the PC1000-2-T for CLS1000 with trigger function to the controller.
2. Connect the PC1000-5 signal/connection cable or the PC1000-2-T for CLS1000 with trigger function to the controller.
3. Switch on the power supply.
4. After switching on the power supply, the green LED lights up.
5. Move the optical fiber sensors to the required position relative to the object.
6. Take background reflections into account here.

1. Alternatively, angled PC1000/90-5 signal / supply cable with 90° angled connector (or open ends) unshielded, see Optional Accessories, Operating Instructions.