**Intended Use**

The optoCONTROL CLS1000-2Q 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 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).

- Risk of damage to or destruction of the optical fiber, failure of the sensor

No sharp or heavy objects should be allowed to affect the cables and optical fiber. Avoid folding the cables and the optical fiber.

- Damage to or destruction of the cable / optical fiber failure of the controller and/or optical fiber

- To mount the controller, you can also use the mount1000 mounting adapter for CLS1000 on existing mounting holes of the predecessor model optoCONTROL CLS-K, see Optional Accessories, Operating Instructions.

**Proper Environment**

- Protection class: IP67
- Temperature range:
  - Operation: -5 ... +55 °C (+23 ... +131 °F)
  - Storage: -10 ... +70 °C (+14 ... +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
1 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
1 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

**IEEE Standard for Unshielded Optical Fiber Systems**

IEEE Standard for Unshielded Optical Fiber Systems is a standard for unshielded optical fiber systems. It specifies requirements for the performance and characteristics of unshielded optical fiber systems. The standard covers systems for both indoor and outdoor use, and provides guidelines for selecting and specifying optical fiber systems. The standard also provides guidance on the testing and certification of unshielded optical fiber systems.

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

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal Assignment</th>
<th>Description</th>
<th>Comments, circuitry</th>
<th>Cable color (Cable: PC1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vmax</td>
<td>Supply voltage</td>
<td>&lt; 50 mA</td>
<td>Brown</td>
</tr>
<tr>
<td>2</td>
<td>OUT2</td>
<td>Switching output Q2</td>
<td>Vmax = 100 mA</td>
<td>White</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>Ground</td>
<td>Ground for supply, switching output Q1, analog output Q2 and trigger (IN).</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>OUT1</td>
<td>Switching output Q1</td>
<td>Vmax = 100 mA</td>
<td>Black</td>
</tr>
<tr>
<td>5</td>
<td>TRG</td>
<td>Trigger (IN)</td>
<td>Max. 30 VDC, input current</td>
<td>Gray</td>
</tr>
</tbody>
</table>

**Controller with 2 Switching Outputs**

- NPN, PNP, PP: Switching behavior is individually programmable for Q1 and Q2

- The switching threshold can be set separately for Q1 and Q2 in the operating menu.

**Initial Operation**

- Connect the controller according to the pin assignment.
- Connect the optical fiber to the controller and lock it using a union nut.
- Connect the PC1000-5 signal/connection cable or the PC1000-2-T for CLS1000 with trigger function to the controller.
- Switch on the power supply.

**Assembly Instructions**

**Digest**


You can find more information about the sensor in the operating instructions. You will find this online at: www.micro-epsilon.com/download/manuals/man--optoCONTROL-CLS1000-en.pdf or with the QR code at right.