Type 2 and Type 4 Safety Light Curtains (Original instruction sheet)

**WARNING**

- Improper setup or installation
- Read, understand, and follow the compliance below and the complete XUSL2E/XUSL4E User Manual before installing the XUSL2E/XUSL4E Safety light curtains.
- Do not tamper with or make alterations on the unit.
- Comply with the wiring and mounting instructions.
- Check the connections and fastening during maintenance operations.
- Disconnect all power before servicing equipments.
- The proper functioning of the XUSL2E/XUSL4E Safety light curtains and its operating line must be checked on a regular basis based on the level of security required by the application (e.g. number of operations, level of environmental pollution, etc.).

Failure to follow these instructions can result in death, serious injury, or equipment damage.

These devices have been designed to be in compliance with the standards currently in effect:
- XUSL2E: Type 2 (EN/IEC 61496-1), SIL 1 (EN/IEC 61508), SILCL 1 (EN/IEC 62061), PLc–Cat.2 (EN/ISO 13849-1)
- XUSL4E: Type 4 (EN/IEC 61496-1), SIL 3 (EN/IEC 61508), SILCL 3 I (EN/IEC 62061), PLe–Cat.4 (EN/ISO 13849-1)

**Package Content (Example)**

- Quick Start Guide
- XUSL...

**Mounting**

- 3.5 Nm
- 30.97 lb-in

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Electrical equipment should be installed, operated and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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Note: you can download the User Manual in different languages from our website at:
www.tesensors.com

Flash this Qr-code to access the complete User Manual

We welcome your comments about this document. You can reach us by e-mail at: customer-support@tesensors.com
**Connectors wiring**

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+24 Vdc</td>
</tr>
<tr>
<td>2</td>
<td>Configuration_0 or Master/Slave_A</td>
</tr>
<tr>
<td>3</td>
<td>0 Vdc</td>
</tr>
<tr>
<td>4</td>
<td>Configuration_1 or Master/Slave_B</td>
</tr>
<tr>
<td>5</td>
<td>FE</td>
</tr>
</tbody>
</table>

**M12, 5-Pin Single pair models (XUSL4E or XUSL2E) or Master models primary connector (XUSL4E)**

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OSSD1</td>
</tr>
<tr>
<td>2</td>
<td>+24 Vdc</td>
</tr>
<tr>
<td>3</td>
<td>OSSD2</td>
</tr>
<tr>
<td>4</td>
<td>Configuration_A</td>
</tr>
<tr>
<td>5</td>
<td>K1_K2 Feedback/Restart</td>
</tr>
<tr>
<td>6</td>
<td>Configuration_B</td>
</tr>
<tr>
<td>7</td>
<td>0 Vdc</td>
</tr>
<tr>
<td>8</td>
<td>FE</td>
</tr>
</tbody>
</table>

**M12, 5-Pin Master models secondary connector or Slave models (XUSL4E)**

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+24 Vdc</td>
</tr>
<tr>
<td>2</td>
<td>Master/Slave_A</td>
</tr>
<tr>
<td>3</td>
<td>0 Vdc</td>
</tr>
<tr>
<td>4</td>
<td>Master/Slave_B</td>
</tr>
<tr>
<td>5</td>
<td>FE</td>
</tr>
</tbody>
</table>

**Wiring diagrams**

**WARNING**

**IMPROPER CONNECTION**
- The XUSL2E/XUSL4E light curtain system must be powered by a safety extra low voltage (SELV) or a protected extra low voltage (PELV).
- The XUSL2E/XUSL4E light curtain system is designed for use only on a 24 Vdc negative ground electrical system.
- Never connect the XUSL2E/XUSL4E light curtain system to a positive ground system.
- Never connect the ground (here the Functional Earth FE) with the 0 Volt reference of the safety extra low voltage (SELV) power supply.
- A single safety output, if it fails, may not stop the machine.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

**Note:**
The XUSL2E/XUSL4E light curtain system operates directly from a 24 Vdc ±20% power supply. The power supply must meet the requirements of **EN/IEC 60204-1** and **EN/IEC 61496-1**. The SELV Schneider Electric part number ABLRPS24*** is recommended.

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**BN = Brown**
**WH = White**
**BU = Blue**
**BK = Black**
**GY = Grey**
**PK = Pink**
**RD = Red**
**GN = Green**
**YE = Yellow**
**BK/WH = Black & White**
**GN/YE = Green & Yellow**
Connection Schematics

**WARNING**

**UNINTENDED EQUIPMENT OPERATION**
The external KM1 and KM2 contactors must have force-guided contacts.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

**Standalone Application**

![Connection Diagram](image)

**Connecting with an XPS-AFL Module**

![Connection Diagram](image)

**Connecting with an XPSMCM Controller**

![Connection Diagram](image)

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**Cables**

- **M12, 5 pins**
  - XZCP1164L2
  - XZCP1164L5
  - XZCP1164L10
  - XZCP1164L15
  - XZCP1264L2
  - XZCP1264L5
  - XZCP1264L10
  - XZCP1264L15

- **M12, 8 pins**
  - XZCP29P11L2
  - XZCP29P11L5
  - XZCP29P11L10
  - XZCP29P11L15
  - XZCP53P11L2
  - XZCP53P11L5
  - XZCP53P11L10
  - XZCP53P11L15

- **M12/M12 Master/Slave cables jumpers**
  - XZCR1111064D03
  - XZCR1111064D3
  - XZCR1111064D5
  - XZCR1111064D10
  - XZCR1111064D25

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**NOTICE**

**IMPROPER CONNECTION**

- Automatic start is not allowed with the XPS-AFL module (between terminals S33 and S39).
- The maximum cable length between the terminals S33 and S34 must be between 3 to 5 m.

Failure to follow these instructions can result in equipment damage.
Alignment procedure

1) The transmitter and receiver must be installed with the optical surfaces face to face, connectors oriented in the same way. Perfect alignment of the transmitter and the receiver corresponding beams is mandatory for an optimum functioning, meaning that the transmitter and receiver must have the same height and be parallel. A good positioning will be facilitated by using the provided mounting accessories.

The use of LED indicators helps in proper alignment as described below:
- For all models align the transmitter until the green LED is lit on the receiver.
- For finger detection and long range models, the blue LED weak signal on the receiver will be useful as well. Firstly, find the zone where the blue LED is lit, indicating an approximate alignment, then fine-tune the setting until the blue LED turns OFF and the green LED is lit.
- It is also possible to use a laser pointer device as alignment help. (Available as accessory).

2) If vibrations are to be expected in your applications, it is strongly recommended to use vibration dampers (Available as accessories).

LEDs Status

<table>
<thead>
<tr>
<th>T</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Yellow</td>
</tr>
<tr>
<td>Green</td>
<td>OFF</td>
</tr>
<tr>
<td>Green</td>
<td>OFF</td>
</tr>
<tr>
<td>Green</td>
<td>Yellow flashes</td>
</tr>
<tr>
<td>Orange</td>
<td>OFF</td>
</tr>
<tr>
<td>Green</td>
<td>Blue and/or Yellow (*)</td>
</tr>
<tr>
<td>Green</td>
<td>Yellow flashes</td>
</tr>
<tr>
<td>Red flashes</td>
<td>OFF</td>
</tr>
</tbody>
</table>

OSSD LEDs Meaning

<table>
<thead>
<tr>
<th>OSSD</th>
<th>LEDs Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power-On Initialization Test.</td>
<td>OFF</td>
</tr>
<tr>
<td>Normal operation.</td>
<td>ON</td>
</tr>
<tr>
<td>Detection zone interrupted.</td>
<td>OFF</td>
</tr>
<tr>
<td>Detection zone clear, waiting for restart.</td>
<td>OFF</td>
</tr>
<tr>
<td>Detection zone clear, waiting for KM1_KM2 feedback.</td>
<td>OFF</td>
</tr>
<tr>
<td>Test state (simulation of a detection zone interruption).</td>
<td>OFF</td>
</tr>
<tr>
<td>Master: Detection zone clear Slave: Detection zone interrupted.</td>
<td>OFF</td>
</tr>
<tr>
<td>Fail mode (Error state) For more information, refer to ‘Troubleshooting’ section in the User manual.</td>
<td>OFF</td>
</tr>
</tbody>
</table>

(*) Weak signal (low signal received) only with type 4 finger detection and long range models. In case of weak signal detected.

Characteristics

Product certifications: CE, cULus, TüV, EAC, RCM

Ambient air temperature
- CE, cULus, TüV, EAC, RCM
- Conforming to EN/IEC 61496-1:
  - Shock: 10 g
  - Impulse: 16 ms
  - Vibration: 10...55 Hz
  - Amplitude: 0.35 ± 0.05 mm (0.0014 ± 0.00020 inches)

Shock and Vibration resistance
- Conforming to EN/IEC 61496-1:
  - Shock: 10 g
  - Impulse: 16 ms
  - Vibration: 10...55 Hz
  - Amplitude: 0.35 ± 0.05 mm (0.0014 ± 0.00020 inches)

Light source
- Infrared λ = 950 Nm

Resistance to light disturbance
- Conforming to EN/IEC 61496-2.
- Conforming to EN/IEC 61496-2:
  - Type 2 and Type 4 Standard models
  - and Type 4 cascadable models
  - Normal sensing range: -30°C...+55°C (-22 °F to 131 °F)

Power Supply
- Conforming to EN/IEC 61496-2:
  - Type 2 and Type 4 Standard models
  - and Type 4 cascadable models
  - Normal sensing range: -30°C...+55°C (-22 °F to 131 °F)

Characteristics

Normal sensing range: -30°C...+55°C (-22 °F to 131 °F)
- Type 4 Standard models Long sensing range
- Type 4 Standard models Long sensing range
- Type 2 and 4 - Standard and Long Sensing Range: - 35...70 °C (- 31 °F to 158 °F)

Notes:
- More characteristics in the User Manual

Note: More characteristics in the User Manual

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
</table>
| PFHε | Depends on the model.
| First-up time | ≤ 2 s |
| Power Supply | 24 Vdc ± 20% - 2 A |
| Safety outputs (OSSD) | Two PNP - 400 mA per output @ 24 Vdc, drop out voltage -0.5 Vdc (Integrated arc suppressors), leakage current (OFF state) < 2 mA. Load capacity 0.82μF under 24 Vdc |
| Degree of protection | Conforming EN/IEC 60529: IP65, IP67 |
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