

**Product Data**

| Electrical Data            |             |           |
|----------------------------|-------------|-----------|
|                            | Transmitter | Receiver  |
| Supply Voltage             | 10-30 V dc  |           |
| Voltage ripple             | +/- 15%     |           |
| Reverse polarity protected | Yes         |           |
| Short circuit protected    | -           | Yes       |
| Power consumption          | Max. 30 mA  | Max. 8 mA |
| Max. output load           | -           | 100 mA    |

| Environmental Data     |               |
|------------------------|---------------|
| Temperature, operation | -20 to +50 °C |
| Sealing class          | IP 67         |
| Approvals              | CE            |

| Available Models |             |        |                       |                    |
|------------------|-------------|--------|-----------------------|--------------------|
|                  | Model       | Output | Output Mode           | Sensing Range      |
| Transmitter      | SMT 3000    | -      | -                     | 1.5 m / 6 m        |
|                  | SMT 3000C   | -      | -                     | 1-6 m, adjustable  |
|                  | SMT 3012C   | -      | -                     | 2-12 m, adjustable |
|                  | SMT 3000 HC | -      | -                     | 2-15 m, adjustable |
| Receiver         | SMR 3006    | NPN    | Light operated (N.C.) | 6 m                |
|                  | SMR 3106    | NPN    | Dark operated (N.O.)  |                    |
|                  | SMR 3206    | PNP    | Light operated (N.C.) |                    |
|                  | SMR 3306    | PNP    | Dark operated (N.O.)  |                    |
|                  | SMR 3012    | NPN    | Light operated (N.C.) | 12 m               |
|                  | SMR 3112    | NPN    | Dark operated (N.O.)  |                    |
|                  | SMR 3212    | PNP    | Light operated (N.C.) |                    |
|                  | SMR 3312    | PNP    | Dark operated (N.O.)  |                    |
|                  | SMR 3015    | NPN    | Light operated (N.C.) | 15 m               |
|                  | SMR 3115    | NPN    | Dark operated (N.O.)  |                    |
|                  | SMR 3215    | PNP    | Light operated (N.C.) |                    |
|                  | SMR 3315    | PNP    | Dark operated (N.O.)  |                    |

**Connection**

**Wiring Diagrams**

|  |   |
|--|---|
| <p><b>Transmitters</b></p> <p>Range 1 - 6 m</p> <p><b>SMT 3000</b><br/>Long range</p> <p>Range 0 - 1.5 m</p> <p><b>SMT 3000</b><br/>Short range</p> <p><b>SMT 3000C/SMT 3012C/SMT 3000HC</b><br/>Variable range and test input</p> | <p><b>Receivers</b></p> <p><b>SMR 30XX / SMR 31XX</b><br/>Transistor NPN</p> <p><b>SMR 32XX / SMR 33XX</b><br/>Transistor PNP</p> |
|--|---|

**Connection Wires/Pins**

|                | Cable | 3 pin, M8 plug | 4 pin, M12 plug |
|----------------|-------|----------------|-----------------|
| Supply +       | Brown | Pin 1          | Pin 1           |
| Supply -       | Blue  | Pin 3          | Pin 3           |
| Control/Output | Black | Pin 4          | Pin 4           |

**Mounting & Alignment**

- Mount the transmitter and receiver sensors facing each other. Make sure the distance between the sensors does not exceed the specified sensing range of the system.
- Align the sensors by moving, either the transmitter or receiver sensor, horizontally and vertically until the output is:
  - Deactivated when no object is present. (Dark operated)
  - Activated when no object is present. (Light operated)
- Fasten the transmitter and receiver sensors securely. Avoid acute angles on cable close to sensor.

**Adjustments**

| Output Logic       |                       |               |            |
|--------------------|-----------------------|---------------|------------|
| Detection          | Output Mode           | Output status | Yellow LED |
| Object absent<br>  | Dark operated (N.O.)  | Open          | Off        |
|                    | Light operated (N.C.) | Closed        | On         |
| Object present<br> | Light operated (N.C.) | Open          | Off        |
|                    | Dark operated (N.O.)  | Closed        | On         |

**Transmitter Power Adjustment** SMT 3000C / SMT 3012C / SMT 3000 HC

Maximum transmitting power can be used for most applications. Maximum transmitter power (factory set) is advised for applications with contaminated environments.

The transmitting power can be adjusted externally via the wires of the transmitter sensor. Adjust using a resistor (e.g. potentiometer) of 0,2 - 10K ohm or a voltage source of 1 - 4 V dc connected respectively between control and - (negative) supply wires. Adjustment of transmitter power may be required in applications where objects to be detected are small or translucent. Proceed with the following steps:

- Select target object with the smallest dimensions and most translucent surface.
- Place target object between transmitter and receiver sensors. If the output status changes, adjustment is not required. If the output status has not changed proceed to step 3.
- Decrease the transmitter power (by reducing the resistance) until the output status changes. If the output status has not changed, attempt to move the sensors further apart or angle one of the sensors, and then repeat procedure.
- Remove target object. Observe the output status has changed.

Note: If the transmitter power adjustment is not to be used, it is recommended to connect the control wire to + (positive) supply wire.

**Test Input** SMT 3000C / SMT 3012C / SMT 3000 HC

The transmitter can be externally disabled and enabled, via the control wire, for test purposes. The test input requires the control wire to be connected to - (negative) supply wire. Make sure no object is present in the detection area when transmitter is disabled for test. When the transmitter is disabled, the receiver should change output.

|                     |  |
|---------------------|--|
| Enable transmitter  | Open (off) control switch, a resistor over 200 ohm, or voltage over 0,7 V dc   |
| Disable transmitter | Close (on) control switch, a resistor below 200 ohm, or voltage below 0,7 V dc |

Note: If the test input is not to be used, it is recommended to connect the control wire to + (positive) supply wire.



**Warning**  
 This device is not to be used for Personnel Protection in Machine Guarding Safety applications. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel machine guarding stand-alone safety applications.