# Photoelectric sensors and photoelectric proximity sensors

### Photoelectric proximity sensors

- Sender and receiver in one housing
- No reflector required
- Reacts to light reflected off object to be detected

### Photoelectric proximity sensors, energetic

- Scanning range/switching point can be set by adjusting sensitivity

### Photoelectric proximity sensors with foreground suppression (FGS)

- Detection of low objects, e.g. on conveyor belt. Objects, which reduce distance from scanning plane to sensor, are detected.

### Photoelectric proximity sensors with background suppression (BGS)

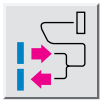
- Detection of objects within a defined scanning range. Objects beyond this range are not detected.

### Photoelectric reflex sensors

- Sender and receiver in one housing
- Different reflector sizes for different ranges and object sizes
- Large scanning ranges
- Polarisation filters also allow reflective objects to be detected
- Automatic sensitivity adjustment with “Teach-in” sensors

### Through-beam photoelectric sensors

- Separate sender and receiver (2 devices)
- Very large scanning ranges
- High operating reserves
- Reliable detection of both transparent and reflective objects



### Fibre-optic photoelectric sensors

- Sender and receiver in one housing
- 2 fibre-optic cables, scanning or through-beam principle possible
- Appropriate fibre-optic cable available for each task
- Especially suitable where installation space is limited and for use in hostile environments

# Contents



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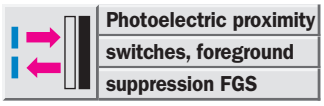
tric proximity sensors →

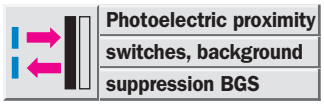
# The right sensor for your applications

**With photoelectric proximity switches (e.g. WT 24-2), the emitted light is reflected by the detected object itself, received and then evaluated.**



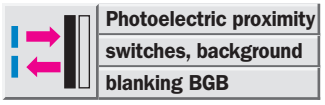
**Photoelectric proximity switches, foreground suppression FGS**

Photoelectric proximity switches with foreground suppression are able to detect objects within a defined scanning distance.
All objects between the scanning distance (set to the background) and the scanner itself are detected above a minimum size. Suppression of the foreground is achieved by means of a special geometrical arrangement of sender and receiver elements.
To ensure that these switches can function reliably, the background (e.g. a conveyor belt) must be relatively light in colour and its height must not fluctuate.



**Photoelectric proximity switches, background suppression BGS**

The operating principle of photoelectric proximity switches with background suppression is based on the geometrical relationship between the sender and receiver elements. The switch is adjusted to the object located in the scanning plane. Signals from objects which are behind the set scanning plane are suppressed.
Photoelectric proximity switches with background suppression can be negatively influenced by high-gloss objects in the background, e.g. glass panels, polished sheet metal and so on.
These effects can increase if the background within the specified sensor's scanning distance is not defined. This problem can be solved by screening off or tilting the devices.
High resolutions are possible using laser diodes so that small objects can be detected precisely and reliably. Light spot diameters of 0.1 mm for example.

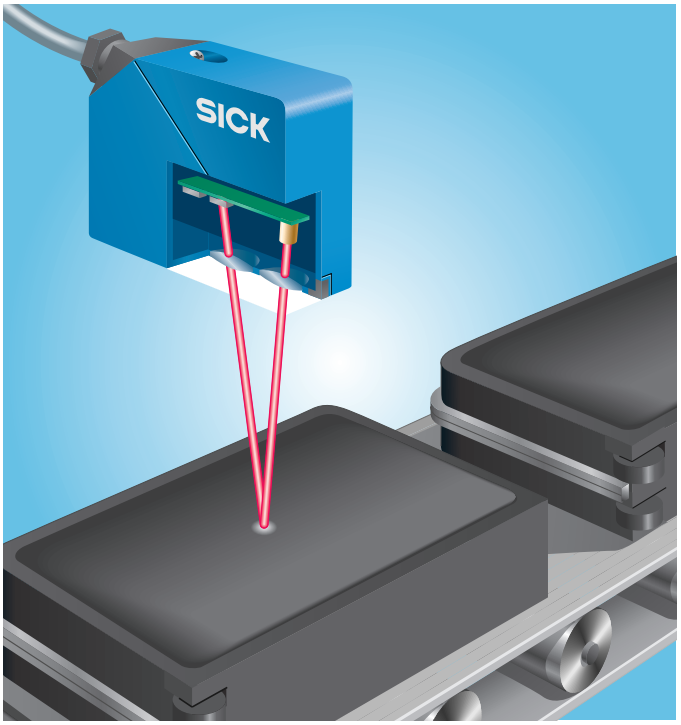


**Photoelectric proximity switches, background blanking BGB**

Background blanking for photoelectric proximity switches is achieved either electronically or optically. In the optical method the angle between the sender and receiver light beam is adjusted while setting the scanning distance to the object. Objects are detected at the point where the emitted beam is reflected back directly to the receiver element. Anything lying below this point remains undetected as no light, or too little, reaches the receiver element.

▼ FGS – foreground suppression


▼ BGS – background suppression



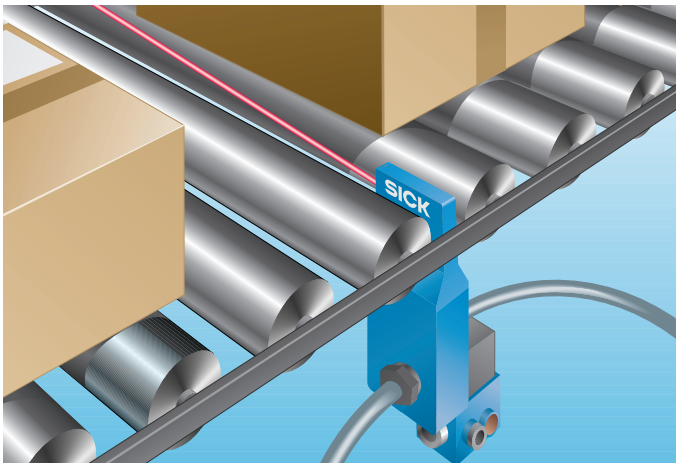
▼ BGB – background blanking


In the electronic method PSD elements (Position Sensitive Devices) are used. The emitted light beam is reflected by the object and hits the PSD receiver. Depending on the position of the reflected light beam, the incoming signal is recognised as being a background signal and electronically suppressed.

**Photoelectric proximity switches, energetic**

The least expensive solution is the energetic photoelectric proximity switch with adjustable sensitivity. A light surface reflects more light than a dark surface and can, therefore, be detected from a greater distance.
In order to achieve similar results with a dark surface, the sensitivity of the switch must be increased. The detection of a dark object in front of a light background is a problem for energetic switches. Owing to its higher remission, the background "outshines" the object. The switches are, however, ideal for detecting a light object in front of a dark background.

▼ Accumulating roller conveyors

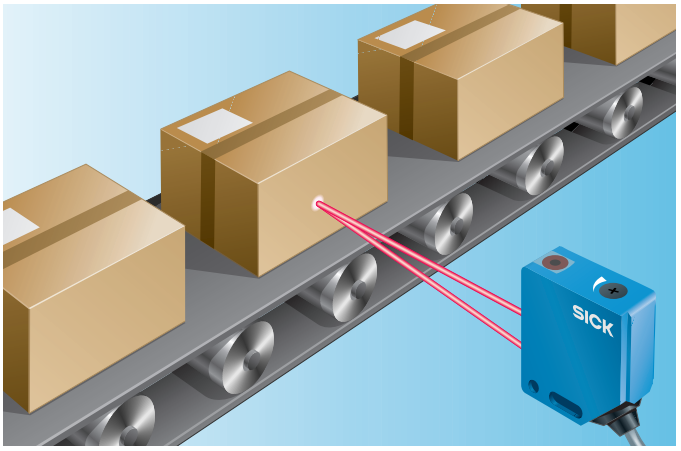



**Photoelectric proximity switches for accumulating roller conveyors, background suppression BGS**

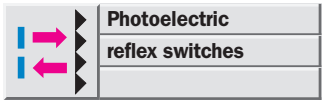
These non-contact photoelectric proximity switches, which were specially developed for handling systems, detect the conveyed object from between the rollers.
The detection signal is evaluated in the logic unit and the electro-pneumatic cylinder is actuated via the valve.

Use of these switches automatically fulfils the principle of accumulating conveyor systems without the need for additional control elements.

▼ Photoelectric proximity switch



# The right sensor for your applications

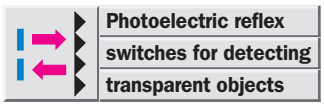


**Photoelectric reflex switches**

**With the photoelectric reflex switches (e.g. WL 24-2), the emitted light beam is reflected by a reflector and then received and evaluated by the device.**

Polarisation filters prevent incorrect operation when reflective objects are detected. Transparent films and shrink-wrap may influence the way in which the reflex photoelectric switches with polarisation filters function. Devices with reduced sensitivity solve this problem.

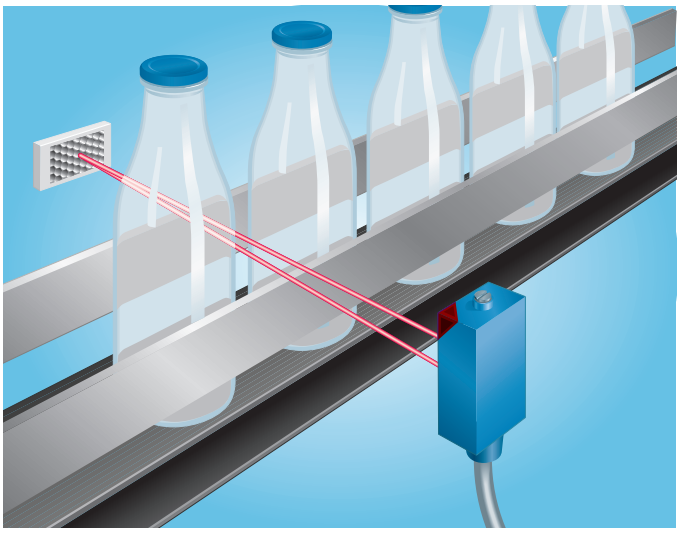
The use of laser diodes allows greater scanning ranges while simultaneously maintaining a high resolution. Focus ranges can be set with high precision.



**Photoelectric reflex switches for detecting transparent objects**

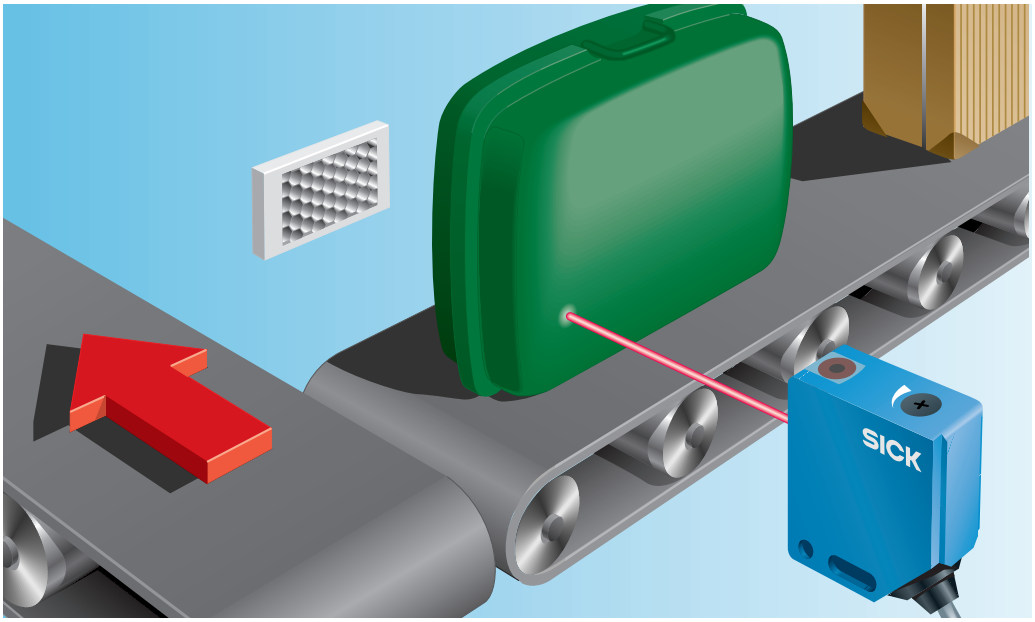
These reflex photoelectric switches are characterised by their extremely low switching hysteresis. Even low levels of light between the sensor and reflector, caused by e.g. glass bottles or even PET bottles, are detected reliably.

▼ Detection of transparent objects



A newly developed system checks and continually adjusts the switching threshold electronically to adapt to the gradual accumulation of dirt, which would otherwise lead to a system failure.

▼ Photoelectric reflex switch



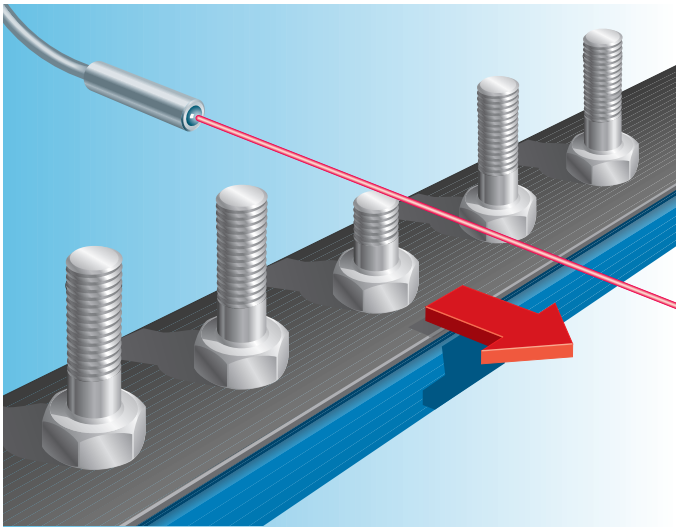
## Through-beam photoelectric switches

**The through-beam photoelectric switch consists of two devices: the sender (e.g. WS 24-2) and receiver (e.g. WE 24-2).**
The separate device configuration makes large scanning ranges possible. The use of laser diodes allows greater scanning ranges while simultaneously maintaining a high resolution. Focus ranges can be set with high precision.

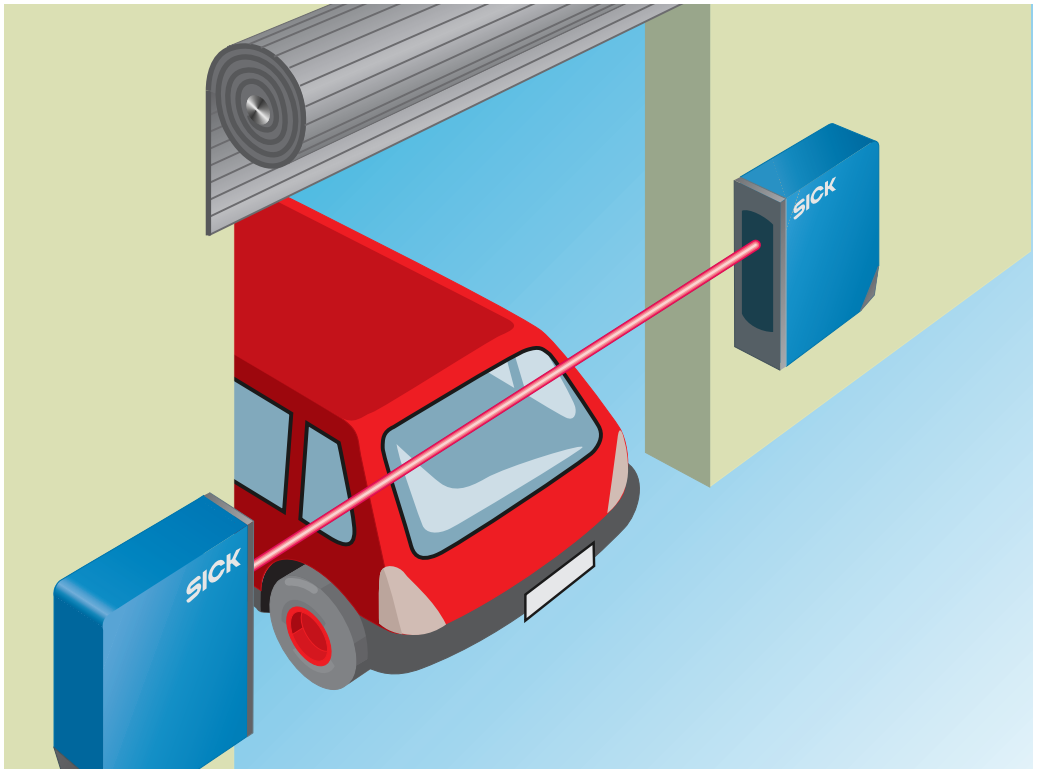
## Photoelectric switches with fibre-optic cable

**In the case of photoelectric switches with fibre-optic cable (e.g. WLL 12), the sender and receiver are contained in a single housing.**
A separate fibre-optic cable is used for the sender and the receiver for operation as a through-beam system. For use as a proximity switch the sender and receiver fibre-optic cables are combined in one cable.

▼ Photoelectric switch with fibre-optic cable



▼ Through-beam photoelectric switch



Selection table

## Photoelectric proximity switches, foreground suppression FGS

| Type | Scanning distance, max. typical in mm | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WT 11 | 35 – 100 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 690 |
| WT 12-2 | 35 – 100 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 704 |
| WTB 190 TL | 40 – 270 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 1022 |
| WTV 190T | 80 – 300 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 646 |

## Photoelectric proximity switches, background suppression BGS

| Type | Scanning distance, max. typical in mm | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WT 2 | 1 – 30 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 476 |
| WT 150 | 2 – 100 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 550 |
| WT 4-3 Teflon | 4 – 120 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 502 |
| VT 18 | 25 – 140 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 932 |
| WT 4-3 | 4 – 150 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 492 |
| WT 160T | 15 – 150 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 588 |
| WT 9 L | 30 – 150 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 998 |
| WT 12 L-2 | 30 – 200 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 1032 |
| WT 9-2 | 30 – 250 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 664 |
| WT 11 | 20 – 250 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 692 |
| WT 12-2 | 20 – 250 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 706 |
| WTB 190 TL | 40 – 270 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 1022 |
| WTB 190T | 80 – 300 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 650 |
| WTB 190 L | 40 – 300 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 1012 |
| WTB 140 | 2 – 500 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 540 |
| WTR | 300 – 900 | | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 912 |
| WT 18-3 | 50 – 1000 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 742 |
| WT 250 | 200 – 1000 | ■ | | | | | | | | ■ | ■ | | ■ | ■ | ■ | | | 790 |
| WTB 27-3 | 30 – 1600 | ■ | ■ | | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | | | 856 |
| WT 24 Exi | 100 – 2000 | | ■ | | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | | 1050 |
| WT 45 | 400 – 2000 | | ■ | | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | | 894 |
| WT 260 | 7 – 2100 | | ■ | | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | | | 812 |
| WT 24-2 | 100 – 2500 | ■ | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | | 772 |
| WT 34 | 100 – 2500 | ■ | ■ | | ■ | ■ | | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | | 876 |

## Photoelectric proximity switches, background blanking BGB

| Type | Scanning distance, max. typical in mm | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WT 160 | 4 – 60 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 562 |
| WT 170 | 10 – 100 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 618 |
| VT 18 | 3 – 100 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 934 |
| WT 100 | 4 – 140 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 520 |
| WT 9-2 | 30 – 500 | | ■ | | | | | | | ■ | | | ■ | | ■ | | | 668 |
| WT 14-2 | 80 – 500 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 730 |
| WT 23-2 | 50 – 1000 | ■ | ■ | | | | | | | ■ | ■ | | ■ | | ■ | ■ | | 760 |

## Photoelectric proximity switches, energetic

| Type | Scanning distance, max. typical in mm | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WT 2 | 1 – 55 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 478 |
| WT 150 | 10 – 250 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 552 |
| VT 12-2 | 0 – 340 | | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 924 |
| MHT 15 | 10 – 350 | | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 960 |
| VTE 18 L | 0 – 400 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 1040 |
| WT 100 L | 0 – 450 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 982 |
| WT 170 | 10 – 550 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 620 |
| VT 18 | 3 – 800 | | ■ | | | | | | | ■ | [3] | | ■ | | ■ | ■ | | 936 |
| WT 100 | 0 – 900 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 522 |
| WT 12-2 | 10 – 1000 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 712 |
| WTE 140-2 | 0 – 1000 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 542 |
| WT 160 | 0 – 1000 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 566 |
| WT 11 | 10 – 1000 | ■ | | | | | | | | ■ | | | ■ | | ■ | | | 694 |
| WT 130 L | 0 – 1200 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 998 |
| WTE 160T | 0 – 1300 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 604 |
| WT 9-2 | 50 – 1500 | ■ | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 670 |
| WT 14-2 | 300 – 1500 | | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | | 734 |
| WT 280 | 10 – 1700 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 842 |
| WT 23-2 | 50 – 2300 | | ■ | | | | | | | ■ | ■ | | ■ | | ■ | ■ | | 764 |
| WT 260 | 10 – 3500 | ■ | ■ | | ■ | ■ | | ■ | | ■ | | | ■ | | ■ | ■ | | 820 |

## Photoelectric proximity with fibre-optic cable Proximity systems

| Type | Scanning distance, max. typical in mm | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WLL 24 Exi | 0 – 25 | ■ | | | | | | | | ■ | | | | | ■ | | ■ | 1056 |
| VLL 18T | 0 – 50 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 950 |
| WLL 260 | 0 – 65 | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | | ■ | 836 |
| WLL 160 (T) | 0 – 70 | ■ | | | | ■ | ■ | ■ | | ■ | | | ■ | | ■ | ■ | | 582 |
| WLL 170 (H/A/T) | 0 – 160 | ■ | | ■ | | | | | | ■ | | | [4] | | ■ | ■ | | 630 |
| WLL 12 | 0 – 280 | ■ | ■ | ■ | | | | | | ■ | | | ■ | | ■ | | | 726 |
| WLL 190T | 0 – 300 | ■ | | ■ | | | | | | ■ | | | ■ | | ■ | ■ | | 656 |

[1] Pre-failure signalling output · [2] UC devices only · [3] TRIAC output · [4] Also with analogue output





05-08-2006

## Photoelectric reflex switches

| Type | Scanning range, max. typical in m | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WL 2 | 0.04 – 0.8 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 484 |
| WL 160T | 0.03 – 2.2 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 612 |
| WL 150 | 0.005 – 2.4 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 554 |
| VL 12-2 | 0.03 – 2.8 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 926 |
| VL 18 | 0.05 – 3.7 | ■ | | | | | | | | ■ | ■ [3] | | ■ | | ■ | ■ | ■ | 938 |
| WL 4-3 | 0.01 – 4 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 504 |
| WL 170 | 0.01 – 4 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 622 |
| WL 9-2 | 0 – 4 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 678 |
| WLR 1 | 0.25 – 5 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 918 |
| MHL 15 | 0.035 – 5 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 968 |
| WL 190 L | 0.01 – 5.5 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | ■ | 1016 |
| WLG 190 T | 0.01 – 5.5 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | ■ | 1026 |
| WL 100 | 0.01 – 6 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 524 |
| WL 14-2 | 0.15 – 6 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 736 |
| WL 140-2 | 0.01 – 6.5 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 544 |
| WL 160 | 0.01 – 6.5 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 574 |
| WL 11 | 0 – 7 | ■ | | | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | 696 |
| WL 12-2 | 0 – 7 | ■ | | | | ■ | | ■ | | ■ | | | ■ | | ■ | ■ | ■ | 714 |
| WL 18-3 | 0 – 7 | ■ | | | | ■ | | | | ■ | | | ■ | | ■ | ■ | ■ | 752 |
| WL 23-2 | 0.1 – 10 | ■ | | | | | | | | ■ | ■ | | ■ | | ■ | ■ | ■ | 766 |
| WL 130 L | 0 – 10 | | | | ■ | | | | | ■ | | | ■ | | | ■ | | 1000 |
| WL 100 L | 0 – 12 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 984 |
| WL 9 L | 0.1 – 12 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | ■ | 992 |
| WL 250 | 0.01 – 13.5 | ■ | | | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ [2] | 802 |
| WL 27-3 | 0.1 – 15 | ■ | | | | ■ | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | | 866 |
| WL 24 Exi | 0 – 15 | ■ | | | | | | | | ■ | | | | | ■ | | ■ | 1052 |
| WL 260 | 0.01 – 15 | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | | ■ | 828 |
| WL 280 | 0.01 – 15 | ■ | | | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | 846 |
| WL 12 L-2 | 0 – 18 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 1034 |
| WL 24-2 | 0 – 22 | ■ | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | | ■ | 780 |
| WL 34 | 0 – 22 | ■ | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | | ■ | 884 |
| VL 18 L | 0.1 – 35 | | | | ■ | | | | | ■ | | | ■ | | ■ | | | 1042 |
| WL 45 | 0.01 – 55 | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | | ■ | 898 |

## Through-beam photoelectric switches

| Type | Scanning range, max. typical in m | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WS/WE 2 | 0 – 1.2 | ■ | | | | ■ | | | | ■ | | | ■ | | ■ | ■ | | 486 |
| WSE 4-3 Teflon | 0 – 3 | ■ | | | | ■ | | | | ■ | | | ■ | | ■ | ■ | ■ | 516 |
| WS/WE 130 L | 0 – 3.5 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 1002 |
| WS/WE 150 | 0 – 4.4 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 558 |
| WSE 4-3 | 0 – 5.5 | ■ | | | | ■ | | | | ■ | | | ■ | | ■ | ■ | ■ | 512 |
| VS/VE 12-2 | 0 – 5 | | ■ | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 928 |
| MHSE 15 | 0 – 5 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 972 |
| WS/WE 9-2 | 0 – 7 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 686 |
| WS/WE 170 | 0 – 8.5 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 626 |
| WS/WE 160 | 0 – 15 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 578 |
| WS/WE 100 | 0 – 15 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 532 |
| WS/WE 14-2 | 0 – 15 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | ■ | 738 |
| WS/WE 140-2 | 0 – 16 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 546 |
| WS/WE 12-2 | 0 – 20 | ■ | | | | ■ | | | | ■ | | | ■ | | ■ | ■ | ■ | 724 |
| WS/WE 18-3 | 0 – 20 | ■ | | | | ■ | | | | ■ | | | ■ | | ■ | ■ | ■ | 756 |
| VS/VE 18 | 0 – 20 | | ■ | | | ■ | | | | ■ | ■ [3] | | ■ | | ■ | ■ | | 940 |
| WS/WE 250 | 0 – 25 | ■ | | | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | | 806 |
| WS/WE 100 L | 0 – 35 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 986 |
| WSE 27-3 | 0 – 35 | ■ | | | | ■ | ■ | | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | 870 |
| WS/WE 24 Exi | 0 – 40 | ■ | | | | | | | | ■ | | | | | ■ | | ■ | 1054 |
| WS/WE 260 | 0 – 45 | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | | ■ | 832 |
| WS/WE 280 | 0 – 45 | ■ | | | | | | | | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | 850 |
| WS/WE 190 L | 0 – 50 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | | 1018 |
| WS/WE 9 L | 0 – 50 | | | | ■ | | | | | ■ | | | ■ | | ■ | ■ | ■ | 994 |
| WS/WE 24-2 | 0 – 60 | ■ | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | | ■ | 784 |
| WS/WE 34 | 0 – 60 | ■ | | | | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | ■ | | ■ | 888 |
| VS/VE 18 L | 0 – 60 | | | | ■ | ■ | | | | ■ | | | ■ | | ■ | | | 1044 |
| WS/WE 12 L-2 | 0 – 80 | | | | ■ | ■ | | | | ■ | | | ■ | | ■ | | | 1036 |
| WS/WE 45 | 0 – 350 | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | | ■ | 902 |

## Photoelectric switches with fibre-optic cable Through-beam system

| Type | Scanning range, max. typical in mm | Light type: Red | Infrared | Green | Laser | Equipment: Testing | Time del. | Equipment: VMA [1] | Heating | Supply voltage: DC | AC | UC | Output: NPN/PNP | Relay | Connection: Plug | Cable | Terminals | from page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WLL 24 Exi | 0 – 100 | ■ | | | | | | | | ■ | | | | | ■ | | ■ | 1056 |
| VLL 18T | 0 – 200 | ■ | | | | | | | | ■ | | | ■ | | ■ | ■ | | 950 |
| WLL 12 | 0 – 280 | ■ | ■ | ■ | | | | | | ■ | | | ■ | | ■ | | | 726 |
| WLL 260 | 0 – 800 | ■ | | | | ■ | ■ | | | ■ | | ■ | ■ | ■ | ■ | | ■ | 836 |
| WLL 190T | 0 – 1300 | ■ | | ■ | | | | | | ■ | | | ■ | | ■ | ■ | | 656 |
| WLL 160 (T) | 0 – 2000 | ■ | | | | ■ | ■ | | | ■ | | | ■ | | ■ | ■ | | 582 |
| WLL 170 (H/A/T) | 0 – 4000 | ■ | | ■ | | | | | | ■ | | | ■ [4] | | ■ | ■ | | 630 |

[1] Pre-failure signalling output · [2] UC devices only · [3] TRIAC output · [4] Also with analogue output

= Glass detection





05-08-2006