

**1. Principle of operation**

Photocell consist of a transmitter and a receiver with a built-in LED signal lamps (Fig. 1). Transmitter sends the IR beam, creating invisible to the human eye barrier. The appearance of the obstacles (eg. car) in the zone of operation of the photocell causes the photocell receiver reaction involving the switch of the output relay and switch the input on the control unit. Additional optical signaling serves as a warning and allows to locate the gate entry in limited visibility conditions. The receiver has the NC or NO contacts, which circuit is protected by additional relay. Photocell is designed to work in a gate systems as a component working outside.

**2. Technical data**

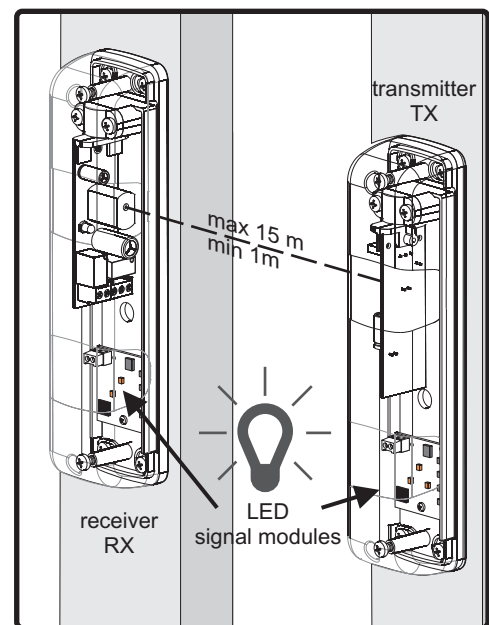
▶ guaranteed operating range:	1- 15m
▶ angle view adjustment:	200° horizontally
▶ power supply of transmitter and receiver:	12...24VAC/DC ±10%
▶ current consumption of receiver:	max. 25mA
▶ current consumption of transmitter:	max. 25mA
▶ relay output (type / maximum load):	NO or NC / 1A (24VAC/DC)
▶ power supply of signal lamp:	12...24VAC/DC ±10%
▶ current consumption of signal lamp:	2x120mA
▶ lamp power:	2x3W
▶ lamp technology:	LED
▶ lamp vitality:	<50 000h
▶ lamp resistance to shock and vibration:	high
▶ housing dimensions (WxDxH) :	38x36x145mm
▶ mounting:	sufrace mounted, splash-proof, IP-54
▶ housing material:	ABS, polycarbonate cover
▶ operating temperature (min./max.):	-20°C / +55°C
▶ weight:	165g

**3. Installation**

For proper work, the transmitter and receiver must be mounted at a height of 40-60 cm from the ground. The distance between the transmitter and the receiver shall not be less than 1 m. Photocell has angle view adjustment in both the receiver and the transmitter. Coaxial installation is not required, the maximum rotation angles of boards in the housing of transmitter and receiver must be considered. Because of the photosensitive elements of the receiver, it is recommended to mount the receiver on the less sunny side. Both the transmitter and receiver should be mounted vertically, terminal blocks and humidity discharge holes should be placed in the bottom part of housing. Proper position of the transmitter and receiver facilitates RX LED, that lights up when the radius of the transmitter reaches the receiver (Fig. 3). Each housing is fastened to sufrace mounting with two (mounted on the diagonal), or four screws included in the kit.



**Do not install reflecting mirrors or screens in the operating area of the photocell, the receiver should be mounted on the less sunny side, do not install the photocell receiver in environment with lighting of foreign light, especially coming from fluorescent lights, as this may interfere with the barrier. Be careful not to contaminate the optical elements of the transmitter / receiver during assembly.**



**Fig. 1** Example of positioning of the transmitter and receiver.

# SLIMFLASH photocell with built-in signal lamp INSTALLATION MANUAL

## 4. Electrical connection

The photocell can work with most gate controller units on the market. It is recommended that the electrical installation and connection of photocells to be made by a person with qualifications. The connection should be carried out in accordance with the diagram shown in Fig. 3, and according to the following description.

### Without the use of synchronization

- ▶ Make sure that the **ZW** jumper in the transmitter and the receiver are mounted,
- ▶ Connect the power supply 12-24V AC/DC to the photocell transmitter and the receiver, the **POWER LED** in the transmitter and the **RX LED** on the receiver should light up,
- ▶ If AC power supply is used, transmitter and receiver must be supplied using the same phase (from one power supply).
- ▶ Connect the signal output of the photocell receiver (usually NC and C) to the appropriate input in the gate controller unit. Pay special attention to the control mode (NC or NO) required in the control board unit. The standard solution of optical sensors operating mode in the gate automation is the NC configuration.

### With the use of synchronization

Using the synchronization function, you can install 2 pairs of photocells with overlapping coverage of optical range.

To use the synchronization function, **ZW** jumper in transmitters and receivers should be cut, to power supply them with AC voltage (12-24V AC)

Connect the same wire cord to the terminal marked "1" in the transmitter and the receiver of the first pair of photocells. Replacement of the power supply wires only in the transmitter or only in the receiver, result in no barrier of photocells. The second pair of photocells must be powered by the same phase as the first, however, power supply wiring on the terminal blocks of transmitter and receiver must be reversed (power supply wire connected to the terminal marked "1" in the first pair of photocells must be replaced with an adjacent wire in the second pair of photocells).

**In case of problems with identification AC power wires, you can use the following procedure in order to connect two pairs of photocells in the overlapping coverage of optical range.**

- ▶ make sure that the jumper marked "ZW" in the transmitters and receivers of two pairs of photocells are cut (open),

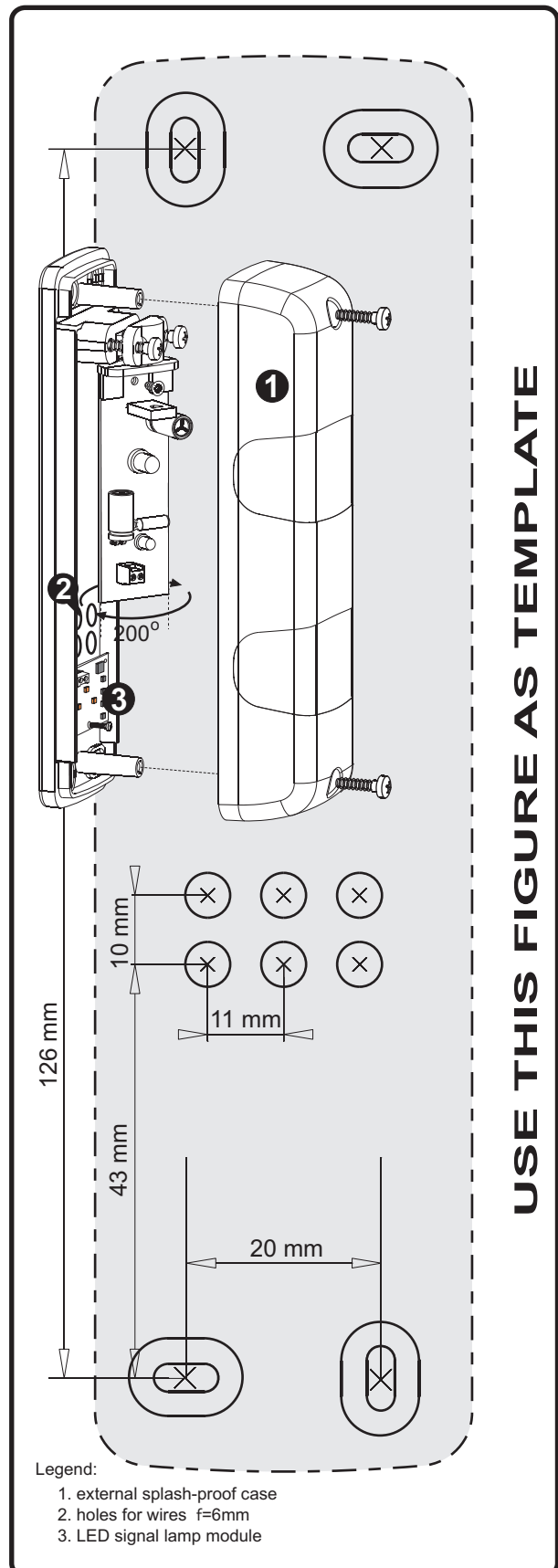


Fig. 2 Holes spacing in the scale of 1:1 with the assembly drawing.

**power supply:** 12..24V AC/DC  
**current consumption:** 2x25mA/2x120mA  
**operating range:** 1 - 15m

**temp.:** -20°C / +55°C  
**IP:** 54  
**dimensions:** 38x36x145mm

- ▶ connect the 12-24V AC (alternating) power supply to the transmitter and receiver of the first pair of photocells. POWER LED in the transmitter and receiver, and RX LED in the receiver should light up. If RX LED does not light, switch power supply wire cores only on the transmitter side or only on the receiver side. If RX LED still not light, it means that the receiver can not "see" the radius of the transmitter - you must adjust the position of the transmitter or receiver and, if necessary, repeat the steps described in this section,
- ▶ power the receiver of the second pair of photocells, The result should be POWER LED on the receiver light up. RX LED should remain off (which means no reaction of receiver of the second pair of photocells to the radius from the transmitter of the first pair of photocells). If the RX LED lights, switch places of power supply wire cores in the receiver.
- ▶ Connect power supply to the transmitter of second pair of photocells. POWER LED in the transmitter should light up, also RX LED should light up in the receiver of the second pair of photocells. If the RX LED does not light, switch places of power supply wire of the transmitter,
- ▶ Connect the signal terminals of photocells receivers (usually NC and C) to the corresponding gate controller input. Pay special attention to the control mode (NC or NO) required in the gate controller. The standard solution of optical sensors operating mode in the gate automation is the NC configuration.

## 5. Signal lamps electrical connection.

SLIMFLASH photocells have built-in LED signal modules. Lamps are designed to work with the signal output of gate controller units. Lamps must be connected to the signal output of 12..24V AC/DC voltage. Lamps do not have built-in interrupter. An example of lamp connection is shown in Fig. 3.

## 6. Testing

After photocells connecting, it is necessary to test or check the reaction of the receiver (RX) at the interruption of the light barrier. Note that the gate automation must be tested with regard to PN-12445 standards. Test of a pair of photocells:

- ▶ connect power supply only to the receiver and check whether the RX LED is off
- ▶ connect the power supply to the transmitter, and check whether the RX LED lights up.
- ▶ move the roller having a diameter of 5 cm and a length of 30 cm perpendicularly intersecting the optical axis between the transmitter and the receiver, first near the transmitter TX, then near the RX and midway between them. Each time the photocell should switch from standby to the state of alarm, which is visible through the RX LED.
- ▶ if LED modules are connected check the operation of signal lamps.

## 7. Warranty

DTM System provides operational and ready to use devices. The producer gives 24 months warranty from the selling date to the end customer. This time is counted according to the producer warranty labels or serial numbers placed on every product. Producer obliges himself to repair the device for free if during the warranty period there are problems which come because of his fault. Broken device should be supplied on customer's expense to the place of purchase and enclose clear and brief description of the breakage. The cost of mount/dismount is covered by the user. The warranty does not cover: batteries in the remote controls, faults caused by improper usage, user self repairs and adaptations, lightning strikes, voltages or short circuits in the electrical grid. Appropriate legal acts regulate details of the warranty.



**Electrical devices cannot be thrown with municipal waste. Proper utilization of the devices gives the possibility of saving the Earth's natural resources for longer and prevents the degradation of the Environment.**

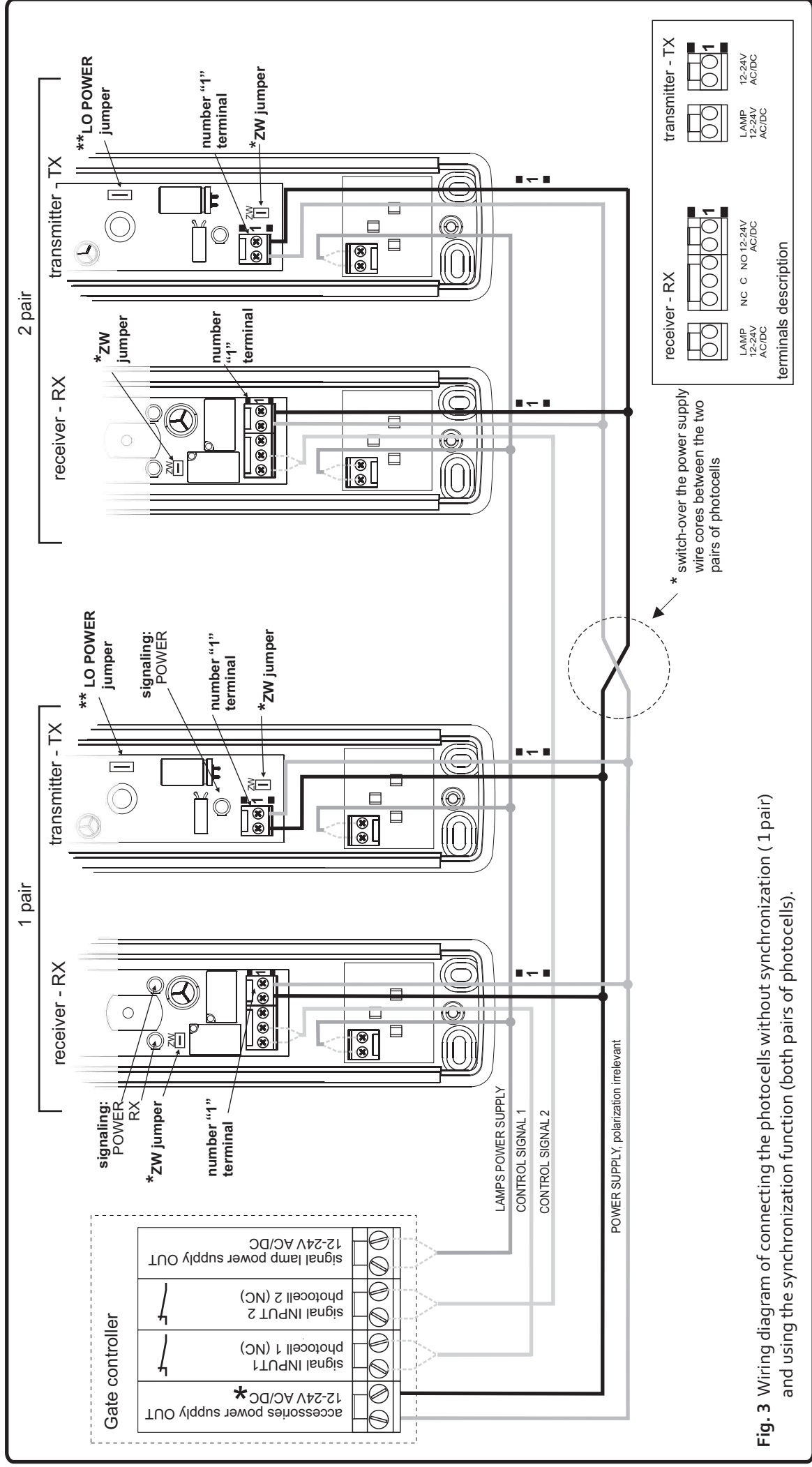


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# CONNECTION SCHEME

- \* In the case of using the **synchronization function**, you should use only AC power supply and cut the ZW jumper in transmitters and receivers of both pairs of photocells. Switch places of cores of power supply wire in one pair of photocells.
- \*\* When using photocells in a place where interruption may be caused by reflections from walls or other object, the power of the transmitter can be reduced. To do this, cut the LO POWER jumper in the transmitter.



**Fig. 3** Wiring diagram of connecting the photocells without synchronization ( 1 pair) and using the synchronization function (both pairs of photocells).