



**MOF-MOFO  
photocells**

# moon

## Introduction

The MOON series photocell is a safety device that can be used with automatic gate and door openers to detect the presence of obstacles between the transmitter (TX) and the receiver (RX).

The effective opening angle of the photocell may be reduced to  $\pm 5^\circ$  as required by the IEC 61496-2 standard. This angle is guaranteed for TX-RX distances greater than 1m.

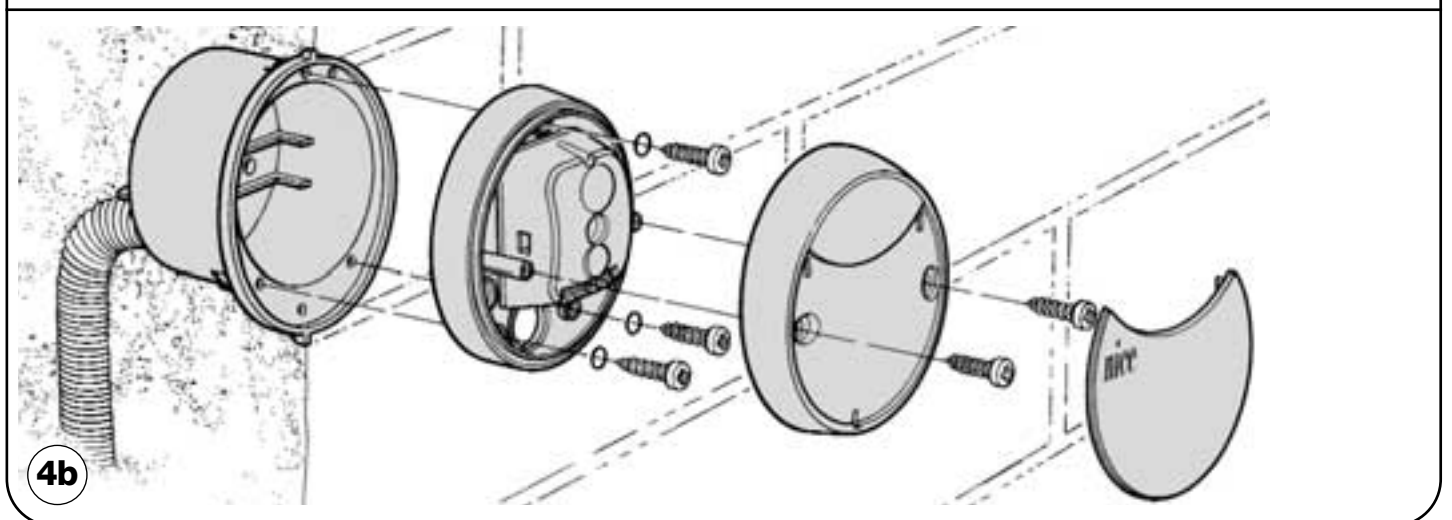
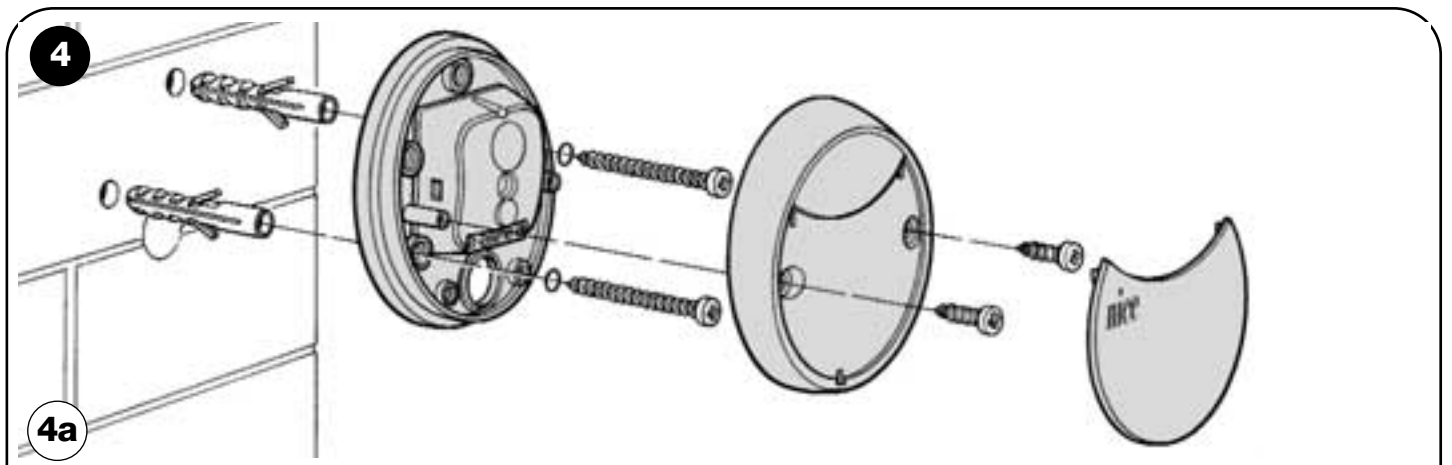
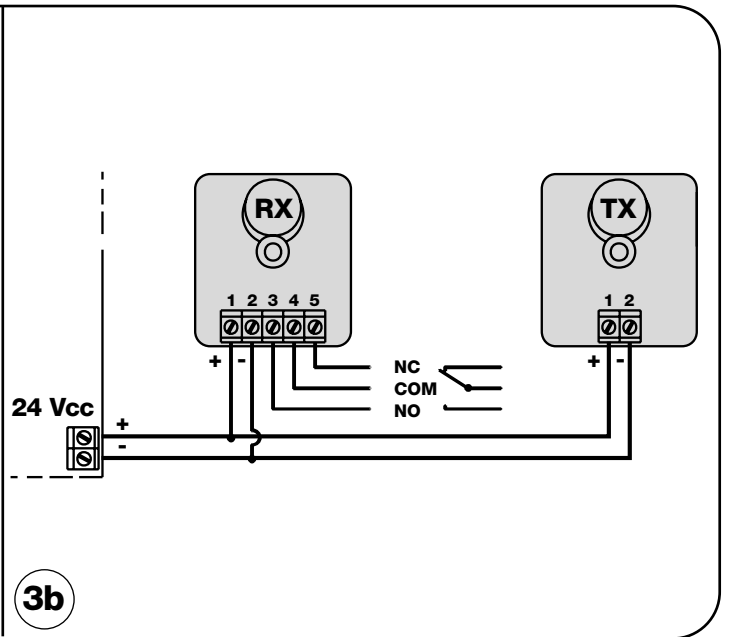
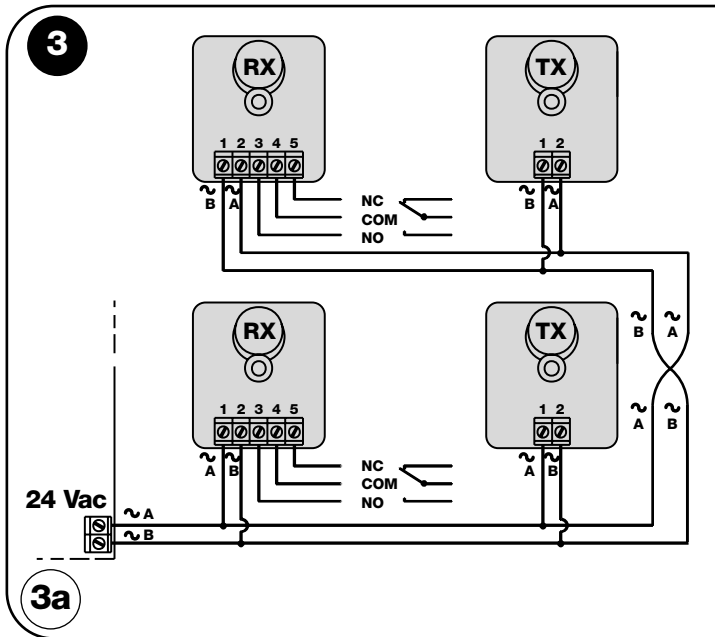
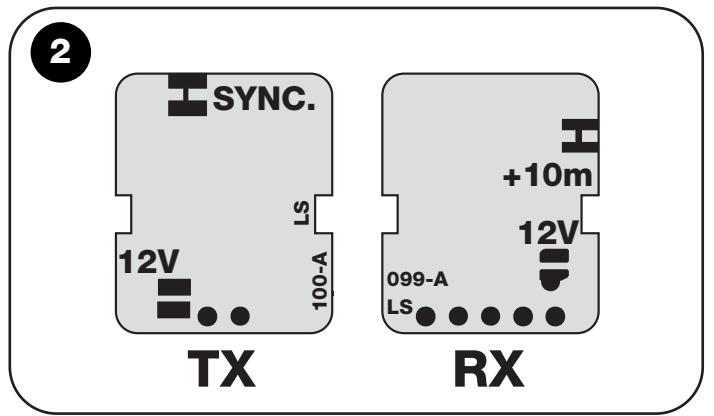
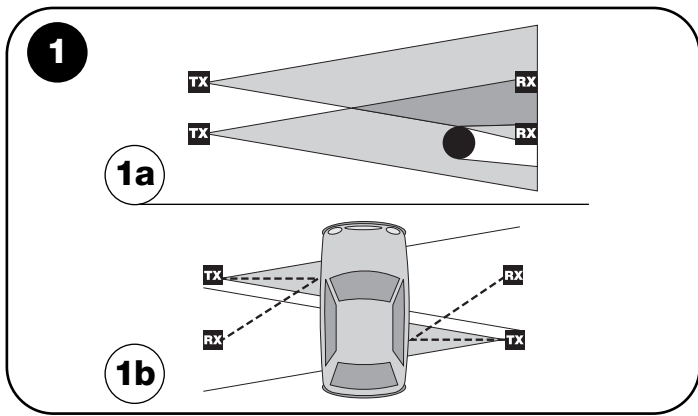
*Nice reserves the right to make any modifications to the products as it sees fit.*

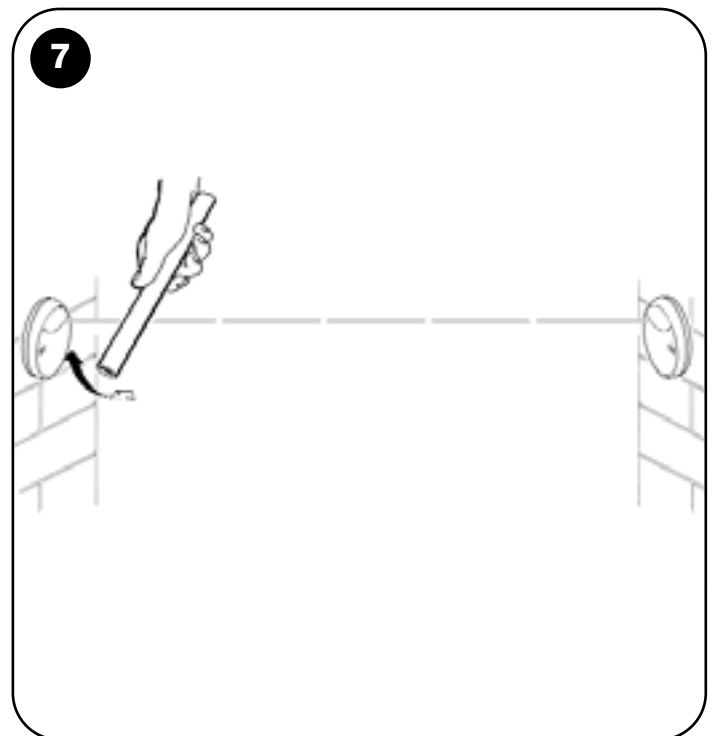
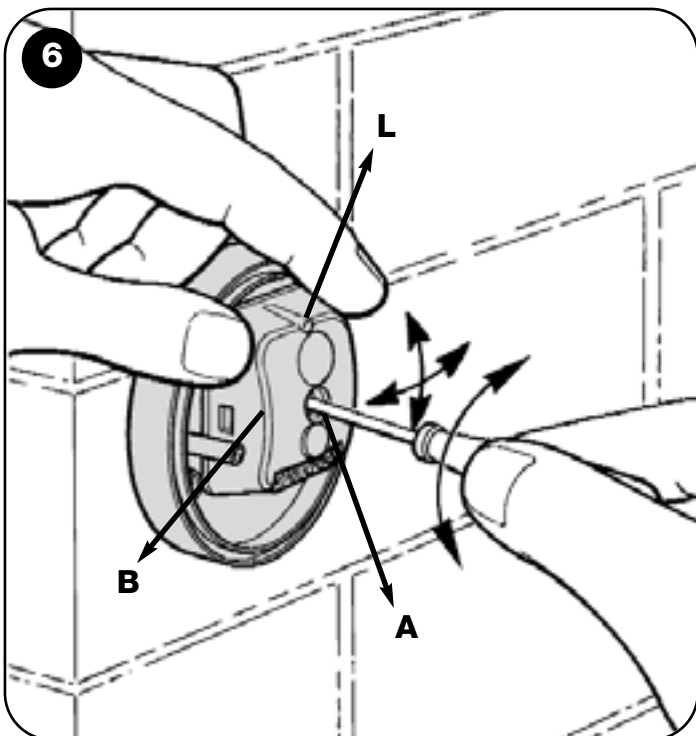
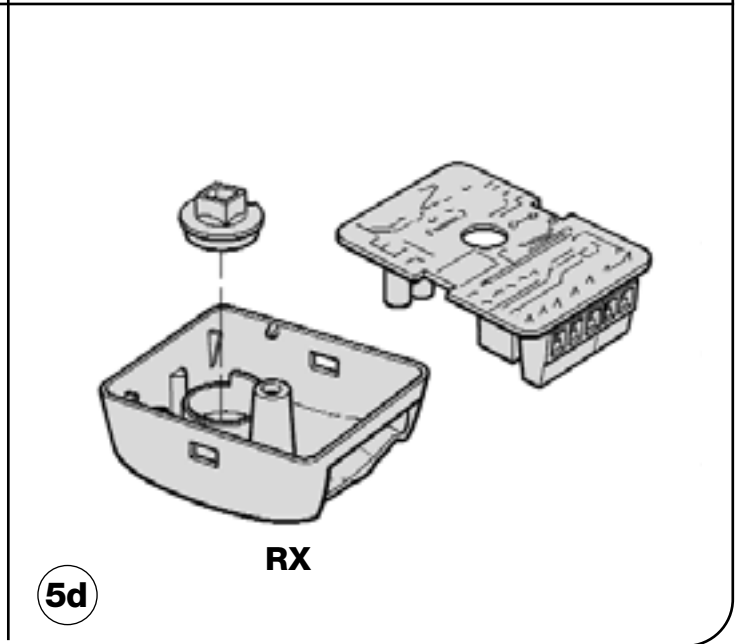
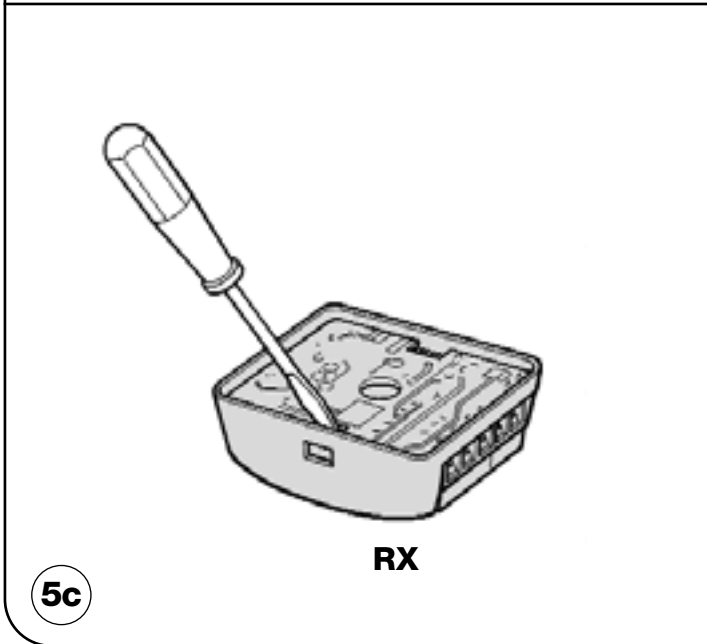
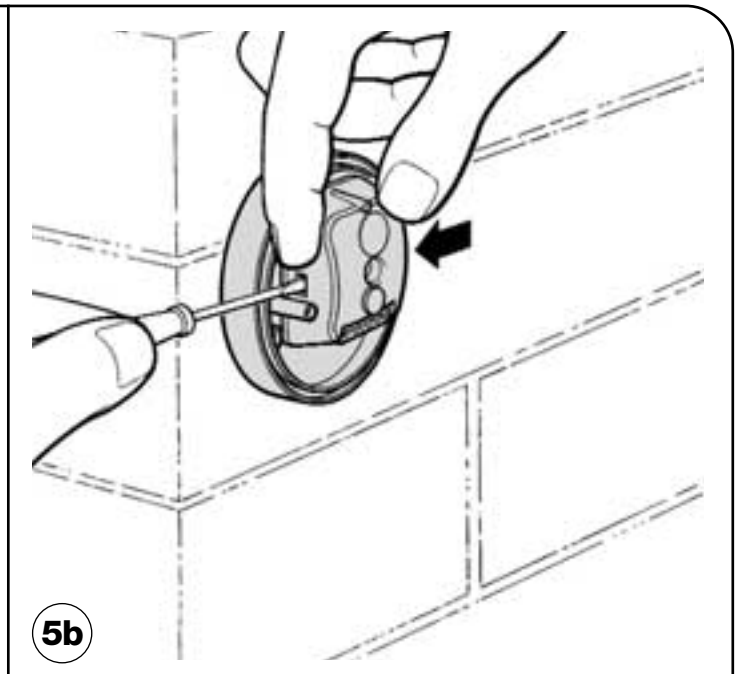
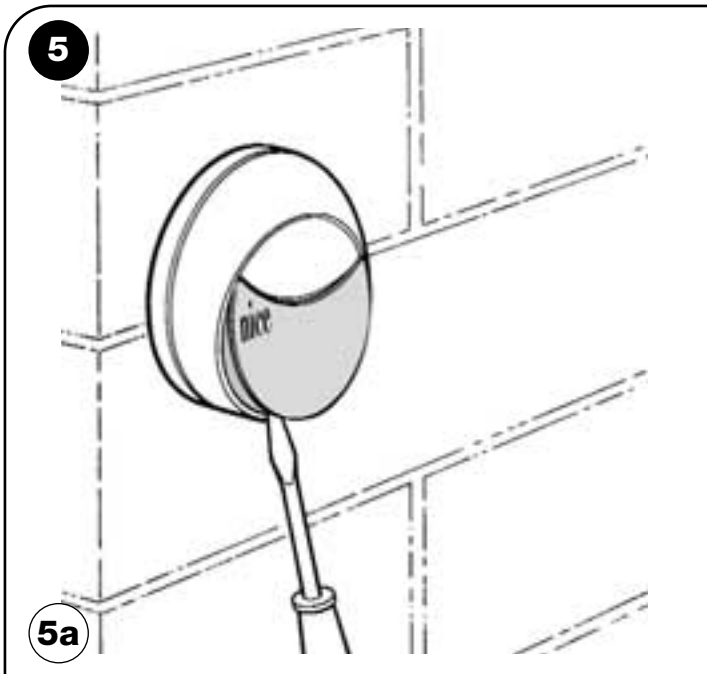
COMPANY  
WITH QUALITY SYSTEM  
CERTIFIED BY DNV  
ISO 9001



**SAMT**<sup>®</sup>  
Garage & Gate Automation







**Warnings** Please read the instructions carefully before installing the product, improper use or an error in connection could jeopardise the safety or correct operation of the device.

- This photocell may only be used to detect direct interruptions between TX and RX; it may not be reflected.
- Fix the photocell on a hard, vibration-free surface.
- In order to obtain an "ESPE type 2" safety device, the photocell must be connected to central units fitted with "fototest", or at least 2 devices must be used for the area to protect.
- Use conductors that are large enough to cope with

the required current and make sure the overload cut-out located up-line from the safety devices is suitable sized.

- Make sure that the power input corresponds to the values shown in the TECHNICAL FEATURES.

**Servicing** The photocells do not require any special servicing, but routine maintenance must be carried out at least every six months in order to check the state of the device (presence of humidity, oxidation, etc.), clean the outer casing and the lenses and test as shown in the above paragraph.

These photocells have been designed to work in normal conditions for at least 10 years; from then on,

maintenance work should be carried out more frequently.

**Disposal** This product is made from various kinds of material, some of which can be recycled. Make sure you recycle or dispose of the product in compliance with current laws and bye-laws.

## Technical features

### Type

Safety device for automatic doors and gates

### Technology used

Direct TX-RX obstruction with an impulse-modulated infrared beam

### Max. range

15m (30m with jumper + "10m." with cut jumper)

Range can be reduced by 50% in bad weather conditions: fog, rain, dust, etc.

Range can be reduced by 30% when using the cone for reducing the actual opening angle

### Power input

without jumper 24 Vac/Vdc limits 18-35 Vdc, 15-28 Vac with jumper 12 Vac/Vdc limits 10-18 Vdc, 9-15 Vac

### Max. power consumption

25 mA RX, 30mA Tx = 55 mA per pair

### Operating temperature

from -20 to +60 °C according to EN 600068-2-1 / EN 600068-2-2 standards

### Level of protection

IP55 according to EN 60529 standard

### Output relay contact

Max. 500mA and 48V direct or alternating current

### Lifetime of contact

> 600,000 AC11 or DC11 operations according to NFP 25-363 standard

### Response time

< 30 ms according to IEC 61496-2 and NFP 25-363 standards

### RX detection angle

8° ± 25% with reducing cone, according to IEC 61496-2 standard approx. 20° without reducing cone

### Angle of TX beam

20° ± 25%

### Detection capacity

Opaque objects with a size of ≥ 50 mm and maximum speed of 1.6 m/s.

**Installation** The TX transmitter of the photocell emits a beam at an angle of about 20°.

If two devices are near to one another, the beam may interfere with the other receiver (figure 1a) and not provide a sufficient level of safety.

In order to solve this problem and if alternating current is available, the synchronisation system that allows the two pairs of photocells to work alternately may be used. This system requires the synchronism jumper "SINC" to be cut on the two TX's (fig. 2) and the 1<sup>st</sup> pair of photocells (TX and RX) to be powered with their phases inverted compared with the 2<sup>nd</sup> pair. (fig. 3).

Before proceeding with installation, check the following points:

-If the photocells are powered with 12V, place a tin jumper between the two "12V" points both on TX and RX (see fig. 2).

-If the distance between TX and RX is greater than 10 metres, cut the jumper between the "+10m" points of RX (see fig. 2).

-If the effective opening angle is required to be

reduced to ±5°, fit the reducer cone as shown in fig. 5a, 5b, 5c, 5d.

-Given that the direction of the "MOF" fixed photocell cannot be adjusted, when using this version make sure that the surfaces to which TX and RX are fixed allow them to be perfectly aligned.

Fix the photocells as shown in figure 4a or 4b.

Make the relative electrical connections as shown in the control panel manuals and in fig. 3.

**Adjusting direction** The direction of the "MOFO" mobile photocell can be adjusted to achieve a perfect alignment even when the fixing position is not perfect. Adjustment must be particularly precise when the cone for reducing the effective opening angle to ±5° is used.

Proceed as shown in figure 6 to adjust the direction. Loosen screw "A", gently move the mobile element B and then tighten screw "A".

If the reducing cone is not used on the transmitter and receiver, adjustment can be made less precisely.

If the reducing cone is used on the receiver,

adjustment must be extremely precise, follow the indicator "L": the slower it flashes, the better the alignment is. Alignment is perfect when "L" stays off but is acceptable when "L" flashes slowly; it is incorrect when "L" flashes quickly. Afterwards, check the result using the following table.

**Testing** The whole installation on which the safety device is installed must be tested by trained and qualified personnel who must carry out the relative tests according to the elements of risk present. The device must be tested using the following procedure:

-Disconnect the photocell from the power supply and check the ALARM state

-Power the receiver and check the ALARM state  
-Then power the transmitter as well and check the ALARM state

-Use a 5 cm diameter and 20 cm long cylinder to interrupt the beam, first near the TX's, then near the RX's and lastly in the centre and check that the safety device cuts in and modifies the state of the outputs from ACTIVE to ALARM and vice-versa. (figure 7)

Indicator L	Meaning	Output status	Action
Always off	Signal OK No obstacle	Active	All OK
Slow flashing	Signal weak No obstacle	Active	Improve alignment
Rapid flashing	Signal incorrect No obstacle	Active	Check alignment cleanliness and environment
Always on	No signal Obstacle present	Alarm	Remove obstacle