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ROGER TECHNOLOGY R90 External Photo Cells

Installation:

1. Identify the TX (transmitter) and RX (receiver) units.
2. Connect the power supply to the designated terminals on both TX and RX units.
3. Ensure proper alignment and a clear line of sight between the TX and RX units for optimal operation.

Operation:

1. Once installed, power on the system.
2. Observe the indicator lights on both TX and RX units to ensure they are functioning correctly.
3. Test the photocells by interrupting the infrared beam between the TX and RX units to verify proper detection.

Technical specifications

TECHNOLOGY	Direct optical interpolation between the photocell TX and the photocell RX with modulated infrared rays
SUPPLY VOLTAGE	12/24Vac 50Hz, 12/24Vdc
CURRENT CONSUM PTION	TX=19mA, RX=20mA
WAVELENGTH INFRA -RED EMISSION	880 nm
ANGLE OF DIODE E MISSION	<17°
OPERATIONAL DISTA NCE	Standard 10 m, option 15m obtained by cutting the connecti on **E** positioned on the rear of the RX photocell circuit board. See **fig. 3** Minimum operational distance of 0.8 m

OUTPUT CONTACT	Double relay with series connections (double safety), normally open output (COM-NO) and normally closed output (COM-NC), 30Vmax 0.5Amax with resistive load
RELAY INTERVENTION TIME	<30ms
OPERATING TEMPERATURE	-20°C … +55°C
PROTECTION RATING	IP 55
PRODUCT SIZE	R90/F2ES dimensions in mm. 62 x 88 x 27 Weight: 90g G90/F2ES dimensions in mm. 75 x 77 x 29.2 Weight: 141g G90/F2ESI dimensions in mm. 75 x 77 x 56.6(RX) 54.9(TX) Weight: 167g G90/F2ES/TRIX/… dimensions in mm. 75 x 98 x 58 Weight: 283g

Introduction to instructions and warnings

- This manual is intended only for qualified technical staff in charge of machine installation.
- The information in this manual is not intended for the final user. This manual refers to the synchronized photocells R90/ F2ES, G90/F2ES, G90/F2ESI, G90/F2ES/TRIX/TX, and G90/F2ES/TRIX/RX and must not be used for any other product.
- Read this section thoroughly before installing the machine. The installation must be performed only by qualified technical personnel by relevant legislation. Perform connections with cables that are adequate for the current and voltage requirements and comply with product specifications. In order not to affect their proper functioning, the photocells must operate without using reflections and must not interfere with other photocells, whether they be of the same or different types. Interferences may occur

between pairs of not-synchronized photocells with tension 12/24V ac-d, among more than two pairs of synchronized photocells with tension 12/24Vac, or with other devices that emit infrared light. Take all the necessary precautions to eliminate this problem. To better understand the issues related to reflection and interference, see Figure 4.

Product description

- The synchronized photocells versions R90/F2ES, G90/F2ES, G90/F2ESI, G90/F2ES/TRIX/TX and G90/F2ES/TRIX/RX are presence detectors based on infra-red technology, which allow detecting obstacles on the optical axis between the transmitter and receiver photocells; they can be used for automatic entries, for courtesy services and monitoring passageways.
- Within these instructions, the transmitter photocell is referred to as the TX photocell, the receiver photocell is referred to as the RX photocell, while one or more pairs of photocells (always consisting of an RX and a TX photocell) will be referred to as photocells.
- These photocells are intended for installation on fixing surfaces flat and parallel to each other, which enable the proper centring between the TX and the RX photocells.

Versions available:

- R90/F2ES and G90/F2ES for external fixing installation.
- G90/F2ESI for installation inside 60mm diameter round boxes. G90/F2ES/TRIX/TX and G90/F2ES/TRIX/RX only installation with TRIX series columns.

Terminals and signalling

- Terminals for photocell TX (see figure 1):
    - 1: positive supply 24Vdc, supply 24Vac
    - 2: negative supply 24Vdc, supply 24Vac
- LED for TX signalling photocell (see figure 1):
- PW: turned on when supply voltage is present, if off, indicates that the power supply is missing or is incorrectly connected.
- Terminals for photocell RX (see figure 1):

    - 1: positive supply 24Vdc, supply 24Vac
    - 2: negative supply 24Vdc, supply 24Vac
- 3,4,5: OUTPUT. Normally closed contact (terminals 3-4) with working photocells and no obstacles between TX and RX. Normally open contact (terminals 4-5) with working photocells and no obstacles between TX and RX.
- LED for RX signalling photocell (see figure 1):
- L: indicates the condition of the output contact, its brightness is proportional to the received signal strength, it turns off when there is an obstacle between the photocells (contact open).
- Selecting the supply voltage of the photocells, 12/24V AC/DC. The photocells are always delivered prearranged for a 24V AC/DC power supply.
- To power the photocells 12V ac/dc is necessary to short-circuit by means of tin whiskers the pads C (see Figure 3) at the rear of the printed circuit boards of the photocells.

Installation

Caution: Before installing the photocells, check the compatibility and technical specifications of the control devices to which they will be connected.

Mounting

- Open the photocells, pull out the electronic circuit cards (see figures 5, 6, 7, 8).
- Choose the location of the photocells.
- Attach the bottom of the shell.
- For the G90/F2ES/TRIX/TX and G90/F2ES/TRIX/RX: versions, fix the head (detail I, Figure 8) to the column TRIX with the screws provided. Place the card slot (detail M, Figure 8) on the head.
- **WARNING:** the TX and RX lower shells are different from each other, check the embossed writing on the back prior to fixing.

Wiring

- **WARNING:** Connect wires with the power turned off.
- Arrange the cables: there are needed 2 wires to connect a TX and a maximum of 4

wires to connect a RX.

- If needed, connect the output terminals.
- Connect the power supply, ensure the correct polarity.
- Continuous current photocells power supply 12/24Vdc. Connect the 12/24Vdc power supply to the terminals of the photocells according to the polarity of the supply, as indicated in Figure 1.
- **Warning:** the synchronization in continuous current cannot activate, while the presence or absence of jumpers P1 in TX photocells is irrelevant.
- Alternate current photocells power supply 12/24Vac 50Hz Connect the power supply 12/24Vac 50Hz to the terminals of the photocells with no obligation of connecting the phases, as indicated in the figures 1 and 2,c heck the connection of the jumper P1 for TX photocells, its absence enables the synchronization and requires the phased connection, as indicated in figure 1 and 2.
- Synchronization of one photocell pair
- The synchronization allows installing two pairs of photocells very close to each other with no interference problems.
- To enable the synchronization remove the P1 jumpers inserted in the two TX photocells, connect the 12/24Vac 50Hz power supply to terminals 1-2 of the photocells, with the obligation of connecting the phases as indicated in the figures 1 and 2. If the phase connection has not been properly carried out, the photocells will not function.
- Checking the proper alignment between photocells
- The RX photocell has one red LED indicated with L in figures 1 and 2. Its brightness is proportional to the received signal strength, and it also indicates the correct alignment between photocells. The higher the brightness, the greater the power received and the better the alignment performed. Even though the RX photocell works even with the poor signal received, it is recommended to run the best possible alignment to ensure an efficient operation even in the case of fog, dust, or rain.

Container closure

To close the photocell container, proceed as follows:

R90/F2ES

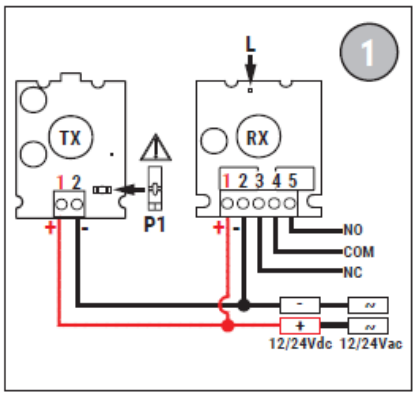
- Check that the seal (detail A, figure 5) is properly inserted in the upper shell.
- Position the top shell and secure it using the two supplied screws. G90/F2ES
- Place the gasket (O-ring, detail C, figure 6) in the groove of the upper shell.
- Position the gasket (detail D, figure 6) and the upper shell and secure with the two supplied screws.
- Gently press the mask (detail E, figure 6) until it clicks.

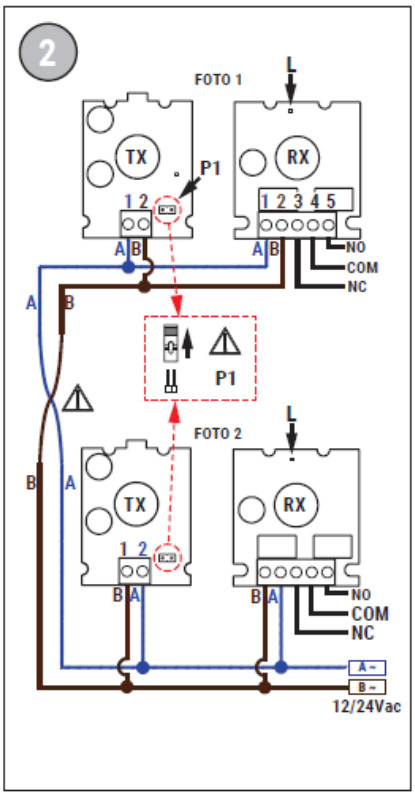
G90/F2ESI

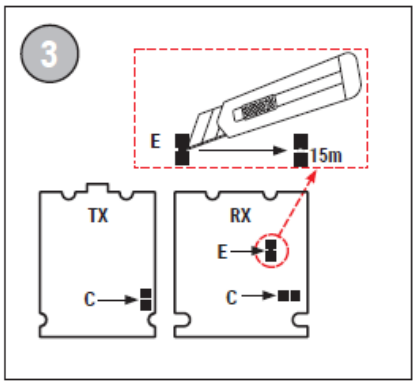
- Place the gasket (O-ring, detail F, figure 7) in the groove of the upper shell.
- Position the gasket (detail G, figure 7) and the upper shell and secure with the two supplied screws.
- Gently press the mask (detail H, figure 7) until it clicks.

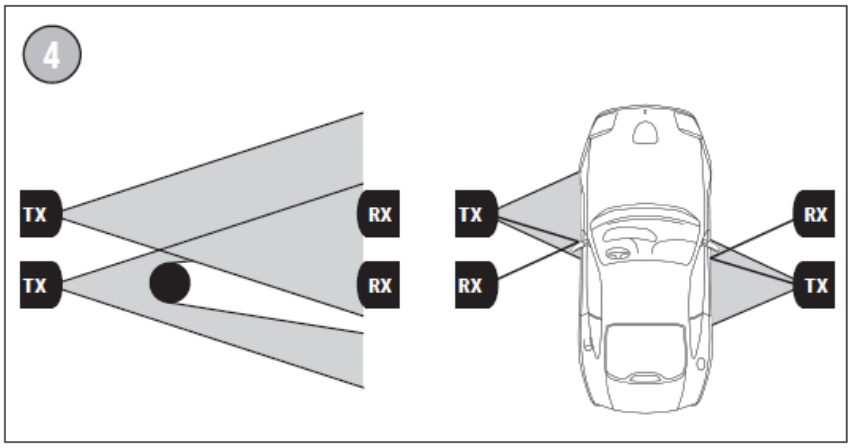
G90/F2ES/TRIX/TX and G90/F2ES/TRIX/RX

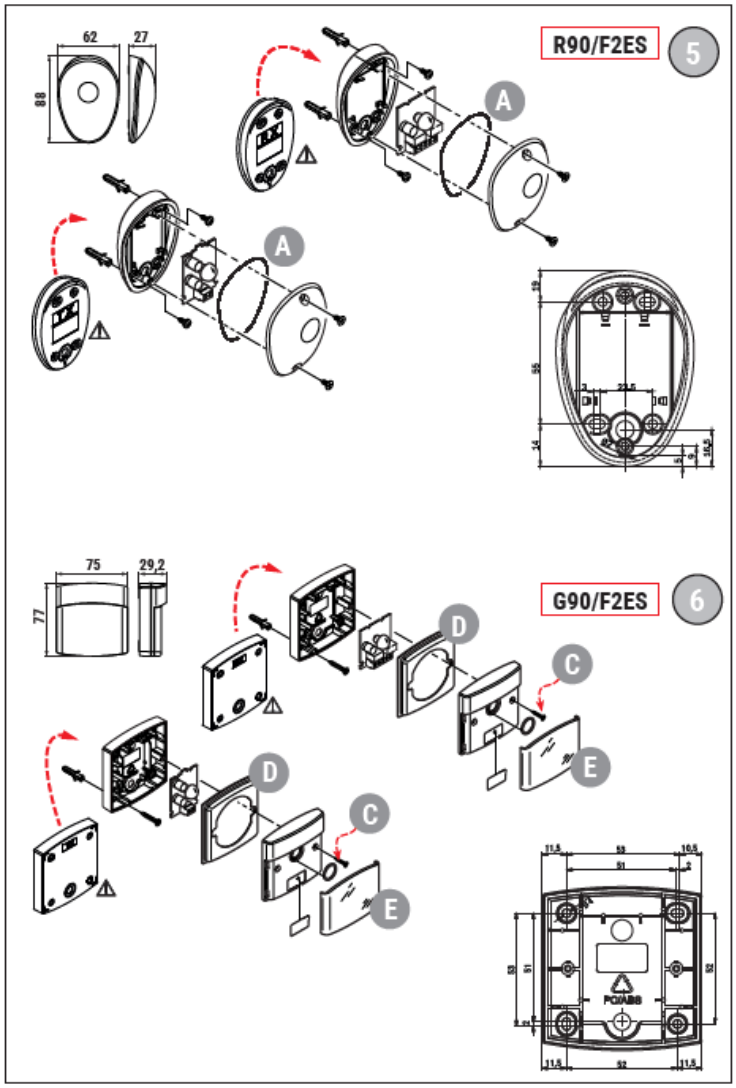
- Place the gasket (O-ring, detail N, figure 8) in the groove of the upper shell.
- Position the gasket (detail O, figure 8) and the upper shell and secure with the two supplied screws.
- Gently press the mask (detail P, figure 8) until it clicks.

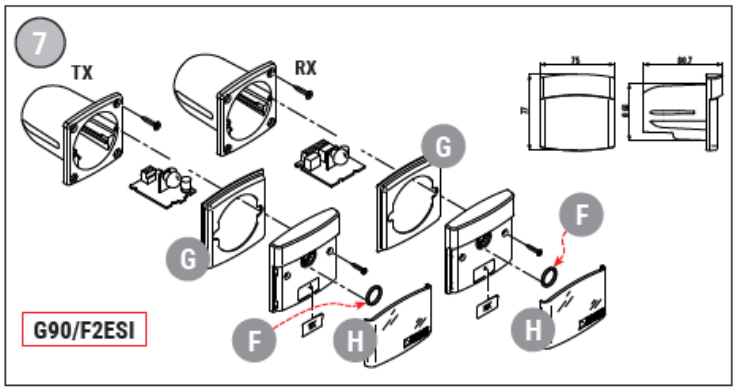

1
TX
RX
L
1 2
1 2 3 4 5
P1
+ -
NO
COM
NC
12/24Vdc 12/24Vac

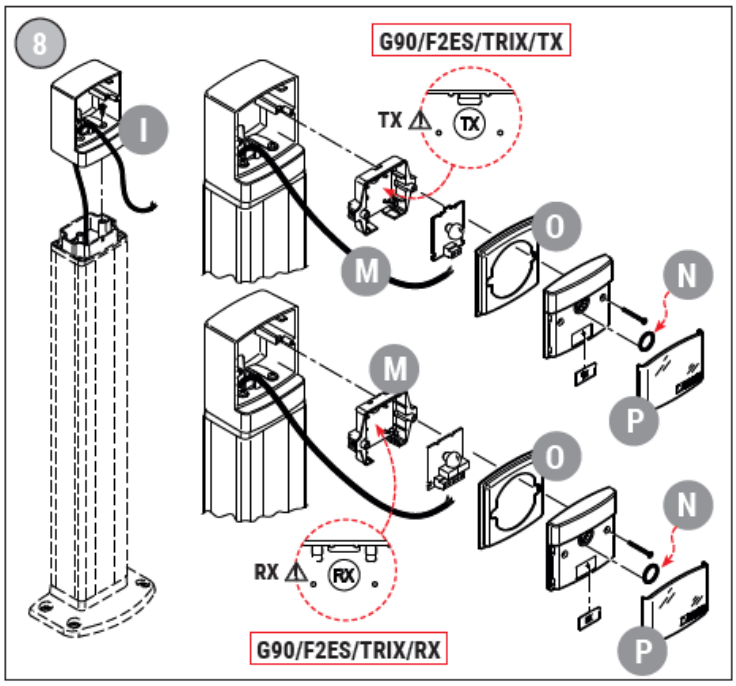

2
FOTO 1
TX
RX
L
P1
1 2
1 2 3 4 5
A B
NO
COM
NC
P1
FOTO 2
12/24Vac


3
E
15m
TX
RX
C


4
TX
RX


R90/F2ES
5
62
27
88
A
A
G90/F2ES
6
75
29,2
77
D
C
E
D
C
E





Testing

Testing of onphotocellspair

- Testing allows verifying the correct operation of the photocells and of possible interference caused by other nearby devices with infra-red emission.
- Enable the control device to which the photocells are connected.
- With a cylindrical object having about 50mm diameter, cut the infra-red light beam several times between the photocells. Repeat the same operation by positioning yourself near the TX photocell, then near the RX photocell and then between them. If the control device detects correctly each interruption at all points, the test is successfully completed.
- When installing two or more pairs of photocells, repeat the same procedure, taking care to check for any interference between them.

Maintenance

- Perform scheduled maintenance every 6 months and verify the cleanliness and working of all photocells.
- In the presence of dirt, moisture, insects or anything else, clean the photocell and run again the test procedure.
- If oxidation is detected on the printed circuit, evaluate its replacement.

Disposal

- The product must always be uninstalled by qualified personnel using the appropriate procedures for the proper removal of the product.
- This product is made of various types of materials, some could be recycled, others must be disposed of in compliance with local recycling and disposal regulations as they pertain to this category of product.
- The disposal of this product as household waste is forbidden. Carry out “separate collection” for disposal by the methods established by local regulations, or return the product to the retailer when buying an equivalent new product.
- Local regulations may provide for heavy penalties for illegal disposal of this product. **Warning:** some parts of the product may contain pollutant or hazardous substances, which if dispersed could cause harmful effects to the environment and to human health.

Declaration of Conformity

- The undersigned, representing the following manufacturer, Roger Technology

Via Botticelli 8, 31021 Bonisiolo di Mogliano V.to (TV) DECLARES that the equipment described below:

- Description: Photocell for automatic opening
- Model: R90 and G90

Complies with the legal requirements of the following directives:

- 2004/108/CE;
- 2006/95/CE;
- 2011/65/UE

And that all the standards and/or technical specifications listed below have been applied:

- EN 61000-6-3; EN 61000-6-2.
- The last two digits of the year in which the marking was affixed | 12.
- Location: Mogliano V.to
- Date: 01-10-2012

Signature 

ROGER TECHNOLOGY

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Frequently Asked Questions

Q: What is the operating distance of the photocells?

A: The operating distance of the photocells is 15m.

Q: What is the power supply voltage required for the product?

A: The product requires a power supply voltage of 12/24VAC 50Hz or 12/24VDC.

Documents / Resources

	ROGER TECHNOLOGY R90 External Photo Cells [pdf] Instruction Manual R90-F2ES, G90-F2ES, G90-F2ESI, R90 External Photo Cells, R90, External Photo Cells, Photo Cells

References

- User Manual

Roger Technology

External Photo Cells, G90-F2ES, G90-F2ESI, Photo Cells, R90, R90 External Photo Cells, R90-F2ES, Roger Technology

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