# Diffuse Ref. Photoelectric Sensors

**PHOTOELECTRIC SENSORS IN SQUARE HOUSING 14 ÷ 230 V AC/DC REPLAY OUTPUT**

- ***Wide input voltage***
- ***3A relay SPDT***
- ***Cable or M12 quick connect models***
- ***Output and Supply indicators***

## FQ Series

## Identification code

**FQ** **05** **D2** **K**

**SERIES FQ**

**REPLAY OUTPUT NORMAL OFF**

**Switching distance = 10 ÷ 40 CM** **D1**

**Switching distance = 20 ÷ 100 CM** **D2**

**Switching distance = 20 ÷ 180 CM** **D3**

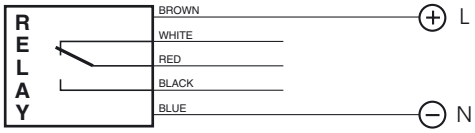
**Switching distance = 30 ÷ 200 CM** **D4**

**CONNECTOR OUTPUT M12**

| AVAILABLE | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| NOMINAL SWITCHING DISTANCE (Sn) | **10÷40cm** | **20÷100cm**(1) | **20÷180cm**(2) | **30÷200cm** |
| TOLERANCE | +10/-10 %Sn | | | |
| HYSTERESIS | 10% | | | |
| EMISSION | Infrared (875 ηm) | | | |
| NOMINAL VOLTAGE | 14 ÷ 230V AC - DC (-15 /+10%) | | | |
| MAINS FREQUENCY | 50 ÷ 60 Hz | | | |
| OUTPUT | Relay (10 x $10^6$ ops. min.) | | | |
| MAX. OUTPUT CURRENT | 3A 30 V AC - 1A 220 V AC (90W, 360 VA) | | | |
| ABSORPTION | 2.5 VA | | | |
| YELLOW LED | Output indicator | | | |
| GREEN LED | Supply indicator | | | |
| SENSITIVITY ADJUSTEMENT | Trimmer 1 turn | | | |
| SWITCHING FREQUENCY | 10 Hz | | | |
| RESPONSE TIME | 100 mS | | | |
| START UP DELAY | ≤ 300 mS | | | |
| TEMPERATURE LIMITS | -10 ÷ +60° C | | | |
| LIGHT IMMUNITY | > 10.000 Lux (3) | | | |
| PROTECTION DEGREE | IP 65 | | | |
| CABLE LENGTH | 2 m | | | |
| CABLE SECTION | 5 x 0.30 mm² | | | |
| HOUSING MATERIAL | Housing: ABS - Lenses: methacrylate | | | |
| WEIGHT - cable output - (connector output) | - 180 g - (125 g) | | | |

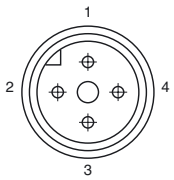
(1) Determined with a white mat paper (cm 10 x 10).
(2) Determined with a white mat paper (cm 20 x 20).
(3) Determined with halogen tungsten lamp 3000° K.
Note: for a proper use see norms at pages 12, 13, 14, 15 and 16.

## Wiring diagrams




**Note:** in case of inductive loads it is necessary to connect one diode in antiparallel at the edges of the load.

## Connection with connector M12 (K)




**View of quadripole male connector.**

**CONTACTS CONFIGURATION**

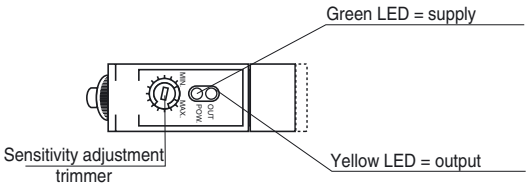
| Output | Contacts numbers | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Relay | L | COM | N | NO |
| Wire colors | brown | white | blue | black |

**Note:** Photoelectric sensor not suitable for use with 90° connectors.

## Sensitivity adjustment

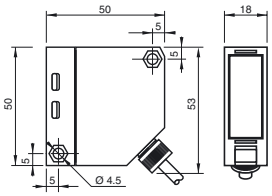
**1) SENSITIVITY INCREASE**
**Screw the trimmer towards right towards position "+"**

**2) SENSITIVITY DECREASE**
**Screw the trimmer towards left towards position "–"**



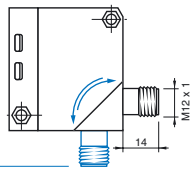

**Note:** the trimmer just needs one turn.

## Dimensions (mm)



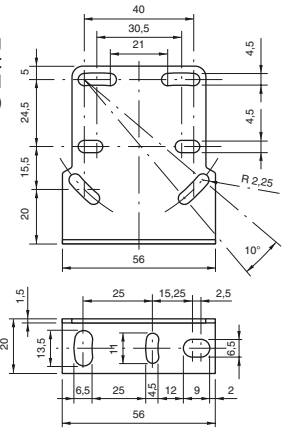

**Configuration with cable**

**Configuration with connector K**




*Rotating connector*

**Mounting bracket (supplied accessory)**




## Characteristic curves