

# Retro Ref. Photoelectric Sensors

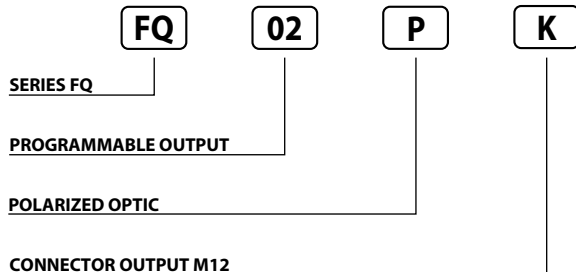
PHOTOELECTRIC SENSORS IN SQUARE HOUSING 12 ÷ 30 V DC PROGRAMMABLE OUTPUT

- Compact size, output and stability indicators
- Cost effective
- M12 quick connect or integral cable
- 5 msec ON/OFF

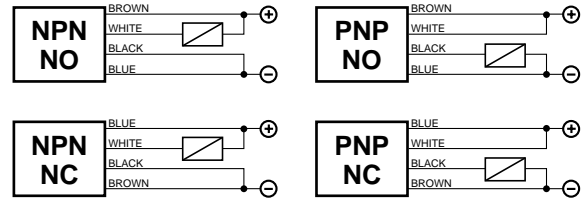
**FQ Series**



## Identification code

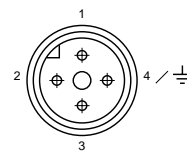


## Wiring diagrams



Note: For series or parallel connections see notes at page 6.

## Connection with connector M12 (K)



### CONTACTS CONFIGURATION

Output	Contacts numbers			
	1	2	3	4
NPN NO	+	NO	-	-
NPN NC	-	NC	+	-
PNP NO	+	+	-	NO
PNP NC	-	+	+	NC
Emitter	+	-	-	-

View of quadripole male connector.

Note: the K plug is compatible with the following connectors: VAUDEHA, BINDER, HIRSCHMANN, LUMBERG, AMPHENOL-TUCHEL.

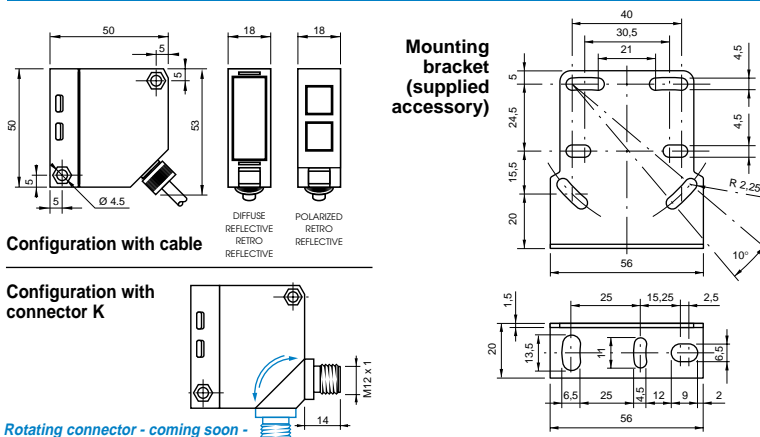
AVAILABLE	POLARIZED	STANDARD
SWITCHING DISTANCE	4 m <sup>(1)</sup>	9 m <sup>(1)</sup>
HYSTERESIS	10%	
EMISSION	Red (660 nm)	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 30VDC (-15 /+10%)	
RESIDUAL RIPPLE	≤ 10%	
OUTPUT	NPN or PNP (programmable)	
CONTACT	NO or NC (programmable)	
MAX. OUTPUT CURRENT	200 mA	
ABSORPTION AT 30 VDC	30 mA	
VOLTAGE DROP (Sensor ON)	≤ 1.8 V (I = 100 mA)	
YELLOW LED	Output indicator	
GREEN LED	Stability indicator	
SENSITIVITY ADJUSTMENT	Trimmer 1 turn	
SWITCHING FREQUENCY	200 Hz	
RESPONSE TIME	5 mS	
START UP DELAY	100 mS	
SHORT CIRCUIT PROTECTION	Present (self-resetting)	
ELECTRIC PROTECTIONS	Against polarity reversal - inductive loads	
TEMPERATURE LIMITS	-20 ÷ +60 °C	
LIGHT IMMUNITY	> 10.000 Lux <sup>(2)</sup>	
PROTECTION DEGREE	IP 65	
CABLE LENGTH	2 m	
CABLE SECTION	4 x 0.25 mm <sup>2</sup>	
HOUSING MATERIAL	Housing: ABS - Lenses: methacrylate	
WEIGHT - cable output - (connector output)	- 160 g - (120 g)	

<sup>(1)</sup> Determined with CT04S reflector.

<sup>(2)</sup> Determined with halogen tungsten lamp 3000° K.

Note: for a proper use see norms at pages 6, 7 and 8.

## Dimensions (mm)



Mounting bracket (supplied accessory)

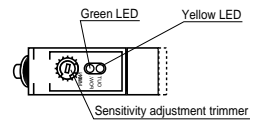
Configuration with cable

Configuration with connector K

Rotating connector - coming soon -

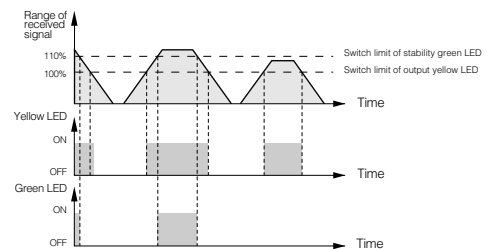
## Sensitivity adjustment

- 1) SENSITIVITY INCREASE**  
Screw the trimmer towards right towards position "+"
- 2) SENSITIVITY DECREASE**  
Screw the trimmer towards left towards position "-"



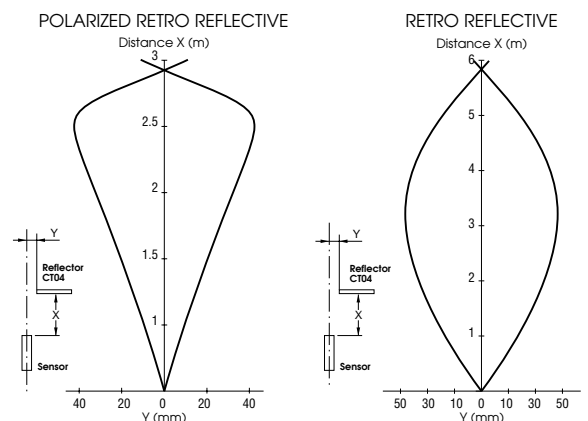
Note: the trimmer just needs one turn.

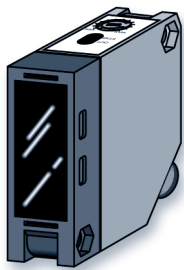
## Stability signal led



The stability signal LED shows the range of received signal and helps the photoelectric sensor to line up. A photoelectric sensor works in "stability" condition when the received light signal range is 10% ahead the switching limit of output.

## Characteristic curves





# Retro Ref. Photoelectric Sensors

## PHOTOELECTRIC SENSORS IN SQUARE HOUSING 18 ÷ 230 V AC - DC RELAY OUTPUT

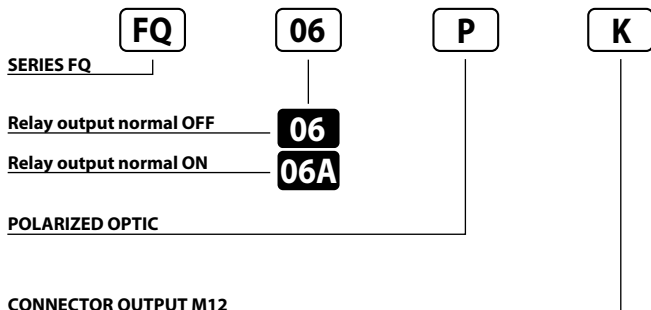
- Wide input voltage
- 3A relay SPDT
- M12 quick connect or integral cable
- Output and Supply indicators

FQ Series

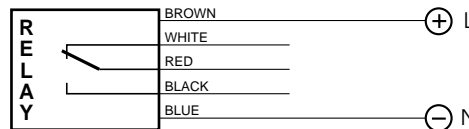
New



### Identification code



### Wiring diagrams



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

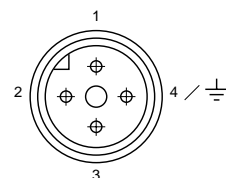
AVAILABLE	POLARIZED	STANDARD
SWITCHING DISTANCE	4 m <sup>(1)</sup>	9 m <sup>(1)</sup>
HYSTERESIS	10%	
EMISSION	Red (660 nm)	Infrared (875 nm)
NOMINAL VOLTAGE	18 ÷ 230V AC - DC (-15 / +10%)	
MAINS FREQUENCY	50 ÷ 60 Hz	
OUTPUT	Relay (10 x 10 <sup>6</sup> ops. min.)	
MAX. OUTPUT CURRENT	3A 30 V AC - 1A 220 V AC (90W, 360 VA)	
ABSORPTION	2.5 VA	
YELLOW LED	Output indicator	
GREEN LED	Supply indicator	
SENSITIVITY ADJUSTMENT	Trimmer 1 turn	
SWITCHING FREQUENCY	10 Hz	
RESPONSE TIME	100 mS	
START UP DELAY	≤ 300 mS	
TEMPERATURE LIMITS	- 20 ÷ +60° C	
LIGHT IMMUNITY	> 10.000 Lux <sup>(2)</sup>	
PROTECTION DEGREE	IP 65	
CABLE LENGTH	2 m	
CABLE SECTION	5 x 0.30 mm <sup>2</sup>	
HOUSING MATERIAL	Housing: ABS - Lenses: methacrylate	
WEIGHT - cable output - (connector output)	- 180 g - (125 g)	

<sup>(1)</sup> Determined with CT04S reflector.

<sup>(2)</sup> Determined with halogen tungsten lamp 3000° C.

Note: for a proper use see norms at pages 6, 7 and 8.

### Connection with connector M12 (K)



View of quadripole male connector.

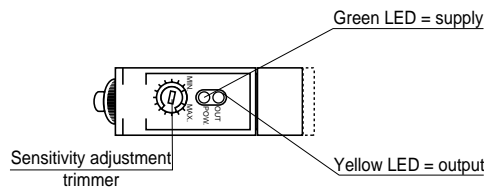
#### CONTACTS CONFIGURATION

Output	Contacts numbers			
	1	2	3	4
Relay	L	COM	N	NO
Emitter	L	-	N	-

**Note:** the K plug is compatible with the following connectors: VAUDEHA, BINDER, HIRSCHMANN, LUMBERG, AMPHENOL-TUCHEL.

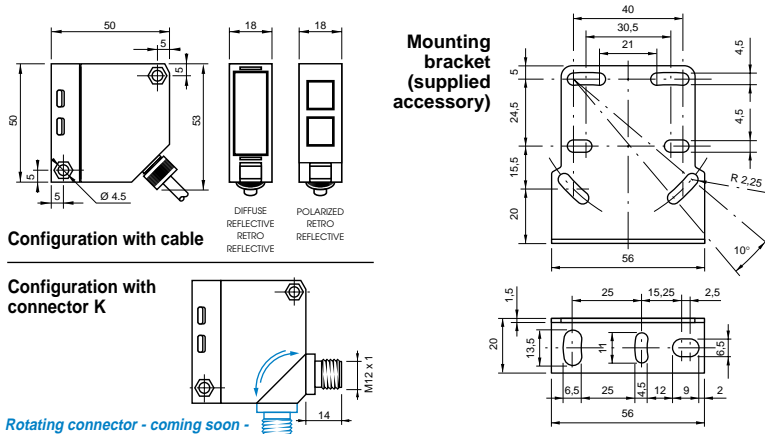
### Sensitivity adjustment

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



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

### Dimensions (mm)



### Characteristic curves

