



# Diffuse Ref. Photoelectric Sensors



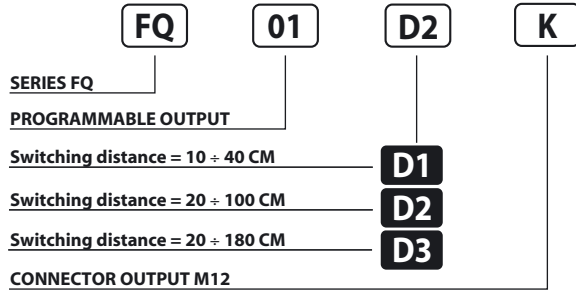
PHOTOELECTRIC SENSORS IN SQUARE HOUSING 12 ÷ 30 V DC PROGRAMMABLE OUTPUT

- Compact size, output and supply indicators
- Cost effective
- Cable or M12 quick connect models
- Fast response time: 5 mS ON/OFF

## FQ Series



### Identification code



AVAILABLE	D1	D2	D3
NOMINAL SWITCHING DISTANCE (Sn)	10 ÷ 40 cm <sup>(1)</sup>	20 ÷ 100 cm <sup>(1)</sup>	20 ÷ 180 cm <sup>(2)</sup>
TOLERANCE	+10/-10 %Sn		
HYSTERESIS	10%		
EMISSION	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	40 mA		
VOLTAGE DROP (Sensor ON)	≤ 1.8 V (I = 100 mA)		
YELLOW LED	Output indicator		
GREEN LED	Supply indicator		
SENSITIVITY ADJUSTEMENT	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	-10 ÷ +60 °C		
LIGHT IMMUNITY	> 10.000 Lux <sup>(3)</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)		

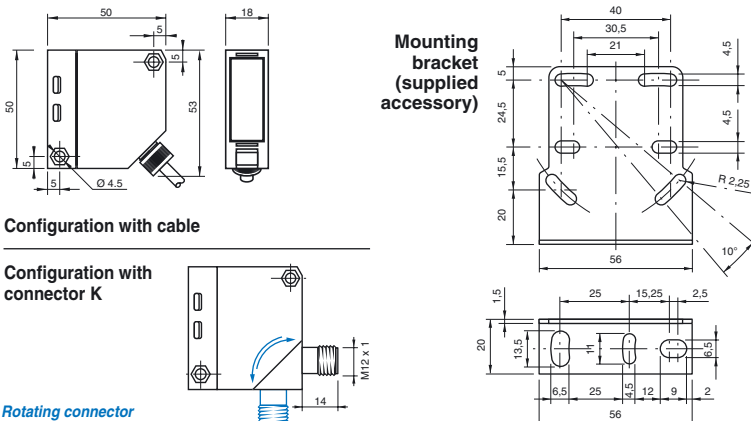
<sup>(1)</sup> Determined with a white mat paper (cm 10 x 10).

<sup>(2)</sup> Determined with a white mat paper (cm 20 x 20).

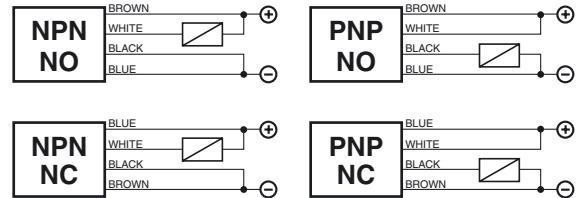
<sup>(3)</sup> Determined with halogen tungsten lamp 3000° K.

Note: for a proper use see norms at pages 12, 13, 14, 15 and 16.

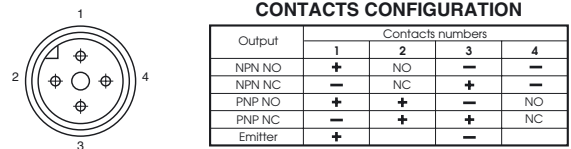
### Dimensions (mm)



### Wiring diagrams



### Connection with connector M12 (K)

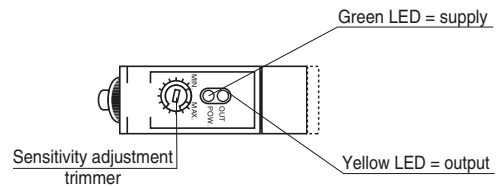


### View of quadripole male connector

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.

### Characteristic curves

