

# Diffuse Ref. Photoelectric Sensors



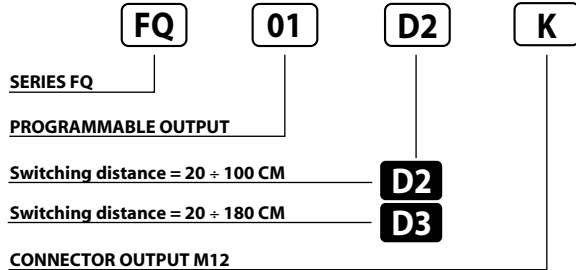
PHOTOELECTRIC SENSORS IN SQUARE HOUSING 12 ÷ 30 V DC PROGRAMMABLE OUTPUT

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

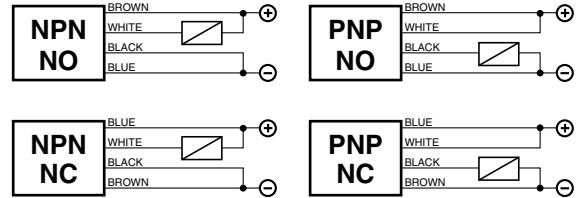
## FQ Series



### Identification code



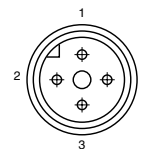
### Wiring diagrams



Note: For series or parallel connections see notes at page 7.

AVAILABLE	D2	D3
SWITCHING DISTANCE	20 ÷ 100 cm <sup>(1)</sup>	20 ÷ 180 cm <sup>(2)</sup>
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 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	-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)	

### Connection with connector M12 (K)



#### CONTACTS CONFIGURATION

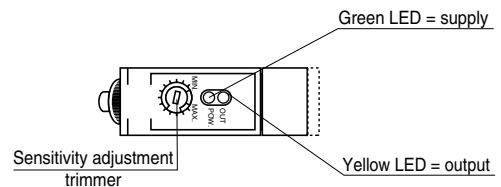
Output	Contacts numbers			
	1	2	3	4
NPN NO	+	NO	-	-
NPN NC	-	NC	+	-
PNP NO	+	+	-	NO
PNP NC	-	+	+	NC
Emitter	+	-	-	-

View of quadripole male connector

Note: 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.

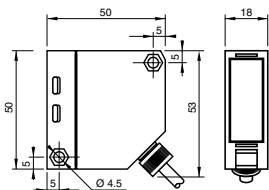
(1) Determined with a white mat paper (cm 10 x 10).

(2) Determined with a white mat paper (cm 20 x 20).

(3) Determined with halogen tungsten lamp 3000° K.

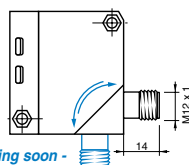
Note: for a proper use see norms at pages 7, 8, 9 and 10.

### Dimensions (mm)



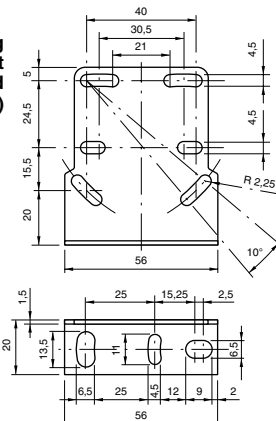
Configuration with cable

Configuration with connector K



Rotating connector - coming soon -

Mounting bracket (supplied accessory)



### Characteristic curves

