

# Optical Bracket Photoelectric Sensors

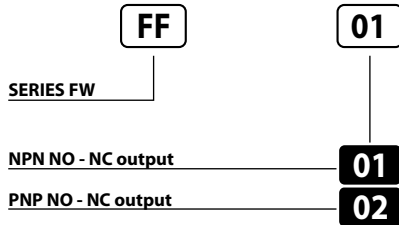
## OPTICAL BRACKETS 12 ÷ 30 V DC NPN OR PNP NO - NC OUTPUT

- 5 mm wide X 29 mm deep slot
- 9-turn sensitivity adjuster
- Operation LED indicator
- 2 m integral cable
- Plastic housing
- Infrared emitter

**FF Series**

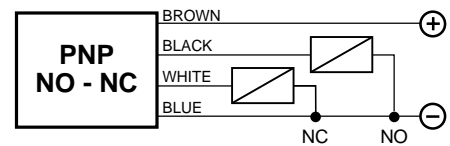
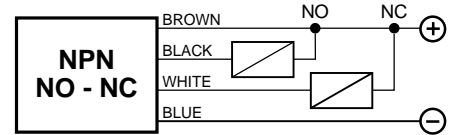


### Identification code

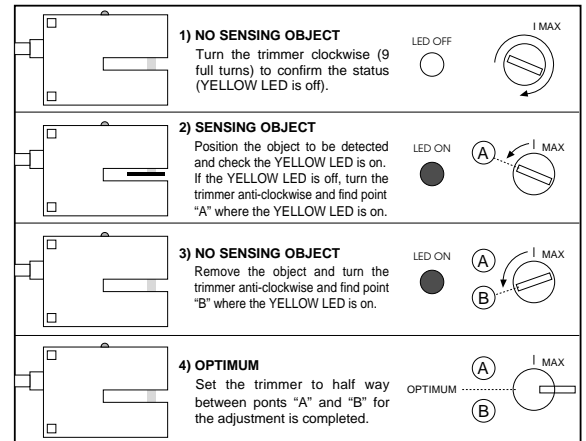


CLEF	5 mm
EMISSION	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 30V DC (-15 /+10%)
RESIDUAL RIPPLE	≤ 10%
MAX. OUTPUT CURRENT	200 mA
ABSORPTION AT 30 V DC	30 mA
VOLTAGE DROP (Sensor ON)	< 1.5 V (I = 100 A)
OPERATION LED	Present
SENSITIVITY ADJUSTMENT	Trimmer 9 turns
SWITCHING FREQUENCY	200 Hz
RESPONSE TIME	5 mS
START UP DELAY	200 mS
SHORT CIRCUIT PROTECTION	Present (self-resetting)
ELECTRIC PROTECTIONS	Against polarity reversal - inductive loads
TEMPERATURE LIMITS	- 10 ÷ +60° C
LIGHT IMMUNITY	2.000 Lux
PROTECTION DEGREE	IP 65
CABLE LENGTH	2 m
CABLE SECTION	4 x 0.25 mm <sup>2</sup>
HOUSING MATERIAL	Housing: nylon loaded with fiberglass - Lenses: methacrylate
WEIGHT (Approximate)	110 g

### Wiring diagrams

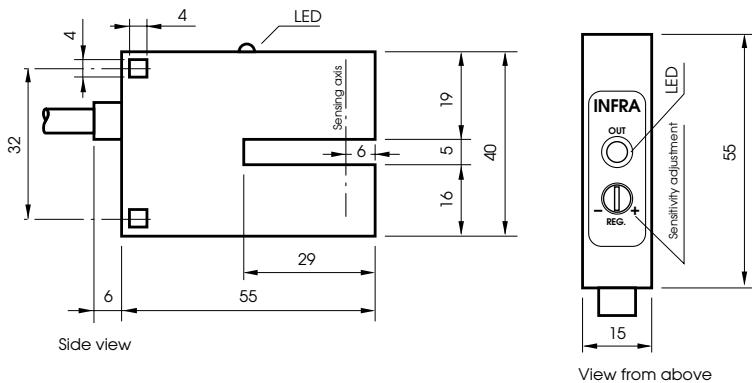


### Adjustment



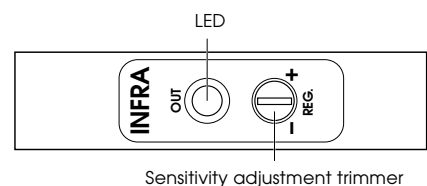
**Note:** for proper use see norms at pages 6, 7 and 8.

### Dimensions (mm)

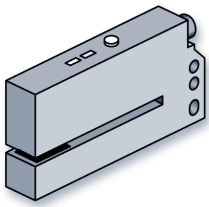


### Sensitivity adjustment

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



**Note:** the trimmer needs 9 turns.



# Optical Bracket Photoelectric Sensors

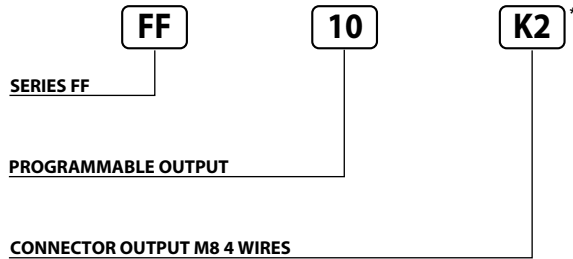
## TEACH-IN OPTICAL BRACKETS 12 ÷ 30 V DC PROGRAMMABLE OUTPUT

- 3 mm gap X 60 mm deep for flexible installation
- Teach-in standard or sensitive calibration automatically sets sensitivity values
- Fast response time: 10 K Hz switching frequency
- Remote Teach-in allows fast target changeover by the host
- Applications include: Translucent material - Double detection - Edge detection

**FF Series**



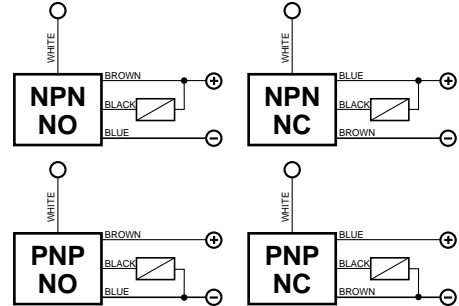
### Identification code



\* Available only with K2 connector output

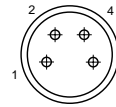
CLEF	3 mm
EMISSION	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 30V DC (-15 / +10%)
RESIDUAL RIPPLE	≤ 10%
OUTPUT	Programmable NPN or PNP
MAX OUTPUT CURRENT	100 mA
ABSORPTION AT 30 V DC	≤ 40 mA
VOLTAGE DROP (Sensor ON)	≤ 2 V (I = 100 mA)
RED LED	Memorization - Standard teach-in
GREEN LED	Object presence/absence - Thin teach-in
SWITCHING FREQUENCY	10.000 Hz
RESPONSE TIME	100 µs
START UP DELAY	≤ 100 ms
SHORT CIRCUIT PROTECTION	Present (self-resetting)
ELECTRIC PROTECTIONS	Against polarity reversal
TEMPERATURE LIMITS	-20 ÷ +60°C
LIGHT IMMUNITY	3.000 Lux
PROTECTION DEGREE	IP 65
CABLE SECTION	M8 4 wires connector
HOUSING MATERIAL	Anodised aluminium
WEIGHT (Approximatev)	85 g

### Wiring diagrams



Note: If the white wire is not used for external teach-in, connect it to ground.

### Wiring diagrams with M8 connector (K)



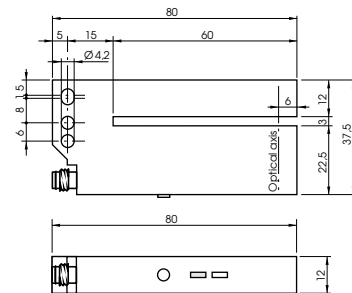
View of quadripole male connector.

#### CONTACTS CONFIGURATION

Output	Contacts numbers			
	1	2	3	4
NPN/PNP NO	—	White	+	Out
NPN/PNP NC	+	White	—	Out

Note: Use only the female connector type K2FDV. If the contact n. 3 (white wire) is not used for external teach-in, connect it to ground.

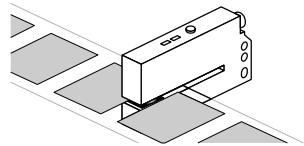
### Dimensions (mm)



### Adjustment

#### STANDARD TEACH-IN (TO DETECT STANDARD TAGS)

##### PHOTOELECTRIC SENSOR POSITION



**WARNING:** The photoelectric sensor teach-in must be executed by placing the photoelectric sensor on the tag traslucid support (no directly on the tag which has to be detected).

- 1) Set the optical bracket on the tag support.
- 2) Push once the button: the red led light will be blinking through 2 seconds.
- 3) Push again the adjustment button and keep it pushed till the definitive switcing of the red led (memorization achieved).

**Warning:** if during the adjustment the red led and the green led are blinking at the same moment, it means that a short-circuit occurs at the output or that the tag support is too opaque.

##### LED DI STATO

RED LED BLINKING THROUGH 2 SECONDS



RED LED ON

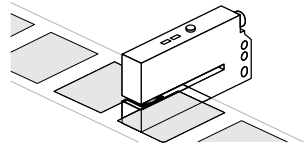


RED AND GREEN LEDS BLINKING



#### THIN TEACH-IN (TO DETECT TRASLUCIDE TAGS)

##### PHOTOELECTRIC SENSOR POSITION



**WARNING:** The photoelectric sensor teach-in must be executed by placing the photoelectric sensor on the tag traslucid support (no directly on the tag which has to be detected).

- 1) Set the optical bracket on the tag support.
- 2) Push twice the button: the green led light will be blinking through 2 seconds.
- 3) Push again the adjustment button and keep it pushed fill the definitive switcing of the red led (memorization achieved).

**Warning:** if during the adjustment the red led and the green led are blinking at the same moment, it means that a short-circuit occurs at the output or that the tag support is too opaque.

##### LED DI STATO

GREEN LED BLINKING THROUGH 2 SECONDS



RED LED ON



RED AND GREEN LEDS BLINKING



The same teach-in mode achieved by pushing the button can be also obtained by connecting the white wire to the positive (external teach-in), following the same steps envisaged for teach-in through the button. For a correct installation see norms at pages 6, 7 and 8.