





# TL<sub>μ</sub> Auto-Set SERIES

## INSTRUCTION MANUAL

### CONTROLS

#### OUTPUT LED

The yellow LED indicates the output status.

#### POWER ON LED

The green LED indicates that the sensor is operating.

### INSTALLATION

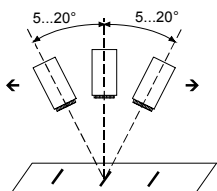
Operating distance is rated starting from the lens front face.

The M12 connector can be rotated in three positions by loosening the locking screw. Tighten the locking screw when finished.

The beam direction may be changed swapping the cap and the lens.

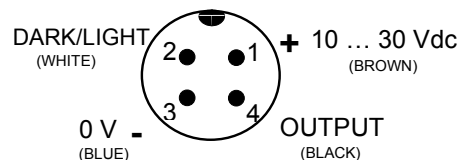


**WARNING:** To detect marks on a reflective surface and/or in presence of very light colours it's needed to adjust the beam direction to 5°...20° from surface axis.



### CONNECTIONS

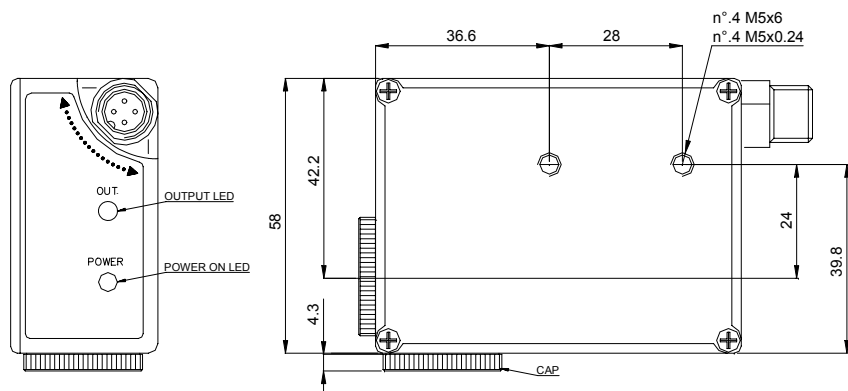
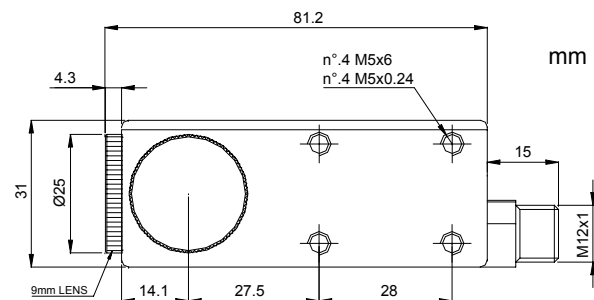
#### M12 CONNECTOR



Pin 2 free or connect to 0V:  
Pin 2 connect to 10...30Vdc:

DARK mode  
LIGHT mode

### DIMENSIONS



### TECHNICAL DATA

Power supply:	10 ... 30 Vdc limit values; reverse polarity protection
Ripple:	2 Vpp max.
Current consumption (output current excluded):	50 mA max.
Output:	NPN (TL <sub>μ</sub> -4xx) o (TL <sub>μ</sub> -5xx) PNP, pull down/up resistance 22 kΩ (short-circuit protection)
Output current:	200 mA max.
Output saturation voltage:	1V max. NPN versions / 2V max PNP versions
Response time:	25 μs max.
Switching frequency:	20 kHz max.
Indicators:	OUTPUT LED (YELLOW) / POWER ON LED (GREEN)
Setting:	dynamic automatic
Operating temperature:	-10 ... 55 °C
Storage temperature:	-20 ... 70 °C
Electric shock protection:	Class 1
Operating distance:	9 mm
Minimum spot dimension:	Ø 3 mm
Depth of field:	± 3 mm
Emission type:	LED with white light (400-700 nm)
Ambient light rejection:	according to EN 60947-5-2
Vibration:	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
DARK/LIGHT selection:	by wire
Housing:	Zama
Protection class:	IP67
Connections:	M12 4-pole connector
Weight:	310 g. max. connector versions

### FUNCTION SELECTION

The *Auto-Set* function automatically adapts the switching threshold according to the mark and background sequence that has to be detected.

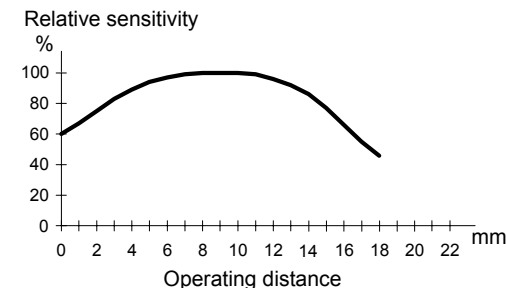
The sensor automatically places the switching threshold at a lower level respect to the signal corresponding to the light reflected from the mark. The difference between the signal corresponding to the mark and the switching threshold represent the hysteresis.

The light/dark operating mode selection for the detection of a mark lighter than its background or viceversa, can be obtained connecting the pin n° 2 of the M12 connector: free or connected to 0Vdc for dark mode, connected to +Vcc for light mode.

The analogue output is not available in the models with automatic *Auto-Set* setting.

A model with PNP output and a model with NPN output are available; the selection of the output type cannot be made, in both cases, using the selectors present on the sensor.

### DETECTION DIAGRAM



#### DECLARATION OF CONFORMITY

We DATASENSOR S.p.A. declare under our sole responsibility that these products are conform to the 89/336 CEE, 73/23 CEE Directives and successive amendments.

#### WARRANTY

DATASENSOR S.p.A. warrants its products to be free from defects. DATASENSOR S.p.A. will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date.

This warranty does not cover damage or liability deriving from the improper application of DATASENSOR products.

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