TFM

*The new **µT.O.F.** market*

FinMasi Group Company
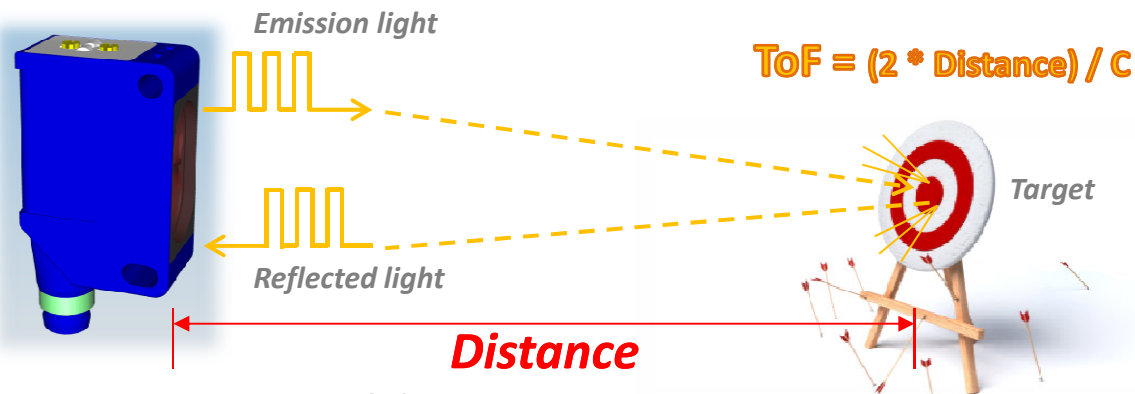
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PRODUCT HIGHLIGHTS

21 x 12,8 x 31,2mm cubic dimension

Infrared LASER emission **25°, no danger** to human eyes

Pushpull logic

Two indipendent outputs programmable in **all the different configurations**

User interface with **2 teach-in trimmer 2 bicolor LED**

PA66 plastic housing

Glass lenses material

Pig-tail M12 connectors

IP67 mechanical protection

No dead zone

CE   **IN PROGRESS**

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Measurement characteristic

Emission light

Reflected light

Distance

ToF = (2 * Distance) / C

Target

Sensing Distance **180mm** @ 90% white   resolution **1mm**
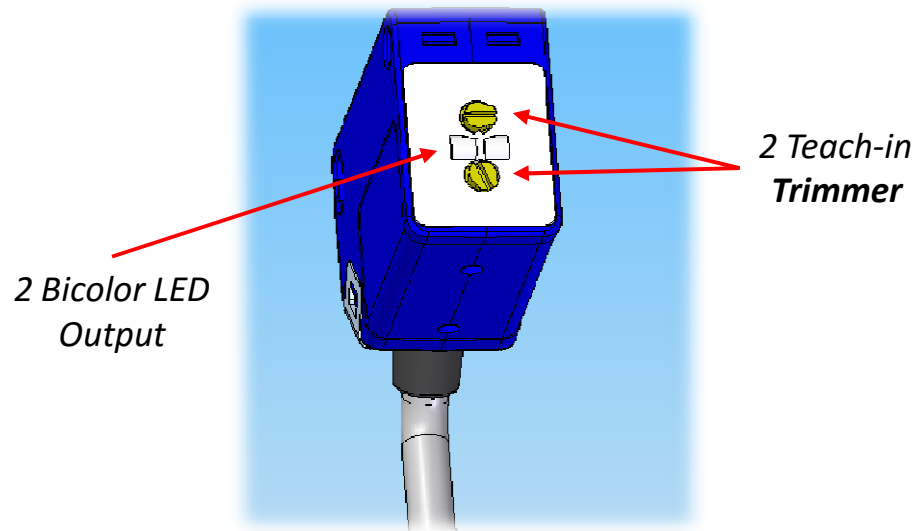
Sensing Distance **600mm** @ 90% white   resolution **3mm**

"The main function is not to check if an object is there or not, but tell me where it is! "
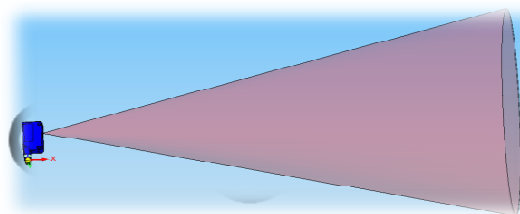
Accuracy: **+/- 10mm**

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User interface

Front end

2 Teach-in
Trimmer

2 Bicolor LED
Output
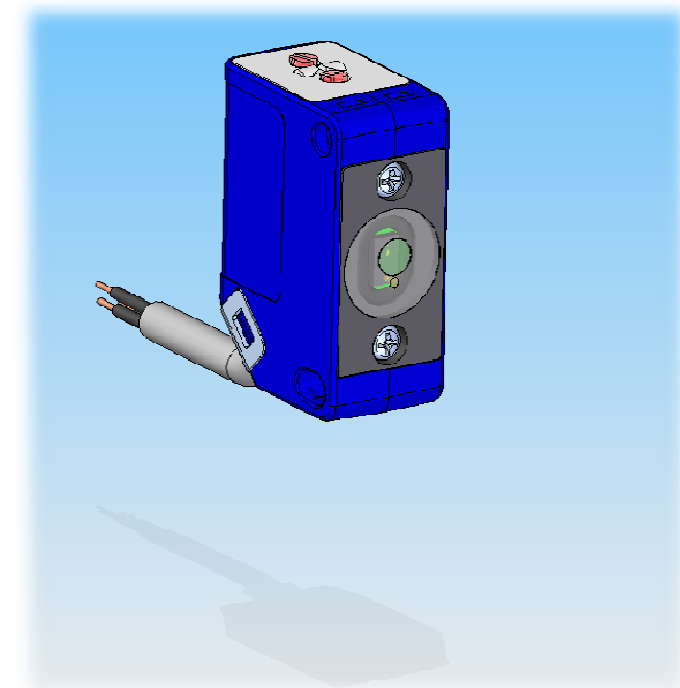
Distance [mm]	Spot Diameter [mm]
50	22,17
100	44,34
150	66,51
200	88,68
250	110,85
300	133,02
400	177,36
500	221,69
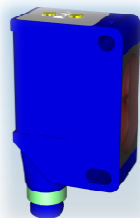
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ALL CONFIGURATIONS

Logic configuration

PNP
PushPull

Switching frequency

10 Hz
80 Hz

Distance configuration

0...180mm
0...600mm
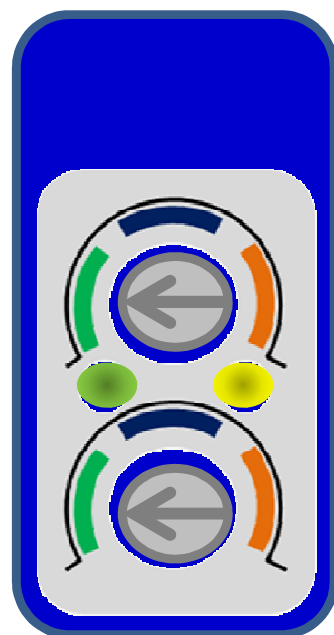
OUT1

OUT2

To be Set

100%

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Distance	Output type	Switching Frequency	Output pigtail M12
0..180mm (default) 0...600mm	Pushpull	10 (default) /80 Hz	**TFMA/0X-0V**
0..180mm (default) 0...600mm	PNP	10 (default) /80 Hz	**TFMA/0P-0V**
0..180mm	Pushpull	10 Hz	**TFM1/1X-0V**
0...600mm	Pushpull	10 Hz	**TFM4/1X-0V**
0..180mm	Pushpull	80 Hz	**TFM1/8X-0V**
0..180mm	PNP	10 Hz	**TFM1/1P-0V**
0...600mm	PNP	10 Hz	**TFM4/1P-0V**
0..180mm	PNP	80 Hz	**TFM1/8P-0V**

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Model	TFM*/**-0*	
Detection range	**LOW RANGE (10Hz):** 0..180 mm (white 90%) 0..180 mm (Gray 18%) 0..180 mm (Black 6%) **HI RANGE (10Hz):** 0..600 mm (white 90%) 0..360 mm (Gray 18%) 0..270 mm (Black 6%)	**LOW RANGE (80Hz):** 0..180 mm (white 90%) 0..140 mm (Gray 18%) 0..110 mm (Black 6%)
Resolution	1mm@ LOW RANGE 3mm@ HIGH RANGE	
Hysteresis	-/+ 4mm@ LOW RANGE@10Hz -/+ 6mm@ HIGH RANGE@10Hz	-/+ 12mm@ LOW RANGE@80Hz -/+ 18mm@ HIGH RANGE@80Hz
Emission	Laser Infrared 850nm (Laser Class1)	
Spot dimension	Divergent (25°) wide angle	
Operating voltage	24Vdc +/- 20%	
Ripple	<10%	
No-load current	< 40 mA	
Output current	50 mA	
Leakage current	≤10 μA (VDC max)	
Output voltage drop	2,0 V max. (Il=50mA)	
Output type	2 outputs selectable: PNP/NPN /Pushpull	
Switching frequency	< 10Hz	
Supply electrical protections	Polarity reversal, transient	
Output electrical protections	Short circuit (auto reset), over voltage pulses	
Temperature range	-10°...+50° C	
Temperature storage	-30°...+70° C	
Umidity	< 80%	
Standard Conformity	**EN60947-5-2**	
Housing material	Plastic (PA66) + ABS	
Optic material	Glass	
Led indicators	Green : RUN (sensor working, target inside the detection distance) Orange 1 : OUTPUT 1 Red: WARNING : target out of operative range Yellow 2 : OUTPUT 2	
Protection degree	IP67	
Weight	100g (pig-tail version)	

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	1		1		0	
	Distance target 1					
	Distance target 2					
	1		0		0	

2 outputs :

where is the object?

Wide angle

Trasparent *object;*
surface with holes;
shinny *surface*

Background
Suppression: *different*
colors **Insensitive***

White 90%
Gray 18%
Black 6%..less

All colors......
from 0mm

Minimum
distance..
at contact

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Irregular *surface;*
Liquids
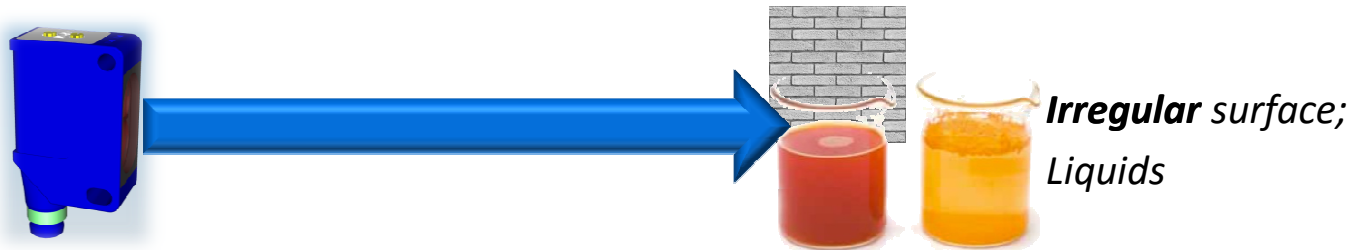
Where the other sensors fail...

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Note for the application

Target to detect

Background required

The presence of a target and/or a background is always recommended
We recommend to use the sensor always in presence of a target and/or background

Transit of reflective objects outer the operating range but in the reading trajectory of the sensor could affect the sensor normal operating functions even impeding the detection of semi-transparent objects

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APPLICATIONS

Application: vials or bottle detection in the material accumulation zone
Need: Detect the presence of materials
How: The sensor is able to detect this target thanks to his resolution (many thin objects), wide beam angle (25°, to detect irregular pattern) and the "background suppression" function.

Application: ice cream machines, …
Need: Detect the level of the row materials
How: The sensor is able to detect this target thanks to the infrared beam and his independence of the color of the target.

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APPLICATIONS

Application: vials detection on the accumulation zone
Need: Detect the presence of vial sideway, before being taken by robot
How: The vials are one behind the other, The sensor is able to detect the vial thanks to his resolution (many thin objects), wide beam angle (25°, to detect irregular pattern) and the "background suppression" function.

Application: chocolate detection on the conveyor
Need: Detect the presence of the chocolate on the conveyor
How: The chocolate (different color: white chocolate to dark chocolate) are on the conveyor, The sensor is able to detect the chocolate thanks to his resolution (many thin objects), wide beam angle and the "background suppression" function.

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High light immunity

Fullfilled resin

Laser spot Emission 25°

Wide range of Mounting Brackets

Double outputs

High resolution until 1mm

Totem pole outputs

Maximum distance 500mm

No dead Zone

Compact housing

IP67 mechanical protection

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cULus Approval

Finmasi Group