



Industrial imaging



# 3D sensors for flexible automation of robot grippers

3D sensors



**Position indication of stationary or moving objects**

**Various shapes can be detected**

**Several object positions can be read simultaneously**

**For industrial robots and lightweight collaborative robots**

**Suitable for hydraulic, pneumatic and electrical grippers**



## Gripper navigation

The 3D sensor detects the object position, even when objects are moving, and transmits it to the robot control, which controls the gripper. The system can detect rectangular, round and irregular shapes and transmit not only the position of their centre of gravity, but also their number and dimensions to the controller.

Typical objects are boxes, cardboard packages, buckets, kegs, cans, bags, wheels or luggage. Automated gripper systems increase the productivity of many applications, as they carry out monotonous manufacturing steps more quickly and evenly than a human.

In addition, monotonous movements with heavy objects are bad for workers' health and lead to frequent absences.

When robots take over heavy physical work, this increases machine uptime and releases human workers for tasks for which they are better suited.



Type of sensor	Material housing	Material front pane / LED window	Protection rating, protection class	Angle of aperture [°]	Max. field of view size [m]	Order no.
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### PMD 3D sensors · Type O3D · M12 connector

PMD 3D ToF chip	aluminium	gorilla glass / polyamide	IP 65, IP67 / III	40 x 30	2.61 x 3.47	<b>O3D300</b>
PMD 3D ToF chip	aluminium	gorilla glass / polyamide	IP 65, IP67 / III	60 x 45	3.75 x 5.00	<b>O3D302</b>
PMD 3D ToF chip	stainless steel	PMMA / polyamide	IP 65, IP 67, IP 69K / III	40 x 30	2.61 x 3.47	<b>O3D310</b>
PMD 3D ToF chip	stainless steel	PMMA / polyamide	IP 65, IP 67, IP 69K / III	60 x 45	3.75 x 5.00	<b>O3D312</b>

#### Technical data gripper systems

Operating distance	[m]	0.2...6
Object types		any
Min. object size	[mm]	20 x 20 x 20 (depending on the operating distance and the object reflectivity)
Typical accuracy object position	[mm]	± 10 (rectangular objects)
Typical accuracy for angle of rotation	[°]	± 1 (rectangular objects)
Object speed	[m/s]	< 0.2
Sampling rate / switching frequency [Hz]		2 (for one object to be measured)
Maximum number of objects		20

#### Further technical data

Operating voltage	[V DC]	20.4...28.8
Current consumption	[mA]	< 2400 peak current pulsed; typ. mean value 420
Current rating (per switching output)	[mA]	100
Short-circuit protection, pulsed		•
Overload protection		•
Ambient temperature	[°C]	-10...50
Real chip resolution		25,000 / 100,000
Resulting resolution		176 x 132 pixels
Function display	LED	2 x yellow, 2 x green
Illumination		850 nm, infrared
Immunity to extraneous light	[klx]	8 (up to 100 klx possible with reduced measuring accuracy and repeatability)
Trigger		external; 24 V PNP/NPN according to IEC 61131-2 type 3
Switching inputs		2 (configurable), 24 V PNP/NPN according to IEC 61131-2 type 3
Switching outputs digital		3 (configurable), 24 V PNP/NPN, according to IEC 61131-2
Switching outputs analogue		1 (can be configured as current output 4...20 mA or voltage output 0...10 V)
Parameter setting interface Ethernet		10 Base-T / 100 Base-TX
Parameter setting options		via PC / notebook
Dimensions (H, W, D)	[mm]	72 x 67.1 x 95

#### Accessories

Design	Description	Order no.
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#### Mounting accessories

	Mounting set for O3D	<b>E3D301</b>
	Cooling element	<b>E3D302</b>
	Double cooling element	<b>E3D304</b>
	Heat conductor	<b>E3D303</b>

#### Connection technology

	Ethernet, cross-over patch cable, 2 m, PVC cable, M12 / RJ45	<b>E11898</b>
	Ethernet, jumper cable, 2 m, PVC cable, M12 / M12	<b>E21138</b>
	Socket, M12, 2 m black, PUR cable, 8-pole	<b>E11950</b>

We reserve the right to make technical alterations without prior notice. · 04/2018

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For further technical details please visit: [ifm.com](http://ifm.com)