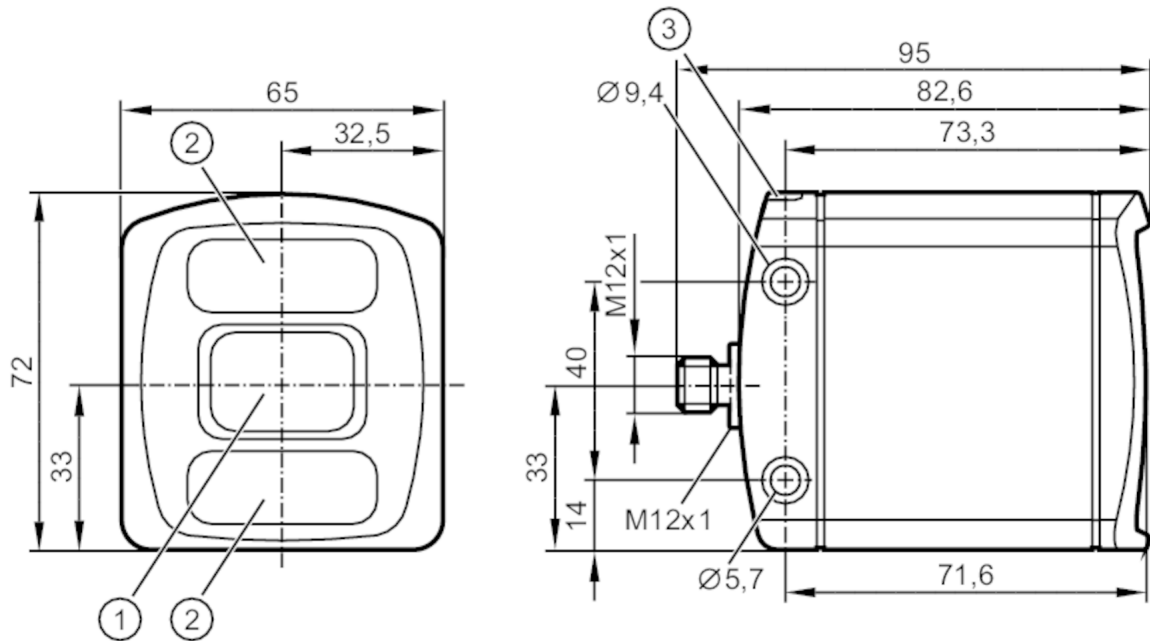


# O3D302



## 3D sensor

O3DIRDKG/E1/GM/SI/60



- 1 lens
- 2 illumination unit
- 3 LED 2-colour yellow/green



### Product characteristics

Type of light	infrared light
Image resolution 3D [px]	176 x 132
Angle of aperture 3D [°]	60 x 45; (nominal value without lens distortion correction)
Max. reading rate [Hz]	25
Housing	rectangular

### Application

Application	dimensioning of the object; completeness monitoring; Level monitoring; distance monitoring; volume monitoring; robot gripper navigation; depalletizing
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### Electrical data

Operating voltage tolerance [%]	-15...20
Operating voltage [V]	24 DC; (EN 61131-2)
Current consumption [mA]	350; (typical)
Max. current consumption [mA]	830; (mean value at 24 VDC ; with switched outputs ; <1600 peak current pulsed)
Protection class	III
Overvoltage category	II
Type of light	infrared light
Image sensor	PMD 3D ToF-Chip
Internal lighting	yes; (infrared: 850 nm)

### Inputs / outputs

Number of inputs and outputs	Number of digital inputs: 3; Number of digital outputs: 3; Number of analogue outputs: 1
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## 3D sensor

O3DIRDKG/E1/GM/S/60

Inputs	
Trigger	24 V PNP/NPN (IEC 61131-2 Typ 3)
Number of digital inputs	3; (including trigger input)
Input circuit of digital inputs	24 V PNP/NPN; (configurable; IEC 61131-2 Typ 3)
Outputs	
Total number of outputs	3
Electrical design	24 V PNP/NPN; (EN 61131-2)
Number of digital outputs	3; (configurable)
Max. voltage drop switching output DC [V]	1
Max. current load per output [mA]	100
Number of analogue outputs	1; (configurable)
Analogue current output [mA]	4...20
Max. load [Ω]	500
Analogue voltage output [V]	0...10
Min. load resistance [Ω]	10000
Min. load [Ω]	230
Precision analogue output [%]	1
Short-circuit protection	yes
Type of short-circuit protection	pulsed
Overload protection	yes
Resolution of analogue output	12 bit
Detection zone	
Operating distance [mm]	300...8000
Note on operating distance	object size: 200 x 200 mm reflectivity: 18 %
Image resolution 3D [px]	176 x 132
Angle of aperture 3D [°]	60 x 45; (nominal value without lens distortion correction)
Max. reading rate [Hz]	25
Measuring/setting range	
Measuring range [m]	< 30
Software / programming	
Parameter setting options	via PC with ifm Vision Assistant
Interfaces	
Communication interface	Ethernet
Ethernet	
Number of Ethernet interfaces	1
Transmission standard	10Base-T; 100Base-TX
Transmission rate	10 MBit/s; 100 MBit/s
Protocol	TCP/IP; EtherNet/IP; PROFINET

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Factory settings	IP address: 192.168.0.69
	subnet mask: 255.255.255.0
	gateway IP address: 192.168.0.201

Ethernet - EtherNet/IP	
Usage type	data transmission

Ethernet - PROFINET	
Usage type	data transmission

Ethernet - TCP/IP	
Usage type	parameter setting; data transmission

<b>Operating conditions</b>		
Ambient temperature	[°C]	-10...50
Storage temperature	[°C]	-40...85
Max. relative air humidity	[%]	90; (non condensing)
Max. height above sea level	[m]	4000
Protection		IP 65; IP 67
Pollution degree		3
Max. immunity to extraneous light	[klx]	8; (with reduced measuring accuracy and repeatability: < 100)

<b>Tests / approvals</b>		
EMC	DIN EN IEC 61000-6-4	radiation of interference / industrial environments
	DIN EN IEC 61000-6-2	immunity / industrial environments
Shock resistance	DIN EN 60068-2-27	50 g / (11 ms) not repetitive
	DIN EN 60068-2-27	40 g / (6 ms) repetitive
Vibration resistance	DIN EN 60068-2-6	2 g / (10...150 Hz)
	DIN EN 60068-2-64	2.3 g RMS / (10...500 Hz)
Laser protection class		1
Notes on laser protection		Caution invisible laser radiation
		EN 60825-1:2014 +A11:2021
		IEC 60825-1:2014
		Complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3, as described in Laser Notice No. 56, dated May 8, 2019.
Electrical safety	DIN EN IEC 61010-2-201	electrical supply only via PELV circuits
MTTF	[years]	43.08

<b>Mechanical data</b>		
Weight	[g]	772.35
Housing		rectangular
Dimensions	[mm]	72 x 65 x 82.6
Materials		housing: diecast aluminium; front pane: gorilla glass; function display: PA
Tightening torque	[Nm]	< 0.8

<b>Displays / operating elements</b>		
Display	function	2 x LED, green Ethernet operation
	switching status	2 x LED, yellow OUT 1 OUT 2

<b>Accessories</b>		
Items supplied		Protective covers
		spring washers

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## 3D sensor

O3DIRDKG/E1/GM/S/60

Remarks	
Remarks	Repeatability and accuracy depend on the image settings and the environmental conditions. The data sheet values apply to typical settings and conditions.
Pack quantity	1 pcs.

### Electrical connection - Ethernet

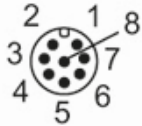
Connector: 1 x M12; coding: D



1	TD +
2	RD +
3	TD -
4	RD -

### Electrical connection - Process connection

Connector: 1 x M12; coding: A



1	U+
2	trigger input
3	GND
4	switching output 1 ( digital or analogue )
5	switching output 3 Ready
6	switching output 2 ( digital )
7	switching input 1
8	switching input 2

### Other data

#### field of view size with lens distortion correction

measuring range / distance [m]	Length [m]	Width [m]
0.50	0.37	0.50
1.00	0.75	1.00
2.00	1.50	2.00
3.00	2.25	3.00
4.00	3.00	4.00
5.00	3.75	5.00



## 3D sensor

O3DIRDKG/E1/GM/S/60

### Accuracy of dimensioning of the object

measuring range / distance [m]	accuracy object size (Length, Width, Height) [mm]	accuracy object position (X, Y, Z coordinates) [mm]	accuracy angle of rotation [°]
typical value	typical value	typical value	typical value
1.0...3.0	± 10	± 5	± 1

typical values at an ambient temperature of 20 °

Operating distance:	0.3 ... 5 m
Image repetition frequency:	1 Hz
information applies for:	
rectangular objects	
reflectivity:	6...90 % for non-glossy objects
minimum object size:	100x100x100 mm
object in centre of the image	
object speed:	< 0.2 m/s

### completeness monitoring

	object speed < 0.2 m/s [mm]	object speed > 0.2 m/s [mm]
typical value:		
minimum height	25	45
Image repetition frequency [Hz]	5	
Operating distance [m]	0.3...5	
max. packaging size (orthogonal packaging arrangement)		maximum number of objects 64
The image repetition frequency is reduced by using the position tracking function		

### level and distance monitoring

measuring range / distance [m]	repeatability of the measured distance values on grey objects (18% reflectivity) [mm]	repeatability of ROI of 50x50 pixels on grey objects [mm]	accuracy (reflectivity 6-90%) [mm]
	typical value	typical value	typical value
0.3...1.0	8	0.3	± 7
1.0...3.0	12	0.4	± 7
3.0...5.0	20	0.7	± 10
5.0...7.0	30	1.0	± 15
7.0...8.0	50	1.7	± 20

measured in the centre of the image at an ambient temperature of 20°C

Repeatability	1 $\sigma$
The repeatability can be optimised with filter functions	
Temperature drift -10...+50 °C	0.2 mm/K

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### robot gripper navigation and depalletizing

	robot gripper navigation	depalletizing
Operating distance [m]	0.2...6	0.5...6
object types	any object shape	closed rectangular objects
minimum object size [mm]	20 x 20 x 20	50 x 50 x 50 at minimum operating distance
accuracy object position [mm]		
typical value:	± 10 rectangular objects	± 15
accuracy angle of rotation [°]		
typical value:	± 1 rectangular objects	± 3
object speed [m/s]	< 0.2	
Image repetition frequency [Hz]	2 for one object to be measured	1
maximum number of objects	20	
typical values at an ambient temperature of 20 °		