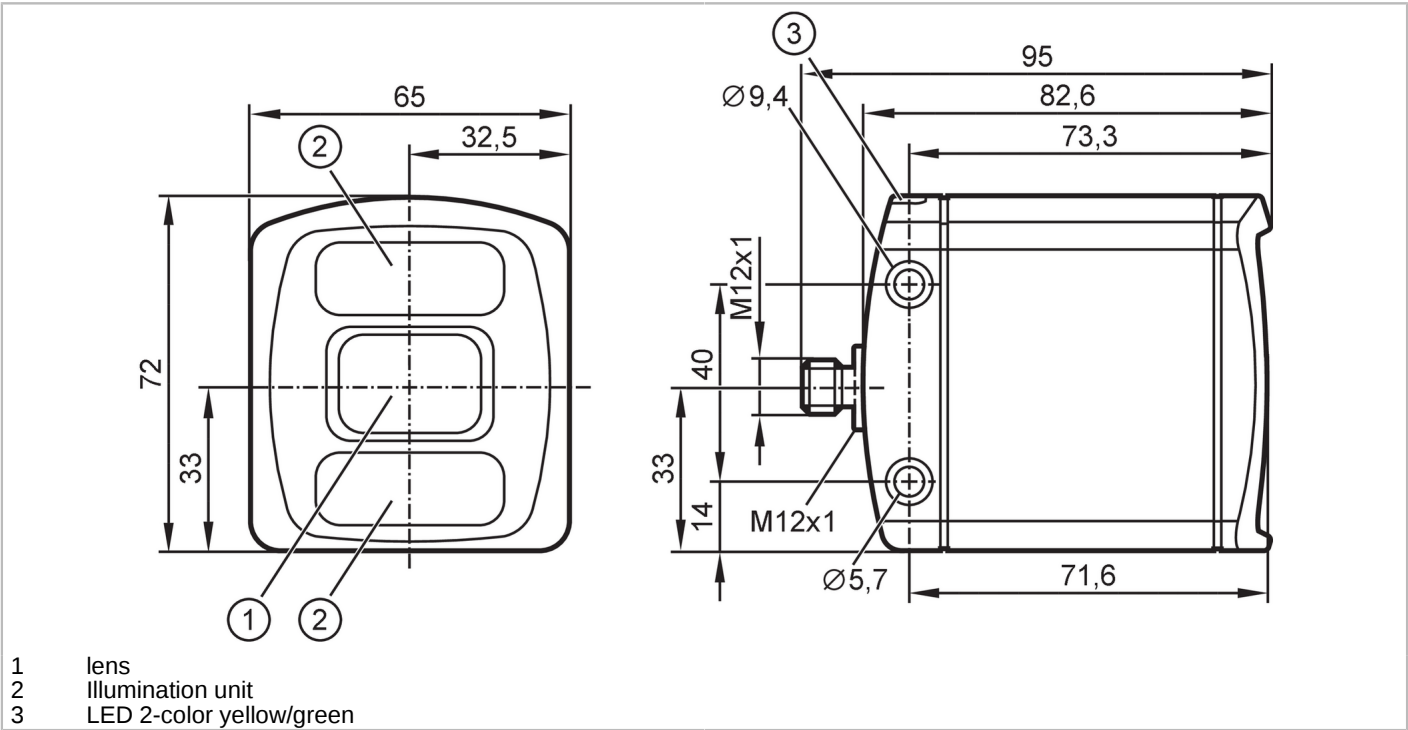


O3D302



3D sensor

O3DIRDKG/E1/GM/S/60



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
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
Integrated lighting		yes; (infrared: 850 nm)
Inputs / outputs		
Number of inputs and outputs		Number of digital inputs: 3; Number of digital outputs: 3; Number of analog outputs: 1
Inputs		
Trigger		24 V PNP/NPN (IEC 61131-2 Typ 3)



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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 analog outputs	1; (configurable)
Analog current output [mA]	4...20
Max. load [Ω]	500
Analog voltage output [V]	0...10
Min. load resistance [Ω]	10000
Min. load [Ω]	230
Resolution of analog output	12 bit
Precision analog output [%]	1
Short-circuit protection	yes
Type of short-circuit protection	yes (non-latching)
Overload protection	yes
Monitoring range	
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
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

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Ethernet - PROFINET		
Usage type	Data transmission	
Ethernet - TCP/IP		
Usage type	Parameter setting; Data transmission	
Operating conditions		
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)
Tests / approvals		
EMC	DIN EN IEC 61000-6-4	radiation of interference / industrial environments
	DIN EN IEC 61000-6-2	noise 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
Mechanical data		
Weight	[g]	772.35
Housing	rectangular	
Dimensions	[mm]	72 x 65 x 82.6
Material	housing: diecast aluminium; front lens: gorilla glass; Function display: PA	
Tightening torque	[Nm]	< 0.8
Displays / operating elements		
Display	Function	2 x LED, green Ethernet Power
	Switching status	2 x LED, yellow OUT 1 OUT 2
Accessories		
Items supplied	Protective covers	
	spring washers	
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.	

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3D sensor

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Electrical connection - Ethernet

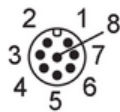
Connector: 1 x M12; coding: D; Contacts: 4



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

Electrical connection - Process connection

Connector: 1 x M12; coding: A; Contacts: 8



1	U+
2	trigger input
3	GND
4	Switching output 1 (digital or analog)
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**

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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 center of the image at an ambient temperature of 20°C

Repeatability 1 σ

The repeatability can be optimized 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 °		