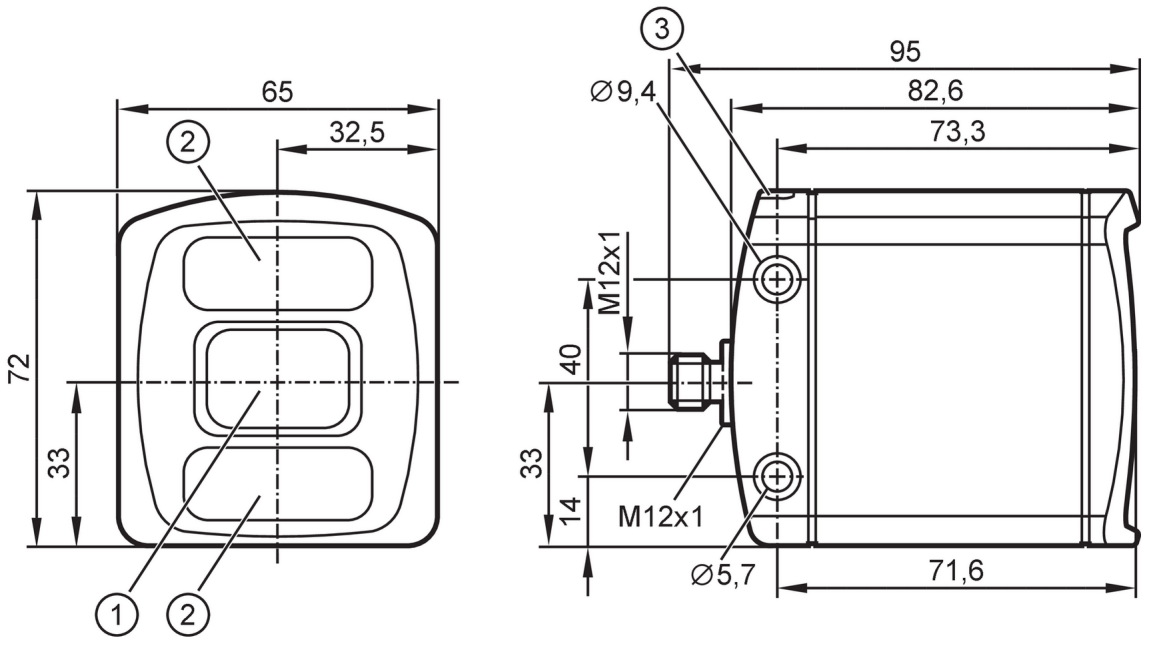
O3D302

3D sensor

O3DIRDKG/E1/GM/S/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
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
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 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
Resolution of analogue output		12 bit
Precision analogue output	[%]	1
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Overload protection		yes
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
Factory settings		IP address: 192.168.0.69 subnet mask: 255.255.255.0 gateway IP address: 192.168.0.201

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Ethernet - EtherNet/IP			
Usage type		data transmission	
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	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	
Materials		housing: diecast aluminium; front pane: gorilla glass; function display: PA	
Tightening torque	[Nm]	< 0.8	
Displays / operating elements			
Display		function	2 x LED, green Ethernet operation
		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.	

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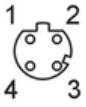
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Pack quantity	1 pcs.

Electrical connection - Ethernet

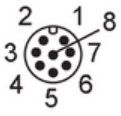
Connector: 1 x M12; coding: D; Contacts: 4



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 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

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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 centre of the image at an ambient temperature of 20°C	
Repeatability	1 σ
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 °		