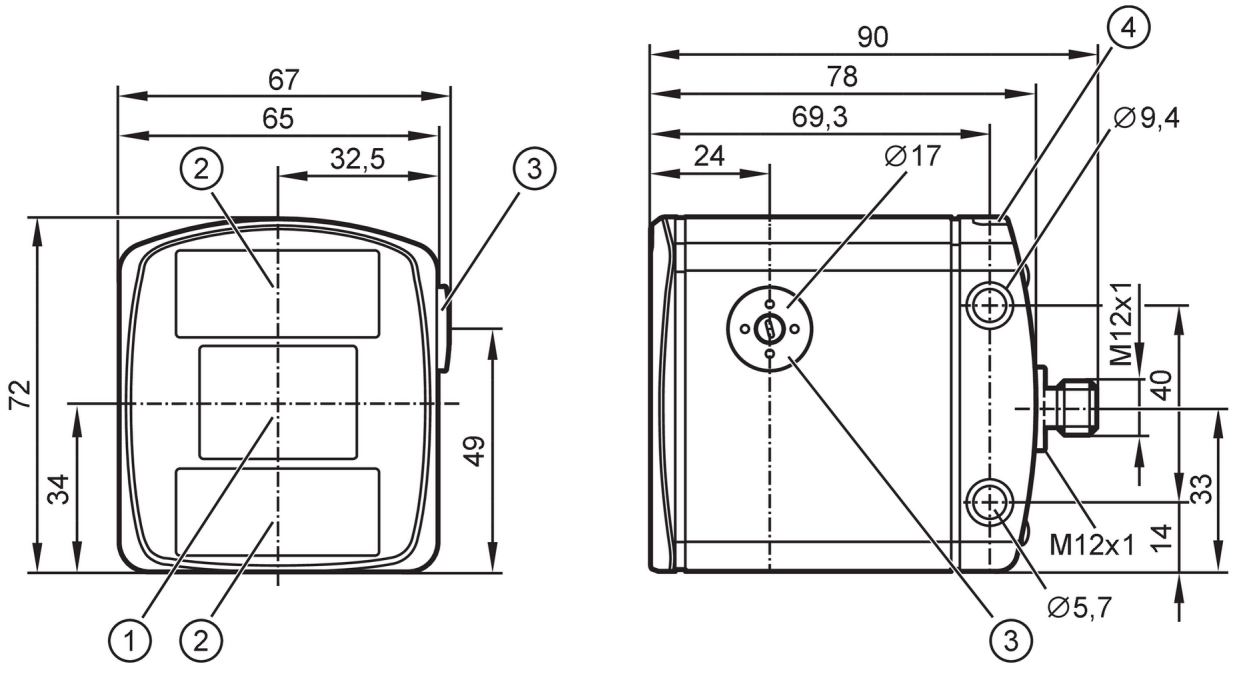
O3D311

ToF camera

O3DIRDKG/E1/GM/T/40



1 lens
2 Illumination unit
3 focus adjustment screw
4 LED 2-colour yellow/green

Product characteristics		
Type of light		infrared light
Image resolution 3D	[px]	352 x 264
Angle of aperture 3D	[°]	40 x 30; (nominal value without lens distortion correction)
Image repetition frequency 3D	[Hz]	25
Housing		rectangular
Application		
Application		Camera for the output of 3D image data
Electrical data		
Operating voltage	[V]	20.4...28.8 DC; (EN 61131-2)
Current consumption	[mA]	420; (maximum mean value: < 1600 mA)
Max. current consumption	[mA]	2400; (peak current pulsed)
Power consumption	[W]	10; (typical value)
Protection class		III
Overvoltage category		II
Type of light		infrared light
Image sensor		PMD 3D ToF-Chip
Internal lighting		infrared: 850 nm invisible radiation LED
Inputs / outputs		
Number of inputs and outputs		Number of digital inputs: 1; Number of digital outputs: 2

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Inputs		
Trigger		external; 24 V PNP/NPN (IEC 61131-2 Typ 3)
Number of digital inputs		1
Outputs		
Number of digital outputs		2; (configurable)
Output function		24 V PNP/NPN; (EN 61131-2)
Max. voltage drop switching output DC	[V]	1
Max. current load per output	[mA]	100
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]	352 x 264
Angle of aperture 3D	[°]	40 x 30; (nominal value without lens distortion correction)
Image repetition frequency 3D	[Hz]	25
Software / programming		
Parameter setting options		via PC with ifm Vision Assistant or XML-RPC; software API for C, C++ and Halcon
Interfaces		
Communication interface		Ethernet
Ethernet		
Transmission standard		10Base-T; 100Base-TX
Transmission rate		10; 100
Protocol		TCP/IP
Factory settings		IP address: 192.168.0.69
		subnet mask: 255.255.255.0
		gateway IP address: 192.168.0.201
Usage type		parameter setting; data transmission
Operating conditions		
Ambient temperature	[°C]	-10...50
Storage temperature	[°C]	-40...85
Protection		IP 65; IP 67; IP 69K
Max. immunity to extraneous light	[klx]	8; (with reduced measuring accuracy and repeatability: < 100)

Tests / approvals		
EMC	DIN EN 61000-6-4	radiation of interference / industrial environments
	DIN EN 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

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Vibration resistance		DIN EN 60068-2-6	2 g / (10...150 Hz)
		DIN EN 60068-2-64	2.3 g RMS / (10...500 Hz)
Photobiological safety		exempt group; (DIN EN 62471)	
Electrical safety		DIN EN 61010-2-201	electrical supply only via PELV circuits
MTTF	[years]	45	

Mechanical data

Weight	[g]	1139.2
Housing		rectangular
Dimensions	[mm]	72 x 67 x 90
Materials		housing: stainless steel (316L/1.4404); front pane: PMMA; 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

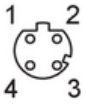
Items supplied	Protective covers

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

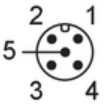
Connector: 1 x M12; coding: D; Contacts: 4



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

Electrical connection - Process connection

Connector: 1 x M12; coding: A; Contacts: 5



1	U+
2	trigger input
3	GND
4	switching output 1 Ready
5	switching output 2 cascading

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Other data

Field of view size

	without lens distortion correction		with lens distortion correction	
measuring range / distance [m]	Length [m]	Width [m]	Length [m]	Width [m]
0.50	0.27	0.36	0.26	0.35
1.00	0.53	0.73	0.52	0.69
2.00	1.07	1.46	1.04	1.39
3.00	1.60	2.19	1.56	2.08
4.00	2.13	2.92	2.08	2.78
5.00	2.67	3.65	2.61	3.47

repeatability of the distance measurement of an individual pixel

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

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

The repeatability can be optimised with filter functions

Repeatability	1 σ

Relative accuracy

Relative accuracy	± 4 mm
Temperature drift -10...+50 °C	0.2 mm/K

measured at a reflectivity of 18% to 90%

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Parameter setting options

Parameter	Setting range	Factory setting
Exposure time [ms]	0.002...10	5
dynamic range	low; normal operation ; high	normal operation
filter	Time function:	
	mean value; adaptive exponential	deactivated
	3D function:	
	mean value, median, bilateral function	deactivated
trigger	continuous; data interface; positive edge; negative edge;positive and negative edge	continuous
Image repetition frequency [Hz]	0.02...25	5

data format

data type	data value	Remarks
distance [mm]	0...65535 uint16	radial distance
Cartesian coordinates x,y,z [mm]	-32767...32767 int16	x,y: lateral position z: vertical distance
amplitude	0...65535 uint16	object brightness