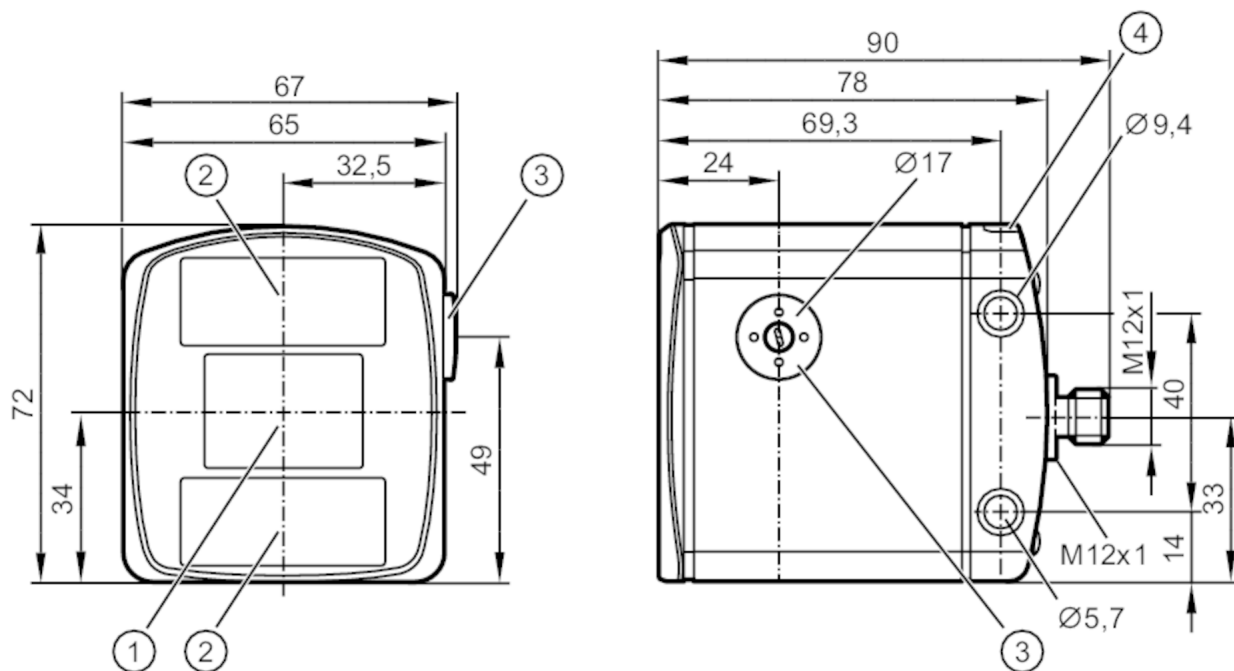


O3D311



3D 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

Application

Application	Camera for the output of 3D image data
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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
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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3D camera

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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 protection	DIN EN 61010-2-201	electrical supply only via PELV circuits
MTTF [years]	45.02	

Mechanical data

Weight [g]	1139.2
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
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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

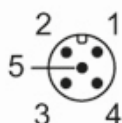
Connector: 1 x M12; coding: D



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 Ready
5	switching output 2 cascading



3D camera

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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 1σ

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