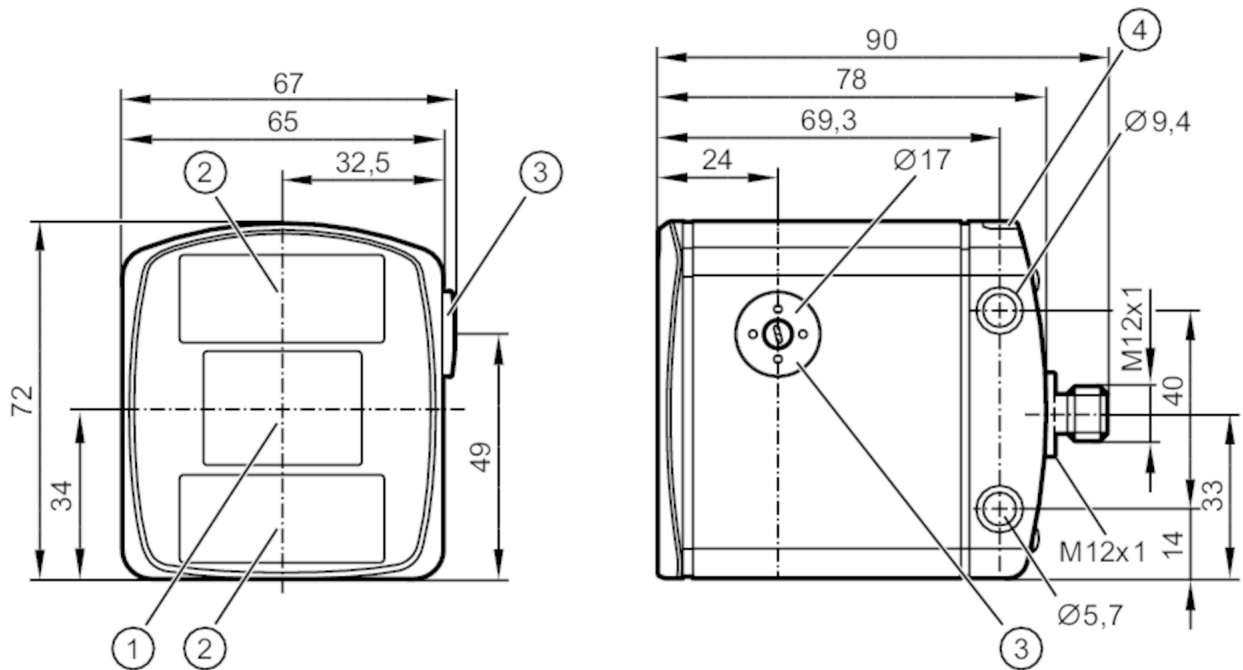


O3D311



3D camera

O3DIRDKG/E1/GM/T/40



- 1 lens
- 2 Illumination unit
- 3 Focus adjustment screw
- 4 LED 2-color 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
Integrated 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

O3DIRDKG/E1/GM/T/40

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	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]	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)

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Tests / approvals		
EMC	DIN EN 61000-6-4	radiation of interference / industrial environments
	DIN EN 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)
Photobiological safety	exempt group; (DIN EN 62471)	
Electrical safety	DIN EN 61010-2-201	electrical supply only via PELV circuits
MTTF [years]	45.02	

Mechanical data		
Weight [g]	1185	
Dimensions [mm]	72 x 67 x 90	
Material	housing: stainless steel (1.4404 / 316L); front lens: PMMA; 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

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

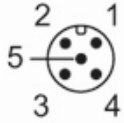
Connector: 1 x M12; coding: A

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1	U+
2	trigger input
3	GND
4	Switching output 1 Ready
5	Switching output 2 Cascading

Other data

Field of view size

Measuring range / distance [m]	without lens distortion correction		with lens distortion correction	
	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 center of the image at an ambient temperature of 20°C

The repeatability can be optimized with filter functions

Repeatability 1σ

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3D camera

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Relative accuracy

Relative accuracy	± 4 mm
Temperature drift -10...+50 °C	0.2 mm/K
measured at a reflectivity of 18% to 90%	

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	disabled
	3D function:	
	mean value, median, bilateral function	disabled
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