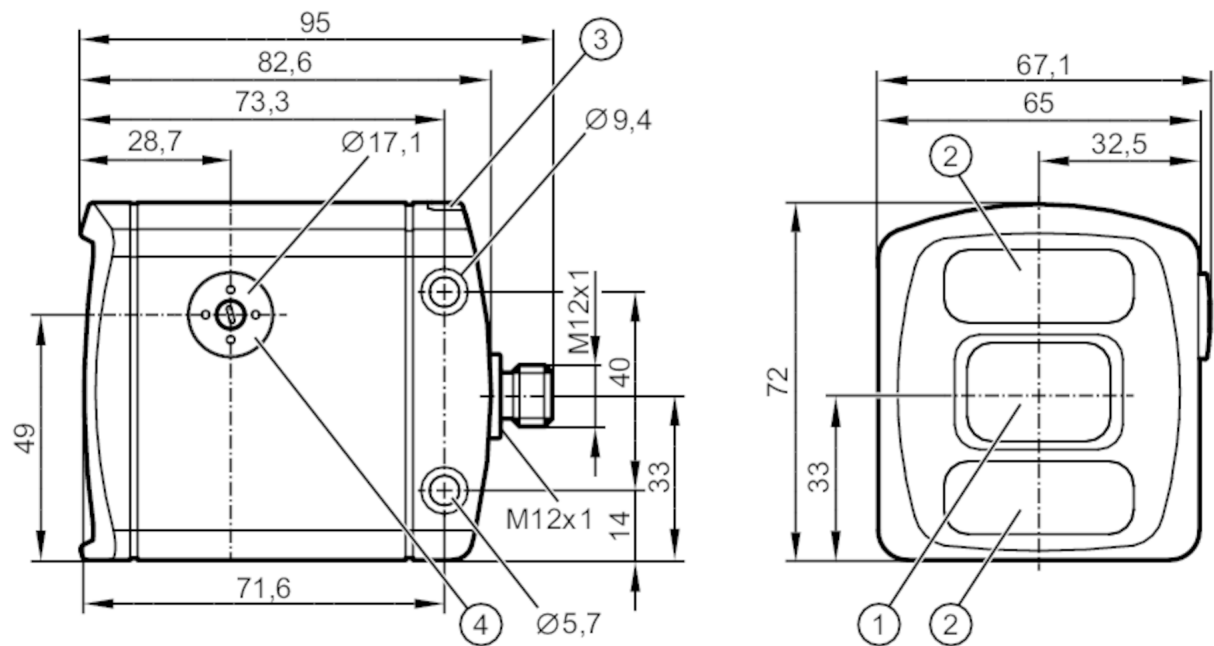


O3D301



ToF camera

O3DIRDKG/E1/GM/T/40



- 1 lens
- 2 illumination unit
- 3 LED 2-color yellow/green
- 4 Focus adjustment screw



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)
Max. reading rate [Hz]	25
Housing	rectangular

Application

Application	Camera for the output of 3D image data
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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: 1; Number of digital outputs: 2
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Inputs		
Trigger		24 V PNP/NPN (IEC 61131-2 Typ 3)
Number of digital inputs		1; (including trigger input)
Input circuit of digital inputs		24 V PNP/NPN; (configurable; IEC 61131-2 Typ 3)
Outputs		
Total number of outputs		2
Electrical design		24 V PNP/NPN; (EN 61131-2)
Number of digital outputs		2; (configurable)
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)
Max. reading rate	[Hz]	25
Measuring/setting range		
Measuring range	[m]	< 30
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		
Number of Ethernet interfaces		1
Transmission standard		10Base-T; 100Base-TX
Transmission rate		10 MBit/s; 100 MBit/s
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
Max. relative air humidity	[%]	90; (non condensing)
Max. height above sea level	[m]	4000
Protection		IP 65; IP 67

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Degree of soiling	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]	45.02	

Mechanical data

Weight [g]	785
Housing	rectangular
Dimensions [mm]	72 x 67.1 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.

O3D301



ToF camera

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Electrical connection - Ethernet

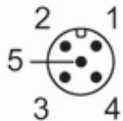
Connector: 1 x M12; coding: D



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

Electrical connection - Process connection

Connector: 1 x M12; coding: A



1	L+	
2	IN	DI (trigger input)
3	L-	
4	OUT1	DO1 (Ready)
5	OUT2	DO2 (Cascading)

DI: digital input; DO: digital output

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

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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

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