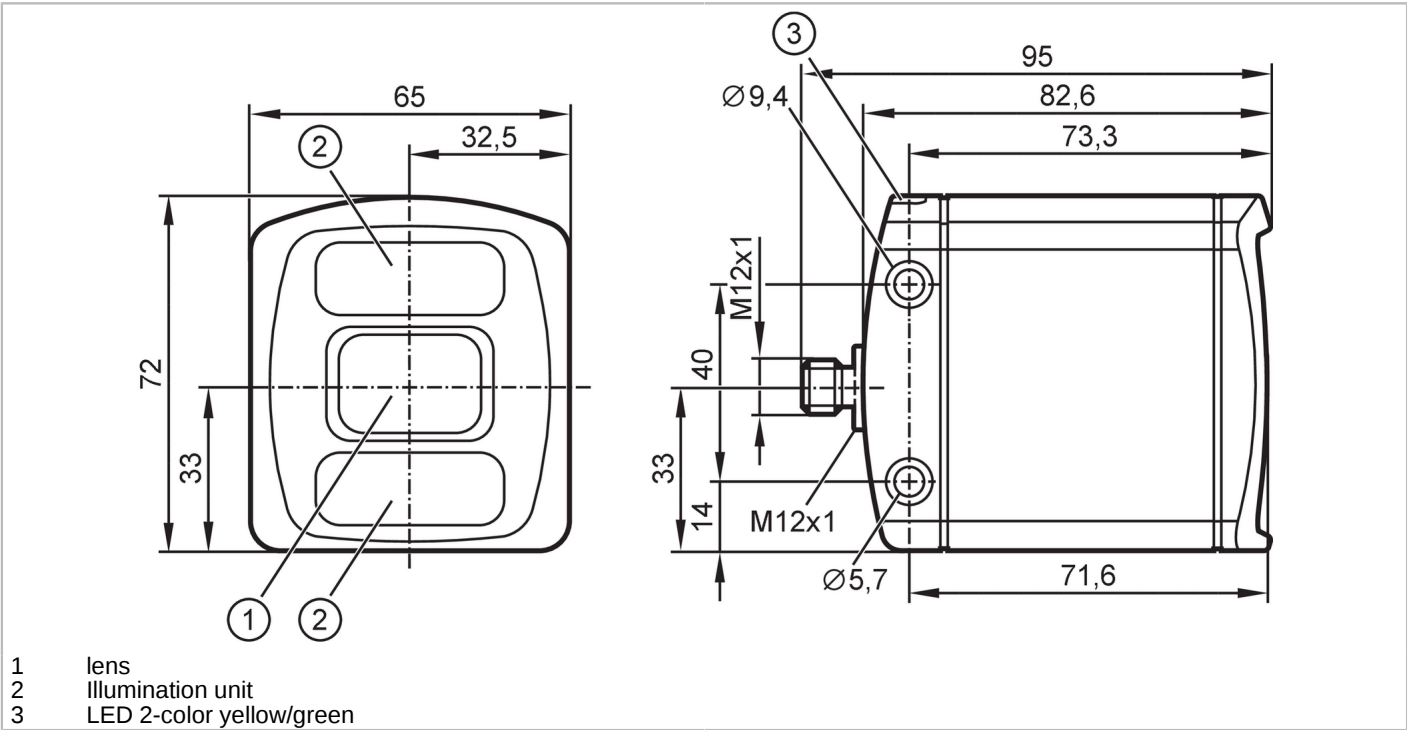


O3D305



ToF camera

O3DIRDKG/E1/GM/W/70



Product characteristics		
Type of light		Infrared light
Image resolution 3D	[px]	352 x 264
Angle of aperture 3D	[°]	70 x 51; (nominal value without lens distortion correction)
Max. reading rate	[Hz]	25
Housing		rectangular
Application		
Application		Camera for the output of 3D image data
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
Inputs		
Trigger		24 V PNP/NPN (IEC 61131-2 Typ 3)
Number of digital inputs		1; (including trigger input)



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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 [°]	70 x 51; (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
Pollution degree	3
Max. immunity to extraneous light [klx]	8; (with reduced measuring accuracy and repeatability: < 100)

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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
Mechanical data		
Weight	[g]	770.7
Housing		rectangular
Dimensions	[mm]	72 x 65 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.	
Electrical connection - Ethernet		
Connector: 1 x M12; coding: D; Contacts: 4		
		
1	TD +	
2	RD +	
3	TD -	
4	RD -	

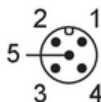


ToF camera

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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

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	0.47	0.68	0.40	0.55
1.00	0.94	1.36	0.80	1.10
2.00	1.88	2.72	1.60	2.20
3.00	2.82	4.08	2.40	3.30
4.00	3.76	5.44	3.20	4.40
5.00	4.70	6.80	4.00	5.50

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	± 10	± 9
1.0...3.0	± 14	± 9
3.0...5.0	± 23	± 13
5.0...7.0	± 34	± 18
7.0...8.0	± 55	± 24

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

The repeatability can be optimized with filter functions

Repeatability 1 σ

Relative accuracy

Relative accuracy	± 7 mm
Temperature drift -10...+50 °C	0.3 mm/K

measured at a reflectivity of 18% to 90%

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ToF camera

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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	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