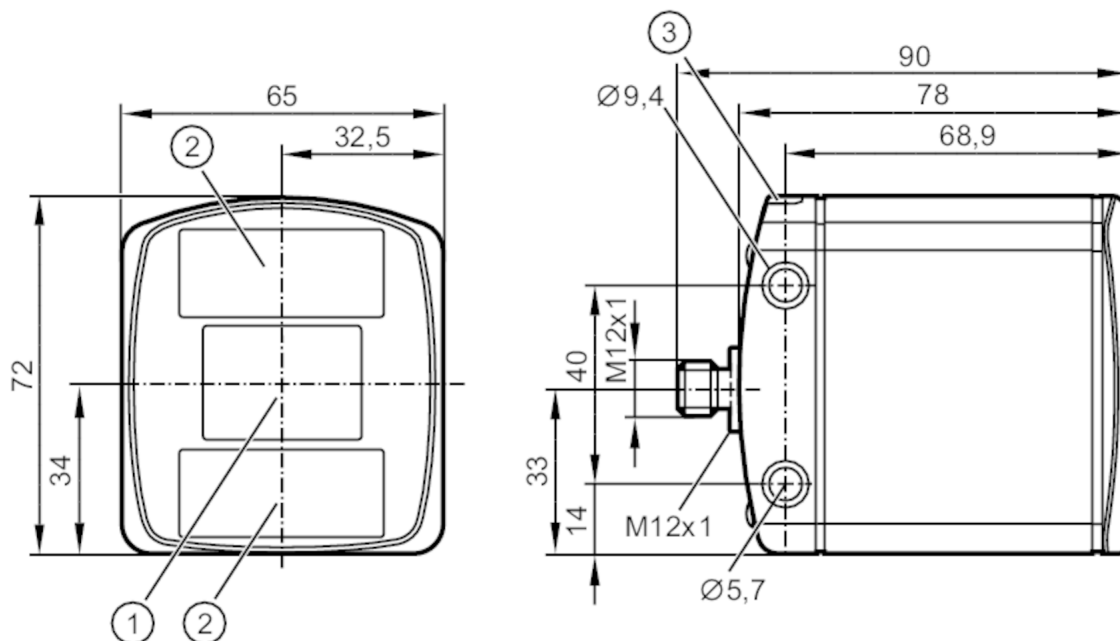


O3D313



3D camera

O3DIRDKG/E1/GM/S/60



- 1 lens
- 2 illumination unit
- 3 LED 2-color yellow/green



Product characteristics

Type of light	Infrared light
Image resolution 3D [px]	352 x 264
Angle of aperture 3D [°]	60 x 45; (nominal value without lens distortion correction)
Image repetition frequency 3D [Hz]	25

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
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
------------------------------	---

Inputs

Trigger	external; 24 V PNP/NPN (IEC 61131-2 Typ 3)
---------	--



3D camera

O3DIRDKG/E1/GM/S/60

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 [°]		60 x 45; (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	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)

O3D313



3D camera

O3DIRDKG/E1/GM/S/60

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

Mechanical data		
Weight	[g]	1189
Dimensions	[mm]	72 x 65 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

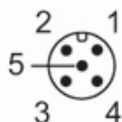
Connector: 1 x M12; coding: D



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

Electrical connection - Process connection

Connector: 1 x M12; coding: A



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



3D camera

O3DIRDKG/E1/GM/S/60

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	0.40	0.56	0.37	0.50
1.00	0.80	1.13	0.75	1.00
2.00	1.60	2.26	1.50	2.00
3.00	2.40	3.39	2.25	3.00
4.00	3.20	4.52	3.00	4.00
5.00	4.00	5.65	3.75	5.00

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%	

O3D313



3D camera

O3DIRDKG/E1/GM/S/60

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