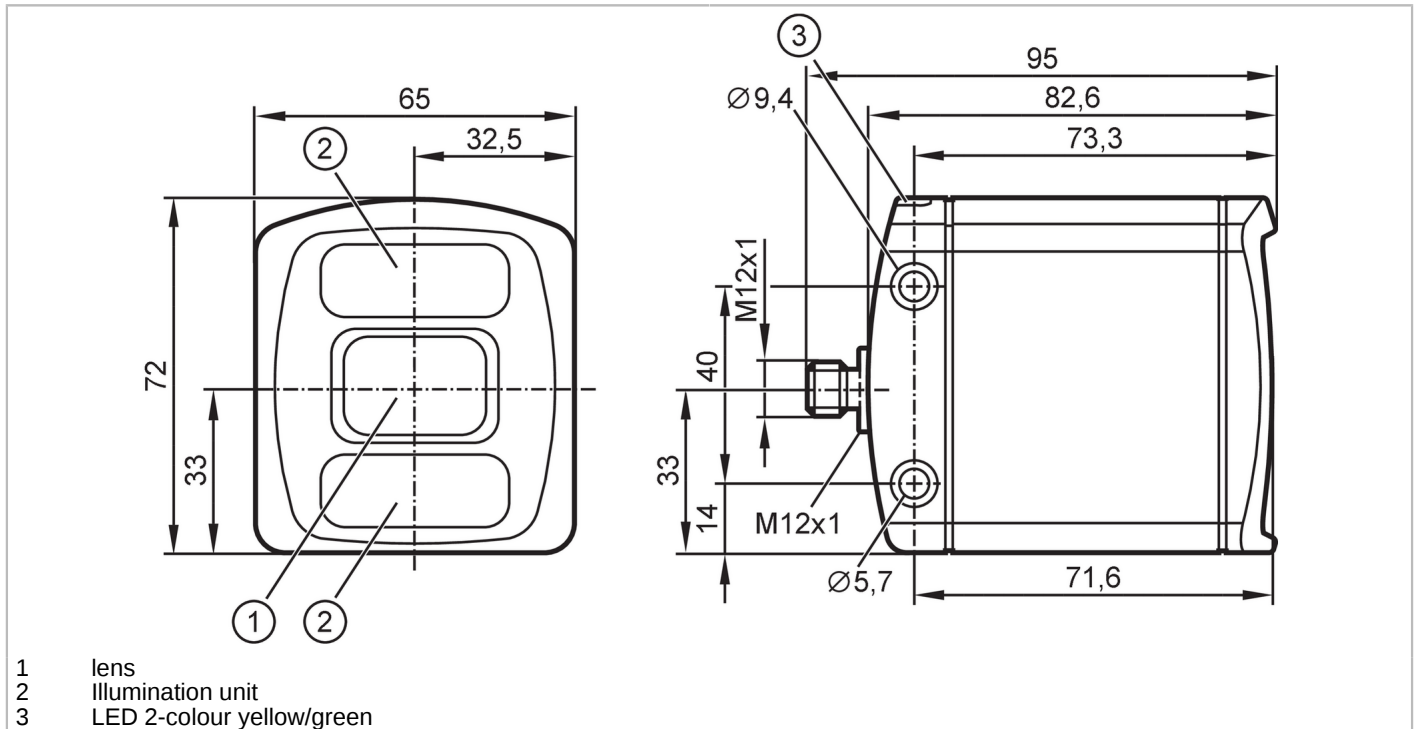


O3D302



3D sensor

O3DIRDKG/E1/GM/S/60



Product characteristics

Type of light		infrared light
Image resolution 3D	[px]	176 x 132
Angle of aperture 3D	[°]	60 x 45; (nominal value without lens distortion correction)
Max. reading rate	[Hz]	25
Housing		rectangular

Application

Application	dimensioning of the object; completeness monitoring; Level monitoring; distance monitoring; volume monitoring; robot gripper navigation; depalletizing
-------------	--------------------------------------------------------------------------------------------------------------------------------------------------------

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
Internal lighting		yes; (infrared: 850 nm)

Inputs / outputs

Number of inputs and outputs	Number of digital inputs: 3; Number of digital outputs: 3; Number of analogue outputs: 1
------------------------------	------------------------------------------------------------------------------------------

Inputs

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

O3D302



3D sensor

O3DIRDKG/E1/GM/S/60

Number of digital inputs	3; (including trigger input)
Input circuit of digital inputs	24 V PNP/NPN; (configurable; IEC 61131-2 Typ 3)
Outputs	
Total number of outputs	3
Electrical design	24 V PNP/NPN; (EN 61131-2)
Number of digital outputs	3; (configurable)
Max. voltage drop switching output DC [V]	1
Max. current load per output [mA]	100
Number of analogue outputs	1; (configurable)
Analogue current output [mA]	4...20
Max. load [Ω]	500
Analogue voltage output [V]	0...10
Min. load resistance [Ω]	10000
Min. load [Ω]	230
Precision analogue output [%]	1
Short-circuit protection	yes
Type of short-circuit protection	pulsed
Overload protection	yes
Resolution of analogue output	12 bit
Detection zone	
Operating distance [mm]	300...8000
Note on operating distance	object size: 200 x 200 mm reflectivity: 18 %
Image resolution 3D [px]	176 x 132
Angle of aperture 3D [°]	60 x 45; (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
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; EtherNet/IP; PROFINET
Factory settings	IP address: 192.168.0.69 subnet mask: 255.255.255.0 gateway IP address: 192.168.0.201

O3D302



3D sensor

O3DIRDKG/E1/GM/S/60

Ethernet - EtherNet/IP		
Usage type		data transmission
Ethernet - PROFINET		
Usage type		data transmission
Ethernet - TCP/IP		
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)
Tests / approvals		
EMC	DIN EN IEC 61000-6-4	radiation of interference / industrial environments
	DIN EN IEC 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
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]	43.08
Mechanical data		
Weight	[g]	772.35
Housing		rectangular
Dimensions	[mm]	72 x 65 x 82.6
Materials		housing: diecast aluminium; front pane: gorilla glass; 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 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.

O3D302



3D sensor

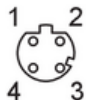
O3DIRDKG/E1/GM/S/60

Pack quantity

1 pcs.

Electrical connection - Ethernet

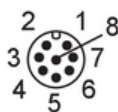
Connector: 1 x M12; coding: D; Contacts: 4



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

Electrical connection - Process connection

Connector: 1 x M12; coding: A; Contacts: 8



1	U+
2	trigger input
3	GND
4	switching output 1 (digital or analogue)
5	switching output 3 Ready
6	switching output 2 (digital)
7	switching input 1
8	switching input 2

Other data

field of view size with lens distortion correction

measuring range / distance [m]	Length [m]	Width [m]
0.50	0.37	0.50
1.00	0.75	1.00
2.00	1.50	2.00
3.00	2.25	3.00
4.00	3.00	4.00
5.00	3.75	5.00



3D sensor

O3DIRDKG/E1/GM/S/60

Accuracy of dimensioning of the object

measuring range / distance [m]	accuracy object size (Length, Width, Height) [mm]	accuracy object position (X, Y, Z coordinates) [mm]	accuracy angle of rotation [°]
typical value	typical value	typical value	typical value
1.0...3.0	± 10	± 5	± 1

typical values at an ambient temperature of 20 °

Operating distance:	0.3 ... 5 m
Image repetition frequency:	1 Hz
information applies for:	
rectangular objects	
reflectivity:	6...90 % for non-glossy objects
minimum object size:	100x100x100 mm
object in centre of the image	
object speed:	< 0.2 m/s

completeness monitoring

	object speed < 0.2 m/s [mm]	object speed > 0.2 m/s [mm]
typical value:		
minimum height	25	45
Image repetition frequency [Hz]	5	
Operating distance [m]	0.3...5	
max. packaging size (orthogonal packaging arrangement)		maximum number of objects 64
The image repetition frequency is reduced by using the position tracking function		

level and distance monitoring

measuring range / distance [m]	repeatability of the measured distance values on grey objects (18% reflectivity) [mm]	repeatability of ROI of 50x50 pixels on grey objects [mm]	accuracy (reflectivity 6-90%) [mm]
	typical value	typical value	typical value
0.3...1.0	8	0.3	± 7
1.0...3.0	12	0.4	± 7
3.0...5.0	20	0.7	± 10
5.0...7.0	30	1.0	± 15
7.0...8.0	50	1.7	± 20

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

Repeatability	1 σ
The repeatability can be optimised with filter functions	
Temperature drift -10...+50 °C	0.2 mm/K

O3D302



3D sensor

O3DIRDKG/E1/GM/S/60

robot gripper navigation and depalletizing

	robot gripper navigation	depalletizing
Operating distance [m]	0.2...6	0.5...6
object types	any object shape	closed rectangular objects
minimum object size [mm]	20 x 20 x 20	50 x 50 x 50 at minimum operating distance
accuracy object position [mm]		
typical value:	± 10 rectangular objects	± 15
accuracy angle of rotation [°]		
typical value:	± 1 rectangular objects	± 3
object speed [m/s]	< 0.2	
Image repetition frequency [Hz]	2 for one object to be measured	1
maximum number of objects	20	
typical values at an ambient temperature of 20 °		