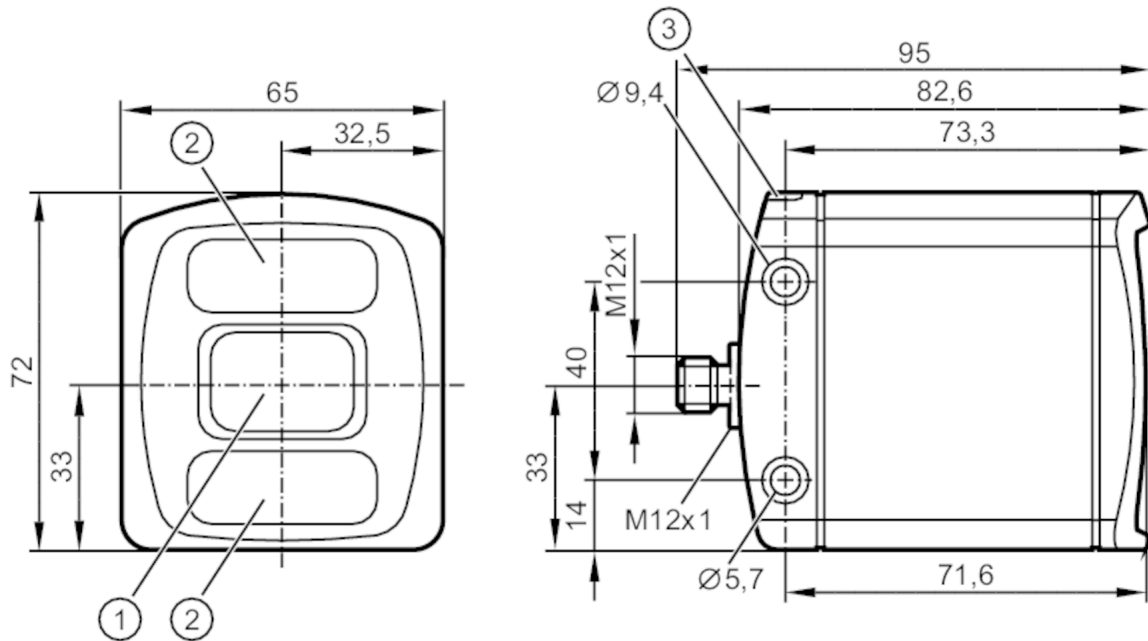


3D sensor

O3DIRDKG/E1/GM/S/60/ODS



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



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)
Image repetition frequency 3D [Hz]	10

Application

Application	obstacle detection
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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
Protection class	III
Type of light	infrared light
Image sensor	PMD 3D ToF-Chip
Internal lighting	yes; (infrared: 850 nm invisible radiation LED)
Switch-on peak current [mA]	2400

Detection zone

Operating distance [mm]	200...4000
Image resolution 3D [px]	176 x 132

**3D sensor**

O3DIRDKG/E1/GM/S/60/ODS

Angle of aperture 3D	[°]	60 x 45; (nominal value without lens distortion correction)
Image repetition frequency 3D	[Hz]	10
Interfaces		
Communication interface		Ethernet
Ethernet		
Number of Ethernet interfaces		1
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
Operating conditions		
Ambient temperature	[°C]	-10...50
Storage temperature	[°C]	-40...85
Protection		IP 65; IP 67
Max. immunity to extraneous light	[klx]	8
Tests / approvals		
EMC	DIN EN 61000-6-4	radiation of interference / industrial environments
	DIN EN 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)
Photobiological safety		exempt group; (DIN EN 62471)
Electrical protection	DIN EN 61010-2-201	electrical supply only via PELV circuits
Mechanical data		
Weight	[g]	770
Dimensions	[mm]	72 x 65 x 82.6
Materials		housing: diecast aluminium; front pane: Gorilla Glass; function display: PA
Displays / operating elements		
Display	function	2 x LED, green Ethernet operation
Accessories		
Items supplied		spring washers
Remarks		
Pack quantity		1 pcs.



3D sensor

O3DIRDKG/E1/GM/S/60/ODS

Electrical connection - Ethernet

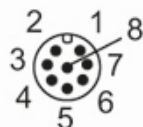
Connector: 1 x M12; coding: D



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

Electrical connection - Process connection

Connector: 1 x M12; coding: A



1	U+
2	nc
3	GND
4	nc
5	nc
6	nc
7	nc
8	nc

Other data

Field of view size

measuring range / distance [m]	Length [m]	Breite [m]
0.50	0.4	0.56
1.00	0.8	1.13
2.00	1.6	2.26
3.00	2.4	3.39
4.00	3.2	4.52



3D sensor

O3DIRDKG/E1/GM/S/60/ODS

input/output parameters

input parameters	Information on own movement of the automated guided vehicle (AGV)
	NTP-server for time synchronisation
output parameters	distance
	occupancy grid $\pm 5\text{m}$ in x and y direction of the vehicle coordinates
	occupation state of the warning zones

setting parameters

Parameter	Setting range
warning zones	three independent warning zones for obstacle detection
extrinsic calibration	calibration of the camera position in vehicle coordinates
each warning zone is defined via a convex 2D polygon with max. 6 corners and a global height	

obstacle detection

example obstacles	latency [ms]	
	typical value	typical value
	object already in the field of view of the camera	initial detection [ms]
forklift fork (lateral, 25cm above ground)	200	700
box or container (surface facing the sensor > 200x200mm)	200	700
bicycle (lateral & front)	200	700

The indications on the detection time of the obstacles are based on the following assumptions

speed of the automated guided vehicle < 1.7 m/s

medium reflectivity of the objects

minimum height of the objects 15cm above ground