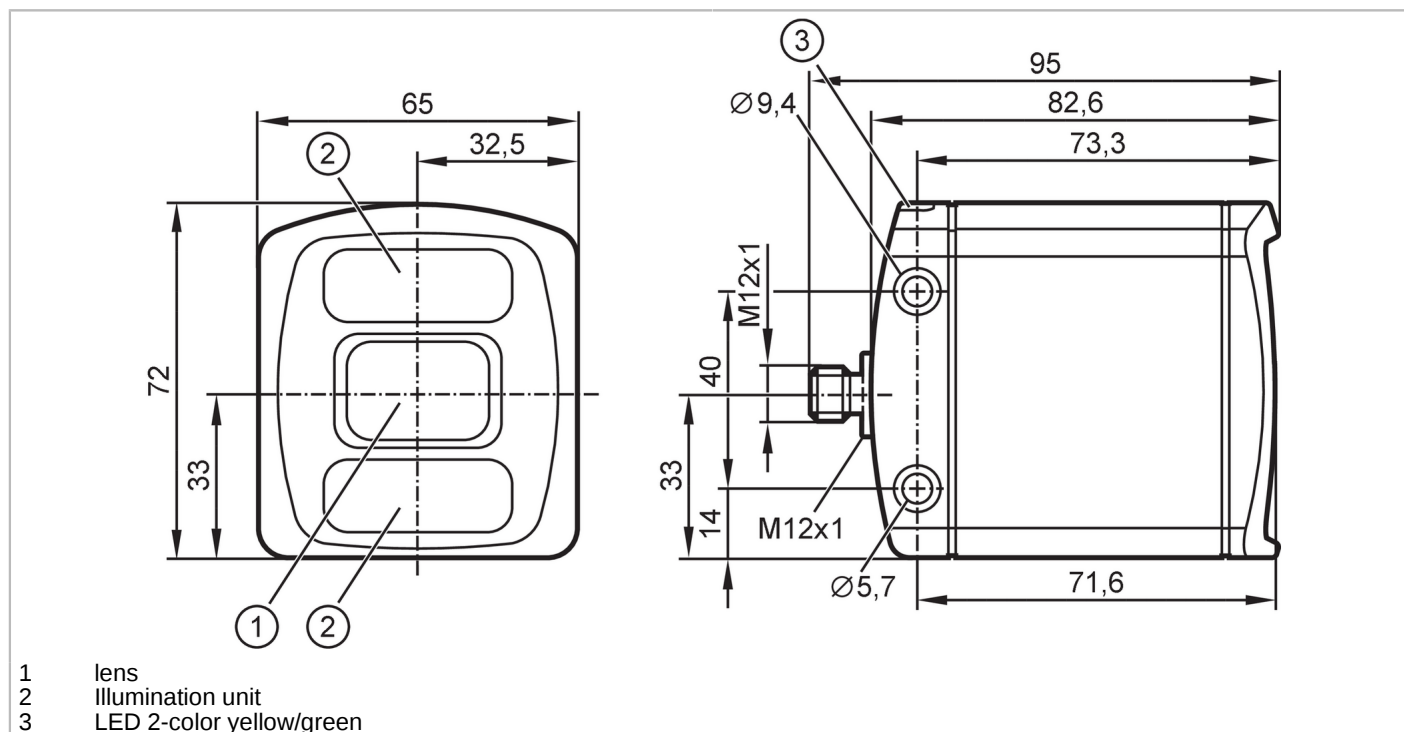


# O3DP03



## ToF camera

O3DIRDKG/E1/GM/S/60/PDS



### 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) |
| Housing                  | rectangular                                                 |

### Application

|             |                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Application | PDS is a real-time 3D detection system for pallets and industrial racks for automated guided vehicles, forklifts and other robots |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|

### Electrical data

|                                 |                                                                                 |
|---------------------------------|---------------------------------------------------------------------------------|
| Operating voltage tolerance [%] | -15...20                                                                        |
| Operating voltage [V]           | 24 DC; (EN 61131-2)                                                             |
| Current consumption [mA]        | 350; (typical)                                                                  |
| Max. current consumption [mA]   | 530; (mean value at 24 VDC ; with switched outputs ; <1300 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)                                                         |

### Monitoring range

|                          |                                                             |
|--------------------------|-------------------------------------------------------------|
| Operating distance [mm]  | 1000...2000                                                 |
| Image resolution 3D [px] | 352 x 264                                                   |
| Angle of aperture 3D [°] | 60 x 45; (nominal value without lens distortion correction) |



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| Measuring/setting range           |                                                                                                                                     |                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Measuring range                   | [m]                                                                                                                                 | < 30                                                          |
| Software / programming            |                                                                                                                                     |                                                               |
| Parameter setting options         | via PC with ifm Vision Assistant or XML-RPC                                                                                         |                                                               |
| 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) |
| 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]                                                                                                                             | 37                                                            |
| Mechanical data                   |                                                                                                                                     |                                                               |
| Weight                            | [g]                                                                                                                                 | 767.95                                                        |
| Housing                           | rectangular                                                                                                                         |                                                               |
| Dimensions                        | [mm]                                                                                                                                | 72 x 65 x 82.6                                                |
| Material                          | housing: diecast aluminium; front lens: qorilla glass; Function display: PA                                                         |                                                               |

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|                   |      |       |
|-------------------|------|-------|
| 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.<br>The data sheet values apply to typical settings and conditions. |
| Pack quantity | 1 pcs.                                                                                                                                                       |

### Electrical connection - Ethernet

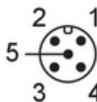
Connector: 1 x M12; coding: D; Contacts: 4



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

### Electrical connection - Process connection

Connector: 1 x M12; coding: A; Contacts: 5



|   |          |
|---|----------|
| 1 | U+       |
| 2 | not used |
| 3 | GND      |
| 4 | not used |
| 5 | not used |

### Other data

| Field of view size             |            |           |
|--------------------------------|------------|-----------|
| Measuring range / distance [m] | Length [m] | Width [m] |
| 1.00                           | 0.80       | 1.13      |
| 1.50                           | 1.20       | 1.69      |
| 2.00                           | 1.60       | 2.26      |



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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  $1 \sigma$

## 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                          |