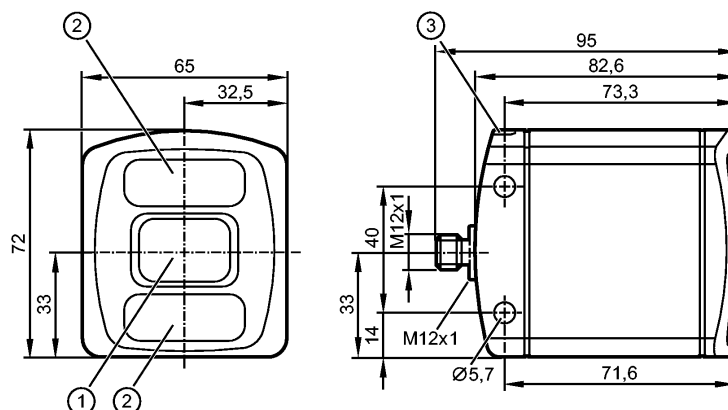


O3D303

O3DIRDKG/E1/GM/S/60

Object recognition



- 1: lens
2: Illumination unit
3: LED 2 colours (yellow/green)



Product characteristics

| |
|--|
| 3D camera |
| Quick disconnect |
| PMD 3D ToF (Time of Flight) camera for the output of 3D image data |
| Device interfaces: digital input/output; Ethernet |
| Angle of aperture 60° x 45° (horizontal x vertical) |
| Image resolution 176 x 132 pixels |

Electrical data

| | | |
|---------------------|------|---|
| Operating voltage | [V] | 20.4...28.8 DC; to EN 61131-2 |
| Current consumption | [mA] | < 2400 peak current pulsed; typ. mean value 420; max. mean value 1600 |
| Power consumption | [W] | 10 *) |
| Protection class | | III (PELV) |
| Type of sensor | | PMD 3D ToF chip |

Inputs

| | |
|---------|---|
| Trigger | external; 24 V PNP/NPN to IEC61131-2 type 3 |
|---------|---|

Outputs

| | |
|------------------------------|---|
| Output | max. 2 (configurable) / 24 V PNP/NPN to IEC 61131-2 |
| Max. current load per output | [mA] 100 |
| Voltage drop [V] | <1 |
| Short-circuit protection | yes (non-latching) |
| Overload protection | yes |

Monitoring range

| | |
|----------------------------|---------------------|
| Operating distance | [mm] 300...8000 **) |
| Max. measuring range [m] | 30 ***) |
| Resolution pixels | [pixel] 176 x 132 |
| Angle of aperture | [°] 60 x 45 ****) |
| Image repetition rate max. | [Hz] 25 |

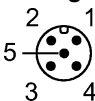

Software / programming

| | |
|---------------------------|---|
| Parameter setting options | via PC with ifm Vision Assistant or XML-RPC |
| Software API | C, C++, Halcon |

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Object recognition

| Interfaces | | |
|---|--|---|
| parameter setting interface | Ethernet TCP/IP: 10BaseT / 100Base-TX | |
| Process interface | Ethernet TCP/IP: 10Base-T / 100Base-TX, Ethernet/IP | |
| IP address | 192.168.0.69 | |
| subnet mask | 255.255.255.000 | |
| gateway IP address | 192.168.0.201 | |
| Environment | | |
| Immunity to extraneous light | [klx] | 8; *****) |
| Ambient temperature | [°C] | -10...50 |
| Storage temperature | [°C] | -40...85 |
| Protection | IP 65 / IP 67 | |
| Tests / approvals | | |
| EMC | DIN EN 61000-6-4 | radiation of interference / industrial environments |
| | DIN EN 61000-6-2 | noise immunity / industrial environments |
| MTTF | [Years] | 45.02 |
| Shock resistance | DIN EN 60068-2-27 DIN EN 60068-2-27 | 50 g / (11 ms) not repetitive 40 g / (6 ms) repetitive |
| Vibration resistance | DIN EN 60068-2-6 DIN EN 60068-2-64 | 2 g / (10...150 Hz) 2.3 g RMS / (10...500 Hz) |
| Electrical safety | DIN EN 61010-2-201 Electrical supply only via PELV circuits | |
| Photobiological safety | Infrared LED (850 nm) Exempt group (to DIN EN 62471) | |
| Mechanical data | | |
| Housing materials | housing: diecast aluminium; window: Gorilla Glass; Function display: PA (polyamide) | |
| Tightening torque | [Nm] | 0.8 (Protective cover) |
| Weight | [kg] | 0.81 |
| Displays / operating elements | | |
| Display | Function display 2 LED green Ethernet Power 2 LED yellow Switching output 1 Switching output 2 | |
| Electrical connection | | |
| Connection | M12 connector | |
| Wiring   | M12: supply 1: U+ 2: trigger input 3: GND 4: Switching output 1 Ready 5: Switching output 2 Cascading | |
| | M12: Ethernet 1: TD + 2: RD + 3: TD - 4: RD - | |
| Other technical data | | |
| Integrated lighting | Infrared LED (850 nm) Invisible radiation of light-emitting diodes | |

O3D303

O3DIRDKG/E1/GM/S/60

Object recognition
Accessories

| | |
|------------------------|---|
| Accessories (included) | USB memory stick with software and documentation; Protective covers |
|------------------------|---|

Remarks

| | |
|---------|--|
| Remarks | <p>*) typical value **) with reflectivity of 18 % and object size of 200 mm x 200 mm ***) depending on settings and reflectivity, typically up to 5000 mm ****) nominal value without lens distortion correction *****) up to 100 klx possible with reduced measuring accuracy and repeatability</p> |
|---------|--|

| | | |
|---------------|---------|---|
| Pack quantity | [piece] | 1 |
|---------------|---------|---|

Other data
Field of view size

| Measuring range / distance [m] | without lens distortion correction | | with lens distortion correction | |
|--------------------------------|------------------------------------|-----------|---------------------------------|-----------|
| | 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

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

The repeatability can be optimised with the filter functions.

| Measuring range / distance [m] | Typical repeatability (1 Sigma) of the measured distance values on grey objects (18 % reflectivity) [mm] | Typical accuracy [mm] |
|--------------------------------|--|-----------------------|
| 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 |

Temperature drift

| | |
|---|-----|
| Typ. temperature drift of -10...+50 °C [mm/K] | 0.2 |
|---|-----|

Relative accuracy

Measured at a reflectivity of 18% to 90%.

| | |
|---------------------------------|-----|
| Relative accuracy, typical [mm] | ± 4 |
|---------------------------------|-----|

Setting parameters

| Parameter | Setting range | Factory setting |
|--------------------|-------------------|-----------------|
| Exposure time [ms] | 0.002...10 | 5 |
| Dynamics | low; normal; high | normal |


O3D303

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Object recognition

| | | |
|---------------------------------|---|------------|
| filter | Timer: disabled, average value, adaptive exponential 3D function: disabled, average value, median, bilateral | disabled |
| Trigger mode | continuous Process interface positive edge negative edge positive and negative edge | continuous |
| Image repetition frequency [Hz] | 0.02...25 | 5 |

Data format

| Data type | Data value | Remark |
|----------------------------------|--|---|
| Distance [mm] | 0...65535 (16 bit unsigned integer) | Radial distance |
| Cartesian coordinates x,y,z [mm] | -32767...32767 (16 bit signed integer) | x,y: lateral position z: vertical distance |
| Amplitude [a.u.] | 0...65535 (16 bit unsigned integer) | Object brightness |