SICK.COM




DATA SHEET

# DL100-23AA2213

Dx100
Time-of-flight sensors

SICK Sensor Intelligence



Illustration may differ

## TIME-OF-FLIGHT SENSORS

# DL100-23AA2213

### ORDERING INFORMATION

| Type | part no. |
|---|---|
| DL100-23AA2213 | 1096497 |

Further device versions and accessories at www.sick.com/Dx100

## DETAILED TECHNICAL DATA

### FEATURES

| | |
|---|---|
| Measuring range | 0.15 m ... 300 m, on “diamond grade” reflective tape |
| Scope | Indoor |
| Target | Reflector |
| Resolution | 0.1 mm, 0.125 mm, 1 mm, 10 mm, 100 mm, freely adjustable |
| Repeatability | 2 mm [1] |
| Measurement accuracy | ± 3 mm [2] |
| Response time | 2 ms |
| Measurement cycle time | 1 ms |
| Output time | 1 ms |
| Emitted beam | |
| Light source | Laser, red [3] |
| Type of light | Visible red light |
| Typ. light spot size (distance) | 5 mm + (2 mm x distance in m) |
| Key laser figures | |
| Normative reference | IEC 60825-1:2014, EN 60825-1:2014 |
| Laser class | 2 [4] |
| Max. movement speed | 15 m/s |
| Acceleration (max.) | ≤ 15 m/s² |
| Safety-related parameters | |
| $MTTF_D$ | 101 years |
| $DC_{avg}$ | 0% |

[1] Statistical error 1 σ, environmental conditions constant, min. warm-up time 10 min.

[2] From 150 mm ... 180 mm measuring range the accuracy can reach ± 4 mm.

[3] Average service life: 100,000 h at $T_U$ = +25 °C.

[4] Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

## INTERFACES

| | |
|---|---|
| PROFINET | ✓ |
| Remark | PROFINET network load class III |
| SSI | ✓ |
| Digital output | |
| Number | 2 [1] |
| Type | Push-pull: PNP/NPN |
| Function | Distance: Distance switching output<br>Speed; Speed output<br>Service: Warning message as the sensor ages, if the damping value is exceeded (for example when contaminated, if the permitted interior device temperature is exceeded or undercut, if the measured value has a plausibility error, if the laser is not ready for operation, if the heating is switched on<br>Laser off<br>Preset |
| Maximum output current $I_A$ | ≤ 100 mA [2] |
| Multifunctional input (MF) | 1 x MF1 [3] |

[1] HIGH = > $V_S$ - 3 V / LOW = < 2 V.

[2] Max. 100 nF/20 mH.

[3] HIGH > 12 V / LOW < 3 V.

## ELECTRONICS

| | |
|---|---|
| Supply voltage $U_B$ | DC 18 V ... 30 V, limit values |
| Current consumption | At 24 V DC < 250 mA |
| Ripple | 5 $V_{pp}$ [1] |
| Modulation frequency | Fix |
| Initialization time | Typ. 1.5 s [2] |
| Display | 6 digit 5 x 7 dot matrix display, LEDs |
| Enclosure rating | IP65 |
| Protection class | III |
| Connection type | Male connector, M12 |

[1] May not fall short of or exceed $V_S$ tolerances.

[2] After loss of reflector < 40 ms.

## MECHANICS

| | |
|---|---|
| Dimensions (W x H x D) | 69.4 mm x 82.5 mm x 100.2 mm |
| Housing material | Metal (Aluminum die cast) |
| Window material | Plastic (PMMA) |
| Weight | Approx. 800 g (with mounting bracket: approx. 1,600 g) |

## AMBIENT DATA

| | |
|---|---|
| Ambient temperature, operation | –20 °C ... +55 °C [1]<br>–20 °C ... +75 °C, operation with cooling case [1] |
| Ambient temperature, storage | –40 °C ... +75 °C |
| Effect of air pressure | 0.3 ppm/hPa |
| Effect of air temperature | 1 ppm/K |

[1] Temperatures < –10 °C require warm-up time of typ. 7 minutes.

[2] This is a Class A device. This device can cause radio interference in living quarters.

| | |
|---|---|
| Temperature drift | Typ. 0.1 mm/K |
| Typ. Ambient light immunity | ≤ 100,000 lx |
| Mechanical load | Shock: (EN 600 68-2-27)<br>Sine: (EN 600 68-2-6)<br>Noise: (EN 600 68-2-64) |
| Electromagnetic compatibility (EMC) | EN 61000-6-2, EN 61000-6-4 [2)] |

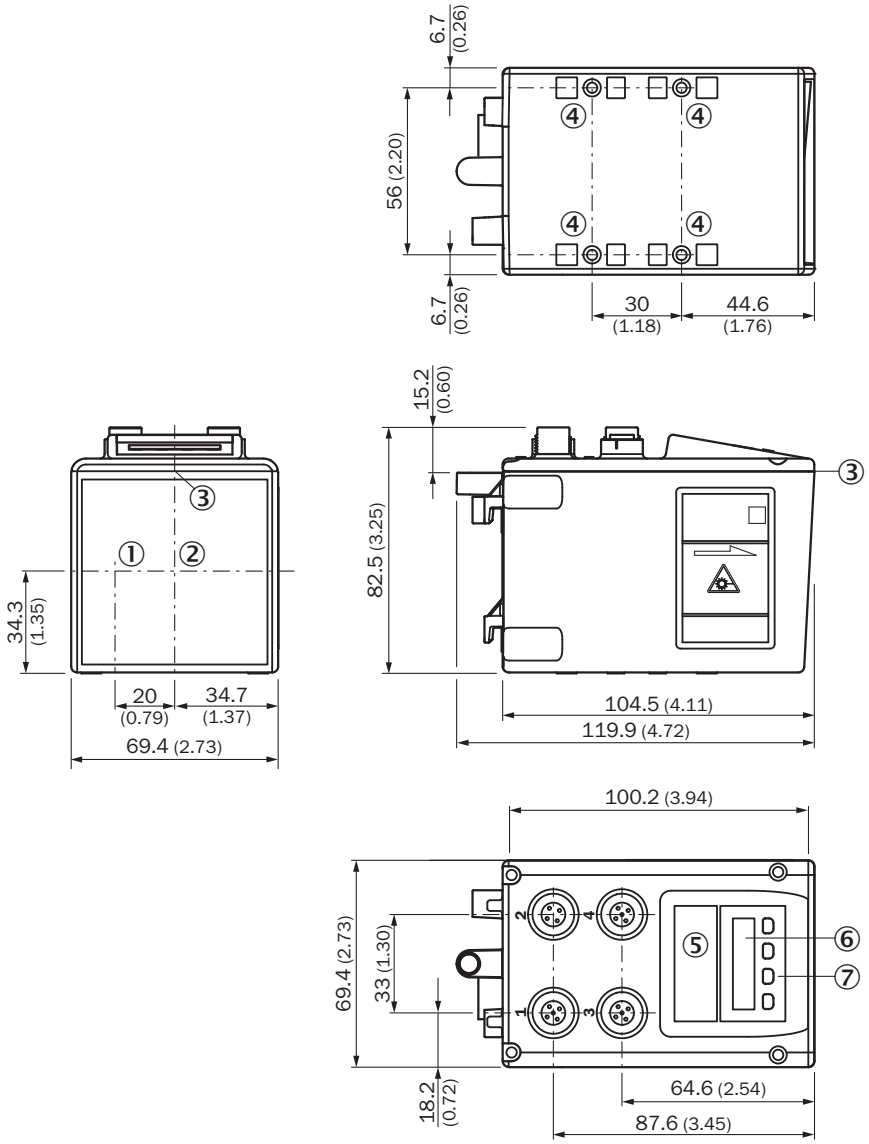
[1)] Temperatures < –10 °C require warm-up time of typ. 7 minutes.

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## CERTIFICATES

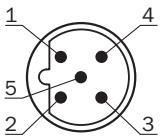
| | |
|---|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |
| cULus certificate | ✓ |
| Profinet certificate | ✓ |
| Information according to Art. 3 of Data Act (Regulation EU 2023/2854) | ✓ |

**DIMENSIONAL DRAWING**

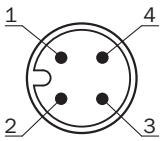



Dimensions in mm (inch)
① Optical axis, sender
② Optical axis, receiver
③ Zero level
④ Threaded mounting hole M5
⑤ status LED [status]
⑥ Display
⑦ Control elements

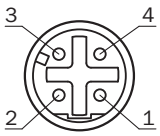
**SSI CONNECTION TYPE**



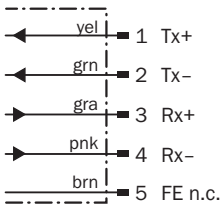
### VOLTAGE SUPPLY CONNECTION TYPE



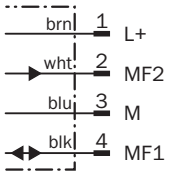

### ETHERNET CONNECTION TYPE



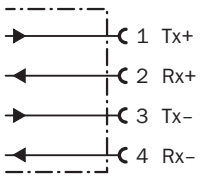

### SSI CONNECTION DIAGRAM




### VOLTAGE SUPPLY CONNECTION DIAGRAM




### ETHERNET CONNECTION DIAGRAM




Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1096497

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