Data sheet



3DOD

V3S145-1AAAABA OD Core

Visionary-T Mini

3D MACHINE VISION

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
V3S145-1AAAABA OD Core	1137062

Included in delivery: V3S145-1AAAAAA (1), 3D Object Detection Core (1)

Other models and accessories ➜ www.sick.com/Visionary-T_Mini

Detailed technical data

Features

Technology	3D snapshot time-of-flight
Programmable	✓
Configurable	✓
Pre-calibrated	✓
Application software	3D Object Detection Core, For collision avoidance on mobile platforms. [1]
License type	The software is provided as a device license. A license is bound to a specific hardware ID.
License period	The license is issued without a time limit.
Working range	≤ 9 m [2]
Field of view	70° x 60°
Angular resolution	0.14° x 0.14°
Illumination	Integrated
Illumination color	Infrared, laser, invisible, 855 nm, ± 5 nm
Laser class	1, P0 < 17 mW, t < 25 ns (IEC 60825-1:2014) [3] EN 60825-1:2014+A11:2021
Task	Detecting - Standard objects Measuring - Dimension, contour and volume Localizing, navigating and guiding - Guiding Determining position - 3D position determination

[1] The SICK SensorApp can, if necessary, be deinstalled again.

[2] Depends on the infrared remission properties of the target object. At distances of 9 m to 16 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit incorrect measured values.

[3] Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to IEC 60825-1 Ed. 3. according to Laser Notice No. 56 dated May 08, 2019.

Mechanics/electronics

Connection type	Plug, M12, 8-pin, A-coded Gigabit Ethernet: M12, 8-pin, X-coded
Supply voltage	24 V DC [1]
Power consumption	Typ. 12 W, without digital I/Os < 8 W, In energy saving mode

[1] -30% ... +25%.

Peak current	2 A
Enclosure rating	IP65 IP67 IP69
Protection class	III
Housing color	Blue, black
Window material	PMMA
Weight	520 g
Dimensions (L x W x H)	80 mm x 70 mm x 77 mm

[1] -30% ... +25%.

Functions

Integrated application	The installed 3D Object Detection SICK SensorApp allows flexibly customizable collision avoidance for mobile platforms. The data is processed within the device. The SICK SensorApp can be deinstalled.

Performance

Sensor properties	
Sensor resolution	512 px x 424 px
Processor	1.8 GHz, 4 × ARM Cortex [1]
Scan/frame rate	≤ 30 fps
Exposure time	
	≤ 10 ms
Repeatability	Approx. 0.8 mm, at 1 m working distance [2] Approx. 5 mm, at 7 m working distance [2]
Switch-on delay	Approx. 20 s From detection to the signal when the sensor is restarted
Response time	For 4 fields, ≥ 100 ms [3]
Camera coexistence mode	Automatic

[1] Part of the processor resources are required for internal processing. The current processor load is displayed in the CPU monitor in SICK AppStudio.
[2] Individual values in the “Field of view absolute measurement accuracy and repeatability, working distance: radial” graphic. (can be found under “Technical drawings”).
[3] For default setting of four simultaneous 3D fields with 2x2 pixel binning.

Interfaces

Ethernet	✓ , TCP/IP, UDP/IP
Remark	Data is application-specific or can be defined in independently-developed applications.
REST API	✓
Configuration software	SICK AppManager, SICK AppStudio, Web-Interface, Telegram interface
Digital inputs/outputs	6 Maximum current per digital output: 100 mA. Maximum total current for all digital outputs: < 500 mA. Voltage drop at output for 100 mA: < 2 V. Short-circuit protected.
Optical indicators	4 status LEDs

Ambient data

Electromagnetic compatibility (EMC)	IEC 61000-6-4:2018 / EN IEC 61000-6-4:2019, IEC 61000-6-2:2005 / EN 61000-6-2:2005 / IEC 61000-6-2:2016 / EN IEC 61000-6-2:2019
Vibration resistance	5 g, 10 Hz ... 500 Hz (IEC 60068-2-6:2008, IEC 60068-2-64:2008)
Shock resistance	30 g, 11 ms (IEC 60068-2-27:2008)
Ambient operating temperature	–10 °C ... +50 °C [1)]
Storage temperature	–20 °C ... +80 °C
Camera housing temperature	–10 °C ... +65 °C, If no adequate heat dissipation (mechanical connection, ventilation etc.) is present, heat sinks (see accessories) can keep the housing temperature below the maximum of 65 °C.
Damp heat	+25 °C ... +55 °C, 95 % RH, (EN 60068-2-30:2005)
Relative humidity	≤ 95 % RH, Non-condensing
Ambient light immunity	≤ 50 klx [2)]

[1)] After a warm-up time of 45 minutes (at ≥ –10 °C) and a frame rate of > 25 fps, the camera can also be operated at ambient temperatures from –20 °C. A frame rate of < 25 fps is also possible with lower heat dissipation.
[2)] Sunlight at a measuring distance of 2.0 m.

General notes

Items supplied	Hardware, software, Software license (Core)
Minimum detectable object	40 mm x 40 mm graues Objekt, bei ≥ 6 m Arbeitsabstand, bei ≥ 30 % Remissionsgrad

Certificates

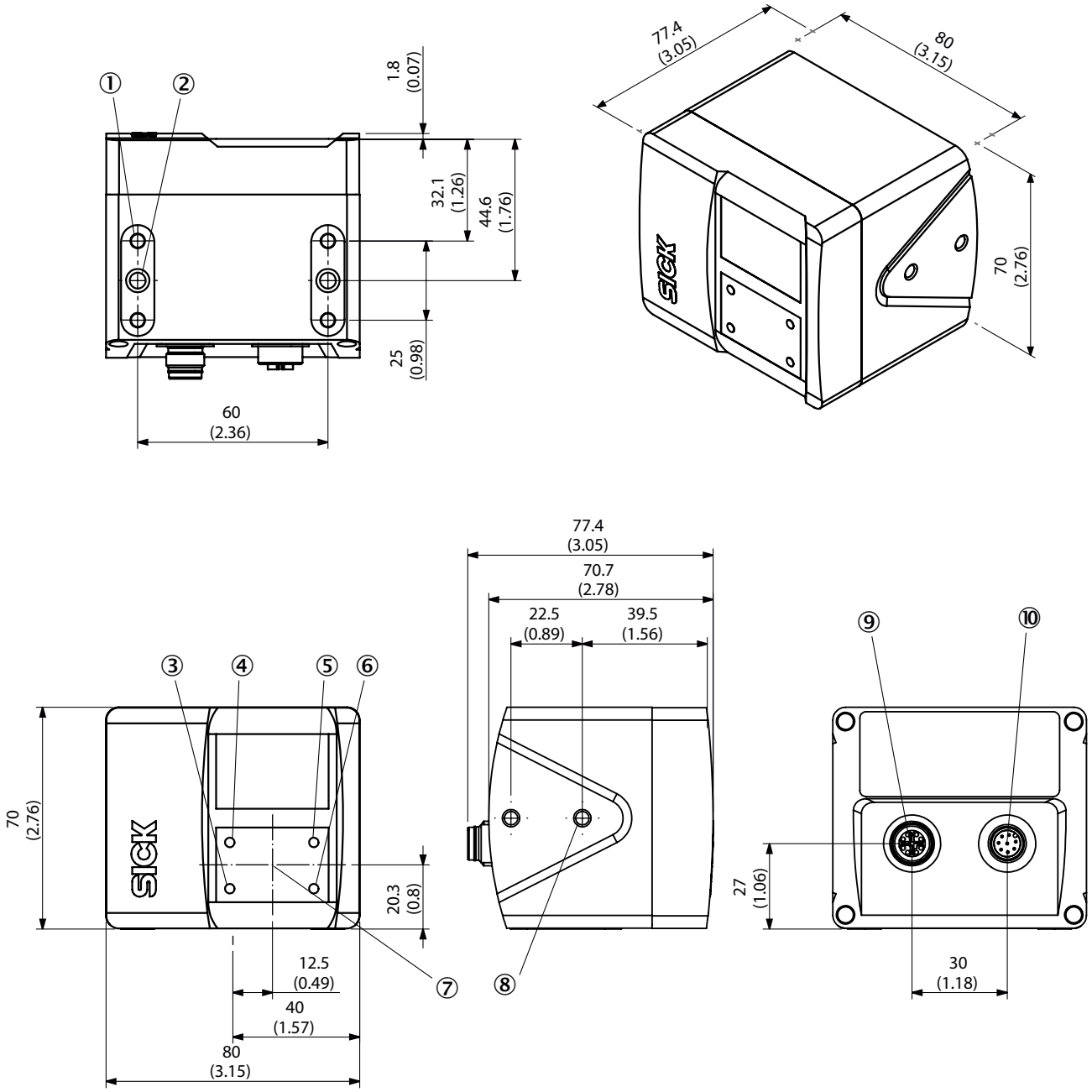
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Classifications

ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205
ECLASS 9.0	27310205
ECLASS 10.0	27310205
ECLASS 11.0	27310205
ECLASS 12.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820

ETIM 8.0	EC001820
UNSPSC 16.0901	43211731

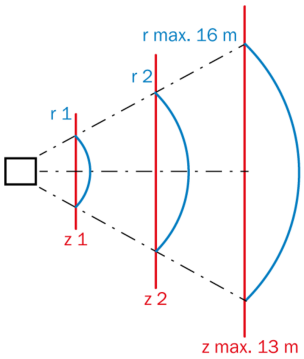
Dimensional drawing



Dimensions in mm (inch)
① M5 threaded mounting hole, 7.5 mm deep (4x)
② Fit ø 5H7, 7 mm depth (2x)
③ Device status display
④ Application status display
⑤ Ethernet status display
⑥ Application status display
⑦ Sensor coordinate origin

⑧ Threaded mounting hole M5, 5.5 mm depth (4x)
⑨ “Ethernet” connection, 8-pin M12 female connector, X-coded
⑩ “Power/I/O” connection, 8-pin M12 male connector, A-coded

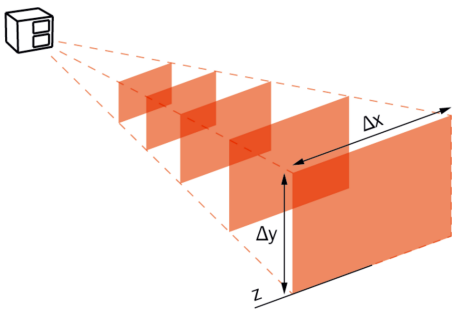
Field of view Absolute measurement accuracy and repeatabilityworking distance: radial



The specified numerical values are typical values and apply in the central 80% of the detection area, at room temperature, without ambient light, and at a frame rate of 25 fps.
At distances > 9 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit erroneous measured values.
The measurement accuracy may degrade by up to ±10 mm (typically ±5 mm) over the entire ambient operating temperature.

Working distance radial (r)	Measurement accuracy (90% remission)	Repeatability (1σ - 90% remission)	Measurement accuracy (10% remission)	Repeatability (1σ - 10% remission)
0.2 m	–	–	± 3 mm	± 0.8 mm
0.5 m	± 3 mm	± 0.8 mm	± 3 mm	± 0.8 mm
1.0 m	± 3 mm	± 0.8 mm	± 3 mm	± 1.5 mm
2.0 m	± 3 mm	± 1 mm	± 3 mm	± 4 mm
4.0 m	± 7 mm	± 2 mm	± 10 mm	± 12 mm
7.0 m	± 10 mm	± 5 mm	± 20 mm	± 50 mm
8.0 m	± 13 mm	± 7 mm	-	-
10.0 m	± 20 mm	± 15 mm	-	-
13.0 m	± 50 mm	± 48 mm	-	-

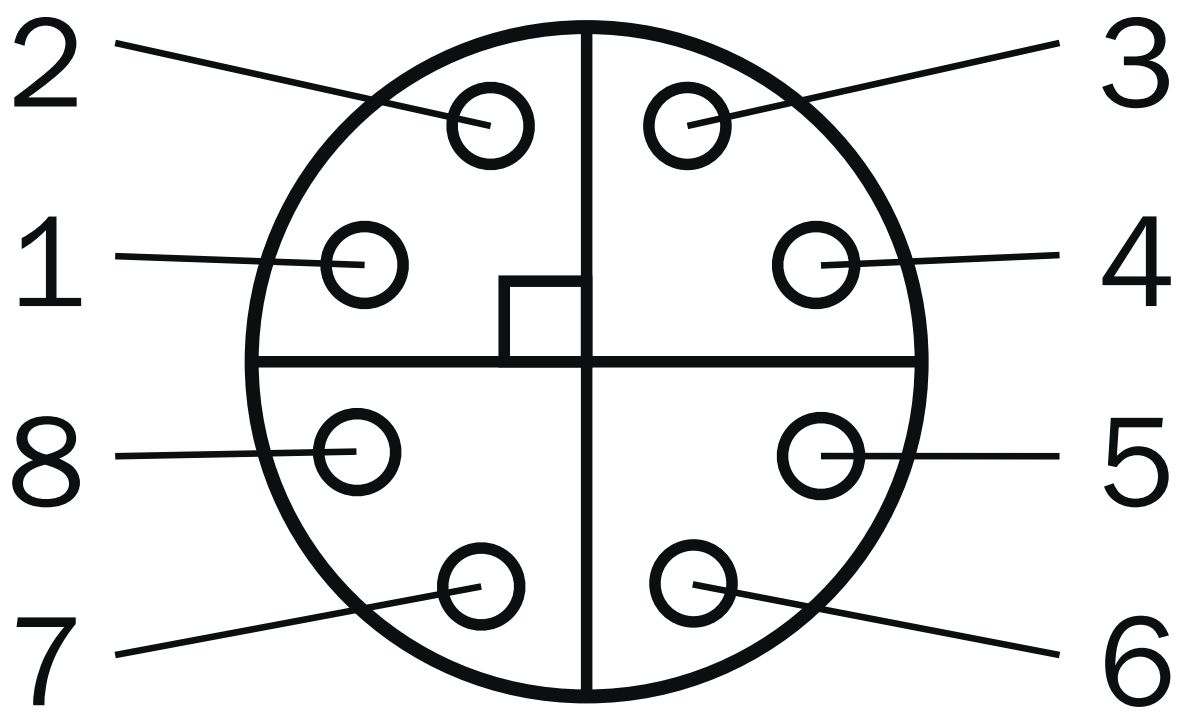
Detection volume and field of view



Axial working distance (z)	Range (Δx)	Range (Δy)
0.2 m	0.3 m	0.2 m

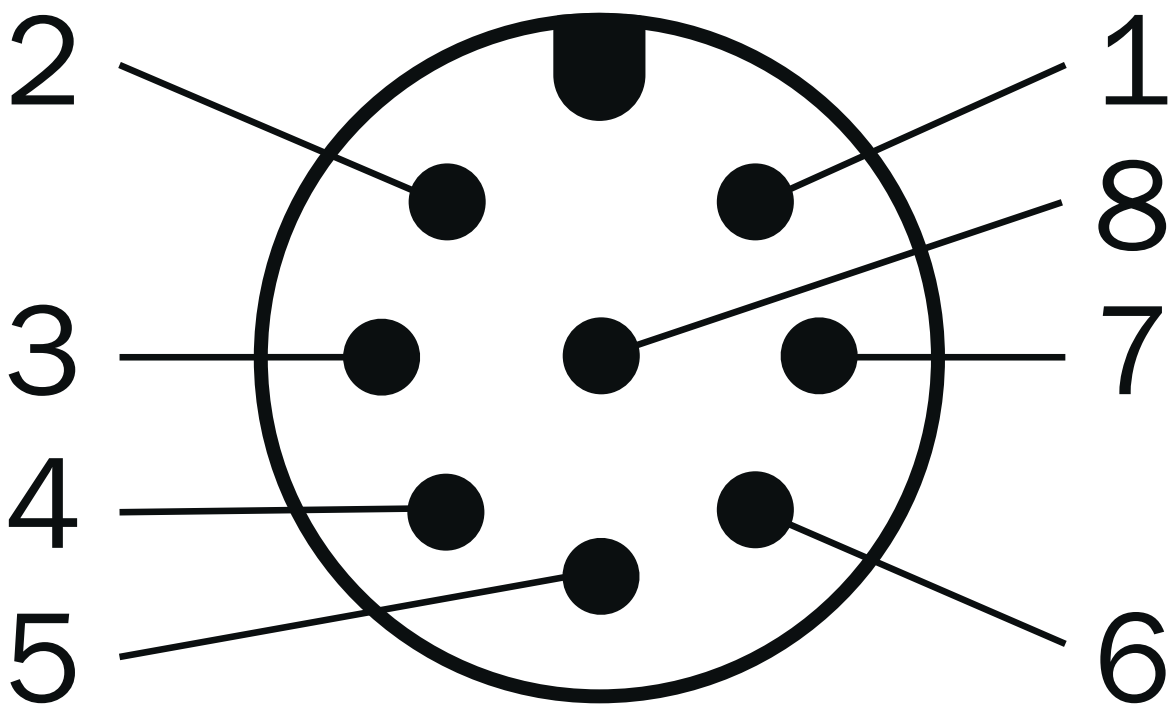
Axial working distance (z)	Range (Δx)	Range (Δy)
0.5 m	0.7 m	0.6 m
1.0 m	1.4 m	1.2 m
1.5 m	2.1 m	1.7 m
2.0 m	2.8 m	2.3 m
3.0 m	4.2 m	3.5 m
4.0 m	5.6 m	4.6 m
5.0 m	7.0 m	5.8 m
6.0 m	8.4 m	6.9 m
8.0 m	11.2 m	9.2 m
10.0 m	14.0 m	11.5 m
13.0 m	18.2 m	15.0 m

Connection type Gigabit Ethernet



socket: M12, 8-pin, X-coded
① DA+ (data A+)
② DA- (data A -)
③ DB+ (data B +)
④ DB- (data B -)
⑤ DD+ (data D +)
⑥ DD- (data D -)
⑦ DC- (data C -)
⑧ DC+ (data C +)

Connection type Voltage/digital I/O



plug, M12, 8-pin, A-coded
① UV (supply voltage: 24 V DC –30 % ... +25 %)
② DIO 3 (configurable digital input and output 3, short-circuit protected)
③ GND (zero potential)
④ DIO 4 (configurable digital input and output 4, short-circuit protected)
⑤ DIO 1 (configurable digital input and output 1, short-circuit protected)
⑥ DIO 5 (configurable digital input and output 5, short-circuit protected)
⑦ DIO 6 (configurable digital input and output 6, short-circuit protected)
⑧ DIO 2 (configurable digital input and output 2, short-circuit protected)

Recommended accessories

Other models and accessories ➜ www.sick.com/Visionary-T_Mini

	Brief description	Type	part no.
connectors and cables			
	• **Connection type head A:** Female connector, M12, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 8-wire, PVC • **Description:** Sensor/actuator cable, special color code, shielded • **Connection systems:** Flying leads	DOL-1208-G02MF	6020663
	• **Connection type head A:** Female connector, M12, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 8-wire, PVC • **Description:** Sensor/actuator cable, special color code, shielded • **Connection systems:** Flying leads	DOL-1208-G05MF	6020664
	• **Connection type head A:** Female connector, M12, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 10 m, 8-wire, PVC • **Description:** Sensor/actuator cable, special color code, shielded • **Connection systems:** Flying leads	DOL-1208-G10MF	6048434
	• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 2 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, shielded, Gigabit Ethernet • **Application:** Zones with oils and lubricants	YM2X18-020EG1M-RJA8	2106258
	• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 5 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, shielded, Gigabit Ethernet • **Application:** Zones with oils and lubricants	YM2X18-050EG1M-RJA8	2106259
	• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 10 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, shielded, Gigabit Ethernet • **Application:** Zones with oils and lubricants	YM2X18-100EG1M-RJA8	2106260
	• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 3 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, shielded, Gigabit Ethernet • **Application:** Zones with oils and lubricants	YM2X18-030EG1M-RJA8	2145693
Mounting systems			
	• **Description:** Alignment brackets, Mounting set (2-part) incl. screws • **Dimensions (W x H x L):** 100 mm x 120 mm x 45 mm • **Material:** Aluminum • **Details:** Aluminum • **Color:** Black • **Packing unit:** 1 piece • **Suitable for:** Visionary-T Mini, safeVisionary2, Visionary-T Mini, safeVisionary2	Visionary mounting kit	2124497
device protection and care			
	• **Description:** Heat sink (2-part) including screws	Visionary heat sink	2127749

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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