



V3S130-2AAAAAA

Visionary-T

3D MACHINE VISION

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
V3S130-2AAAAAA	1088889

Other models and accessories → www.sick.com/Visionary-T

Detailed technical data

Features

Task	Collision awareness
Technology	3D snapshot time-of-flight
Product category	Configurable, programmable, Streaming, pre-calibrated
Working distance	0.5 m ... 60 m ¹⁾
Example field of view	7 m x 5.3 m ²⁾
Detection angle	69° x 56°
Angular resolution	0.39° x 0.38°
Illumination	Integrated
Illumination color	Infrared, LED, invisible, 850 nm
LED class	Risk group 0 in accordance with EN 62471
Factory calibrated	✓
Grayscale measurements	✓

¹⁾ Radial distance for targets having 100% remission.

²⁾ See table for individual values.

Mechanics/electronics

Connection type	M12 8-pin Gigabit Ethernet, X-coded M12 17-pin (voltage supply/data), system plug, digital IOs (24 V)
Supply voltage	24 V DC ¹⁾
Power consumption	≤ 22 W, Typical (without digital I/Os)
Peak current	3 A
Enclosure rating	IP67
Protection class	III
Housing color	Blue, black

¹⁾ (+/-20 %), < 2,5 ms integration time
(+/-15 %), > 2,5 ms integration time.

²⁾ With cooling fins.

Weight	1.9 kg, with cooling fins
Dimensions (L x W x H)	162 mm x 116 mm x 104 mm ²⁾
Mounting	Any or can be determined by raster

¹⁾ (+/-20 %), < 2,5 ms integration time
 (+/-15 %), > 2,5 ms integration time.

²⁾ With cooling fins.

Performance

Pixel count	176 px x 144 px
Repeatability	≥ 2 mm, At 1 m distance ¹⁾ ≥ 7 mm, At 7 m distance ²⁾
On delay	< 15 s
Response time	< 100 ms ³⁾
Integrated application	3D detection e. g., collision warning, emptiness check, layer check, Intrusion controll, object security

¹⁾ Typical values for common applications see tables below.

²⁾ See table for individual values.

³⁾ Typical.

Interfaces

Ethernet	✓
Function	Device control, position and detection status of each cuboid and group
Data transmission rate	≤ 36 Mbit/s
Configuration software	SOPAS ET, Telegram interface, API (Java), Web-Interface
Digital input	2, allowing to access 32 configurations
Digital output	4
Optical indicators	2 status LEDs

Ambient data

Electromagnetic compatibility (EMC)	EN 61000-6-2:2005-08, EN 61000-6-3:2007-01
Shock load	EN 60068-2-27:2009
Vibration load	EN 60068-2-6, EN 60068-2-64
Ambient operating temperature	0 °C ... +50 °C, with cooling fins
Storage temperature	-20 °C ... +70 °C
Ambient light immunity	< 50 klx, Sunlight

General notes

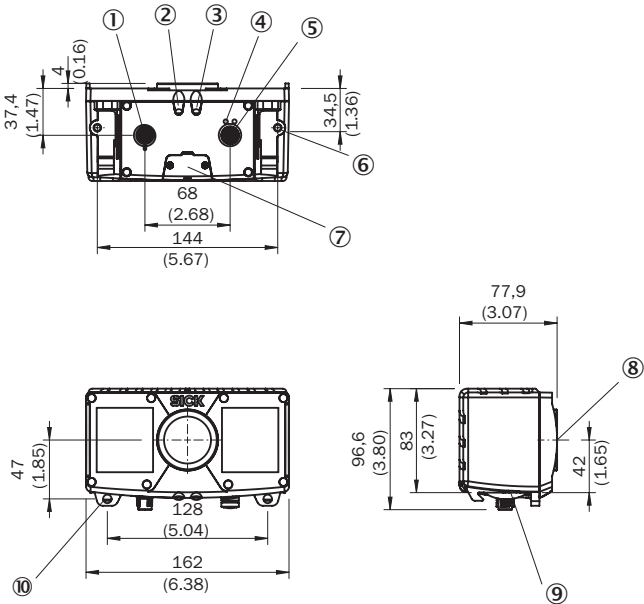
Note	All relevant materials for commissioning (instructions, drivers, examples, software, API) can be found in the Downloads tab under "Other downloads".
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Classifications

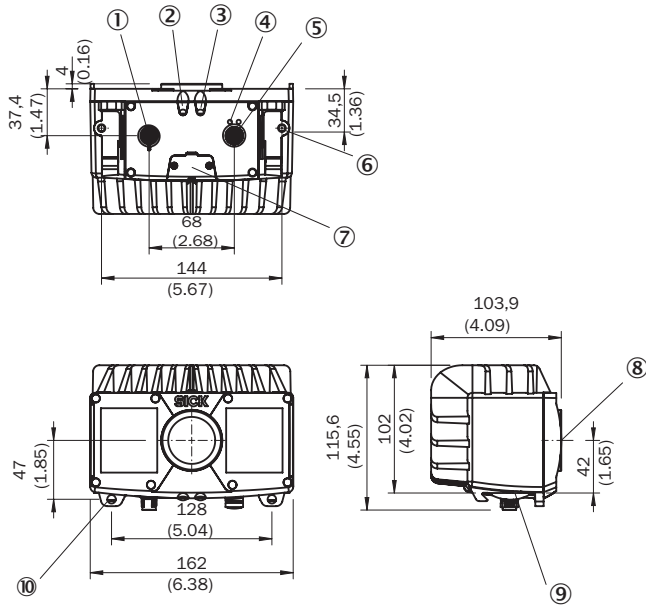
ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205

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))



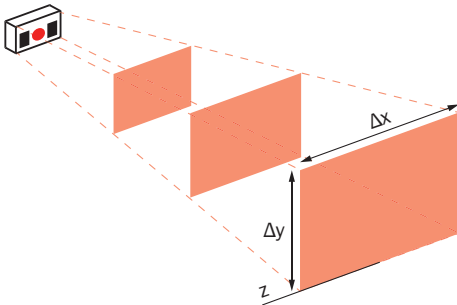
- ① Power connection / digital inputs and outputs / service
- ② Device display
- ③ Application status display
- ④ Ethernet status display
- ⑤ Ethernet connection
- ⑥ M6 blind tapped holes, 7 mm deep (2 x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Interface bracket
- ⑩ Bracket mounting (accessories)



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Field of view

Detection volume and field of view



Axial working distance (z)	Range (Δx)	Range (Δy)	Minimal object size (Δx)	Minimal object size (Δy)
0,5 m	0,7 m	0,5 m	8 mm	8 mm
1,0 m	1,4 m	1,0 m	16 mm	14 mm
1,5 m	2,1 m	1,6 m	24 mm	22 mm
2,0 m	2,8 m	2,1 m	32 mm	30 mm
3,0 m	4,2 m	3,1 m	46 mm	44 mm
4,0 m	5,5 m	4,2 m	62 mm	60 mm
5,0 m	6,8 m	5,3 m	78 mm	74 mm
10,0 m	13,7 m	10,6 m	156 mm	148 mm

Axial working distance (z)	Range (Δx)	Range (Δy)	Minimal object size (Δx)	Minimal object size (Δy)
15,0 m	20,6 m	15,9 m	234 mm	222 mm
20,0 m	27,4 m	21,2 m	312 mm	296 mm
40,0 m	54,9 m	42,5 m	624 mm	590 mm

Accuracy/repeatability (under laboratory conditions)

Working distance radial (r)	Accuracy (100 % remission)	Repeatability (1 σ - 100 % remission)	Accuracy (10 % remission)	Repeatability (1 σ - 10 % remission)
0,50 m	± 15 mm	± 2 mm	± 15 mm	± 2 mm
1,00 m	± 15 mm	± 2 mm	± 15 mm	± 3 mm
2,00 m	± 15 mm	± 2 mm	± 20 mm	± 6 mm
3,00 m	± 15 mm	± 3 mm	± 35 mm	± 10 mm
4,00 m	± 20 mm	± 3 mm	± 50 mm	± 20 mm
5,00 m	± 25 mm	± 4 mm	± 50 mm	± 25 mm
7,00 m	± 35 mm	± 7 mm	-	-
10,00 m	± 50 mm	± 15 mm	-	-
15,00 m	± 50 mm	± 30 mm	-	-
20,00 m	± 50 mm	± 50 mm	-	-

Absolute measurement accuracy (z-axis) and repeatability (central detection volume) at 100% and 10% remission and without background light for integration times of 1 ms (0.5 m and 1 m distance) and 4 ms (all other distances).

Working distance radial (r)	Measurement accuracy (100% remission)	Repeatability (1 σ - 100% remission)	Measurement accuracy (10% remission)	Repeatability (1 σ - 10% remission)
0,5 m	± 15 mm	± 2 mm	± 15 mm	± 2 mm
1,0 m	± 15 mm	± 2 mm	± 15 mm	± 3 mm
2,0 m	± 15 mm	± 2 mm	± 20 mm	± 6 mm
3,0 m	± 15 mm	± 3 mm	± 35 mm	± 10 mm
4,0 m	± 20 mm	± 3 mm	± 50 mm	± 20 mm
5,0 m	± 25 mm	± 4 mm	± 50 mm	± 25 mm
7,0 m	± 35 mm	± 7 mm	-	-
10,0 m	± 50 mm	± 15 mm	-	-
15,0 m	± 50 mm	± 30 mm	-	-
20,0 m	± 50 mm	± 50 mm	-	-

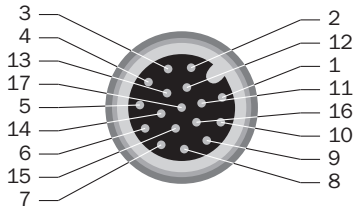
Recognizable object size and measurement accuracy. Actual detection accuracy and repeatability depend on your specific environment and setup. In the table you find typical values for a few common applications.

Application ¹⁾	Detectable object size	Measurement accuracy
Intrusion of observed scene at 1.5 m distance	30 mm	± 15 mm
Goods protection at 2 m distance	30 mm	± 15 mm
Empty box detection at 1.5 m distance	30 mm	± 15 mm
Collision warning at 2.5 m	50 mm	± 30 mm

Application	Detectable object size	Measurement accuracy
Intrusion of observed scene at 1.5 m distance	30 mm	± 15 mm
Goods protection at 2 m distance	30 mm	± 15 mm
Empty container detection at 1.5 m distance	30 mm	± 15 mm
Collision warning at 2.5 m	50 mm	± 30 mm

Connection type

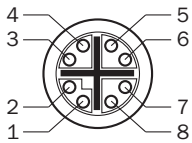
Digital I/O



M12, 17-pin male connector

- ① GND – reference mass
- ② Supply voltage
- ③ CAN L – reserved, not implemented. Do not connect to VCC!
- ④ CAN H – reserved, not implemented. Do not connect to VCC!
- ⑤ TD+ (RS-422/485) Host – reserved, not implemented. Do not connect to VCC!
- ⑥ TD- (RS-422/485) Host, TxD (RS-232), Host – reserved, not implemented. Do not connect to VCC!
- ⑦ TxD (RS-232), Aux – service only
- ⑧ RxD (RS-232), Aux – service only
- ⑨ SENS GND – GND for electrically decoupled inputs
- ⑩ SENS IN1 – switch input, electrically decoupled
- ⑪ RD+ (RS-422) Host – reserved, not implemented. Do not connect to VCC!
- ⑫ RD- (RS-422/485) Host, RxD (RS-232), Host – reserved, not implemented. Do not connect to VCC!
- ⑬ INOUT 1 - Programmable digital I/O
- ⑭ INOUT 2 - Programmable digital I/O
- ⑮ SENS IN2 – switch input, electrically decoupled
- ⑯ INOUT 3 - Programmable digital I/O
- ⑰ INOUT 4 - Programmable digital I/O

Gigabit Ethernet

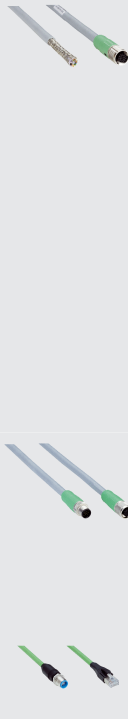


M12, 8-pin female connector, X-coded (Gigabit Ethernet)

- ① TRD0_P
- ② TRD0_N
- ③ TRD1_P
- ④ TRD1_N
- ⑤ TRD3_P
- ⑥ TRD3_N
- ⑦ TRD2_P
- ⑧ TRD2_N

Recommended accessories

Other models and accessories → www.sick.com/Visionary-T

	Brief description	Type	Part no.
Plug connectors and cables			
	• Connection type head A: Female connector, M12, 17-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Power, serial, CAN, digital I/Os • Cable: 3 m, 17-wire, stripped, PE-X • Description: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, shielded • Connection systems: Flying leads • Application: Drag chain operation	YF2ASD-030XXXLECX	2070425
	• Connection type head A: Female connector, M12, 17-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Power, serial, CAN, digital I/Os • Cable: 5 m, 17-wire, stripped, PE-X • Description: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, shielded • Connection systems: Flying leads • Application: Drag chain operation	YF2ASD-050XXXLECX	2070426
	• Connection type head A: Female connector, M12, 17-pin, straight, A-coded • Connection type head B: Male connector, M12, 17-pin, straight, A-coded • Signal type: Power, serial, CAN, digital I/Os • Cable: 3 m, 17-wire • Description: Power, serial, CAN, digital I/Os, suitable for 2 A, shielded, to connection module CDB650 • Application: Drag chain operation	YM2A8D-030XXF2A8D	6051194
	• 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, Gigabit Ethernet, shielded • Application: Zones with oils and lubricants	YM2X18-020EG1MRJA8	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, Gigabit Ethernet, shielded • Application: Zones with oils and lubricants	YM2X18-050EG1MRJA8	2106259
Terminal and alignment brackets			
	1 piece, Bracket including clamps and screws, metal, Bracket including clamps and screws	Mounting set (2-part) incl. clamps and screws	2077710
	1 piece, 2x clamps and 2x screws, metal, 2 clamps and 2 screws	2x clamps, 2x screws	2077709

Recommended services

Additional services → www.sick.com/Visionary-T

	Type	Part no.
Extended warranty		
• Product area: Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors • Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery). • Duration: Five-year warranty from delivery date.	Extended warranty for a total of five years from delivery date	1680671

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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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