



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	Presence inspection Measuring, 3D Collision awareness
Technology	3D snapshot, image analysis
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°
Light source	Internal lighting LED, invisible, infrared, 850 nm
LED class	
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

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

²⁾ With cooling fins.

Housing color	Blue, black
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 range ¹⁾ ≥ 7 mm, at 7 m range ²⁾
On delay	< 15 s
Response time	< 100 ms ³⁾
Integrated application	3D detection e. g., collision warning, emptiness check, layer check, Intrusion control, 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

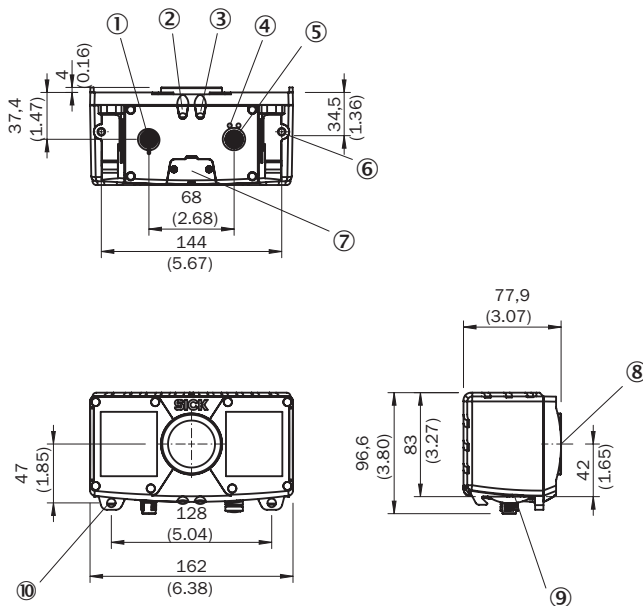
Note	All relevant materials for commissioning (instructions, drivers, examples, software, API) can be found in the Downloads tab under "Other downloads".
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Classifications

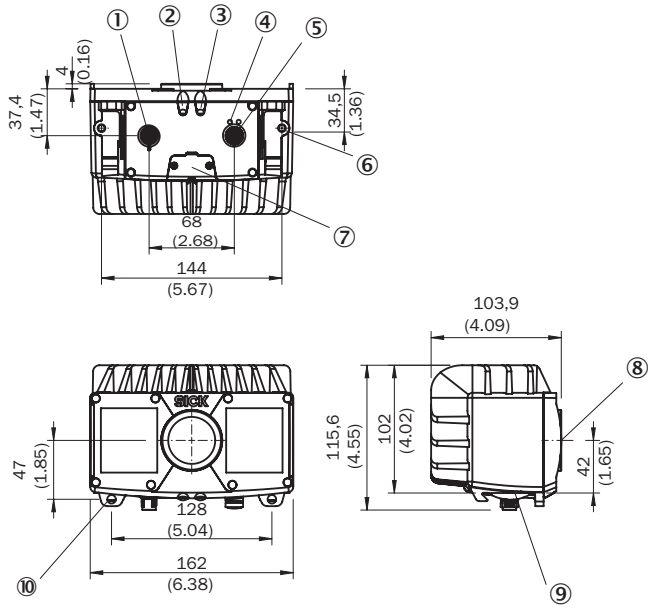
ECl@ss 5.0	27310205
ECl@ss 5.1.4	27310205
ECl@ss 6.0	27310205
ECl@ss 6.2	27310205
ECl@ss 7.0	27310205

ECl@ss 8.0	27310205
ECl@ss 8.1	27310205
ECl@ss 9.0	27310205
ECl@ss 10.0	27310205
ECl@ss 11.0	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))



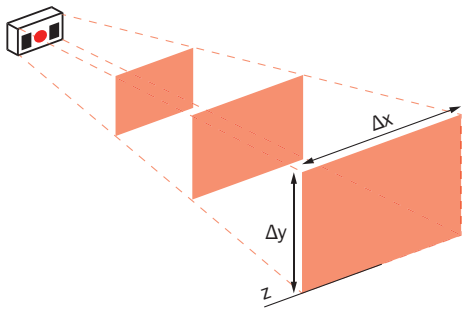
- ① Power connection / digital inputs and outputs / service
- ② Device display
- ③ Application status display
- ④ Ethernet status display
- ⑤ Ethernet connection
- ⑥ M6 blind tapped holes, 7 mm deep (2 x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Interface bracket
- ⑩ Bracket mounting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



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Field of view

Detection zone and field of view ($\Delta x \times \Delta y$)



Working distance absolute (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

Working distance absolute (z)	Range (Δx)	Range (Δy)	Minimal object size (Δx)	Minimal object size (Δy)
10,0 m	13,7 m	10,6 m	156 mm	148 mm
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	-	-

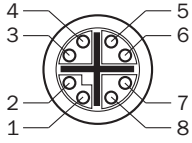
Recognizable object size and measurement accuracy. Actual detection accuracy and repeatability depend on your specific environment and setup. In the table you find typical values for a few common applications.

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

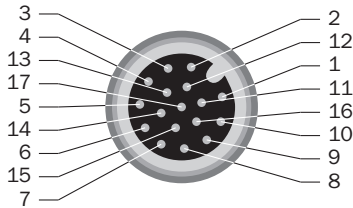
Gigabit Ethernet



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

Digital I/O








M12, 17-pin male connector

- ① GND - reference mass
- ② 24 V DC -30% to +20% - 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

Recommended accessories

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

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: Flying leads Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, PE-X, shielded, 3 m	YF2ASD-030XXXLECX	2070425

	Brief description	Type	Part no.
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: Flying leads Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, PE-X, shielded, 5 m	YF2ASD-050XXXLECX	2070426
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: male connector, M12, 17-pin, straight, A-coded Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, shielded, 3 m	YM2A8D-030XXF2A8D	6051194
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Ethernet, Gigabit Ethernet, PUR, halogen-free, shielded, 2 m	YM2X18-020EG1MRJA8	2106258
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Ethernet, Gigabit Ethernet, PUR, halogen-free, shielded, 5 m	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.
Warranty extensions		
<ul style="list-style-type: none"> • Product area: Identification solutions, machine vision, Distance sensors, Detection and ranging solutions • Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase) • Duration: Five-year warranty from delivery date. 	Extended warranty for a total of five years from delivery date	1680671

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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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