

SICK.COM



DATA SHEET

V3S130-2AAAAAA

Visionary-T
3D machine vision

SICK Sensor Intelligence



Illustration may differ

3D MACHINE VISION

V3S130-2AAAAAA

ORDERING INFORMATION

Type	part no.
V3S130-2AAAAAA	1088889

Further device versions and accessories at 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 I/Os (24 V)
Supply voltage	24 V DC ¹⁾
Power consumption	≤ 22 W, Typical (without digital I/Os)
Peak current	3 A
Enclosure rating	IP67

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

²⁾ With cooling fins.

Protection class	III
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 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

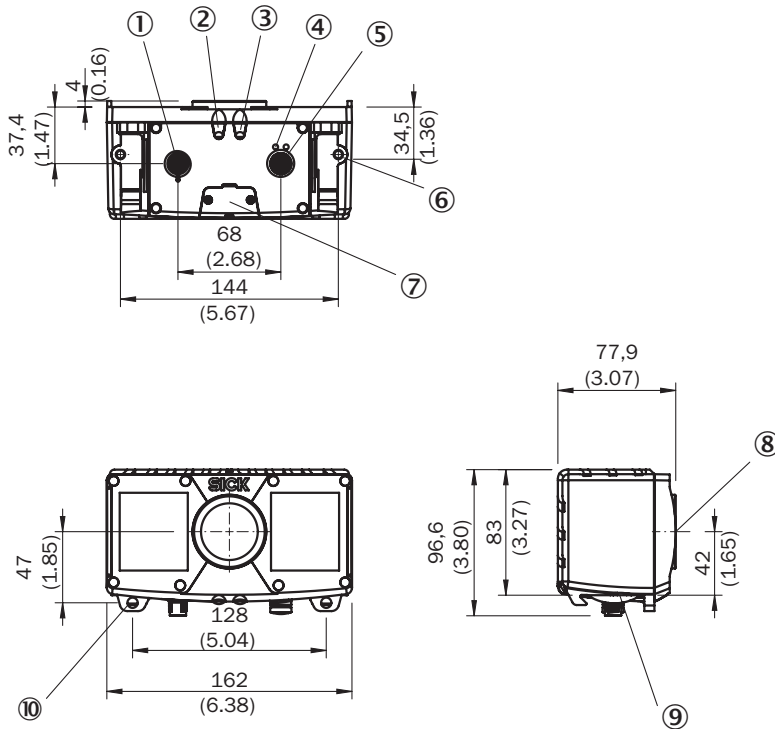
GENERAL NOTES

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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CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

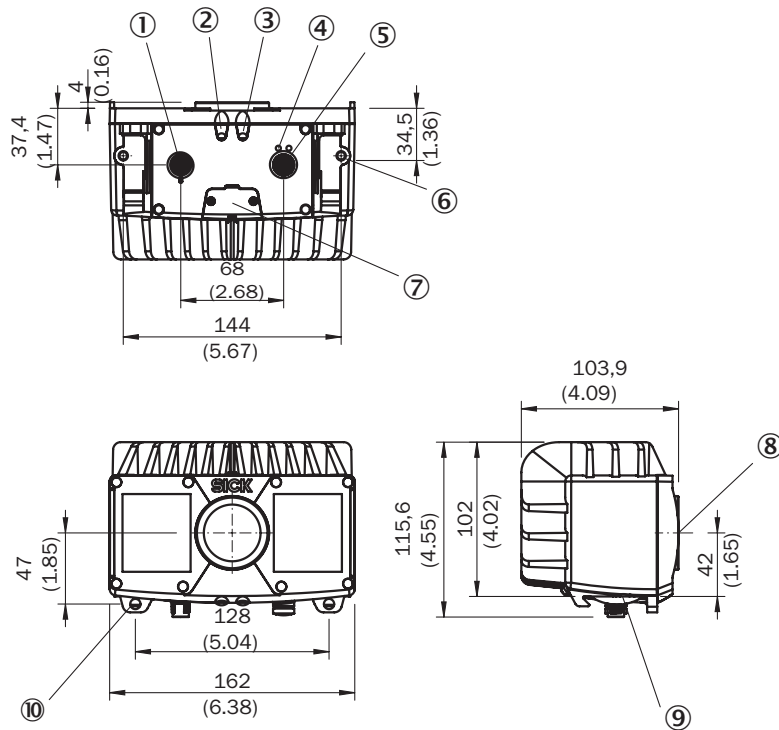
DIMENSIONAL DRAWING



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)

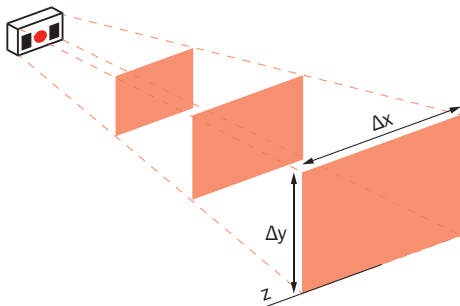
DIMENSIONAL DRAWING



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- ⑧ Optical axis
- ⑨ interface bracket
- ⑩ bracket mounting (accessories)

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

Axial working distance (z)	Range (Δx)	Range (Δy)	Minimal object size (Δx)	Minimal object size (Δy)
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
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 (1σ - 100 % remission)	Accuracy (10 % remission)	Repeatability (1σ - 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 (1σ - 100% remission)	Measurement accuracy (10% remission)	Repeatability (1σ - 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	-	-

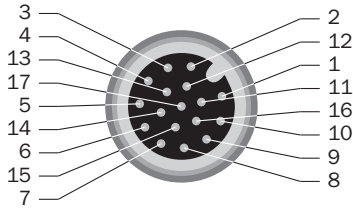
RECOGNIZABLE OBJECT SIZE AND MEASUREMENT ACCURACY. ACTUAL DETECTION ACCURACY AND REPEATABILITY DEPEND ON YOUR SPECIFIC ENVIRONMENT AND SETUP. IN THE TABLE YOU FIND TYPICAL VALUES FOR A FEW COMMON APPLICATIONS.

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

Application	Detectable object size	Measurement accuracy
Empty container detection at 1.5 m distance	30 mm	± 15 mm
Collision warning at 2.5 m	50 mm	± 30 mm

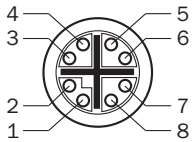
DIGITAL I/O



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

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/1088889



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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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