V3S140-2AABAAB

Visionary-T

3D MACHINE VISION

SICK
Sensor Intelligence.

V3S140-2AABAAB | Visionary-T

3D MACHINE VISION

Illustration may differ

Ordering information

Type	Part no.
V3S140-2AABAAB	1102954

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] Without cooling fins.

Weight	1.4 kg, without cooling fins
Dimensions (L x W x H)	162 mm x 93 mm x 78 mm [2]
Mounting	Any or can be determined by raster

[1] (+/-20 %), < 2,5 ms integration time
(+/-15 %), > 2,5 ms integration time.
[2] Without cooling fins.

Performance

Pixel count	176 px x 144 px
Repeatability	≥ 2 mm, At 1 m distance ≥ 7 mm, At 7 m distance [1]
On delay	< 15 s
Response time	< 66 ms
Integrated application	Data flow with the ability to process data in the device. Already-finished Key Apps can be loaded onto the device and independent applications can be created.

[1] See table for individual values.

Interfaces

Ethernet	✓
Function	Data is application-specific or can be defined in independently-developed applications.
Data transmission rate	≤ 100 Mbit/s, Ethernet (TCP/IP) communication interface: 100 Mbit/s or higher.
Configuration software	SICK AppManager, SICK AppStudio, Web-Interface
Digital input	2
Digital output	4
Optical indicators	2 status LEDs

Ambient data

| Electromagnetic compatibility (EMC)	EN 61000-6-2:2005-08, EN 61000-6-4:2007-01
Shock load	EN 60068-2-27:2009
Vibration load	EN 60068-2-6, EN 60068-2-64
Ambient operating temperature	0 °C ... +45 °C, without cooling fins [1]
Storage temperature	−20 °C ... +70 °C
Ambient light immunity	< 50 klx, Sunlight

[1] The ambient operating temperature is reduced by 5 °C in speed mode to 40 °C.

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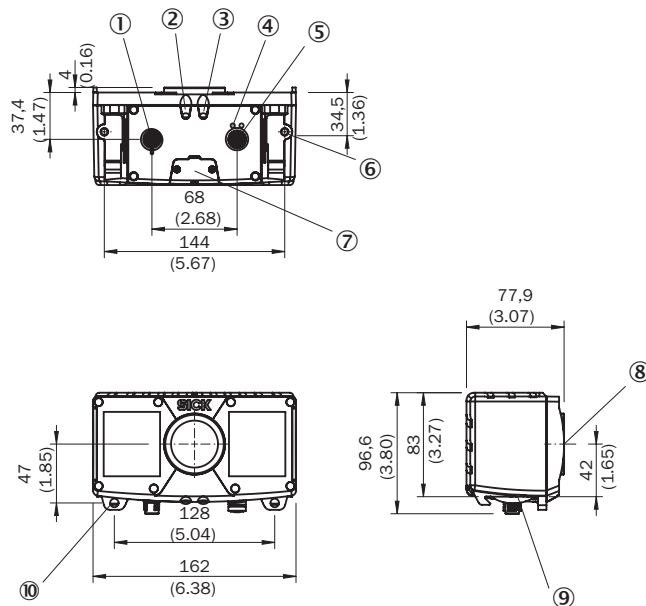
① Power connection / digital inputs and outputs / service
② Device display
③ Application status display
④ Ethernet status display
⑤ Ethernet connection
⑥ M6 blind tapped holes, 7 mm deep (2 x), for mounting
⑦ Service interface
⑧ Optical axis
⑨ Interface bracket
⑩ Bracket mounting (accessories)
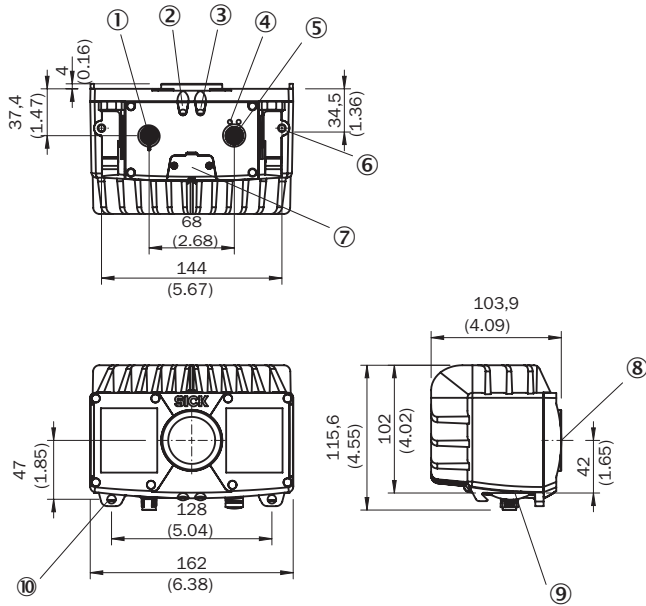
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Field of view

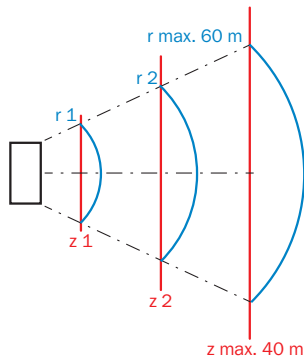Detection volume and field of view
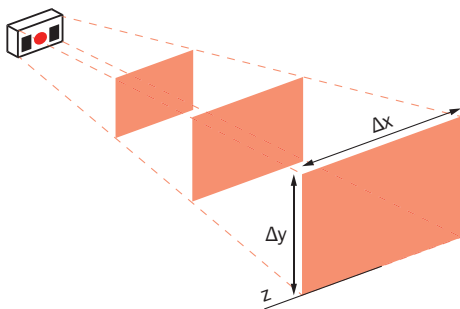
Axial working distance (z)	Range (Δx)	Range (Δy)
0,5 m	0,7 m	0,5 m
1,0 m	1,4 m	1,0 m
1,5 m	2,1 m	1,6 m
2,0 m	2,8 m	2,1 m
3,0 m	4,1 m	3,1 m
4,0 m	5,5 m	4,2 m
5,0 m	6,8 m	5,3 m
10,0 m	13,7 m	10,6 m

Axial working distance (z)	Range (Δx)	Range (Δy)
15,0 m	20,6 m	15,9 m
20,0 m	27,4 m	21,2 m
40,0 m	54,9 m	42,5 m

Absolute measurement accuracy and repeatability, working distance: radial


Absolute accuracy (z-axis) and repeatability at 10 % and 100 % remission and without background light (central detection zone)

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	-	-

Connection type

Digital I/O
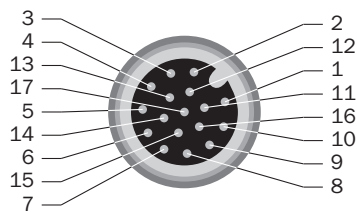
M12, 17-pin male connector

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
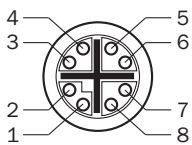
M12, 8-pin female connector, X-coded (Gigabit Ethernet)
① TRD0_P
② TRD0_N
③ TRD1_P
④ TRD1_N
⑤ TRD3_P
⑥ TRD3_N
⑦ TRD2_P
⑧ TRD2_N

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-030XXXXLECX	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-050XXXXLECX	2070426

	Brief description	Type	Part no.
	• **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-030XXXF2A8D	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

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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