



# NANS3-AAAZ30AN1

nanoScan3

SAFETY LASER SCANNERS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

Integration in the control system	Sub product family	Protective field range	Number of fields	Number of monitoring cases	Type	Part no.
Local inputs and outputs (I/O)	nanoScan3 Core I/O	3 m	8	2	NANS3-AAAZ30AN1	1100333

The system plug has to be ordered separately. For details, see "Accessories, plug connectors and cables".

Other models and accessories → [www.sick.com/nanoScan3](http://www.sick.com/nanoScan3)



### Detailed technical data

#### Features

<b>Sub product family</b>	nanoScan3 Core I/O
<b>Model</b>	Sensor without system plug
<b>Application</b>	Indoor
<b>Protective field range</b>	3 m
<b>Warning field range</b>	10 m
<b>Distance measuring range</b>	40 m
<b>Number of simultaneously monitored fields</b>	≤ 4 <sup>1) 2)</sup>
<b>Number of fields</b>	8 <sup>3)</sup>
<b>Number of monitoring cases</b>	2
<b>Scanning angle</b>	275°
<b>Resolution (can be configured)</b>	20 mm 30 mm 40 mm 50 mm 60 mm 70 mm 150 mm 200 mm
<b>Angular resolution</b>	0.17°
<b>Response time</b>	≥ 70 ms
<b>Protective field supplement</b>	65 mm

<sup>1)</sup> Protection, warning or contour detection fields.

<sup>2)</sup> Please note the number of available OSSD pairs.

<sup>3)</sup> Please note the number of available inputs and OSSD pairs.

#### Safety-related parameters

<b>Type</b>	Type 3 (IEC 61496)
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<b>Safety integrity level</b>	SIL 2 (IEC 61508)
<b>Category</b>	Category 3 (EN ISO 13849)
<b>Performance level</b>	PL d (EN ISO 13849)
<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	$8.0 \times 10^{-8}$
<b>T<sub>M</sub> (mission time)</b>	20 years (EN ISO 13849)
<b>Safe state in the event of a fault</b>	At least one OSSD is in the OFF state.

## Functions

<b>Restart interlock</b>	✓
<b>External device monitoring (EDM)</b>	✓
<b>Multiple sampling</b>	✓
<b>Monitoring case switching</b>	✓
<b>Simultaneous monitoring</b>	✓
<b>Static protective field switching</b>	✓
<b>Safe contour detection</b>	✓
<b>Contour as a reference</b>	✓
<b>Integrated configuration memory</b>	✓
<b>Measured data output</b>	Via Ethernet

## Interfaces

<b>Connection type</b>	Depending on system plug
<b>Universal I/Os</b>	3 <sup>1)</sup>
<b>Outputs</b>	
OSSD pairs	1
<b>Inputs</b>	
Universal inputs	≤ 1 <sup>2)</sup>
Static control inputs	≤ 1 <sup>3)</sup>
<b>Configuration method</b>	PC with Safety Designer (Configuration and Diagnostic Software)
<b>Configuration and diagnostics interface</b>	USB 2.0, micro USB
<b>Data interface</b>	
Services	CoLa 2 (configuration and diagnostics using Safety Designer) Data output DHCP SNTP
<b>Display elements</b>	Graphic color display, LEDs

<sup>1)</sup> Freely programmable as input or output, e.g. external device monitoring input, reset input, static control input, contamination warning, warning field, reset required.

<sup>2)</sup> Freely programmable input, e.g. external device monitoring input, reset input, static control input.

<sup>3)</sup> Availability depends on the configuration of the universal I/Os and universal inputs.

## Electrical data

<b>Protection class</b>	III (EN 61140)
<b>Supply voltage V<sub>s</sub></b>	24 V DC (16.8 V DC ... 30 V DC)
<b>Power consumption typical</b>	3.9 W (without output load)

### Mechanical data

<b>Dimensions (W x H x D)</b>	106.6 mm x 80 mm x 117.5 mm (including system plug)
<b>Weight</b>	0.67 kg
<b>Housing material</b>	Aluminum
<b>Housing color</b>	RAL 1021 (yellow), RAL 9005 (black)
<b>Optics cover material</b>	Polycarbonate

### Ambient data

<b>Enclosure rating</b>	IP65 (IEC 60529)
<b>Ambient light immunity</b>	≤ 40 klx (IEC 61496-3) <sup>1)</sup>
<b>Ambient operating temperature</b>	-10 °C ... +50 °C
<b>Storage temperature</b>	-25 °C ... +70 °C
<b>Vibration resistance</b>	IEC 60068-2-6, IEC 60068-2-64, IEC 60721-3-5, IEC TR 60721-4-5, IEC 61496-3
<b>Class</b>	5M1 (IEC 60721-3-5)
<b>Shock resistance</b>	IEC 60068-2-27, IEC 60721-3-5, IEC TR 60721-4-5, IEC 61496-3
<b>Class</b>	5M1 (IEC 60721-3-5)
<b>Continuous shock</b>	50 m/s <sup>2</sup> , 11 ms 100 m/s <sup>2</sup> , 16 ms
<b>EMC</b>	IEC 61496-1, IEC 61000-6-2, IEC 61000-6-3

<sup>1)</sup> Typical ambient light immunity, for ambient light sources directly in the scan plane in accordance with IEC 61496-3: ≤ 3 klx.

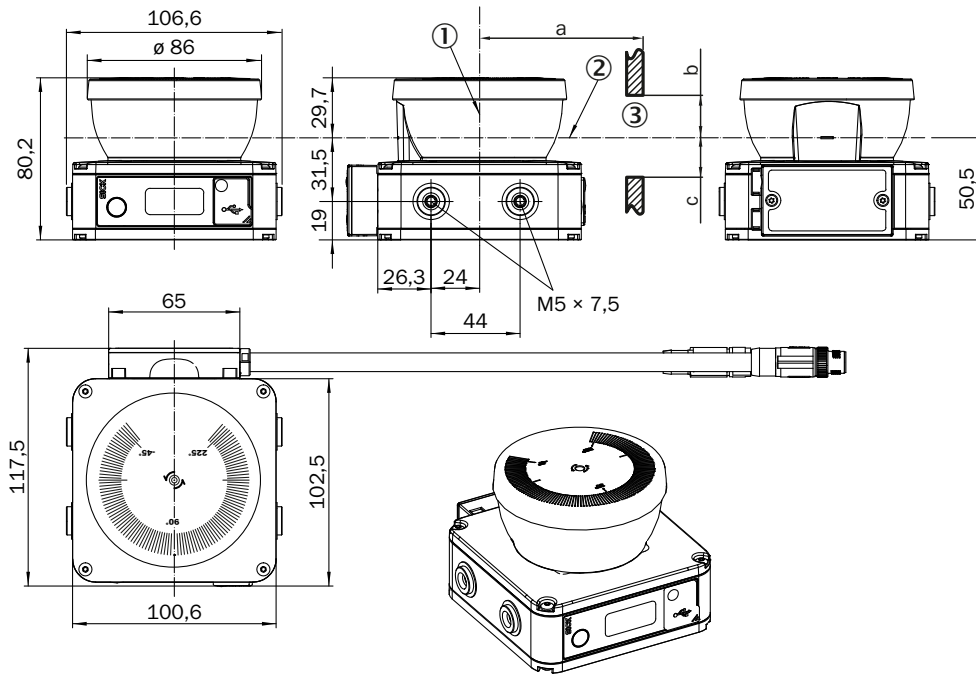
### Other information

<b>Type of light</b>	Pulsed laser diode
<b>Wave length</b>	905 nm
<b>Detectable remission factor</b>	1.8% to several 1000%
<b>Laser class</b>	1 (21 CFR 1040.10 and 1040.11, IEC 60825-1)

### Classifications

<b>ECLASS 5.0</b>	27272705
<b>ECLASS 5.1.4</b>	27272705
<b>ECLASS 6.0</b>	27272705
<b>ECLASS 6.2</b>	27272705
<b>ECLASS 7.0</b>	27272705
<b>ECLASS 8.0</b>	27272705
<b>ECLASS 8.1</b>	27272705
<b>ECLASS 9.0</b>	27272705
<b>ECLASS 10.0</b>	27272705
<b>ECLASS 11.0</b>	27272705
<b>ECLASS 12.0</b>	27272705
<b>ETIM 5.0</b>	EC002550
<b>ETIM 6.0</b>	EC002550
<b>ETIM 7.0</b>	EC002550
<b>ETIM 8.0</b>	EC002550
<b>UNSPSC 16.0901</b>	39121528

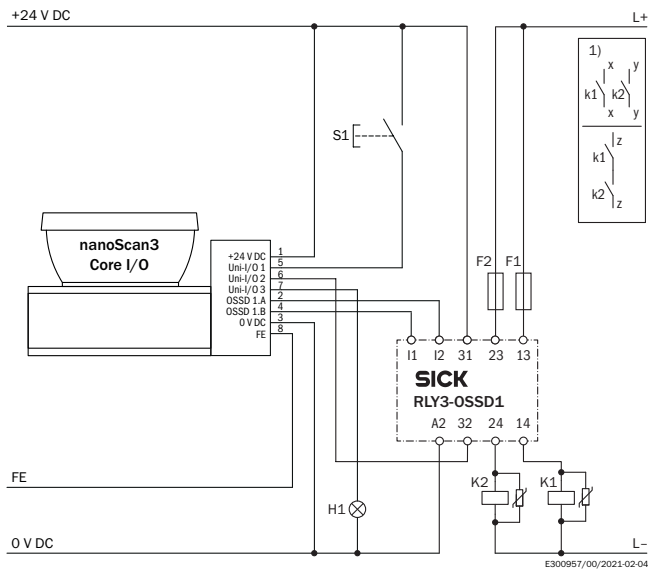
Dimensional drawing (Dimensions in mm (inch))



- ① Mirror axis of rotation
- ② Scan plane
- ③ Required viewing slit (a: length of the viewing slit, b: minimum height above the scan plane, c: minimum height below the scan plane. See the operating instructions for details.)

Connection diagram

nanoScan3 Core I/O with restart interlock and external device monitoring at RLY3-OSSD1 safety relay



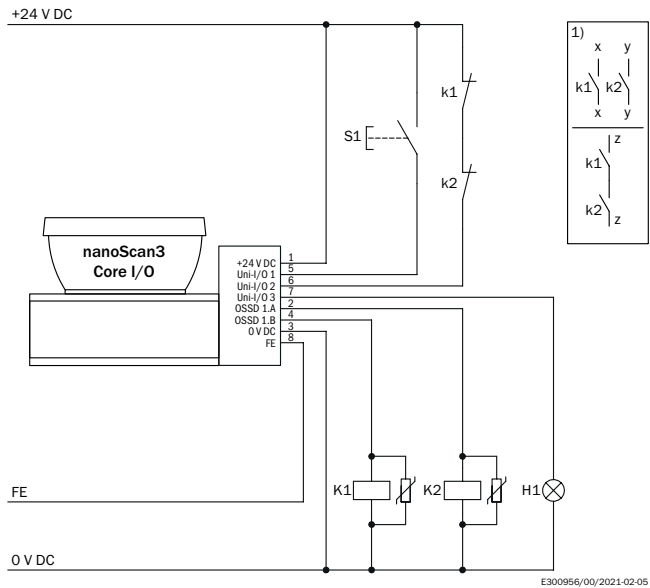
① Output circuits: These contacts must be incorporated into the control such that the dangerous state is brought to an end if the output circuit is open. For categories 4 and 3, they must be incorporated on dual-channels (x, y paths). Single-channel incorporation into the control (z path) is only possible with a single-channel control and taking the risk analysis into account.

Uni-I/O 1: configured as input reset

Uni-I/O 2: configured as input external device monitoring (EDM)

Uni-I/O 3: configured as output reset required

### nanoScan3 Core I/O with restart interlock and external device monitoring



Ⓢ Output circuits: These contacts must be incorporated into the control such that the dangerous state is brought to an end if the output circuit is open. For categories 4 and 3, they must be incorporated on dual-channels (x, y paths). Single-channel incorporation into the control (z path) is only possible with a single-channel control and taking the risk analysis into account.

Uni-I/O 1: configured as input reset


Uni-I/O 2: configured as input external device monitoring (EDM)

Uni-I/O 3: configured as output reset required

### Recommended accessories

Other models and accessories → [www.sick.com/nanoScan3](http://www.sick.com/nanoScan3)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	1 piece, Alignment bracket, alignment with cross-wise axis and depth axis possible	Mounting kit 2a	2111769
	1 piece, Mounting bracket	Mounting kit 1a	2111767
	1 piece, Mounting bracket with optics cover protection	Mounting kit 1b	2111768
	1 piece, Alignment bracket with protection for the optics cover, alignment with cross-wise axis and depth axis possible	Mounting kit 2b	2111770
<b>Plug connectors and cables</b>			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> System plug</li> <li>• <b>Description:</b> Integrated configuration memory, System connection; voltage supply: cable 300 mm with M12 male connector, 8-pin, A-coded, Ethernet: cable 250 mm with M12 female connector, 4-pin, D-coded</li> </ul>	NANSX-AAABAEZZ1	2104949

	Brief description	Type	Part no.
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> System plug</li> <li>• <b>Description:</b> Integrated configuration memory, System connection; voltage supply: cable 300 mm with M12 male connector, 8-pin A-coded</li> </ul>	NANSX-AAABZZZ1	2105106

## 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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)