



# NANS3-CAAZ30AN1

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 Pro I/O  | 3 m                    | 128              | 128                        | NANS3-CAAZ30AN1 | 1100334  |

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 Pro 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> | ≤ 8 <sup>1) 2)</sup>                                                   |
| <b>Number of fields</b>                          | 128                                                                    |
| <b>Number of monitoring cases</b>                | 128                                                                    |
| <b>Scanning angle</b>                            | 275 °                                                                  |
| <b>Resolution (can be configured)</b>            | 20 mm<br>30 mm<br>40 mm<br>50 mm<br>60 mm<br>70 mm<br>150 mm<br>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.

### Safety-related parameters

|                               |                    |
|-------------------------------|--------------------|
| <b>Type</b>                   | Type 3 (IEC 61496) |
| <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>Dynamic 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>                          | 4 <sup>1)</sup>                                                                             |
| <b>Outputs</b>                                 |                                                                                             |
| OSSD pairs                                     | ≤ 2 <sup>2)</sup>                                                                           |
| <b>Inputs</b>                                  |                                                                                             |
| Universal inputs                               | ≤ 8 <sup>3)</sup>                                                                           |
| Dynamic switching signals                      | ≤ 4 <sup>2)</sup>                                                                           |
| Static control inputs                          | ≤ 6 <sup>2)</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)<br>Data output<br>DHCP<br>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> Availability depends on the configuration of the universal I/Os and universal inputs.

<sup>3)</sup> Freely programmable input, e.g. external device monitoring input, reset input, static control input.

## 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>        | $\leq 40$ 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<br>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:  $\leq 3$  klx.

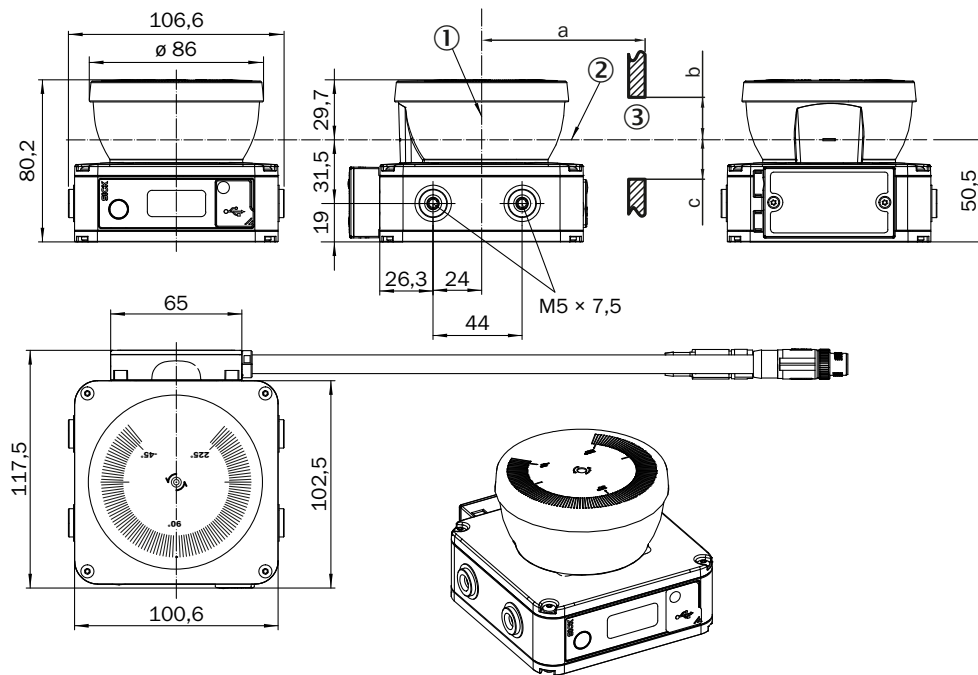
## Other information

|                                    |                                             |
|------------------------------------|---------------------------------------------|
| <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))



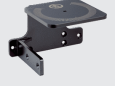
① Mirror axis of rotation

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.)

## Recommended accessories

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

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                     | Type            | Part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| Mounting brackets and plates                                                        |                                                                                                                                                                                                                                                                                                                       |                 |          |
|  | 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  |
| Others                                                                              |                                                                                                                                                                                                                                                                                                                       |                 |          |
|  | <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, 17-pin, A-coded, Ethernet: cable 250 mm with M12 female connector, 4-pin, D-coded</li> </ul> | NANSX-AAACAEZZ1 | 2104860  |

|                                                                                   | 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, 17-pin A-coded</li></ul>                                                   | NANSX-AAACZZZZ1 | 2105107  |
|  | <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 2 m with flying leads, 17-wire</li></ul>                                                                   | NANSX-AACCZZZZ1 | 2105109  |
|  | <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 2 m with flying leads, 17-wire, Ethernet: cable 250 mm with M12 female connector, 4-pin, D-coded</li></ul> | NANSX-AACCAEZZ1 | 2105108  |

## 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)