



# C4P-EX18011C00

deTec

**SAFETY LIGHT CURTAINS**

**SICK**  
Sensor Intelligence.



## Ordering information

deTec4 Ex II 3GD

| Resolution | Scanning range | Protective field height | System part | Type           | Part no. |
|------------|----------------|-------------------------|-------------|----------------|----------|
| 14 mm      | 20 m           | 1,800 mm                | Receiver    | C4P-EX18011C00 | 1222451  |

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

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

Illustration may differ



## Detailed technical data

## Features

|                                |                                                                                                                                                                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application</b>             | Explosive areas                                                                                                                                                                                                                   |
| <b>Ex-approvals</b>            | ATEX for gas: II 3G Ex ec op is IIC T4 Gc<br>ATEX for dust: II 3D Ex tc IIIC T135 °C Dc                                                                                                                                           |
| <b>System part</b>             | Receiver                                                                                                                                                                                                                          |
| <b>Resolution</b>              | 14 mm                                                                                                                                                                                                                             |
| <b>Scanning range</b>          | 20 m                                                                                                                                                                                                                              |
| <b>Protective field height</b> | 1,800 mm                                                                                                                                                                                                                          |
| <b>Response time</b>           | 20 ms (Uncoded)<br>45 ms (code 1 or code 2)                                                                                                                                                                                       |
| <b>No blind zones</b>          | Yes                                                                                                                                                                                                                               |
| <b>Synchronization</b>         | Optical synchronisation                                                                                                                                                                                                           |
| <b>Items supplied</b>          | Receiver<br>Test rod with diameter corresponding to the resolution of the safety light curtain<br>"Notes for explosion protection" label(s)<br>Safety instruction<br>Mounting instructions<br>Operating instructions for download |

## Safety-related parameters

|                                                                           |                                        |
|---------------------------------------------------------------------------|----------------------------------------|
| <b>Type</b>                                                               | Type 4 (IEC 61496-1)                   |
| <b>Safety integrity level</b>                                             | SIL3 (IEC 61508)<br>SILCL3 (IEC 62061) |
| <b>Category</b>                                                           | Category 4 (ISO 13849-1)               |
| <b>Performance level</b>                                                  | PL e (ISO 13849-1)                     |
| <b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b> |                                        |
| Single device                                                             | 15.3 x 10 <sup>-9</sup>                |
| Cascade with one guest                                                    | 30.5 x 10 <sup>-9</sup>                |

|                                           |                                        |
|-------------------------------------------|----------------------------------------|
| Cascade with two guest devices            | 45.6 x 10 <sup>-9</sup>                |
| <b>T<sub>M</sub> (mission time)</b>       | 20 years (ISO 13849-1)                 |
| <b>Safe state in the event of a fault</b> | At least one OSSD is in the OFF state. |

## Functions

|                                                            |   |
|------------------------------------------------------------|---|
| <b>Protective operation</b>                                | ✓ |
| <b>Automatic calibration of the protective field width</b> | ✓ |
| <b>Beam coding</b>                                         | ✓ |
| <b>Restart interlock</b>                                   | ✓ |
| <b>External device monitoring (EDM)</b>                    | ✓ |
| <b>Cascading</b>                                           | ✓ |
| <b>Smart presence detection</b>                            | ✓ |
| <b>Reduced resolution</b>                                  | ✓ |
| <b>Dynamic protective field width during operation</b>     | ✓ |
| <b>Differentiation between man and material (muting)</b>   | ✓ |

## Interfaces

|                                                                                     |                                                                                                           |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>System connection</b>                                                            | Depending on system plug (M12 male connector, 5-pin or 8-pin)                                             |
| <b>Extension connection</b>                                                         | Depending on system plug (without extension connection or with M12 female connector, 5-pin)               |
| <b>Configuration method</b>                                                         | DIP switch on system plug                                                                                 |
| <b>Display elements</b>                                                             | LEDs                                                                                                      |
| <b>Display of the synchronization status of the upper and lower beams</b>           | ✓                                                                                                         |
| <b>Application diagnostic output (ADO)</b>                                          | ✓                                                                                                         |
| <b>IO-Link</b>                                                                      | ✓                                                                                                         |
| <b>Near Field Communication (NFC)</b>                                               | ✓                                                                                                         |
| <b>Fieldbus, industrial network</b><br>Integration via Flexi Soft safety controller | CANopen <sup>1)</sup><br>DeviceNet™<br>EtherCAT®<br>EtherNet/IP™<br>Modbus TCP<br>PROFIBUS DP<br>PROFINET |

<sup>1)</sup> For additional information on Flexi Soft -> [www.sick.com/Flexi\\_Soft](http://www.sick.com/Flexi_Soft).

## Electrical data

|                                                                  |                                                                                      |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Protection class</b>                                          | III (IEC 61140)                                                                      |
| <b>Supply voltage V<sub>S</sub></b>                              | 24 V DC (19.2 V ... 28.8 V)                                                          |
| <b>Ripple</b>                                                    | ≤ 10 %                                                                               |
| <b>Power consumption typical</b>                                 | 5.08 W (DC)                                                                          |
| <b>Output signal switching devices (OSSDs)</b><br>Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>1)</sup> |

<sup>1)</sup> Applies to the voltage range between -30 V and +30 V.

|                                            |                                                          |
|--------------------------------------------|----------------------------------------------------------|
| ON state, switching voltage HIGH           | 24 V DC ( $V_S - 2.25 \text{ V DC} \dots V_S$ )          |
| OFF state, switching voltage LOW           | $\leq 2 \text{ V DC}$                                    |
| Current-carrying capacity per OSSD         | $\leq 500 \text{ mA}$                                    |
| <b>Application diagnostic output (ADO)</b> |                                                          |
| Type of output                             | PNP semiconductor, short-circuit protected <sup>1)</sup> |
| Output voltage HIGH (active)               | $\geq V_S - 3 \text{ V}$                                 |
| Output voltage LOW (deactivated)           | High resistance                                          |
| Output current HIGH (active)               | $\leq 100 \text{ mA}$                                    |

<sup>1)</sup> Applies to the voltage range between  $-30 \text{ V}$  and  $+30 \text{ V}$ .

## Mechanical data

|                         |                           |
|-------------------------|---------------------------|
| <b>Dimensions</b>       | See dimensional drawing   |
| <b>Housing material</b> | Aluminum extruded profile |

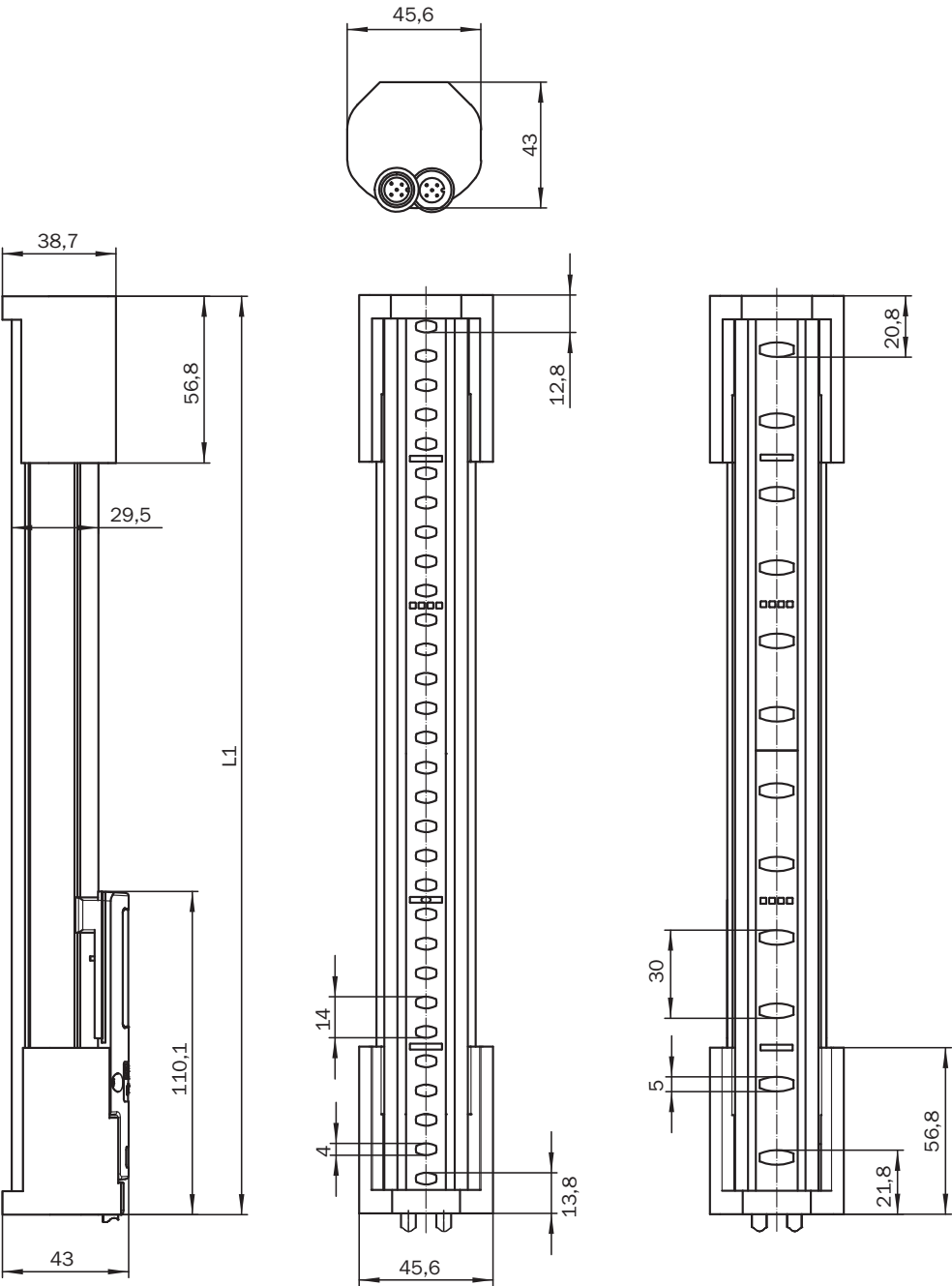
## Ambient data

|                                      |                                                                   |
|--------------------------------------|-------------------------------------------------------------------|
| <b>Enclosure rating</b>              | IP65 (IEC 60529)                                                  |
| <b>Ambient operating temperature</b> | $0 \text{ }^{\circ}\text{C} \dots +55 \text{ }^{\circ}\text{C}$   |
| <b>Storage temperature</b>           | $-30 \text{ }^{\circ}\text{C} \dots +70 \text{ }^{\circ}\text{C}$ |
| <b>Air humidity</b>                  | 15 % ... 95 %, Non-condensing                                     |
| <b>Vibration resistance</b>          | 5 g, 10 Hz ... 55 Hz (IEC 60068-2-6)                              |
| <b>Shock resistance</b>              | 10 g, 16 ms (IEC 60068-2-27)                                      |

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECl@ss 5.0</b>     | 27272704 |
| <b>ECl@ss 5.1.4</b>   | 27272704 |
| <b>ECl@ss 6.0</b>     | 27272704 |
| <b>ECl@ss 6.2</b>     | 27272704 |
| <b>ECl@ss 7.0</b>     | 27272704 |
| <b>ECl@ss 8.0</b>     | 27272704 |
| <b>ECl@ss 8.1</b>     | 27272704 |
| <b>ECl@ss 9.0</b>     | 27272704 |
| <b>ECl@ss 10.0</b>    | 27272704 |
| <b>ECl@ss 11.0</b>    | 27272704 |
| <b>ETIM 5.0</b>       | EC002549 |
| <b>ETIM 6.0</b>       | EC002549 |
| <b>ETIM 7.0</b>       | EC002549 |
| <b>UNSPSC 16.0901</b> | 46171620 |

Dimensional drawing (Dimensions in mm (inch))



| Protective field height | L1    |
|-------------------------|-------|
| 300                     | 313   |
| 450                     | 463   |
| 600                     | 613   |
| 750                     | 763   |
| 900                     | 913   |
| 1.050                   | 1.063 |
| 1.200                   | 1.213 |
| 1.350                   | 1362  |

| Protective field height | L1    |
|-------------------------|-------|
| 1.500                   | 1.512 |
| 1.650                   | 1.662 |
| 1.800                   | 1.812 |
| 1.950                   | 1.962 |
| 2.100                   | 2.112 |

## Recommended accessories

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

|                                                                                     | Brief description                                                                                                               | Description                                                                                                                     | Type              | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|
| Terminal and alignment brackets                                                     |                                                                                                                                 |                                                                                                                                 |                   |          |
|    | 4 pieces, FlexFix bracket for 2 devices (e.g. sender and receiver), can be aligned $\pm 15^\circ$ , including M5 screw, plastic | 4 pieces, FlexFix bracket for 2 devices (e.g. sender and receiver), can be aligned $\pm 15^\circ$ , including M5 screw, plastic | BEF-1SHABPKU4     | 2066614  |
|    | 4 pieces, QuickFix bracket for 2 devices (e.g. sender and receiver), plastic                                                    | 4 pieces, QuickFix bracket for 2 devices (e.g. sender and receiver), plastic                                                    | BEF-3SHABPKU4     | 2098710  |
|   | Universal bracket for round steel arm 400 mm, for mounting sensors or reflectors                                                | Universal bracket for round steel arm 400 mm, for mounting sensors or reflectors                                                | Universal bracket | 2044953  |
| Alignment aids                                                                      |                                                                                                                                 |                                                                                                                                 |                   |          |
|  | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!                                  | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!                                  | AR60              | 1015741  |
| Reflectors                                                                          |                                                                                                                                 |                                                                                                                                 |                   |          |
|  | Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting                                               | Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting                                               | P250              | 5304812  |
| Others                                                                              |                                                                                                                                 |                                                                                                                                 |                   |          |
|  | deTec deTec system plug                                                                                                         | deTec deTec system plug                                                                                                         | 1000              | 2076832  |
|  |                                                                                                                                 |                                                                                                                                 | 1100              | 2076833  |
|  |                                                                                                                                 |                                                                                                                                 | 1200              | 2076834  |
|  |                                                                                                                                 |                                                                                                                                 | 1300              | 2076835  |
|  |                                                                                                                                 |                                                                                                                                 | 2000              | 2093097  |

|                                                                                     | Brief description                                                               | Description                                                                     | Type                           | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------|----------|
|    | IO-Link connector                                                               | IO-Link connector                                                               | 2100                           | 2093098  |
|    |                                                                                 |                                                                                 | 2200                           | 2093099  |
|    |                                                                                 |                                                                                 | 2300                           | 2093100  |
|    |                                                                                 |                                                                                 | IO-Link connector              | 2092757  |
|    |                                                                                 |                                                                                 | Muting connector               | 2092758  |
|    | IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A | IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A | IOLA2US-01101 (SiLink2 Master) | 1061790  |
|    | SIG200-0A0412200                                                                | SIG200-0A0412200                                                                | SIG200-0A0412200               | 1089794  |
|    | SIG200-0A0G12200                                                                | SIG200-0A0G12200                                                                | SIG200-0A0G12200               | 1102605  |
| Muting accessories                                                                  |                                                                                 |                                                                                 |                                |          |
|  | Sensor bracket G6 and P250                                                      | Sensor bracket G6 and P250                                                      | BEF-2KHAAKU1                   | 2113145  |
|  | Muting arm bracket                                                              | Muting arm bracket                                                              | Muting arm bracket             | 2106455  |
|  | Muting arm, long                                                                | Muting arm, long                                                                | Muting arm, long               | 2111923  |
|  | Muting arm, short                                                               | Muting arm, short                                                               | Muting arm, short              | 2111924  |
| Photoelectric sensors                                                               |                                                                                 |                                                                                 |                                |          |
|  | Photoelectric sensor enclosed in a miniature housing                            | Photoelectric sensor enclosed in a miniature housing                            | GL10-P4151                     | 1069860  |
|  |                                                                                 |                                                                                 | GL6-P0211S49                   | 1070568  |
|  |                                                                                 |                                                                                 | GTB10-P4411S01                 | 1066852  |
|  |                                                                                 |                                                                                 | GTB6-P7441S56                  | 1077541  |

|                                                                                     | Brief description                                                                                                                                                                    | Description                                                                                                                                                                          | Type               | Part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Test and monitoring tools                                                           |                                                                                                                                                                                      |                                                                                                                                                                                      |                    |          |
|    | 14 mm diameter                                                                                                                                                                       | 14 mm diameter                                                                                                                                                                       | Test rod 14 mm     | 2022599  |
|                                                                                     | 24 mm diameter                                                                                                                                                                       | 24 mm diameter                                                                                                                                                                       | Test rod 24 mm     | 2045592  |
|                                                                                     | 34 mm diameter                                                                                                                                                                       | 34 mm diameter                                                                                                                                                                       | Test rod 34 mm     | 2045593  |
| Distributors                                                                        |                                                                                                                                                                                      |                                                                                                                                                                                      |                    |          |
|    | Head A: female connector, M12, 5-pin, A-coded<br>Head B: male connector, M12, 5-pin, A-coded<br>5-pin                                                                                | Head A: female connector, M12, 5-pin, A-coded<br>Head B: male connector, M12, 5-pin, A-coded<br>5-pin                                                                                | DSC-1205T000025KM0 | 6030664  |
|    | Head A: female connector, M12, 8-pin, A-coded<br>Head B: female connector, M12, 8-pin, A-coded<br>8-pin                                                                              | Head A: female connector, M12, 8-pin, A-coded<br>Head B: female connector, M12, 8-pin, A-coded<br>8-pin                                                                              | DSC-1208T000025KM0 | 6058647  |
| Plug connectors and cables                                                          |                                                                                                                                                                                      |                                                                                                                                                                                      |                    |          |
|    | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m                                  | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m                                  | YF2A15-020UB5XLEAX | 2095617  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m                                  | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m                                  | YF2A15-050UB5XLEAX | 2095618  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m                                 | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m                                 | YF2A15-100UB5XLEAX | 2095619  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m                                  | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m                                  | YF2A18-020UA5XLEAX | 2095652  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m                                  | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m                                  | YF2A18-050UA5XLEAX | 2095653  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m                                 | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m                                 | YF2A18-100UA5XLEAX | 2095654  |
|  | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YF2A15-020UB5M2A15 | 2096009  |

|                                                                                   | Brief description                                                                                                                                                                     | Description                                                                                                                                                                           | Type               | Part no. |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
|  | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m  | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m  | YF2A15-050UB5M2A15 | 2096010  |
|                                                                                   | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: male connector, M12, 5-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | YF2A15-100UB5M2A15 | 2096011  |
|                                                                                   | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: male connector, M12, 8-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m  | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: male connector, M12, 8-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m  | YF2A18-020UA5M2A18 | 2096033  |
|                                                                                   | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: male connector, M12, 8-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m  | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: male connector, M12, 8-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m  | YF2A18-050UA5M2A18 | 2096034  |
|                                                                                   | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: male connector, M12, 8-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: male connector, M12, 8-pin, straight, A-coded<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | YF2A18-100UA5M2A18 | 2096035  |
|                                                                                   |                                                                                                                                                                                       |                                                                                                                                                                                       |                    |          |

## 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)