



# C40E-1501DB040

C4000 Advanced

**SAFETY LIGHT CURTAINS**

**SICK**  
Sensor Intelligence.



### Ordering information

| Resolution | Scanning range | Protective field height | System part | Type           | Part no. |
|------------|----------------|-------------------------|-------------|----------------|----------|
| 14 mm      | 10 m           | 1,500 mm                | Receiver    | C40E-1501DB040 | 1028997  |

Other models and accessories → [www.sick.com/C4000\\_Advanced](http://www.sick.com/C4000_Advanced)

Illustration may differ



### Detailed technical data

#### Features

|                                |                               |
|--------------------------------|-------------------------------|
| <b>Application</b>             | Normal industrial environment |
| <b>System part</b>             | Receiver                      |
| <b>Resolution</b>              | 14 mm                         |
| <b>Scanning range</b>          | 10 m                          |
| <b>Protective field height</b> | 1,500 mm                      |
| <b>Response time</b>           | 23 ms <sup>1)</sup>           |
| <b>Synchronization</b>         | Optical synchronisation       |

<sup>1)</sup> Without beam coding, without blanking, no cascaded systems. Other response times see operating instructions.

#### Safety-related parameters

|                                                                           |                                                                                                                      |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                                                               | Type 4 (IEC 61496-1)                                                                                                 |
| <b>Safety integrity level</b>                                             | SIL 3 (IEC 61508)                                                                                                    |
| <b>Category</b>                                                           | Category 4 (EN ISO 13849)                                                                                            |
| <b>Performance level</b>                                                  | PL e (EN ISO 13849)                                                                                                  |
| <b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b> | 15 * 10 <sup>-9</sup> (EN ISO 13849)<br>43 * 10 <sup>-9</sup> (EN ISO 13849)<br>63 * 10 <sup>-9</sup> (EN ISO 13849) |
| <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

|                                         | Functions | Delivery status |
|-----------------------------------------|-----------|-----------------|
| <b>Protective operation</b>             | ✓         |                 |
| <b>Restart interlock</b>                | ✓         | External        |
| <b>External device monitoring (EDM)</b> | ✓         | Deactivated     |

|                                        | Functions | Delivery status |
|----------------------------------------|-----------|-----------------|
| Beam coding                            | ✓         | Uncoded         |
| Configurable scanning range            | ✓         | 0 m ... 2.5 m   |
| Reduced resolution                     | ✓         | Deactivated     |
| Fixed blanking                         | ✓         | Deactivated     |
| Floating blanking                      | ✓         | Deactivated     |
| Safe SICK device communication via EFI | ✓         |                 |

#### Functions in combination with UE402

|                          |   |
|--------------------------|---|
| Bypass                   | ✓ |
| Operating mode switching | ✓ |
| PSDI mode                | ✓ |

#### Interfaces

|                                 |                                                     |
|---------------------------------|-----------------------------------------------------|
| <b>System connection</b>        | Hirschmann male connector M26, 12-pin               |
| Direction of cable connection   | Straight                                            |
| Conductor cross section         | 0.75 mm <sup>2</sup>                                |
| Permitted cable length          | 50 m <sup>1)</sup>                                  |
| <b>Extension connection</b>     | Female connector M12, 8-pin                         |
| <b>Configuration connection</b> | Female connector M8, 4-pin                          |
| <b>Configuration method</b>     | PC with CDS (Configuration and Diagnostic Software) |
| <b>Display elements</b>         | 7-segment display                                   |

<sup>1)</sup> Depending on load, power supply and wire cross-section. The technical specifications must be observed.

#### Electrical data

|                                                |                                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Protection class</b>                        | III (IEC 61140)                                                                      |
| <b>Supply voltage <math>V_S</math></b>         | 24 V DC (19.2 V ... 28.8 V) <sup>1)</sup>                                            |
| <b>Residual ripple</b>                         | ≤ 10 % <sup>2)</sup>                                                                 |
| <b>Output signal switching devices (OSSDs)</b> |                                                                                      |
| Type of output                                 | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>3)</sup> |
| ON state, switching voltage HIGH               | 24 V DC ( $V_S - 2.25$ V DC ... $V_S$ )                                              |
| OFF state, switching voltage LOW               | ≤ 2 V DC                                                                             |
| Current-carrying capacity per OSSD             | ≤ 500 mA                                                                             |

<sup>1)</sup> The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

<sup>2)</sup> Within the limits of  $V_S$ .

<sup>3)</sup> Applies to the voltage range between -30 V and +30 V.

#### Mechanical data

|                              |                           |
|------------------------------|---------------------------|
| <b>Dimensions</b>            | See dimensional drawing   |
| <b>Housing cross-section</b> | 48 mm x 40 mm             |
| <b>Housing material</b>      | Aluminum extruded profile |
| <b>Weight</b>                | 3,140 g                   |

#### Ambient data

|                         |                 |
|-------------------------|-----------------|
| <b>Enclosure rating</b> | IP65 (EN 60529) |
|-------------------------|-----------------|

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Ambient operating temperature</b> | 0 °C ... +55 °C                     |
| <b>Storage temperature</b>           | -25 °C ... +70 °C                   |
| <b>Air humidity</b>                  | 15 % ... 95 %, Non-condensing       |
| <b>Vibration resistance</b>          | 5 g, 10 Hz ... 55 Hz (EN 60068-2-6) |
| <b>Shock resistance</b>              | 10 g, 16 ms (EN 60068-2-27)         |

### Other information

|                    |        |
|--------------------|--------|
| <b>Wave length</b> | 850 nm |
|--------------------|--------|

### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27272704 |
| <b>ECLASS 5.1.4</b>   | 27272704 |
| <b>ECLASS 6.0</b>     | 27272704 |
| <b>ECLASS 6.2</b>     | 27272704 |
| <b>ECLASS 7.0</b>     | 27272704 |
| <b>ECLASS 8.0</b>     | 27272704 |
| <b>ECLASS 8.1</b>     | 27272704 |
| <b>ECLASS 9.0</b>     | 27272704 |
| <b>ECLASS 10.0</b>    | 27272704 |
| <b>ECLASS 11.0</b>    | 27272704 |
| <b>ECLASS 12.0</b>    | 27272704 |
| <b>ETIM 5.0</b>       | EC002549 |
| <b>ETIM 6.0</b>       | EC002549 |
| <b>ETIM 7.0</b>       | EC002549 |
| <b>ETIM 8.0</b>       | EC002549 |
| <b>UNSPSC 16.0901</b> | 46171620 |

Dimensional drawing (Dimensions in mm (inch))



Illustration sender (receiver mirror image)

| Protective field height S | L1    | L2    | A     |
|---------------------------|-------|-------|-------|
| 300                       | 381   | 444   | 224   |
| 450                       | 532   | 594   | 374   |
| 600                       | 682   | 744   | 524   |
| 750                       | 833   | 895   | 674   |
| 900                       | 984   | 1.046 | 824   |
| 1.050                     | 1.134 | 1.196 | 974   |
| 1.200                     | 1.283 | 1.346 | 1.124 |
| 1.350                     | 1.435 | 1.497 | 1.274 |
| 1.500                     | 1.586 | 1.649 | 1.424 |
| 1.650                     | 1.736 | 1.798 | 1.574 |
| 1.800                     | 1.887 | 1.949 | 1.724 |

### Connection diagram

C4000 Advanced safety light curtain on UE402 safety switching amplifier



#### Aufgabe

Anbindung eines Sicherheits-Lichtvorhanges C4000 Advanced mit UE402 in eine Steuerung. 6 parametrierbare Betriebsarten mit Wiederanlaufsperrung und Schützkontrolle. Taktbetrieb mit TDC, BDC, SCC. Ausblendbereiche einlernbar.

#### Wirkungsweise

Wenn kein Gegenstand im aktiven Schutzfeld detektiert wird und die Schütze K1 und K2 sich in Ruhelage befinden blinkt die Lampe H3 als Aufforderung, das Befehlsgerät S1 zu betätigen. Wenn S1 betätigt (Taster wird betätigt und losgelassen) werden die OSSDs eingeschaltet. Diese schalten die Schütze K1 und K2 ein. Bei Detektion eines Gegenstandes im aktiven Schutzfeld schalten die OSSDs die Schütze K1 und K2 ab.

#### Fehlerbetrachtung

Das Fehlverhalten eines der Schütze K1 oder K2 führt nicht zum Verlust der Abschaltfunktion. Querschlüsse und Kurzschlüsse der OSSDs werden erkannt und führen zum Sperrzustand (Lock-Out). Die Manipulation (Festklemmen) des Tasters S1 verhindert die Freigabe der Ausgangskreise.

#### Anmerkungen:

Die Wirkungsweise der parametrierbaren Funktionen ist den jeweiligen Betriebsanleitungen der eingebundenen Geräte zu entnehmen. Die dabei enthaltenen Angaben sind zu beachten.


## Recommended accessories

Other models and accessories → [www.sick.com/C4000\\_Advanced](http://www.sick.com/C4000_Advanced)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                          | Type                      | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|
| Alignment aids                                                                      |                                                                                                                                                                                                                                                                                                                                                            |                           |          |
|    | Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!, 19 mm x 67.3 mm x 66.9 mm                                                                                                                                                                                                                                  | AR60                      | 1015741  |
|    | Adapter AR60 for housing cross-section 48 mm x 40 mm                                                                                                                                                                                                                                                                                                       | AR60 adapter, 48x40       | 4032461  |
|    | Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column                                                                                                                                                                                                                                                                                 | AR60 adapter, 48x40, PU3H | 4056731  |
| Optics cloths                                                                       |                                                                                                                                                                                                                                                                                                                                                            |                           |          |
|    | Cloth for cleaning optical surfaces                                                                                                                                                                                                                                                                                                                        | Lens cloth                | 4003353  |
| Mounting brackets and plates                                                        |                                                                                                                                                                                                                                                                                                                                                            |                           |          |
|    | 4 pieces, Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers                                                                                                                                                                                                                                                           | BEF-3WNGBAST4             | 7021352  |
| Plug connectors and cables                                                          |                                                                                                                                                                                                                                                                                                                                                            |                           |          |
|   | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Crimp contacts</li> <li><b>Permitted cross-section:</b> 0.5 mm<sup>2</sup> ... 1.5 mm<sup>2</sup></li> <li><b>Note:</b> 12 crimping contacts enclosed</li> </ul> | DOS-0612G000GA3KM0        | 6020757  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M26, 12-pin, angled</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Crimp contacts</li> <li><b>Permitted cross-section:</b> 0.5 mm<sup>2</sup> ... 1.5 mm<sup>2</sup></li> <li><b>Note:</b> 12 crimping contacts enclosed</li> </ul>   | DOS-0612W000GA3KM0        | 6020758  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M26, 12-pin, straight</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Crimp contacts</li> <li><b>Permitted cross-section:</b> 0.5 mm<sup>2</sup> ... 1.5 mm<sup>2</sup></li> <li><b>Note:</b> 12 crimping contacts enclosed</li> </ul>   | STE-0612G000GA3KM0        | 6021191  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M26, 12-pin, angled</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Crimp contacts</li> <li><b>Permitted cross-section:</b> 0.5 mm<sup>2</sup> ... 1.5 mm<sup>2</sup></li> <li><b>Note:</b> 12 crimping contacts enclosed</li> </ul>     | STE-0612W000GA3KM0        | 6021192  |
| Terminal and alignment brackets                                                     |                                                                                                                                                                                                                                                                                                                                                            |                           |          |
|  | 4 pieces, Mounting kit 6, side bracket, rotatable, zinc diecast                                                                                                                                                                                                                                                                                            | BEF-1SHABAZN4             | 2019506  |
|  | 4 pieces, Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount                                                                                                                                                                                                                                                          | BEF-2SMMEAL4              | 2044847  |
|  | 4 pieces, Stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301                                                                                                                                                                                                                                                               | BEF-2SMMEAES4             | 2023708  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                             | Type               | Part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
|    | 4 pieces, Mounting kit 2, rotatable, swivel mount, Polyamide PA6                                                                                                                                                                                                                                                                                                                                                                              | BEF-2SMMEAKU4      | 2019659  |
| Others                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |          |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M8, 4-pin, straight</li> <li>• <b>Connection type head B:</b> Male connector, USB-A, straight</li> <li>• <b>Cable:</b> 2 m, 4-wire, PVC</li> <li>• <b>Description:</b> Unshielded, Configuration cable with integrated RS-232 transducer on USB for connecting a sensor configuration connection (M8, 4-pin) to the USB interface of a PC</li> </ul>  | DSL-8U04G02M025KM1 | 6034574  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M8, 4-pin, straight</li> <li>• <b>Connection type head B:</b> Male connector, USB-A, straight</li> <li>• <b>Cable:</b> 10 m, 4-wire, PVC</li> <li>• <b>Description:</b> Unshielded, Configuration cable with integrated RS-232 transducer on USB for connecting a sensor configuration connection (M8, 4-pin) to the USB interface of a PC</li> </ul> | DSL-8U04G10M025KM1 | 6034575  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 12-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>                                         | DOL-0612G05M075KM0 | 2022545  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 12-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>                                        | DOL-0612G10M075KM0 | 2022547  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 15 m, 12-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>                                        | DOL-0612G15M075KM0 | 2022548  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 20 m, 12-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>                                        | DOL-0612G20M075KM0 | 2022549  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Cable:</b> 5 m, PVC</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Note:</b> Without EFI: Pin 9 and 10 not connected</li> </ul>                                                              | DOL-0610G05M075KM1 | 2046888  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 12-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Cable:</b> 10 m, PVC</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Note:</b> Without EFI: Pin 9 and 10 not connected</li> </ul>                                                             | DOL-0610G10M075KM1 | 2046889  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Male connector, M12, 8-pin, straight</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 1 m, 7-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> </ul>                                                          | DSL-127SG01ME25KM0 | 2076628  |



|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                      | Type  | Part no. |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|
| Switching amplifiers                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |          |
|  | <ul style="list-style-type: none"><li>• <b>Applications:</b> Functionality upgrade</li><li>• <b>Compatible sensor types:</b> C4000 safety light curtains</li><li>• <b>Description:</b> Upgrades the C4000 Standard, Advanced, Palletizer, Entry/Exit, and Fusion to include the functions defined in the technical specifications, e.g., bypass, operating mode switching, and PSDI in the case of C4000 Standard, Advanced.</li></ul> | UE402 | 1023577  |

## 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)