



# UE402

SWITCHING AMPLIFIER FOR SAFETY LIGHT CURTAINS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type  | Part no. |
|-------|----------|
| UE402 | 1023577  |

Other models and accessories → [www.sick.com/UE402](http://www.sick.com/UE402)

### Detailed technical data

#### Features

|                                |                                                                                                                                                                                                                                       |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Application</b>             | Functionality upgrade                                                                                                                                                                                                                 |
| <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. |
| <b>Compatible sensor types</b> | C4000 safety light curtains                                                                                                                                                                                                           |

#### 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> | $15 \times 10^{-9}$ (EN ISO 13849) |
| <b>T<sub>M</sub> (mission time)</b>                                       | 20 years (EN ISO 13849)            |

#### Functions

|                                 |   |
|---------------------------------|---|
| <b>Bypass</b>                   | ✓ |
| <b>Operating mode switching</b> | ✓ |
| <b>PSDI mode</b>                | ✓ |

#### Interfaces

|                           |                       |
|---------------------------|-----------------------|
| <b>Connection type</b>    | Fixed screw terminals |
| <b>Diagnostic display</b> | Status LED            |

#### Electronics

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| <b>Protection class</b>             | III (IEC 61140)                                 |
| <b>Supply voltage V<sub>S</sub></b> | 24 V DC (19.2 V DC ... 28.8 V DC) <sup>1)</sup> |
| <b>Residual ripple</b>              | 10 % <sup>2)</sup>                              |

<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<sub>S</sub>.

|                                       |                               |
|---------------------------------------|-------------------------------|
| <b>Power consumption</b>              | ≤ 110 mA                      |
| <b>Switch-on time</b>                 | ≤ 4 s                         |
| <b>IN A1 ... A6, MCC-BDC, MCC-TDC</b> |                               |
| ON state, switching voltage HIGH      | 24 V DC (11 V DC ... 30 V DC) |
| OFF state, switching voltage LOW      | –30 V DC ... 5 V DC           |
| Input current HIGH                    | 6 mA ... 20 mA                |
| Input current LOW                     | –3 mA ... 0.5 mA              |
| <b>IN B1, IN B2, OUT B1, OUT B2</b>   |                               |
| Bypass change over time               | ≤ 2 s                         |
| Synchronous time monitoring           | ≤ 200 ms                      |

<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  $V_S$ .

## Mechanics

|                               |                            |
|-------------------------------|----------------------------|
| <b>Dimensions (W x H x D)</b> | 22.5 mm x 99 mm x 114.5 mm |
| <b>Housing material</b>       | Plastic                    |
| <b>Weight</b>                 | 120 g                      |

## Ambient data

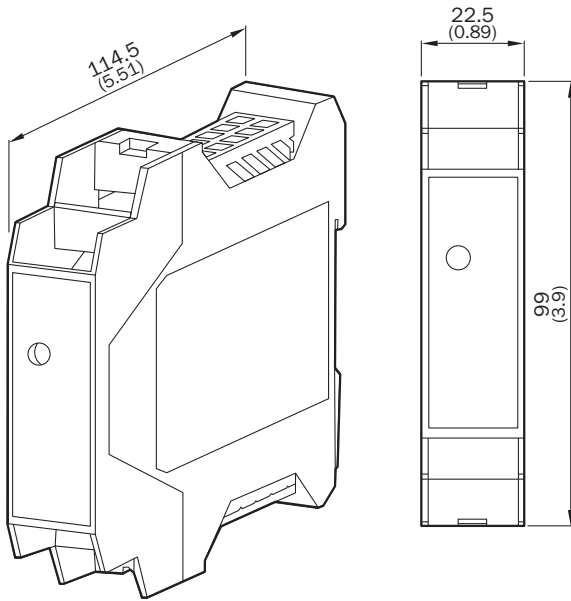
|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Enclosure rating</b>              | IP20 (IEC 60529)                    |
| <b>Ambient operating temperature</b> | 0 °C ... +55 °C                     |
| <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 (IEC 60068-2-29)        |

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27272790 |
| <b>ECLASS 5.1.4</b>   | 27272790 |
| <b>ECLASS 6.0</b>     | 27272790 |
| <b>ECLASS 6.2</b>     | 27272790 |
| <b>ECLASS 7.0</b>     | 27272790 |
| <b>ECLASS 8.0</b>     | 27272790 |
| <b>ECLASS 8.1</b>     | 27272790 |
| <b>ECLASS 9.0</b>     | 27272792 |
| <b>ECLASS 10.0</b>    | 27272792 |
| <b>ECLASS 11.0</b>    | 27272792 |
| <b>ECLASS 12.0</b>    | 27272792 |
| <b>ETIM 5.0</b>       | EC011349 |
| <b>ETIM 6.0</b>       | EC011349 |
| <b>ETIM 7.0</b>       | EC011349 |
| <b>ETIM 8.0</b>       | EC011349 |
| <b>UNSPSC 16.0901</b> | 41113704 |

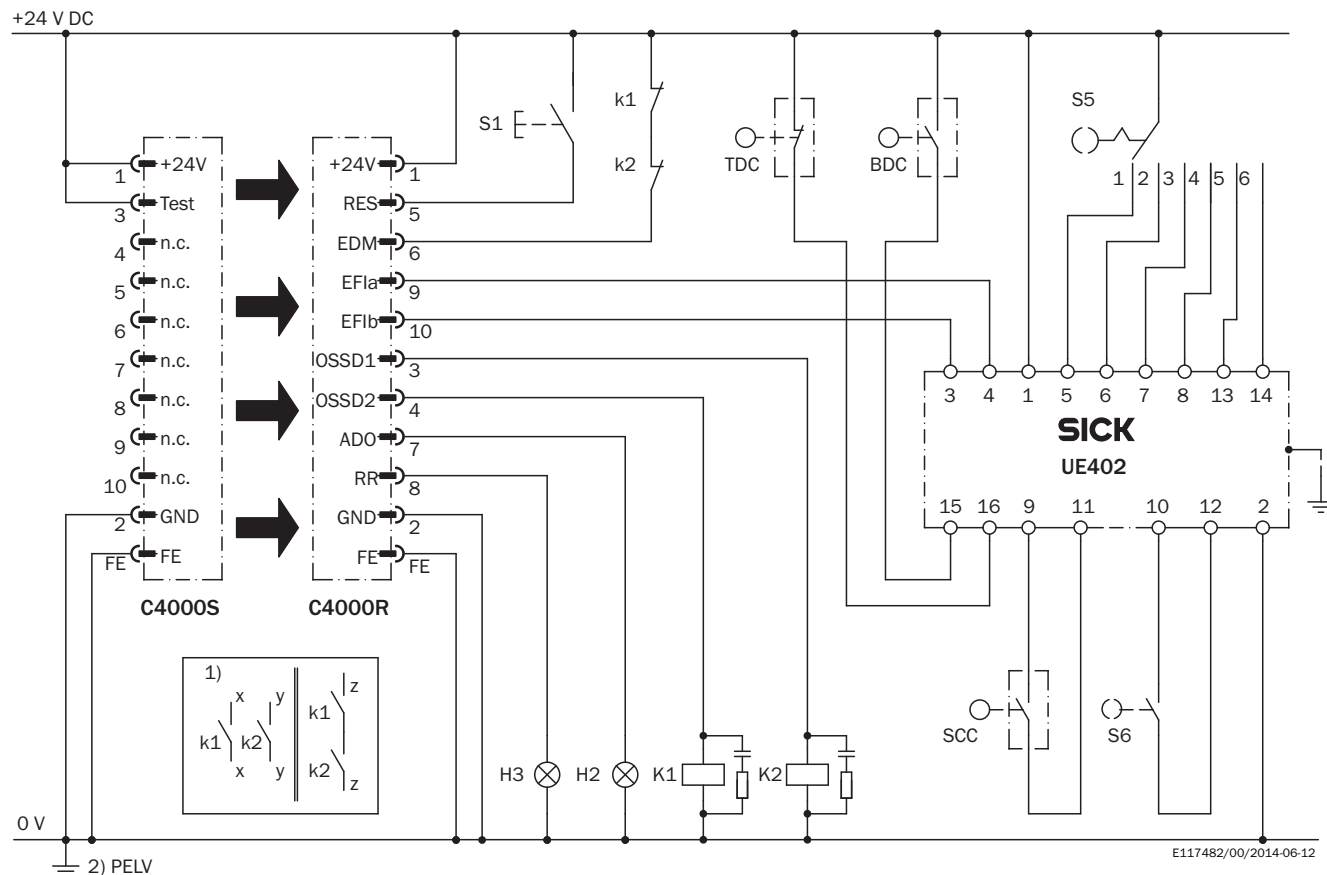
### Dimensional drawing (Dimensions in mm (inch))

UE402 switching amplifier



## 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. Querschüsse 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.

## 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)