



Part no.: 53800209
RSL420-S/CU416-5
Safety laser scanner



Figure can vary

Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Accessories
- Notes

Technical data

| Basic data | |
|---|---|
| Series | RSL 400 |
| Functions | |
| Functions | Resolution, selectable Dynamic contactor monitoring (EDM), selectable E-stop linkage Four-field mode |
| Characteristic parameters | |
| Type | 3, IEC/EN 61496 |
| SIL | 2, IEC 61508 |
| SILCL | 2, IEC/EN 62061 |
| Performance Level (PL) | d, EN ISO 13849-1 |
| PFH _D | 9E-08 per hour |
| Mission time T _M | 20 years, EN ISO 13849-1 |
| Category | 3, EN ISO 13849 |
| Protective field data | |
| Scanning angle | 270 ° |
| Minimum adjustable range | 200 mm |
| Number of field pairs, reversible | 10 |
| Number of quads, reversible | 10 |
| Number of protective functions | 1 Piece(s) |
| Number of independent sensor configurations | 1 |
| Diffuse reflection, min. | 1.8 % |
| Operating range | 0 ... 3 m |
| Warning field data | |
| Number of field pairs | 10 |
| Operating range | 0 ... 20 m |
| Object size | 150 mm x 150 mm |
| Diffuse reflection, min. | 1.8 % |
| Optical data | |
| Light source | Laser, Infrared |
| Laser light wavelength | 905 nm |
| Laser class | 1, IEC/EN 60825-1:2007 |
| Transmitted-signal shape | Pulsed |
| Repetition frequency | 90 kHz |
| Measurement data | |
| Radial resolution | 5 mm |
| Detection range | 0 ... 50 m |
| Angular resolution | 0.1 ° |
| Electrical data | |
| Protective circuit | Overvoltage protection |

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Performance data

| | |
|--|--|
| Supply voltage | 24 V, DC, -30 ... 20 % |
| Current consumption (without load), max. | 700 mA, (use power supply unit with 3 A) |
| Power consumption, max. | 17 W, For 24 V, plus output load |

Outputs

| | |
|--|------------|
| Number of safety-related switching outputs (OSSDs) | 2 Piece(s) |
|--|------------|

Safety-related switching outputs

| | |
|------------------------------|--------------------------------------|
| Type | Safety-related switching output OSSD |
| Switching voltage high, min. | 20.8 V |
| Switching voltage low, max. | 2 V |
| Voltage type | DC |

Safety-related switching output 1

| | |
|-------------------|-------------------------|
| Assignment | Connection 1, gray wire |
| Switching element | Transistor, PNP |

Safety-related switching output 2

| | |
|-------------------|-------------------------|
| Assignment | Connection 1, pink wire |
| Switching element | Transistor, PNP |

Interface

| | |
|------|-----------|
| Type | Bluetooth |
|------|-----------|

Bluetooth

| | |
|-----------------------------|---------------------------------|
| Function | Configuration/parametering |
| Frequency band | 2,400 ... 2,483.5 MHz |
| Radiated transmitting power | Max. 4.5 dBm (2.82 mW), class 2 |

Connection

| | |
|-----------------------|------------|
| Number of connections | 2 Piece(s) |
|-----------------------|------------|

Connection 1

| | |
|----------------------------|----------------------|
| Type of connection | Cable |
| Function | Machine interface |
| Cable length | 5,000 mm |
| Sheathing material | PVC |
| Cable color | Black |
| Number of conductors | 16 -wire |
| Wire cross section supply | 1 mm ² |
| Wire cross section signals | 0.14 mm ² |

Connection 2

| | |
|--------------------|----------------|
| Type of connection | Connector |
| Function | Data interface |
| Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |

Cable properties

| | |
|------------------------|------|
| Cable resistance, max. | 15 Ω |
|------------------------|------|

Mechanical data

| | |
|-----------------------|--------------------------|
| Dimension (W x H x L) | 140 mm x 149 mm x 140 mm |
|-----------------------|--------------------------|

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| | |
|---------------------|---|
| Housing material | Plastic Metal, Diecast zinc, |
| Lens cover material | Plastic/PC |
| Net weight | 3,000 g |
| Housing color | Yellow, RAL 1021 |
| Type of fastening | Mounting plate Via optional mounting device Through-hole mounting |

Operation and display

| | |
|-----------------------|---------------------------------------|
| Type of display | Alphanumeric display LED indicator |
| Number of LEDs | 3 Piece(s) |
| Type of configuration | Software Sensor Studio |
| Operational controls | Software Sensor Studio |

Environmental data

| | |
|--------------------------------|---------------|
| Ambient temperature, operation | 0 ... 50 °C |
| Ambient temperature, storage | -20 ... 60 °C |

Certifications

| | |
|----------------------|---|
| Degree of protection | IP 65 |
| Protection class | III, EN 61140 |
| Certifications | c UL US c TÜV Süd US TÜV Süd |
| US patents | US 7,656,917 B US 2016/0086469 A US 8,520,221 B US 7,696,468 B |

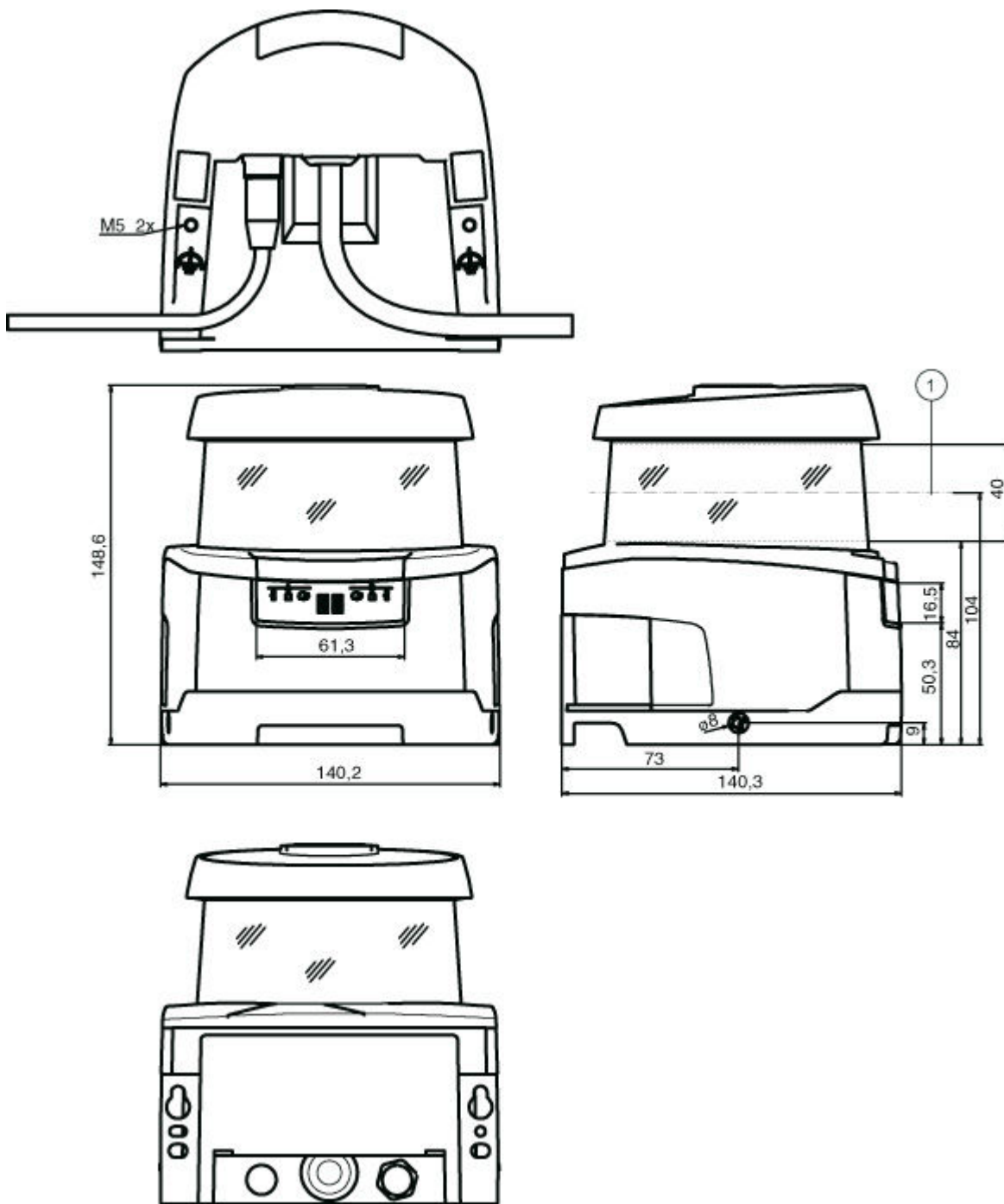
Classification

| | |
|------------|----------|
| eCl@ss 8.0 | 27272705 |
| eCl@ss 9.0 | 27272705 |
| ETIM 5.0 | EC002550 |

Dimensioned drawings

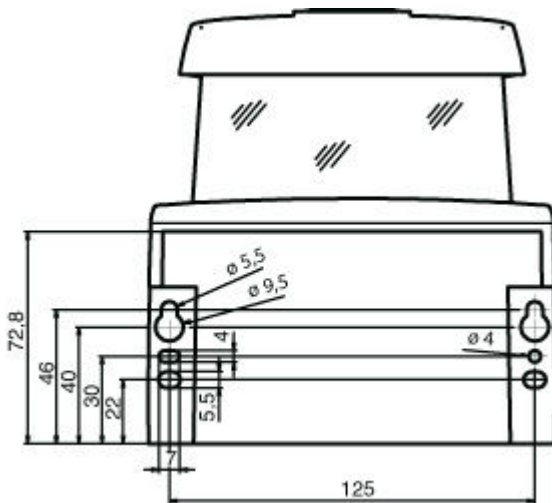
All dimensions in millimeters

Dimensions safety laser scanner with connection unit

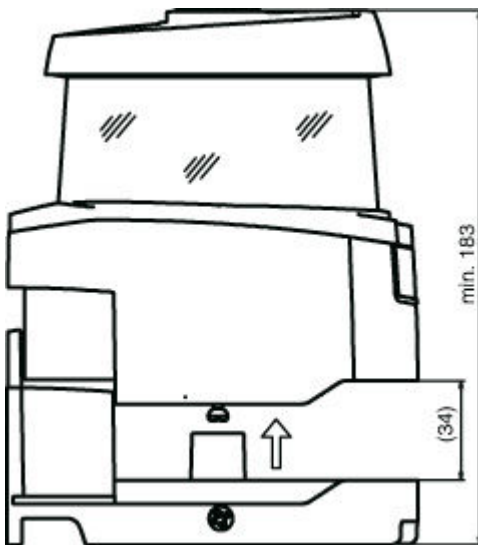


1 Scan level

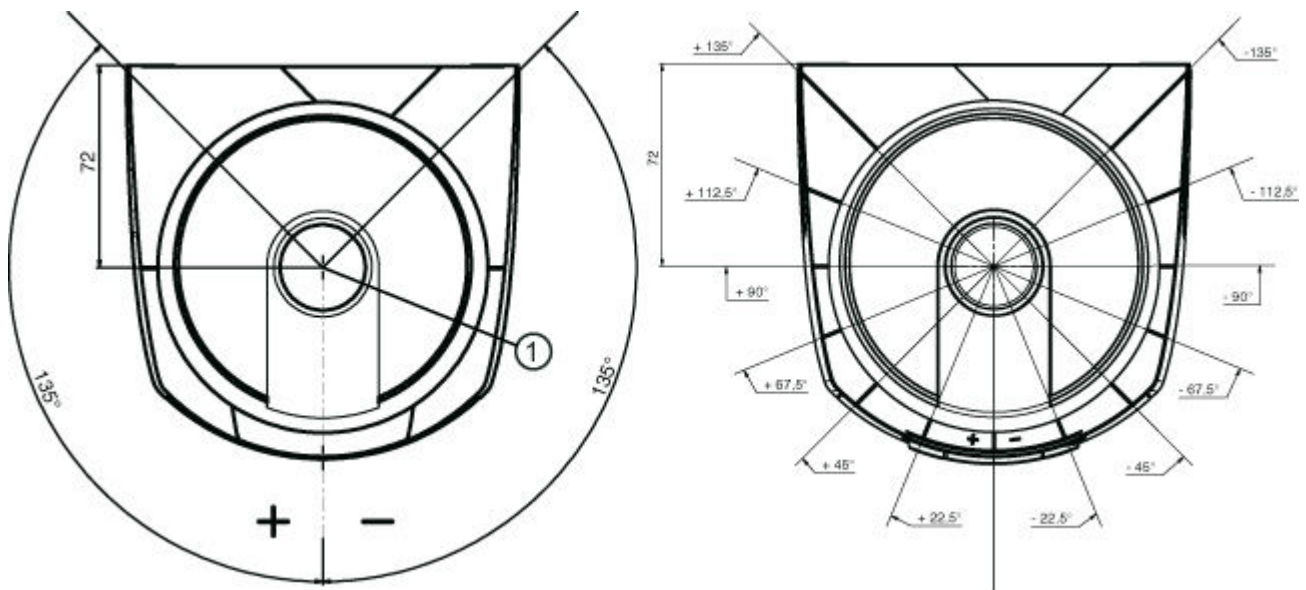
Mounting dimensions safety laser scanner with connection unit



Minimum space requirements for installation and replacement of scanner unit



Dimensions of scanning range



1 Reference point for distance measurement and protective field radius

Electrical connection

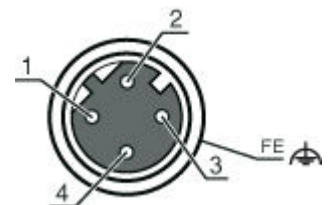
| Connection 1 | |
|----------------------------|----------------------|
| Type of connection | Cable |
| Function | Machine interface |
| Cable length | 5,000 mm |
| Sheathing material | PVC |
| Cable color | Black |
| Number of conductors | 16 -wire |
| Wire cross section | |
| Wire cross section supply | 1 mm ² |
| Wire cross section signals | 0.14 mm ² |

| Conductor color | Conductor assignment |
|-----------------|----------------------|
| White | RES1 |
| Brown | +24V |
| Green | EA1 |
| Yellow | A1 |
| Gray | OSSDA1 |
| Pink | OSSDA2 |
| Blue | GND / Ground |
| Red | MELD |
| Black | F1 |
| Violet | F2 |
| Pink Gray | F3 |
| Blue Red | F4 |
| White Green | F5 |

| Conductor color | Conductor assignment |
|-----------------|----------------------|
| Brown Green | SE1 |
| White Yellow | SE2 |
| Brown Yellow | A2 |

| Connection 2 | |
|--------------------|----------------|
| Type of connection | Connector |
| Function | Data interface |
| Thread size | M12 |
| Type | Female |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | D-coded |
| Connector housing | FE/SHIELD |

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1 | TD+ | Yellow |
| 2 | RD+ | White |
| 3 | TD- | Orange |
| 4 | RD- | Blue |
| 5 | | |



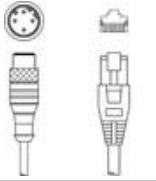
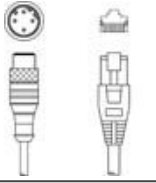
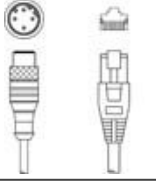
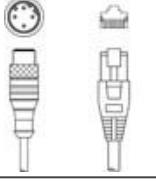
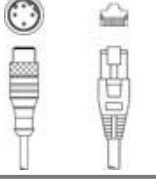
Operation and display

LEDs


| LED | Display | Meaning |
|-----|--------------------------|---|
| 1 | Off | Device switched off |
| | Red, continuous light | OSSD off |
| | Red, flashing | Error |
| | Green, continuous light | OSSD on |
| 2 | Off | RES deactivated or RES activated and released |
| | Yellow, flashing | Protective field occupied |
| | Yellow, continuous light | RES activated and blocked but ready to be unlocked - protective field free and linked sensor is enabled if applicable |
| 3 | Off | Free warning field |
| | Blue, continuous light | Warning field interrupted |
| 4 | Off | |
| 5 | Yellow, flashing | |

Accessories



Connection technology - Interconnection cables

| | Part no. | Designation | Article | Description |
|---|----------|-----------------------------|-----------------------|--|
|  | 50135080 | KSS ET-M12-4A-RJ45-A-P7-020 | Interconnection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 2,000 mm Sheathing material: PUR |
|  | 50135081 | KSS ET-M12-4A-RJ45-A-P7-050 | Interconnection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 5,000 mm Sheathing material: PUR |
|  | 50135082 | KSS ET-M12-4A-RJ45-A-P7-100 | Interconnection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 10,000 mm Sheathing material: PUR |
|  | 50135083 | KSS ET-M12-4A-RJ45-A-P7-150 | Interconnection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 15,000 mm Sheathing material: PUR |
|  | 50135084 | KSS ET-M12-4A-RJ45-A-P7-300 | Interconnection cable | Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 30,000 mm Sheathing material: PUR |



Connection technology - Adapters

| | Part no. | Designation | Article | Description |
|---|----------|--------------------|---------|--|
|  | 50134656 | RSL400 M12 Adapter | | Number of connections: 2 Piece(s) Connection 1: Connector, M12, D-coded, 4 -pin Connection 2: Connector, M12, D-coded, 4 -pin Dimensions: 20 mm x 90.5 mm x 40 mm Color: Black |


Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|----------|-------------|------------------|---|
|  | 53800134 | BT840M | Mounting bracket | Dimensions: 84.9 mm x 72 mm x 205.2 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal |
|  | 53800135 | BT856M | Mounting bracket | Dimensions: 119 mm x 72 mm x 233.5 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal |


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| | Part no. | Designation | Article | Description |
|---|----------|-------------|------------------|---|
|  | 53800132 | BTF815M | Mounting bracket | Dimensions: 186 mm x 120 mm x 288 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal |
|  | 53800133 | BTF830M | Mounting bracket | Dimensions: 186 mm x 275 mm x 288 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal |



Mounting technology - Other

| | Part no. | Designation | Article | Description |
|---|----------|-------------|-----------------|--|
|  | 53800130 | BTU800M | Mounting system | Dimensions: 54.5 mm x 90 mm x 192 mm Color: Black Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal |

Mounting

| | Part no. | Designation | Article | Description |
|---|----------|-------------|------------|--|
|  | 53800131 | BTP800M | Loop guard | Dimensions: 160 mm x 169 mm Color: Black Material: Metal |

General

| | Part no. | Designation | Article | Description |
|---|----------|----------------|--------------|--|
|  | 430400 | RS4-clean-Set1 | Cleaning set | Number of cleaning cloths: 40 Piece(s) Content of cleaning fluid: 150 ml |
|  | 430410 | RS4-clean-Set2 | Cleaning set | Number of cleaning cloths: 120 Piece(s) Content of cleaning fluid: 1,000 ml |

Notes

| Observe intended use! |
|---|
| <ul style="list-style-type: none"> The product may only be put into operation by competent persons. Only use the product in accordance with its intended use. |

WARNING! INVISIBLE LASER RADIATION – LASER CLASS 1

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 1** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.

- Observe the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way.
There are no user-serviceable parts inside the device.
Repairs must only be performed by Leuze electronic GmbH + Co. KG.