

Technical data sheet

Safety laser scanner

Part no.: 53800206

RSL410-M/CU405-2M12



For illustration purposes only

Contents

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

Basic data

| | |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| Series | RSL 400 |
| Application | Mobile danger zone guarding Mobile side guarding Stationary access guarding Stationary danger zone guarding |

Special version

| | |
|-----------------|----------------|
| Special version | AIDA-compliant |
|-----------------|----------------|

Functions

| | |
|-----------|-------------------------------------------|
| Functions | Four-field mode |
| Restart | Start/restart interlock (RES), selectable |

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

| | |
|---------------------------------------------|-----------------------|
| Resolution (adjustable) | 30/40/50/60/70/150 mm |
| Minimum adjustable range | 50 mm |
| Number of field pairs, switchable | 1 |
| Number of quads, switchable | 1 |
| Number of protective functions | 1 Piece(s) |
| Number of independent sensor configurations | 1 |
| Diffuse reflection, min. | 1.8 % |
| Operating range | 0 ... 4.5 m |

Warning field data

| | |
|--------------------------|-----------------|
| Number of field pairs | 1 |
| Operating range | 0 ... 20 m |
| Object size | 150 mm x 150 mm |
| Diffuse reflection, min. | 10 % |

Optical data

| | |
|--------------------------|------------------------|
| Light source | Laser, Infrared |
| Wavelength | 905 nm |
| Laser class | 1, IEC/EN 60825-1:2014 |
| Transmitted-signal shape | Pulsed |
| Repetition frequency | 90 kHz |
| Angular resolution | 0.1 ° |
| Scanning angle | 270 ° |

Electrical data

| | |
|--------------------|------------------------|
| Protective circuit | Overvoltage protection |
|--------------------|------------------------|

Performance data

| | |
|------------------------------------------|------------------------------------------|
| Supply voltage U _B | 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 signal outputs, configurable | 3 Piece(s) |
|----------------------------------------|------------|

| | |
|----------------------------------------------------|------------|
| 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 |
| Switching current, max. | 300 mA |

Safety-related switching output 1

| | |
|-------------------|---------------------|
| Assignment | Connection 1, pin 4 |
| Switching element | Transistor, PNP |

Safety-related switching output 2

| | |
|-------------------|---------------------|
| Assignment | Connection 1, pin 2 |
| Switching element | Transistor, PNP |

Time behavior

| | |
|---------------|----------|
| Response time | 80 ms, ≥ |
|---------------|----------|

Service interface

| | |
|------|---------------------|
| Type | Bluetooth, Ethernet |
|------|---------------------|

Ethernet

| | |
|------------|----------------------------------------|
| Function | Configuration/parametization TCP/IP |
| Connection | M12 connector, 4-pin, D-coded |

Bluetooth

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

Connection

| | |
|-----------------------|------------|
| Number of connections | 3 Piece(s) |
|-----------------------|------------|

Connection 1

| | |
|--------------------|-------------------|
| Function | Machine interface |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | A-coded |

Connection 2

| | |
|--------------------|-------------------|
| Function | Machine interface |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | A-coded |

Technical data

Connection 3

| | |
|--------------------|----------------|
| Function | Data interface |
| Type of connection | Connector |
| 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) | 140.2 mm x 148.6 mm x 140.3 mm |
| Housing material | Metal Plastic |
| Metal housing | Diecast zinc |
| Lens cover material | Plastic/PC |
| Net weight | 3,000 g |
| Housing color | Yellow, RAL 1021 |
| Type of fastening | Mounting plate Through-hole mounting Via optional mounting device |

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 |
| Relative humidity (non-condensing) | 15 ... 95 % |

Certifications

| | |
|-----------------------------------------------------------------|----------------------------------------------------|
| Degree of protection | IP 65 |
| Protection class | III, EN 61140 |
| Approvals | c TÜV Süd US c UL US TÜV Süd |
| Test procedure for EMC in accordance with standard | DIN 40839-1/3 EN 61496-1 |
| Test procedure for oscillation in accordance with standard | EN 60068-2-6 |
| Test procedure for continuous shock in accordance with standard | IEC 60068-2-29 |
| US patents | US 10,304,307B US 7,656,917 B US 7,696,468 B |

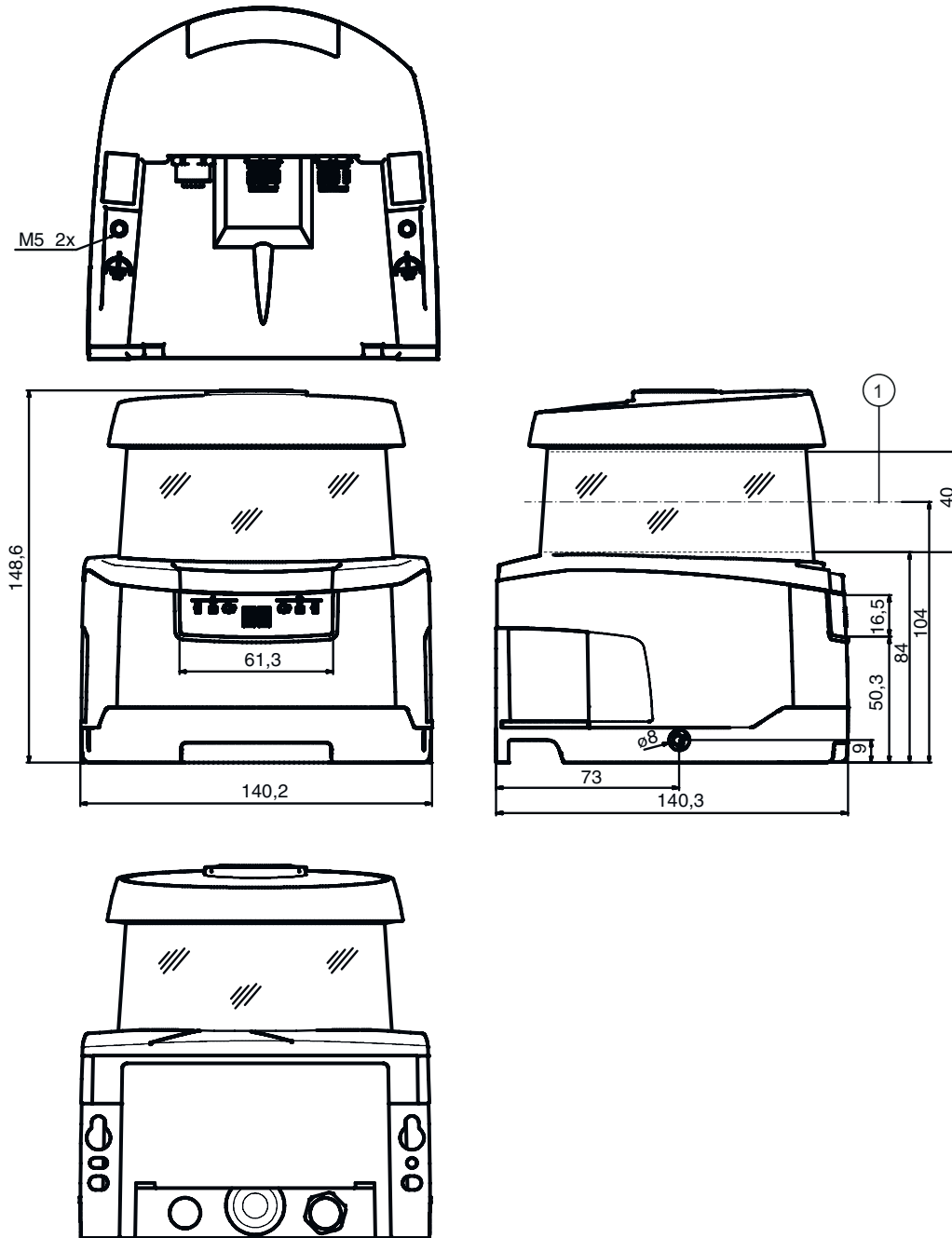
Classification

| | |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4 | 27272705 |
| ECLASS 8.0 | 27272705 |
| ECLASS 9.0 | 27272705 |
| ECLASS 10.0 | 27272705 |
| ECLASS 11.0 | 27272705 |
| ECLASS 12.0 | 27272705 |
| ECLASS 13.0 | 27272705 |
| ECLASS 14.0 | 27272705 |
| ECLASS 15.0 | 27272705 |
| ECLASS 16.0 | 27272705 |
| ETIM 5.0 | EC002550 |
| ETIM 6.0 | EC002550 |
| ETIM 7.0 | EC002550 |
| ETIM 8.0 | EC002550 |
| ETIM 9.0 | EC002550 |
| ETIM 10.0 | EC002550 |
| UNSPSC 26.08 | 32151804 |

Dimensioned drawings

All dimensions in millimeters

Dimensions safety laser scanner with connection unit



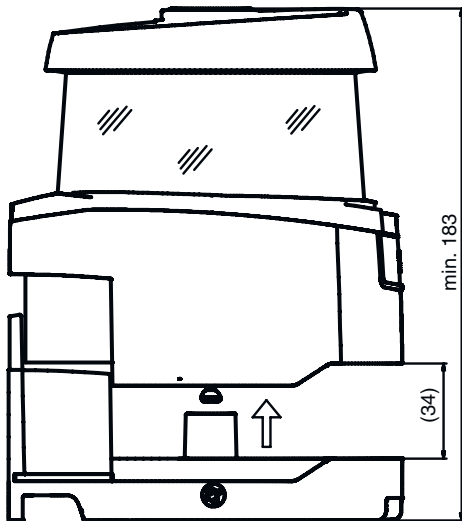
1 Scan level

Dimensioned drawings

Mounting dimensions safety laser scanner with connection unit



Minimum space requirements for installation and replacement of scanner unit



Dimensioned drawings

Dimensions of scanning range



1 Reference point for distance measurement and protective field radius

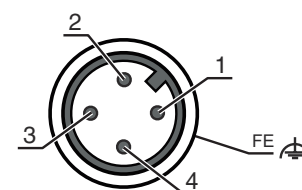
Electrical connection

Connection 1

X1

| | |
|--------------------|-------------------|
| Function | Machine interface |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | A-coded |
| Connector housing | FE/SHIELD |

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1 | +24 V DC | Brown |
| 2 | OSSDA2 | White |
| 3 | 0 V | Blue |
| 4 | OSSDA1 | Black |



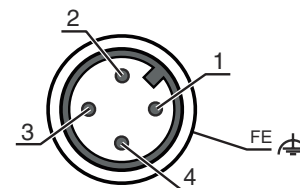
Connection 2

X2

| | |
|--------------------|-------------------|
| Function | Machine interface |
| Type of connection | Connector |
| Thread size | M12 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | A-coded |
| Connector housing | FE/SHIELD |

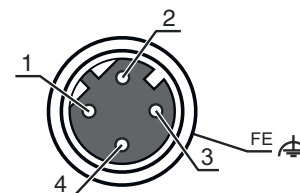
Electrical connection

| Pin | Pin assignment | Conductor color |
|-----|----------------|-----------------|
| 1 | MELD IN | Brown |
| 2 | n.c. | White |
| 3 | n.c. | Blue |
| 4 | MELD OUT | Black |



| Connection 3 | ETH |
|--------------------|----------------|
| Function | Data interface |
| Type of connection | Connector |
| 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 |



Operation and display

| 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 | Four field mode: warning field 3 free |
| | Blue, continuous light | Four field mode: warning field 3 interrupted |
| 5 | Yellow, flashing | Four field mode: warning field 2 interrupted |

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. |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Notes

! ATTENTION! INVISIBLE LASER RADIATION – CLASS 1 LASER PRODUCT



The device satisfies the requirements of IEC/EN 60825-1:2014 safety regulations for a product of **laser class 1** and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

- ↳ 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.

Accessories

Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
|--|----------|--------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 50130726 | KD S-M12-4A-P1-050 | Connection cable | Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |



Connection technology - Interconnection cables

| | Part no. | Designation | Article | Description |
|--|----------|-----------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 50135081 | KSS ET-M12-4A-RJ45-A-P7-050 | Interconnection cable | Application: Oil and lubricant resistant Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR |
| | 50135082 | KSS ET-M12-4A-RJ45-A-P7-100 | Interconnection cable | Application: Oil and lubricant resistant Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR |
| | 50135083 | KSS ET-M12-4A-RJ45-A-P7-150 | Interconnection cable | Application: Oil and lubricant resistant Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 15,000 mm Sheathing material: PUR |


Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|--|----------|-------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 53800134 | BT840M | Mounting bracket | Application: Mounting on chamfered 90° corner Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal |


Accessories

| | Part no. | Designation | Article | Description |
|----------------------------------------------------------------------------------|----------|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 53800132 | BTF815M | Mounting bracket | Application: Mounting bracket for floor mounting Scan level height: 150 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 | Application: Mounting bracket for floor mounting Scan level height: 300 mm Color: Yellow, RAL 1021 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 | 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 Net weight: 616 g |

Services

| | Part no. | Designation | Article | Description |
|------------------------------------------------------------------------------------|----------|-------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | S981051 | CS40-I-141 | Safety inspection | Details: Checking of a safety laser scanner application in accordance with current standards and guidelines. Inclusion of the device and machine data in a database, production of a test log per application. Conditions: It must be possible to stop the machine, support provided by customer's employees and access to the machine for Leuze employees must be ensured. |
|  | S981047 | CS40-S-141 | Start-up support | Details: For safety devices including stopping time measurement and initial inspection. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. |

Accessories

Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.