Technical data sheet
Safety laser scanner
Part no.: 53800310
RSL420P-L/CU400P-AIDA-OF

Figure can vary

Contents





Technical data

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Basic data

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

Functions

Functions	PROFIsafe
	Resolution, 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

Scanning angle	270 °
Minimum adjustable range	50 mm
Number of field pairs, reversible	10
Number of protective functions	1 Piece(s)
Number of independent sensor configurations	1
Diffuse reflection, min.	1.8 %
Operating range	0 ... 6.25 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

Distance resolution	1 mm
Detection range	0 ... 50 m
Diffuse reflection	20 %
Angular resolution	0.1 °

Electrical data

Protective circuit	Overvoltage protection

Performance data

Supply voltage U_B	24 V, DC, -30 ... 20 %
Current consumption (without load), max.	1,000 mA, (use power supply unit with 3 A)
Power consumption, max.	24 W, For 24 V, plus output load

Interface

Type	PROFINET

Profinet

Function	Process
PROFINET device	Device acc. to Spec V2.3.4
GSDML	GSDML acc. to Spec V2.3.2
Profile	PROFINET/PROFIsafe
Conformance class	C
Network load class	III
Security level	1
Switch functionality	IRT-ready 2-port switch acc. to IEEE 802, integrated in connection unit
Port properties	Auto-Crossover
	Auto-Negotiation
	Auto-Polarity
I&M	0 - 4
Supported topologies	MRP client
	SNMP
Safety-related switching signals	1 Piece(s)

Service interface

Type	Bluetooth, USB

Bluetooth

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

USB

Function	Configuration/parametering
Connection	USB 2.0 mini-B, socket
Transmission speed, max.	12 Mbit/s
Cable length	≤ 5mLonger cable lengths are possible using active cables.

Connection

Number of connections	4 Piece(s)

Connection 1

Function	Voltage supply
Type of connection	PROFINET push-pull 24V

Connection 2

Function	PROFINET/PROFIsafe communication, input
Type of connection	PROFINET SCRJ push-pull ISO/ IEC 61754-24-2

Connection 3

Function	PROFINET/PROFIsafe communication, output
Type of connection	PROFINET SCRJ push-pull ISO/ IEC 61754-24-2

Connection 4

Function	Voltage supply
Type of connection	PROFINET push-pull 24V

Technical data

Mechanical data

Dimension (W x H x L)	140.2 mm x 200 mm x 142 mm
Housing material	Metal
	Plastic
Metal housing	Diecast zinc
Lens cover material	Plastic/PC
Net weight	4,500 g
Housing color	Yellow, RAL 1021
Type of fastening	Mounting plate
	Through-hole mounting
	Via optional mounting device

Operation and display

Type of display	Alphanumerical display
	LED indicator
Number of LEDs	10 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
Certifications	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
	US 8,520,221 B

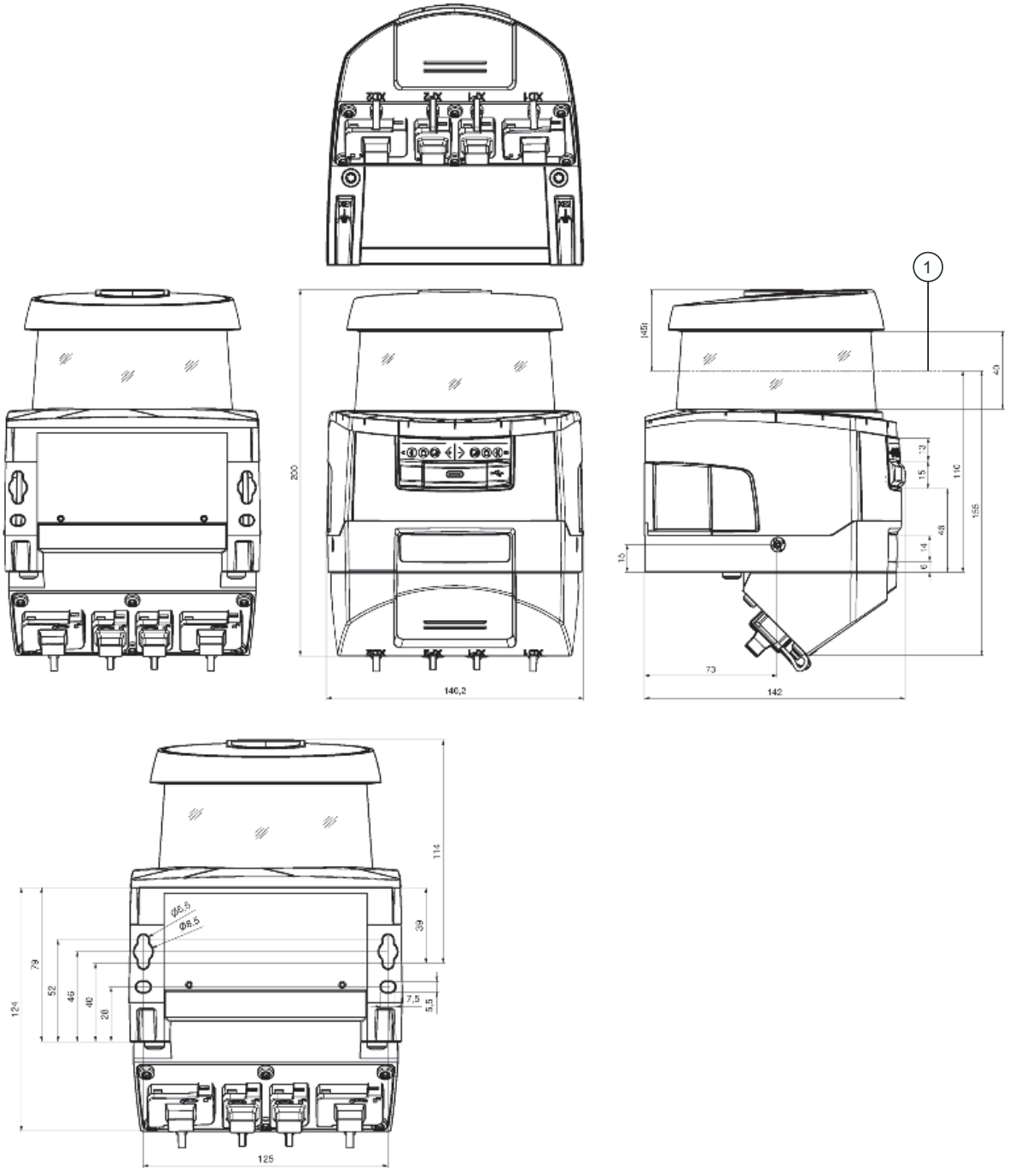
Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27272705
eCl@ss 8.0	27272705
eCl@ss 9.0	27272705
eCl@ss 10.0	27272705
eCl@ss 11.0	27272705
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550

Dimensioned drawings

All dimensions in millimeters

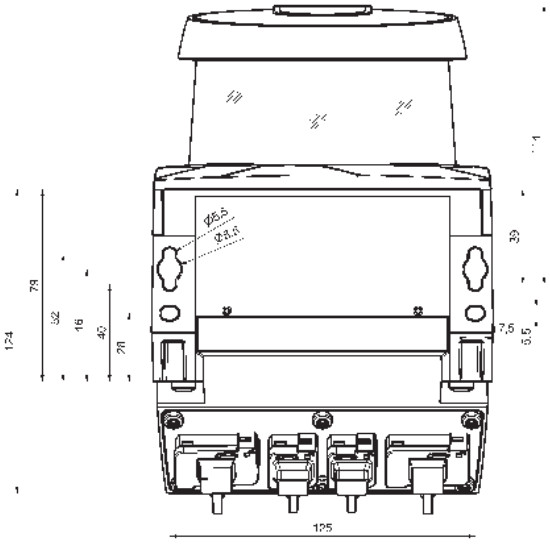
Dimensions safety laser scanner with connection unit

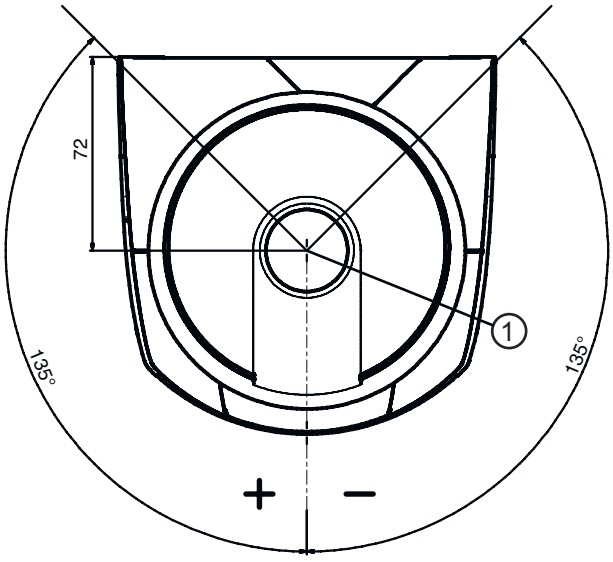


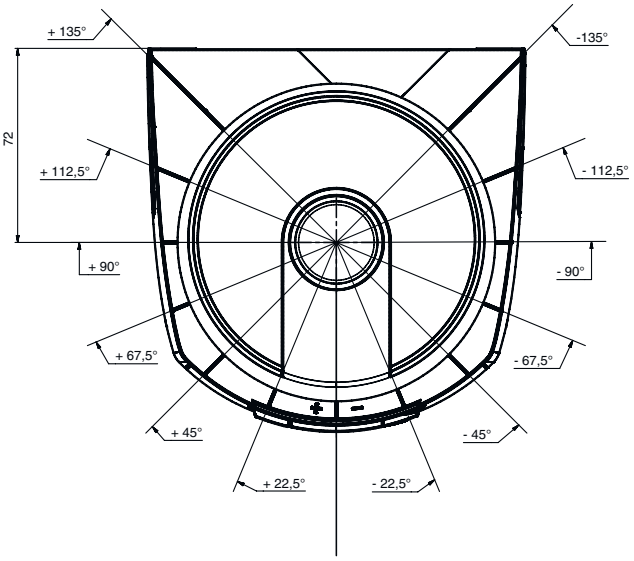
1 Scan level

Dimensioned drawings

Mounting dimensions safety laser scanner with connection unit







1 Reference point for distance measurement and protective field radius

Electrical connection

Connection 1	XD1
Function	Voltage supply
Type of connection	PROFINET push-pull 24V
No. of pins	5 -pin

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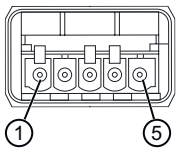
Electrical connection

Pin	Pin assignment
1	+24V
2	0 V
3	+24V
4	0 V
5	GND

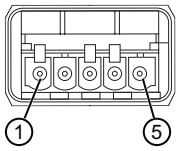


Connection 2	XF1
Function	PROFINET/PROFIsafe communication, input
Type of connection	PROFINET SCRJ push-pull ISO/IEC 61754-24-2

Connection 3	XF2
Function	PROFINET/PROFIsafe communication, output
Type of connection	PROFINET SCRJ push-pull ISO/IEC 61754-24-2

Connection 4	XD2
Function	Voltage supply
Type of connection	PROFINET push-pull 24V
No. of pins	5 -pin

Pin	Pin assignment
1	+24V
2	0 V
3	+24V
4	0 V
5	GND



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
6	-	Off	No function
7	PWR	Off	Device switched off
		Red, continuous light	Error during self test or internal communication problems
		Green, flashing	PROFINET wave function active
		Green, continuous light	Device switched on, supply voltage applied, no internal error
8	PS	Off	PROFIsafe communication not initialized or switched off
		Green, flashing	Device in passive state or PROFINET wave function active
		Green, continuous light	Device on PROFIsafe active
		Red, flashing	PROFIsafe configuration failed
		Red, continuous light	PROFIsafe communication error
9	NET	Off	PROFINET communication not initialized or inactive
		Green, flashing	PROFINET bus initialization or PROFINET wave function active

Operation and display

LED	Display	Meaning
9 NET	Green, continuous light	PROFINET active, data exchange with IO controller active
	Orange, flashing	Ethernet topology error
	Red, flashing	Ethernet configuration failed, no data exchange or exchange of invalid data
	Red, continuous light	Bus error, no communication
10 LNK/ACT1	Off	No Ethernet link present
	Green, continuous light	Ethernet link active, no current data transmission
	Green/orange, flashing	Ethernet link active, current data transmission
11 LNK/ACT2	Off	No Ethernet link present
	Green, continuous light	Ethernet link active, no current data transmission
	Green/orange, flashing	Ethernet link active, current data transmission

Notes

Observe intended use!

- 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 – CLASS 1 LASER PRODUCT

The device satisfies the requirements of IEC 60825-1:2014 (EN 60825-1:2014) 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. 56" from 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

Accessories

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	53800134	BT840M	Mounting bracket	Application: Mounting on chamfered 90° corner 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
	53800132	BTF815M	Mounting bracket	Application: Mounting bracket for floor mounting Dimensions: 186 mm x 120 mm x 288 mm 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 Dimensions: 186 mm x 275 mm x 288 mm 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

Accessories

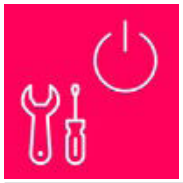
Mounting

	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

Services

	Part no.	Designation	Article	Description
	S981051	CS40-I-141	Safety inspection "Safety laser scanners"	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. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.
	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. Restrictions: Max. 3 h., no mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.

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