

Technical data sheet

Safety laser scanner

Part no.: 53800318

RSL450P-L/CU400P-AIDA

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- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Notes
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For illustration purposes only



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
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Functions

Functions	Data output, configurable
	Four-field mode
	PROFIsafe
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	Up to 100
Number of quads, switchable	50
Number of protective functions	4 Piece(s)
Number of independent sensor configurations	Up to 10
Diffuse reflection, min.	1.8 %
Operating range	0 ... 6.25 m

Warning field data

Number of field pairs	Up to 100
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
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Performance data

Supply voltage U _B	24 V, DC, -30 ... 20 %
Current consumption (without load), max.	900 mA, (use power supply unit with 3 A)
Power consumption, max.	22 W, For 24 V, plus output load

Time behavior

Response time	80 ms, ≥
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	4 Piece(s)

Service interface

Type	Bluetooth, Ethernet, USB
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
USB	
Function	Configuration/parametization
Connection	USB 2.0 mini-B, socket
Transmission speed, max.	12 Mbit/s
Cable length	≤ 5m Longer 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	Ethernet, input
Type of connection	PROFINET RJ45 push-pull IEC 61076-3-117 var. 14
Connection 3	
Function	Ethernet, output
Type of connection	PROFINET RJ45 push-pull IEC 61076-3-117 var. 14

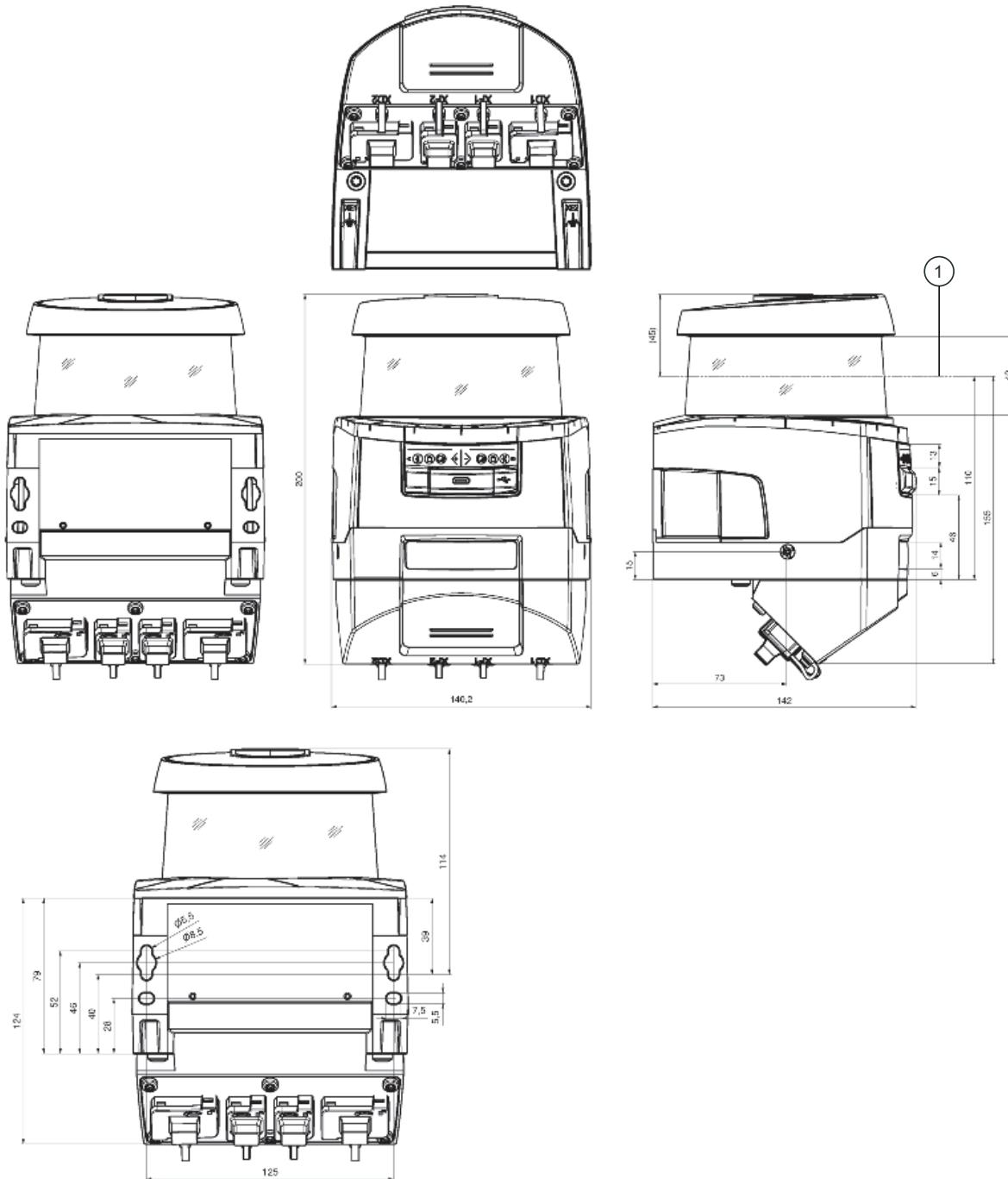
Technical data

Connection 4		Classification
Function	Voltage supply	Customs tariff number 85365019
Type of connection	PROFINET push-pull 24V	ECLASS 5.1.4 27272705
Mechanical data		ECLASS 8.0 27272705
Dimension (W x H x L)	140.2 mm x 200 mm x 142 mm	ECLASS 9.0 27272705
Housing material	Metal	ECLASS 10.0 27272705
	Plastic	ECLASS 11.0 27272705
Metal housing	Diecast zinc	ECLASS 12.0 27272705
Lens cover material	Plastic/PC	ECLASS 13.0 27272705
Net weight	4,500 g	ECLASS 14.0 27272705
Housing color	Yellow, RAL 1021	ECLASS 15.0 27272705
Type of fastening	Mounting plate	ETIM 5.0 EC002550
	Through-hole mounting	ETIM 6.0 EC002550
	Via optional mounting device	ETIM 7.0 EC002550
		ETIM 8.0 EC002550
		ETIM 9.0 EC002550
		ETIM 10.0 EC002550
Operation and display		
Type of display	Alphanumerical display	
	LED indicator	
Number of LEDs	11 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	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	

Dimensioned drawings

All dimensions in millimeters

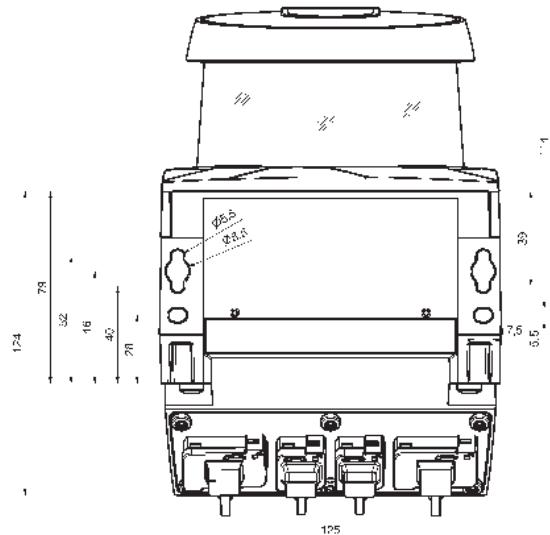
Dimensions safety laser scanner with connection unit



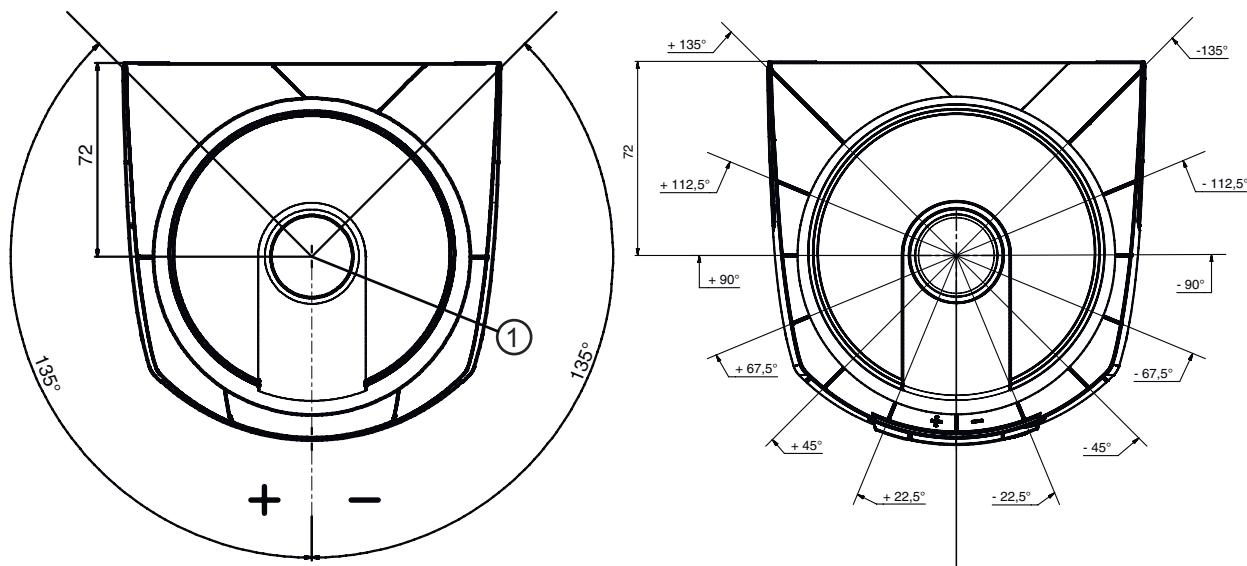
1 Scan level

Dimensioned drawings

Mounting dimensions safety laser scanner with connection unit



Dimensions of scanning range



1 Reference point for distance measurement and protective field radius

Electrical connection

Connection 1

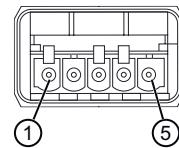
XD1

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

Electrical connection

Pin Pin assignment

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



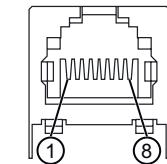
Connection 2

XF1

Function	Ethernet, input
Type of connection	PROFINET RJ45 push-pull IEC 61076-3-117 var. 14
Connector housing	FE/SHIELD

Pin Pin assignment

Pin	Pin assignment	Conductor color
1	TD+	Yellow
2	TD-	Orange
3	RD+	White
4	n.c.	-
5	n.c.	-
6	RD-	Blue
7	n.c.	-
8	n.c.	-



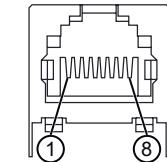
Connection 3

XF2

Function	Ethernet, output
Type of connection	PROFINET RJ45 push-pull IEC 61076-3-117 var. 14
Connector housing	FE/SHIELD

Pin Pin assignment

Pin	Pin assignment	Conductor color
1	TD+	Yellow
2	TD-	Orange
3	RD+	White
4	n.c.	-
5	n.c.	-
6	RD-	Blue
7	n.c.	-
8	n.c.	-



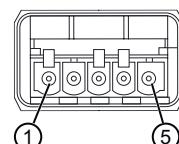
Connection 4

XD2

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

Pin Pin assignment

1	+24 V
2	0 V
3	+24 V
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
	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
10 LNK/ACT1	Red, continuous light	Bus error, no communication
	Off	No Ethernet link present
	Green, continuous light	Ethernet link active, no current data transmission
11 LNK/ACT2	Green/orange, flashing	Ethernet link active, current data transmission
	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!
	<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.

	ATTENTION! INVISIBLE LASER RADIATION – CLASS 1 LASER PRODUCT
	<p>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.</p> <ul style="list-style-type: none"> ⌚ Observe the applicable statutory and local laser protection regulations. ⌚ The device must not be tampered with and must not be changed in any way. <p>There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.</p>

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

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 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.

Accessories

Part no.	Designation	Article	Description
	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.

Note



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