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Part no.: 520044
RS4-6E
Safety laser scanner



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- Operation and display
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Part no.: 520044 – RS4-6E – Safety laser scanner

Technical data

Basic data	
Series	ROTOSCAN RS4
Functions	
Function package	Extended
Functions	Additional alarm output Horizontal danger zone guarding Monitored field pair changeover Resolution, selectable Start test Start/restart interlock (RES), selectable Vertical access guarding Vertical point of operation guarding Warning field monitoring
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	1.5E-07 per hour
Mission time T _M	20 years , EN ISO 13849-1
Category	3 , EN ISO 13849
Protective field data	
Number of protective fields	8 Piece(s)
Scanning angle	190 °
Type, field pair selection	Via switching inputs
Resolution (adjustable)	30/40/50/70/150 mm
Minimum adjustable range	200 mm
Operating range at 30 mm resolution	1.6 m
Operating range at 40 mm resolution	2.2 m
Operating range at 50 mm resolution	2.8 m
Operating range at 70 mm resolution	6.25 m
Operating range at 150 mm resolution	6.25 m
Number of field pairs, reversible	8
Diffuse reflection, min.	1.8 %
Reference contour selectable	Yes
Operating range	0 ... 6.25 m
Warning field data	
Number of warning fields	8 Piece(s)
Scanning angle	190 °
Angular resolution	0.36 °
Operating range	0 ... 15 m
Object size	150 mm x 150 mm
Diffuse reflection, min.	20 %
Optical data	
Light source	Laser , Infrared

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Laser light wavelength	905 nm
Laser class	1 , IEC/EN 60825-1:2007
Transmitted-signal shape	Pulsed
Pulse duration	0.003 μ s
Pulse pause	40 μ s
Repetition frequency	25 kHz
Lateral tolerance with mounting system	-0.22 ... 0.22 ° , (relative to the mounting surface)
Lateral tolerance without mounting system	-0.18 ... 0.18 ° , (relative to rear wall of housing)

Measurement data

Distance resolution	5 mm
Detection range	0 ... 50 m
Detection angle	190 °
Angular resolution	0.36 °
Scanning rate	25 scans/s

Electrical data

Protective circuit	Overvoltage protection
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Performance data

Supply voltage U_B	24 V , DC , -30 ... 20 % , Supply acc. to IEC 742 with secure mains supply isolation and equalization for power outages of up to 20 ms acc. to EN 61496-1.
Current consumption, max.	420 mA , (use power supply unit with 2.5 A)
Power consumption, max.	10 W , For 24 V, plus output load
Fuse	1.6 A semi time-lag

Inputs

Number of digital switching inputs	4 Piece(s)
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Switching inputs

Type	Digital switching input
Switching voltage high, min.	16 V
Switching voltage low, max.	3 V
Switching voltage, typ.	24 V
Voltage type	DC
Switching current, max.	5 mA

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Outputs

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

Safety-related switching outputs

Type	Safety-related switching output OSSD
Switching voltage high, min.	18 V
Switching voltage low, max.	2 V
Switching voltage, typ.	21 V
Voltage type	DC
Current load, max.	250 mA
Load inductivity	1,000,000 µH
Load capacity	0.1 µF
Residual current, max.	0.5 mA
Residual current, typ.	0.005 mA
Voltage drop	3.2 V

Safety-related switching output 1

Assignment	Connection 1, pin 11
Switching element	Transistor , PNP

Safety-related switching output 2

Assignment	Connection 1, pin 12
Switching element	Transistor , PNP

Switching outputs

Type	Digital switching output
Switching voltage high, min.	20 V
Switching voltage low, max.	2 V
Switching voltage, typ.	21 V
Voltage type	DC
Switching current, max.	100 mA

Timing

Response time	80 ms
Response time (MultiScan)	80 ... 640 ms

Service interface

Type	RS 232 , RS 422
RS 232	
Function	Configuration via software Data transmission Service
RS 422	
Function	Configuration via software Data transmission Service

Connection

Number of connections	2 Piece(s)
Connection 1	
Type of connection	Sub-D
Function	Machine interface
No. of pins	15 -pin

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Connection 2

Type of connection	Sub-D
Function	Configuration interface Data interface Service interface
No. of pins	9 -pin

Cable properties

Permissible conductor cross section, typ.	0.5 mm ²
Length of connection cable, max.	50 m

Mechanical data

Dimension (W x H x L)	140 mm x 148 mm x 135 mm
Housing material	Metal , Aluminum
Lens cover material	Plastic / PMMA, scratch-resistant coating
Net weight	2,000 g
Housing color	Black Yellow, RAL 1021
Type of fastening	Mounting plate Through-hole mounting

Operation and display

Type of display	LED
Number of LEDs	5 Piece(s)
Type of configuration	Software
Operational controls	PC software

Environmental data

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

Certifications

Degree of protection	IP 65
Protection class	II
Certifications	c CSA US c TÜV NRTL US TÜV Süd
Test procedure for EMC in accordance with standard	EN 55022 EN 61000-6-2:2005 EN 61000-6-4:2001
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, test Eb
US patents	US 7,656,917 B US 7,696,468 B

Classification

Customs tariff number	85365019
eCl@ss 8.0	27272705
eCl@ss 9.0	27272705
ETIM 5.0	EC002550
ETIM 6.0	EC002550

Electrical connection

Connection 1	
Type of connection	Sub-D
Function	Machine interface
Type	Male
No. of pins	15 -pin

Pin	Pin assignment
1	GND
2	Restart
3	+24V
4	FP 1
5	Alarm 1
6	FP 2
7	FP 3
8	FP 4
9	n.c.
10	n.c.
11	OSSD1
12	OSSD2
13	n.c.
14	n.c.
15	Alarm 2

Connection 2	
Type of connection	Sub-D
Selection of interface	Bridge, pin 5 to pin 6
Function	Configuration interface Data interface Service interface
Type	Female
No. of pins	9 -pin

Pin	Pin assignment
1	Reserved
2	TXD
3	RxD
4	Reserved
5	RS 232 GND
6	RS 232
7	n.c.
8	n.c.
9	Reserved

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Operation and display

LEDs


LED	Display	Meaning
1	Green, continuous light	Sensor function is active, the active protected field is free.
	Green, flashing, 2 Hz	Error in the field pair control inputs.
	Green, flashing, 4 Hz	MotionMonitoring has detected an error.
2	Yellow, continuous light	Active warning field is occupied.
	Yellow, flashing, 2 Hz	Front cover is soiled.
	Yellow, flashing, 4 Hz	Configuration of the ConfigPlug is not compatible with the safety sensor.
3	Red, continuous light	Safety-related switching outputs (OSSD 1 and 2) are switched off.
4	Green, continuous light	Safety-related switching outputs (OSSD 1 and 2) are switched on.
5	Yellow, continuous light	Start/restart interlock locked.
	Yellow, flashing, 2 Hz	Front cover is soiled.
	Yellow, flashing, 4 Hz	Fault

Accessories

Connection technology - Connection cables

	Part no.	Designation	Article	Description
	548521	CB-D15E-10000S-11GF	Connection cable	Parameter memory: Yes Connection 1: Sub-D, Axial, Female, 15 -pin Connection 2: Open end Shielded: Yes Cable length: 10,000 mm Sheathing material: PUR

Connection technology - Interconnection cables



	Part no.	Designation	Article	Description
	50035865	CB-D9-5000-5GF/GM	Interconnection cable	Connection 1: Sub-D, Axial, Female, 9 -pin Connection 2: Sub-D, Axial, Male, 9 -pin Shielded: Yes Cable length: 5,000 mm

Mounting technology - Other

	Part no.	Designation	Article	Description
	50033346	RS4-MS	Mounting system	Dimensions: 192 mm x 57 mm x 156 mm Net weight: 700 g Housing color: Black Design of mounting device: Mounting system Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Type of mounting device: Swiveling, Adjustable Mounting device material: Metal

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Services

	Part no.	Designation	Article	Description
	S981051	CS40-I-141	Safety inspection "Safety laser scanners"	<p>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.</p> <p>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.</p> <p>Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.</p>
	S981047	CS40-S-141	Start-up support	<p>Details: For safety devices including stopping time measurement and initial inspection.</p> <p>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses.</p> <p>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.</p>

Note

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