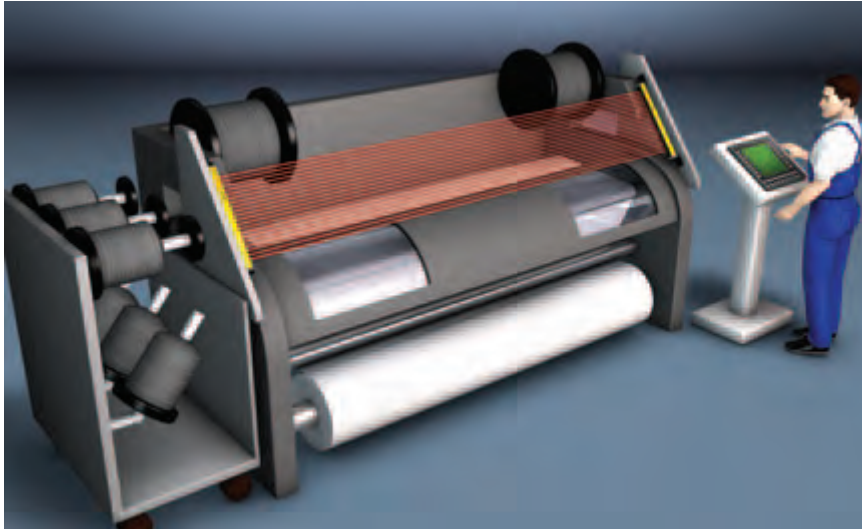
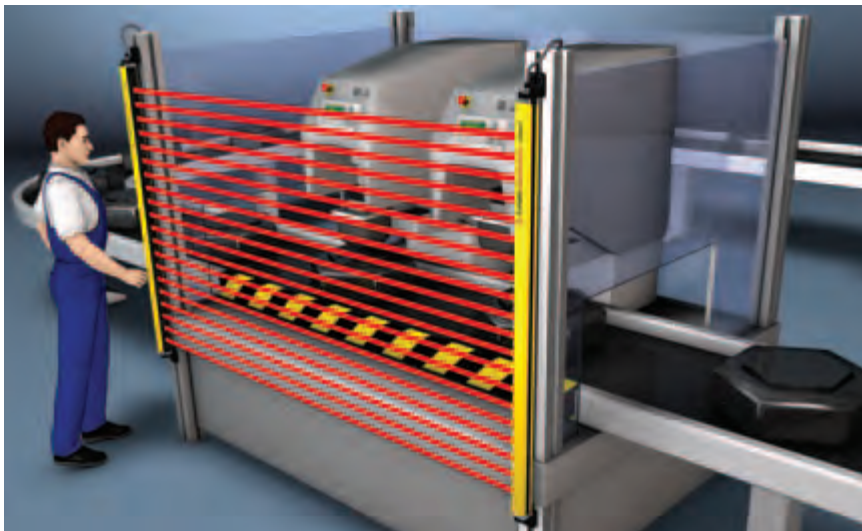


SAFETY LIGHT CURTAINS

SOLID-2, SOLID-2E



SOLID-2 with automatic restart on a textile machine



SOLID-2E with integrated restart interlock on a pad printing machine

A reliable and interference-proof safety sensor system is a prerequisite for high system availability and achievement of production targets. At the same time the increasing costs pressure of global competition also requires an economical safety system. Satisfying these central requirements was the maxim with the development of the SOLID-2 type 2 Safety Light Curtains with integrated cyclical testing. These devices are characterized by their robust housing design and high interference immunity. Various resolutions and functionalities enable cost-optimized solutions with the most varied applications. SOLID-2 is predestined for hand and arm protection and for detecting the presence of people.

Typical areas of application

- Storage and conveyor systems
- Textile machinery
- Machinery in the timber and wood-processing industry
- Wafers
- Automatic loading systems
- Packaging machinery

SOLID-2, SOLID-2E

Important technical data, overview

Type in accordance with IEC/EN 61496	Type 2			
SIL in accordance with IEC 61508 and SILCL in accordance with IEC/EN 62061	SIL 2			
Performance Level (PL) in accordance with EN ISO 13849-1	PL d			
Category in accordance with EN ISO 13849	2			
Resolution	20 mm	30 mm	40 mm	90 mm
Range	0.5...15 m	0.2...10 m	0.8...20 m	0.8...20 m
Protective field height (type-dependent)	150...1800 mm			
Profile cross-section	30 mm x 34 mm			
Safety-related switching outputs (OSSDs)	2 pnp transistor outputs			
Connection system	M12 plug			

Functions

	SOLID-2	SOLID-2E
Integrated cyclical testing	●	●
Automatic start/restart	●	●
Start/restart interlock (RES), selectable		●
Dynamic contactor monitoring (EDM), selectable		●
2 transmission channels, selectable	●	●

Function extension

SOLID-2

With Safety Relays	Relay output	RES	EDM	Muting	Cycle control	Further details
MSI-SR4	●	●	●			p. 436
MSI-m*	●	●	●	●		p. 464
MSI-i*	●	●	●		●	p. 458

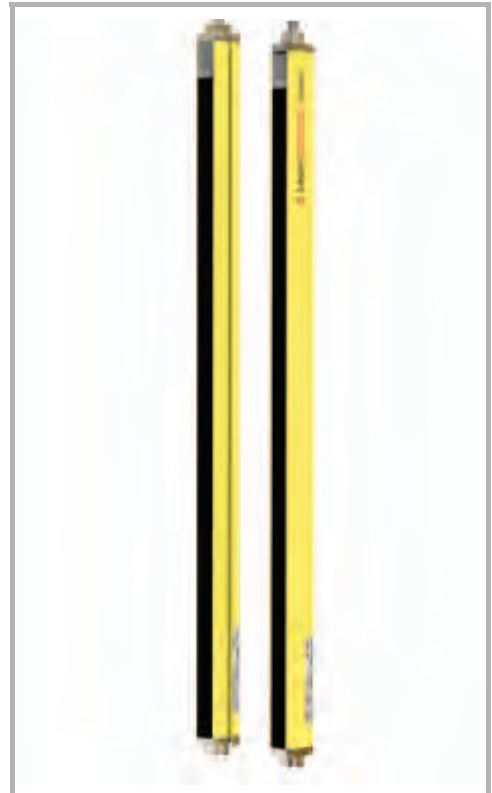
SOLID-2E

MSI-RM2	●	**	**			p. 430
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*) Can also be connected to SOLID-2E
 **) Already included in the device

Special features

- **Type 2 self-testing Safety Light Curtain in accordance with IEC/EN 61496**
- **SIL 2 Safety Light Curtain in accordance with IEC/EN 61508**
- **Slender and robust aluminum housing (30 mm x 34 mm)**
- **Fault-free operation of adjacent devices with selection of different transmission channels**
- **Easy function selection with external wiring**



Features

Further information

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Machine Safety

Machine Safety Services

Safety Engineering Software

Safety Laser Scanners

Safety Light Curtains

Multiple Light Beam Safety Devices

Safety Sensor Sets

Single Light Beam Safety Devices

AS-Interface Safety at Work

PROFIsafe Sensors

SAFETY LIGHT CURTAINS

Ordering information

SOLID-2, consisting of transmitter and receiver.
Included in delivery: 2 bracket sets BT-360-SET, 1 connecting and operating instructions manual

Functions: Integrated testing, automatic start/restart, selectable transmission channels

Protective field height in mm	SOLID-2			SOLID-2		
	Art. no.	Article	Description	Art. no.	Article	Description
	Resolution: 20 mm			Resolution: 30 mm		
	Range: 0.5 - 15 m			Range: 0.2 - 10 m		
150	67821701	SD2T20-150	Transmitter	67821801	SD2T30-150	Transmitter
	67820201	SD2R20-150	Receiver	67820601	SD2R30-150	Receiver
225	67821702	SD2T20-225	Transmitter	67821802	SD2T30-225	Transmitter
	67820202	SD2R20-225	Receiver	67820602	SD2R30-225	Receiver
300	67821703	SD2T20-300	Transmitter	67821803	SD2T30-300	Transmitter
	67820203	SD2R20-300	Receiver	67820603	SD2R30-300	Receiver
450	67821704	SD2T20-450	Transmitter	67821804	SD2T30-450	Transmitter
	67820204	SD2R20-450	Receiver	67820604	SD2R30-450	Receiver
600	67821706	SD2T20-600	Transmitter	67821806	SD2T30-600	Transmitter
	67820206	SD2R20-600	Receiver	67820606	SD2R30-600	Receiver
750	67821707	SD2T20-750	Transmitter	67821807	SD2T30-750	Transmitter
	67820207	SD2R20-750	Receiver	67820607	SD2R30-750	Receiver
900	67821709	SD2T20-900	Transmitter	67821809	SD2T30-900	Transmitter
	67820209	SD2R20-900	Receiver	67820609	SD2R30-900	Receiver
1050	67821710	SD2T20-1050	Transmitter	67821810	SD2T30-1050	Transmitter
	67820210	SD2R20-1050	Receiver	67820610	SD2R30-1050	Receiver
1200	67821712	SD2T20-1200	Transmitter	67821812	SD2T30-1200	Transmitter
	67820212	SD2R20-1200	Receiver	67820612	SD2R30-1200	Receiver
1350	67821713	SD2T20-1350	Transmitter	67821813	SD2T30-1350	Transmitter
	67820213	SD2R20-1350	Receiver	67820613	SD2R30-1350	Receiver
1500	67821715	SD2T20-1500	Transmitter	67821815	SD2T30-1500	Transmitter
	67820215	SD2R20-1500	Receiver	67820615	SD2R30-1500	Receiver
1650	67821716	SD2T20-1650	Transmitter	67821816	SD2T30-1650	Transmitter
	67820216	SD2R20-1650	Receiver	67820616	SD2R30-1650	Receiver
1800	67821718	SD2T20-1800	Transmitter	67821818	SD2T30-1800	Transmitter
	67820218	SD2R20-1800	Receiver	67820618	SD2R30-1800	Receiver

Ordering information

SOLID-2, consisting of transmitter and receiver.
Included in delivery: 2 bracket sets BT-360-SET, 1 connecting and operating instructions manual

Functions: Integrated testing, automatic start/restart, selectable transmission channels

Protective field height in mm	SOLID-2			SOLID-2		
	Art. no.	Article	Description	Art. no.	Article	Description
	Resolution: 40 mm Range: 0.8 - 20 m			Resolution: 90 mm Range: 0.8 - 20 m		
150	67821901	SD2T40-150	Transmitter			
	67821001	SD2R40-150	Receiver			
225	67821902	SD2T40-225	Transmitter			
	67821002	SD2R40-225	Receiver			
300	67821903	SD2T40-300	Transmitter			
	67821003	SD2R40-300	Receiver			
450	67821904	SD2T40-450	Transmitter			
	67821004	SD2R40-450	Receiver			
600	67821906	SD2T40-600	Transmitter	67822006	SD2T90-600	Transmitter
	67821006	SD2R40-600	Receiver	67821406	SD2R90-600	Receiver
750	67821907	SD2T40-750	Transmitter	67822007	SD2T90-750	Transmitter
	67821007	SD2R40-750	Receiver	67821407	SD2R90-750	Receiver
900	67821909	SD2T40-900	Transmitter	67822009	SD2T90-900	Transmitter
	67821009	SD2R40-900	Receiver	67821409	SD2R90-900	Receiver
1050	67821910	SD2T40-1050	Transmitter	67822010	SD2T90-1050	Transmitter
	67821010	SD2R40-1050	Receiver	67821410	SD2R90-1050	Receiver
1200	67821912	SD2T40-1200	Transmitter	67822012	SD2T90-1200	Transmitter
	67821012	SD2R40-1200	Receiver	67821412	SD2R90-1200	Receiver
1350	67821913	SD2T40-1350	Transmitter	67822013	SD2T90-1350	Transmitter
	67821013	SD2R40-1350	Receiver	67821413	SD2R90-1350	Receiver
1500	67821915	SD2T40-1500	Transmitter	67822015	SD2T90-1500	Transmitter
	67821015	SD2R40-1500	Receiver	67821415	SD2R90-1500	Receiver
1650	67821916	SD2T40-1650	Transmitter	67822016	SD2T90-1650	Transmitter
	67821016	SD2R40-1650	Receiver	67821416	SD2R90-1650	Receiver
1800	67821918	SD2T40-1800	Transmitter	67822018	SD2T90-1800	Transmitter
	67821018	SD2R40-1800	Receiver	67821418	SD2R90-1800	Receiver

SAFETY LIGHT CURTAINS

Ordering information

SOLID-2E, consisting of transmitter and receiver.
Included in delivery: 2 bracket sets BT-360-SET, 1 connecting and operating instructions manual

Functions: Integrated testing, selectable transmission channels, selectable start/restart interlock, selectable dynamic contactor monitoring

Protective field height in mm	SOLID-2E			SOLID-2E		
	Resolution: 20 mm Range: 0.5 - 15 m			Resolution: 30 mm Range: 0.2 - 10 m		
	Art. no.	Article	Description	Art. no.	Article	Description
150	67821701	SD2T20-150	Transmitter	67821801	SD2T30-150	Transmitter
	67820401	SD2R20-150E	Receiver	67820801	SD2R30-150E	Receiver
225	67821702	SD2T20-225	Transmitter	67821802	SD2T30-225	Transmitter
	67820402	SD2R20-225E	Receiver	67820802	SD2R30-225E	Receiver
300	67821703	SD2T20-300	Transmitter	67821803	SD2T30-300	Transmitter
	67820403	SD2R20-300E	Receiver	67820803	SD2R30-300E	Receiver
450	67821704	SD2T20-450	Transmitter	67821804	SD2T30-450	Transmitter
	67820404	SD2R20-450E	Receiver	67820804	SD2R30-450E	Receiver
600	67821706	SD2T20-600	Transmitter	67821806	SD2T30-600	Transmitter
	67820406	SD2R20-600E	Receiver	67820806	SD2R30-600E	Receiver
750	67821707	SD2T20-750	Transmitter	67821807	SD2T30-750	Transmitter
	67820407	SD2R20-750E	Receiver	67820807	SD2R30-750E	Receiver
900	67821709	SD2T20-900	Transmitter	67821809	SD2T30-900	Transmitter
	67820409	SD2R20-900E	Receiver	67820809	SD2R30-900E	Receiver
1050	67821710	SD2T20-1050	Transmitter	67821810	SD2T30-1050	Transmitter
	67820410	SD2R20-1050E	Receiver	67820810	SD2R30-1050E	Receiver
1200	67821712	SD2T20-1200	Transmitter	67821812	SD2T30-1200	Transmitter
	67820412	SD2R20-1200E	Receiver	67820812	SD2R30-1200E	Receiver
1350	67821713	SD2T20-1350	Transmitter	67821813	SD2T30-1350	Transmitter
	67820413	SD2R20-1350E	Receiver	67820813	SD2R30-1350E	Receiver
1500	67821715	SD2T20-1500	Transmitter	67821815	SD2T30-1500	Transmitter
	67820415	SD2R20-1500E	Receiver	67820815	SD2R30-1500E	Receiver
1650	67821716	SD2T20-1650	Transmitter	67821816	SD2T30-1650	Transmitter
	67820416	SD2R20-1650E	Receiver	67820816	SD2R30-1650E	Receiver
1800	67821718	SD2T20-1800	Transmitter	67821818	SD2T30-1800	Transmitter
	67820418	SD2R20-1800E	Receiver	67820818	SD2R30-1800E	Receiver

SOLID-2, SOLID-2E

Ordering information

SOLID-2E, consisting of transmitter and receiver.
Included in delivery: 2 bracket sets BT-360-SET, 1 connecting and operating instructions manual

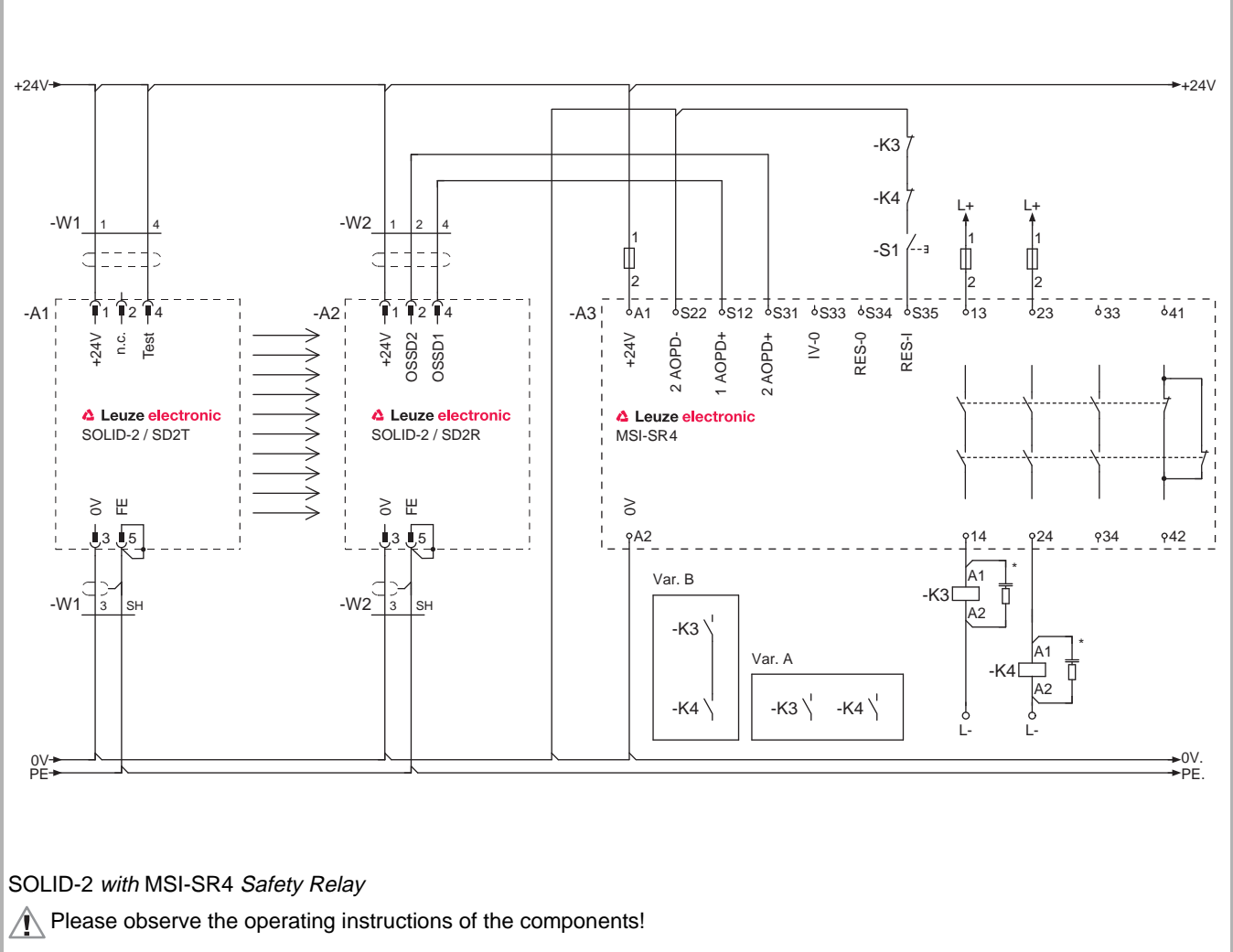
Functions: Integrated testing, selectable transmission channels, selectable start/restart interlock, selectable dynamic contactor monitoring

Protective field height in mm	SOLID-2E			SOLID-2E		
	Art. no.	Article	Description	Art. no.	Article	Description
	Resolution: 40 mm Range: 0.8 - 20 m			Resolution: 90 mm Range: 0.8 - 20 m		
150	67821901	SD2T40-150	Transmitter			
	67821201	SD2R40-150E	Receiver			
225	67821902	SD2T40-225	Transmitter			
	67821202	SD2R40-225E	Receiver			
300	67821903	SD2T40-300	Transmitter			
	67821203	SD2R40-300E	Receiver			
450	67821904	SD2T40-450	Transmitter			
	67821204	SD2R40-450E	Receiver			
600	67821906	SD2T40-600	Transmitter	67822006	SD2T90-600	Transmitter
	67821206	SD2R40-600E	Receiver	67821606	SD2R90-600E	Receiver
750	67821907	SD2T40-750	Transmitter	67822007	SD2T90-750	Transmitter
	67821207	SD2R40-750E	Receiver	67821607	SD2R90-750E	Receiver
900	67821909	SD2T40-900	Transmitter	67822009	SD2T90-900	Transmitter
	67821209	SD2R40-900E	Receiver	67821609	SD2R90-900E	Receiver
1050	67821910	SD2T40-1050	Transmitter	67822010	SD2T90-1050	Transmitter
	67821210	SD2R40-1050E	Receiver	67821610	SD2R90-1050E	Receiver
1200	67821912	SD2T40-1200	Transmitter	67822012	SD2T90-1200	Transmitter
	67821212	SD2R40-1200E	Receiver	67821612	SD2R90-1200E	Receiver
1350	67821913	SD2T40-1350	Transmitter	67822013	SD2T90-1350	Transmitter
	67821213	SD2R40-1350E	Receiver	67821613	SD2R90-1350E	Receiver
1500	67821915	SD2T40-1500	Transmitter	67822015	SD2T90-1500	Transmitter
	67821215	SD2R40-1500E	Receiver	67821615	SD2R90-1500E	Receiver
1650	67821916	SD2T40-1650	Transmitter	67822016	SD2T90-1650	Transmitter
	67821216	SD2R40-1650E	Receiver	67821616	SD2R90-1650E	Receiver
1800	67821918	SD2T40-1800	Transmitter	67822018	SD2T90-1800	Transmitter
	67821218	SD2R40-1800E	Receiver	67821618	SD2R90-1800E	Receiver

SAFETY LIGHT CURTAINS

Electrical connection

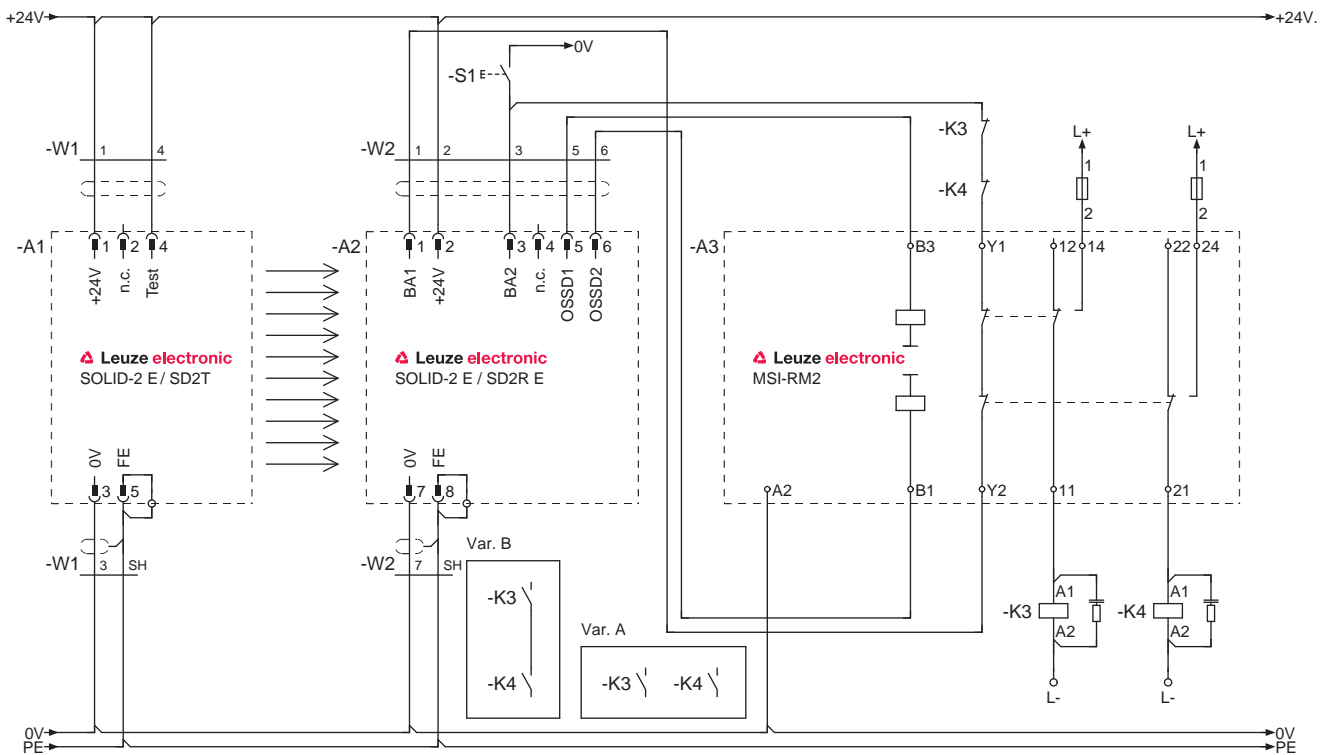
SOLID-2 connection example



*) Spark extinction circuit, supply suitable spark extinction

Electrical connection

SOLID-2E connection example



SOLID-2E with MSI-RM2 Safety Relay

⚠ Please observe the operating instructions of the components!

Machine Safety

Machine Safety Services

Safety Engineering Software

Safety Laser Scanners

Safety Light Curtains

Multiple Light Beam Safety Devices

Safety Sensor Sets

Single Light Beam Safety Devices

AS-Interface Safety at Work

PROFIsafe Sensors

SAFETY LIGHT CURTAINS

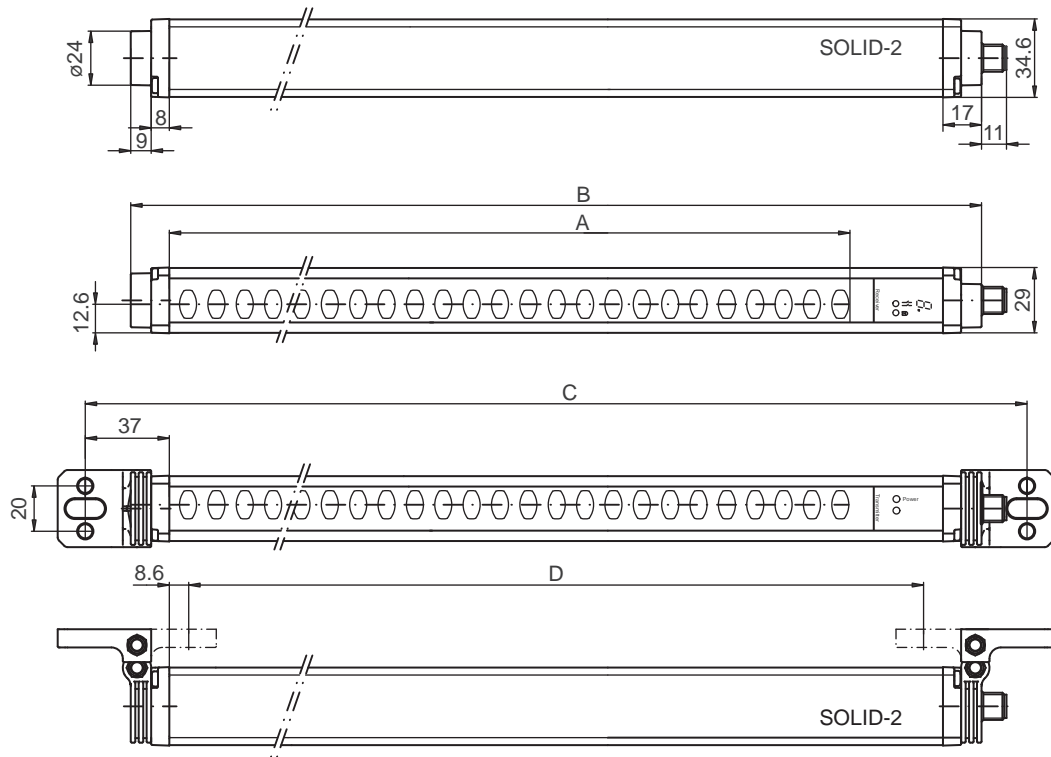
Technical data

General system data				
Type in accordance with IEC/EN 61496	Type 2			
SIL in accordance with IEC 61508 and SILCL in accordance with IEC/EN 62061	SIL 2			
Performance Level (PL) in accordance with EN ISO 13849-1	PL d			
Probability of a failure to danger per hour (PFH _d)	For prot. heights up to 900 mm, all res.	8.18 x 10 ⁻⁸ 1/h		
	For prot. heights up to 1800 mm, all res.	8.92 x 10 ⁻⁸ 1/h		
	For protective heights up to 2850 mm	On request		
Service life (T _M) in accordance with EN ISO 13849-1	20 years			
Category in accordance with EN ISO 13849	2			
Resolution	20 mm	30 mm	40 mm	90 mm
Range	0.5...15 m	0.2...10 m	0.8...20 m	0.8...20 m
Response time (depends on protective field height)	9...60 ms	7...31 ms	7...31 ms	8...12 ms
Protective field height	150...1800 mm			450...1800 mm
Synchronization	Optical via transmitter and receiver			
Supply voltage	24 V DC, ± 20 %			
Test repetition time with internal testing	100 ms			
Connection cable length	Max. 100 m with 0.25 mm ²			
Safety class	III			
Protection rating	IP 65			
Ambient temperature, operation	0...+50°C			
Ambient temperature, storage	-25...+70°C			
Relative humidity	15...95 %			
Profile cross-section	30 mm x 34 mm			
Weight per device (length-dependent)	0.30...1.90 kg			
Transmitter				
Transmitter diodes, class in accordance with EN 60825	1			
Wavelength	950 nm			
Current consumption	45 mA			
Connection system	M12 plug, 5-pin			
External test input	24 V DC, max. 20 mA			
Receiver				
Current consumption	140 mA without external load			
Safety-related switching outputs (OSSDs)	2 pnp transistor outputs (short circuit-proof, cross-circuit monitored)			
Switching voltage high active	Min. U _v - 1.9 V			
Switching voltage low	Max. 1 V			
Switching current	Max. 250 mA			
SOLID-2 connection system	M12 plug, 5-pin			
SOLID-2E connection system	M12 plug, 8-pin			
SOLID-2E signal inputs on BA1 and BA2	24 V DC, max. 10 mA			

Please note the additional information in the SOLID-2 Connecting and Operating Instructions at www.leuze.com/solid.

Dimensional drawings

SOLID-2/SOLID-2E Safety Light Curtain



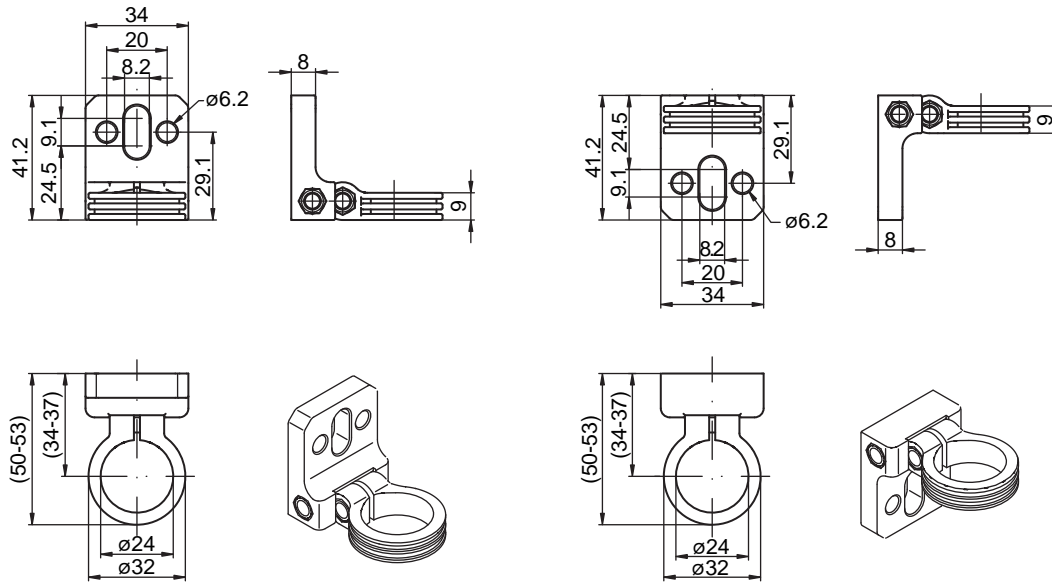
- A = Protective field height according to ordering information
- B = A + 75.5 mm
- C = A + 115.5 mm
- D = A + 24.3 mm

Our 3D CAD models can be found under: www.leuze.com/3d-cad-models.

SAFETY LIGHT CURTAINS

Dimensional drawings: Accessories

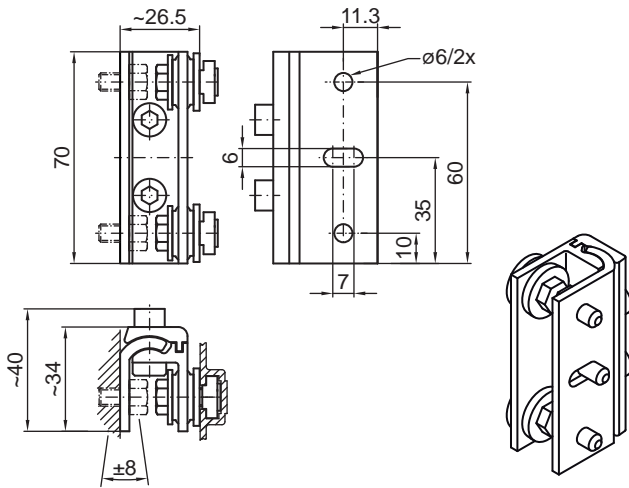
Brackets



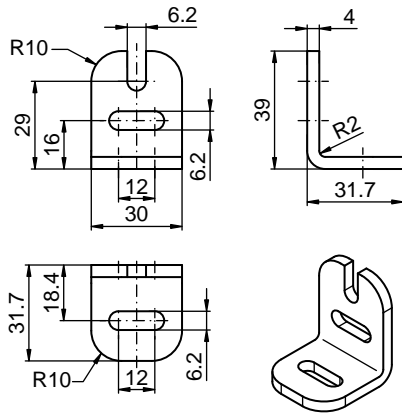
Bracket, 360° rotation, BT-360

Dimensions in mm

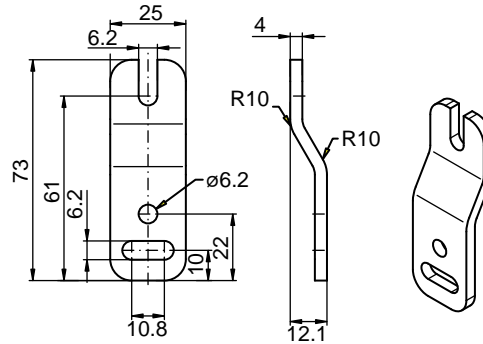
Brackets



Mounting bracket, swiveling with shock absorber, BT-SSD



L-mounting bracket, BT-L



Z-mounting bracket, BT-Z

SAFETY LIGHT CURTAINS

Accessories ordering information

Art. no.	Article	Description	Length, design
Installation accessories			
429050	BT-360	Bracket, 360° rotation	
429051	BT-L	L-mounting bracket	
429052	BT-Z	Z-mounting bracket	
429055	BT-360-SET	Mounting bracket set, consisting of 2 BT-360°	
429056	BT-L-mounting set	Mounting bracket set, consisting of 2 BT-L	
429057	BT-Z-mounting set	Mounting bracket set, consisting of 2 BT-Z	
560300	BT-SSD	Swiveling support with shock absorber incl. 2 screws and 2 sliding blocks	
Connecting cables, 5-pin for SOLID-2 Transmitter and SOLID-2 Receiver			
429071	CB-M12-5000S-5GF	Connecting cable shielded with M12 coupling, 5-pin	5 m, straight/open end
429072	CB-M12-5000S-5WF	Connecting cable shielded with M12 coupling, 5-pin	5 m, angled/open end
429073	CB-M12-10000S-5GF	Connecting cable shielded with M12 coupling, 5-pin	10 m, straight/open end
429074	CB-M12-10000S-5WF	Connecting cable shielded with M12 coupling, 5-pin	10 m, angled/open end
429075	CB-M12-15000S-5GF	Connecting cable shielded with M12 coupling, 5-pin	15 m, straight/open end
429076	CB-M12-15000S-5WF	Connecting cable shielded with M12 coupling, 5-pin	15 m, angled/open end
429171	CB-M12-25000S-5GF	Connecting cable shielded with M12 coupling, 5-pin	25 m, straight/open end
429172	CB-M12-25000S-5WF	Connecting cable shielded with M12 coupling, 5-pin	25 m, angled/open end

Accessories ordering information

Art. no.	Article	Description	Length, design
Connecting cables, 8-pin for SOLID-2E Receiver			
429081	CB-M12-5000S-8GF	Connecting cable shielded with M12 coupling, 8-pin	5 m, straight/open end
429082	CB-M12-5000S-8WF	Connecting cable shielded with M12 coupling, 8-pin	5 m, angled/open end
429083	CB-M12-10000S-8GF	Connecting cable shielded with M12 coupling, 8-pin	10 m, straight/open end
429084	CB-M12-10000S-8WF	Connecting cable shielded with M12 coupling, 8-pin	10 m, angled/open end
429085	CB-M12-15000S-8GF	Connecting cable shielded with M12 coupling, 8-pin	15 m, straight/open end
429086	CB-M12-15000S-8WF	Connecting cable shielded with M12 coupling, 8-pin	15 m, angled/open end
429181	CB-M12-25000S-8GF	Connecting cable shielded with M12 coupling, 8-pin	25 m, straight/open end
429182	CB-M12-25000S-8WF	Connecting cable shielded with M12 coupling, 8-pin	25 m, angled/open end
Laser Alignment Aids			
560020	LA-78U	Laser Alignment Aid for lateral mounting with use for COMPACT <i>plus</i> /SOLID	
Power supplies			
520061	LOGO! Power	Power supply, 120/230 V AC --> 24 V DC / 1.3 A, regulated	
Test rods			
349939	AC-TB20/40	Test rod, 20 mm / 40 mm	
349945	AC-TR14/30	Test rod, 14 mm / 30 mm	
Protective screens, see accessories, page 494			