

SE4

Sicherheitslichtvorhänge

Unsere Sicherheitslichtvorhänge bieten zuverlässigen Schutz für Maschinenbediener, indem sie Gefahren frühzeitig erkennen und die Maschine automatisch stoppen. Sie sind ideal für den Einsatz in dynamischen Arbeitsumgebungen und garantieren mit verschiedenen Schutzarten (Finger-, Handflächen- und Armschutz) höchste Sicherheitsstandards. Dank robuster Bauweise und innovativer Technologie bieten sie eine lange Lebensdauer und zuverlässige Leistung, auch unter anspruchsvollen Bedingungen.



SR22
Sicherheitsrelais



SE4 SERIES

SAFETY-RELATED PARAMETERS

TYPE	Type 4 (IEC61496-1)	CATEGORY	Cat. 4 (ISO13849-1)
SAFETY INTEGRITY LEVEL	SIL 3 (IEC61508, IEC62061)	PERFORMANCE LEVEL	PLe (ISO13849-1)

TECHNICAL DATA

SUPPLY VOLTAGE (VS)	24 V DC	SAFETY OUTPUT	PNP transistor output x 2 ON state, load current ≤ 100 mA, output voltage $\geq V_s - 2$ V OFF state, leakage current ≤ 1 mA, residual voltage ≤ 1 V (Excluding the effect of wire extension)
RIPPLE VOLTAGE	≤ 20 %		
LIGHT SOURCE	Infrared light (850 nm)		
OPTICAL AXIS SPACING	10 mm / 20 mm / 40 mm		
RESOLUTION	14 mm / 30 mm / 50 mm		
SYNCHRONIZATION METHOD	Optical synchronization		NPN transistor output x 2 ON state, load current ≤ 100 mA, output voltage ≤ 2 V OFF state, leakage current ≤ 1 mA, residual voltage ≤ 2 V (Excluding the effect of wire extension)
SCANNING RANGE	A: 0...10 m / B: 0...16 m		
SECTION SIZE	34 x 28 mm		
LOAD CURRENT	Emitter: < 200 mA Receiver: < 200 mA (No-load)		
RESPONSE TIME	4 ... 18 ms (Increase or decrease with the number of beams)	DETECTION FUNCTION	Power-on self-test, real-time self-test during the working process
START TIME	< 3 s	SHORT-CIRCUIT PROTECTION	Yes
		OVERLOAD RESISTANCE	Yes
		REVERSE POLARITY PROTECTION	Yes

ENVIRONMENTAL CONDITIONS

OPERATING ENVIRONMENT HUMIDITY	35 % to 85 % RH (No condensation)	SHOCK RESISTANCE (EN 60068-2-27)	Acceleration 10 g, pulse duration 16 ms, X, Y and Z direction 1000 times each
STORAGE ENVIRONMENT HUMIDITY	35 % to 95 % RH		
PROTECTION CLASS	IP65	IMPACT RESISTANCE (EN 60068-2-6)	Frequency 10 ... 55 Hz, amplitude 0.35 ± 0.05 mm, X, Y and Z direction 20 times each
STORAGE TEMPERATURE	-40 ... +70 °C		
AMBIENT TEMPERATURE	-10 ... +55 °C	ANTI-AMBIENT LIGHT	Incandescent lamp: 3000 lux Fluorescence: 3000 lux Sunlight: 10000 lux

SE4 SERIES

MTTF PARAMETERS

ELCO MODEL	MTTF (YEAR)	ELCO MODEL	MTTF (YEAR)
SE4P14-150	67	SE4P14-600	24
SE4P14-200	57	SE4P14-700	22
SE4P14-300	42	SE4P14-750	20
SE4P14-350	36	SE4P14-850	19
SE4P14-450	31	SE4P14-900	17
SE4P14-500	27	SE4P14-1000	16

MTTF PARAMETERS

ELCO MODEL	MTTF (YEAR)	ELCO MODEL	MTTF (YEAR)
SE4P30-150	86	SE4P30-1000	28
SE4P30-200	72	SE4P30-1050	27
SE4P30-300	63	SE4P30-1200	25
SE4P30-350	55	SE4P30-1250	24
SE4P30-450	49	SE4P30-1350	23
SE4P30-500	44	SE4P30-1400	22
SE4P30-600	41	SE4P30-1500	21
SE4P30-700	37	SE4P30-1600	20
SE4P30-750	35	SE4P30-1650	19
SE4P30-850	32	SE4P30-1700	18
SE4P30-900	30		

SE4 SERIES

MTTF PARAMETERS

ELCO MODEL	MTTF (YEAR)	ELCO MODEL	MTTF (YEAR)
SE4P50-150	100	SE4P50-1050	43
SE4P50-200	90	SE4P50-1200	41
SE4P50-300	82	SE4P50-1250	40
SE4P50-350	75	SE4P50-1350	38
SE4P50-450	70	SE4P50-1400	37
SE4P50-500	65	SE4P50-1500	35
SE4P50-600	61	SE4P50-1600	34
SE4P50-700	57	SE4P50-1650	33
SE4P50-750	53	SE4P50-1700	32
SE4P50-850	51	SE4P50-1800	31
SE4P50-900	48	SE4P50-1900	30
SE4P50-1000	46	SE4P50-2000	29

STANDARDS AND DIRECTIVES

EMC DIRECTIVE 2014/30/EU	EN IEC 61000-6-2 EN IEC 61000-6-4
ROHS DIRECTIVE 2011/65/EU	EN IEC 63000

APPROVALS



SE4 SERIES

DETECTION MODE OPPOSED

Model	Function	Resolution (mm)	Protect field height (mm)	Product overall height (mm)	Range (m)
SE4P14-150	Emitter + Receiver	14	120	145	Max. 10
SE4P14-200	Emitter + Receiver	14	200	225	Max. 10
SE4P14-300	Emitter + Receiver	14	280	305	Max. 10
SE4P14-450	Emitter + Receiver	14	440	465	Max. 10
SE4P14-600	Emitter + Receiver	14	600	625	Max. 10
SE4P14-750	Emitter + Receiver	14	760	785	Max. 10
SE4P14-900	Emitter + Receiver	14	920	945	Max. 10
SE4P14-1000	Emitter + Receiver	14	1000	1025	Max. 10
SE4P30-150	Emitter + Receiver	30	120	145	Max. 10
SE4P30-200	Emitter + Receiver	30	200	225	Max. 10
SE4P30-300	Emitter + Receiver	30	280	305	Max. 10
SE4P30-450	Emitter + Receiver	30	440	465	Max. 10
SE4P30-600	Emitter + Receiver	30	600	625	Max. 10
SE4P30-750	Emitter + Receiver	30	760	785	Max. 10
SE4P30-900	Emitter + Receiver	30	920	945	Max. 10
SE4P30-1050	Emitter + Receiver	30	1080	1105	Max. 10
SE4P30-1200	Emitter + Receiver	30	1160	1185	Max. 10
SE4P30-1350	Emitter + Receiver	30	1320	1345	Max. 10
SE4P30-1500	Emitter + Receiver	30	1480	1505	Max. 10
SE4P30-1650	Emitter + Receiver	30	1640	1665	Max. 10
SE4P30-1700	Emitter + Receiver	30	1720	1745	Max. 10
SE4P50-150	Emitter + Receiver	50	120	145	Max. 10
SE4P50-200	Emitter + Receiver	50	200	225	Max. 10
SE4P50-300	Emitter + Receiver	50	280	305	Max. 10
SE4P50-450	Emitter + Receiver	50	440	465	Max. 10
SE4P50-600	Emitter + Receiver	50	600	625	Max. 10
SE4P50-750	Emitter + Receiver	50	760	785	Max. 10
SE4P50-900	Emitter + Receiver	50	920	945	Max. 10
SE4P50-1050	Emitter + Receiver	50	1080	1105	Max. 10
SE4P50-1200	Emitter + Receiver	50	1160	1185	Max. 10
SE4P50-1350	Emitter + Receiver	50	1320	1345	Max. 10
SE4P50-1500	Emitter + Receiver	50	1480	1505	Max. 10
SE4P50-1650	Emitter + Receiver	50	1640	1665	Max. 10
SE4P50-1800	Emitter + Receiver	50	1800	1825	Max. 10

SE4 SERIES

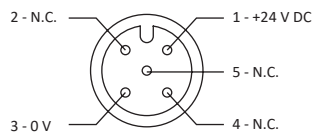
DETECTION MODE OPPOSED

Model	Function	Resolution (mm)	Protect field height (mm)	Product overall height (mm)	Range (m)
SE4P14-150L	Emitter + Receiver	14	120	145	Max. 16
SE4P14-200L	Emitter + Receiver	14	200	225	Max. 16
SE4P14-300L	Emitter + Receiver	14	280	305	Max. 16
SE4P14-450L	Emitter + Receiver	14	440	465	Max. 16
SE4P14-600L	Emitter + Receiver	14	600	625	Max. 16
SE4P14-750L	Emitter + Receiver	14	760	785	Max. 16
SE4P14-900L	Emitter + Receiver	14	920	945	Max. 16
SE4P14-1000L	Emitter + Receiver	14	1000	1025	Max. 16
SE4P30-150L	Emitter + Receiver	30	120	145	Max. 16
SE4P30-200L	Emitter + Receiver	30	200	225	Max. 16
SE4P30-300L	Emitter + Receiver	30	280	305	Max. 16
SE4P30-450L	Emitter + Receiver	30	440	465	Max. 16
SE4P30-600L	Emitter + Receiver	30	600	625	Max. 16
SE4P30-750L	Emitter + Receiver	30	760	785	Max. 16
SE4P30-900L	Emitter + Receiver	30	920	945	Max. 16
SE4P30-1050L	Emitter + Receiver	30	1080	1105	Max. 16
SE4P30-1200L	Emitter + Receiver	30	1160	1185	Max. 16
SE4P30-1350L	Emitter + Receiver	30	1320	1345	Max. 16
SE4P30-1500L	Emitter + Receiver	30	1480	1505	Max. 16
SE4P30-1650L	Emitter + Receiver	30	1640	1665	Max. 16
SE4P30-1700L	Emitter + Receiver	30	1720	1745	Max. 16
SE4P50-150L	Emitter + Receiver	50	120	145	Max. 16
SE4P50-200L	Emitter + Receiver	50	200	225	Max. 16
SE4P50-300L	Emitter + Receiver	50	280	305	Max. 16
SE4P50-450L	Emitter + Receiver	50	440	465	Max. 16
SE4P50-600L	Emitter + Receiver	50	600	625	Max. 16
SE4P50-750L	Emitter + Receiver	50	760	785	Max. 16
SE4P50-900L	Emitter + Receiver	50	920	945	Max. 16
SE4P50-1050L	Emitter + Receiver	50	1080	1105	Max. 16
SE4P50-1200L	Emitter + Receiver	50	1160	1185	Max. 16
SE4P50-1350L	Emitter + Receiver	50	1320	1345	Max. 16
SE4P50-1500L	Emitter + Receiver	50	1480	1505	Max. 16
SE4P50-1650L	Emitter + Receiver	50	1640	1665	Max. 16
SE4P50-1800L	Emitter + Receiver	50	1800	1825	Max. 16

SE4 SERIES

WIRING DIAGRAMS

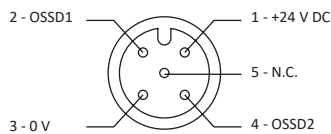
Fig. 1 Emitter



M12 5-pin connector

Pin	Color	Function
1	brown	+24 V DC
2	white	N.C.
3	blue	0 V
4	black	N.C.
5	grey	N.C.

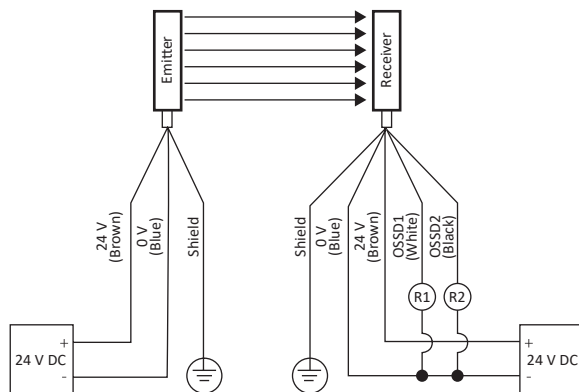
Fig. 2 Receiver



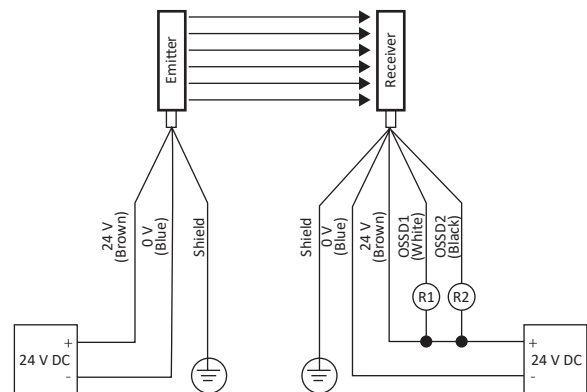
M12 5-pin connector

Pin	Color	Function
1	brown	+24 V DC
2	white	OSSD1
3	blue	0 V
4	black	OSSD2
5	grey	N.C.

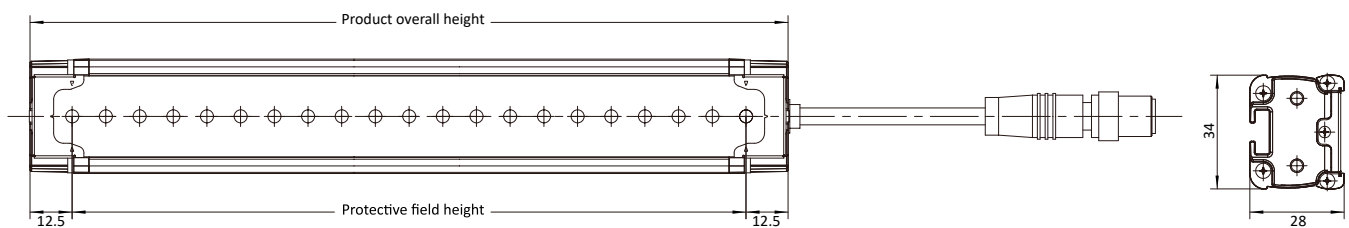
PNP Wiring



NPN Wiring



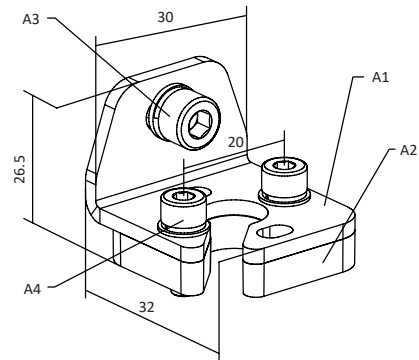
DIMENSIONS



SE4 SERIES

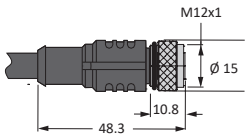
MOUNTING BRACKET

Front and side mounting brackets, each pair of safety light curtains with four mounting brackets (BT-VC).
BT-VCS, 1 set, contains 4 pieces BT-VC.



ACCESSORIES DETAIL LIST

Part Number	Part Name	Material
A1	Front and Side Mounting Bracket	Stainless Steel
A2	Front and Side Mounting Vibration Damping Pad	TPU
A3	Hex Socket Screw (M5*12)	Stainless Steel
A4	Hex Socket Screw (M4*12)	Stainless Steel

Connector	Adaptation	Connector cable model	Description
	Emitter + Receiver	CO-M12-2000E-5GF	Female, M12, 5-pin, Straight, A-coded, 2 m
	Emitter + Receiver	CO-M12-5000E-5GF	Female, M12, 5-pin, Straight, A-coded, 5 m
	Emitter + Receiver	CO-M12-10000E-5GF	Female, M12, 5-pin, Straight, A-coded, 10 m
	Emitter + Receiver	CO-M12-15000E-5GF	Female, M12, 5-pin, Straight, A-coded, 15 m
	Emitter + Receiver	CO-M12-20000E-5GF	Female, M12, 5-pin, Straight, A-coded, 20 m
	Emitter + Receiver	CO-M12-25000E-5GF	Female, M12, 5-pin, Straight, A-coded, 25 m
	Emitter + Receiver	CO-M12-30000E-5GF	Female, M12, 5-pin, Straight, A-coded, 30 m
	Emitter + Receiver	CO-M12-35000E-5GF	Female, M12, 5-pin, Straight, A-coded, 35 m
	Emitter + Receiver	CO-M12-40000E-5GF	Female, M12, 5-pin, Straight, A-coded, 40 m

SR22 SERIES



SAFETY-RELATED PARAMETERS

TYPE	Type 4 (IEC61496-1)	CATEGORY	Cat. 4 (ISO13849-1)
SAFETY INTEGRITY LEVEL	SIL 3 (IEC61508)	PERFORMANCE LEVEL	PLe (ISO13849-1)

TECHNICAL DATA

SUPPLY VOLTAGE	24 V DC / AC	SWITCHING CURRENT OF THE CONTACTS	Resistive load: max. 3 A, External fuse 3 A 240 V AC (AC-15): rated 1.5 A, External fuse 2.5 A 24 V DC (DC-13): rated 1 A, External fuse 1.5 A
RIPPLE VOLTAGE	≤ 20 %		
STOP CATEGORY	Stop 0 (IEC 60204-1)		
PFHD	1.48×10^{-9}		
MTTFD	3867 years	PICK UP DELAY MANUAL START	30 ms
MAX INPUT CURRENT	150 mA	PICK UP DELAY AUTO START	300 ms
POWER CONSUMPTION	4 W	RELEASE TIME-RATED VOLTAGE	≤ 20 ms
EXTERNAL SAFEGUARDING FOR SUPPLY CIRCUIT	200 mA delay-action	TIME WINDOW FOR SIGNAL SEQUENCE MONITORING	20 ms
SWITCHING CAPACITY OF THE CONTACTS	1.4 x 10 ⁵ (1NO: 6 A 30 V DC, Resistive load, 85 °C 1 s on 9 s off) 1.4 x 10 ⁵ (1NO: 6 A 250 V AC, Resistive load, 85 °C 1 s on 9 s off)	CONTROL VOLTAGE / CURRENT ON S12, S22, S31	24 V DC / 70 mA
		ADMISSIBLE INPUT LINE RESISTANCE	< 30 Ω
		SERVICE LIFE	20 years
		OVERVOLTAGE CATEGORY	III for rated operating voltage 300 V AC
		MECHANICAL LIFE TIME	10 million switching cycles

ENVIRONMENTAL CONDITIONS

STORAGE TEMPERATURE	0 ... +55 °C	SHOCK RESISTANCE (EN 60068-2-27)	Frequency 10 ... 55 Hz, amplitude 1.5 mm, dual vibration
AMBIENT TEMPERATURE	-25 ... +70 °C	INTERFERENCE RESISTANCE (EN61496-1)	Type 4
PROTECTION CLASS	Housing IP40 Terminals IP20		
DIRT LEVEL	2		

STANDARDS AND DIRECTIVES

EMC DIRECTIVE 2014/30/EU	EN IEC 61000-6-2 EN IEC 61000-6-4	ROHS DIRECTIVE 2011/65/EU	EN IEC 63000
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APPROVALS

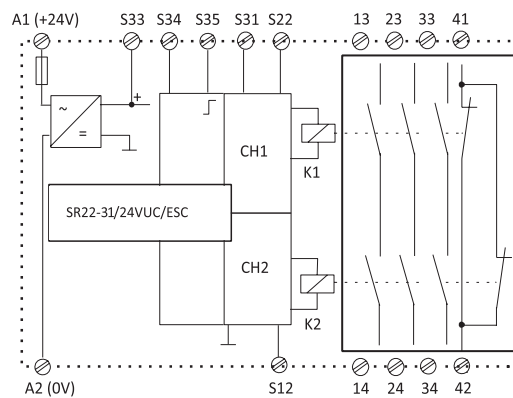


SR22 SERIES

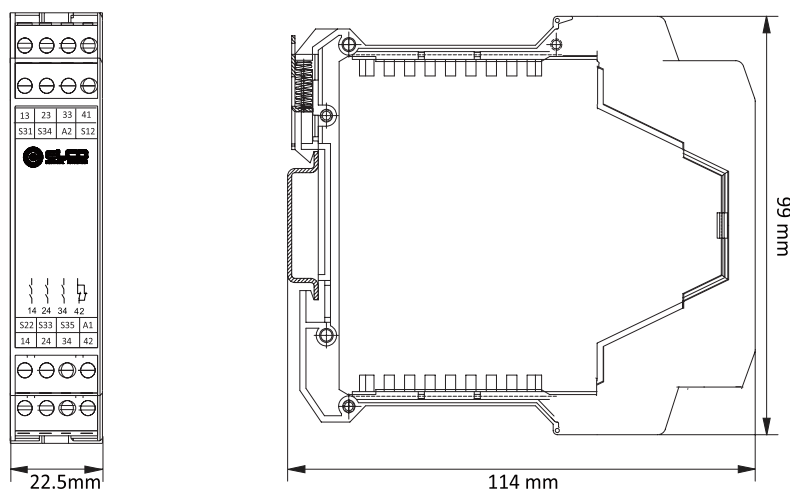
OPERATING MODE STANDALONE

Type	Description	Supply voltage	Input channel	Safety output	Auxiliary output
SR22-31/24VUC/ESC	Emergency Stop Module	24 V DC / AC	2	3	1

WIRING DIAGRAMS



DIMENSIONS



ELCO Industrie Automation GmbH
Benzstrasse 7
71720 Oberstenfeld
Deutschland
E-Mail: info@elco-automation.de



www.elco-automation.de

C+R Automations- GmbH

Nürnberger Straße 45
90513 Zirndorf

Tel. +49 (0)911 656587-0
E-Mail: info@crautomation.de
www.crautomation.de