



SIRIUS SAFETY RELAY WITH AUXILIARY CONTACTOR
RELEASE CIRCUIT (RC),
AC 230V, 90.0MM,
SPRING-LOADED TERMINAL,
RC INSTANT.: 3S, RC DELAYED: 0, MK: 0,
AUTOSTART / MONITORED START,
BASIC DEVICE, MAX. ACHIEVABLE SIL: 2,
PL: D

General technical details:

product brand name		SIRIUS
product designation		safety relays
Design of the product		for EMERGENCY-STOP units
protection class IP / of the housing		IP20
Protection class IP / of the terminal		IP20
Protection against electrical shock		finger-safe
Insulation voltage / rated value	V	690
Ambient temperature		
• during storage	°C	-40 ... +80
• during operating	°C	-25 ... +60
Air pressure		
• according to SN 31205	kPa	90 ... 106
Relative humidity		
• during operating phase	%	10 ... 95
Installation altitude / at a height over sea level / maximum	m	2,000
Resistance against vibration / according to IEC 60068-2-6		5 ... 500 Hz: 0,075 mm
Resistance against shock		5g / 11 ms
Impulse voltage resistance / rated value	V	6,000

EMC emitted interference		IEC 60947-5-1, IEC 60000-4-3, IEC 60000-4-5, IEC 60000-4-6
Installation environment relating to EMC		This product is suitable for Class A environments only. It can cause undesired radio-frequency interference in residential environments. If this is the case, the user must take appropriate measures.
Item designation • according to DIN 40719 extendable after IEC 204-2 / according to IEC 750 • according to DIN EN 61346-2		KT F
Contact reliability		one incorrect switching operation of 100 million switching operations (17 V, 5 mA)
Number of sensor inputs • 1-channel or 2-channel		1
Design of the cascading		none
Type of the safety-related wiring / of the inputs		single-channel and two-channel
Product feature / transverse contact-secure		Yes
Safety Integrity Level (SIL) • according to IEC 61508		SIL2
SIL claim limit (for a subsystem) / according to EN 62061		2
Performance Level (PL) • according to ISO 13849-1		d
Category / according to EN 954-1		3
Category / according to ISO 13849-1		3
Hardware fault tolerance / according to IEC 61508		1
Safety device type / according to IEC 61508-2		Type B
Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061	1/h	0.12E-7
T1 value / for proof test interval or service life / according to IEC 61508	a	20
Number of outputs / as contact-affected switching element • as NC contact / for reporting function / instantaneous switching • as NO contact / safety-related / instantaneous switching • as NO contact / safety-related / delayed switching		0 3 0
Number of outputs / as contact-less semiconductor switching element • safety-related • delayed switching • non-delayed • for reporting function • delayed switching • non-delayed		0 0 0 0
Stop category / according to DIN EN 60204-1		0

General technical details:		
Design of the input		
• cascading-input/functional switching		No
• feedback input		Yes
• start input		Yes
Design of the electrical connection / jumper socket		Yes
Operating cycles / maximum	1/h	1,000
Switching capacity current		
• of NO contacts of relay outputs		
• at DC-13		
• at 24 V	A	10
• at 115 V	A	1
• at 230 V	A	0.3
• at AC-15		
• at 115 V	A	6
• at 230 V	A	6
• of NC contacts of relay outputs		
• at DC-13		
• at 24 V	A	10
• at 115 V	A	1
• at 230 V	A	0.3
• at AC-15		
• at 115 V	A	6
• at 230 V	A	6
Mechanical operating cycles as operating time / typical		30,000,000
Max. permissible voltage for safe isolation / between electronic evaluation device and enabling circuit / according to EN 60947-1	V	400
Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required		gL/gG: 10 A
Resistance to direct current / of the cable / maximum	Ω	250
Cable length / between sensor and electronic evaluation device / with Cu 1.5 mm² and 150 nF/km / maximum	m	2,000
Make time / with automatic start		
• typical	ms	100
• for AC / maximum	ms	200
Make time / with automatic start / after mains power cut		
• typical	ms	350
• maximum	ms	500
Make time / with monitored start		
• maximum	ms	100

• typical	ms	60
Backslide delay time / after opening of the safety circuits / typical	ms	30
Backslide delay time / at mains power cut		
• typical	ms	100
• maximum	ms	120
Recovery time / after opening of the safety circuits / typical	ms	20
Recovery time / after mains power cut / typical	s	0.02
Pulse duration		
• of the sensor input / minimum	ms	20
• of the ON pushbutton input / minimum	s	0.02
• of the cascading-entrance / minimum	s	0.02

Control circuit:		
Type of voltage / of the controlled supply voltage		AC
Control supply voltage frequency		
• 1 / rated value	Hz	50
• 2 / rated value	Hz	60
Control supply voltage / 1 / at 50 Hz / for AC / rated value	V	230
Control supply voltage / 1 / at 60 Hz / for AC / rated value	V	230
operating range factor control supply voltage rated value / of the magnet coil		
• at 50 Hz		
• for AC		0.9 ... 1.15
• at 60 Hz		
• for AC		0.9 ... 1.15

Auxiliary circuit:		
Contact reliability / of the auxiliary contacts		< 1 error per 100 million operating cycles

Installation/mounting/dimensions:		
mounting position		any
Type of mounting		screw and snap-on mounting
Width	mm	90
Height	mm	132
Depth	mm	108

Connections:		
Design of the electrical connection		spring-loaded terminals
Type of the connectable conductor cross-section		
• solid		1x (0.2 ... 2.5 mm²)
• finely stranded		
• without wire end processing		1x (0.25 ... 1.5 mm²)

Type of the connectable conductor cross-section / for AWG conductors		
• solid		1x (24 ... 18)
• stranded		1x (24 ... 18)
Product Function:		
Product function		
• light barrier monitoring		No
• standstill monitoring		No
• protective door monitoring		Yes
• automatic start		Yes
• magnetic switch monitoring Normally closed contact-Normally open contact		No
• rotation speed monitoring		No
• laser scanner monitoring		No
• monitored start-up		Yes
• light grid monitoring		No
• magnetic switch monitoring Normally closed contact-Normally closed contact		Yes
• emergency stop function		Yes
• step mat monitoring		No
Suitability for interaction / pressing control		No
Acceptability for application		
• monitoring of floating sensors		Yes
• monitoring of non-floating sensors		No
• safety cut-out switch		Yes
• position switch monitoring		Yes
• EMERGENCY-OFF circuit monitoring		Yes
• valve monitoring		No
• tactile sensor monitoring		No
• magnetically operated switches monitoring		No
• safety-related circuits		Yes
Certificates/approvals:		
Verification of suitability		UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508
• TÜV (German technical inspectorate) certificate		Yes
• UL-registration		Yes
• BG BIA certificate		Yes

General Product Approval

EMC

Functional Safety / Safety of Machinery



CCC



CSA



GOST



UL



C-TICK



VDE

Declaration of Conformity

Test Certificates

other



EG-Konf.

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Further information:

Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

Industry Mall (Online ordering system)

<http://www.siemens.com/industrial-controls/mall>

Cax online generator:

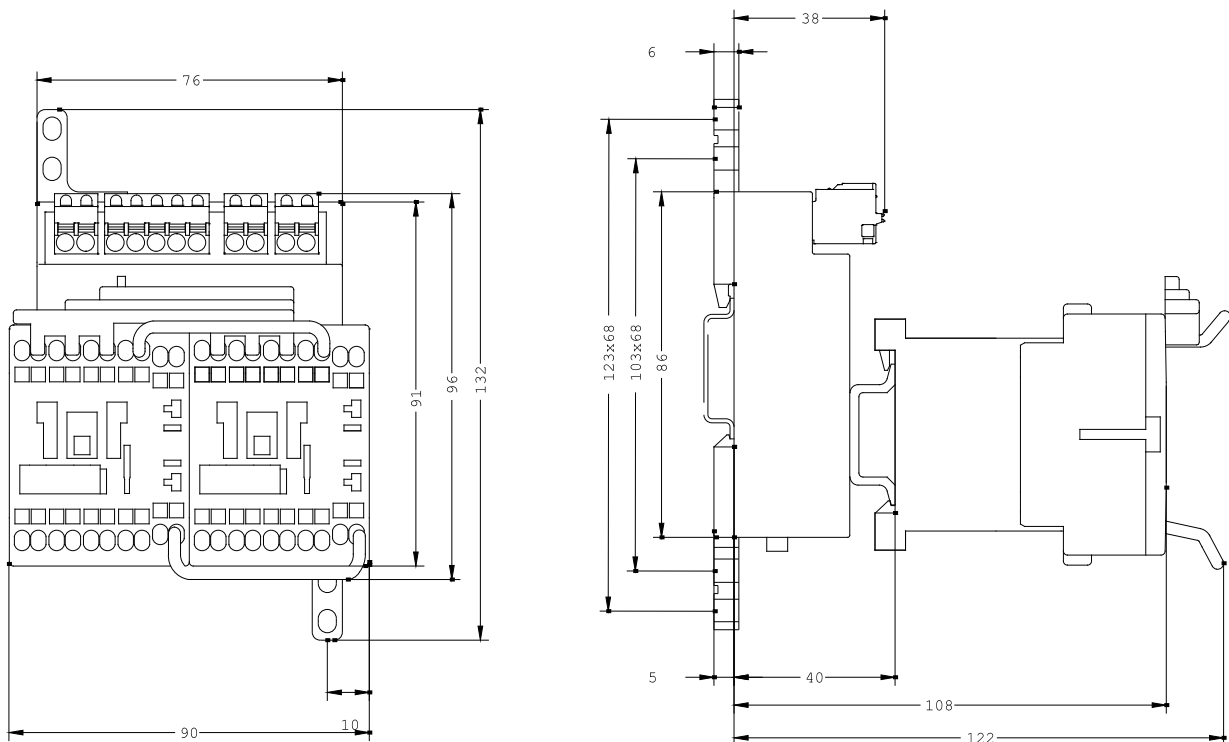
<http://www.siemens.com/cax>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<http://support.automation.siemens.com/WW/view/en/3TK2850-2AL20/all>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)

http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2850-2AL20



last change:

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