



SIRIUS SAFETY RELAY WITH RELAY RELEASE CIRCUITS (RC),
 AC 230V, 45.0MM, SCREW TERMINAL,
 RC INSTANT.: 3NO, RC DELAYED: 0NO,
 MK: 2NC, AUTOSTART / MONITORED START,
 BASIC DEVICE, MAX. ACHIEVABLE SIL: 3,
 PL: E

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	300
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		8g / 10 ms
Impulse voltage resistance / rated value	V	4,000
EMC emitted interference		EN 60947-5-1

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 <ul style="list-style-type: none"> • according to DIN 40719 extendable after IEC 204-2 / according to IEC 750 • according to DIN EN 61346-2 		KT F
Number of sensor inputs <ul style="list-style-type: none"> • 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) <ul style="list-style-type: none"> • according to IEC 61508 		SIL3
SIL claim limit (for a subsystem) / according to EN 62061		3
Performance Level (PL) <ul style="list-style-type: none"> • according to ISO 13849-1 		e
Category / according to EN 954-1		4
Category / according to ISO 13849-1		4
Hardware fault tolerance / according to IEC 61508		1
Safety device type / according to IEC 61508-2		Type A
Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061	1/h	0.15E-8
Average probability of failure on demand (PFDavg) / with low demand rate / according to IEC 61508	1/y	0.13E-5
T1 value / for proof test interval or service life / according to IEC 61508	a	20
Number of outputs / as contact-affected switching element <ul style="list-style-type: none"> • as NC contact / for reporting function / instantaneous switching • as NO contact / safety-related / instantaneous switching • as NO contact / safety-related / delayed switching 		2 3 0
Number of outputs / as contact-less semiconductor switching element <ul style="list-style-type: none"> • safety-related <ul style="list-style-type: none"> • delayed switching • non-delayed • for reporting function <ul style="list-style-type: none"> • 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	6
• at 115 V	A	0.2
• at 230 V	A	0.1
• 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	6
• at 115 V	A	0.2
• at 230 V	A	0.1
• at AC-15		
• at 115 V	A	6
• at 230 V	A	6
Thermal current / of the contact-affected switching element / maximum	A	6
Electrical operating cycles as operating time / typical		100,000
Mechanical operating cycles as operating time / typical		10,000,000
Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required		gL/gG: 6 A, or quick: 10 A
Resistance to direct current / of the cable / maximum	Ω	30
Cable length / between sensor and electronic evaluation device / with Cu 1.5 mm² and 150 nF/km / maximum	m	1,000
Make time / with automatic start		
• for AC / maximum	ms	150
Make time / with monitored start		
• maximum	ms	25
Backslide delay time / at mains power cut		
• maximum	ms	350
Recovery time / after opening of the safety circuits / typical	ms	200
Recovery time / after mains power cut / typical	s	0.5

Pulse duration		
• of the sensor input / minimum	ms	25
• of the ON pushbutton input / minimum	ms	25

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		0.85 ... 1.1
• for AC		
• at 60 Hz		0.85 ... 1.1
• for AC		
• for DC		0.85 ... 1.1

Installation/mounting/dimensions:		
mounting position		any
Type of mounting		screw and snap-on mounting
Width	mm	44.8
Height	mm	138.5
Depth	mm	120

Connections:		
Design of the electrical connection		screw-type terminals
Type of the connectable conductor cross-section		
• solid		1x (0.5 ... 4 mm ²), 2x (0.5 ... 2.5 mm ²)
• finely stranded		
• with wire end processing		1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
Type of the connectable conductor cross-section / for AWG conductors		
• solid		2x (20 ... 14)
• stranded		2x (20 ... 14)

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	No
• emergency stop function	Yes
• step mat monitoring	Yes
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	BG, SUVA, 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	Declaration of Conformity	Test Certificates	other
--	----------------------------------	--------------------------	--------------



[Special Test Certificate](#)

[Confirmation](#)

[Environmental Confirmations](#)

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:

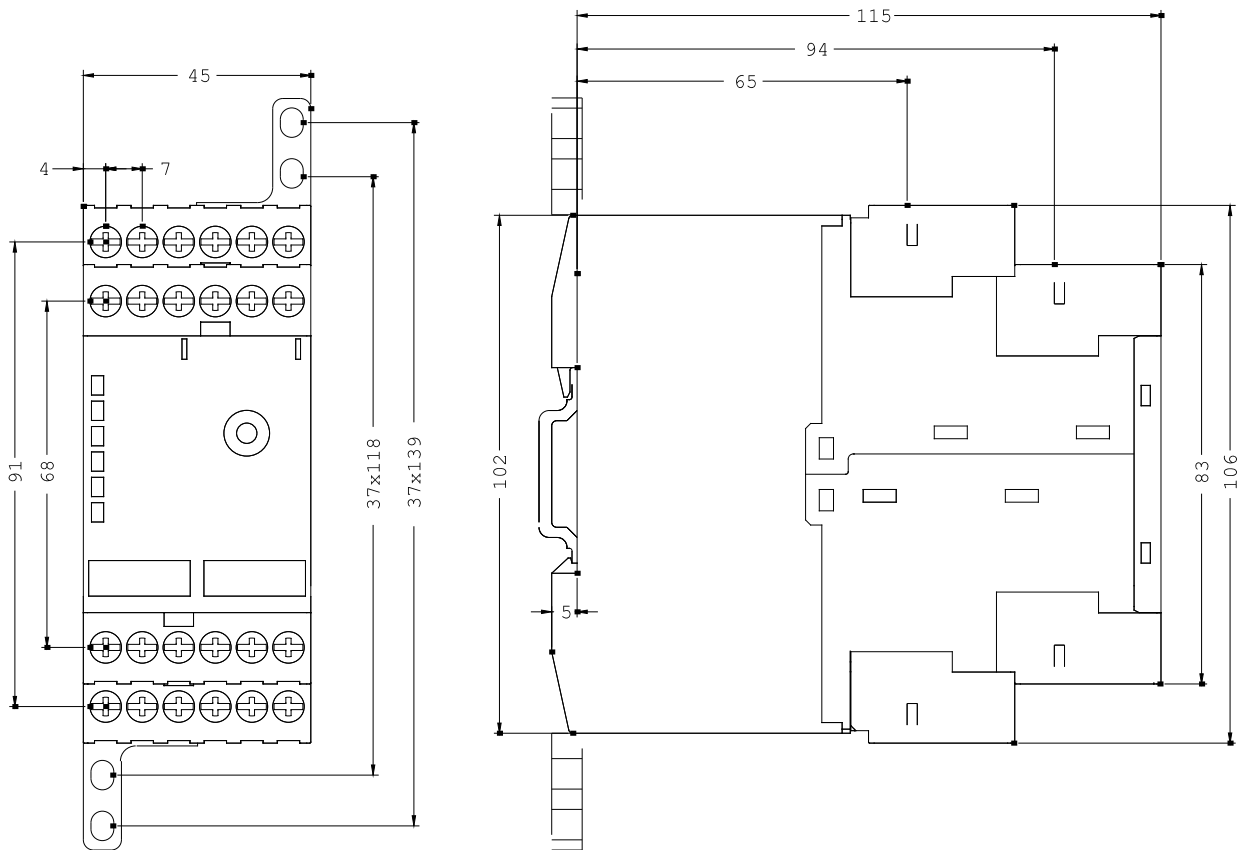
<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WW/view/en/3TK2825-1AL20/all>

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

http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2825-1AL20



last change:

Feb 18, 2013