



SIRIUS SAFETY RELAY WITH RELAY RELEASE  
CIRCUITS (RC),  
DC 24V, 45.0MM, SCREW TERMINAL,  
RC INSTANT.: 2NO,  
RC DELAYED: 2NO 0.05...3S, MC: 1NC,  
AUTOSTART, BASIC DEVICE,  
MAX. ACHIEVABLE SIL: 3/2, PL: E/D

**General technical details:**

product brand name	SIRIUS	
Product designation	safety relays	
Design of the product	for EMERGENCY-STOP units	
protection type IP / of the enclosure	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

<b>Installation environment relating to EMC</b>		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.
<b>Reference code</b>		
• according to DIN 40719 extended according to IEC 204-2 / according to IEC 750		KT
• according to DIN EN 61346-2		F
<b>Number of sensor inputs</b>		1
<b>Design of the cascading</b>		none
<b>Type of the safety-related wiring / of the inputs</b>		single-channel and two-channel
<b>Product feature / transverse contact-secure</b>		Yes
<b>Safety Integrity Level (SIL)</b>		
• according to IEC 61508		SIL3
• for delayed release circuit / according to IEC 61508		SIL2
<b>SIL claim limit (for a subsystem) / according to EN 62061</b>		3
<b>Performance Level (PL)</b>		
• according to EN ISO 13849-1		e
• for delayed release circuit / according to EN ISO 13849-1		d
<b>Category / according to EN 954-1</b>		4
<b>Category / according to EN ISO 13849-1</b>		4
<b>Hardware fault tolerance / according to IEC 61508</b>		1
<b>Safety device type / according to IEC 61508-2</b>		Type A
<b>Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061</b>	1/h	0.27E-8
<b>Average probability of failure on demand (PFDavg) / with low demand rate / according to IEC 61508</b>	1/y	0.24E-5
<b>T1 value / for proof test interval or service life / according to IEC 61508</b>	a	20
<b>Number of outputs / as contact-affected switching element</b>		
• as NC contact / for reporting function / instantaneous switching		1
• as NO contact / safety-related / instantaneous switching		2
• as NO contact / safety-related / delayed switching		2
<b>Number of outputs / as contact-less semiconductor switching element</b>		
• safety-related		
• delayed switching		0
• non-delayed		0
• for reporting function		
• delayed switching		0
• non-delayed		0

Stop category / according to DIN EN 60204-1		0 + 1
<b>General technical details:</b>		
<b>Design of the input</b>		
• cascading-input/functional switching		No
• feedback input		Yes
• start input		Yes
<b>Design of the electrical connection / jumper socket</b>		Yes
<b>Operating cycles / maximum</b>	1/h	1,000
<b>Switching capacity current</b>		
• of NO contacts of relay outputs		
• at DC-13		
• at 24 V	A	5
• at 115 V	A	0.2
• at 230 V	A	0.1
• at AC-15		
• at 115 V	A	5
• at 230 V	A	5
• of NC contacts of relay outputs		
• at DC-13		
• at 24 V	A	5
• at 115 V	A	0.2
• at 230 V	A	0.1
• at AC-15		
• at 115 V	A	5
• at 230 V	A	5
<b>Thermal current / of the contact-affected switching element / maximum</b>	A	5
<b>Electrical operating cycles as operating time / typical</b>		100,000
<b>Mechanical operating cycles as operating time / typical</b>		10,000,000
<b>Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required</b>		gL/gG: 6 A, or quick: 10 A
<b>Resistance to direct current / of the cable / maximum</b>	Ω	30
<b>Cable length / between sensor and electronic evaluation device / with Cu 1.5 mm<sup>2</sup> and 150 nF/km / maximum</b>	m	1,000
<b>Make time / with automatic start</b>		
• for DC / maximum	ms	80
<b>Backslide delay time / at mains power cut</b>		
• maximum	ms	100
<b>Adjustable backslide delay time</b>		
• after opening of the safety circuits	s	0.05 ... 3

<b>Recovery time / after mains power cut / typical</b>	s	1
<b>Pulse duration</b>		
• of the sensor input / minimum	ms	25
• of the ON pushbutton input / minimum	s	0.025

#### Control circuit:

<b>Voltage type / of control feed voltage</b>		DC
<b>Control supply voltage / 1 / for DC / rated value</b>	V	24
<b>operating range factor control supply voltage rated value / of the magnet coil</b>		
• 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:

<b>mounting position</b>		any
<b>Mounting type</b>		screw and snap-on mounting
<b>Width</b>	mm	44.8
<b>Height</b>	mm	138.5
<b>Depth</b>	mm	120

#### Connections:

<b>Design of the electrical connection</b>		screw-type terminals
<b>Type of the connectable conductor cross-section</b>		
• solid		1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
• finely stranded		
• with wire end processing		1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
<b>Type of the connectable conductor cross-sections / for AWG conductors</b>		
• solid		2x (20 ... 14)
• stranded		2x (20 ... 14)

#### Product Function:

<b>Product function</b>		
• 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	No
• light grid monitoring	No
• magnetic switch monitoring Normally closed contact-Normally closed contact	No
• emergency stop function	No
• step mat monitoring	Yes
<b>Suitability for interaction / pressing control</b>	No
<b>Acceptability for application</b>	
• monitoring of floating sensors	Yes
• monitoring of non-floating sensors	No
• safety cut-out switch	Yes
• position switch monitoring	Yes
• EMERGENCY-OFF circuit monitoring	No
• valve monitoring	No
• tactile sensor monitoring	No
• magnetically operated switches monitoring	No
• safety-related circuits	Yes

#### Certificates/approvals:

<b>Verification of suitability</b>	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
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CCC



CSA



UL



C-TICK



ATEX

<b>Declaration of Conformity</b>	<b>Test Certificates</b>	<b>other</b>
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EG-Konf.

[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:

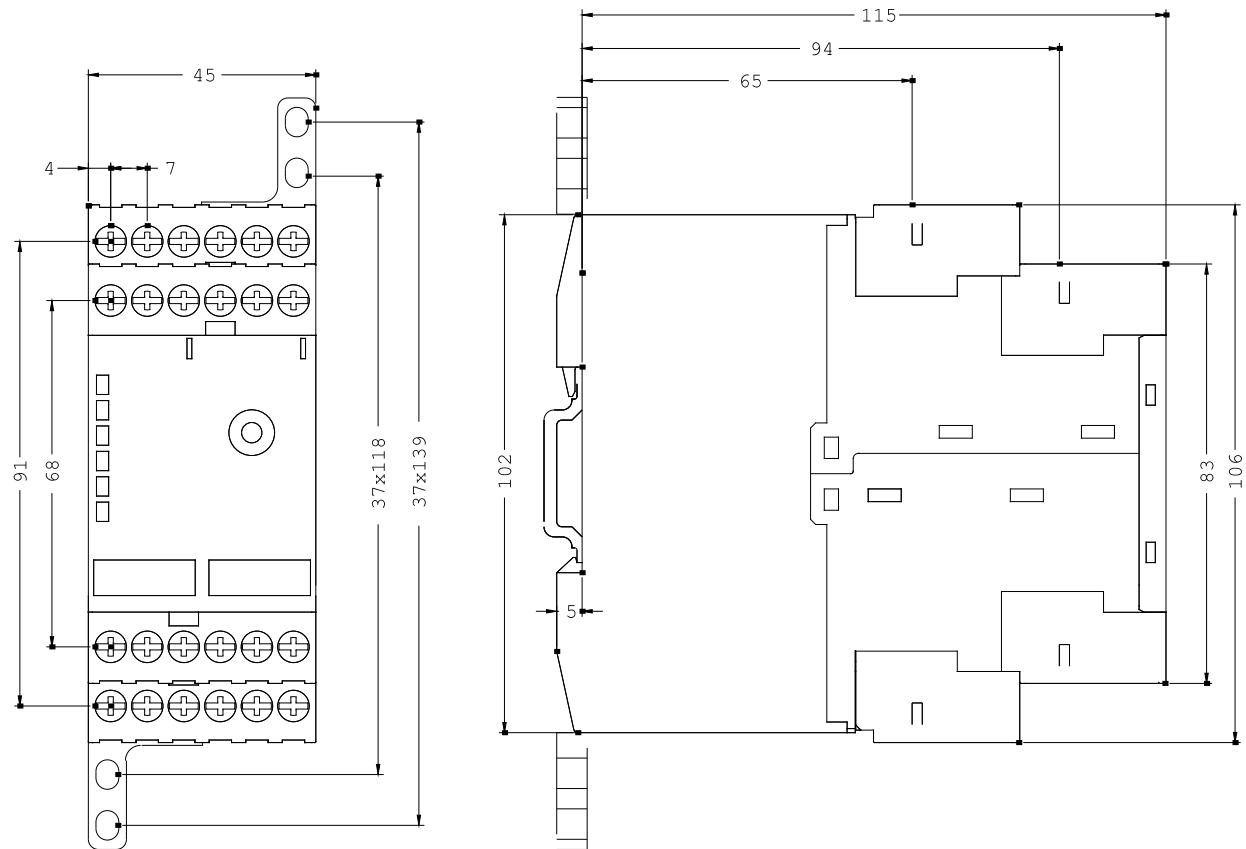
<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WW/view/en/3TK2828-1BB41/all>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3TK2828-1BB41](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2828-1BB41)



last change:

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