

SIRIUS SAFETY RELAY WITH RELAY RELEASE  
CIRCUITS (RC),  
AC 230V, 22.5MM, SCREW TERMINAL,  
RC INSTANT.: 2NO, RC DELAYED: 0NO,  
MC: 0NC, AUTOSTART, BASIC DEVICE,  
MAX. ACHIEVABLE SIL: 1, PL: C

General technical details:

<b>product brand name</b>		SIRIUS
<b>product designation</b>		safety relays
<b>Design of the product</b>		for EMERGENCY-STOP units
<b>protection class IP / of the housing</b>		IP40
<b>Protection class IP / of the terminal</b>		IP20
<b>Protection against electrical shock</b>		finger-safe
<b>Insulation voltage / rated value</b>	V	300
<b>Ambient temperature</b>		
• during storage	°C	-40 ... +80
• during operating	°C	-25 ... +60
<b>Air pressure</b>		
• according to SN 31205	kPa	90 ... 106
<b>Relative humidity</b>		
• during operating phase	%	10 ... 95
<b>Installation altitude / at a height over sea level / maximum</b>	m	2,000
<b>Resistance against vibration / according to IEC 60068-2-6</b>		5 ... 500 Hz: 0,075 mm
<b>Resistance against shock</b>		8g / 10 ms
<b>Impulse voltage resistance / rated value</b>	V	4,000
<b>EMC emitted interference</b>		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>Item designation</b>		
• according to DIN 40719 extendable after IEC 204-2 / according to IEC 750		KT
• according to DIN EN 61346-2		F
<b>Number of sensor inputs</b>		
• 1-channel or 2-channel		1
<b>Design of the cascading</b>		none

<b>Type of the safety-related wiring / of the inputs</b>		single-channel or single-channel and two-channel
<b>Product feature / transverse contact-secure</b>		No
<b>Safety Integrity Level (SIL)</b> • according to IEC 61508		SIL1
<b>SIL claim limit (for a subsystem) / according to EN 62061</b>		1
<b>Performance Level (PL)</b> • according to ISO 13849-1		c
<b>Category / according to EN 954-1</b>		3
<b>Category / according to ISO 13849-1</b>		2
<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	0.87E-9
<b>Average probability of failure on demand (PFDavg) / with low demand rate / according to IEC 61508</b>	1/y	0.77E-6
<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 • as NO contact / safety-related / instantaneous switching • as NO contact / safety-related / delayed switching		0 2 0
<b>Number of outputs / as contact-less semiconductor switching element</b> • safety-related • delayed switching • non-delayed • for reporting function • delayed switching • non-delayed		0 0 0 0
<b>Stop category / according to DIN EN 60204-1</b>		0

#### General technical details:

<b>Design of the input</b> • cascading-input/functional switching • feedback input • start input		No Yes 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	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
<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 AC / maximum	ms	300
<b>Backslide delay time / at mains power cut</b>		
• maximum	ms	200
<b>Recovery time / after opening of the safety circuits / typical</b>	ms	200
<b>Recovery time / after mains power cut / typical</b>	s	200
<b>Pulse duration</b>		
• of the sensor input / minimum	ms	300
• of the ON pushbutton input / minimum	s	0.3

#### Control circuit:

<b>Type of voltage / of the controlled supply voltage</b>		AC
<b>Control supply voltage frequency</b>		
• 1 / rated value	Hz	50
• 2 / rated value	Hz	60
<b>Control supply voltage / 1 / at 50 Hz / for AC / rated value</b>	V	230
<b>Control supply voltage / 1 / at 60 Hz / for AC / rated value</b>	V	230
<b>operating range factor control supply voltage rated value / of the magnet coil</b>		
• at 50 Hz		
• for AC		0.85 ... 1.1
• at 60 Hz		
• for AC		0.85 ... 1.1

#### Installation/mounting/dimensions:

<b>mounting position</b>		any
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<b>Type of mounting</b>		screw and snap-on mounting
<b>Width</b>	mm	22.5
<b>Height</b>	mm	120
<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>		
<ul style="list-style-type: none"> <li>• solid</li> </ul>		1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• finely stranded</li> <li>• with wire end processing</li> </ul>		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>		
<ul style="list-style-type: none"> <li>• solid</li> </ul>		2x (20 ... 14)
<ul style="list-style-type: none"> <li>• stranded</li> </ul>		2x (20 ... 14)

#### Product Function:

<b>Product function</b>		
<ul style="list-style-type: none"> <li>• light barrier monitoring</li> <li>• standstill monitoring</li> <li>• protective door monitoring</li> <li>• automatic start</li> <li>• magnetic switch monitoring Normally closed contact-Normally open contact</li> <li>• rotation speed monitoring</li> <li>• laser scanner monitoring</li> <li>• monitored start-up</li> <li>• light grid monitoring</li> <li>• magnetic switch monitoring Normally closed contact-Normally closed contact</li> <li>• emergency stop function</li> <li>• step mat monitoring</li> </ul>		No No Yes Yes No No No No No No Yes No
<b>Suitability for interaction / pressing control</b>		No
<b>Acceptability for application</b>		
<ul style="list-style-type: none"> <li>• monitoring of floating sensors</li> <li>• monitoring of non-floating sensors</li> <li>• safety cut-out switch</li> <li>• position switch monitoring</li> <li>• EMERGENCY-OFF circuit monitoring</li> <li>• valve monitoring</li> <li>• tactile sensor monitoring</li> <li>• magnetically operated switches monitoring</li> </ul>		Yes No Yes Yes Yes No No No

- safety-related circuits

Yes

### Certificates/approvals:

#### Verification of suitability

- TÜV (German technical inspectorate) certificate
- UL-registration
- BG BIA certificate

BG, SUVA, UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508

Yes

Yes

Yes

#### General Product Approval

#### EMC



CCC



CSA



GOST



UL



C-TICK

#### Functional Safety / Safety of Machinery

#### Declaration of Conformity

#### Test Certificates

#### other



ATEX



VDE



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:

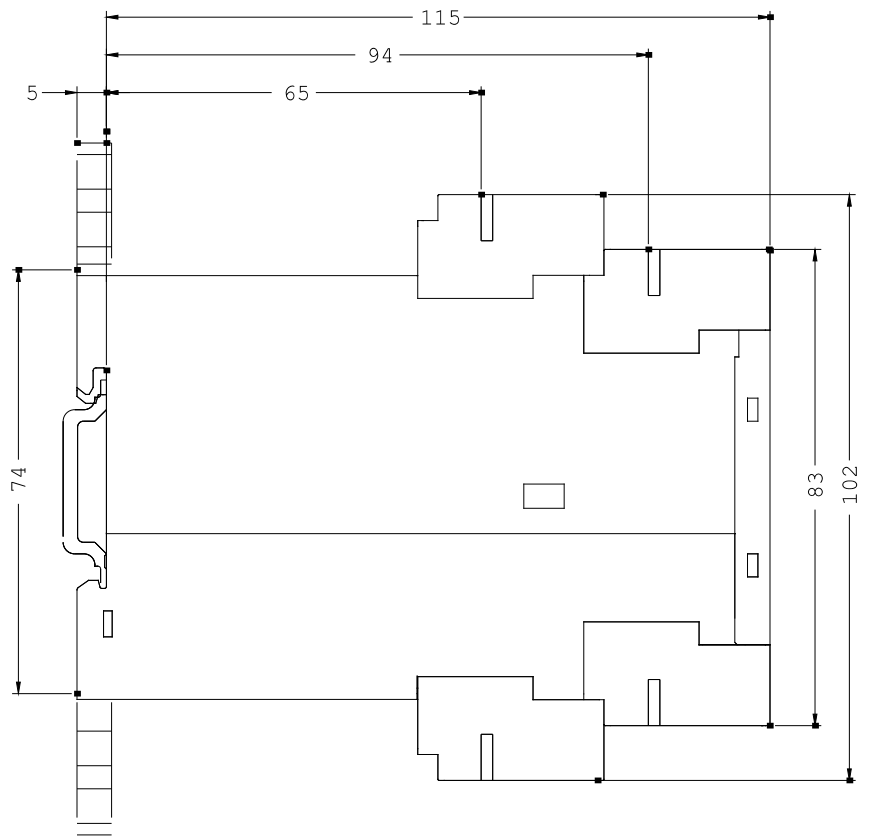
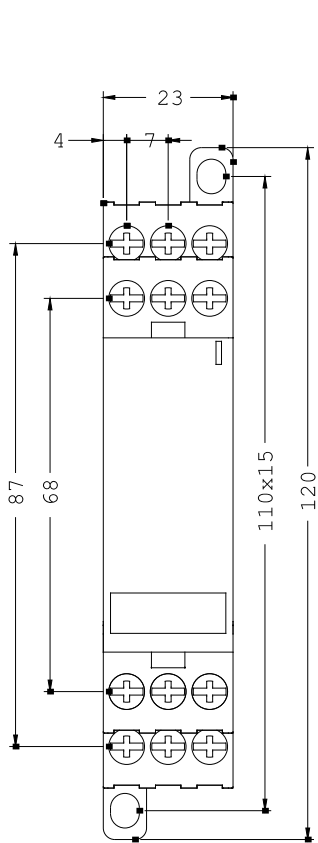
<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WWW/view/en/3TK2824-1AL20/all>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3TK2824-1AL20](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2824-1AL20)



last change:

Mar 25, 2013