

SIRIUS SAFETY RELAY WITH REL.- U. EL. RELEASE CIRCUIT (RC),  
 DC 24V, 45.0MM, SPRING-LOADED TERMINAL,  
 RC INSTANT.: 2S, RC DELAYED: 1, MK: 1,  
 SPRING-LOCKED TUMBLER, BASIC DEVICE,  
 MAX. ACHIEVABLE PL TO EN13849-1: E,  
 MAX. ACHIEVABLE SIL TO IEC61508:3,

General technical details:		
<b>product brand name</b>		SIRIUS
<b>product designation</b>		safety relays
<b>Design of the product</b>		spring-locked tumbler
<b>protection class IP / of the housing</b>		IP20
<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 and 15g / 5 ms
<b>Impulse voltage resistance / rated value</b>	V	4,000
<b>EMC emitted interference</b>		IEC 60947-5-1, IEC 60000-4-3, IEC 60000-4-5, IEC 60000-4-6
<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		2

<b>Design of the cascading</b>		cascading or in-service switching
<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		SIL3
<b>SIL claim limit (for a subsystem) / according to EN 62061</b>		3
<b>Performance Level (PL)</b>		
• according to ISO 13849-1		e
• for delayed release circuit / according to ISO 13849-1		e
<b>Category / according to EN 954-1</b>		4
<b>Category / according to 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 B
<b>Probability of dangerous failure per hour (PFHD) / with high demand rate / according to EN 62061</b>	1/h	0.69E-8
<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		0
• as NO contact / safety-related / instantaneous switching		1
• as NO contact / safety-related / delayed switching		1
<b>Number of outputs / as contact-less semiconductor switching element</b>		
• safety-related		
• delayed switching		1
• non-delayed		1
• for reporting function		
• delayed switching		0
• non-delayed		1
<b>Stop category / according to DIN EN 60204-1</b>		0 + 1

#### General technical details:

<b>Design of the input</b>		
• cascading-input/functional switching		Yes
• feedback input		Yes
• start input		Yes
<b>Design of the electrical connection / jumper socket</b>		Yes
<b>Operating cycles / maximum</b>	1/h	2,000
<b>Switching capacity current</b>		
• of semiconductor outputs		

<ul style="list-style-type: none"> <li>• for signaling function / for DC-13 / at 24 V</li> <li>• for enabling circuit / for DC-13 / at 24 V</li> </ul>	A	0.5
<ul style="list-style-type: none"> <li>• of NO contacts of relay outputs</li> </ul>	A	1
<ul style="list-style-type: none"> <li>• at DC-13</li> </ul>	A	1
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	A	0.1
<ul style="list-style-type: none"> <li>• at 115 V</li> </ul>	A	0.1
<ul style="list-style-type: none"> <li>• at 230 V</li> </ul>	A	0.1
<ul style="list-style-type: none"> <li>• at AC-15</li> </ul>	A	3
<ul style="list-style-type: none"> <li>• at 115 V</li> </ul>	A	3
<ul style="list-style-type: none"> <li>• at 230 V</li> </ul>	A	3
<b>Mechanical operating cycles as operating time / typical</b>		100,000
<b>Design of the fuse link / for short-circuit protection of the NO contacts of the relay outputs / required</b>		gL/gG: 4 A or fast-acting: 4A
<b>Resistance to direct current / of the cable / maximum</b>	Ω	1,000
<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>		
<ul style="list-style-type: none"> <li>• typical</li> </ul>	ms	60
<ul style="list-style-type: none"> <li>• for DC / maximum</li> </ul>	ms	100
<b>Make time / with monitored start</b>		
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	ms	100
<ul style="list-style-type: none"> <li>• typical</li> </ul>	ms	60
<b>Backslide delay time / at mains power cut</b>		
<ul style="list-style-type: none"> <li>• typical</li> </ul>	ms	25
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	ms	30
<b>Adjustable backslide delay time</b>		
<ul style="list-style-type: none"> <li>• after opening of the safety circuits</li> </ul>	s	0.05 ... 3
<b>Recovery time / after opening of the safety circuits / typical</b>	ms	400
<b>Recovery time / after mains power cut / typical</b>	s	8
<b>Pulse duration</b>		
<ul style="list-style-type: none"> <li>• of the sensor input / minimum</li> </ul>	ms	45
<ul style="list-style-type: none"> <li>• of the ON pushbutton input / minimum</li> </ul>	s	0.2
<ul style="list-style-type: none"> <li>• of the cascading-entrance / minimum</li> </ul>	s	0.045
<b>Control circuit:</b>		
<b>Type of voltage / of the controlled supply 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>		
<ul style="list-style-type: none"> <li>• for DC</li> </ul>		0.85 ... 1.15

Installation/mounting/dimensions:		
mounting position		any
Type of mounting		screw and snap-on mounting
Width	mm	45
Height	mm	138.5
Depth	mm	88

Connections:		
Design of the electrical connection		spring-loaded terminals
Type of the connectable conductor cross-section		2x (0.25 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded               <ul style="list-style-type: none"> <li>• with wire end processing</li> <li>• without wire end processing</li> </ul> </li> </ul>		2 x (0.25 ... 1.5 mm <sup>2</sup> ) 2x (0.25 ... 1.5 mm <sup>2</sup> )
Type of the connectable conductor cross-section / for AWG conductors		
<ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> </ul>		2x (24 ... 16) 2x (24 ... 16)

Product Function:		
Product function		
<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 No No No No Yes No No Yes No
Suitability for interaction / pressing control		No
Acceptability for application		
<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> </ul>		Yes Yes Yes Yes

- EMERGENCY-OFF circuit monitoring
- valve monitoring
- tactile sensor monitoring
- magnetically operated switches monitoring
- safety-related circuits

Yes  
No  
Yes  
Yes  
Yes

### Certificates/approvals:

#### Verification of suitability

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

UL, CSA, EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508  
Yes  
Yes  
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.

[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:

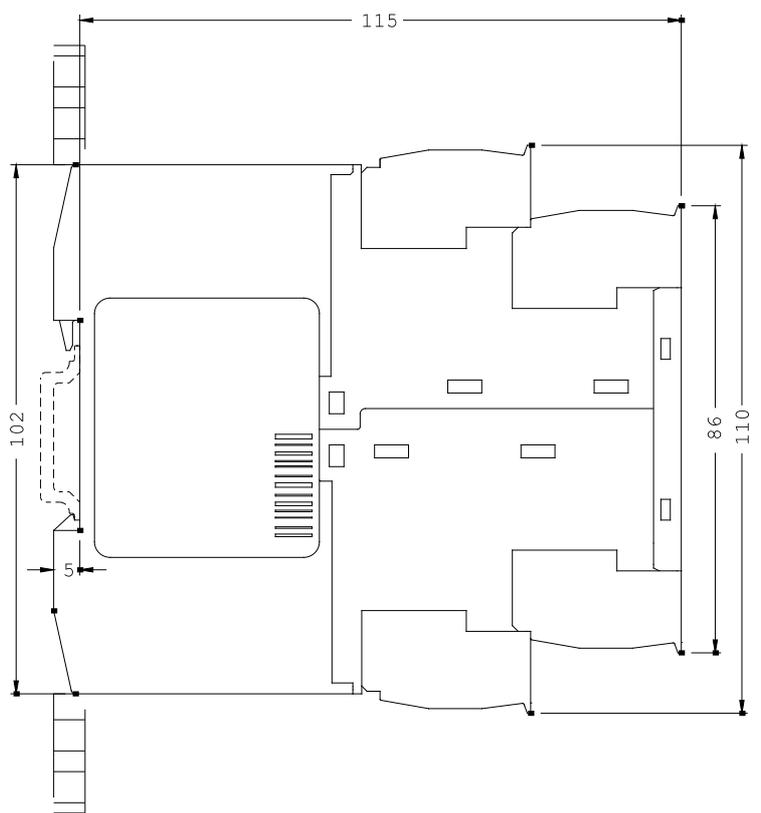
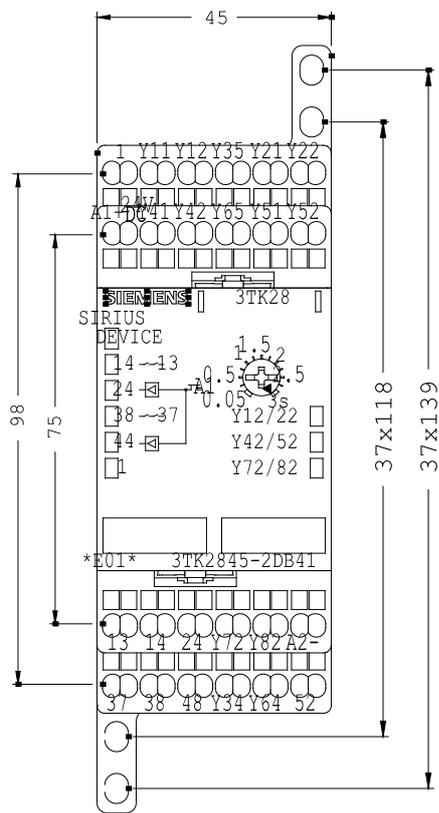
<http://www.siemens.com/cax>

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

<http://support.automation.siemens.com/WW/view/en/3TK2845-2FB41/all>

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

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3TK2845-2FB41](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3TK2845-2FB41)



last change:

Feb 18, 2013