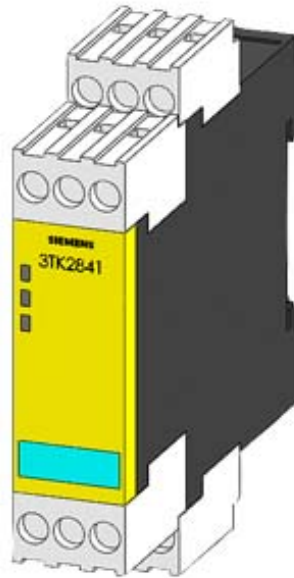


SIRIUS SAFETY RELAY WITH RELAY RELEASE CIRCUITS (RC),  
DC 24V, 22.5MM, SCREW TERMINAL, RC INSTANT.: 2NO, RC  
DELAYED: 0NO, MC: 0NC, AUTOSTART, BASIC DEVICE, MAX.  
ACHIEVABLE SIL: 1, PL: C



General technical data	
Product brand name	SIRIUS
Product designation	safety relays
Design of the product	for EMERGENCY-STOP units
Protection class IP of the enclosure	IP40
Protection class IP of the terminal	IP20
Protection against electrical shock	finger-safe
Insulation voltage rated value	300 V
Ambient temperature	
• during storage	-40 ... +80 °C
• during operation	-25 ... +60 °C
Air pressure acc. to SN 31205	90 ... 106 kPa
Relative humidity during operation	10 ... 95 %
Installation altitude at height above sea level maximum	2 000 m
Vibration resistance acc. to IEC 60068-2-6	5 ... 500 Hz: 0,075 mm
Shock resistance	8g / 10 ms
Surge voltage resistance rated value	4 000 V
EMC emitted interference	EN 60947-5-1

<b>Installation environment regarding 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>Equipment marking acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750</b>	KT
<b>Equipment marking acc. to DIN EN 61346-2</b>	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 cross-circuit-proof</b>	No
<b>Safety Integrity Level (SIL)</b>	
• acc. to IEC 61508	3
<b>SIL Claim Limit (subsystem) acc. to EN 62061</b>	1
<b>Performance level (PL)</b>	
• acc. to EN ISO 13849-1	e
<b>Category acc. to EN 954-1</b>	3
<b>Category acc. to EN ISO 13849-1</b>	2
<b>Hardware fault tolerance acc. to IEC 61508</b>	1
<b>Safety device type acc. to IEC 61508-2</b>	Type A
<b>PFHD with high demand rate acc. to EN 62061</b>	0.00000000087 1/h
<b>Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508</b>	0.00000077 1/y
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	20 y
<b>Number of outputs as contact-affected switching element</b>	
• as NC contact	
— for signaling function instantaneous contact	0
• as NO contact	
— safety-related instantaneous contact	2
— safety-related delayed switching	0
<b>Number of outputs as contact-less semiconductor switching element</b>	
• safety-related	
— delayed switching	0
— instantaneous contact	0
• for signaling function	
— delayed switching	0
— instantaneous contact	0
<b>Stop category acc. to DIN EN 60204-1</b>	0

## General technical data

<b>Design of input</b>	
• cascading input/functional switching	No
• feedback input	Yes
• Start input	Yes
<b>Type of electrical connection Plug-in socket</b>	Yes
<b>Operating frequency maximum</b>	1 000 1/h
<b>Switching capacity current</b>	
• of the NO contacts of the relay outputs at DC-13	
— at 24 V	6 A
— at 115 V	0.2 A
— at 230 V	0.1 A
• of the NO contacts of the relay outputs at AC-15	
— at 115 V	6 A
— at 230 V	6 A
<b>Thermal current of the switching element with contacts maximum</b>	5 A
<b>Electrical endurance (switching cycles) typical</b>	100 000
<b>Mechanical service life (switching cycles) 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>DC resistance of the cable maximum</b>	30 $\Omega$
<b>Wire length between sensor and electronic evaluation device with Cu 1.5 mm<sup>2</sup> and 150 nF/km maximum</b>	1 000 m
<b>Make time with automatic start</b>	
• at DC maximum	200 ms
• at AC maximum	300 ms
<b>Backslide delay time in the event of power failure</b>	
• maximum	200 ms
<b>Recovery time after opening of the safety circuits typical</b>	200 ms
<b>Recovery time after power failure typical</b>	200 ms
<b>Pulse duration</b>	
• of the sensor input minimum	200 ms
• of the ON pushbutton input minimum	0.15 s
<b>Control circuit/ Control</b>	
<b>Type of voltage of the control supply voltage</b>	DC
<b>Control supply voltage 1</b>	
• at DC rated value	24 V
<b>Operating range factor control supply voltage rated value of magnet coil</b>	

• at AC	
— at 50 Hz	0.85 ... 1.1
— at 60 Hz	0.85 ... 1.1
• at DC	0.85 ... 1.2

#### Installation/ mounting/ dimensions

<b>Mounting position</b>	any
<b>Mounting type</b>	screw and snap-on mounting
<b>Width</b>	22.5 mm
<b>Height</b>	120 mm
<b>Depth</b>	120 mm

#### Connections/Terminals

<b>Type of electrical connection</b>	screw-type terminals
<b>Type of connectable conductor cross-sections</b>	
• solid	1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
• finely stranded	
— with core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
<b>Type of connectable conductor cross-sections at 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
• magnetically operated switch monitoring NC-NO	No
• rotation speed monitoring	No
• laser scanner monitoring	No
• monitored start-up	No
• Light array monitoring	No
• magnetically operated switch monitoring NC-NC	No
• EMERGENCY OFF function	Yes
• Pressure-sensitive mat monitoring	No
<b>Suitability for interaction press control</b>	No
<b>Suitability for use</b>	
• Monitoring of floating sensors	Yes
• Monitoring of non-floating sensors	No
• safety switch	Yes

• position switch monitoring	Yes
• EMERGENCY-OFF circuit monitoring	Yes
• valve monitoring	No
• tactile sensor monitoring	No
• magnetically operated switch monitoring	No
• safety-related circuits	Yes

**Certificates/approvals**

<b>Certificate 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 approval	Yes
• BG BIA certificate	Yes

<b>General Product Approval</b>	<b>EMC</b>	<b>Functional Safety/Safety of Machinery</b>
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[Type Examination Certificate](#)

<b>Declaration of Conformity</b>	<b>Test Certificates</b>	<b>other</b>
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[Special Test Certificate](#)

[Environmental Confirmations](#)

[Confirmation](#)

**Further information**

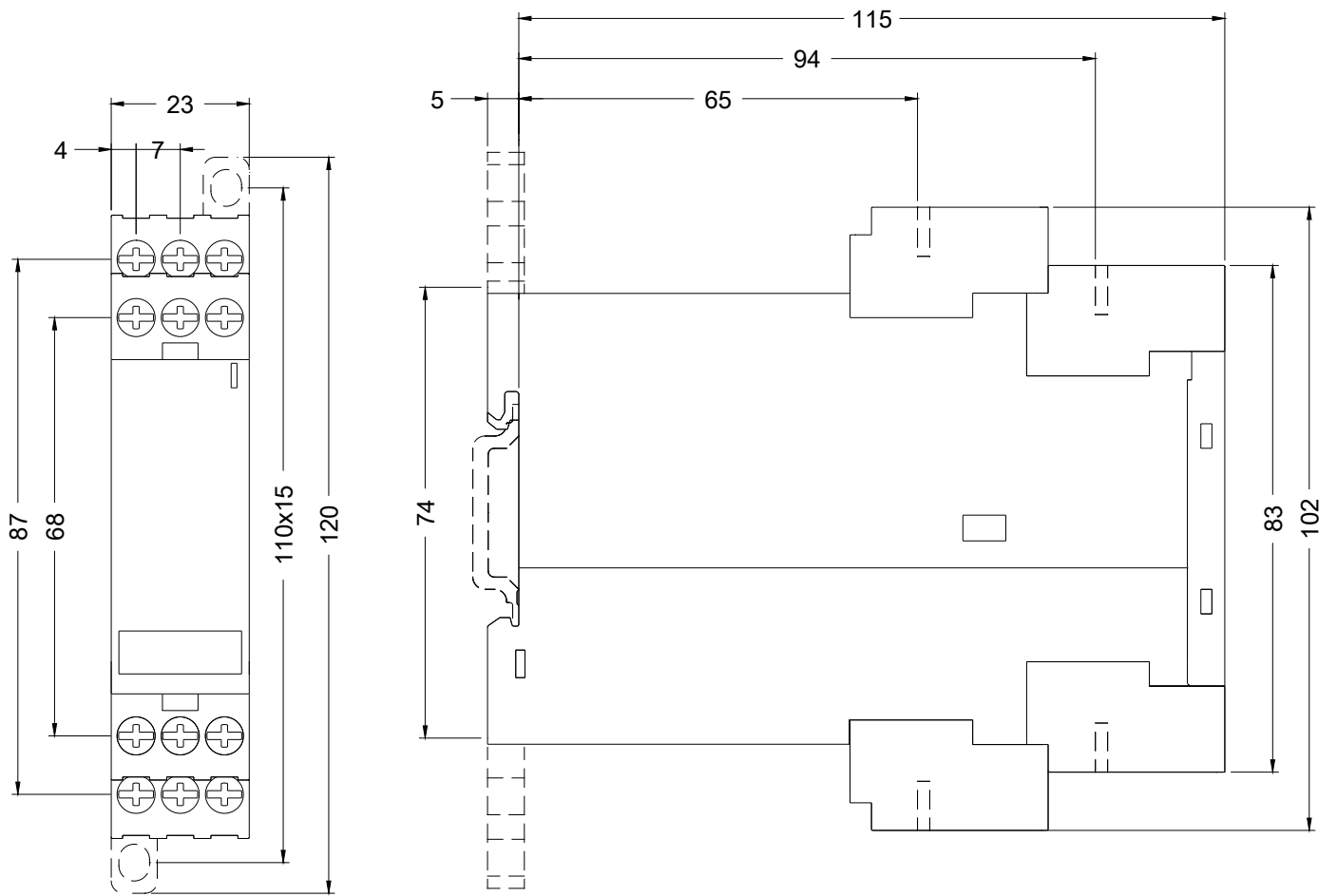
**Information- and Downloadcenter (Catalogs, Brochures,...)**  
<http://www.siemens.com/industrial-controls/catalogs>

**Industry Mall (Online ordering system)**  
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3TK2824-1BB40>

**Cax online generator**  
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2824-1BB40>

**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**  
<https://support.industry.siemens.com/cs/ww/en/ps/3TK2824-1BB40>

**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**  
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3TK2824-1BB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2824-1BB40&lang=en)



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