

SIRIUS safety relay with relay enabling circuits (EC) 230 V AC, 22.5 mm Spring-type terminal EC instantaneous: 2 NO EC delayed: 0 NO SC: 0 NC AUTOSTART Basic device Maximum achieved SIL: 1, PL: c



Figure similar

General technical data	
Product brand name	SIRIUS
Product designation	safety relays
Design of the product	for EMERGENCY-STOP and safety doors
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
Installation environment regarding 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.
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	KT
Reference code acc. to DIN EN 61346-2	F
Number of sensor inputs	
• 1-channel or 2-channel	1
Design of the cascading	none
Type of the safety-related wiring of the inputs	single-channel or single-channel and two-channel
Product feature cross-circuit-proof	No
Safety Integrity Level (SIL)	
• acc. to IEC 61508	2
SIL Claim Limit (subsystem) acc. to EN 62061	1
Performance level (PL)	
• acc. to EN ISO 13849-1	d
Category acc. to EN ISO 13849-1	2
Hardware fault tolerance acc. to IEC 61508	1
Safety device type acc. to IEC 61508-2	Type A
PFHD with high demand rate acc. to EN 62061	0.00000000087 1/h
Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	0.00000077 1/y
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Number of outputs as contact-affected switching element	
• as NC contact	
— for signaling function instantaneous contact	0
• as NO contact	
— safety-related instantaneous contact	2
— safety-related delayed switching	0
Number of outputs as contact-less semiconductor switching element	
• safety-related	
— delayed switching	0
— instantaneous contact	0
• for signaling function	
— delayed switching	0
— instantaneous contact	0
Stop category acc. to DIN EN 60204-1	0

General technical data

Design of input	
• cascading input/functional switching	No
• feedback input	Yes
• Start input	Yes
Type of electrical connection Plug-in socket	Yes
Operating frequency maximum	1 000 1/h
Switching capacity current	
• 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
Thermal current of the switching element with contacts maximum	5 A
Electrical endurance (switching cycles) typical	100 000
Mechanical service life (switching cycles) 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
DC resistance of the cable maximum	30 Ω
Wire length between sensor and electronic evaluation device with Cu 1.5 mm² and 150 nF/km maximum	1 000 m
Make time with automatic start	
• at AC maximum	300 ms
Backslide delay time in the event of power failure	
• maximum	200 ms
Recovery time after opening of the safety circuits typical	200 ms
Recovery time after power failure typical	200 ms
Pulse duration	
• of the sensor input minimum	300 ms
• of the ON pushbutton input minimum	0.3 s
Control circuit/ Control	
Type of voltage of the control supply voltage	AC
Control supply voltage frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
Control supply voltage 1 at AC	
• at 50 Hz rated value	230 V

<ul style="list-style-type: none"> • at 60 Hz rated value 	230 V
Operating range factor control supply voltage rated value of magnet coil	
<ul style="list-style-type: none"> • at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz 	0.85 ... 1.1 0.85 ... 1.1

Installation/ mounting/ dimensions	
Mounting position	any
Mounting type	screw and snap-on mounting
Width	22.5 mm
Height	120 mm
Depth	120 mm

Connections/Terminals	
Type of electrical connection	spring-loaded terminals
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • solid 	2x (0.25 ... 1.5 mm ²)
<ul style="list-style-type: none"> • finely stranded <ul style="list-style-type: none"> — with core end processing — without core end processing 	2 x (0.25 ... 1.5 mm ²) 2x (0.25 ... 1.5 mm ²)
Type of connectable conductor cross-sections at AWG conductors	
<ul style="list-style-type: none"> • solid • stranded 	2x (24 ... 16) 2x (24 ... 16)

Product Function	
Product function	
<ul style="list-style-type: none"> • Light barrier monitoring • Standstill monitoring • protective door monitoring • Automatic start • magnetically operated switch monitoring NC-NO • rotation speed monitoring • laser scanner monitoring • monitored start-up • Light array monitoring • magnetically operated switch monitoring NC-NC • EMERGENCY OFF function • Pressure-sensitive mat monitoring 	No No Yes Yes No No No No No No Yes No
Suitability for interaction press control	No
Suitability for use	

- | | |
|---|-----|
| • 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

Certificate of suitability	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

General Product Approval

EMC

Functional Safety/Safety of Machinery



[Type Examination Certificate](#)

Declaration of Conformity

Test Certificates

other



[Miscellaneous](#)

[Special Test Certificate](#)

[Environmental Conformations](#)

[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=3TK2824-2AL20>

Cax online generator

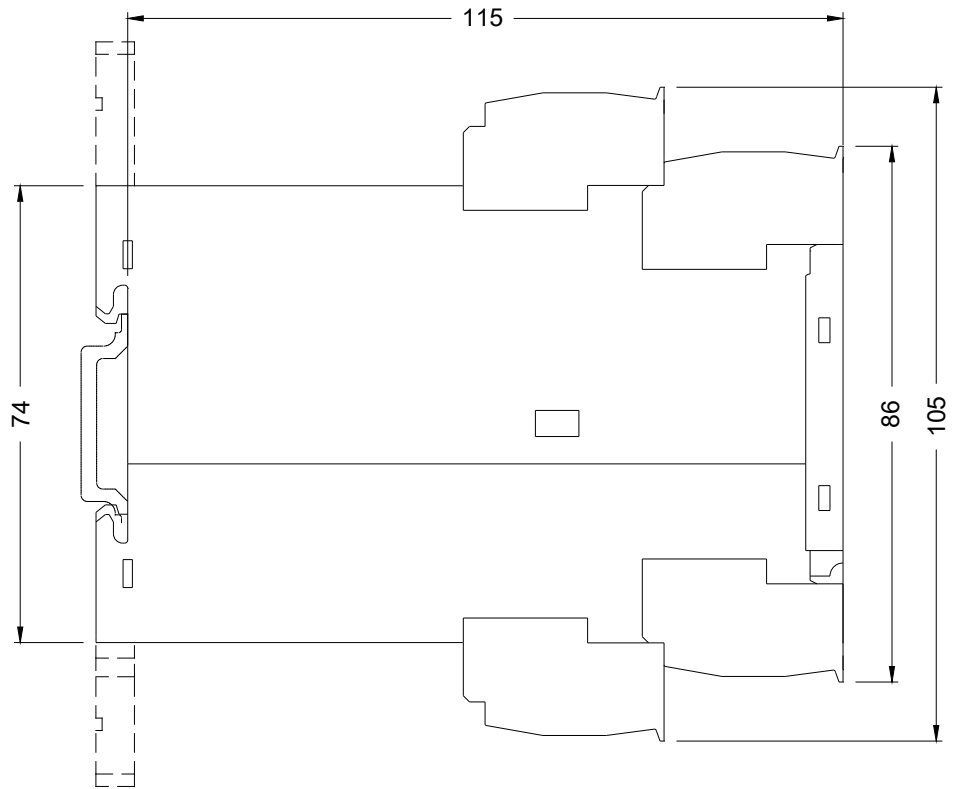
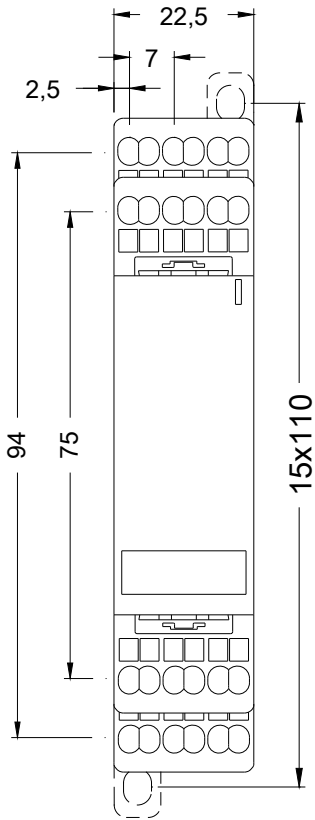
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2824-2AL20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2824-2AL20>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2824-2AL20&lang=en



last modified:

09/18/2019