

SIRIUS safety relay with relay enabling circuits (EC) 24 V AC/DC, 22.5 mm
Screw terminal EC instantaneous: 3 NO EC delayed: 0 NO SC: 1NC
Autostart/manual start Basic device Maximum achieved SIL: 1, PL: c as
expansion unit up to maximum achieved SIL: 3, PL: e

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
touch 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	3
SIL Claim Limit (subsystem) acc. to EN 62061	1
performance level (PL)	
• acc. to EN ISO 13849-1	e
category acc. to EN ISO 13849-1	3
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	0.000000011 1/h

Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	0.00000099 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	1
• as NO contact	
— safety-related instantaneous contact	3
— 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
Inputs	
design of input	
• cascading input/functional switching	No
• feedback input	Yes
• start input	Yes
Outputs	
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	5 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	5 A
— at 230 V	5 A
• of the NC contacts of the relay outputs at DC-13	
— at 24 V	5 A
— at 115 V	0.2 A
— at 230 V	0.1 A
• of the NC contacts of the relay outputs at AC-15	
— at 115 V	5 A
— at 230 V	5 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 electronics evaluation device with Cu 1.5 mm² and 150 nF/km maximum	1 000 m
make time with automatic start	
• at DC maximum	200 ms
• at AC maximum	200 ms
make time with automatic start after power failure	
• maximum	300 ms
backslide delay time after opening of the safety circuits typical	125 ms

backslide delay time in the event of power failure	
• typical	125 ms
• 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	200 ms
• of the ON pushbutton input minimum	0.15 s
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
control supply voltage 1	
• at DC rated value	24 V
control supply voltage 1 at AC	
• at 50 Hz rated value	24 V
• at 60 Hz rated value	24 V
operating range factor control supply voltage rated value of magnet coil	
• 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	
mounting position	any
fastening method	screw and snap-on mounting
width	22.5 mm
height	120 mm
depth	120 mm
Connections/ Terminals	
type of electrical connection	screw-type terminals
type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
• finely stranded	
— with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
type of connectable conductor cross-sections at AWG cables	
• solid	2x (20 ... 14)
• stranded	2x (20 ... 14)
Product Function	
product function	
• 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
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 approval	Yes

Approvals Certificates

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3TK2821-1CB30>

Cax online generator

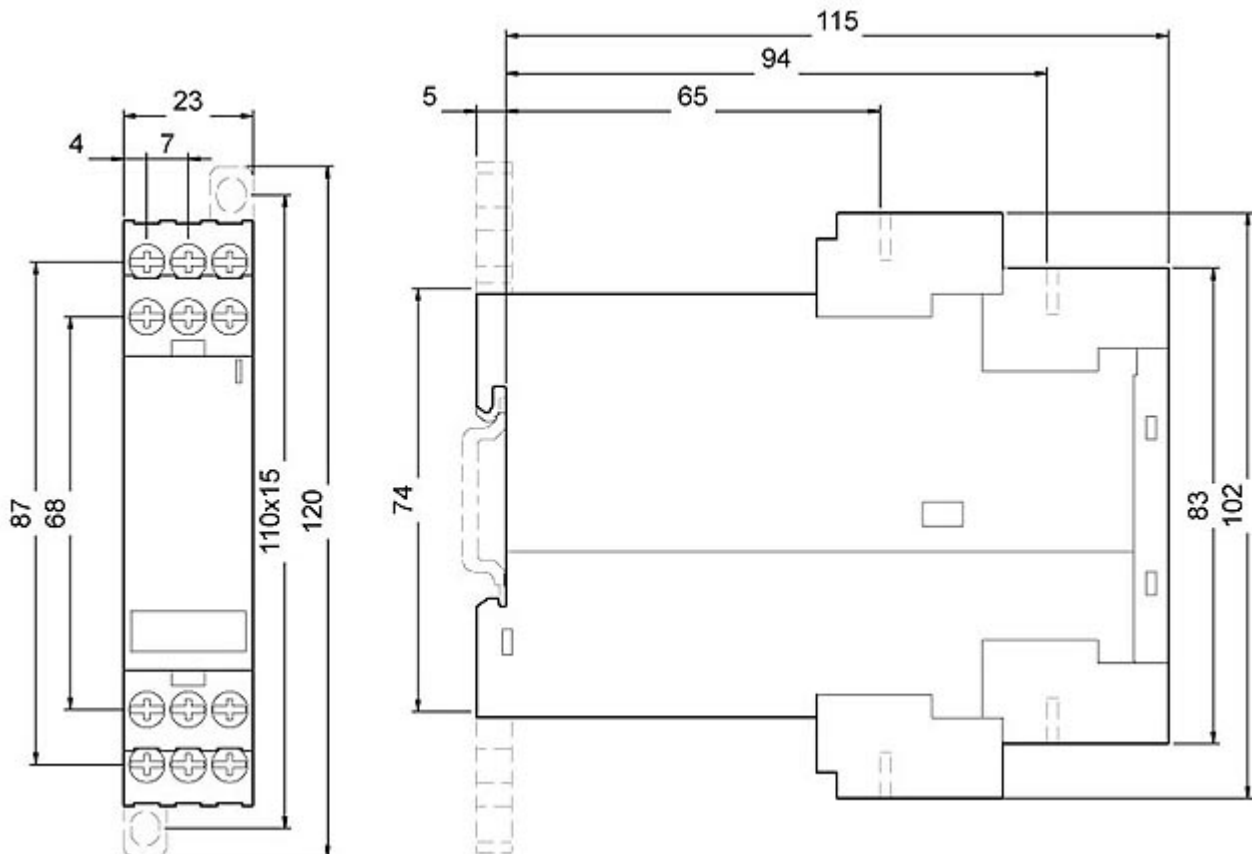
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2821-1CB30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3TK2821-1CB30>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2821-1CB30&lang=en



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