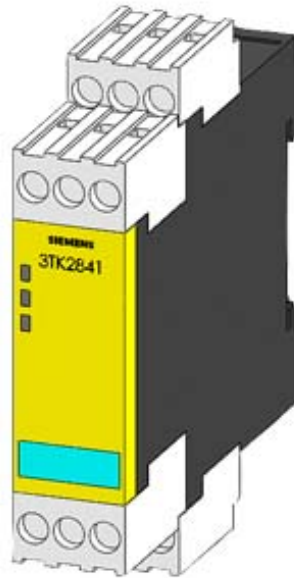


SIRIUS safety relay with relay enabling circuits (EC) 24 V AC/DC, 22.5 mm Screw terminal EC instantaneous: 3 NO EC delayed: 0 NO SC: 1NC Autostart/manual start Basic device Maximum achieved SIL: 1, PL: c as expansion unit up to maximum achieved SIL: 3, PL: e



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
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	0.0000000011 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 • as NO contact — safety-related instantaneous contact — safety-related delayed switching	1 3 0
Number of outputs as contact-less semiconductor switching element • safety-related — delayed switching — instantaneous contact • for signaling function — delayed switching — instantaneous contact	 0 0 0 0
Stop category acc. to DIN EN 60204-1	0

General technical data

Design of input

<ul style="list-style-type: none"> • cascading input/functional switching 	No
<ul style="list-style-type: none"> • feedback input 	Yes
<ul style="list-style-type: none"> • Start input 	Yes
Type of electrical connection Plug-in socket	Yes
Operating frequency maximum	1 000 1/h
Switching capacity current	
<ul style="list-style-type: none"> • of the NO contacts of the relay outputs at DC-13 <ul style="list-style-type: none"> — at 24 V — at 115 V — at 230 V 	5 A 0.2 A 0.1 A
<ul style="list-style-type: none"> • of the NO contacts of the relay outputs at AC-15 <ul style="list-style-type: none"> — at 115 V — at 230 V 	5 A 5 A
<ul style="list-style-type: none"> • of the NC contacts of the relay outputs at DC-13 <ul style="list-style-type: none"> — at 24 V — at 115 V — at 230 V 	5 A 0.2 A 0.1 A
<ul style="list-style-type: none"> • of the NC contacts of the relay outputs at AC-15 <ul style="list-style-type: none"> — at 115 V — at 230 V 	5 A 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 electronic evaluation device with Cu 1.5 mm² and 150 nF/km maximum	1 000 m
Make time with automatic start	
<ul style="list-style-type: none"> • at DC maximum • at AC maximum 	200 ms 200 ms
Make time with automatic start after power failure	
<ul style="list-style-type: none"> • maximum 	300 ms
Backslide delay time after opening of the safety circuits typical	125 ms
Backslide delay time in the event of power failure	
<ul style="list-style-type: none"> • typical 	125 ms

<ul style="list-style-type: none"> • maximum 	200 ms
Recovery time after opening of the safety circuits typical	200 ms
Recovery time after power failure typical	200 ms
Pulse duration	
<ul style="list-style-type: none"> • of the sensor input minimum 	200 ms
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • 1 rated value 	50 Hz
<ul style="list-style-type: none"> • 2 rated value 	60 Hz
Control supply voltage 1	
<ul style="list-style-type: none"> • at DC rated value 	24 V
Control supply voltage 1 at AC	
<ul style="list-style-type: none"> • at 50 Hz rated value 	24 V
<ul style="list-style-type: none"> • at 60 Hz rated value 	24 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
<ul style="list-style-type: none"> • at DC 	0.85 ... 1.2

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	screw-type terminals
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • solid 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
<ul style="list-style-type: none"> • finely stranded <ul style="list-style-type: none"> — 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 conductors	
<ul style="list-style-type: none"> • solid 	2x (20 ... 14)
<ul style="list-style-type: none"> • stranded 	2x (20 ... 14)

Product Function

Product function	
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• 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 certificate	Yes

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

Declaration of Conformity	Test Certificates	other
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[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=3TK2821-1CB30>

Cax online generator

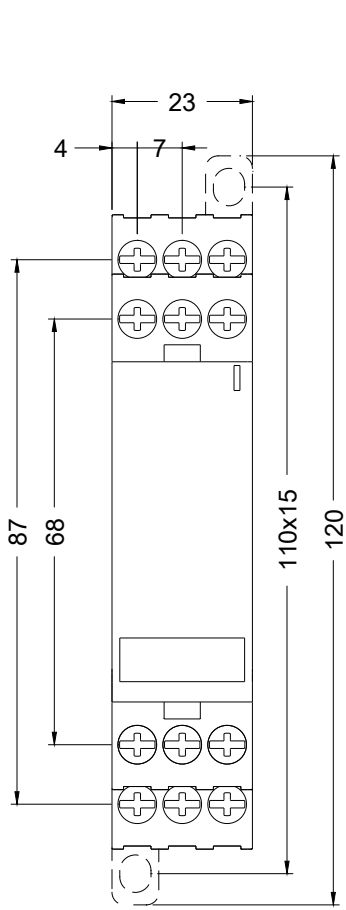
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2821-1CB30>

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

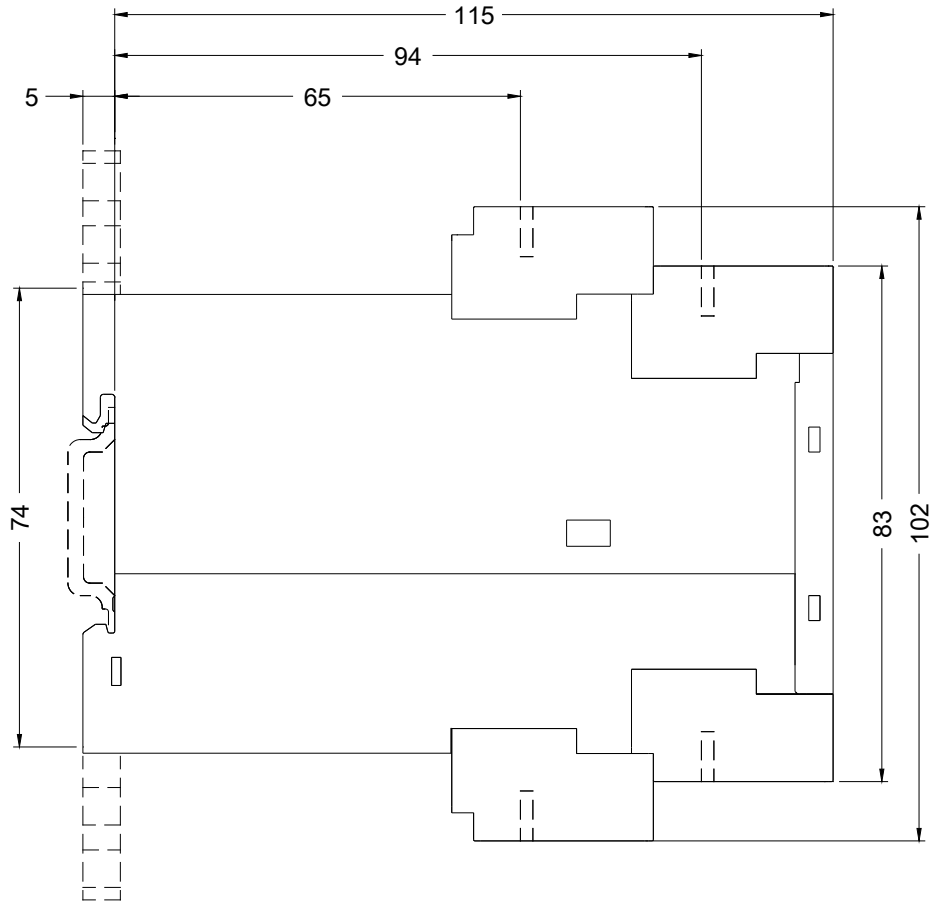
<https://support.industry.siemens.com/cs/ww/en/ps/3TK2821-1CB30>

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



last modified:



11/28/2019