SIEMENS

Data sheet 3TK2830-1AL20

Figure similar

SIRIUS safety relay with relay enabling circuits (EC) 230 V AC, 22.5 mm Screw terminal EC instantaneous: 4 NO EC delayed: 0 MK for retraction: 1 Expansion unit Maximum achieved SIL / PL: as basic unit

product brand name	SIRIUS
product designation	safety relays
design of the product	extension unit
General technical data	
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 according 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 according 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. In household environments, this device can cause unwanted radio interference. The user is required to implement appropriate measures in this case.
reference code according to DIN 40719 extended according to IEC 204-2 according to IEC 750	KT
reference code according to EN 61346-2	F
design of the cascading	none
product feature cross-circuit-proof	No
Safety Integrity Level (SIL)	
● according to IEC 61508	3
SIL Claim Limit (subsystem) according to EN 62061	3
category according to EN ISO 13849-1	4
hardware fault tolerance according to IEC 61508	1
safety device type according to IEC 61508-2	Type A
PFHD with high demand rate according to EN 62061	0.0000000012 1/h
Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508	0.000001 1/y
T1 value for proof test interval or service life according to IEC 61508	20 a
number of outputs as contact-affected switching element	
● as NC contact	
— for signaling function instantaneous contact	0

● as NO contact	
— safety-related instantaneous contact	4
— 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 according to EN 60204-1	0
Inputs	
design of input	
● cascading input/functional switching	No
● feedback input	Yes
● start input	No
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 (operating cycles) typical	100 000
mechanical service life (operating 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	80 m
Times	
make time with automatic start	
● at AC maximum	200 ms
make time with automatic start after power failure	
● maximum	200 ms
backslide delay time in the event of power failure	
● maximum	80 ms
recovery time after power failure typical	120 ms
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
● at 60 Hz rated value	230 V
operating range factor control supply voltage rated value of magnet coil	
● at AC	

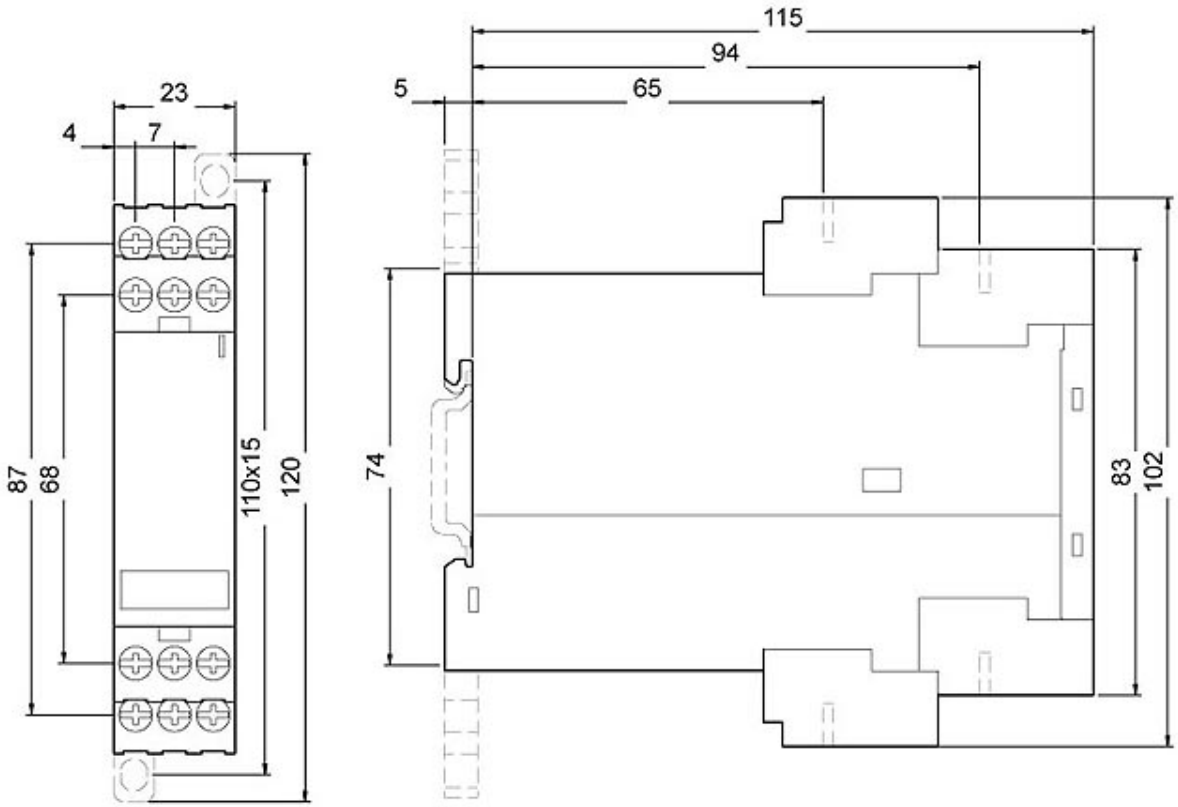
— at 50 Hz	0.85 ... 1.1
— at 60 Hz	0.85 ... 1.1
Installation/ mounting/ dimensions	
mounting position	any
fastening method	screw and snap-on mounting
width	22.5 mm
height	120 mm
depth	120 mm
Connections/ Terminals	
type of electrical connection	screw-type terminals
type of connectable conductor cross-sections	
• solid	1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)
• finely stranded	
— with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
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	No
• automatic start	No
• 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	No
• pressure-sensitive mat monitoring	No
suitability for interaction press control	No
suitability for use	
• safety switch	Yes
• position switch monitoring	No
• EMERGENCY-OFF circuit monitoring	No
• valve monitoring	No
• tactile sensor monitoring	No
• magnetically operated switch monitoring	No
• safety-related circuits	No
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	No

General Product Approval				EMC	Functional Safety/Safety of Machinery
CSA	CCC	UL	EAC	RCM	Type Examination Certificate

Test Certificates	other
Special Test Certific-ate	Confirmation

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=3TK2830-1AL20
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3TK2830-1AL20
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3TK2830-1AL20
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3TK2830-1AL20&lang=en



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