



SIRIUS safety relay Basic unit Standard series Relay enabling circuits 3 NO contacts plus Relay signaling circuit 1 NC contact  $U_s = 110 - 240 \text{ V AC/DC } 50/60 \text{ Hz}$  screw terminal

product brand name	SIRIUS
product category	Safety relays
product designation	safety relays
design of the product	Relay enabling circuits
product type designation	3SK1
product line	Standard basic unit
Product Function	
product function parameterizable	Sensor floating / monitored start / automatic start
product function	
• automatic start	Yes
• light barrier monitoring	No
• protective door monitoring	Yes
• magnetically operated switch monitoring NC-NO	No
• magnetically operated switch monitoring NC-NC	Yes
• laser scanner monitoring	No
• light array monitoring	No
• EMERGENCY OFF function	Yes
• monitored start-up	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
• position switch monitoring	Yes
• EMERGENCY-OFF circuit monitoring	Yes
• opto-electronic protection device monitoring	No
• magnetically operated switch monitoring	No
• safety switch	Yes
• safety-related circuits	Yes
General technical data	
certificate of suitability UL approval	Yes
product feature cross-circuit-proof	Yes
power loss [W] maximum	2.5 W
insulation voltage rated value	300 V
degree of pollution	3
overvoltage category	3
surge voltage resistance rated value	4 000 V
protection class IP of the enclosure	IP20
shock resistance	10g / 11 ms
operating frequency maximum	360 1/h

<b>mechanical service life (operating cycles) typical</b>	10 000 000
<b>thermal current of the switching element with contacts maximum</b>	5 A
recovery time after opening of the safety circuits typical	10 ms
<b>make time with automatic start</b>	
• typical	110 ms
• at DC maximum	130 ms
• at AC maximum	130 ms
• after power failure typical	110 ms
• after power failure maximum	130 ms
<b>make time with monitored start</b>	
• typical	15 ms
• maximum	15 ms
<b>backslide delay time after opening of the safety circuits typical</b>	10 ms
<b>backslide delay time in the event of power failure</b>	
• typical	200 ms
• maximum	300 ms
<b>reference code according to IEC 81346-2</b>	F
<b>Substance Prohibittance (Date)</b>	11/05/2012
<b>SVHC substance name</b>	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 4,4'-isopropylidenediphenol (Bisphenol A, BPA) - 80-05-7
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	4 000 m; Derating, see Product Notification 109792701
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-40 ... +80 °C
relative humidity during operation	10 ... 95 %
air pressure according to SN 31205	90 ... 106 kPa
<b>Electromagnetic compatibility</b>	
<b>installation environment regarding EMC</b>	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.
<b>EMC emitted interference</b>	IEC 60947-5-1, Class A
<b>Safety related data</b>	
<b>stop category according to IEC 60204-1</b>	0
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	3
PFHD with high demand rate according to IEC 62061	1.5E-9 1/h
ISO 13849	
category according to EN ISO 13849-1	4
<b>performance level (PL)</b>	
• according to ISO 13849-1	e
IEC 61508	
<b>safety device type according to IEC 61508-2</b>	Type A
<b>Average probability of failure on demand (PFDavg) with low demand rate acc. to IEC 61508</b>	1E-6 1/y
<b>PFDavg with low demand rate according to IEC 61508</b>	1E-6
<b>Safe failure fraction (SFF)</b>	99 %
hardware fault tolerance according to IEC 61508	1
T1 value for proof test interval or service life according to IEC 61508	20 a
<b>Electrical Safety</b>	
<b>touch protection against electrical shock</b>	finger-safe
<b>Short-circuit protection</b>	
<b>design of the fuse link</b>	
• for short-circuit protection of the NO contacts of the relay outputs required	gL/gG: 6A or circuit breaker type A: 3A or circuit breaker type B: 2A or circuit breaker type C: 1A
• for short circuit protection of the NC contacts of the relay outputs required	Diazed or Neozed fuses, operating class gL/gG: 6 A or MCB type A: 2 A or MCB type B: 2 A or MCB type C: 1 A
<b>Inputs</b>	
<b>design of input</b>	

<ul style="list-style-type: none"> <li>• cascading input/functional switching</li> <li>• feedback input</li> <li>• start input</li> </ul>	No Yes Yes
<b>pulse duration</b>	
<ul style="list-style-type: none"> <li>• of the sensor input minimum</li> <li>• of the ON pushbutton input minimum</li> </ul>	150 ms 0.015 s
number of sensor inputs 1-channel or 2-channel	1
<b>Outputs</b>	
<b>number of outputs as contact-affected switching element</b>	
<ul style="list-style-type: none"> <li>• as NC contact <ul style="list-style-type: none"> <li>— for signaling function instantaneous contact</li> </ul> </li> <li>• as NO contact <ul style="list-style-type: none"> <li>— safety-related instantaneous contact</li> <li>— safety-related delayed switching</li> </ul> </li> </ul>	1 3 0
<b>switching capacity current of the NO contacts of the relay outputs at DC-13</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	5 A 0.2 A 0.1 A
<b>switching capacity current of the NO contacts of the relay outputs at AC-15</b>	
<ul style="list-style-type: none"> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	5 A 5 A
<b>switching capacity current of the NC contacts of the relay outputs at DC-13</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	1 A 0.2 A 0.1 A
<b>switching capacity current of the NC contacts of the relay outputs at AC-15</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 115 V</li> <li>• at 230 V</li> </ul>	2 A 1.5 A 1.5 A
<b>total current maximum</b>	12 A
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC/DC
<b>control supply voltage at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> <li>• at 60 Hz rated value</li> </ul>	110 ... 240 V 110 ... 240 V
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>• 1 rated value</li> <li>• 2 rated value</li> </ul>	50 Hz 60 Hz
<b>control supply voltage at DC rated value</b>	
<ul style="list-style-type: none"> <li>•</li> </ul>	110 ... 240 V
<b>operating range factor control supply voltage rated value of magnet coil at DC</b>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.85 1.1
<b>operating range factor control supply voltage rated value of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	0.85 ... 1.1 0.85 ... 1.1
<b>recovery time after power failure typical</b>	0.32 s
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	121.6 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>• for grounded parts at the side</li> </ul>	5 mm
<b>Connections/ Terminals</b>	

type of electrical connection	screw terminal
type of connectable conductor cross-sections <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> <li>• for AWG cables solid</li> <li>• for AWG cables stranded</li> </ul>	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (1.0 ... 1.5 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) 1x (20 ... 14), 2x (18 ... 16) 1x (20 ... 16), 2x (20 ... 16)
type of electrical connection plug-in socket	No

#### Approvals Certificates

##### General Product Approval



[Confirmation](#)



EMV	Functional Safety	Test Certificates	Marine / Shipping
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[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping	other	Railway	Environment
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[Confirmation](#)

[Confirmation](#)

[Environmental Confirmations](#)

#### Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

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=3SK1111-1AW20>

Cax online generator

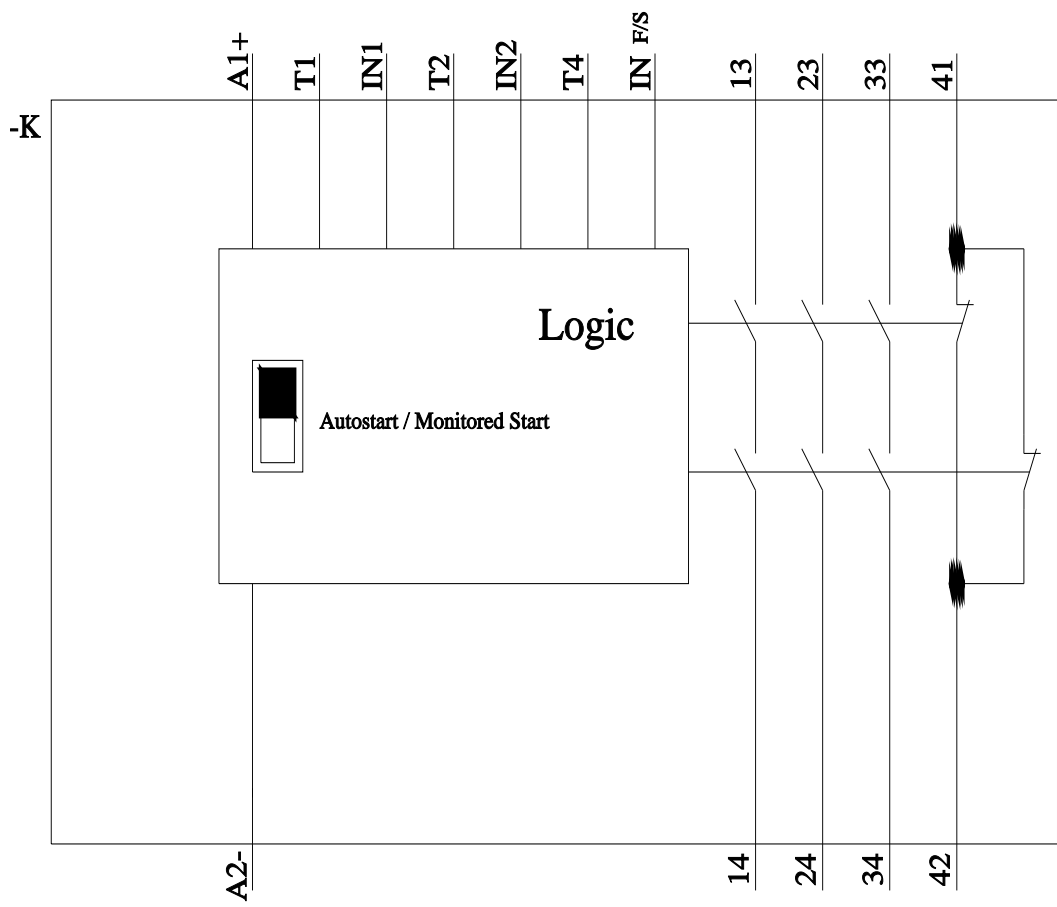
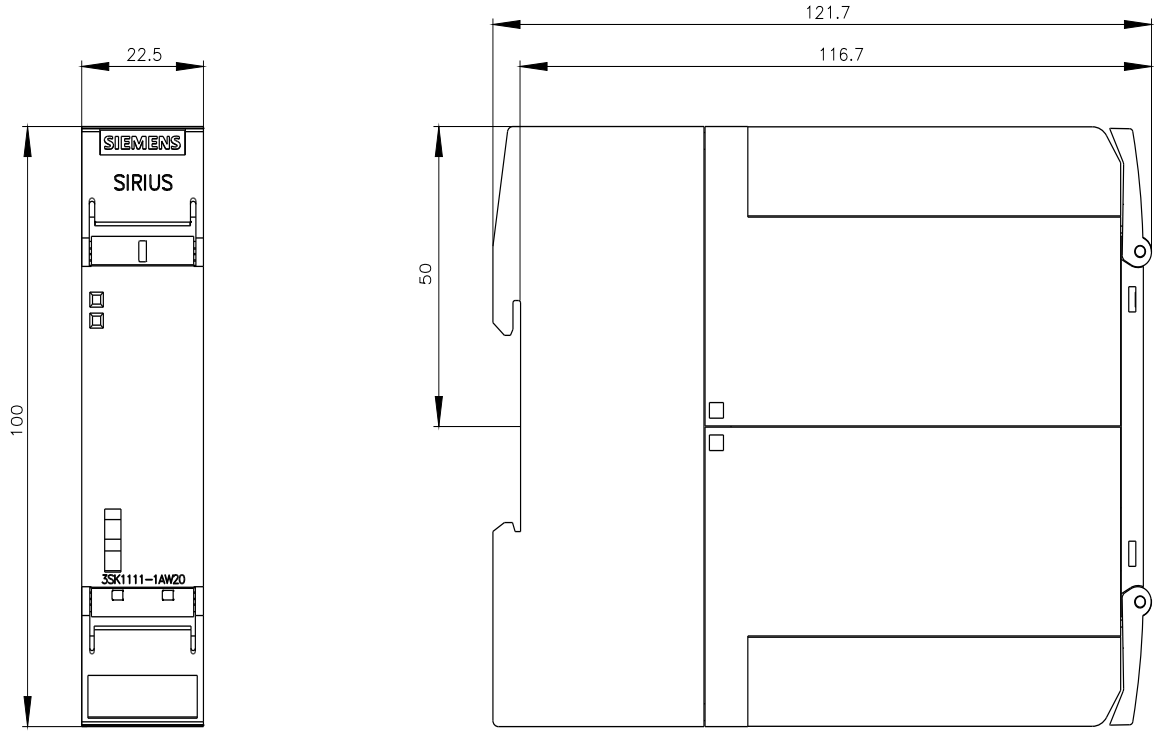
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1111-1AW20>

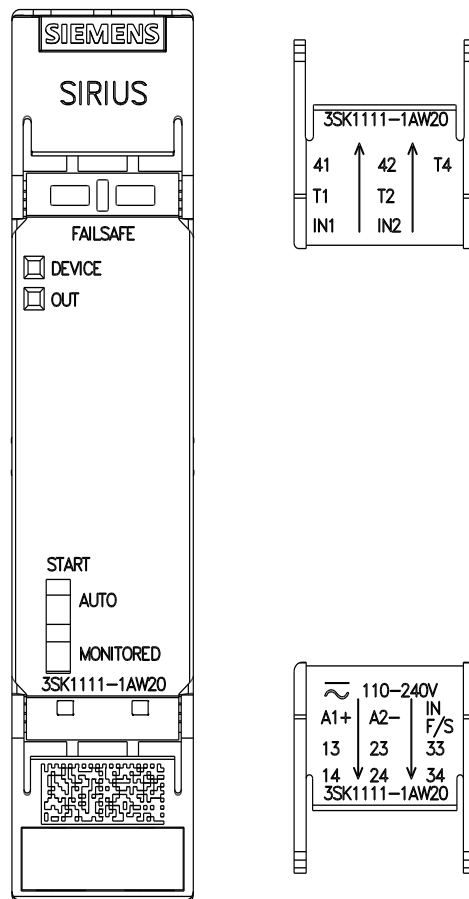
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK1111-1AW20>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1111-1AW20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1111-1AW20&lang=en)





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