

SIRIUS safety relay Basic unit Standard series electronic enabling circuits 2 enabling circuits plus 1 signaling circuit  $U_s = 24\text{ V DC}$   
Spring-type terminal (push-in)



General technical data	
Product brand name	SIRIUS
Product category	Safety relays
Product designation	safety relays
Design of the product	Solid-state enabling circuits
Protection class IP of the enclosure	IP20
Protection against electrical shock	finger-safe
Insulation voltage rated value	50 V
Ambient temperature	
• during storage	-40 ... +80 °C
• during operation	-25 ... +60 °C
Air pressure acc. to SN 31205	90 kPa ... 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: 0.75 mm
Shock resistance	10g / 11 ms
Surge voltage resistance rated value	800 V
EMC emitted interference	IEC 60947-5-1, Class A

<b>Installation environment regarding EMC</b>	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.
<b>Overvoltage category</b>	3
<b>Degree of pollution</b>	3
<b>Number of sensor inputs 1-channel or 2-channel</b>	1
<b>Design of the cascading</b>	yes
<b>Type of the safety-related wiring of the inputs</b>	single-channel and two-channel
<b>Product feature cross-circuit-proof</b>	Yes
<b>Safety Integrity Level (SIL)</b>	
• acc. to IEC 61508	3
<b>Performance level (PL)</b>	
• acc. to EN ISO 13849-1	e
<b>Category acc. to EN ISO 13849-1</b>	4
<b>Safe failure fraction (SFF)</b>	99 %
<b>PFHD with high demand rate acc. to EN 62061</b>	0.000000001 1/h
<b>PFDAvg with low demand rate acc. to IEC 61508</b>	0.000007
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	20 y
<b>Hardware fault tolerance acc. to IEC 61508</b>	1
<b>Safety device type acc. to IEC 61508-2</b>	Type B
<b>Number of outputs as contact-affected switching element</b>	
• as NC contact	
— for signaling function instantaneous contact	0
— for signaling function delayed switching	0
— safety-related instantaneous contact	0
— safety-related delayed switching	0
• as NO contact	
— for signaling function instantaneous contact	0
— for signaling function delayed switching	0
— safety-related instantaneous contact	0
— safety-related delayed switching	0
<b>Number of outputs as contact-less semiconductor switching element</b>	
• safety-related	
— delayed switching	0
— instantaneous contact	2
• for signaling function instantaneous contact	1
<b>Stop category acc. to DIN EN 60204-1</b>	0

## General technical data

<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>	<p>Yes</p> <p>Yes</p> <p>Yes</p>
<b>Type of electrical connection</b> Plug-in socket	No
<b>Operating frequency maximum</b>	2 000 1/h
<b>Switching capacity current</b>	
<ul style="list-style-type: none"> <li>• of semiconductor outputs at DC-13 at 24 V</li> </ul>	2 A
<b>Design of the fuse link for short-circuit protection of the NO contacts of the relay outputs required</b>	not required
<b>Wire length</b>	
<ul style="list-style-type: none"> <li>• with Cu 1.5 mm<sup>2</sup> and 150 nF/km per sensor circuit maximum</li> </ul>	4 000 m
<b>Make time with automatic start</b>	
<ul style="list-style-type: none"> <li>• at DC maximum</li> </ul>	85 ms
<b>Make time with automatic start after power failure</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>	<p>6 500 ms</p> <p>6 500 ms</p>
<b>Make time with monitored start</b>	
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	85 ms
<b>Backslide delay time after opening of the safety circuits typical</b>	40 ms
<b>Backslide delay time in the event of power failure</b>	
<ul style="list-style-type: none"> <li>• typical</li> <li>• maximum</li> </ul>	<p>0 ms</p> <p>0 ms</p>
<b>Recovery time after opening of the safety circuits typical</b>	30 ms
<b>Recovery time after power failure typical</b>	6.5 s
<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>	<p>60 ms</p> <p>0.15 s</p>

## Control circuit/ Control

<b>Type of voltage of the control supply voltage</b>	DC
<b>Control supply voltage</b>	
<ul style="list-style-type: none"> <li>• at DC <ul style="list-style-type: none"> <li>— rated value</li> </ul> </li> </ul>	24 V
<b>Operating range factor control supply voltage rated value of magnet coil</b>	
<ul style="list-style-type: none"> <li>• at DC</li> </ul>	0.8 ... 1.2
<b>Power loss [W] typical</b>	2 W

## Installation/ mounting/ dimensions

Mounting position	any
Required spacing for grounded parts at the side	5 mm
Required spacing with side-by-side mounting at the side	0 mm
Mounting type	screw and snap-on mounting
Width	22.5 mm
Height	100 mm
Depth	91.6 mm

### Connections/Terminals

Type of electrical connection	Push-in terminal
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> <li>• solid</li> </ul>	1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• finely stranded <ul style="list-style-type: none"> <li>— with core end processing</li> <li>— without core end processing</li> </ul> </li> </ul>	1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
Type of connectable conductor cross-sections at AWG conductors	
<ul style="list-style-type: none"> <li>• solid</li> </ul>	1x (20 ... 16), 2x (20 ... 16)
<ul style="list-style-type: none"> <li>• stranded</li> </ul>	1x (20 ... 16), 2x (20 ... 16)

### Product Function

Product function parameterizable	Sensor floating / sensor non-floating, monitored start / autostart, 1-channel / 2-channel sensor connection, cross-circuit detection, startup testing
Suitability for operation Device connector 3ZY12	No
Suitability for interaction press control	No
Suitability for use	
<ul style="list-style-type: none"> <li>• safety switch</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Monitoring of floating sensors</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Monitoring of non-floating sensors</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• magnetically operated switch monitoring</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• safety-related circuits</li> </ul>	Yes

### Certificates/approvals

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

Declaration of Conformity	Test Certificates	Shipping Approval
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[Miscellaneous](#)

[Type Test Certificates/Test Report](#)



other	Railway
<a href="#">Confirmation</a>	<a href="#">Confirmation</a>

#### 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=3SK1112-2BB40>

**Cax online generator**

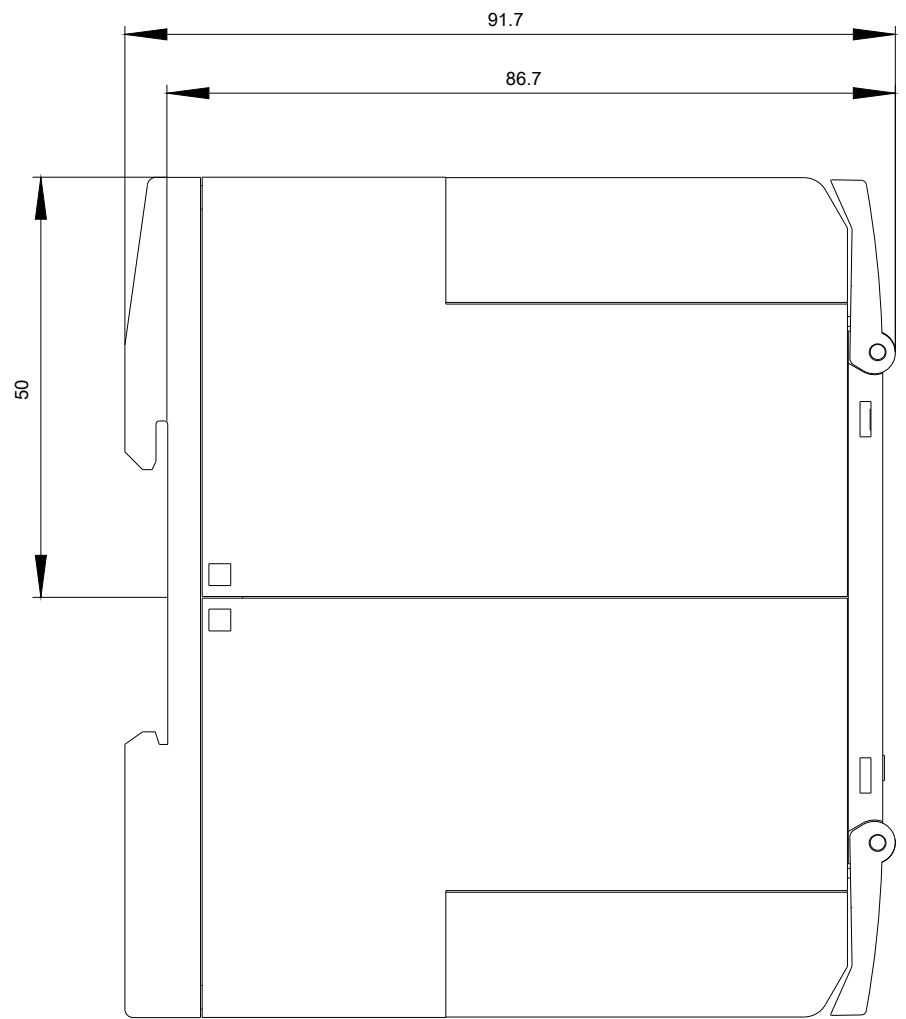
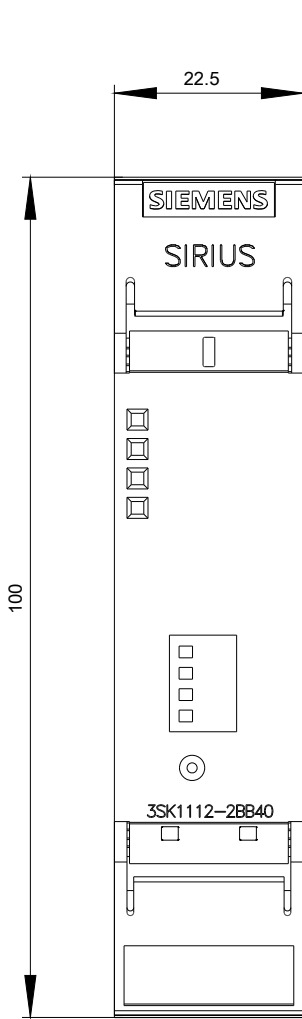
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK1112-2BB40>

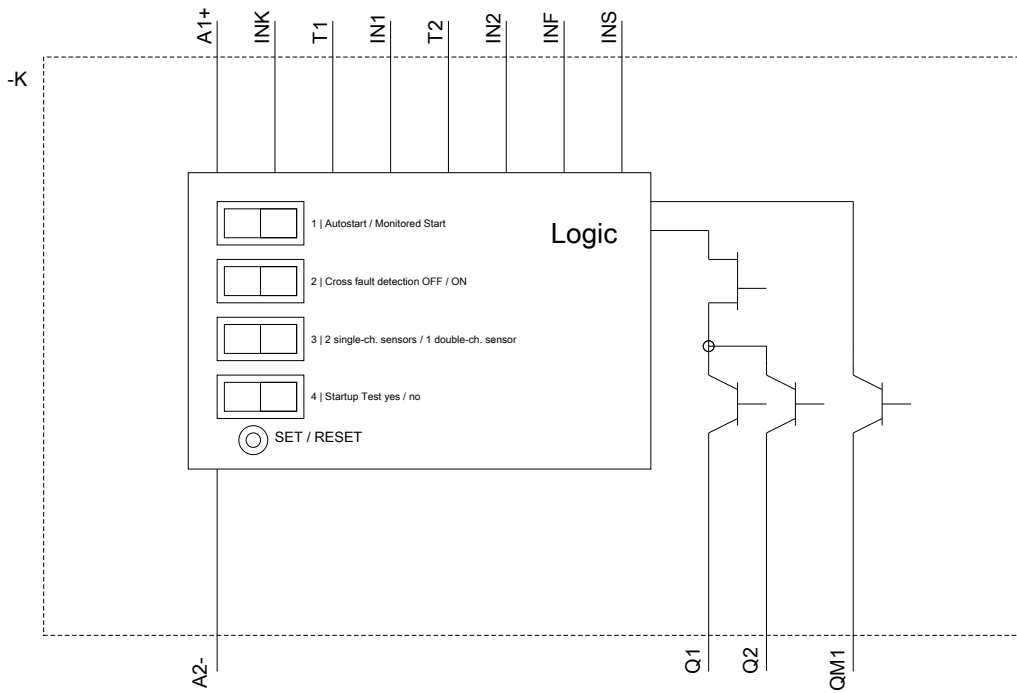
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

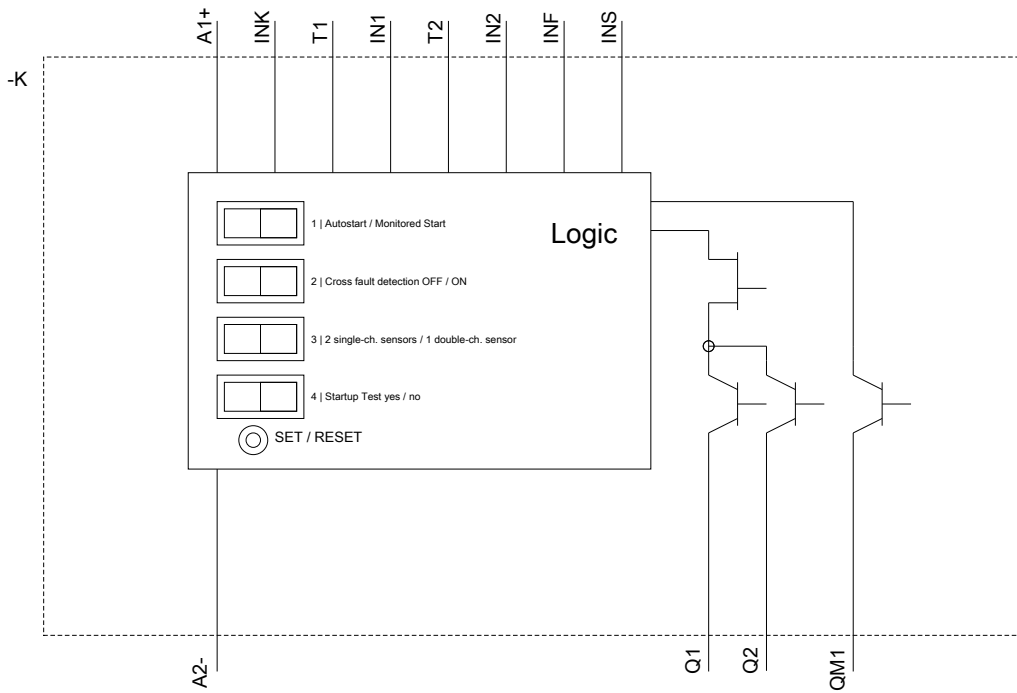
<https://support.industry.siemens.com/cs/ww/en/ps/3SK1112-2BB40>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK1112-2BB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK1112-2BB40&lang=en)







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