



SIRIUS safety relay basic unit 3SK2 series 10 F-DI, 2 F-DQ, 1 DQ, 24 V DC Can be parameterized via SIRIUS Safety ES 22.5 mm overall width screw terminal up to SIL 3 (IEC 62061) up to performance level e (ISO 13849-1) output expansions 3SK1, coupling relay 3RQ1 and fail-safe motor starters 3RM1 via device connector connectable

<b>product brand name</b>	SIRIUS
<b>product category</b>	Safety relay
<b>product designation</b>	Base-Unit
<b>design of the product</b>	10 F-DI, 2 F-DQ, 1 DQ
<b>suitability for use for monitoring of optoelectronic protective devices according to IEC 61496-1</b>	Yes
<b>suitability for use</b>	
<ul style="list-style-type: none"> <li>• monitoring of floating sensors</li> <li>• monitoring of non-floating sensors</li> <li>• position switch monitoring</li> <li>• EMERGENCY-OFF circuit monitoring</li> <li>• valve monitoring</li> <li>• opto-electronic protection device monitoring</li> <li>• magnetically operated switch monitoring</li> <li>• proximity switch monitoring</li> <li>• safety-related circuits</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>
<b>General technical data</b>	
<b>product function</b>	
<ul style="list-style-type: none"> <li>• EMERGENCY STOP function</li> <li>• protective door monitoring</li> <li>• protective door monitoring with tumbler</li> <li>• muting, 2 sensor-parallel</li> <li>• muting, 4 sensor-parallel</li> <li>• muting, 4 sensor-sequential</li> <li>• monitoring parameterizable</li> <li>• evaluation: electro-sensitive protective equipment</li> <li>• evaluation: selector switch</li> <li>• pressure-sensitive mat monitoring</li> <li>• evaluation: two-hand operator panel</li> <li>• evaluation: enabling switch</li> <li>• monitored start-up</li> <li>• two-hand control according to EN 574</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>
<b>configuration software required</b>	Yes; Safety ES V1.0 and higher
<b>number of function blocks typical</b>	50
<b>insulation voltage rated value</b>	50 V
<b>degree of pollution</b>	3
<b>surge voltage resistance rated value</b>	800 V
<b>protection class IP</b>	IP20
<ul style="list-style-type: none"> <li>• of the enclosure</li> <li>• of the terminal</li> </ul>	<ul style="list-style-type: none"> <li>IP20</li> <li>IP20</li> </ul>

<b>shock resistance</b>	15g / 11 ms
<b>operating frequency maximum</b>	2 000 1/h
<b>reference code according to IEC 81346-2</b>	F
<b>Substance Prohibitance (Date)</b>	05/28/2009
<b>SVHC substance name</b>	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 Lead titanium zirconium oxide - 12626-81-2
<b>product function suitable for AS-i Power24V</b>	No
<b>product function diagnostics with CTT2 slave</b>	No
<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
• during transport	-40 ... +80 °C
relative humidity during operation	10 ... 95 %
air pressure according to SN 31205	90 ... 106 kPa
<b>Electromagnetic compatibility</b>	
EMC emitted interference according to IEC 60947-1	class A
<b>conducted interference</b>	
• due to burst according to IEC 61000-4-4	2 kV (power ports) / 1 kV (signal ports)
<b>field-based interference according to IEC 61000-4-3</b>	10 V/m
<b>electrostatic discharge according to IEC 61000-4-2</b>	4 kV contact discharge / 8 kV air discharge
<b>Safety related data</b>	
<b>diagnostics test interval by internal test function maximum</b>	1 000 s
<b>stop category according to IEC 60204-1</b>	0 / 1
IEC 62061	
SIL Claim Limit (subsystem) according to EN 62061	3
<b>PFHD with high demand rate</b>	
• according to IEC 62061	1E-8 1/h
ISO 13849	
category according to EN ISO 13849-1	4
<b>performance level (PL) according to ISO 13849-1</b>	e
IEC 61508	
Safety Integrity Level (SIL) according to IEC 61508	3
<b>PFDAvg with low demand rate according to IEC 61508</b>	1.5E-5
hardware fault tolerance according to IEC 61508	1
T1 value for proof test interval or service life according to IEC 61508	20 a
Electrical Safety	
<b>touch protection against electrical shock</b>	finger-safe
<b>Inputs/ Outputs</b>	
<b>product function</b>	
• parameterizable inputs	Yes
• parameterizable outputs	Yes
• at the digital outputs short-circuit protection	Yes
<b>number of inputs</b>	
• safety-related	10
• non-safety-related	0
<b>input delay time</b>	0 ... 150 ms
<b>type of digital inputs according to IEC 60947-1</b>	Type 1
<b>ingress acquisition time at digital input maximum</b>	60 ms
<b>input delay time at digital input maximum</b>	150 ms
<b>input voltage at digital input</b>	
• at DC rated value	24 V
• with signal <0> at DC	-3 ... +5 V
• for signal <1> at DC	15 ... 30
<b>input current at digital input</b>	
• for signal <1> typical	2.6 mA
<b>number of outputs</b>	
• safety-related 2-channel	2

<ul style="list-style-type: none"> <li>• for testing contact-based sensors</li> </ul>	2
number of outputs as contact-affected switching element safety-related	
<ul style="list-style-type: none"> <li>• 1-channel</li> <li>• 2-channel</li> </ul>	0 0
<b>number of outputs as contact-less semiconductor switching element</b>	
<ul style="list-style-type: none"> <li>• safety-related 2-channel</li> <li>• non-safety-related</li> </ul>	2 1
<b>design of the contactless switching element safety-related</b>	P potential
<b>recovery time of the safe outputs</b>	0 ms
<b>readback time maximum</b>	400 ms
<b>light test period</b>	3 ms
<b>dark period of the common drivers</b>	3 ms
switching capacity current of semiconductor outputs at DC-13 at 24 V	4 A
<b>residual current</b>	
<ul style="list-style-type: none"> <li>• maximum</li> <li>• at digital output with signal &lt;0&gt; maximum</li> </ul>	0.1 mA 0.1 mA
<b>total current maximum</b>	6.5 A
<b>wire length of the signal cable</b>	
<ul style="list-style-type: none"> <li>• to the inputs <ul style="list-style-type: none"> <li>— shielded maximum</li> <li>— unshielded maximum</li> </ul> </li> <li>• to the outputs <ul style="list-style-type: none"> <li>— shielded maximum</li> <li>— unshielded maximum</li> </ul> </li> </ul>	1 000 m 600 m 1 000 m 600 m
<b>Communication/ Protocol</b>	
<b>protocol optional is supported</b>	
<ul style="list-style-type: none"> <li>• PROFIBUS DP protocol</li> <li>• PROFINET IO protocol</li> </ul>	Yes; when using the DP interface module; 64 bit cyclical data Yes; when using the PN interface module; 64-bit cyclic data
protocol is supported AS-Interface protocol	No
<b>Control circuit/ Control</b>	
<b>type of voltage</b>	DC
<b>control supply voltage rated value</b>	24 V
<b>inrush current peak</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	10 A
<b>duration of inrush current peak</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	1 ms
<b>operating power rated value</b>	2.5 W
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	Snap-mounted to DIN rail or screw-mounted with additional push-in lug
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	124.5 mm
<b>Connections/ Terminals</b>	
<b>product function removable terminal</b>	Yes
<b>type of electrical connection</b>	screw terminal
<b>type of connectable conductor cross-sections</b>	
<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 ... 14), 2x (18 ... 16)
connectable conductor cross-section finely stranded with core end processing	0.5 ... 2.5 mm <sup>2</sup>
<b>AWG number as coded connectable conductor cross section</b>	
<ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> </ul>	20 ... 14 20 ... 14
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	<b>Functional Safety</b>



Confirmation



Type Examination Certificate

Test Certificates	other	Environment
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[Type Test Certificates/Test Report](#)

[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=3SK2112-1AA10>

Cax online generator

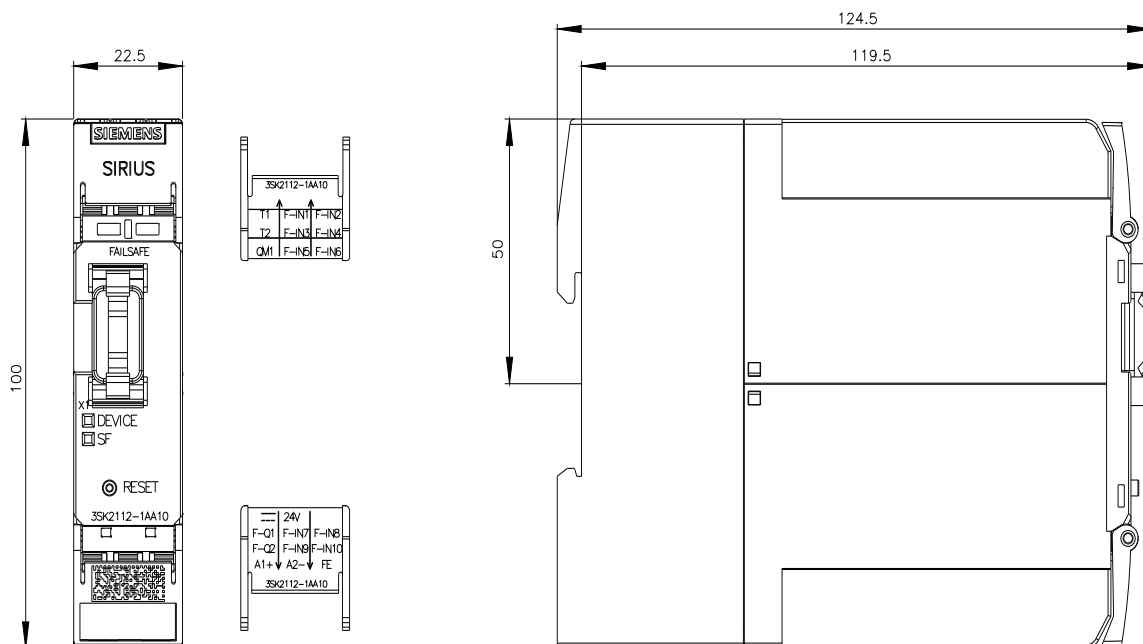
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK2112-1AA10>

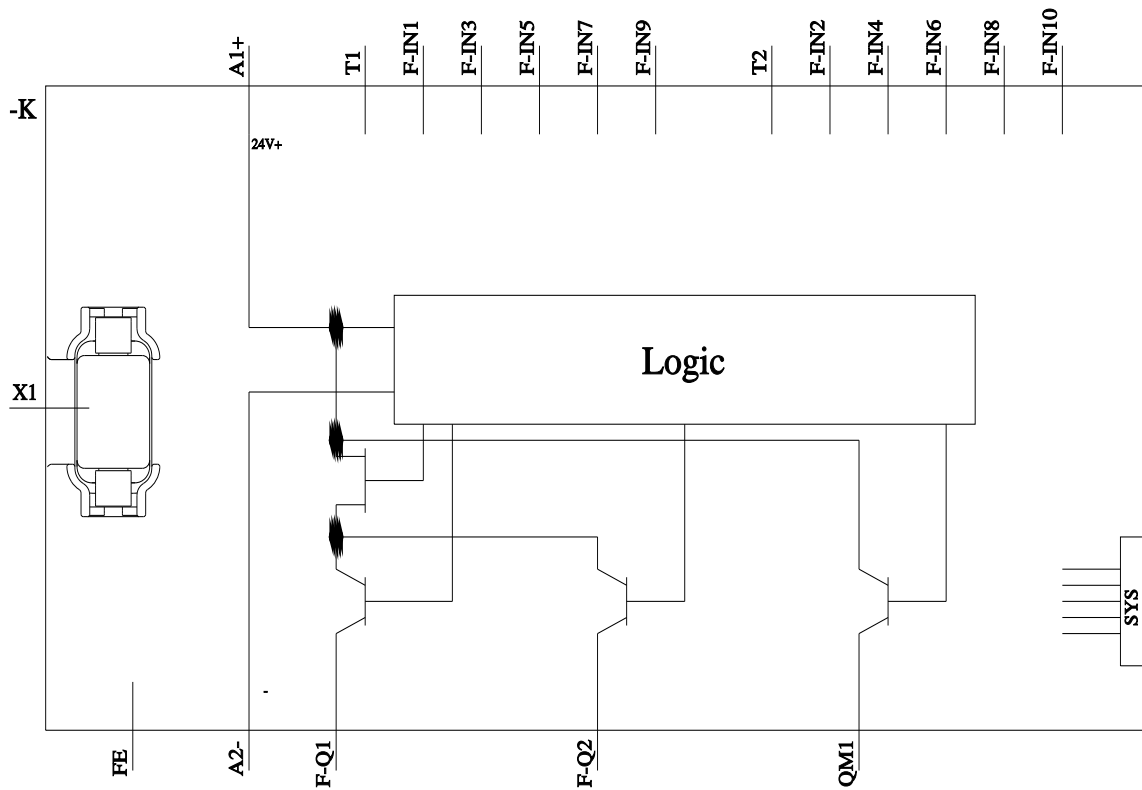
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK2112-1AA10>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK2112-1AA10&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK2112-1AA10&lang=en)





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