



SIRIUS safety relay basic unit 3SK2 series 20 F-DI, 4 F-DQ, 2 DQ, 24 V DC Can be parameterized via SIRIUS Safety ES 45 mm width spring-loaded terminal (push-in) 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

|                                                                                                  |                                |
|--------------------------------------------------------------------------------------------------|--------------------------------|
| product brand name                                                                               | SIRIUS                         |
| product category                                                                                 | Safety relay                   |
| product designation                                                                              | Base-Unit                      |
| design of the product                                                                            | 20 F-DI, 4 F-DQ, 2 DQ          |
| suitability for use for monitoring of optoelectronic protective devices according to IEC 61496-1 | Yes                            |
| suitability for use                                                                              |                                |
| • monitoring of floating sensors                                                                 | Yes                            |
| • monitoring of non-floating sensors                                                             | Yes                            |
| • position switch monitoring                                                                     | Yes                            |
| • EMERGENCY-OFF circuit monitoring                                                               | Yes                            |
| • valve monitoring                                                                               | Yes                            |
| • opto-electronic protection device monitoring                                                   | Yes                            |
| • magnetically operated switch monitoring                                                        | Yes                            |
| • proximity switch monitoring                                                                    | Yes                            |
| • safety-related circuits                                                                        | Yes                            |
| <b>General technical data</b>                                                                    |                                |
| product function                                                                                 |                                |
| • EMERGENCY STOP function                                                                        | Yes                            |
| • protective door monitoring                                                                     | Yes                            |
| • protective door monitoring with tumbler                                                        | Yes                            |
| • muting, 2 sensor-parallel                                                                      | Yes                            |
| • muting, 4 sensor-parallel                                                                      | Yes                            |
| • muting, 4 sensor-sequential                                                                    | Yes                            |
| • monitoring parameterizable                                                                     | Yes                            |
| • evaluation: electro-sensitive protective equipment                                             | Yes                            |
| • evaluation: selector switch                                                                    | Yes                            |
| • pressure-sensitive mat monitoring                                                              | Yes                            |
| • evaluation: two-hand operator panel                                                            | Yes                            |
| • evaluation: enabling switch                                                                    | Yes                            |
| • monitored start-up                                                                             | Yes                            |
| • two-hand control according to EN 574                                                           | Yes                            |
| configuration software required                                                                  | Yes; Safety ES V1.0 and higher |
| number of function blocks typical                                                                | 50                             |
| insulation voltage rated value                                                                   | 50 V                           |
| degree of pollution                                                                              | 3                              |
| surge voltage resistance rated value                                                             | 800 V                          |
| protection class IP                                                                              | IP20                           |
| • of the enclosure                                                                               | IP20                           |
| • of the terminal                                                                                | IP20                           |

|                                                                        |                                                       |
|------------------------------------------------------------------------|-------------------------------------------------------|
| shock resistance                                                       | 15g / 11 ms                                           |
| vibration resistance according to IEC 60068-2-6                        | 5 ... 500 Hz: 0.75 mm                                 |
| operating frequency maximum                                            | 2 000 1/h                                             |
| reference code according to IEC 81346-2                                | F                                                     |
| Substance Prohibitance (Date)                                          | 05/28/2009                                            |
| product function suitable for AS-i Power24V                            | No                                                    |
| product function diagnostics with CTT2 slave                           | No                                                    |
| protocol is supported ASIsafe (Safety at work) protocol                | No                                                    |
| <b>Ambient conditions</b>                                              |                                                       |
| installation altitude at height above sea level maximum                | 4 000 m; Derating, see Product Notification 109792701 |
| ambient temperature                                                    |                                                       |
| • 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                                               |
| conducted interference                                                 |                                                       |
| • due to burst according to IEC 61000-4-4                              | 2 kV (power ports) / 1 kV (signal ports)              |
| field-based interference according to IEC 61000-4-3                    | 10 V/m                                                |
| electrostatic discharge according to IEC 61000-4-2                     | 4 kV contact discharge / 8 kV air discharge           |
| <b>Safety related data</b>                                             |                                                       |
| Safety Integrity Level (SIL)                                           |                                                       |
| • according to IEC 62061                                               | 3                                                     |
| • according to IEC 61508                                               | 3                                                     |
| SIL Claim Limit (subsystem) according to EN 62061                      | 3                                                     |
| performance level (PL) according to ISO 13849-1                        | e                                                     |
| category according to EN ISO 13849-1                                   | 4                                                     |
| stop category according to EN 60204-1                                  | 0 / 1                                                 |
| diagnostics test interval by internal test function maximum            | 1 000 s                                               |
| PFHD with high demand rate according to EN 62061                       | 1.2E-8 1/h                                            |
| PFDavg with low demand rate according to IEC 61508                     | 1.8E-5                                                |
| hardware fault tolerance according to IEC 61508                        | 1                                                     |
| touch protection against electrical shock                              | finger-safe                                           |
| <b>Inputs/ Outputs</b>                                                 |                                                       |
| product function                                                       |                                                       |
| • parameterizable inputs                                               | Yes                                                   |
| • parameterizable outputs                                              | Yes                                                   |
| • at the digital outputs short-circuit protection                      | Yes                                                   |
| number of inputs                                                       |                                                       |
| • safety-related                                                       | 20                                                    |
| • non-safety-related                                                   | 0                                                     |
| input delay time                                                       | 0 ... 150 ms                                          |
| type of digital inputs according to IEC 60947-1                        | Type 1                                                |
| ingress acquisition time at digital input maximum                      | 60 ms                                                 |
| input delay time at digital input maximum                              | 150 ms                                                |
| input voltage at digital input                                         |                                                       |
| • at DC rated value                                                    | 24 V                                                  |
| • with signal <0> at DC                                                | -3 ... +5 V                                           |
| • for signal <1> at DC                                                 | 15 ... 30                                             |
| input current at digital input                                         |                                                       |
| • for signal <1> typical                                               | 2.6 mA                                                |
| number of outputs                                                      |                                                       |
| • safety-related 2-channel                                             | 4                                                     |
| • for testing contact-based sensors                                    | 4                                                     |
| number of outputs as contact-affected switching element safety-related |                                                       |
| • 1-channel                                                            | 0                                                     |
| • 2-channel                                                            | 0                                                     |
| number of outputs as contact-less semiconductor                        |                                                       |

|                                                                              |                                                                       |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>switching element</b>                                                     |                                                                       |
| • safety-related 2-channel                                                   | 4                                                                     |
| • non-safety-related                                                         | 2                                                                     |
| <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>                                                      |                                                                       |
| • maximum                                                                    | 0.1 mA                                                                |
| • at digital output with signal <0> maximum                                  | 0.1 mA                                                                |
| <b>total current maximum</b>                                                 | 7 A                                                                   |
| <b>wire length of the signal cable</b>                                       |                                                                       |
| • to the inputs                                                              |                                                                       |
| — shielded maximum                                                           | 1 000 m                                                               |
| — unshielded maximum                                                         | 600 m                                                                 |
| • to the outputs                                                             |                                                                       |
| — shielded maximum                                                           | 1 000 m                                                               |
| — unshielded maximum                                                         | 600 m                                                                 |
| <b>Communication/ Protocol</b>                                               |                                                                       |
| <b>protocol optional is supported</b>                                        |                                                                       |
| • PROFIBUS DP protocol                                                       | Yes; when using the DP interface module; 64 bit cyclical data         |
| • PROFINET IO protocol                                                       | 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>                                                   |                                                                       |
| • at 24 V                                                                    | 11 A                                                                  |
| <b>duration of inrush current peak</b>                                       |                                                                       |
| • at 24 V                                                                    | 1 ms                                                                  |
| <b>operating power rated value</b>                                           | 4.5 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>                                                                 | 45 mm                                                                 |
| <b>depth</b>                                                                 | 124.5 mm                                                              |
| <b>Connections/ Terminals</b>                                                |                                                                       |
| <b>product function removable terminal</b>                                   | Yes                                                                   |
| <b>type of electrical connection</b>                                         | spring-loaded terminal (push-in)                                      |
| <b>type of connectable conductor cross-sections</b>                          |                                                                       |
| • solid                                                                      | 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )  |
| • finely stranded with core end processing                                   | 1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )  |
| • for AWG cables solid                                                       | 1x (20 ... 16), 2x (20 ... 16)                                        |
| • for AWG cables stranded                                                    | 1x (20 ... 16), 2x (20 ... 16)                                        |
| connectable conductor cross-section finely stranded with core end processing | 0.5 ... 1 mm <sup>2</sup>                                             |
| <b>AWG number as coded connectable conductor cross section</b>               |                                                                       |
| • solid                                                                      | 20 ... 16                                                             |
| • stranded                                                                   | 20 ... 16                                                             |
| <b>Certificates/ approvals</b>                                               |                                                                       |
| General Product Approval                                                     | Functional Safety/Safety of Machinery                                 |
|                                                                              | Declaration of Conformity                                             |



[Confirmation](#)



[Type Examination Certificate](#)



Declaration of Conformity

Test Certificates

other



[Type Test Certificates/Test Report](#)

[Confirmation](#)

#### Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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=3SK2122-2AA10>

Cax online generator

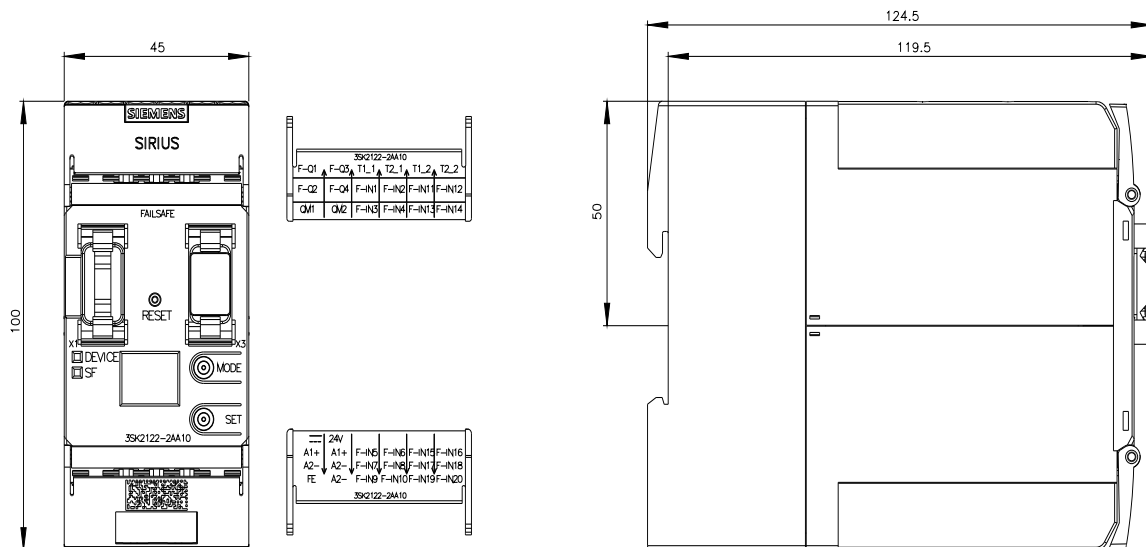
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3SK2122-2AA10>

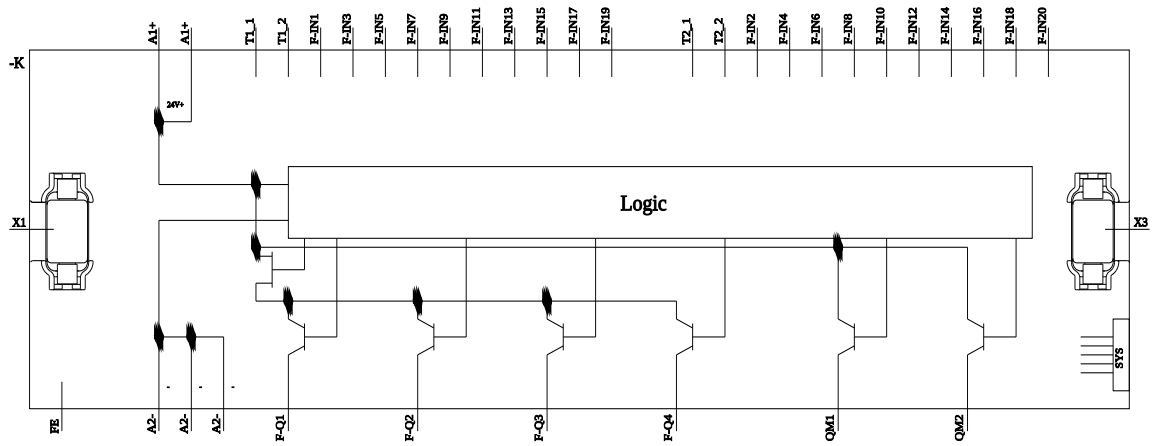
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3SK2122-2AA10>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3SK2122-2AA10&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3SK2122-2AA10&lang=en)





last modified:

8/11/2023 