



current/voltage measuring module for dry-running protection of centrifugal pumps in hazardous areas, current setting 3...40 A, voltage measurement up to 690 V, width 45 mm, straight-through transformer

|                                                                                 |                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                                                              | SIMOCODE                                                                                                                                                                                                                                                                                                 |
| product designation                                                             | Current/voltage measuring module                                                                                                                                                                                                                                                                         |
| <b>General technical data</b>                                                   |                                                                                                                                                                                                                                                                                                          |
| measuring procedure                                                             | RMS value measurement                                                                                                                                                                                                                                                                                    |
| size of the circuit-breaker                                                     | S00, S0                                                                                                                                                                                                                                                                                                  |
| product function                                                                | <ul style="list-style-type: none"> <li>• current measurement</li> <li>• voltage measurement</li> <li>• active power measurement</li> <li>• energy measurement</li> <li>• frequency measurement</li> <li>• active power monitoring for pump dry-run according to Ignition protection type Ex b</li> </ul> |
| measuring procedure for current measurement                                     | TRMS                                                                                                                                                                                                                                                                                                     |
| current measuring range extension with external current transformers            | Yes                                                                                                                                                                                                                                                                                                      |
| measuring procedure for voltage measurement                                     | TRMS                                                                                                                                                                                                                                                                                                     |
| measurable supply voltage between the line conductors at AC maximum rated value | 690 V                                                                                                                                                                                                                                                                                                    |
| product component                                                               | <ul style="list-style-type: none"> <li>• input for thermistor connection</li> </ul>                                                                                                                                                                                                                      |
| consumed active power                                                           | 0.5 W                                                                                                                                                                                                                                                                                                    |
| insulation voltage                                                              | <ul style="list-style-type: none"> <li>• with degree of pollution 3 at AC rated value</li> <li>• for wires of main circuit according to IEC 60947-1 rated value</li> </ul>                                                                                                                               |
| surge voltage resistance rated value                                            | 6 000 V                                                                                                                                                                                                                                                                                                  |
| shock resistance according to IEC 60068-2-27                                    | 15g / 11 ms; with basic unit snapped on                                                                                                                                                                                                                                                                  |
| vibration resistance                                                            | 1-6 Hz / 15 mm; 6-500 Hz / 2 g; with basic unit snapped on: 1g                                                                                                                                                                                                                                           |
| Substance Prohibitance (Date)                                                   | 05/28/2009                                                                                                                                                                                                                                                                                               |
| SVHC substance name                                                             | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5                                                                                                                                                                      |
| Net Weight                                                                      | 0.198 kg                                                                                                                                                                                                                                                                                                 |
| <b>Electromagnetic compatibility</b>                                            |                                                                                                                                                                                                                                                                                                          |
| EMC emitted interference according to IEC 60947-1                               | class A                                                                                                                                                                                                                                                                                                  |
| EMC immunity according to IEC 60947-1                                           | corresponds to degree of severity 3                                                                                                                                                                                                                                                                      |
| conducted interference                                                          | <ul style="list-style-type: none"> <li>• due to burst according to IEC 61000-4-4</li> <li>• due to conductor-earth surge according to IEC 61000-4-5</li> <li>• due to conductor-conductor surge according to IEC</li> </ul>                                                                              |

|                                                                            |                                                                                                                                                |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 61000-4-5                                                                  |                                                                                                                                                |
| <b>field-based interference according to IEC 61000-4-3</b>                 | 10 V/m                                                                                                                                         |
| <b>Inputs/ Outputs</b>                                                     |                                                                                                                                                |
| <b>number of outputs as contact-affected switching element</b>             | 0                                                                                                                                              |
| <b>Protective and monitoring functions</b>                                 |                                                                                                                                                |
| <b>product function</b>                                                    |                                                                                                                                                |
| • power factor monitoring                                                  | Yes                                                                                                                                            |
| • ground-fault monitoring                                                  | Yes                                                                                                                                            |
| • voltage detection                                                        | Yes                                                                                                                                            |
| <b>trip class</b>                                                          | CLASS 5E                                                                                                                                       |
| <b>product function</b>                                                    |                                                                                                                                                |
| • current detection                                                        | Yes                                                                                                                                            |
| • overload protection                                                      | Yes                                                                                                                                            |
| <b>Precision</b>                                                           |                                                                                                                                                |
| <b>measuring precision</b>                                                 |                                                                                                                                                |
| • of frequency measurement                                                 | +/- 1.5 %, 2.25 A ... 80 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos phi (0.5...1), 50/60 Hz, 25 °C                           |
| • for current measurement 1                                                | +/- 1.5 %, in range 2.25 A ... 80 A, in range 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), 50/60 Hz, 25 °C                            |
| • for current measurement 2                                                | +/- 3%, in range 80 A ... 320 A, in range 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), 50/60 Hz, 25 °C                                |
| • for voltage measurement 1                                                | +/- 1.5 %, in range 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), 50/60 Hz, 25 °C                                                      |
| • at cos phi-measurement 1                                                 | +/- 1.5 %, 7.5 A ... 230 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos phi (0.5...1), 50/60 Hz, 25 °C                           |
| • at cos phi-measurement 2                                                 | +/- 5%, 80 A ... 320 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos-phi (0.5...1), 50/60 Hz, 25 °C                               |
| • for active power measurement 1                                           | +/- 5%, 7.5 A ... 230 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos-phi (0.5...1), 50/60 Hz, 25 °C                              |
| • for active power measurement 2                                           | +/- 10%, 80 A ... 320 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos-phi (0.5...1), 50/60 Hz, 25 °C                              |
| • for energy measurement 1                                                 | +/- 5%, 2.25 A ... 80 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos-phi (0.5...1), 50/60 Hz, 25 °C                              |
| • for energy measurement 2                                                 | +/- 10%, 80 A ... 320 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos-phi (0.5...1), 50/60 Hz, 25 °C                              |
| • for apparent power measurement 1                                         | +/- 3%, 2.25 A ... 80 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos-phi (0.5...1), 50/60 Hz, 25 °C                              |
| • for apparent power measurement 2                                         | +/- 5 %, 80 A ... 320 A, 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), cos phi (0.5...1), 50/60 Hz, 25 °C                              |
| <b>accuracy of ground-fault monitoring</b>                                 | In the range 30 % .. 120 %/Is: +/- 10 % (Class CI-A), in range 15 % .. 30 % le: +/- 25 % (Class CI-B), both values acc. to IEC 60947-1 Annex T |
| <b>temperature drift per °C</b>                                            | 0.01 %/°C; Reference temperature: 25°C                                                                                                         |
| <b>measured variable frequency</b>                                         | 45 ... 65 Hz                                                                                                                                   |
| <b>Installation/ mounting/ dimensions</b>                                  |                                                                                                                                                |
| <b>mounting position</b>                                                   | any                                                                                                                                            |
| <b>fastening method</b>                                                    | screw and snap-on mounting                                                                                                                     |
| <b>height</b>                                                              | 84 mm                                                                                                                                          |
| <b>width</b>                                                               | 45 mm                                                                                                                                          |
| <b>depth</b>                                                               | 64 mm                                                                                                                                          |
| <b>required spacing</b>                                                    |                                                                                                                                                |
| • top                                                                      | 30 mm                                                                                                                                          |
| • bottom                                                                   | 30 mm                                                                                                                                          |
| • left                                                                     | 0 mm                                                                                                                                           |
| • right                                                                    | 0 mm                                                                                                                                           |
| <b>diameter of inlet opening</b>                                           | 7.5 mm                                                                                                                                         |
| <b>diameter of inlet opening for current measurement</b>                   | 7.5 mm                                                                                                                                         |
| <b>Connections/ Terminals</b>                                              |                                                                                                                                                |
| <b>type of electrical connection</b>                                       |                                                                                                                                                |
| • for main current circuit                                                 | straight-through transformers                                                                                                                  |
| • for auxiliary and control circuit                                        | screw-type terminals                                                                                                                           |
| <b>type of electrical connection at the measurement inputs for voltage</b> | screw-type terminals                                                                                                                           |
| <b>type of connectable conductor cross-sections at the</b>                 |                                                                                                                                                |

|                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>measurement inputs for voltage</b>                                                                                                                                                     |                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>finely stranded with core end processing</li> <li>solid</li> <li>for AWG cables solid</li> <li>for AWG cables stranded</li> </ul>                  | 1x (0.25 ... 2.5 mm <sup>2</sup> ), 2x (0.25 ... 1.0 mm <sup>2</sup> )<br>1x (0.25 ... 2.5 mm <sup>2</sup> ), 2x (0.25 ... 1.0 mm <sup>2</sup> )<br>1x (24 ... 14), 2x (24 ... 18)<br>1x (20 ... 14), 2x (20 ... 16)                                                                        |
| <b>tightening torque at the measurement inputs for voltage</b>                                                                                                                            | 0.5 ... 0.6 N·m                                                                                                                                                                                                                                                                             |
| <b>tightening torque [lbf·in] at the measurement inputs for voltage</b>                                                                                                                   | 4.4 ... 5.3 lbf·in                                                                                                                                                                                                                                                                          |
| <b>Ambient conditions</b>                                                                                                                                                                 |                                                                                                                                                                                                                                                                                             |
| <b>installation altitude at height above sea level</b>                                                                                                                                    |                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>1 maximum</li> <li>2 maximum</li> <li>3 maximum</li> </ul>                                                                                         | 2 000 m<br>3 000 m; max. +50 °C (no protective separation)<br>4 000 m; max. +40 °C (no protective separation)                                                                                                                                                                               |
| <b>ambient temperature</b>                                                                                                                                                                |                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>during operation</li> <li>during storage</li> <li>during transport</li> </ul>                                                                      | -25 ... +60 °C<br>-40 ... +80 °C<br>-40 ... +80 °C                                                                                                                                                                                                                                          |
| <b>environmental category</b>                                                                                                                                                             |                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>during operation according to IEC 60721</li> <li>during storage according to IEC 60721</li> <li>during transport according to IEC 60721</li> </ul> | 3K6 (no formation of ice, no condensation, relative humidity 10 ... 95%), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6<br>1K6 (no condensation, relative humidity 10 ... 95%), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4<br>2K2, 2C1, 2S1, 2M2 |
| relative humidity during operation                                                                                                                                                        | 10 ... 95 %                                                                                                                                                                                                                                                                                 |
| <b>Short-circuit protection</b>                                                                                                                                                           |                                                                                                                                                                                                                                                                                             |
| <b>product function short circuit protection</b>                                                                                                                                          | No                                                                                                                                                                                                                                                                                          |
| IEC 61508                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                             |
| Safety Integrity Level (SIL) according to IEC 61508                                                                                                                                       | 1                                                                                                                                                                                                                                                                                           |
| <b>ATEX</b>                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
| <b>certificate of suitability</b>                                                                                                                                                         |                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>IECEX</li> <li>according to ATEX directive 2014/34/EU</li> <li>according to UKCA</li> </ul>                                                        | Yes; IECEX PTB 18.0004X<br>BVS 06 ATEX F001, PTB 18 ATEX 5003 X<br>ITS21UKEX0464, ITS21UKEX0455X                                                                                                                                                                                            |
| explosion device group and category according to ATEX directive 2014/34/EU                                                                                                                | II (2) G, II (2) D, I (M2) / I (M2), II (1/2) G, II (1G/2D)                                                                                                                                                                                                                                 |
| <b>Galvanic isolation</b>                                                                                                                                                                 |                                                                                                                                                                                                                                                                                             |
| <b>(electrically) protective separation according to IEC 60947-1</b>                                                                                                                      | All circuits with protective separation (double creepage paths and clearances), the information in the "Protective Separation" test report, No. A0258, must be observed (link see further information)                                                                                      |
| <b>Main circuit</b>                                                                                                                                                                       |                                                                                                                                                                                                                                                                                             |
| <b>number of poles for main current circuit</b>                                                                                                                                           | 3                                                                                                                                                                                                                                                                                           |
| <b>adjustable current response value current of the current-dependent overload release</b>                                                                                                | 3 ... 40 A                                                                                                                                                                                                                                                                                  |
| <b>operating voltage</b>                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>at AC               <ul style="list-style-type: none"> <li>at 50 Hz rated value</li> <li>at 60 Hz rated value</li> </ul> </li> </ul>               | 110 ... 690 V<br>110 ... 690 V                                                                                                                                                                                                                                                              |
| <b>operating frequency rated value</b>                                                                                                                                                    | 50 ... 60 Hz                                                                                                                                                                                                                                                                                |
| <b>Control circuit/ Control</b>                                                                                                                                                           |                                                                                                                                                                                                                                                                                             |
| <b>type of voltage</b>                                                                                                                                                                    | AC                                                                                                                                                                                                                                                                                          |
| <b>inrush current maximum</b>                                                                                                                                                             | 400 A; 10 x I <sub>o</sub>                                                                                                                                                                                                                                                                  |
| <b>Approvals Certificates</b>                                                                                                                                                             |                                                                                                                                                                                                                                                                                             |
| General Product Approval                                                                                                                                                                  | EMV                                                                                                                                                                                                                                                                                         |





[Miscellaneous](#)

|                   |                      |
|-------------------|----------------------|
| Test Certificates | Maritime application |
|-------------------|----------------------|

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

[Special Test Certificate](#)



|                      |       |             |                          |
|----------------------|-------|-------------|--------------------------|
| Maritime application | other | Environment | Industrial Communication |
|----------------------|-------|-------------|--------------------------|



[Confirmation](#)



[Environmental Confirmations](#)



#### Further information

Information on the packaging

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

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3UF7121-1AA01-0>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3UF7121-1AA01-0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3UF7121-1AA01-0>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3UF7121-1AA01-0&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3UF7121-1AA01-0&lang=en)



