



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

|                                                                                       |                                                                 |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| product brand name                                                                    | SIRIUS                                                          |
| product designation                                                                   | Current/voltage measuring module                                |
| <b>General technical data</b>                                                         |                                                                 |
| product function                                                                      |                                                                 |
| • current measurement                                                                 | Yes                                                             |
| • voltage measurement                                                                 | Yes                                                             |
| • active power measurement                                                            | Yes                                                             |
| • power measurement                                                                   | Yes                                                             |
| • frequency measurement                                                               | Yes                                                             |
| • active power monitoring for pump dry-run according to Ignition protection type Ex b | Yes                                                             |
| 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                                                           |
| line conductors and neutral conductors internal resistance for voltage measurement    | RC-based voltage divider                                        |
| product component                                                                     |                                                                 |
| • input for thermistor connection                                                     | No                                                              |
| consumed active power                                                                 | 0.5 W                                                           |
| insulation voltage                                                                    |                                                                 |
| • with degree of pollution 3 at AC rated value                                        | 690 V                                                           |
| • for wires of main circuit according to IEC 60947-1 rated value                      | 6 kV                                                            |
| surge voltage resistance rated value                                                  | 6 000 V                                                         |
| protection class IP                                                                   | IP20                                                            |
| 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                                                      |
| certificate of suitability                                                            |                                                                 |
| • IECEx                                                                               | Yes; IECEx PTB 18.0004X                                         |
| • according to ATEX directive 2014/34/EU                                              | BVS 06 ATEX F001, PTB 18 ATEX 5003 X                            |
| • according to UKCA                                                                   | ITS21UKEX0464, ITS21UKEX0455X                                   |
| explosion device group and category according to ATEX directive 2014/34/EU            | II (2) G, II (2 ) D, I (M2) / I (1G/M2), II (1/2) G, II (1G/2D) |
| <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                                                                |                                                                 |
| • due to burst according to IEC 61000-4-4                                             | 2 kV                                                            |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• due to conductor-earth surge according to IEC 61000-4-5</li> <li>• due to conductor-conductor surge according to IEC 61000-4-5</li> </ul>                                                                                                                                                                                                                                                                                                                                | 2 kV<br>1 kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• power factor monitoring</li> <li>• ground-fault monitoring</li> <li>• voltage detection</li> </ul>                                                                                                                                                                                                                                                                                                                                                                       | Yes<br>Yes<br>Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>trip class</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CLASS 5E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>product function</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• current detection</li> <li>• overload protection</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                              | Yes<br>Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Precision</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>measuring precision</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• of frequency measurement</li> <li>• for current measurement 1</li> <li>• for current measurement 2</li> <li>• for voltage measurement 1</li> <li>• at cos phi-measurement 1</li> <li>• at cos phi-measurement 2</li> <li>• at active power measurement 1</li> <li>• at active power measurement 2</li> <li>• at energy measurement 1</li> <li>• at energy measurement 2</li> <li>• at apparent power measurement 1</li> <li>• at apparent power measurement 2</li> </ul> | +/- 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<br>+/- 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<br>+/- 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<br>+/- 1.5 %, in range 0.85 x 110 V ... 1.1 x 690 V (line-to-line voltages), 50/60 Hz, 25 °C<br>+/- 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<br>+/- 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<br>+/- 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<br>+/- 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<br>+/- 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<br>+/- 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<br>+/- 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<br>+/- 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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• top</li> <li>• bottom</li> <li>• left</li> <li>• right</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                        | 30 mm<br>30 mm<br>0 mm<br>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 at the measurement inputs for voltage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        | screw-type terminals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>type of connectable conductor cross-sections at the measurement inputs for voltage</b>                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• finely stranded with core end processing</li> <li>• solid</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                     | 1x (0.25 ... 2.5 mm²), 2x (0.25 ... 1.0 mm²)<br>1x (0.25 ... 2.5 mm²), 2x (0.25 ... 1.0 mm²)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• for AWG cables solid</li> <li>• at AWG cables stranded</li> </ul>                                                                                                                    | 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                                                                                                                                                                                                                                                                                          |
| <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>Certificates/ approvals</b>                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                             |
| General Product Approval                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                             |
| EMC                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                             |



[Confirmation](#)



|                                |                           |
|--------------------------------|---------------------------|
| For use in hazardous locations | Declaration of Conformity |
|--------------------------------|---------------------------|



[Explosion Protection Certificate](#)



|                           |                   |                   |
|---------------------------|-------------------|-------------------|
| Declaration of Conformity | Test Certificates | Marine / Shipping |
|---------------------------|-------------------|-------------------|



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

[Special Test Certificate](#)




[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=3UF7121-1AA01-0>

Cax online generator

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

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

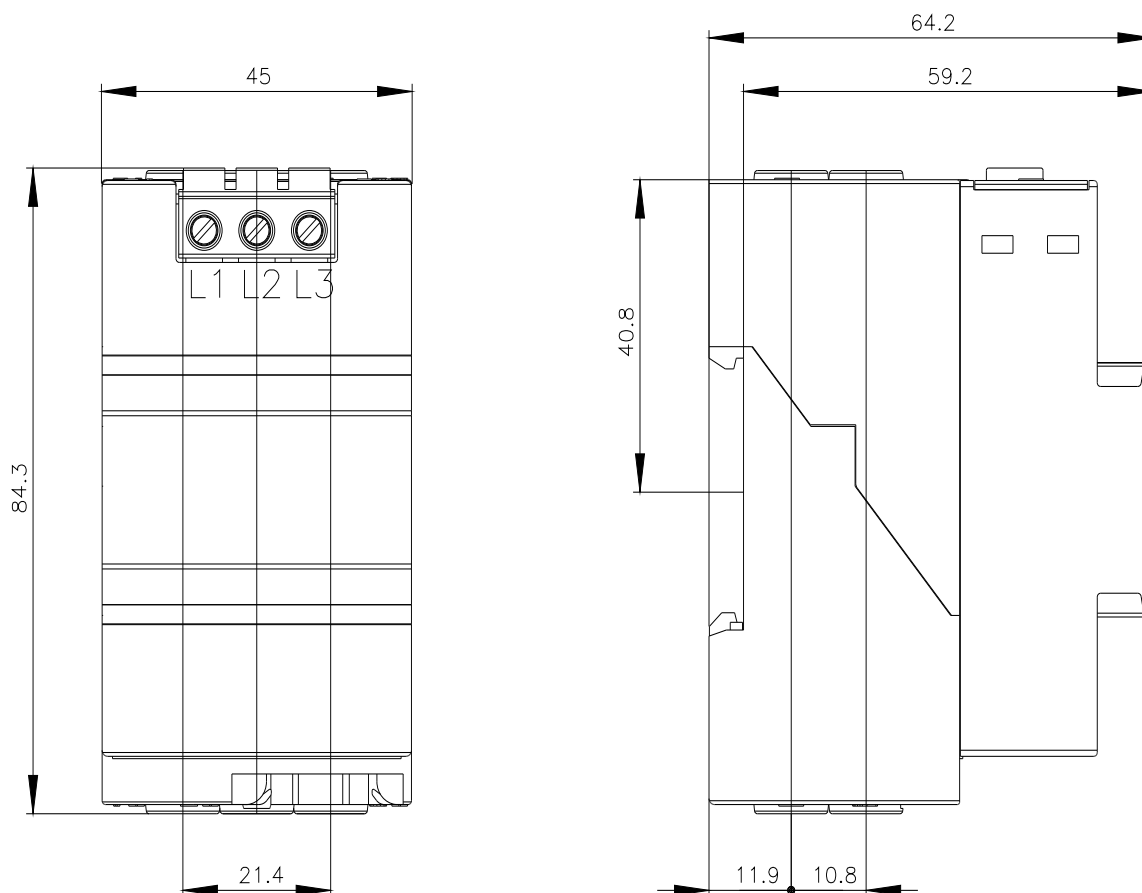
<https://support.industry.siemens.com/cs/ww/en/ps/3UF7121-1AA01-0>

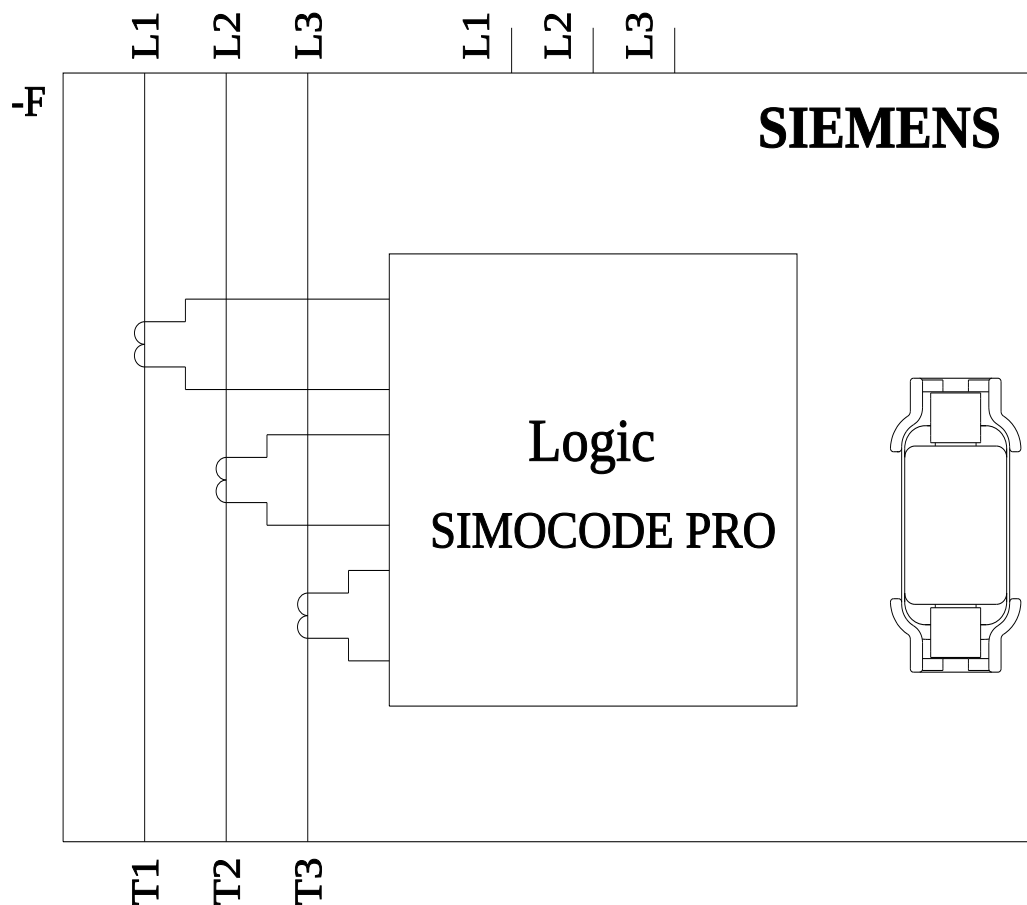
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

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

Test report No. A0258, protective separation

<https://support.industry.siemens.com/cs/ww/en/view/109748152>





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