

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
General technical data	
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 outer conductors at AC maximum rated value	690 V
Outer conductors and neutral conductors internal resistance for voltage measurement	RC-based voltage divider

Product component	
• input for thermistor connection	No
Insulation voltage	
• with degree of pollution 3 at AC rated value	690 V
• for wires of main circuit acc. to IEC 60947-1 rated value	6 kV
Surge voltage resistance rated value	6 000 V
Protection class IP	IP20
Shock resistance	
• acc. 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
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
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)

Electromagnetic compatibility

EMC emitted interference	
• acc. to IEC 60947-1	class A
EMI immunity acc. to IEC 60947-1	corresponds to degree of severity 3
Conducted interference	
• due to burst acc. to IEC 61000-4-4	2 kV
• due to conductor-earth surge acc. to IEC 61000-4-5	2 kV
• due to conductor-conductor surge acc. to IEC 61000-4-5	1 kV
Field-bound parasitic coupling acc. to IEC 61000-4-3	10 V/m

Inputs/ Outputs

Number of outputs as contact-affected switching element	0
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Protective and monitoring functions

Product function	
• power factor monitoring	Yes
• ground-fault monitoring	Yes
• voltage detection	Yes
Product function	
• Current detection	Yes
• Overload protection	Yes

Precision

Measuring precision	
• 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 %, 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
• 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
• at active power 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
• at 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
• at 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
• at 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
• at 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
• at 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
Accuracy of ground-fault monitoring	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
Temperature drift per °C	0.01 %/°C; Reference temperature: 25°C
Measured variable frequency	45 ... 65 Hz

Installation/ mounting/ dimensions	
Mounting position	any
Mounting type	screw and snap-on mounting
Height	84 mm
Width	45 mm
Depth	64 mm
Required spacing	
• top	30 mm
• bottom	30 mm
• left	0 mm
• right	0 mm
Diameter of feed through opening	7.5 mm
Diameter of feed through opening for current measurement	7.5 mm

Connections/ Terminals	
Type of electrical connection	
• for main current circuit	straight-through transformers

• for auxiliary and control current circuit	screw-type terminals
Type of electrical connection at the measurement inputs for voltage	screw-type terminals
Type of connectable conductor cross-sections at the measurement inputs for voltage	
• finely stranded with core end processing	1x (0.25 ... 2.5 mm ²), 2x (0.25 ... 1.0 mm ²)
• solid	1x (0.25 ... 2.5 mm ²), 2x (0.25 ... 1.0 mm ²)
• at AWG conductors solid	1x (24 ... 14), 2x (24 ... 18)
• at AWG conductors stranded	1x (20 ... 14), 2x (20 ... 16)
Tightening torque at the measurement inputs for voltage	0.5 ... 0.6 N·m
Tightening torque [lbf·in] at the measurement inputs for voltage	4.4 ... 5.3 lbf·in

Ambient conditions

Installation altitude at height above sea level	
• 1 maximum	2 000 m
• 2 maximum	3 000 m; max. +50 °C (no protective separation)
• 3 maximum	4 000 m; max. +40 °C (no protective separation)
Ambient temperature	
• during operation	-25 ... +60 °C
Environmental category	
• during operation acc. to IEC 60721	3K6 (no formation of ice, no condensation, relative humidity 10 ... 95%), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6
• during storage acc. to IEC 60721	1K6 (no condensation, relative humidity 10 ... 95%), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4
• during transport acc. to IEC 60721	2K2, 2C1, 2S1, 2M2
Relative humidity	
• during operation	10 ... 95 %

Short-circuit protection

Product function Short circuit protection	No
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Safety related data

Safety Integrity Level (SIL) acc. to IEC 61508	1
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Galvanic isolation

(electrically) protective separation acc. to IEC 60947-1	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)
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Main circuit

Number of poles for main current circuit	3
Adjustable pick-up value current of the current-dependent overload release	3 ... 40 A
Operating voltage	

- at AC

— at 50 Hz rated value

110 ... 690 V

— at 60 Hz rated value

110 ... 690 V

Operating frequency rated value

50 ... 60 Hz

Control circuit/ Control

Type of voltage

AC

Inrush current maximum

400 A; 10 x I_o

Certificates/ approvals

General Product Approval

EMC

For use in hazardous locations



CCC



CSA



UL



RCM

[Explosion Protection Certificate](#)

For use in hazardous locations

Declaration of Conformity

Test Certificates



IECEX



ATEX



EG-Konf.

[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

Marine / Shipping

other



ABS



LRS



RMRS



DNVGL.COM/AF

[Confirmation](#)



Profibus

other

[PROFINET-Certification](#)

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

www.siemens.com/ic10

Industry Mall (Online ordering system)

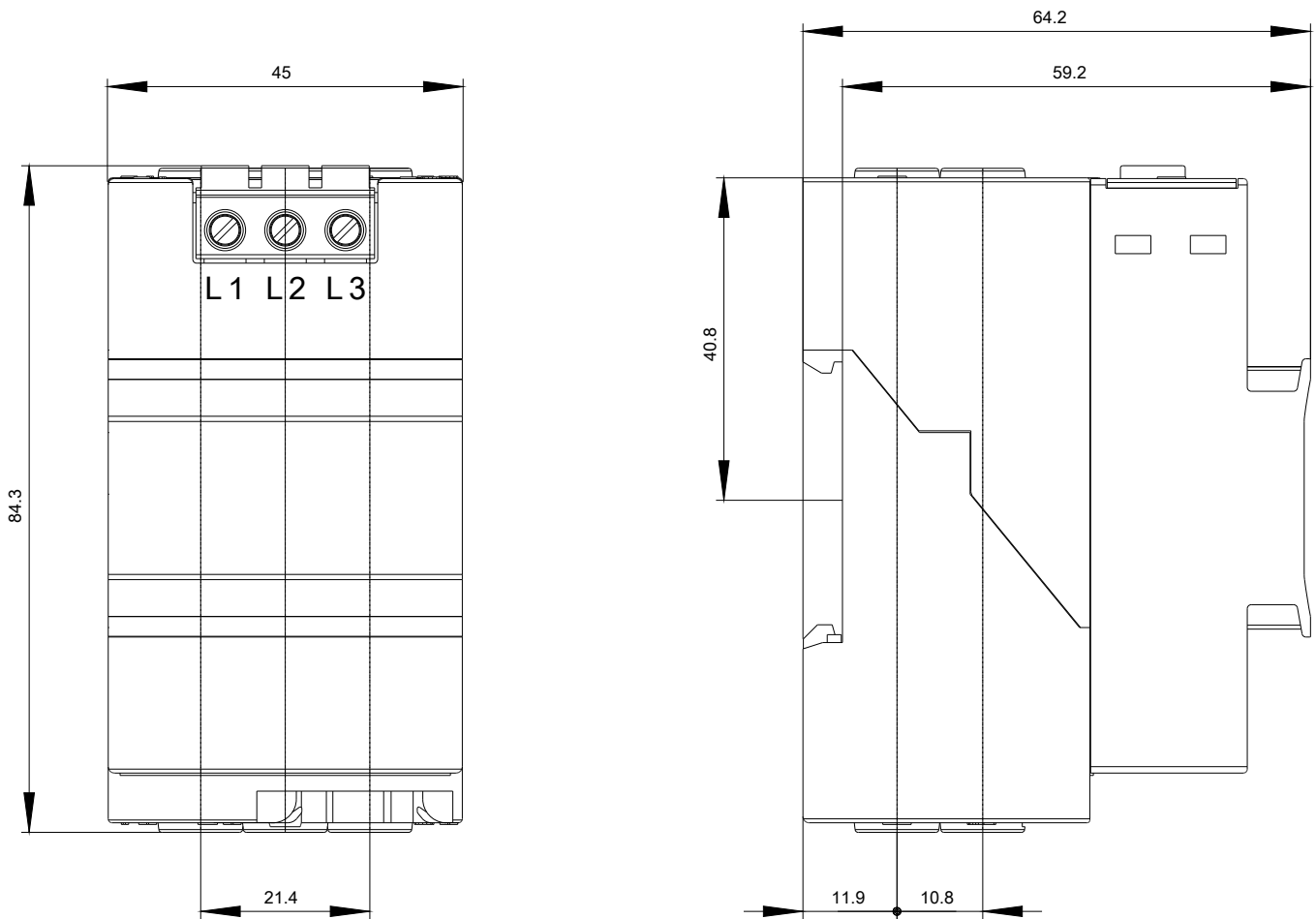
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3UF7121-1AA01-0>

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>



last modified:

03/10/2020