

basic device SIMOCODE pro V MR, MODBUS RTU interface 57.6 Kbps, RS-485, 4 I/3 O freely configurable, Us: 110...240 V AC/DC, input for thermistor connection monostable relay outputs, expandable by expansion modules

<b>product brand name</b>	SIMOCODE
<b>product designation</b>	Motor management system
<b>design of the product</b>	basic unit 2
<b>product type designation</b>	pro V MR
<b>General technical data</b>	
<b>product function</b>	
• current measurement	No
• voltage measurement	No
• active power measurement	Yes
• energy measurement	No
• frequency measurement	No
• bus communication	Yes
• data acquisition function	Yes
• diagnostics function	Yes
• password protection	Yes
• test function	Yes
• maintenance function	Yes
• MRRT redundancy procedure	No
<b>product component</b>	
• input for thermistor connection	Yes
• digital input	Yes
• input for analog temperature sensors	No
• input for ground fault detection	No
• relay output	Yes
<b>product extension</b>	
• temperature monitoring module	Yes
• current measuring module	Yes
• current/voltage measuring module	Yes
• fail-safe digital I/O module	Yes
• ground-fault monitoring module	Yes
• decoupling module	Yes
• analog I/O module	Yes
• digital I/O module with monostable outputs	Yes
• digital I/O module with bistable outputs	Yes
• control unit with display	Yes
• control unit	Yes
<b>apparent power consumption</b>	8.3 VA
<b>consumed active power</b>	3.6 W
insulation voltage with degree of pollution 3 at AC rated value	300 V
<b>surge voltage resistance rated value</b>	4 000 V
<b>shock resistance</b>	
• according to IEC 60068-2-27	15 g / 11 ms
• vibration resistance	1 ... 6 Hz / 15 mm; 6 ... 500 Hz / 2 g
<b>switching capacity current of the NO contacts of the relay outputs at AC-15</b>	
• at 24 V	6 A
• at 120 V	6 A
• at 230 V	3 A

<b>switching capacity current of the NO contacts of the relay outputs at DC-13</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 60 V</li> <li>• at 125 V</li> </ul>	2 A 0.55 A 0.25 A
<b>mechanical service life (operating cycles) typical</b>	10 000 000
electrical endurance (operating cycles) typical	100 000
<b>buffering time in the event of power failure</b>	0.2 s
<b>reference code according to IEC 81346-2</b>	F
continuous current of the NO contacts of the relay outputs	
<ul style="list-style-type: none"> <li>• at 50 °C</li> <li>• at 60 °C</li> </ul>	6 A 5 A
<b>type of input characteristic</b>	Type 1 in accordance with EN 61131-2
<b>Substance Prohibition (day/month/year)</b>	05/01/2012
<b>SVHC substance name</b>	Lead CAS-No. 7439-92-1 Lead monoxide (lead oxide) CAS-No. 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1
<b>Net Weight</b>	0.358 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
<b>conducted interference</b>	
<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 61000-4-5</li> <li>• due to high-frequency radiation according to IEC 61000-4-6</li> </ul>	2 kV (power ports) / 1 kV (signal ports) 2 kV 1 kV 10 V
<b>field-based interference according to IEC 61000-4-3</b>	10 V/m
<b>electrostatic discharge according to IEC 61000-4-2</b>	6 kV contact discharge / 8 kV air discharge
<b>conducted HF interference emissions according to CISPR11</b>	corresponds to degree of severity A
<b>field-bound HF interference emission according to CISPR11</b>	corresponds to degree of severity A
<b>Inputs/ Outputs</b>	
<b>product function</b>	
<ul style="list-style-type: none"> <li>• parameterizable inputs</li> <li>• parameterizable outputs</li> </ul>	Yes Yes
<b>number of inputs</b>	4
<ul style="list-style-type: none"> <li>• for thermistor connection</li> </ul>	1
number of digital inputs with a common reference potential	4
<b>digital input version</b>	
<ul style="list-style-type: none"> <li>• type 1 acc. to IEC 61131</li> </ul>	Yes
<b>input voltage at digital input at DC</b>	
<ul style="list-style-type: none"> <li>• rated value</li> </ul>	24 V
<b>number of outputs</b>	3
<b>number of semiconductor outputs</b>	0
<b>number of outputs as contact-affected switching element</b>	3
<b>switching behavior</b>	monostable
<b>number of relay outputs</b>	3
<b>type of relay outputs</b>	Monostable
<b>wire length for digital signals maximum</b>	300 m
<b>wire length for thermistor connection</b>	
<ul style="list-style-type: none"> <li>• with conductor cross-section = 0.5 mm<sup>2</sup> maximum</li> <li>• with conductor cross-section = 1.5 mm<sup>2</sup> maximum</li> <li>• with conductor cross-section = 2.5 mm<sup>2</sup> maximum</li> </ul>	50 m 150 m 250 m
<b>Protective and monitoring functions</b>	
<b>product function</b>	
<ul style="list-style-type: none"> <li>• asymmetry detection</li> <li>• blocking current evaluation</li> </ul>	Yes Yes

• power factor monitoring	Yes
• ground fault detection	Yes
• ground-fault monitoring	No
• phase failure detection	Yes
• phase sequence recognition	Yes
• voltage detection	Yes
• monitoring of number of start operations	Yes
• overvoltage detection	Yes
• overcurrent detection 1 phase	Yes
• undervoltage detection	Yes
• undercurrent detection 1 phase	Yes
• active power monitoring	Yes
<b>product function</b>	
• current detection	Yes
• overload protection	Yes
• evaluation of thermistor motor protection	Yes
<b>total cold resistance number of sensors in series maximum</b>	1.5 k $\Omega$
<b>response value of thermoresistor</b>	3 400 ... 3 800 $\Omega$
• of the short-circuit control	9 $\Omega$
<b>release value of thermoresistor</b>	1 500 ... 1 650 $\Omega$
<b>Motor control functions</b>	
<b>product function</b>	
• parameterizable overload relay	Yes
• circuit breaker control	Yes
• direct start	Yes
• reverse starting	Yes
• star-delta circuit	Yes
• star-delta reversing circuit	Yes
• Dahlander circuit	Yes
• Dahlander reversing circuit	Yes
• pole-changing switch circuit	Yes
• pole-changing switch reversing circuit	Yes
• slide control	Yes
• valve control	Yes
<b>Communication/ Protocol</b>	
<b>protocol is supported</b>	
• PROFIBUS DP protocol	No
• PROFINET IO protocol	No
• PROFIsafe protocol	No
• Modbus RTU	Yes
• EtherNet/IP	No
• OPC UA Server	No
• LLDP	No
• Address Resolution Protocol (ARP)	No
• SNMP	No
• HTTPS	No
• NTP	No
• Media Redundancy Protocol (MRP)	No
<b>product function</b>	
• web server	No
• shared device	No
• at the Ethernet interface Autocrossover	No
• at the Ethernet interface Autonegotiation	No
• at the Ethernet interface Autosensing	No
• is supported Device Level Ring (DLR)	No
• is supported PROFINET system redundancy (S2)	No
• supports PROFinergy measured values	No
• supports PROFinergy shutdown	No
<b>transfer rate maximum</b>	0.057 Mbit/s

<b>identification &amp; maintenance function</b>	
<ul style="list-style-type: none"> <li>• I&amp;M0 - device-specific information</li> <li>• I&amp;M1 - higher level designation/location designation</li> <li>• I&amp;M2 - installation date</li> <li>• I&amp;M3 - comment</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
type of electrical connection of the communication interface	9-pin D-sub socket (57.6 Kbit) / screw terminal (57.6 Kbit)
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting
<b>height</b>	111 mm
<b>width</b>	45 mm
<b>depth</b>	124 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>• top</li> <li>• bottom</li> <li>• left</li> <li>• right</li> </ul>	<p>40 mm</p> <p>40 mm</p> <p>0 mm</p> <p>0 mm</p>
<b>Connections/ Terminals</b>	
<b>product component removable terminal for auxiliary and control circuit</b>	Yes
<b>type of electrical connection</b>	
<ul style="list-style-type: none"> <li>• for auxiliary and control circuit</li> </ul>	screw-type terminals
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> <li>• for AWG cables solid</li> <li>• for AWG cables stranded</li> </ul>	<p>1x (0.5 ... 4.0mm<sup>2</sup>), 2x (0.5 ... 2.5 mm<sup>2</sup>)</p> <p>1x (0.5 ... 2.5 mm<sup>2</sup>), 2x (0.5 ... 1.5 mm<sup>2</sup>)</p> <p>1x (20 ... 12), 2x (20 ... 14)</p> <p>1x (20 ... 14), 2x (20 ... 16)</p>
tightening torque with screw-type terminals	0.8 ... 1.2 N·m
tightening torque [lbf·in] with screw-type terminals	7 ... 10.3 lbf·in
<b>type of connectable conductor cross-sections for PROFIBUS wire</b>	2x 0.34 mm <sup>2</sup> , AWG 22
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
<ul style="list-style-type: none"> <li>• note</li> </ul>	Restrictions apply to higher installation altitudes, see: <a href="https://support.industry.siemens.com/cs/document/109995153">https://support.industry.siemens.com/cs/document/109995153</a>
<b>ambient temperature</b>	
<ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> <li>• during transport</li> </ul>	<p>-25 ... +60 °C</p> <p>-40 ... +80 °C</p> <p>-40 ... +80 °C</p>
<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>	<p>3K6 (no formation of ice, no condensation, relative humidity 10 ... 95%), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6</p> <p>1K6 (no condensation, relative humidity 10 ... 95%), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4</p> <p>2K2, 2C1, 2S1, 2M2</p>
<b>relative humidity</b>	
<ul style="list-style-type: none"> <li>• during operation</li> </ul>	5 ... 95 %
<b>contact rating of auxiliary contacts according to UL</b>	B300 / R300
<b>Short-circuit protection</b>	
design of short-circuit protection per output	Fuse links: gG 6 A, quick-response 10 A (IEC 60947-5-1), miniature circuit-breaker C char.: 1.6 A (IEC 60947-5-1) or 6 A (I <sub>K</sub> < 500 A)
<b>Electrical Safety</b>	
<b>touch protection against electrical shock</b>	finger-safe
<b>ATEX</b>	
<b>certificate of suitability</b>	
<ul style="list-style-type: none"> <li>• according to ATEX directive 2014/34/EU</li> <li>• acc. to Equipment and Protective System Intended for Use in Potentially Explosive Atmospheres Regulations 2016 (S.I. 2016 No.1107)</li> <li>• according to UKCA</li> </ul>	<p>BVS 06 ATEX F001</p> <p>ITS21UKEX0464, ITS21UKEX0455X</p> <p>ITS21UKEX0464, ITS21UKEX0455X</p>
<b>Galvanic isolation</b>	

(electrically) protective separation according 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)
design of the electrical isolation • note	Protective separation in accordance with IEC 60947-1 for all circuits Test report No. A0258 must be observed ( <a href="https://support.industry.siemens.com/cs/document/109748152">https://support.industry.siemens.com/cs/document/109748152</a> )

Control circuit/ Control	
product function soft starter control	Yes
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC • at 50 Hz rated value • at 60 Hz rated value	110 ... 240 V 110 ... 240 V
control supply voltage frequency • 1 rated value • 2 rated value	50 Hz 60 Hz
relative symmetrical tolerance of the control supply voltage frequency	5 %
control supply voltage at DC rated value	110 ... 240 V
operating range factor control supply voltage rated value at DC • initial value • full-scale value	0.85 1.1
operating range factor control supply voltage rated value at AC at 50 Hz • initial value • full-scale value	0.85 1.1
operating range factor control supply voltage rated value at AC at 60 Hz • initial value • full-scale value	0.85 1.1
inrush current peak • at 240 V	15 A
duration of inrush current peak • at 240 V	1 ms

**Approvals Certificates**

Environment	General Product Approval
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[Environmental Confirmations](#)



General Product Approval	EMV	For use in hazardous locations
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For use in hazardous locations	Test Certificates
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[Miscellaneous](#)

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

Maritime application	other
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[Confirmation](#)

other

Industrial Communication

[Confirmation](#)



#### 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=3UF7012-1AU00-0>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3UF7012-1AU00-0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3UF7012-1AU00-0>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3UF7012-1AU00-0&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3UF7012-1AU00-0&lang=en)

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