









Direct starter, 3RM1, 500 V, 0.09 - 0.75 kW, 0.4 - 2 A, 110-230 V AC, screw terminals

<b>product brand name</b>	SIRIUS
<b>product category</b>	Motor starter
<b>product designation</b>	Direct-on-line starter
<b>design of the product</b>	with electronic overload protection
<b>product type designation</b>	3RM1
<b>General technical data</b>	
<b>trip class</b>	CLASS 10A
<b>equipment variant acc. to IEC 60947-4-2</b>	3
<b>product function</b>	Direct-on-line starter
• intrinsic device protection	Yes
• for power supply reverse polarity protection	No
<b>suitability for operation device connector 3ZY12</b>	No
power loss [W] for rated value of the current at AC in hot operating state per pole	0.1 W
insulation voltage rated value	500 V
<b>overvoltage category</b>	III
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for safe isolation</b>	
• between main and auxiliary circuit	500 V
• between control and auxiliary circuit	250 V
<b>shock resistance</b>	6g / 11 ms
<b>vibration resistance</b>	1 ... 6 Hz, 15 mm; 20 m/s <sup>2</sup> , 500 Hz
<b>operating frequency maximum</b>	1 1/s
mechanical service life (switching cycles) typical	30 000 000
<b>reference code acc. to IEC 81346-2</b>	Q
Substance Prohibitance (Date)	01.03.2017 00:00:00
<b>product function</b>	
• direct start	Yes
• reverse starting	No
<b>product function short circuit protection</b>	No
<b>Electromagnetic compatibility</b>	
EMC emitted interference acc. to IEC 60947-1	class A
<b>EMC immunity acc. to IEC 60947-1</b>	Class A
<b>conducted interference</b>	
• due to burst acc. to IEC 61000-4-4	3 kV / 5 kHz
• 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

<ul style="list-style-type: none"> <li>• due to high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	10 V
<b>field-based interference acc. to IEC 61000-4-3</b>	10 V/m
<b>electrostatic discharge acc. to IEC 61000-4-2</b>	4 kV contact discharge / 8 kV air discharge
<b>conducted HF interference emissions acc. to CISPR11</b>	Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC
<b>field-bound HF interference emission acc. to CISPR11</b>	Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC
<b>Safety related data</b>	
<b>protection class IP on the front acc. to IEC 60529</b>	IP20
<b>touch protection on the front acc. to IEC 60529</b>	finger-safe
<b>Main circuit</b>	
<b>number of poles for main current circuit</b>	3
<b>design of the switching contact</b>	Hybrid
<b>design of the switching contact as NO contact for signaling function</b>	OUT, electronic, 24 V DC, 15 mA
<b>adjustable current response value current of the current-dependent overload release</b>	0.4 ... 2 A
<b>minimum load [%]</b>	20 %; from set rated current
<b>type of the motor protection</b>	solid-state
<b>operating voltage rated value</b>	48 ... 500 V
<b>relative symmetrical tolerance of the operating voltage</b>	10 %
<b>operating frequency 1 rated value</b>	50 Hz
<b>operating frequency 2 rated value</b>	60 Hz
<b>relative symmetrical tolerance of the operating frequency</b>	10 %
<b>operational current</b> <ul style="list-style-type: none"> <li>• at AC at 400 V rated value</li> <li>• at AC-53a at 400 V at ambient temperature 40 °C rated value</li> </ul>	2 A 2 A
<b>ampacity when starting maximum</b>	16 A
<b>operating power for 3-phase motors at 400 V at 50 Hz</b>	0.09 ... 0.75 kW
<b>Inputs/ Outputs</b>	
<b>input voltage at digital input</b> <ul style="list-style-type: none"> <li>• at DC rated value</li> <li>• with signal &lt;0&gt; at DC</li> <li>• for signal &lt;1&gt; at DC</li> </ul>	110 V 0 ... 40 V 79 ... 121
<b>input voltage at digital input</b> <ul style="list-style-type: none"> <li>• at AC rated value</li> <li>• with signal &lt;0&gt; at AC</li> <li>• for signal &lt;1&gt; at AC</li> </ul>	110 V 0 ... 40 V 93 ... 253 V
<b>input current at digital input</b> <ul style="list-style-type: none"> <li>• for signal &lt;1&gt; at DC</li> <li>• with signal &lt;0&gt; at DC</li> </ul>	1.5 mA 0.25 mA
<b>input current at digital input with signal &lt;0&gt; at AC</b> <ul style="list-style-type: none"> <li>• at 110 V</li> <li>• at 230 V</li> </ul>	0.2 mA 0.4 mA
<b>input current at digital input for signal &lt;1&gt; at AC</b> <ul style="list-style-type: none"> <li>• at 110 V</li> <li>• at 230 V</li> </ul>	1.1 mA 2.3 mA
<b>number of CO contacts for auxiliary contacts</b>	1
<b>operational current of auxiliary contacts at AC-15 at 230 V maximum</b>	3 A
<b>operational current of auxiliary contacts at DC-13 at 24 V maximum</b>	1 A
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC/DC
<b>control supply voltage at AC</b> <ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> </ul>	110 ... 230 V

<ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>	110 ... 230 V
<b>relative negative tolerance of the control supply voltage at AC at 60 Hz</b>	15 %
<b>relative positive tolerance of the control supply voltage at AC at 60 Hz</b>	10 %
<b>control supply voltage 1 at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	110 ... 230 V 110 ... 230 V
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>• 1 rated value</li> <li>• 2 rated value</li> </ul>	50 Hz 60 Hz
<b>relative negative tolerance of the control supply voltage at DC</b>	15 %
<b>relative positive tolerance of the control supply voltage at DC</b>	10 %
control supply voltage 1 at DC rated value	110 V
<b>operating range factor control supply voltage rated value at DC</b>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.85 1.1
<b>operating range factor control supply voltage rated value at AC at 50 Hz</b>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.85 1.1
<b>operating range factor control supply voltage rated value at AC at 60 Hz</b>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.85 1.1
<b>control current at AC</b>	
<ul style="list-style-type: none"> <li>• at 110 V in standby mode of operation</li> <li>• at 230 V in standby mode of operation</li> <li>• at 110 V when switching on</li> <li>• at 230 V when switching on</li> <li>• at 110 V during operation</li> <li>• at 230 V during operation</li> </ul>	16 mA 9 mA 55 mA 33 mA 36 mA 22 mA
<b>control current at DC</b>	
<ul style="list-style-type: none"> <li>• in standby mode of operation</li> <li>• when switching on</li> <li>• during operation</li> </ul>	6 mA 15 mA 30 mA
<b>Response times</b>	
<b>ON-delay time</b>	60 ... 90 ms
<b>OFF-delay time</b>	60 ... 90 ms
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	vertical, horizontal, standing (observe derating)
<b>fastening method</b>	screw and snap-on mounting onto 35 mm standard mounting rail
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	141.6 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> </ul>	0 mm 0 mm 50 mm 50 mm 0 mm  0 mm 0 mm 50 mm 3.5 mm

— downwards	50 mm				
Ambient conditions					
installation altitude at height above sea level maximum	4 000 m; For derating see manual				
ambient temperature					
• during operation	-25 ... +60 °C				
• during storage	-40 ... +70 °C				
• during transport	-40 ... +70 °C				
environmental category during operation acc. to IEC 60721	3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6				
relative humidity during operation	10 ... 95 %				
air pressure acc. to SN 31205	900 ... 1 060 hPa				
Communication/ Protocol					
product function bus communication	No				
Connections/ Terminals					
type of electrical connection	screw-type terminals for main circuit, screw-type terminals for control circuit				
• for main current circuit	screw-type terminals				
• for auxiliary and control circuit	screw-type terminals				
wire length for motor unshielded maximum	100 m				
type of connectable conductor cross-sections					
• for main contacts					
— solid	1x (0,5 ... 4 mm <sup>2</sup> ), 2x (0,5 ... 2,5 mm <sup>2</sup> )				
— finely stranded with core end processing	1x (0,5 ... 4 mm <sup>2</sup> ), 2x (0,5 ... 1,5 mm <sup>2</sup> )				
• at AWG cables for main contacts	1x (20 ... 12), 2x (20 ... 14)				
connectable conductor cross-section for main contacts					
• solid or stranded	0.5 ... 4 mm <sup>2</sup>				
• finely stranded with core end processing	0.5 ... 4 mm <sup>2</sup>				
connectable conductor cross-section for auxiliary contacts					
• solid or stranded	0.5 ... 2.5 mm <sup>2</sup>				
• finely stranded with core end processing	0.5 ... 2.5 mm <sup>2</sup>				
type of connectable conductor cross-sections					
• for auxiliary contacts					
— solid	1x (0,5 ... 2,5 mm <sup>2</sup> ), 2x (1,0 ... 1,5 mm <sup>2</sup> )				
— finely stranded with core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )				
• at AWG cables for auxiliary contacts	1x (20 ... 14), 2x (18 ... 16)				
AWG number as coded connectable conductor cross section					
• for main contacts	20 ... 12				
• for auxiliary contacts	20 ... 14				
UL/CSA ratings					
yielded mechanical performance [hp]					
• for single-phase AC motor					
— at 230 V rated value	0.125 hp				
• for 3-phase AC motor					
— at 200/208 V rated value	0.333 hp				
— at 220/230 V rated value	0.333 hp				
— at 460/480 V rated value	0.75 hp				
operating voltage at AC at 60 Hz acc. to CSA and UL rated value	480 V				
Certificates/ approvals					
General Product Approval	EMC	Declaration of Conformity			
					

Test Certificates	other	Railway
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[Type Test Certificates/Test Report](#)

[Confirmation](#)

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#### Further information

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=3RM1002-1AA14>

Cax online generator

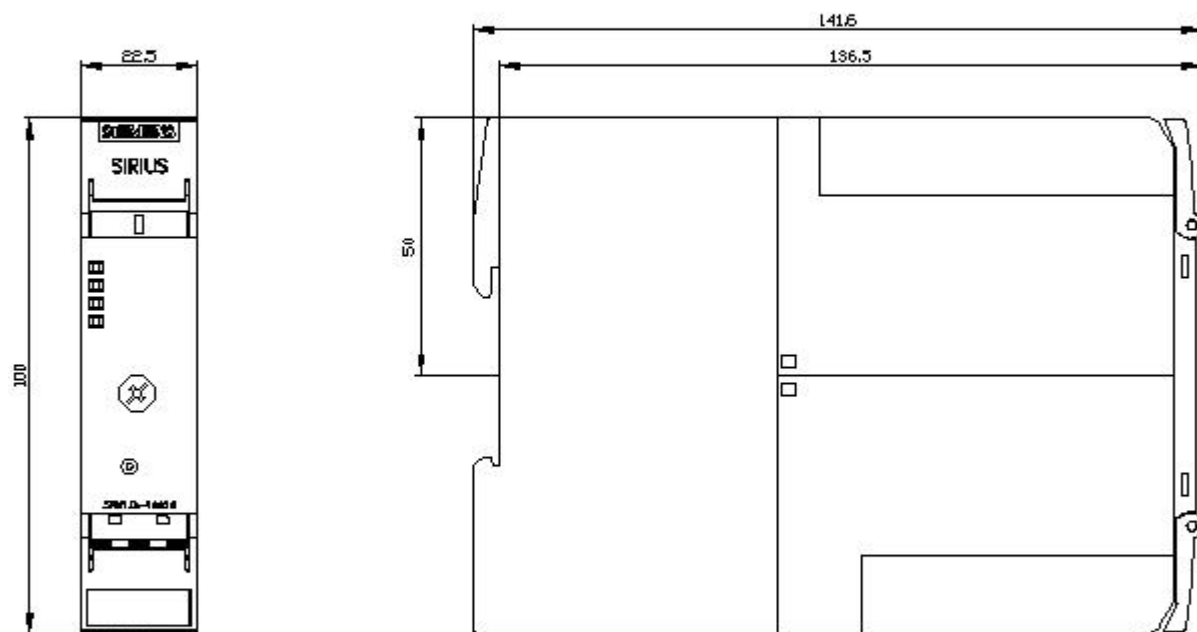
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1002-1AA14>

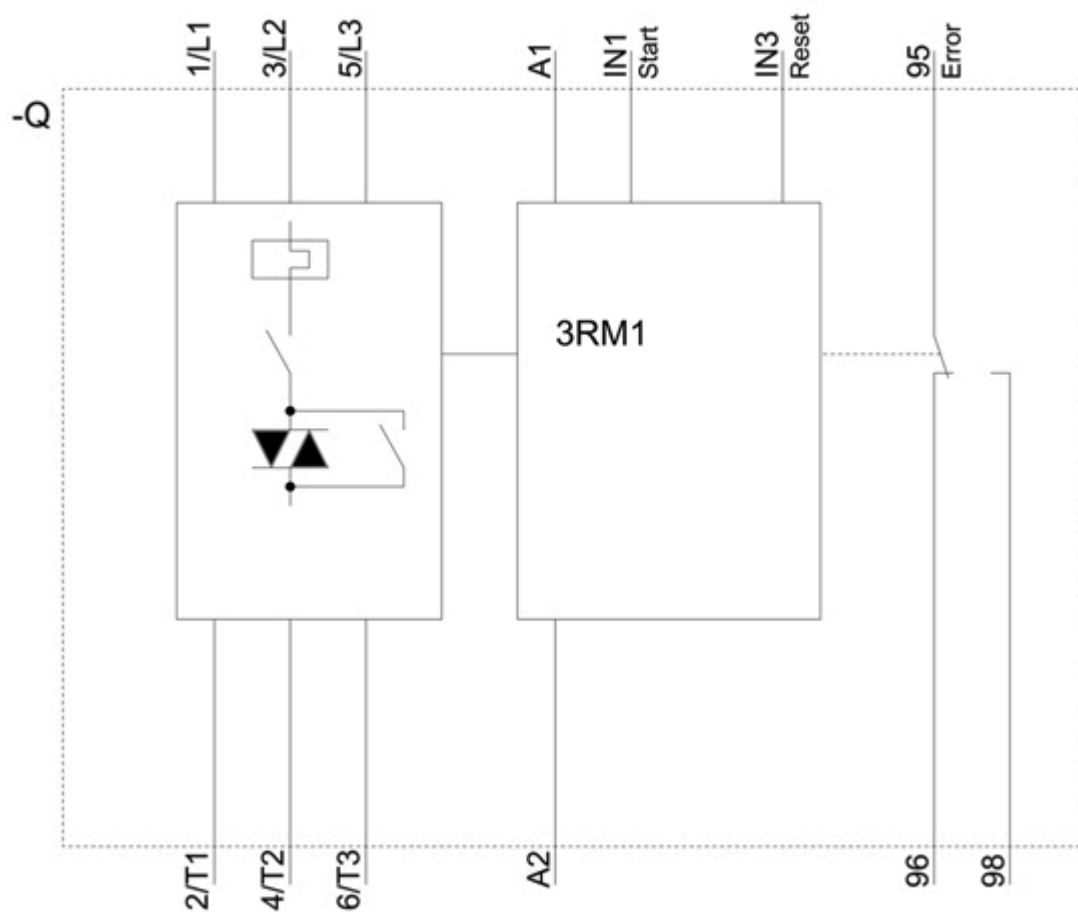
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

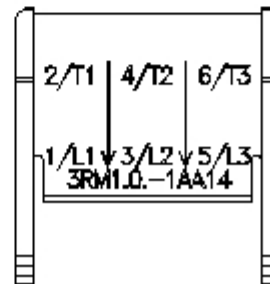
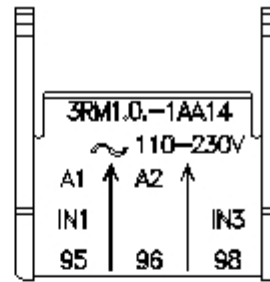
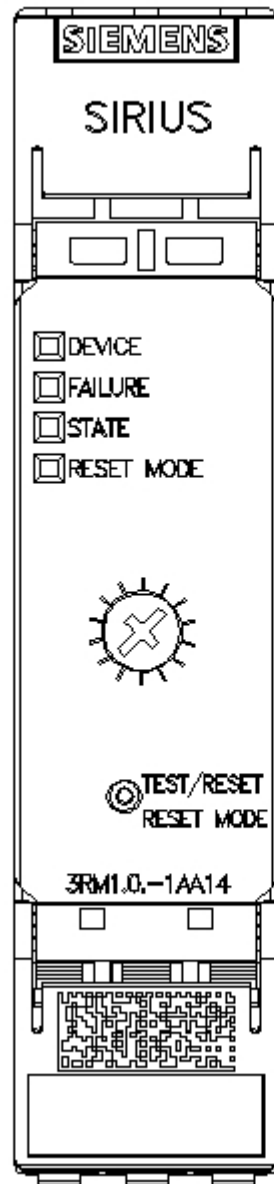
<https://support.industry.siemens.com/cs/ww/en/ps/3RM1002-1AA14>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RM1002-1AA14&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1002-1AA14&lang=en)







last modified:

4/11/2021 [🔗](#)