



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

product brand name	SIRIUS
product category	Motor starter
product designation	Direct-on-line starter
design of the product	with electronic overload protection
product type designation	3RM1
<b>General technical data</b>	
trip class	CLASS 10A
product function	
• intrinsic device protection	Yes
suitability for operation device connector 3ZY12	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
surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
• between main and auxiliary circuit	500 V
• between control and auxiliary circuit	250 V
shock resistance	6g / 11 ms
vibration resistance	1 ... 6 Hz, 15 mm; 20 m/s <sup>2</sup> , 500 Hz
operating frequency maximum	1 1/s
mechanical service life (switching cycles) typical	30 000 000
reference code acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	01.03.2017 00:00:00
product function	
• direct start	Yes
• reverse starting	No
product function short circuit protection	No
<b>Electromagnetic compatibility</b>	
conducted interference	
• 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
• due to high-frequency radiation acc. to IEC 61000-4-6	10 V
electrostatic discharge acc. to IEC 61000-4-2	4 kV contact discharge / 8 kV air discharge
conducted HF interference emissions acc. to CISPR11	Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC
field-bound HF interference emission acc. to CISPR11	Class B for domestic, business and commercial environments; Class A

	for industrial environments at 110 V DC
<b>Main circuit</b>	
number of poles for main current circuit	3
design of the switching contact as NO contact for signaling function	OUT, electronic, 24 V DC, 15 mA
adjustable current response value current of the current-dependent overload release	0.4 ... 2 A
minimum load [%]	20 %
type of the motor protection	solid-state
<ul style="list-style-type: none"> <li>operating voltage rated value</li> </ul>	48 ... 500 V
relative symmetrical tolerance of the operating voltage	10 %
operating frequency 1 rated value	50 Hz
operating frequency 2 rated value	60 Hz
relative symmetrical tolerance of the operating frequency	10 %
operational current	
<ul style="list-style-type: none"> <li>at AC at 400 V rated value</li> </ul>	2 A
<ul style="list-style-type: none"> <li>at AC-53a at 400 V at ambient temperature 40 °C rated value</li> </ul>	2 A
ampacity when starting maximum	16 A
operating power for 3-phase motors at 400 V at 50 Hz	0.09 ... 0.75 kW
<b>Inputs/ Outputs</b>	
input voltage at digital input	
<ul style="list-style-type: none"> <li>at DC rated value</li> </ul>	110 V
<ul style="list-style-type: none"> <li>with signal &lt;0&gt; at DC</li> </ul>	0 ... 40 V
<ul style="list-style-type: none"> <li>for signal &lt;1&gt; at DC</li> </ul>	79 ... 121
input voltage at digital input	
<ul style="list-style-type: none"> <li>at AC rated value</li> </ul>	110 V
<ul style="list-style-type: none"> <li>with signal &lt;0&gt; at AC</li> </ul>	0 ... 40 V
<ul style="list-style-type: none"> <li>for signal &lt;1&gt; at AC</li> </ul>	93 ... 253 V
input current at digital input	
<ul style="list-style-type: none"> <li>for signal &lt;1&gt; at DC</li> </ul>	1.5 mA
<ul style="list-style-type: none"> <li>with signal &lt;0&gt; at DC</li> </ul>	0.25 mA
input current at digital input with signal <0> at AC	
<ul style="list-style-type: none"> <li>at 110 V</li> </ul>	0.2 mA
<ul style="list-style-type: none"> <li>at 230 V</li> </ul>	0.4 mA
input current at digital input for signal <1> at AC	
<ul style="list-style-type: none"> <li>at 110 V</li> </ul>	1.1 mA
<ul style="list-style-type: none"> <li>at 230 V</li> </ul>	2.3 mA
number of CO contacts for auxiliary contacts	1
operational current of auxiliary contacts at AC-15 at 230 V maximum	3 A
operational current of auxiliary contacts at DC-13 at 24 V maximum	1 A
<b>Control circuit/ Control</b>	
type of voltage of the control supply voltage	AC/DC
control supply voltage 1 at AC	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	110 ... 230 V
<ul style="list-style-type: none"> <li>at 60 Hz</li> </ul>	110 ... 230 V
control supply voltage frequency	
<ul style="list-style-type: none"> <li>1 rated value</li> </ul>	50 Hz
<ul style="list-style-type: none"> <li>2 rated value</li> </ul>	60 Hz
<ul style="list-style-type: none"> <li>control supply voltage 1 at DC rated value</li> </ul>	110 V
operating range factor control supply voltage rated value at DC	
<ul style="list-style-type: none"> <li>initial value</li> </ul>	0.85
<ul style="list-style-type: none"> <li>full-scale value</li> </ul>	1.1
operating range factor control supply voltage rated value at AC at 50 Hz	

<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>	1.1 0.85
<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>switch 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> <li>— downwards</li> </ul> </li> </ul>	0 mm 0 mm 50 mm 50 mm 0 mm  0 mm 0 mm 50 mm 3.5 mm 50 mm
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	4 000 m
relative humidity during operation	10 ... 95 %
<ul style="list-style-type: none"> <li>• air pressure acc. to SN 31205</li> </ul>	900 ... 1 060 hPa
<b>Communication/ Protocol</b>	
<b>product function bus communication</b>	No
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	screw-type terminals for main circuit, spring-loaded terminals (push-in) for control circuit
<ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> </ul>	screw-type terminals spring-loaded terminals (push-in)
<b>type of electrical wiring</b>	
<ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> </ul>	1 or 2 conductors 1 or 2 conductors
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for main contacts</li> </ul>	1x (0,5 ... 4 mm <sup>2</sup> ), 2x (0,5 ... 2,5 mm <sup>2</sup> ) 1x (0,5 ... 4 mm <sup>2</sup> ), 2x (0,5 ... 1,5 mm <sup>2</sup> ) 1x (20 ... 12), 2x (20 ... 14)

<b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>	0.5 ... 4 mm <sup>2</sup> 0.5 ... 4 mm <sup>2</sup>
<b>connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> <li>• finely stranded without core end processing</li> </ul>	0.5 ... 1.5 mm <sup>2</sup> 0.5 ... 1 mm <sup>2</sup> 0.5 ... 1.5 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for auxiliary contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• at AWG cables for auxiliary contacts</li> </ul>	1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) 1x (0.5 ... 1.0 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) 1x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) 1x (20 ... 16), 2x (20 ... 16)
<ul style="list-style-type: none"> <li>• AWG number as coded connectable conductor cross section for main contacts</li> <li>• AWG number as coded connectable conductor cross section for auxiliary contacts</li> </ul>	20 ... 12 20 ... 16

#### UL/CSA ratings

<b>yielded mechanical performance [hp]</b> <ul style="list-style-type: none"> <li>• for single-phase AC motor <ul style="list-style-type: none"> <li>— at 230 V rated value</li> </ul> </li> <li>• for 3-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> <li>— at 220/230 V rated value</li> <li>— at 460/480 V rated value</li> </ul> </li> </ul>	0.125 hp 0.333 hp 0.333 hp 0.75 hp
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#### Certificates/ approvals

General Product Approval	EMC	Declaration of Conformity
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[Miscellaneous](#)

Declaration of Conformity	other
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[Confirmation](#)

#### 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=3RM1002-3AA14>

Cax online generator

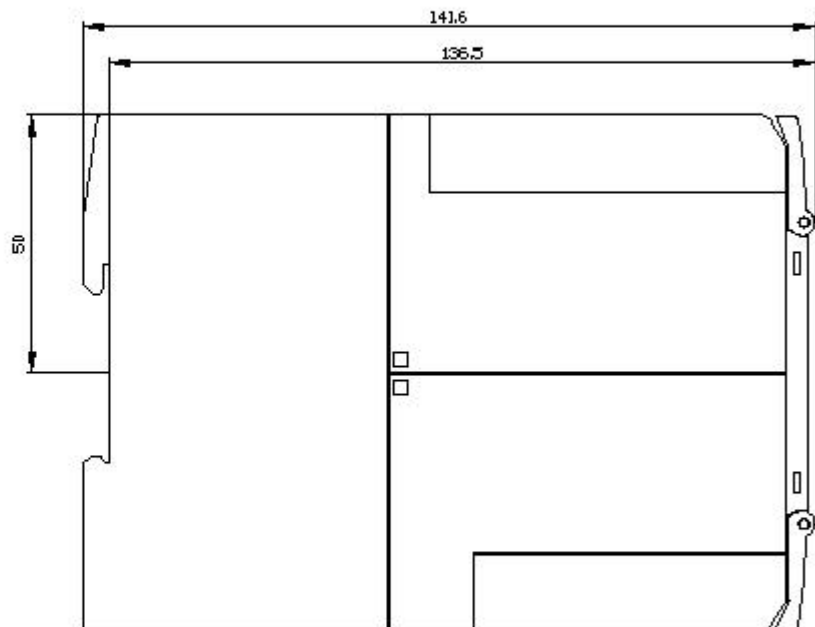
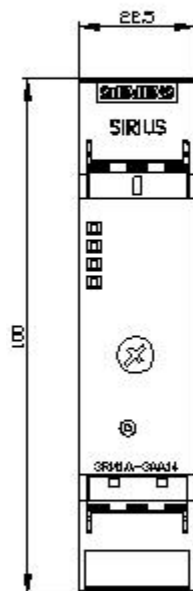
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1002-3AA14>

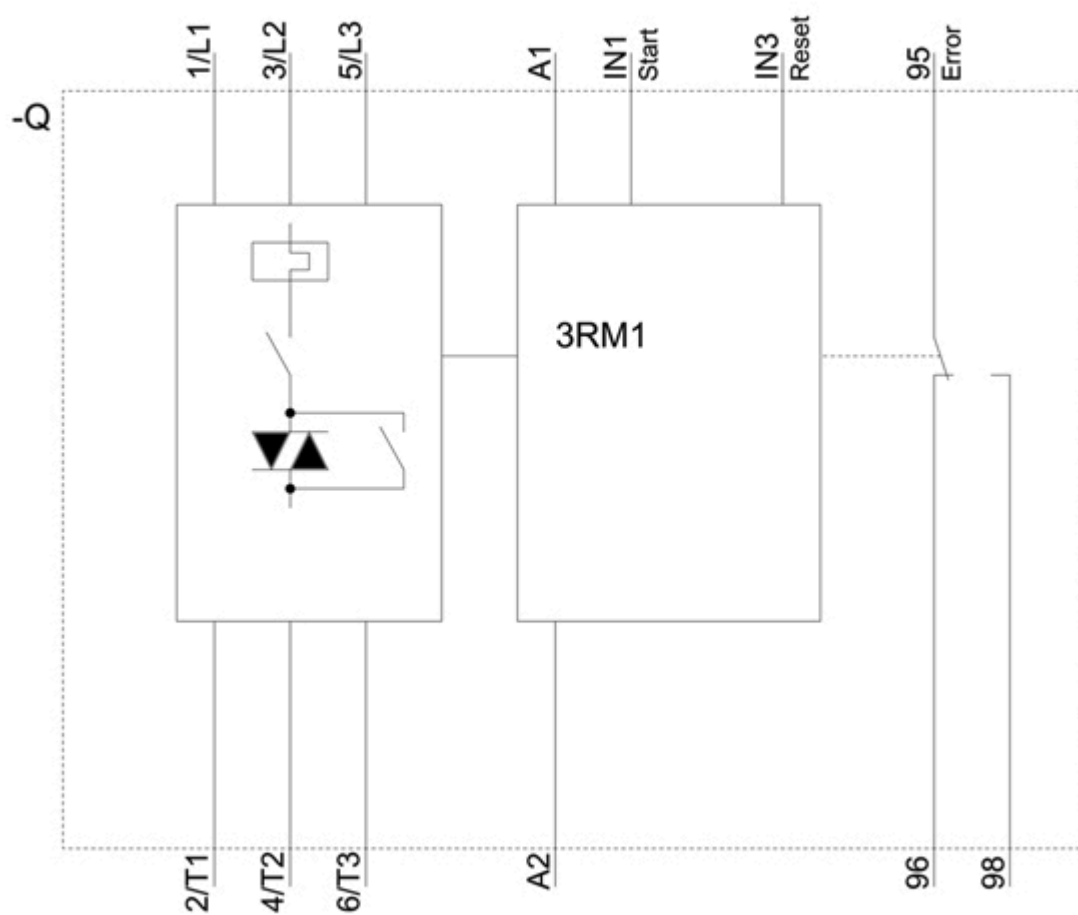
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

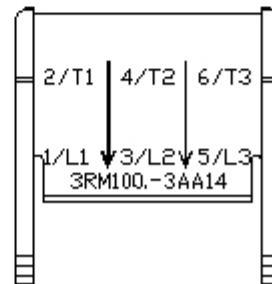
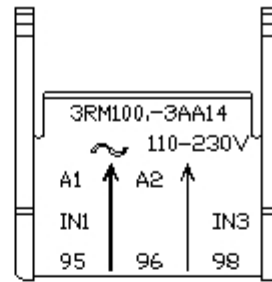
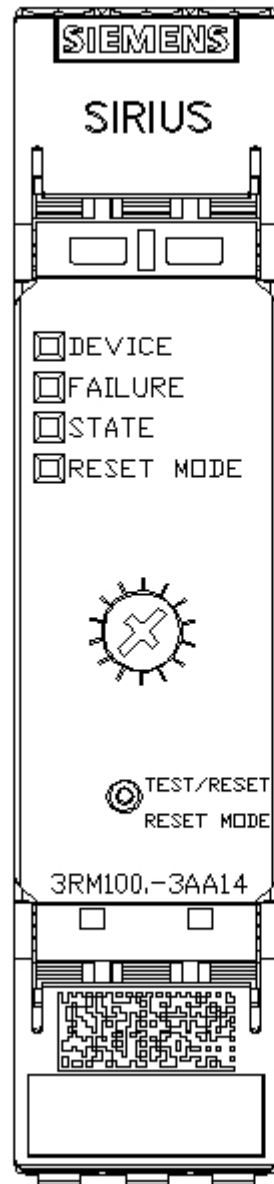
<https://support.industry.siemens.com/cs/ww/en/ps/3RM1002-3AA14>

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

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







last modified:

12/21/2020 [🔗](#)