# SIEMENS

#### Data sheet

### 3RM1002-2AA14



direct-on-line starter, 3RM1, 500 V, 0.09 - 0.75 kW, 0.4 - 2 A, 110-230 V AC, spring-loaded terminal (push-in)

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
General technical data	
equipment variant according to IEC 60947-4-2	3
product function	Direct-on-line starter
<ul> <li>intrinsic device protection</li> </ul>	Yes
<ul> <li>for power supply reverse polarity protection</li> </ul>	No
suitability for operation device connector 3ZY12	No
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state per pole</li> </ul>	0.1 W
<ul> <li>without load current share typical</li> </ul>	5.06 W
insulation voltage rated value	500 V
overvoltage category	III
surge voltage resistance rated value	6 kV
maximum permissible voltage for protective separation	
<ul> <li>between main and auxiliary circuit</li> </ul>	500 V
<ul> <li>between control and auxiliary circuit</li> </ul>	250 V
shock resistance	6g / 11 ms
vibration resistance	1 6 Hz, 15 mm; 20 m/s², 500 Hz
operating frequency maximum	1 1/s
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	03/01/2017
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	0.3 kg
product function	
direct start	Yes
reverse starting	No
product function short circuit protection	No
Electromagnetic compatibility	
EMC emitted interference according to IEC 60947-1	class A
EMC immunity according to IEC 60947-1	Class A
conducted interference	
<ul> <li>due to burst according to IEC 61000-4-4</li> </ul>	3 kV / 5 kHz
<ul> <li>due to conductor-earth surge according to IEC 61000-4-5</li> </ul>	2 kV
• due to conductor-conductor surge according to IEC 61000-4-5	1 KV
<ul> <li>due to high-frequency radiation according to IEC 61000-</li> </ul>	10 V

4-6	
field-based interference according to IEC 61000-4-3	10 V/m
electrostatic discharge according to IEC 61000-4-2	4 kV contact discharge / 8 kV air discharge
conducted HF interference emissions according to CISPR11	Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC
field-bound HF interference emission according to CISPR11	Class B for domestic, business and commercial environments; Class A for industrial environments at 110 V DC
Electrical Safety	
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe
Main circuit	
number of poles for main current circuit	3
design of the switching contact	Hybrid
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 %; from set rated current
type of the motor protection	solid-state
operating voltage rated value	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> <li>at AC at 400 V rated value</li> </ul>	2 A
• at AC-3 at 400 V rated value	2 A
<ul> <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
Inputs/ Outputs	
input voltage at digital input	
<ul> <li>at DC rated value</li> </ul>	110 V
<ul> <li>with signal &lt;0&gt; at DC</li> </ul>	0 40 V
● for signal <1> at DC	79 121
input voltage at digital input	
at AC rated value	110 V
• with signal <0> at AC	0 40 V
• for signal <1> at AC	93 253 V
input current at digital input	
• for signal <1> at DC	1.5 mA
• with signal <0> at DC	0.25 mA
input current at digital input with signal <0> at AC • at 110 V	0.2 mA
• at 110 V • at 230 V	0.2 mA
• at 230 V input current at digital input for signal <1> at AC	
• at 110 V	1.1 mA
• at 230 V	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
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
• at 50 Hz rated value	110 230 V
at 60 Hz rated value	110 230 V
relative negative tolerance of the control supply voltage at AC at 60 Hz	15 %
relative positive tolerance of the control supply voltage at AC at 60 Hz	10 %

control supply voltage 1 at AC	
• at 50 Hz	110 230 V
• at 60 Hz	110 230 V
control supply voltage frequency	
<ul> <li>1 rated value</li> </ul>	50 Hz
2 rated value	60 Hz
relative negative tolerance of the control supply voltage at DC	15 %
relative positive tolerance of the control supply voltage at DC	10 %
control supply voltage 1 at DC rated value	110 V
operating range factor control supply voltage rated value at DC	
• initial value	0.85
• full-scale value	1.1
operating range factor control supply voltage rated value at AC at 50 Hz	
initial value	0.85
• full-scale value	1.1
operating range factor control supply voltage rated value at AC at 60 Hz	
• initial value	0.85
• full-scale value	1.1
control current at AC	
<ul> <li>at 110 V in standby mode of operation</li> </ul>	16 mA
<ul> <li>at 230 V in standby mode of operation</li> </ul>	9 mA
<ul> <li>at 110 V when switching on</li> </ul>	55 mA
<ul> <li>at 230 V when switching on</li> </ul>	33 mA
<ul> <li>at 110 V during operation</li> </ul>	36 mA
• at 230 V during operation	22 mA
control current at DC	
<ul> <li>in standby mode of operation</li> </ul>	6 mA
during operation	30 mA
inrush current peak	
• at AC at 110 V	1 200 mA
• at AC at 230 V	2 900 mA
<ul> <li>at AC at 110 V at switching on of motor</li> </ul>	1 200 mA
<ul> <li>at AC at 230 V at switching on of motor</li> </ul>	2 900 mA
duration of inrush current peak	
• at AC at 110 V	1 ms
• at AC at 230 V	1 ms
<ul> <li>at AC at 110 V at switching on of motor</li> </ul>	1 ms
<ul> <li>at AC at 230 V at switching on of motor</li> </ul>	1 ms
power loss [W] in auxiliary and control circuit	
<ul> <li>in switching state OFF</li> </ul>	
— with bypass circuit	2.1 W
<ul> <li>in switching state ON</li> </ul>	
— with bypass circuit	5.06 W
Response times	
ON-delay time	60 90 ms
OFF-delay time	60 90 ms
Power Electronics	
operational current	
• at 40 °C rated value	2 A
• at 50 °C rated value	2 A
● at 55 °C rated value	2 A
• at 60 °C rated value	2 A
Installation/ mounting/ dimensions	
mounting position	vertical, horizontal, standing (observe derating)
fastening method	screw and snap-on mounting onto 35 mm DIN rail
height	100 mm
width	22.5 mm

required spacing         • with side by side mounting           - forwards         0 mm           - bookwards         0 mm           - upwards         60 mm           - ownards         0 mm           - downards         0 max           - d	depth	141.6 mm
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Connections/Terminals           type of electrical connection         spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for control circuit           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • for auxiliary and autito core end processing         1x (0.5 4 mm <sup>2</sup> )           • for auxiliary contacts         0.5 4 mm <sup>2</sup> • for auxiliary contacts         0.5 1 fmr <sup>2</sup> • for auxiliary contacts         0.5 1 fmr <sup>2</sup> • for auxiliary contacts         0.5 1.5 mm <sup>2</sup> )           • for auxiliary contacts         1x	•	
type of electrical connection         spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for ontrol circuit           • for main current circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           wire length for motor unshielded maximum         100 m           type of connectable conductor cross-sections for main contacts         1x (0.5 4 mm²)           • finely stranded with core end processing         1x (0.5 4 mm²)           • finely stranded with core end processing         0.5 4 mm²           • solid or stranded         0.5 4 mm²           • finely stranded with core end processing         0.5 4 mm²           • finely stranded with core end processing         0.5 1.5 mm²           • solid or stranded         0.5 1.5 mm²           • solid or stranded         0.5 1.5 mm²           • finely stranded with core end processing         0.5 1.5 mm²           • finely stranded with core end processing         0.5 1.5 mm²           • finely stranded with core end processing         0.5 1.5 mm²), 2x (0.5 1.5 mm²)           • finely stranded with core end processing         1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)           • finely stranded with core end processing         1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)           • for auxiliar		
or main current circuit         spring-loaded terminals (push-in)           • for auxiliary and control circuit         spring-loaded terminals (push-in)           • wire length for motor unshielded maximum         00           type of connectable conductor cross-sections for main contacts         solid           • solid         1x (0.54 mm²)           • finely stranded with core end processing         1x (0.54 mm²)           • finely stranded with core end processing         0.54 mm²           • solid or stranded         0.54 mm²           • solid or stranded         0.54 mm²           • finely stranded with core end processing         0.54 mm²           • finely stranded with core end processing         0.54 mm²           • finely stranded with core end processing         0.51.5 mm²           • finely stranded with core end processing         0.51.5 mm²           • finely stranded with core end processing         0.51.5 mm²           • finely stranded with core end processing         0.51.5 mm²           • finely stranded with core end processing         1.x (0.51.5 mm²), 2x (0.51.5 mm²)           • for auxiliary contacts         - solid           • for auxiliary contacts         1.x (20.51.5 mm²), 2x (0.51.5 mm²)           • for auxiliary contacts         2.016 m²), 2x (0.51.5 m²), 2x (0.51	type of electrical connection	
of a uxiliary and control circuitspring-loaded terminals (push-in)wire length for motor unshielded maximum100 mtype of connectable conductor cross-sections for main contacts1x (0.5 4 mm²)• solid1x (0.5 4 mm²)• finely stranded with core end processing1x (0.5 4 mm²)• finely stranded without core end processing0.5 4 mm²)• solid or stranded0.5 4 mm²• solid or stranded0.5 4 mm²• finely stranded without core end processing0.5 4 mm²• finely stranded with core end processing0.5 1 mm²• finely stranded with core end processing0.5 1 mm²• finely stranded with core end processing0.5 1 mm²• finely stranded with core end processing0.5 1.5 mm²), 2x (0.5 1.5 mm²)• for auxiliary contacts- solid- solid1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)- finely stranded with core end processing1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)- finely stranded with core end processing1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)• for AWG cables for auxiliary contacts20 16• for AWG cables for auxiliary contacts20 16• for auxiliary contacts20 16• for main contacts20 16• for main contacts20 16		N ,
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• solid       1x (0.5 4 mm²)         • finely stranded with core end processing       1x (0.5 2.5 mm²)         • finely stranded without core end processing       1x (0.5 4 mm²)         connectable conductor cross-section for main contacts       5 4 mm²         • solid or stranded       0.5 4 mm²         • finely stranded with core end processing       0.5 4 mm²         • finely stranded with core end processing       0.5 4 mm²         • finely stranded with core end processing       0.5 4 mm²         • solid or stranded       0.5 4 mm²         • finely stranded with core end processing       0.5 4 mm²         • finely stranded with core end processing       0.5 1.5 mm²         • finely stranded with core end processing       0.5 1.5 mm²         • finely stranded with core end processing       0.5 1.5 mm²         • finely stranded with core end processing       0.5 1.5 mm²         • for auxiliary contacts       -         - solid       1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)         - finely stranded with core end processing       1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)         - finely stranded with core end processing       1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)         - finely stranded with core end processing       1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)		100 m
<ul> <li>Inely stranded with core end processing</li> <li>Ix (0.5 2.5 mm<sup>2</sup>)</li> <li>(5 4 mm<sup>2</sup>)</li> <li>(5 1 m<sup>2</sup>)</li> <li>(5 1</li></ul>		
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<ul> <li>for auxiliary contacts         <ul> <li>for auxiliary contacts</li> <li>solid</li> <li>finely stranded with core end processing</li> <li>finely stranded without core end processing</li> <li>finely stranded without core end processing</li> <li>for AWG cables for auxiliary contacts</li> <li>for AWG cables for auxiliary contacts</li> <li>for main contacts</li> <li>for auxiliary contacts</li> <li>20 12</li> <li>for auxiliary contacts</li> </ul> </li> <li>UL/CSA ratings</li> <li>yielded mechanical performance [hp]</li> </ul>		0.5 1.5 mm²
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finely stranded without core end processing       1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)         • for AWG cables for auxiliary contacts       1x (20 16), 2x (20 16)         AWG number as coded connectable conductor cross section       20 12         • for main contacts       20 12         • for auxiliary contacts       20 16         UL/CSA ratings       yielded mechanical performance [hp]		
• for AWG cables for auxiliary contacts         1x (20 16), 2x (20 16)           AWG number as coded connectable conductor cross section         20 12, 20 12           • for main contacts         20 12           • for auxiliary contacts         20 12           • for auxiliary contacts         20 12           • for auxiliary contacts         20 16		
AWG number as coded connectable conductor cross section     20 12       • for main contacts     20 12       • for auxiliary contacts     20 16       UL/CSA ratings     yielded mechanical performance [hp]		
section     20 12       • for main contacts     20 12       • for auxiliary contacts     20 16       UL/CSA ratings     UL/CSA ratings		1x (20 16), 2x (20 16)
for auxiliary contacts 20 16 UL/CSA ratings yielded mechanical performance [hp]		
UL/CSA ratings yielded mechanical performance [hp]		20 12
yielded mechanical performance [hp]	<ul> <li>for main contacts</li> </ul>	
		20 16
for single-phase AC motor		20 16
	for auxiliary contacts UL/CSA ratings	20 16

— at 230 V rat		C	).125 hp		
<ul> <li>for 3-phase AC n</li> </ul>					
— 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		
operational current at	AC at 480 V according	to UL 508 2	2 A		
Approvals Certificates					
General Product App	roval				
	UK CA	CE EG-Konf.	<u>Confirmation</u>	<b>U</b>	EHC
CCC	UK CA Test Certificates		Confirmation	UL	EAC

#### Further information

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=3RM1002-2AA14

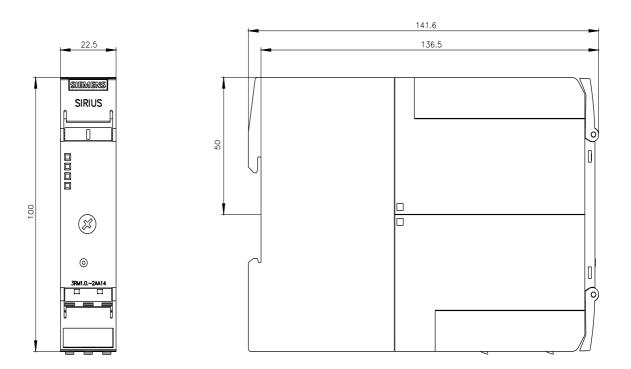
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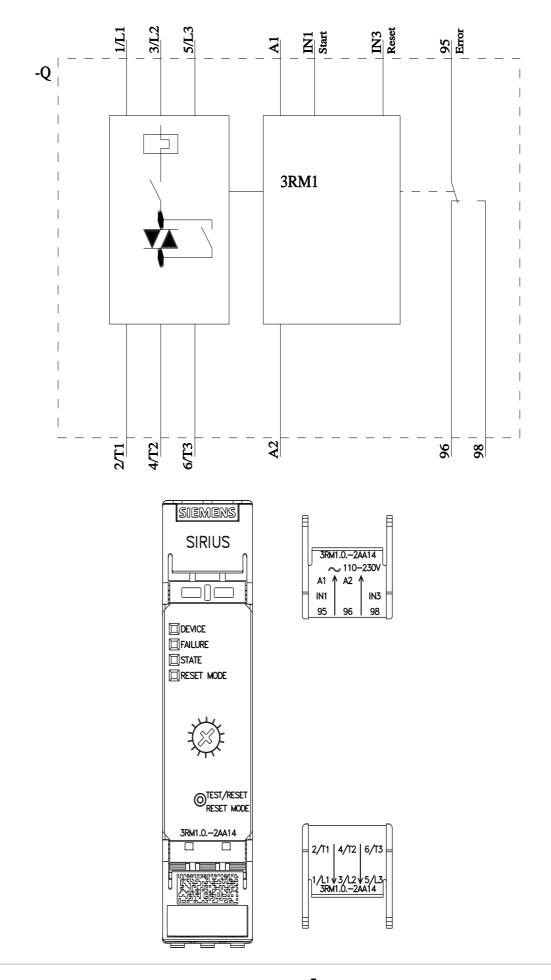
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