

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

General technical data	
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
Protection class IP	IP20

Shock resistance	6g / 11 ms
Vibration resistance	1 ... 6 Hz, 15 mm; 20 m/s ² , 500 Hz
Operating frequency maximum	1 1/s
Mechanical service life (switching cycles)	
• typical	30 000 000
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	Q
Reference code acc. to DIN EN 81346-2	Q
Reference code acc. to DIN EN 61346-2	Q
Product function	
• direct start	Yes
• reverse starting	No
Product function Short circuit protection	No

Electromagnetic compatibility

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

Safety related data

Protection against electrical shock	finger-safe
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Main circuit

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 pick-up value current of the current-dependent overload release	0.4 ... 2 A
Minimum load [%]	20 %
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 %
Operating current	
<ul style="list-style-type: none"> • at AC at 400 V rated value 	2 A
<ul style="list-style-type: none"> • at AC-53a at 400 V at ambient temperature 40 °C rated value 	2 A
Ampacity when starting maximum	16 A
Operating power for three-phase motors at 400 V at 50 Hz	0.09 ... 0.75 kW

Inputs/ Outputs

Input voltage at digital input	
<ul style="list-style-type: none"> • at DC rated value 	110 V
<ul style="list-style-type: none"> • with signal <0> at DC 	0 ... 40 V
<ul style="list-style-type: none"> • for signal <1> at DC 	79 ... 121
Input voltage at digital input	
<ul style="list-style-type: none"> • at AC rated value 	110 V
<ul style="list-style-type: none"> • with signal <0> at AC 	0 ... 40 V
<ul style="list-style-type: none"> • for signal <1> at AC 	93 ... 253 V
Input current at digital input	
<ul style="list-style-type: none"> • with signal <0> typical 	0.0004 A
<ul style="list-style-type: none"> • for signal <1> typical 	0.002 A
Input current at digital input	
<ul style="list-style-type: none"> • for signal <1> at DC 	1.5 mA
<ul style="list-style-type: none"> • with signal <0> at DC 	0.25 mA
Input current at digital input with signal <0> at AC	
<ul style="list-style-type: none"> • at 110 V 	0.2 mA
<ul style="list-style-type: none"> • at 230 V 	0.4 mA
Input current at digital input for signal <1> at AC	
<ul style="list-style-type: none"> • at 110 V 	1.1 mA
<ul style="list-style-type: none"> • at 230 V 	2.3 mA
Number of CO contacts for auxiliary contacts	1
Operating current of auxiliary contacts at AC-15 at 230 V maximum	3 A
Operating 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 1 at AC	
<ul style="list-style-type: none"> • at 50 Hz 	110 ... 230 V
<ul style="list-style-type: none"> • at 60 Hz 	110 ... 230 V
Control supply voltage frequency	
<ul style="list-style-type: none"> • 1 rated value 	50 Hz

<ul style="list-style-type: none"> • 2 rated value 	60 Hz
Control supply voltage 1 <ul style="list-style-type: none"> • at DC rated value 	110 V
Operating range factor control supply voltage rated value at DC <ul style="list-style-type: none"> • initial value • Full-scale value 	0.85 1.1
Operating range factor control supply voltage rated value at AC at 50 Hz <ul style="list-style-type: none"> • initial value • Full-scale value 	0.85 1.1
Operating range factor control supply voltage rated value at AC at 60 Hz <ul style="list-style-type: none"> • initial value • Full-scale value 	1.1 0.85
Control current at AC <ul style="list-style-type: none"> • at 110 V in standby mode • at 230 V in standby mode • at 110 V when switching on • at 230 V when switching on • at 110 V during operation • at 230 V during operation 	16 mA 9 mA 55 mA 33 mA 36 mA 22 mA
Control current at DC <ul style="list-style-type: none"> • in standby mode • when switching on • during operation 	6 mA 15 mA 30 mA

Response times	
Switch-on delay time	60 ... 90 ms
Off-delay time	60 ... 90 ms

Installation/ mounting/ dimensions	
Mounting position	vertical, horizontal, standing (observe derating)
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail
Height	100 mm
Width	22.5 mm
Depth	141.6 mm
Required spacing <ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — Backwards — upwards — downwards — at the side 	0 mm 0 mm 50 mm 50 mm 0 mm

• for grounded parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	50 mm
— at the side	3.5 mm
— downwards	50 mm

Ambient conditions

Installation altitude at height above sea level	
• maximum	4 000 m
Ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Relative humidity during operation	10 ... 95 %
Air pressure	
• acc. to SN 31205	900 ... 1 060 hPa

Communication/ Protocol

Product function Bus communication	No
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Connections/ Terminals

Type of electrical connection	PUSH-IN connection (spring-loaded connection) for main circuit, spring-loaded terminals (push-in) for control circuit
• for main current circuit	PUSH-IN connection (spring-loaded connection)
• for auxiliary and control current circuit	spring-loaded terminals (push-in)
Type of connectable conductor cross-sections	
• for main contacts	
— solid	1x (0.5 ... 4 mm ²)
— finely stranded with core end processing	1x (0.5 ... 2.5 mm ²)
— finely stranded without core end processing	1x (0.5 ... 4 mm ²)
• at AWG conductors for main contacts	1x (20 ... 12)
Connectable conductor cross-section for main contacts	
• single or multi-stranded	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
• finely stranded without core end processing	0.5 ... 4 mm ²
Connectable conductor cross-section for auxiliary contacts	
• single or multi-stranded	0.5 ... 1.5 mm ²
• finely stranded with core end processing	0.5 ... 1 mm ²
• finely stranded without core end processing	0.5 ... 1.5 mm ²
Type of connectable conductor cross-sections	

- 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 ... 1,0 mm²), 2x (0,5 ... 1,0 mm²)
 - finely stranded without core end processing 1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²)
- at AWG conductors for auxiliary contacts 1x (20 ... 16), 2x (20 ... 16)

AWG number as coded connectable conductor cross section

- for main contacts 20 ... 12
- for auxiliary contacts 20 ... 16

UL/CSA ratings

Yielded mechanical performance [hp]

- for single-phase AC motor
 - at 230 V rated value 0.125 hp
- for three-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

Certificates/ approvals

General Product Approval			EMC	Declaration of Conformity	
 CCC	 CSA	 UL		 RCM	 EG-Konf.

Declaration of Conformity	Test Certificates	other	Railway
Miscellaneous	Type Test Certificates/Test Report	Confirmation	Special Test Certificate

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=3RM1002-2AA14>

Cax online generator

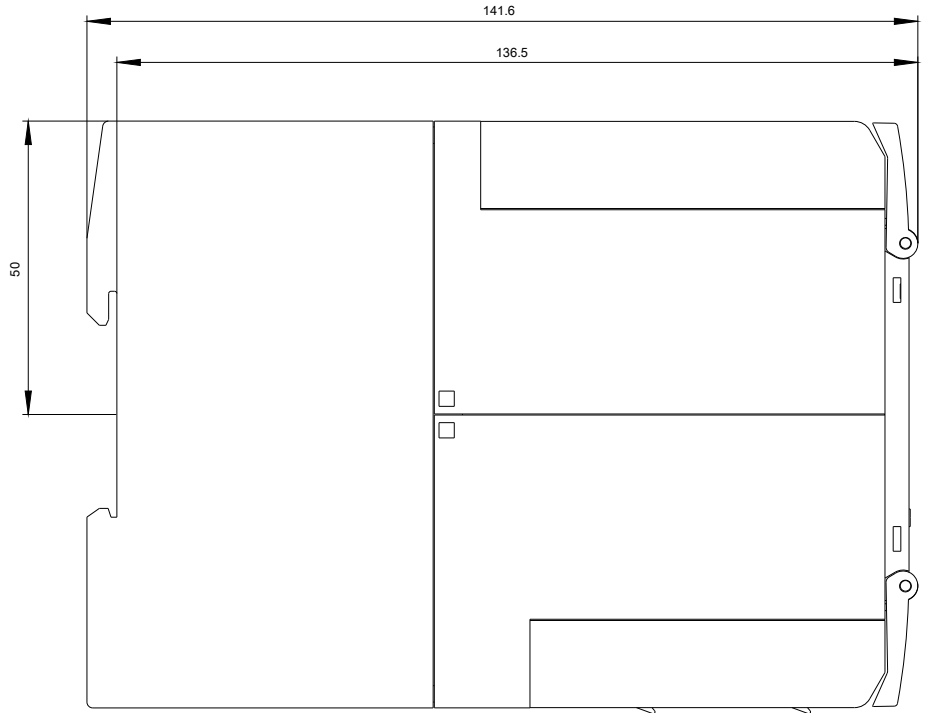
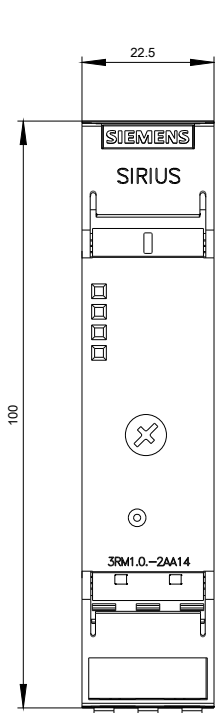
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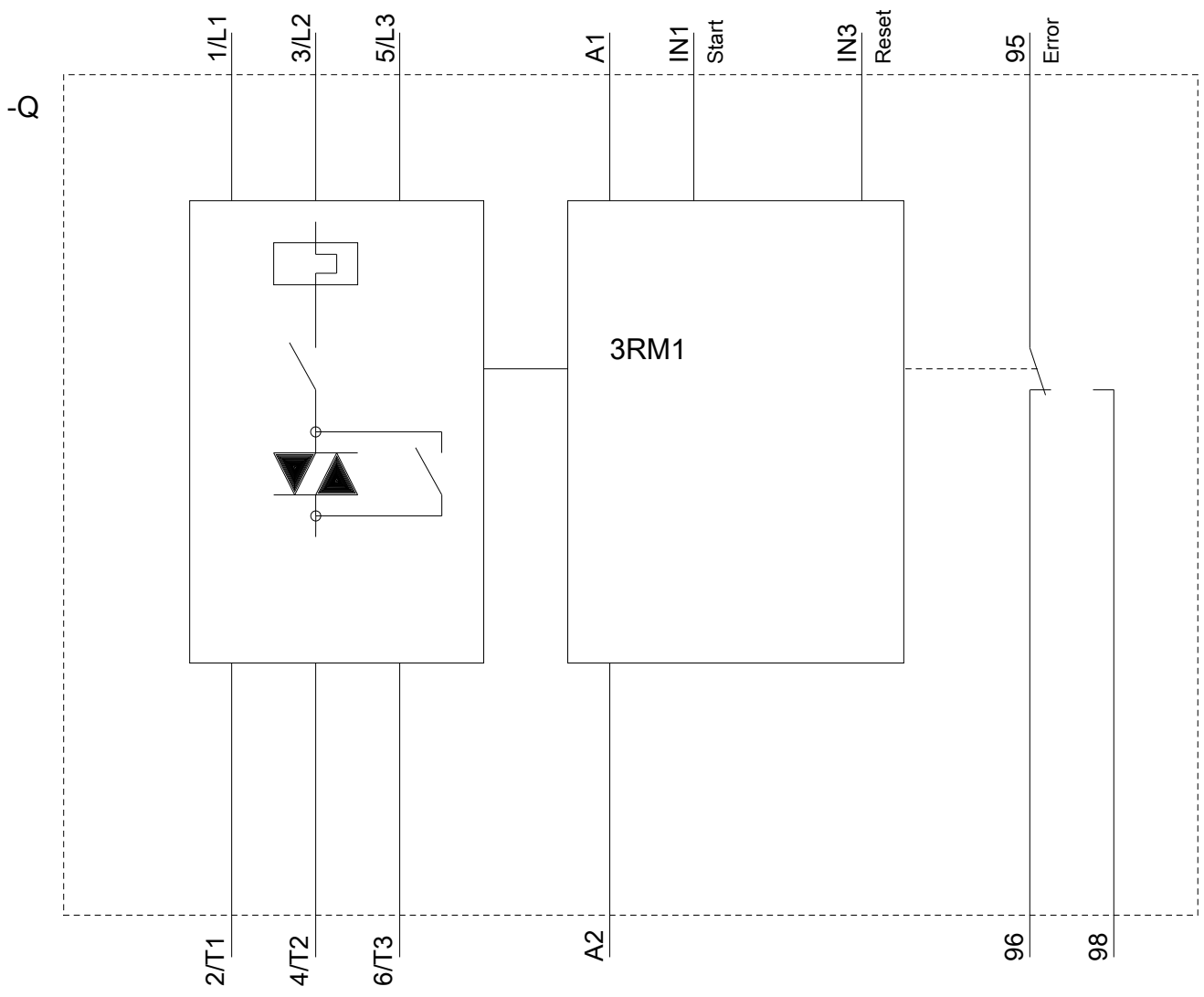
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

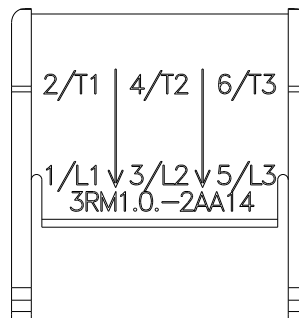
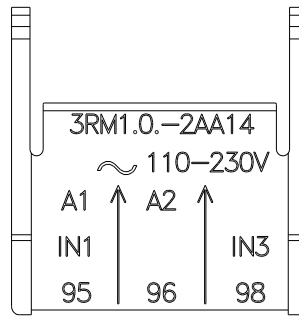
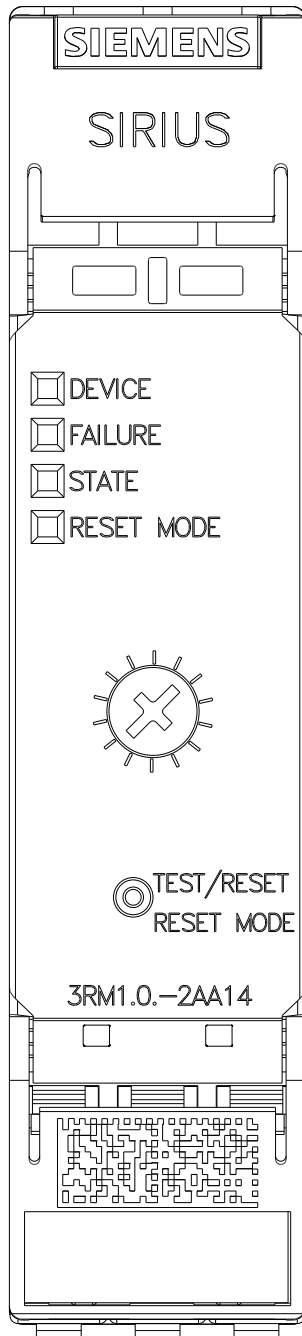
<https://support.industry.siemens.com/cs/ww/en/ps/3RM1002-2AA14>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1002-2AA14&lang=en







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