SIEMENS

Data sheet 3RM1007-3AA14

Direct starter, 3RM1, 500 V, 0.55 - 3 kW, 1.6 - 7 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

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	1.13 W
hot operating state per pole	
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/s², 500 Hz
Operating frequency maximum	1 1/s
Mechanical service life (switching cycles)	
• typical	30 000 000
Reference code acc. to DIN 40719 extended	Q
according to IEC 204-2 acc. to IEC 750	
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
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

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	1.6 7 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	
• at AC at 400 V rated value	7 A
 at AC-53a at 400 V at ambient temperature 40 C rated value 	7 A
Ampacity when starting maximum	56 A
Operating power for three-phase motors at 400 V at 50 Hz	0.55 3 kW
Derating temperature	40 °C
Inputs/ Outputs	
Input voltage at digital input	
at DC rated value	110 V
• with signal <0> at DC	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	
• with signal <0> typical	0.0004 A
● for signal <1> typical	0.002 A
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 230 V	0.4 mA
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
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	
● at 50 Hz	110 230 V
● at 60 Hz	110 230 V
Control supply voltage frequency	

• 2 rated value	• 1 rated value	50 Hz
or at DC rated value Operating range factor control supply voltage rated value at DC initial value Full-scale value Operating range factor control supply voltage rated value at AC at 50 Hz initial value Full-scale value Operating range factor control supply voltage rated value at AC at 60 Hz initial value Full-scale value Operating range factor control supply voltage rated value at AC at 60 Hz initial value Full-scale value Operating range factor control supply voltage rated value at AC at 60 Hz initial value Full-scale value Outloor current at AC at 110 V in standby mode at 110 V when switching on at 230 V vine suntiching on at 230 V vine switching on at 110 V during operation at 110 V during operation at 230 V during operation at 230 V during operation at 30 W during operation or at standby mode when switching on during operation Ordicol current at DC in standby mode when switching on during operation Off-deap time Off-deap time Off-deap time Off-deap time Off-deap time Off-deap time Secure and snap-on mounting onto 35 mm standard mounting rail Height Height Height Nounting type ewith side-by-side mounting - forwards Backwards O mm Required spacing • with side-by-side mounting - forwards Backwards O mm - upwards	2 rated value	60 Hz
Operating range factor control supply voltage rated value at DC initial value i	Control supply voltage 1	
value at DC initial value Full-scale value Operating range factor control supply voltage rated value at AC at 50 Hz initial value Operating range factor control supply voltage rated value at AC at 50 Hz initial value Operating range factor control supply voltage rated value at AC at 60 Hz initial value Initial value Operating range factor control supply voltage rated value at AC at 60 Hz initial value In	at DC rated value	110 V
initial value Full-scale value Coperating range factor control supply voltage rated value at AC at 50 Hz initial value Full-scale value Coperating range factor control supply voltage rated value at AC at 50 Hz initial value Full-scale value Coperating range factor control supply voltage rated value at AC at 60 Hz initial value Full-scale value 1.1 Full-scale value 1.6 mA 1.1 0 V initial value 1.7 0 V initial value 1.8 mA 110 V in standby mode 1.8 mA 110 V when switching on 1.8 mA 110 V during operation 1.8 mA 1.8 mA 1.9 mA	Operating range factor control supply voltage rated	
• Full-scale value Operating range factor control supply voltage rated value at AC at 50 Hz • initial value • initial value • Full-scale value Operating range factor control supply voltage rated value at AC at 60 Hz • initial value • or Initial value • initial value • Full-scale value O.85 Control current at AC • at 110 V in standby mode • at 230 V in standby mode • at 110 V when switching on • at 110 V when switching on • at 230 V when switching on • at 230 V ving operation • at 230 V ving operation • at 230 V ving operation • at 300 V during operation • in standby mode • when switching on • of smandby mode • when switching on • of smandby mode • when switching on • of delay time Off-delay time Off-delay time Switch-on delay time Off-delay ti	value at DC	
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value at AC at 50 Hz initial value Full-scale value Full	Full-scale value	1.1
Full-scale value Full-scale value Operating range factor control supply voltage rated value at AC at 60 Hz initial value Full-scale value o.85 Control current at AC at 110 V in standby mode at 1230 V in standby mode at 110 V when switching on at 110 V when switching on at 230 V during operation or of the switching on at 230 V during operation or of the switching on during operation or of the switching on during operation or of the switching on		0.05
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value at AC at 60 Hz 1.1 • initial value 1.1 • Full-scale value 0.85 Control current at AC		1.1
• Full-scale value Control current at AC • 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 230 V when switching on • at 230 V during operation • at 330 V during operation • in standby mode • in standby mode • when switching on • during operation **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 + leight 100 mm Mounting type screw and snap-on mounting onto 35 mm standard mounting rail Height Width 22.5 mm Depth 41.6 mm Required spacing • with side-by-side mounting — forwards — Backwards — upwards — upwards 50 mm		
Control current at AC	• initial value	1.1
 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 230 V when switching on at 230 V when switching on at 110 V during operation at 230 V during operation at 230 V during operation 22 mA Control current at DC in standby mode 6 mA when switching on during operation Response times Switch-on delay time 60 90 ms Off-delay time 60 90 ms Off-delay time wertical, 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 with side-by-side mounting forwards Backwards upwards 0 mm - growards upwards 50 mm 		0.85
at 230 V in standby mode at 110 V when switching on at 230 V during operation at 230 V during operation at 230 V during operation at 230 V during operation at 230 V during operation but at 230 V during operation control current at DC in standby mode at when switching on during operation at 30 mA Response times Switch-on delay time but at 230 V during operation at 240 V during operati	Control current at AC	
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at 230 V during operation Control current at DC in standby mode when switching on during operation Common to turing operation 15 mA during operation Response times Switch-on delay time 60 90 ms Off-delay time 60 90 ms 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 Required spacing with side-by-side mounting o mm forwards Backwards Backwards O mm Demans Demans O mm Demans De	at 230 V when switching on	33 mA
Control current at DC • in standby mode • when switching on • during operation 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 Required spacing • with side-by-side mounting — forwards — Backwards — Backwards — Backwards — Upwards 6 mA 6 mA 15 mA 8 mA 10 mm 9 ms 60 90 ms 10 mm 11 ms 12 ms 12 ms 13 ms 14 ms 14 ms 15 ms 16 ms 17 ms 17 ms 18 m	at 110 V during operation	36 mA
in standby mode when switching on during operation Response times Switch-on delay time Off-delay time Off-delay time 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 Required spacing with side-by-side mounting — forwards — Backwards — Backwards — upwards 6 mA 15 mA 10 mm vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm standard mounting rail 141.6 mm	 at 230 V during operation 	22 mA
when switching on during operation 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) screw and snap-on mounting onto 35 mm standard mounting rail Height 100 mm Width 22.5 mm Depth 141.6 mm Required spacing with side-by-side mounting — forwards — Backwards — Backwards — upwards 50 mm	Control current at DC	
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Response times Switch-on delay time 60 90 ms 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 Required spacing • with side-by-side mounting — forwards — Backwards — upwards 0 mm 50 mm	when switching on	15 mA
Switch-on 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 • with side-by-side mounting — forwards — Backwards — upwards 0 mm 50 mm	during operation	30 mA
Off-delay time 10 90 ms	Response times	
Installation/ mounting/ dimensions Mounting position Vertical, horizontal, standing (observe derating) Sorew and snap-on mounting onto 35 mm standard mounting rail Height 100 mm Vidth 22.5 mm Depth 141.6 mm Required spacing • with side-by-side mounting — forwards — Backwards — upwards 50 mm	Switch-on delay time	60 90 ms
Mounting positionvertical, horizontal, standing (observe derating)Mounting typescrew and snap-on mounting onto 35 mm standard mounting railHeight100 mmWidth22.5 mmDepth141.6 mmRequired spacing • with side-by-side mounting — forwards — Backwards — upwards0 mm- by many control — upwards0 mm50 mm50 mm	Off-delay time	60 90 ms
Mounting positionvertical, horizontal, standing (observe derating)Mounting typescrew and snap-on mounting onto 35 mm standard mounting railHeight100 mmWidth22.5 mmDepth141.6 mmRequired spacing • with side-by-side mounting — forwards — Backwards — upwards0 mm- by many control — upwards0 mm50 mm50 mm	Installation/ mounting/ dimensions	
Height Width 22.5 mm Depth 141.6 mm Required spacing • with side-by-side mounting — forwards — Backwards — upwards 100 mm 0 mm 0 mm 50 mm		vertical, horizontal, standing (observe derating)
Width 22.5 mm Depth 141.6 mm Required spacing ● with side-by-side mounting — forwards — Backwards — upwards 50 mm	Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail
Depth 141.6 mm Required spacing ● with side-by-side mounting — forwards 0 mm — Backwards 0 mm — upwards 50 mm	Height	100 mm
Required spacing • with side-by-side mounting		22.5 mm
 with side-by-side mounting forwards Backwards upwards 50 mm 		141.6 mm
 forwards Backwards upwards 0 mm 50 mm 		
— Backwards 0 mm — upwards 50 mm		
— upwards 50 mm	— forwards	
	— Backwards	
— downwards 50 mm	— upwards	50 mm
	— downwards	50 mm

— at the side	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
Connections/ Terminals	
Connections/ Terminals	

Connections/ Terminals	
Type of electrical connection	screw-type terminals for main circuit, spring-loaded terminals
	(push-in) for control circuit
• for main current circuit	screw-type terminals
 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 mm²), 2x (0,5 2,5 mm²)
— finely stranded with core end processing	1x (0,5 4 mm²), 2x (0,5 1,5 mm²)
 at AWG conductors for main contacts 	1x (20 12), 2x (20 14)
Connectable conductor cross-section for main	
contacts	
 single or multi-stranded 	0.5 4 mm²
 finely stranded with core end processing 	0.5 4 mm²
Connectable conductor cross-section for auxiliary	
contacts	
single or multi-stranded	0.5 1.5 mm²
 finely stranded with core end processing 	0.5 1 mm²
 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
• 101 duxillary contacts	

UL/CSA ratings

Yielded mechanical performance [hp]

• for single-phase AC motor

at 110/120 V rated value
 at 230 V rated value
 0.25 hp
 0.5 hp

• for three-phase AC motor

at 200/208 V rated value
 at 220/230 V rated value
 at 460/480 V rated value
 3 hp

Certificates/ approvals

General Product Approval

EMC

other

((()









Confirmation

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=3RM1007-3AA14

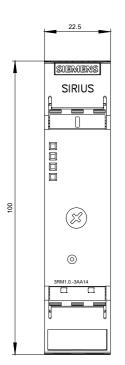
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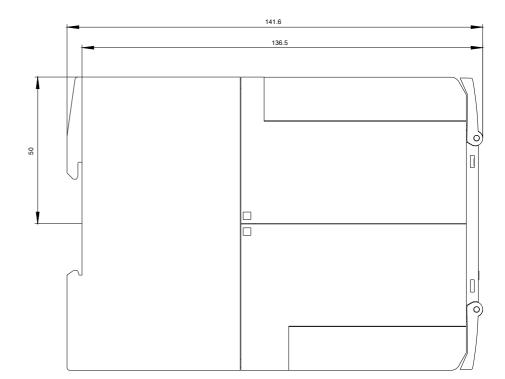
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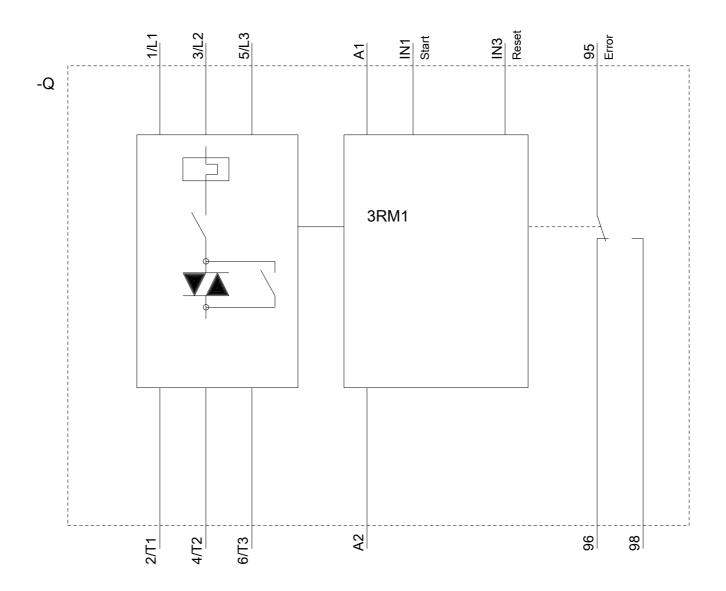
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

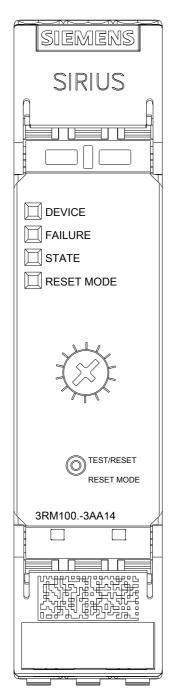
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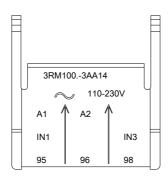
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1007-3AA14&lang=en

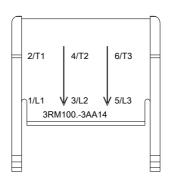












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