

Direct starter, 3RM1, 500 V, 0.09 - 0.75 kW, 0.4 - 2 A, 24 V DC, 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	Yes
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 the domestic, business and commercial environments
Field-bound HF-interference emission acc. to CISPR11	Class B for the domestic, business and commercial environments

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	
• at AC at 400 V rated value	2 A
• 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	
• at DC rated value	24 V
• with signal <0> at DC	0 ... 5 V
• for signal <1> at DC	15 ... 30
Input current at digital input	
• with signal <0> typical	0.001 A
• for signal <1> typical	0.011 A
Input current at digital input	
• for signal <1> at DC	11 mA
• with signal <0> at DC	1 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	DC
Control supply voltage 1	
• at DC rated value	24 V
Operating range factor control supply voltage rated value at DC	
• initial value	0.8
• Full-scale value	1.25
Control current at DC	
• in standby mode	25 mA
• when switching on	150 mA
• during operation	70 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)
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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 0 mm — Backwards 0 mm — upwards 50 mm — downwards 50 mm — at the side 0 mm • for grounded parts <ul style="list-style-type: none"> — 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	
<ul style="list-style-type: none"> • maximum 4 000 m 	
Ambient temperature	
<ul style="list-style-type: none"> • during operation -25 ... +60 °C • during storage -40 ... +70 °C • during transport -40 ... +70 °C 	
Relative humidity during operation	10 ... 95 %
Air pressure	
<ul style="list-style-type: none"> • 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	screw-type terminals for main circuit, spring-loaded terminals (push-in) for control circuit
<ul style="list-style-type: none"> • for main current circuit screw-type terminals • for auxiliary and control current circuit spring-loaded terminals (push-in) 	
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — 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	

<ul style="list-style-type: none"> • single or multi-stranded • finely stranded with core end processing 	<p>0.5 ... 4 mm²</p> <p>0.5 ... 4 mm²</p>
Connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> • single or multi-stranded • finely stranded with core end processing • finely stranded without core end processing 	<p>0.5 ... 1.5 mm²</p> <p>0.5 ... 1 mm²</p> <p>0.5 ... 1.5 mm²</p>
Type of connectable conductor cross-sections <ul style="list-style-type: none"> • for auxiliary contacts <ul style="list-style-type: none"> — solid — finely stranded with core end processing — finely stranded without core end processing • at AWG conductors for auxiliary contacts 	<p>1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²)</p> <p>1x (0,5 ... 1,0 mm²), 2x (0,5 ... 1,0 mm²)</p> <p>1x (0.5 ... 1.5 mm²), 2x (0.5 ... 1.5 mm²)</p> <p>1x (20 ... 16), 2x (20 ... 16)</p>
AWG number as coded connectable conductor cross section <ul style="list-style-type: none"> • for main contacts • for auxiliary contacts 	<p>20 ... 12</p> <p>20 ... 16</p>

UL/CSA ratings

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

General Product Approval	EMC	other
 CCC  CSA  UL	 EAC  RCM	Confirmation

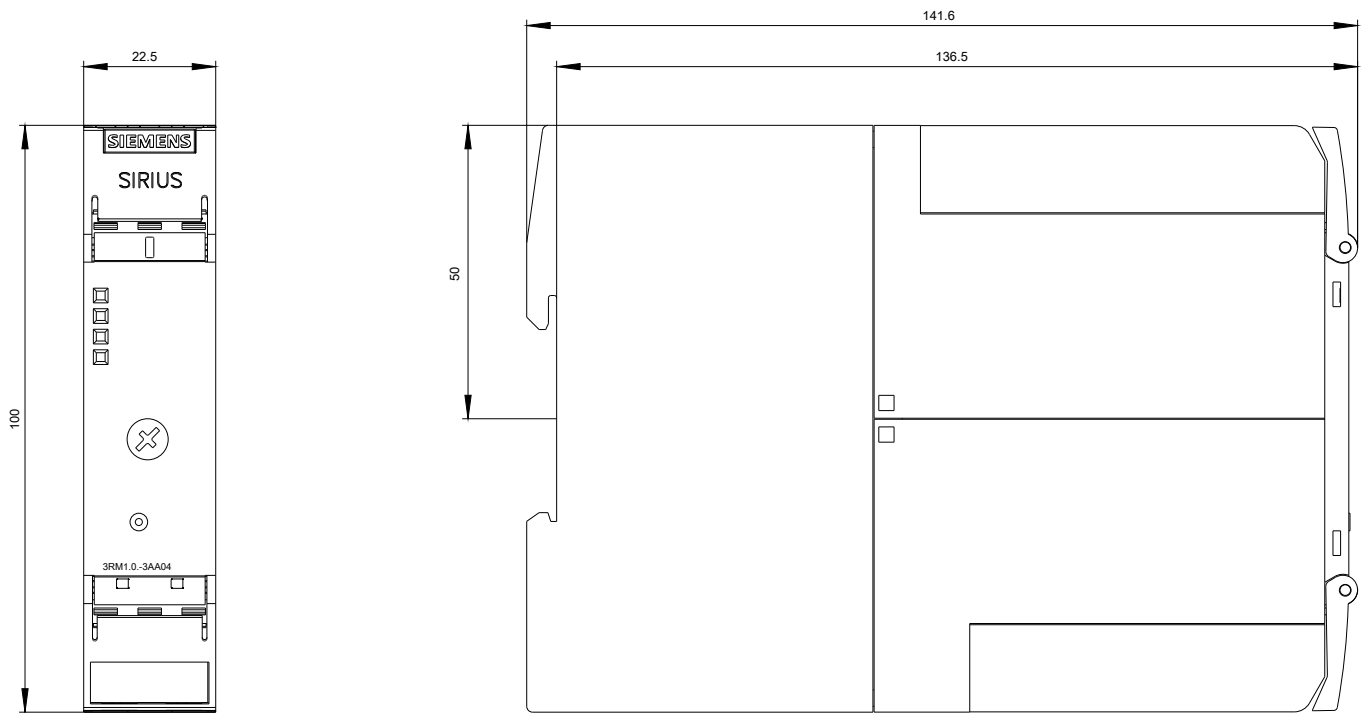
Further information

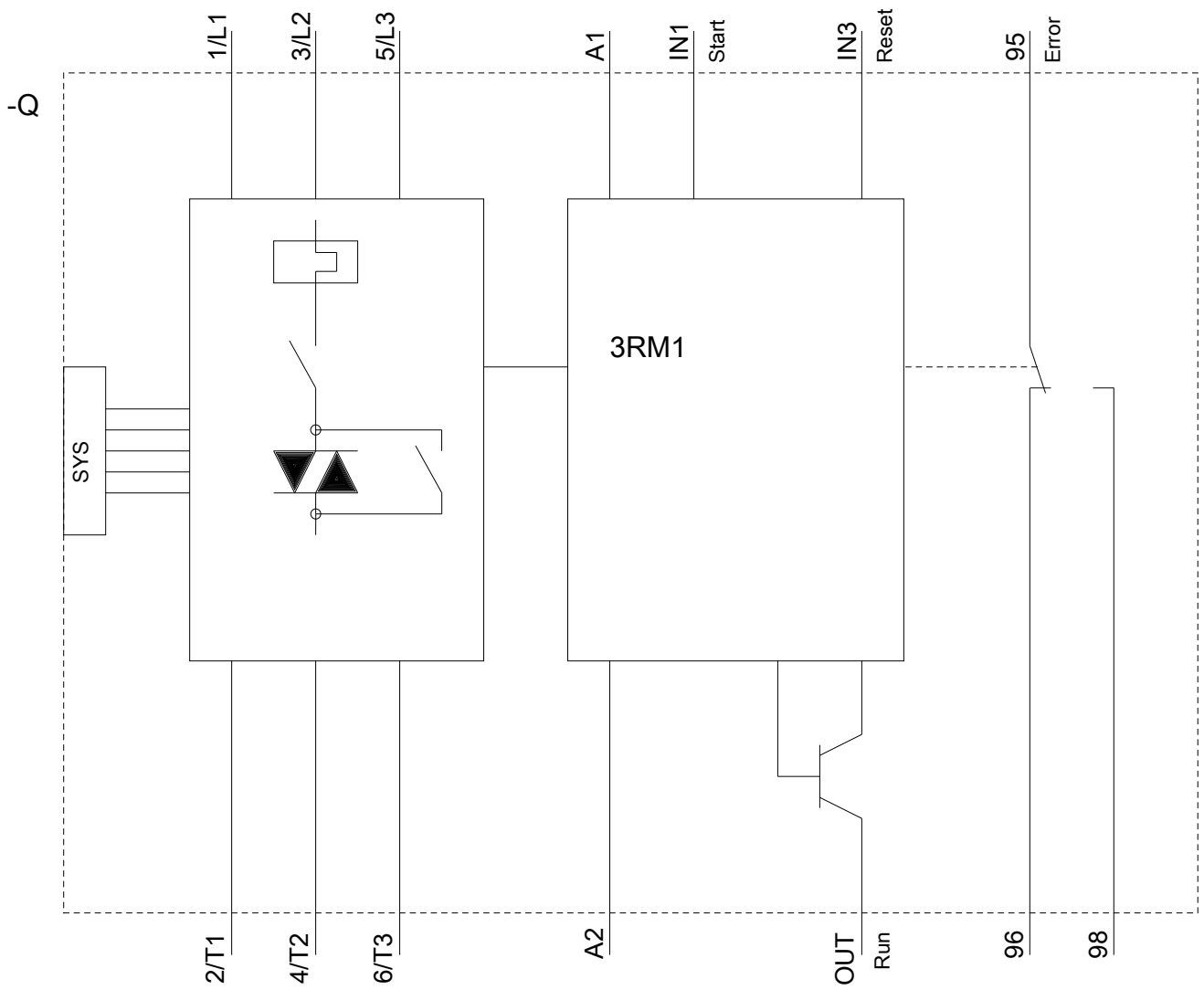
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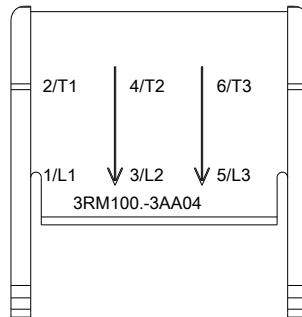
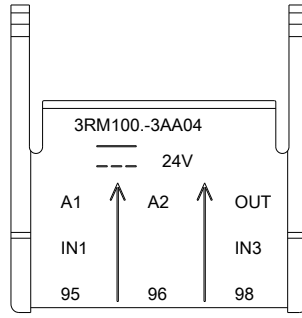
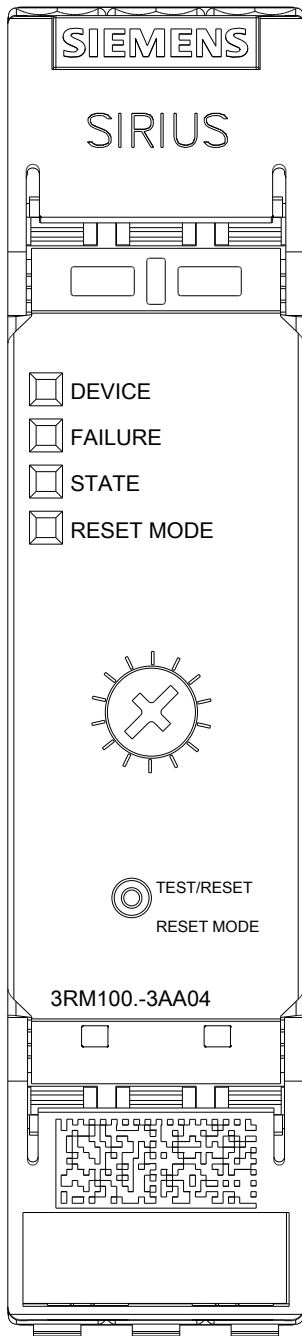
Industry Mall (Online ordering system)
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RM1002-3AA04>

Cax online generator
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1002-3AA04>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
<https://support.industry.siemens.com/cs/ww/en/ps/3RM1002-3AA04>







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