SIEMENS

Data sheet 3RM1101-2AA04



Fail-safe direct starter, 3RM1, 500 V, 0 - 0.12 kW, 0.1 - 0.5 A, 24 V DC, spring-type terminals

product brand name	SIRIUS
product category	Motor starter
product designation	Fail-safe direct starter
design of the product	With electronic overload protection and safety-related disconnection
product type designation	3RM1
General technical data	
equipment variant according to IEC 60947-4-2	3
product function	fail-safe direct starter
 intrinsic device protection 	Yes
 for power supply reverse polarity protection 	Yes
suitability for operation device connector 3ZY12	Yes
insulation voltage rated value	500 V
overvoltage category	III
surge voltage resistance rated value	6 kV
maximum permissible voltage for protective separation	
 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/s², 500 Hz
operating frequency maximum	1 1/s
mechanical service life (operating cycles) typical	15 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	03/01/2017
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	
 due to burst according to IEC 61000-4-4 	3 kV / 5 kHz
due to conductor-earth surge according to IEC 61000-4-5	4 kV signal lines 2 kV
 due to conductor-conductor surge according to IEC 61000-4-5 	2 kV
 due to high-frequency radiation according to IEC 61000- 4-6 	10 V
field-based interference according to IEC 61000-4-3	10 V/m
electrostatic discharge according to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge
conducted HF interference emissions according to CISPR11	Class B for the domestic, business and commercial environments

field-bound HF interference emission according to CISPR11	Class B for the domestic, business and commercial environments
Safety related data	
safety device type according to IEC 61508-2	Type B
B10d value	2 500 000
Safety Integrity Level (SIL) according to IEC 61508	3
	SILCL 3
SIL Claim Limit (subsystem) according to EN 62061	
performance level (PL) according to EN ISO 13849-1	e
category according to EN ISO 13849-1	4
stop category according to EN 60204-1	0
Safe failure fraction (SFF)	99 %
average diagnostic coverage level (DCavg)	99 %
diagnostics test interval by internal test function maximum	600 s
function test interval maximum	1a
failure rate [FIT]	
 at rate of recognizable hazardous failures (λdd) 	1 400 FIT
 at rate of non-recognizable hazardous failures (λdu) 	16 FIT
PFHD with high demand rate according to EN 62061	2E-8 1/h
PFDavg with low demand rate according to IEC 61508	0
MTTFd	75 a
hardware fault tolerance according to IEC 61508	1
safe state	Load circuit open
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe
hardware fault tolerance according to IEC 61508 relating to ATEX	0
PFDavg with low demand rate according to IEC 61508 relating to ATEX	0.0005
PFHD with high demand rate according to EN 62061 relating to ATEX	5E-8 1/h
Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX	SIL2
T1 value for proof test interval or service life according to IEC 61508 relating to ATEX	3 a
Main circuit	
number of poles for main current circuit	3
design of the switching contact	Hybrid
adjustable current response value current of the current- dependent overload release	0.1 0.5 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 %
	10 /0
operational current	0.5.4
at AC at 400 V rated value at AC 3 at 400 V rated value	0.5 A
 at AC-3 at 400 V rated value at AC-53a at 400 V at ambient temperature 40 °C rated 	0.5 A 0.5 A
value	4.0
ampacity when starting maximum	4 A
operating power for 3-phase motors at 400 V at 50 Hz	0 0.12 kW
nputs/ 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	
• for signal <1> at DC	8 mA
• with signal <0> at DC	1 mA
number of CO contacts for auxiliary contacts	1

operational current of auxiliary contacts at DC-13 at 24 V maximum	1A
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	19.2 30 V
relative negative tolerance of the control supply voltage at DC	20 %
relative positive tolerance of the control supply voltage at DC	25 %
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 of operation 	13 mA
during operation	57 mA
inrush current peak	
• at DC at 24 V	300 mA
 at DC at 24 V at switching on of motor 	130 mA
duration of inrush current peak	
• at DC at 24 V	80 ms
 at DC at 24 V at switching on of motor 	20 ms
power loss [W] in auxiliary and control circuit	
in switching state OFF	
— with bypass circuit	0.35 W
• in switching state ON	
— with bypass circuit	1.37 W
Response times	
ON-delay time	65 76 ms
OFF-delay time	30 43 ms
Power Electronics	
operational current	
• at 40 °C rated value	0.5 A
at 40 °C rated valueat 50 °C rated value	0.5 A 0.5 A
• at 50 °C rated value	0.5 A
 at 50 °C rated value at 55 °C rated value at 60 °C rated value 	0.5 A 0.5 A
 at 50 °C rated value at 55 °C rated value at 60 °C rated value 	0.5 A 0.5 A
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions	0.5 A 0.5 A 0.5 A
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating)
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value restallation/ mounting/ dimensions mounting position fastening method height width depth	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards — downwards	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards — downwards — at the side	0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 50 mm 0 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts forwards forwards at the side forwards	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 50 mm 0 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards — downwards — at the side for grounded parts — forwards — backwards — a the side for grounded parts — backwards — backwards — backwards	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards — downwards — at the side for grounded parts — forwards — backwards — a the side for grounded parts — backwards — upwards — upwards — hackwards — upwards — torwards — torwards — backwards — upwards	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards — downwards — at the side for grounded parts — forwards — backwards — upwards — at the side of rorwards — backwards — at the side — horwards — backwards — backwards — backwards — backwards — backwards — at the side	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm 0 mm
at 50 °C rated value at 60 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts forwards backwards upwards at the side upwards downwards at the side upwards downwards at the side downwards at the side downwards at the side downwards at the side downwards	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm
at 50 °C rated value at 60 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts forwards backwards at the side for wards downwards at the side backwards upwards downwards at the side downwards	0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm 50 mm 50 mm 50 mm 50 mm
at 50 °C rated value at 60 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts forwards backwards upwards at the side upwards downwards at the side upwards downwards at the side downwards at the side downwards at the side downwards at the side downwards	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm 0 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts forwards backwards at the side for wards downwards at the side upwards downwards at the side downwards Ambient conditions	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm 50 mm 50 mm 50 mm 50 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting forwards backwards upwards downwards at the side for grounded parts forwards backwards at the side for wards downwards at the side downwards Ambient conditions installation altitude at height above sea level maximum	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm 50 mm 50 mm 50 mm 50 mm
at 50 °C rated value at 55 °C rated value at 60 °C rated value Installation/ mounting/ dimensions mounting position fastening method height width depth required spacing with side-by-side mounting — forwards — backwards — upwards — downwards — at the side for grounded parts — forwards — backwards — upwards — at the side for grounded parts — forwards — backwards — upwards — backwards — upwards — hackwards — backwards — upwards — backwards — installation altitude at height above sea level maximum ambient temperature	0.5 A 0.5 A 0.5 A 0.5 A 0.5 A vertical, horizontal, standing (observe derating) screw and snap-on mounting onto 35 mm DIN rail 100 mm 23 mm 142 mm 0 mm 0 mm 50 mm 0 mm 0 mm 0 mm 50 mm 50 mm 4 mm 50 mm 50 mm

environmental category during operation according to IEC 60721	3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6
relative humidity during operation	10 95 %
air pressure according to SN 31205	900 1 060 hPa
Communication/ Protocol	
protocol is supported	
PROFINET IO protocol	No
PROFIsafe protocol	No
product function bus communication	No
protocol is supported AS-Interface protocol	No
Connections/ Terminals	
type of electrical connection	spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for control 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	
• 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	
 solid or stranded 	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm²
 finely stranded without core end processing 	0.5 4 mm²
connectable conductor cross-section for auxiliary contacts	
 solid or 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 mm²
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)
 for AWG cables 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	
operating voltage at AC rated value	480 V
operational current at AC at 480 V according to UL 508	0.5 A
Certificates/ approvals	
General Product Approval	FMC

General Product Approval





Confirmation









For use in hazardous locations Functional Safety/Safety of Machinery

Declaration of Conformity

Test Certificates

other

 $\langle \mathbf{E}_{\mathbf{x}} \rangle$

Type Examination Certificate

UK CA

CE EG-Konf. Type Test Certificates/Test Report

Confirmation

Railway

Special Test Certific-

Further information

Siemens has decided to exit the Russian market (see here).

https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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=3RM1101-2AA04

Cax online generator

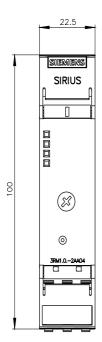
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1101-2AA04

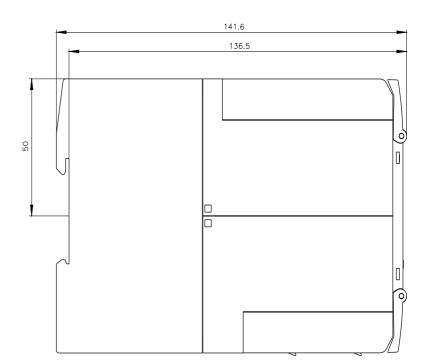
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

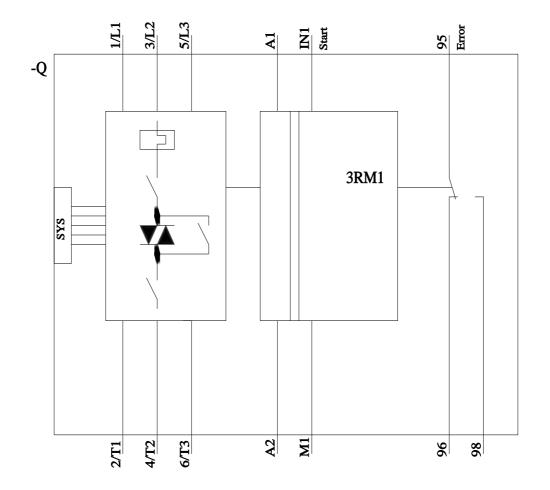
https://support.industry.siemens.com/cs/ww/en/ps/3RM1101-2AA04

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

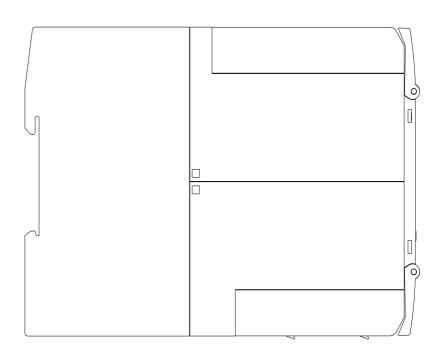
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1101-2AA04&lang=en











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