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Data sheet 3RM1302-1AA04



Fail-safe reversing starter, 3RM1, 500 V, 0.09 - 0.75 kW, 0.4 - 2 A, 24 V DC, screw terminals

product brand name	SIRIUS
product category	Motor starter
product designation	Failsafe reversing starters
design of the product	With electronic overload protection and safety-related disconnection
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
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	15 000 000
reference code acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	01.03.2017 00:00:00
product function	
● direct start	No
● reverse starting	Yes
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	4 kV signal lines 2 kV
● due to conductor-conductor surge acc. to IEC 61000-4-5	2 kV
● due to high-frequency radiation acc. to IEC 61000-4-6	10 V
electrostatic discharge acc. to IEC 61000-4-2	6 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

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Safety related data	
safety device type acc. to IEC 61508-2	Type B
Safety Integrity Level (SIL) acc. to IEC 61508	3
performance level (PL) acc. to EN ISO 13849-1	e
category acc. to EN ISO 13849-1	4
stop category acc. to DIN EN 60204-1	0
Safe failure fraction (SFF)	99.4 %
average diagnostic coverage level (DCavg)	99 %
diagnostics test interval by internal test function maximum	600 s
function test interval maximum	1 y
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 acc. to EN 62061	0.00000002 1/h
PFDavg with low demand rate acc. to IEC 61508	0.000018
MTTFd	75 y
hardware fault tolerance acc. to IEC 61508	1
T1 value for proof test interval or service life acc. to IEC 61508	20 y
safe state	Load circuit open
OFF delay time with safety-related request	
● when switched off via control inputs maximum	43 ms
● when switched off via supply voltage maximum	120 ms
hardware fault tolerance acc. to IEC 61508 relating to ATEX	0
PFDavg with low demand rate acc. to IEC 61508 relating to ATEX	0.0005
PFHD with high demand rate acc. to EN 62061 relating to ATEX	0.00000005 1/h
Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX	SIL2
T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX	3 y
Main circuit	
number of poles for main current circuit	3
adjustable current response 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 %
operational 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 3-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	
● for signal <1> at DC	8 mA

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● with signal <0> at DC	1 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	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 of operation	13 mA
● when switching on	150 mA
● during operation	57 mA
Response times	
switch ON delay time	65 ... 76 ms
OFF delay time	30 ... 43 ms
Installation/ mounting/ dimensions	
mounting position	vertical, horizontal, standing (observe derating)
fastening method	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	0 mm
— backwards	0 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	2 000 m
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	
type of electrical connection	screw-type terminals for main circuit, screw-type terminals for control circuit
● for main current circuit	screw-type terminals
● for auxiliary and control circuit	screw-type terminals
type of electrical wiring	
● for main current circuit	1 or 2 conductors
● for auxiliary and control circuit	1 or 2 conductors
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 cables for main contacts	1x (20 ... 12), 2x (20 ... 14)

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connectable conductor cross-section for main contacts	
● solid or stranded	0.5 ... 4 mm²
● finely stranded with core end processing	0.5 ... 4 mm²
connectable conductor cross-section for auxiliary contacts	
● solid or stranded	0.5 ... 2.5 mm²
● finely stranded with core end processing	0.5 ... 2.5 mm²
type of connectable conductor cross-sections	
● for auxiliary contacts	
— solid	1x (0,5 ... 2,5 mm²), 2x (1,0 ... 1,5 mm²)
— finely stranded with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)
● at AWG cables for auxiliary contacts	1x (20 ... 14), 2x (18 ... 16)
● AWG number as coded connectable conductor cross section for main contacts	20 ... 12
● AWG number as coded connectable conductor cross section for auxiliary contacts	20 ... 14

UL/CSA ratings

yielded mechanical performance [hp]	
● for single-phase AC motor	
— at 230 V rated value	0.125 hp
● for 3-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

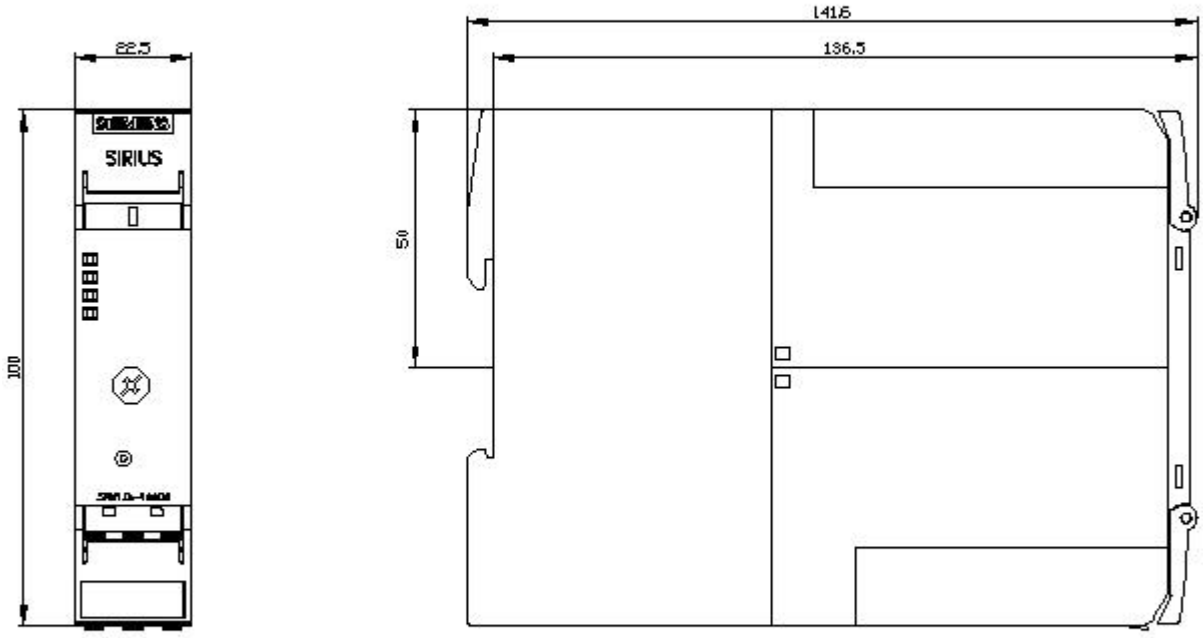
General Product Approval				EMC	For use in hazardous locations
CSA	CCC	UL	EAC	RCM	ATEX

Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates	other	Railway
Type Examination Certificate	CE EG-Konf.	Miscellaneous	Type Test Certificates/Test Report	Confirmation	Special Test Certificate

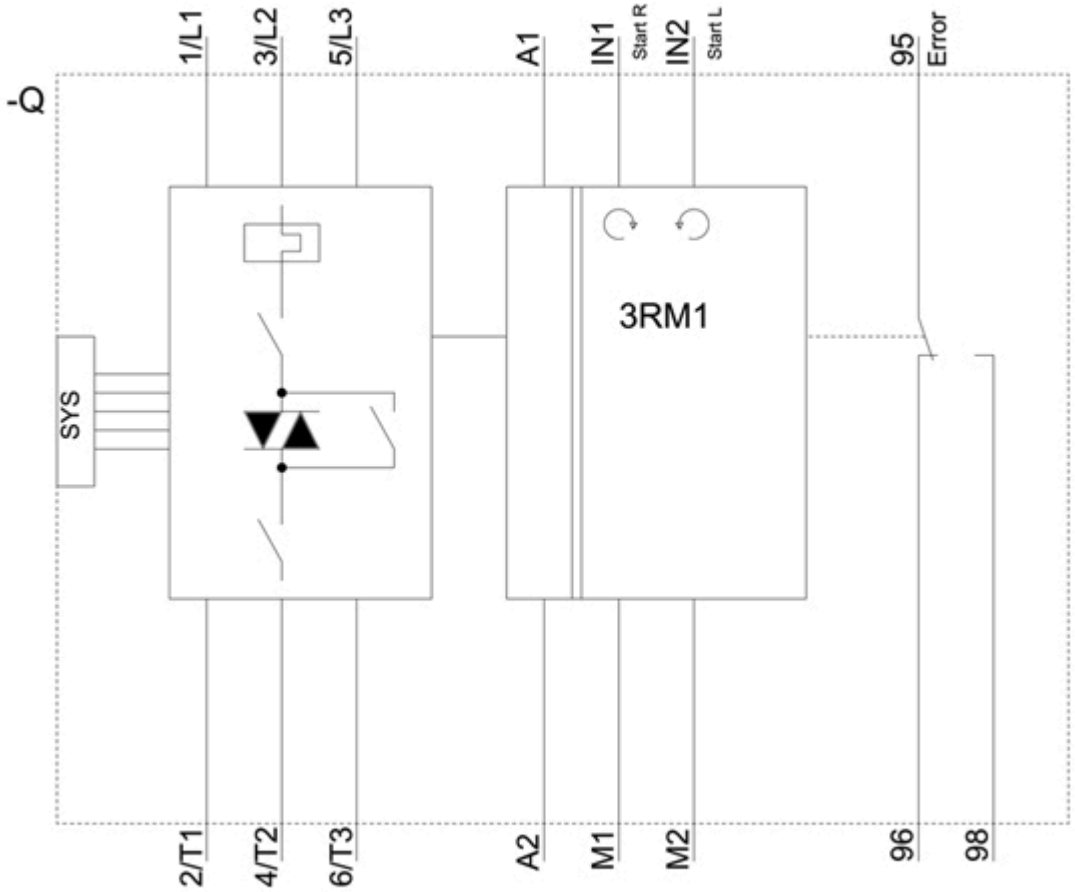
Further information

Information- and Downloadcenter (Catalogs, Brochures,…)
https://www.siemens.com/ic10
Industry Mall (Online ordering system)
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Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1302-1AA04
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RM1302-1AA04
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1302-1AA04&lang=en

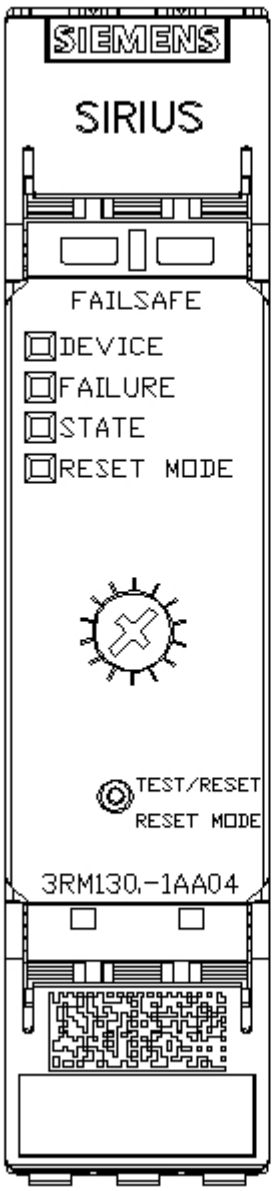
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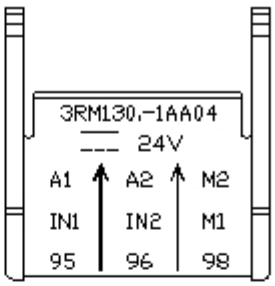


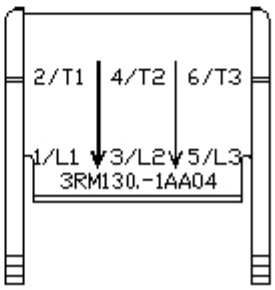
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