



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

<b>product brand name</b>	SIRIUS
<b>product category</b>	Motor starter
<b>product designation</b>	Fail-safe direct starter
<b>design of the product</b>	With electronic overload protection and safety-related disconnection
<b>product type designation</b>	3RM1
<b>General technical data</b>	
<b>trip class</b>	CLASS 10A
<b>product function</b>	
• intrinsic device protection	Yes
<b>suitability for operation device connector 3ZY12</b>	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
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for safe isolation</b>	
• between main and auxiliary circuit	500 V
• between control and auxiliary circuit	250 V
<b>shock resistance</b>	6g / 11 ms
<b>vibration resistance</b>	1 ... 6 Hz, 15 mm; 20 m/s <sup>2</sup> , 500 Hz
<b>operating frequency maximum</b>	1 1/s
mechanical service life (switching cycles) typical	15 000 000
<b>reference code acc. to IEC 81346-2</b>	Q
Substance Prohibitance (Date)	01.03.2017 00:00:00
<b>product function</b>	
• direct start	Yes
• reverse starting	No
<b>product function short circuit protection</b>	No
<b>Electromagnetic compatibility</b>	
<b>conducted interference</b>	
• 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
<b>electrostatic discharge acc. to IEC 61000-4-2</b>	6 kV contact discharge / 8 kV air discharge
<b>conducted HF interference emissions acc. to CISPR11</b>	Class B for the domestic, business and commercial environments
<b>field-bound HF interference emission acc. to CISPR11</b>	Class B for the domestic, business and commercial environments

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 ( $\lambda_{dd}$ )	1 400 FIT
• at rate of non-recognizable hazardous failures ( $\lambda_{du}$ )	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

• with signal <0> at DC	1 mA
number of CO contacts for auxiliary contacts	1
<b>operational current of auxiliary contacts at AC-15 at 230 V maximum</b>	3 A
<b>operational current of auxiliary contacts at DC-13 at 24 V maximum</b>	1 A
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	DC
• control supply voltage 1 at DC rated value	24 V
<b>operating range factor control supply voltage rated value at DC</b>	
• initial value	0.8
• full-scale value	1.25
<b>control current at DC</b>	
• in standby mode of operation	13 mA
• when switching on	150 mA
• during operation	57 mA
<b>Response times</b>	
<b>switch ON delay time</b>	65 ... 76 ms
<b>OFF delay time</b>	30 ... 43 ms
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	vertical, horizontal, standing (observe derating)
<b>fastening method</b>	screw and snap-on mounting onto 35 mm standard mounting rail
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	141.6 mm
<b>required spacing</b>	
• 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
<b>Ambient conditions</b>	
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
<b>Communication/ Protocol</b>	
<b>product function bus communication</b>	No
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	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
<b>type of electrical wiring</b>	
• for main current circuit	1 or 2 conductors
• for auxiliary and control circuit	1 or 2 conductors
<b>type of connectable conductor cross-sections</b>	
• for main contacts	
— solid	1x (0,5 ... 4 mm <sup>2</sup> ), 2x (0,5 ... 2,5 mm <sup>2</sup> )
— finely stranded with core end processing	1x (0,5 ... 4 mm <sup>2</sup> ), 2x (0,5 ... 1,5 mm <sup>2</sup> )
• at AWG cables for main contacts	1x (20 ... 12), 2x (20 ... 14)

<b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>	0.5 ... 4 mm <sup>2</sup> 0.5 ... 4 mm <sup>2</sup>
<b>connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>	0.5 ... 2.5 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for auxiliary contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for auxiliary contacts</li> </ul>	1x (0,5 ... 2,5 mm <sup>2</sup> ), 2x (1,0 ... 1,5 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (20 ... 14), 2x (18 ... 16)
<ul style="list-style-type: none"> <li>• AWG number as coded connectable conductor cross section for main contacts</li> <li>• AWG number as coded connectable conductor cross section for auxiliary contacts</li> </ul>	20 ... 12  20 ... 14

#### UL/CSA ratings

<b>yielded mechanical performance [hp]</b> <ul style="list-style-type: none"> <li>• for single-phase AC motor <ul style="list-style-type: none"> <li>— at 230 V rated value</li> </ul> </li> <li>• for 3-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> <li>— at 220/230 V rated value</li> <li>— at 460/480 V rated value</li> </ul> </li> </ul>	0.125 hp  0.333 hp 0.333 hp 0.75 hp
--	---

#### Certificates/ approvals

General Product Approval	EMC	For use in hazardous locations
--------------------------	-----	--------------------------------



Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates	other	Railway
---------------------------------------	---------------------------	-------------------	-------	---------

[Type Examination Certificate](#)

[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)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RM1102-1AA04>

Cax online generator

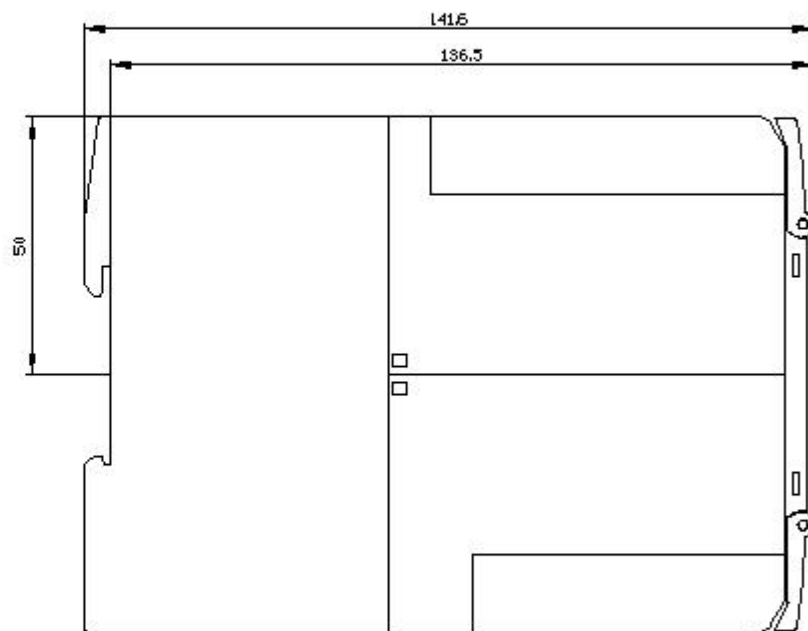
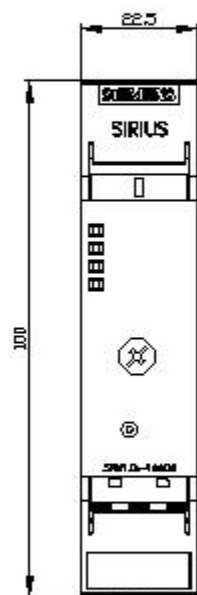
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1102-1AA04>

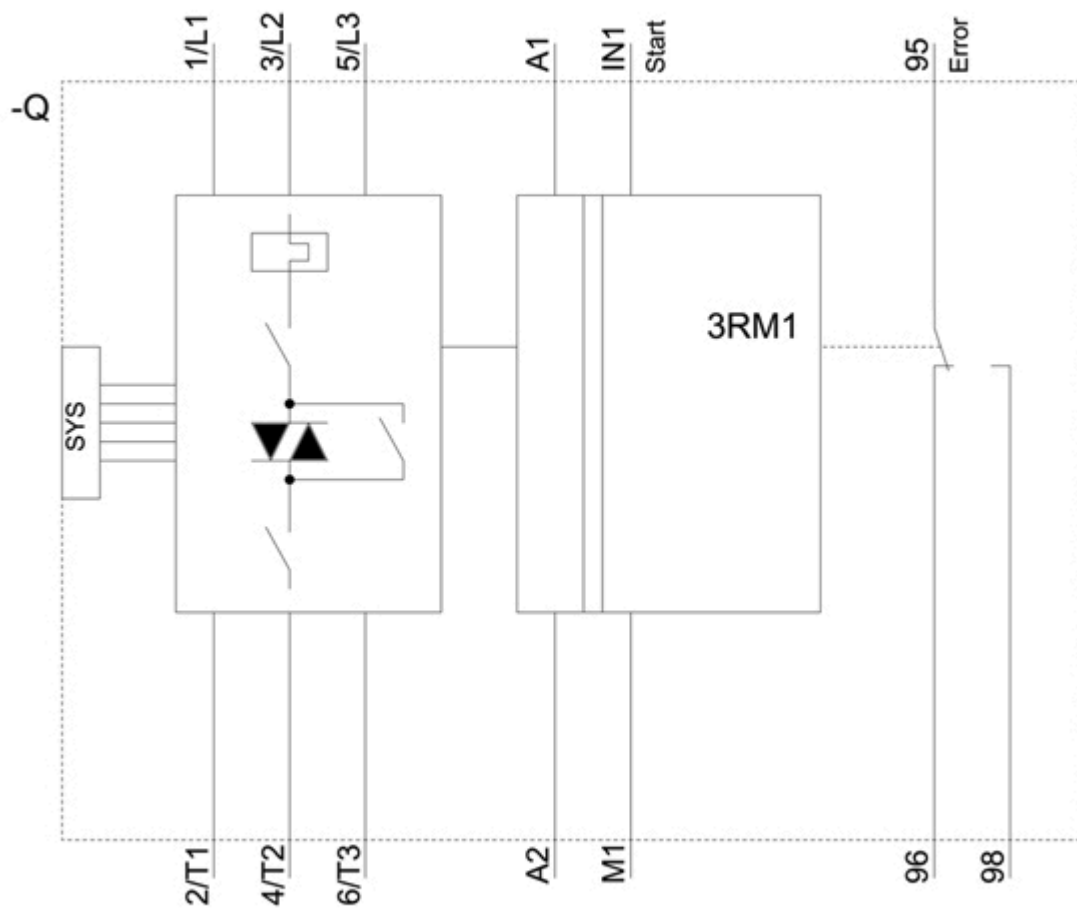
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

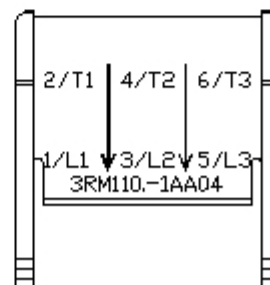
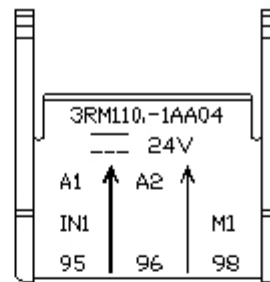
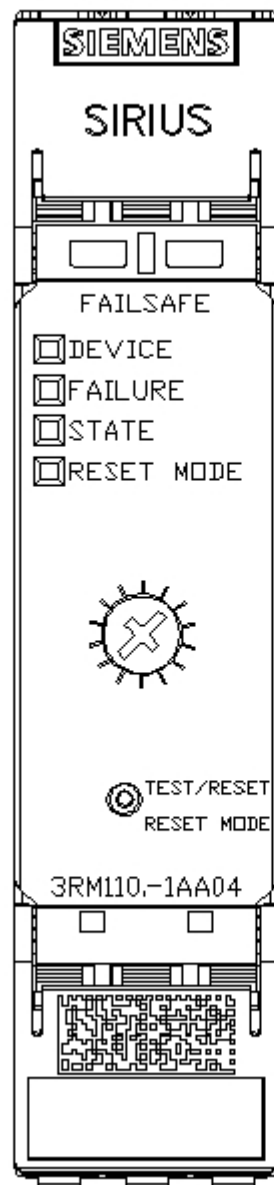
<https://support.industry.siemens.com/cs/ww/en/ps/3RM1102-1AA04>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RM1102-1AA04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1102-1AA04&lang=en)







last modified:

12/23/2020 [🔗](#)