

Circuit breaker size S0 for motor protection, CLASS 10 A-release  
16...22 A N-release 286 A Spring-type terminal Standard switching  
capacity



product brand name	SIRIUS
product designation	Circuit breaker
design of the product	For motor protection
product type designation	3RV2

General technical data	
size of the circuit-breaker	S0
size of contactor can be combined company-specific	S00, S0
product extension	Yes
<ul style="list-style-type: none"> <li>• auxiliary switch</li> </ul>	Yes
power loss [W] for rated value of the current	
<ul style="list-style-type: none"> <li>• at AC in hot operating state</li> </ul>	10.5 W
<ul style="list-style-type: none"> <li>• at AC in hot operating state per pole</li> </ul>	3.5 W
insulation voltage with degree of pollution 3 at AC rated value	690 V
surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
<ul style="list-style-type: none"> <li>• in networks with grounded star point between main and auxiliary circuit</li> </ul>	400 V

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<b>protection class IP</b>	
<ul style="list-style-type: none"> <li>on the front</li> </ul>	IP20
<ul style="list-style-type: none"> <li>of the terminal</li> </ul>	IP20
<b>shock resistance</b>	
<ul style="list-style-type: none"> <li>acc. to IEC 60068-2-27</li> </ul>	25g / 11 ms
<b>mechanical service life (switching cycles)</b>	
<ul style="list-style-type: none"> <li>of the main contacts typical</li> </ul>	100 000
<ul style="list-style-type: none"> <li>of auxiliary contacts typical</li> </ul>	100 000
<b>electrical endurance (switching cycles)</b>	
<ul style="list-style-type: none"> <li>typical</li> </ul>	100 000
<b>type of protection according to ATEX directive 2014/34/EU</b>	Ex II (2) GD
certificate of suitability according to ATEX directive 2014/34/EU	DMT 02 ATEX F 001
<b>reference code acc. to DIN EN 81346-2</b>	Q

#### Ambient conditions

<ul style="list-style-type: none"> <li>installation altitude at height above sea level maximum</li> </ul>	2 000 m
<b>ambient temperature</b>	
<ul style="list-style-type: none"> <li>during operation</li> </ul>	-20 ... +60 °C
<ul style="list-style-type: none"> <li>during storage</li> </ul>	-50 ... +80 °C
<ul style="list-style-type: none"> <li>during transport</li> </ul>	-50 ... +80 °C
<b>temperature compensation</b>	-20 ... +60 °C
relative humidity during operation	10 ... 95 %

#### Main circuit

<b>number of poles for main current circuit</b>	3
<b>adjustable pick-up value current of the current-dependent overload release</b>	16 ... 22 A
<b>operating voltage</b>	
<ul style="list-style-type: none"> <li>rated value</li> </ul>	690 V
<ul style="list-style-type: none"> <li>at AC-3 rated value maximum</li> </ul>	690 V
<b>operating frequency rated value</b>	50 ... 60 Hz
<b>operating current rated value</b>	22 A
<b>operating current</b>	
<ul style="list-style-type: none"> <li>at AC-3 <ul style="list-style-type: none"> <li>— at 400 V rated value</li> </ul> </li> </ul>	22 A
<b>operating power</b>	
<ul style="list-style-type: none"> <li>at AC-3 <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 400 V rated value</li> </ul> </li> </ul>	5 500 W 11 000 W

— at 500 V rated value	11 000 W
— at 690 V rated value	18 500 W
<b>operating frequency</b>	
• at AC-3 maximum	15 1/h

#### Auxiliary circuit

<b>number of NC contacts for auxiliary contacts</b>	0
<b>number of NO contacts for auxiliary contacts</b>	0
<b>number of CO contacts</b>	
• for auxiliary contacts	0

#### Protective and monitoring functions

<b>product function</b>	
• ground fault detection	No
• phase failure detection	Yes
<b>trip class</b>	CLASS 10
<b>design of the overload release</b>	thermal
<b>operational short-circuit current breaking capacity (Ics) at AC</b>	
• at 240 V rated value	100 kA
• at 400 V rated value	25 kA
• at 500 V rated value	5 kA
• at 690 V rated value	2 kA
<b>maximum short-circuit current breaking capacity (Icu)</b>	
• at AC at 240 V rated value	100 kA
• at AC at 400 V rated value	55 kA
• at AC at 500 V rated value	10 kA
• at AC at 690 V rated value	4 kA
<b>response value current</b>	
• of instantaneous short-circuit trip unit	286 A

#### UL/CSA ratings

<b>full-load current (FLA) for three-phase AC motor</b>	
• at 480 V rated value	22 A
• at 600 V rated value	22 A
<b>yielded mechanical performance [hp]</b>	
• for single-phase AC motor	
— at 110/120 V rated value	1.5 hp
— at 230 V rated value	3 hp
• for three-phase AC motor	
— at 200/208 V rated value	7.5 hp
— at 220/230 V rated value	7.5 hp
— at 460/480 V rated value	15 hp

## Short-circuit protection

<b>product function short circuit protection</b>	Yes
<b>design of the short-circuit trip</b>	magnetic
<b>design of the fuse link for IT network for short-circuit protection of the main circuit</b> <ul style="list-style-type: none"><li>• at 400 V</li><li>• at 500 V</li><li>• at 690 V</li></ul>	gL/gG 63 A gL/gG 50 A gL/gG 50 A

## Installation/ mounting/ dimensions

<b>mounting position</b>	any
<b>mounting type</b>	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
<b>height</b>	119 mm
<b>width</b>	45 mm
<b>depth</b>	97 mm
<b>required spacing</b> <ul style="list-style-type: none"><li>• for grounded parts at 400 V<ul style="list-style-type: none"><li>— downwards 30 mm</li><li>— upwards 30 mm</li><li>— backwards 0 mm</li><li>— at the side 9 mm</li><li>— forwards 0 mm</li></ul></li><li>• for live parts at 400 V<ul style="list-style-type: none"><li>— downwards 30 mm</li><li>— upwards 30 mm</li><li>— backwards 0 mm</li><li>— at the side 9 mm</li><li>— forwards 0 mm</li></ul></li><li>• for grounded parts at 500 V<ul style="list-style-type: none"><li>— downwards 30 mm</li><li>— upwards 30 mm</li><li>— backwards 0 mm</li><li>— at the side 9 mm</li><li>— forwards 0 mm</li></ul></li><li>• for live parts at 500 V<ul style="list-style-type: none"><li>— downwards 30 mm</li><li>— upwards 30 mm</li><li>— backwards 0 mm</li><li>— at the side 9 mm</li><li>— forwards 0 mm</li></ul></li><li>• for grounded parts at 690 V</li></ul>	

— downwards	50 mm
— upwards	50 mm
— backwards	0 mm
— at the side	30 mm
— forwards	0 mm
• for live parts at 690 V	
— downwards	50 mm
— upwards	50 mm
— backwards	0 mm
— at the side	30 mm
— forwards	0 mm

## Connections/ Terminals

<b>product function</b>	
• removable terminal for auxiliary and control circuit	No
<b>type of electrical connection</b>	
• for main current circuit	spring-loaded terminals
<b>arrangement of electrical connectors for main current circuit</b>	Top and bottom
<b>type of connectable conductor cross-sections</b>	
• for main contacts	
— single or multi-stranded	2x (1 ... 10 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 6 mm <sup>2</sup> )
— finely stranded without core end processing	2x (1 ... 6 mm <sup>2</sup> )
• at AWG conductors for main contacts	2x (18 ... 8)
<b>design of screwdriver shaft</b>	Diameter 3 mm
<b>size of the screwdriver tip</b>	3,0 x 0,5 mm

## Safety related data

<b>B10 value</b>	
• with high demand rate acc. to SN 31920	5 000
<b>proportion of dangerous failures</b>	
• with low demand rate acc. to SN 31920	50 %
• with high demand rate acc. to SN 31920	50 %
<b>failure rate [FIT]</b>	
• with low demand rate acc. to SN 31920	50 FIT
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	10 y
<b>display version</b>	
• for switching status	Handle

## Certificates/ approvals

General Product Approval	For use in hazardous locations
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[KC](#)



For use in hazardous locations	Declaration of Conformity	Test Certificates	Marine / Shipping
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[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping	other
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[Confirmation](#)

other	Railway
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[Vibration and Shock](#)

[Confirmation](#)

### 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=3RV2021-4CA20>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2021-4CA20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RV2021-4CA20>

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

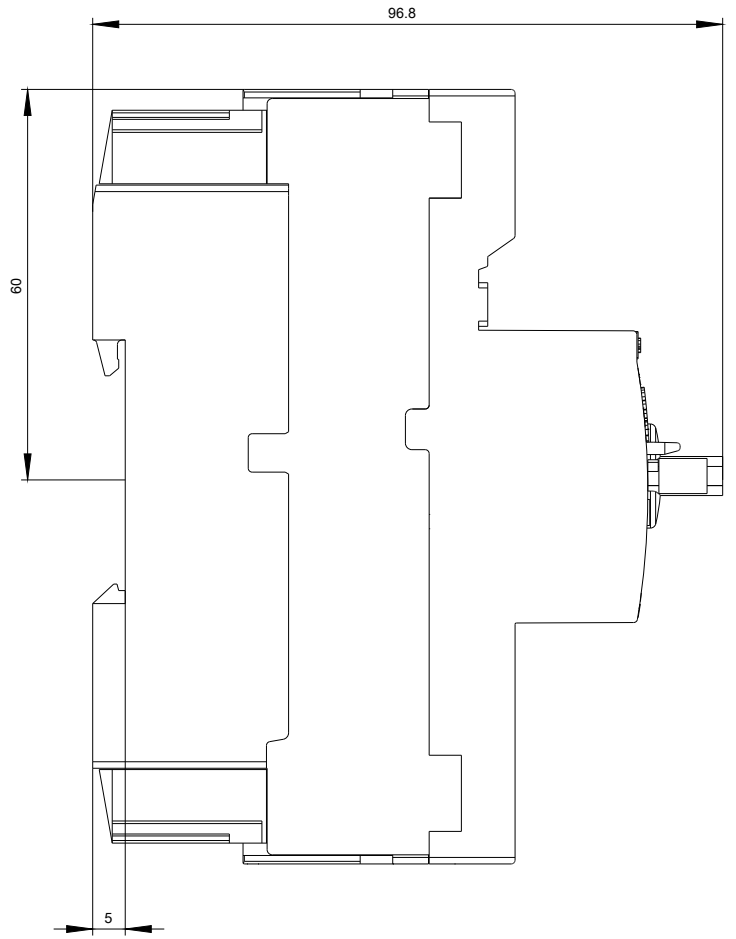
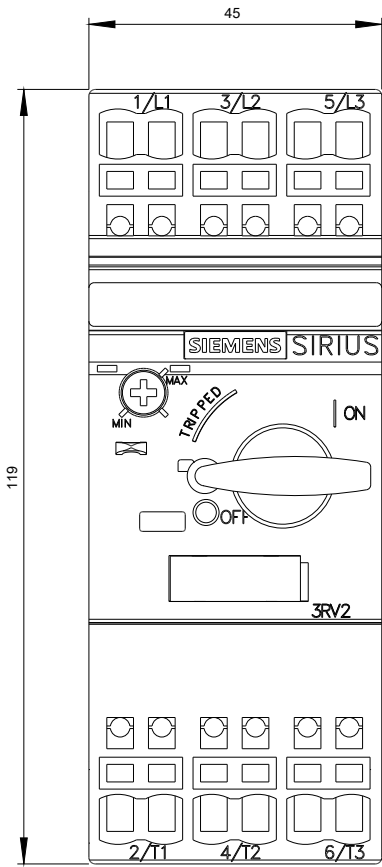
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RV2021-4CA20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2021-4CA20&lang=en)

**Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RV2021-4CA20/char>

**Further characteristics (e.g. electrical endurance, switching frequency)**

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RV2021-4CA20&objecttype=14&gridview=view1>









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