



Circuit breaker size S2 for motor protection, CLASS 10 A-release 35...45 A N-release 650 A screw terminal Standard switching capacity

<b>product brand name</b>	SIRIUS
<b>product designation</b>	Circuit breaker
<b>design of the product</b>	For motor protection
<b>product type designation</b>	3RV2
<b>General technical data</b>	
<b>Product equipment of circuit breaker for motor protection complete unit with protection device</b>	Yes
<b>size of the circuit-breaker</b>	S2
<b>size of contactor can be combined company-specific</b>	S2
product function disconnecter functionality	Yes
product extension auxiliary switch	Yes
<b>power loss [W] for rated value of the current</b>	
• at AC in hot operating state	24.5 W
• at AC in hot operating state per pole	8.2 W
<b>type of calculation of power loss current-dependent</b>	quadratic
insulation voltage with degree of pollution 3 at AC rated value	690 V
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for protective separation</b>	
• in networks with ungrounded star point between main and auxiliary circuit	400 V
• in networks with grounded star point between main and auxiliary circuit	400 V
<b>protection class IP</b>	
• on the front according to IEC 60529	IP20
• on the front	IP20
• of the terminal	IP00
<b>shock resistance according to IEC 60068-2-27</b>	25 g / 11 ms Sinus
<b>mechanical service life (operating cycles)</b>	
• of the main contacts typical	50 000
• of auxiliary contacts typical	50 000
electrical endurance (operating cycles) typical	50 000
<b>reference code according to IEC 81346-2</b>	Q
<b>continuous current rated value</b>	45 A
<b>Substance Prohibitance (day/month/year)</b>	10/15/2014
<b>SVHC substance name</b>	Lead CAS-No. 7439-92-1
<b>Net Weight</b>	1.068 kg
<b>Ambient conditions</b>	

installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• during operation	-20 ... +60 °C
• during storage	-50 ... +80 °C
• during transport	-50 ... +80 °C
<b>temperature compensation</b>	-20 ... +60 °C
relative humidity during operation	10 ... 95 %
<b>Main circuit</b>	
<b>number of poles for main current circuit</b>	3
<b>adjustable current response value current of the current-dependent overload release</b>	35 ... 45 A
<b>type of voltage for main current circuit</b>	AC
<b>operating voltage</b>	
• rated value	690 V
• rated value	20 ... 690 V
• at AC-3 rated value maximum	690 V
• at AC-3e rated value maximum	690 V
<b>operating frequency rated value</b>	50 ... 60 Hz
<b>operational current rated value</b>	45 A
<b>operational current</b>	
• at AC-3 at 400 V rated value	45 A
• at AC-3e at 400 V rated value	45 A
<b>operating power</b>	
• at AC-3	
— at 230 V rated value	11 kW
— at 400 V rated value	22 kW
— at 500 V rated value	30 kW
— at 690 V rated value	37 kW
• at AC-3e	
— at 230 V rated value	11 kW
— at 400 V rated value	22 kW
— at 500 V rated value	30 kW
— at 690 V rated value	37 kW
<b>operating frequency</b>	
• at AC-3 maximum	15 1/h
• at AC-3e maximum	15 1/h
<b>Auxiliary circuit</b>	
<b>type of voltage for auxiliary and control circuit</b>	AC/DC
<b>number of NC contacts for auxiliary contacts</b>	0
<b>number of NO contacts for auxiliary contacts</b>	0
number of CO contacts for auxiliary contacts	0
<b>Protective and monitoring functions</b>	
<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>protection function thermal overload protection (ANSI 49)</b>	Yes
<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	65 kA
• at AC at 500 V rated value	10 kA
• at AC at 690 V rated value	4 kA
<b>operating short-circuit current breaking capacity (Ics) at AC</b>	
• at 240 V rated value	100 kA
• at 400 V rated value	30 kA
• at 500 V rated value	5 kA
• at 690 V rated value	2 kA
response value current of instantaneous short-circuit trip unit	650 A

## UL/CSA ratings

<b>full-load current (FLA) for 3-phase AC motor</b>	
<ul style="list-style-type: none"> <li>● at 480 V rated value</li> <li>● at 600 V rated value</li> </ul>	<p>45 A</p> <p>45 A</p>
<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 110/120 V rated value</li> <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> <li>— at 575/600 V rated value</li> </ul> </li> </ul>	<p>3 hp</p> <p>10 hp</p> <p>15 hp</p> <p>15 hp</p> <p>40 hp</p> <p>50 hp</p>

## 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 240 V</li> <li>● at 400 V</li> <li>● at 500 V</li> <li>● at 690 V</li> </ul>	<p>none required</p> <p>125</p> <p>100</p> <p>80</p>
certificate of suitability according to ATEX directive 2014/34/EU	DMT 02 ATEX F 001
<b>type of protection according to ATEX directive 2014/34/EU</b>	Ex II (2) GD

## Installation/ mounting/ dimensions

<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
<b>Mounting method of circuit breaker for Transformer protection, Generator protection and system protection optional standard bar mounting</b>	Yes
<b>height</b>	140 mm
<b>width</b>	55 mm
<b>depth</b>	149 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>● with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>● for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>● for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>● for grounded parts at 400 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> <li>● for live parts at 400 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> </ul>	<p>0 mm</p> <p>0 mm</p> <p>50 mm</p> <p>50 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>50 mm</p> <p>10 mm</p> <p>50 mm</p> <p>0 mm</p> <p>0 mm</p> <p>50 mm</p> <p>50 mm</p> <p>10 mm</p> <p>50 mm</p> <p>50 mm</p> <p>10 mm</p> <p>50 mm</p> <p>50 mm</p> <p>10 mm</p>

<ul style="list-style-type: none"> <li>• for grounded parts at 500 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> <li>• for live parts at 500 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts at 690 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> <li>• for live parts at 690 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> </ul>	50 mm 50 mm 10 mm 50 mm 50 mm 10 mm 50 mm 50 mm 10 mm 50 mm 50 mm 10 mm
<b>Connections/ Terminals</b>	
<b>product component removable terminal for auxiliary and control circuit</b>	No
<b>type of electrical connection</b>	
<ul style="list-style-type: none"> <li>• for main current circuit</li> </ul>	screw-type terminals
<b>arrangement of electrical connectors for main current circuit</b>	Top and bottom
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• for AWG cables for main contacts</li> </ul>	2x (1 ... 25 mm <sup>2</sup> ), 1x (1 ... 35 mm <sup>2</sup> ) 2x (1 ... 16 mm <sup>2</sup> ), 1x (1 ... 25 mm <sup>2</sup> ) 2x (18 ... 3), 1x (18 ... 2)
<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>	1 ... 35 mm <sup>2</sup> 1 ... 25 mm <sup>2</sup>
<b>AWG number as coded connectable conductor cross section for main contacts</b>	18 ... 2
<b>tightening torque</b>	
<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	3 ... 4.5 N·m
<b>design of screwdriver shaft</b>	Diameter 5 to 6 mm
<b>size of the screwdriver tip</b>	Pozidriv size 2
<b>design of the thread of the connection screw</b>	
<ul style="list-style-type: none"> <li>• for main contacts</li> </ul>	M6
<b>Safety related data</b>	
product function suitable for safety function	Yes
<b>suitability for use</b>	
<ul style="list-style-type: none"> <li>• safety-related switching on</li> <li>• safety-related switching OFF</li> </ul>	No Yes
<b>service life maximum</b>	10 a
<b>test wear-related service life necessary</b>	Yes
<b>proportion of dangerous failures</b>	
<ul style="list-style-type: none"> <li>• with low demand rate according to SN 31920</li> <li>• with high demand rate according to SN 31920</li> </ul>	40 % 50 %
<b>B10 value with high demand rate according to SN 31920</b>	5 000
<b>failure rate [FIT] with low demand rate according to SN 31920</b>	50 FIT
<b>ISO 13849</b>	
<b>device type according to ISO 13849-1</b>	3
<b>overdimensioning according to ISO 13849-2 necessary</b>	Yes
<b>IEC 61508</b>	
<b>safety device type according to IEC 61508-2</b>	Type A
<b>T1 value</b>	
<ul style="list-style-type: none"> <li>• for proof test interval or service life according to IEC 61508</li> </ul>	10 a

Electrical Safety	
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front

Display	
display version for switching status	Handle

Approvals Certificates	
Environmental Product Declaration	
<ul style="list-style-type: none"> <li>global warming potential [CO2 eq] / during manufacturing</li> <li>global warming potential [CO2 eq] / during sales</li> <li>global warming potential [CO2 eq] / during operation</li> <li>global warming potential [CO2 eq] / after end of life</li> <li>global warming potential [CO2 eq] / total</li> </ul>	<ul style="list-style-type: none"> <li>12.8 kg</li> <li>0.477 kg</li> <li>230 kg</li> <li>-3.4 kg</li> <li>239.877 kg</li> </ul>
Environment	General Product Approval

[Environmental Confirmations](#)



General Product Approval	For use in hazardous locations

For use in hazardous locations	Test Certificates	Maritime application
	<a href="#">Special Test Certificate</a> <a href="#">Type Test Certificates/Test Report</a>	

Maritime application	other
	<a href="#">Miscellaneous</a> <a href="#">Confirmation</a> <a href="#">Miscellaneous</a>

other	Railway
	<a href="#">Special Test Certificate</a> <a href="#">Confirmation</a>

**Further information**

Information on the packaging  
<https://support.industry.siemens.com/cs/ww/en/view/109813875>

Information for data generation and storage  
<https://support.industry.siemens.com/cs/ww/en/view/109995012>

Information- and Downloadcenter (Catalogs, Brochures,...)  
<https://www.siemens.com/ic10>

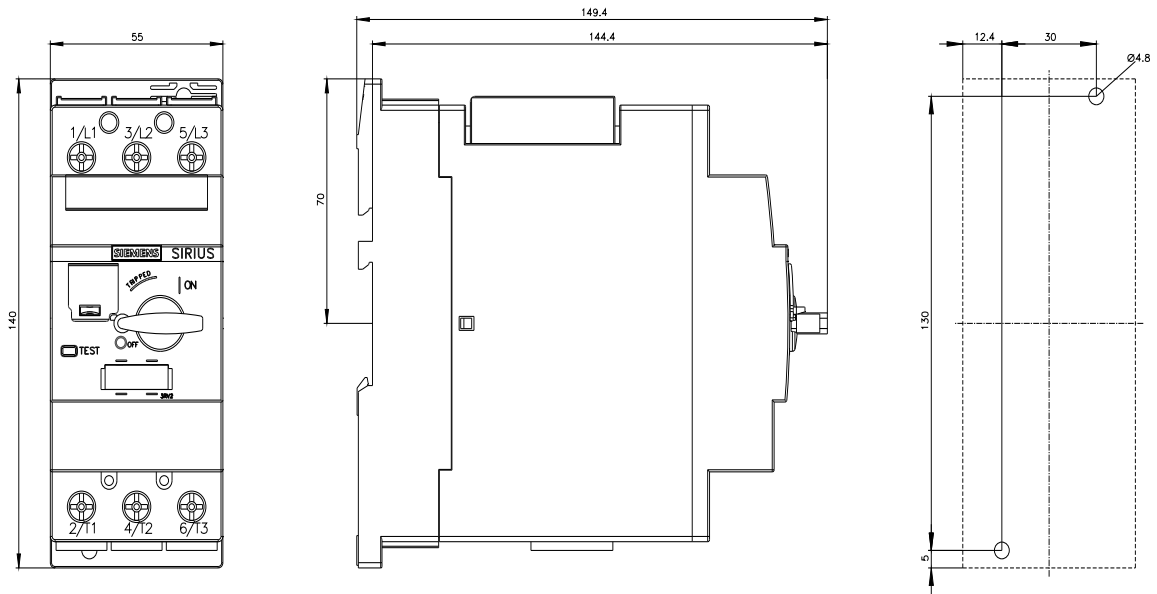
Industry Mall (Online ordering system)  
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RV2031-4VA10>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)  
<https://support.industry.siemens.com/cs/ww/en/ps/3RV2031-4VA10>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RV2031-4VA10&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2031-4VA10&lang=en)

Cax online generator

Characteristic curves





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