












overload relay 70...90 A thermal for motor protection frame size S3, Class 10  
stand-alone installation main circuit: screw auxiliary circuit: spring-loaded terminal  
manual-automatic RESET

product brand name	SIRIUS
product designation	thermal overload relay
product type designation	3RU2
<b>General technical data</b>	
size of overload relay	S3
size of contactor can be combined company-specific	S3
power loss [W] for rated value of the current at AC in hot operating state	21 W
• per pole	7 W
insulation voltage with degree of pollution 3 at AC rated value	1 000 V
surge voltage resistance rated value	8 kV
maximum permissible voltage for protective separation	
• in networks with ungrounded star point between auxiliary and auxiliary circuit	440 V
• in networks with grounded star point between auxiliary and auxiliary circuit	440 V
• in networks with ungrounded star point between main and auxiliary circuit	440 V
• in networks with grounded star point between main and auxiliary circuit	440 V
shock resistance according to IEC 60068-2-27	8g / 11 ms
recovery time after overload trip	
• with automatic reset typical	10 min
• with remote-reset	10 min
• with manual reset	10 min
reference code according to IEC 81346-2	F
Substance Prohibition (Date)	03/01/2017
SVHC substance name	Lead - 7439-92-1
Weight	0.8 kg
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
• during operation	-40 ... +70 °C
• during storage	-55 ... +80 °C
• during transport	-55 ... +80 °C
temperature compensation	-40 ... +60 °C
relative humidity during operation	10 ... 95 %
<b>Environmental footprint</b>	
Environmental Product Declaration (EPD)	Yes
global warming potential [CO <sub>2</sub> eq] total	169 kg
global warming potential [CO <sub>2</sub> eq] during manufacturing	4.57 kg
global warming potential [CO <sub>2</sub> eq] during sales	17.4 kg

global warming potential [CO2 eq] during operation	164 kg
global warming potential [CO2 eq] after end of life	-0.17 kg
<b>Main circuit</b>	
number of poles for main current circuit	3
adjustable current response value current of the current-dependent overload release	70 ... 90 A
operating voltage	
• rated value	1 000 V
• at AC-3e rated value maximum	1 000 V
operating frequency rated value	50 ... 60 Hz
operational current rated value	90 A
operational current at AC-3e at 400 V rated value	90 A
operating power	
• at AC-3	
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
• at AC-3e	
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
<b>Auxiliary circuit</b>	
design of the auxiliary switch	integrated
number of NC contacts for auxiliary contacts	1
• note	for contactor disconnection
number of NO contacts for auxiliary contacts	1
• note	for message "Tripped"
number of CO contacts for auxiliary contacts	0
operational current of auxiliary contacts at AC-15	
• at 24 V	3 A
• at 110 V	3 A
• at 120 V	3 A
• at 125 V	3 A
• at 230 V	2 A
• at 400 V	1 A
• at 690 V	0.75 A
operational current of auxiliary contacts at DC-13	
• at 24 V	2 A
• at 60 V	0.3 A
• at 110 V	0.22 A
• at 125 V	0.22 A
• at 220 V	0.11 A
design of the miniature circuit breaker for short-circuit protection of the auxiliary switch required	6A (SCC less than equal to 0.5 kA; U less than equal to 260V)
contact rating of auxiliary contacts according to UL	B600 / R300
<b>Protective and monitoring functions</b>	
trip class	CLASS 10
design of the overload release	thermal
<b>UL/CSA ratings</b>	
full-load current (FLA) for 3-phase AC motor	
• at 480 V rated value	77 A
• at 600 V rated value	77 A
<b>Short-circuit protection</b>	
design of the fuse link	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	690 V: gG: 250 A; 1000 V: a.M. / g.B.: 160 A
— with type of coordination 2 required	690 V: gG: 160 A; 1000 V: a.M. / g.B.: 160 A
• for short-circuit protection of the auxiliary switch required	fuse gG: 6 A, quick: 10 A
<b>Installation/ mounting/ dimensions</b>	
mounting position	stand-alone installation: with a vertical mounting plane +/-135° rotatable and +/-45° tiltable; for more details see manual

<b>fastening method</b>	stand-alone installation	
<b>height</b>	120 mm	
<b>width</b>	70 mm	
<b>depth</b>	140 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> <li>• for auxiliary and control circuit</li> </ul>	screw-type terminals spring-loaded 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</li> <li>— stranded</li> <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 (2.5 ... 16 mm <sup>2</sup> ) 2x (6 ... 16 mm <sup>2</sup> ), 2x (10 ... 50 mm <sup>2</sup> ), 1x (10 ... 70 mm <sup>2</sup> ) 2x (2,5 ... 50 mm <sup>2</sup> ), 1x (10 ... 70 mm <sup>2</sup> ) 2x (2.5 ... 35 mm <sup>2</sup> ), 1x (2.5 ... 50 mm <sup>2</sup> ) 2x (10 ... 1/0), 1x (10 ... 2/0)	
<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 or stranded</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• for AWG cables for auxiliary contacts</li> </ul>	2x (0.5 ... 2.5 mm <sup>2</sup> ) 2x (0.5 ... 1.5 mm <sup>2</sup> ) 2x (0.5 ... 2.5 mm <sup>2</sup> ) 2x (20 ... 14)	
<b>tightening torque</b>		
<ul style="list-style-type: none"> <li>• for main contacts for ring cable lug</li> </ul>	4.5 ... 6 N·m	
<b>outer diameter of the usable ring cable lug maximum</b>	19 mm	
<b>tightening torque</b>		
<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	4.5 ... 6 N·m	
<b>design of screwdriver shaft</b>	Hexagonal socket	
<b>size of the screwdriver tip</b>	4 mm hexagon socket	
<b>design of the thread of the connection screw</b>		
<ul style="list-style-type: none"> <li>• for main contacts</li> </ul>	M8	
IEC 61508		
<b>T1 value</b>		
<ul style="list-style-type: none"> <li>• for proof test interval or service life according to IEC 61508</li> </ul>	20 a	
Electrical Safety		
<b>protection class IP on the front according to IEC 60529</b>	IP20	
<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front	
<b>Display</b>		
display version for switching status	Slide switch	
<b>Approvals Certificates</b>		
General Product Approval	For use in hazardous locations	
     		
For use in hazardous locations	Test Certificates	Maritime application
	<a href="#">Miscellaneous</a> <a href="#">Special Test Certificate</a>	<a href="#">Type Test Certificates/Test Report</a>  
Maritime application	other	



other	Railway	Environment
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[Confirmation](#)

[Special Test Certificate](#)



[Environmental Confirmations](#)

### 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=3RU2146-4LD1>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RU2146-4LD1>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RU2146-4LD1>

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

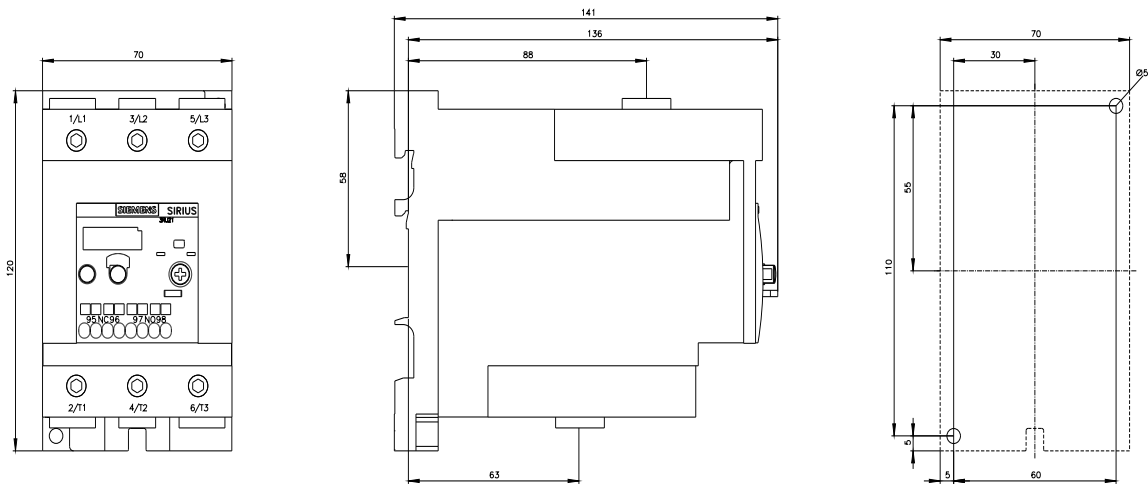
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RU2146-4LD1&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RU2146-4LD1&lang=en)

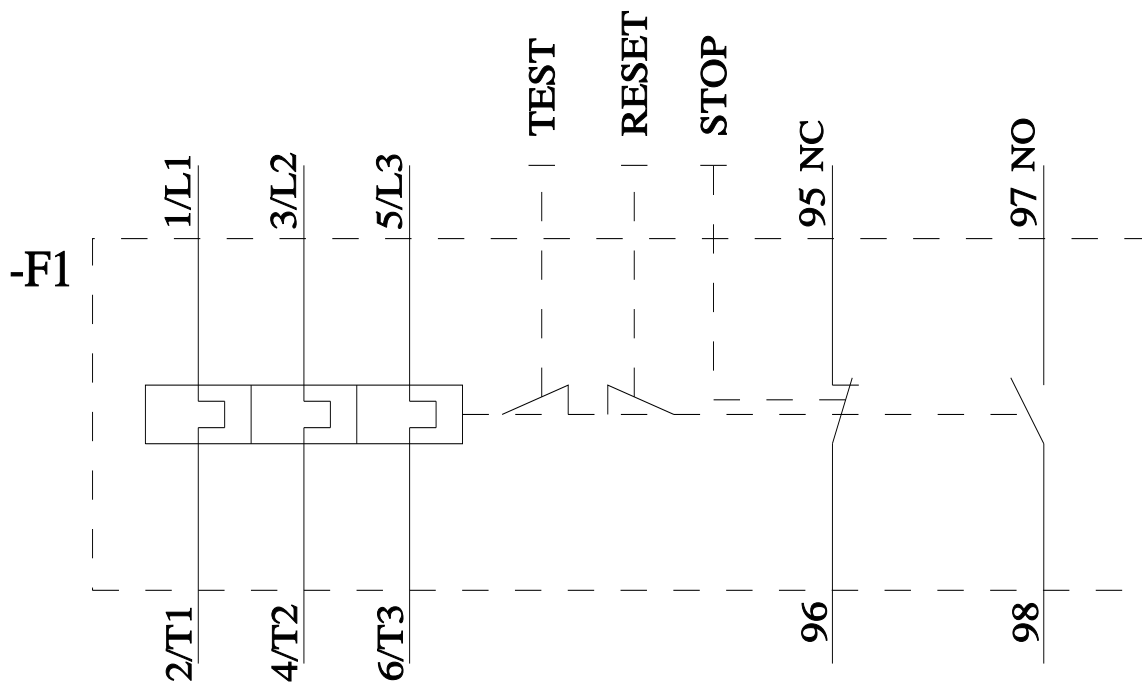
Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RU2146-4LD1/char>

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

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RU2146-4LD1&objecttype=14&gridview=view1>





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