

SIRIUS Compact load feeder DOL starter 690 V 24 V AC/DC 50...60 Hz 3...12 A IP20 Connection main circuit: plug-in, without terminals Connection auxiliary circuit: Spring-type terminal



Product brand name	SIRIUS
Product designation	compact starter
Design of the product	direct starter
Product type designation	3RA61

General technical data	
<b>Product function</b>	
• Control circuit interface to parallel wiring	Yes
<b>Product extension</b>	
• Auxiliary switch	Yes
<b>Power loss [W] for rated value of the current</b>	
• at AC in hot operating state	1.8 W
• at AC in hot operating state per pole	0.6 W
<b>Power loss [W] for rated value of the current without load current share typical</b>	2.9 W
<b>Insulation voltage</b>	
• rated value	690 V
<b>Degree of pollution</b>	3
<b>Surge voltage resistance rated value</b>	6 000 V
<b>maximum permissible voltage for safe isolation</b>	

<ul style="list-style-type: none"> <li>• between main and auxiliary circuit</li> </ul>	400 V
<ul style="list-style-type: none"> <li>• between auxiliary and auxiliary circuit</li> </ul>	250 V
<ul style="list-style-type: none"> <li>• between control and auxiliary circuit</li> </ul>	300 V
<b>Protection class IP</b>	IP20
<b>Shock resistance</b>	a=60 m/s <sup>2</sup> (6g) with 10 ms per 3 shocks in all axes
<b>Vibration resistance</b>	f= 4 ... 5.8 Hz, d= 15 mm; f= 5.8 ... 500 Hz, a= 20 m/s <sup>2</sup> ; 10 cycles
<b>Mechanical service life (switching cycles)</b>	
<ul style="list-style-type: none"> <li>• of the main contacts typical</li> </ul>	10 000 000
<ul style="list-style-type: none"> <li>• of auxiliary contacts typical</li> </ul>	10 000 000
<ul style="list-style-type: none"> <li>• of the signaling contacts typical</li> </ul>	10 000 000
<b>Electrical endurance (switching cycles) of auxiliary contacts</b>	
<ul style="list-style-type: none"> <li>• at DC-13 at 6 A at 24 V typical</li> </ul>	30 000
<ul style="list-style-type: none"> <li>• at AC-15 at 6 A at 230 V typical</li> </ul>	200 000
<b>Type of assignment</b>	continous operation according to IEC 60947-6-2
<b>Reference code acc. to DIN EN 81346-2</b>	Q
<b>Reference code acc. to DIN EN 61346-2</b>	Q

#### Ambient conditions

<b>Installation altitude at height above sea level</b>	
<ul style="list-style-type: none"> <li>• 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>	-55 ... +80 °C
<ul style="list-style-type: none"> <li>• during transport</li> </ul>	-55 ... +80 °C
Relative humidity during operation	10 ... 90 %

#### 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>	3 ... 12 A
<b>Formula for making capacity limit current</b>	12 x I <sub>e</sub>
<b>Formula for interruption capacity limit current</b>	10 x I <sub>e</sub>
<b>Mechanical power output for 4-pole AC motor</b>	
<ul style="list-style-type: none"> <li>• at 400 V rated value</li> </ul>	5.5 kW
<ul style="list-style-type: none"> <li>• at 500 V rated value</li> </ul>	5.5 kW
<ul style="list-style-type: none"> <li>• at 690 V rated value</li> </ul>	7.5 kW
<b>Operating voltage</b>	
<ul style="list-style-type: none"> <li>• at AC-3 rated value maximum</li> </ul>	690 V
<b>Operating current</b>	
<ul style="list-style-type: none"> <li>• at AC at 400 V rated value</li> </ul>	12 A
<ul style="list-style-type: none"> <li>• at AC-43</li> </ul>	
<ul style="list-style-type: none"> <li>— at 400 V rated value</li> </ul>	11.5 A
<ul style="list-style-type: none"> <li>— at 500 V rated value</li> </ul>	12.4 A

— at 690 V rated value	8.9 A
<b>Operating power</b>	
• at AC-3	
— at 400 V rated value	5.5 kW
• at AC-43	
— at 400 V rated value	5 500 W
— at 500 V rated value	5 500 W
— at 690 V rated value	7 500 W
<b>No-load switching frequency</b>	3 600 1/h
<b>Operating frequency</b>	
• at AC-41 acc. to IEC 60947-6-2 maximum	750 1/h
• at AC-43 acc. to IEC 60947-6-2 maximum	250 1/h

<b>Control circuit/ Control</b>	
<b>Type of voltage</b>	AC/DC
<b>Control supply voltage 1 at AC</b>	
• at 50 Hz rated value	24 V
• at 60 Hz rated value	24 V
<b>Control supply voltage frequency</b>	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
<b>Control supply voltage 1</b>	
• at DC rated value	24 V
<b>Holding power</b>	
• at AC maximum	2.8 W
• at DC maximum	2.9 W

<b>Auxiliary circuit</b>	
<b>Number of NC contacts for auxiliary contacts</b>	1
<b>Number of NO contacts for auxiliary contacts</b>	1
<b>Number of NO contacts</b>	
• of instantaneous short-circuit trip unit for signaling contact	1
<b>Number of CO contacts</b>	
• of the current-dependent overload release for signaling contact	1
<b>Operating current of auxiliary contacts at AC-12 maximum</b>	10 A
<b>Operating current of auxiliary contacts at DC-13</b>	
• at 250 V	0.27 A

<b>Protective and monitoring functions</b>	
<b>Trip class</b>	CLASS 10 and 20 adjustable
<b>Operational short-circuit current breaking capacity (Ics)</b>	

• at 400 V	53 kA
• at 500 V rated value	3 kA
• at 690 V rated value	3 kA

### UL/CSA ratings

<b>Full-load current (FLA) for three-phase AC motor</b>	
• at 480 V rated value	12 A
• at 600 V rated value	12 A
<b>Yielded mechanical performance [hp]</b>	
• for three-phase AC motor	
— at 200/208 V rated value	3 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	7.5 hp
— at 575/600 V rated value	10 hp
<b>Contact rating of auxiliary contacts according to UL</b>	contacts 21-22, 13-14, 43-44 Q600 / A600, contacts 77-78 R300 / B300, contacts 95-96-98 R300 / D300

### Short-circuit protection

<b>Product function Short circuit protection</b>	Yes
<b>Design of short-circuit protection</b>	electromagnetic
<b>Design of the fuse link</b>	
• for short-circuit protection of the auxiliary switch required	fuse gL/gG: 10 A
• for short-circuit protection of the signaling switch of the short-circuit release required	6A gL/gG/400V
• for short-circuit protection of the signaling switch of the overload release required	4A gL/gG/400V

### Installation/ mounting/ dimensions

<b>Mounting position</b>	any
• recommended	vertical, on horizontal standard mounting rail
<b>Mounting type</b>	screw and snap-on mounting
<b>Height</b>	191 mm
<b>Width</b>	45 mm
<b>Depth</b>	165 mm

### Connections/ Terminals

<b>Product function</b>	
• removable terminal for main circuit	Yes
• removable terminal for auxiliary and control circuit	Yes
<b>Type of electrical connection</b>	
• for main current circuit	plug-in without terminals
• for auxiliary and control current circuit	spring-loaded terminals
<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>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• at AWG conductors for main contacts</li> </ul>	<p>2x (1.5 ... 6 mm<sup>2</sup>), 1x 10 mm<sup>2</sup></p> <p>2x (1.5 ... 6 mm<sup>2</sup>)</p> <p>2x (1.5 ... 6 mm<sup>2</sup>)</p> <p>2x (16 ... 10), 1x 8</p>
<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> <li>— finely stranded without core end processing</li> </ul> </li> <li>• at AWG conductors for auxiliary contacts</li> </ul>	<p>2x (0.25 ... 1.5 mm<sup>2</sup>)</p> <p>2x (0.25 ... 1.5 mm<sup>2</sup>)</p> <p>2x (0.25 ... 1.5 mm<sup>2</sup>)</p> <p>2x (24 ... 16)</p>

### Safety related data

<b>B10 value</b>	
<ul style="list-style-type: none"> <li>• with high demand rate acc. to SN 31920</li> </ul>	3 000 000
<b>Proportion of dangerous failures</b>	
<ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> <li>• with high demand rate acc. to SN 31920</li> </ul>	<p>40 %</p> <p>50 %</p>
<b>Failure rate [FIT]</b>	
<ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> </ul>	100 FIT
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	20 y

### Communication/ Protocol

<b>Product function Bus communication</b>	No
<b>Protocol is supported</b>	
<ul style="list-style-type: none"> <li>• IO-Link protocol</li> </ul>	No
<b>Product function Control circuit interface with IO link</b>	No

### Electromagnetic compatibility

<b>Conducted interference</b>	
<ul style="list-style-type: none"> <li>• due to burst acc. to IEC 61000-4-4</li> <li>• due to conductor-earth surge acc. to IEC 61000-4-5</li> <li>• due to conductor-conductor surge acc. to IEC 61000-4-5</li> <li>• due to high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	<p>4 kV main contacts, 2 kV auxiliary contacts</p> <p>4 kV main contacts, 2 kV auxiliary contacts</p> <p>2 kV main contacts, 1 kV auxiliary contacts</p> <p>0.15-80Mhz at 10V</p>
<b>Field-bound parasitic coupling acc. to IEC 61000-4-3</b>	10 V/m
<b>Electrostatic discharge acc. to IEC 61000-4-2</b>	8 kV
<b>Conducted HF-interference emissions acc. to CISPR11</b>	150 kHz ... 30 MHz Class A

Field-bound HF-interference emission acc. to CISPR11	30 ... 1000 MHz Class A
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Supply voltage

Supply voltage required Auxiliary voltage	No
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Certificates/ approvals

General Product Approval	EMC	Functional Safety/Safety of Machinery
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Declaration of Conformity	Test Certificates	Marine / Shipping
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[Miscellaneous](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping	other
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[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=3RA6120-2DB33>

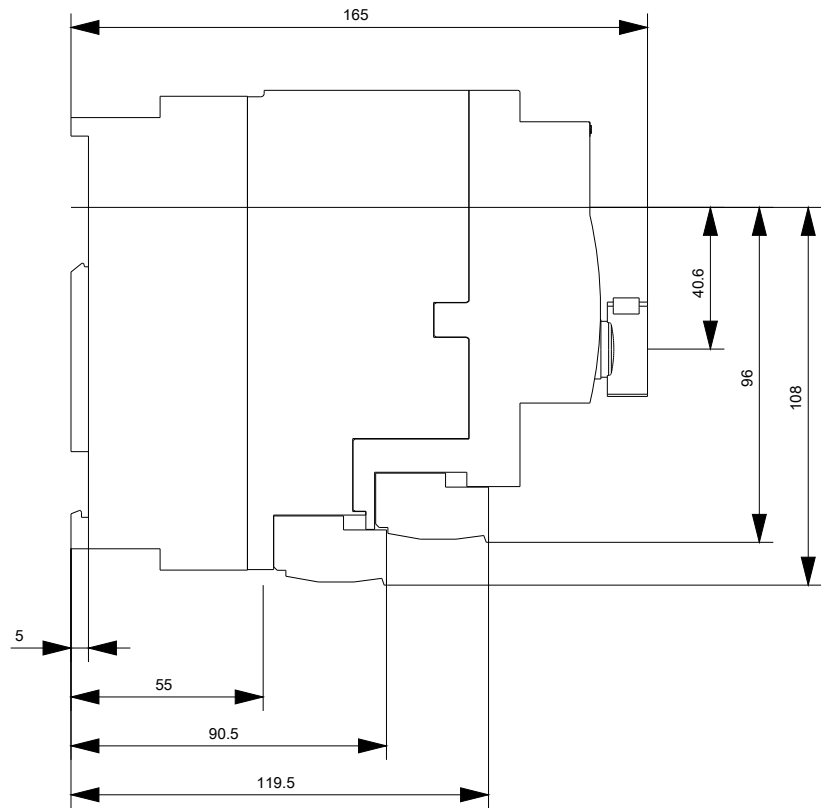
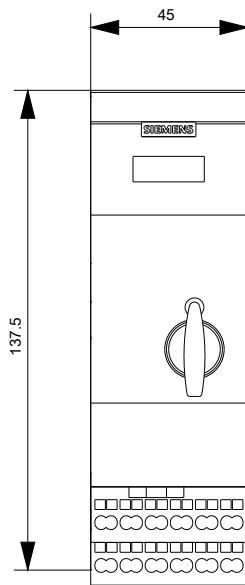
Cax online generator  
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RA6120-2DB33>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)  
<https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-2DB33>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RA6120-2DB33&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RA6120-2DB33&lang=en)

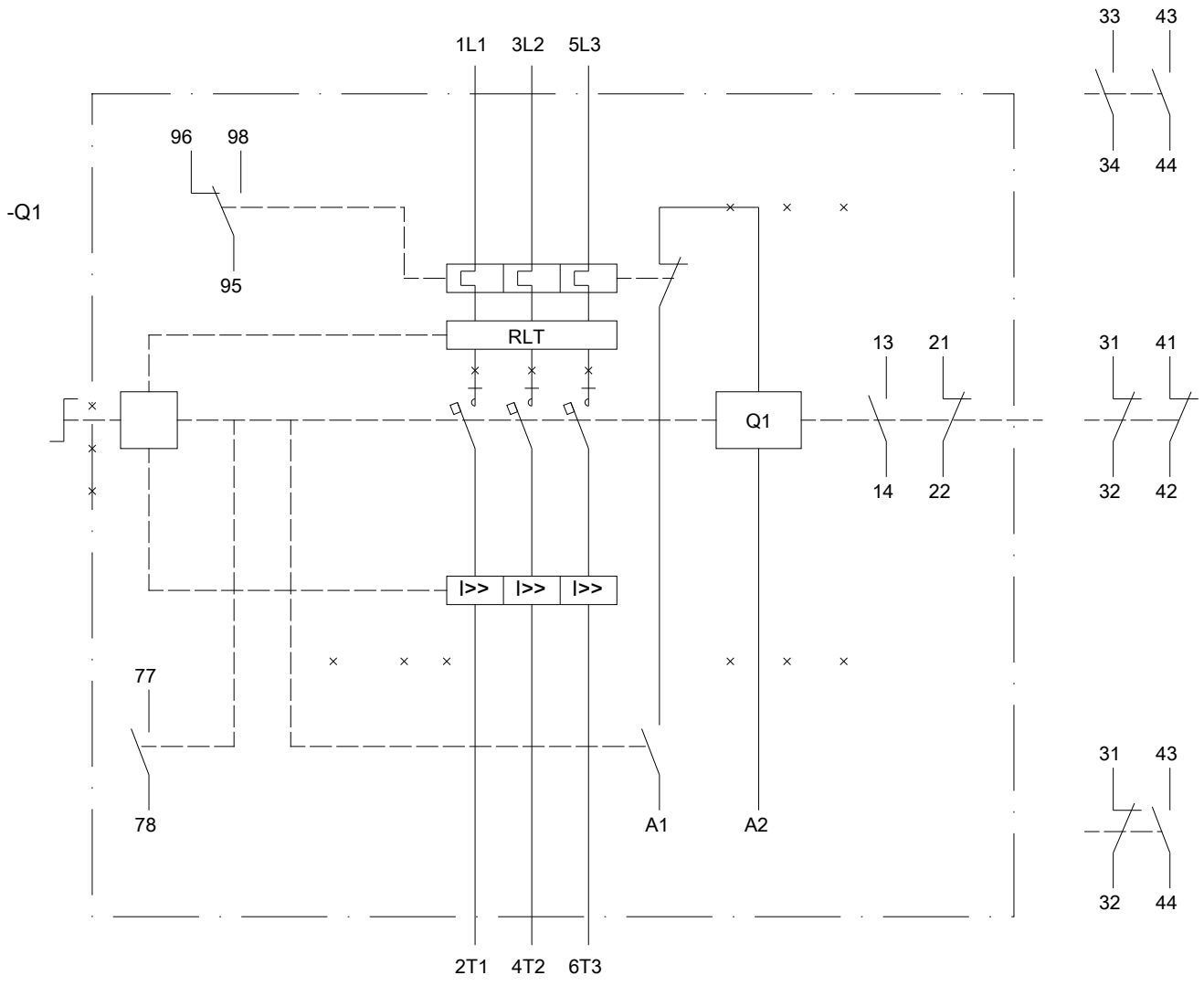
Characteristic: Tripping characteristics, I<sub>t</sub>, Let-through current  
<https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-2DB33/char>

Further characteristics (e.g. electrical endurance, switching frequency)  
<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RA6120-2DB33&objecttype=14&gridview=view1>









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