SIEMENS

Data sheet 3RA6120-1DB33



SIRIUS, COMPACT STARTER, DIRECT STARTER 690 V, 24 V AC/DC, 50 ... 60 HZ, 3 ... 12 A, IP20, CONNECTION MAIN CIRCUIT: PLUGGABLE, WITHOUT TERMINALS, CONNECTION AUXILIARY CIRCUIT: SCREW TERMINAL

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

General technical data	
Product function	
 Control circuit interface to parallel wiring 	Yes
Product extension	
Auxiliary switch	Yes
Insulation voltage	
• rated value	690 V
Degree of pollution	3
Surge voltage resistance rated value	6 000 V
maximum permissible voltage for safe isolation	
 between auxiliary and auxiliary circuit 	250 V
 between control and auxiliary circuit 	300 V
 between main and auxiliary circuit 	400 V
Protection class IP	IP20
Vibration resistance	f= 4 5.8 Hz, d= 15 mm; f= 5.8 500 Hz, a= 20 m/s²; 10 cycles
Mechanical service life (switching cycles)	

of the main contacts typical	10 000 000	
of auxiliary contacts typical	10 000 000	
of the signaling contacts typical	10 000 000	
Electrical endurance (switching cycles) of auxiliary		
contacts		
• at DC-13 at 6 A at 24 V typical	30 000	
• at AC-15 at 6 A at 230 V typical	200 000	
Type of assignment	continous operation according to IEC 60947-6-2	
Equipment marking		
• acc. to DIN EN 61346-2	Q	
● acc. to DIN EN 81346-2	Q	
Ambient conditions		
Ambient temperature		
 during operation 	-20 +60 °C	
during storage	-55 +80 °C	
during transport	-55 +80 °C	
Main circuit		
Number of poles for main current circuit	3	
Adjustable pick-up value current of the current- dependent overload release	3 12 A	
Formula for making capacity limit current	12 x le	
Formula for interruption capacity limit current	10 x le	
Mechanical power output for 4-pole AC motor		
• at 400 V rated value	5.5 kW	
• at 500 V rated value	5.5 kW	
• at 690 V rated value	7.5 kW	
Operating voltage		
 at AC-3 rated value maximum 	690 V	
Operating current		
• at AC at 400 V rated value	12 A	
● at AC-43		
— at 400 V rated value	11.5 A	
— at 500 V rated value	12.4 A	
— at 690 V rated value	8.9 A	
No-load switching frequency	3 600 1/h	
Operating frequency		
• 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	
Control circuit/ Control		
Type of voltage	AC/DC	
Control supply voltage 1 at AC		

● at 50 Hz rated value	24 V	
● at 60 Hz rated value	24 V	
Control supply voltage 1		
at DC rated value	24 V	
Holding power		
• at AC maximum	2.8 W	
• at DC maximum	2.9 W	
Auxiliary circuit		
Number of NC contacts		
 for auxiliary contacts 	1	
Number of NO contacts		
 for auxiliary contacts 	1	
 of instantaneous short-circuit trip unit for 	1	
signaling contact		
Number of CO contacts		
 of the current-dependent overload release for 	1	
signaling contact		
Operating current of auxiliary contacts at AC-12 maximum	10 A	
Operating current of auxiliary contacts at DC-13		
● at 250 V	0.27 A	
Protective and monitoring functions		
Trip class	CLASS 10 and 20 adjustable	
Off-delay time	50 ms	
Operational short-circuit current breaking capacity (lcs)		
● at 400 V	53 kA	
● at 500 V rated value	3 kA	
• at 690 V rated value	3 kA	
UL/CSA ratings		
Full-load current (FLA) for three-phase AC motor		
• at 480 V rated value	12 A	
• at 600 V rated value	12 A	
Yielded mechanical performance [hp]		
• 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 valueat 575/600 V rated value

Contact rating of auxiliary contacts according to UL

B300, contacts 95-96-98 R300 / D300

contacts 21-22, 13-14, 43-44 Q600 / A600, contacts 77-78 R300 /

7.5 hp

10 hp

Short-circuit protection		
Product function Short circuit protection	Yes	
Design of the fuse link		
 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		
Mounting position	any	
• recommended	vertical, on horizontal standard mounting rail	
Mounting type	screw and snap-on mounting	
Height	170 mm	
Width	45 mm	
Depth	165 mm	
Connections/Terminals		
Product function		
 removable terminal for main circuit 	Yes	
 removable terminal for auxiliary and control circuit 	Yes	
Type of electrical connection		
• for main current circuit	plug-in without terminals	
 for auxiliary and control current circuit 	screw-type terminals	
Type of connectable conductor cross-sections		
• for main contacts		
— solid	2x (1.5 6 mm²), 1x 10 mm²	
— finely stranded with core end processing	2x (1.5 6 mm²)	
 at AWG conductors for main contacts 	2x (16 10), 1x 8	
Type of connectable conductor cross-sections		
• for auxiliary contacts		
— solid	0.5 4 mm², 2x (0.5 2.5 mm²)	
— finely stranded with core end processing	0.5 2.5 mm², 2x (0.5 1.5 mm²)	
• at AWG conductors for auxiliary contacts	2x (20 14)	
Safety related data		
B10 value		
• with high demand rate acc. to SN 31920	3 000 000	
Proportion of dangerous failures		
• with low demand rate acc. to SN 31920	40 %	
• with high demand rate acc. to SN 31920	50 %	
Failure rate [FIT]		

• with low demand rate acc. to SN 31920

T1 value for proof test interval or service life acc. to
IEC 61508

100 FIT

20 y

Communication/ Protocol

Product function Bus communication

Protocol is supported

• IO-Link protocol

No

Electromagnetic compatibility		
Field-bound parasitic coupling acc. to IEC 61000-4-3	10 V/m	
Electrostatic discharge acc. to IEC 61000-4-2	8 kV	
Conducted HF-interference emissions acc. to CISPR11	150 kHz 30 MHz Class A	
Field-bound HF-interference emission acc. to CISPR11	30 1000 MHz Class A	

Supply voltage	
Supply voltage required Auxiliary voltage	No

Certificates/approvals

General Product Approval EMC Functional Safety/Safety of Machinery













Declaration of	Test	Marine / Shipping
Conformity	Certificates	



Type Test
Certificates/Test
Report









Marine / Shipping

other





Environmental Confirmations

Confirmation

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

http://www.siemens.com/industrial-controls/catalogs

Industry Mall (Online ordering system)

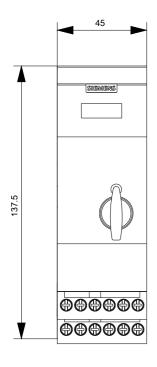
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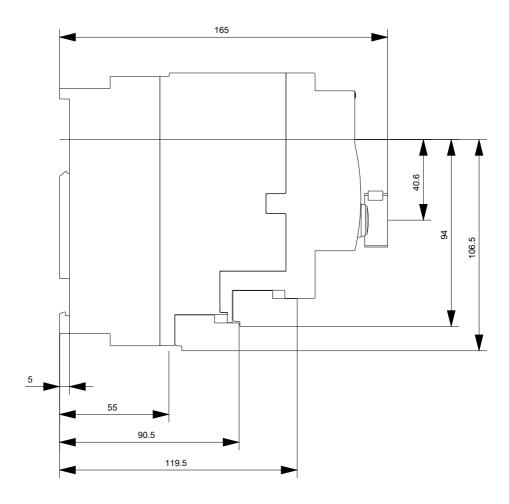
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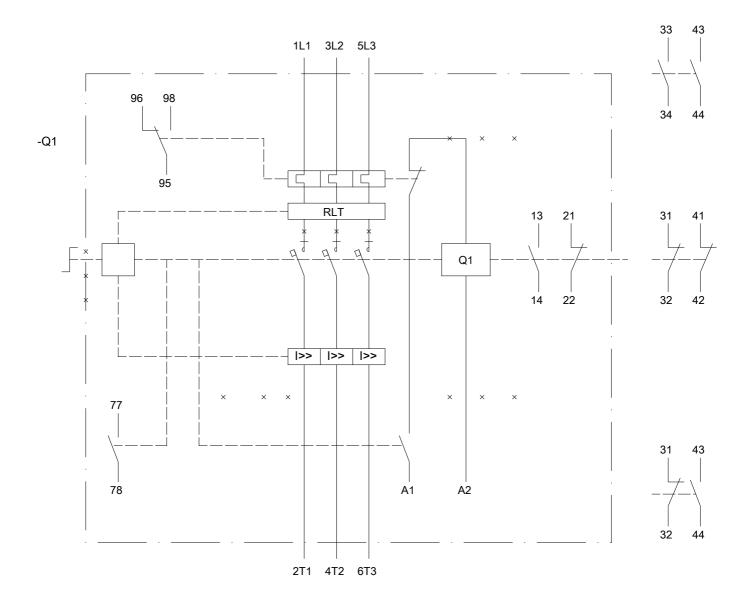
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Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-1DB33

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RA6120-1DB33&lang=en







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