SIEMENS

Data sheet 3RA6120-1CP33

SIRIUS Compact load feeder DOL starter 690 V 110...240 V AC/DC 50...60 Hz 1...4 A IP20 Connection main circuit: plug-in, without terminals Connection auxiliary circuit: screw terminal

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

General technical data	
Product function	
• Control circuit interface to parallel wiring	Yes
Product extension	
• Auxiliary switch	Yes
Power loss [W] for rated value of the current	
• at AC in hot operating state	1 W
• at AC in hot operating state per pole	0.33 W
Power loss [W] for rated value of the current without load current share typical	6 W
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 main and auxiliary circuit	400 V
• between auxiliary and auxiliary circuit	250 V
• between control and auxiliary circuit	300 V
Protection class IP	IP20
Shock resistance	a=60 m/s2 (6g) with 10 ms per 3 shocks in all axes
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
Reference code acc. to DIN EN 81346-2	Q
Reference code acc. to DIN EN 61346-2	Q

Ambient conditions

Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
• during operation	-20 ... +60 °C
• during storage	-55 ... +80 °C
• during transport	-55 ... +80 °C
Relative humidity during operation	10 ... 90 %

Main circuit

Number of poles for main current circuit	3
Adjustable pick-up value current of the current-dependent overload release	1 ... 4 A
Formula for making capacity limit current	12 x Ie
Formula for interruption capacity limit current	10 x Ie
Mechanical power output for 4-pole AC motor	
• at 400 V rated value	1.5 kW
• at 500 V rated value	2.2 kW
• at 690 V rated value	3 kW
Operating voltage	
• at AC-3 rated value maximum	690 V
Operating current	
• at AC at 400 V rated value	4 A
• at AC-43	
— at 400 V rated value	3.6 A
— at 500 V rated value	3.9 A

— at 690 V rated value	3.8 A
Operating power	
• at AC-3	
— at 400 V rated value	1 500 W
• at AC-43	
— at 400 V rated value	1 500 W
— at 500 V rated value	2 200 W
— at 690 V rated value	3 000 W
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	110 ... 240 V
• at 60 Hz	110 ... 240 V
Control supply voltage frequency	
• **1 rated value**	50 Hz
• **2 rated value**	60 Hz
Control supply voltage 1	
• at DC	110 ... 240 V
Holding power	
• at AC maximum	6 W
• at DC maximum	5.1 W

Auxiliary circuit

Number of NC contacts for auxiliary contacts	1
Number of NO contacts for auxiliary contacts	1
Number of NO contacts	
• of instantaneous short-circuit trip unit for signaling contact	1
Number of CO contacts	
• of the current-dependent overload release for signaling contact	1
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
Operational short-circuit current breaking capacity (Ics)	

• 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	4 A
• at 600 V rated value	4 A
Yielded mechanical performance [hp]	
• for three-phase AC motor	
— at 200/208 V rated value	0.75 hp
— at 220/230 V rated value	0.75 hp
— at 460/480 V rated value	2 hp
— at 575/600 V rated value	3 hp
Contact rating of auxiliary contacts according to UL	contacts 21-22, 13-14, 43-44 Q600 / A600, contacts 77-78 R300 / B300, contacts 95-96-98 R300 / D300

Short-circuit protection

Product function Short circuit protection	Yes
Design of short-circuit protection	electromagnetic
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	100 FIT
T1 value for proof test interval or service life acc. to IEC 61508	20 y

Communication/ Protocol

Product function Bus communication	No
Protocol is supported	
• IO-Link protocol	No
Product function Control circuit interface with IO link	No

Electromagnetic compatibility

Conducted interference	
• due to burst acc. to IEC 61000-4-4	4 kV main contacts, 2 kV auxiliary contacts
• due to conductor-earth surge acc. to IEC 61000-4-5	4 kV main contacts, 2 kV auxiliary contacts
• due to conductor-conductor surge acc. to IEC 61000-4-5	2 kV main contacts, 1 kV auxiliary contacts
• due to high-frequency radiation acc. to IEC 61000-4-6	0.15-80Mhz at 10V
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
CCC	CSA	UL		RCM	VDE

Declaration of Conformity		Test Certificates	Marine / Shipping		
EG-Konf.	Miscellaneous	Type Test Certificates/Test Report	ABS	BUREAU VERITAS	LRS

Marine / Shipping				other
PRS	RINA	RMRS		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=3RA6120-1CP33

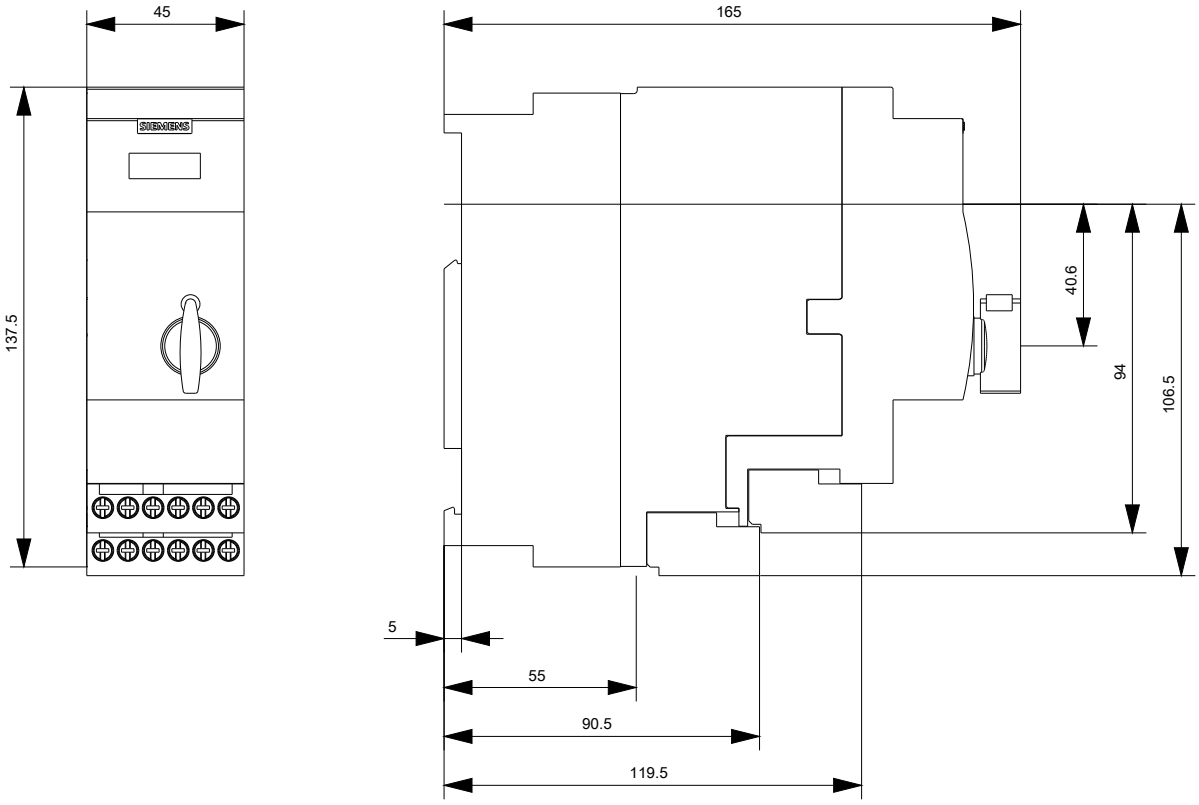
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RA6120-1CP33

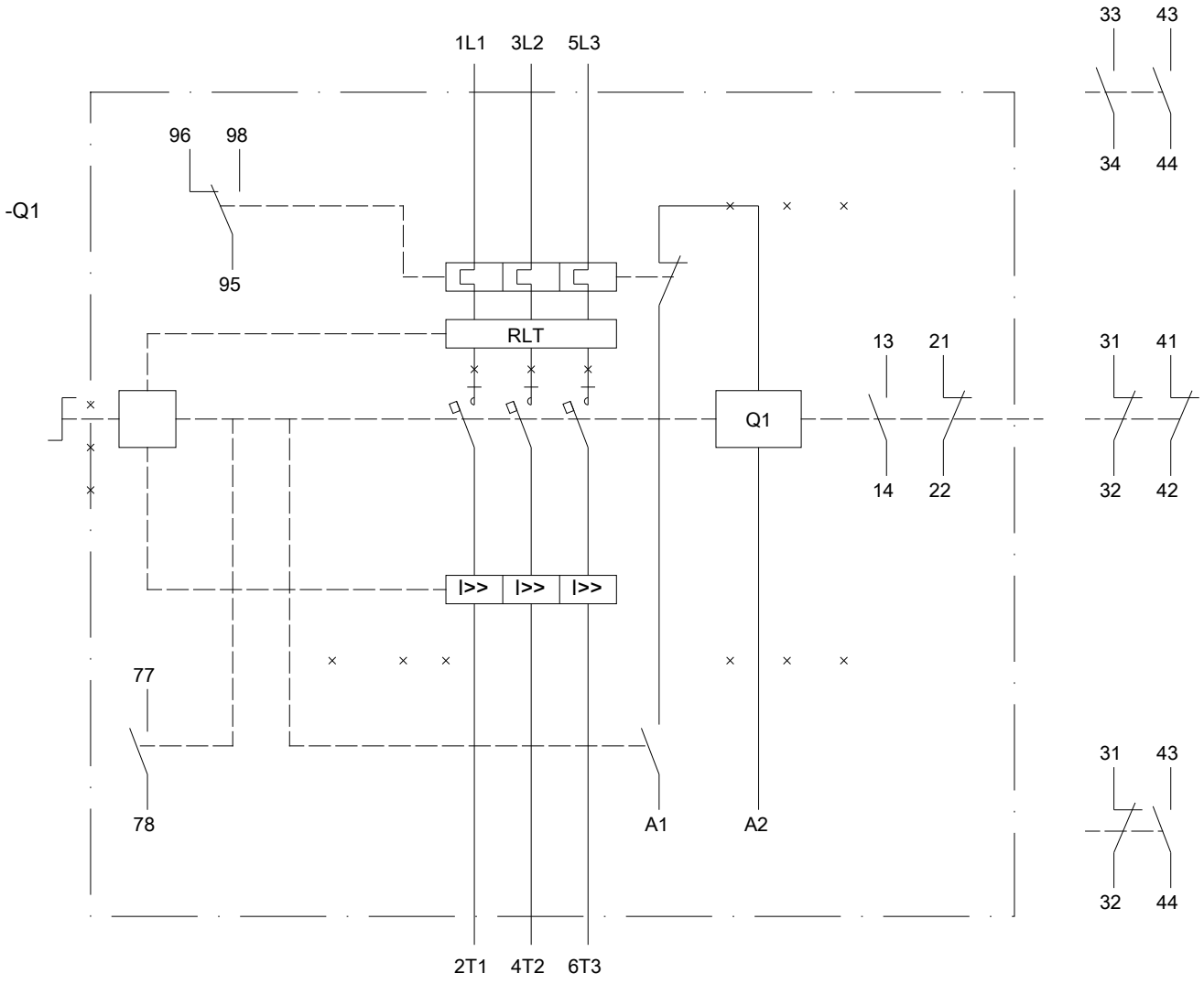
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-1CP33

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RA6120-1CP33&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-1CP33/char

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RA6120-1CP33&objecttype=14&gridview=view1





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