## SIEMENS

## Data sheet

## 3RA6120-1BB33



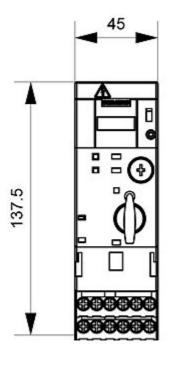
SIRIUS Compact load feeder DOL starter 690 V 24 V AC/DC 50...60 Hz 0.32...1.25 A IP20 Connection main circuit: plug-in, without terminals Connection auxiliary circuit: screw terminal

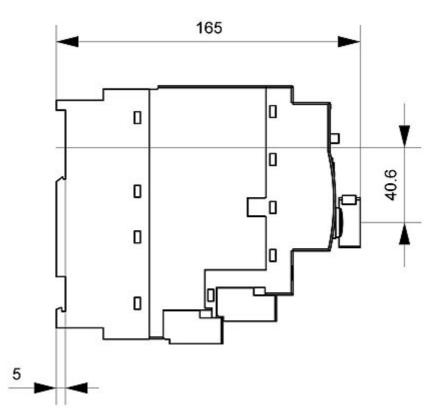
product brand name	SIRIUS			
product designation	compact starter			
design of the product	direct starter			
product type designation	3RA61			
General technical data				
product function control circuit interface to parallel wiring	Yes			
product extension auxiliary switch	Yes			
power loss [W] for rated value of the current at AC in hot operating state	0.1 W			
• per pole	0.03 W			
power loss [W] for rated value of the current without load current share typical	2.9 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				
<ul> <li>between main and auxiliary circuit</li> </ul>	400 V			
<ul> <li>between auxiliary and auxiliary circuit</li> </ul>	250 V			
<ul> <li>between control and auxiliary circuit</li> </ul>	300 V			
degree of protection NEMA rating	other			
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)				
<ul> <li>of the main contacts typical</li> </ul>	10 000 000			
<ul> <li>of auxiliary contacts typical</li> </ul>	10 000 000			
<ul> <li>of the signaling contacts typical</li> </ul>	10 000 000			
electrical endurance (switching cycles) of auxiliary contacts				
<ul> <li>at DC-13 at 6 A at 24 V typical</li> </ul>	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 IEC 81346-2	Q			
Substance Prohibitance (Date)	01.05.2012 00:00:00			
Ambient conditions				
installation altitude at height above sea level maximum	2 000 m			
<ul> <li>ambient temperature during operation</li> </ul>	-20 +60 °C			
<ul> <li>ambient temperature during storage</li> </ul>	-55 +80 °C			
<ul> <li>ambient temperature during transport</li> </ul>	-55 +80 °C			

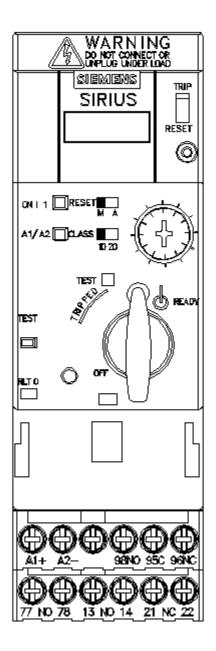
relative humidity during operation	10 90 %		
Main circuit	10		
number of poles for main current circuit	3		
adjustable current response value current of the	3 0.32 1.25 A		
current-dependent overload release	0.52 1.25 A		
formula for making capacity limit current	38.4 x le		
formula for breaking capacity limit current	32 x le		
yielded mechanical performance for 4-pole AC motor			
• at 400 V rated value	0.37 kW		
• at 500 V rated value	0.55 kW		
• at 690 V rated value	0.75 kW		
<ul> <li>operating voltage at AC-3 rated value maximum</li> </ul>	690 V		
operational current			
<ul> <li>at AC at 400 V rated value</li> </ul>	1.25 A		
• at AC-43			
— at 400 V rated value	1.1 A		
— at 500 V rated value	1.2 A		
— at 690 V rated value	1.1 A		
operating power			
at AC-3 at 400 V rated value	370 W		
• at AC-43			
— at 400 V rated value	370 W		
— at 500 V rated value	550 W		
— at 690 V rated value	750 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			
type of voltage control supply voltage 1 at AC	AC/DC		
control supply voltage 1 at AC			
• at 50 Hz rated value	24 V		
<ul> <li>control supply voltage 1 at AC</li> <li>at 50 Hz rated value</li> <li>at 60 Hz rated value</li> </ul>			
• at 50 Hz rated value	24 V 24 V		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value	24 V 24 V 50 Hz		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value • 2 rated value	24 V 24 V		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value • 2 rated value control supply voltage 1	24 V 24 V 50 Hz 60 Hz		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value • 2 rated value control supply voltage 1 • at DC rated value	24 V 24 V 50 Hz		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         control supply voltage 1         • at DC rated value	24 V 24 V 50 Hz 60 Hz 24 V		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value • 2 rated value control supply voltage 1 • at DC rated value	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W		
<ul> <li>control supply voltage 1 at AC <ul> <li>at 50 Hz rated value</li> <li>at 60 Hz rated value</li> </ul> </li> <li>control supply voltage frequency <ul> <li>1 rated value</li> <li>2 rated value</li> <li>control supply voltage 1 <ul> <li>at DC rated value</li> </ul> </li> <li>holding power <ul> <li>at AC maximum</li> <li>at DC maximum</li> </ul> </li> </ul></li></ul>	24 V 24 V 50 Hz 60 Hz 24 V		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value • 2 rated value control supply voltage 1 • at DC rated value holding power • at AC maximum • at DC maximum • at DC maximum	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W		
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency • 1 rated value • 2 rated value control supply voltage 1 • at DC rated value holding power • at AC maximum • at DC maximum • at DC maximum • at DC contacts for auxiliary contacts	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         control supply voltage 1         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         control supply voltage 1         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip unit for signaling contact         number of CO contacts of the current-dependent overload	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         control supply voltage 1         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip unit for signaling contact         number of CO contacts of the current-dependent overload release for signaling contact	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip         unit for signaling contact         number of CO contacts of the current-dependent overload         release for signaling contact         operational current of auxiliary contacts at AC-12         maximum	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip unit for signaling contact         number of CO contacts of the current-dependent overload release for signaling contact         operational current of auxiliary contacts at AC-12	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip         unit for signaling contact         number of CO contacts of the current-dependent overload         release for signaling contact         operational current of auxiliary contacts at AC-12         maximum	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip         unit for signaling contact         number of CO contacts of the current-dependent overload         release for signaling contact         operational current of auxiliary contacts at AC-12         maximum         operational current of auxiliary contacts at DC-13 at 250 V	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip unit for signaling contact         number of CO contacts of the current-dependent overload release for signaling contact         operational current of auxiliary contacts at AC-12 maximum         operational current of auxiliary contacts at DC-13 at 250 V         Protective and monitoring functions	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1 1 1 1 1 2 1 2 2 3 2 3 2 3		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip unit for signaling contact         number of CO contacts of the current-dependent overload release for signaling contact         operational current of auxiliary contacts at AC-12 maximum         operational current of auxiliary contacts at AC-12 maximum         operational current of auxiliary contacts at DC-13 at 250 V	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1 1 1 1 1 2 1 2 2 3 2 3 2 3		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         holding power         • at DC maximum         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip         unit for signaling contact         operational current of auxiliary contacts at AC-12         maximum         operational current of auxiliary contacts at AC-13 at 250 V         Protective and monitoring functions         trip class         breaking capacity operating short-circuit current (Ics)	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 8 W 2.9 W		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         control supply voltage 1         • at DC rated value         holding power         • at DC maximum         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip         unit for signaling contact         operational current of auxiliary contacts at AC-12         maximum         operational current of auxiliary contacts at DC-13 at 250 V         Protective and monitoring functions         trip class         breaking capacity operating short-circuit current (lcs)         • at 400 V	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
control supply voltage 1 at AC         • at 50 Hz rated value         • at 60 Hz rated value         control supply voltage frequency         • 1 rated value         • 2 rated value         • at DC rated value         control supply voltage 1         • at DC rated value         holding power         • at DC maximum         • at DC maximum         • at DC contacts for auxiliary contacts         number of NC contacts for auxiliary contacts         number of NO contacts for auxiliary contacts         number of NO contacts of instantaneous short-circuit trip         unit for signaling contact         operational current of auxiliary contacts at AC-12         maximum         operational current of auxiliary contacts at DC-13 at 250 V         Protective and monitoring functions         trip class         breaking capacity operating short-circuit current (Ics)         • at 400 V         • at 500 V rated value	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 1 1 1 1 1 1 CLASS 10 and 20 adjustable 53 kA 3 kA		

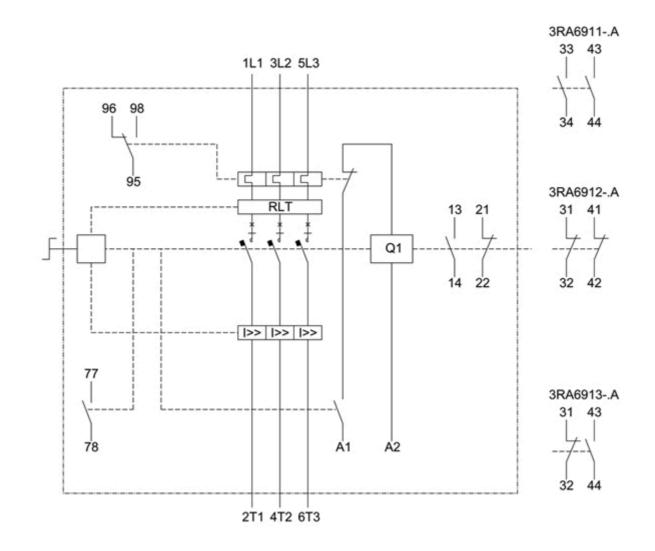
full load ourrant (ELA) for 2 phase AC motor				
full-load current (FLA) for 3-phase AC motor • at 480 V rated value	1.25 A			
tat 600 V rated value	1.25 A			
yielded mechanical performance [hp] for 3-phase AC motor				
• at 460/480 V rated value	0.5 hp			
• at 575/600 V rated value	0.5 hp			
contact 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				
<ul> <li>for short-circuit protection of the auxiliary switch required</li> </ul>	fuse gL/gG: 10 A			
<ul> <li>for short-circuit protection of the signaling switch of the short-circuit release required</li> </ul>	6A gL/gG/400V			
<ul> <li>for short-circuit protection of the signaling switch of the overload release required</li> </ul>	4A gL/gG/400V			
Installation/ mounting/ dimensions				
mounting position	any			
recommended	vertical, on horizontal standard mounting rail			
fastening method	screw and snap-on mounting			
height	170 mm			
width	45 mm			
depth	165 mm			
Connections/ Terminals				
product function				
<ul> <li>removable terminal for main circuit</li> </ul>	Yes			
<ul> <li>removable terminal for auxiliary and control circuit</li> </ul>	Yes			
type of electrical connection				
<ul> <li>for main current circuit</li> </ul>	plug-in without terminals			
<ul> <li>for auxiliary and control circuit</li> </ul>	screw-type terminals			
type of connectable conductor cross-sections				
<ul> <li>for main contacts</li> </ul>				
— solid	2x (1.5 6 mm²), 1x 10 mm²			
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1.5 6 mm²)			
<ul> <li>at AWG cables for main contacts</li> </ul>	2x (16 10), 1x 8			
type of connectable conductor cross-sections				
<ul> <li>for auxiliary contacts</li> </ul>				
— solid	0.5 4 mm², 2x (0.5 2.5 mm²)			
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 2.5 mm², 2x (0.5 1.5 mm²)			
<ul> <li>at AWG cables for auxiliary contacts</li> </ul>	2x (20 14)			
Safety related data				
B10 value with high demand rate acc. to SN 31920	3 000 000			
proportion of dangerous failures				
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	40 %			
<ul> <li>with high demand rate acc. to SN 31920</li> </ul>	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 у			
protection class IP on the front acc. to IEC 60529	IP20			
touch protection on the front acc. to IEC 60529	finger-safe			
Communication/ Protocol				
product function bus communication	No			
protocol is supported				
AS-Interface protocol	No			
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	C 61000-4-5		-		
<ul> <li>due to conductor-conductor surge acc. to IEC</li> <li>61000-4-5</li> </ul>		4 kV main contacts, 2 kV auxiliary contacts 2 kV main contacts, 1 kV auxiliary contacts			
<ul> <li>due to high-frequency radiation acc. to IEC 61000- 4-6</li> </ul>		0.15-80Mhz at 10V			
field-based interference acc. to IEC 61000-4-3		10 V/m			
electrostatic discharge acc. to IEC 61000-4	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			
Display					
number of LEDs		2			
Certificates/ approvals					
General Product Approval			EMC	Functional Safety/Safety of Machinery	
	Ű	EHC			
Declaration of Conformity Test Certificates Marine / Shipping					
Miscellaneous EG-Konf.	<u>Type Test</u> <u>Certificates/T</u> <u>Report</u>		BUREAU VERITAS	Llovd's Register us	
Marine / Shipping			other		
PRS RINA	KMRS	DNV-GL DNV-GL	<u>Confirmation</u>		
Further information Information- and Downloadcenter (Catalog	s. Brochures	)			
https://www.siemens.com/ic10 Industry Mall (Online ordering system)					
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Cax online generator					
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RA6120-1BB33					
Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-1BB33					
Image database (product images, 2D dimer http://www.automation.siemens.com/bilddb/ca	nsion drawings	s, 3D models, device ci	rcuit diagrams, EPLAN <u>j=en</u>	macros,)	
Characteristic: Tripping characteristics, I <sup>2</sup> t,					
https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-1BB33/char Further characteristics (e.g. electrical endurance, switching frequency)					
http://www.automation.siemens.com/bilddb/ind	nance, switchi	ing irequency)	1PP338 objectture=148	nridview=view1	
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