SIEMENS

Data sheet 3RA6120-2DB33



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			
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	1.8 W		
• per pole	0.6 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			
 between main and auxiliary circuit 	400 V		
 between auxiliary and auxiliary circuit 	250 V		
between control and auxiliary circuit	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/s ² ; 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 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		
ambient temperature during operation	-20 +60 °C		
 ambient temperature during storage 	-55 +80 °C		
 ambient temperature during transport 	-55 +80 °C		

relative humidity during operation	10 90 %
Main circuit	10 00 /0
number of poles for main current circuit	3
adjustable current response value current of the	3 12 A
current-dependent overload release	5 12 A
formula for making capacity limit current	12 x le
formula for breaking capacity limit current	10 x le
yielded mechanical performance 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
operational 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
operating power	
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
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
type of voltage control supply voltage 1 at AC	AC/DC
	AC/DC 24 V
control supply voltage 1 at AC	
control supply voltage 1 at AC • at 50 Hz rated value	24 V
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value	24 V
control supply voltage 1 at AC • at 50 Hz rated value • at 60 Hz rated value control supply voltage frequency	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 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	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 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 holding power	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 holding power • at AC maximum	24 V 24 V 50 Hz 60 Hz 24 V 2.8 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	24 V 24 V 50 Hz 60 Hz 24 V 2.8 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 Auxiliary circuit	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 Auxiliary circuit number of NC 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 AC maximum • at DC maximum Auxiliary circuit 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 AC maximum at DC maximum Auxiliary circuit 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
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 Auxiliary circuit 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 maximum	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 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 control supply voltage 1 • at DC rated value holding power • at AC maximum • at DC maximum Auxiliary circuit 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 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
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 AC maximum at DC maximum Auxiliary circuit 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 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 0 A 0.27 A
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 • 2 rated value control supply voltage 1 • at DC rated value holding power • at AC maximum • at DC maximum Auxiliary circuit 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 maximum operational current of auxiliary contacts at DC-13 at 250 V Protective and monitoring functions trip class	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 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 control supply voltage 1 • at DC rated value holding power • at AC maximum • at DC maximum Auxiliary circuit 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 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)	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 1 CLASS 10 and 20 adjustable
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 Auxiliary circuit 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 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	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 CLASS 10 and 20 adjustable 53 kA
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 Auxiliary circuit 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 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 CLASS 10 and 20 adjustable 53 kA 3 kA
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 Auxiliary circuit 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 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	24 V 24 V 50 Hz 60 Hz 24 V 2.8 W 2.9 W 1 1 1 1 CLASS 10 and 20 adjustable 53 kA

full-load current (FLA) for 3-phase AC motor			
 at 480 V rated value 	12 A		
at 600 V rated value	12 A		
yielded mechanical performance [hp] for 3-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		
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	Cicoliomagnetto		
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		
fastening method	screw and snap-on mounting		
height	191 mm		
width	45 mm		
	165 mm		
depth	103 111111		
Connections/ Terminals			
product function	v.		
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 circuit	spring-loaded 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)		
 finely stranded without core end processing 	2x (1.5 6 mm²)		
at AWG cables for main contacts	2x (16 10), 1x 8		
type of connectable conductor cross-sections			
 for auxiliary contacts 			
— solid	2x (0.25 1.5 mm²)		
 finely stranded with core end processing 	2x (0.25 1.5 mm²)		
— finely stranded without core end processing	2x (0.25 1.5 mm²)		
at AWG cables for auxiliary contacts	2x (24 16)		
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			
protocor 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 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-based interference 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				
Display					
number of LEDs	2				
Certificates/ approvals					
General Product Approval		EMC	Functional Safety/Safety of Machinery		













Declaration of Conformity

Test Certificates

Marine / Shipping

Miscellaneous



Type Test Certificates/Test Report







Marine / Shipping

other









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

 $\underline{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RA6120-2DB33}$

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

https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-2DB33

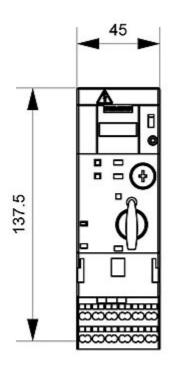
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

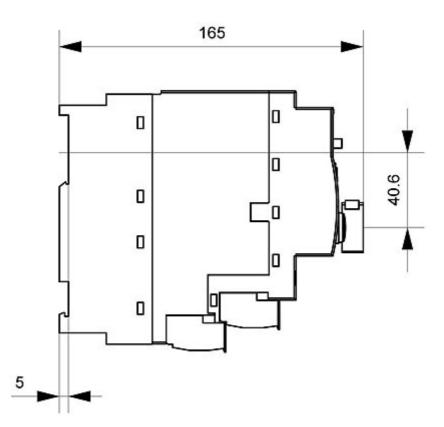
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RA6120-2DB33&lang=en

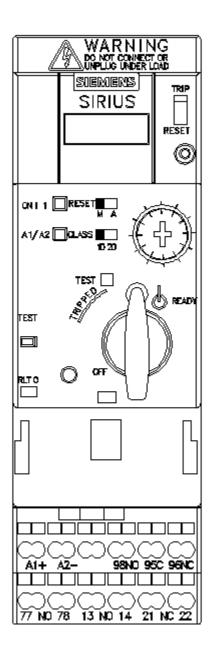
Characteristic: Tripping characteristics, I2t, Let-through current

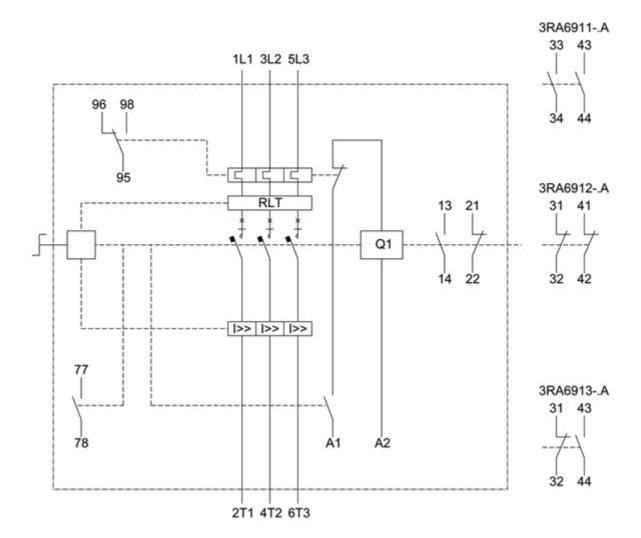
https://support.industry.siemens.com/cs/ww/en/ps/3RA6120-2DB33/char

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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