

Protective Devices for SINAMICS G120C

Product Information

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1 IEC applications

1.1 General Notes

Protection for safety must be provided in accordance with

- IEC 60364 standard series
- Any additional local standards and regulations for electrical installations.

The tables below provide information for each converter type and article number on the following items:

- Suitable protective devices: The specification includes the type or article number of the overcurrent protective devices (OCPD). In many cases, two values of rated current are shown for the same converter. The higher one represents the maximum permissible nominal current of the OCPD that provides protection, the lower one is a typical nominal current that better fits to the converter. Current ratings between these two values are suitable as well.
- Maximum ICC (conditional short circuit current): This is the maximum RMS value of a prospective short circuit current, available from a supply source.
- Minimum enclosure volume: In the end application, the converter shall be installed in an outer enclosure or control cabinet which shall meet the minimum enclosure volume requirement.
- Minimum $I_{cp,mr}$ (prospective short-circuit current): RMS value of a minimum prospective short-circuit current, which shall be available from the source to ensure operation of the specific type of short-circuit protective device.

Notes on the selection of protective devices

- Protective devices of the same type as specified in the tables with a lower ampere rating may be used, if suitable for the application.
- Protective devices of the same type as specified in the tables with a lower interrupting rating may be used, if suitable for the application. In such case, this lower interrupting current rating of a protective device shall be specified as the ICC of a converter and protective device combination.
- The voltage rating of the protective device must be at least the voltage rating of the supply circuit.

The converter provides:

- Integral Motor Overload Protection which reduces the output current flow under overload conditions. Refer to manual for adjustments.
- Integral Output Short-Circuit Protection.

1.2 IEC standard fuses

1.2.1 IEC standard fuses 3AC 380...480V

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} /A	Article no. ¹⁾	I _{cp,mf} /kA	I _{cc} /kA @ 400 V	Metric	Imperial
A	3 kW	6SL3210-1KE17-5..1	16	3NA3805	0.4	100 ²⁾	0.06 m ³	2.12 ft ³
	4 kW	6SL3210-1KE18-8..1	16	3NA3805	0.4	100 ²⁾		
AA	0.55 kW	6SL3210-1KE11-8..2	10	3NA3803	0.25	100	0.03 m ³	1.06 ft ³
	0.75 kW	6SL3210-1KE12-3..2	10	3NA3803	0.25	100		
	1.1 kW	6SL3210-1KE13-2..2	10	3NA3803	0.25	100		
	1.5 kW	6SL3210-1KE14-3..2	10	3NA3803	0.25	100		
	2.2 kW	6SL3210-1KE15-8..2	10	3NA3803	0.25	100		
B	5.5 kW	6SL3210-1KE21-3..1	32	3NA3812	0.8	100 ²⁾	0.144 m ³	5.09 ft ³
	7.5 kW	6SL3210-1KE21-7..1	32	3NA3812	0.8	100 ²⁾		
C	11 kW	6SL3210-1KE22-6..1	63	3NA3822	1.57	100		
	15 kW	6SL3210-1KE23-2..1	63	3NA3822	1.57	100		
	18.5 kW	6SL3210-1KE23-8..1	63	3NA3822	1.57	100		
D	22 kW	6SL3210-1KE24-4..1	80	3NA3824	2	100	0.6 m ³ ³⁾	21.19 ft ³
	30 kW	6SL3210-1KE26-0..1	100	3NA3830	2.5	100		
	37 kW	6SL3210-1KE27-0..1	100	3NA3830	2.5	100		
	45 kW	6SL3210-1KE28-4..1	125	3NA3832	3.12	100		
E	55 kW	6SL3210-1KE31-1..1	160	3NA3836	4	100		
F	75 kW	6SL3210-1KE31-4..1	200	3NA3140	5	100		
	90 kW	6SL3210-1KE31-7..1	224	3NA3142	5.6	100		
	110 kW	6SL3210-1KE32-1..1	300	3NA3250	9	100		
	132 kW	6SL3210-1KE32-4..1	315	3NA3252	9.45	100		

¹⁾ Siemens 3NA low-voltage fuses are recommended

²⁾ For SCCR up to 5 kA no input choke is required. For SCCR > 5 kA dedicated input choke is required. Refer to manual.

³⁾ No enclosure size restrictions apply to 65 kA ICC rating.

1.3 IEC motor starter protectors

1.3.1 IEC motor starter protectors 3AC 380...480V

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A	Article no.	I _{cp,mf} / kA	I _{cc} / kA @ 400 V ¹⁾	Metric	Imperial
A	3 kW	6SL3210-1KE17-5..1	16	3RV2011-4AA..	0.25	55	0.03 m³	1.06 ft³
			16	3RV2021-4AA..	0.25	55		
	4 kW	6SL3210-1KE18-8..1	16	3RV2011-4AA..	0.25	55		
			16	3RV2021-4AA..	0.25	55		
AA	0.55 kW	6SL3210-1KE11-8..2	10	3RV2011-1JA..	0.16	65	-	-
			10	3RV2021-1JA..	0.16	65		
	0.75 kW	6SL3210-1KE12-3..2	10	3RV2011-1JA..	0.16	65		
			10	3RV2021-1JA..	0.16	65		
	1.1 kW	6SL3210-1KE13-2..2	10	3RV2011-1JA..	0.16	65		
			10	3RV2021-1JA..	0.16	65		
	1.5 kW	6SL3210-1KE14-3..2	10	3RV2011-1JA..	0.16	65		
			10	3RV2021-1JA..	0.16	65		
	2.2 kW	6SL3210-1KE15-8..2	10	3RV2011-1JA..	0.16	65		
			10	3RV2021-1JA..	0.16	65		
B	5.5 kW	6SL3210-1KE21-3..1	32	3RV2021-4EA..	0.48	65	0.06 m³	2.12 ft³
			32	3RV2031-4EA..	0.5	65		
	7.5 kW	6SL3210-1KE21-7..1	32	3RV2021-4EA..	0.48	65		
			32	3RV2031-4EA..	0.5	65		
C	11 kW	6SL3210-1KE22-6..1	52	3RV2031-4WA..	0.89	65	0.14 m³	4.94 ft³
			63	3RV2041-4JA..	0.98	65		
	15 kW	6SL3210-1KE23-2..1	52	3RV2031-4WA..	0.89	65		

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A	Article no.	I _{cp,mr} / kA	I _{cc} / kA @ 400 V ¹⁾	Metric	Imperial
D	18.5 kW	6SL3210-1KE23-8..1	63	3RV2041-4JA..	0.98	65		
			52	3RV2031-4WA..	0.89	65		
			63	3RV2041-4JA..	0.98	65		
	22 kW	6SL3210-1KE24-4..1	73	3RV2031-4KA..	1.14	65	0.6 m ³	21.19 ft ³
			73	3RV2032-4KA..	1.14	65		
			75	3RV2041-4KA..	1.17	65		
			75	3RV2042-4KA..	1.17	65		
	30 kW	6SL3210-1KE26-0..1	93	3RV2041-4YA..	1.56	65		
			93	3RV2042-4YA..	1.56	65		
	37 kW	6SL3210-1KE27-0..1	100	3RV2041-4MA..	1.56	65		
			100	3RV2042-4MA..	1.56	65		
	45 kW	6SL3210-1KE28-4..1	100	3RV2041-4MA..	1.56	65		
			100	3RV2042-4MA..	1.56	65		

¹⁾ I_{cc} values are only valid for supply grids with grounded star point (solidly grounded wye TN or TT systems)

1.4 IEC circuit breakers

1.4.1 IEC circuit breakers 3AC 380...480V

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A	Article no. ^{1) 2)}	I _{cp,mr} / kA	I _{cc} / kA @ 415 V	Metric	Imperial
D	22 kW	6SL3210-1KE24-4..1	80	3VA1080-4ED..-....	0.96	36	0.6 m ³	21.19 ft ³
			80	3VA1180-6E#..-....	0.96	70		
	30 kW	6SL3210-1KE26-0..1	100	3VA1010-4ED..-....	1.2	36		
			100	3VA1110-6E#..-....	1.2	70		
	37 kW	6SL3210-1KE27-0..1	100	3VA1010-4ED..-....	1.2	36		

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A	Article no. ¹⁾ ²⁾	I _{cp,mr} / kA	I _{cc} / kA @ 415 V	Metric	Imperial
	45 kW	6SL3210-1KE28-4..1	100	3VA1110-6E#..-....	1.2	70		
			100	3VA1010-4ED..-....	1.2	36		
			100	3VA1110-6E#..-....	1.2	70		
E	55 kW	6SL3210-1KE31-1..1	160	3VA1116-6E#..-....	1.92	70		
F	75 kW	6SL3210-1KE31-4..1	200	3VA1220-6EF..-....	2.4	70		
	90 kW	6SL3210-1KE31-7..1	250	3VA1225-6EF..-....	3	70		
	110 kW	6SL3210-1KE32-1..1	400	3VA2340-8##..-....	4.8	100		
	132 kW	6SL3210-1KE32-4..1	400	3VA2340-8##..-....	4.8	100		

¹⁾ # stands for type of release and can be replaced by: D (fixed thermal fixed magnetic trip unit), E (adjustable thermal fixed magnetic trip Unit) or F (adjustable thermal adjustable magnetic Trip unit)

²⁾ ## stands for type of release and can be replaced by: HL (line protection LI), HM (line protection LIG), HK (line protection ELISA LI), HN (Line and generator protection LSI), JP (Line and generator protection LSI, with display), JQ (Line and generator protection LSI, with display), KP (Line and generator protection LSI, with display, with measurement function), KQ (Line and generator protection LSI, with display, with measurement function)

2 UL/CSA applications

2.1 General Notes

Branch circuit protection must be provided in accordance with

- the National Electrical Code (NEC) for USA
- the Canadian Electrical Code (CEC) Part I for Canada
- any additional local codes and regulations.

The tables below provide information for each converter type and article number on the following items:

- Suitable protective devices: The specification includes the type or article number of the overcurrent protective devices (OCPD). In many cases, two values of rated current are shown for the same converter. The higher one represents the maximum permissible nominal current of the OCPD that provides Protection, the lower one is a typical nominal current that better fits to the converter. Current ratings between these two values are suitable as well.
- Maximum SCCR (Short-Circuit Current Rating): This is the maximum prospective symmetrical fault current at the specified voltage to which the converter system can be connected without sustaining damage exceeding defined acceptance criteria. The specified SCCR applies to the complete converter including built-in EMI filters and pluggable terminals (where applicable).
- Minimum enclosure volume: In the end application, the converter shall be installed in an outer enclosure or control cabinet which shall meet the minimum enclosure volume requirement.

Notes on the selection of protective devices (in accordance with NEC and CEC)

- Suitable Protective devices of the same type as specified in the tables with a lower ampere rating may be used, if suitable for the application.
- Protective devices of the same type as specified in the tables with a lower interrupting rating than the specified SCCR may be used, if suitable for the application. In such case, this lower interrupting current rating of a protective device shall be specified as the SCCR of a converter and protective device combination.
- The voltage rating of the protective device must be at least the voltage rating of the supply circuit. Protective devices with a straight voltage rating, such as 480V, are permitted on any supply circuits. The specified SCCR is valid for corner grounded delta and solidly grounded wye systems. Protective devices with a slash voltage rating, such as 480Y/277V, are permitted only on solidly grounded wye circuits where the nominal voltage of any conductor to ground does not exceed the lower of the two values.

The converter modules provide:

- Integral Motor Overload Protection which reduces the output current flow under overload conditions. Refer to manual for adjustments.
- Integral Output Short-Circuit Protection. Components on the load side of the converter module are not required to have a short-circuit current rating (UL 508A).

UL File-Number

- FSAA UL-file E355661, Volume 5 section 9
- FSA, FSB, FSC UL-file E255661, Volume 5 section 7
- FSD, FSE, FSF UL-file E355661, volume 6 section 4

2.2 UL/CSA non-semiconductor fuses

2.2.1 UL/CSA non-semiconductor fuses 3AC 380...480V

Converter			Protective Device		Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A ¹⁾	SCCR/ kA @ 480 V	Metric	Imperial
A	3 kW	6SL3210-1KE17-5..1	15 A	100 ²⁾	0.06 m ³	2.12 ft ³
	4 kW	6SL3210-1KE18-8..1	15 A	100 ²⁾		
AA	0.55 kW	6SL3210-1KE11-8..2	10 A	100	0.03 m ³	1.06 ft ³
	0.75 kW	6SL3210-1KE12-3..2	10 A	100		
	1.1 kW	6SL3210-1KE13-2..2	10 A	100		
	1.5 kW	6SL3210-1KE14-3..2	10 A	100		
	2.2 kW	6SL3210-1KE15-8..2	10 A	100		
B	5.5 kW	6SL3210-1KE21-3..1	35 A	100 ²⁾	0.144 m ³	5.09 ft ³
	7.5 kW	6SL3210-1KE21-7..1	35 A	100 ²⁾		
C	11 kW	6SL3210-1KE22-6..1	60 A	100		
	15 kW	6SL3210-1KE23-2..1	60 A	100		
	18.5 kW	6SL3210-1KE23-8..1	60 A	100		
D	22 kW	6SL3210-1KE24-4..1	70 A	100	0.6 m ³ ³⁾	21.19 ft ³
	30 kW	6SL3210-1KE26-0..1	90 A	100		
	37 kW	6SL3210-1KE27-0..1	100 A	100		
	45 kW	6SL3210-1KE28-4..1	125 A	100		
E	55 kW	6SL3210-1KE31-1..1	150 A	100		
F	75 kW	6SL3210-1KE31-4..1	200 A	100		
	90 kW	6SL3210-1KE31-7..1	250 A	100		

Converter			Protective Device		Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A ¹⁾	SCCR/ kA @ 480 V	Metric	Imperial
	110 kW	6SL3210-1KE32-1..1	300 A	100		
	132 kW	6SL3210-1KE32-4..1	350 A	100		

¹⁾ Any non-semiconductor fuse Class J, CF, T or L (JDDZ/7) from any manufacturer may be used. Additionally, Class CC and G fuses can be used for Frame Size AA to Frame Size C.

²⁾ For SCCR up to 5 kA no input choke is required. For SCCR > 5 kA dedicated input choke is required. Refer to manual.

³⁾ No enclosure size restrictions apply to 65 kA SCCR rating.

2.3 UL/CSA type E combination motor controllers

2.3.1 UL/CSA type E combination motor controllers 3AC 380...480V

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A	Rated Power @ 3 AC 460 V	Article no. ^{1) 2)}	SCCR/ kA @ 480Y/277V AC	Metric	Imperial
A	3 kW	6SL3210-1KE17-5..1	16	10 hp	3RV2011-4AA..	65 ³⁾	0.06 m ³	2.12 ft ³
		6SL3210-1KE17-5..1	16	10 hp	3RV2021-4AA..	65 ³⁾		
		6SL3210-1KE17-5..1	17	15 hp	3RV2031-4TA..	65 ³⁾		
	4 kW	6SL3210-1KE18-8..1	16	10 hp	3RV2011-4AA..	65 ³⁾		
		6SL3210-1KE18-8..1	16	10 hp	3RV2021-4AA..	65 ³⁾		
		6SL3210-1KE18-8..1	17	15 hp	3RV2031-4TA..	65 ³⁾		
AA	0.55 kW	6SL3210-1KE11-8..2	10	7.5 hp	3RV2011-1JA..	65	0.03 m ³	1.06 ft ³
		6SL3210-1KE11-8..2	10	7.5 hp	3RV2021-1JA..	65		
	0.75 kW	6SL3210-1KE12-3..2	10	7.5 hp	3RV2011-1JA..	65		
		6SL3210-1KE12-3..2	10	7.5 hp	3RV2021-1JA..	65		
	1.1 kW	6SL3210-1KE13-2..2	10	7.5 hp	3RV2011-1JA..	65		
		6SL3210-1KE13-2..2	10	7.5 hp	3RV2021-1JA..	65		
	1.5 kW	6SL3210-1KE14-3..2	10	7.5 hp	3RV2011-1JA..	65		
		6SL3210-1KE14-3..2	10	7.5 hp	3RV2021-1JA..	65		
B	5.5 kW	6SL3210-1KE21-3..1	25	20 hp	3RV2021-4DA..	65 ³⁾	0.144 m ³	5.09 ft ³
		6SL3210-1KE21-3..1	32	20 hp	3RV2021-4EA..	50 ³⁾		
		6SL3210-1KE21-3..1	32	25 hp	3RV2031-4EA..	65 ³⁾		
		6SL3210-1KE21-3..1	32	25 hp	3RV2032-4EA..	65 ³⁾		
	7.5 kW	6SL3210-1KE21-7..1	25	20 hp	3RV2021-4DA..	65 ³⁾		
		6SL3210-1KE21-7..1	32	20 hp	3RV2021-4EA..	50 ³⁾		

Converter			Protective Device				Min. enclosure volume	
Frame size	P _{rated} (LO)	Article no.	I _{rated} / A	Rated Power @ 3 AC 460 V	Article no. ^{1) 2)}	SCCR/ kA @ 480Y/277V AC	Metric	Imperial
C		6SL3210-1KE21-7..1	32	25 hp	3RV2031-4EA..	65 ³⁾	0.6 m ³	21.19 ft ³
		6SL3210-1KE21-7..1	32	25 hp	3RV2032-4EA..	65 ³⁾		
	11 kW	6SL3210-1KE22-6..1	65	50 hp	3RV2031-4JA..	65		
		6SL3210-1KE22-6..1	65	50 hp	3RV2032-4JA..	65		
	15 kW	6SL3210-1KE23-2..1	65	50 hp	3RV2031-4JA..	65		
		6SL3210-1KE23-2..1	65	50 hp	3RV2032-4JA..	65		
	18.5 kW	6SL3210-1KE23-8..1	65	50 hp	3RV2031-4JA..	65		
		6SL3210-1KE23-8..1	65	50 hp	3RV2032-4JA..	65		
	22 kW	6SL3210-1KE24-4..1	73	60 hp	3RV2031-4KA..	20		
		6SL3210-1KE24-4..1	73	60 hp	3RV2032-4KA..	30		
		6SL3210-1KE24-4..1	75	60 hp	3RV2041-4KA..	65		
		6SL3210-1KE24-4..1	75	60 hp	3RV2042-4KA..	65		
D	30 kW	6SL3210-1KE26-0..1	93	75 hp	3RV2041-4YA..	65		
	37 kW	6SL3210-1KE27-0..1	100	75 hp	3RV2041-4MA..	65		
		6SL3210-1KE27-0..1	100	75 hp	3RV2042-4MA..	65		
	45 kW	6SL3210-1KE28-4..1	100	75 hp	3RV2041-4MA..	65		
		6SL3210-1KE28-4..1	100	75 hp	3RV2042-4MA..	65		

¹⁾ 3RV203.. are approved in accordance with UL 508/UL60947-4-1 in combination with 3RV2938-1K. (Not necessary for CSA)

²⁾ SIEMENS Type E combination motor controllers (NKJH/7)

³⁾ For SCCR up to 5 kA no input choke is required. For SCCR > 5 kA dedicated input choke is required. Refer to manual.

2.4 UL/CSA circuit breaker

2.4.1 UL/CSA circuit breaker 3AC 380...480V

Converter			Protective Device					Min. enclosure volume	
Fram e Size	P _{rated} (LO)	Article no.	I _{rated} /A	UL/CSA Type	Article no. Example (European) ^{1) 2) 3) 4)}	SCCR / kA @ 480 V	SCCR/ kA @ 480Y/277V AC	Metric	Imperial
A	3 kW	6SL3210-1KE17-5..1	15	3RV2711	3RV2711-4AD..	-	65	0.06 m ³	2.12 ft ³
			70	3RV2742	3RV2742-5QD..	-	5		
	4 kW	6SL3210-1KE18-8..1	15	3RV2711	3RV2711-4AD..	-	65		
			70	3RV2742	3RV2742-5QD..	-	5		
AA	0.55 kW	6SL3210-1KE11-8..2	15	3RV2711	3RV2711-4AD..	-	5	0.03 m ³	1.06 ft ³
			15	CED6	-	5	5		
			15	LGG	-	5	5		
	0.75 kW	6SL3210-1KE12-3..2	15	3RV2711	3RV2711-4AD..	-	5		
			15	CED6	-	5	5		
			15	LGG	-	5	5		
	1.1 kW	6SL3210-1KE13-2..2	15	3RV2711	3RV2711-4AD..	-	5		
			15	CED6	-	5	5		
			15	LGG	-	5	5		
	1.5 kW	6SL3210-1KE14-3..2	15	3RV2711	3RV2711-4AD..	-	5		
			15	CED6	-	5	5		
			15	LGG	-	5	5		
	2.2 kW	6SL3210-1KE15-8..2	15	3RV2711	3RV2711-4AD..	-	5		
			15	CED6	-	5	5		
			15	LGG	-	5	5		
B	5.5 kW	6SL3210-1KE21-3..1	35	3RV2742	3RV2742-5FD..	-	65	0.144 m ³	5.09 ft ³
	7.5 kW	6SL3210-1KE21-7..1	35	3RV2742	3RV2742-5FD..	-	65		

Converter			Protective Device					Min. enclosure volume	
Frame Size	P _{rated} (LO)	Article no.	I _{rated} /A	UL/CSA Type	Article no. Example (European) ^{1) 2) 3) 4)}	SCCR / kA @ 480 V	SCCR/ kA @ 480Y/277V AC	Metric	Imperial
C	11 kW	6SL3210-1KE22-6..1	60	3RV2742	3RV2742-5LD..	-	5		
	15 kW	6SL3210-1KE23-2..1	60	3RV2742	3RV2742-5LD..	-	5		
	18.5 kW	6SL3210-1KE23-8..1	60	3RV2742	3RV2742-5LD..	-	5		
D	22 kW	6SL3210-1KE24-4..1	70	3RV2742	3RV2742-5QD..	-	65	0.18 m³	6.36 ft³
			70	CFAS (3VA52)	3VA5270-7E#..-....	100	100		
			70	HEAS (3VA51)	3VA5170-6E#..-....	65	65		
			70	HFAS (3VA52)	3VA5270-6E#..-....	65	65		
			70	MEAS (3VA51)	3VA5170-5E#..-....	35	35		
			70	MFAS (3VA52)	3VA5270-5E#..-....	35	35		
			70	SEAS (3VA51)	3VA5170-4E#..-....	25	25		
	30 kW	6SL3210-1KE26-0..1	100	CFAS (3VA52)	3VA5210-7E#..-....	100	100	0.36 m³	12.71 ft³
			100	HEAS (3VA51)	3VA5110-6E#..-....	-	65		
			100	HFAS (3VA52)	3VA5210-6E#..-....	65	65		
			100	MEAS (3VA51)	3VA5110-5E#..-....	-	35		
			100	MFAS (3VA52)	3VA5210-5E#..-....	35	35		
			100	SEAS (3VA51)	3VA5110-4E#..-....	-	25		
	37 kW	6SL3210-1KE27-0..1	100	CFAS (3VA52)	3VA5210-7E#..-....	100	100		
			100	HEAS (3VA51)	3VA5110-6E#..-....	-	65		
			100	HFAS (3VA52)	3VA5210-6E#..-....	65	65		
			100	MEAS (3VA51)	3VA5110-5E#..-....	-	35		
			100	MFAS (3VA52)	3VA5210-5E#..-....	35	35		
			100	SEAS (3VA51)	3VA5110-4E#..-....	-	25		
	45 kW	6SL3210-1KE28-4..1	125	CFAS (3VA52)	3VA5212-7E#..-....	100	100		
			125	HEAS (3VA51)	3VA5112-6E#..-....	-	65		

Converter			Protective Device					Min. enclosure volume	
Frame Size	P _{rated} (LO)	Article no.	I _{rated} /A	UL/CSA Type	Article no. Example (European) ^{1) 2) 3) 4)}	SCCR / kA @ 480 V	SCCR/ kA @ 480Y/277V AC	Metric	Imperial
			125	HFAS (3VA52)	3VA5212-6E#...-....	65	65		
			125	MEAS (3VA51)	3VA5112-5E#...-....	-	35		
			125	MFAS (3VA52)	3VA5212-5E#...-....	35	35		
			125	SEAS (3VA51)	3VA5112-4E#...-....	-	25		
E	55 kW	6SL3210-1KE31-1..1	150	CDAE (3VA61)	3VA6115-7##...-....	100	100	0.48 m ³	16.95 ft ³
			150	CFAS (3VA52)	3VA5215-7E#...-....	100	100		
			150	HDAE (3VA61)	3VA6115-6##...-....	65	65		
			150	HFAS (3VA52)	3VA5215-6E#...-....	65	65		
			150	LDAE (3VA61)	3VA6115-8##...-....	150	150		
			150	MDAE (3VA61)	3VA6115-5##...-....	35	35		
			150	MFAS (3VA52)	3VA5215-5E#...-....	35	35		
F	75 kW	6SL3210-1KE31-4..1	200	CFAS (3VA52)	3VA5220-7E#...-....	100	100	0.6 m ³	21.19 ft ³
			200	CJAS (3VA53)	3VA5320-7E#...-....	100	100		
			200	HFAS (3VA52)	3VA5220-6E#...-....	65	65		
			200	HJAS (3VA53)	3VA5320-6E#...-....	65	65		
			200	MFAS (3VA52)	3VA5220-5E#...-....	35	35		
			200	MJAS (3VA53)	3VA5320-5E#...-....	35	35		
	90 kW	6SL3210-1KE31-7..1	250	CFAS (3VA52)	3VA5225-7E#...-....	100	100		
			250	CJAS (3VA53)	3VA5325-7E#...-....	100	100		
			250	HFAS (3VA52)	3VA5225-6E#...-....	65	65		
			250	HJAS (3VA53)	3VA5325-6E#...-....	65	65		
			250	MFAS (3VA52)	3VA5225-5E#...-....	35	35		
			250	MJAS (3VA53)	3VA5325-5E#...-....	35	35		
	110 kW	6SL3210-1KE32-1..1	300	CJAS (3VA53)	3VA5330-7E#...-....	100	100		
			300	HJAS (3VA53)	3VA5330-6E#...-....	65	65		

Converter			Protective Device					Min. enclosure volume	
Frame Size	Prated (LO)	Article no.	Irated/A	UL/CSA Type	Article no. Example (European) ^{1) 2) 3) 4)}	SCCR / kA @ 480 V	SCCR/ kA @ 480Y/277V AC	Metric	Imperial
			300	MJAS (3VA53)	3VA5330-5E#..-....	35	35		
			400	CJAE (3VA63)	3VA6340-7##..-....	100	100		
			400	CLAE (3VA64)	3VA6440-7##..-....	100	100		
			400	HJAE (3VA63)	3VA6340-6##..-....	65	65		
			400	HLAE (3VA64)	3VA6440-6##..-....	65	65		
			400	LJAE(3VA63)	3VA6340-8##..-....	100	100		
			400	LLAE(3VA64)	3VA6440-8##..-....	100	100		
			400	MJAE (3VA63)	3VA6340-5##..-....	35	35		
			400	MLAE (3VA64)	3VA6440-5##..-....	35	35		
	132 kW	6SL3210-1KE32-4..1	400	CJAE (3VA63)	3VA6340-7##..-....	100	100		
			400	CJAS (3VA53)	3VA5340-7E#..-....	100	100		
			400	CLAE (3VA64)	3VA6440-7##..-....	100	100		
			400	HJAE (3VA63)	3VA6340-6##..-....	65	65		
			400	HJAS (3VA53)	3VA5340-6E#..-....	65	65		
			400	HLAE (3VA64)	3VA6440-6##..-....	65	65		
			400	LJAE(3VA64)	3VA6340-8##..-....	100	100		
			400	LLAE(3VA64)	3VA6440-8##..-....	150	150		
			400	MJAE (3VA63)	3VA6340-5##..-....	35	35		
			400	MJAS (3VA53)	3VA5340-5E#..-....	35	35		
			400	MLAE (3VA64)	3VA6440-5##..-....	35	35		

¹⁾ ## stands for type of release and can be replaced by: HL (line protection LI), HM (line protection LIG), HN (Line and generator protection LSI), JP (Line and generator protection LSI, with display), JQ (Line and generator protection LSI, with display), KP (Line and generator protection LSI, with display, with measurement function), KQ (Line and generator protection LSI, with display, with measurement function)

²⁾ # stands for type of release and can be replaced by: C (fixed thermal adjustable magnetic trip unit), D (fixed thermal fixed magnetic trip unit) or F (adjustable thermal adjustable magnetic trip unit)

³⁾ Protective devices of the same type with lower current ratings in accordance with and as permitted by the existing applicable local electrical code (e.g. NEC or CEC) and regulations may be used, if suitable for the application.

⁴⁾ For details and more article numbers, please refer to the catalog links in section 3.

3 Further Information

Further information is available on the internet:

- SENTRON Fuse Systems, configuration manual:
<https://support.industry.siemens.com/cs/ww/en/view/45314810>
- Low-Voltage Power Distribution and Electrical Installation Technology:
<https://support.industry.siemens.com/cs/ww/en/view/109482234>
- SIRIUS Industrial Controls:
<https://support.industry.siemens.com/cs/ww/en/view/109747945>
- SIRIUS 3RV Motor Starter Protectors:
<https://support.industry.siemens.com/cs/ww/en/view/60279172>
- 3VA molded case circuit breakers with IEC certificate:
<https://support.industry.siemens.com/cs/us/en/view/90318775>
- 3VA UL / IEC molded case circuit breakers:
<https://support.industry.siemens.com/cs/us/en/view/109758561>
- UL Molded Case Circuit Breakers, SENTRON & VL series, see Siemens SPEEDFAX Product Catalog, Section 7:
<https://digitalcontentcenter.compas.siemens-info.com/SF-17-Sect-07-ALL-web.pdf>