

8.1 Short description



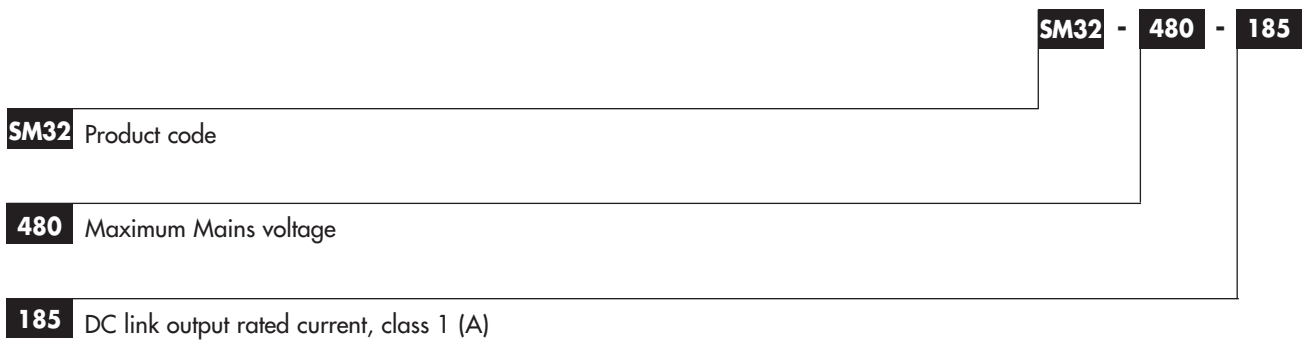
The SM32 devices are AC/DC three-phase half-controlled converters designed to supply constant voltage to the DC link of the AMV32, AMD32, AVy and AFy inverters.

SM32 is suitable to power supply both single and multiple inverter systems parallel connected to a common DC link.

The precharge of the leveling capacitors, which can be set via internal dip-switches, is performed by partializing the Mains voltage via an input thyristor bridge.

A diagnostic circuit allows to set the delay time for the switching off of the power thyristor during a power dip.

8.2 Identification code



8.3 Power supply choice

The SM32 power supply has to be chosen so that the sum of the inverter currents linked to the DC link, for both classes 1 and 2, is lower or equal to the one stated in the following table:

Table 8.3.1: DC link output currents and voltage

Power supply Type	SIEI Code	DC link current		DC link output voltage (V)
		1) (A)	2) (A)	
SM32-480-185	S9V73	185	150	$1.35 \times U_{IN}$
SM32-480-280	S9V74	280	225	$1.35 \times U_{IN}$
SM32-480-420	S9V75	420	340	$1.35 \times U_{IN}$
SM32-480-650	S9V76	650	540	$1.35 \times U_{IN}$
SM32-480-1050	S9V72	1050	850	$1.35 \times U_{IN}$
SM32-480-1500	S9V71	1500	1300	$1.35 \times U_{IN}$

- 1) Continuous duty, class 1
 - 2) Duty with a 150% overload possibility for 60 seconds, class 2
- U_{IN} = Mains rated voltage

Table 8.3.2: Dissipated power and internal fans

Power supply Type	SIEI Code	Dissipated Power P_v (W)	Fans		
			Voltage (V)	Rated current (A)	Air capacity (m ³ /h)
SM32-480-185	S9V73	500	Int. supply	Int. supply	160
SM32-480-280	S9V74	710	Int. supply	Int. supply	320
SM32-480-420	S9V75	980	Int. supply	Int. supply	320
SM32-480-650	S9V76	1650	Int. supply	Int. supply	700
SM32-480-1050	S9V72	2525	230V +15%	0.6	975
SM32-480-1500	S9V71	4800	230V +15%	0.6	975

8.4 Weights and dimensions

Figure 8.4.1: Dimensions (construction form 1)

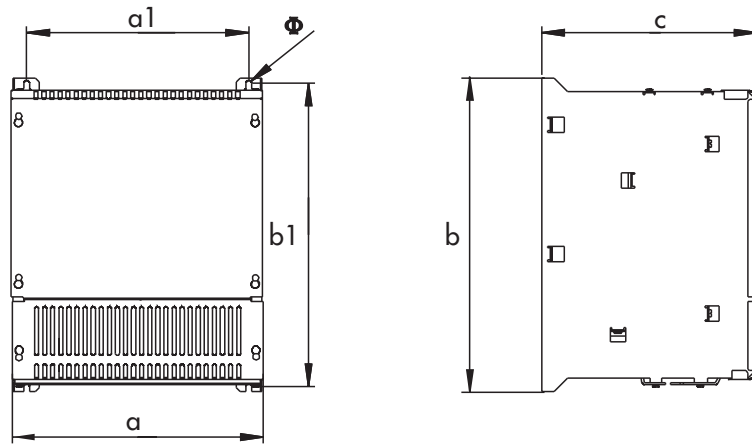


Figure 8.4.2: Dimensions (construction form 2)

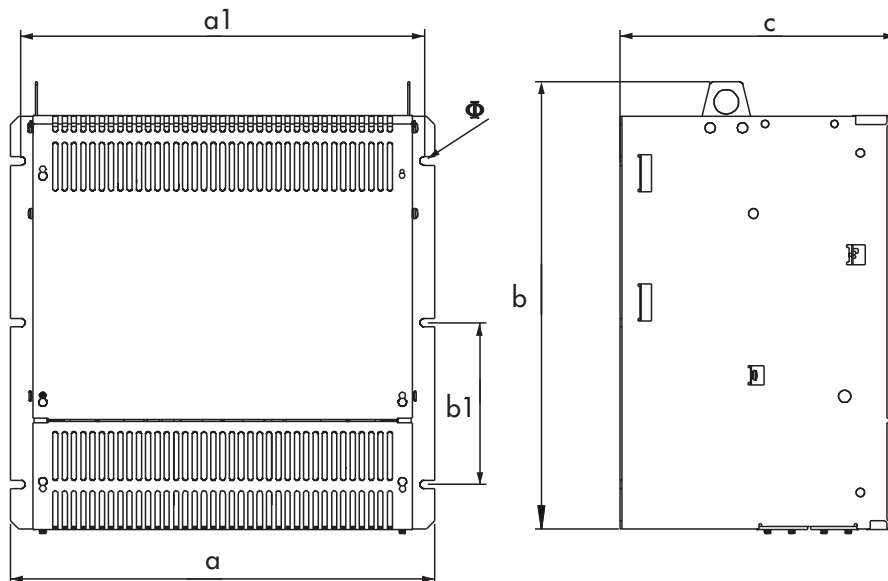


Table 8.4.1: Weights and dimensions

Power supply type	Form	a (mm)	b (mm)	c (mm)	a1 (mm)	b1 (mm)	Ø	Weight (kilos)
SM32-480-185	1	311	388	270	275	375	M6	18
SM32-480-280	1	311	388	270	275	375	M6	26
SM32-480-420	1	311	388	270	275	375	M6	30
SM32-480-650	1	311	388	305	275	375	M6	31
SM32-480-1050	2	525	554	343	500	200	M6	63
SM32-480-1500	2	551	686	380	526	200	M8	85

8.5 General features

- Selection of the delay time for the thyristor switching off during a power dip. 7 times, from 1.1 to 7.7 ms $\pm 10\%$, which can be selected via the dip-switches.
- Selection of the undervoltage threshold according to the power supply voltage. 3 voltages: $\leq 370 V_{DC}$, $\leq 300 V_{DC}$ and $\leq 80 V_{DC}$ which can be selected via the dip-switches
- Selection of the precharge time for the leveling capacitors. 5 times, from 2 to 18 seconds $\pm 15\%$, which can be selected via the dip-switches
- Selection of the power supply Mains frequency: 50 or 60 Hz
- Enabling, via the terminal strip, of the precharge delay.

Three-phase power supply

From 400V -15% to 480V $+15\%$, 50 Hz or 60 Hz (selectable via the dip-switches).

Protection functions

Opening of the OK relay in case of:

- overtemperature
- power supply loss on the regulation card ($\pm 1.5V$)
- power supply loss
- completely discharged DC link

Inputs/Outputs

- Relay outputs: 1 drive OK contact (normally open, closed after the precharge)
- 2 digital outputs: MLP signal (sum of the precharge and of the set undervoltage threshold) and ML signal (Mains voltage monitoring).

Environmental Conditions:

Enclosure: IP20

Ambient temperature: from 0 to 55°C, if the temperature is higher than 40°C, reduce the current by 1.25% every K.

Humidity: from 5% to 85%, 1 g/m³ up to 25 g/m³ without condensing or ice formation.

Altitude: up to 1000 meters on the sea level; if such value is exceeded, the current has to be reduced by 1.2% every 100-meter increase.

Norms and marks

EC: in compliance with the EEC directive about low-voltage devices.

8.6 Options

Power section fuses

Super fast fuses have to be used for the right thyristor protection. The table lists the suggested fuses. The fuses on the DC side are suggested only if several inverters are power supplied; in this case the fuses have to be dimensioned according to the size of the power supplied inverter and they must be connected directly to the inverter C-D input. The following table lists the maximum F2 fuse couple dimensioned for the whole output direct current.

Power supply Type	Symbol	Piece number	Suggested fuses				
			EUROPE		USA		
			Type	Code	Type	Code	
SM32-480-185	F1	3	S00üf1/80/200A/660V	F4G23	A70P200	FWP200A	S7G58
	F2	1+1	S1üf1/110/250A/660V	F4G28	A70P300	FWP300	S7G60
SM32-480-280	F1	3	S1üf1/110/315A/660V	F4G30	A70P350	FWP350A	S7G61
	F2	1+1	S1üf1/110/315A/660V	F4G30	A70P350	FWP350A	S7G61
SM32-480-420	F1	3	S2üf1/110/500A/660V	F4E30	A70P500	FWP500A	S7G63
	F2	1+1	S2üf1/110/500A/660V	F4E30	A70P500	FWP500A	S7G63
SM32-480-650	F1	3	S2üf1/110/630A/660V	F4E31	A70P600	FWP600A	S7G65
	F2	1+1	800A/660V		A70P800	FWP800	S7813
SM32-480-1050	F1	3	170M5466 (1000A/700V)	S827B	170M5466 (1000A/700V)		S827B
	F2	2+2	S2üf1/110/630A/660V	F4E31	A70P600	FWP600A	S7G65
SM32-480-1500	F1	6	G3MU01 (1000A/660V)		G3MU01 (1000A/660V)		
	F2	(1+1)+(1+1)	1000A/660V		A70P1000	FWP1000	S7812

- F1: External fuses for the input side power supply bridge
- F2: External fuses for the DC link output
- From the SM32-480-1050 size the fuses are integrated in the device.

The fuse technical data, such as dimensions, weights, dissipated power, fuse blocks etc. can be found in the catalogue of the fuse producer:

Jean Muller, Eltville = types: S00... , S1... , S2... , M... , G3...
 Gould Shawmut = A70P... , A2...
 Bussmann = FWP..., 170M...

SM32 DC power supply

Input chokes

An input choke is compulsory for the functioning of the SM32 power supply.

Power supply Type	Mains frequency (Hz)	Three-phase input choke		Rated choke (mH)	Rated current (A)	Saturation current (A)
		Type	Code			
SM32-480-185	50/60	LR3-090	S7D19	0.148	173	350
SM32-480-280	50/60	LR3-160	S7D40	0.085	297	600
SM32-480-420	50/60	LR3-160	S7D40	0.085	297	600
SM32-480-650	50/60	LR3-315	S7D28	0.06	550	1050
SM32-480-1050	50/60	LR3 869-1303-0.03	S7D15	0.03	869	1303
SM32-480-1500	50/60	LR3 1425-2138-0.019	S7D17	0.019	1425	2138

See the Appendix for the choke weights and dimensions.