SDPOW1

Short guide

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CMZ SISTEMI ELETTRONICI

IMPORTANT

CMZ Sistemi Elettronici reserves the right to make changes to the products described in this user guide at any time without notice.

This user guide has been prepared by CMZ Sistemi Elettronici solely for be used by its customers, guaranteeing that, at the date of issue, it is the most up-to-date document on the products.

Users use this guide under their own responsibility and certain functions described in this user guide should be applied with due caution to avoid danger for personnel and damage to the machines.

The term POWER SUPPLY used in this manual has to be considered as single-phase rectifier AC/DC not isolated.

No other guarantee is therefore provided by CMZ Sistemi Elettronici, in particular with regard to any imperfections, incompleteness or operating difficulties.

1. SAFETY PRECAUTION AND LIMITATIONS OF USE

The precautions described below are intended to ensure correct use of the product in order to prevent situations of hazard for users.

Only use the power supply after having carefully read and understood this guide.

THE POWER SUPPLY SDPOW1 MUST NOT BE USED IN EXPLOSIVE OR CORROSIVE ENVIRONMENTS, IN THE PRESENCE OF FLAMMABLE GASES, IN PLACES SUBJECT TO WATER SPRAY OR NEAR FUELS. THERE COULD BE A RISK OF FIRE, ELECTRIC SHOCK OR INJURY.

In the event of faults due to accidental causes or incorrect wiring, under extreme conditions the power part could give rise to electric arcs. The power supply must therefore be installed in an environment with no flammable elements. In particular it must not be used in the presence of flammable gas or vapours.

Do not move, install or carry out connections or inspections when the power supply is powered. In such cases always cut off the power supply and wait for a few seconds, or at least until the input and output voltages are fall below 50 V, otherwise there is the risk of electric shock or damage to the drive.

The power supply must be installed in protective cabinets or containers that meet applicable legislative requirements for the specific application, so that any live parts are inaccessible when the power supply is powered.

DO NOT DISCONNECT ANY WIRE WHEN THE POWER SUPPLY IS ON. ELECTRIC ARCS COULD FORM, WHICH WOULD NOT ONLY DAMAGE THE CONNECTOR AND SDPOWR, BUT COULD CAUSE A FIRE.

UNDER ALL CIRCUMSTANCES KEEP THE POWER SUPPLY WITHIN THE SPECIFIED RANGES TO AVOID THE RISK OF FIRE, ELECTRIC SHOCK AND DAMAGE TO SDPOWR1. LIKEWISE, CONNECT THE CABLES SECURELY AND CORRECTLY.

Do not touch the power supply connection terminals when it is powered. When carrying out maintenance, ensure that the residual voltages on the power connectors will not cause an electric shock.

Do not touch the power supply during operation or immediately after having disabled it: the surface could be hot.

Do not open or alter the power supply; contact CMZ Sistemi Elettronici for internal inspections or repairs.

The guarantee becomes void in the event of tampering with the drive.

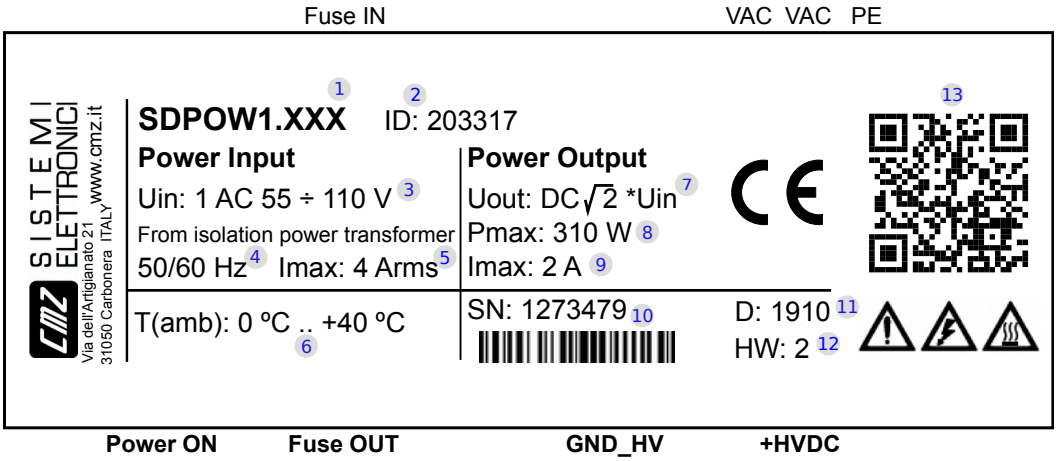
Do not place anything near the drive that could obstruct or limit ventilation of the same, otherwise it could be damaged.

Keep any metal objects away from the power supply ventilation apertures.

THE CABLE SECTION MUST BE SUITABLE FOR THE INSTALLED POWER.

IN ANY CASE ONLY USE THE PRODUCT WITHIN THE SPECIFICATIONS GIVEN IN THIS GUIDE.

2. SILK - SCREEN PRINT



Picture 1. Silk-screen print

Reference	Meaning
1	Product name
2	Identification code
3	Input voltage range
4	Input frequency
5	Maximum input current
6	Environment temperature for functioning compliant with technical data
7	Continuous output voltage value
8	Maximum output power
9	Maximum continuous output current
10	Serial number and barcode
11	Production date (YYMM)
12	Hardware revision
13	QRcode for documentation

3. HARDWARE FEATURES

Electrical features	
Power supply type	Double half-wave single-phase rectifier AC/DC NOT ISOLATED and not stabilized
Input voltage supply	Direct connection with isolation transformer (500 VA max [1])
Input features	
Frequency	50 ÷ 60 Hz
HV_IN (X1)	From 55 Vac to 110 Vac [2] Imax = 4 Arms
Output features	
HV_OUT (X2 and X3)	Vin * √2 (Rectified and levelled voltage starting from HV_IN voltage). Vout MAX = 170 Vdc Imax=2 A continuous (Vripple (typical) = 3% HV_OUT @ 2 A, Tenv.=40 °C)
Capacity on HV_OUT	4400 µF
Led	HV_OUT (L1)
Overload protection	NO
Over temperature protection	NO
Short-circuit protection	With integrated fuse on input and output Protection fuses (5x20 changeable)
Internal fuses	
on INPUT	On HV_IN (10 A retarded)
on OUTPUT	On HV_OUT (8 A retarded)
Environmental conditions	
Environmental temperature	from 0 to +40 ^{0}C
Relative humidity	from 5% to 85% non-condensing
Protection degree	IP20 (plastic cover box)
Weight	
Power supply weight	290 g

[1] Power for which it is *generally* possible to connect directly an SDPOW1 to the transformer without to limit the input current. Independently from the transformer power, the inrush current on the secondary of the transformer never has to exceed the 150 A.

[2] Variation +/-10%

4. MECHANICAL DIMENSIONS, CONNECTORS AND LED

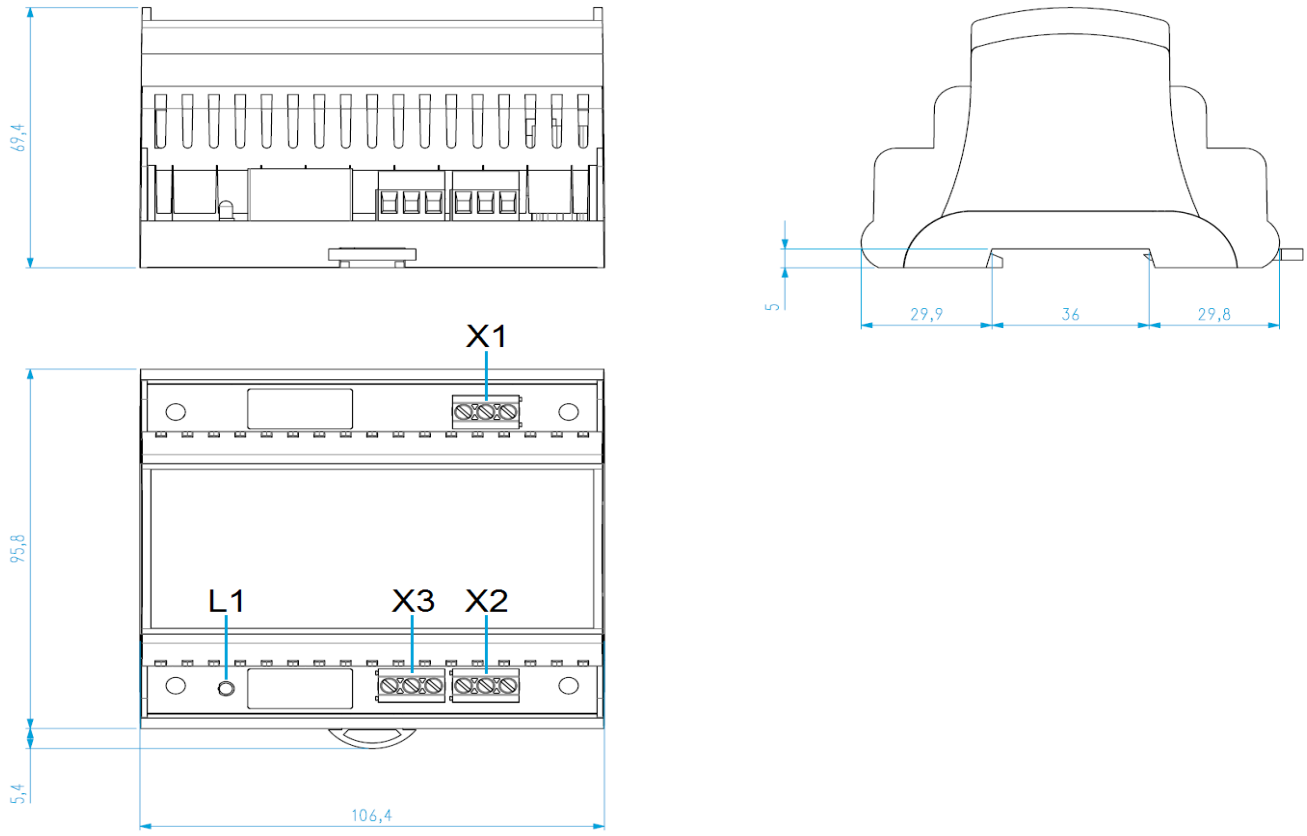


Figura 2. Ingombri meccanici [mm]

5. INSTALLATION NOTES

- Installation: electric panel
- Fixing typology: through couplers for DIN GUIDE 50022
- The power supply temperature varies depending on the environment temperature variation and on the position in the panel.
- **It is recommended to install the power supply in vertical position, since the technical data refer to this arrangement. An installation that different from the vertical one may critically limit the performances and cause an overheating or a breaking of the system.**
- The power supply has been designed so that the heat is dissipated through air convection. Be sure that the internal temperature of the electric panel doesn't exceed the maximum indicated environment temperature.
- In order to guarantee an adequate heat dissipation, it is necessary to not obstruct the slots on the box and to maintain free space for the air flow over and under the power supply. It is recommended to maintain a free space of at least 50 mm all around the power supply.

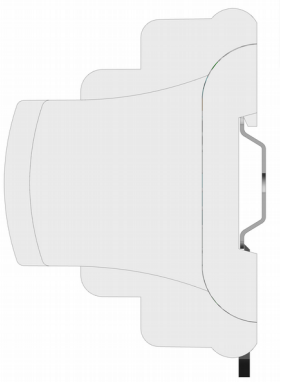


Figura 3. Installazione verticale su guida DIN

✯ CONNECTION OF THE SDPOW1 TO THE TRANSFORMER (CONNECTORS)

X1	HV_IN
Pin1	PE
Pin2	VAC
Pin3	VAC

X2	HV_OUT
Pin1	+HVDC
Pin2	+HVDC
Pin3	+HVDC
X3	
Pin1	GND_HV
Pin2	GND_HV
Pin3	GND_HV

✯ WIRING NOTES

- It is **NOT** allowed the parallel connection of two or more SDPOW1.
- Section allowed for the X1, X2 and X3 connectors wires: stranded 0.14 mm² ÷ 1.5 mm²

✯ FUNCTIONING ADDITIONAL NOTES

Analysis points	Description
INPUT VOLTAGE	Check that the voltage that is provided on the SDPOW1 input is within the allowed limits. Pay attention to the electrical characteristics that can change the input voltage such as manufacturing tolerances of the transformer (feature no-load/load, transformation ratio) and tolerance of mains power supply (typ variation. +/-10%). It is advisable to maintain a safety margin according to the maximum functioning values of SDPOW1. Check what is written above even directly on the machine in which the SDPOW1 is installed and considering the most severe functioning conditions: with no-load and during the load/no-load transition (the voltage may increase over the allowed limits). An example of voltages for the transformer are reported in Tab.1
OUTPUT VOLTAGE	The rectified voltage +HVDC varies depending on the network alternating voltage variations with which the primary of the transformer is supplied. Therefore it may happen that, under unfavourable conditions, it is exceeded the maximum tolerable voltage for the devices connected to HV_OUT (e.g. drives, etc). In this case, decrease the voltage value on the secondary of the transformer. An example of voltages for the transformer are reported in Tab.1
GROUNDING	Connect the Pin 1 (PE) of X1 to the ground for a correct use and the protection of the power supply. It is important, for the electrical safety and for noises, to connect the GND_HV externally to the power supply. In order to do that, connect to the ground a pin of X3. Note! **DO NOT** contemporary connect to the ground the secondary of the transformer and the GND_HV because it would create a short-circuit in the negative half-wave of the input voltage.

Example: selection of the transformer voltages.

Transformer		SDPOW1 output voltages [3]	
Nominal primary voltage	Nominal secondary voltage (no-load): to be connected on HV_IN	HV_OUT Vtyp.	Vmax @ no-load
230 Vac	55 Vac	75 Vdc	87 Vdc
230 Vac	80 Vac	110 Vdc	127 Vdc
230 Vac	110 Vac	150 Vdc	175 Vdc

Table 1: Example of transformer voltages

[3] Variation that includes the following elements: electric network +/-10%, transformer: +/-3% Vnom

✯ LED

The led L1 reports the presence of the input voltage of the power supply.

L1	MEANING
ON	Voltage present
OFF	Voltage not present

6. ORDER CODES

The order codes are the following:

SDPOW1.000: AC/DC power supply with installation on DIN guide.