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# SIDAC-S Power Supplies

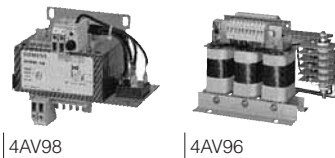
## Introduction

### Overview

#### SIDAC-S non-stabilized power supplies



|   | 4AV21/23                         | 4AV20/22/24/26                                   | 4AV4   | 4AV3                           | 4AV5                           |
|---|----------------------------------|--|--|--------------------------------|--------------------------------|
| <b>Filtered</b>   |                                  |  |  |                                |                                |
| Ripple  | < 5 %                            | < 5 %  | < 5 %  | < 5 %                          | < 5 %                          |
| Phases  | 1                                | 1  | 1  | 3                              | 3                              |
| Rated input voltage   | AC V<br>115 ... 415              | 115 ... 415                                      | 230 ... 415                                      | 200 ... 600                    | 400 ... 415                    |
| Rated output voltage to EN 61131-2 suitable for SIMATIC systems | DC V<br>24                       | 24   | 24   | 24                             | 24                             |
| Rated output current  | A<br>1 ... 3.5                   | 2.5 ... 15                                       | 1.5 ... 10                                       | 15 ... 150                     | 25, 35                         |
| Connection  | Screw-type/<br>flat connection   | Screw-type/<br>flat or Cage Clamp<br>connection  | Screw-type/<br>flat or Cage Clamp<br>connection  | Screw-type/<br>flat connection | Screw-type/<br>flat connection |
| Installation  | Standard mounting<br>rail fixing | Screw and/or<br>standard mounting<br>rail fixing | Screw and/or<br>standard mounting<br>rail fixing | Screw fixing                   | Screw fixing                   |
| <b>cULus</b> certification                                      | Yes                              | Yes  | No   | Partially                      | No                             |



|                                  | 4AV98                          | 4AV96                          |
|----------------------------------|--------------------------------|--------------------------------|
| <b>Unfiltered</b>                |                                |                                |
| Ripple                           | 48.3 %                         | < 5 %                          |
| Phases                           | 1                              | 3                              |
| Rated input voltage              | AC V<br>230 or 400             | 400                            |
| Rated output voltage             | DC V<br>24                     | 30-27-24                       |
| Rated output current/rated power | 50 ... 500 W                   | 4 ... 25 A                     |
| Connection                       | Screw-type/<br>flat connection | Screw-type/<br>flat connection |
| Installation                     | Screw fixing                   | Screw fixing                   |
| <b>cULus</b> certification       | No                             | No                             |

#### SIDAC-S, LOGO!Power and SITOP power stabilized power supplies



|                      | 4FD                              | 6EP1 LOGO!Power                  | 6EP1 SITOP power                                | 6EP1 SITOP modular                                     | 6EP1 SITOP power uninterruptible |
|----------------------|----------------------------------|----------------------------------|---|--|----------------------------------|
| Phases               | 1                                | 1                                | 1   | 1, 2, 3  | 1                                |
| Rated input voltage  | V<br>AC 115 ... 230              | AC 100 ... 240                   | DC 48 ... 220,<br>AC 120 ... 230,<br>AC 120/230 | AC 120/230 ... 500,<br>AC 120/230,<br>3 AC 400 ... 500 | DC 24                            |
| Rated output voltage | DC V<br>5, 12, 15, 24            | 5, 12, 15, 24                    | 24, 3 ... 52                                    | 24   | 24                               |
| Rated output current | A<br>3 ... 10                    | 1.3 ... 6.3                      | 0.375 ... 20                                    | 5 ... 40   | 15, 40                           |
| Connection           | Cage Clamp<br>connection         | Screw-type<br>connection         | Screw-type<br>connection                        | Screw-type<br>connection                               | Screw-type<br>connection         |
| Installation         | Standard mounting<br>rail fixing | Standard mounting<br>rail fixing | Standard mounting<br>rail fixing                | Standard mounting<br>rail fixing                       | Standard mounting<br>rail fixing |
| Certification        | <b>cULus</b>                     | <b>UL</b> , <b>cUL</b>           | <b>UL</b> , <b>cUL</b>                          | <b>UL</b> , <b>cUL</b>                                 | <b>UL</b> , <b>cUL</b>           |

Further products for power supplies can be found in the Catalogs PD 20 and KT 10.1 or on the Internet at [www.siemens.de/sidac](http://www.siemens.de/sidac) and [www.siemens.de/sitop](http://www.siemens.de/sitop).

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
General data

### Overview

4AV2, 4AV3, 4AV4 and 4AV5 power supplies deliver an unregulated DC voltage of DC 24 V based on single-phase or three-phase safety isolating transformers with downstream rectifiers and capacitor filtering.

### Benefits

The rugged construction of the 4AV units makes them extremely reliable. They are extremely stable when confronted with external mains failures and have a damping effect on electromagnetic interference.

### Area of application

The 4AV2, 4AV3, 4AV4 and 4AV5 units are used for:

- Supplying general electrical loads
- Supplying control circuits
- Power supply to electronic controllers. They meet the requirements of EN 61131-2 "Programmable logic controllers – equipment specifications and tests" and are suitable for SIMATIC or other systems.
- They are also highly suitable for supplying capacitive loads, because when the loads are connected only minimal voltage dips occur.

### Rated output and rated current



The specifications in the selection tables are based on fixed reference conditions in which the devices have the rated output or rated current:

- Continuous operation  $P_n$
- Frequency AC 50 Hz to 60 Hz
- Installation altitude up to 1000 m above sea level
- IP00 degree of protection
- Ambient temperature  $t_a$ .

### Ambient conditions

The units are designed for mounting in enclosed controllers and electronic cabinets. They are climate-proof for mounting in rooms with an external climate to DIN 50010.

Limit values:

- Ambient temperature with rated output and rated current for types:
  - 4AV2 and 4AV3: up to +60 °C,  
when used acc. to /Canada: +50 °C,  
acc. to /USA: +40 °C
  - 4AV4 and 4AV5: up to +40 °C
  - Lowest value for all types: –25 °C.
- Relative air humidity:
  - At +40 °C occasionally up to 100 %
  - Annual average up to 80 %
  - Occasional condensation possible.

### Design

The 4AV2, 4AV3, 4AV4 and 4AV5 power supplies are single-phase or three-phase transformers with downstream rectifiers in two-pulse (B2) or six-pulse (B6) bridge connection with capacitor filtering. They comply with safety class I.

The safety isolating transformers used are designed according to EN 61558-2-6 and support the safe isolation of protective extra-low voltage (SELV) and extra-low voltage (FELV) circuits from other circuits. The transformers are completely impregnated in polyester resin for protection against harmful environmental influences.

4AV units are

- designed for fuseless protection with standard circuit-breakers;
- equipped with additional ground connections for a simple grounding of the control current circuit via a detachable connection directly on the unit;
- easy to install thanks to freely accessible fixing holes and, in some cases, by snapping onto standard mounting rails;
- connected with varistors and metalized dielectric capacitors for damping high-frequent overvoltages;
- available for standard IEC voltages 230 V/400 V, and the multi-voltage designs allow connection to the most commonly available mains voltages worldwide up to 600 V.

Types 4AV21 and 4AV23 are protected by an integrated solid-state fuse. The output is automatically reconnected after the short cooling time following a mains disconnection or load shedding. For the 4AV4 types, short-circuit and overload protection is provided by an integrated replaceable fuse on the secondary side.

The 4AV2 and 4AV4 units are easily snapped on to a 35 mm standard mounting rail to EN 50022.

### Connection

#### Screw-type/flat connections

The 4AV power supplies are supplied as standard with screw-type terminals (except: 4AV38, secondary with flat connections).

#### Cage Clamp connection

For conductor cross-sections 0.8 mm<sup>2</sup> to 4 mm<sup>2</sup> and currents up to 24 A.

The 4AV20, 4AV22, 4AV24, 4AV26 and 4AV41 single-phase units can be supplied, if required, with screwless Cage Clamp terminals (multi-voltage design is not possible).

The grounding terminal is designed as a Cable Clamp terminal.

The terminals with the SIGUT connection method are:

- finger-safe to DIN VDE 0106 Part 100
- suitable for conductor cross-sections to DIN VDE 0100 Part 430 Sheet 1 and DIN EN 60204 (VDE 0113 Part 1).

### Installation

#### Standard design

The 4AV power supplies (except: 4AV21/4AV23) are supplied in the standard version for screw-fixing to the mounting plate.

#### Standard mounting rail fixing

- Integrated version  
For fixing on standard mounting rails (horizontal mounting position), types 4AV20, 4AV41 03 and 4AV41 06 are equipped as standard with an integrated snap-on fitting for 35 mm standard mounting rails to EN 50022. Types 4AV21 and 4AV23 are only suitable for fixing on standard mounting rails.
- Optional version  
Types 4AV22, 4AV24, 4AV41 01 and 4AV41 10 are available on request with a preassembled adapter for fixing on a 35 mm standard mounting rail.

#### Additional capacitors for 4AV3 (aluminum electrolyte)

Types 4AV30 to 4AV38 can be supplied with additional capacitors. This is how the values in the "Selection and ordering data" are achieved.

The back-up time is applicable for:  $U_1 = U_{1N} - 10\%$

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
General data

### Functions

The 4AV power supplies meet the requirements of EN 61131-2, irrespective of the load (no load up to rated current) and also irrespective of fluctuations of the mains supply (+6 % to -10 % to IEC 60038).

Despite variations in these parameters, the electronic control is supplied with the permissible operating voltage without having to select suitable tappings on the transformer to step up or step

down the DC output voltage according to load and mains conditions. The transformers are dimensioned in their voltage stability for this application.

Any number of units of the same type can be connected in parallel if a higher current level is required. The total current in this case must not exceed 90 % of the individual rated currents.

### Technical specifications

#### Single-phase and three-phase DC power supplies

| DC 24 V voltage<br>Limit values | EN 61131-2 | 4AV2<br>Typical<br>value | 4AV3<br>Typical<br>value | 4AV4<br>Typical<br>value | 4AV5<br>Typical<br>value | Conditions                                       |
|---------------------------------|------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| Ripple                          | ≤ 5 %      | 2.2 ... 2.7 %            | 4.2 %                    | 3.0 ... 3.7 %            | 4.2 %                    | at rated current                                 |
| DC voltage 24 V                 |            |                          |                          |                          |                          |  |
| • Upper limit                   | 30 V       | ≤ 28.8 V                 | ≤ 28.8 V                 | ≤ 30 V                   | ≤ 30 V                   | for mains overvoltage +6 % and no-load operation |
| • Lower limit                   |            |                          |                          |                          |                          | for mains undervoltage -10 % and rated current   |
| - Arithmetic mean value         | 20.4 V     | 20.4 V                   | 20.5 V                   | 20.4 V                   | 20.4 V                   |  |
| - Lower peak value              | 19.2 V     | 19.3 V                   | 19.3 V                   | 19.2 V                   | 19.2 V                   |  |
| • Rated value                   |            | 23.5 V                   | 23.5 V                   | 23.5 V                   | 23.5 V                   | for rated mains voltage and rated current        |

#### Current-carrying capacity of the power supplies with 3RT1 contactors for DC operation

- Sizes S00 to S3 with DC solenoid systems: power at closing = power when closed. The DC power supplies can be loaded up to their rated currents.
- Sizes S6 to S12: when operating the rectifiers at -10 % mains undervoltage

| Contactor<br>Type | Number of 3RT1 contactors that can be operated simultaneously <sup>1)</sup> with preloading: ① no-load operation, ② rated current |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |    |       |    |       |    |
|-------------------|---|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|----|-------|----|-------|----|
|                   | 4AV20/21  |   | 4AV23 |   | 4AV22 |   | 4AV24 |   | 4AV26 |   | 4AV30 |   | 4AV31 |   | 4AV32 |   | 4AV33 |   | 4AV34 |   | 4AV35 |    | 4AV36 |    | 4AV38 |    |
|                   | ①   | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ② | ①     | ②  | ①     | ②  | ①     | ②  |
| 3RT1. 5           | -   | - | -     | - | 1     | 1 | 2     | 1 | 3     | 1 | 2     | 1 | 3     | 2 | 4     | 2 | 7     | 5 | 8     | 5 | 14    | 10 | 22    | 16 | 42    | 30 |
| 3RT1. 6           | -   | - | -     | - | 1     | 1 | 1     | 1 | 2     | 1 | 1     | 1 | 2     | 1 | 2     | 1 | 4     | 3 | 4     | 3 | 7     | 5  | 11    | 8  | 22    | 15 |
| 3RT1. 7           | -   | - | -     | - | -     | - | 1     | - | 1     | - | 1     | - | 1     | 1 | 2     | 1 | 3     | 2 | 3     | 2 | 5     | 4  | 9     | 6  | 16    | 12 |

1) The number of contactors can be significantly increased by using additional banks of capacitors which must be connected externally.

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
General data

### Primary-side short-circuit protection, secondary-side short-circuit and overload protection

| Rectifier Type      | Rated output current $I_d$ DC A | Primary-side protection against short-circuits (line protection) by means of<br>Circuit-breaker 1) or fuse, operational class gL/gG Type | Rated input voltage $U_{IN}$ |                 |                 |                    |                  |                 |                 | Secondary-side protection against short-circuit and overload by means of circuit-breakers or fuses, operational class Type |
|---------------------|---------------------------------|--|------------------------------|-----------------|-----------------|--------------------|------------------|-----------------|-----------------|--|
|                     |                                 |  | 575 V (600 V)                | 500 V           | 460 V (480 V)   | 400 V (415 V)      | 230 V (240 V)    | 200 V           | 115 V (120 V)   |  |
| <b>Single-phase</b> |                                 |  |                              |                 |                 |                    |                  |                 |                 |  |
| 4AV21               | 1                               | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0CA<br>0.24<br>1   | 0FA<br>0.4<br>1  | –               | 0JA<br>0.9<br>2 | Built-in electrical short-circuit/overload protection  |
| 4AV20               | 2.5                             | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0FA<br>0.4<br>1    | 0HA<br>0.6<br>2  | –               | 1BA<br>1.6<br>2 | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV23               | 3.5                             | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0HA<br>0.55<br>2   | 0JA<br>0.7<br>2  | –               | 1CA<br>2<br>4   | Built-in electrical short-circuit/overload protection  |
| 4AV22               | 5                               | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0HA<br>0.6<br>2    | 1AA<br>1.1<br>4  | –               | 1DA<br>2.4<br>4 | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV24               | 10                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 1CA<br>1.8<br>4    | 1DA<br>2.4<br>4  | –               | 1GA<br>5<br>6   | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV26               | 15                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 1CA<br>2<br>4      | 1EA<br>3.2<br>6  | –               | 1HA<br>6<br>10  | 3RV10 21-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV41 01            | 1.5                             | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0BA<br>0.15<br>0.5 | 0DA<br>0.27<br>1 | –               | –               | Integrated blade-type fuse FK2   |
| 4AV41 03            | 3                               | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0GA<br>0.5<br>1    | 0HA<br>0.7<br>2  | –               | –               | Integrated blade-type fuse FK2   |
| 4AV41 06            | 6                               | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 0JA<br>0.8<br>2    | 0KA<br>1.2<br>1  | –               | –               | Integrated blade-type fuse FK2   |
| 4AV41 10            | 10                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 1BA<br>1.6<br>4    | 1CA<br>2.4<br>4  | –               | –               | Integrated blade-type fuse FK2   |
| <b>Three-phase</b>  |                                 |  |                              |                 |                 |                    |                  |                 |                 |  |
| 4AV30               | 10                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | 0FA<br>0.4<br>1              | 0FA<br>0.4<br>1 | 0FA<br>0.4<br>1 | 0HA<br>0.6<br>2    | 0KA<br>1<br>2    | 0KA<br>1<br>2   | –               | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV31               | 15                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | 0HA<br>0.6<br>2              | 0HA<br>0.6<br>2 | 0HA<br>0.6<br>2 | 0KA<br>1<br>2      | 1BA<br>1.6<br>2  | 1CA<br>2<br>4   | –               | 3RV10 21-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV32               | 20                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | 0HA<br>0.6<br>2              | 0KA<br>1<br>2   | 0KA<br>1<br>2   | 0KA<br>1<br>2      | 1BA<br>1.6<br>4  | 1DA<br>2.4<br>4 | –               | 3RV10 21-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV33               | 30                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | 1CA<br>1.8<br>4              | 1CA<br>1.8<br>4 | 1CA<br>1.8<br>4 | 1CA<br>2<br>4      | 1EA<br>3.2<br>6  | 1FA<br>4<br>6   | –               | 3RV10 31-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV34               | 40                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | 1CA<br>2<br>4                | 1CA<br>2<br>4   | 1CA<br>2<br>4   | 1DA<br>2.4<br>4    | 1GA<br>5<br>6    | 1GA<br>5<br>10  | –               | 3RV10 31-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV35               | 50                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | 1DA<br>2.4<br>6              | 1DA<br>2.4<br>6 | 1EA<br>3.2<br>6 | 1FA<br>4<br>6      | 1HA<br>6<br>10   | 1HA<br>6<br>10  | –               | 3RV10 41-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV36               | 80                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | 1HA<br>6<br>10  | –               | 1HA<br>6<br>10     | –                | –               | –               | 3RV10 41-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV38               | 150                             | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | 1KA<br>10<br>16 | –               | 1KA<br>12<br>16    | –                | –               | –               | 3VF32 11-1B□41-0AA0<br>Setting value in A<br>Fuse gL/gG A  |
| 4AV51 25            | 25                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 1BA<br>1.6<br>2    | –                | –               | –               | 3RV10 31-□□□10<br>Setting value in A<br>Fuse gL/gG A   |
| 4AV51 35            | 35                              | 3RV10 11-□□□10<br>Setting value in A<br>Fuse gL/gG A   | –                            | –               | –               | 1CA<br>2.4<br>4    | –                | –               | –               | 3RV10 31-□□□10<br>Setting value in A<br>Fuse gL/gG A   |

1) In the event of a short-circuit on the feeder lines between the protective device and the input side of the unit, the rated short-circuit breaking capacity of the protection equipment must be taken into account with regard to the maximum possible prospective short-circuit current at the place of installation.

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
Single-phase

### Overview

- Rated output voltage  $U_{2N}$  DC 24 V acc. to EN 61131-2<sup>1)</sup> and SIMATIC for input voltage +6 % to -10 % and load 0 % to 100 %
- Safety isolating transformer to EN 61558-2-6
- 4AV21, 4AV23: **CE**, **UL**<sup>2)</sup>;  
4AV20, 4AV22, 4AV24, 4AV26: **CE**, **UL**<sup>2)</sup>, **CS**<sup>2)</sup>;  
4AV41: **CE**
- 4AV2:  $t_a = 60$  °C/B,  
4AV41:  $t_a = 40$  °C/B
- Varistor suppressor circuit
- Status LED
- 4AV2: suitable for connection to the public supply and industrial networks: EN 61000-3-2, -3-3;  
Emitted interference: EN 50081-1;  
interference immunity: EN 50082-2;  
4AV4: suitable for connection to industrial networks: EN 61000-3-2, -3-3;  
Emitted interference: EN 50081-1;  
interference immunity: EN 50082-2
- Ripple < 5 %.



4AV21, 4AV23 (figure on the left) and 4AV20, 4AV22 to 4AV24 (figure on the right)

- 1) EN 61131-2: equipment specification for power supply and interface for programmable controllers. Limit values for DC 24 V see "Technical specifications".
- 2) The **UL** approval will be replaced in future by the **cULus** approval.

### Selection and ordering data

Rated input voltage  $U_{1N}^{(1)}$  230 (240)–115 (120) V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current $I_d$ | DT | Integrated standard mounting rail fixing | PS* | Cu weight per PU approx. | Total weight per PU approx. |
|----------------------------|----|--|-----|--------------------------|-----------------------------|
| DC A                       |    | Order No.                                |     | kg                       | kg                          |

#### Screw-type/flat connections

|     |   |                          |        |       |       |
|-----|---|--------------------------|--------|-------|-------|
| 1   | ▶ | <b>4AV21 02-2EB00-0A</b> | 1 unit | 0.600 | 1.500 |
| 3.5 | ▶ | <b>4AV23 02-2EB00-0A</b> | 1 unit | 0.900 | 2.500 |

1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved.

Rated input voltage  $U_{1N}^{(1)}$  400–(415) V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current $I_d$ | DT | Integrated standard mounting rail fixing | PS* | Cu weight per PU approx. | Total weight per PU approx. |
|----------------------------|----|--|-----|--------------------------|-----------------------------|
| DC A                       |    | Order No.                                |     | kg                       | kg                          |

#### Screw-type/flat connections

|     |   |                          |        |       |       |
|-----|---|--------------------------|--------|-------|-------|
| 1   | ▶ | <b>4AV21 06-2EB00-0A</b> | 1 unit | 0.600 | 1.500 |
| 3.5 | ▶ | <b>4AV23 06-2EB00-0A</b> | 1 unit | 0.900 | 2.500 |

1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved.

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# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
Single-phase

Rated input voltage  $U_{1N}^{(1)}$  400 (415)–230 (240) V with tapping  $\pm 15$  V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current<br>$I_d$      | DT | Screw-fixing <sup>2)</sup> |        |       | PS*   | Cu weight per PU approx. | Total weight per PU approx. | DT                | Standard mounting rail fixing |       |       |
|------------------------------------|----|----------------------------|--------|-------|-------|--------------------------|-----------------------------|-------------------|-------------------------------|-------|-------|
|                                    |    | Order No.                  |        |       |       |                          |                             |                   | Order No.                     |       |       |
| DC A                               |    |                            |        |       | kg    | kg                       |                             |                   | kg                            | kg    |       |
| <b>Screw-type/flat connections</b> |    |                            |        |       |       |                          |                             |                   |                               |       |       |
| 1.5                                | ▶  | 4AV41 01–2EB00-0A          | 1 unit | 0.300 | 1.400 | A                        | ▶                           | 4AV41 01–2EB00-0B | 1 unit                        | 0.300 | 1.400 |
| 2.5                                | ▶  | 4AV20 00–2EB00-0A          | 1 unit | 0.620 | 2.300 | ▶                        | ▶                           | 4AV20 00–2EB00-0A | 1 unit                        | 0.620 | 2.300 |
| 3                                  | ▶  | 4AV41 03–2EB00-0A          | 1 unit | 0.310 | 2.300 | ▶                        | ▶                           | 4AV41 03–2EB00-0A | 1 unit                        | 0.310 | 2.300 |
| 5                                  | ▶  | 4AV22 00–2EB00-0A          | 1 unit | 0.600 | 4.900 | A                        | ▶                           | 4AV22 00–2EB00-0B | 1 unit                        | 0.600 | 4.900 |
| 6                                  | ▶  | 4AV41 06–2EB00-0A          | 1 unit | 0.510 | 4.000 | ▶                        | ▶                           | 4AV41 06–2EB00-0A | 1 unit                        | 0.510 | 4.000 |
| 10                                 | ▶  | 4AV41 10–2EB00-0A          | 1 unit | 1.100 | 5.300 | A                        | ▶                           | 4AV41 10–2EB00-0B | 1 unit                        | 1.100 | 5.300 |
| 10                                 | ▶  | 4AV24 00–2EB00-0A          | 1 unit | 0.900 | 7.500 | A                        | ▶                           | 4AV24 00–2EB00-0B | 1 unit                        | 0.900 | 7.500 |
| 15                                 | ▶  | 4AV26 00–2EB00-0A          | 1 unit | 1.500 | 9.000 |                          | –                           | –                 |                               |       |       |
| <b>Cage Clamp connections</b>      |    |                            |        |       |       |                          |                             |                   |                               |       |       |
| 1.5                                | ▶  | 4AV41 01–2EB00-1A          | 1 unit | 0.300 | 1.400 | A                        | ▶                           | 4AV41 01–2EB00-1B | 1 unit                        | 0.300 | 1.400 |
| 2.5                                | B  | 4AV20 00–2EB00-1A          | 1 unit | 0.620 | 2.300 | B                        | ▶                           | 4AV20 00–2EB00-1A | 1 unit                        | 0.620 | 2.300 |
| 3                                  | ▶  | 4AV41 03–2EB00-1A          | 1 unit | 0.310 | 2.300 | ▶                        | ▶                           | 4AV41 03–2EB00-1A | 1 unit                        | 0.310 | 2.300 |
| 5                                  | B  | 4AV22 00–2EB00-1A          | 1 unit | 0.600 | 4.900 | B                        | ▶                           | 4AV22 00–2EB00-1B | 1 unit                        | 0.600 | 4.900 |
| 6                                  | ▶  | 4AV41 06–2EB00-1A          | 1 unit | 0.510 | 4.000 | ▶                        | ▶                           | 4AV41 06–2EB00-1A | 1 unit                        | 0.510 | 4.000 |
| 10                                 | ▶  | 4AV41 10–2EB00-1A          | 1 unit | 1.100 | 5.300 | A                        | ▶                           | 4AV41 10–2EB00-1B | 1 unit                        | 1.100 | 5.300 |
| 10                                 | B  | 4AV24 00–2EB00-1A          | 1 unit | 0.900 | 7.500 | B                        | ▶                           | 4AV24 00–2EB00-1B | 1 unit                        | 0.900 | 7.500 |
| 15                                 | B  | 4AV26 00–2EB00-1A          | 1 unit | 1.500 | 9.000 |                          | –                           | –                 |                               |       |       |

1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved for Type 4AV2 and 31.1 V can be achieved for Type 4AV4.

2) Types 4AV20, 4AV41 03 and 4AV41 06 are equipped with an integrated standard mounting rail fixing as standard.

Rated input voltage  $U_{1N}^{(1)}$  400 (415)–230 (240)–115 (120) V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current<br>$I_d$      | DT | Screw-fixing <sup>2)</sup> |        |       | PS*   | Cu weight per PU approx. | Total weight per PU approx. | DT                | Standard mounting rail fixing |       |       |
|------------------------------------|----|----------------------------|--------|-------|-------|--------------------------|-----------------------------|-------------------|-------------------------------|-------|-------|
|                                    |    | Order No.                  |        |       |       |                          |                             |                   | Order No.                     |       |       |
| DC A                               |    |                            |        |       | kg    | kg                       |                             |                   | kg                            | kg    |       |
| <b>Screw-type/flat connections</b> |    |                            |        |       |       |                          |                             |                   |                               |       |       |
| 2.5                                | ▶  | 4AV20 01–2EB00-0A          | 1 unit | 0.620 | 2.300 | ▶                        | ▶                           | 4AV20 01–2EB00-0A | 1 unit                        | 0.620 | 2.300 |
| 5                                  | ▶  | 4AV22 01–2EB00-0A          | 1 unit | 0.600 | 4.900 | A                        | ▶                           | 4AV22 01–2EB00-0B | 1 unit                        | 0.600 | 4.900 |
| 10                                 | ▶  | 4AV24 01–2EB00-0A          | 1 unit | 0.900 | 7.500 | A                        | ▶                           | 4AV24 01–2EB00-0B | 1 unit                        | 0.900 | 7.500 |
| 15                                 | ▶  | 4AV26 01–2EB00-0A          | 1 unit | 1.500 | 9.000 |                          | –                           | –                 |                               |       |       |
| <b>Cage Clamp connections</b>      |    |                            |        |       |       |                          |                             |                   |                               |       |       |
| 2.5                                | B  | 4AV20 01–2EB00-1A          | 1 unit | 0.620 | 2.300 | B                        | ▶                           | 4AV20 01–2EB00-1A | 1 unit                        | 0.620 | 2.300 |
| 5                                  | B  | 4AV22 01–2EB00-1A          | 1 unit | 0.600 | 4.900 | B                        | ▶                           | 4AV22 01–2EB00-1B | 1 unit                        | 0.600 | 4.900 |
| 10                                 | B  | 4AV24 01–2EB00-1A          | 1 unit | 0.900 | 7.500 | B                        | ▶                           | 4AV24 01–2EB00-1B | 1 unit                        | 0.900 | 7.500 |
| 15                                 | B  | 4AV26 01–2EB00-1A          | 1 unit | 1.500 | 9.000 |                          | –                           | –                 |                               |       |       |

1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved.

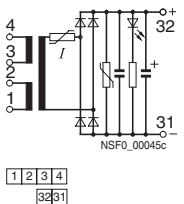

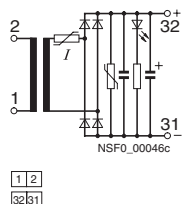

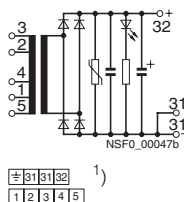
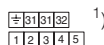
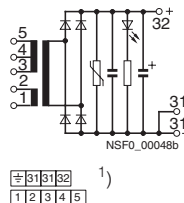
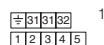
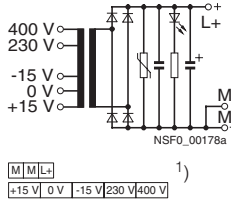
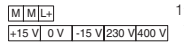
2) Types 4AV20 are equipped with an integrated standard mounting rail fixing as standard.


# SIDAC-S Non-Stabilized Power Supplies Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
Single-phase

## Circuit diagrams

### Connector designations and terminal assignments

| Circuit diagram   | Rated input voltage $U_{1N}$<br>V       | Primary connections and links     |             |          |
|---|---|-----------------------------------|-------------|----------|
|   |   | Rated voltage $U_{1N}$<br>V       | Connections | Links    |
| <br>NSF0_00045c<br><br>4AV21 02, 4AV23 02 | 230 (240) –<br>115 (120)                | <b>Type 4AV21 02 and 4AV23 02</b> |             |          |
|   |   | 230 (240)                         | 1–4         | 2–3      |
| <br>NSF0_00046c<br><br>4AV21 06, 4AV23 06 | 400 (415)                               | <b>Type 4AV21 06 and 4AV23 06</b> |             |          |
|   |   | 400 (415)                         | 1–2         | –        |
| <br>NSF0_00047b<br><br>1)                 | 400 (415) –<br>230 (240)<br>± 15        | <b>Type 4AV2. 00</b>              |             |          |
|   |   | 415                               | 5–3         | –        |
|   |   | 400 (415)                         | 1–3         | –        |
|   |   | 385                               | 4–3         | –        |
|   |   | 245                               | 5–2         | –        |
| <br>NSF0_00048b<br><br>1)              | 400 (415) –<br>230 (240) –<br>115 (120) | <b>Type 4AV2. 01</b>              |             |          |
|   |   | 400 (415)                         | 1–5         | 2–3      |
|   |   | 230 (240)                         | 1–4         | 2–3      |
|   |   | 115 (120)                         | 1–4         | 1–3, 2–4 |
|   |   | –                                 | –           | –        |
| <br>NSF0_00178a<br><br>1)             | 400<br>230<br>± 15                      | <b>Type 4AV41</b>                 |             |          |
|   |   | 415                               | 400 V +15 V | –        |
|   |   | 400                               | 400 V 0 V   | –        |
|   |   | 385                               | 400 V –15 V | –        |
|   |   | 245                               | 230 V +15 V | –        |
|   |   | 230                               | 230 V 0 V   | –        |

1) For Cage Clamp terminals, the ground connection is routed to the terminal.  
The order of terminal assignments then changes as follows .

NSF0\_00183



# SIDAC-S Non-Stabilized Power Supplies Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
Three-phase

## Overview

- Rated output voltage  $U_{2N}$  DC 24 V acc. to EN 61131-2<sup>1)</sup> and SIMATIC for input voltage +6 % to -10 % and load 0 % to 100 %
- Safety isolating transformer to EN 61558-2-6
- 4AV30 to 4AV35: ; 4AV36, 4AV38, 4AV51:
- 4AV3:  $t_a = 60$  °C/B, 4AV51:  $t_a = 40$  °C/B
- Varistor suppressor circuit
- Status LED
- 4AV3: suitable for connection to public supply and industrial networks EN 61000-3-2, -3-3; Emitted interference EN 50081-1; interference immunity EN 50082-2; 4AV5: suitable for connection to industrial networks EN 61000-3-2, -3-3; Emitted interference EN 50081-1; interference immunity EN 50082-2
- Ripple < 5 %.



4AV30 to 4AV33 (figure on the left) and 4AV38 (figure on the right)

- EN 61131-2: equipment specification for power supply and interface for programmable controllers. Limit values for DC 24 V see "Technical specifications".
- The approval will be replaced in future by the approval.

## Selection and ordering data

Rated input voltage  $U_{1N}$ <sup>1)</sup>  $\nabla$  400 (415) V with tapping  $\pm 20$  V,  $\Delta$  230 V with tapping  $\pm 10$  V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current $I_d$                          | Additional capacitance | Ripple | Backup time at $U_1 = U_{1N} - 10$ % | DT     | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|---|------------------------|--------|--------------------------------------|--------|--|--------|--------------------------|-----------------------------|
| DC A  | $\mu$ F                | %      | ms                                   |        |  |        | kg                       | kg                          |
| <b>Standard version</b>                             |                        |        |                                      |        |  |        |                          |                             |
| 10  | –                      | <5     | –                                    | ▶      | 4AV30 00–2EB00-0A                        | 1 unit | 1.600                    | 5.000                       |
| 15  | –                      | <5     | –                                    | ▶▶     | 4AV31 00–2EB00-0A                        | 1 unit | 1.600                    | 6.500                       |
| 20  | –                      | <5     | –                                    | ▶▶▶    | 4AV32 00–2EB00-0A                        | 1 unit | 2.400                    | 8.000                       |
| 30  | –                      | <5     | –                                    | ▶▶▶▶   | 4AV33 00–2EB00-0A                        | 1 unit | 2.600                    | 11.000                      |
| 40  | –                      | <5     | –                                    | ▶▶▶▶▶  | 4AV34 00–2FB00-0A                        | 1 unit | 4.900                    | 17.000                      |
| 50  | –                      | <5     | –                                    | ▶▶▶▶▶▶ | 4AV35 00–2FB00-0A                        | 1 unit | 4.100                    | 21.000                      |
| <b>Additional capacitors (aluminum electrolyte)</b> |                        |        |                                      |        |  |        |                          |                             |
| 10  | 10000                  | 2      | 1                                    | B      | 4AV30 00–2EB00-0C                        | 1 unit | 1.600                    | 5.000                       |
| 15  | 10000                  | 3      | 0.6                                  | B      | 4AV31 00–2EB00-0C                        | 1 unit | 1.600                    | 6.500                       |
| 20  | 10000                  | 4      | 0.4                                  | B      | 4AV32 00–2EB00-0C                        | 1 unit | 2.400                    | 8.000                       |
| 30  | 10000                  | 3      | 0.7                                  | B      | 4AV33 00–2EB00-0C                        | 1 unit | 2.600                    | 11.000                      |
| 40  | 10000                  | 3      | 0.7                                  | B      | 4AV34 00–2FB00-0C                        | 1 unit | 4.900                    | 17.000                      |
| 50  | 10000                  | 4      | 0.3                                  | B      | 4AV35 00–2FB00-0C                        | 1 unit | 4.100                    | 21.000                      |

- 1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved.

Rated input voltage  $U_{1N}$ <sup>1)</sup> 400 (415) V with tapping  $\pm 20$  V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current $I_d$ | Ripple | DT | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|----------------------------|--------|----|--|--------|--------------------------|-----------------------------|
| DC A                       | %      |    |  |        | kg                       | kg                          |
| <b>Standard version</b>    |        |    |  |        |                          |                             |
| 25                         | <5     | A  | 4AV51 25–2EB00-0A                        | 1 unit | 2.000                    | 10.300                      |
| 35                         | <5     | A  | 4AV51 35–2EB00-0A                        | 1 unit | 3.400                    | 14.500                      |

- 1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 31.1 V can be achieved.

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
Three-phase

Rated input voltage  $U_{1N}^{1)}$  500–400 (415) V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current<br>$I_d$                       | Additional capacitance | Ripple | Backup time at $U_1 = U_{1N} - 10\%$ | DT | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|---|------------------------|--------|--------------------------------------|----|--|--------|--------------------------|-----------------------------|
| DC A  | $\mu\text{F}$          | %      | ms                                   |    |  |        | kg                       | kg                          |
| <b>Standard version</b>                             |                        |        |                                      |    |  |        |                          |                             |
| 15  | –                      | <5     | –                                    | ▶  | 4AV31 01–2EB00-0A                        | 1 unit | 1.600                    | 6.500                       |
| 30  | –                      | <5     | –                                    | ▶  | 4AV33 01–2EB00-0A                        | 1 unit | 2.600                    | 11.000                      |
| 50  | –                      | <5     | –                                    | ▶  | 4AV35 01–2FB00-0A                        | 1 unit | 4.100                    | 21.000                      |
| 80  | –                      | <5     | –                                    | ▶  | 4AV36 01–2EB00-0A                        | 1 unit | 8.600                    | 32.000                      |
| 150   | –                      | <5     | –                                    | ▶  | 4AV38 01–2EB00-0A                        | 1 unit | 14.400                   | 46.000                      |
| <b>Additional capacitors (aluminum electrolyte)</b> |                        |        |                                      |    |  |        |                          |                             |
| 15  | 10000                  | 3      | 0.6                                  | B  | 4AV31 01–2EB00-0C                        | 1 unit | 1.600                    | 6.500                       |
| 30  | 10000                  | 3      | 0.7                                  | B  | 4AV33 01–2EB00-0C                        | 1 unit | 2.600                    | 11.000                      |
| 50  | 10000                  | 4      | 0.3                                  | B  | 4AV35 01–2FB00-0C                        | 1 unit | 4.100                    | 21.000                      |
| 80  | 2 × 10000              | 4      | 0.2                                  | B  | 4AV36 01–2EB00-0C                        | 1 unit | 8.600                    | 32.000                      |
| 150   | 3 × 10000              | 4      | 0.2                                  | B  | 4AV38 01–2EB00-0C                        | 1 unit | 14.400                   | 46.000                      |

1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved.

Rated input voltage  $U_{1N}^{1)}$  575 (600)–500–460 (480)–400 (415)–230 (240)–200 V,  
rated output voltage  $U_{2N}$  DC 24 V

| Rated output current<br>$I_d$                       | Additional capacitance | Ripple | Backup time at $U_1 = U_{1N} - 10\%$ | DT | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|---|------------------------|--------|--------------------------------------|----|--|--------|--------------------------|-----------------------------|
| DC A  | $\mu\text{F}$          | %      | ms                                   |    |  |        | kg                       | kg                          |
| <b>Standard version</b>                             |                        |        |                                      |    |  |        |                          |                             |
| 9   | –                      | <5     | –                                    | ▶  | 4AV30 02–2EB00-0A                        | 1 unit | 1.600                    | 5.000                       |
| 13.5  | –                      | <5     | –                                    | ▶  | 4AV31 02–2EB00-0A                        | 1 unit | 1.600                    | 6.500                       |
| 18  | –                      | <5     | –                                    | ▶  | 4AV32 02–2EB00-0A                        | 1 unit | 2.400                    | 8.000                       |
| 27  | –                      | <5     | –                                    | ▶  | 4AV33 02–2EB00-0A                        | 1 unit | 2.600                    | 11.000                      |
| 36  | –                      | <5     | –                                    | ▶  | 4AV34 02–2FB00-0A                        | 1 unit | 4.900                    | 17.000                      |
| 45  | –                      | <5     | –                                    | ▶  | 4AV35 02–2FB00-0A                        | 1 unit | 4.100                    | 21.000                      |
| <b>Additional capacitors (aluminum electrolyte)</b> |                        |        |                                      |    |  |        |                          |                             |
| 9   | 10000                  | 2      | 1                                    | B  | 4AV30 02–2EB00-0C                        | 1 unit | 1.600                    | 5.000                       |
| 13.5  | 10000                  | 3      | 0.6                                  | B  | 4AV31 02–2EB00-0C                        | 1 unit | 1.600                    | 6.500                       |
| 18  | 10000                  | 4      | 0.4                                  | B  | 4AV32 02–2EB00-0C                        | 1 unit | 2.400                    | 8.000                       |
| 27  | 10000                  | 3      | 0.7                                  | B  | 4AV33 02–2EB00-0C                        | 1 unit | 2.600                    | 11.000                      |
| 36  | 10000                  | 3      | 0.7                                  | B  | 4AV34 02–2FB00-0C                        | 1 unit | 4.900                    | 17.000                      |
| 45  | 10000                  | 4      | 0.3                                  | B  | 4AV35 02–2FB00-0C                        | 1 unit | 4.100                    | 21.000                      |

1) During operation at the mains voltages listed in brackets, the upper limit for DC 24 V to EN 61131-2 at +6 % mains voltage is met for a basic load of 10 %. Under no-load operation, 29.9 V can be achieved.

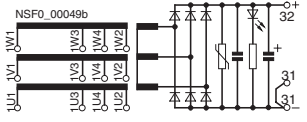
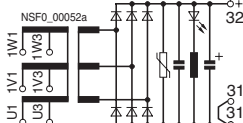
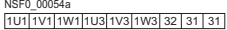
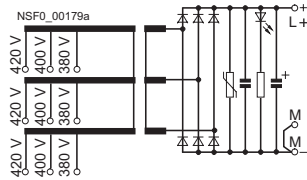
# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Filtered for supplying solid-state controllers:  
Three-phase

### Circuit diagrams

#### Connector designations and terminal assignments

|  | Rated input voltage $U_{1N}$<br>V  | Primary connections and links   |   |   |
|--|--|---|---|---|
|  |  | Rated voltage $U_{1N}$<br>V   | Connections   | Links   |
|  <p>NSF0_00049b</p> <p>31   31   32</p> <p>1U1 1U3 1U4 1U2 1V1 1V3 1V4 1V2 1W1 1W3 1W4 1W2</p> <p>4AV30 to 4AV35</p>                | 400 (415)<br>$\pm 20$<br>Y   | <b>Type 4AV3. 00</b><br>420<br>400 (415)  | 1U1-1V1-1W1<br>1U1-1V1-1W1                                  | 1U2-1V2-1W2<br>1U4-1V4-1W4<br>(= factory setting)<br>1U3-1V3-1W3                                    |
|  | 230 $\pm 10$<br>$\Delta^1$   | 240<br>230  | 1U1-1V1-1W1<br>1U1-1V1-1W1                                  | 1U1-1W2, 1V1-1U2, 1W1-1V2<br>1U1-1W4, 1V1-1U4, 1W1-1V4  |
|  |  | 220   | 1U1-1V1-1W1   | 1U1-1W3, 1V1-1U3, 1W1-1V3   |
|  |  |   |   |   |
|  <p>NSF0_00052a</p> <p>31   31   32</p> <p>1U1 1U3 1V1 1V3 1W1 1W3</p> <p>4AV31, 4AV33 and 4AV35</p>                                | 500-<br>400 (415)  | <b>Type 4AV3. 01</b><br>500<br>400 (415)  | 1U1-1V1-1W1<br>1U3-1V3-1W3                                  | -<br>-  |
|  |  |   |   |   |
|  <p>NSF0_00054a</p> <p>1U1 1V1 1W1 1U3 1V3 1W3 32 31 31</p> <p>4AV36: secondary terminals<br/>4AV38: secondary flat connections</p> | 575 (600) -<br>500 -<br>460 (480) -<br>400 (415) -<br>230 (240) -<br>200 | <b>Type 4AV3. 02</b><br>575 (600)<br>500<br>460 (480)<br>400 (415)<br>400 (415) | 1U1-1V1-1W1<br>1U3-1V3-1W3<br>1U4-1V4-1W4<br>1U5-1V5-1W5    | 1U2-1V2, 1V2-1W2<br>1U2-1V2, 1V2-1W2<br>1U2-1V2, 1V2-1W2<br>1U2-1V2, 1V2-1W2<br>(= factory setting) |
|  |  | 230 (240)   | 1U5-1V5-1W5   | 1U2-1V5, 1V2-1W5, 1W2-1U5   |
|  |  | 200   | 1U6-1V6-1W6   | 1U2-1V6, 1V2-1W6, 1W2-1U6   |
|  |  |   |   |   |
|  |  |   |   |   |
|  |  |   |   |   |
|  <p>NSF0_00179a</p> <p>M M L- </p> <p>420 420 420 400 400 400 380 380 380</p>   | 400<br>$\pm 20$  | <b>Type 4AV51. 5</b><br>420<br>400<br>380                                       | 420 V-420 V-420 V<br>400 V-400 V-400 V<br>380 V-380 V-380 V | -<br>-<br>-   |
|  |  |   |   |   |
|  |  |   |   |   |

1) Link  $\Delta$  is possible,  $\Delta$  jumpers are not included in the scope of supply.

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

### Unfiltered for supplying general loads: General data

#### Overview

The 4AV98 and 4AV96 power supplies comprise single-phase or three-phase safety isolating transformers to EN 61558-2-6 with downstream bridge connection rectifiers without capacitor filtering.

#### Area of application

##### Single-phase units

The single-phase 4AV98 units are especially suitable for supplying resistive and inductive loads whose rated voltages place no special demands with regard to ripple.

##### Three-phase units, also for VW

The 4AV96 three-phase units are designed and approved in accordance with the VW equipment specifications.

##### Rated output and rated current

The specifications in the selection tables are based on fixed reference conditions in which the devices have the rated output or rated current:

- Continuous duty  $P_n$
- Frequency AC 50 Hz to 60 Hz
- Installation altitude up to 1000 m above sea level
- IP00 degree of protection
- Ambient temperature  $t_a$ .

##### Ambient conditions

The devices are climate-proof for use in rooms with an external climate to DIN 50010.

Limit values:

- Ambient temperature
  - At rated power or rated current: +50 °C
  - Minimum value –25 °C.
- Relative air humidity
  - At +40 °C occasionally up to 100 %
  - Annual average up to 80 %
  - Occasional condensation possible.

#### Design

The 4AV98 and 4AV96 power supplies are single-phase or three-phase transformers with downstream bridge rectifiers without capacitor filtering. They comply with safety class I. The safety isolating transformers used have been designed according to EN 61558-2-6. The transformers are completely impregnated with polyester resin for protection against harmful environmental influences.

The terminals with the SIGUT connection method are

- finger-safe to DIN VDE 0106 Part 100
- suitable for conductor cross-sections to DIN VDE 0100 Part 430 Sheet 1 and EN 60204 (VDE 0113 Part 1).

##### 4AV98 single-phase power supplies

The integrated rectifier in a two-pulse bridge connection supplies an unstabilized, unfiltered DC voltage with an arithmetic mean value of DC 24 V and a ripple of 48.3 %.

- Short-circuit and overload protection on the output side with top-mounted fuse
- Varistor suppressor circuit

##### 4AV96 three-phase power supplies

The integrated rectifier in a six-pulse bridge connection supplies an unstabilized, unfiltered DC voltage with an arithmetic mean value of DC 30/27/24 V and a ripple of < 5 %.

- Shield winding between input and output winding
- Varistor suppressor circuit
- In accordance with VW equipment specification.

# SIDAC-S Non-Stabilized Power Supplies

## Based on Safety Isolating Transformers

Unfiltered for supplying general loads:  
Single-phase

### Overview

- Rated output voltage  $U_d$  DC 24V
- Safety isolating transformer to EN 61558-2-6
- CE, RoHS
- $t_a = 50$  °C/B
- Varistor suppressor circuit
- Short-circuit and overload protection on the output side with top-mounted fuse
- Ripple 48 %.



4AV98

### Selection and ordering data

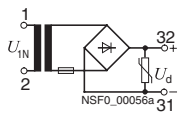
Rated input voltage  $U_{1N}$  230 V,  
rated output voltage  $U_d$  DC 24 V

| Rated power $P_{2N}$ | Voltage rise during no-load operation $u_A$ | DT | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|----------------------|---|----|--|--------|--------------------------|-----------------------------|
| W                    | %   |    |  |        | kg                       | kg                          |
| 50                   | 24  | A  | <b>4AV98 06-4CB00-2N</b>                 | 1 unit | 0.200                    | 0.900                       |
| 80                   | 18  | A  | <b>4AV98 06-5CB00-2N</b>                 | 1 unit | 0.300                    | 1.600                       |
| 125                  | 14  | A  | <b>4AV98 06-6CB00-2N</b>                 | 1 unit | 0.400                    | 2.300                       |
| 200                  | 11  | A  | <b>4AV98 06-7CB00-2N</b>                 | 1 unit | 0.600                    | 3.300                       |
| 315                  | 10  | A  | <b>4AV98 06-8CB00-2N</b>                 | 1 unit | 1.100                    | 4.900                       |
| 500                  | 9   | A  | <b>4AV98 00-5CB00-2N</b>                 | 1 unit | 1.700                    | 10.000                      |

Rated input voltage  $U_{1N}$  400 V,  
rated output voltage  $U_d$  DC 24 V

| Rated power $P_{2N}$ | Voltage rise during no-load operation $u_A$ | DT | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|----------------------|---|----|--|--------|--------------------------|-----------------------------|
| W                    | %   |    |  |        | kg                       | kg                          |
| 50                   | 24  | A  | <b>4AV98 07-0CB00-2N</b>                 | 1 unit | 0.200                    | 0.900                       |
| 80                   | 18  | A  | <b>4AV98 07-1CB00-2N</b>                 | 1 unit | 0.300                    | 1.600                       |
| 125                  | 14  | A  | <b>4AV98 07-2CB00-2N</b>                 | 1 unit | 0.400                    | 2.300                       |
| 200                  | 11  | A  | <b>4AV98 07-3CB00-2N</b>                 | 1 unit | 0.600                    | 3.300                       |
| 315                  | 10  | A  | <b>4AV98 07-4CB00-2N</b>                 | 1 unit | 1.100                    | 4.900                       |
| 500                  | 9   | A  | <b>4AV98 02-5CB00-2N</b>                 | 1 unit | 1.700                    | 10.000                      |

### Circuit diagram



32/31  
1/2

\* This quantity of a multiple thereof can be ordered.

# SIDAC-S Non-Stabilized Power Supplies Based on Safety Isolating Transformers

**Unfiltered for supplying general loads:  
Three-phase**

## Overview

- Rated output voltage  $U_d$  DC 30-27-24 V
- Safety isolating transformer to EN 61558-2-6
- CE, Ⓜ
- $t_a = 50\text{ °C/B}$
- Shield winding between input and output winding
- Varistor suppressor circuit
- Designed and approved according to VW equipment specification
- Ripple < 5 %.



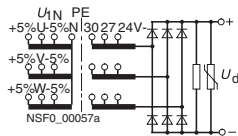
4AV96

## Selection and ordering data

**Rated input voltage  $U_{1N}$  400 V with tapping  $\pm 5\%$ ,  
rated output voltage  $U_d$  DC 30-27-24 V**

| Rated output current $I_d$ | Voltage rise during no-load operation $u_A$ | VW material No. | DT | Screw-type/flat connections<br>Order No. | PS*    | Cu weight per PU approx. | Total weight per PU approx. |
|----------------------------|---|-----------------|----|--|--------|--------------------------|-----------------------------|
| DC A                       | V   |                 |    |  |        | kg                       | kg                          |
| 4                          | 3.5   | 6142            | A  | <b>4AV96 04-1CB00-2N</b>                 | 1 unit | 0.800                    | 3.500                       |
| 12                         | 3.3   | 6141            | A  | <b>4AV96 04-5CB00-2N</b>                 | 1 unit | 1.400                    | 6.900                       |
| 25                         | 3.1   | 6145            | A  | <b>4AV96 04-2CB00-2N</b>                 | 1 unit | 2.500                    | 10.600                      |

## Circuit diagram



# Stabilized Power Supplies For Specific Loads and Systems

## SIDAC-S load power supplies

### Overview



4FD51

The 4FD51 stabilized power supplies are primary switched-mode power supplies for worldwide use in a wide range of different applications.

They supply a stabilized DC voltage with a high degree of stability and low residual ripple. A voltage selector switch on the unit enables these units to be operated with a line voltage of AC 230/115 V despite line voltage variations of  $\pm 10\%$ .

Approvals **CE** and **cULus** for implementation worldwide.

### Design

The units are designed for mounting in enclosed controllers and electronics cabinets. At ambient temperatures of  $+55\text{ }^{\circ}\text{C}$  they have a permanent load capacity with the full rated current.

The output from the units is short-circuit proof. After the short-circuit has been removed, an automatic restart is performed.

The units are snapped onto a 35 mm standard mounting rail, and aligned with the ventilation slots at the top and bottom.

### Technical specifications

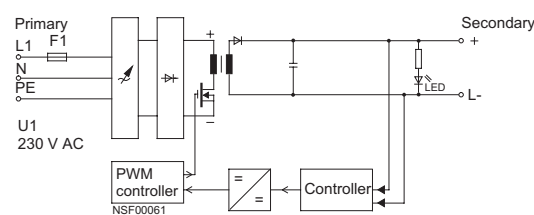
|   |  |
|---|--|
| <b>Input voltage</b>  | AC 115/230 V, $+10\%$ ... $-10\%$ , selectable   |
| <b>Frequency</b>  | 50 ... 60 Hz   |
| <b>Operating status display</b>   | Green LED as output voltage indicator  |
| <b>Switching frequency</b>  | 100 kHz  |
| <b>Efficiency</b>   | $> 80\%$   |
| <b>Control accuracy</b> for $\pm 10\%$ line-voltage variation                                       | $< 1\%$  |
| <b>Ripple voltage</b> (2 Hz to 10 MHz)  | $< 150 / < 6\text{ mVpp/mVrms}$  |
| <b>Short-circuit protection</b>   | G fuse link solid-state, with self-actuating restart   |
| <ul style="list-style-type: none"> <li>• on the input side</li> <li>• on the output side</li> </ul> |  |
| <b>Mains buffering time</b>   | $> 20\text{ ms}$   |
| <b>Electromagnetic compatibility</b>  | Emitted interference EN 50081-1, immunity to interference EN 50082-2   |
| <b>Degree of noise suppression</b>  | Class B  |
| <b>Degree of protection</b>   | IP20   |
| <b>Protection class</b>   | I  |
| <b>Ambient temperature</b>  | $-45\text{ }^{\circ}\text{C}$ ... $+55\text{ }^{\circ}\text{C}$<br>$-40\text{ }^{\circ}\text{C}$ ... $+85\text{ }^{\circ}\text{C}$ |
| <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> </ul>      |  |
| <b>Connection system</b>  | Cage Clamp   |
| <b>Conductor cross-sections</b>   | $0.8\text{ mm}^2$ ... $2.5\text{ mm}^2$  |

### Selection and ordering data

#### Input voltage AC 115/230 V, selectable

| Rated output voltage<br>$U_d$ | Rated output current<br>$I_d$ | DT | Order No.                | PS*    | Weight per PU approx. |
|-------------------------------|-------------------------------|----|--------------------------|--------|-----------------------|
| DC V                          | DC A                          |    |                          |        | kg                    |
| 24                            | 3                             | ▶  | <b>4FD51 83-0AA00-1A</b> | 1 unit | 0,800                 |
| 15                            | 5                             | ▶  | <b>4FD51 83-0AA10-1A</b> | 1 unit | 0,800                 |
| 12                            | 5                             | ▶  | <b>4FD51 83-0AA30-1A</b> | 1 unit | 0,800                 |
| 5                             | 10                            | ▶  | <b>4FD51 83-0AA20-1A</b> | 1 unit | 0,800                 |

### Circuit diagram



\* This quantity of a multiple thereof can be ordered.

# Stabilized Power Supplies For Specific Loads and Systems

## LOGO!Power supplies Single-phase

### Overview

The LOGO!Power stabilized power supplies are primary switched power supplies which are characterized by, among other features, a high degree of efficiency, safe electrical isolation (SELV) and light weight.

Different versions are available to suit the required output current and output voltage.

Power supplies with

- Single-phase connection with wide input range
- Adjustable output voltage
- Green LED for output voltage OK.
- For snap-mounting onto symmetrical 35 mm standard mounting rail (EN 50022)
- The stepped shape of the casing makes it also suitable for installation in standard small N installation distribution boards
- Degree of noise suppression Class B
- Ambient temperature  $-20\text{ }^{\circ}\text{C}$  to  $+55\text{ }^{\circ}\text{C}$ .

### Selection and ordering data

| Version                    | Input<br>Rated voltage<br>$U_{e \text{ Rated}}$ | Output<br>Rated voltage<br>$U_{a \text{ Rated}}$ | Rated<br>current<br>$I_{a \text{ Rated}}$ | Dimensions<br>(W x H x D)<br>mm | DT | Order No.             | PS*    | Weight<br>per PU<br>approx.<br>kg |
|----------------------------|---|--|---|---------------------------------|----|-----------------------|--------|-----------------------------------|
| <b>5 V power supplies</b>  |   |  |   |                                 |    |                       |        |                                   |
| <b>3 A</b>                 | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 5 V $\pm 3\%$                                 | 3   | 54 x 90 x 55                    | A  | <b>6EP1 311-1SH02</b> | 1 unit | 0.200                             |
| <b>6.3 A</b>               | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 5 V $\pm 3\%$                                 | 6.3                                       | 72 x 90 x 55                    | A  | <b>6EP1 311-1SH12</b> | 1 unit | 0.300                             |
| <b>12 V power supplies</b> |   |  |   |                                 |    |                       |        |                                   |
| <b>1.9 A</b>               | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 12 V $\pm 3\%$                                | 1.9                                       | 54 x 90 x 55                    | A  | <b>6EP1 321-1SH02</b> | 1 unit | 0.200                             |
| <b>4.5 A</b>               | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 12 V $\pm 3\%$                                | 4.5                                       | 72 x 90 x 55                    | A  | <b>6EP1 322-1SH02</b> | 1 unit | 0.300                             |
| <b>15 V power supplies</b> |   |  |   |                                 |    |                       |        |                                   |
| <b>1.9 A</b>               | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 15 V $\pm 3\%$                                | 1.9                                       | 54 x 90 x 55                    | A  | <b>6EP1 351-1SH02</b> | 1 unit | 0.200                             |
| <b>4 A</b>                 | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 15 V $\pm 3\%$                                | 4   | 72 x 90 x 55                    | A  | <b>6EP1 352-1SH02</b> | 1 unit | 0.300                             |
| <b>24 V power supplies</b> |   |  |   |                                 |    |                       |        |                                   |
| <b>1.3 A</b>               | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 24 V $\pm 3\%$                                | 1.3                                       | 54 x 90 x 55                    | A  | <b>6EP1 331-1SH02</b> | 1 unit | 0.200                             |
| <b>2.5 A</b>               | AC 100 V ... 240 V<br>(85 V ... 264 V)          | DC 24 V $\pm 3\%$                                | 2.5                                       | 72 x 90 x 55                    | A  | <b>6EP1 332-1SH42</b> | 1 unit | 0.300                             |



54 mm wide casing



72 mm wide casing



# Stabilized Power Supplies For Specific Loads and Systems

SITOP power supplies  
Single-phase

## Overview








The SITOP power primary switched-mode power supplies are characterized by, among other features, a high degree of efficiency, safe electrical isolation (SELV) and light weight.

Different versions are available to suit the output current and application.

Power supplies with

- Single-phase connection
- Status LED
- Adjustable output voltage, approx. 22.8 V to 26.4 V (from 2 A rated current)
- Casing can be snap-mounted onto symmetrical 35 mm standard mounting rail (EN 50022)
- Degree of noise suppression Class B
- Ambient temperature 0 °C to +60 °C.

## Selection and ordering data

| Version  | Input<br>Rated voltage<br>$U_e$ Rated                          | Output<br>Rated voltage<br>$U_a$ Rated | Rated<br>current<br>$I_a$ Rated | Dimensions<br>(W x H x D)<br>mm | DT | Order No.             | PS*    | Weight<br>per PU<br>approx.<br>kg |
|--|--|--|---------------------------------|---------------------------------|----|-----------------------|--------|-----------------------------------|
| <b>24 V power supplies</b>   |  |  |                                 |                                 |    |                       |        |                                   |
|   | DC 48 V ... 220 V<br>(DC 30 V ... 264 V,<br>AC 30 V ... 187 V) | DC 24 V ±2 %                           | 0.375 A                         | 22.5 x 80 x 91                  | A  | <b>6EP1 731-2BA00</b> | 1 unit | 0.140                             |
| 6EP1 331-2BA10   |  |  | 0.5 A                           |                                 |    |                       |        |                                   |
|    | AC 120 V ... 230 V<br>(AC 93 V ... 264 V)                      | DC 24 V ±2 %                           | 0.5 A                           | 22.5 x 80 x 91                  | A  | <b>6EP1 331-2BA10</b> | 1 unit | 0.110                             |
| 6EP1 331-2BA00   |  |  | 2 A                             |                                 |    |                       |        |                                   |
| Limitation of input current harmonics to EN 61000-3-2  |  |  |                                 |                                 |    |                       |        |                                   |
|   | AC 120/230 V<br>(93 V ... 132 V/<br>187 V ... 264 V)           | DC 24 V ±3 %                           | 5 A                             | 75 x 125 x 125                  | A  | <b>6EP1 333-2BA00</b> | 1 unit | 0.750                             |
| 6EP1 333-2A00  |  |  | 5 A                             |                                 |    |                       |        |                                   |
|   | AC 120/230 V<br>(85 V ... 132 V/<br>187 V ... 264 V)           | DC 24 V ±3 %                           | 10 A                            | 100 x 125 x 135                 | A  | <b>6EP1 334-2BA00</b> | 1 unit | 1.080                             |
| 6EP1 334-2A00  |  |  | 10 A                            |                                 |    |                       |        |                                   |
| IP65 degree of protection, adapted for ET 200X; wall mounting;<br>degree of noise suppression Class A; ambient temperature -20 °C ... +55 °C |  |  |                                 |                                 |    |                       |        |                                   |
|   | AC 120/230 V<br>(93 V ... 132 V/<br>187 V ... 264 V)           | DC 24 V ±3 %                           | 10 A                            | 140 x 270 x 126                 | A  | <b>6EP1 334-2CA00</b> | 1 unit | 1.700                             |
| 6EP1 334-2CA00   |  |  | 20 A                            |                                 |    |                       |        |                                   |
|   | AC 120/230 V<br>(93 V ... 132 V/<br>187 V ... 264 V)           | DC 24 V ±3 %                           | 20 A                            | 280 x 125 x 92                  | A  | <b>6EP1 336-2BA00</b> | 1 unit | 2.400                             |
| 6EP1 336-2BA00   |  |  | max. 10 A<br>or 120 W           |                                 |    |                       |        |                                   |
| <b>3 V ... 52 V power supplies</b>   |  |  |                                 |                                 |    |                       |        |                                   |
|   | AC 120/230 V<br>(85 V ... 132 V/<br>170 V ... 264 V)           | DC 3 V ... 52 V<br>±1 %                | 10 A                            | 75 x 125 x 125                  | A  | <b>6EP1 353-2BA00</b> | 1 unit | 0.750                             |
| 6EP1 353-2BA00   |  |  | max. 10 A<br>or 120 W           |                                 |    |                       |        |                                   |

\* This quantity of a multiple thereof can be ordered.

# Stabilized Power Supplies For Specific Loads and Systems

## SITOP power supplies Single-, two- and three phase

### Overview

#### Modular 24 V power supplies with additional modules

The modular concept is based on the power supply basic units in compact design with 24 V/5 A to 24 V/40 A output, for

- Fixing onto standard mounting rails
- 5 A and 10 A units with single-phase and two-phase connection (L1 and N, L1 and L2)
- Adjustable output voltage up to 28.8 V
- 3-way status LED
- Selectable short-circuit response, constant current or latching shutdown
- Changeover for parallel operation
- 20 A and 40 A units with single-phase or three-phase connection.

Power supplies with

- Degree of noise suppression Class B
- Limitation of input current harmonics to EN 61000-3-2

Two add-on modules offer further functions.

The signaling module can be snapped onto the side of the basic unit; with floating signaling contacts "Output voltage OK" and "Ready"; with signal input for remote ON/OFF switching of the basic unit.

The back-up module bridges mains interruptions in the range of milliseconds. 100 ms at 40 A, 800 ms at 5 A, up to max. 3 s at low load current; standard mounting rail fixing in any part of the control cabinet.

Power supplies and add-on modules with

- Ambient temperature 0 °C to +60 °C.










#### SITOP select diagnostics module

It is used in combination with 24 V power supplies for distributing the load current among up to 4 current branches per module and for monitoring the individual partial currents.

Overloads or short-circuits in individual branches are selectively switched off and the remaining load current paths remain unaffected.

Rated current is adjustable from 2 A to 10 A, LED, group alarm contact, standard mounting rail fixing.

### Selection and ordering data

| Version   | Input<br>Rated voltage<br>$U_e$ Rated | Output<br>Rated voltage<br>$U_a$ Rated                    | Rated<br>current<br>$I_a$ Rated | Dimensions<br>(W x H x D)<br>mm | DT              | Order No. | PS*            | Weight<br>per PU<br>approx.<br>kg |
|---|---------------------------------------|---|---------------------------------|---------------------------------|-----------------|-----------|----------------|-----------------------------------|
| <b>24 V modular power supplies</b>  |                                       |   |                                 |                                 |                 |           |                |                                   |
| <br>6EP1 333-3BA00 | 5 A                                   | AC 120/230 V... 500 V<br>(85 V ... 132 V/176 V ... 550 V) | DC 24 V ±3 %                    | 5                               | 70 x 125 x 125  | A         | 6EP1 333-3BA00 | 1 unit 1.200                      |
| <br>6EP1 334-3BA00 | 10 A                                  | AC 120/230 V... 500 V<br>(85 V ... 132 V/176 V ... 550 V) | DC 24 V ±3 %                    | 10                              | 90 x 125 x 125  | A         | 6EP1 334-3BA00 | 1 unit 1.400                      |
| <br>6EP1 .36-3BA00 | 20 A                                  | AC 120/230 V<br>(85 V ... 132 V/176 V ... 264 V)          | DC 24 V ±3 %                    | 20                              | 160 x 125 x 125 | A         | 6EP1 336-3BA00 | 1 unit 2.200                      |
| <br>6EP1 .37-3BA00 | 20 A                                  | 3 AC 400 V ... 500 V<br>(320 V ... 550 V)                 | DC 24 V ±3 %                    | 20                              | 160 x 125 x 125 | A         | 6EP1 436-3BA00 | 1 unit 2.000                      |
| <br>6EP1 .37-3BA00 | 40 A                                  | AC 120/230 V<br>(85 V ... 132 V/176 V ... 264 V)          | DC 24 V ±3 %                    | 40                              | 240 x 125 x 125 | A         | 6EP1 337-3BA00 | 1 unit 2.900                      |
| <br>6EP1 .37-3BA00 | 40 A                                  | 3 AC 400 V ... 500 V<br>(320 V ... 550 V)                 | DC 24 V ±3 %                    | 40                              | 240 x 125 x 125 | A         | 6EP1 437-3BA00 | 1 unit 2.600                      |
| <b>Add-on modules</b>   |                                       |   |                                 |                                 |                 |           |                |                                   |
| <br>6EP1 961-3BA10 | <b>Signaling module</b>               |   |                                 |                                 | 25 x 125 x 125  | A         | 6EP1 961-3BA10 | 1 unit 0.200                      |
| <br>6EP1 961-3BA00 | <b>Back-up modules</b>                |   |                                 |                                 | 70 x 125 x 125  | A         | 6EP1 961-3BA00 | 1 unit 1.000                      |
| <b>SITOP select diagnostics modules</b>   |                                       |   |                                 |                                 |                 |           |                |                                   |
| <br>6EP1 961-2BA00 | 4-way                                 | DC 24 V   | DC 23.5 V                       | 2 ... 10                        | 72 x 90 x 90    | A         | 6EP1 961-2BA00 | 1 unit 0.500                      |

# Stabilized Power Supplies For Specific Loads and Systems

**SITOP power supplies  
Uninterruptible**

## Overview

### DC 24 V uninterruptible power supplies

Mains failures of a longer duration can be buffered without any interruption at all by combining a DC UPS module with at least one battery module and a SITOP power supply.

DC UPS modules with



- Degree of noise suppression Class B
- Ambient temperature 0 °C to +60 °C.

Battery modules





- 2.5 Ah: ambient temperature –40 °C to +60 °C
- 3.2 Ah to 12 Ah: ambient temperature +5 °C to +40 °C.

## Selection and ordering data

### DC UPS modules

| Version   | Input<br>Rated voltage<br>$U_e$ Rated | Output<br>Rated voltage<br>$U_a$ Rated   | Rated<br>current<br>$I_a$ Rated | Dimensions<br>(W x H x D) | DT | Order No.      | PS*    | Weight<br>per PU<br>approx.<br>kg |
|---|---------------------------------------|--|---------------------------------|---------------------------|----|----------------|--------|-----------------------------------|
| <br>6EP1 931-2EC.1<br><br><br>6EP1 931-2FC01 | DC 24 V<br>(22 V ... 27.5 V)          | DC 24 V<br>(mains operation:<br>22 V ... 27.5 V,<br>battery operation:<br>27.0 V ... 18.5 V) | 15                              | 75 x 125 x 125            | A  | 6EP1 931-2EC01 | 1 unit | 0.400                             |
|   |                                       |  |                                 |                           |    | 6EP1 931-2EC11 | 1 unit | 0.450                             |
|   | DC 24 V<br>(23.5 V ... 26 V)          | DC 24 V<br>(mains operation:<br>23.5 V ... 26 V,<br>battery operation:<br>27.0 V ... 18.5 V) | 40                              | 220 x 130 x 65            | A  | 6EP1 931-2FC01 | 1 unit | 1.200                             |

### Battery modules

| Version  | Charging<br>voltage<br>at +25 °C<br>$U_{Charge}$ | Rated<br>output voltage<br>$U_a$ Rated  | Dimensions<br>(W x H x D) | DT | Order No.      | PS*    | Weight<br>per PU<br>approx.<br>kg |
|--|--|---|---------------------------|----|----------------|--------|-----------------------------------|
| <b>For 15 A DC UPS modules</b>   |  |   |                           |    |                |        |                                   |
| <br>6EP1 935-6MD31<br><br><br>6EP1 935-6MD11 | DC 27.7 V  | DC 24 V<br>(end of charge<br>voltage: 27.7 V,<br>exhaustive dis-<br>charge<br>protection: 18.5 V) | 265 x 151 x 91            | A  | 6EP1 935-6MD31 | 1 unit | 3.800                             |
|  | DC 27.0 V  | DC 24 V<br>(end of charge<br>voltage: 27.0 V,<br>exhaustive dis-<br>charge protection:<br>18.5 V) | 190 x 151 x 82            | A  | 6EP1 935-6MD11 | 1 unit | 3.800                             |
| <b>For 15 A and 40 A DC UPS modules</b>  |  |   |                           |    |                |        |                                   |
| <br>6EP1 935-6ME21<br><br><br>6EP1 935-6MF01 | DC 27.0 V  | DC 24 V<br>(end of charge<br>voltage: 27.0 V,<br>exhaustive dis-<br>charge protection:<br>18.5 V) | 186 x 168 x 121           | A  | 6EP1 935-6ME21 | 1 unit | 6.000                             |
|  | DC 27.0 V  | DC 24 V<br>(end of charge<br>voltage: 27.0 V,<br>exhaustive dis-<br>charge protection:<br>18.5 V) | 253 x 118 x 121           | A  | 6EP1 935-6MF01 | 1 unit | 9.000                             |

\* This quantity of a multiple thereof can be ordered.

# SIDAC-S Power Supplies

## Project planning aids

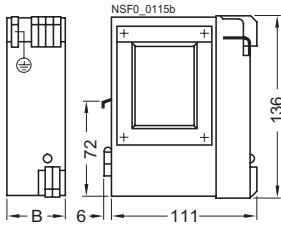
### Dimension drawings

#### Non-stabilized power supplies based on safety isolating transformers

#### Filtered for supplying solid-state controllers: single-phase

#### 4AV2 and 4AV41 rectifier units

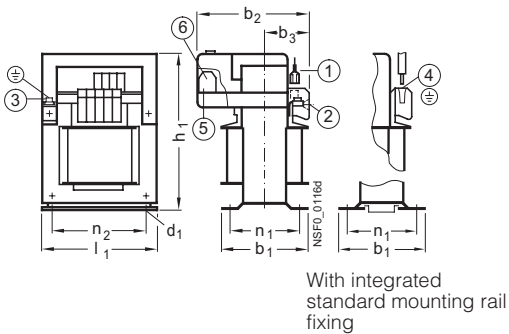
**4AV21, 4AV23**, for any arrangement and snap-mounting onto EN 50022-35 × 7.5 standard rail



| Type  | Rated current DC A | B  |
|-------|--------------------|----|
| 4AV21 | 1                  | 45 |
| 4AV23 | 3.5                | 72 |

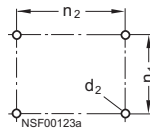
Connections:  
terminal size 4  
– for flat connection  
DIN 46244-A 6.3–0.8  
– screw-type connection:  
solid 0.5 mm<sup>2</sup> to 6 mm<sup>2</sup>  
finely stranded 0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>

#### 4AV2, arrangement: any mounting position



| Type  | Rated current DC A | Designation to DIN 41302 | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | l <sub>1</sub> | n <sub>1</sub> | n <sub>2</sub> |
|-------|--------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4AV20 | 2.5                | EI 84/42                 | 89             | 100            | 51             | 4.8×9          | M4             | 142            | 84             | 64             | 64             |
| 4AV22 | 5                  | EI 105/60                | 103            | 113            | 60             | 5.8×9          | M5             | 157            | 105            | 83             | 80.5           |
| 4AV24 | 10                 | EI 120/72                | 122            | 128            | 67             | 5.8×9          | M5             | 170            | 120            | 104            | 90             |
| 4AV26 | 15                 | EI 150N/48               | 110.5          | 140            | 58             | 7 × 13         | M6             | 200            | 150            | 90             | 122            |

#### Mounting holes



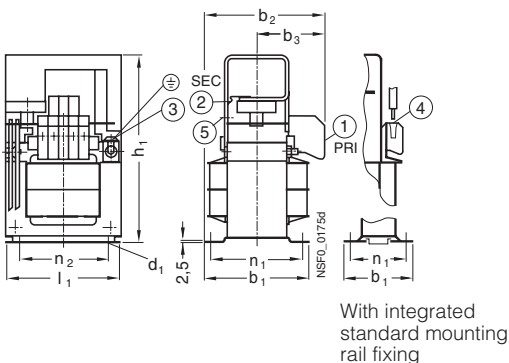
#### Input

- For flat connection  
DIN 46244-A 6.3–0.8
- Screw-type connection:  
solid 0.5 mm<sup>2</sup> to 6 mm<sup>2</sup>  
finely stranded 0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- Screw-type connection:  
Solid, finely-stranded 2.5 mm<sup>2</sup>
- Cage Clamp connection  
(also as ground connection)  
from the top:  
solid, finely-stranded  
0.08 mm<sup>2</sup> to 4 mm<sup>2</sup>

#### Output

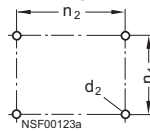
- Screw-type connection:  
for 4AV20 to 4AV24  
solid 0.2 mm<sup>2</sup> to 4 mm<sup>2</sup>  
finely stranded 0.2 mm<sup>2</sup> to 2.5 mm<sup>2</sup>  
for 4AV26  
solid, finely-stranded  
0.5 mm<sup>2</sup> to 10 mm<sup>2</sup>
- Cage Clamp connection  
for 4AV20 to 4AV24  
solid, finely-stranded  
0.08 mm<sup>2</sup> to 2.5 mm<sup>2</sup>  
for 4AV26  
solid, finely stranded  
0.2 mm<sup>2</sup> to 6 mm<sup>2</sup>

#### 4AV41, for suspension



| Type     | Rated current DC A | Designation to DIN 41302 | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | l <sub>1</sub> | n <sub>1</sub> | n <sub>2</sub> |
|----------|--------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4AV41 01 | 1.5                | EI 78/26                 | 59.5           | 73             | 35             | 8              | M4             | 123            | 78             | 48.5           | 56             |
| 4AV41 03 | 3                  | EI 84/42                 | 89.0           | 88             | 51             | 8              | M4             | 140            | 84             | 64             | 64             |
| 4AV41 06 | 6                  | EI 96/58                 | 103.0          | 108            | 57             | 9              | M5             | 152            | 96             | 86.5           | 84             |
| 4AV41 10 | 10                 | EI 120/52                | 101.5          | 105            | 54             | 9              | M5             | 170            | 120            | 85             | 90             |

#### Mounting holes



#### Input

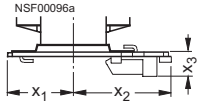
- For flat connection  
DIN 46244-A 6.3–0.8  
only applies to 4AV41 01
- Screw-type connection:  
solid 0.5 mm<sup>2</sup> to 6 mm<sup>2</sup>  
finely stranded 0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- Screw-type connection:  
Solid, finely-stranded 2.5 mm<sup>2</sup>
- Cage Clamp connection  
(from the top):  
solid, finely-stranded  
0.08 mm<sup>2</sup> to 4 mm<sup>2</sup>

#### Output

- GMKDS 3 (Phoenix)  
connection, solid 0.2 mm<sup>2</sup> to 4 mm<sup>2</sup>  
flexible 0.2 mm<sup>2</sup> to 2.5 mm<sup>2</sup>  
current carrying capacity 10 A
- Cage Clamp connection  
(from the top):  
solid, finely-stranded  
0.08 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

### 4AV2 and 4AV41 rectifier units (continued)

**For fixing on standard mounting rails**  
for 4AV DC power supply with  
preassembled adapter plate in the special version.  
Arrangement: horizontal mounting position



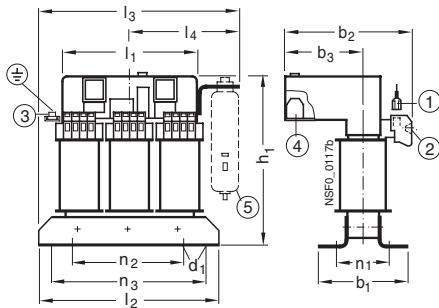
| Type     | x <sub>1</sub><br>max. | x <sub>2</sub><br>max. | x <sub>3</sub> | Standard<br>mounting rail<br>mm |
|----------|------------------------|------------------------|----------------|---------------------------------|
| 4AV22    | b <sub>1</sub> /2+3    | b <sub>1</sub> /2+8    | 15             | 35 × 15                         |
| 4AV24    | b <sub>1</sub> /2+3    | b <sub>1</sub> /2+3    | 15             | 35 × 15                         |
| 4AV41 01 | b <sub>1</sub> /2+4    | b <sub>1</sub> /2+16   | 9              | 35 × 7.5                        |
| 4AV41 10 | b <sub>1</sub> /2+3    | b <sub>1</sub> /2+3    | 15             | 35 × 15                         |

4AV20 with integrated standard mounting rail fixing,  
see dimension drawing for 4AV2.

### Filtered for supplying solid-state controllers: three-phase

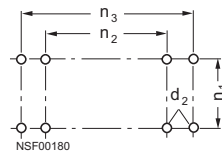
#### 4AV3 and 4AV51 rectifier units

**4AV30 to 4AV33**, arrangement:  
60 °C ambient temperature on vertical surfaces  
40 °C ambient temperature on horizontal surfaces



| Type  | Rated<br>current<br>DC A | Designa-<br>tion to<br>DIN 41302 | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | n <sub>1</sub> | n <sub>2</sub> | n <sub>3</sub> |
|-------|--------------------------|----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4AV30 | 10                       | 3UI 75/25                        | 68             | 115            | 72             | 5.8×11         | M5             | 190            | 136            | 164            | 200            | 110            | 48             | 113            | 150            |
| 4AV31 | 15                       | 3UI 75/40                        | 81             | 115            | 65             | 5.8×11         | M5             | 190            | 136            | 164            | 200            | 110            | 63             | 113            | 150            |
| 4AV32 | 20                       | 3UI 90/30                        | 71             | 115            | 70             | 7 × 13         | M6             | 220            | 162            | 216            | 232            | 124            | 55             | 136            | 200            |
| 4AV33 | 30                       | 3UI 90/50                        | 95             | 158            | 102            | 7 × 13         | M6             | 220            | 162            | 216            | 232            | 124            | 75             | 136            | 200            |

Mounting holes



#### Input

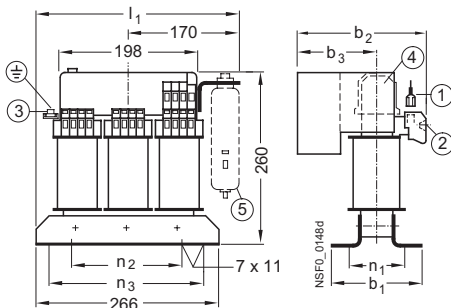
- For flat connection  
DIN 46244-A 6.3-0.8
- Screw-type connection:  
solid, finely-stranded  
0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- Screw-type connection:  
solid, finely-stranded 2.5 mm<sup>2</sup>

#### Output

- Screw-type connection:  
solid, finely-stranded  
0.5 mm<sup>2</sup> to 10 mm<sup>2</sup>
- Option: back-up capacitor

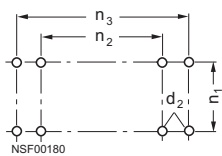
#### 4AV34, 4AV35, arrangement:

40 °C ambient temperature on horizontal surfaces  
60 °C ambient temperature on vertical surfaces



| Type  | Rated<br>current<br>DC A | Designation<br>to<br>DIN 41302 | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | d <sub>2</sub> | l <sub>1</sub> | n <sub>1</sub> | n <sub>2</sub> | n <sub>3</sub> |
|-------|--------------------------|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4AV34 | 40                       | 3UI 114/38                     | 90             | 165            | 115            | M6             | 287            | 70             | 176            | 250            |
| 4AV35 | 50                       | 3UI 114/62                     | 114            | 190            | 127            | M6             | 295            | 94             | 176            | 250            |

Mounting holes



#### Input

- For flat connection  
DIN 46244-A 6.3-0.8
- Screw-type connection:  
solid, finely-stranded  
0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- Screw-type connection:  
solid, finely-stranded 2.5 mm<sup>2</sup>

#### Output

- Screw-type connection:  
solid  
1 mm<sup>2</sup> to 16 mm<sup>2</sup>  
finely-stranded  
2.5 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Option: back-up capacitor

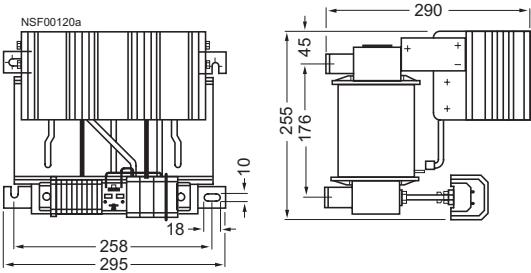
# SIDAC-S Power Supplies

## Project planning aids

### 4AV3 and 4AV51 rectifier units (continued)

#### 4AV36 (80 A)

for arrangement on vertical surfaces, cooling fins vertical



Permissible continuous current when arranged on horizontal surfaces:  
 52 A at  $t_a = 60\text{ °C}$   
 80 A at  $t_a = 25\text{ °C}$

#### Input

8WA1 011-1DG11 modular terminals

Terminal size 4

– screw-type connection:  
 solid  $0.5\text{ mm}^2$  to  $6\text{ mm}^2$   
 finely-stranded  $0.5\text{ mm}^2$  to  $4\text{ mm}^2$   
 (with or without end sleeves)

#### Output

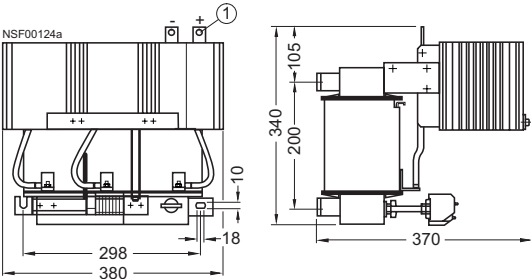
8WA1 305 modular terminals

Terminal size 35

– screw-type connection:  
 solid  $4\text{ mm}^2$  to  $16\text{ mm}^2$   
 finely-stranded  $6\text{ mm}^2$  to  $35\text{ mm}^2$   
 (with or without end sleeves)

#### 4AV38 (150 A)

for arrangement on vertical surfaces, cooling fins vertical



Permissible continuous current when arranged on horizontal surfaces:  
 100 A at  $t_a = 60\text{ °C}$   
 150 A at  $t_a = 25\text{ °C}$

#### Input

8WA1 011-1DG11 modular terminals  
 with screw-type connection

Terminal size 4

– screw-type connection:  
 solid  $0.5\text{ mm}^2$  to  $6\text{ mm}^2$   
 finely-stranded  $0.5\text{ mm}^2$  to  $4\text{ mm}^2$   
 (with or without end sleeves)

#### Output

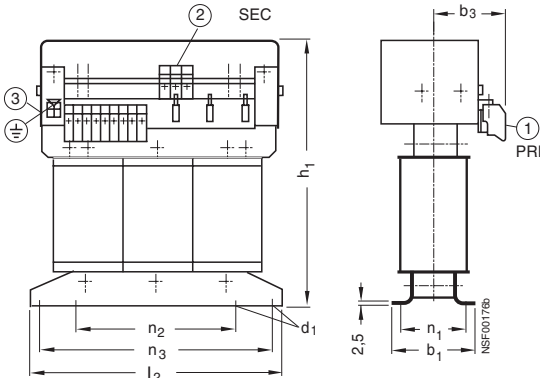
Flat connection with through-hole for M8 screw

Suitable for  
 3TX6 526-3B terminal cover

① Flat connection

#### 4AV51

for standing/hanging arrangement



#### Input

① For flat connection  
 DIN 46244-A 6.3-0.8

① Screw-type connection:  
 solid  $0.5\text{ mm}^2$  to  $6\text{ mm}^2$   
 finely-stranded  $0.5\text{ mm}^2$  to  $4\text{ mm}^2$

③ Screw-type connection:  
 solid, finely-stranded  $2.5\text{ mm}^2$

#### Output

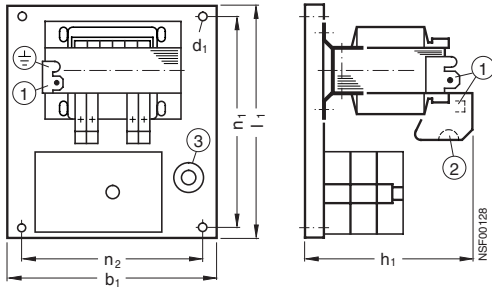
② LUL 10.16 terminal (Weigmüller)  
 solid:  $0.5\text{ mm}^2$  to  $10\text{ mm}^2$   
 flexible:  $0.5\text{ mm}^2$  to  $10\text{ mm}^2$

| Type     | Rated current DC A | Designation to DIN 41302 | b <sub>1</sub> | b <sub>3</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | l <sub>2</sub> | n <sub>1</sub> | n <sub>2</sub> | n <sub>3</sub> |
|----------|--------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4AV51 25 | 25                 | 3UI 90/50                | 96             | 84             | 11             | M6             | 240            | 216            | 76             | 136            | 200            |
| 4AV51 35 | 35                 | 3UI 114/38               | 90             | 78             | 11             | M6             | 294            | 266            | 70             | 176            | 250            |

### Unfiltered for supplying general loads: single-phase

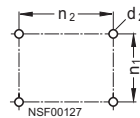
#### 4AV98 rectifier units

**4AV98 00 and 4AV98 02**  
for any arrangement



| Type                              | Rated power W | Designation to DIN 41302 | b <sub>1</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | l <sub>1</sub> | n <sub>1</sub> | n <sub>2</sub> | Fuses |
|-----------------------------------|---------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|
| 4AV98 00-5CB...<br>4AV98 02-5CB.. | 500           | EI 150N/48               | 193            | 6.4            | M6             | 160            | 228            | 200            | 174            | ③     |

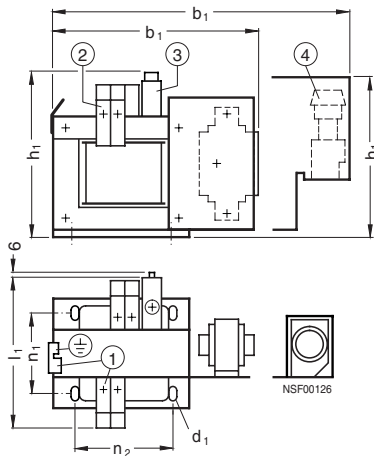
Mounting holes



- ① Flat connection DIN 46244-A 6.3-0.8
- ② Screw-type connection: Terminal size 4 solid 0.5 mm<sup>2</sup> to 6 mm<sup>2</sup> finely stranded 0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- ③ D fuse DIN 49360

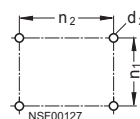
#### 4AV98 06 and 4AV98 07

for any arrangement



| Type           | Rated power W | Designation to DIN 41302 | b <sub>1</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | l <sub>1</sub> | n <sub>1</sub> | n <sub>2</sub> | Fuses |
|----------------|---------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|
| 4AV98 06-4CB.. | 50            | EI 78/26                 | 121            | 4.8×9          | M4             | 91             | 76             | 48.5           | 56             | ③     |
| 4AV98 07-0CB.. | 50            | EI 78/26                 | 121            | 4.8×9          | M4             | 91             | 76             | 48.5           | 56             | ③     |
| 4AV98 06-5CB.. | 80            | EI 84/42                 | 127            | 4.8×9          | M4             | 95             | 93             | 63.5           | 64             | ③     |
| 4AV98 07-1CB.. | 80            | EI 84/42                 | 127            | 4.8×9          | M4             | 95             | 93             | 63.5           | 64             | ③     |
| 4AV98 06-6CB.. | 125           | EI 96/44                 | 138            | 5.8×11         | M5             | 106            | 100            | 73             | 84             | ③     |
| 4AV98 07-2CB.. | 125           | EI 96/44                 | 138            | 5.8×11         | M5             | 106            | 100            | 73             | 84             | ③     |
| 4AV98 06-7CB.. | 200           | EI 96/58                 | 138            | 5.8×11         | M5             | 106            | 115            | 86.5           | 84             | ③     |
| 4AV98 07-3CB.. | 200           | EI 96/58                 | 138            | 5.8×11         | M5             | 106            | 115            | 86.5           | 84             | ③     |
| 4AV98 06-8CB.. | 315           | EI 120/52                | 204            | 5.8×11         | M5             | 134            | 107            | 85             | 90             | ④     |
| 4AV98 07-4CB.. | 315           | EI 120/52                | 204            | 5.8×11         | M5             | 134            | 107            | 85             | 90             | ④     |

Mounting holes

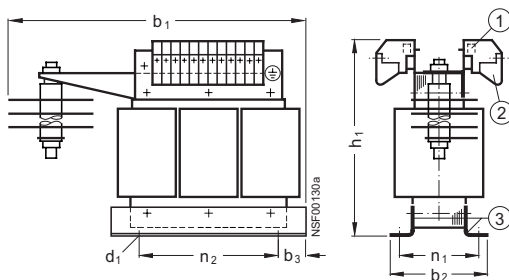


- ① Flat connection DIN 46244-A 6.3-0.8
- ② Screw-type connection: terminal size 4 solid 0.5 mm<sup>2</sup> to 6 mm<sup>2</sup> finely stranded 0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- ③ G fuse DIN VDE 0820 Part 22
- ④ D fuse DIN 49360

### Unfiltered for supplying general loads: three-phase

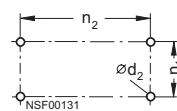
#### 4AV96 rectifier units

**4AV96 04**  
for any arrangement



| Type           | Rated current DC A | Designation to DIN 41302 | b <sub>1</sub> | b <sub>2</sub> | b <sub>3</sub> | d <sub>1</sub> | d <sub>2</sub> | h <sub>1</sub> | n <sub>1</sub> | n <sub>2</sub> |
|----------------|--------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 4AV96 04-1CB.. | 4                  | 3UI 60/30                | 180            | 90             | 15             | 5 × 10         | M4             | 140            | 49             | 90             |
| 4AV96 04-5CB.. | 12                 | 3UI 75/40                | 149            | 112            | 7              | 6.5×12         | M6             | 190            | 94             | 111            |
| 4AV96 04-2CB.. | 25                 | 3UI 90/50                | 300            | 114            | 35             | 9 × 14         | M8             | 190            | 90             | 139            |

Mounting holes



- ① Flat connection DIN 46244-A 6.3-0.8
- ② Screw-type connection: terminal size 4 solid 0.5 mm<sup>2</sup> to 6 mm<sup>2</sup> finely stranded 0.5 mm<sup>2</sup> to 4 mm<sup>2</sup>
- ③ 4AV96 04-1CB: snap-on mounting for EN 50022-35 × 7.5 standard rail

# SIDAC-S Power Supplies

## Project planning aids

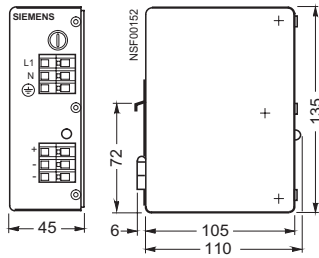
*Stabilized power supplies for specific loads and systems*

### *SIDAC-S load power supplies*

4FD51 power supplies

#### **4FD51 83-0AA.0-1A**

for snapping onto EN 50022-35 × 7.5 standard mounting rails



#### **Connections:**

Primary side and secondary side

Cage Clamp connections

Solid, finely-stranded 0.8 mm<sup>2</sup> to 2.5 mm<sup>2</sup> without end sleeve, 0.8 mm<sup>2</sup> to 1.5 mm<sup>2</sup> with end sleeve