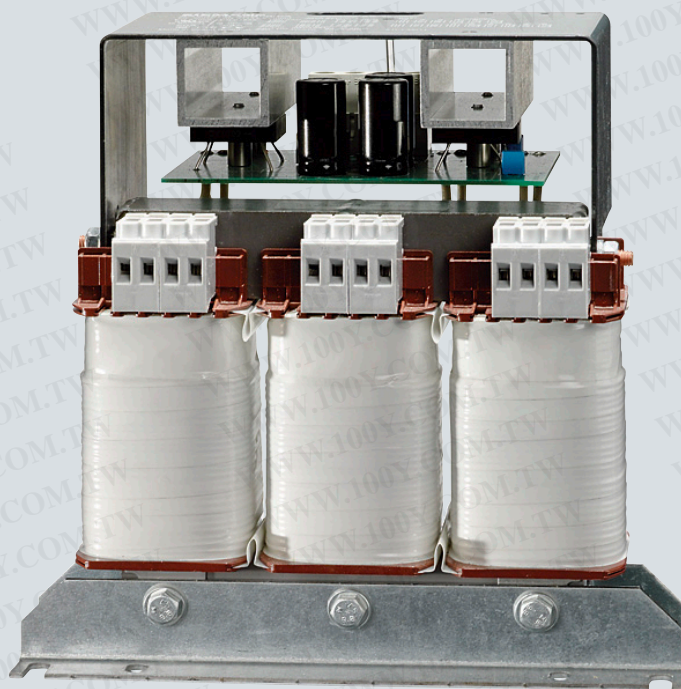


Power Supplies

Non-Stabilized • Stabilized

Reference Manual • April 2009

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



Low-Voltage Controls and Distribution

SIEMENS

Power Supplies



4

Introduction

4AV Non-Stabilized Power Supplies

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6EP Stabilized Power Supplies

SITOP 6EP power supplies

- 1) See Catalog KT 10.1 "SITOP Power Supplies and LOGO!Power".

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Introduction

Overview

4AV non-stabilized power supplies



4AV21/23

4AV20/22/24/26

4AV4

4AV3

4AV5

Filtered for supply of electronic controls

Ripple		< 5 %	< 5 %	< 5 %	< 5 %	< 5 %
Phase		1	1	1	3	3
Rated input voltage	V AC	115 ... 415	115 ... 415	230 ... 415	200 ... 600	400 ... 415
Rated output voltage acc. to EN 61131-2 suitable for SIMATIC systems	V DC	24	24	24	24	24
Rated output current	A	1 ... 4.2	2.5 ... 18	1.5 ... 10	15 ... 180	25, 35
Connection		Screw terminals/ flat connectors	Screw terminals/ flat connectors or Cage Clamp terminals	Screw terminals/ flat connectors or Cage Clamp terminals	Screw terminals/ flat connectors	Screw terminals/ flat connectors
Mounting		Standard rail mounting	Screw and/or standard rail mounting	Screw and/or standard rail mounting	Screw mounting	Screw mounting
cULus approval at 60 °C		Yes	Yes	No	Partially	No



4AV98

4AV96

Unfiltered for supply of general loads

Ripple		48.3 %	< 5 %
Phase		1	3
Rated input voltage	V AC	230 or 400	400
Rated output voltage	V DC	24	30-27-24
Rated output current/ rated power		50 ... 500 W	4 ... 25 A
Connection		Screw terminals/ flat connectors	Screw terminals/ flat connectors
Mounting		Screw mounting	Screw mounting
cULus approval		No	No

6EP stabilized power supplies¹⁾



6EP1)
LOGO!Power

6EP1)
SITOP smart

6EP1)
SITOP modular

6EP1)
SITOP uninterruptible

Phase		1	1, 3	1, 2, 3	1
Rated input voltage	V	100 ... 240 AC	48 ... 220 DC, 120 ... 230 AC, 120/230 AC, 3 AC 400 ... 500	120/230 ... 500 AC, 120/230 AC, 3 AC 400 ... 500	24 DC
Rated output voltage	V DC	5, 12, 15, 24	24, 48, 3 ... 52	24	24
Rated output current	A	1.3 ... 6.3	0.375 ... 10	5 ... 40	6, 15, 40
Connection		Screw terminals	Screw terminals	Screw terminals	Screw terminals
Mounting		Standard rail mounting	Standard rail mounting	Standard rail mounting	Standard rail mounting
Approval		UL, cUL	UL, cUL	UL, cUL	UL, cUL

Further products for power supplies can be found in Catalog KT 10.1 or on the Internet at <http://www.siemens.com/sirius-supplying> and <http://www.siemens.com/sitop>.

¹⁾ For more information see Catalog KT 10.1 "SITOP Power Supplies and LOGO!Power".

4AV Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

General data

Overview

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

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

4AV devices are

- Designed for fuseless protection with standard motor starter protectors;
- Equipped with additional ground connections for a simple grounding of the control circuit using a detachable connection directly on the device;
- 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 230/400 V, and the multi-voltage versions 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 melting fuse on the secondary side.

Protective devices

For reliable protection against short-circuits, overload and touch, the cables between the output terminals of the power supply and the load must have a negligible line impedance. For more details see DIN VDE 0100 (Erection of low-voltage systems) Part 410, Part 520 (particularly section 525) and part 600 (see also IEC 60364-4-41, -5-52 and -6).

Terminals

Screw/flat connectors

The 4AV power supplies are supplied as standard with screw/flat connectors (except: 4AV38, secondary with flat connectors).

Cage Clamp terminals

For conductor cross-sections 0.8 mm² to 4 mm² 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 version is not possible). The grounding terminal is designed as a Cage Clamp terminal.

The terminals used are:

- Finger-safe according to EN 50274
- Suitable for conductor cross-sections according to VDE 0298-4 and EN 60204-1.

Mounting

Standard version

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

Standard rail mounting

- Integrated version
For mounting onto standard mounting rails (horizontal mounting position), types 4AV20, 4AV41 03 and 4AV41 06 are equipped as standard with an integrated snap-on mounting for 35 mm standard mounting rails to EN 60715. Types 4AV21 and 4AV23 are only suitable for standard rail mounting.
- 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: $U_1 = U_{1N} - 10\%$

Function

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

Despite variations in these parameters, the electronic control is supplied with the permissible operational voltage without having to select suitable tapplings 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 overshoot 90 % of the individual rated currents.

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4AV Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

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General data

Technical specifications

Single- and three-phase DC power supplies

24 V DC voltage Limit values	EN 61131-2	Typical value				Conditions
		4AV2	4AV3	4AV4	4AV5	
Ripple	≤5 %	2.2 ... 2.7 %	4.2 %	3.0 ... 3.7 %	4.2 %	At rated current
24 V DC voltage						
• 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

Contactors	Number of 3RT1 ¹⁾ contactors that can be operated simultaneously with preloading																									
	4AV20/ 4AV21		4AV23		4AV22		4AV24		4AV26		4AV30		4AV31		4AV32		4AV33		4AV34		4AV35		4AV36		4AV38	
Type	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 No-load operation

② Rated current

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

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

Rectifier unit	Ambient temperature t_a	Rated output current I_d	Primary-side protection against short-circuits (line protection) by means of motor starter protector ¹⁾ or fuse, gL/gG operational class								Secondary-side protection against short-circuit and overload by means of motor starter protector or fuse, operational class	
			Type	Rated input voltage U_{1N}								Type
Type	°C	DC A		575 V (600 V)	500 V	460 V (480 V)	400 V (415 V)	230 V (240 V)	200 V	115 V (120 V)		
Single-phase												
4AV21	60	1	3RV10 11-□□□10 Set value in A	--	--	--	OCA	OFA	--	OJA	Built-in electrical short-circuit/overload protection fuse	--
	40	1.2	3RV10 11-□□□10 Set value in A	--	--	--	ODA	OFA	--	OKA		
4AV20	60	2.5	3RV10 11-□□□10 Set value in A	--	--	--	OFA	OHA	--	1BA	3RV10 11-□□□10 Set value in A	1DA 2.5
	40	3	3RV10 11-□□□10 Set value in A	--	--	--	0.48	0.72	--	1.9	Set value in A	3
4AV23	60	3.5	3RV10 11-□□□10 Set value in A	--	--	--	OHA	OJA	--	1CA	Built-in electrical short-circuit/overload protection fuse	--
	40	4.2	3RV10 11-□□□10 Set value in A	--	--	--	0.55	0.7	--	2		
4AV22	60	5	3RV10 11-□□□10 Set value in A	--	--	--	OHA	1AA	--	1DA	3RV10 11-□□□10 Set value in A	1GA 5
	40	6	3RV10 11-□□□10 Set value in A	--	--	--	0.6	1.1	--	2.4	Set value in A	6
4AV24	60	10	3RV10 11-□□□10 Set value in A	--	--	--	1CA	1DA	--	1GA	3RV10 11-□□□10 Set value in A	1KA 10
	40	12	3RV10 11-□□□10 Set value in A	--	--	--	1.8	2.4	--	5	Set value in A	12
4AV26	60	15	3RV10 11-□□□10 Set value in A	--	--	--	1CA	1EA	--	1HA	3RV10 21-□□□10 Set value in A	4BA 15
	40	18	3RV10 11-□□□10 Set value in A	--	--	--	2	3.2	--	6	Set value in A	18
4AV41 01	40	1.5	3RV10 11-□□□10 Set value in A Fuse gL/gG A	--	--	--	0BA	ODA	--	--	Integrated blade-type fuse FK2	4 A
4AV41 03	40	3	3RV10 11-□□□10 Set value in A Fuse gL/gG A	--	--	--	0.15	0.27	--	--	Integrated blade-type fuse FK2	7.5 A
4AV41 06	40	6	3RV10 11-□□□10 Set value in A Fuse gL/gG A	--	--	--	0.5	0.7	--	--	Integrated blade-type fuse FK2	15 A
4AV41 10	40	10	3RV10 11-□□□10 Set value in A Fuse gL/gG A	--	--	--	1	2	--	--	Integrated blade-type fuse FK2	25 A
Three-phase												
4AV30	60	9/10	3RV10 11-□□□10 Set value in A	OFA	OFA	OFA	OHA	OKA	OKA	--	3RV10 11-□□□10 Set value in A	1KA 9/10
	40	11/12	3RV10 11-□□□10 Set value in A	0.48	0.48	0.48	0.6	0.72	1.2	1.2	Set value in A	11/12
4AV31	60	13.5/15	3RV10 11-□□□10 Set value in A	OHA	OHA	OHA	OKA	1BA	1CA	--	3RV10 21-□□□10 Set value in A	4BA 14/15
	40	16/18	3RV10 11-□□□10 Set value in A	0.72	0.72	0.72	1.2	1.9	2.4	--	Set value in A	16/18
4AV32	60	18/20	3RV10 11-□□□10 Set value in A	OHA	OKA	OKA	OKA	1BA	1DA	--	3RV10 31-□□□10 Set value in A	4DA 18/20
	40	21.5/24	3RV10 11-□□□10 Set value in A	0.6	1	1	1	1.6	2.4	--	Set value in A	21.5/24
4AV33	60	27/30	3RV10 11-□□□10 Set value in A	1CA	1CA	1CA	1CA	1EA	1FA	--	3RV10 31-□□□10 Set value in A	4FA 28/30
	40	32.5/36	3RV10 11-□□□10 Set value in A	1.8	1.8	1.8	2	3.2	4	--	Set value in A	32.5/36
4AV34	60	36/40	3RV10 11-□□□10 Set value in A	2	2	2	2.4	5	5	--	3RV10 41-□□□10 Set value in A	4HA 36/40
	40	43/48	3RV10 11-□□□10 Set value in A	2.4	2.4	2.4	2.9	6	6	--	Set value in A	43/48
4AV35	60	45/50	3RV10 11-□□□10 Set value in A	1DA	1DA	1EA	1FA	1HA	1HA	--	3RV10 41-□□□10 Set value in A	4JA 45/50
	40	54/60	3RV10 11-□□□10 Set value in A	2.4	2.4	3.2	4	6	6	--	Set value in A	54/60
4AV36	60	80	3RV10 11-□□□10 Set value in A	--	1HA	--	1HA	--	--	--	3RV10 41-□□□10 Set value in A	4MA 80
	40	96	3RV10 11-□□□10 Set value in A	--	6	--	6	--	--	--	Set value in A	96
4AV38	60	150	3RV10 11-□□□10 Set value in A	--	1KA	--	1KA	--	--	--	3VL27 16-1DC33-0AA0 Set value in A	150/800
	40	180	3RV10 21-□□□10 Set value in A	--	10	--	12	--	--	--	3VL37 20-1DC36-0AA0 Set value in A	180/1000
4AV51 25	40	25	3RV10 11-□□□10 Set value in A Fuse gL/gG A	--	--	--	1BA	--	--	--	3RV10 31-□□□10 Set value in A Fuse gL/gG A	4EA 25 25
4AV51 35	40	35	3RV10 11-□□□10 Set value in A Fuse gL/gG A	--	--	--	2	--	--	--	3RV10 31-□□□10 Set value in A Fuse gL/gG A	4FA 35 35

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.

4AV Non-Stabilized Power Supplies

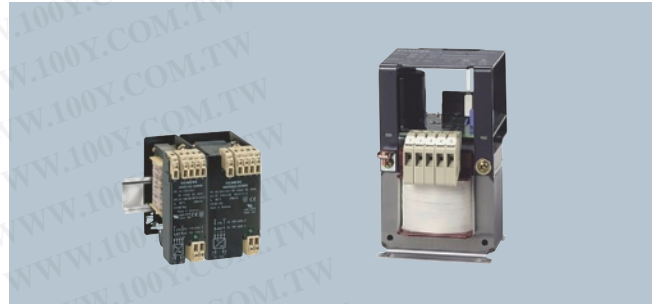
Filtered for Supply of Electronic Controls

4AV2, 4AV4 power supplies,
filtered, single-phase

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Overview

- Rated output voltage U_{2N} 24 V DC according to EN 61131-2¹⁾ and SIMATIC at input voltage +6 % to -10 % and load 0 % to 100 %
- Safety transformer according to EN 61558-2-6
- 4AV21, 4AV23: **c** **us** at 60 °C, **us**;
 4AV20, 4AV22, 4AV24, 4AV26: **c** **us** at 60 °C, **us**;
 4AV41: **us**
- 4AV2: $t_a = \text{max. } 60 \text{ °C/B}$,
 4AV41: $t_a = 40 \text{ °C/B}$
- Varistor suppressor circuit
- Status LED
- EMC according to EN 62041:
 - 4AV2: Suitable for connection to the public supply (residential environments) and industrial networks (industrial environments):
 - 4AV4: Suitable for connection to industrial networks (industrial environments)
- Ripple < 5 %



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

- EN 61131-2: equipment specification for power supply and interface for programmable controllers. For limit values for 24 V DC see "Technical specifications".

Schematics

Terminal designations and terminal assignments

	Rated input voltage U_{1N}	Primary connections and links		
		Rated voltage U_{1N}	Terminals	Links
<p>NSF0_00045c</p> <p>1) </p> <p>4AV21 02, 4AV23 02</p>	230 (240) - 115 (120)	230 (240) 115 (120)	1-4 1-4	2-3 1-3, 2-4
<p>NSF0_00046c</p> <p>1) </p> <p>4AV21 06, 4AV23 06</p>	400 (415)	400 (415)	1-2	--
<p>NSF0_00047b</p> <p>1) </p>	400 (415) - 230 (240) ± 15	415 400 (415) 385 245 230 (240) 215	5-3 1-3 4-3 5-2 1-2 4-2	-- -- -- -- -- --
<p>NSF0_00048b</p> <p>1) </p>	400 (415) - 230 (240) - 115 (120)	400 (415) 230 (240) 115 (120)	1-5 1-4 1-4	2-3 2-3 1-3, 2-4
<p>NSF0_00178a</p> <p>1) </p>	400 230 ± 15	415 400 385 245 230 215	400 V + 15 V 400 V 0 V 400 V - 15 V 230 V + 15 V 230 V 0 V 230 V - 15 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

4AV Non-Stabilized Power Supplies

Filtered for Supply of Electronic Controls

4AV3, 4AV5 power supplies,
 filtered, three-phase

Overview

- Rated output voltage U_{2N} 24 V DC according to EN 61131-2¹⁾ and SIMATIC at input voltage +6 % to -10 % and load 0 % to 100 %
- Safety transformer according to EN 61558-2-6
- 4AV30 to 4AV35: at 60 °C, ; 4AV36, 4AV38, 4AV51:
- 4AV3: $t_a = \max. 60 \text{ °C/B}$, 4AV51: $t_a = 40 \text{ °C/B}$
- Varistor suppressor circuit
- Status LED
- EMC according to EN 62041:
 - 4AV3: suitable for connection to the public supply (residential environments) and industrial networks (industrial environments)
 - 4AV5: suitable for connection to industrial networks (industrial environments)
- Ripple < 5 %



4AV30 to 4AV33 (left) and 4AV38 (right)

1) EN 61131-2: equipment specification for power supply and interface for programmable controllers. For limit values for 24 V DC see "Technical specifications".

Schematics

Terminal designations and terminal assignments

	Rated input voltage U_{1N}	Primary connections and links			
	V	Rated voltage U_{1N}	Terminals	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>	Type 4AV3. 00 400 (415) ± 20 Y 230 ± 10 Δ ¹⁾	420 400 (415) 380 240 230 220	1U1-1V1-1W1 1U1-1V1-1W1 1U1-1V1-1W1 1U1-1V1-1W1 1U1-1V1-1W1 1U1-1V1-1W1	1U2-1V2-1W2 1U4-1V4-1W4 (=factory setting) 1U3-1V3-1W3 1U1-1W2, 1V1-1U2, 1W1-1V2 1U1-1W4, 1V1-1U4, 1W1-1V4 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>	Type 4AV3. 01 500- 400 (415)	500 400 (415)	1U1-1V1-1W1 1U3-1V3-1W3	-- --
		NSF0_00054a 1U1 1V1 1W1 1U3 1V3 1W3 32 31 31	4AV36: secondary terminals 4AV38: secondary flat connector		
	<p>NSF0_00055b</p> <p>31 31 32</p> <p>1U1 1U3 1U4 1U5 1U6 1U2 1V1 1V3 1V4 1V5 1V6 1V2 1W1 1W3 1W4 1W5 1W6 1W2</p> <p>4AV36: secondary terminals 4AV38: secondary flat connector</p>	Type 4AV3. 02 575 (600) - 500 - 460 (480) - 400 (415) - 230 (240) - 200	575 (600) 500 460 (480) 400 (415) 400 (415) 230 (240) 200	1U1-1V1-1W1 1U3-1V3-1W3 1U4-1V4-1W4 1U5-1V5-1W5 1U5-1V5-1W5 1U6-1V6-1W6	1U2-1V2, 1V2-1W2 1U2-1V2, 1V2-1W2 1U2-1V2, 1V2-1W2 1U2-1V2, 1V2-1W2 (= factory setting) 1U2-1V5, 1V2-1W5, 1W2-1U5 1U2-1V6, 1V2-1W6, 1W2-1U6
<p>NSF0_00179a</p> <p>M M L+</p> <p>420 V 420 V 400 V 400 V 380 V 380 V 380 V 380 V</p> <p>4AV51.5</p>		400 ± 20	420 400 380	420 V-420 V-420 V 400 V-400 V-400 V 380 V-380 V-380 V	-- -- --

1) Link Δ is possible, Δ disconnecting links are not included in the scope of supply.

4AV Non-Stabilized Power Supplies


Unfiltered for Supply of General Loads

4AV98 power supplies,
unfiltered, single-phase

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Overview

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

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



4AV98

Design

The 4AV98 power supplies comply with safety class I. The safety 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 used are

- Finger-safe according to EN 50274
- Suitable for conductor cross-sections according to DIN VDE 0100 Part 430 and EN 60204-1 (VDE 0113 Part 1)

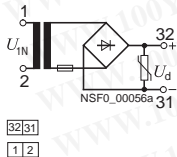
Protective devices

For reliable protection against short-circuits, overload and touch, the cables between the output terminals of the power supply and the load must have a negligible line impedance. For more details see DIN VDE 0100 (Erection of low-voltage systems) Part 410, Part 520 (particularly section 525) and Part 600.

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

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

Schematics



4AV Non-Stabilized Power Supplies

Unfiltered for Supply of General Loads

4AV96 power supplies,
unfiltered, three-phase

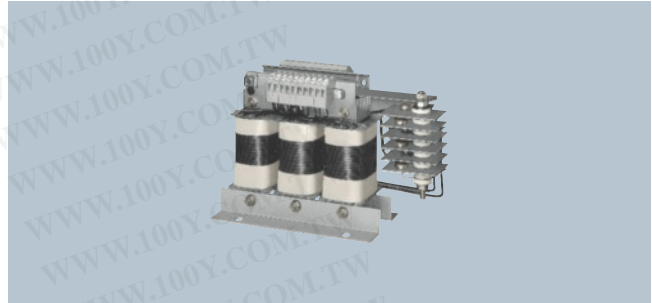
Overview

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

- Rated output voltage U_d 30-27-24 V DC
- Safety transformer according to EN 61558-2-6



- Shield winding between input and output winding
- Varistor suppressor circuit
- Designed and approved according to VW equipment specification
- Ripple < 5 %



4AV96

Design

The 4AV96 power supplies comply with safety class I. The safety 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 used are

- Finger-safe according to EN 50274
- Suitable for conductor cross-sections according to DIN VDE 0100 Part 430 and EN 60204-1 (VDE 0113 Part 1)

Protective devices

For reliable protection against short-circuits, overload and touch, the cables between the output terminals of the power supply and the load must have a negligible line impedance. For more details see DIN VDE 0100 (Erection of low-voltage systems) Part 410, Part 520 (particularly section 525) and Part 600.

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

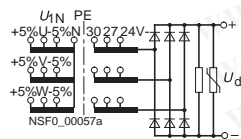
- Shield winding between input and output winding
- Varistor protection circuit
- In accordance with VW equipment specification

Technical specifications

Primary-side short-circuit and overload protection

Rectifier unit	Rated output current I_d	Primary-side short-circuit and overload protection by motor starter protectors	
		Motor starter protector	Set value at 400 V AC
Type	DC A	Type	A
4AV96 04-1CB00-2N	4	3RV10 11-0EA10	0.28
4AV96 04-5CB00-2N	12	3RV10 11-0JA10	0.8
4AV96 04-2CB00-2N	25	3RV10 11-1CA10	1.8

Schematics



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4AV Non-Stabilized Power Supplies

Project planning aids

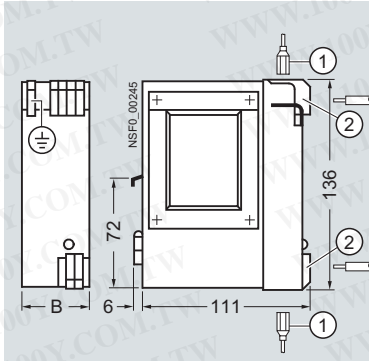
Dimensional drawings

Filtered for supply of electronic controls

4AV2, 4AV4 power supplies, filtered, single-phase

4AV21, 4AV23,

for horizontal mounting position, snap-on mounting onto standard mounting rail TH 35 × 7.5 according to EN 60715

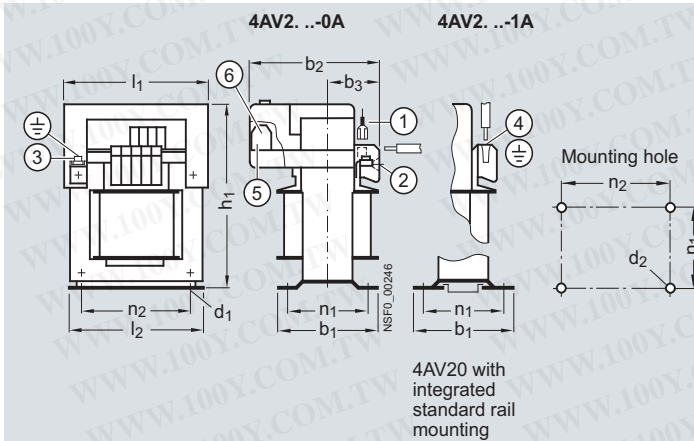


- ① Flat connector DIN 46244-A 6,3-0,8
- ② Screw terminal:
Solid 0.5 mm² ... 6 mm²
Finely stranded 0.5 mm² ... 4 mm²

Type	Rated current	B
	A DC	
4AV21	1	45
4AV23	3,5	72

4AV20, 4AV22, 4AV24, 4AV26

for any mounting position,
horizontal mounting position for standard mounting rail mounting



Input

- ① Flat connector DIN 46244-A 6,3-0,8
- ② Screw terminal:
solid 0.5 mm² ... 6 mm²,
finely stranded 0.5 mm² ... 4 mm²
- ③ Screw terminal:
solid or finely stranded 2.5 mm²
- ④ Cage Clamp terminal (also ground terminal) from the top:
solid or finely stranded 0.08 mm² ... 4 mm²

Output

- ⑤ Screw terminal:
for 4AV20 to 4AV24
solid 0.2 mm² ... 4 mm²,
finely stranded 0.2 mm² ... 2.5 mm²
for 4AV26
solid or finely stranded 0.5 mm² ... 10 mm²
- ⑥ Cage Clamp terminal:
for 4AV20 to 4AV24
solid or finely stranded 0.08 mm² ... 2.5 mm²
for 4AV26
solid or finely stranded 0.2 mm² ... 6 mm²

Type	Rated current	Designation according to DIN 41302	b ₁	b ₂	b ₃	d ₁	d ₂	h ₁	l ₁	n ₁	n ₂
	A DC										
4AV20	2,5	EI 84/42	89	100	51	4,8 x 9	M4	142	84	64	64
4AV22	5	EI 105/60	103	113	60	5,8 x 9	M5	157	105	83	80,5
4AV24	10	EI 120/72	123	128	67	5,8 x 9	M5	170	120	104	90
4AV26	15	EI 150N/58	110,5	140	58	7 x 13	M6	200	150	90	122

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4AV2, 4AV4 power supplies, filtered, single-phase (continued)

4AV41,
for suspension,
horizontal mounting position for standard rail mounting

4AV4. ...-0A **4AV4. ...-1A**

Input

- Flat connector
DIN 46244-A 6,3-0,8
(does not apply to 4AV41 01)
- Screw terminal:
solid 0.5 mm² ... 6 mm²,
finely stranded
0.5 mm² ... 4 mm²
- Screw terminal:
solid or finely stranded
2.5 mm²
- Cage Clamp terminal
(from the top):
solid or finely stranded
0.08 mm² ... 4 mm²

Output

- GMKDS 3 terminal
(Phoenix):
solid 0.2 mm² ... 4 mm²,
flexible 0.2 mm² ... 2.5 mm²,
current carrying capacity 10 A
- Cage Clamp terminal
(from the top):
solid or finely stranded
0.08 mm² ... 2.5 mm²

4AV41 03 and
4AV41 06 with
integrated
standard rail
mounting

Type	Rated current A DC	Designation according to DIN 41302	b ₁	b ₂	b ₃	d ₁	d ₂	h ₁	l ₁	n ₁	n ₂
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	88	50	8	M4	145	84	64	64
4AV41 06	6	EI 96/58	103	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

Standard rail mounting

For 4AV DC power supplies in a special version with a preassembled adapter plate,
for horizontal mounting position

4AV20, 4AV41 03 und 4AV41 06 power supplies are supplied as standard
for both screw mounting and with integrated standard rail mounting, see
Dimensional drawings 4AV2 and 4AV41.
If using standard rail mounting, the mounting position is horizontal.

Type	x ₁ max.	x ₂ max.	x ₃	Standard mount. rail mm
4AV22	b ₁ /2 +3	b ₁ /2 +8	15	35 x 15
4AV24	b ₁ /2 +3	b ₁ /2 +3	15	35 x 15
4AV41 01	b ₁ /2 +4	b ₁ /2 +16	9	35 x 7,5
4AV41 10	b ₁ /2 +3	b ₁ /2 +3	15	35 x 15

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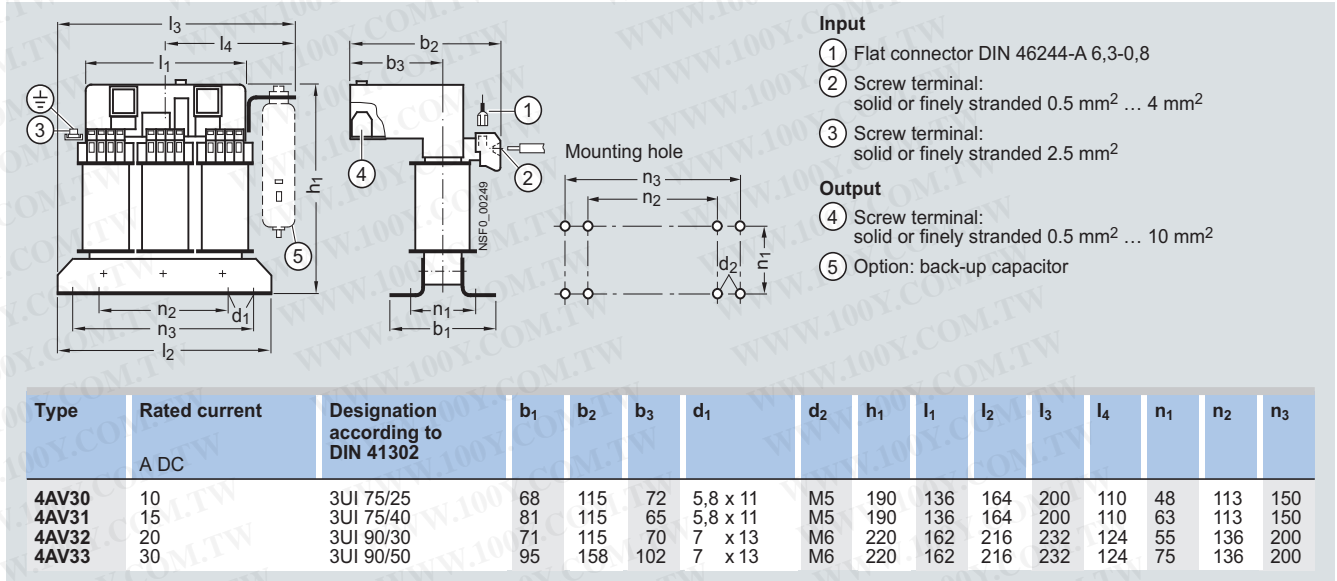
4AV Non-Stabilized Power Supplies

Project planning aids

4AV3, 4AV5 power supplies, filtered, three-phase

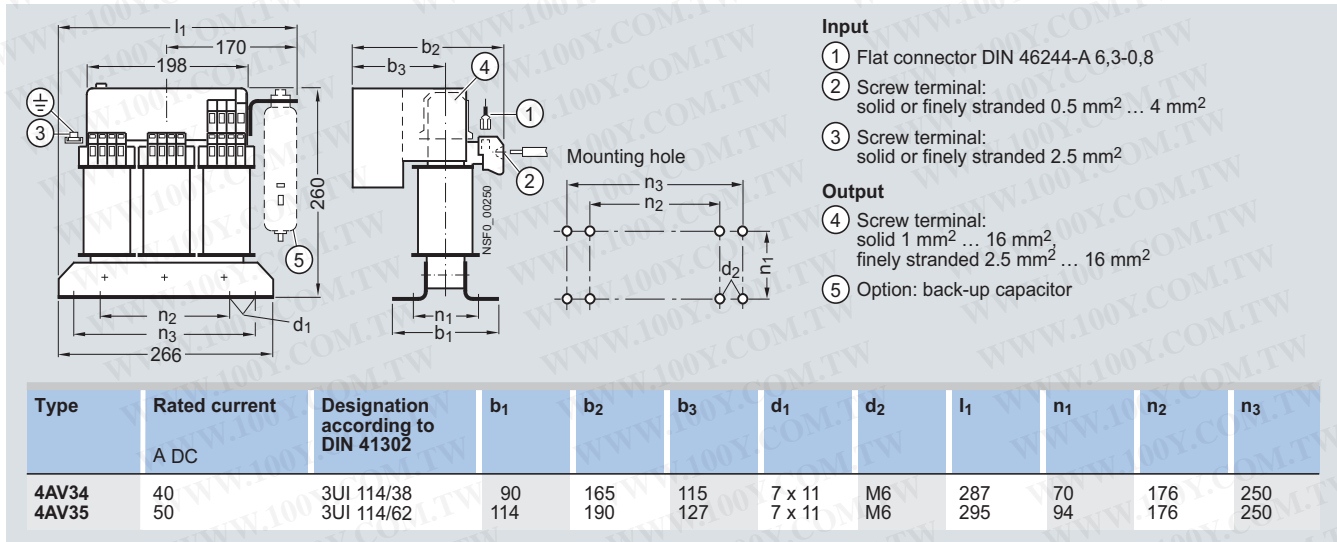
4AV30 to 4AV33, arrangement:

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



4AV34, 4AV35, arrangement:

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

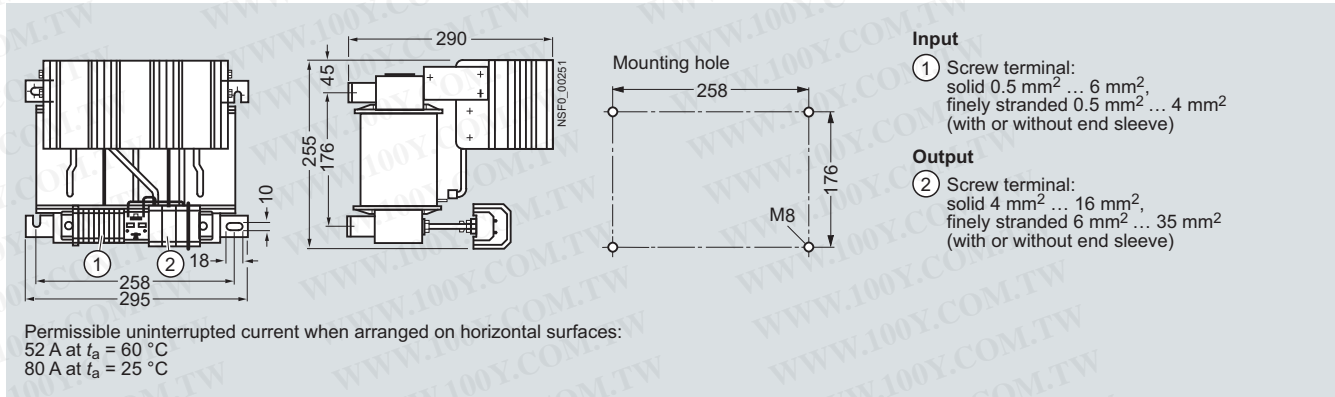


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4AV3, 4AV5 power supplies, filtered, three-phase (continued)

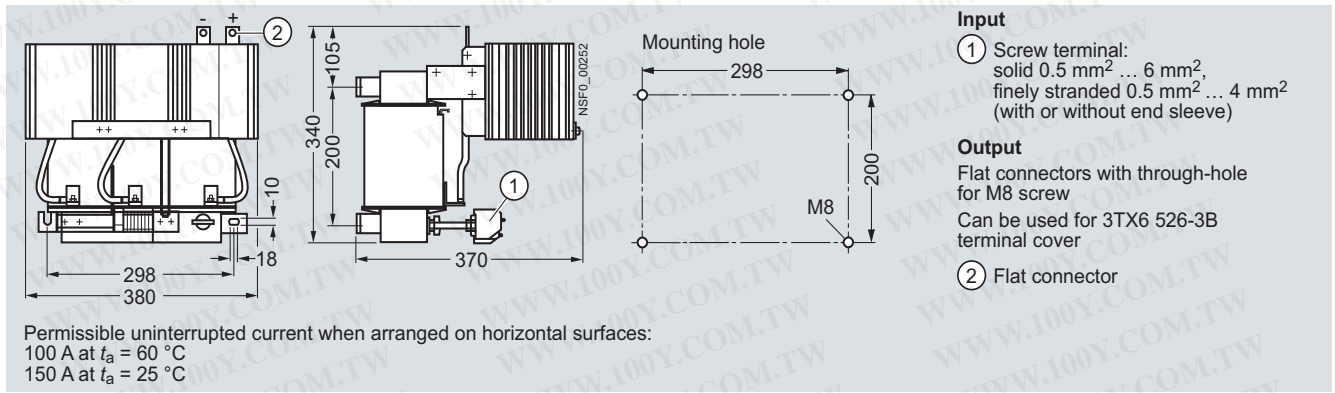
4AV36 (80 A)

for arrangement on vertical surfaces, cooling fins vertical



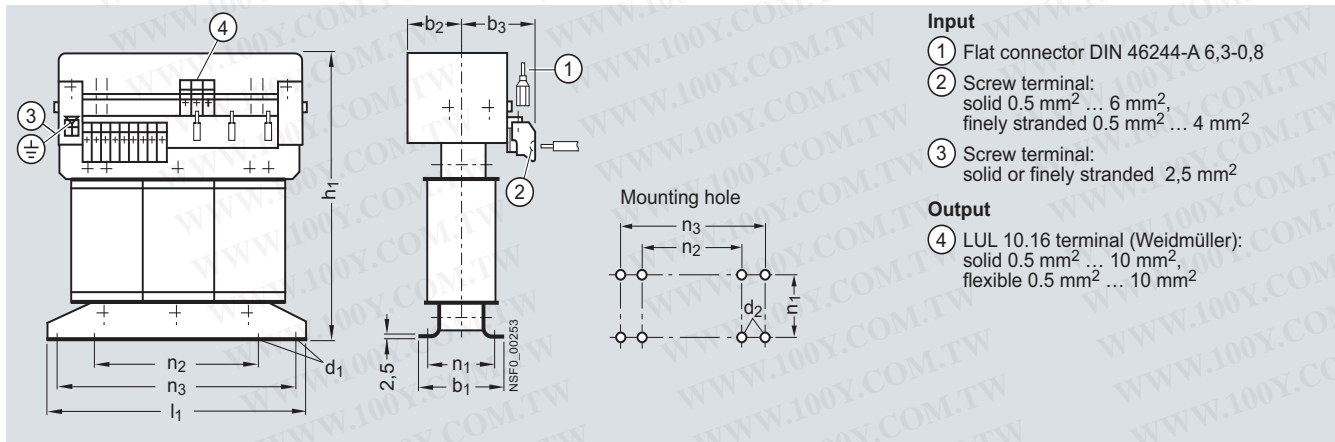
4AV38 (150 A)

for arrangement on vertical surfaces, cooling fins vertical



4AV51

for standing/hanging mounting position



Type	Rated current A DC	Designation according to DIN 41302	b_1	b_2	b_3	d_1	d_2	h_1	l_1	n_1	n_2	n_3
4AV51 25	25	3UI 90/50	96	68	84	11	M6	240	216	76	136	200
4AV51 35	35	3UI 114/38	90	74	78	11	M6	294	266	70	176	250

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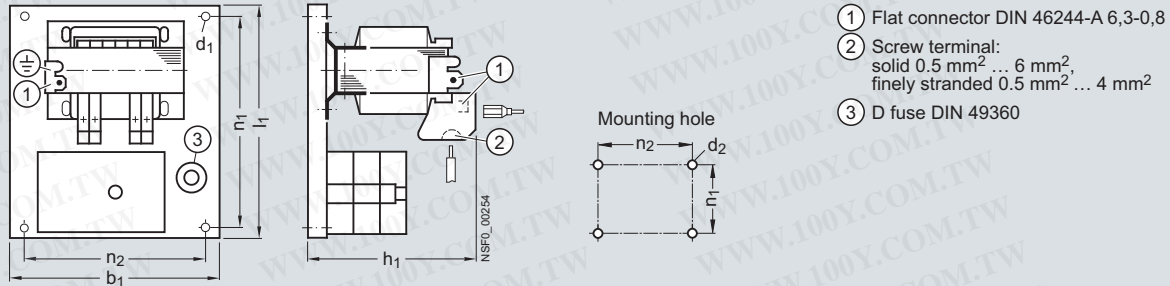
4AV Non-Stabilized Power Supplies

Project planning aids

Unfiltered for supply of general loads

4AV98 power supplies, unfiltered, single-phase

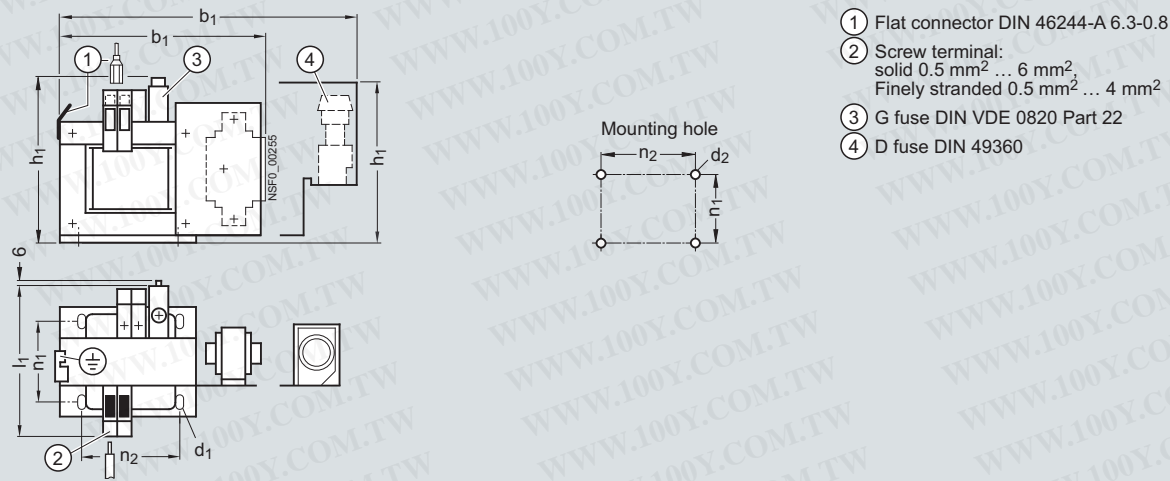
4AV98 00 and 4AV98 02 for any mounting position



- ① Flat connector DIN 46244-A 6,3-0,8
- ② Screw terminal:
solid 0.5 mm² ... 6 mm²
finely stranded 0.5 mm² ... 4 mm²
- ③ D fuse DIN 49360

Type	Rated power W	Designation according to DIN 41302	b ₁	d ₁	d ₂	h ₁	l ₁	n ₁	n ₂	Fuses
4AV98 00-5CB... 4AV98 02-5CB..	500	EI 150N/48	193	6,8	M6	160	228	200	174	③

4AV98 06 and 4AV98 07 for any mounting position



- ① Flat connector DIN 46244-A 6,3-0,8
- ② Screw terminal:
solid 0.5 mm² ... 6 mm²
Finely stranded 0.5 mm² ... 4 mm²
- ③ G fuse DIN VDE 0820 Part 22
- ④ D fuse DIN 49360

Type	Rated power W	Designation according to DIN 41302	b ₁	d ₁	d ₂	h ₁	l ₁	n ₁	n ₂	Fuses
4AV98 06-4CB..	50	EI 78/26	116	4,8 x 9	M4	96	93	48,5	56	③
4AV98 07-0CB..	50	EI 78/26	116	4,8 x 9	M4	96	93	48,5	56	③
4AV98 06-5CB..	80	EI 84/42	122	4,8 x 9	M4	101	102	63,5	64	③
4AV98 07-1CB..	80	EI 84/42	122	4,8 x 9	M4	101	102	63,5	64	③
4AV98 06-6CB..	125	EI 96/44	133	5,8 x 11	M5	113	104	73	84	③
4AV98 07-2CB..	125	EI 96/44	133	5,8 x 11	M5	113	104	73	84	③
4AV98 06-7CB..	200	EI 96/58	138	5,8 x 11	M5	113	118	86,5	84	③
4AV98 07-3CB..	200	EI 96/58	138	5,8 x 11	M5	113	118	86,5	84	③
4AV98 06-8CB..	315	EI 120/52	197	5,8 x 11	M5	134	107	85	90	④
4AV98 07-4CB..	315	EI 120/52	197	5,8 x 11	M5	134	107	85	90	④

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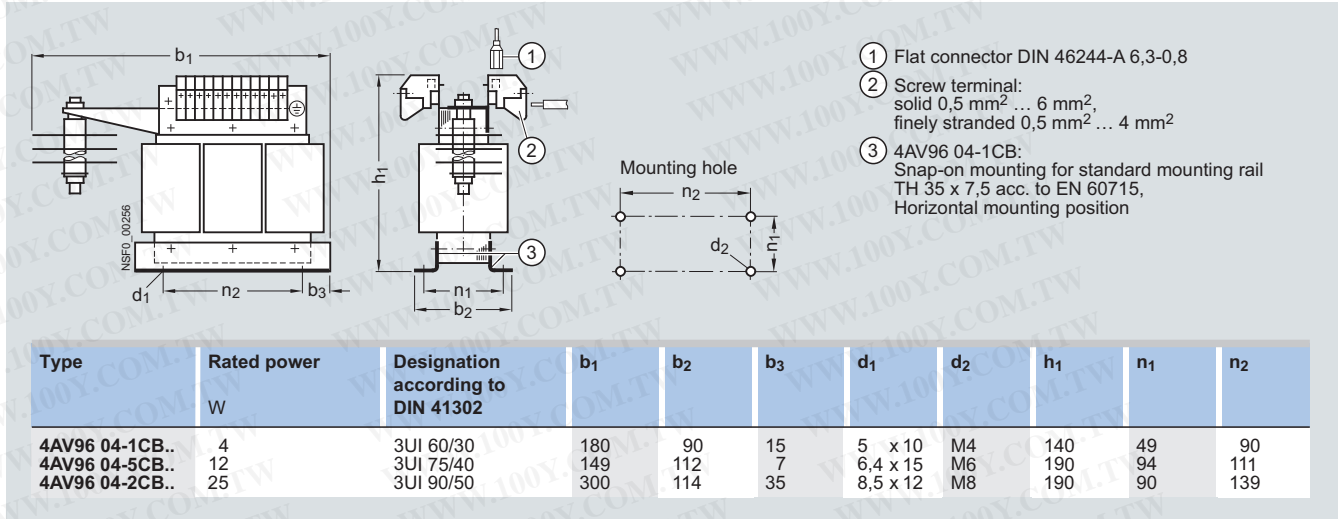
4AV Non-Stabilized Power Supplies

Project planning aids

4AV96 power supplies, unfiltered, three-phase

4AV96 04

for any mounting position,
horizontal mounting position for standard rail mounting
(4AV96 04-1CB power supply)



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