

# SIRIUS Power Supplies

## Program Overview



# SIRIUS

Answers for industry.

**SIEMENS**

# Maximum Quality and Performance –

## DC Power Supplies by Siemens

### Non-stabilized DC power supplies

Thanks to their rugged design, the 4AV devices feature a very high reliability. They are extremely resistant to the influence of external mains interferences and have a dampening effect on EMC. They are also suitable for the supply of capacitive loads as the connection of these consumers causes only minor voltage drops.

#### Filtered power supplies

Power supplies 4AV2, 4AV30 to 4AV35, 4AV36 and 4AV38 with add-on capacitors, 4AV4 and 4AV5 supply a non-stabilized 24 V DC voltage on the basis of single- or three-phase safety transformers with downstream rectifiers and capacitor filtering.

The devices 4AV2, 4AV30 to 4AV35, 4AV4 and 4AV5 are employed for:

- Supply of control circuits
- Power supply of electronic controls

They comply with the requirements in accordance with EN 61131-2 "Programmable logic controllers – equipment requirements and tests" and are, amongst others, suitable for SIMATIC.

The data listed in the selection tables are based on fixed service conditions, under which the devices can be loaded with the rated power or rated current:

- Pn due to continuous operation
- Frequency 50 Hz to 60 Hz AC
- Installation altitude up to 1000 m above sea level
- Degree of protection IP00
- Ambient temperature  $t_a$

The devices are designed for installation in encapsulated controls and electronic cabinets. They are climate-proof for installation in rooms with outdoor climates in accordance with DIN 50010.

#### Limit values:

Ambient temperature with the rated power or current for types:

- 4AV2 and 4AV3: up to +60 °C
- 4AV4 and 4AV5: up to +40 °C
- Minimum value for all types: –25 °C

#### Relative humidity:

- At +40 °C occasionally up to 100 %
- Annual average up to 80 %
- Occasional condensation possible

#### Further versions:

#### Unfiltered power supplies

The single-phase devices 4AV98 are particularly suited for the power supply of resistive and inductive consumers whose operating voltage does not entail any special ripple requirements. The three-phase devices 4AV96 are designed and approved in accordance with the VW equipment specifications.

The power supplies 4AV96 and 4AV98 consist of safety transformers in accordance with EN 61558-2-6 with downstream rectifiers in bridge circuit without capacitor filtering.

The devices are climate-proof for installation in rooms with outdoor climate in accordance with DIN 50010.

#### Limit values:

Ambient temperature

- With rated power or rated current: +50 °C
- Minimum value: –25 °C

#### Relative humidity:

- At +40 °C occasionally up to 100 %
- Annual average up to 80 %
- Occasional condensation possible



## Other products

### Customized transformers and transformers for special applications:

- Toroidal-core transformers
- Equipment transformers
- Medium-frequency transformers
- Transformers for converters / power converter operation
- Special transformers for rail vehicles
- Special transformers for ships and portainers  
Option: vibration-proof, low-noise version (only available in enclosure)
- Special transformers in acc. with DIN EN 60601-1 (VDE 0750) for medical engineering
- High-reactance transformers
- Toroidal-core and pillar-type variable-ratio transformers 4CH, 4CP, 4CI and 4CQ (see interactive catalog CA01 and A&D Mall)
- Transformers for noise-sensitive environments

### AC voltage regulators:

- Magnetic voltage regulators, single-phase
- Transformer-type voltage regulators, single- and three-phase

### DC power supplies:

- Rectifier units, non-stabilized, unfiltered
- Rectifier units with 24 V DC for the power supply of electronic controls, filtered
- Stabilized DC power supplies
- Multi-output power supply

### Reactors:

- For variable-speed drives
  - Mains reactors
  - Commutating reactors
  - Smoothing reactors
  - Output filter reactors
- Air-core and iron-core reactors

### Filters:

- For variable-speed drives
  - Radio interference suppression filters
  - dv/dt filters
  - Sine-wave filters

For detailed ordering information, please refer to the catalogs LV1, section 10 and 11, LV60, LV65 or the interactive catalog and the Mall.

[www.siemens.com/lowvoltage/mall](http://www.siemens.com/lowvoltage/mall)

# Non-Stabilized Power Supplies 4AV

Filtered for the Supply of Electronic Controls



Power supplies 4AV2 and 4AV4 supply non-stabilized 24 V DC on the basis of single-phase safety transformers with downstream rectifiers and capacitor filtering.

Rated output voltage  $U_{2N}$  24 V DC in accordance with EN 61131-2<sup>3)</sup> and SIMATIC with input voltage +6 % to -10 % and load 0 % to 100 %. Safety transformer in accordance with EN 61558-2-6, degree of protection IP00.

4AV21, 4AV23, 4AV41:   
 4AV20, 4AV22, 4AV24, 4AV26:

EMC in accordance with: EN 62041

4AV2 is suitable for the connection to public supply networks (residential applications) and industrial networks (industrial applications). 4AV4 is suitable for the connection to industrial networks (industrial applications).

4AV2:  $t_a = \max. 60\text{ °C/B}$ , 4AV41:  $t_a = 40\text{ °C/B}$    
 4AV2: , at 60 °C   
 4AV41:

4AV20, 4AV22, 4AV26 and 4AV4: Version with spring-loaded terminals listed in the LV1 catalog.

**4AV2, 4AV4: single-phase; ripple < 5 %**

PRI		230 (240) V <sup>1)</sup> 115 (120) V	400 (415) V	400 (415) V 230 (240) V with tapping $\pm 15$ V	400 (415) V 230 (240) V 115 (120) V			
SEC		24 V DC	24 V DC	24 V DC	24 V DC			
Rated output current $I_a$		Basic type    Order number supplement						
60 °C/B EN 61558 A DC 	40 °C/H EN 61558 A DC		With integrated DIN rail connection	With integrated DIN rail connection	Screw mounting <sup>2)</sup>	DIN rail connection	Screw mounting <sup>2)</sup>	DIN rail connection
1	1.2	4AV2102-	2EB00 - 0A	-	-	-	-	-
2.5	3	4AV2000-	-	-	2EB00 - 0A	2EB00 - 0A	-	-
3.5	4.2	4AV2302-	2EB00 - 0A	-	-	-	-	-
5	6	4AV2200-	-	-	2EB00 - 0A	2EB00 - 0B	-	-
10	12	4AV2400-	-	-	2EB00 - 0A	2EB00 - 0B	-	-
15	18	4AV2600-	-	-	2EB00 - 0A	-	-	-
1	1.2	4AV2106-	-	2EB00 - 0A	-	-	-	-
2.5	3	4AV2001-	-	-	-	-	2EB00 - 0A	2EB00 - 0A
3.5	4.2	4AV2306-	-	2EB00 - 0A	-	-	-	-
5	6	4AV2201-	-	-	-	-	2EB00 - 0A	2EB00 - 0B
10	12	4AV2401-	-	-	-	-	2EB00 - 0A	2EB00 - 0B
15	18	4AV2601-	-	-	-	-	2EB00 - 0A	-
-	1.5	4AV4101-	-	-	2EB00 - 0A	2EB00 - 0B	-	-
-	3	4AV4103-	-	-	2EB00 - 0A	2EB00 - 0A	-	-
-	6	4AV4106-	-	-	2EB00 - 0A	2EB00 - 0A	-	-
-	10	4AV4110-	-	-	2EB00 - 0A	2EB00 - 0B	-	-

1) When operated with the mains voltages stated in brackets, the upper limit for 24 V DC in accordance with EN 61131-2 with a mains voltage of +6 % is met with a basic load of 10 %. With no-load operation, 30.6 V can be reached.   
 2) Types 4AV20, 4AV41 03 and 4AV41 06 are equipped with integrated DIN rail connection as a standard.   
 3) EN 61131-2: Equipment requirements of a power supply and interface for programmable logic controllers. For limit values for 24 V DC, refer to technical information LV1 T "Technical Data".



4AV30 up to 4AV33



4AV51

Power supplies 4AV3 and 4AV5 supply non-stabilized 24 V DC on the basis of three-phase safety transformers with downstream rectifiers and capacitor filtering.

Rated output voltage  $U_{2N}$  24 V DC in accordance with EN 61131-2<sup>4)</sup> and SIMATIC with input voltage +6 % to -10 % and load 0 % to 100 %. Safety transformer in accordance with EN 61558-2-6, degree of protection IP00.

4AV3, 4AV5:

EMC in accordance with: EN 62041

4AV3 is suitable for the connection to public supply networks (residential applications) and industrial networks (industrial applications). 4AV5 is suitable for the connection to industrial networks (industrial applications).

4AV3:  $t_a = \max. 60\text{ °C/B}$ , 4AV51:  $t_a = 40\text{ °C/B}$

4AV30: , at 60 °C

4AV36, 4AV38, 4AV51:

**4AV30 to 4AV35 and 4 AV5: three-phase; ripple < 5 %**

PRI		400 (415) V/230 V with tapping $\pm 20\text{ V}/\pm 10\text{ V Y}/\Delta$		500 V/400 V (415) V		PRI		400 (415) V with tapping $\pm 20\text{ V}$		575 (600) V–500 V 460 (480) V–400 (415) V 230 (240) V–200 V			
SEC		24 V DC		24 V DC		SEC		24 V DC		24 V DC			
Rated output current $I_d$		Basic type		Order number supplement				Rated output current $I_d$		Basic type		Order number supplement	
60 °C/B EN 61558 A DC	40 °C/H EN 61558 A DC		Standard version <sup>1)</sup>	Add-on capacitors <sup>2)</sup>	Standard version <sup>1)</sup>	Add-on capacitors <sup>2)</sup>	60 °C/B EN 61558 A DC	40 °C/H EN 61558 A DC		Standard version <sup>1)</sup>	Standard version <sup>1)</sup>	Add-on capacitors <sup>2)</sup>	
10	12	4AV3000-	2EB00 - 0A	2EB00 - 0C			9	11	4AV3002-	-	2EB00 - 0A	2EB00 - 0C	
15	18	4AV3100-	2EB00 - 0A	2EB00 - 0C			13.5	16	4AV3102-	-	2EB00 - 0A	2EB00 - 0C	
20	24	4AV3200-	2EB00 - 0A	2EB00 - 0C			18	21.5	4AV3202-	--	2EB00 - 0A	2EB00 - 0C	
30	36	4AV3300-	2EB00 - 0A	2EB00 - 0C			-	25	4AV5125-	2EB00 - 0A	-	-	
40	48	4AV3400-	2EB00 - 0A	2EB00 - 0C			27	32.5	4AV3302-	-	2EB00 - 0A	2EB00 - 0C	
50	60	4AV3500-	2EB00 - 0A	2EB00 - 0C			-	35	4AV5135-	2EB00 - 0A	-	-	
							36	43	4AV3402-	-	2EB00 - 0A	2EB00 - 0C	
15	18	4AV3101-			2EB00 - 0A	2EB00 - 0C	45	54	4AV3502-	-	2EB00 - 0A	2EB00 - 0C	
30	36	4AV3301-			2EB00 - 0A	2EB00 - 0C							
50	60	4AV3500-			2EB00 - 0A	2EB00 - 0C							

**4AV36 to 4AV38: three-phase; unfiltered; ripple < 5 %; with add-on capacitors: ripple 4 %**

80 <sup>3)</sup>	96	4AV3601-			2EB00 - 0A	2EB00 - 0C						
130 <sup>3)</sup>	180	4AV3801-			2EB00 - 0A	2EB00 - 0C						

1) Ripple < 5 %

2) Additional capacity (aluminum electrolyte) for 4AV30 to 4AV35 of 10000  $\mu\text{F}$ ; for 4AV36 of 2 x 10000  $\mu\text{F}$ ; for 4AV38 of 3 x 10000  $\mu\text{F}$

3) N approval

4) EN 61131-2: Equipment requirements of a power supply and interface for programmable logic controllers. For limit values for 24 V DC, refer to technical information LV1 T "Technical Data".

For the respective ripple and buffer time values, refer to the LV1 catalog.

# Non-Stabilized Power Supplies 4AV98 and 4AV96

## Unfiltered for the Supply of General Loads

4AV98



4AV96



The power supplies 4AV98 consist of single-phase safety transformers in accordance with EN 61558-2-6 with downstream rectifiers in bridge circuit without capacitor filtering.

Safety transformer in accordance with EN 61558-2-6, varistor protective circuit.

Output-side short-circuit and overload protection through installed fuse.

Ripple 48 %  
 $t_a = 50\text{ °C/B}$



### 4AV98: single-phase

PRI		230 V	400 V
SEC		24 V DC	24 V DC
Rated power $P_{2N}$ (W)	Voltage rise with no-load operation $U_A$ (%)	Basic type	Order number supplement
50	24	4AV9806-	4CB00 - 2N
80	18	4AV9806-	5CB00 - 2N
126	14	4AV9806-	6CB00 - 2N
200	11	4AV9806-	7CB00 - 2N
315	10	4AV9806-	8CB00 - 2N
500	9	4AV9800-	5CB00 - 2N
50	24	4AV9807-	0CB00 - 2N
80	18	4AV9807-	1CB00 - 2N
125	14	4AV9807-	2CB00 - 2N
200	11	4AV9807-	3CB00 - 2N
315	10	4AV9807-	4CB00 - 2N
500	9	4AV9802-	5CB00 - 2N

The power supplies 4AV96 consist of three-phase safety transformers in accordance with EN 61558-2-6 with downstream rectifiers in bridge circuit without capacitor filtering.

Safety transformer in accordance with EN 61558-2-6. Shield winding between input and output winding. Varistor protective circuit.

Designed and approved in accordance with the VW equipment specifications.

Ripple < 5%  
 $t_a = 50\text{ °C/B}$



### 4AV96: three-phase

PRI		Primary-side short-circuit and overload protection for the rectifier with circuit breaker	400 V	
SEC		30-27-24 V DC		
Rated output current $I_d$ (A)	Voltage rise with no-load operation $U_A$ (%)	Type	Setting value with 400 V AC (A)	Order number
4	3.5	3RV10 11-0EA10	0.28	4AV9604-1CB00-2N
12	3.3	3RV10 11-0JA10	0.8	4AV9604-5CB00-2N
25	3.1	3RV10 11-0CA10	1.8	4AV9604-2CB00-2N



## Delivery

In the selection tables, the “24-hour service” delivery period is marked by a colored background.

24-hour service with degree of protection IP00, i.e. the devices are available ex stock, are shipped within 24 hours and delivered to the shipping address on the following day.

For products and options without “24-hour service” marking, the delivery period stated upon request is applicable.

## Methodical quality

We offer a certified quality management system in accordance with DIN EN ISO 9001:2000 and a certified environmental management system in accordance with DIN ISO 14001:2004. We are a recognized supplier of leading original equipment manufacturers.

For further information, please refer to the LV1 catalog, section 11, or the interactive catalog and the Mall.

[www.siemens.com/lowvoltage/mall](http://www.siemens.com/lowvoltage/mall)

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