

SITOP power Standard universal line

Summary

Application

The SITOP power universal line of regulated power supplies were developed for applications with high technical requirements.

Apart from industrial applications, the universal line is also suitable for operation on the public low-voltage system, for example in building automation.

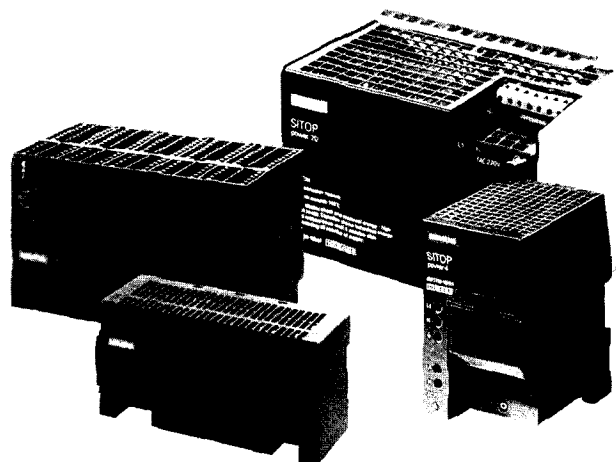


Fig. 4/1 universal line power supplies

Common features

- No-load and continuous short-circuit protection
- SELV output voltage to EN 60950
- Can be connected in parallel to increase power rating
- EU conformity, high interference immunity for industrial applications (EN 50082-2), low spurious emission for public system (EN 50081-1), RI suppression Class B
- Type testing by German Technical Inspectorate (TÜV), CE marking
- UL/cUL (CSA) listed (UL 508)

Features of the uni E24/3.5

- Dimensions and design match the SIMATIC S7-200
- Input voltage single-phase 120/230 V (120 V AC selectable by wire jumper)

Features of the uni EG24/2.5, uni EG24/4, uni EG24/10

- Dimensions and design match the SIMATIC S5-95/100U (uni EG24/2.5, uni EG24/4)
- Dimensions and design match the SIMATIC S7-300 (uni EG24/10)
- Input voltage single-phase, wide range 93 to 264 V AC
- Can also be operated with 110 to 350 V DC
- Green LED to indicate 24 V OK

Features of the uni E24/20

- Dimensions and design as for three-phase SITOP power 20 (e.g. type basic 5D24/20)
- Input voltage 230 V single-phase
- Green LED to indicate 24 V OK
- Red LED to indicate overload and short-circuit
- Output voltage settable over the range 24 to 28.8 V

Design of the uni E24/3.5

The power supplies can be snapped onto a 35 mm DIN rail (DIN EN 50022-35x7.5).

Design of the uni EG24/2.5 and uni EG24/4

The power supplies can be snapped onto a 35 mm DIN rail (DIN EN 50022-35x15), or can be screwed directly onto a level surface.

Design of the uni EG24/10

The power supplies can be snapped onto a 35 mm DIN rail (DIN EN 50022-35x15), and onto an S7 rail by removing the adapter fitted to the unit.

Design of the uni E24/20

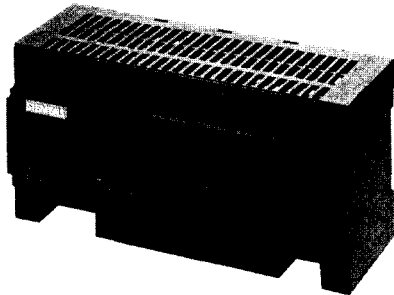
Can be installed on the mounting plate provided. The mounting plate is screwed onto a level surface, and the power supply is simply hooked onto the plate and secured with two screws.

Installation note

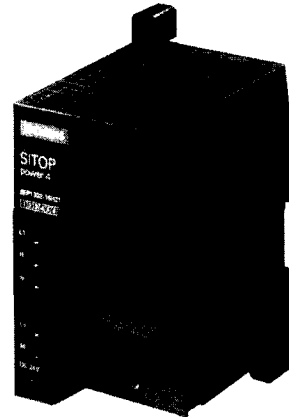
All units of the universal line are intended for building in; they should be installed vertically in such a way that the air can enter from below through the ventilation slots at the bottom of the units and flow out through the ventilation slots at the top of the units (about 10 cm clearance above and below the units).

With a different mounting orientation (at the user's risk) the ambient temperature should not exceed + 45 °C, and the load current approx. 60 % of rated current.

Single-phase power supplies



uni E24/3.5



uni EG24/2.5
EG24/4

Fig. 4/2 universal line power supplies uni E24/3.5, uni EG24/2.5 and uni EG24/4

Technical specifications

	3.5 A	2.5 A	4 A
Type	uni E24/3.5	uni EG24/2.5	uni EG24/4
Input	Single-phase	Single-phase or direct voltage	
Rated voltage $V_{in \text{ rated}}$	120/230 V AC	120/230 V AC (wide range)	
Voltage range	93 to 132/187 to 264 V AC	93 to 264 V AC or 110 to 350 V DC	
Surge strength	VDE 0160 limit curve W2	VDE 0160 limit curve W2	
Buffering of power outages at $I_{out \text{ rated}}$	> 20 ms at $V_{in} = 187 \text{ V}$	> 20 ms at $V_{in} = 120 \text{ V}$, > 80 ms (100 ms typ.) at $V_{in} = 187 \text{ V}$	
Rated line frequency, range	50/60 Hz, 47 to 63 Hz	0/50/60 Hz, 47 to 63 Hz	
Rated current $I_{in \text{ rated}}$ at 120/230 V	1.65/0.95 A	1.3/0.7 A	1.8/1.1 A
Inrush current limiting ($\pm 25 \text{ }^{\circ}\text{C}$)	< 33 A, < 3 ms ($V_{in} = 230 \text{ V}$)	< 33 A, < 3 ms ($V_{in} = 230 \text{ V}$)	
I^2t	< 1.0 A ² s	< 3.5 A ² s	
Integral input fuse	2.5 A slow (not accessible)	3.15 A slow (not accessible)	
Recommended circuit-breaker (IEC 898) in incoming supply	Two-pole CB from 10 A, Characteristic C or from 6 A Characteristic D		
Output	Regulated floating direct voltage		
Rated voltage $V_{out \text{ rated}}$	24 V DC		
Total tolerance	$\pm 5 \%$ ($\pm 2 \%$ typ.)	$\pm 1 \%$ (static line voltage compensation approx. $\pm 0.1 \%$, static load compensation approx. $\pm 0.2 \%$)	
Residual ripple (switching frequency approx. 50 kHz)	< 150 mV _{pp} (30 mV _{pp} typ.)	< 50 mV _{pp} (40 mV _{pp} typ.)	
Spikes (20 MHz bandwidth)	< 240 mV _{pp} (110 mV _{pp} typ.)	< 100 mV _{pp} (40 mV _{pp} typ.)	
Setting range	-	-	
Indicator	-	Green LED for 24 V OK	
Turn-on/off response	No overshoot of V_{out} (soft starting)	No overshoot of V_{out} (soft starting)	
Starting delay/voltage rise	< 1 sec. (80 ms typ.)	< 0.6 sec./20 ms typ.	< 0.6 sec./20 ms typ.
Rated current $I_{out \text{ rated}}$	3.5 A	2.5 A	4 A
Current range up to $-50 \text{ }^{\circ}\text{C}$	0 to 3.5 A	0 to 2.5 A	0 to 4 A
Current range up to $+60 \text{ }^{\circ}\text{C}$	0 to 3.5 A	0 to 2.5 A	0 to 2.5 A
Dyn. V/I for starting into short-cct, approx.		2.8 A constant current	4.4 A constant current
Dyn. V/I for short-cct in operation, approx.		2.8 A constant current	4.4 A constant current
Parallel connection for power increase	Yes, up to 5 units	Yes, up to 10 units	Yes, up to 10 units
Efficiency/power dissipation			
at $V_{out \text{ rated}}$, $I_{out \text{ rated}}$	> 84 % (85 % typ.) / < 16 W	> 85 % / < 11 W	> 85 % / < 17 W

SITOP power Standard

universal line

Single-phase power supplies

Technical specifications (continued)			
	3.5 A	2.5 A	4 A
Type	uni E24/3.5	uni EG24/2.5	uni EG24/4
Regulation			
Dyn. line voltage compensation, typ. ($V_{in \text{ rated}} \pm 15 \%$)	$\pm 0.3 \%$ V_{out}	$\pm 0.3 \%$ V_{out}	
Dyn. load compensation, (V_{out} 50/100/50 %)	$< \pm 10 \%$ V_{out} ($\pm 2.1 \%$ V_{out} typ.)	$\pm 0.5 \%$ V_{out} typ.	
Correction time (50 to 100% load step)	< 5 ms	< 2 ms (1 ms typ.)	
Correction time (100 to 50 % load step)	< 5 ms	< 2 ms (1 ms typ.)	
Protection and monitoring			
Short-circuit protection	Constant current characteristic up to 14 V typ., electronic shutdown below this value, auto-restart	Constant current characteristic up to 0 V	Constant current characteristic up to 0 V
Continuous short-cct current, RMS value	< 4 A	< 3 A	< 5 A
Current limiting, typ.	3.8 A	2.8 A	4.4 A
Overload/short-circuit indicator	-	-	-
Safety			
Isolation, primary/secondary	Yes, SELV output voltage V_{out} to EN 60950		
Protection class (IEC 536, VDE 0106 Part 1)	Class 1		
Discharge current	< 3.5 mA		
TÜV type testing/CE marking	Yes/yes		
UL/cUL (CSA) recognized	Yes, UL 508, File E 143 289; UL listed since Sept. 96 (USL, CNL)		
Degree of protection (EN 60 529, VDE 0470 Part 1)	IP 20		
EMC			
Spurious emission	EN 50081-1, EN 55022 Class B		
Interference immunity	EN 50082-2, IEC 801-2, -3, -4, -5		
Operating specifications			
Ambient temperature range	0 to + 60 °C with natural convection		0 to + 50 °C with natural convection
Transportation and storage temp. range	- 25 to + 85 °C		
Humidity class	F to DIN 40040: relative humidity to 75 % mean value, 95 % on 30 days/year, no condensation		
Mechanical specifications			
Terminals, AC input L, N, PE	1 screw terminal each for 0.5 to 1.0 mm ² flexible, 0.5 to 1.5 mm ² solid	1 screw terminal each for 2 x 0.5 to 1.5 mm ² flexible, 2 x 0.5 to 2.5 mm ² solid	
Terminals, output L+	1 terminal for 0.5 to 1.0 mm ²	1 terminal for 2 x 0.5 to 1.5 mm ² flexible, 2 x 0.5 to 2.5 mm ² solid	
Terminals, output M (chassis GND)	2 terminals for 0.5 to 1.0 mm ²	1 terminal for 2 x 0.5 to 1.5 mm ² flexible, 2 x 0.5 to 2.5 mm ² solid	
Dimensions (W x H x D) in mm	160 x 80 x 62	80 x 135 x 120	
Weight, approx.	0.5 kg	0.5 kg	
Installation	Snap-mounting on DIN rail (DIN EN 50022-35x7.5)	Snap-mounting on DIN rail (DIN EN 50022-35x15) or can be screwed onto a level surface	

Ordering data	Order No.	Order No.	Order No.
	3.5 A	2.5 A	4 A
Power supply			
Input voltage 120/230 V AC			
Output voltage 24 V DC			
Single-phase universal line			
• Type uni E24/3.5	6EP1 332-1SH31	6EP1 332-1SH12	6EP1 332-1SH22
• Type uni EG24/2.5			
• Type uni EG24/4			

Single-phase power supplies

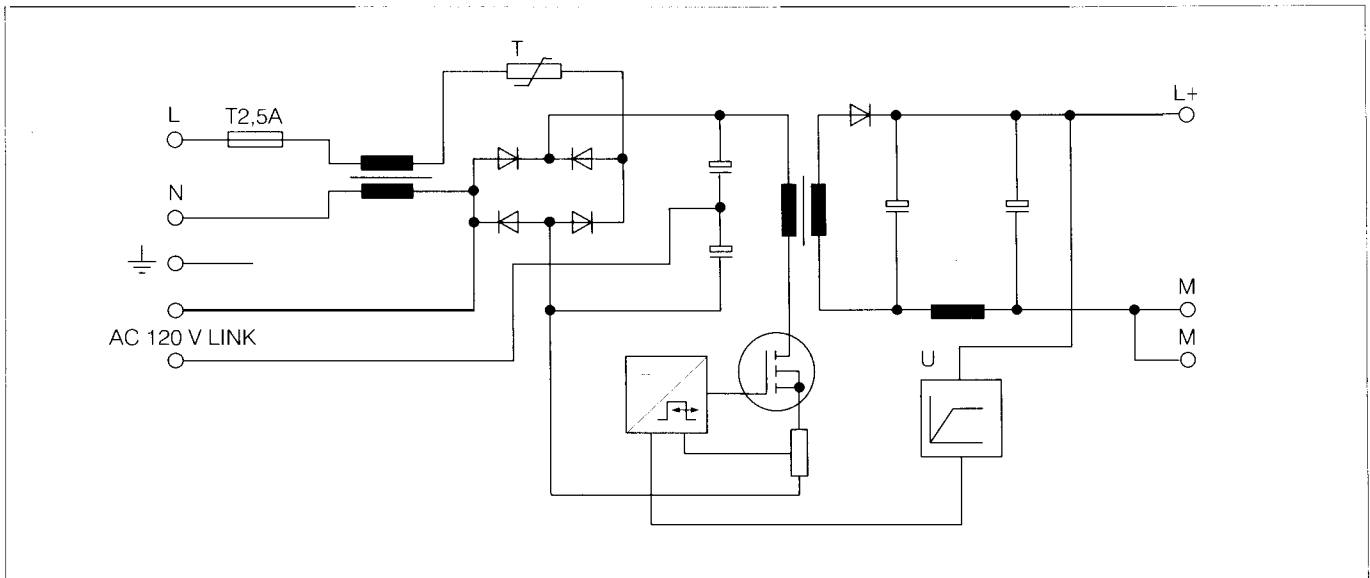


Fig. 4/3 Block diagram of the uni E24/3.5

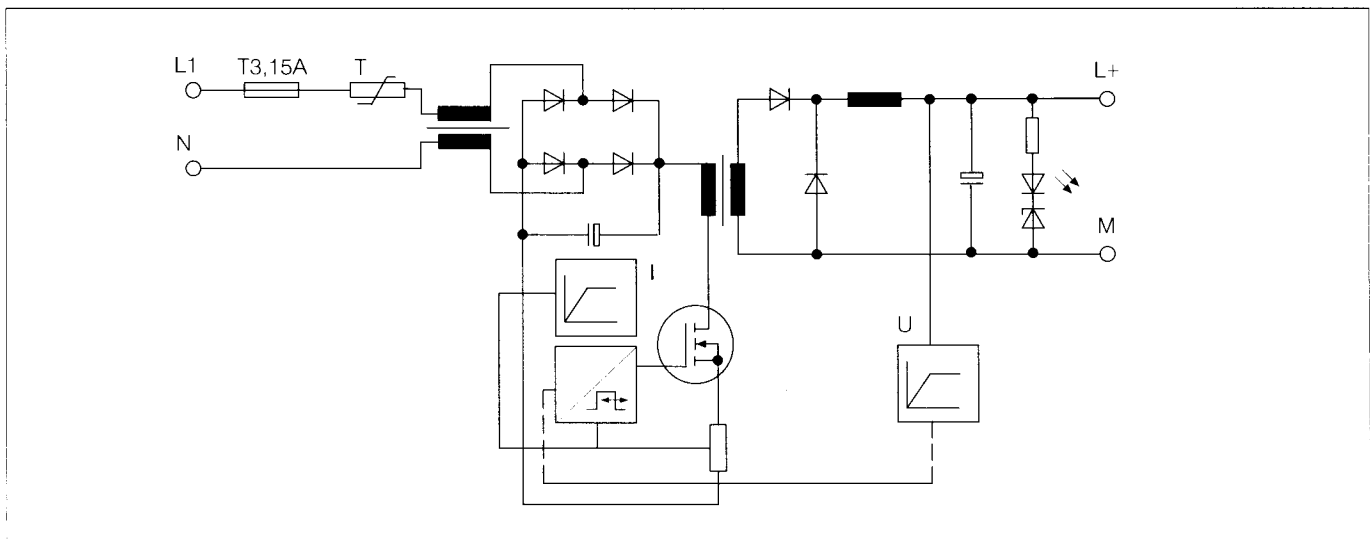
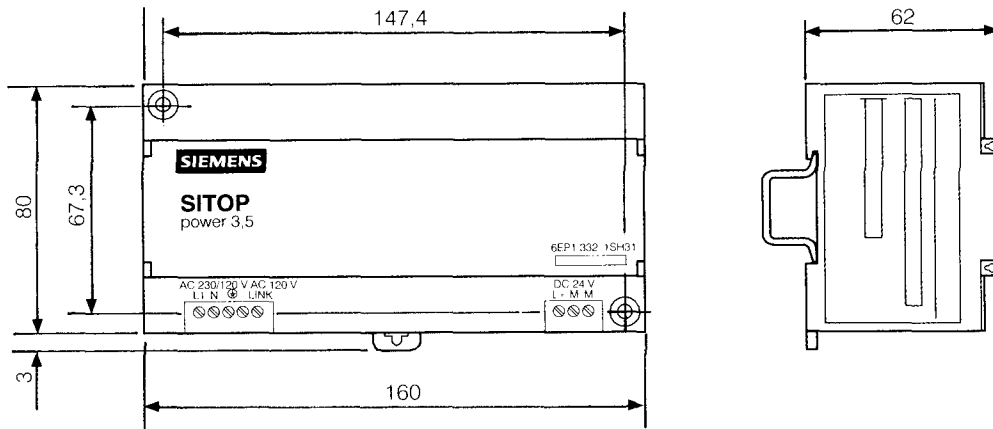


Fig. 4/4 Block diagram of the uni EG24/2.5 and uni EG24/4

SITOP power Standard universal line

Single-phase power supplies

Dimension drawing of the uni E24/3.5



Dimension drawing of the uni EG24/2.5 and uni EG24/4

