

# LOGO!Power

## 1-phase, 12 V DC

### Overview



Thanks to its stepped profile design, the LOGO!Power product family is ideally suited for low installation depths, such as in miniature distribution boards. The stabilized power supplies with a wide range input of 100 ... 240 V AC (85 ... 264 V) and 110 ... 300 V DC are available with an output voltage of 12 V in three performance classes. The 12 V versions are ideal for supplying LOGO! controllers with the corresponding voltage input. The high level of efficiency across the entire load range as well as the low no-load losses result in lower overall energy consumption. Greater convenience when commissioning and servicing thanks to integrated current monitor (for devices at least 36 mm wide) The extended temperature range from -25 °C to +70 °C enables a host of additional applications.

#### Main product highlights

- 12 V DC / 0.9 A, 1.9 A and 4.5 A
- Narrow unit with width of 18 mm, 36 mm or 54 mm and overall depth of 53 mm in LOGO! design
- Flexible mounting: Standard rail or wall mounting in a range of installation positions
- Higher energy efficiency: over the entire load range as well as no-load power losses of < 0.3 W
- Integrated current monitor: Actual output current measurement directly at the power supply unit (for devices at least 36 mm wide)
- Global use: Operating temperature range from -25 °C to +70 °C as well as international certifications such as UL, CSA, FM or ATEX

### Technical specifications

Article number	6EP3320-6SB00-0AY0	6EP3321-6SB00-0AY0	6EP3322-6SB00-0AY0
Product	LOGO!Power	LOGO!Power	LOGO!Power
Power supply, type	12 V/0.9 A	12 V/1.9 A	12 V/4.5 A
<b>Input</b>			
Input	1-phase AC or DC	1-phase AC or DC	1-phase AC or DC
Rated voltage value $V_{in \text{ rated}}$	100 ... 240 V	100 ... 240 V	100 ... 240 V
Voltage range AC	85 ... 264 V	85 ... 264 V	85 ... 264 V
Input voltage			
• at DC	110 ... 300 V	110 ... 300 V	110 ... 300 V
Wide-range input	Yes	Yes	Yes
Mains buffering at $I_{out \text{ rated}}$ , min.	40 ms; at $V_{in} = 187 \text{ V}$	40 ms; at $V_{in} = 187 \text{ V}$	40 ms; at $V_{in} = 187 \text{ V}$
Rated line frequency	50 ... 60 Hz	50 ... 60 Hz	50 ... 60 Hz
Rated line range	47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz
Input current			
• at rated input voltage 120 V	0.3 A	0.53 A	1.13 A
• at rated input voltage 230 V	0.2 A	0.3 A	0.61 A
Switch-on current limiting (+25 °C), max.	20 A	25 A	50 A
$I^2t$ , max.	0.8 A <sup>2</sup> ·s	0.8 A <sup>2</sup> ·s	3 A <sup>2</sup> ·s
Built-in incoming fuse	internal	internal	internal
Protection in the mains power input (IEC 898)	Recommended miniature circuit breaker: from 6 A characteristic B or from 2 A characteristic C	Recommended miniature circuit breaker: from 6 A characteristic B or from 2 A characteristic C	Recommended miniature circuit breaker: from 10 A characteristic B or from 6 A characteristic C
<b>Output</b>			
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage $V_{out \text{ DC}}$	12 V	12 V	12 V
Total tolerance, static $\pm$	3 %	3 %	3 %
Static mains compensation, approx.	0.1 %	0.1 %	0.1 %
Static load balancing, approx.	0.1 %	0.1 %	0.1 %
Residual ripple peak-peak, max.	200 mV	200 mV	200 mV
Residual ripple peak-peak, typ.	30 mV	30 mV	30 mV

## Technical specifications (continued)

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Product	LOGO!Power	LOGO!Power	LOGO!Power
Power supply, type	12 V/0.9 A	12 V/1.9 A	12 V/4.5 A
<b>Output (continued)</b>			
Spikes peak-peak, max. (bandwidth: 20 MHz)	300 mV	300 mV	300 mV
Spikes peak-peak, typ. (bandwidth: 20 MHz)	50 mV	50 mV	50 mV
Adjustment range		10.5 ... 16.1 V	10.5 ... 16.1 V
Product function Output voltage adjustable	No	Yes	Yes
Output voltage setting	-	via potentiometer	via potentiometer
Status display	Green LED for output voltage OK	Green LED for output voltage OK	Green LED for output voltage OK
On/off behavior	No overshoot of $V_{out}$ (soft start)	No overshoot of $V_{out}$ (soft start)	No overshoot of $V_{out}$ (soft start)
Startup delay, max.	0.5 s	0.5 s	0.5 s
Voltage rise, typ.	100 ms	100 ms	100 ms
Rated current value $I_{out rated}$	0.9 A	1.9 A	4.5 A
Current range	0 ... 0.9 A	0 ... 1.9 A	0 ... 4.5 A
• Note	+55 ... +70 °C: Derating 2%/K	+55 ... +70 °C: Derating 2%/K	+55 ... +70 °C: Derating 2%/K
Supplied active power typical	10.8 W	22.8 W	54 W
Parallel switching for enhanced performance	No	Yes	Yes
Numbers of parallel switchable units for enhanced performance	-	2	2
<b>Efficiency</b>			
Efficiency at $V_{out rated}$ , $I_{out rated}$ , approx.	78 %	81 %	87.1 %
Power loss at $V_{out rated}$ , $I_{out rated}$ , approx.	3 W	5 W	8 W
Power loss [W] during no-load operation maximum	0.3 W	0.3 W	0.3 W
<b>Closed-loop control</b>			
Dynamic mains compensation ( $V_{in rated} \pm 15\%$ ), max.	0.2 %	0.2 %	0.2 %
Dynamic load smoothing ( $I_{out}$ : 10/90/10 %), $U_{out} \pm$ typ.	3 %	2 %	4 %
Load step setting time 10 to 90%, typ.	1 ms	1 ms	1 ms
Load step setting time 90 to 10%, typ.	1 ms	1 ms	1 ms
<b>Protection and monitoring</b>			
Output overvoltage protection	Yes, according to EN 60950-1	Yes, according to EN 60950-1	Yes, according to EN 60950-1
Current limitation, typ.	1.3 A	2.5 A	5 A
Property of the output Short-circuit proof	Yes	Yes	Yes
Short-circuit protection	Constant current characteristic	Constant current characteristic	Constant current characteristic
Enduring short circuit current RMS value			
• maximum	1.3 A	2.5 A	5 A
Overload/short-circuit indicator	-	-	-
Measuring point for output current	-	50 mV = 1.9 A	50 mV = 4.5 A
Overload capability for overcurrent/when switching on	overloadable by 150% $I_o$ rated typ. 200 ms	overloadable by 150% $I_o$ rated typ. 200 ms	overloadable by 150% $I_o$ rated typ. 200 ms
<b>Safety</b>			
Primary/secondary isolation	Yes	Yes	Yes
Galvanic isolation	Safety extra-low output voltage $U_{out}$ acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage $U_{out}$ acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage $U_{out}$ acc. to EN 60950-1 and EN 50178
Protection class	Class II (without protective conductor)	Class II (without protective conductor)	Class II (without protective conductor)
CE mark	Yes	Yes	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cURus-Recognized (UL 60950, CSA C22.2 No. 60950), File E151273, NEC class 2 (acc. to UL 1310)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cURus-Recognized (UL 60950, CSA C22.2 No. 60950), File E151273, NEC class 2 (acc. to UL 1310)	cULus-listed (UL 508, CSA C22.2 No. 107.1), File E197259; cURus-recognized (UL 60950, CSA C22.2 No. 60950), File E151273
Explosion protection	ATEX (EX) II 3G Ex nA IIC T4; cULus Class I Div. 2 (ANSI/ISA-12.12.01, CSA C22.2 No. 213) Group ABCD, T4, File E488866	ATEX (EX) II 3G Ex nA IIC T4; cULus Class I Div. 2 (ANSI/ISA-12.12.01, CSA C22.2 No. 213) Group ABCD, T4, File E488866	ATEX (EX) II 3G Ex nA IIC T3; cULus Class I Div. 2 (ANSI/ISA-12.12.01, CSA C22.2 No. 213) Group ABCD, T4, File E488866

# LOGO!Power

## 1-phase, 12 V DC

### Technical specifications (continued)

Article number	6EP3320-6SB00-0AY0	6EP3321-6SB00-0AY0	6EP3322-6SB00-0AY0
<b>Product</b>	<b>LOGO!Power</b>	<b>LOGO!Power</b>	<b>LOGO!Power</b>
<b>Power supply, type</b>	<b>12 V/0.9 A</b>	<b>12 V/1.9 A</b>	<b>12 V/4.5 A</b>
<b>Safety (continued)</b>			
FM approval	Class I, Div. 2, Group ABCD, T4	Class I, Div. 2, Group ABCD, T4	Class I, Div. 2, Group ABCD, T4
CB approval	Yes	Yes	Yes
Marine approval	DNV GL, ABS	DNV GL, ABS	DNV GL, ABS
Degree of protection (EN 60529)	IP20	IP20	IP20
<b>EMC</b>			
Emitted interference	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B
Supply harmonics limitation	not applicable	not applicable	not applicable
Noise immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
<b>Operating data</b>			
Ambient temperature			
• during operation	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
- Note	with natural convection	with natural convection	with natural convection
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, no condensation	Climate class 3K3, no condensation	Climate class 3K3, no condensation
<b>Mechanics</b>			
Connection technology	screw-type terminals	screw-type terminals	screw-type terminals
Connections			
• Supply input	L, N: 1 screw terminal each for 0.5 ... 2.5 mm <sup>2</sup> single-core/finely stranded	L, N: 1 screw terminal each for 0.5 ... 2.5 mm <sup>2</sup> single-core/finely stranded	L, N: 1 screw terminal each for 0.5 ... 2.5 mm <sup>2</sup> single-core/finely stranded
• Output	+, -: 2 screw terminals each for 0.5 ... 2.5 mm <sup>2</sup>	+, -: 2 screw terminals each for 0.5 ... 2.5 mm <sup>2</sup>	+, -: 2 screw terminals each for 0.5 ... 2.5 mm <sup>2</sup>
• Auxiliary	-	-	-
Width of the enclosure	18 mm	36 mm	54 mm
Height of the enclosure	90 mm	90 mm	90 mm
Depth of the enclosure	53 mm	53 mm	53 mm
Required spacing			
• top	20 mm	20 mm	20 mm
• bottom	20 mm	20 mm	20 mm
• left	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm
Weight, approx.	0.07 kg	0.12 kg	0.2 kg
Product feature of the enclosure housing for side-by-side mounting	Yes	Yes	Yes
Installation	Snaps onto DIN rail EN 60715 35x15, various direct mounting positions	Snaps onto DIN rail EN 60715 35x15, various direct mounting positions	Snaps onto DIN rail EN 60715 35x15, various direct mounting positions
MTBF at 40 °C	3 793 080 h	2 938 542 h	2 566 680 h
Other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)

### Ordering data

	Article No.		Article No.
<b>LOGO!Power 1-phase, 12 V DC/0.9 A</b>	<b>6EP3320-6SB00-0AY0</b>	<b>LOGO!Power 1-phase, 12 V DC/4.5 A</b>	<b>6EP3322-6SB00-0AY0</b>
Stabilized power supply Input: 100 ... 240 V AC (110 ... 300 V AC) Output: 12 V DC/0.9 A		Stabilized power supply Input: 100 ... 240 V AC (110 ... 300 V AC) Output: 12 V DC/4.5 A	
<b>LOGO!Power 1-phase, 12 V DC/1.9 A</b>	<b>6EP3321-6SB00-0AY0</b>		
Stabilized power supply Input: 100 ... 240 V AC (110 ... 300 V AC) Output: 12 V DC/1.9 A			