

Single-phase, primary switched mode power supply

PM 1AC



General Data

Input voltage range 85 - 264 Vac
Nominal output voltage: DC 12 - 48 V
Nominal output current: 1 - 20 A
Ambient temperature -25 °C to +70 °C
Conform to domestic appliances EN 60335-1
Protection index IP 20
Plastic housing

Advantages

Stabilised and adjustable output voltage
Low stand-by consumption <1 W
Constant current limiting without overload shutdown
DC OK signalling
Parallel operation option
Push-in terminals
Panel installation on mounting rails
In compliance with EN 60335-1

Applications

Efficient, primary switched mode power supply in slim plastic housing. A powerful and flexible option that's still light and compact. Our real all-rounders, these power supply units are suitable for a highly diverse range of applications in solar, measurement and control technology as well as industrial and building automation. The devices cover the lower and average power requirements from 25 W to 100 W. Versions with 12 V, 24 V, and 48 V are available, enabling a whole range of applications. A version with 3.8 A rated current is available for establishing NEC Class 2 circuits. All power supplies also comply with the EN 60335-1 standard for domestic appliances. The output voltage can be easily set using the rotary potentiometer on the front of the housing. The DIN rail fastening method and push-in connection terminals enable fast and secure mounting.

For applications in the medical field, power supplies are available with approval according to UL 60601-1.

Standards

Primary switched mode power supply
to UL 60950, UL 508

Safety:
EN 61558-2-16, EN 60950-1, EN 60335-1

EMC:
EN 61204-3

Approvals



UL/CSA 60950 recognised, UL508 listed, Germanischer Lloyd; Medical
Netzteil: UL 60601-1 (3rd ed. 2MOPP)



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Electrical data	Typ	PM-0112-020-0	PM-0112-040-0	PM-0112-070-0	PM-0124-010-0
	Special features				
	Characteristics	-	-	-	-
	Input				
	Input rated voltage	100 - 240 Vac	100 - 240 Vac	100 - 240 Vac	100 - 240 Vac
	Input voltage range	85 - 264 Vac (120 - 373 Vdc)	85 - 264 Vac (120 - 373 Vdc)	85 - 264 Vac (120 - 373 Vdc)	85 - 264 Vac (120 - 373 Vdc)
	Input voltage derating	-2.5 %/Vac < 95 Vac	-2.5 %/Vac < 95 Vac	-2.5 %/Vac < 95 Vac	-2.5 %/Vac < 95 Vac
	Rated frequency range	44 Hz - 66 Hz / 0 Hz	44 Hz - 66 Hz / 0 Hz	44 Hz - 66 Hz / 0 Hz	44 Hz - 66 Hz / 0 Hz
	Input rated current (rated load)	0.44 A (100 Vac) / 0.22 A (240 Vac)	0.83 A (100 Vac) / 0.41 A (240 Vac)	1.87 A (100 Vac) / 0.94 A (240 Vac)	0.43 A (100 Vac) / 0.2 A (240 Vac)
	Starting current limiter	< 30 A, NTC	< 30 A, NTC	< 30 A, NTC	< 30 A, NTC
	Switch-on time	1.5 s (100 Vac) / 0.4 s (230 Vac)	1.5 s (100 Vac) / 0.7 s (230 Vac)	0.5 s (100 Vac) / 0.3 s (230 Vac)	2.3 s (100 Vac) / 0.74 s (230 Vac)
	Power factor	0.48	0.48	0.55	0.48
	Input fuse internal	2 A	4 A	4 A	2 A
	Recommended back-up fuse (circuit breaker)	6 A, 10 A, 16 A, characteristic B, C	6 A, 10 A, 16 A, characteristic B, C	6 A, 10 A, 16 A, characteristic B, C	6 A, 10 A, 16 A, characteristic B, C
	Mains buffering (rated load)	15 ms (100 Vac) / 120 ms (230 Vac)	15 ms (100 Vac) / 120 ms (230 Vac)	15 ms (100 Vac) / 80 ms (230 Vac)	20 ms (100 Vac) / 120 ms (230 Vac)
	Transient surge voltage protection	Varistor	Varistor	Varistor	Varistor
	Output				
	Output rated voltage	12 Vdc	12 Vdc	12 Vdc	24 Vdc
	Output voltage range	11.5 - 14.5 Vdc	11.5 - 14.5 Vdc	11.5 - 14.5 Vdc	23 - 28.5 Vdc
	Output rated current	2 A	4 A	7 A	1 A
	Output limited current	2.2 ... 2.4 A (constant current)	4.4 ... 4.8 A (constant current)	7.7 ... 8 A (constant current)	1.25 ... 1.4 A (constant current)
	Class 2 output (UL Limited Power Source, LPS)	✓	✓	-	✓
	Parallel connection	Yes	Yes	Yes	Yes
	Serial operation	Yes	Yes	Yes	Yes
	Power dissipation, no load/rated load	0.7 W / 5.3 W (230 Vac)	<1 W / 8 W (230 Vac)	<1 W / 16.2 W (230 Vac)	< 1 W / 4 W (230 Vac)
	Max. power losses	5.7 W (100 Vac / 12 V / 2 A)	9.1 W (100 Vac / 12 V / 4 A)	19.8 W (100 Vac / 12 V / 7 A)	5 W (100 Vac / 24 V / 1 A)
	Ripple factor	typ. 20 mVss	typ. 20 mVss	typ. 20 mVss	typ. 20 mVss
	Resistance to reverse feed max.	25 Vdc	25 Vdc	25 Vdc	35 Vdc
	Over-voltage-protection	max. 35 Vdc	max. 35 Vdc	max. 32 Vdc	max. 39 Vdc
	Efficiency	82 %	86 %	86 %	86 %
	Signaling				
	Status indicator	LED green Uout > typ. 10 Vdc LED lit permanently	LED green Uout > typ. 10 Vdc LED lit permanently	LED green Uout > typ. 10 Vdc LED lit permanently	LED green Uout > typ. 21.5 Vdc LED lit permanently
	Signal output	Active high signal Uout > typ. 10 Vdc max. 40 mA@12 Vdc short circuit proof	Active high signal Uout > typ. 10 Vdc max. 40 mA@12 Vdc short circuit proof	Active high signal Uout > typ. 10 Vdc max. 40 mA@12 Vdc short circuit proof	Active high signal Uout > typ. 21.5 Vdc max. 20 mA@24 Vdc short circuit proof
	Approvals				
	Approvals	cURus, cULus, GL	cURus, cULus, GL	cURus, cULus, GL	cURus, cULus, GL
	Environment				
	Storage temperature	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C
	Ambient temperature	-25° C to +70° C	-25° C to +70° C	-25° C to +70° C	-25° C to +70° C
	Derating	-3 %/K > +50 °C	-3 %/K > +50 °C	-3 %/K > +50 °C	-3 %/K > +50 °C
	Mounting position	horizontal for standard rail DIN TS35	horizontal for standard rail DIN TS35	horizontal for standard rail DIN TS35	horizontal for standard rail DIN TS35
	Type of cooling	Natural convection	Natural convection	Natural convection	Natural convection
	Required minimum spacing (left/right)	0 mm	0 mm	0 mm	0 mm
	Required minimum spacing (over/under)	50 mm	50 mm	50 mm	50 mm
	Safety and protection				
	Protection index	IP 20	IP 20	IP 20	IP 20
	Safety class	II, without PE connection	II, without PE connection	II, without PE connection	II, without PE connection
	Order numbers				
	Order Number	PM-0112-020-0	PM-0112-040-0	PM-0112-070-0	PM-0124-010-0



Single-phase, primary switched mode power supply

PM 1AC

Electrical data	Typ	PM-0124-020-0	PM-0124-020-4	PM-0124-038-0	PM-0124-040-0
	Special features				
	Characteristics	-	Suitable for the medical field	For establishing NEC Class 2 circuits	-
	Input				
	Input rated voltage	100 - 240 Vac	100 - 240 Vac	100 - 240 Vac	100 - 240 Vac
	Input voltage range	85 - 264 Vac (120 - 373 Vdc)	85 - 264 Vac (120 - 373 Vdc)	85 - 264 Vac (120 - 373 Vdc)	85 - 264 Vac (120 - 373 Vdc)
	Input voltage derating	-2.5 %/Vac < 95 Vac	-2.5 %/Vac < 95 Vac	-2.5 %/Vac < 95 Vac	-2.5 %/Vac < 95 Vac
	Rated frequency range	44 Hz - 66 Hz / 0 Hz	44 Hz - 66 Hz / 0 Hz	44 Hz - 66 Hz / 0 Hz	44 Hz - 66 Hz / 0 Hz
	Input rated current (rated load)	0.73 A (100 Vac) / 0.37 A (240 Vac)	0.82 A (100 Vac) / 0.48 A (230 Vac)	1.5 A (100 Vac, 91 W) / 0.6 A (240 Vac, 91 W)	1.52 A (100 Vac) / 0.66 A (240 Vac)
	Starting current limiter	< 30 A, NTC	< 30 A, NTC	< 30 A, NTC	< 30 A, NTC
	Switch-on time	0.5 s (100 Vac) / 0.27 s (230 Vac)	0.5 s (100 Vac) / 0.27 s (230 Vac)	<0.5 s (100 Vac) / <0.2 s (230 Vac)	0.24 s (100 Vac) / 0.14 s (230 Vac)
	Power factor	0,47	0,47	0.5	0.5
	Input fuse internal	4 A	4 AT	4 A	4 A
	Recommended back-up fuse (circuit breaker)	6 A, 10 A, 16 A, characteristic B, C	6 A, 10 A, 16 A, characteristic B, C	6 A, 10 A, 16 A, characteristic B, C	6 A, 10 A, 16 A, characteristic B, C
	Mains buffering (rated load)	20 ms (100 Vac) / 120 ms (230 Vac)	20 ms (100 Vac) / 120 ms (230 Vac)	>15 ms (100 Vac) / >80 ms (230 Vac)	15 ms (100 Vac) / 80 ms (230 Vac)
	Transient surge voltage protection	Varistor	Varistor	Varistor	Varistor
	Output				
	Output rated voltage	24 Vdc	24 Vdc	24 Vdc	24 Vdc
	Output voltage range	23 - 28.5 Vdc	23 - 28.5 Vdc	23 - 28.5 Vdc (> 24 Vdc constant capacity)	23 - 28.5 Vdc
	Output rated current	2 A	2 A	3.8 A / NEC Class 2	4 A
	Output limited current	2.2 ... 2.4 A (constant current)	2.2 ... 2.4 A (constant current)	3.8 ... 3.2 A (constant current, Class 2)	4.4 ... 4.7 A (constant current)
	Class 2 output (UL Limited Power Source, LPS)	✓	-	✓	-
	Parallel connection	Yes	Yes	Yes	Yes
	Serial operation	Yes	Yes	Yes	Yes
	Power dissipation, no load/rated load	< 1 W / 4 W (230 Vac)	< 1 W / 4 W (230 Vac)	2.8 W / 14 W (230 Vac)	< 1 W / 12 W (230 Vac)
	Max. power losses	7 W (100 Vac / 24 V / 2 A)	7,0 W (100 Vac / 24 V / 2 A)	<20 W (100 Vac / 91 W)	15 W (100 Vac / 24 V / 4 A)
	Ripple factor	typ. 20 mVss	typ. 20mVss	typ. 20 mVss	typ. 20 mVss
	Resistance to reverse feed max.	35 Vdc	35 Vdc	35 Vdc	35 Vdc
	Over-voltage-protection	max. 37 Vdc	max. 37 Vdc	max. 40 Vdc	max. 40 Vdc
	Efficiency	89 %	typ. 89 %	87 %	89 %
	Signaling				
	Status indicator	LED green Uout > typ. 21.5 Vdc LED lit permanently	LED green Uout > typ. 21.5 Vdc LED lit permanently	LED green Uout > typ. 21.5 Vdc LED lit permanently	LED green Uout > typ. 21.5 Vdc LED lit permanently
	Signal output	Active high signal Uout > typ. 21.5 Vdc max. 20 mA@24 Vdc short circuit proof	Active high signal Uout > typ. 21.5 Vdc max. 20 mA@24 Vdc short circuit proof	Active high signal Uout > typ. 21.5 Vdc max. 20 mA@24 Vdc short circuit proof	Active high signal Uout > typ. 21.5 Vdc max. 20 mA@24 Vdc short circuit proof
	Approvals				
	Approvals	cURus, cULus, GL	cURus, cULus (UL 60601), GL	cURus, cULus, GL	cURus, cULus, GL
	Environment				
	Storage temperature	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C
	Ambient temperature	-25° C to +70° C	-25° C to +70° C	-25° C to +70° C	-25° C to +70° C
	Derating	-3 %/K > +50 °C	-3 %/K > +50 °C	-3 %/K > +50 °C	-3 %/K > +50 °C
	Mounting position	horizontal for standard rail DIN TS35	horizontal for standard rail DIN TS35	horizontal for standard rail DIN TS35	horizontal for standard rail DIN TS35
	Type of cooling	Natural convection	Natural convection	Natural convection	Natural convection
	Required minimum spacing (left/right)	0 mm	0 mm	0 mm	0 mm
	Required minimum spacing (over/under)	50 mm	50 mm	50 mm	50 mm
	Safety and protection				
	Protection index	IP 20	IP 20	IP 20	IP 20
	Safety class	II, without PE connection	II, without PE connection	II, without PE connection	II, without PE connection
	Order numbers				
	Order Number	PM-0124-020-0	PM-0124-020-4	PM-0124-038-0	PM-0124-040-0



Single-phase, primary switched mode power supply

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Electrical data	Typ	PM-0148-020-0
	Special features	
Electrical data	Characteristics	-
	Input	
Electrical data	Input rated voltage	100 - 240 Vac
	Input voltage range	85 - 264 Vac (120 - 373 Vdc)
Electrical data	Input voltage derating	-2.5 %/Vac < 95 Vac
	Rated frequency range	44 Hz - 66 Hz / 0 Hz
Electrical data	Input rated current (rated load)	1.79 A (100 Vac) / 0.9 A (240 Vac)
	Starting current limiter	< 30 A, NTC
Electrical data	Switch-on time	0.5 s (100 Vac) / 0.3 s (230 Vac)
	Power factor	0.5
Electrical data	Input fuse internal	4 A
	Recommended back-up fuse (circuit breaker)	6 A, 10 A, 16 A, characteristic B, C
Electrical data	Mains buffering (rated load)	15 ms (100 Vac) / 80 ms (230 Vac)
	Transient surge voltage protection	Varistor
Electrical data	Output	
	Output rated voltage	48 Vdc
Electrical data	Output voltage range	40 - 56 Vdc
	Output rated current	2 A
Electrical data	Output limited current	2.2 ... 2.4 A (constant current)
	Class 2 output (UL Limited Power Source, LPS)	-
Electrical data	Parallel connection	Yes
	Serial operation	Yes
Electrical data	Power dissipation, no load/rated load	< 1 W / 16.2 W (230 Vac)
	Max. power losses	19.8 W (100 Vac / 48 V / 2 A)
Electrical data	Ripple factor	typ. 20 mVss
	Resistance to reverse feed max.	63 Vdc
Electrical data	Over-voltage-protection	max. 60 Vdc
	Efficiency	86 %
Electrical data	Signaling	
	Status indicator	LED green Uout > typ. 39 Vdc LED lit permanently
Electrical data	Signal output	Active high signal Uout > typ. 39 Vdc max. 10 mA@48 Vdc short circuit proof
Electrical data	Approvals	
	Approvals	cURus, cULus, GL
Electrical data	Environment	
	Storage temperature	-25 °C to +85 °C
Electrical data	Ambient temperature	-25° C to +70° C
	Derating	-3 %/K > +50 °C
Electrical data	Mounting position	horizontal for standard rail DIN TS35
	Type of cooling	Natural convection
Electrical data	Required minimum spacing (left/right)	0 mm
	Required minimum spacing (over/under)	50 mm
Electrical data	Safety and protection	
	Protection index	IP 20
Electrical data	Safety class	II, without PE connection
Electrical data	Order numbers	
	Order Number	PM-0148-020-0



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Mechanical data		30		Typ	Terminals input (direct plug-in technology Push-in)	Terminals output (direct plug-in technology Push-in)	Terminals signalling (direct plug-in technology Push-in)	Dimension (W x H x D)	Weight	Dimension picture (in mm)							
										A	B	C	D	E	F	G	
PM-0112-020-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	22.5 x 90 x 90.5 mm	0.13 kg	➊	90	45	3	22.5	3.5	90.5	98				
PM-0112-040-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	45 x 90 x 90.5 mm	0.21 kg	➋	90	45	3	45	3.5	90.5	98				
PM-0112-070-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	52 x 90 x 103.5 mm	0.40 kg	➌	90	45	3	52	3.5	103.5	111				
PM-0124-010-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	22.5 x 90 x 90.5 mm	0.13 kg	➍	90	45	3	22.5	3.5	90.5	98				
PM-0124-020-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	45 x 90 x 90.5 mm	0.21 kg	➎	90	45	3	45	3.5	90.5	98				
PM-0124-020-4	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	45 x 90 x 90.5 mm	0.24 kg	➏	90	45	3	45	3.5	90.5	98				
PM-0124-038-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	52 x 90 x 103.5 mm	0.39 kg	➐	90	45	3	52	3.5	103.5	111				
PM-0124-040-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	52 x 90 x 103.5 mm	0.39 kg	➑	90	45	3	52	3.5	103.5	111				
PM-0148-020-0	max 2,5 mm²	max 2,5 mm²	max 2,5 mm²	52 x 90 x 103.5 mm	0.39 kg	➒	90	45	3	52	3.5	103.5	111				

Dimension pictures

