

# Power supply unit - MINI-PS-100-240AC/24DC/4



2938837

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Please use the following items in new systems: 2904599 or 2909577  
Primary-switched MINI POWER power supply for DIN rail mounting, input: 1-phase, output: 24 V DC/4 A

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## Product Description

MINI POWER power supplies for MCR technology

In measurement and control technology (MCR), modular electronics housing has become the industry standard. MINI POWER is the power supply unit to go with it. The devices are flexible, thanks to special voltages and special versions.

## Your advantages

- Easy-maintenance connection technology thanks to keyed COMBICON connectors
- Remote monitoring of output voltage via switching output

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## Commercial Data

Item number	2938837
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMPM13
Catalog Page	Page 235 (C-4-2017)
GTIN	4017918924058
Weight per Piece (including packing)	495.6 g
Weight per Piece (excluding packing)	400 g
Customs tariff number	85044030
Country of origin	CN

## Technical Data

### Input data

#### AC operation

Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range	85 V AC ... 264 V AC
	90 V DC ... 350 V DC
Input voltage range AC	85 V AC ... 264 V AC
Input voltage range DC	90 V DC ... 350 V DC
Voltage type of supply voltage	AC/DC
Inrush current	< 15 A (typical)
Inrush current integral ( $I^2t$ )	2.1 A <sup>2</sup> s
AC frequency range	45 Hz ... 65 Hz
Mains buffering time	> 20 ms (120 V AC)
	> 100 ms (230 V AC)
Current consumption	1.3 A (120 V AC)
	0.8 A (230 V AC)
	1.3 A (90 V DC)
	0.4 A (350 V DC)
Nominal power consumption	158 VA
Protective circuit	Transient surge protection; Varistor
Typical response time	< 0.4 s
Input fuse	3.15 A (slow-blow, internal)
Recommended breaker for input protection	6 A ... 16 A (Characteristics B, C, D, K)

### Output data

Efficiency	> 88 % (for 230 V AC and nominal values)
Output characteristic	U/I
Nominal output voltage	24 V DC $\pm$ 1 %
Setting range of the output voltage ( $U_{Set}$ )	22.5 V DC ... 28.5 V DC (> 24 V DC, constant capacity restricted)
Nominal output current ( $I_N$ )	4 A (-25 °C ... 60 °C)
POWER BOOST ( $I_{Boost}$ )	5 A (-25 °C ... 40 °C permanent )
Derating	60 °C ... 70 °C (2.5%/K)
Feedback voltage resistance	35 V DC
Protection against overvoltage at the output (OVP)	$\leq$ 35 V DC
Starting delay with capacitive load	unrestricted
Max. capacitive load	unlimited
Active current limitation	approx 9 A (in the event of a short-circuit)
Control deviation	change in load, static 10 % ... 90 %
	< 3 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage $\pm$ 10 %)
Residual ripple	< 20 mV <sub>PP</sub> (20 MHz)
Output power	96 W

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Peak switching voltages nominal load	< 100 mV <sub>PP</sub> (20 MHz)
Maximum no-load power dissipation	2.5 W
Power loss nominal load max.	12 W
Rise time	< 1.2 ms
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Signal: DC OK, status indicator

Output description	U <sub>OUT</sub> > 21.5 V: High signal
Maximum switching voltage	≤ 24 V
Output voltage	+ 24 V (Signal)
Continuous load current	≤ 20 mA

## Connection data

### Input

Connection method	Pluggable screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

### Output

Connection method	Pluggable screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

### Signal

Connection method	Pluggable screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24

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Conductor cross section AWG max.	12
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## LED signaling

Types of signaling	LED
	Active switching output
Operating voltage display	Green LED

Signal output: DC OK, status indicator

Status display	"DC OK" LED green
Note on status display	$U_{OUT} > 21.5 \text{ V}$ : LED lights up

## Electrical properties

Insulation voltage input/output	3 kV (type test)
	3 kV (routine test)

## Product properties

Product type	Power supply
MTBF (IEC 61709, SN 29500)	> 815000 h (40 °C)

Insulation characteristics

Protection class	II (in closed control cabinet)
Overvoltage category	III
Degree of pollution	2

## Dimensions

Width	67.5 mm
Height	99 mm
Depth	107 mm

Installation dimensions

Installation distance right/left	0 mm / 0 mm
Installation distance top/bottom	50 mm / 50 mm

## Mounting

Mounting type	DIN rail mounting
Assembly instructions	alignable: horizontally 0 mm, vertically 50 mm
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	No

## Material specifications

Color	green
Housing material	Plastic
Type of housing	Polyamide PA, color: green

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 60 °C Derating: 2,5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.

## Standards and regulations

Rail applications	EN 50121-4
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard – Limitation of mains harmonic currents	EN 61000-3-2
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
Standard – Safety extra-low voltage	EN 60950-1 (SELV) EN 60204 (PELV)
Standard - Safe isolation	DIN VDE 0100-410

## Approval data

UL approvals	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1
	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

### Conformity/Approvals

SIL in accordance with IEC 61508	0
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## EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
EMC requirements for noise emission	EN 61000-6-3
	EN 61000-6-4
EMC requirements for noise immunity	EN 61000-6-1
	EN 61000-6-2
Noise emission	EN 55011 (EN 55022)
Noise immunity	EN 61000-6-2:2005

### Electrostatic discharge

Standards/regulations	EN 61000-4-2
Housing	Level 3

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## Electrostatic discharge

Contact discharge	8 kV
Discharge in air	8 kV
Comments	Criterion B

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## Electromagnetic HF field

Frequency range	80 MHz ... 1 GHz
Test field strength	10 V/m
Frequency range	1 GHz ... 2 GHz
Test field strength	3 V/m
Frequency range	2 GHz ... 2.7 GHz
Test field strength	1 V/m
Comments	Criterion A

## Fast transients (burst)

Standards/regulations	EN 61000-4-4
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## Fast transients (burst)

Input	4 kV (level 4 - asymmetrical: conductor to ground)
Output	2 kV (level 3 - asymmetrical: conductor to ground)
Signal	1 kV (level 2 - asymmetrical: conductor to ground)
Comments	Criterion B

## Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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## Conducted interference

Standards/regulations	EN 61000-4-6
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## Conducted interference

I/O/S	Level 3 - asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

## Voltage dips

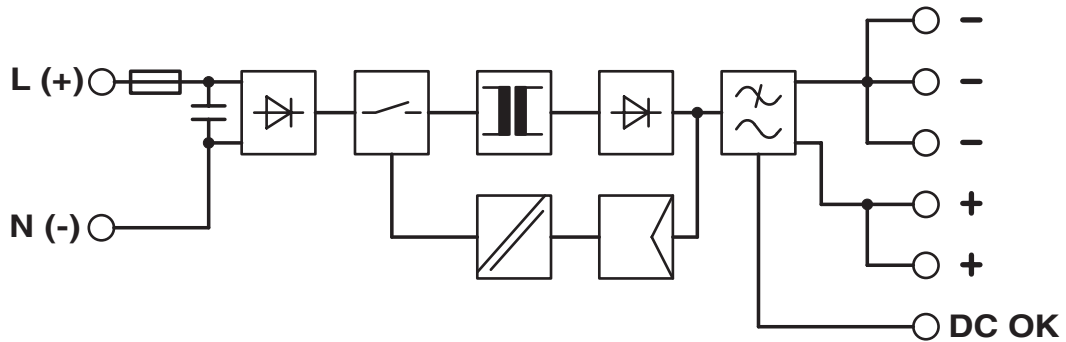
Standards/regulations	EN 61000-4-11
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## Emitted interference

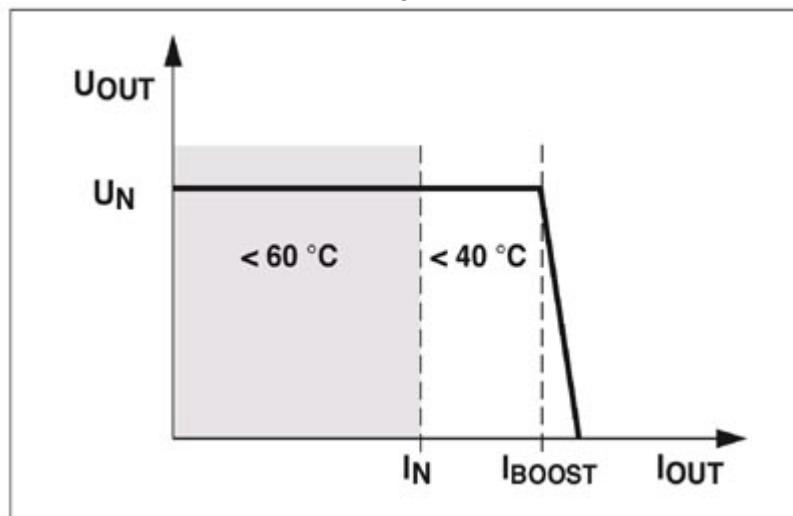
Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

## Drawings

Block diagram



Diagram



POWER BOOST



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## Approvals

 cUL Recognized


 UL Recognized

 EAC

 EAC

 UL Listed

 cUL Listed

 EAC

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## Classifications

### ECLASS

ECLASS-9.0	27040701
ECLASS-10.0.1	27040701
ECLASS-11.0	27040701

### ETIM

ETIM 8.0	EC002540
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 25; For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-230-FM-UT - 2907919

<https://www.phoenixcontact.com/pc/products/2907919>



Type 2/3 surge protection, consisting of protective plug and base element with screw connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage: 230 V AC/DC

### Type 3 surge protection device

Type 3 surge protection device - TTC-6P-T3-24DC-PT-I - 1027586

<https://www.phoenixcontact.com/pc/products/1027586>



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator for 24 V DC power supplies

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