

# UNO2-PS/1AC/24DC/120W - Power supply unit



1110466

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Primary-switched power supply unit, UNO POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 5 A, adjustable from 24 V DC ... 28 V DC

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## Your advantages

- Save space in the control cabinet with an extremely narrow overall width of just 35 mm
- Save energy, thanks to a high degree of efficiency
- Outdoor installation possible, with a wide temperature range of -25°C ... +70°C
- Simple output voltage monitoring, thanks to the floating DC OK relay contact

## Technical data

### Input data

#### AC operation

Supply system configuration	Star network (TN, TT, IT (PE))
Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range	100 V AC ... 240 V AC -15 % ... +10 %
Derating	< 100 V AC (1 %/V)
Typical national grid voltage	120 V AC 230 V AC
Voltage type of supply voltage	AC
Inrush current	typ. 35 A (at 25 °C)
Inrush current integral ( $I^2t$ )	< 0.7 A <sup>2</sup> s
Frequency range ( $f_N$ )	50 Hz ... 60 Hz $\pm$ 10 %
Mains buffering time	typ. 25 ms (120 V AC) typ. 25 ms (230 V AC)
Current consumption	1.34 A (100 V AC) 1.1 A (120 V AC) 0.59 A (230 V AC) 0.57 A (240 V AC)
Protective circuit	Transient surge protection; Varistor
Switch-on time	typ. 1 s
Device mains fuse	3.15 A internal (device protection), slow-blow
Recommended breaker for input protection	6 A ... 16 A (Characteristic B, C, D, K or comparable)
Discharge current to PE	< 0.25 mA

### Output data

Efficiency	typ. 93 % (120 V AC) typ. 94 % (230 V AC)
Nominal output voltage	24 V DC
Setting range of the output voltage ( $U_{Set}$ )	24 V DC ... 28 V DC (> 24 V DC, constant capacity restricted)
Nominal output current ( $I_N$ )	5 A
Short-circuit-proof	yes
No-load proof	yes
Crest factor	typ. 1.93 (120 V AC) typ. 2.05 (230 V AC)
Output power ( $P_N$ )	120 W
Connection in parallel	yes, for increasing power and redundancy with diode
Connection in series	yes, for increased output voltage
Feedback voltage resistance	$\leq$ 35 V DC
Protection against overvoltage at the output (OVP)	$\leq$ 35 V DC
Residual ripple	typ. 70 mV <sub>PP</sub> (with nominal values) < 1 % (change in load, static 10 % ... 90 %)

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Control deviation	< 3 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage $\pm 10$ %)
Rise time	< 1 s ( $U_{Out} = 10$ % ... 90 %)
Minimum no-load power dissipation	< 0.4 W (120 V AC)
Maximum no-load power dissipation	< 0.75 W (230 V AC)
Minimum nominal load power dissipation	< 9 W (120 V AC)
Power loss nominal load max.	< 7.5 W (230 V AC)

## Signal relay 13/14

Connection level	3.x
Connection labeling	3.1 (13), 3.2 (14)
Switch contact (floating)	OptoMOS
Switching voltage	max. 30 V AC/DC
	max. 60 V DC
Current carrying capacity	max. 50 mA
State condition	DC OK ( $U_{Out} > 0,9 \times U_N$ ) (Contact closed)
	$U_{OUT} < 0,9 \times U_N$ (Contact open)

## Connection data

### Input

Position	1.x
Identification	1.1 (L), 1.2 (N)

### Conductor connection

Connection method	Screw connection
rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible with ferrule with plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
rigid (AWG)	24 ... 14 (Cu)
Stripping length	8 mm
Tightening torque	0.5 Nm ... 0.6 Nm
	4 lb <sub>f</sub> -in. ... 5 lb <sub>f</sub> -in.
Drive form screw head	Slotted L

### Output

Position	2.x
Identification	2.1 (+), 2.2 (-)

### Conductor connection

Connection method	Screw connection
rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible with ferrule with plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>

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rigid (AWG)	24 ... 14 (Cu)
Stripping length	8 mm
Tightening torque	0.5 Nm ... 0.6 Nm 4 lb <sub>F</sub> -in. ... 5 lb <sub>F</sub> -in.
Drive form screw head	Slotted L

## Signal

Position	3.x
Identification	3.1 (13), 3.2 (14)

## Conductor connection

Connection method	Screw connection
rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
flexible with ferrule with plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
rigid (AWG)	24 ... 14 (Cu)
Stripping length	8 mm
Tightening torque	0.5 Nm ... 0.6 Nm 4 lb <sub>F</sub> -in. ... 5 lb <sub>F</sub> -in.
Drive form screw head	Slotted L

## Signaling

### LED signaling

Types of signaling	LED DC OK – signal state operation ( $U_N = 24 \text{ V DC}$ , $I_{Out} = I_N$ )
Function	Visual operating state display
Color	green
LED off	Supply voltage input AC not present (Off)
LED on (green), DC OK	$U_{OUT} > 0,9 \times U_N$ (On (green), DC OK)

## Electrical properties

Number of phases	1.00
Insulation voltage input/output	4 kV AC (type test) 3.75 kV AC (routine test)

## Product properties

Product type	Power supply
Product family	UNO POWER
MTBF (IEC 61709, SN 29500)	> 1442000 h (25 °C) > 813000 h (40 °C) > 428000 h (55 °C)
Environmental protection directive	RoHS Directive 2011/65/EU WEEE Reach

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## Insulation characteristics

Protection class	II
Degree of pollution	2

## Dimensions

### Item dimensions

Width	35 mm
Height	130 mm
Depth	129 mm
	125 mm (Device depth (DIN rail mounting))

### Installation dimensions

Installation distance right/left (active, passive)	0 mm / 0 mm
Installation distance top/bottom (active, passive)	30 mm / 30 mm

## Mounting

Mounting type	DIN rail mounting
Assembly note	alignable: 0 mm horizontally, 30 mm vertically
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	No

## Material specifications

Flammability rating according to UL 94	V0 (Housing, terminal blocks)
Housing material	Plastic
Housing material	Polycarbonate
Type of housing	Polycarbonate
Foot latch material	PBT (polybutylene terephthalate)

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 55 °C Derating: 2.5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Ambient temperature (start-up type tested)	-40 °C
Maximum altitude	≤ 4000 m (> 2000 m, Derating: 10 %/1000 m)
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Shock (operation)	18 ms, 30g, per spatial direction (IEC 60068-2-27)
Vibration (operation)	10 Hz ... 50 Hz, amplitude ±0.2 mm
	50 Hz ... 150 Hz, 2.3g, 90 min.

## Standards and regulations

### Overvoltage category

EN 61010-1	II (≤ 4000 m)
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## Overvoltage category

EN 62477-1	III ( $\leq 3000$ m)
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## Safety of power supply units up to 1100 V (insulation distances)

Standard designation	Safety of power supply units up to 1100 V (insulation distances)
Standards/specifications	DIN EN 61558-2-16

## Electrical safety

Standard designation	Electrical safety
Standards/specifications	IEC 61010-2-201 (SELV)

## Electronic equipment for use in power installations

Standard designation	Equipping high voltage installations with electronic equipment
Standards/specifications	EN 50178/VDE 0160 (PELV)

## Safety for measurement, control, and laboratory equipment

Standard designation	Safety for equipment for measurement, control, and laboratory use
Standards/specifications	IEC 61010-1

## Protective extra-low voltage

Standard designation	Protective extra-low voltage
Standards/specifications	IEC 61010-1 (SELV)
	IEC 61010-2-201 (PELV)

## Safe isolation

Standard designation	Safe isolation
Standards/specifications	IEC 61558-2-16
	IEC 61010-2-201

## Limitation of harmonic line currents

Standard designation	Limitation of harmonic line currents
Standards/specifications	EN 61000-3-2

## Mains voltage dips

Standard designation	Requirement of the semiconductor industry with regard to mains voltage dips
Standards/specifications	SEMI F47 - 0706 (180 V AC)

## Approvals

### UL

Identification	UL/C-UL Listed UL 61010-1
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### UL

Identification	UL/C-UL Listed UL 61010-2-201
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### UL

Identification	UL/C-UL Listed ANSI/UL 121201 Class I, Division 2, Groups A, B, C, D (Hazardous Location)
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## SIQ

Identification	CB scheme (IEC 61010-1, IEC 61010-2-201)
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## EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Interference emission	Interference emission in accordance with EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial)
EMC requirements for noise immunity	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)

## Harmonic currents

Standards/regulations	EN 61000-3-2
	EN 61000-3-2 (Class A)
Frequency range	0 kHz ... 2 kHz

## Flicker

Standards/regulations	EN 61000-3-3
Frequency range	0 kHz ... 2 kHz

## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## Electrostatic discharge

Contact discharge	6 kV (Test Level 3)
Discharge in air	8 kV (Test Level 3)
Comments	Criterion A

## 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 (Test Level 3)
Frequency range	1 GHz ... 6 GHz
Test field strength	10 V/m (Test Level 3)
Comments	Criterion A

## Fast transients (burst)

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

Input	4 kV (Test Level 4 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)

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Comments	Criterion A
Surge voltage load (surge)	
Standards/regulations	EN 61000-4-5
Surge voltage load (surge)	
Input	1 kV (Test Level 3 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Output	0.5 kV (Test Level 2 - symmetrical)
	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion B
Conducted interference	
Standards/regulations	EN 61000-4-6
Conducted interference	
Input/Output	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)
Voltage dips	
Standards/regulations	EN 61000-4-11
Voltage	230 V AC
Frequency	50 Hz
Voltage dip	70 %
Number of periods	25 / 30 periods
Comments	Criterion A
Voltage dip	40 %
Number of periods	12 periods
Additional text	Test Level 2
Comments	Criterion A
Voltage dip	0 %
Number of periods	1 period
Additional text	Test Level 2
Comments	Criterion B
Criteria	
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.



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