

# PS-EE-2G/1AC/24DC/60W/SC - Power supply unit



1394764

<https://www.phoenixcontact.com/us/products/1394764>

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Primary-switched power supply unit, ESSENTIAL POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A, adjustable from 24 V DC ... 28 V DC

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1394764       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CM07          |
| Product key                          | CMB313        |
| GTIN                                 | 4063151775797 |
| Weight per piece (including packing) | 328.2 g       |
| Weight per piece (excluding packing) | 298 g         |
| Customs tariff number                | 85044095      |
| Country of origin                    | CN            |

# PS-EE-2G/1AC/24DC/60W/SC - Power supply unit



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## Technical data

### Input data

#### AC operation

|                                          |                                                                |
|------------------------------------------|----------------------------------------------------------------|
| Supply system configuration              | 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 % ( $P_N = 60 \text{ W}$ ) |
| Typical national grid voltage            | 120 V AC                                                       |
|                                          | 230 V AC                                                       |
| Voltage type of supply voltage           | AC                                                             |
| Inrush current                           | typ. 27 A (at 25 °C)                                           |
| Inrush current integral ( $I^2t$ )       | typ. 0.5 A <sup>2</sup> s                                      |
| Frequency range ( $f_N$ )                | 50 Hz ... 60 Hz $\pm 10 \%$                                    |
| Mains buffering time                     | typ. 14 ms (120 V AC)                                          |
|                                          | typ. 70 ms (230 V AC)                                          |
| Current consumption                      | max. 1.5 A                                                     |
|                                          | typ. 1.3 A (110 V AC (60 W))                                   |
|                                          | typ. 0.75 A (240 V AC (60 W))                                  |
| Protective circuit                       | Transient protection; Varistor                                 |
| Switch-on time                           | typ. 1 s                                                       |
| Device mains fuse                        | 3.15 A internal (device protection), fast-blow                 |
| Recommended breaker for input protection | 6 A ... 16 A (Characteristic B, C, D, K or comparable)         |
| Discharge current to PE                  | < 3.5 mA                                                       |

### Output data

|                                                          |                                                               |
|----------------------------------------------------------|---------------------------------------------------------------|
| Efficiency                                               | typ. 88 % (120 V AC)                                          |
|                                                          | typ. 89 % (230 V AC)                                          |
| Nominal output voltage                                   | 24 V DC                                                       |
| Setting range of the output voltage ( $U_{\text{Set}}$ ) | 24 V DC ... 28 V DC (> 24 V DC, constant capacity restricted) |
| Nominal output current ( $I_N$ )                         | max. 2.5 A                                                    |
| Short-circuit-proof                                      | yes                                                           |
| No-load proof                                            | yes                                                           |
| Crest factor                                             | typ. 3 (120 V AC)                                             |
|                                                          | typ. 4 (230 V AC)                                             |
| Output power ( $P_N$ )                                   | 60 W (240 V AC)                                               |
| Connection in parallel                                   | yes, for increasing power and redundancy with diode           |
| Connection in series                                     | yes, for increased output voltage                             |
| Feedback voltage resistance                              | $\leq 35 \text{ V DC}$                                        |
| Protection against overvoltage at the output (OVP)       | $\leq 35 \text{ V DC}$                                        |
| Residual ripple                                          | typ. 30 mV <sub>pp</sub> (with nominal values)                |
| Control deviation                                        | < 2 % (change in load, static 10 % ... 90 %)                  |
|                                                          | < 4 % (change in load, dynamic 10 % ... 90 %)                 |
|                                                          | < 0.1 % (change in input voltage $\pm 10 \%$ )                |

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|                                        |                                            |
|----------------------------------------|--------------------------------------------|
| Rise time                              | < 100 ms ( $U_{Out} = 10 \% \dots 90 \%$ ) |
| Minimum no-load power dissipation      | < 1 W (120 V AC)                           |
| Maximum no-load power dissipation      | < 1 W (230 V AC)                           |
| Minimum nominal load power dissipation | < 9 W (120 V AC)                           |
| Power loss nominal load max.           | < 7 W (230 V AC)                           |
| Integrated fuse protection             | no                                         |

## Connection data

### Input

|                |                                                                                                         |
|----------------|---------------------------------------------------------------------------------------------------------|
| Position       | 1.x                                                                                                     |
| Identification | 1.1 (  ) FS L, 1.3 (N) |

### Conductor connection

|                                              |                                                                        |
|----------------------------------------------|------------------------------------------------------------------------|
| Connection method                            | Screw connection                                                       |
| rigid                                        | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| flexible                                     | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| flexible with ferrule without plastic sleeve | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| flexible with ferrule with plastic sleeve    | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| rigid (AWG)                                  | 20 ... 14 (Cu)                                                         |
| Stripping length                             | 6.5 mm                                                                 |
| Tightening torque                            | 0.5 Nm ... 0.6 Nm<br>5 lb <sub>F</sub> -in. ... 7 lb <sub>F</sub> -in. |
| Drive form screw head                        | Slotted L                                                              |

### Output

|                |                            |
|----------------|----------------------------|
| Position       | 2.x                        |
| Identification | 2.1, 2.2 (+), 2.3, 2.4 (-) |

### Conductor connection

|                                              |                                                                        |
|----------------------------------------------|------------------------------------------------------------------------|
| Connection method                            | Screw connection                                                       |
| rigid                                        | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| flexible                                     | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| flexible with ferrule without plastic sleeve | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| flexible with ferrule with plastic sleeve    | 0.5 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                            |
| rigid (AWG)                                  | 20 ... 14 (Cu)                                                         |
| Stripping length                             | 6.5 mm                                                                 |
| Tightening torque                            | 0.5 Nm ... 0.6 Nm<br>5 lb <sub>F</sub> -in. ... 7 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                                                   |

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|                       |                                                |
|-----------------------|------------------------------------------------|
| Color                 | green                                          |
| LED off               | Supply voltage input AC not present (Off)      |
| LED on (green), DC OK | $U_{OUT} > 17.5 \text{ V}$ (On (green), DC OK) |

## Electrical properties

|                                 |                          |
|---------------------------------|--------------------------|
| Number of phases                | 1.00                     |
| Insulation voltage input/output | 4 kV AC (type test)      |
|                                 | 3 kV AC (routine test)   |
| Insulation voltage input / PE   | 3.5 kV AC (type test)    |
|                                 | 2.4 kV AC (routine test) |

## Product properties

|                         |                     |
|-------------------------|---------------------|
| Product type            | Power supply        |
| Product family          | ESSENTIAL POWER     |
| MTBF (Telcordia SR-332) | > 2800000 h (25 °C) |
|                         | > 2300000 h (40 °C) |
|                         | > 2100000 h (45 °C) |

## Insulation characteristics

|                     |    |
|---------------------|----|
| Protection class    | II |
| Degree of pollution | 2  |

## Life expectancy (electrolytic capacitors)

|                 |          |
|-----------------|----------|
| Current         | 2.5 A    |
| Temperature     | 40 °C    |
| Time            | 50000 h  |
| Additional text | 120 V AC |

## Life expectancy (electrolytic capacitors)

|                 |          |
|-----------------|----------|
| Current         | 2.5 A    |
| Temperature     | 30 °C    |
| Time            | 100000 h |
| Additional text | 120 V AC |

## Life expectancy (electrolytic capacitors)

|                 |          |
|-----------------|----------|
| Current         | 2.5 A    |
| Temperature     | 40 °C    |
| Time            | 70000 h  |
| Additional text | 230 V AC |

## Life expectancy (electrolytic capacitors)

|                 |          |
|-----------------|----------|
| Current         | 2.5 A    |
| Temperature     | 30 °C    |
| Time            | 140000 h |
| Additional text | 230 V AC |

## Dimensions

# PS-EE-2G/1AC/24DC/60W/SC - Power supply unit



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## Item dimensions

|        |        |
|--------|--------|
| Width  | 33 mm  |
| Height | 90 mm  |
| Depth  | 100 mm |

## Installation dimensions

|                                  |               |
|----------------------------------|---------------|
| Installation distance right/left | 10 mm / 10 mm |
| Installation distance top/bottom | 30 mm / 30 mm |

## Mounting

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

## Material specifications

|                      |                 |
|----------------------|-----------------|
| Housing material     | Plastic         |
| Housing material     | Polycarbonate   |
| Hood version         | Stainless steel |
| Side element version | Aluminum        |
| Foot latch material  | Polyamid        |

## Environmental and real-life conditions

### Ambient conditions

|                                                |                                                                       |
|------------------------------------------------|-----------------------------------------------------------------------|
| Degree of protection                           | IP20                                                                  |
| Ambient temperature (operation)                | -20 °C ... 70 °C (Derating >45°C: 2.5%/K)                             |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                                                      |
| Maximum altitude                               | ≤ 5000 m (> 2000 m, Derating: 10 %/1000 m)                            |
| Climatic class                                 | 3K22 (in accordance with EN 60721-3-3)                                |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing)                                     |
| Shock (operation)                              | 15 ms, 15 g, per spatial direction (IEC 60068-2-27)                   |
| Vibration (operation)                          | 10 Hz ... 50 Hz, amplitude ±0.2 mm<br>50 Hz to 150 Hz, 2.3 g, 90 min. |

## Standards and regulations

### Overvoltage category

|            |               |
|------------|---------------|
| EN 61010-1 | II (≤ 3000 m) |
|------------|---------------|

### Electrical safety

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

### Safety for measurement, control, and laboratory equipment

|                      |                                                                   |
|----------------------|-------------------------------------------------------------------|
| Standard designation | Safety for equipment for measurement, control, and laboratory use |
|----------------------|-------------------------------------------------------------------|

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|                                      |                                                                             |
|--------------------------------------|-----------------------------------------------------------------------------|
| 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)                                                      |
| 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 (185 V AC)                                                  |

## Approvals

### UL

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

### UL

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

### CB scheme

|                |                                          |
|----------------|------------------------------------------|
| Identification | CB scheme (IEC 61010-1, IEC 61010-2-201) |
|----------------|------------------------------------------|

## 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        |

### Electrostatic discharge

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

### Electrostatic discharge

|                   |                     |
|-------------------|---------------------|
| Contact discharge | 6 kV (Test Level 3) |
| Discharge in air  | 8 kV (Test Level 3) |

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| Comments                   | Criterion A                         |
|----------------------------|-------------------------------------|
| Electromagnetic HF field   |                                     |
| Standards/regulations      | EN 61000-4-3                        |
| 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)               |
| Frequency range            | 2 GHz ... 3 GHz                     |
| Test field strength        | 1 V/m (Test Level 3)                |
| Comments                   | Criterion A                         |
| Fast transients (burst)    |                                     |
| Standards/regulations      | EN 61000-4-4                        |
| Fast transients (burst)    |                                     |
| Input                      | 4 kV (Test Level 4 - asymmetrical)  |
| Output                     | 2 kV (Test Level 3 - asymmetrical)  |
| Comments                   | Criterion A                         |
| Surge voltage load (surge) |                                     |
| Standards/regulations      | EN 61000-4-5                        |
| Input                      | 2 kV (Test Level 4 - symmetrical)   |
|                            | 4 kV (Test Level 4 - asymmetrical)  |
| Output                     | 0.5 kV (Test Level 2 - symmetrical) |
|                            | 1 kV (Test Level 3 - asymmetrical)  |
| Comments                   | Criterion A                         |
| 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 periods                          |
| Comments                   | Criterion A                         |
| Voltage dip                | 40 %                                |
| Number of periods          | 10 periods                          |

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|                   |             |
|-------------------|-------------|
| Comments          | Criterion A |
| Voltage dip       | 0 %         |
| Number of periods | 1 period    |
| Comments          | Criterion A |

Criteria

|             |                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Criterion A | Normal operating behavior within the specified limits.                                                                                                     |
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself.                                                                       |
| Criterion C | Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements. |



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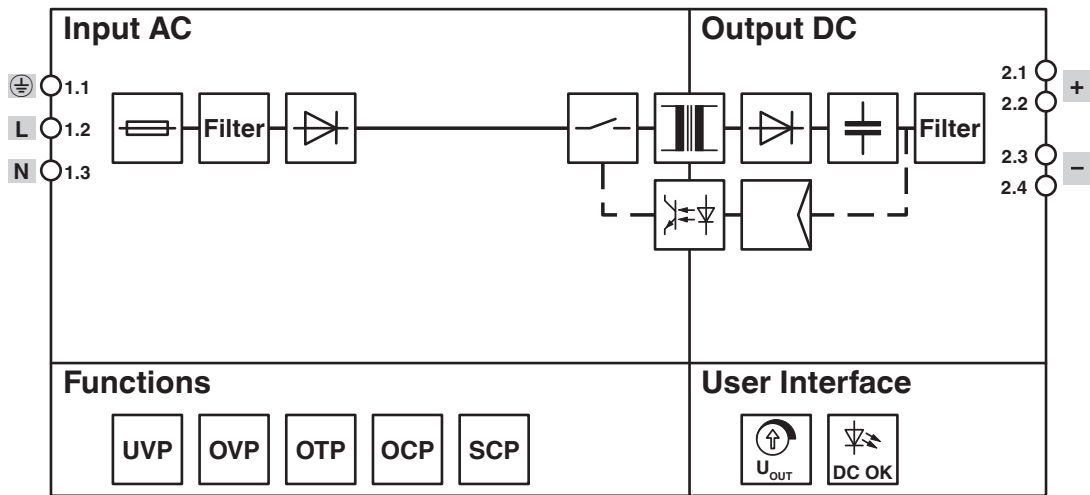


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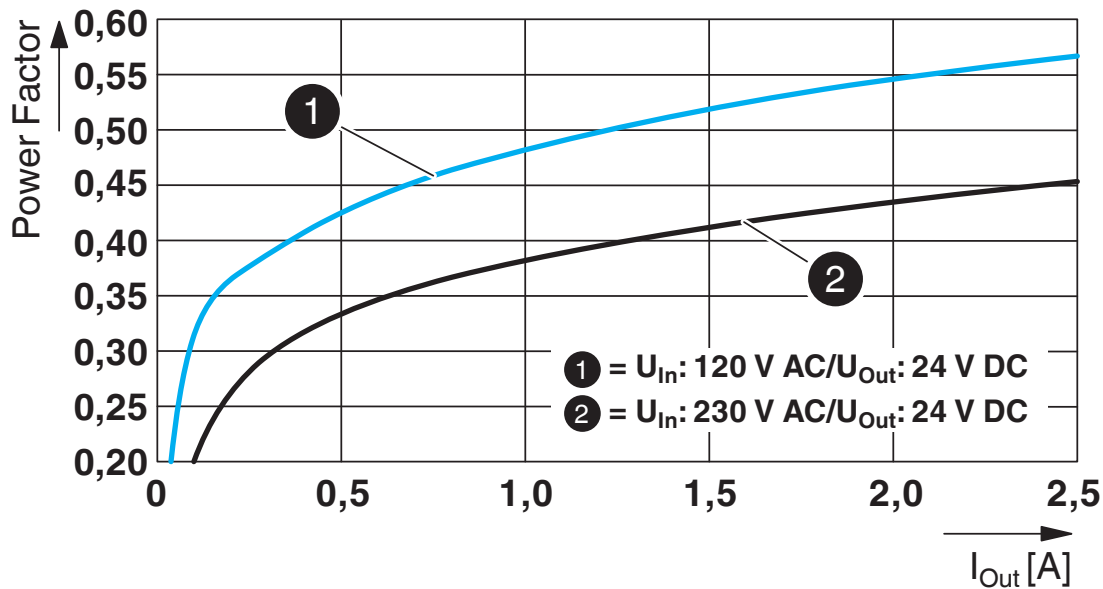
Drawings

Block diagram



Block diagram

Diagram

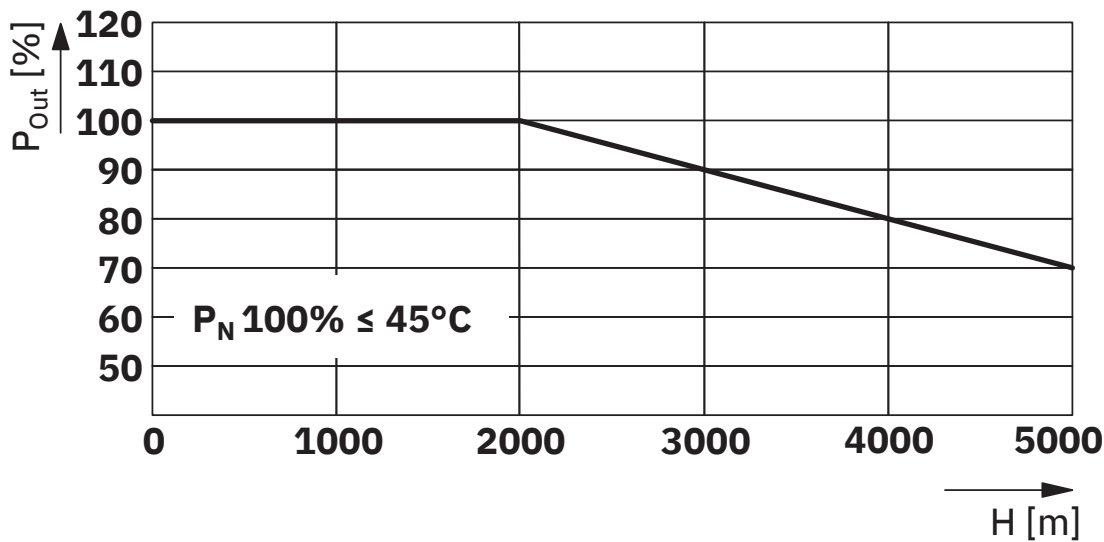


Power factor

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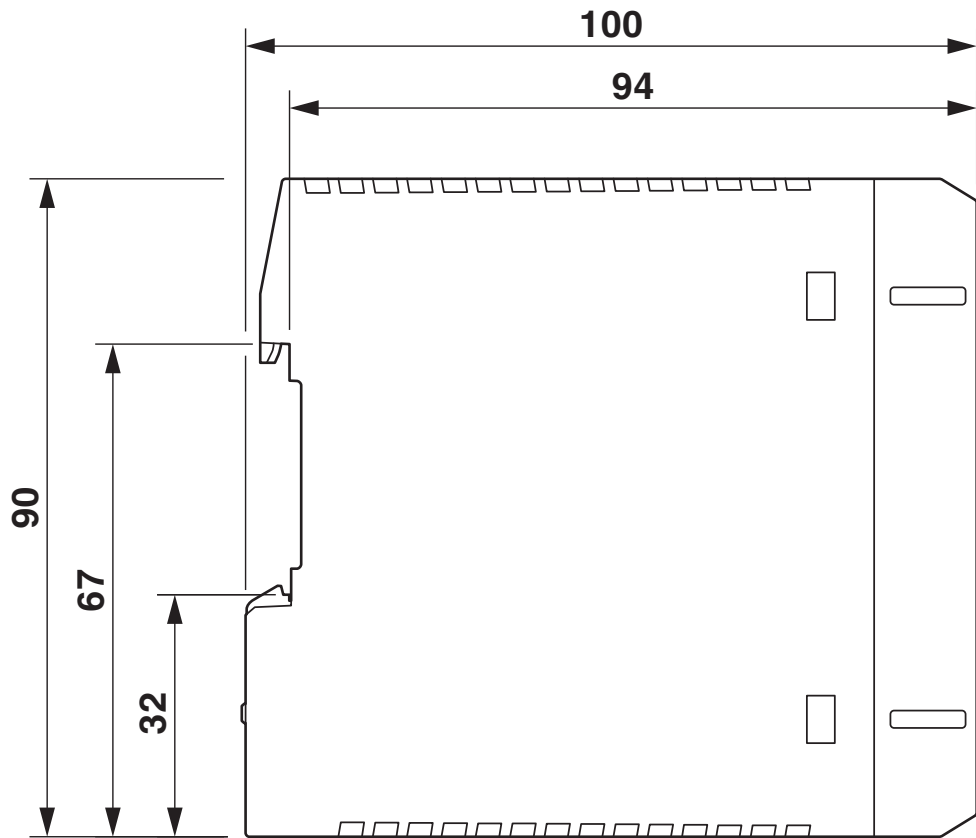
<https://www.phoenixcontact.com/us/products/1394764>

Diagram

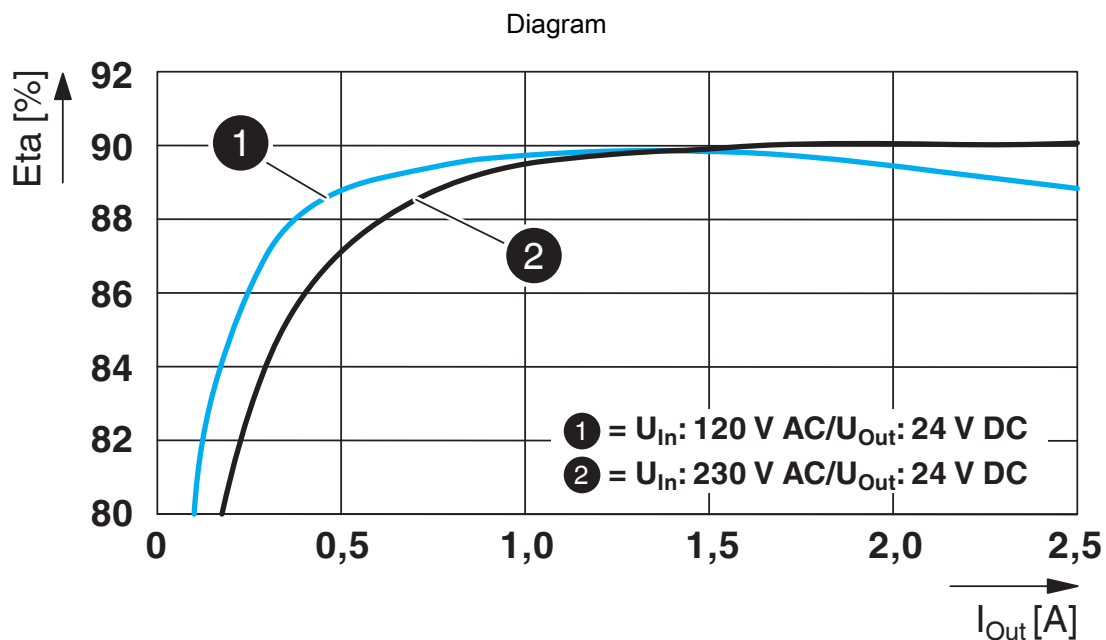


Output power Installation altitude

Dimensional drawing



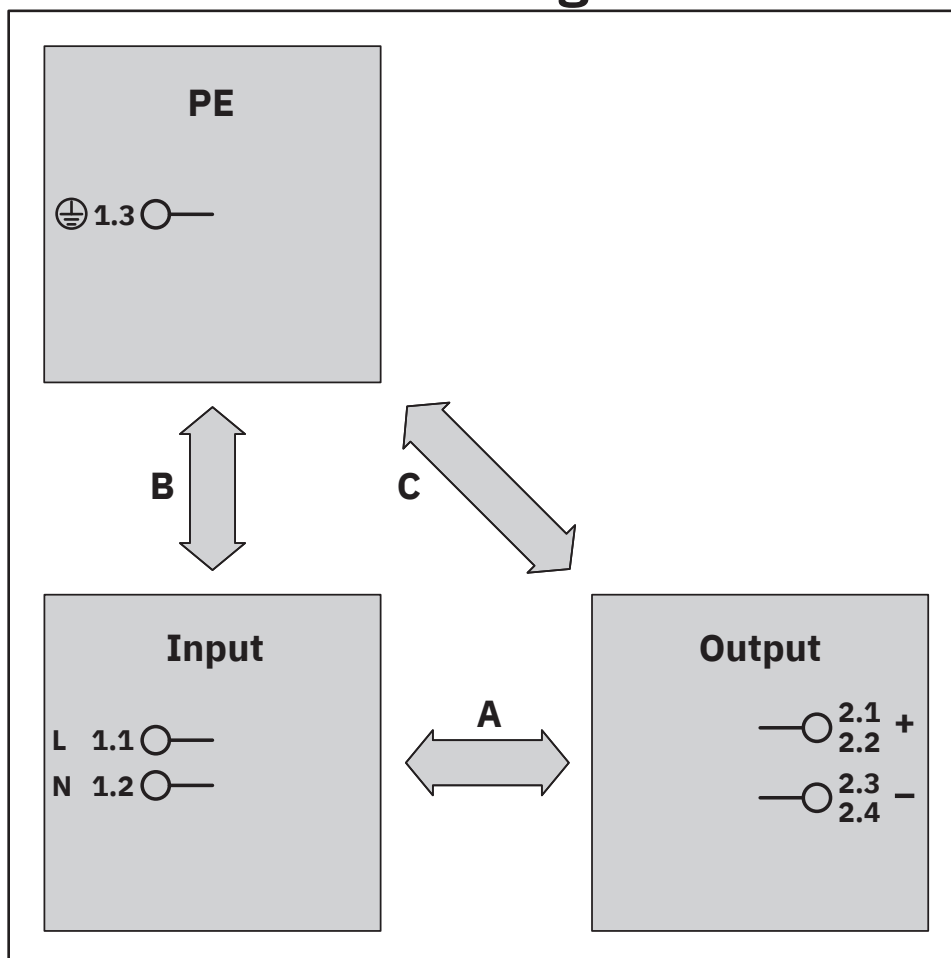
Device dimensions (dimensions in mm)



Efficiency

Schematic diagram

## Housing



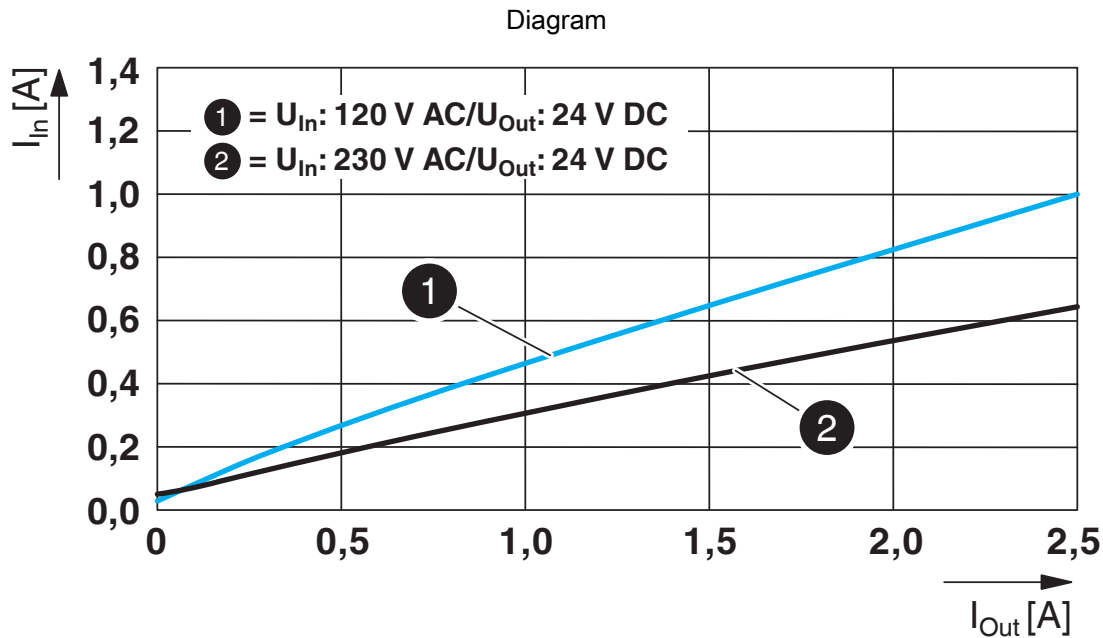
Test sections, insulation voltage

PS-EE-2G/1AC/24DC/60W/SC - Power supply unit

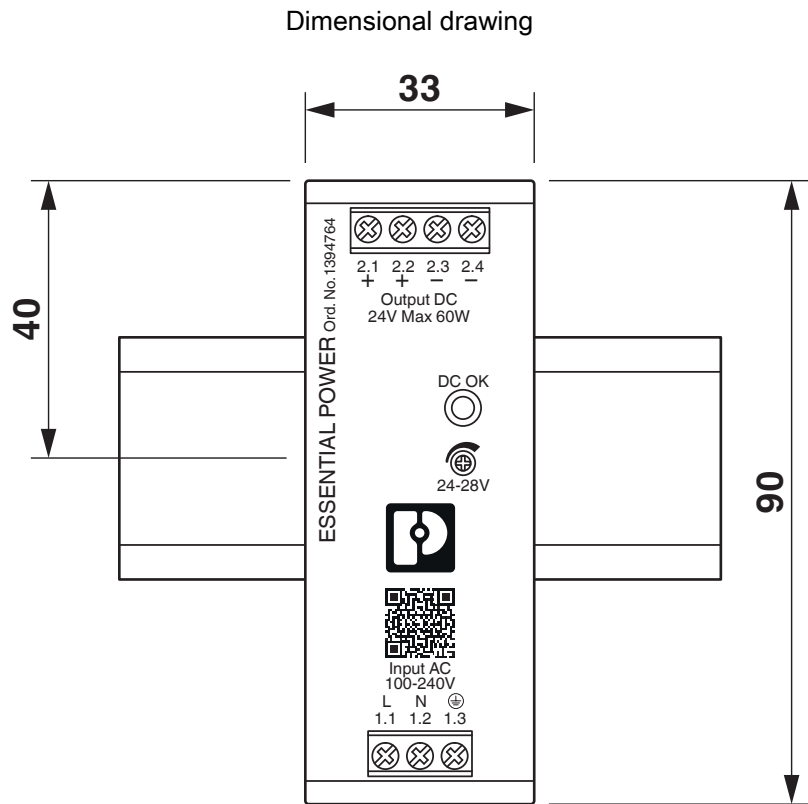


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Input current/output current



Device dimensions (dimensions in mm)

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1394764>



**IECEE CB Scheme**  
Approval ID: DE 2-038745



**cULus Listed**  
Approval ID: E123528-20230331



**IECEE CB Scheme**  
Approval ID: JPTUV-147263-M1

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27040701 |
| ECLASS-12.0 | 27040701 |
| ECLASS-13.0 | 27040701 |

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC002540 |
|----------|----------|

Environmental product compliance

|                                         |                                                                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU RoHS                                 |                                                                                                                                                                                                                                   |
| Fulfills EU RoHS substance requirements | Yes                                                                                                                                                                                                                               |
| Exemption                               | 7(a), 7(c)-I                                                                                                                                                                                                                      |
| China RoHS                              |                                                                                                                                                                                                                                   |
| Environment friendly use period (EFUP)  | EFUP-25                                                                                                                                                                                                                           |
|                                         | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |
| EU REACH SVHC                           |                                                                                                                                                                                                                                   |
| REACH candidate substance (CAS No.)     | Lead(CAS: 7439-92-1)                                                                                                                                                                                                              |



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## Accessories

### UNO-DIODE/5-24DC/2X10/1X20 - Redundancy module

2905489

<https://www.phoenixcontact.com/us/products/2905489>

Redundancy module, 5 V - 24 V DC, 2 x 10 A, 1 x 20 A.



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### PLT-EE-T3-230AC-R - Type 3 surge protection device

1249060

<https://www.phoenixcontact.com/us/products/1249060>

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



## PS-EE-2G/1AC/24DC/60W/SC - Power supply unit



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## PLT-SEC-T3-230-FM - Type 3 surge protection device

2905229

<https://www.phoenixcontact.com/us/products/2905229>



Pluggable device protection, according to type 3/class III, for 1-phase power supply networks with separate N and PE (3-conductor system: L1, N, PE), with integrated surge-proof fuse and remote indication contact. Also suitable for DC applications.

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## CBMC E4 24DC/1-4A NO - Electronic circuit breaker

2906031

<https://www.phoenixcontact.com/us/products/2906031>



Multi-channel electronic circuit breaker for protecting four loads at 24 V DC in the event of overload and short circuit. With electronic locking of the set nominal currents. For installation on DIN rails.

## PS-EE-2G/1AC/24DC/60W/SC - Power supply unit

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## CBMC E4 24DC/1-10A NO - Electronic circuit breaker

2906032

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Multi-channel electronic circuit breaker for protecting four loads at 24 V DC in the event of overload and short circuit. With electronic locking of the set nominal currents. For installation on DIN rails.

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## CBMC E4 24DC/1-4A+ IOL - Electronic circuit breaker

2910410

<https://www.phoenixcontact.com/us/products/2910410>



Multi-channel electronic circuit breaker with IO-Link interface for protecting four loads at 24 V DC in the event of overload and short circuit. With electronic locking of the set nominal currents. For installation on DIN rails.

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## CBMC E4 24DC/1-10A IOL - Electronic circuit breaker

2910411

<https://www.phoenixcontact.com/us/products/2910411>



Multi-channel electronic circuit breaker with IO-Link interface for protecting four loads at 24 V DC in the event of overload and short circuit. With electronic locking of the set nominal currents. For installation on DIN rails.

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## CBM E4 24DC/0.5-10A NO-R - Electronic circuit breaker

2905743

<https://www.phoenixcontact.com/us/products/2905743>



Multi-channel, electronic circuit breaker with active current limitation for protecting four loads at 24 V DC in the event of overload and short circuit. With nominal current assistant and electronic locking of the set nominal currents. For installation on DIN rails.

# PS-EE-2G/1AC/24DC/60W/SC - Power supply unit



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## CBM E8 24DC/0.5-10A NO-R - Electronic circuit breaker

2905744

<https://www.phoenixcontact.com/us/products/2905744>



Multi-channel, electronic circuit breaker with active current limitation for protecting eight loads at 24 V DC in the event of overload and short circuit. With nominal current assistant and electronic locking of the set nominal currents. For installation on DIN rails.

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