PS-EE-2G/3AC/24DC/240W/SC - Power supply

1796909

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Primary-switched power supply unit ESSENTIAL POWER, Screw connection, DIN rail mounting, input: 3-phase, output: 24 V DC / 10 A, adjustable from 24 V DC ... 28 V DC

ELEKTROGERÄTE RÜCKNAHME

Commercial data

Item number	1796909
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CMB333
Product key	CMB333
GTIN	4067923419346
Weight per piece (including packing)	1,098 g
Weight per piece (excluding packing)	1,098 g
Country of origin	Information on the country of origin is provided with the delivery.

Technical data

Input data

AC operation

Supply system configuration	Star network (TN, TT, IT (PE))
Nominal input voltage range	400 V AC ... 500 V AC
Input voltage range	3x 400 V AC ... 500 V AC ±10 %
	2x 400 V AC ... 500 V AC ±10 %
Typical national grid voltage	3x 400 V AC
	3x 480 V AC
Voltage type of supply voltage	AC
Inrush current	typ. 22 A (at 25 °C)
Inrush current integral (I^2t)	typ. 0.35 A^2s
Frequency range (f_N)	50 Hz ... 60 Hz ±10 %
Mains buffering time	typ. 38 ms (3x 400 V AC)
	typ. 58 ms (3x 480 V AC)
Current consumption	3x 0.7 A (3x 400 V AC)
	3x 0.6 A (3x 500 V AC)
	2x 1.4 A (2x 400 V AC)
	2x 1.15 A (2x 500 V AC)
Protective circuit	Transient protection; Varistor
Switch-on time	typ. 1.7 s
Device mains fuse	3.15 A 500 V, integrated (device protection) fast-acting fuse
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. 91.2 % (3x 400 V AC)
	typ. 90.5 % (3x 480 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) (IN_PMax)	10 A (P_N = 240 W)
Short-circuit-proof	yes
No-load proof	yes
Crest factor	typ. 2,9 (3x 400 V AC)
	typ. 3 (3x 480 V AC)
Output power (P_N)	240 W
Connection in parallel	yes, for increasing power and redundancy with diode
Connection in series	yes, for increased output voltage (observe SELV limit)
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	≤ 35 V DC
Residual ripple	typ. 150 mV_{PP} (with nominal values)
	< 1 % (change in load, static 10 % ... 90 %)

Control deviation	< 2 % (change in load, dynamic 10 % ... 90 %)
	< 0.5 % (change in input voltage ±10 %)
Rise time	< 100 ms (U_{Out} = 10 % ... 90 %)
Minimum no-load power dissipation	< 3 W (3x 400 V AC)
Maximum no-load power dissipation	< 3 W (3x 480 V AC)
Minimum nominal load power dissipation	< 24 W (3x 400 V AC)
Power loss nominal load max.	< 26 W (3x 480 V AC)
Integrated fuse protection	no

Connection data

Input

Position	1.x

Connection technology: Positions

Position marking	1.1 (L1), 1.2 (L2), 1.3 (L3), 1.4 (⏚

Conductor connection

Connection method	Screw connection
rigid (Terminal block)	0.2 mm² ... 6 mm²
rigid (recommended)	2.5 mm² (recommended)
flexible (Klemme)	0.2 mm² ... 4 mm²
flexible (empfohlen)	2.5 mm² (recommended)
flexible with ferrule without plastic sleeve (Terminal block)	0.25 mm² ... 4 mm²
flexible with ferrule without plastic sleeve (recommended)	2.5 mm² (recommended)
flexible with ferrule with plastic sleeve (Terminal block)	0.25 mm² ... 4 mm²
flexible with ferrule with plastic sleeve (recommended)	2.5 mm² (recommended)
AWG (Terminal block)	24 ... 10 (Cu)
AWG (recommended)	14 (recommended)
Stripping length (starr/flexibel)	8 mm (Rigid/flexible/ferrule)
Tightening torque (EU)	0.5 Nm ... 0.6 Nm
Tightening torque ()	5 lb_f-in. ... 7 lb_f-in.
Drive form screw head	Slotted L
Screwdriver blade	0.6 x 3.5 mm

Output

Position	2.x

Connection technology: Positions

Position marking	2.1, 2.2 (+), 2.3, 2.4, 2.5 (-)

Conductor connection

Connection method	Screw connection
rigid (Terminal block)	0.2 mm² ... 6 mm²
rigid (recommended)	2.5 mm² (recommended)
flexible (Klemme)	0.2 mm² ... 4 mm²
flexible (empfohlen)	2.5 mm² (recommended)

flexible with ferrule without plastic sleeve (Terminal block)	0.25 mm² ... 4 mm² (Cu)
flexible with ferrule without plastic sleeve (recommended)	2.5 mm² (recommended)
flexible with ferrule with plastic sleeve (Terminal block)	0.25 mm² ... 4 mm²
flexible with ferrule with plastic sleeve (recommended)	2.5 mm² (recommended)
AWG (Terminal block)	24 ... 10 (Cu)
AWG (recommended)	14 (recommended)
Stripping length (starr/flexibel)	8 mm (Rigid/flexible/ferrule)
Tightening torque (EU)	0.5 Nm ... 0.6 Nm
Tightening torque ()	5 lb_f-in. ... 7 lb_f-in.
Drive form screw head	Slotted L
Screwdriver blade	0.6 x 3.5 mm

Signal

Position	3.x

Connection technology: Positions

Position marking	3.1 (13), 3.2 (14)

Conductor connection

Connection method	Push-in connection
rigid (Terminal block)	0.2 mm² ... 1.5 mm²
rigid (recommended)	0.5 mm² (recommended)
flexible (Klemme)	0.2 mm² ... 1.5 mm²
flexible (empfohlen)	0.5 mm² (recommended)
flexible with ferrule without plastic sleeve (Terminal block)	0.25 mm² ... 1.5 mm²
flexible with ferrule without plastic sleeve (recommended)	0.5 mm² (recommended)
flexible with ferrule with plastic sleeve (Terminal block)	0.25 mm² ... 0.75 mm²
flexible with ferrule with plastic sleeve (recommended)	0.5 mm² (recommended)
AWG (Terminal block)	24 ... 16 (Cu)
AWG (recommended)	20 (recommended)
Stripping length (starr/flexibel)	10 mm (Rigid/flexible/ferrule)

Signaling

LED signaling

Types of signaling	DC OK LED - operation signal state
Function	Visual operating state display
Color	green
LED off	$U_{Out} \leq 22$ V (Off)
LED on (green), DC OK	$U_{Out} > 22$ V (On (green), DC OK)

Signal output DC OK

Position	3.x
Type of signaling	DC OK switch contact - operation signal state
Position marking	3.1 (13), 3.2 (14)
Function	Operating state forwarding

Switch contact (floating)	Relay
Switching voltage	max. 30 V DC (SELV)
Current carrying capacity	max. 1 A
State condition (Contact closed)	U_{Out} ≥ 22 V DC (Contact closed)
State condition (Contact open)	U_{Out} < 22 V DC (Contact open)

Electrical properties

Number of phases	3
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)	> 3200000 h (25 °C)
	> 1700000 h (40 °C)
	> 1100000 h (50 °C)

Insulation characteristics

Protection class	I
Overvoltage category (IEC 61010-1)	III (≤ 3000 m)
	II (≤ 5000 m)
Overvoltage category (IEC 62368-1)	III (≤ 3000 m)
	II (≤ 5000 m)
Degree of pollution	2

Life expectancy (electrolytic capacitors)

Current	10 A
Temperature	40 °C
Time	35000 h
Additional text	3x 400 V AC

Life expectancy (electrolytic capacitors)

Current	10 A
Temperature	40 °C
Time	33000 h
Additional text	3x 480 V AC

Life expectancy (electrolytic capacitors)

Current	7.5 A
Temperature	40 °C
Time	56000 h
Additional text	3x 400 V AC

Life expectancy (electrolytic capacitors)

Current	7.5 A
Temperature	40 °C
Time	59000 h
Additional text	3x 480 V AC

Life expectancy (electrolytic capacitors)

Current	5 A
Temperature	40 °C
Time	102000 h
Additional text	3x 400 V AC

Life expectancy (electrolytic capacitors)

Current	5 A
Temperature	40 °C
Time	103000 h
Additional text	3x 480 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	167000 h
Additional text	3x 400 V AC

Life expectancy (electrolytic capacitors)

Current	2.5 A
Temperature	40 °C
Time	190000 h
Additional text	3x 480 V AC

Dimensions

Item dimensions

Width	55 mm
Height	123.6 mm
Depth	125 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 note	alignable: 0 mm horizontally, 30 mm vertically
Mounting position	horizontal DIN rail NS 35, EN 60715

Material specifications

Housing material	Metal
Housing material	Aluminum (AlMg3) / sheet steel, zinc-plated
Hood version	Stainless steel
Side element version	Aluminum
Foot latch material	Sheet steel, zinc-plated

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 70 °C (Derating > 50°C: 2.5%/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 5000 m
Maximum altitude (Output power derating)	> 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)	11 ms, 15g, per spatial direction (EN 60068-2-27)
Vibration (operation)	5 Hz ... 12.8 Hz, amplitude ±3.5 mm
	12.8 Hz ... 150 Hz, 2.3g, 90 min

Standards and regulations

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
Standards/specifications	IEC 61010-1

Protective extra-low voltage

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

Safety extra-low voltage

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

Limitation of harmonic line currents

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

Safe isolation

Standard designation	Safe isolation
Standards/specifications	IEC 61558-2-16
Note	Transformer

Mains voltage dips

Standard designation	Mains variation/undervoltage
Standards/specifications	SEMI F47 (EN 61000-4-11)

Approvals

UL

Identification	UL/C-UL Listed UL 61010-1

UL

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

CB scheme

Identification	IEC 62368-1:2018; IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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

Conducted noise emission

Standards/regulations	EN 55016
	EN 61000-6-3 (Class B)

Noise emission

Standards/regulations	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)
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)
	1 V/m (Test Level 3)
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4

Fast transients (burst)

Input	asymmetrical 4 kV (Test Level 4)
Output	asymmetrical 2 kV (Test Level 3)
Signal	asymmetrical 1 kV (Test Level 3)
Comments	Criterion A

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5

Surge voltage load (surge)

Input	symmetrical 2 kV (Test Level 4)
	asymmetrical 4 kV (Test Level 4)
Output	symmetrical 0.5 kV (Test Level 2)
	asymmetrical 1 kV (Test Level 2)
Signal	asymmetrical 1 kV (Test Level 2)
Comments	Criterion A

Conducted interference

Standards/regulations	EN 61000-4-6

Conducted interference

Input/output/signal	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	400 V AC
Frequency	50 Hz
Voltage dip	70 %
Number of periods	25 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	40 %
Number of periods	10 periods
Additional text	Class 3
Comments	Criterion A

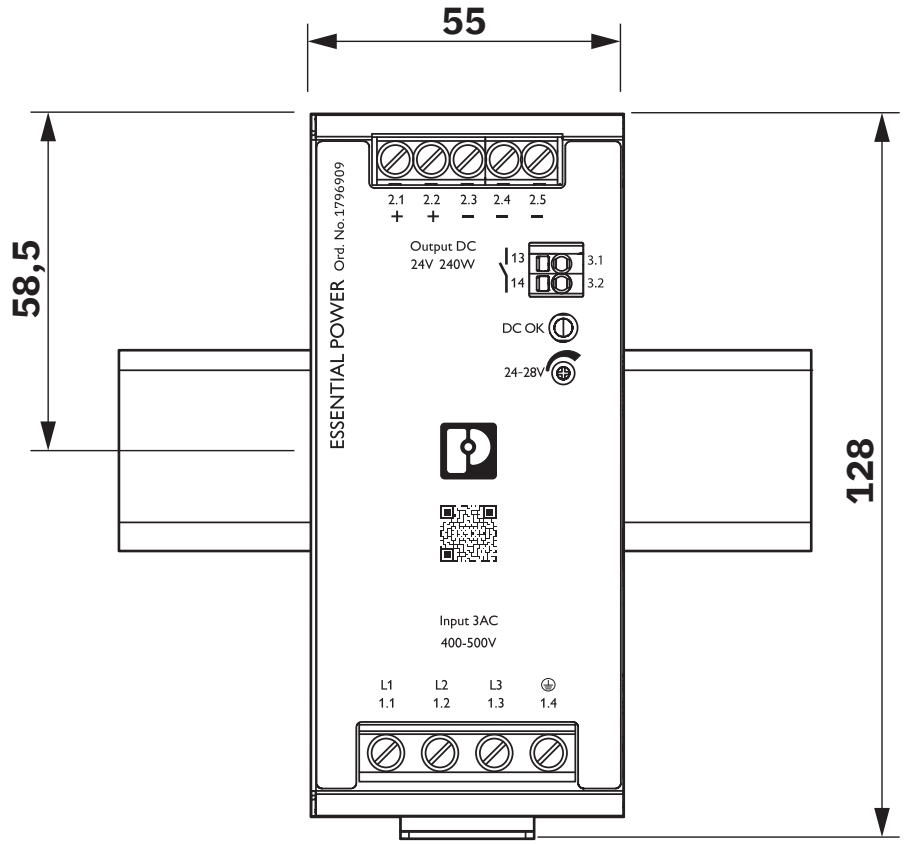
Voltage dip	0 %
Number of periods	1 period
Additional text	Class 3
Comments	Criterion A

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.

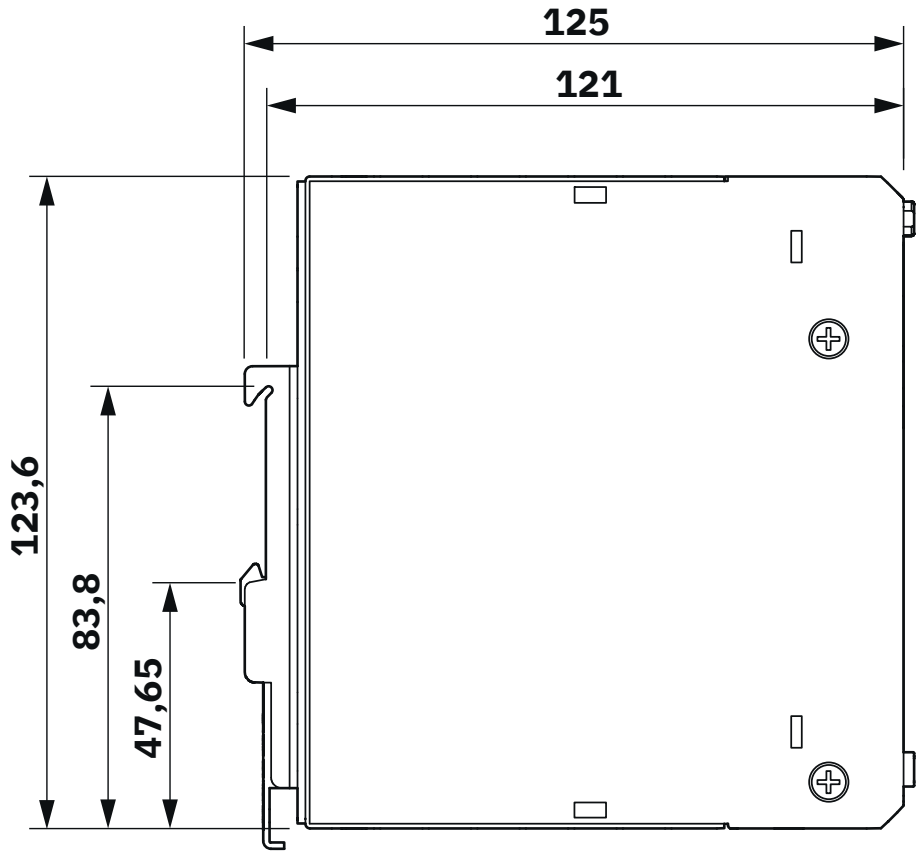
Drawings

Dimensional drawing



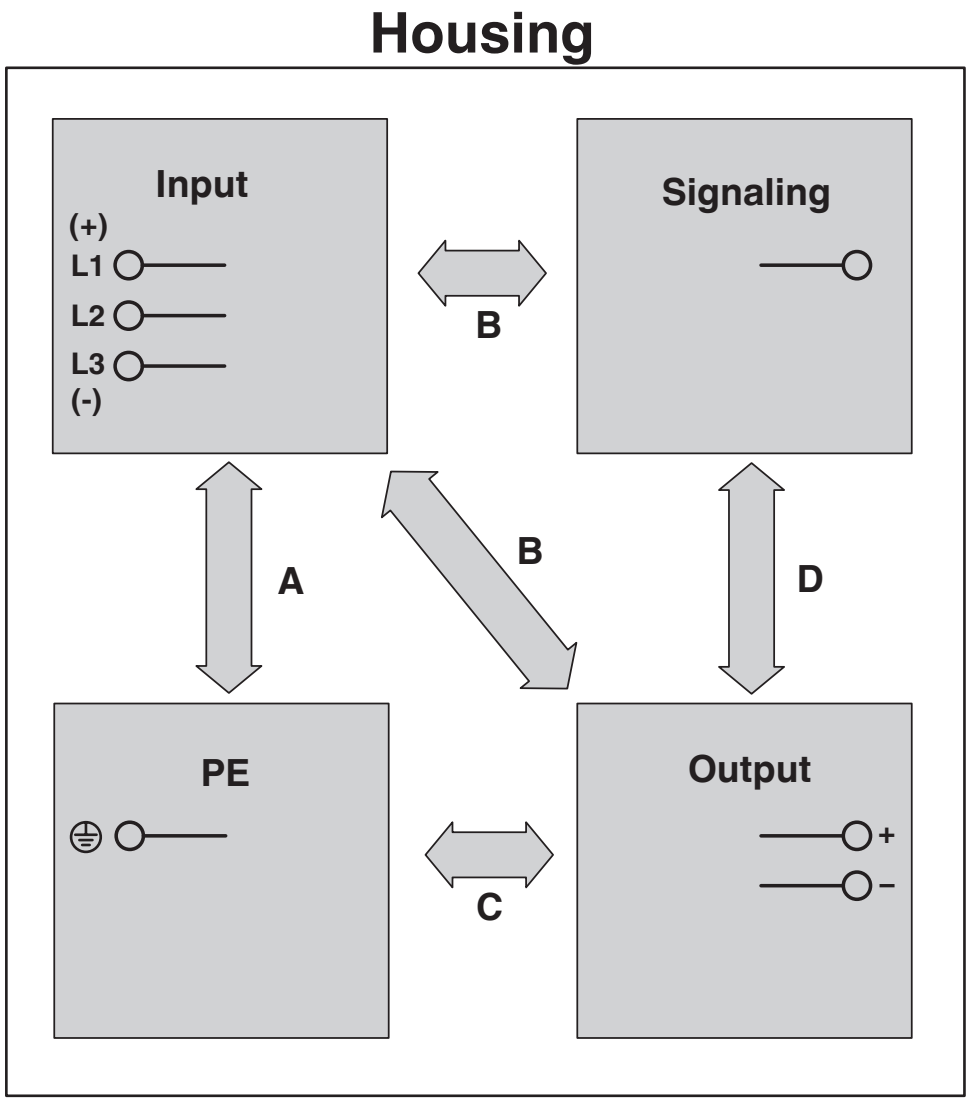
Device dimensions (dimensions in mm)

Dimensional drawing



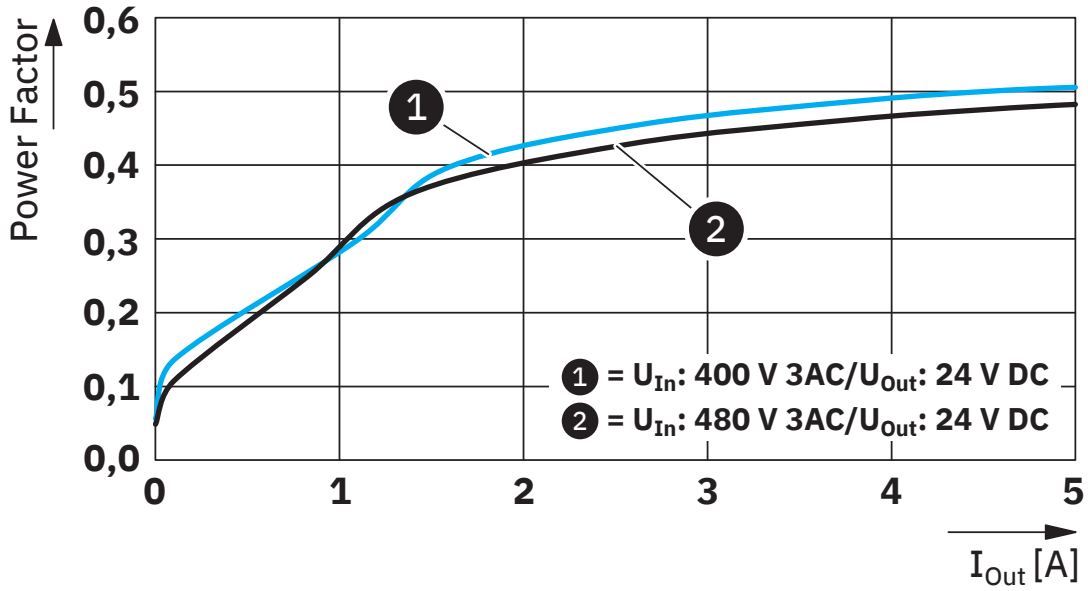
Device dimensions (dimensions in mm)

Schematic diagram



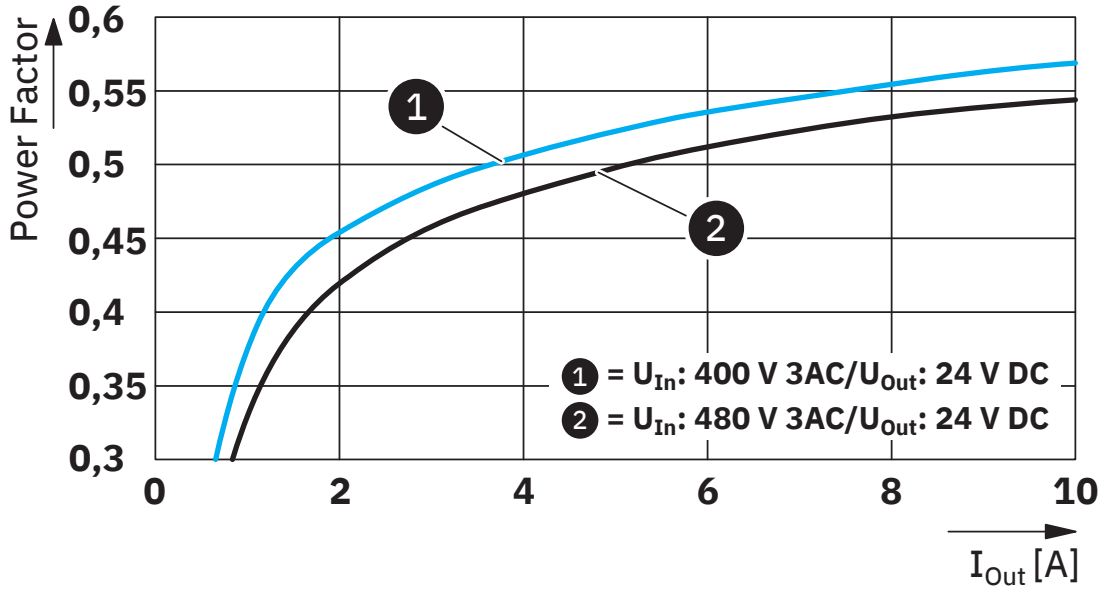
Test sections, insulation voltage

Diagram



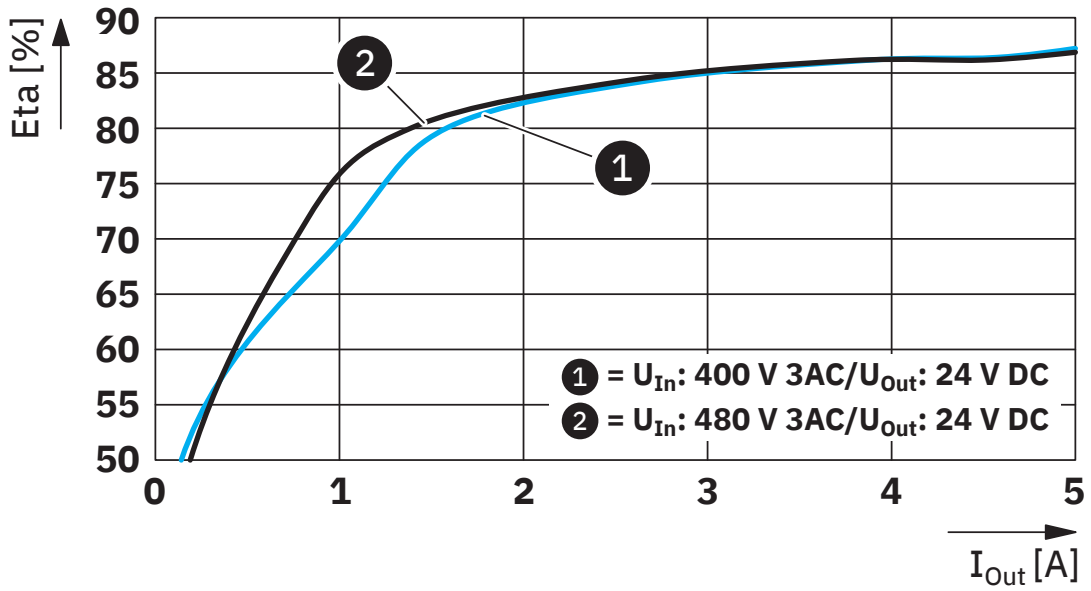
Efficiency

Diagram



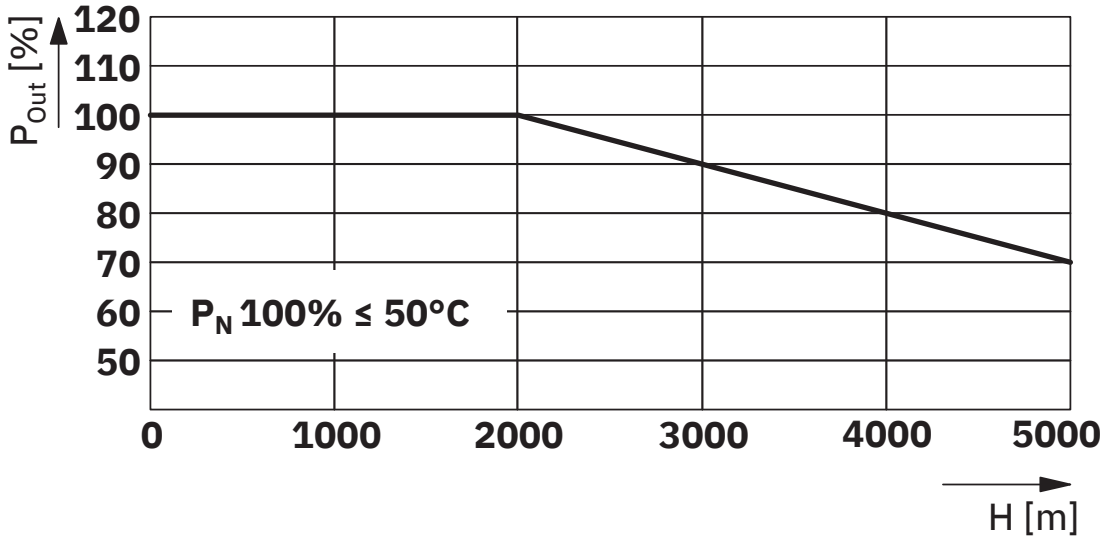
Power factor

Diagram



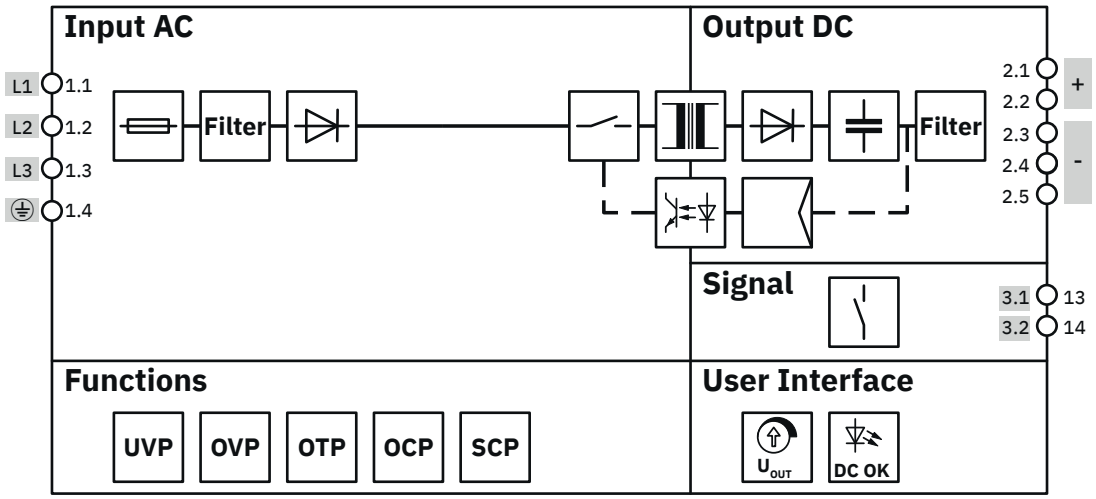
Input current/output current

Diagram



Output power Installation altitude

Block diagram



Block diagram

Approvals

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cULus Listed
Approval ID: E123528-20260129

Classifications

ECLASS

ECLASS-15.0	27040701

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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