

# TRIO3-PS/1AC/24DC/20 - Power supply unit



1159039

<https://www.phoenixcontact.com/in/products/1159039>

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Primary-switched power supply unit, TRIO POWER, Push-in connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 20 A

## Commercial Data

Item number	1159039
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMPD13
GTIN	4063151166250
Weight per Piece (including packing)	1,011 g
Weight per Piece (excluding packing)	940 g
Country of origin	CN

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## 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 % 115 V AC ... 240 V AC $\pm$ 10 % (UL)
Derating	< 100 V AC (1 %/V) 2.5 %/K, > 60 °C
Typical national grid voltage	120 V AC 230 V AC
Voltage type of supply voltage	AC
Inrush current	< 21 A (25 °C)
Inrush current integral ( $I^2t$ )	< 1.091 A <sup>2</sup> s
Frequency range ( $f_N$ )	50 Hz ... 60 Hz $\pm$ 10 %
Mains buffering time	typ. 23 ms (120 V AC) typ. 24 ms (230 V AC)
Current consumption	5.3 A (100 V AC) 4.4 A (120 V AC) 2.3 A (230 V AC) 2.15 A (240 V AC)
Protective circuit	Transient protection; Varistor
Power factor (cos phi)	0.96 (230 V AC)
Device mains fuse	10 A internal (device protection)
Recommended breaker for input protection	6 A ... 16 A (Characteristic B, C, D, K or comparable)
Discharge current to PE	< 3.5 mA

#### DC operation

Input voltage range	100 V DC ... 240 V DC $\pm$ 10 % 160 V DC ... 240 V DC $\pm$ 10 % (UL)
Derating	< 140 V DC (1 %/V)
Current consumption	5.2 A (100 V DC) 2.1 A (240 V DC)

### Output data

Efficiency	typ. 93.49 % (120 V AC) typ. 94.42 % (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 ( $I_N$ )	20 A
Dynamic Boost ( $I_{Dyn.Boost}$ )	max. 30 A (5 s)
Short-circuit-proof	yes

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Derating	60 °C ... 70 °C
Crest factor	typ. 1.77 (120 V AC)
	typ. 1.6 (230 V AC)
Output power ( $P_N$ )	480 W
Output power ( $P_{Dyn. Boost}$ )	max. 720 W (5 s)
Connection in parallel	yes, for increased efficiency and redundancy
Connection in series	yes, for increased output voltage (observe SELV limit)
Feedback voltage resistance	$\leq 35$ V DC
Protection against overvoltage at the output (OVP)	$\leq 35$ V DC
Residual ripple	typ. 50 mV <sub>PP</sub> (with nominal values)
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
	< 3 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage $\pm 10$ %)
Rise time	$\leq 1$ s ( $U_{Out} = 10$ % ... 90 %)
Minimum no-load power dissipation	< 1.3 W (120 V AC)
Maximum no-load power dissipation	< 1.37 W (230 V AC)
Minimum nominal load power dissipation	< 33.37 W (120 V AC)
Power loss nominal load max.	< 26.72 W (230 V AC)
Integrated fuse protection	no

## Signal relay 13/14

Position	3.x
Position marking	3.1 (13), 3.2 (14)
Switch contact (floating)	OptoMOS
Switching voltage	max. 30 V DC (SELV)
Current carrying capacity	max. 100 mA
State condition	$U_{Out} > 21$ V DC and $I_{Out} < 0.9 \times I_N$ (Contact closed)
	$U_{Out} < 21$ V DC or $I_{Out} > 0.9 \times I_N$ (averaging over 60 s) (Contact open)

## Connection data

### Input

Position	1.x
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### Conductor connection

Connection method	Push-in connection
rigid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
	1.5 mm <sup>2</sup> (recommended)
flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
	1.5 mm <sup>2</sup> (recommended)
flexible with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
	1.5 mm <sup>2</sup> (recommended)
flexible with ferrule with plastic sleeve	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
	1.5 mm <sup>2</sup> (recommended)
rigid (AWG)	24 ... 12 (Cu)