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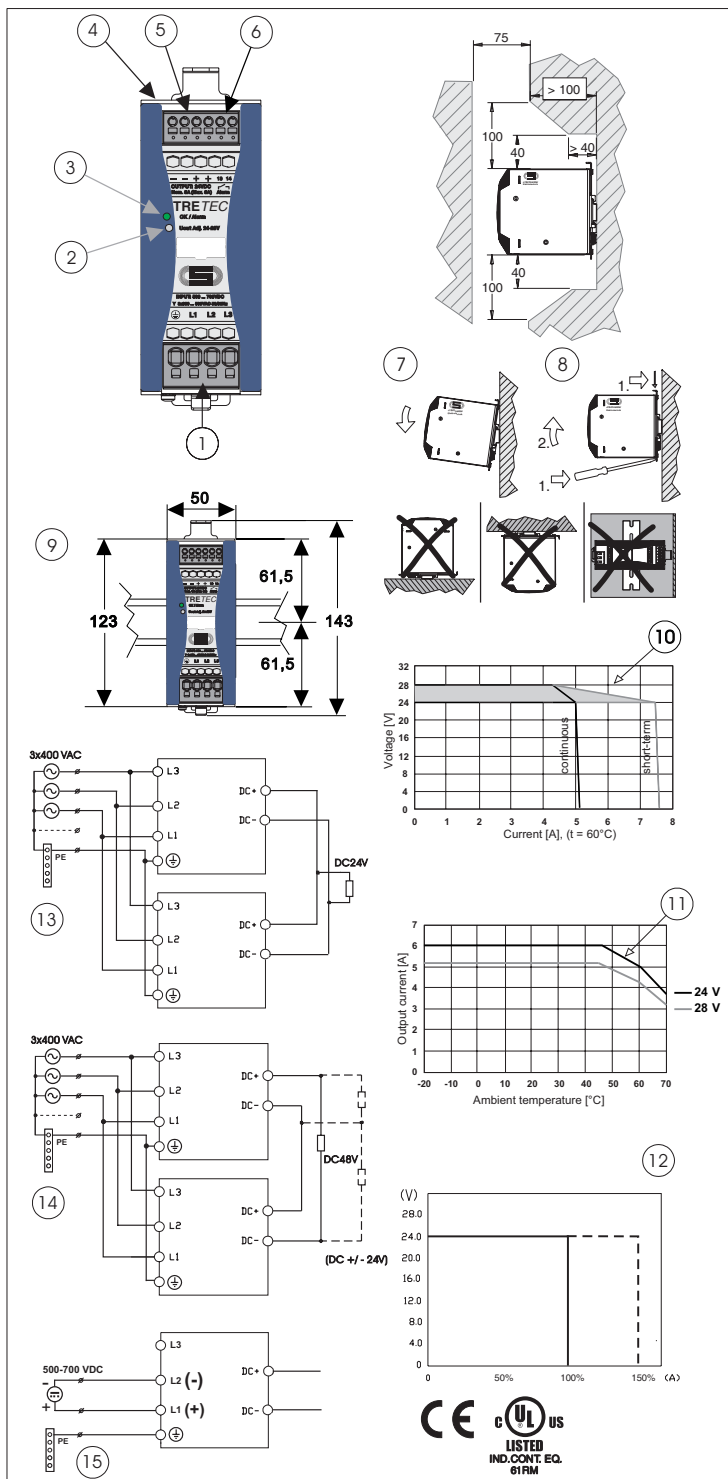
TRETEC 2406N

Art. No. NFPG1529G01001

Operating Instructions

IMPORTANT

In order to take the best advantage of the features that this power supply has to offer and to ensure long term reliability for your equipment, please read these instructions carefully before installation and use. They should be retained for future reference.



A. General

This unit employs many features previously unavailable in an industrial power supply. It has been designed to withstand the high levels of interference found in heavy industry and has emission levels low enough for it to be used in residential, commercial and light industrial environments.

The TRETEC 2406N has a high level of reserve power. This enables loads with significant inrush current to be supported and will also ensure that circuit breakers will trip in event of short circuit.

A protective feature is provided which will take control as the unit approaches the power limit due the overload or excessive temperature brought about by lack of ventilation.

If input voltage drops down to 3 x 300 V AC for 4 sec, output voltage still complies to PLC standard EN 61131-2 (≥ 20.4 V DC).

Use only in star-architecture TN, TT and IT networks.

Only for use in pollution degree 2 environment (Controlled Environment).

B. Technical Data

If not otherwise specified the measured values are referring to an ambient temperature of 25°C, with nominal input voltage of 3 x 400 V AC and load 5 A / 24 V DC.

(2) Technical specification, Art. No. NFPG1529G01001

V1.0

Nominal voltage	3 x 400 V AC -10% / +25%, 500 ... 700 V DC**
Input voltage range	3 x 324 ... 572 V AC, 450 ... 745 V DC**
Use allowed with two phases	2 x 340 ... 572 V AC
Nominal frequency	50/60 Hz $\pm 6\%$
Input current, I_{nom}	0.45 A / 3x360 V AC ... 0.30 A / 3x500 V AC
Input current with two phase	0.61 A / 2 x 360 V AC
Inrush current	< 9.5 A / 3 x 500 V AC after 1 ms
Efficiency, typ.	92.5% / 3 x 400 V AC, 91.8% / 3 x 480 V AC
Power factor, typ.	0.61 / 3 x 400 V AC and 24 V DC / 5 A
Internal fuse	3 x 6.3 A (T)
External fuse max.	3 x 20 A (T)
Safety class	1
Output voltage	24 V DC, adjustable 24 ... 28 V DC
Static regulation accuracy	$\pm 1\%$
Dynamic regulation accuracy typ.	0 $\rightarrow$ 100%, 5% 1ms / 100% $\rightarrow$ 5%, 5% 1ms
Start-up time	< 400 ms
Hold up time of the output	> 25 ms / 3 x 400 V AC and 24 V DC / 5 A
Output current, continuous 24 V DC	6 A (+45°C) / 5 A (+60°C) / 3.7 A (+70°C)
Output current, continuous 28 V DC	5.1 A (+45°C) / 4.3 A (+60°C) / 3.2 A (+70°C)
Output current (power boost)	7.5 A / > 5 s
Output current, short circuit, typ.	5.5 A
Output ripple	< 20 mV _{ms}
Usage as battery charger	Yes, with advanced parallel mode ON
Overloading / temperature protection	Yes
Overvoltage shutdown	typ. 30 V DC
Relative humidity	5 ... 95%, no condensing
Max. surrounding air temperature	-25°C ... +60°C (derating 60°C ... 70°C)
Storage temperature	-40°C ... +85°C
Protection class, case, EN 60529	IP20
Dimensions W x H x D; Weight	50 x 143 x 143 mm; 0,66 kg

* Operation is not included to UL508 approval.

** Customer needs to use suitable external protection.

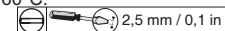
C. Features

Connectors:

Conductor sizes	(1) Input terminal:	(5) Output terminal:	(6) Alarm contact:
Solid	0,2 ... 10 mm ² 24 ... 8 AWG	0,2 ... 4 mm ² 24 ... 12 AWG	0,2 ... 4 mm ² 24 ... 12 AWG
Stranded	0,2 ... 6 mm ² 24 ... 10 AWG	0,2 ... 2,5 mm ² 24 ... 13 AWG	0,2 ... 2,5 mm ² 24 ... 13 AWG
Stranded with ferrule without plastic sleeve	0,2 ... 6 mm ² 24 ... 10 AWG	0,2 ... 2,5 mm ² 24 ... 13 AWG	0,2 ... 2,5 mm ² 24 ... 13 AWG
Stranded with ferrule with plastic sleeve	0,2 ... 4 mm ² 24 ... 12 AWG	0,2 ... 1,5 mm ² 24 ... 15 AWG	0,2 ... 1,5 mm ² 24 ... 15 AWG

Ferrule minimum length must be ≥ 8 mm. Use copper conductors that are designed for a minimum operating temperature of 75°C for ambient up to 60°C.

[2] Potentiometer, output voltage adjust 24 ... 28 V DC.



[3] Bi-colour LED, output voltage "OK" - green, Alarm - red.

[4] Parallel mode switch, turn the switch to ON state when power supplies are connected in parallel, factory setting is OFF.

[6] Potential free alarm contact (13/14), max. ratings 30 V AC/DC / 50 mA (resistive) SELV.

D. Location

The power supply is cooled by natural convection. Top and bottom clearances should be 50 mm at minimum. Min. 6 mm side clearance is recommended, if adjacent device is generating heat. The ambient temperature should be measured on the underside of the unit. There will be an increase of 25°C at the top. If natural convection is restricted, forced cooling should be used. Mounting should comply with EN 60950-1 point 4.7 and 4.6.1. Protection class of the case IP20 (EN 60529).

E. Mounting [9]

The rail should be fixed solidly so that it cannot twist when mounting or removing the unit. Mounting instructions [7], Removing instructions [8].

F. Switching on

Factory set, ready to use, check the connection diagrams for parallel and series connection. Check the connection diagram for DC use [15].

G. Loading capacity

The nominal current is 5 A but due to the nature of industrial loading, the power supply has been designed to support loads with high inrush currents without damage or shutdown. Curve [10] shows the typical voltage / current curve. Decreasing part of the curve [10] shows the current limitation. Curve [11] shows the typical overload / temperature limit. To ensure correct convection cooling, the unit must always be mounted with rail horizontally. Power supply is designed to give 150% output power (power boost) for min. 5 seconds [12].

H. Parallel connection [13]

Up to 3 units may be connected in parallel. The open circuit voltage of each unit should be set to same value. Accuracy of setting will determine how well the units share the load current. Turn parallel mode switch to ON state. The gauge and length of the cable between each power supply and the common point should be the same.

I. Series connection

Up to 2 units may be connected in series to give either 48 V DC or ± 24 V DC. Check the connection diagram [14]. With more than two units in series, the output voltage will exceed the SELV limits.

J. Using circuit breakers on the power supply output:

On the short circuit, the power supply will trip, for example, the following ABB circuit breaker:

- S201-Z1,6A

K. Standards

Electrical safety	EN 60950-1, SELV
EMC	EN 61204-3, EMI: Class B, EMS: Industrial environment
Immunity	EN 61000-4-2, ESD 6/8 kV
	EN 61000-4-3, RF-field 10 V/m
	EN 61000-4-4, EFT/B 2/2 kV
	EN 61000-4-5, Surge 2/4 kV
	EN 61000-4-6, Cond. Rf 10 V
	EN 61000-4-11
	SEMI F47-0706
Emissions	CISPR 22, RF-emissions
	EN 61000-3-2, (valid with three phase use)
	EN 61000-3-3
	EN 60204-1 60 V / 1 s
Overvoltage category	II (EN 60950-1)

We reserve the right to change this specification.

