

TRIO-PS/600DC/24DC/20 DIN Rail Power Supply

perle.com/products/industrial-power-supply/trio-dc-dc-high-input.shtml

DC to DC Converter for Frequency or Power Inverter

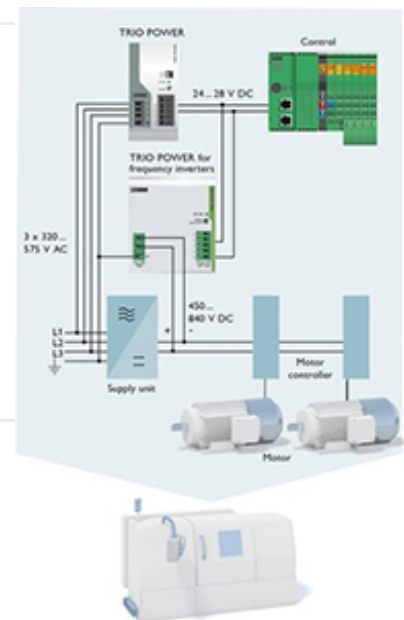
- 24V DC Output Voltage
- 20 Amps Output
- 480 Watts Output
- Input Voltage Range: 450 to 840 V DC

The TRIO-PS/600DC/24DC/20 Industrial Power Supply is specifically designed for connection to high input voltages such as frequency converters. It is ideally suited for connection to 600 V DC intermediate circuits of frequency inverters. In the event of a mains line supply failure, the connected 24 V loads are supplied without interruption using the kinetic energy of the motor.



22.5 to 29.5 V DC Adjustable Output Voltage Range

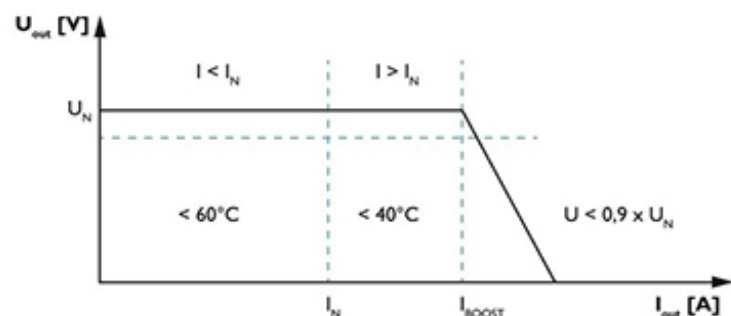
Using the rotary potentiometer on the front face of the TRIO power supply, the output voltage can be optimally adjusted to meet specific application environment requirements. For example, you can easily adjust to compensate for a voltage drop caused by a long cable length.



POWER BOOST: reliably start difficult loads

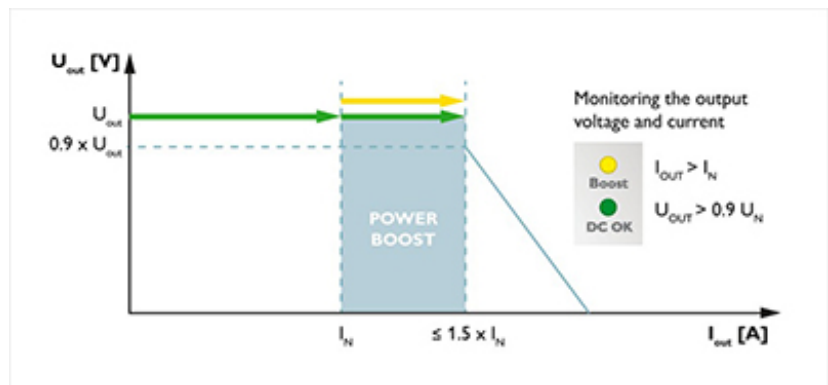
A high degree of flexibility is required to configure, optimize and expand large systems. To optimally adapt a system or machine to your requirements, a power reserve in the power supply unit is crucial. With this TRIO Power Boost function a **static boost will continuously provide up to 125%** of the nominal current. This is useful when it is not possible to predict which loads will be switched on at the same time or high switch-on currents of capacitive loads have to be absorbed without voltage dips.

Preventive function monitoring reports critical operating states before they occur



With the TRIO-PS/600DC/24DC/20 Industrial Power Supply, the output voltage and output current are constantly monitored. Preventive function monitoring visualizes critical operating states and indicates them locally and remotely to the controller as follows:

- Via LED
- Via floating relay contact
- Via active switching output



Industrial operating temperature of -25°C to +70°C

Equipment found in traffic management, oil and gas pipelines, weather tracking, industrial and outdoor applications must function in temperatures that cannot be supported by a commercial power supplies. With an operating temperature of -25°C to +70°C this TRIO Industrial Power Supply is ideal for use with equipment subjected to harsh environments and severe temperatures.

High efficiency and low no load power consumption

Compared with other products on the market, the TRIO-PS/600DC/24DC/20 Industrial Power Supply provides excellent energy savings. With a very low no load power consumption and high efficiency at nominal load, just a small amount of electrical energy is converted into undesired heat energy making these very ECO friendly power supplies.

Ideal application environments for a TRIO DIN Rail Power Supply

- Railways: EN 50121-4 Railway approval
- Machine building
- Automated production process
- Industrial control, automation, assembly, and test equipment
- Building control, security and surveillance, and climate control systems.
- Power countless industrial automation devices such as sensors, controllers and valves

Other reasons to choose a TRIO Industrial DC to DC Converter

- Compact buffer solution
- Fast tripping of standard circuit breakers
- Voltage Isolation input/output: 4 kV AC
- Protections: Short-circuit, Overload, Over voltage, Over-temperature

Environmental Product Compliance

China RoHS

Environmentally Friendly Use Period = 25;

| General | |
|----------------------------------|--|
| Net weight | 2 kg |
| Efficiency | > 91 % (With 600 V DC and nominal values) |
| Insulation voltage input/output | 4 kV AC (type test) |
| | 2 kV AC (routine test) |
| Insulation voltage input / PE | 2 kV AC (type test) |
| | 2 kV AC (routine test) |
| Insulation voltage output / PE | 500 V DC (routine test) |
| Protection class | I (with PE connection) |
| Degree of protection | IP20 |
| MTBF (IEC 61709, SN 29500) | |
| | > 701000 h (40 °C) |
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
| Assembly instructions | alignable: horizontally 0 mm, vertically 50 mm |
| Standards and Regulations | |
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Noise immunity | EN 61000-6-2:2005 |
| Connection in acc. with standard | CUL |
| Standards/regulations | EN 61000-4-2 |
| Contact discharge | 4 kV (Test Level 2) |
| Standards/regulations | EN 61000-4-3 |
| Frequency range | 80 MHz ... 3 GHz |
| Test field strength | 10 V/m |
| Frequency range | 1.4 GHz ... 2 GHz |
| Test field strength | 3 V/m |
| Standards/regulations | EN 61000-4-4 |
| Comments | Criterion B |
| Standards/regulations | EN 61000-6-3 |
| | EN 61000-4-6 |

| | |
|--|---|
| Frequency range | 150 kHz ... 80 MHz |
| Voltage | 10 V (Test Level 3) |
| Standards/regulations | EN 61000-4-11 |
| Low Voltage Directive | Conformance with LV directive 2006/95/EC |
| Standard - Electrical safety | EN 60950-1/VDE 0805 (SELV) |
| Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations | EN 50178/VDE 0160 (PELV) |
| Standard – Safety extra-low voltage | EN 60950-1 (SELV) |
| | EN 60204 (PELV) |
| Standard - Safe isolation | DIN VDE 0100-410 |
| Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment | EN 50178 |
| Standard – Limitation of mains harmonic currents | EN 61000-3-2 |
| UL approvals | UL/C-UL listed UL 508 |
| | UL/C-UL Recognized UL 60950-1 |
| Shock | 18 ms, 30g, in each space direction (according to IEC 60068-2-27) |
| Vibration (operation) | < 15 Hz, amplitude ± 2.5 mm (according to IEC 60068-2-6) |
| | 15 Hz ... 150 Hz, 2.3g, 90 min. |
| Rail applications | EN 50121-4 |

Connection data, input

| | |
|---------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 2.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 2.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 14 |
| Stripping length | 9 mm |
| Screw thread | M2,5 |

Output data

| | |
|---|---|
| Nominal output voltage | 24 V DC $\pm 1\%$ |
| Setting range of the output voltage (U_{Set}) | 22.5 V DC ... 29.5 V DC ($U_{IN} > 475$ V DC) |
| | 22.5 V DC ... 28 V DC ($U_{IN} \leq 475$ V DC) |
| Nominal output current (I_N) | 20 A (-25 °C ... 55 °C) |
| Derating | 55 °C ... 70 °C (2.5%/K) |
| Connection in parallel | Yes, for redundancy and increased capacity |
| Connection in series | yes |
| Feedback resistance | 35 V DC |
| Protection against surge voltage on the output | Yes, < 35 V DC |
| Max. capacitive load | Unlimited |
| Active current limitation | Approx. 25 A (for short-circuit) |
| Control deviation | < 1 % (change in load, static 10 % ... 90 %) |
| | < 2 % (change in load, dynamic 10 % ... 90 %) |
| | < 0.1 % (change in input voltage $\pm 10\%$) |
| Residual ripple | < 40 mV _{PP} |
| Output power | 480 W |
| Typical response time | < 1 s |
| Peak switching voltages nominal load | < 10 mV _{PP} |
| Maximum power dissipation in no-load condition | 3.8 W |
| Power loss nominal load max. | 45 W |
| Dimensions | |
| Width | 115 mm |
| Height | 130 mm |
| Depth | 152.5 mm |
| Weight per piece | 1780.0 GRM |
| Input data | |
| Nominal input voltage range | 600 V DC |

| | |
|-------------------------------------|--|
| Input voltage range | 450 V DC ... 840 V DC (Dielectric strength up to 900 V DC) |
| Frequency range DC | 0 Hz |
| Discharge current to PE | < 3.5 mA |
| Current consumption | 0.9 A (600 V DC) |
| Nominal power consumption | 527.3 VA |
| Inrush surge current | < 26 A |
| Mains buffering | typ. 15 ms (600 V DC) |
| Choice of suitable circuit breakers | 4 A ... 6 A (1000 V DC) |
| Power factor (cos phi) | 1 |
| Type of protection | Transient surge protection |
| Protective circuit/component | Varistor |

Connection data, output

| | |
|---------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.5 mm ² |
| Conductor cross section solid max. | 6 mm ² |
| Conductor cross section flexible min. | 0.5 mm ² |
| Conductor cross section flexible max. | 4 mm ² |
| Conductor cross section AWG min. | 12 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 14 mm |
| Screw thread | M3 |

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 |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing) |
| Climatic class | 3K3 (in acc. with EN 60721) |
| Degree of pollution | 2 |

Approvals

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- cULus Listed
 - cULus Recognized
 - EAC
 - UL Recognized
 - cUL Recognized
 - cUL Listed
 - UL Listed

Block diagram

