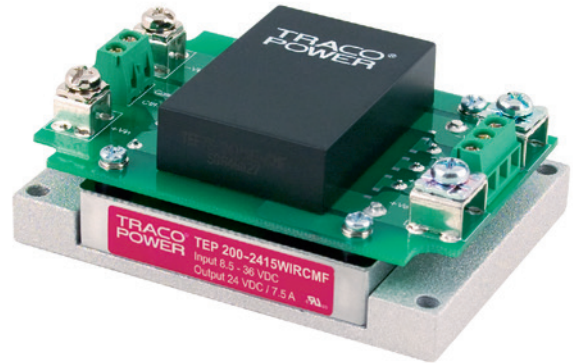


Features

- ◆ Chassis mount with screw terminal block
- ◆ Including EMI filter to meet EN 55022, class A
- ◆ Ultra wide 4:1 input voltage ranges 8.5–36, 16.5–75, 43–160 VDC
- ◆ EN 50155 approval for railway applications
- ◆ Very high efficiency up to 91%
- ◆ No minimum load
- ◆ Soft start
- ◆ Under voltage lock-out circuit
- ◆ Adjustable output voltage +10/-20%
- ◆ Sense line
- ◆ Remote On/Off input
- ◆ Reverse input voltage protection
- ◆ Over temperature protection
- ◆ 3-year product warranty



The TEP 200WIR Series is a family of isolated high performance dc-dc converter modules with ultra-wide 4:1 input voltage ranges. They come in chassis mount version with screw terminal block and with integrated EMI input filter to meet EN 55022 class A. A very high efficiency allows full power operation at 25°C with only 100 LFM air flow cooling and operation at 60°C with only 40% power derating.

The very wide input voltage range and reverse input voltage protection make these converters interesting solution for battery operated systems. Typical applications are in telecom/datacom, industry control and railway systems for on board power distribution.

Standard Models

| Order code | Input voltage | Output voltage | Output current max. | Efficiency typ. |
|--------------------|--|----------------|---------------------|-----------------|
| TEP 200-2412WIRCMF | 8.5 – 36 VDC (24 VDC nominal) | 12 VDC | 15 A | 89 % |
| TEP 200-2413WIRCMF | | 15 VDC | 12 A | 90 % |
| TEP 200-2415WIRCMF | | 24 VDC | 7.5 A | 90 % |
| TEP 200-2416WIRCMF | | 28 VDC | 6.5 A | 90 % |
| TEP 200-2418WIRCMF | | 48 VDC | 3.7 A | 89 % |
| TEP 200-4812WIRCMF | 16.5 – 75 VDC (48 VDC nominal) | 12 VDC | 18 A | 90 % |
| TEP 200-4813WIRCMF | | 15 VDC | 14 A | 91 % |
| TEP 200-4815WIRCMF | | 24 VDC | 9 A | 90 % |
| TEP 200-4816WIRCMF | | 28 VDC | 7.5 A | 91 % |
| TEP 200-4818WIRCMF | | 48 VDC | 4.5 A | 90 % |
| TEP 200-7212WIRCMF | 43 – 160 VDC (110 VDC nominal) | 12 VDC | 20 A | 89 % |
| TEP 200-7213WIRCMF | | 15 VDC | 16 A | 90 % |
| TEP 200-7215WIRCMF | | 24 VDC | 10 A | 89 % |
| TEP 200-7216WIRCMF | | 28 VDC | 8.5 A | 90 % |
| TEP 200-7218WIRCMF | | 48 VDC | 5 A | 89 % |

Options

| | |
|------------------|--|
| TEP-MK1 | Din-rail mounting kit (incl. mounting screws) |
| on demand | Models with 3.3 VDC or 5.0 VDC output |
| | Models with 53 VDC output (input voltage range 33 - 75 VDC) |
| | Models with 2:1 input voltage ranges: 8.5-22, 16.5-36, 33-75 VDC (only to optimize cost at high volumes) |
| | Models for PCB mount (EMI Filter not included), optional heatsink and chokes for external filter |
| | Negative (passive = Off) Remote On/Off function (standard is passive = On) |

Input Specifications

| | |
|--|---|
| Input current at no load (nominal input voltage) | 24 V, 12 & 15 VDC models: 30 mA typ. 24 V, 24 VDC model: 35 mA typ. 24 V, 28 VDC model: 40 mA typ. 24 V, 48 VDC model: 45 mA typ. 48 V, 28 & 48 VDC models: 25 mA typ. 48 V, other models: 20 mA typ. 110 V, 28 & 48 VDC models: 15 mA typ. 110 V, other models: 10 mA typ. |
| Start-up voltage | 24 V models: 9.0 VDC max. 48 V models: 18 VDC max. 110 V models: 43 VDC max. |
| Under voltage shut down (lock-out circuit) | 24 V models: 7.3 – 8.1 VDC 48 V models: 15.5 – 16.3 VDC 110 V models: 33.0 – 36.0 VDC |
| Surge voltage (1 sec. max.) | 24 V models: 50 VDC 48 V models: 100 VDC 110 V models: 185 VDC |
| Conducted noise | EN 55022 class A without external components |
| EMC immunity | EN 50121-3-2 EN 61000-4-2, air ± 8 kV, contact ± 6 kV, perf. criteria A EN 61000-4-3, 20 V/m, perf. criteria A EN 61000-4-4, ± 2 kV, perf. criteria A EN 61000-4-5, ± 2 kV perf. criteria A, 24 / 48V models: chemi-con KY 200 μ F, 100 V, ESR 48 mOhm 110 V models: ruby-con BXF 100 μ F, 250 V EN 61000-4-6, 10 Vrms, perf. criteria A |
| Reverse voltage protection | parallel diode |
| Recommended input fuse (slow blow) | 24 V models: 20 A 48 / 110 V models: 10 A |

Output Specifications

| | |
|--|---|
| Voltage set accuracy (at full load, nominal input) | ± 1 % |
| Output voltage adjustment | +10 % / -20 % by external resistor see application note |
| Regulation | - Input variation V_{in} min. to V_{in} max. 0.1 % max. - Load variation (0 – 100 %) 12 / 15 VDC models: 0.25 % max. 24 – 48 VDC models: 0.2 % max. |
| Temperature coefficient | ± 0.02 %/K |
| Minimum load | not required |
| Remote sense | 10 % max. of V_{out} nom. (trim up value to subtract) |
| Ripple and noise (20 MHz Bandwidth) | 12 / 15 VDC models: 100 mVp-p typ. 24 / 28 VDC models: 200 mVp-p typ. 48 VDC models: 300 mVp-p typ. |
| Start up time (nominal V_{in} and constant resistive load) | 75 ms typ. (at power On or remote On/Off) |
| Transient response (25 % load step change) | 200 μ s typ., 250 μ s max. |
| Output current limitation | at 120 – 150 % of I_{out} max. |
| Over voltage protection | at 115 – 130 % of V_{out} nom. |
| Short circuit protection | indefinite, automatic recovery. |

| Max. capacitive load [μ F] | 12 VDC | 15 VDC | 24 VDC | 28 VDC | 48 VDC |
|---------------------------------|--------|--------|--------|--------|--------|
| 24 VDC Input models | 12'500 | 8'000 | 3'100 | 2'300 | 770 |
| 48 VDC Input models | 15'000 | 9'300 | 3'700 | 2'600 | 930 |
| 110 VDC Input models | 16'600 | 10'600 | 4'100 | 3'000 | 1'000 |

General Specifications

| | | |
|---|--|---|
| Temperature ranges | <ul style="list-style-type: none"> – Operating (ambient) – Case temperature – Storage | –40°C to +75°C +115°C max. –40°C to +105°C |
| Derating (convection cooling) Guideline values: | | depending on installation! see Application note |
| Over temperature protection | | at +120°C |
| Thermal shock, mechanical shock & vibration | <ul style="list-style-type: none"> – Test conditions | EN 61373, MIL-STD-810F www.tracopower.com/products/mil810.pdf |
| Humidity (non condensing) | | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +70°C, ground benign) | | 300'000 h |
| Isolation voltage (60sec.) | <ul style="list-style-type: none"> – Input/Output – Input/Case | 2'250 VDC (basic insulation) 1'600 VDC |
| Isolation capacitance | – Input/Output | 2500 pF max. |
| Isolation resistance | – Input/Output (500 VDC) | >1 GOhm min. |
| Switching frequency | | 250 kHz typ. (puls width modulation) |
| Safety standards | <ul style="list-style-type: none"> – UL online certification E188913, QQQQ2 – Railway immunity – Flamability identified acc. – Certification documents | UL 60950-1 2nd edition + AM1 IEC/EN 60950-1 EN 50155, EN45545-2 www.tracopower.com/overview/tep200wir |
| Remote On/Off | <ul style="list-style-type: none"> – positive logic (standard) – negative logic (option) – Off idle current: | <ul style="list-style-type: none"> – On: 3 to 12 VDC or open circuit – Off: 0 to 1.2 VDC or short circuit pin 1 and 3 – On: 0 to 1.2 VDC or short circuit pin 1 and 3 – Off: 3 to 12 VDC or open circuit 3 mA |
| Environmental compliance | <ul style="list-style-type: none"> – Reach – RoHS | www.tracopower.com/overview/tep200wir RoHS directive 2011/65/EU |

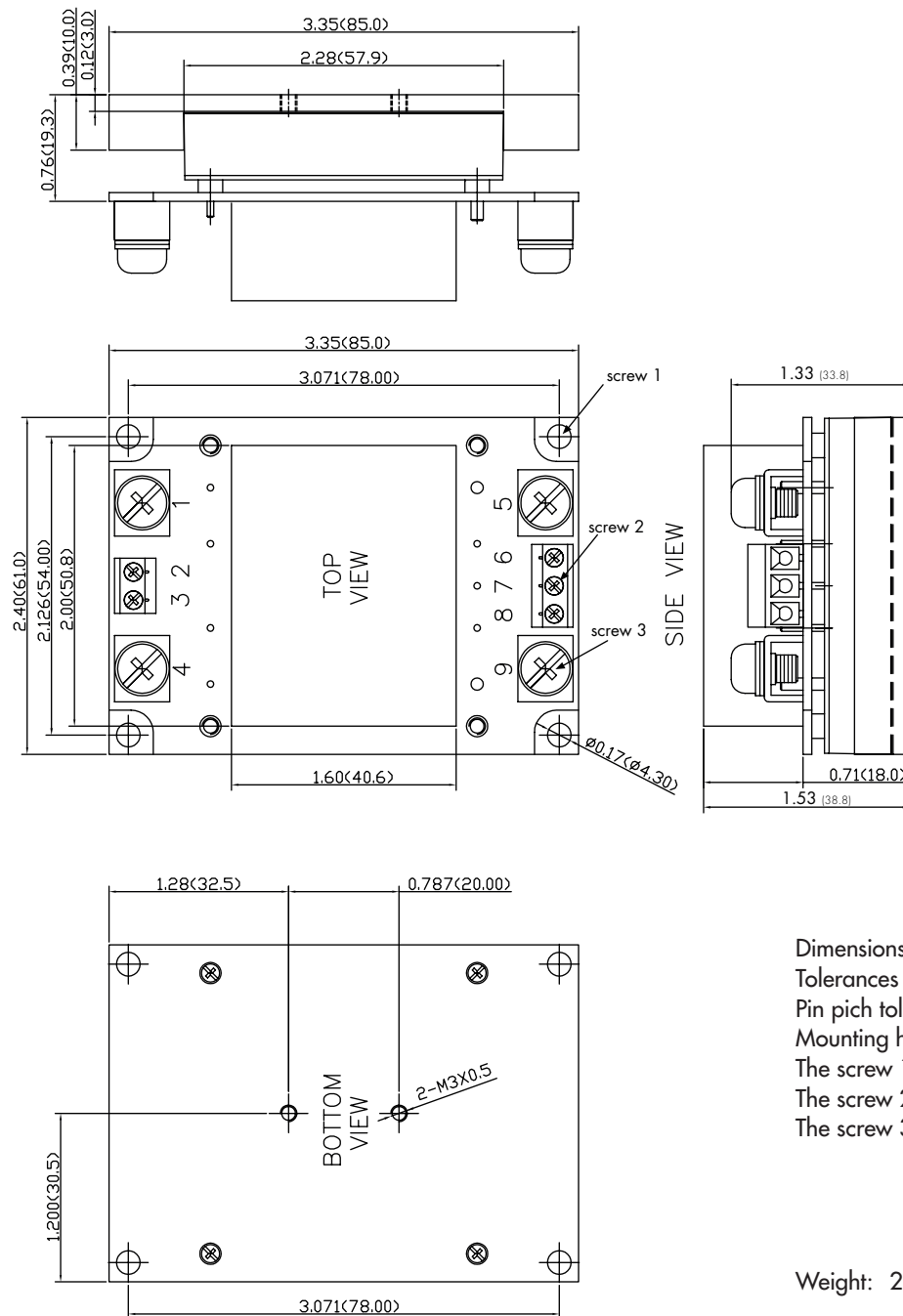
Application note: www.tracopower.com/products/tep200wir-application.pdf

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

General Specifications

| | |
|------------------|---|
| Casing material | 24 Vin & 48 Vin models: metal 110 Vin models: Aluminium base-plate with plastic casing |
| Potting material | silicone (UL94V-0 rated) |
| Base material | FR4 |

Dimensions



| Pin-Out | |
|---------|---------------|
| Pin | |
| 1 | - Vin |
| 2 | NC |
| 3 | Remote On/Off |
| 4 | + Vin |
| 5 | - Vout |
| 6 | - Sense* |
| 7 | Trim |
| 8 | + Sense* |
| 9 | + Vout |

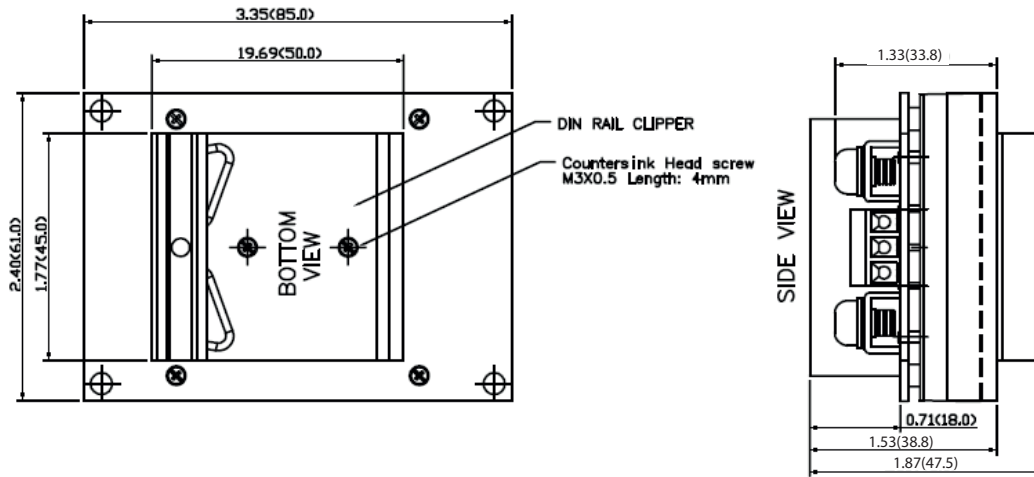
*Sense line to be connected to the output either at the module or at the load under regard of polarity.

Dimensions in Inch, () = mm
 Tolerances ± 0.02 (± 0.5)
 Pin pitch tolerances ± 0.01 (± 0.25)
 Mounting hole pitch tolerances ± 0.01 (± 0.25)
 The screw 1 locked torque: MAX 11.2kgf-cm/1.14N-m
 The screw 2 locked torque: MAX 5.2kgf-cm/0.51N-m
 The screw 3 locked torque: MAX 16.8kgf-cm/1.64N-m

Weight: 287 g (10.12oz)

Options

TEP-MK1 DIN-rail clip for chassis mount models



Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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