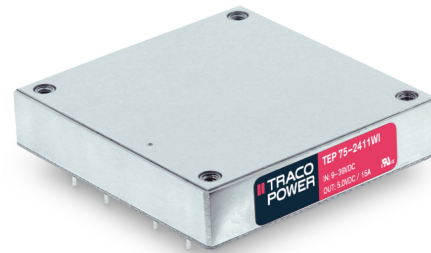


- Rugged, compact metal case
- Screw terminal adaptor available for easy connection
- EN 50155 approval for railway applications
- Ultra wide 4:1 input voltage range
- Full load operation up to +60°C with convection cooling
- Undervoltage lockout
- Reverse input voltage protection
- Input protection filter
- 3-year product warranty



The TEP-75WI Series is a family of isolated high performance DC/DC converter modules with ultra-wide 4:1 input voltage ranges which come in a rugged, sealed metal case. These converters are suitable for a wide range of applications. For easy connection there is also a unique adaptor available with screw terminals. A very high efficiency allows an operating temperature up to +60°C with natural convection cooling without power derating. Further features include output voltage trimming, Remote On/Off and under voltage lockout. The very wide input voltage range and reverse input voltage protection make these converters also an interesting solution for battery operated systems.

Models				
Order Code	Input Voltage Range	Output Voltage nom.	Output Current max.	Efficiency typ.
TEP 75-2411WI	9 - 36 VDC (24 VDC nom.)	5 VDC	15'000 mA	88 %
TEP 75-2412WI		12 VDC	6'300 mA	88 %
TEP 75-2413WI		15 VDC	5'000 mA	88 %
TEP 75-2415WI		24 VDC	3'200 mA	87 %
TEP 75-2416WI		28 VDC	2'700 mA	87 %
TEP 75-2418WI		48 VDC	1'600 mA	87 %
TEP 75-4811WI	18 - 75 VDC (48 VDC nom.)	5 VDC	15'000 mA	90 %
TEP 75-4812WI		12 VDC	6'300 mA	90 %
TEP 75-4813WI		15 VDC	5'000 mA	89 %
TEP 75-4815WI		24 VDC	3'200 mA	88 %
TEP 75-4816WI		28 VDC	2'700 mA	88 %
TEP 75-4818WI		48 VDC	1'600 mA	87 %
TEP 75-7211WI	43 - 160 VDC (110 VDC nom.)	5 VDC	15'000 mA	91 %
TEP 75-7212WI		12 VDC	6'300 mA	91 %
TEP 75-7213WI		15 VDC	5'000 mA	91 %
TEP 75-7215WI		24 VDC	3'200 mA	90 %
TEP 75-7216WI		28 VDC	2'700 mA	90 %
TEP 75-7218WI		48 VDC	1'600 mA	90 %

Options	
<b>TEP-HS1</b>	- Heat-sink for standard version (incl. thermal pad and mounting screws)
<b>Suffix -CM</b>	- Chassis mount models without filter: <a href="http://www.tracopower.com/products/tep75wicm.pdf">www.tracopower.com/products/tep75wicm.pdf</a>
<b>Suffix -CMF</b>	- Chassis mount models with filter to meet EN 55032 class A: <a href="http://www.tracopower.com/products/tep75wicmf.pdf">www.tracopower.com/products/tep75wicmf.pdf</a>
<b>on demand</b> (backorder with MOQ non stocking item)	<ul style="list-style-type: none"> <li>- Optional model with 3.3 VDC / 20'000 mA Output and 9 - 36 VDC Input</li> <li>- Optional model with 3.3 VDC / 20'000 mA Output and 18 - 75 VDC Input</li> <li>- Optional model with 3.3 VDC / 20'000 mA Output and 43 - 160 VDC Input</li> <li>- Inverse Remote On/Off function (passive = off)</li> </ul>

Input Specifications	
Input Current	<ul style="list-style-type: none"> <li>- At no load</li> <li>24 Vin models: <b>85 mA typ.</b></li> <li>48 Vin models: <b>60 mA typ.</b></li> <li>110 Vin models: <b>10 mA typ.</b></li> <li>- At full load</li> <li>24 Vin models: <b>3'600 mA max.</b></li> <li>48 Vin models: <b>1'800 mA max.</b></li> <li>110 Vin models: <b>1'350 mA max.</b></li> </ul>
Surge Voltage	<ul style="list-style-type: none"> <li>24 Vin models: <b>50 VDC max.</b> (1 s max.)</li> <li>48 Vin models: <b>100 VDC max.</b> (1 s max.)</li> <li>110 Vin models: <b>185 VDC max.</b> (1 s max.)</li> </ul>
Under Voltage Lockout	<ul style="list-style-type: none"> <li>24 Vin models: <b>7.3 VDC min. / 7.7 VDC typ. / 8.1 VDC max.</b></li> <li>48 Vin models: <b>15.5 VDC min. / 16 VDC typ. / 16.3 VDC max.</b></li> <li>110 Vin models: <b>33 VDC min. / 34.5 VDC typ. / 36 VDC max.</b></li> </ul>
Recommended Input Fuse	<ul style="list-style-type: none"> <li>24 Vin models: <b>15'000 mA</b> (fast acting)</li> <li>48 Vin models: <b>8'000 mA</b> (fast acting)</li> <li>110 Vin models: <b>3'150 mA</b> (slow blow)</li> </ul> <p>(The need of an external fuse has to be assessed in the final application.)</p>
Reverse Voltage Protection	<b>Parallel diode</b> (24 Vin and 48 Vin models only) (external input fuse required)
Input Filter	<b>Internal Pi-Type</b> (For 24 Vin models an input capacitor 4.7 µF X7R or 68 µF Nippon chemi-con KY is recommended for a reliable supply.)

Output Specifications	
Output Voltage Adjustment	<ul style="list-style-type: none"> <li>-20% to +10% (By external trim resistor)</li> <li>See application note: <a href="http://www.tracopower.com/overview/tep75wi">www.tracopower.com/overview/tep75wi</a></li> <li>Output power must not exceed rated power!</li> </ul>
Voltage Set Accuracy	<b>±1% max.</b>
Regulation	<ul style="list-style-type: none"> <li>- Input Variation (Vmin - Vmax) <b>0.1% max.</b></li> <li>- Load Variation (0 - 100%) <b>0.1% max.</b></li> </ul>
Ripple and Noise (20 MHz Bandwidth)	<ul style="list-style-type: none"> <li>3.3 Vout models: <b>100 mVp-p max.</b> (with 4.7 µF)</li> <li>5 Vout models: <b>100 mVp-p max.</b> (with 4.7 µF)</li> <li>12 Vout models: <b>125 mVp-p max.</b> (with 4.7 µF)</li> <li>15 Vout models: <b>125 mVp-p max.</b> (with 4.7 µF)</li> <li>24 Vout models: <b>250 mVp-p max.</b> (with 4.7 µF)</li> <li>28 Vout models: <b>250 mVp-p max.</b> (with 4.7 µF)</li> <li>48 Vout models: <b>350 mVp-p max.</b> (with 2.2 µF)</li> </ul>
Capacitive Load	<ul style="list-style-type: none"> <li>3.3 Vout models: <b>60'600 µF max.</b></li> <li>5 Vout models: <b>30'000 µF max.</b></li> <li>12 Vout models: <b>5'250 µF max.</b></li> <li>15 Vout models: <b>3'330 µF max.</b></li> <li>24 Vout models: <b>1'330 µF max.</b></li> <li>28 Vout models: <b>960 µF max.</b></li> <li>48 Vout models: <b>330 µF max.</b></li> </ul>

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

Minimum Load	Not required
Temperature Coefficient	±0.02 %/K max.
Start-up Time	60 ms typ. (110 Vin models) 25 ms typ. (other models)
Short Circuit Protection	Continuous, Automatic recovery
Output Current Limitation	150% typ. of I <sub>out</sub> max. (110 Vin models) 110 - 140% (other models)
Oversvoltage Protection	115 - 130% of V <sub>out</sub> nom.
Transient Response - Response Time	200 µs typ. / 250 µs max. (25% Load Step)

### Safety Specifications

Safety Standards	- IT / Multimedia Equipment  - Railway Applications - Certification Documents	IEC 60950-1 EN 60950-1 UL 60950-1 EN 50155 <a href="http://www.tracopower.com/overview/tep75wi">www.tracopower.com/overview/tep75wi</a>
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### EMC Specifications

EMI Emissions	- Conducted Emissions  - Radiated Emissions	EN 55011 class B (with external filter) EN 55032 class B (with external filter) EN 55011 class B (with external filter) EN 55032 class B (with external filter) External filter proposal: <a href="http://www.tracopower.com/overview/tep75wi">www.tracopower.com/overview/tep75wi</a>
EMS Immunity	- Electrostatic Discharge  - RF Electromagnetic Field - EFT (Burst) / Surge  - Conducted RF Disturbances - PF Magnetic Field	EN 50155 (Railway Applications) EN 55024 (IT Equipment) Air: EN 61000-4-2, ±8 kV, perf. criteria A Contact: EN 61000-4-2, ±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 Ext. input component: 24 & 48 Vin models: 2 x KY 220 µF 110 Vin models: 2 x KY 150 µF Continuous: EN 61000-4-6, 10 V <sub>rms</sub> , perf. criteria A 1 s: EN 61000-4-8, 100 A/m, perf. criteria A EN 61000-4-8, 1000 A/m, perf. criteria A

### General Specifications

Relative Humidity	95% max. (non condensing)	
Temperature Ranges	- Operating Temperature - Case Temperature - Storage Temperature	-40°C to +75°C +105°C max. -55°C to +125°C
Power Derating	- High Temperature	See application note: <a href="http://www.tracopower.com/overview/tep75wi">www.tracopower.com/overview/tep75wi</a>
Over Temperature Protection Switch Off	- Protection Mode - Measurement Point	115°C typ. (Automatic recovery at 105°C) Base-Plate
Cooling System		Natural convection (20 LFM)
Sense Function		10% max. of V <sub>out</sub> nom.
Remote Control	- Voltage Controlled Remote  - Off Idle Input Current	On: 3.0 to 12 VDC or open circuit Off: 0 to 1.2 VDC or short circuit Refers to 'Remote' and '-Vin' Pin 3 mA typ. (Optional models with inverse logic available)
Altitude During Operation		2'000 m max.
Switching Frequency		270 - 330 kHz (PWM) 300 kHz typ. (PWM)

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

Insulation System		Reinforced Insulation (110 Vin models) Basic Insulation (other models)
Isolation Test Voltage	- Input to Output, 60 s - Input to Case, 60 s - Output to Case, 60 s	3'000 VAC (110 Vin models) 2'121 VAC (other models) 1'500 VAC (110 Vin models) 1'131 VAC (other models) 1'500 VAC (110 Vin models) 1'131 VAC (other models)
Isolation Resistance	- Input to Output, 500 VDC	1'000 MΩ min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	2'500 pF max.
Reliability	- Calculated MTBF	336'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration  - Mechanical Shock  - Thermal Shock	MIL-STD-810F EN 61373 MIL-STD-810F EN 61373 MIL-STD-810F
Housing Material		Alu base-plate w. plastic case (110 Vin models) Alu base-plate w. metal case (other models)
Base Material		Non-conductive FR4 (UL94 V-0 rated) (24 Vin & 48 Vin models only)
Potting Material		Silicone (UL 94 V-0 rated)
Pin Material		Copper
Pin Foundation Plating		Nickel (2 - 3 μm)
Pin Surface Plating		Tin (3 - 5 μm), matte
Connection Type		THD (Through-Hole Device)
Weight		97 g
Thermal Impedance	- with Heat Sink	6.7 K/W 4.7 K/W
Environmental Compliance	- Reach - RoHS - Flammability (EN 45545-2)	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> <a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> <a href="http://www.tracopower.com/info/en45545-declaration.pdf">www.tracopower.com/info/en45545-declaration.pdf</a>

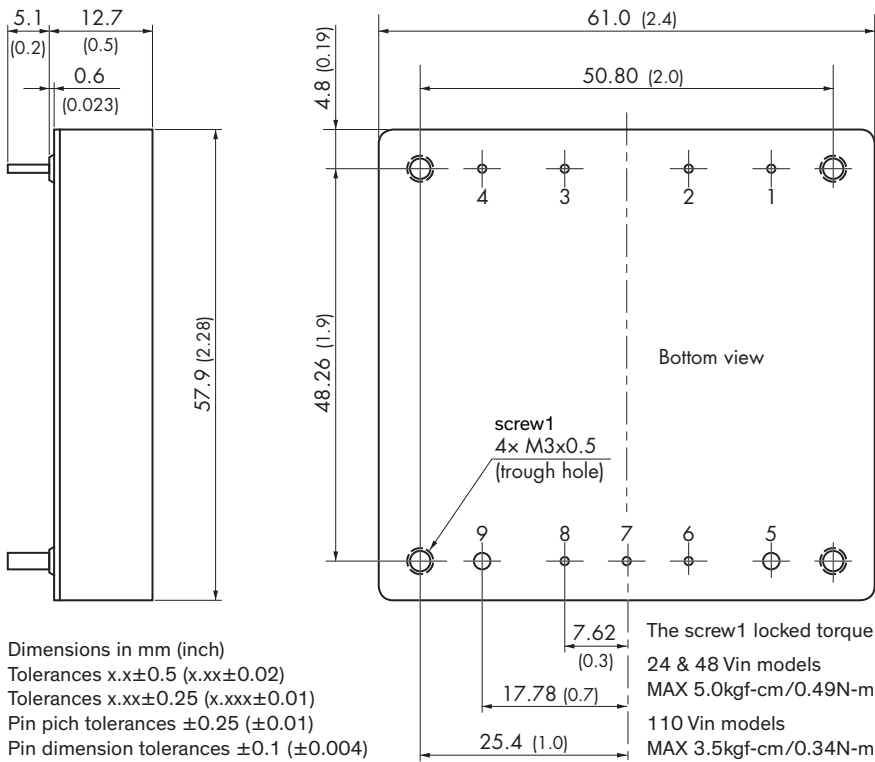
## Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/tep75wi](http://www.tracopower.com/overview/tep75wi)

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

### Outline Dimensions



Pinout	
Pin	Function
1	-Vin (GND)
2	Case
3	Remote
4	+Vin (Vcc)
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.

Pin diameter pin 5 & 9: 2.0 (0.08)  
 Pin diameter other pins: 1.0 (0.04)



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;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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.



#### Как с нами связаться

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