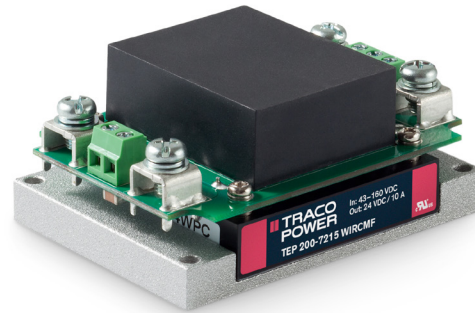


### Features

- ◆ Chassis mount with screw terminal block
- ◆ Including EMI filter to meet EN 55032, class A
- ◆ Ultra wide 4:1 input voltage ranges 9–36, 18–75, 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 55032 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	<b>9 – 36 VDC</b> (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	<b>18 – 75 VDC</b> (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	<b>43 – 160 VDC</b> (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

<b>TEP-MK1</b>	Din-rail mounting kit (incl. mounting screws)
<b>on demand</b>	Models with 3.3 VDC or 5.0 VDC output
	Models with 53 VDC output (input voltage range 33 - 75 VDC)
<b>(backorder with MOQ)</b>	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 s max.)	24 V models: 50 VDC 48 V models: 100 VDC 110 V models: 185 VDC
Conducted noise	EN 55032 class A without external components
EMC immunity	EN 50121-3-2 EN 61000-4-2, air $\pm 8$ kV, contact $\pm 6$ kV, perf. criteria A EN 61000-4-3, 20 V/m, perf. criteria A EN 61000-4-4, $\pm 2$ kV, perf. criteria A EN 61000-4-5, $\pm 2$ kV perf. criteria A, 24 / 48V models: chemi-con KY 220 $\mu$ F, 100 V, ESR 48 mOhm 110 V models: ruby-con BXF 150 $\mu$ F, 250 V EN 61000-4-6, 10 Vrms, perf. criteria A
Reverse voltage protection	parallel diode
Recommended input fuse (fast blow)	24 V models: 32 A 48 V models: 20 A 110 V models: 10 A

### Output Specifications

Voltage set accuracy (at full load, nominal input)	$\pm 1$ %
Output voltage adjustment	+10 % / -20 % by external resistor <a href="http://www.tracopower.com/overview/tep200wir">www.tracopower.com/overview/tep200wir</a>
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	$\pm 0.02$ %/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 $\mu$ s typ., 250 $\mu$ 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.