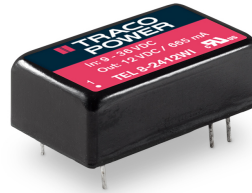




**THE DATASHEET OF  
TEL 8-2412WI**



- Ultra compact 8 W converter in DIP-16 metal casing
- Operating temperature range -40°C to +80°C
- Ultra wide 4:1 input range
- Built-in EN 55032 class A filter
- Protection against short circuit
- 3-year product warranty



The TEL 8WI series is a range of isolated 8 Watt converters which come in a very compact DIP-16 metal package. They offer an ultra wide 4:1 input voltage range and feature a high efficiency of up to 86% which allows an operation temperature of up to +70°C at full load and up to 80°C with 50% load. The converters have an internal input filter to comply with conducted emission EN 55032 class A.

The TEL 8WI Series models are an economical solution for space critical and cost sensitive applications in instrumentation, IT and industrial electronics.

### Models

Order Code	Input Voltage Range	Output 1		Output 2		Efficiency typ.
		Vnom	I <sub>max</sub>	Vnom	I <sub>max</sub>	
TEL 8-2410WI	9 - 36 VDC (24 VDC nom.)	3.3 VDC	2'000 mA			78 %
TEL 8-2411WI		5 VDC	1'600 mA			82 %
TEL 8-2412WI		12 VDC	665 mA			85 %
TEL 8-2413WI		15 VDC	535 mA			85 %
TEL 8-2415WI		24 VDC	335 mA			86 %
TEL 8-2422WI		+12 VDC	335 mA	-12 VDC	335 mA	85 %
TEL 8-2423WI		+15 VDC	265 mA	-15 VDC	265 mA	86 %
TEL 8-4810WI		18 - 75 VDC (48 VDC nom.)	3.3 VDC	2'000 mA		
TEL 8-4811WI	5 VDC		1'600 mA			81 %
TEL 8-4812WI	12 VDC		665 mA			85 %
TEL 8-4813WI	15 VDC		535 mA			85 %
TEL 8-4815WI	24 VDC		335 mA			86 %
TEL 8-4822WI	+12 VDC		335 mA	-12 VDC	335 mA	86 %
TEL 8-4823WI	+15 VDC		265 mA	-15 VDC	265 mA	86 %

### Input Specifications

Input Current	- At no load	24 Vin models: <b>10 mA typ.</b> 48 Vin models: <b>8 mA typ.</b>
	- At full load	24 Vin models: <b>390 mA typ.</b> 48 Vin models: <b>195 mA typ.</b>
Surge Voltage		24 Vin models: <b>50 VDC max.</b> (1 s max.) 48 Vin models: <b>100 VDC max.</b> (1 s max.)
Under Voltage Lockout		24 Vin models: <b>8 VDC typ.</b> 48 Vin models: <b>16 VDC typ.</b>
Recommended Input Fuse		(The need of an external fuse has to be assessed in the final application.)
Input Filter		<b>Internal Pi-Type</b>

### Output Specifications

Voltage Set Accuracy		<b>±2% max.</b>
Regulation	- Input Variation (Vmin - Vmax)	single output models: <b>0.8% max.</b> dual output models: <b>0.8% max.</b>
	- Load Variation (0 - 100%)	single output models: <b>1% max.</b> dual output models: <b>2% max. (Output 1)</b> <b>2% max. (Output 2)</b>
Ripple and Noise	- 20 MHz Bandwidth	<b>55 mVp-p max.</b>
Capacitive Load	- single output	3.3 Vout models: <b>680 µF max.</b> 5 Vout models: <b>680 µF max.</b> 12 Vout models: <b>330 µF max.</b> 15 Vout models: <b>330 µF max.</b> 24 Vout models: <b>150 µF max.</b>
	- dual output	12 / -12 Vout models: <b>150 / 150 µF max.</b> 15 / -15 Vout models: <b>150 / 150 µF max.</b>
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.02 %/K max.</b>
Start-up Time		<b>35 ms typ.</b>
Short Circuit Protection		<b>Continuous, Automatic recovery</b>
Output Current Limitation		<b>150% typ. of Iout max.</b>
Transient Response	- Response Deviation	<b>5% max. (25% Load Step)</b>
	- Response Time	<b>500 µs max. (25% Load Step)</b>

### Safety Specifications

Standards	- IT / Multimedia Equipment	<b>EN 62368-1</b> <b>IEC 62368-1</b> <b>UL 62368-1</b>
	- Certification Documents	<a href="http://www.tracopower.com/overview/tel8wi">www.tracopower.com/overview/tel8wi</a>
Pollution Degree		<b>PD 3</b>

### EMC Specifications

EMI Emissions	- Conducted Emissions	<b>EN 55032 class A</b> (internal filter) <b>EN 55032 class B</b> (with external filter)
	- Radiated Emissions	<b>EN 55032 class A</b> (with external filter)
	External filter proposal:	<a href="http://www.tracopower.com/overview/tel8wi">www.tracopower.com/overview/tel8wi</a>

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

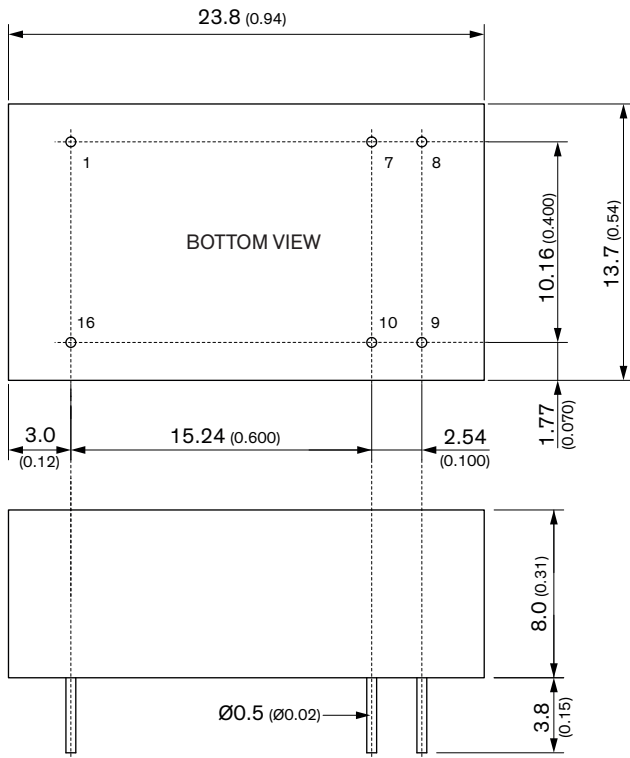
EMS Immunity		EN 55024 (IT Equipment) EN 55035 (Multimedia)
- Electrostatic Discharge	Air:	EN 61000-4-2, ±8 kV, perf. criteria A
	Contact:	EN 61000-4-2, ±6 kV, perf. criteria A EN 61000-4-3, 20 V/m, perf. criteria A EN 61000-4-4, ±2 kV, perf. criteria A EN 61000-4-5, ±1 kV, perf. criteria A
- RF Electromagnetic Field	Ext. input component:	KY 220 µF
- EFT (Burst) / Surge	Continuous:	EN 61000-4-6, 10 Vrms, perf. criteria A EN 61000-4-8, 100 A/m, perf. criteria A
- Conducted RF Disturbances	1 s:	EN 61000-4-8, 1000 A/m, perf. criteria A
- PF Magnetic Field		

General Specifications		
Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-40°C to +80°C
	- Case Temperature	+105°C max.
	- Storage Temperature	-50°C to +125°C
Power Derating	- High Temperature	5 %/K above 70°C
	See application note:	<a href="http://www.tracopower.com/overview/tel8wi">www.tracopower.com/overview/tel8wi</a>
Cooling System		Natural convection (20 LFM)
Altitude During Operation		5'000 m max.
Switching Frequency		315 - 390 kHz (PWM) 370 kHz typ. (PWM)
Insulation System		Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s	1'500 VDC
	- Input to Output, 1 s	1'800 VDC
Isolation Resistance	- Input to Output, 500 VDC	1'000 MΩ min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	500 pF typ.
Reliability	- Calculated MTBF	2'360'000 h (MIL-HDBK-217F, ground benign)
Washing Process		According to Cleaning Guideline <a href="http://www.tracopower.com/info/cleaning.pdf">www.tracopower.com/info/cleaning.pdf</a>
Housing Material		Alu alloy, black anodized coating
Potting Material		Epoxy (UL 94 V-0 rated)
Pin Material		Copper Alloy (C6801)
Pin Foundation Plating		Nickel (2 - 4 µm)
Pin Surface Plating		Tin (3 - 5 µm), matte
Housing Type		Metal Case
Mounting Type		PCB Mount
Connection Type		THD (Through-Hole Device)
Footprint Type		DIP16
Soldering Profile		Lead-Free Wave Soldering 260°C / 10 s max.
Weight		6.1 g
Environmental Compliance	- REACH Declaration	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	<a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> Exemptions: 7a (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule.))
	- SCIP Reference Number	2bc4a0a4-4551-4378-a002-fe9b5398a283

Supporting Documents	
Overview Link (for additional Documents)	<a href="http://www.tracopower.com/overview/tel8wi">www.tracopower.com/overview/tel8wi</a>

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

**Outline Dimensions**





Dimensions in mm (inch)  
 Tolerances: x.x ±0.5 (x.xx ±0.02)  
               x.xx ±0.25 (x.xxx ±0.01)  
 Pin diameter tolerances: x.x ±0.05 (x.xx ±0.002)

Pinout		
Pin	Single	Dual
1	-Vin (GND)	-Vin (GND)
7	NC	NC
8	NC	Common
9	+Vout	+Vout
10	-Vout	-Vout
16	+Vin (Vcc)	+Vin (Vcc)

NC: Not connected

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