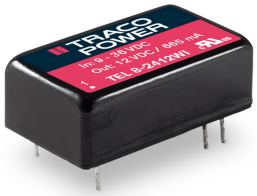
TRACO POWER

DC/DC Converter

TEL 8WI Series, 8 Watt

- **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 55022 class A filter**
- **Protection against short circuit**
- **3-year product warranty**



UL 62368-1 IEC 62368-1

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 EN55022 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
		Vnom	Imax	Vnom	Imax	typ.
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			78 %
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:	10 mA typ.
		48 Vin models:	8 mA typ.
	- At full load	24 Vin models:	390 mA typ.
		48 Vin models:	195 mA typ.
Surge Voltage		24 Vin models:	50 VDC max. (1 s max.)
		48 Vin models:	100 VDC max. (1 s max.)
Under Voltage Lockout		24 Vin models:	8 VDC typ.
		48 Vin models:	16 VDC typ.
Recommended Input Fuse			(The need of an external fuse has to be assessed in the final application.)
Input Filter			Internal Pi-Type

Output Specifications

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

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	www.tracopower.com/overview/tel8wi
Pollution Degree		PD 3

EMC Specifications

EMI Emissions	- Conducted Emissions	EN 55032 class A (internal filter) EN 55032 class B (with external filter)
	- Radiated Emissions	EN 55032 class A (with external filter)

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

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

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
Cooling System		Natural convection (20 LFM)
Altitude During Operation		5'000 m max.
Switching Frequency		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)
Housing Material		Alu alloy, black anodized coating
Pin Material		Copper
Pin Foundation Plating		Nickel (2 - 4 µm)
Pin Surface Plating		Tin (3 - 5 µm), matte
Soldering Profile		Wave Soldering 260°C / 10 s max.
Connection Type		THD (Through-Hole Device)
Weight		6.1 g
Environmental Compliance	- Reach	www.tracopower.com/info/reach-declaration.pdf
	- RoHS	www.tracopower.com/info/rohs-declaration.pdf

Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tel8wi

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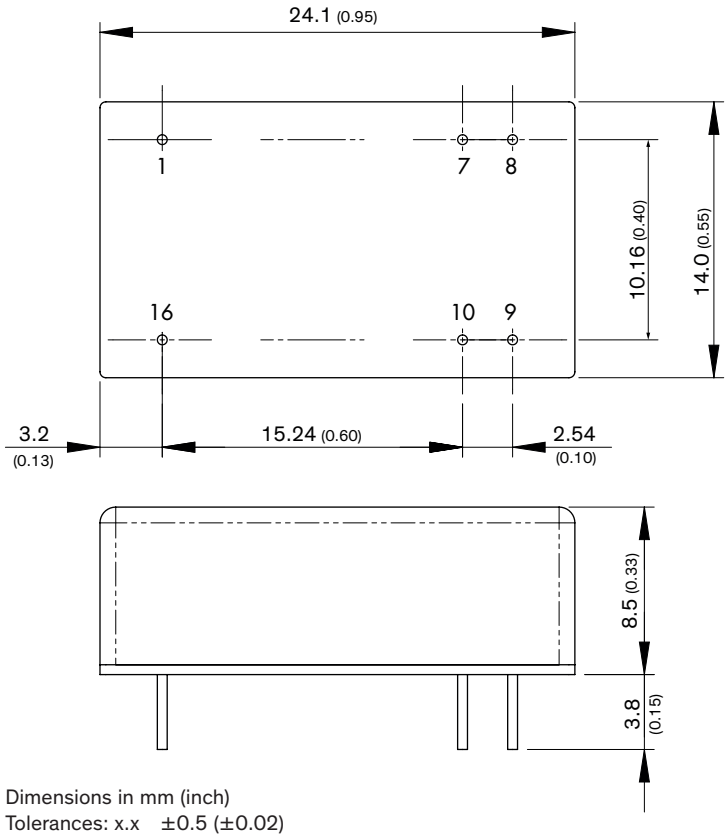
Outline Dimensions



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