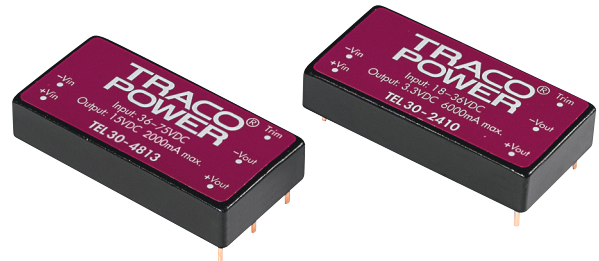


#### Features

- ◆ Highest power density: 30W in 51x25x9.6mm package
- ◆ Industry standard footprint
- ◆ Very high efficiency
- ◆ Models with low output Voltages: 2.5 & 3.3VDC
- ◆ Output voltage adjustable
- ◆ Optional remote On/Off
- ◆ Under voltage lockout
- ◆ Operating temperature range -40°C to +71°C
- ◆ Six-side shielded metal case
- ◆ Lead free design, RoHS compliant
- ◆ 3-year product warranty



The TEL 30 Series is a new range of cost efficient, isolated 30W converters in a shielded metal case with excellent specification. The 10 models in this series feature 2:1 input range with 18-36 or 36-75 VDC. Overload and over voltage protection, under voltage shutdown as well as remote On/Off are features of this converter. Typical applications for the TEL 30 Series converter are communication and networking systems, industrial electronics and distributed power architectures.

#### Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency
TEL 30-2409	18 – 36 VDC (nominal 24 VDC)	2.5 VDC	6'000 mA	84 %
TEL 30-2410		3.3 VDC	6'000 mA	86 %
TEL 30-2411		5.1 VDC	5'000 mA	88 %
TEL 30-2412		12 VDC	2'500 mA	88 %
TEL 30-2413		15 VDC	2'000 mA	88 %
TEL 30-4809	36 – 75 VDC (nominal 48 VDC)	2.5 VDC	6'000 mA	84 %
TEL 30-4810		3.3 VDC	6'000 mA	86 %
TEL 30-4811		5.1 VDC	5'000 mA	88 %
TEL 30-4812		12 VDC	2'500 mA	88 %
TEL 30-4813		15 VDC	2'000 mA	88 %

### Input Specifications

Input current at no load	24 Vin models: <b>70 mA typ.</b> 48 Vin models: <b>50 mA typ.</b>
Start-up voltage / under voltage shut down	24 Vin models: <b>17.8 VDC / 15.8 VDC</b> 48 Vin models: <b>36 VDC / 33 VDC</b>
Surge voltage (100 msec. max.)	24 Vin models: <b>50 V max.</b> 48 Vin models: <b>100 V max.</b>

### Output Specifications

Voltage set accuracy	<b>±1.0 % max.</b>
Output voltage adjustment	<b>±10 %</b>
Regulation	– Input variation Vin min. to Vin max. <b>0.3 % max.</b> – Load variation 10 – 100 % <b>1.0 % max.</b>
Ripple and noise (20 MHz Bandwidth)	<b>100 mVpk-pk max.</b>
Temperature coefficient	<b>±0.02 %/K</b>
Output current limitation	<b>110 % – 140 % Iout max., foldback</b>
Short circuit protection	<b>hiccup mode, indefinite (automatic recovery)</b>
Capacitive load	2.5 / 3.3 / 5.1 VDC models: <b>6800 µF max.</b> 12 / 15 VDC models: <b>680 µF max.</b>

### General Specifications

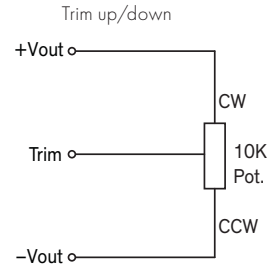
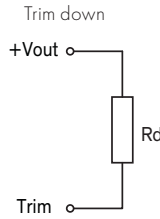
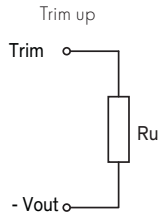
Temperature ranges	– Operating <b>–40°C to +71°C (with derating)</b> – Case temperature <b>+105°C max.</b> – Storage <b>–50°C to +125°C</b>
Derating	<b>2 %/K above 50°C</b>
Humidity (non condensing)	<b>95 % rel H max.</b>
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	<b>&gt;600'000 h</b>
Isolation voltage (60 sec.)	– Input/Output <b>1500 VDC</b>
Isolation capacitance	– Input/Output <b>1200 pF typ.</b>
Isolation resistance	– Input/Output <b>&gt;1000 Mohm</b>
Remote On/Off (optional)	– On: <b>2.5 to 100 VDC or open circuit.</b> – Off: <b>–1.0 to +1.0 VDC or short circuit pin 3 and pin 1</b> – Off idle current: <b>5 mA max.</b>
Switching frequency (fixed)	<b>350 kHz typ. (pulse width modulation PWM)</b>
Safety standards	<b>UL/cUL 60950-1, IEC/EN 60950-1</b>

### Physical Specifications

Casing material	<b>Plastic base-plate w. metal case</b>
Potting material	<b>epoxy (UL 94V-0 rated)</b>
Weight	<b>32 g (1.13 oz)</b>
Soldering temperature	<b>max. 265°C / 10 sec.</b>
Thermal Impedance	<b>16.2 K/W typ.</b> <b>13.2 K/W typ. (with Heatsink)</b>
Environmental compliance	– Reach <b><a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a></b> – RoHS <b>directive 2011/65/EU</b>

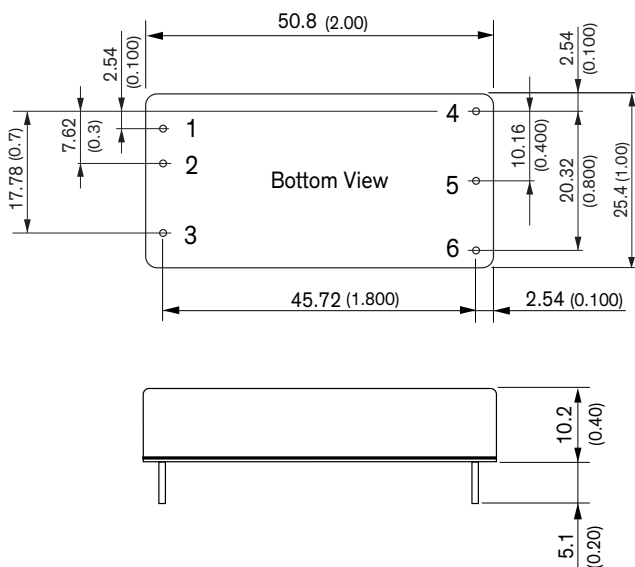
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**Output Voltage Adjustment**



$$R_u \text{ [kOhm]} = \frac{(33 \times V_{out}) - (30 \times V_{adj})}{V_{adj} - V_{out}} \quad R_d \text{ [kOhm]} = \frac{(36.667 \times V_{adj}) - (33 \times V_{out})}{V_{out} - V_{adj}}$$

**Outline Dimensions**

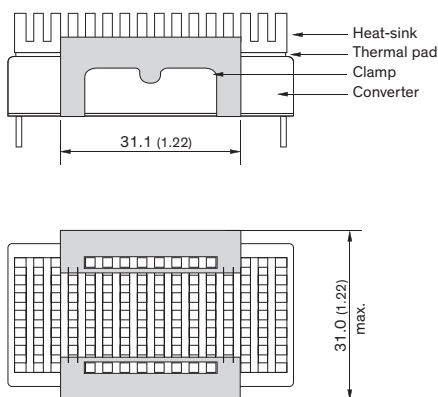


Pin-Out	
Pin	
1	+Vin (Vcc)
2	-Vin (GND)
3	Remote On/Off (optional)
4	+Vout
5	-Vout
6	Trim

Dimensions in [mm], ( ) = Inch  
 Pin diameter: 1.0 ±0.05 (0.039 ±0.002)  
 Pin pitch tolerance: ±0.13 (±0.005)  
 Case tolerances: ±0.25 (±0.01)

**Heat-Sink (Option)**

**Heat-sink TEN-HS4 (optional)**



**Order code: TEN-HS4**

(cont.: heat-sink, thermal pad, 2 clamps)

**Material:** Aluminum

**Finish:** Anodic treatment (black)

**Weight:** 9 g (0.31oz) without converter

**Note:**

Before attaching the heatsink, the product label on converter has to be removed for optimal performance.

For volume orders we can supply the converters with heatsink already mounted. Please contact us for a relative quotation.

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)

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