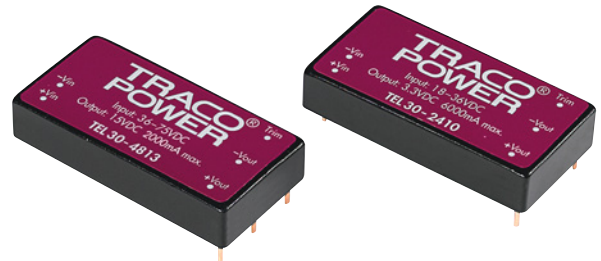


#### Features

- ◆ 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<br>(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<br>(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: 70 mA typ.<br>48 Vin models: 50 mA typ.               |
| Start-up voltage /<br>under voltage shut down | 24 Vin models: 17.8 VDC / 15.8 VDC<br>48 Vin models: 36 VDC / 33 VDC |
| Surge voltage<br>(100 msec. max.)             | 24 Vin models: 50 V max.<br>48 Vin models: 100 V max.                |

## Output Specifications

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

## General Specifications

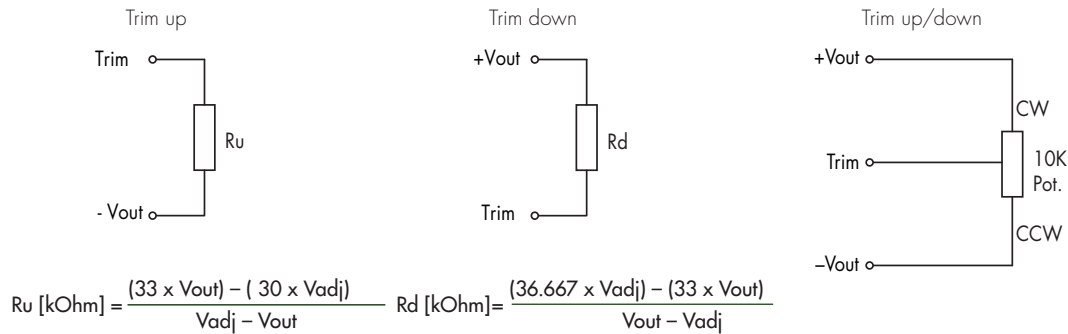
|                                                                       |                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature ranges                                                    | – Operating –40°C to +71°C (with derating)<br>– Case temperature +105°C max.<br>– Storage –50°C to +125°C                                                                                                                                                                                                 |
| Derating                                                              | 2 %/K above 50°C                                                                                                                                                                                                                                                                                          |
| Humidity (non condensing)                                             | 95 % rel H max.                                                                                                                                                                                                                                                                                           |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) | >600'000 h                                                                                                                                                                                                                                                                                                |
| Isolation voltage (60 sec.)                                           | – Input/Output 1500 VDC                                                                                                                                                                                                                                                                                   |
| Isolation capacitance                                                 | – Input/Output 1200 pF typ.                                                                                                                                                                                                                                                                               |
| Isolation resistance                                                  | – Input/Output >1000 Mohm                                                                                                                                                                                                                                                                                 |
| Remote On/Off<br>(optional)                                           | – On: 2.5 to 100 VDC or open circuit.<br>– Off: –1.0 to +1.0 VDC or short circuit pin 3 and pin 2<br>– Off idle current: 5 mA max.                                                                                                                                                                        |
| Switching frequency (fixed)                                           | 350 kHz typ. (pulse width modulation PWM)                                                                                                                                                                                                                                                                 |
| Safety standards                                                      | UL/cUL 60950-1, IEC/EN 60950-1                                                                                                                                                                                                                                                                            |
| Safety approvals                                                      | – CSA certificate (UL/cUL 60950-1, 1nd edition) <a href="http://www.tracopower.com/products/tel30-csa.pdf">www.tracopower.com/products/tel30-csa.pdf</a><br>– CB test certificate (IEC/EN 60950-1) <a href="http://www.tracopower.com/products/tel30-cb.pdf">www.tracopower.com/products/tel30-cb.pdf</a> |

## Physical Specifications

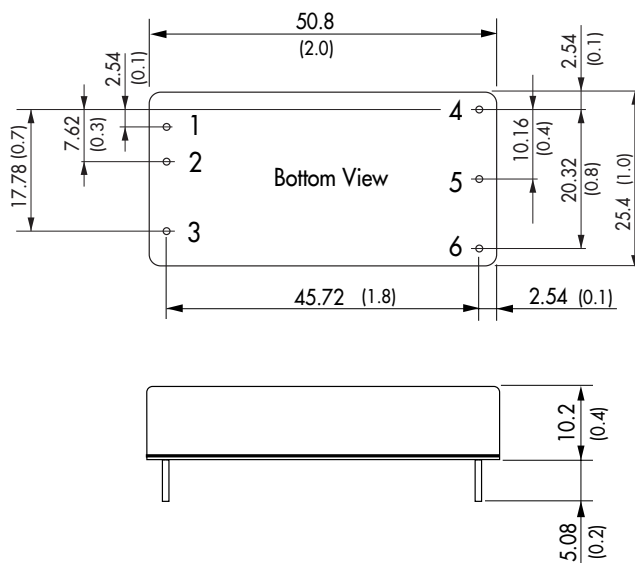
|                          |                                                                                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Casing material          | aluminum                                                                                                                                            |
| Potting material         | epoxy (UL 94V-0 rated)                                                                                                                              |
| Weight                   | 32 g (1.13 oz)                                                                                                                                      |
| Soldering temperature    | max. 265°C / 10 sec.                                                                                                                                |
| Environmental compliance | – Reach <a href="http://www.tracopower.com/products/tel30-reach.pdf">www.tracopower.com/products/tel30-reach.pdf</a><br>– RoHS directive 2011/65/EU |

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

## Output Voltage Adjustment



## Outline Dimensions

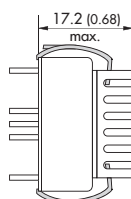
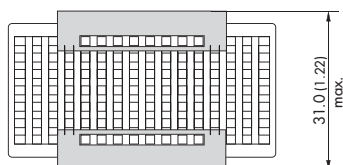
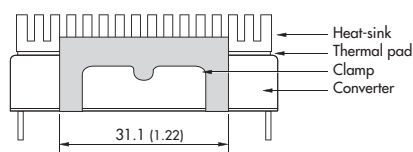


| Pin-Out |                          |
|---------|--------------------------|
| Pin     |                          |
| 1       | +Vin (Vcc)               |
| 2       | -Vin (GND)               |
| 3       | Remote On/Off (optional) |
| 4       | +Vout                    |
| 5       | -Vout          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

Thermal impedance after assembling: 10 K/W

### 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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