

- 15 Watt converter in a 1" x 1" metal package
- Cost efficient design
- Ultra wide 4:1 input voltage range: 9-36 and 18-75 VDC
- Operating temperature range -40 to +70 °C without derating
- Internal EN 55032 class A filter
- 1500 VDC I/O-isolation
- Protection against overload, overvoltage and short circuit
- Remote On/Off and Trim function
- Optional heatsink for increased temperature capabilities
- 3-year product warranty



CB
Scheme

IEC/EN 62368-1

The THL 15WI series is Traco Power's latest addition to the existing 15 Watt DC/DC converter range. With the focus on combining cost efficiency and quality this isolated high performance 15 Watt DC/DC converter is suitable for many different applications. The series comes in an encapsulated, shielded 1" x 1" x 0.4" metal package and has a fully integrated EN 55032 class A filter. High efficiency up to 91% enables the converter to operate from -40°C to +70°C without derating. All models have an ultra wide 4:1 input voltage range and precisely regulated, isolated outputs. The series meets the latest IT safety certifications (UL 62368-1) and is thus eligible for uses in mobile equipment, instrumentation, distributed power architectures in communication and industrial electronics and everywhere where cost efficiency and quality are critical factors.

| Models | | | | |
|---------------|---------------------------------|----------------|---------------------|-----------------|
| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
| THL 15-2410WI | 9 – 36 VDC (24 VDC nominal) | 3.3 VDC | 3400 mA | 86 % |
| THL 15-2411WI | | 5.0 VDC | 3000 mA | 88 % |
| THL 15-2412WI | | 12 VDC | 1250 mA | 88 % |
| THL 15-2413WI | | 15 VDC | 1000 mA | 89 % |
| THL 15-2415WI | | 24 VDC | 625 mA | 91 % |
| THL 15-2422WI | | ±12 VDC | ±625 mA | 89 % |
| THL 15-2423WI | | ±15 VDC | ±500 mA | 89 % |
| THL 15-4810WI | 18 – 75 VDC (48 VDC nominal) | 3.3 VDC | 3400 mA | 86 % |
| THL 15-4811WI | | 5.0 VDC | 3000 mA | 88 % |
| THL 15-4812WI | | 12 VDC | 1250 mA | 88 % |
| THL 15-4813WI | | 15 VDC | 1000 mA | 89 % |
| THL 15-4815WI | | 24 VDC | 625 mA | 91 % |
| THL 15-4822WI | | ±12 VDC | ±625 mA | 90 % |
| THL 15-4823WI | | ±15 VDC | ±500 mA | 89 % |

Input Specifications

| | | |
|--------------------------|---|---|
| Input current no load | single output models: dual output models: | 10 mA typ. 15 mA typ. |
| Surge voltage (1 s max.) | 24 Vin models: 48 Vin models: | -0.7 to 50 V max. -0.7 to 100 V max. |
| Start-up voltage | 24 Vin models: 48 Vin models: | 9 VDC (or lower) 18 VDC (or lower) |
| Startup time | | 30 ms max. |
| Under voltage shut down | 24 Vin models: 48 Vin models: | 7.5 VDC typ. 16 VDC typ. |
| Input filter | | Internal LC Type |
| Recommended input fuse | 24 Vin models: 48 Vin models: | 4 A (slow blow type) 2 A (slow blow type) |
| EMC emissions | <ul style="list-style-type: none"> - Conducted input suppression - Radiated input suppression - Filter proposal | EN 55032, class A (internal filter) EN 55032, class B (with external components) EN 55032, class B (with external components) www.tracopower.com/overview/thl15wi |
| EMC immunity | <ul style="list-style-type: none"> - ESD (electrostatic discharge) - Radiated immunity - Fast transient / surge (with external input capacitor) - Conducted immunity - Magnetic field immunity | EN 55024 EN 61000-4-2, air ± 8 kV, perf. criteria A EN 61000-4-2, contact ± 6 kV, perf. criteria A EN 61000-4-3, 10 V/m, perf. criteria A EN 61000-4-4, ± 2 kV, perf. criteria A EN 61000-4-5, ± 1 kV perf. criteria A 3.3 & 5 Vout models: 470 μ F CHEMI-CON KY across input pins other output models: 220 μ F CHEMI-CON KY across input pins EN 61000-4-6, 10 Vrms, perf. criteria A EN 61000-4-8, 100 A/m, perf. criteria A |

Output Specifications

| | | |
|-------------------------------------|--|--|
| Voltage set accuracy | | ± 1 % max. |
| Output voltage adjustment range | | ± 10 % (single output models only) Application note: www.tracopower.com/overview/thl15wi |
| Regulation | <ul style="list-style-type: none"> - Input variation (Vin min. to max.) - Load variation (0 - 100 %) - Cross regulation (balanced load) - Cross regulation (asym. load 25/100 %) | single output: 0.2 % max. dual output: 0.5 % max. single output: 0.5 % max. (3.3 & 5 Vout models) 0.2 % max. (other output models) dual output: 1.0 % max. dual output: 2.0 % max. dual output: 5.0 % max. |
| Temperature coefficient | | ± 0.02 %/K typ. |
| Minimum load | | not required |
| Ripple and noise (20 MHz Bandwidth) | 3.3 & 5 VDC models: (\pm)12 & (\pm)15 VDC models: 24 VDC models: | 75 mVp-p typ. (with 1 μ F MLCC) 100 mVp-p typ. (with 1 μ F MLCC) 150 mVp-p typ. (with 1 μ F MLCC) |
| Transient response | <ul style="list-style-type: none"> - Recovery time (25% load step change) - Response Deviation (25% load step change) | 300 μ s typ. ± 5 % max. |

Output Specifications (continued)

| | | |
|--------------------------|-----------------|--|
| Over current limitation | | at 150 – 180 % of I _{out} rated |
| Short-circuit protection | | Continuous, automatic recovery |
| Over voltage protection | | 3.3 VDC models: 3.9 VDC 5.0 VDC models: 6.2 VDC 12 VDC models: 15 VDC 15 VDC models: 18 VDC 24 VDC models: 30 VDC ±12 VDC models: ±15 VDC ±15 VDC models: ±18 VDC |
| Capacitive load | – Single output | 3.3 VDC models: 5'800 µF max. 5.0 VDC models: 5'100 µF max. 12 VDC models: 870 µF max. 15 VDC models: 560 µF max. 24 VDC models: 220 µF max. |
| | – Dual output | ±12 VDC models: 440 µF max. (each output) ±15 VDC models: 280 µF max. (each output) |

General Specifications

| | | |
|--|---|---|
| Temperature ranges | – Operating (at 20 LFM) – Case temperature – Storage temperature | –40°C to +90°C +105°C max. –50°C to +125°C |
| Derating | | Refer to application note www.tracopower.com/overview/thl15wi |
| Cooling | | Natural convection (20 LFM) |
| Thermal impedance | | 18.2 K/W min. (at 20 LFM) |
| Humidity (non condensing) | | 95 % rel H max. |
| Isolation voltage | – Input to Output, 60 s – Input to Output, 1 s – Input/Output to Case | 1500 VDC 1800 VDC 1000 VDC |
| Isolation resistance | – Input to Output, 500 VDC | 1 GOhm min. |
| Isolation capacitance | – Input to Output, 100 kHz / 1 V | 1'500 pF max. |
| Altitude during operation | | 5000 m |
| Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign) | | 1'374'700 h |
| Switching frequency | | 310 –385 kHz (pulse width modulation) |
| Remote On/Off | Off: On: – Off idle current – Remote pin input current | short circuit or 0 – 1.2 VDC (referred to -Vin pin) open circuit or 3.5 – 12 VDC (referred to -Vin pin) 3 mA typ. ±0.5 mA max. |
| Safety standards | – CB report – Certification documents | IEC 62368-1 www.tracopower.com/overview/thl15wi |
| Environmental compliance | – Reach – RoHS | www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU |

Physical Specifications

| | |
|-----------------------|--|
| Casing material | Aluminium Alloy, Black anodized coating |
| Base material | FR4 PCB (UL 94V-0 rated) |
| Potting material | silicone (UL 94V-0 rated) |
| Pin material | Copper alloy with Gold plate over nickel subplate |
| Package weight | 15 g |
| Soldering temperature | max. 260°C / 10 s |

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

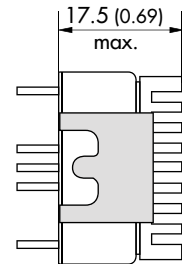
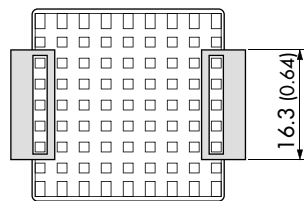
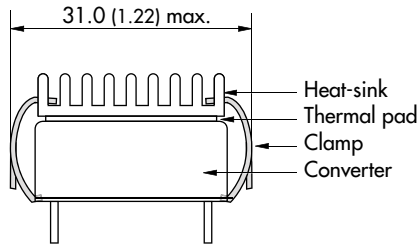
Heat-Sink (optional)

Order code: THL-HS1
 (cont.: heat-sink, thermal pad, 2 clamps)
 Material: Aluminum
 Finish: Anodic treatment (black)
 Weight: 2 g (without converter)
 Thermal impedance after assembling: 15.3 K/W

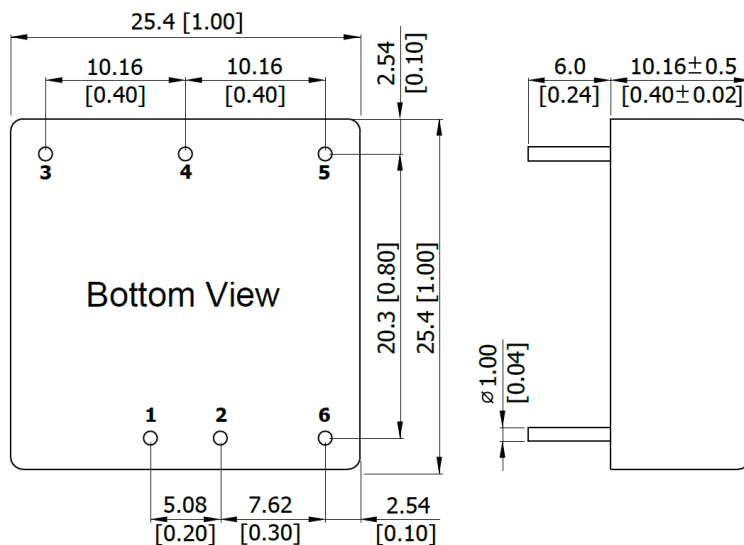


Note:

The product label on converter has to be removed before mounting the heat-sink.
 For volume orders converters will be supplied with mounted heat-sink. Please contact factory for quotation.
 Separate heat-sinks are only available for prototypes and small quantity orders.



Outline Dimensions



| Pinout | | |
|--------|---------------|---------------|
| Pin | Single | Dual |
| 1 | +Vin (Vcc) | +Vin (Vcc) |
| 2 | -Vin (GND) | -Vin (GND) |
| 3 | +Vout | +Vout |
| 4 | Trim | Common |
| 5 | -Vout | -Vout |
| 6 | Remote On/Off | Remote On/Off |

Dimensions in [mm], () = Inch
 Tolerances ± 0.5 (± 0.02)
 ± 0.25 (± 0.01)
 Pin pitch tolerances ± 0.25 (± 0.01)
 Pin $\varnothing 1.0 \pm 0.05$ (0.04 ± 0.002)