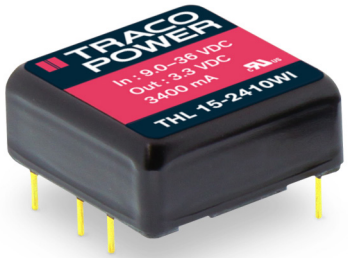
TRACO POWER

DC/DC Converter

THL 15WI Series, 15 Watt

- **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:	10 mA typ.
		dual output models:	15 mA typ.
Surge voltage (1 s max.)		24 Vin models:	–0.7 to 50 V max.
		48 Vin models:	–0.7 to 100 V max.
Start-up voltage		24 Vin models:	9 VDC (or lower)
		48 Vin models:	18 VDC (or lower)
Startup time			30 ms max.
Under voltage shut down		24 Vin models:	7.5 VDC typ.
		48 Vin models:	16 VDC typ.
Input filter			Internal LC Type
Recommended input fuse		24 Vin models:	4 A (slow blow type)
		48 Vin models:	2 A (slow blow type)
EMC emissions	– Conducted input suppression		EN 55032, class A (internal filter)
			EN 55032, class B (with external components)
	– Radiated input suppression		EN 55032, class B (with external components)
	– Filter proposal		www.tracopower.com/overview/thl15wi
EMC immunity			EN 55024
	– ESD (electrostatic discharge)		EN 61000-4-2, air ±8 kV, perf. criteria A
			EN 61000-4-2, contact ±6 kV, perf. criteria A
	– Radiated immunity		EN 61000-4-3, 10 V/m, perf. criteria A
	– Fast transient / surge		EN 61000-4-4, ±2 kV, perf. criteria A
	(with external input capacitor)		EN 61000-4-5, ±1 kV perf. criteria A
		3.3 & 5 Vout models:	470 µF CHEMI-CON KY across input pins
		other output models	220 µF CHEMI-CON KY across input pins
	– Conducted immunity		EN 61000-4-6, 10 Vrms, perf. criteria A
	– Magnetic field immunity		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	– Input variation (Vin min. to max.)	single output:	0.2 % max.
		dual output:	0.5 % max.
	– Load variation (0 – 100 %)	single output:	0.5 % max. (3.3 & 5 Vout models)
			0.2 % max. (other output models)
		dual output:	1.0 % max.
	– Cross regulation (balanced load)	dual output:	2.0 % max.
	– Cross regulation (asym. load 25/100 %)	dual output:	5.0 % max.
Temperature coefficient			±0.02 %/K typ.
Minimum load			not required
Ripple and noise		3.3 & 5 VDC models:	75 mVp-p typ. (with 1 µF MLCC)
(20 MHz Bandwidth)		(±)12 & (±)15 VDC models:	100 mVp-p typ. (with 1 µF MLCC)
		24 VDC models:	150 mVp-p typ. (with 1 µF MLCC)
Transient response	– Recovery time (25% load step change)		300 µs typ.
	– Response Deviation (25% load step change)		±5% max.

Output Specifications (continued)

Over current limitation			at 150 – 180 % of Iout 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)	–40°C to +90°C
	– Case temperature	+105°C max.
	– Storage temperature	–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	1500 VDC
	– Input to Output, 1 s	1800 VDC
	– Input/Output to Case	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: short circuit or 0 – 1.2 VDC (referred to -Vin pin) On: open circuit or 3.5 – 12 VDC (referred to -Vin pin)
	– Off idle current	3 mA typ.
	– Remote pin input current	±0.5 mA max.
Safety standards	– CB report	IEC 62368-1
	– Certification documents	www.tracopower.com/overview/thl15wi
Environmental compliance	– Reach	www.tracopower.com/info/reach-declaration.pdf
	– RoHS	RoHS directive 2011/65/EU

Physical Specifications

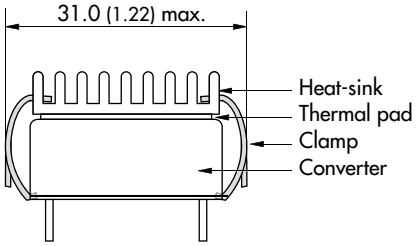
Casing material	Aluminium Alloy, Black anodized coating
Base material	FR4 PCB (UL 94V-0 rated)
Potting material	silicone (UL 94V-0 rated)
Pin material	Copper alloy with Gold plate over nickel subplate
Package weight	15 g
Soldering temperature	max. 260°C / 10 s

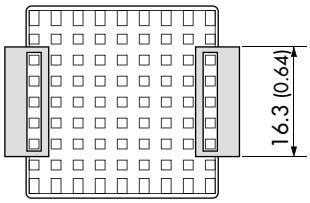
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

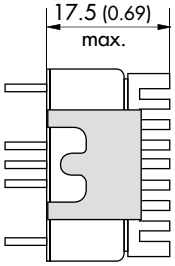
Heat-Sink (optional)

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



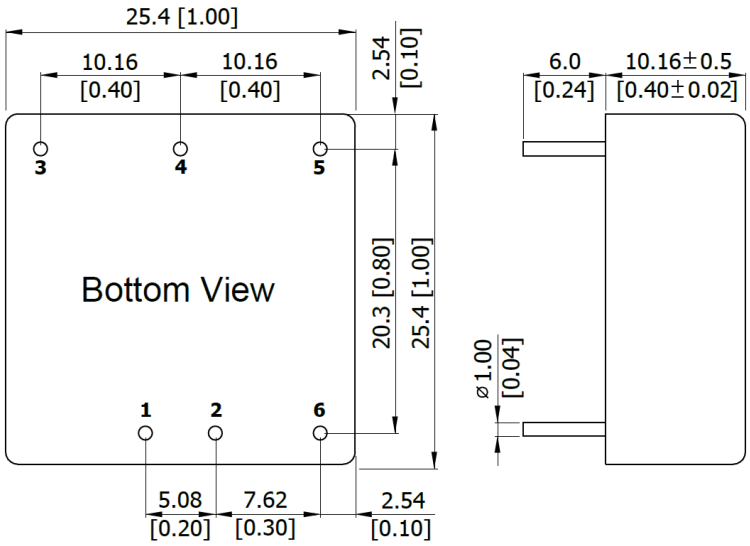






Note:
The product label on converter has to be removed before mounting the heat-sink.
For volume orders converters will be supplied with mounted heat-sink. Please contact factory for quotation.
Separate heat-sinks are only available for prototypes and small quantity orders.

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 ø 1.0 ±0.05 (0.04 ±0.002)

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