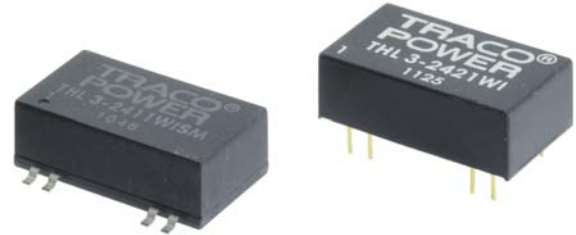


#### Features

- ◆ Compact design in SMD or DIP package
- ◆ Ultra wide 4:1 input voltage range
- ◆ Fully regulated outputs
- ◆ I/O isolation 1500 VDC
- ◆ SMD version qualified for leadfree re flow solder process, MSL 2a
- ◆ Operating temp. range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- ◆ Short circuit protection
- ◆ Remote On/Off control
- ◆ Input filter to meet EN 55022, class A without external components
- ◆ 3-year product warranty



The THL 3WI(SM) series is a family of compact 3 W dc/dc-converters with 4:1 input voltage ranges. The product is available in SMD- or DIP-package. The internal filter which meets EN55022 Class A without external components makes the converter easy to design in.

They come with remote On/Off and short circuit protection. THL 3WI(SM) converter is an excellent solution for data- and telecom applications and for instrumentation and Industrial electronics.

#### Models

Order code DIP models	Order code SMD models	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THL 3-2410WI	THL 3-2410WISM	9 – 36 VDC (24 VDC nominal)	3.3 VDC	600 mA	75 %
THL 3-2411WI	THL 3-2411WISM		5.0 VDC	600 mA	78 %
THL 3-2412WI	THL 3-2412WISM		12 VDC	250 mA	80 %
THL 3-2413WI	THL 3-2413WISM		15 VDC	200 mA	80 %
THL 3-2415WI	THL 3-2415WISM		24 VDC	125 mA	80 %
THL 3-2421WI	THL 3-2421WISM		$\pm 5$ VDC	$\pm 300$ mA	77 %
THL 3-2422WI	THL 3-2422WISM		$\pm 12$ VDC	$\pm 125$ mA	80 %
THL 3-2423WI	THL 3-2423WISM		$\pm 15$ VDC	$\pm 100$ mA	80 %
THL 3-4810WI	THL 3-4810WISM	18 – 75 VDC (48 VDC nominal)	3.3 VDC	600 mA	75 %
THL 3-4811WI	THL 3-4811WISM		5.0 VDC	600 mA	78 %
THL 3-4812WI	THL 3-4812WISM		12 VDC	250 mA	80 %
THL 3-4813WI	THL 3-4813WISM		15 VDC	200 mA	80 %
THL 3-4815WI	THL 3-4815WISM		24 VDC	125 mA	80 %
THL 3-4821WI	THL 3-4821WISM		$\pm 5$ VDC	$\pm 300$ mA	77 %
THL 3-4822WI	THL 3-4822WISM		$\pm 12$ VDC	$\pm 125$ mA	80 %
THL 3-4823WI	THL 3-4823WISM		$\pm 15$ VDC	$\pm 100$ mA	80 %

### Input Specifications

Input current at no load (nominal input voltage)	24 Vin models: 30 mA typ. 48 Vin models: 20 mA typ.
Input current at full load (nominal input voltage)	24 Vin; 3.3 VDC model: 110 mA typ. 24 Vin other models: 160 mA typ. 48 Vin; 3.3 VDC model: 55 mA typ. 48 Vin other models: 80 mA typ.
Surge voltage (1 sec. max.)	24 Vin models: 50 V max. 48 Vin models: 100 V max.
Conducted noise	EN 55022 level A, FCC part 15, level A without external components
Recommended input fuse (slow blow)	24 V models: 1500 mA 48 V models: 800 mA

### Output Specifications

Voltage set accuracy	±2 % max
Regulation	– Input variation Vin min. to Vin max. 1.0 % max. – Load variation 15 – 100 % 1.0 % max.
Minimum load	15 % of rated max current (operation at lower load condition is safe but a higher output ripple will be experienced)
Temperature coefficient	±0.02 %/K
Ripple and noise (20 MHz bandwidth)	60 mVp-p typ.
Transient response setting time (25 % load step change)	300 µs typ.
Short circuit protection	indefinite, automatic recovery
Capacitive load	3.3 & 5 VDC models: 220 µF max. all other models: 47 µF max.

### General Specifications

Temperature	– Operating (natural convection cooling 20 LFM) – Storage – Case	–40°C to +85°C –40°C to +125°C +105°C max.
Load derating (natural convection cooling 20 LFM)	DIP models: SMD 3.3 & 5.0 VDC models: SMD other models:	2.5 %/K above +65°C 2.2 %/K above +55°C 2.5 %/K above +60°C
Humidity (non condensing)		95 %
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		>300'000 h
Isolation voltage (60 sec.)	– Input/Output	1'500 VDC
Isolation capacitance	– Input/Output	500 pF max.
Isolation resistance	– Input/Output (500 VDC)	>1 GOhm
Safety standard (designed to meet)		IEC 60950-1, UL 60950-1
Safety approvals	– CB test certificate according IEC 60950-1 – CSA certificate for UL/cUL 60950-1	<a href="http://www.tracopower.com/products/thl3wi-cb.pdf">www.tracopower.com/products/thl3wi-cb.pdf</a> <a href="http://www.tracopower.com/products/thl3wi-csa.pdf">www.tracopower.com/products/thl3wi-csa.pdf</a>
Switching frequency		350 kHz
Altitude during operation		5'000 m max. (16'400 ft) approved
Remote On/Off	– On: – Off: – Off stand by input current	2.5 to 5.5 VDC or open circuit –0.7 to 0.8 VDC 5 mA max.
Environmental compliance	– Reach – RoHS	<a href="http://www.tracopower.com/products/thl3wi-reach.pdf">www.tracopower.com/products/thl3wi-reach.pdf</a> RoHS directive 2011/65/EU

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

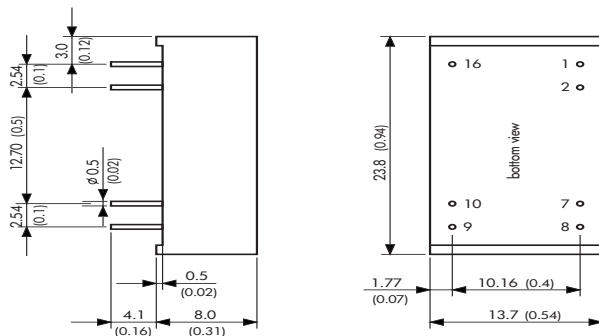
**Physical Specifications**

Casing material	non-conductive plastic (UL94V-0 rated)	
Package weight	DIP models: 5.4 g (0.19 oz) SMD models: 4.2 g (0.14 oz)	
Environmental compliance	- Reach - RoHS	regulation EC 1907/2006 directive 2011/65/EU
Soldering profile for DIP-package models	max. 265°C / 10 sec. (wave soldering)	
Lead-free reflow solder process for SMD-package models	as per J-STD-020D.01 (to find at: <a href="http://www.jedec.org">www.jedec.org</a> - free registration required)	
Moisture sensitivity level (for SMD-package models)	level 2a as per J-STD-033B.01 (to find at: <a href="http://www.jedec.org">www.jedec.org</a> - free registration required)	
Packaging	<a href="http://www.tracopower.com/products/thl3wism-pack.pdf">www.tracopower.com/products/thl3wism-pack.pdf</a>	

**Application note:** [www.tracopower.com/products/thl3wi-application.pdf](http://www.tracopower.com/products/thl3wi-application.pdf)  
[www.tracopower.com/products/thl3wism-application.pdf](http://www.tracopower.com/products/thl3wism-application.pdf)

**Outline Dimensions**

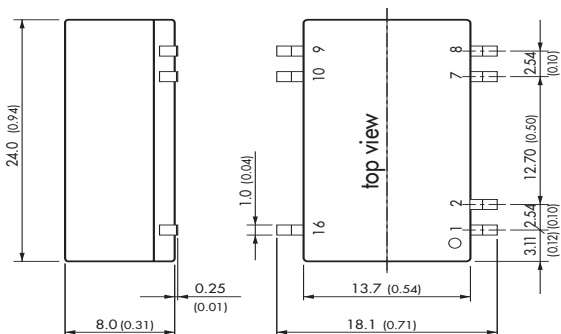
**DIP-Models**



Pin-Out		
Pin	Single	Dual
1	-Vin (GND)	-Vin (GND)
2	Remote On/Off	Remote On/Off
7	ntc.	ntc.
8	ntc.	Common
9	+Vout	+Vout
10	-Vout	-Vout
16	+Vin (Vcc)	+Vin (Vcc)

ntc. = not to connect

**SMD-Models**



Dimensions in [mm], ( ) = Inch  
Tolerances: ±0.25 (±0.01)  
Pin pitch tolerances: ±0.13 (±0.005)

Specifications can be changed any time without notice.