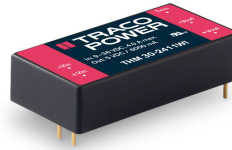


- Ultra wide 4:1 input voltage 30 W DC/DC converter in a 2 x 1 " plastic case
- I/O isolation 5000 VAC rated for 250 VAC working voltage
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2 x MOPP
- Risk management process according to ISO 14971 incl. risk management file
- Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3
- Low leakage current <2.5  $\mu$ A
- Operating temperature -40°C to 80°C
- EMC compliance to IEC 60601-1-2 4th edition and EN55032 class A
- Operating up to 5000m altitude
- 5-year product warranty



ES 60601-1 IEC 60601-1  
UL 62368-1 IEC 62368-1

The THM 30WI series is a range of medical 30 Watt DC/DC converters in 2.0" x 1.0" plastic package and with wide 4:1 input voltage range. They provide a reinforced isolation system for 5000 VAC isolation and a very low leakage current of less than 2.5  $\mu$ A. The units are approved to IEC/EN/ES 60601-1 3rd edition for 2 x MOPP and come along with an ISO 14971 risk management file. Design and production conform to the quality management system ISO 13485. With a high efficiency of up to 90% and highest grade components the converters can reliably operate in an ambient temperature range of -40°C up to +80°C. They constitute a reliable solution not only for medical equipment but also for demanding ranges of application such as transportation, control & measurement or IGBT drivers.

### Models

Order Code	Input Voltage Range	Output 1		Output 2		Efficiency typ.
		Vnom	I <sub>max</sub>	Vnom	I <sub>max</sub>	
THM 30-2411WI	9 - 36 VDC (24 VDC nom.)	5 VDC	6'000 mA			89 %
THM 30-2412WI		12 VDC	2'500 mA			89 %
THM 30-2413WI		15 VDC	2'000 mA			91 %
THM 30-2415WI		24 VDC	1'250 mA			90 %
THM 30-2421WI		+5 VDC	3'000 mA	-5 VDC	3'000 mA	86 %
THM 30-2422WI		+12 VDC	1'250 mA	-12 VDC	1'250 mA	90 %
THM 30-2423WI		+15 VDC	1'000 mA	-15 VDC	1'000 mA	90 %
THM 30-4811WI		18 - 75 VDC (48 VDC nom.)	5 VDC	6'000 mA		
THM 30-4812WI	12 VDC		2'500 mA			89 %
THM 30-4813WI	15 VDC		2'000 mA			90 %
THM 30-4815WI	24 VDC		1'250 mA			89 %
THM 30-4821WI	+5 VDC		3'000 mA	-5 VDC	3'000 mA	87 %
THM 30-4822WI	+12 VDC		1'250 mA	-12 VDC	1'250 mA	90 %
THM 30-4823WI	+15 VDC		1'000 mA	-15 VDC	1'000 mA	90 %

### Options

on demand (backorder with MOQ non stocking item)	- Optional models with remote-control function - Optional models with remote-control function with inverse logic
--	---

## Input Specifications

Input Current	- At no load	24 Vin models: <b>10 mA typ.</b> 48 Vin models: <b>9 mA typ.</b>
Surge Voltage		24 Vin models: <b>50 VDC max.</b> (3 s max.) 48 Vin models: <b>100 VDC max.</b> (3 s max.)
Under Voltage Lockout		24 Vin models: <b>7.8 VDC min. / 8 VDC typ. / 8.6 VDC max.</b> 48 Vin models: <b>15.8 VDC min. / 16 VDC typ. / 17.4 VDC max.</b>
Recommended Input Fuse		24 Vin models: <b>6'300 mA</b> (slow blow) 48 Vin models: <b>3'150 mA</b> (slow blow)
Input Filter		<b>Internal Pi-Type</b>

## Output Specifications

Output Voltage Adjustment		-10% to +20% (By external trim resistor) (15 & 24 VDC single output models) ±10% (By external trim resistor) (other single output models) See application note: <a href="http://www.tracopower.com/overview/thm30wi">www.tracopower.com/overview/thm30wi</a> Output power must not exceed rated power!
Voltage Set Accuracy		<b>±1% max.</b>
Regulation	- Input Variation (Vmin - Vmax)	single output models: <b>0.2% max.</b> dual output models: <b>0.5% max.</b>
	- Load Variation (0 - 100%)	single output models: <b>0.2% max.</b> dual output models: <b>1% max.</b> (Output 1) <b>1% max.</b> (Output 2)
	- Cross Regulation (25% / 100% asym. load)	dual output models: <b>5% max.</b>
Ripple and Noise (20 MHz Bandwidth)	- single output	5 Vout models: <b>50 mVp-p typ.</b> (with 10 µF X7R) 12 Vout models: <b>75 mVp-p typ.</b> (with 10 µF X7R) 15 Vout models: <b>75 mVp-p typ.</b> (with 10 µF X7R) 24 Vout models: <b>100 mVp-p typ.</b> (with 4.7 µF X7R)
	- dual output	5 / -5 Vout models: <b>50 / 50 mVp-p typ.</b> (with 10 µF X7R) 12 / -12 Vout models: <b>75 / 75 mVp-p typ.</b> (with 10 µF X7R) 15 / -15 Vout models: <b>75 / 75 mVp-p typ.</b> (with 10 µF X7R)
Capacitive Load	- single output	5 Vout models: <b>7'200 µF max.</b> 12 Vout models: <b>1'200 µF max.</b> 15 Vout models: <b>1'000 µF max.</b> 24 Vout models: <b>375 µF max.</b>
	- dual output	5 / -5 Vout models: <b>3'600 / 3'600 µF max.</b> 12 / -12 Vout models: <b>750 / 750 µF max.</b> 15 / -15 Vout models: <b>500 / 500 µF max.</b>
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.02 %/K max.</b>
Start-up Time		<b>30 ms typ. / 60 ms max.</b>
Short Circuit Protection		<b>Continuous, Automatic recovery</b>
Output Current Limitation		<b>185% max. of Iout max.</b> <b>150% typ. of Iout max.</b>
Overvoltage Protection		<b>125% typ. of Vout nom.</b> (depending on model) <b>6.2 VDC typ.</b> (5 VDC model) <b>15 VDC typ.</b> (12 VDC model) <b>20 VDC typ.</b> (15 VDC model) <b>30 VDC typ.</b> (24 VDC model) <b>6.2 VDC typ.</b> (±5 VDC model) <b>15 VDC typ.</b> (±12 VDC model) <b>20 VDC typ.</b> (±15 VDC model)
Transient Response	- Response Time	<b>250 µs typ.</b> (25% Load Step)

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

### Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Medical Equipment	EN 60601-1 IEC 60601-1 ANSI/AAMI ES 60601-1 2 x MOPP (Means Of Patient Protection)
	- Certification Documents	<a href="http://www.tracopower.com/overview/thm30wi">www.tracopower.com/overview/thm30wi</a>
	Pollution Degree	PD 2
Over Voltage Category		OVC II

### EMC Specifications

EMI Emissions	- Conducted Emissions	EN 60601-1-2 edition 4 (Medical Devices) EN 55011 class A (internal filter) EN 55011 class B (with external filter) EN 55032 class A (internal filter) EN 55032 class B (with external filter) FCC Part 18, class A FCC Part 18, class B
	- Radiated Emissions	EN 55011 class A (internal filter) EN 55011 class B (with external filter) EN 55032 class A (internal filter) EN 55032 class B (with external filter) FCC Part 18, class A FCC Part 18, class B
		External filter proposal: <a href="http://www.tracopower.com/overview/thm30wi">www.tracopower.com/overview/thm30wi</a>
EMS Immunity	- Electrostatic Discharge	Air: EN 60601-1-2 edition 4 (Medical Devices) EN 61000-4-2, $\pm 15$ kV, perf. criteria A
	- RF Electromagnetic Field	Contact: EN 61000-4-2, $\pm 8$ kV, perf. criteria A EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, $\pm 2$ kV, perf. criteria A EN 61000-4-5, $\pm 2$ kV, perf. criteria A
	- Conducted RF Disturbances	Ext. input component: 24 Vin models: 2 x KY 220 $\mu$ F // TVS SMDJ58A 48 Vin models: 2 x KY 220 $\mu$ F // TVS SMDJ120A EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous: EN 61000-4-8, 100 A/m, perf. criteria A 1 s: EN 61000-4-8, 1000 A/m, perf. criteria A

### General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-40°C to +80°C
	- Case Temperature	+105°C max.
	- Storage Temperature	-55°C to +125°C
Power Derating	- High Temperature	See application note: <a href="http://www.tracopower.com/overview/thm30wi">www.tracopower.com/overview/thm30wi</a>
Over Temperature	- Protection Mode	115°C typ. (Automatic recovery)
Protection Switch Off	- Measurement Point	Case
Cooling System		Natural convection (20 LFM)
Remote Control	- Voltage Controlled Remote	On: 3.5 to 12 VDC or open circuit Off: 0 to 1.2 VDC or short circuit Refers to 'Remote' and '-Vin' Pin
	- Off Idle Input Current	2.5 mA typ.
	- Remote Pin Input Current	-0.5 to 1.0 mA (Only for optional models with remote-control. Inverse models available.)
Altitude During Operation		5'000 m max.

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

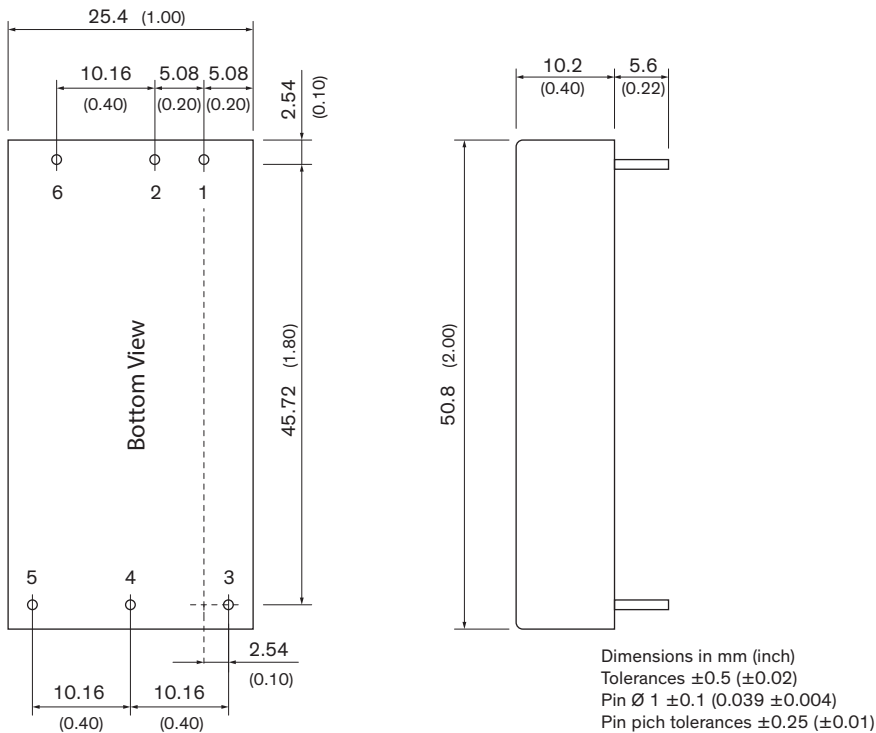
Switching Frequency	225 - 285 kHz (PWM) 250 kHz typ. (PWM)
Insulation System	Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s 5'000 VAC
Creepage	- Input to Output 8 mm min.
Clearance	- Input to Output 8 mm min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V 20 pF typ.
Leakage Current	- Touch Current 2.5 µA max. (240 VAC, 60 Hz)
Reliability	- Calculated MTBF 1'140'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration MIL-STD-810F - Thermal Shock MIL-STD-810F
Housing Material	Non-conductive Plastic (UL94 V-0 rated)
Base Material	Non-conductive Plastic (UL 94 V-0 rated)
Potting Material	Silicone (UL 94 V-0 rated)
Soldering Profile	265°C / 10 s max.
Connection Type	THD (Through-Hole Device)
Weight	32 g
Thermal Impedance	12.9 K/W
Environmental Compliance	- Reach www.tracopower.com/info/reach-declaration.pdf - RoHS www.tracopower.com/info/rohs-declaration.pdf

### Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/thm30wi](http://www.tracopower.com/overview/thm30wi)

### Outline Dimensions



### Pinout

Pin	Single Output	Dual Output
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
3	+Vout	+Vout
4	-Vout	Common
5	Trim	-Vout
6	No pin*/Remote	No pin*/Remote

\*If remote is not selected there will be no pin.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.