

### Features

- ◆ Wide 4:1 input voltage range
- ◆ Compact SIP-8 package
- ◆ Cost optimized design
- ◆ Temperature range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- ◆ I/O isolation 1500 VDC
- ◆ Remote On/Off control
- ◆ 3-year product warranty



The TMR-3WIE series is a family of isolated 3 W dc-dc converter modules with regulated output, featuring wide 4:1 input voltage ranges. The product comes in a compact SIP-8 plastic package with small footprint occupying only 2.0 cm<sup>2</sup> (0.3 square in.) of board space.

An excellent efficiency allows  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  operation temperature. Further features include remote On/Off control and continuous short circuit protection. The compact dimensions and cost optimized design make this converters an ideal solution for applications in communication equipment, instrumentation and industrial electronics.

Models				
Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TMR 3-1210WIE	4.5 – 18 VDC (12 VDC nominal)	3.3 VDC	700 mA	74 %
TMR 3-1211WIE		5.0 VDC	600 mA	78 %
TMR 3-1212WIE		12 VDC	250 mA	80 %
TMR 3-1213WIE		15 VDC	200 mA	80 %
TMR 3-1221WIE		$\pm 5.0$ VDC	$\pm 300$ mA	70 %
TMR 3-1222WIE		$\pm 12$ VDC	$\pm 125$ mA	80 %
TMR 3-1223WIE		$\pm 15$ VDC	$\pm 100$ mA	80 %
TMR 3-2410WIE	9 – 36 VDC (24 VDC nominal)	3.3 VDC	700 mA	75 %
TMR 3-2411WIE		5.0 VDC	600 mA	80 %
TMR 3-2412WIE		12 VDC	250 mA	81 %
TMR 3-2413WIE		15 VDC	200 mA	81 %
TMR 3-2421WIE		$\pm 5.0$ VDC	$\pm 300$ mA	79 %
TMR 3-2422WIE		$\pm 12$ VDC	$\pm 125$ mA	80 %
TMR 3-2423WIE		$\pm 15$ VDC	$\pm 100$ mA	81 %
TMR 3-4810WIE	18 – 75 VDC (48 VDC nominal)	3.3 VDC	700 mA	74 %
TMR 3-4811WIE		5.0 VDC	600 mA	79 %
TMR 3-4812WIE		12 VDC	250 mA	79 %
TMR 3-4813WIE		15 VDC	200 mA	79 %
TMR 3-4821WIE		$\pm 5.0$ VDC	$\pm 300$ mA	79 %
TMR 3-4822WIE		$\pm 12$ VDC	$\pm 125$ mA	79 %
TMR 3-4823WIE		$\pm 15$ VDC	$\pm 100$ mA	80 %

### Input Specifications

Input current at no load (nominal input voltage)	12 V models: 60 mA typ. 24 V models: 25 mA typ. 48 V models: 15 mA typ.
Surge voltage (1000 msec. max.)	12 V models: 25 V max. 24 V models: 50 V max. 48 V models: 100 V max.
Start-up voltage / under voltage lockout	12 V models: 4.5 VDC / 4 VDC or lower 24 V models: 9 VDC / 8 VDC or lower 48 V models: 18 VDC / 16 VDC or lower long term operation at undervoltage will damage the converter!
max. reverse polarity input current	1.0 A
Recommended Input Fuse (Slow Blow)	12 V models: 1500 mA 24 V models: 700 mA 48 V models: 350 mA
Conducted noise (input)	EN 55022 level A, FCC part 15, level A with external components (see application note)

### Output Specifications

Voltage set accuracy	– Single Output Models – Dual Output Models	±1 % max. ±2 % max. (balanced load)
Regulation	– Input variation Vin min. to Vin max. – Load variation 25 – 100%	0.5 % max. 1.0 % max.
Minimum load		25 % of rated max. load (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)		75 mVp-p max.
Transient response setting time (25% load step change)		500 µs max.
Short circuit protection		continuous, automatic recovery
Capacitive load	3.3 VDC models: 1'760 µF max. 5 VDC models: 1'000 µF max. 12 VDC models: 170 µF max. 15 VDC models: 110 µF max. ±5 VDC models: 470 µF max. (each output) ±12 VDC models: 100 µF max. (each output) ±5 VDC models: 47 µF max. (each output)	

### General Specifications

Temperature ranges	– Operating – Case temperature – Storage	–40°C to +85°C (with derating) +105°C max. –55°C to +125°C
Load derating		3.3 %/K above +70°C
Humidity (non condensing)		95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		> 800'000 h
Isolation voltage (60 sec.)	– Input/Output	1'500 VDC
Isolation capacitance	– Input/Output	200 pF typ.
Isolation resistance	– Input/Output (500 VDC)	>1 GOhm

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

**General Specifications**

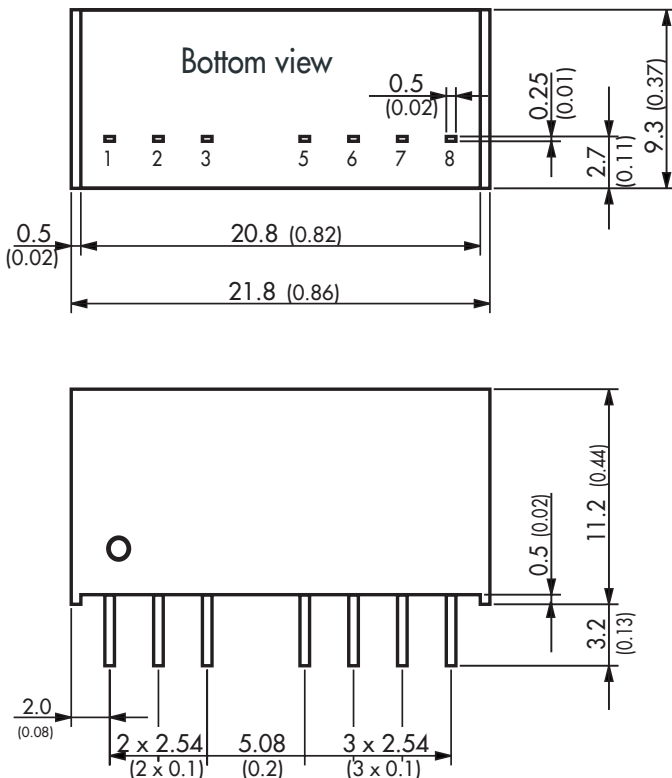
Switching frequency		350 kHz typ. (PFM)
Remote On/Off	<ul style="list-style-type: none"> <li>- On: &lt; 0.6 VDC or open circuit</li> <li>- Off: 2.7 to 15 VDC (ref. to -Vin)</li> <li>- Off standby current: 2.5 mA max.</li> <li>- Off control input current: 1 mA max.</li> </ul>	
Safety standards		UL 60950-1, IEC/EN 60950-1
Safety approvals	<ul style="list-style-type: none"> <li>- CB test certificate according IEC 60950-1</li> <li>- CSA certificate for UL/cUL 60950-1</li> </ul>	<a href="http://www.tracopower.com/products/tmr3wie-cb.pdf">www.tracopower.com/products/tmr3wie-cb.pdf</a> <a href="http://www.tracopower.com/products/tmr3wie-csa.pdf">www.tracopower.com/products/tmr3wie-csa.pdf</a>

**Physical Specifications**

Casing material		non-conductive plastic (UL 94V-0 rated)
Potting material		Silicon, (UL 94V-0 rated)
Weight		4.8 g (0.17 oz)
Soldering temperature		max. 260°C / 10 sec.
Environmental compliance	<ul style="list-style-type: none"> <li>- Reach</li> <li>- RoHS</li> </ul>	<a href="http://www.tracopower.com/products/tmr3wie-reach.pdf">www.tracopower.com/products/tmr3wie-reach.pdf</a> RoHS directive 2011/65/EU

**Application note:** [www.tracopower.com/products/tmr3wie-application.pdf](http://www.tracopower.com/products/tmr3wie-application.pdf)

**Outline Dimensions**



Pinout		
Pin	single output	dual output
1	-Vin (GND)	-Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote On/Off	Remote On/Off
5	ntc.	ntc.
6	+Vout	+Vout
7	-Vout	Common
8	ntc.	-Vout

ntc. = Not to connect

Dimensions in [mm], ( ) = Inch  
 Tolerances: ±0.5 (±0.02)  
 Pin pitch tolerances: ±0.25 (±0.01)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)