

### 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**

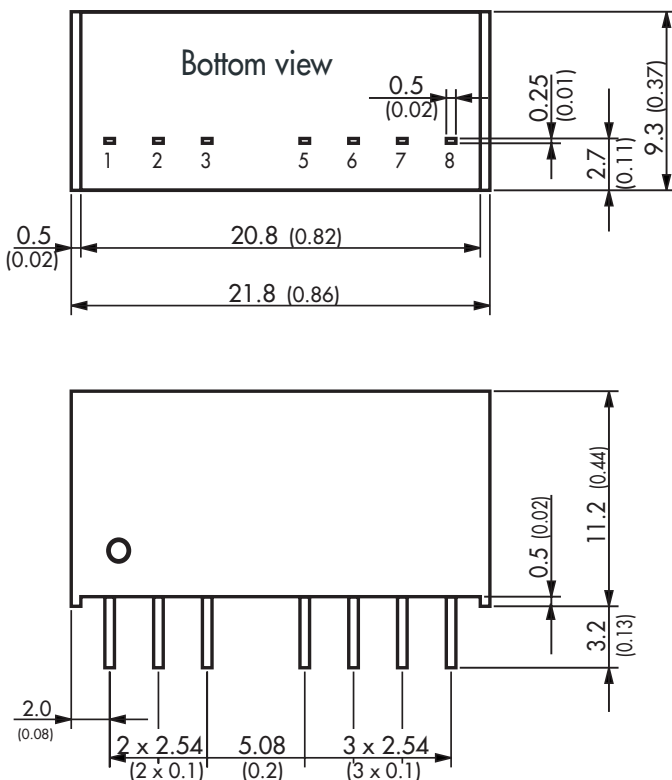
Switching frequency		350 kHz typ. (PFM)
Remote On/Off	<ul style="list-style-type: none"> <li>- On: &lt; 0.6 VDC or open circuit</li> <li>- Off: 2.7 to 15 VDC (ref. to -Vin)</li> <li>- Off standby current: 2.5 mA max.</li> <li>- Off control input current: 1 mA max.</li> </ul>	
Safety standards		CAN/CSA-C22.2 No 60950-1-07 Incl. AM1 (2011) ANSI/UL Std No 60950-1, 2nd Ed. Incl. AM1 (2011) IEC 60950-1:2005 (2nd Edition); +A1:2009 <a href="http://www.tracopower.com/overview/tmr3wie">www.tracopower.com/overview/tmr3wie</a>
	- Certification documents	

**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/overview/tmr3wie">www.tracopower.com/overview/tmr3wie</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)