

- Fully encapsulated low profile plastic case
- Ultra wide 4 : 1 input voltage range
- Operating temperature range -40°C to $+85^{\circ}\text{C}$
- I/O isolation 2500 VDC
- Excellent efficiency up to 92 %
- Input filter to meet EN 55022, class A
- Optional DIN-Rail mount adapter
- No minimum load required
- Power good LED indicator and remote on/off function
- 3-year product warranty



The TMDC 40 Series is a range of encapsulated high performance DC/DC converter modules. With a very high efficiency of up to 92% and the use of highest reliable components these 40 W converters are available as a chassis-mount with screw terminals or PCB versions. The 8 models have a wide 4:1 input voltage range and a tight output voltage regulation. They do not need a minimum load and offer a high efficiency also at low load conditions. They feature a remote control input and a green power good LED which indicates the presence of the output voltage. Protection against overload and short circuit are standard features of these converters. EMC characteristics and safety certifications are aligned for the operation in industrial environment.

Models				
Order Code	Input Voltage Range	Output Voltage nom.	Output Current max.	Efficiency typ.
TMDC 40-2411	9 - 36 VDC (24 VDC nom.)	5.1 VDC	8'000 mA	90 %
TMDC 40-2412		12 VDC	3'330 mA	90 %
TMDC 40-2415		24 VDC	1'670 mA	90 %
TMDC 40-2418		48 VDC	835 mA	89 %
TMDC 40-4811	18 - 75 VDC (48 VDC nom.)	5.1 VDC	8'000 mA	89 %
TMDC 40-4812		12 VDC	3'330 mA	91 %
TMDC 40-4815		24 VDC	1'670 mA	92 %
TMDC 40-4818		48 VDC	835 mA	90 %

Options	
TMP-MK2	- Optional Din-Rail mounting kit: www.tracopower.com/products/tmp-mk2.pdf

Input Specifications

Input Current	- at no load	24 Vin models: 90 mA typ. 48 Vin models: 55 mA typ.
	- at full load	24 Vin models: 1868 mA typ. 48 Vin models: 927 mA typ.
Surge Voltage		24 Vin models: 50 VDC max. (100 ms max.) 48 Vin models: 100 VDC max. (100 ms max.)
Under Voltage Lockout		24 Vin models: 7.5 VDC typ. 48 Vin models: 16 VDC typ.
Input Filter		Internal Pi-Type

Output Specifications

Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (Vmin - Vmax)	0.5% max.
	- Load Variation (0 - 100%)	1% max.
Ripple and Noise (20 MHz Bandwidth)	5.1 Vout models:	100 mVp-p max.
	12 Vout models:	150 mVp-p max.
	24 Vout models:	150 mVp-p max.
	48 Vout models:	200 mVp-p max.
Capacitive Load	5.1 Vout models:	13'600 µF max.
	12 Vout models:	2'400 µF max.
	24 Vout models:	600 µF max.
	48 Vout models:	150 µF max.
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Start-up Time		30 ms max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		150% typ. of Iout max.
Overvoltage Protection		120% typ. of Vout nom. (By Zener diode)
Transient Response	- Response Deviation	5% max. (75% to 100% Load Step)
	- Response Time	250 µs typ. (75% to 100% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	IEC 60950-1 EN 60950-1 UL 60950-1 CSA-C22.2, No 60950-1
	- Certification Documents	www.tracopower.com/overview/tmdc40
Pollution Degree		PD 2

EMC Specifications

EMC Emissions		EN 61000-6-4 (Generic Industrial) EN 61204-3 (Low Voltage Power Supplies)
	- Conducted Emissions	EN 55032 class A (internal filter) FCC Part 15, class A
	- Radiated Emissions	EN 55032 class A (with external filter) FCC Part 15, class A
	- External Filter Proposal	www.tracopower.com/overview/tmdc40

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

EMC Immunity		EN 55024 (IT Equipment)
	- Electrostatic Discharge	Air: EN 61000-4-2, ± 8 kV, perf. criteria A Contact: EN 61000-4-2, ± 4 kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst)	EN 61000-4-4, ± 2 kV, perf. criteria A
	- Surge	EN 61000-4-5, ± 2 kV, perf. criteria A
	- Conducted RF Disturbances	EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	EN 61000-4-8, 30 A/m, perf. criteria A

General Specifications

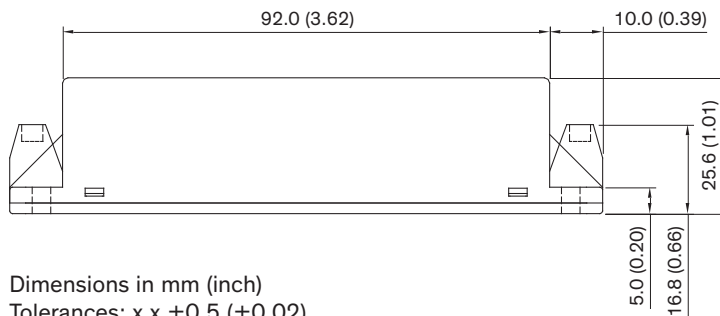
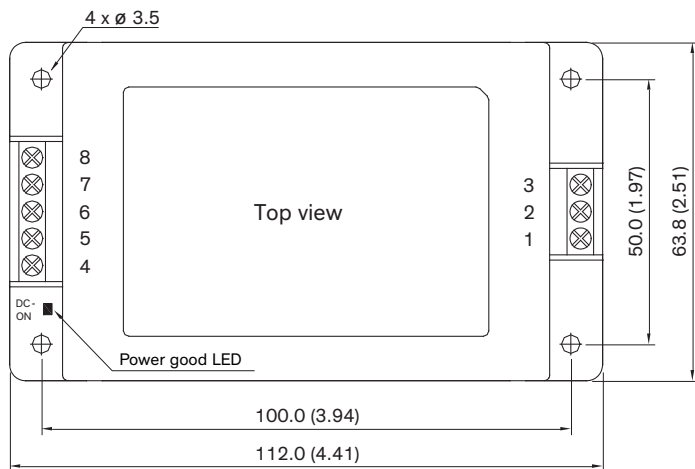
Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-40°C to +85°C
	- Approved Ambient Temp.	+65°C max. (for compliance to 60950-1)
	- Case Temperature	+95°C max.
	- Storage Temperature	-50°C to +125°C
Power Derating	- High Temperature	4.5 %/K above 73°C
		see application note www.tracopower.com/overview/tmdc40
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	3 mA typ.
	- Remote Pin Input Current	-0.5 to 0.5 mA
Altitude During Operation		2'000 m max.
Switching Frequency		285 kHz typ. (PWM)
Insulation System		Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s	2'500 VDC
Isolation Resistance	- Input to Output, 500 VDC	1'000 MOhm min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	2'400 pF max.
Reliability	- Calculated MTBF	644'300 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration	IEC 60068-2-6
Housing Material		Plastic resin (UL 94V-0 rated)
Connection Type		Screw Terminal
Weight		162 g
Thermal Impedance		4.75 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/tmdc40
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Outline Dimensions



Dimensions in mm (inch)
Tolerances: x.x ±0.5 (±0.02)

Terminals: Wires 1.5mm² max.
Recommended tightening torque:
0.5 to 0.7 Nm (4.5 to 6.2 lb.in.)

Pinout	
Pin	Function
1	Remote
2	−Vin (GND)
3	+Vin (Vcc)
4	+Vout
5	NC
6	−Vout
7	NC
8	NC

NC: No Connection