

#### Features

- ◆ Fully encapsulated low profile plastic case
- ◆ Ultra wide 4 : 1 input voltage range
- ◆ Operating temperature range  
-40°C to +85°C
- ◆ I/O isolation 2500 VDC
- ◆ Excellent efficiency up to 92 %
- ◆ Input filter to meet EN 55032, class A
- ◆ Optional DIN-Rail mount adapter
- ◆ No minimum load required
- ◆ Power good LED indicator
- ◆ Remote On/Off
- ◆ 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 | Output current max. | Efficiency |
|--------------|---------------------------------|----------------|---------------------|------------|
| TMDC 40-2411 | 9 – 36 VDC<br>(nominal 24 VDC)  | 5.1 VDC        | 8'000 mA            | 90 %       |
| TMDC 40-2412 |                                 | 12 VDC         | 3'330 mA            | 90 %       |
| TMDC 40-2415 |                                 | 24 VDC         | 1670 mA             | 90 %       |
| TMDC 40-2418 |                                 | 48 VDC         | 835 mA              | 89 %       |
| TMDC 40-4811 | 18 – 75 VDC<br>(nominal 48 VDC) | 5.1 VDC        | 8'000 mA            | 89 %       |
| TMDC 40-4812 |                                 | 12 VDC         | 3'330 mA            | 91 %       |
| TMDC 40-4815 |                                 | 24 VDC         | 1670 mA             | 92 %       |
| TMDC 40-4818 |                                 | 48 VDC         | 835 mA              | 90 %       |

### Input Specifications

|  |  |
|--|--|
| Input current at no load (nominal input voltage) | 24 Vin models: 90 mA typ.<br>48 Vin models: 55 mA typ.   |
| Surge voltage (100 msec. max.)                   | 24 Vin models: 50 V max.<br>48 Vin models: 100 V max.  |
| Start up time                                    | 30 ms max.   |
| Start-up voltage                                 | 24 Vin models: 9 VDC max.<br>48 Vin models: 18 VDC max.  |
| Under voltage shut down                          | 24 Vin models: 7.5 VDC typ.<br>48 Vin models: 16 VDC typ.  |
| EMI Conducted                                    | EN 55032 class A, FCC part 15 class A without external components  |
| EMI Radiated                                     | EN 55032 class A, FCC part 15 class A with external components<br><a href="http://www.tracopower.com/overview/tmdc40">www.tracopower.com/overview/tmdc40</a> |
| EMC immunity                                     | EN 55024   |
| – ESD (electrostatic discharge)                  | EN 61000-4-2, air ±8 kV, contact ±4 kV, perf. criteria A   |
| – Radiated immunity                              | EN 61000-4-3, 10 V/m, perf. criteria A   |
| – Fast transient / surge                         | EN 61000-4-4, ±2 kV, perf. criteria A  |
| – Conducted immunity                             | EN 61000-4-5, ±2 kV, perf. criteria A  |
| – Magnetic field immunity                        | EN 61000-4-6, 10 Vrms, perf. criteria A<br>EN 61000-4-8, 30 A/m, perf. criteria A  |

### Output Specifications

|   |  |
|---|--|
| Voltage set accuracy  | ±2.0 % max.  |
| Regulation  | – Input variation Vin min. to Vin max. 0.5 % max.<br>– Load variation 0 – 100 % 1.0 % max.                                       |
| Minimum load  | not required   |
| Temperature coefficient   | ±0.02 %/K  |
| Ripple and noise (20 MHz Bandwidth)                                   | 5.1 VDC models: 100 mVpk-pk. typ.<br>12 & 24 VDC models: 150 mVpk-pk typ.<br>48 VDC models: 200 mVpk-pk. typ.                    |
| Transient response (alignment to 1% at load step change 75% to 100% ) |  |
| – Recovery time   | 250 µs typ.  |
| – Deviation   | ±5 % max.  |
| Over voltage protection   | 120 % of Vout (Zener diode clamp)  |
| Output current limitation   | at 150% of Iout max.   |
| Short circuit protection  | hiccup mode, automatic recovery  |
| Capacitive load   | 5.1 VDC models: 13'600 µF max.<br>12.0 VDC models: 2'400 µF max.<br>24.0 VDC models: 600 µF max.<br>48.0 VDC models: 150 µF max. |

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

### General Specifications

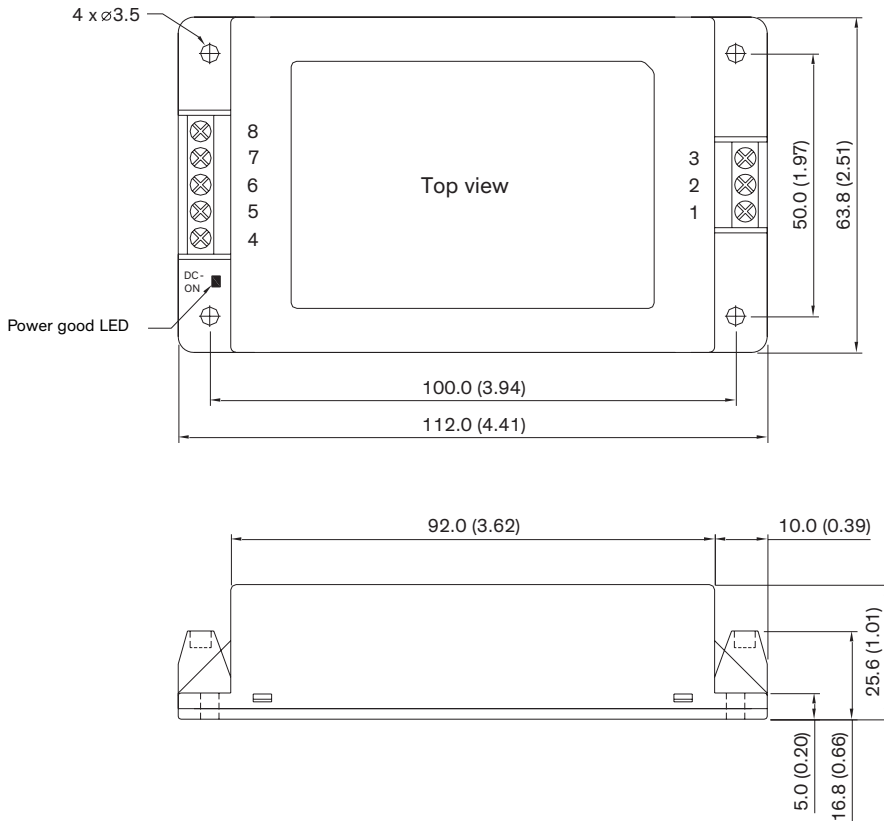
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|---|---|--|
| Temperature ranges  | <ul style="list-style-type: none"> <li>- Operating (natural convection 20 LFM)</li> <li>- IEC/EN/UL60950-1 approved ambient</li> <li>- Case temperature</li> <li>- Storage</li> </ul> | -40°C to +85°C (with derating)<br>+65°C max. (without derating)<br>+95°C max.<br>-50°C to +125°C   |
| Load derating   | - natural convection 20 LFM   | 4.5 %/K above 73°C   |
| Thermal impedance   | - Natural convection 20 LFM   | 4.75 °C/W  |
| Humidity (non condensing)   |   | 95 % rel H max.  |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) |   | >644'290 h   |
| Isolation voltage (60 sec.)   | - Input/Output  | 2500 VDC   |
| Isolation capacitance   | - Input/Output  | 2400 pF max. (100 kHz, 1 V)  |
| Isolation resistance  | - Input/Output  | >1000 Mohm (500 VDC)   |
| Altitude during operation   |   | 2'000 m max.   |
| Switching frequency   |   | 285 kHz typ.   |
| Remote On/Off   | <ul style="list-style-type: none"> <li>- On:</li> <li>- Off:</li> <li>- Off idle current:</li> </ul>  | 3.5 to 12 VDC to -Vin or open circuit.<br>0 to +1.2 VDC or short circuit to -Vin<br>3 mA typ.  |
| Safety standards  | <ul style="list-style-type: none"> <li>- CB test report</li> <li>- UL test certificat</li> <li>- Certification documents</li> </ul>   | UL/cUL 60950-1 2nd edition,<br>IEC 60950-1:2005 (2nd edition)+Am1:2009<br>+Am2:2013, EN 60950-1:2006+A11:2009+A1:<br>2010+A12:2011+A2:2013<br>UL/cUL 60950-1 2nd edition,<br>CSA C22.2 No. 60950-1-07, 2nd Ed.<br><a href="http://www.tracopower.com/overview/tmdc40">www.tracopower.com/overview/tmdc40</a> |

### Physical Specifications

|                          |   |  |
|--------------------------|---|--|
| Casing material          |   | plastic resin (UL 94V-0 rated)   |
| Weight                   |   | 162 g (5.7 oz)   |
| Environmental compliance | <ul style="list-style-type: none"> <li>- Reach declaration</li> <li>- RoHS</li> </ul> | <a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a><br>directive 2011/65/EU |

**Supporting documents:** [www.tracopower.com/overview/tmdc40](http://www.tracopower.com/overview/tmdc40)

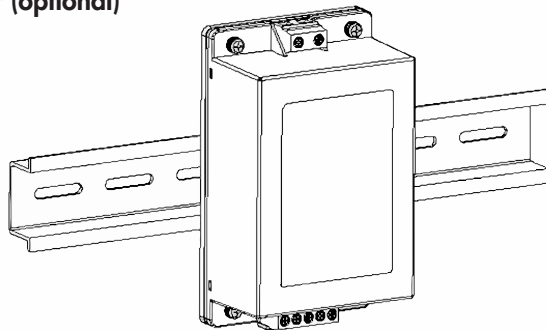
**Outline Dimensions**



| Pin-Out |               |
|---------|---------------|
| Pin     | Single        |
| 1       | Remote On/Off |
| 2       | -Vin (GND)    |
| 3       | +Vin (Vcc)    |
| 4       | +Vout         |
| 5       | NC            |
| 6       | -Vout         |
| 7       | NC            |
| 8       | NC            |

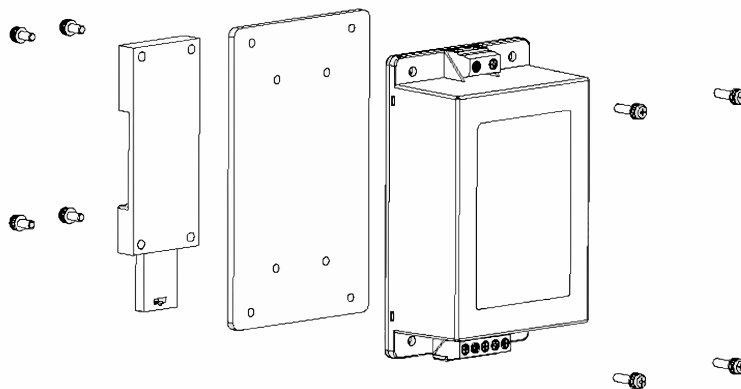
Dimensions in [mm], ( ) = Inch  
 Terminals: Wires 1.5mm<sup>2</sup> max.  
 Recommended tightening torque:  
 0.5 to 0.7 Nm (4.5 to 6.2 lb.in.)  
 Case tolerances: ±0.25 (±0.01)

**DIN-Rail mount adapter (optional)**



**Order code: TMP-MK2**

**Weight: 59 g (2.08 oz) without converter**



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