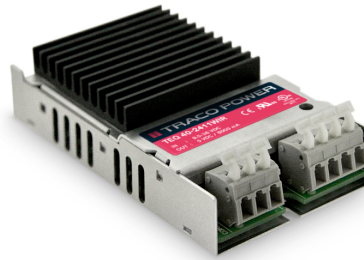


- High power block with excellent thermal convection
- Operating temperature -40°C to +92°
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 91%
- Input filter meet EN 55022, class B
- I/O isolation up to 2121 VAC
- Under voltage lock-out circuit
- Protection against overvoltage, overtemperature and short circuit
- Output LED indicator



The TEQ 40WIR Series is a family of isolated high performance DC/DC converter modules with ultra-wide 4:1 input voltage ranges which come in a rugged metal case. These converters are suitable for a wide range of applications, but the product is designed particularly also for industrial applications where often no PCB mounting is possible but the module has to be mounted on a chassis. A very high efficiency and the heatsink construction allows an operating temperature up to +83°C with natural convection cooling without power derating and up to +92°C with power derating. Further features include under voltage lockout, over temperature protection and short circuit protection.

### Models

| Order Code     | Input Voltage Range            | Output 1 |                  | Output 2 |                  | Efficiency typ. |
|----------------|--------------------------------|----------|------------------|----------|------------------|-----------------|
|                |                                | Vnom     | I <sub>max</sub> | Vnom     | I <sub>max</sub> |                 |
| TEQ 40-2411WIR | 9.5 - 36 VDC<br>(24 VDC nom.)  | 5 VDC    | 8'000 mA         |          |                  | 90 %            |
| TEQ 40-2412WIR |                                | 12 VDC   | 3'330 mA         |          |                  | 91 %            |
| TEQ 40-2413WIR |                                | 15 VDC   | 2'670 mA         |          |                  | 91 %            |
| TEQ 40-2415WIR |                                | 24 VDC   | 1'670 mA         |          |                  | 90 %            |
| TEQ 40-2422WIR |                                | +12 VDC  | 1'670 mA         | -12 VDC  | 1'670 mA         | 89 %            |
| TEQ 40-2423WIR |                                | +15 VDC  | 1'330 mA         | -15 VDC  | 1'330 mA         | 89 %            |
| TEQ 40-2425WIR |                                | +24 VDC  | 830 mA           | -24 VDC  | 830 mA           | 90 %            |
| TEQ 40-4811WIR | 18 - 75 VDC<br>(48 VDC nom.)   | 5 VDC    | 8'000 mA         |          |                  | 90 %            |
| TEQ 40-4812WIR |                                | 12 VDC   | 3'330 mA         |          |                  | 91 %            |
| TEQ 40-4813WIR |                                | 15 VDC   | 2'670 mA         |          |                  | 91 %            |
| TEQ 40-4815WIR |                                | 24 VDC   | 1'670 mA         |          |                  | 90 %            |
| TEQ 40-4822WIR |                                | +12 VDC  | 1'670 mA         | -12 VDC  | 1'670 mA         | 89 %            |
| TEQ 40-4823WIR |                                | +15 VDC  | 1'330 mA         | -15 VDC  | 1'330 mA         | 89 %            |
| TEQ 40-4825WIR |                                | +24 VDC  | 830 mA           | -24 VDC  | 830 mA           | 90 %            |
| TEQ 40-7211WIR | 43 - 160 VDC<br>(110 VDC nom.) | 5 VDC    | 8'000 mA         |          |                  | 88 %            |
| TEQ 40-7212WIR |                                | 12 VDC   | 3'330 mA         |          |                  | 90 %            |
| TEQ 40-7213WIR |                                | 15 VDC   | 2'670 mA         |          |                  | 90 %            |
| TEQ 40-7215WIR |                                | 24 VDC   | 1'670 mA         |          |                  | 89 %            |
| TEQ 40-7222WIR |                                | +12 VDC  | 1'670 mA         | -12 VDC  | 1'670 mA         | 88 %            |
| TEQ 40-7223WIR |                                | +15 VDC  | 1'330 mA         | -15 VDC  | 1'330 mA         | 88 %            |
| TEQ 40-7225WIR |                                | +24 VDC  | 830 mA           | -24 VDC  | 830 mA           | 90 %            |

### Input Specifications

|                            |              |   |
|----------------------------|--------------|---|
| Input Current              | - At no load | 24 Vin models: <b>19 mA typ.</b><br>48 Vin models: <b>14 mA typ.</b><br>110 Vin models: <b>10 mA typ.</b>   |
| Surge Voltage              |              | 24 Vin models: <b>50 VDC max.</b> (1 s max.)<br>48 Vin models: <b>100 VDC max.</b> (1 s max.)<br>110 Vin models: <b>170 VDC max.</b> (1 s max.)   |
| Input Inrush Current       |              | <b>15 A typ.</b>  |
| Under Voltage Lockout      |              | 24 Vin models: <b>7 VDC min. / 8 VDC typ. / 9 VDC max.</b><br>48 Vin models: <b>15 VDC min. / 16 VDC typ. / 17.5 VDC max.</b><br>110 Vin models: <b>37 VDC min. / 40 VDC typ. / 42 VDC max.</b> |
| Recommended Input Fuse     |              | 24 Vin models: <b>8'000 mA</b> (fast acting)<br>48 Vin models: <b>4'000 mA</b> (slow blow)<br>110 Vin models: <b>2'000 mA</b> (slow blow)   |
| Reverse Voltage Protection |              | <b>Parallel diode</b>   |

### Output Specifications

|                                     |  |   |
|-------------------------------------|--|---|
| Voltage Set Accuracy                |  | <b>±1% max.</b> (Single Output)<br><b>+1% / -1.2%</b> (Dual Output)   |
| Regulation                          | - Input Variation (Vmin - Vmax)<br><br>- Load Variation (0 - 100%)<br><br>- Cross Regulation (25% / 100% asym. load) | single output models: <b>0.5% max.</b><br>dual output models: <b>0.5% max.</b><br>single output models: <b>1.5% max.</b> (5 VDC models)<br><b>1% max.</b> (other models)<br>dual output models: <b>1% max.</b> (Output 1)<br><b>1% max.</b> (Output 2)<br>dual output models: <b>5% max.</b>                                  |
| Ripple and Noise (20 MHz Bandwidth) | - single output<br><br>- dual output   | 5 Vout models: <b>75 mVp-p max.</b><br>12 Vout models: <b>100 mVp-p max.</b><br>15 Vout models: <b>100 mVp-p max.</b><br>24 Vout models: <b>150 mVp-p max.</b><br>12 / -12 Vout models: <b>100 / 100 mVp-p max.</b><br>15 / -15 Vout models: <b>100 / 100 mVp-p max.</b><br>24 / -24 Vout models: <b>150 / 150 mVp-p max.</b> |
| Capacitive Load                     | - single output<br><br>- dual output   | 5 Vout models: <b>20'000 µF max.</b><br>12 Vout models: <b>3'900 µF max.</b><br>15 Vout models: <b>2'600 µF max.</b><br>24 Vout models: <b>1'300 µF max.</b><br>12 / -12 Vout models: <b>2'600 / 2'600 µF max.</b><br>15 / -15 Vout models: <b>1'600 / 1'600 µF max.</b><br>24 / -24 Vout models: <b>650 / 650 µF max.</b>    |
| Minimum Load                        |  | <b>Not required</b>   |
| Temperature Coefficient             |  | <b>±0.02 %/K max.</b>   |
| Hold-up Time                        |  | <b>10 ms min.</b>   |
| Start-up Time                       |  | <b>100 ms typ.</b>  |
| Short Circuit Protection            |  | <b>Continuous, Automatic recovery</b>   |
| Output Current Limitation           |  | <b>150% typ. of Iout max.</b>   |
| Overvoltage Protection              |  | <b>125% typ. of Vout nom.</b>   |
| 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    | IEC 60950-1<br>EN 60950-1<br>UL 60950-1  |
|                  | - Industrial Control Equipment | UL 508<br>(single output models only)  |
|                  | - Railway Applications         | EN 50155   |
|                  | - Certification Documents      | <a href="http://www.tracopower.com/overview/teq40wir">www.tracopower.com/overview/teq40wir</a> |
| Pollution Degree |                                | PD 2   |

### EMC Specifications

|               |                             |  |
|---------------|-----------------------------|--|
| EMI Emissions | - Conducted Emissions       | EN 50121-3-2 (EMC for Rolling Stock)<br>EN 55032 class B (internal filter)   |
|               | - Radiated Emissions        | EN 55032 class B (internal filter)   |
| EMS Immunity  | - Electrostatic Discharge   | EN 50155 (Railway Applications)<br>EN 50121-3-2 (EMC for Rolling Stock)<br>EN 55024 (IT Equipment)<br>Air: EN 61000-4-2, $\pm 8$ kV, perf. criteria A<br>Contact: EN 61000-4-2, $\pm 6$ kV, perf. criteria A<br>EN 61000-4-3, 20 V/m, perf. criteria A<br>EN 61000-4-4, $\pm 2$ kV, perf. criteria A<br>EN 61000-4-5, $\pm 1$ kV, perf. criteria A<br>EN 61000-4-6, 10 Vrms, perf. criteria A<br>Continuous: EN 61000-4-8, 100 A/m, perf. criteria A |
|               | - RF Electromagnetic Field  |  |
|               | - EFT (Burst)               |  |
|               | - Surge                     |  |
|               | - Conducted RF Disturbances |  |
|               | - PF Magnetic Field         |  |

### General Specifications

|  |                                 |  |
|--|---------------------------------|--|
| Relative Humidity                      |                                 | 95% max. (non condensing)  |
| Temperature Ranges                     | - Operating Temperature         | -40°C to +83°C   |
|  | - Storage Temperature           | -40°C to +105°C  |
| Power Derating                         | - High Temperature              | See application note: <a href="http://www.tracopower.com/overview/teq40wir">www.tracopower.com/overview/teq40wir</a> |
| Over Temperature Protection Switch Off |                                 | 105°C min. / 115°C typ. / 120°C max. (Automatic recovery)  |
| Cooling System                         |                                 | Natural convection (20 LFM)  |
| Altitude During Operation              |                                 | 2'000 m max.   |
| Switching Frequency                    |                                 | 225 - 275 kHz (PWM)  |
|  |                                 | 250 kHz typ. (PWM)   |
| Insulation System                      |                                 | Functional Insulation  |
| Isolation Test Voltage                 | - Input to Output, 60 s         | 2'121 VAC  |
|  | - Input to Case, 60 s           | 1'414 VAC  |
|  | - Output to Case, 60 s          | 1'414 VAC  |
| Isolation Resistance                   | - Input to Output, 500 VDC      | 1'000 MOhm min.  |
| Isolation Capacitance                  | - Input to Output, 100 kHz, 1 V | 5'000 pF typ.  |
| Reliability                            | - Calculated MTBF               | 1'000'000 h (MIL-HDBK-217F, ground benign)   |
| Environment                            | - Vibration                     | MIL-STD-810F<br>EN 61373   |
|  | - Mechanical Shock              | MIL-STD-810F<br>EN 61373   |
|  | - Thermal Shock                 | MIL-STD-810F   |
| Housing Material                       |                                 | Aluminium  |
| Connection Type                        |                                 | Clip   |
| Weight                                 |                                 | 129 g  |
| Status Indicator                       |                                 | Green LED  |
| Environmental Compliance               | - Reach                         | <a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a>     |
|  | - RoHS                          | <a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a>       |
|  | - Flammability (EN 45545-2)     | <a href="http://www.tracopower.com/info/en45545-declaration.pdf">www.tracopower.com/info/en45545-declaration.pdf</a> |

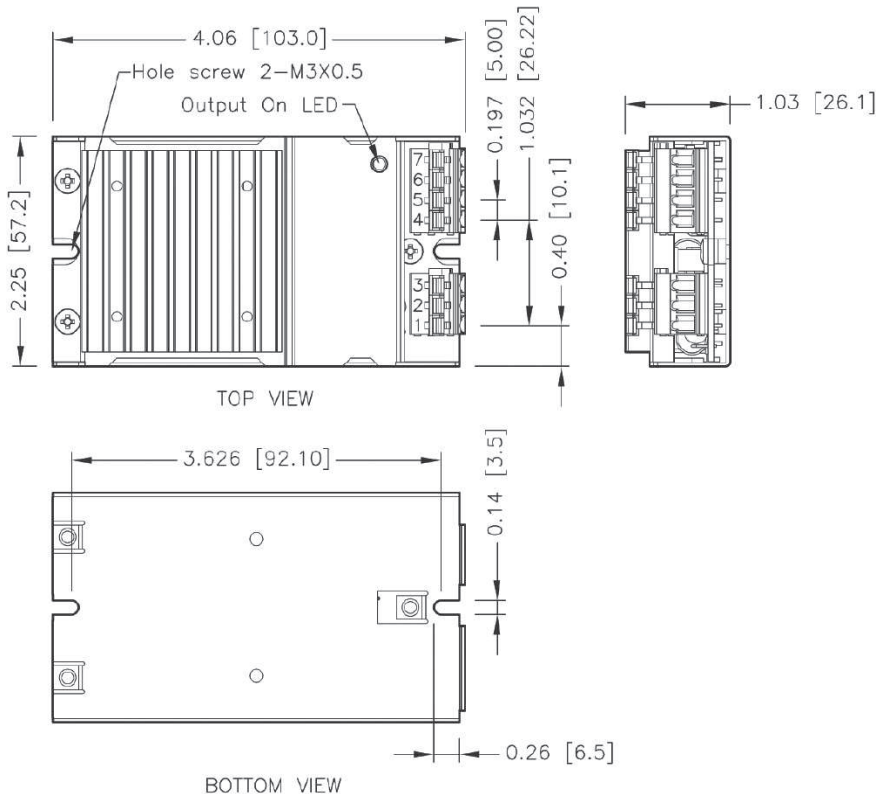
All specifications valid at nominal voltage, full load and +25°C after warm-up time unless otherwise stated.

### Supporting Documents

[Overview Link](#) (for additional Documents)

[www.tracopower.com/overview/teq40wir](http://www.tracopower.com/overview/teq40wir)

### Outline Dimensions



| Pinout |               |             |
|--------|---------------|-------------|
| Pin    | Single Output | Dual Output |
| 1      | +Vin          | +Vin        |
| 2      | -Vin (GND)    | -Vin (GND)  |
| 3      | NC            | NC          |
| 4      | NC            | -Vout       |
| 5      | -Vout         | Common      |
| 6      | +Vout         | Common      |
| 7      | NC            | +Vout       |

NC: No Connection

Dimensions in inch [mm]

Tolerances: x.x ±0.02 [±0.5]

x.xx ±0.01 [±0.25]

Screw max. torque: 5.0 kgf - cm (0.49 Nm)

Spring terminals: 12 - 18 AWG



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

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