TDK·Lambda

# PXC-M06 (W) Series

www.emea.tdk-lambda.com/pxc-m

Medical Comm

## Single and Dual Output 6W DC-DC Converters

| Features | Benefits |
|---|---|
| • 60601-1 approval | • Easier system approval |
| • I/O isolation 5kVAC, 2MOPP | • Patient protection at 250VAC rms working voltage |
| • 0.25μA low patient leakage | • Wide range of medical applications |
| • 4:1 Wide input range | • Less parts to inventory |


## Specification

| Model | PXC-M06 (W) | |
|---|---|---|
| Rated input voltage range | 24V nominal: 9-36VDC, 48V nominal: 18-75VDC | |
| Input surge voltage (max 3 seconds) | 24V Nom : 50VDC | 48V Nom: 100VDC |
| Switching frequency | 250Hz typ | |
| Maximum input current (no load) | See Table | |
| Fusing | No internal fuse | |
| Max output power (W) | 6 | |
| Voltage accuracy | Single/Dual ± 1% | |
| Voltage adjustment (Note 1) | Single output 3.3V, 5V & 12V: ± 10%,15V & 24V: -10%/+20%<br>Dual output ±5V, ±12V & ±15V: ±10% | |
| Line regulation (LL to HL at full load) | Single output ± 0.2%, Dual output ± 0.5% | |
| Ripple and noise (Note 7) | Measured with a 20MHz bandwidth - see table | |
| Start up time (Nominal Vin and constant resistive load) | Power on: 30ms, Remote ON/OFF: 30ms | |
| Start up voltage | 24Vin(nom) 9V, 48V(nom) 18V | |
| Shutdown voltage | 24Vin(nom) 8V, 48V(nom) 16V | |
| Remote on/off (option) (Note 1 & Note 6) | DC ON: OPEN or 0 to 1.2VDC<br>DC OFF: 2.2 to 12VDC | |
| Efficiency | See Table | |
| Over current protection, factory set | Hiccup, 150% of rated full load | |
| Short circuit protection (Note 2) | Continuous, auto recovery | |
| Overvoltage protection | 3.3V output<br>5V output<br>12V output<br>15V output<br>24V output<br>5V output<br>12V output<br>15V output | 3.7 to 5V<br>5.6 to 7.0V<br>13.5 to 16V<br>18.3 to 22.0V<br>29.1 to 34.5V<br>5.6 to 7.0V<br>13.5 to 18.2V<br>17.0 to 22.0V |
| Operating temperature | -40°C ~ +88°C (without derating), +88°C ~ +105°C (with derating - see curve) | |
| Storage temperature | -55°C ~ +125°C | |
| Thermal shock | MIL-STD-810F | |
| Relative humidity (non condensing) | 5% to 95% RH | |
| Transient response (25% step load change) | 250μS | |
| Isolation voltage (1 minute) (Note8) | 5kVAC | |
| Isolation capacitance (max) | 17pF | |
| MTBF MIL-HDBK-217F (Note 3) | 644,400 hrs | |
| Vibration | MIL-STD-810F | |
| Conducted and radiated emissions (Note 4) | EN55011, EN55022, Class A and FCC part 18 | |
| Immunity (Note 5) | EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6:<br>Perf. Criteria A | |
| Safety | IEC60601-1, ANSI/AAMI ES60601-1, EN60601-1, CE Mark | |
| Size (H x W x D) | 10.2 x 20.3 x 31.8 mm | |
| Weight | 14g | |
| Connector | PCB mount | |
| Cooling | Convection | |
| Warranty yrs | 2 | |

**Notes: See page 2**

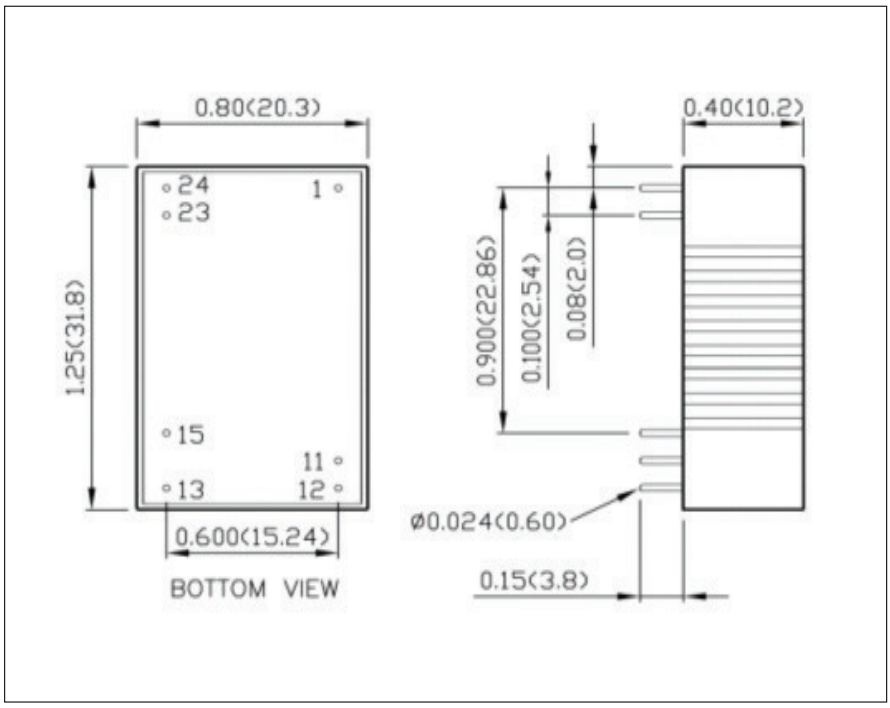
## Model Selector

| Model | Input Voltage (VDC) | Output Voltage (VDC) | Output Current Full Load (mA) | Output [7] Ripple & Noise (mV) | Input Current No Load mA | Efficiency % [2] | Ripple & Noise (mV pk-pk) [2] |
|---|---|---|---|---|---|---|---|
| PXC-M06-24WS3P3 | 9 ~ 36 | 3.3 | 1800 | 30 | 6 | 83 | 2100 |
| PXC-M06-24WS05 | 9 ~ 36 | 5 | 1200 | 30 | 6 | 86 | 1500 |
| PXC-M06-24WS12 | 9 ~ 36 | 12 | 500 | 40 | 6 | 89 | 260 |
| PXC-M06-24WS15 | 9 ~ 36 | 15 | 400 | 40 | 6 | 89 | 210 |
| PXC-M06-24WS24 | 9 ~ 36 | 24 | 250 | 50 | 6 | 88.5 | 75 |
| PXC-M06-24WD05 | 9 ~ 36 | ±5 | ±600 | 30 | 6 | 85 | ± 860 |
| PXC-M06-24WD12 | 9 ~ 36 | ±12 | ±250 | 40 | 6 | 88.5 | ± 150 |
| PXC-M06-24WD15 | 9 ~ 36 | ±15 | ±200 | 40 | 6 | 88.5 | ± 110 |
| PXC-M06-48WS3P3 | 18 ~ 75 | 3.3 | 1800 | 30 | 4 | 82.5 | 2100 |
| PXC-M06-48WS05 | 18 ~ 75 | 5 | 1200 | 30 | 4 | 86.5 | 1500 |
| PXC-M06-48WS12 | 18 ~ 75 | 12 | 500 | 40 | 4 | 88 | 260 |
| PXC-M06-48WS15 | 18 ~ 75 | 15 | 400 | 40 | 4 | 88.5 | 210 |
| PXC-M06-48WS24 | 18 ~ 75 | 24 | 250 | 50 | 4 | 88 | 75 |
| PXC-M06-48WD05 | 18 ~ 75 | ±5 | ±600 | 30 | 4 | 85 | ± 860 |
| PXC-M06-48WD12 | 18 ~ 75 | ±12 | ±250 | 40 | 4 | 88 | ± 150 |
| PXC-M06-48WD15 | 18 ~ 75 | ±15 | ±200 | 40 | 4 | 87 | ± 110 |

**Notes**

1. Not available for A type pin configuration
2. Typical value at nominal input voltage and full load.
3. MIL-HDBK-217F Notice2 @Ta=25 ºC, Full load (Ground Benign, controlled environment).
4. Built in Class A filter. Class B can be achieved with the addition of exterenal components for further information contact your local TDK-Lambda sales office
5. Meeting EN61000-4-4 and 61000-4-5 requires and additional input electrolytic capacitor: 5V input -1000µF/25V, 12V & 24V input - 470µF/50V and 48V input - 330µF/100V
6. The ON/OFF control pin voltage is referenced to -Vin.The ctrl pin input current is <1mA.Remote off input current is typically 2.5mA
7. For R & N, measure the 24V output with a 4.7µF/50V X7R MLCC. All other outputs use a 10µF25V X7R MLCC. Nominal input, full load at +25°C
8. Reinforced insulation 8mm at 250VAC

## Outline Drawing PXC-M06 (W)



## Pin Assignment PXC-M06 (W)

| PIN | Single | Dual |
|---|---|---|
| 1 | CtrlL (Option) / No pin* | CtrlL (Option) / No pin* |
| 2 | -Vin | -Vin |
| 10 | Trim (option) / No Pin* | Trim (option) / No Pin* |
| 11 | No Pin / NC ** | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin | +Vin |
| 23 | +Vin | +Vin |

**NOTES:**

* If the Ctrl or Trim option is not selected there will be no pin fitted in the corresponding pin number position.

** Pin 11 is "No pin" for PXC-M06-xxWSxxx-T, PXC-M06-xxWSxxx-PT
Pin 11 is "NC" for: PXC-M06-xxWSxxx, PXC-M06-xxWSxxx-P

## Options

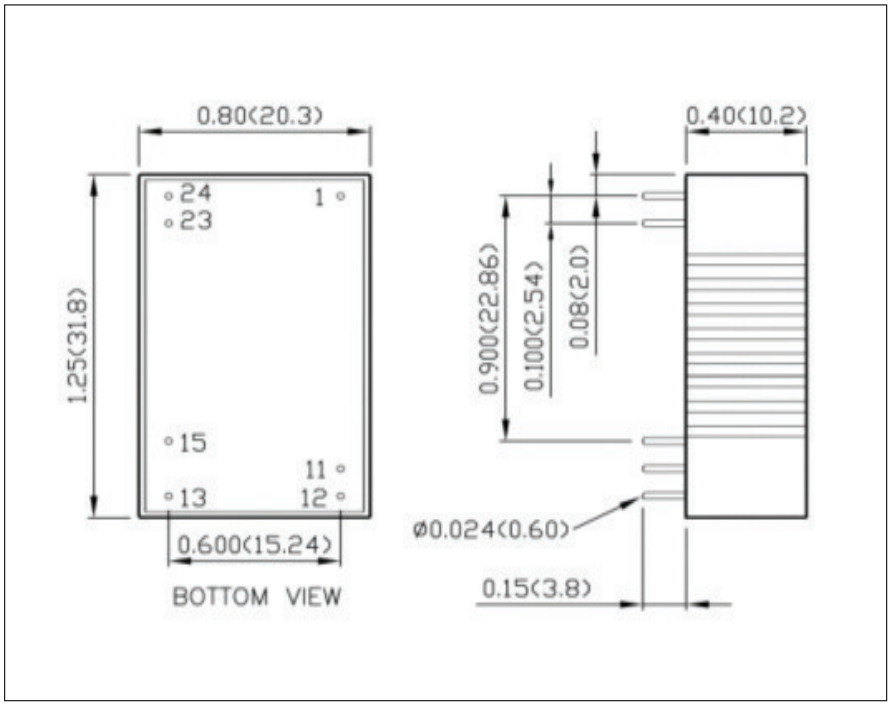
| Suffix | Description |
|---|---|
| P | Positive Logic |
| T | Trim |
| PT | Positive Logic & Trim |

Standard part is no suffix. Add P, T, or PT as required

## External Output Trimming

The output of the PXC-M06 (W) can be adjusted by connecting an external resistor. **See application note on the website.**

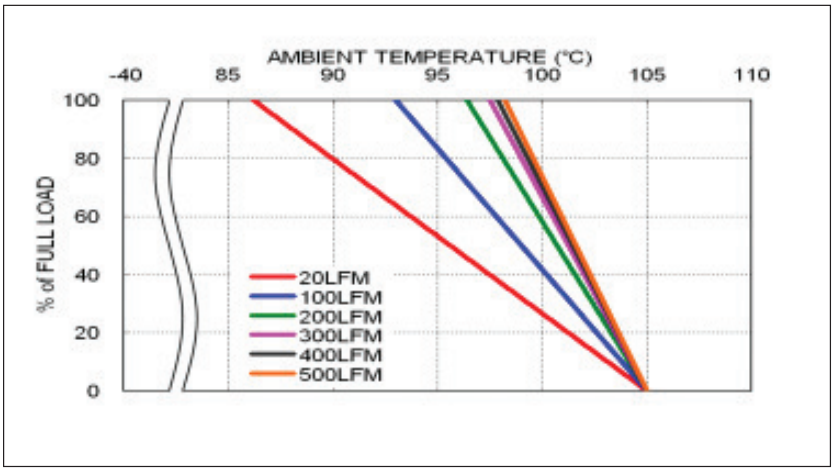
## Outline Drawing PXC-M06 (W) A-type



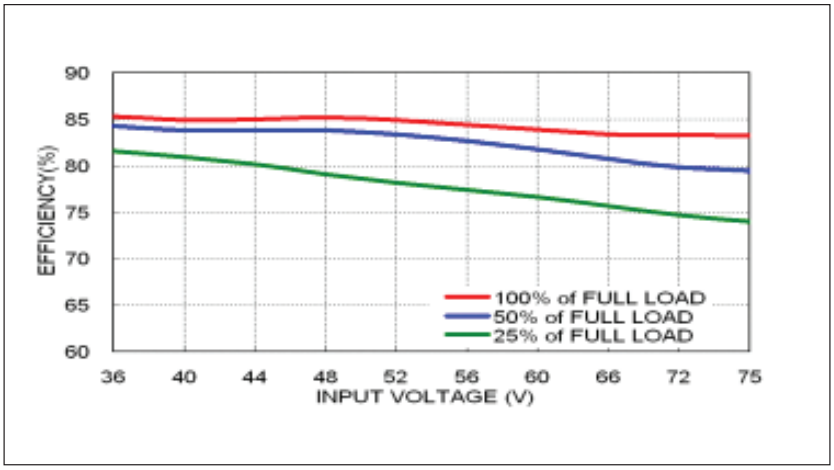

## Pin Assignment PXC-M06 (W) A-type

| PIN | Single | Dual |
|---|---|---|
| 1 | +Vin | +Vin |
| 11 | No Pin | Common |
| 12 | -Vout | No Pin |
| 13 | +Vout | -Vout |
| 15 | No Pin | +Vout |
| 23 | -Vin | -Vin |
| 24 | -Vin | -Vin |

## PXC-M06-48WS05A Derating curve




## PXC-M06-48WS05A Efficiency Vs Input Voltage




## PXC-M06-48WS05A Efficiency Vs Output Voltage