



Medical

Comm

## Single and Dual Output 3W 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-M03	
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	150Hz, typ	
Maximum input current (no load)	See Table	
Fusing	No internal fuse	
Max output power (W)	3	
Voltage accuracy	Single/Dual ± 1%	
Voltage adjustment (Note 1)	Single output 3.3V, 5V & 12V: ± 10%, 15V & 24V: -10%/+20% 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 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	3.7 to 5V
	5V output	5.6 to 7.0V
	12V output	13.5 to 16V
	15V output	18.3 to 22.0V
	24V output	29.1 to 34.5V
	15V output	17.0 to 22.0V
Operating temperature	-40°C ~ +94°C (without derating), +94°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) (Note 8)	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 EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6: Perf. Criteria A	
Immunity (Note 5)	IEC60601-1, ANSI/AAMI ES60601-1, EN60601-1, CE Mark	
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

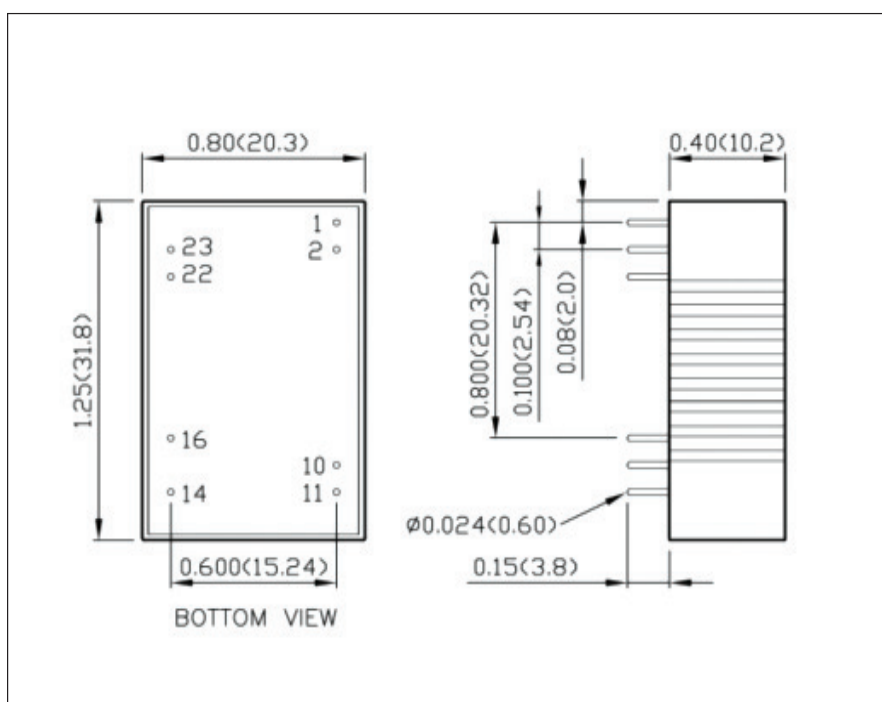
## Model Selector

Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Full Load (mA)	Output <sup>(7)</sup> Ripple & Noise (mV)	Input Current No Load mA	Efficiency % <sup>(2)</sup>	Ripple & Noise (mV pk-pk) <sup>(2)</sup>
PXC-M03-24WS3P3	9 ~ 36	3.3	1000	30	6	82	1050
PXC-M03-24WS05	9 ~ 36	5	600	30	6	84.5	750
PXC-M03-24WS12	9 ~ 36	12	250	40	6	87	130
PXC-M03-24WS15	9 ~ 36	15	200	40	6	87	100
PXC-M03-24WS24	9 ~ 36	24	125	50	6	87	39
PXC-M03-24WD05	9 ~ 36	±5	±300	30	6	83	±430
PXC-M03-24WD12	9 ~ 36	±12	±125	40	6	87	75
PXC-M03-24WD15	9 ~ 36	±15	±100	40	6	86	56
PXC-M03-48WS3P3	18 ~ 75	3.3	1000	30	4	81	1050
PXC-M03-48WS05	18 ~ 75	5	600	30	4	84	750
PXC-M03-48WS12	18 ~ 75	12	250	40	4	87	130
PXC-M03-48WS15	18 ~ 75	15	200	40	4	86.5	100
PXC-M03-48WS24	18 ~ 75	24	125	50	4	86.5	39
PXC-M03-48WD05	18 ~ 75	±5	±300	30	4	83	±430
PXC-M03-48WD12	18 ~ 75	±12	±125	40	4	86	±75
PXC-M03-48WD15	18 ~ 75	±15	±100	40	4	86	±56

### Notes

- Not available for A type pin configuration
- Typical value at nominal input voltage and full load.
- MIL-HDBK-217F Notice2 @Ta=25 °C, Full load (Ground Benign, controlled environment).
- Built in Class A filter. Class B can be achieved with the addition of external components for further information contact your local TDK-Lambda sales office
- Meeting EN61000-4-4 and 61000-4-5 requires additional input electrolytic capacitor: 5V input -1000µF/25V, 12V & 24V input - 470µF/50V and 48V input - 330µF/100V
- 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
- 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
- Reinforced insulation 8mm at 250VAC

## Outline Drawing PXC-M03



## Pin Assignment PXC-M03

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-M03-xxWSxxx-T, PXC-M03-xxWSxxx-PT

Pin 11 is "NC" for: PXC-M03-xxWSxxx, PXC-M03-xxWSxxx-P

## Options

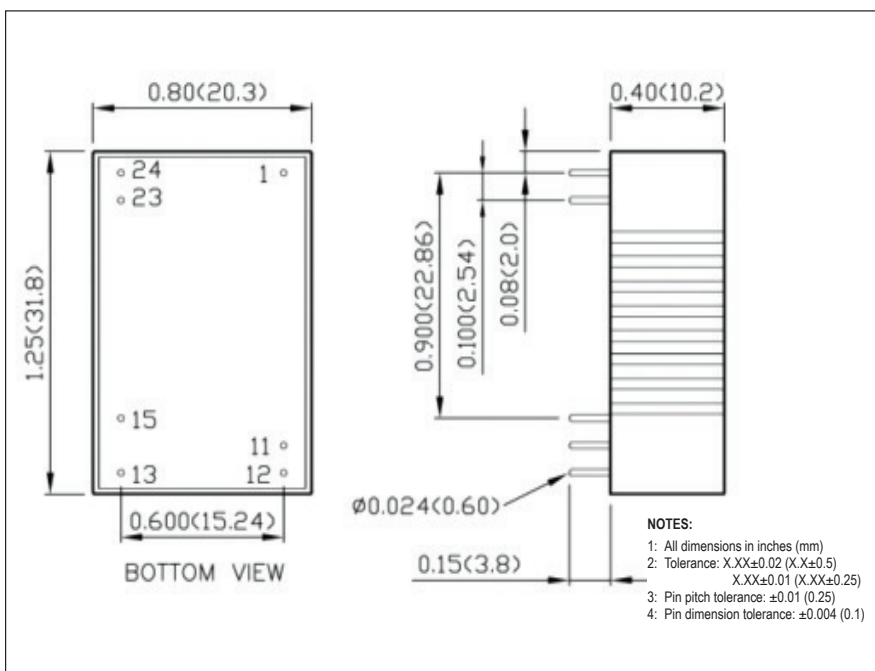
Suffix	Description
P	Positive Logic
T	Trim
PT	Positive Logic & Trim

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

## External Output Trimming

The output of the PXC-M03 (W) can be adjusted by connecting an external resistor. See application note on the website.

## Outline Drawing PXC-M03 A-type

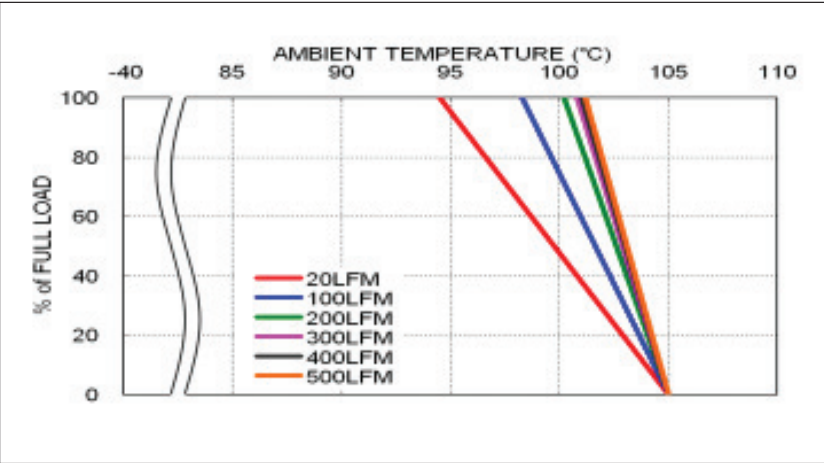


## Pin Assignment PXC-M03 A-type

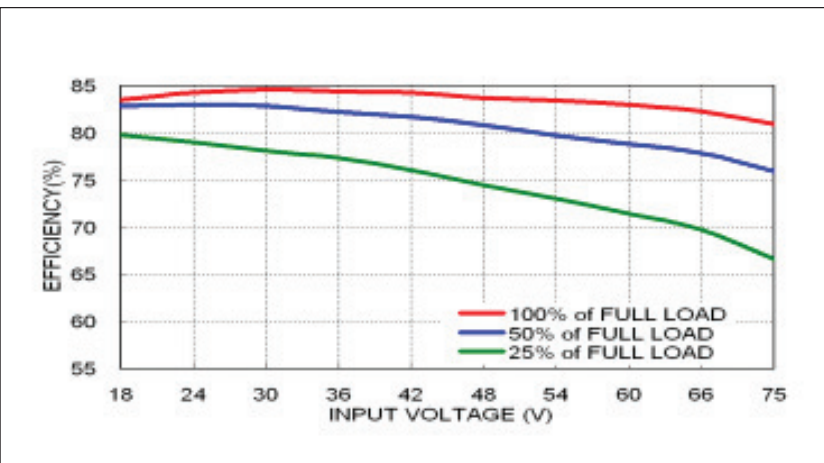
PIN	Single	Dual
1	+Vin	+Vin
11	No Pin	Common
12	-Vout	No Pin
13	+Vout	-Vout
15	No Pin	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

Note. For A - type add suffix -A

PXC-M03-48WS05A Derating curve



PXC-M03-48WS05A Efficiency Vs Input Voltage



PXC-M03-48WS05A Efficiency Vs Output Voltage

