30W Medical and Industrial DC-DC Converters

https://product.tdk.com/en/power/pxd-m
www.emea.tdk-lambda.com/pxd-m





The PXD-M series of medical and industrial DC-DC converters feature a wide 4:1 input range in a compact 2 x 1" (50.8 x 25mm) industry standard package. With 5kV input to output isolation, 2.5uA touch current and a low off-load power draw, these encapsulated modules are ideal for fixed and portable applications.

Features	Benefits
• Wide 4:1 Input Range	• Supports Dual 12/24V or 24/48V System Voltages
• Compact 2" x 1" Industry Package	• Less Board Area Needed
• Certified to IEC 60601-1 and IEC 62368-1	• Suitable For Medical and Industrial Applications
• 2 x MOPP Isolation	• High Input to Output Isolation
• Low No Load Power Consumption	• Longer Battery Life

Model Selector

Model	Input Voltage (V)	Output Voltage (V)	Maximum Current (A)	Maximum Power (W)	No Load Input Current (mA)	Efficiency (%)	Maximum Load Capacitance (uF)
Single Outputs							
PXD-M30-24WS05	9 - 36	5	6	30	9	88.5	7200
PXD-M30-24WS12	9 - 36	12	2.5	30	10	89	1200
PXD-M30-24WS15	9 - 36	15	2	30	10	90.5	1000
PXD-M30-24WS24	9 - 36	24	1.25	30	10	89.5	375
PXD-M30-48WS05	18 - 75	5	6	30	8	89	7200
PXD-M30-48WS12	18 - 75	12	2.5	30	9	89	1200
PXD-M30-48WS15	18 - 75	15	2	30	8	90	1000
PXD-M30-48WS24	18 - 75	24	1.25	30	9	89	375
Dual Outputs							
PXD-M30-24WD05	9 - 36	±5	±3.0	30	10	86	±3600
PXD-M30-24WD12	9 - 36	±12	±1.25	30	10	89.5	±750
PXD-M30-24WD15	9 - 36	±15	±1.0	30	9	90	±500
PXD-M30-48WD05	18 - 75	±5	±3.0	30	9	86.5	±3600
PXD-M30-48WD12	18 - 75	±12	±1.25	30	9	90	±750
PXD-M30-48WD15	18 - 75	±15	±1.0	30	8	89.5	±500

PXD-M	30	-24W	S	05	-N
	30 30W Output Power	-24W 9 - 36V input -48W 18 - 75V input	S Single Output D Dual Output	05 5V Output Voltage 12 12V Output Voltage 15 15V Output Voltage 24 24V Output Voltage	Blank No Remote On/Off -N Negative Logic Remote On/Off -P Positive Logic Remote On/Off

Preferred model

Specifications

Model		PXD-M30
Input		
Input Voltage Range	Vdc	See model selector table
Input Surge Voltage	Vdc	-24W models: 50, -48W models: 100. (3s maximum)
Input Shutdown Voltage	Vdc	-24W models: 7.8 - 8.6, -48W models: 15.8 - 17.4
Start-up Time	ms	60 max
Touch Current	uA	2.5 maximum
No Load Power Consumption	W	See model selector table
Efficiency	-	See model selector table
Conducted & Radiated EMI	-	EN55011-A, EN55032-A without external components. Class B with external components
Immunity	-	See immunity section
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, IEC/ANSI/AAMI ES/CSA/EN60601-1, CE Mark and UKCA

Immunity

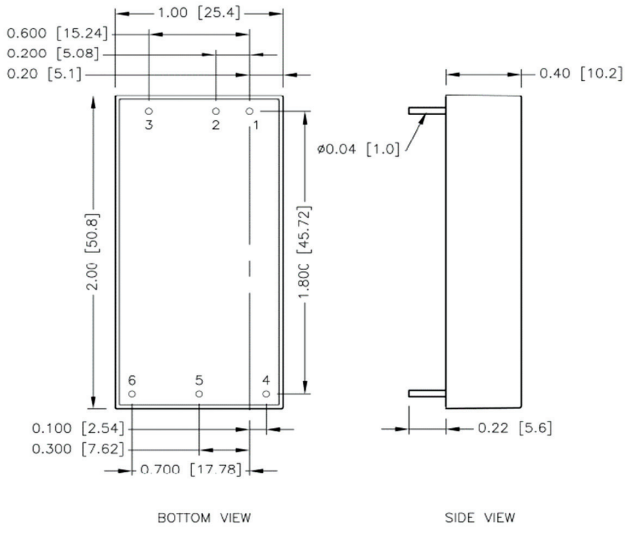
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ± 15kV and Contact ± 8kV	A	-
Radiated Susceptibility	EN61000-4-3	10V/m	A	-
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	A	With an input filter of two 220uF capacitors and a TVS (SMDJ58A for PXG-M24W or SMDJ120A for PXG-M48W)
Surge	EN61000-4-5	± 2kV	A	
Conducted Susceptibility	EN61000-4-6	10 Vrms	A	-
Magnetic Fields	EN61000-4-8	100A/m continuous; 1000A/m 1s	A	-

Specifications

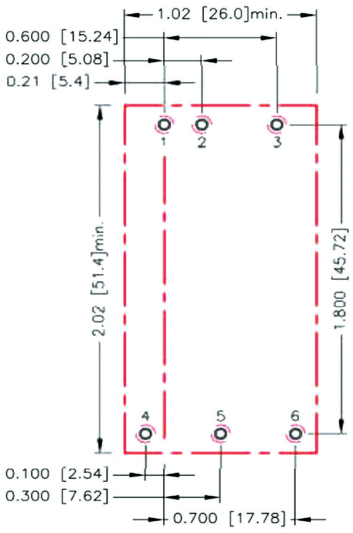
Model		PXD-M30
Output		
Output Voltage Tolerance	%	±1
Output Voltage Adjustment	%	Single output only. 5V: 4.5 -5.5V, 12V: -10.8 - 13.2V, 15V: 13.5 - 18V, 24V: 21.6 - 28.8V
Switching Frequency	kHz	225 - 285
Line Regulation	%	Single output: ±0.2. Dual output: ±0.5
Load Regulation	%	Single output: ±0.2. Dual output: ±1
Cross Regulation	%	Dual output: ±5 (Asymmetrical 25% to 100% load change)
External Load Capacitance	uF	See model selector table
Ripple & Noise (1)	mV	Single output: 5V outputs: 50, 12V outputs: 75, 15/24V outputs: 100 Dual output: ±5V outputs: 50, ±12/15V outputs: 75
Temperature Coefficient	%/°C	±0.02
Minimum Load	-	No minimum load required
Transient Loading	-	250us recovery time for a 25% load change
Overcurrent Protection	-	Hiccup mode. 150 - 185%
Overvoltage Protection	V	Zener clamp method. 5V: 6.2V, 12V: 15V, 15V: 20V, 24V: 30V (typical)
Overtemperature Protection	-	Shutdown, typically 115°C
Remote Sense		No remote sense
Remote On/Off		Positive Logic (-P): ON: Open or 3.5-12V, OFF Short or 0-1.2V Negative Logic (-N): ON: Short or 0-1.2V, OFF: Open or 3.5-12V
Parallel Operation	-	Not possible
Environmental		
Operating Temperature (2)	°C	Convection:-40 to +105, derate linearly to zero load from +40 to 105 Forced air (200LFM):-40 to +105, derate linearly to zero load from +73 to 105. (Model dependent, confirm case temperatures in end system)
Maximum Case Temperature	°C	105. Measured centrally on the upper case (module top view)
Thermal Impedance	°C/W	12.85
Storage Temperature	°C	-55 to +125
Humidity (non condensing)	%RH	5 - 95 (Operating & Storage)
Cooling	-	Convection or forced air
Altitude	m	5,000 (operating)
Withstand Voltage (For 1 minute)	VAC	Input to output 5,000 (2xMOPPs)
Isolation Capacitance	pF	20
Vibration (Operating)	-	MIL-STD-810F
Thermal Shock	-	MIL-STD-810F
Other		
Weight (Typ)	g	32
Size (LxWxH)	mm	50.8 x 25.4 x 10.2
Size (LxWxH)	Inches	2 x 1 x 0.4
Case Material	-	Non-conductive black plastic. (Silicone (UL94 V-0) potting)
MTBF - MIL-HDBK-217F, Full Load	Hours	1,137,000
Warranty	yrs	5

Notes
See website for detailed specifications, test methods and installation manual
(1): Measured with a 20MHz bandwidth oscilloscope across a 10uF 25V X7R MLCC (4.7uF 50V for 24V models)
(2). The case temperature must be confirmed in end application. The product rating may be affected by airflow direction and physical obstructions near the module.

Outline Drawing



Recommended Hole Pattern



Pinout

PIN	Function	
	Single	Dual
1	+Vin	
2	-Vin	
3	Remote On/Off (Option)	
4	+Vout	
5	-Vout	Com
6	Trim	-Vout

Hole diameter: 0.05" [1.30mm)
Top side pad diameter: 0.064" [1.63mm]
Bottom side pad diameter: 0.102" [2.60mm]

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