15-20W Medical and Industrial DC-DC Converters

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



Medical Industrial Test COMM Broadcast

The PXG-M series of medical and industrial DC-DC converters feature a wide 4:1 input range in a compact 1.6 x 1" (41 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 24/48 System Voltages
• Compact 1.6" 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							
PXG-M15-24WS05	9 - 36	5	3	15	9	88	3800
PXG-M20-24WS05	9 - 36	5	4	20	8	88.5	5000
PXG-M15-24WS12	9 - 36	12	1.25	15	10	88.5	650
PXG-M20-24WS12	9 - 36	12	1.67	20	11	88.5	850
PXG-M15-24WS15	9 - 36	15	1	15	11	89	530
PXG-M20-24WS15	9 - 36	15	1.33	20	10	89	700
PXG-M15-24WS24	9 - 36	24	0.625	15	10	88	190
PXG-M20-24WS24	9 - 36	24	0.833	20	10	88.5	220
PXG-M15-48WS05	18 - 75	5	3	15	9	89.5	3800
PXG-M20-48WS05	18 - 75	5	4	20	9	89.5	5000
PXG-M15-48WS12	18 - 75	12	1.25	15	9	88	650
PXG-M20-48WS12	18 - 75	12	1.67	20	9	88.5	850
PXG-M15-48WS15	18 - 75	15	1	15	9	89	530
PXG-M20-48WS15	18 - 75	15	1.33	20	9	89	700
PXG-M15-48WS24	18 - 75	24	0.625	15	9	88.5	190
PXG-M20-48WS24	18 - 75	24	0.833	20	9	88.5	220
Dual Outputs							
PXG-M15-24WD05	9 - 36	±5	±1.5	15	10	86	±1900
PXG-M20-24WD05	9 - 36	±5	±2.0	20	9	86	±2500
PXG-M15-24WD12	9 - 36	±12	±0.625	15	10	88	±380
PXG-M20-24WD12	9 - 36	±12	±0.833	20	10	88.5	±500
PXG-M15-24WD15	9 - 36	±15	±0.5	15	12	89	±270
PXG-M20-24WD15	9 - 36	±15	±0.677	20	11	89	±350
PXG-M15-48WD05	18 - 75	±5	±1.5	15	9	86	±1900
PXG-M20-48WD05	18 - 75	±5	±2.0	20	9	86	±2500
PXG-M15-48WD12	18 - 75	±12	±0.625	15	9	88.5	±380
PXG-M20-48WD12	18 - 75	±12	±0.833	20	9	88.5	±500
PXG-M15-48WD15	18 - 75	±15	±0.5	15	9	89	±270
PXG-M20-48WD15	18 - 75	±15	±0.677	20	9	89	±350

PXG-M	15	-24W	S	05	-N

15	15W Output Power
20	20W 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		PXG-M15	PXG-M20
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 maximum	
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 Mark	

Immunity

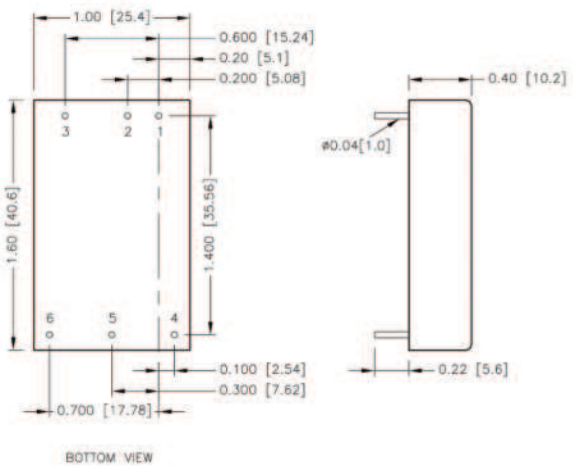
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ± 15kV and Contact ± 8kV	A	-
Radiated Susceptibility	EN61000-4-3	10V/m	A	-
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	A	With an input filter of two 220uF capacitors and a TVS (SMDJ58A for PXG-M24W or SMDJ120A for PXG-M48W)
Surge	EN61000-4-5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

Specifications

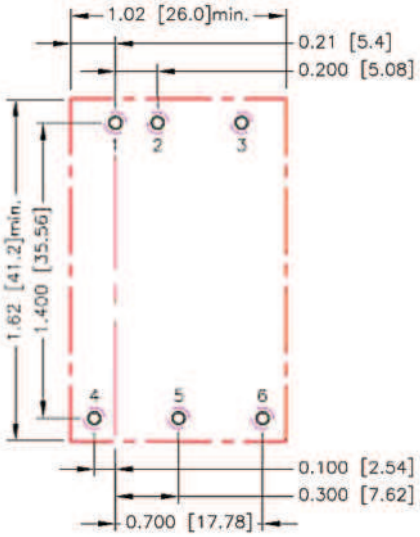
Model		PXG-M15	PXG-M20
Output			
Output Voltage Tolerance	%	±1	
Output Voltage Adjustment	-	Single output only. 5V: 4.5 -5.5V, 12V: -10.8 - 13.2V, 15V: 13.5 - 18V, 24V: 21.6 - 28.8V	
Switching Frequency	kHz	225 - 285	
Line Regulation	%	Single output: ±0.2. Dual output: ±0.5	
Load Regulation	%	Single 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	5V outputs: 50, 12/15V outputs: 75, 24V outputs: 100	
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: 6.2, 12V: 15, 15V: 20, 24V: 30 (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 +55 to 105 Forced air (200LFM):-40 to +105, derate linearly to zero load from +90 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	15.3	14.36
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	24	
Size (LxWxH)	mm	40.6 x 25.4 x 10.2	
Size (LxWxH)	Inches	1.6 x 1 x 0.4	
Case Material	-	Non-conductive black plastic. (Silicone (UL94 V-0) potting)	
MTBF - MIL-HDBK-217F, Full Load	Hours	2,080,000	1,712,000
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]

1. All dimensions in inch [mm]
2. Tolerance :x.xx±0.02 [x.x±0.5]
   x.xxx±0.01 [x.xx±0.25]
3. Pin dimension tolerance ±0.004[0.10]

TDK·Lambda



TDK-Lambda France SAS
Tel: +33 1 60 12 71 65
tlf.fr.powersolutions@tdk.com
www.emea.lambda.tdk.com/fr



Italy Sales Office
Tel: +39 02 61 29 38 63
tlf.it.powersolutions@tdk.com
www.emea.lambda.tdk.com/it



Netherlands
tlf.nl.powersolutions@tdk.com
www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH
Tel: +49 7841 666 0
tlg.powersolutions@tdk.com
www.emea.lambda.tdk.com/de



Austria Sales Office
Tel: +43 2256 655 84
tlg.at.powersolutions@tdk.com
www.emea.lambda.tdk.com/at



Switzerland Sales Office
Tel: +41 44 850 53 53
tlg.ch.powersolutions@tdk.com
www.emea.lambda.tdk.com/ch



Nordic Sales Office
Tel: +45 8853 8086
tlg.dk.powersolutions@tdk.com
www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.
Tel: +44 (0) 12 71 85 66 66
tlu.powersolutions@tdk.com
www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.
Tel: +9 723 902 4333
tli.powersolutions@tdk.com
www.emea.lambda.tdk.com/il-en



TDK-Lambda Americas
Tel: +1 800-LAMBDA-4 or 1-800-526-2324
tla.powersolutions@tdk.com
www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda
Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation
Tel: +81-3-6778-1113
www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.
Tel: +86 21 6485-0777
tlc.powersolutions@tdk.com
www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.
Tel: +65 6251 7211
tls.marketing@tdk.com
www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division
Tel: +91 80 4039-0660
mathew.philip@tdk.com
www.sg.lambda.tdk.com

For additional information, please visit
https://product.tdk.com/en/power/