TXP1310 Series

X-ray high voltage power supply | 20kV~40kV, 5kW, Mammography X-Ray Generators

- Custom Designed Specifically for Mammography Applications
- Fast Settling Helps Minimize Patient Radiation Exposure
- Dual Speed Starter, Boost/Brake Capability
- RS-232 and optional Ethernet interface
- Low-cost and value-added design

Product Introduction:

Teslaman's TXP1310 redefines the standard for high performance, low cost Mammography X-Ray generators. TXP1310 X-Ray generator integrates a dual filament power supply and a dual speed starter. A DC current source filament power supply provides fast rise times with stable and accurate X-Ray tube emission currents. The solid encapsulated high voltage output section eliminates oil concerns while reducing the effects of environmental humidity and contamination.

Flexibility in interfacing is provided via RS-232 and optional Ethernet connectivity. The VMX supports advanced mammography application features including Smart AEC Exposure, Automatic Filament Calibration, Tube Anode Heat Calculator and user configurable Tube Library. Compact, full featured, high performance, low cost. TXR1310, the next generation Mammography X-Ray generator.

Typical Applications:

Mammography.

Specification Description:

Input voltage	220VAC ±10%, single phase, 50Hz/60Hz.
Input current	Minimum 35A service recommended for 5kW operation.
Output voltage range	20kV to 40kV.
Polarity	Positive, grounded cathode X-Ray tube.
Accuracy	Within 1% of programmed values.
Repeatability	<0.5%.
Stable time	<10ms.
Ripple	≤1%.
Stability	≤0.01% per 8 hours.
Temperature Coefficient	100ppm/°C.
Output current range	10mA to 200mA.
Output power	5kW@0.1 second loading time.
Maximum mAs	600mAs
Exposure timer	5ms-10Small size.
Accuracy	Within 2% of programmed values measured after mA rises to stable DC level.
Repeatability	<0.5%.

Stable time	<10ms.
Filament configuration	DC filament drive: self corrected filament preheat settings with closed loop emission control and smart learning algorithm.
Filament output	0-6A, 5.5V, maximum.
Dual Speed Starter	High speed (180Hz) and low speed (60Hz) can be configured via the serial interface. Boost and Brake capability provided.
High-voltage connector	60kV, Clayrmont CA-3 type or equivalent.
Optional communication interface	RS232、Ethernet (RJ45).
Grounding Point	M5 grounding stud provided on chassis.
Environmental:	Operating: 10℃ to 40℃. Storage：-40℃ to 85℃.
Humidity	20% to 85% RH, non-condensation.
Cooling	Convection cooled, no internal fan. Forced air cooling not requied.
Dimensions	Width 169.9mm, height 240.8Mm, depth 304.8mm.
Weight	About 10kg.

Description of Model Code

The model code represents the performance and parameters of the power supply, which are:
Maximum output voltage in kV;
Maximum output power in W;
Output polarity, P for positive output, N for negative output;

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Model	Polarity	Maximum Voltage	Maximum Power

TXP1310 Series model selection table

Rated output		Model	
kV	**mA**	**Positive**	**Negative**
20	**200**	**TXR1310P20-4000**	**TXR1310N20-4000**
40	**125**	**TXR1310P40-5000**	**TXR1310N40-5000**

TB2 rotor interface：

PIN	Signal	Parameters
TB2-1	**PHASE**	**To tube auxiliary winding**
TB2-2	**RUN**	**To tube principle winding**
TB2-3	**COM**	**To tube common winding**
TB2-4	**Ground**	**To tube housing ground**

TB3 Tube and interlock interface：

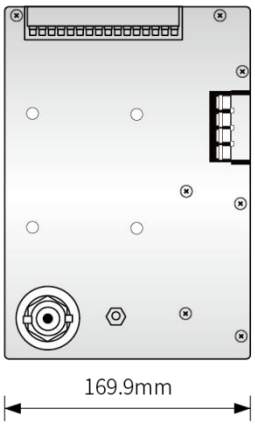
Pin	Signal	Parameter
TB3-1	**SMALL FIL**	**Connection to tube small filament**
TB3-2	**COMMON**	**Connection to tube filament common**
TB3-3	**LARGE FIL**	**Connection to large filament**
TB3-4	**GROUND**	**Generator chassis for cable shield connection**
TB3-5	**Interlock 2+**	**Used if tube has separate thermostat switch. Open = OVER TEMP. (short terminals if not used)**
TB3-6	**Interlock 2-**	**Used if tube has separate thermostat switch. Open = OVER TEMP. (short terminals if not used)**
TB3-7	**Interlock 3+**	**Used if tube has cooling circulator flow switch. Open = NO FLOW. (short terminals if not used)**
TB3-8	**Interlock 3-**	**Used if tube has cooling circulator flow switch. Open = NO FLOW. (short terminals if not used)**
TB3-9	**Safety Interlock+**	**User signal (Contact Closure) for safety interlocks**

TB3-10	Safety Interlock-	such as door interlocks. Open turns HV OFF, or inhibits HV from being generated. Closed = OK 24Vdc @ <1A typical User signal (Contact Closure) for safety interlocks such as door interlocks. Open turns HV OFF, or inhibits HV from being generated. Closed = OK 24Vdc @ <1A typical
TB3-11	Contactor Coil+	Option for contactor coil control
TB3-12	Contactor Coil-	Option for contactor coil control
TB3-13	NC	/
TB3-14	NC	/
TB3-15	Tube Current+	Tube current flows out from this pin
TB3-16	Tube Current-	Tube current flows into this pin

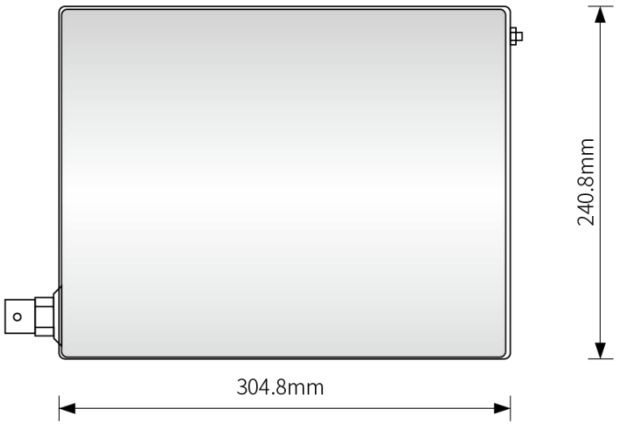
JB125 male needle D connector：

Pin	Signal	Parameter
1	GND	Signal Ground
2	+5VDC out	+5VDC,100mA max.
3	RS-232 Tx Out	RS-232 Transmit
4	RS-232 Rx In	RS-232 Receive
5	PREP	User signal (Contact Closure) to alert the generator that exposure sequence will begin. Once this signal is active, exposure parameters are locked in and cannot be changed. The generator enables the starter to to boost the rotor. Contact connection to pin 24.Closed=PREP, the filament is placed in preheat mode.
6	READY	Generator signal to user to indicate the rotor runs to speed and the generator is ready for X-Ray exposure Open Collector. Low/Active = Ready
7	ROTOR SHUTDOWN	User signal to brake rotor drive
8	EXPOSURE	User signal (Contact Closure) to generator to generate X-Rays. Filament is boosted, and high voltage is generated after the boost time. Contact connection to pin 24. Closed =Exposure
9	X-Ray ON 75% Status	Transistor output to indicate X-Ray ON status synchronized with 75% of kVP setting point.
10	X-Ray ON Status	Transistor output to indicate X-Ray ON status synchronized with kV start up.
11	NC	/
12	X-Ray SHUTDOWN/AEC	User signal to generator to rapidly turn HV OFF and ON during serial exposure sequence.
13	RS-232 ISO Ground	Isolated ground from RS-232 transceiver IC
14	HVG FAULT Status	Generator signal indicating generator fault. Open collector transistor output.Low/Active =Fault
15	Status Bit 1	3 bit status lines for up to 6 status messages. See separate matrix descibing functionality.Open Collector. Low/Active=Message
16	Status Bit 2	
17	Status Bit 3	
18	N/C	/
19	N/C	/
20	kV Monitor	Signal from generator.0-10V=0-40kV.Zout=1kΩ
21	Emission Monitor	Signal from generator.0-10V=0-200mA.Zout =1kΩ
22	Filament Qurrent Monitor	Signal from generator.0-10V=0-6A.Zout=1kΩ
23	Program Monitor Return	Ground for reference of program and monitor signals
24	+24VDC out	For connection to PREP and EXPOSURE control relay coils
25	SHIELD/GND	For connection of interface cable shield to gener ator chassis ground.

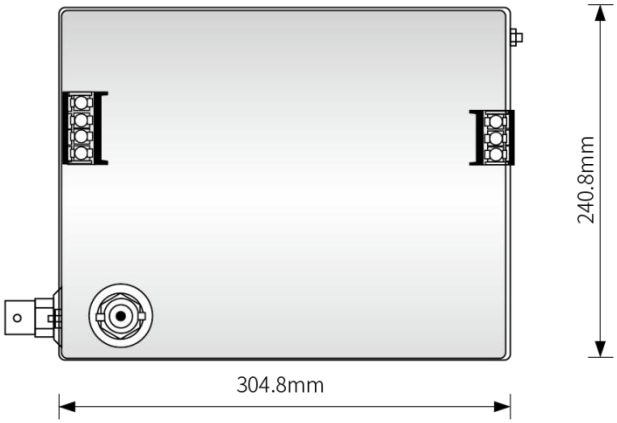
Dimensions: mm



Front View



Side View



Side View