TXF1270Series

X-ray high voltage power supply

225kV，4kW Compact and Bipolar Output Configuration

Teslaman TXF1270 series X-ray high voltage power supply is a compact power supply with negative, positive, or bipolar output options, with a power range from 1.8 kW to 6.0 kW, and an output voltage range of 160 kV to 450 kV, suitable for various application needs. The power supply adopts an active power factor correction circuit, with a high power factor and low input current, and reduces line-related electromagnetic interference to a minimum. TXF1270 adopts a proprietary inverter topology technology to make the power supply more efficient and higher in power density. The high-voltage part of the power supply is packaged in a solid-state way to reduce volume and weight and improve the reliability and maintenance convenience of the product. The power supply uses DSP technology based on SMT control circuits and provides various interfaces such as USB, RS-232, Ethernet, and analog signals to facilitate integration into OEM systems. The power supply has two DC outputs, and the stable emission current regulation circuit controls the filaments power supply, providing precise and stable current to the X-ray tube. In addition, the power supply also has a comprehensive fault diagnosis circuit, arc monitoring, arc extinguishing, and arc counting functions.

- 160kV,225kV,320kVand450kV Model
- Build in PFC curcuit
- Integrated double filament power supply
- Digital interface USB, Ethernet and RS-232
- Excellent stability and adjustment

Typical application:
Non-destructive testing
X-ray scanning
Secure applications
Medical applications

Specifications:

Input Voltage:
1.8kW,3.0kW,4.0kW and 4.5kW Model:180-264Vac,single phase,47-63 Hertz, active power factor corrected input to ≥0.98
6.0kW Model:208 or 400Vac, ±10%, three phase, 47-63 Hertz, passive power factor corrected
Input Current:
1.8kW,3.0kW,4.0kW and 4.5kW models: <30 amps
6.0kW models: <25 amps per phase for 208Vac
Output Voltage:
Accuracy: 0.25%
Stability: ≤ 0.1% per 8 hours, after 1 hour warm up
1.8kW, 3.0kW, 4.0kW and 4.5kW models:
Load:±0.05% of rated output voltage for a full load change
Line: ±0.05% of rated output voltage over specified input voltage range
6.0kW models:
Load:±0.1% of rated output voltage for a full load change
Line: ±0.1% of rated output voltage over specified input voltage range
Temperature Coefficient:
1.8kW, 3.0kW, 4.0kW and 4.5kW models:50ppm/°C
6.0kW models:±50ppm/°C
Emission Current:
Accuracy: 0.25%
Stability: 100ppm/°C
1.8kW, 3.0kW, 4.0kW and 4.5kW models:
Load:±0.05% of rated output current for a change from 30% to 100% of rated output voltage
Line: ±0.05% of rated output current over specified input voltage range
6.0kW models:
Load: ±0.1% of rated output current for a change from 30% to 100% of rated output voltage
Line: ±0.1% of rated output current over specified input voltage range
Filament:
Output:
0-6 amps at a compliance of 10Vdc, maximum
Dual Focal Spot:
Small and large, selectable via interface signal
Configuration:
DC filament drive. Closed loop emission control regulates filament setting to provide desired X-Ray tube emission current
Environment:
Temperature range:
Work:0°C To +50°C
Storage:-40°C To +85°C
Mains Input Connector：
1.8kW, 3.0kW, 4.0kWAnd4.5kW Model number:
Type97-3102A-24-11P
6.0kW Model Number:
Type97-3102A-24-22P
Interface Connector:
Digital—Ethernet, RS-232 and USB
Analog—25 pin connector
Cooling: Forced air

J1 High-voltage connector—R24/R28:

Pin	Signal	Parameter
C	High-voltage output	TXF1270-160 and TXF1270-320-R24 Connector TXF1270-225 and TXF1270-450-R28 Connector
S	Small filament output	0 to 6 amps @ 10VDC
L	Large Filament Output	0 to 6 amps @ 10VDC

J2Analog Interface—25 Pin D Type connector:

Pin	Signal	Parameters
1	Power Supply Fault	Low, sum of faults, HVPS detected a fault, open collector, 50V @ 10mA max
2	mA Program	0 to 10V FS Z in = 10M ohms
3	kV Program	0 to 10V FS Z in = 10M ohms
4	Filament Limit L/S Ref.*	0 to 10V FS Z in = 10M ohms
5	Filament Preheat L/S Ref.	0 to 10V FS Z in = 10M ohms
6	kV Monitor	0 to 10V FS Z out = 4.99k ohms
7	mA Monitor	0 to 10V FS Z out = 4.99k ohms
8	Filament Current Monitoring*	0 to 10V FS Z out = 4.99k ohms
9	Signal Ground	Ground
10	X-ray Enable	+24VDC = X-Ray ON, connect to pin 14 with dry contact relay
11	Filament ON*	Filament ON status, low, filament is ON open collector 50V, @ 10mA max
12	Interlock1	Active low, interlock is closed, safe to enable HV
13	Interlock2	Active low, interlock is closed, safe to enable HV
14	+24VDC	+24VDC @ 100mA, maximum
15	Filament Enable*	Active low, turn filament ON
16	Filament control*	Active low, filament is regulated by ECR (HV must be ON). Not active, the filament is regulated by the preheat reference
17	Filament L/S Select	Filament selection large or small, low = small spot is selected
18	Filament L/S Confirm	Open collector, 50V @ 10mA max Filament selection confirm, low = small spot is selected
19	HVPS RDY	Low = HVPS ready, open collector, 50V @ 10mA max
20	X-Ray ON	X-Ray ON status, low = X-Rays are ON open collector, 50V @ 10mA max。
21	Interlock status	Low, interlocks are closed, can enable HV open collector, 50V @ 10mA max
22	GND	Digital ground
23	X-Ray ON Pre-Warn	Pre-warning, low, before X-Ray ON open collector, 50V @ 10mA max
24	Reset	Active low, minimum 10mS transition
25	Arc fault	Low, arc fault, the HVPS has detected an arc, open collector, 50V @ 10mA max

RS-232Digital interface—J3 9 Pin Female D connector：

Pin	Signal	Parameters
1	N/C	No connection
2	TX out	Receive data
3	RX in	Transmit data
4	N/C	No connection
5	SGND	Ground
6	N/C	No connection
7	N/C	No connection
8	N/C	No connection
9	N/C	No connection

Ethernet digital interface—J4 8 Pin RJ45 Connector：

Pin	Signal	Parameters
1	TX+	Transmit data+
2	TX-	Transmit data-
3	RX+	Receive data+
4	N/C	No connection
5	N/C	No connection
6	RX-	Receive data-
7	N/C	No connection
8	N/C	No connection

USB Digital Interface—J5 4 Pin USB "B" Connector：

Pin	Signal	Parameters
1	VBUS	+5VDC
2	D-	Data-
3	D+	Data+
4	GND	Ground

JB1Main and auxiliary input power supply— Type97-3102A-24-11P (Single Phase Units)

Pin	Signal	Parameters
A	Auxiliary AC Line Power	180-264 Vac
B	Auxiliary Ground	Ground
C	Auxiliary AC Neutral	Neutral
D	Main AC Line Power	180-264 Vac
E	Main Ground	Ground
F	Main AC Neutral	Neutral

JB1Main AC Input power supply—Type 97-3102A-24-22P(Three Phase Units)

Pin	Signal	Parameters
A	Line 1	208Vac，±10%，50/60Hz @ 25A
B	Line 2	208Vac，±10%，50/60Hz @ 25A
C	Line 3	208Vac，±10%，50/60Hz @ 25A
C	GND	Ground

Note: Use 4 conductor cable or single isolated wires rated no less that 600Vac, 30 amps (10AWG, minimum)

JB2 Auxiliary AC input power supply—Type 97-3102A-20-3P (Three-phase units)

Pin	Signal	Parameters
A	Line 1	208Vac, ±10%, 50/60Hz (source 3 phase L1, L2)
B	Line 2	208Vac, ±10%, 50/60Hz (source 3 phase L1, L2)
C	GND	Ground

System Ground: System ground wires (10AWG minimum) to the ground terminal E1 GND to the power supply using ground stud M6 X 20MM, with M6 nut.

TXF1270 160/320/350 SPECIFICATIONS

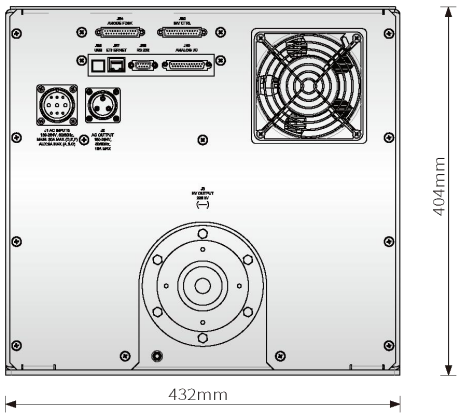
	TXF1270* 160-1800	TXF1270*16 0-3000	TXF1270*16 0-4000	TXF1270*16 0-6000	TXF1270 P&N 320-1800	TXF1270 P&N 320-4500	TXF1270 P&N 350-4500
DC Output voltage	5kV to 160kV	5kV to 160kV	5kV to 160kV	5kV to 160kV	5kV to ±160kV	5kV to ±160kV	5kV to ±175kV
Polarity*	Positive or negative	Positive or negative	Positive or negative	Positive or negative	Bipolarity	Bipolarity	Bipolarity
Output rated current	0-30mA	0-30mA	0-50mA	0-50mA	0-30mA	0-30mA	0-30mA
Output power	1.8kW	3.0kW	4.0kW	6.0kW	1.8kW	4.5kW	4.5kW
Ripples/Noise (P-P）	<0.025%	<0.05%	<0.1%	<0.25%	<0.025%	<0.1%	<0.1%
Dimensions	256mm x 436mm x 609 mm （10.09 H x 17.16 W x 24 D）				2X 256mm x 436mm x 609mm （10.09 H x 17.16 W x 24 D）		
Weight	150Lbs.（68Kg）	150Lbs.（68Kg）	150Lbs.（68Kg）	155 Lbs.(70.3 Kg)	300 Lbs.(136 Kg)	300Lbs.(136Kg)	300 Lbs.(136 Kg)
Output connector	R24	R24	R24	Two R24	Two R24	Two R24	Two R24

TXF1270225/450 SPECIFICATIONS

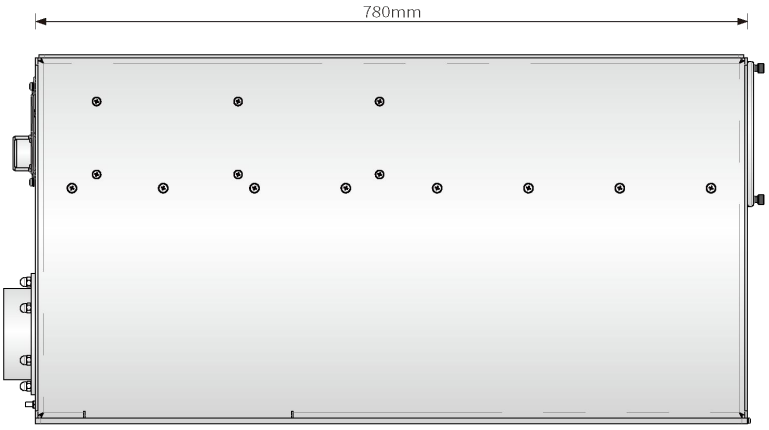
	TXF1270*160-1800	TXF1270*160-3000	TXF1270*160-4000	TXF1270*160-6000	TXF1270 P&N 320-1800	TXF1270 P&N 350-4500
DC output voltage	5kV to 225kv	5kV to 225kv	5kV to 225kv	5kV to 225kv	5kV to ±225kv	5kV to ± 25kv
Polarity*	Positive or negative	Positive or negative	Positive or negative	Positive or negative	Bipolarity	Bipolarity
Output rated current	0-30mA	0-30mA	0-30mA	0-30mA	0-30mA	0-30mA
Output power	1.8kW	3.0kW	4.0kW	6.0kW	1.8kW	4.5kW
Ripples/Noise (P-P）	<0.025%	<0.05%	<0.1%	<0.25%	<0.025%	<0.1%
Dimensions	404mm x 432mm x 780mm (15.90 H x 17 W x 30.72 D)					
Weight	240Lbs.（109Kg）	240Lbs.（109Kg）	240Lbs.（109Kg）	240Lbs.（109Kg）	480Lbs.（218Kg）	480Lbs.（218Kg）
Output connector	R28**	R28**	R28**	R28**	Two R28**	Two R28**

Units are available in positive output polarity without filament, see model selection table for ordering details.
*Specify “P” for positive or “N” for negative polarity
** If using Comet HV cable with R28SL spring loaded plug, please order the Teslaman high-voltage cable flange.

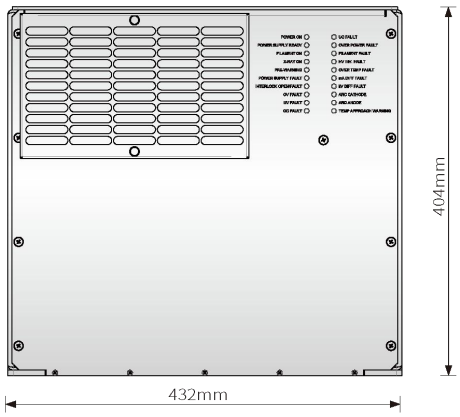
Dimensions: mm



Front view



Side view



Rear view