

THP2343 Series

High-Power DC High-Voltage Power Supply | 1kV~225kV, 12kW, Parallel up to 200kW



- Maximum output of 225kV / 12kW per single unit
- Master-slave control; supports paralleling up to 18 units
- Solid-state packaging
- Soft-switching topology with digital control
- Continuously adjustable voltage and current
- Presettable and modifiable protection thresholds
- Nanosecond-level protection response
- Full protection against overvoltage, overcurrent, short circuit, arc and overtemperature
- Supports digital communication interfaces
- Customizable according to user requirements

Product Introduction:

Teslaman THP2343 series 12kW high-voltage power supply supports selectable positive or negative output polarity, covering voltage ranges from 1kV to 225kV. The unit is equipped with a fully-featured front panel that supports convenient local operation, and also carries a general-purpose analog interface enabling full-dimensional remote adjustment. Ethernet and RS-232 communication interfaces are supplied as standard, facilitating easy integration with various integrated systems.

The THP2343 series employs a highly stable IGBT inverter circuit with inherent fault tolerance, making it well-suited for demanding applications such as semiconductor ion implantation processes and vacuum coating. Multiple operating parameters can be configured by the user to match diverse customization requirements; multiple units can be paralleled to achieve high-power output of more than 200kW.

Typical Applications:

Ion beam implantation equipment; semiconductor processes; X-ray generation systems; electron beam welding systems; pulsed capacitor charging; electrostatic precipitator equipment; high-power RF transmitters.

Specification Description:

Input Voltage	Standard: three-phase AC 180~264V, 50/60Hz, overall efficiency 90%, power factor 0.85. Optional: three-phase AC 360~528V, 50/60Hz (for 400VAC industrial supply).
Input Current	Standard: AC180-264V, three-phase; max 50A. Optional: AC360-528V, three-phase; max 25A.
Output Voltage	Voltage range of 1kV~100kV; single-unit models can be selected for either positive or negative output polarity. Models in the 1kV~10kV range support internal reversible polarity switching.
Local Output Control	The front panel is equipped with a locking ten-turn counting potentiometer; voltage and current can be set continuously over the full range.

Voltage Regulation	Load: when the load varies at full load, the deviation is 0.05% of full-scale voltage + 500mV. Line: when the input voltage fluctuates within the rated range, the deviation is 0.05% of full-scale voltage + 500mV.
Current Regulation	Load: under any change in output voltage, the deviation is 0.05% of full-scale current $\pm 100\mu\text{A}$. Line: when the input voltage fluctuates within the rated range, the deviation is 0.05% of full-scale current.
Ripple	0.3% p-p + 1Vrms; a low-ripple custom version is available by special order.
Stability	Less than 0.02% per hour after 0.5 hours of power-on.
Temperature Coefficient	Better than 100ppm/°C for both voltage and current.
Ambient Temperature	Operating: 0°C to 40°C; Storage: -40°C to 85°C.
Humidity	10% to 90% relative humidity, non-condensing.
Cooling	Forced air cooling; cooling airflow enters from the side panel and exhausts from the rear panel.
Metering Display	Digital voltage and current meters with a measurement accuracy better than 1%.
System Status Display	The front panel integrates a status indicator area supporting up to 12 working status indications, including voltage and current regulation, fault status and circuit control.
Analog Interface Connector	50-pin female D-type connector.
Dimensions	Width 482mm, height 266mm, depth 533mm.
Weight	63.50kg.
High-Voltage Cable	Supplied with a pluggable 2m shielded high-voltage cable.

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, N for negative output;

THP2343	N	225	-	12000
Model	Polarity	Maximum Voltage		Maximum Power

THP2343 Series model selection table

Output Rating		Model
kV	mA	Negative Polarity
1.0	12000	THP2343N1-12000
2.0	6000	THP2343N2-12000
3.0	4000	THP2343N3-12000
4.0	3000	THP2343N4-12000
6.0	2000	THP2343N6-12000
8.0	1500	THP2343N8-12000
10.0	1200	THP2343N10-12000
12.0	1000	THP2343N12-12000
15.0	800	THP2343N15-12000

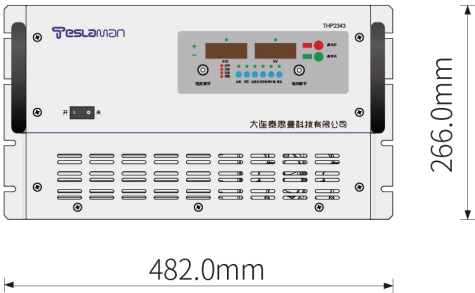
20.0	600	THP2343N20-12000
30.0	400	THP2343N30-12000
40.0	300	THP2343N40-12000
50.0	240	THP2343N50-12000
60.0	200	THP2343N60-12000
70.0	171	THP2343N70-12000
80.0	150	THP2343N80-12000
100.0	120	THP2343N100-12000
120.0	100	THP2343N120-12000
150.0	67	THP2343N150-12000
225.0	40	THP2343N225-12000

JB1: 50-pin female D-Sub connector

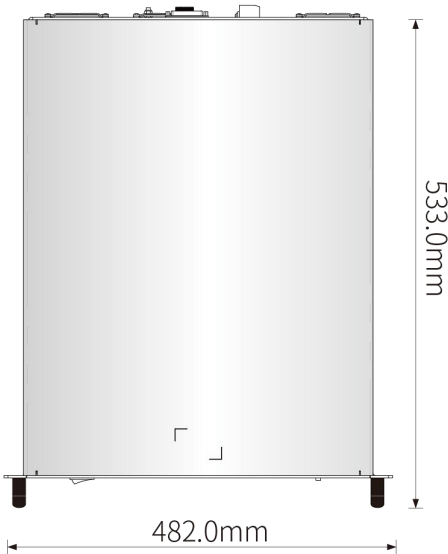
Pin	Signal	Description
1	Power Common	Power ground
2	Reset / HV Inhibit	Normally open; active low; performs reset / high-voltage inhibit.
3	External Interlock	Open output +24VDC; closed current < 25mA.
4	External Interlock Return	Return terminal for the external interlock signal
5	mA Test Point	0~10VDC corresponds to 0~100% rated output; output impedance $Z_{out}=1k\Omega$, accuracy 1%.
6	kV Test Point	0~10VDC corresponds to 0~100% rated output; output impedance $Z_{out}=1k\Omega$, accuracy 1%.
7	+10VDC Reference Output	+10VDC @ 1mA
8	mA Programming Input	0~10VDC corresponds to 0~100% rated output; input impedance $Z_{in}>10M\Omega$
9	Local mA Programming Output	0~10VDC corresponds to 0~100% rated output; adjusted by the front panel potentiometer
10	kV Programming Input	0~10VDC corresponds to 0~100% rated output; input impedance $Z_{in}>10M\Omega$
11	Local kV Programming Output	0~10VDC corresponds to 0~100% rated output; adjusted by the front panel potentiometer
12	Remote Power On Output	Open circuit +24VDC; closed peak 2A, continuous 1ADC
13	Remote Power On Return	Return terminal for the remote power-on signal
14	Remote HV Off	Open circuit +24VDC; closed peak 2A, continuous 1ADC; connecting to pin 15 enables front panel operation
15	Remote HV On/Off Common	HV on/off common terminal
16	Remote HV On	Open circuit +24VDC; closed peak 2A, continuous 1ADC; short to pin 15 to turn on high voltage
17	HV Off Indication	+24VDC @ 25mA, indicates high voltage is off
18	HV On Indication	+24VDC @ 25mA, indicates high voltage is on
19	Power Common	Power ground
20	+24VDC Output	+24VDC, maximum output 100mA
21	Voltage Mode Status	Open collector output; active low
22	Current Mode Status	Open collector output; active low
23	Power Mode Status	Open collector output; active low
24	Interlock Closed Status	Open collector output; active low
25	Power Test Point	0~10VDC corresponds to 0~100% rated output; output impedance $Z_{out}=5k\Omega$, accuracy 1%
26	Spare	/
27	Spare	/

28	Remote Overvoltage Adjustment	0~10VDC corresponds to 0~100% rated output
29	Overpower Fault	Open collector output; active low
30	Overvoltage Fault	Open collector output; active low
31	Overcurrent Fault	Open collector output; active low
32	System Fault	Open collector output; active low
33	RGLT Error Fault	Open collector output; active low
34	Arc	Open collector output; active low
35	Overtemperature Fault	Open collector output; active low
36	AC Fault	Open collector output; active low
37	Spare	/
38	Spare	/
39	Spare	/
40	Spare	/
41	Spare	/
42	Remote Power Programming Input	0~10VDC corresponds to 0~100% rated output; input impedance $Z_{in} > 10M\Omega$
43	Local Power Programming Output	0~10VDC corresponds to 0~100% rated output; adjusted by the internal potentiometer
44	+5VDC Output	+5VDC, maximum 100mA
45	+15VDC Output	+15VDC, maximum 100mA
46	-15VDC Output	-15VDC, maximum 10mA
47	RS232 Transmit	RS232 TX
48	RS232 Receive	RS232 RX
49	RS232 Ground	RS232 signal ground
50	Power Common	Power ground

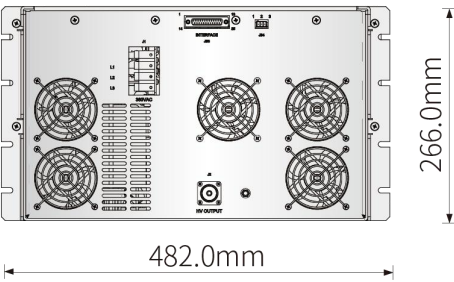
Dimensions: mm



Front View



Top View



Rear View