

# Chapter 1 Introduction

## TD2321 Series

Rack Mount DC High Voltage Power Supply | 1kV-150kV, 2kW,

Ripple  $\leq 0.05\%$ rms



- Output Voltage 1kv-150kV
- Output Power 2kW
- Ripple  $\leq 0.05\%$ rms
- Nanosecond Protection Response
- Over-voltage, Over-current, Short Circuit, Arc And Over-temperature Protection
- RS-485 Isolated Digital Communication
- Safety Interlocking Function
- OEM Customization Available

### Product Introduction:

TeslaMan TD2321 series is a high performance 19"standard rack-mounted high voltage power supply. Ripple less than 0.05%rms. Nanosecond arc response capability ensures trouble-free operation of power supply, and full load efficiency reaches over 90%.This series of products have full functions and wide output range, and can also add custom functions through software.

### Typical Applications:

Ion implantation; Electrostatic spraying; Electrostatic electret; Withstand voltage test; Particle acceleration; Electrostatic field; Ion beam power supply; Electron beam power supply; Accelerator power supply; Insulation test; Shore base of deep-sea observation network; High voltage capacitor charging; High voltage power taking; Scientific research, etc.

### Specification Description:

<b>Input</b>	AC220V $\pm 10\%$ , 50/60 Hz, 16A.
<b>Output</b>	A variety of maximum output voltages from 1kV to 150kV can be selected, and the maximum output power is 2 kW. 0 to the highest voltage is continuously adjustable, and the output is fixed polarity.
<b>Front Panel Status Indication</b>	High voltage on, high voltage off, voltage and current display, over-voltage, over-current, short circuit, arc and over-temperature protection, the power supply also has error code display function.
<b>Voltage Control</b>	Inside the power supply: The power supply comes with a rotary encoder to set the output voltage between 0 and the highest voltage. External analog control: The external 0 to 10V control signal can adjust the output from 0 to the highest output voltage. Digital communication control: Through RS-485 communication interface, the output can be adjusted from 0 to the highest voltage according to the standard Modbus communication protocol.
<b>Current Control</b>	Inside the power supply: The power supply comes with a rotary encoder to set the output current between 0 and the highest current. External analog control: The external 0 to 10V control signal can adjust the output from 0 to the maximum current. Digital communication control: Through RS-485 communication interface, the output can be adjusted from 0 to the maximum current according to the standard Modbus communication protocol.
<b>Voltage Regulation Rate</b>	Relative load: 0.01% (no load to rated load). Relative input: 0.01% (input voltage change is $\pm 10\%$ ).
<b>Current Adjustment Rate</b>	Relative load: 0.01% (no load to rated load). Relative input: 0.01% (input voltage change is $\pm 10\%$ ).



**TD2321 Series High Voltage Power Supply Model Selection Table (Customizable):**

Output Rating		Model of Power Supply	
kV	mA	Positive Polarity	Negative Polarity
2.00	1000	TD2321P2-2000	TD2321N2-2000
5.00	400.0	TD2321P5-2000	TD2321N5-2000
10.00	200.0	TD2321P10-2000	TD2321N10-2000
20.00	100.0	TD2321P20-2000	TD2321N20-2000
30.00	66.67	TD2321P30-2000	TD2321N30-2000
50.00	40.00	TD2321P50-2000	TD2321N50-2000
60.00	33.33	TD2321P60-2000	TD2321N60-2000
100.0	20.00	TD2321P100-2000	TD2321N100-2000
120.0	16.67	TD2321P120-2000	TD2321N120-2000
130.0	15.38	TD2321P130-2000	TD2321N130-2000
150.0	13.33	TD2321P150-2000	TD2321N150-2000

**Power input terminal J1:**

Pin	Signal	Description
1	L	Live Wire
2	N	Neutral Line
3	G	Ground Wire

**RS-485 Communication Interface JB4:**

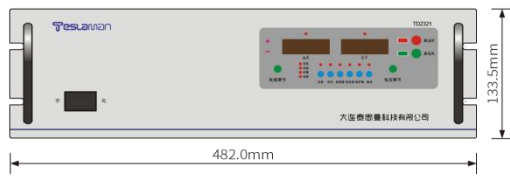
Pin	Signal	Description
1	A	RS485 +
2	G	Ground Wire
3	B	RS485-

**TD2321 Power DB25 Connector Signal Definition JB3:**

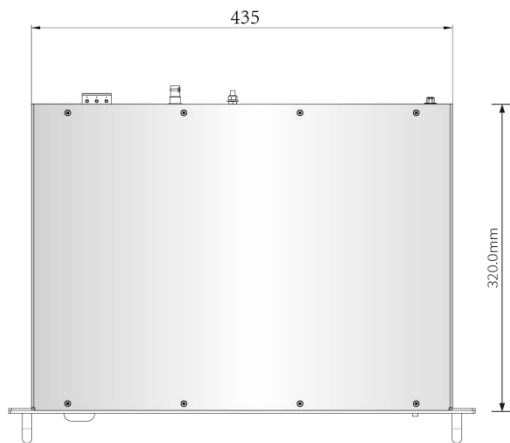
Pin	Signal	Parameters
1	Remote Indication	Open collector, conduction for remote control
2	Constant Voltage Indication	Open collector, conduction for constant voltage output
3	High Voltage Off Indication	Open collector conduction for high voltage output off
4	High Voltage On Signal	Rising Edge for HV ON
5	Remote Enable	High (+ 15V) is effective
6	Security Lock Enabled	High (+ 15V) is effective
7	+ 15V	+ 15V, 100mA (Max)
8	Current Setting	0 to 10V = 0 to 100% rated output
9	Voltage Setting	0 to 10V = 0 to 100% rated output
10	+ 15V	+ 15V, 100mA (Max)
11	+ 10V	+ 10V, 1mA (Max)
12	Voltage Display	0 to 10V = 0 to 100% rated output
13	Current Display	0 to 10V = 0 to 100% rated output
14	Fault Indication	Open collector, conduction for power supply is malfunction
15	Constant Current Indication	Open collector, conduction for constant current output
16	High Pressure On Indication	Open collector, conduction for high voltage output on
17	High Voltage Off Signal	Falling edge for high voltage off
18	Fault Reset	High (+ 15V) for reset
19	Ground	Signal ground wire
20	Ground	Signal ground wire
21	Ground	Signal ground wire
22	Ground	Signal ground wire
23	Ground	Signal ground wire
24	Ground	Signal ground wire
25	Ground	Signal ground wire
Shield	Ground	Signal ground wire

# Dimensions: mm

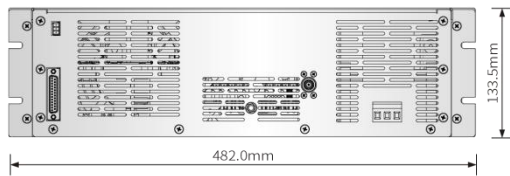
1 kV to 2 kV:



**Front View**

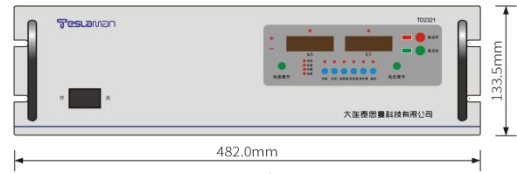


**Top View**

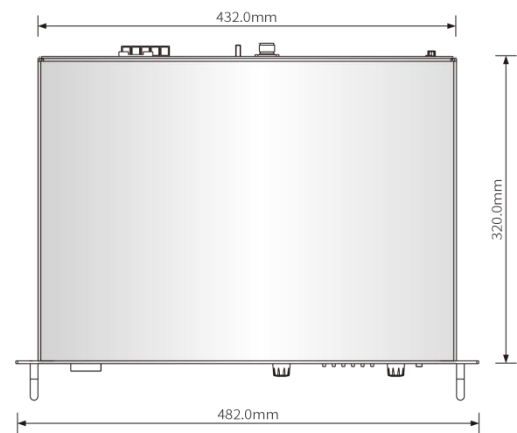


**Rear View**

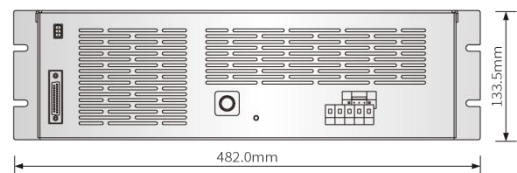
3kV to 50 kV:



**Front View**

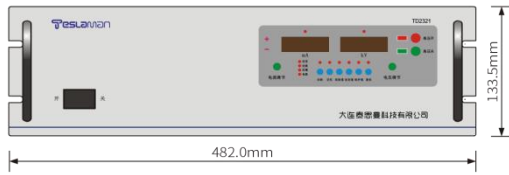


**Top View**

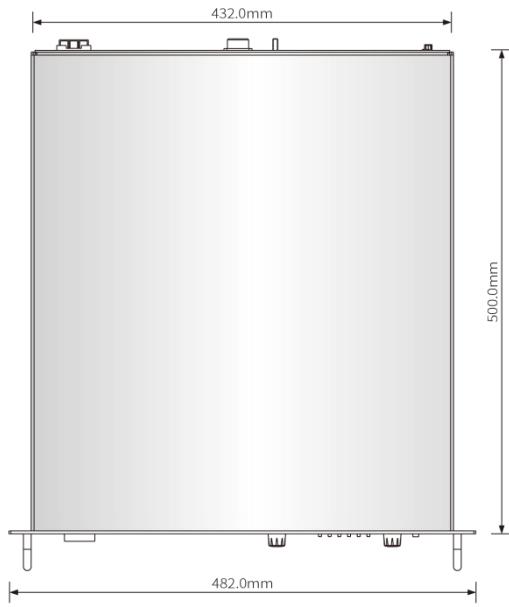


**Rear View**

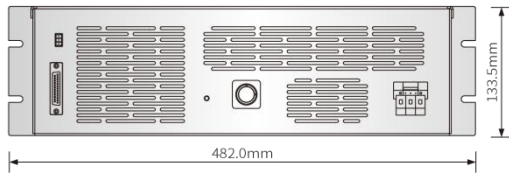
51 kV to 100 kV:



**Front View**

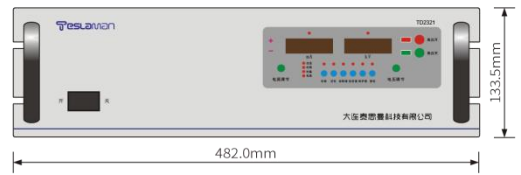


**Top View**

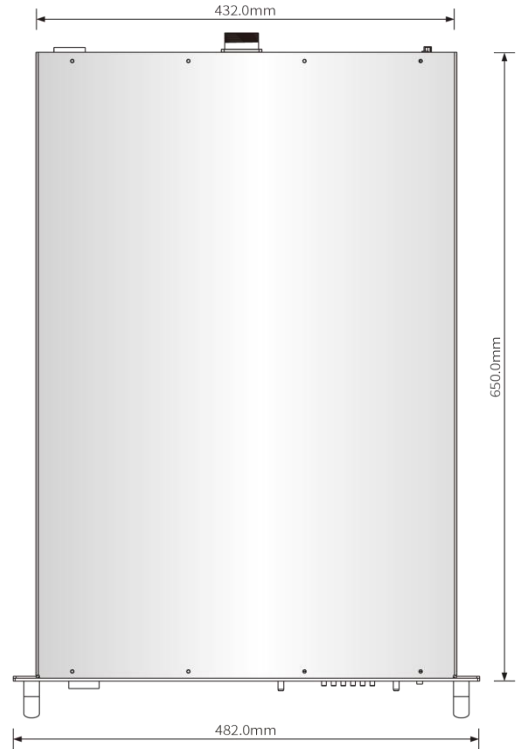


**Rear View**

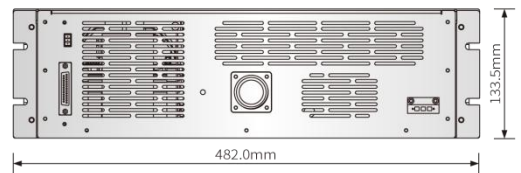
101 kV to 130 kV:



**Front View**

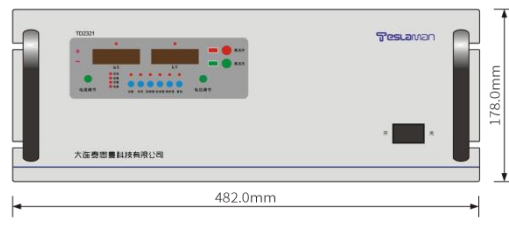


**Top View**

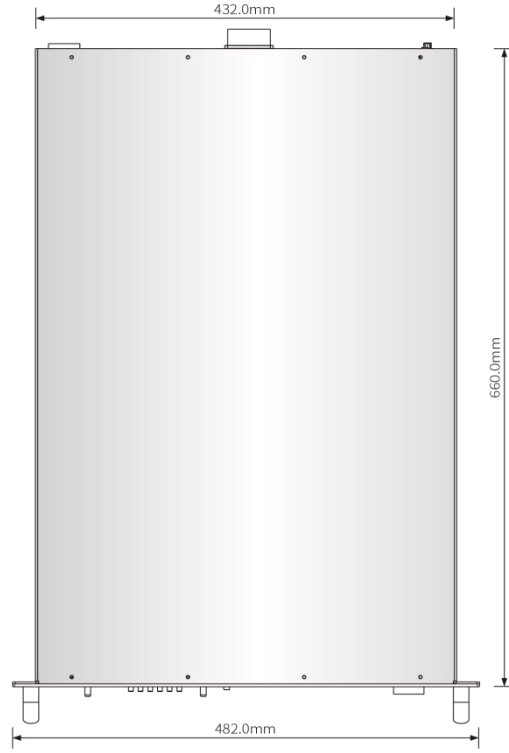


**Rear View**

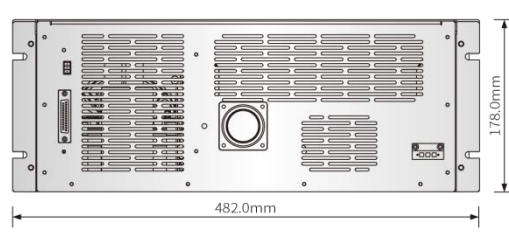
131 kV to 150 kV:



**Front View**



**Top View**



**Rear View**