osi1209 Series

1–150 kV; 2 kW; nanosecond protection



Product introduction

The OSIMAI osi1209 series is a high-performance standard 19-inch rack-mount high-voltage power supply. Digital control supports a variety of user-defined control functions. Nanosecond current response ensures fault-free operation, with full-load efficiency above 90%. Comprehensive functions and broad output ranges are provided; software can add user-required custom functions.

Product features

- Output voltage 1–150 kV
- Output power 2 kW
- Digitally programmable
- Nanosecond protection response
- Overvoltage, overcurrent, short-circuit, arc and overtemperature protection
- Isolated RS-485 digital communication
- Safety interlock
- Customization to user requirements

Specifications

Parameter	Specification
Input	220 VAC ±10%, 50/60 Hz, maximum 16 A.
Output	Selectable maximum voltages from 1 to 150 kV; maximum output power 2 kW. Continuously adjustable from zero to maximum voltage; single negative output polarity.
Front-panel indications	HV ON; HV OFF; voltage/current display; overvoltage, overcurrent, short-circuit, arc and overtemperature protection; error-code display.
Voltage control	Local: built-in rotary encoder sets output voltage between zero and maximum. Analog remote: external 0–10 V signal sets zero to maximum output. Digital control: standard Modbus over RS-485 sets output from zero to maximum voltage.
Current control	Local: built-in rotary encoder sets output current between zero and maximum. Analog remote: external 0–10 V signal sets zero to maximum output. Digital control: standard Modbus over RS-485 sets output from zero to maximum current.
Voltage regulation	Load: better than 0.01% from no load to rated load. Line: ±0.01% for ±10% input-voltage variation.
Current regulation	Load: better than 0.01% from no load to rated load. Line: ±0.01% for ±10% input-voltage variation.
Ripple	Better than 1% p-p at rated output; 0.1% p-p optional.
Ambient temperature	Operating: 0°C to +50°C. Storage: −20°C to +80°C.
Temperature coefficient	Voltage and current: better than 100 ppm/°C.
Stability	Less than 0.1% per 8 hours after a 0.5-hour warm-up.
Voltage/current indication	Four-digit LED display; accuracy ±1% at rated output.
Dimensions	1–2 kV: width482 mm, height133.5 mm, depth320 mm. 3–50 kV: width482 mm, height133.5 mm, depth320 mm. 51–100 kV: width482 mm, height133.5 mm, depth500 mm. 101–130 kV: width482 mm, height133.5 mm, depth650 mm. 131–150 kV: width482 mm, height178 mm, depth660 mm.
High-voltage cable	Recessed plastic insulating conduit and inserted high-voltage cable connected through a 16 mm / 28 mm diameter metal connector. Standard cable length 2 m.
Weight	10–20 kg.

Model selection — 2000 W (customizable)

Rated output (kV)	Rated output (mA)	Positive model	Negative model
2	1000	osi1209P2-2000	osi1209N2-2000
5	400	osi1209P5-2000	osi1209N5-2000
10	200	osi1209P10-2000	osi1209N10-2000
20	100	osi1209P20-2000	osi1209N20-2000
30	66.67	osi1209P30-2000	osi1209N30-2000
50	40	osi1209P50-2000	osi1209N50-2000
60	33.33	osi1209P60-2000	osi1209N60-2000
100	20	osi1209P100-2000	osi1209N100-2000
120	16.67	osi1209P120-2000	osi1209N120-2000
150	13.33	osi1209P150-2000	osi1209N150-2000

Input terminals

Marking	Signal
L	Live
N	Neutral
G	Ground

RS-485 communication interface

Marking	Signal
A	Signal wire
B	Signal wire
G	Signal ground

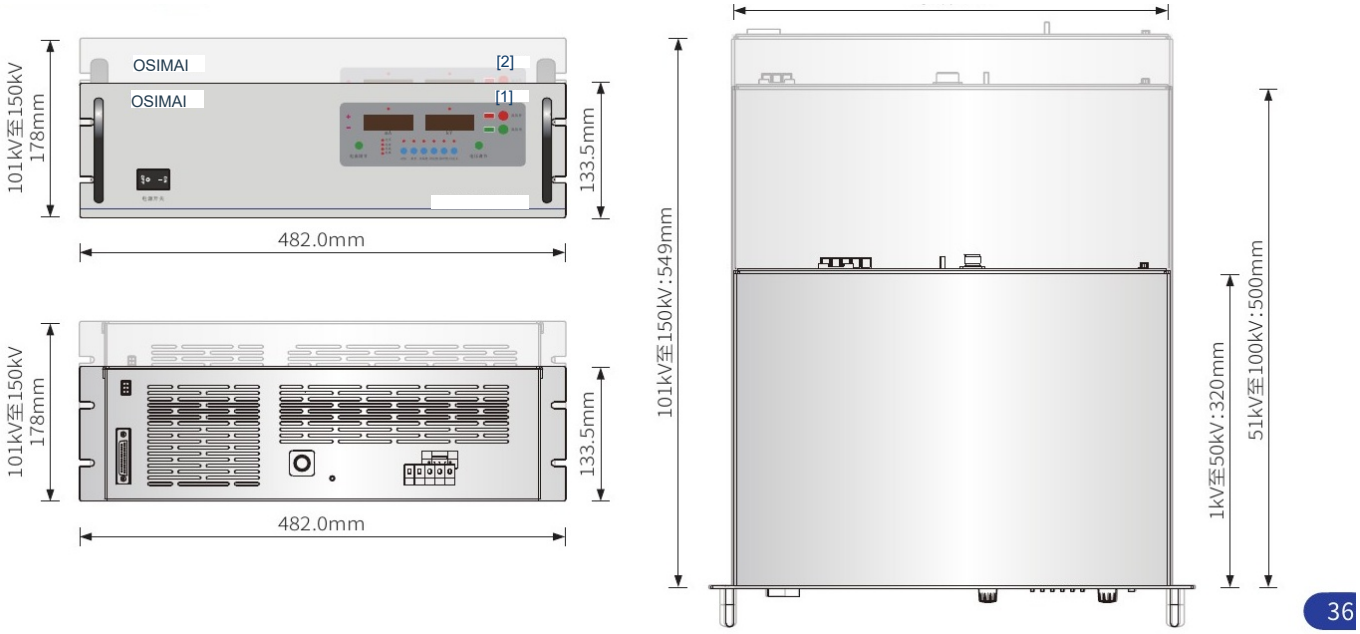
DB25 connector signal definitions

Pin	Signal	Description
1	Remote indication	Open collector; conducting = remote control.
2	Constant-voltage indication	Open collector; conducting = constant-voltage output.
3	HV OFF indication	Open collector; conducting = HV OFF.
4	HV ON signal	Rising edge enables HV; pin 17 is +15 V.
5	Remote enable	High level (+15 V) active.
6	Safety-interlock enable	High level (+15 V) active.
7	+15 V	+15 V, 100 mA maximum.
8	Current setting	0–10 V = 0–100% rated output.
9	Voltage setting	0–10 V = 0–100% rated output.
10	+15 V	+15 V, 100 mA maximum.
11	+10 V	+10 V, 1 mA maximum.
12	Voltage monitor	0–10 V = 0–100% rated output.
13	Current monitor	0–10 V = 0–100% rated output.
14	Fault indication	Open collector; conducting = power-supply fault.
15	Current-flow indication	Open collector; conducting = current output.
16	HV ON indication	Open collector; conducting = HV ON.
17	HV OFF signal	Falling edge disables HV.
18	Fault reset	High level (+15 V) resets.
19	Ground	Signal ground.
20	Ground	Signal ground.
21	Ground	Signal ground.
22	Ground	Signal ground.
23	Ground	Signal ground.
24	Ground	Signal ground.
25	Ground	Signal ground.
Shield	Ground	Signal ground.

Typical applications

Ion implantation; electrostatic spraying; electrostatic flocking; withstand-voltage testing; particle acceleration; electrostatic fields; ion-beam supplies; electron-beam supplies; accelerator supplies; insulation testing; deep-sea dual-grid shore stations; high-voltage capacitor charging; high-voltage field collection; scientific research and other applications.

Outline dimensions



[1] osi1209

[2] osi1209