osi1100 Series

1–20 kV; 20 W; integrated filament power supply; compact size



Product overview

The OSIMAI osi1100 series is a compact power supply for X-ray tubes. It integrates a 5 V DC filament supply adjustable from 0.3 A to 3.5 A. High voltage and filament current can rise smoothly. External potentiometers allow remote output voltage and current control. Voltage/current monitoring and a safety interlock are provided. DB9 control, local control, or optional remote digital RS-232/RS-485 communication may be selected.

Features

Maximum output voltage: 20 kV; voltage and current adjustment; safety interlock; integrated adjustable filament supply; remotely adjustable emission current; customization to user requirements.

Typical applications

Thin-film thickness measurement, PCB inspection and liquid-level detection. For grounded-cathode X-ray tubes from Kevex, Oxford, RTW, Superior, Varian, Trufocus and Kewei.

Specifications

Parameter	Description
Input	24 VDC ±10%.
Output	Selectable maximum output voltage from 1 kV to 20 kV; maximum output power 20 W. Continuously adjustable from zero to the selected maximum.
Voltage control	Local: built-in multi-turn potentiometer, zero to maximum voltage. Remote: external 0–10 V signal, zero to maximum voltage. Digital (osi1100i): host-computer adjustment from zero to maximum voltage.
Emission current control	Local: built-in multi-turn potentiometer, zero to maximum current. Remote: external 0–10 V signal, zero to maximum current. Digital (osi1100i): host-computer adjustment from zero to maximum current.
DC filament supply	Constant-current output, adjustable 0.3–3.5 A; output voltage limited to 5 V.
Voltage regulation	Load: better than 0.01% from no load to rated load. Line: ±0.01% for an input change of ±1 V.
Current regulation	Load: better than 0.01% from no load to rated load. Line: ±0.01% for an input change of ±1 V.
Ripple	Better than 0.1% peak-to-peak at rated output.
Ambient temperature	Operating: 0°C to +50°C. Storage: −40°C to +85°C.
Temperature coefficient	Voltage and current: better than 25 ppm/°C.
Stability	Less than 0.05% per 8 hours after a 0.5-hour warm-up.
Voltage/current monitoring	0 to +10 V represents 0 to rated output; accuracy ±1%.
Dimensions	65 mm wide × 115 mm high × 150 mm deep.
High-voltage cable	Standard external length: 1 m; non-detachable. Other cable specifications or connectors can be customized.
Weight	Approximately 1.82 kg.

Model selection

Output (kV)	Output (mA)	Model
5	4	osi1100P5-20
10	2	osi1100P10-20
20	1	osi1100P20-20

DB9 connector signal definitions

Pin	Signal	Description
1	+10 VDC reference	+10 VDC reference voltage
2	Voltage monitor	0 to +10 VDC = 0–100% rated output; Zout = 10 kΩ
3	Remote voltage control input	0 to +10 VDC = 0–100% rated output; Zin = 10 MΩ
4	Local voltage control output	0 to +10 VDC, potentiometer adjusted
5	Current monitor	0 to +10 VDC = 0–100% rated output; Zout = 10 kΩ
6	Remote current control input	0 to +10 VDC = 0–100% rated output; Zin = 10 MΩ
7	Local current control output	0 to +10 VDC, potentiometer adjusted
8	External interlock	Ground = high voltage ON
9	Ground return	Ground

USB digital port

Pin	Signal	Description
1	VBUS	+5 VDC
2	D−	Data−
3	D+	Data+
4	Ground	USB ground

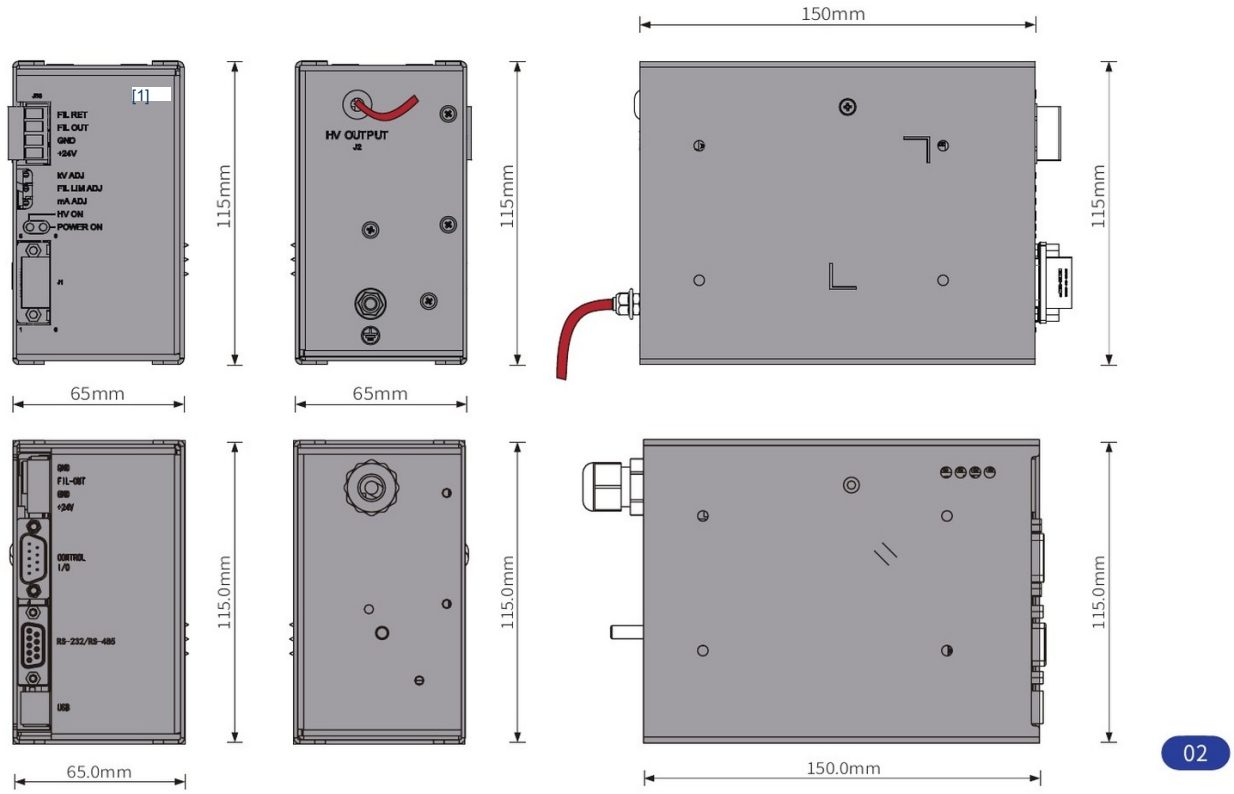
RS-232 / RS-485 digital communication port

Pin	Signal
1	NC
2	TXD / transmit data
3	RXD / receive data
4	NC
5	Ground
6	NC
7	RS-485B
8	NC
9	RS-485A

Power input / filament output connector

Pin	Signal	Description
1	+24 VDC input	+24 VDC ±10%; maximum current 5 A
2	+24 VDC ground	Auxiliary power ground
3	Filament voltage output	+5 V, 3 A maximum
4	Ground	Ground

Outline dimensions



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