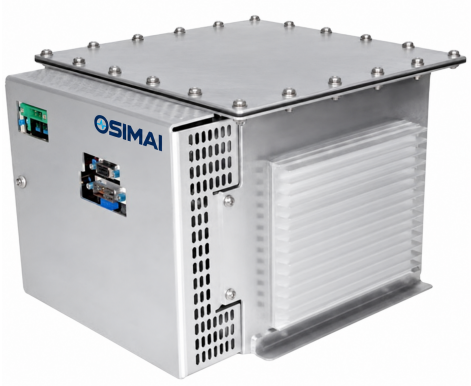
osi1102 Series

100 W; −80 kV; integrated X-ray source



Product introduction

The osi1102 series X-ray high-voltage power supply has a rated output voltage of 80 kV and power of 100 W, with a built-in X-ray tube. Its compact size, standard analog interface and RS-232 digital interface facilitate integration into X-ray systems. A proprietary emission-control circuit provides excellent X-ray tube current management and stability.

Product features

- Integrates the high-voltage supply, filament supply, X-ray tube, beam port and electronic control components
- Compact and lightweight
- Universal input with power-factor correction through the internal EMI filter
- Can be mounted in any physical orientation
- Analog control interface and standard RS-232 digital interface

Specifications

Parameter	Specification
Input voltage	Power-factor-corrected input: 0.98; 100–240 VAC ±10%, 50–60 Hz, maximum 2 A.
X-ray tube voltage	Adjustable from 0 to 80 kV.
X-ray tube current	Adjustable from 150 µA to 1.25 mA within the specified tube-voltage range.
X-ray tube power	Maximum continuous power 100 W.
Voltage regulation	Line: maximum output-voltage change ±0.05% for ±10% change of specified input voltage. Load: voltage change ±0.1% of maximum rated voltage for tube-current change from 150 µA to 1.25 mA.
Voltage accuracy	Tube-measured voltage error: ±2%.
Voltage rise time	Standard: 500 ms for a change from 10% to 90% of maximum rated output voltage. Optional: 5 s.
Ripple	Better than 1% p-p at rated output (0.1% p-p optional).
Current regulation	Line: rated output-current change ±0.05% for ±10% change of specified input voltage. Load: rated output-current change ±0.1% for output-voltage change from 50% to 100% of rated voltage.
Current accuracy	Tube-measured current error: better than ±2%.
Current rise time	Standard: better than 500 ms for a change from 10% to 90% of maximum rated current. Optional: 5 s.
Analog interface	All programming and monitoring signals use a 0–9 VDC reference. Relay contacts and open-collector signals provide the other signals. See the analog-interface connector table.
Digital interface	An RS-232 interface is enabled; cables and Windows digital-interface control software must be provided.
Ambient temperature	Operating: 0°C to +40°C. Storage: −40°C to +70°C.
Humidity	Relative humidity 10% to 95%, non-condensing.
Cooling	As required, the customer provides an external cooling fan of 150 cfm to maintain oil temperature below 55°C. If the fan option is selected, this external fan is not required.
Analog-interface connector	15-pin D-type connector, male.
Digital-interface connector	9-pin D-type connector, female.
Ground point	An 8-32 ground screw is provided on the chassis.
Weight	Approximately 14.5 kg.

DB15 connector signal definitions

Pin	Signal	Description
1	Power-supply fault output	Open collector, 35 V 10 mA maximum; high level = no fault.
2	mA programming input	0–9.00 VDC = 0–100% rated output; Zin = 10 MΩ.
3	kV programming input	0–9.00 VDC = 0–100% rated output; Zin = 10 MΩ.
4	X-ray ON relay output	Common terminal; dry contact, 30 VDC at 1 A maximum.
5	X-ray ON relay output	Normally open; X-ray ON = closed.
6	mA monitor output	0–9 VDC = 0–100% rated output; Zout = 10 kΩ.
7	X-ray ON relay output	Normally closed; X-ray ON = open.
8	kV monitor output	0–9 VDC = 0–100% rated output; Zout = 10 kΩ.
9	Signal ground	Ground.
10	Signal ground	Ground.
11	HV interlock return input	Connect to pin 12 to close the high-voltage interlock.
12	HV interlock output	Open circuit +15 VDC; current 5 mA when connected to pin 11.
13	X-ray enable output	Open circuit +15 VDC; current 5 mA when connected to pin 15.
14	X-ray status output	Open collector, 35 V 10 mA maximum; high level = X-rays OFF.
15	X-ray enable return input	Connect to pin 13 to enable X-rays.

AC power connector

Pin	Signal
1	Ground
2	Live
3	Neutral

RS-232 digital communication interface

Pin	Signal	Description
1	NC	/
2	TD	Transmit data
3	RD	Receive data
4	NC	/
5	SGND	Signal ground
6	NC	/
7	NC	/
8	NC	/
9	NC	/

Typical applications

Thickness measurement; food inspection; liquid-level detection; parcel inspection; X-ray scanning / bone-density measurement.

Outline dimensions

