osi1105 Series

225 kV; 4 kW; compact design and bipolar output configuration



Product introduction

The osi1105 series is a high-performance compact X-ray high-voltage supply in the OSIMAI range, with power options from 1800 to 6000 W. Output configurations include positive, negative and bipolar. Applications include non-destructive testing, medical radiography / fluoroscopy (angiography), analytical X-rays, medical X-rays, automatic test equipment (ATE), cargo-security scanning digital radiography (DR) and industrial computed radiography (CR).

Active power-factor correction (PFC) and resonant-converter topology provide high power factor and power density while relaxing input requirements. Independent modular shielding improves reliability and maintainability; cable electromagnetic interference (EMI) can be optimized by adjusting EMI module parameters without affecting other modules. Encapsulation of the high-voltage section minimizes space and weight.

The analog DB25 port and USB, Ethernet or RS-232 host ports support remote operation and simplify OEM integration. Precision emission-current regulation circuitry and built-in DC filament precision control provide stable X-ray tube current output. Intelligent diagnostic circuitry monitors internal and external trigger points for faults. Arc-control circuitry provides sensing, arc quenching and counting. Upon a fault, the supply can save and record the fault contents in real time.

Product features

- 160 kV, 225 kV, 320 kV and 450 kV models available
- Built-in PFC circuitry
- Standard USB, Ethernet and RS-232 interfaces
- Integrated dual-filament power supplies
- Excellent stability and regulation capability

Specifications

Parameter	Specification
Input voltage	1.8, 3.0, 4.0 and 4.5 kW models: 220 VAC ±10%, single phase, 47/63 Hz, active PFC input ≥0.98. 6.0 kW model: 208 or 400 VAC ±10%, three phase, 47/63 Hz, passive PFC.
Input current	1.8, 3.0, 4.0 and 4.5 kW models: <30 A. 6.0 kW model: at 208 VAC, <25 A per phase; at 400 VAC, <15 A per phase.
Output voltage accuracy	0.25%.
Output voltage stability	Less than ±0.1% per 8 hours after a 1-hour warm-up.
Voltage regulation, 1.8/3.0/4.0/4.5 kW	Load: ±0.05% of rated output voltage for full-load change. Line: ±0.05% of rated output voltage over the specified input-voltage range.
Voltage regulation, 6.0 kW	Load: ±0.1% of rated output voltage for full-load change. Line: ±0.1% of rated output voltage over the specified input-voltage range.
Temperature coefficient	Voltage and current: better than 50 ppm/°C.
Emission-current stability	Less than ±0.1% per 8 hours after a 1-hour warm-up.
Emission-current regulation, 1.8/3.0/4.0/4.5 kW	Load: ±0.05% of rated output current as rated output voltage changes from 30% to 100%. Line: ±0.05% of rated output current over the specified input-voltage range.
Emission-current regulation, 6.0 kW	Load: ±0.1% of rated output current as rated output voltage changes from 30% to 100%. Line: ±0.1% of rated output current over the specified input-voltage range.
Filament output	0–6 A, maximum 10 VDC.
Dual focal spots	Small and large focal spots selected by interface signals.
Filament configuration	DC filament drive; closed-loop emission control adjusts the filament setting to obtain the desired X-ray tube emission current.
Output polarity	Specify positive or negative polarity when ordering.
Regulation	Load: ±0.1% of rated output voltage for full-load change.
Ambient temperature	Operating: 0°C to +50°C. Storage: −40°C to +85°C.
Cooling	Forced air.

DB25 connector signal definitions

Pin	Signal
1	Power-supply fault
2	mA programming
3	kV programming
4	Filament limit / small reference
5	Filament preheat / small reference
6	kV monitor
7	mA monitor
8	Filament-current monitor
9	Signal ground
10	X-ray enable
11	Filament enable
12	Interlock 1
13	Interlock 2
14	+24 VDC
15	Filament enable
16	Filament control
17	Filament large/small selection
18	Filament large/small confirmation
19	HV supply ready
20	X-ray ON
21	Interlock status
22	Ground
23	X-ray ON / preheat
24	Reset
25	Power-supply fault

R24/R28 connector

Pin	Signal	Description
C	High-voltage output	TXRV160 and TXRV320-R24 connector; TXRV225 and TXRV450-R28 connector.
S	Small-filament output	0–6 A at 10 VDC.
L	Large-filament output	0–6 A at 10 VDC.

USB digital interface

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

Typical applications

Non-destructive testing; X-ray scanning; security applications; medical applications; angiography.

Outline dimensions





