Matsusada Precision

X-ray HV Power Supply
XKg series

NEW

X-ray HV Power Supply
cathode ground type

- Low ripple and high stability
- Integrated filament supply
- Maximum 3 kW and 4 kW output power models are also available.

XKg series

Output Voltage : 30kV to 160kV
Output Power : 15W to 4000W

* X-ray tube is separate item.

MADE IN JAPAN

www.matsusada.com

XKg
series

X-ray HV Power Supply
cathode ground type

* X-ray tube is separate item.

XKg Series is high stability and low ripple positive X-ray power supply with integrated filament supply and generates stable x-ray output. Interlock and useful function are installed for safer and convenient operation. With combination with digital controller CO / USB series, control via GPIB, RS-232C, RS-485 and USB is available.

FEATURES

- Maximum 3 kW and 4 kW output power models are also available.
- For Cathode ground type X-ray tube
- Integrated filament supply
- Low ripple and high stability
- Digital interface
- Constant Voltage / Current operation with full protection for safety operation

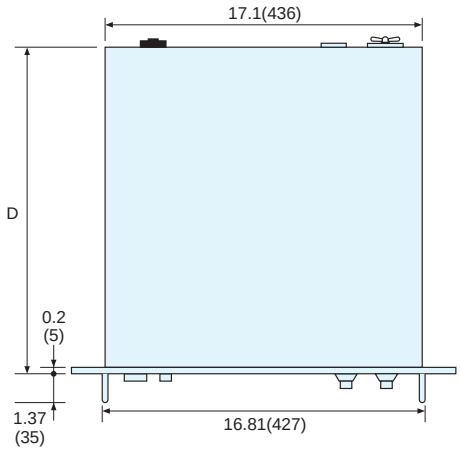
APPLICATIONS

- XRF (X-ray Fluorescence Analysis)
- XRD (X-ray Diffraction)
- X-ray non-destructive inspection

LINEUP

Output Voltage	Output Current	Output Power	Model
30 kV	0.5 mA	15 W	XKg-30P0.5
	1 mA	30 W	XKg-30P1
	2 mA	60 W	XKg-30P2
	3.3 mA	100 W	XKg-30P3.3
40 kV	0.5 mA	20 W	XKg-40P0.5
	0.75 mA	30 W	XKg-40P0.75
	1.5 mA	60 W	XKg-40P1.5
	2.5 mA	100 W	XKg-40P2.5
	3.75 mA	150 W	XKg-40P3.75
50 kV	0.6 mA	30 W	XKg-50P0.6
	1.2 mA	60 W	XKg-50P1.2
	2 mA	100 W	XKg-50P2
	3 mA	150 W	XKg-50P3
60 kV	0.5 mA	30 W	XKg-60P0.5
	1 mA	60 W	XKg-60P1
	1.6 mA	100 W	XKg-60P1.6
	2.5 mA	150 W	XKg-60P2.5
	50 mA	3000 W	XKg-60P50
	67 mA	4000 W	XKg-60P67
80 kV	0.37 mA	30 W	XKg-80P0.37
	0.75 mA	60 W	XKg-80P0.75
	1.25 mA	100 W	XKg-80P1.25
	1.87 mA	150 W	XKg-80P1.87
100 kV	0.3 mA	30 W	XKg-100P0.3
	0.6 mA	60 W	XKg-100P0.6
	1 mA	100 W	XKg-100P1
	1.5 mA	150 W	XKg-100P1.5
	3 mA	300 W	XKg-100P3
120 kV	0.25 mA	30 W	XKg-120P0.25
	0.5 mA	60 W	XKg-120P0.5
	0.83 mA	100 W	XKg-120P0.83
	1.25 mA	150 W	XKg-120P1.25
	2.5 mA	300 W	XKg-120P2.5
140 kV	0.21 mA	30 W	XKg-140P0.21
	0.42 mA	60 W	XKg-140P0.42
	0.71 mA	100 W	XKg-140P0.71
	1.07 mA	150 W	XKg-140P1.07
	2.14 mA	300 W	XKg-140P2.14
160 kV	0.62 mA	100 W	XKg-160P0.62
	0.93 mA	150 W	XKg-160P0.93
	1.87 mA	300 W	XKg-160P1.87

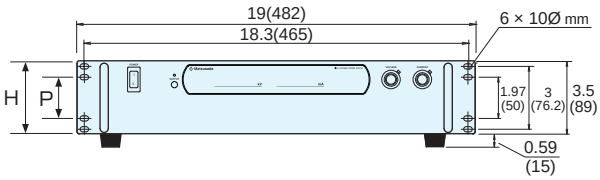
DIMENSIONS inch (mm)



MODEL	(EIA)		D	DIMENSIONS
	H	P		
30 kV to 60 kV (except 3000 W and 4000 W model)	3.5(89)	3(76.2)	19(482)	A
60 kV (3000 W and 4000 W model)	5.24(133)	2.25(57.2)	21.7(550)	B
80 kV to 120 kV	5.24(133)	2.25(57.2)	24(610)	C
140 kV, 160 kV	7(177)	4(101.6)	24(610)	D

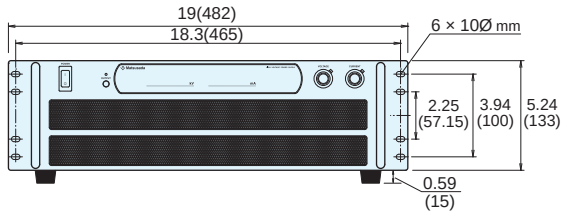
A

【30～60kV MODEL】



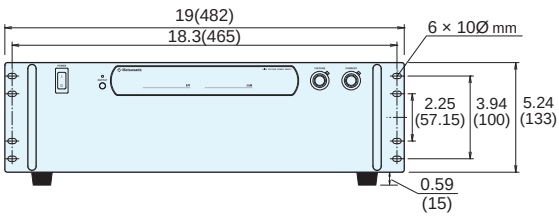
B

【60kV MODEL】



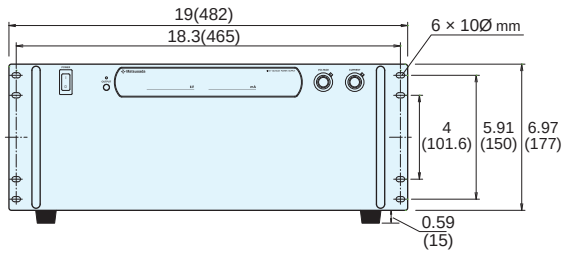
C

【80kV～120kV MODEL】



D

【140kV～160kV MODEL】



SPECIFICATIONS

Input Voltage / Current

Input Voltage / Output	single phase		three phase
	100 VAC to 120 VAC	200 VAC to 240 VAC	200 VAC to 220 VAC
15 W to 30 W	2 A	1 A*	—
60 W	2.5 A	1.3 A*	—
100 W	3 A	1.5 A*	—
150 W	4 A	2 A*	—
300 W	6 A	3 A*	—
3000 W	—	20 A	11 A*
4000 W	—	25 A	15 A*

*option

Output Control

Local mode : Voltage front panel 10-turn potentiometer
Current front panel 10-turn potentiometer
Remote mode : Voltage external voltage source (Vcon)
0 Vdc to 10 Vdc
(input impedance greater than 1 M)
or by external 5 k potentiometer
Current external voltage source (Icon)
0 Vdc to 10 Vdc
(input impedance greater than 1 M)
or by external 5 k potentiometer

Voltage Regulation

Line : ±0.005 % of maximum voltage for ±10 % input line change
Load : 0.005 % of maximum voltage for full load change

Current Regulation

Line : ± 0.05 % for ±10 % input line change
Load : 0.05 % ±100 µA for full load change

Ripple

Less than 0.03 % rms (30 kV to 120 kV model)
Less than 0.03 % rms (below 1 kHz) } (140 kV, 160 kV model)
Less than 0.7 % rms (over 1 kHz) }

Stability

0.01 % / 8 Hr

Temperature Coef.

50 ppm / °C

Filament

10 V 5 A DC stand-by 0.5 A
Filament current limt is variable with 20-turn trimmer on rear panel.
(It is available with high output. Please contact our sales representatives for details.)

Metering

Output voltage : 3.5-digit digital meter 1999
Output current : 3.5-digit digital meter 1999

Monitor Output

Voltage monitor : 0 V to 10 V (output impedance 1 k)
Current monitor : 0 V to 10 V (output impedance 1 k)

Filament monitor

Filament voltage monitor : 10 V / filament V 10 V (Output impedance 1 k)
Filament current monitor : 10V / filament I 5 A (Output impedance 1 k)

Protections

Protection against over voltage, over current, output short circuit,
Filament protection, arc and over temperature.
Disable HV output after AC power line recovery

Output Connector

30 kV to 120 kV : Matsusada original connector
140 kV, 160 kV : European Standard R24

Other Functions

Remote ON / OFF switch (outside relay),
Interlock (outside relay)
Output status signal (inside relay)

Temperature

Operating : 0 °C to + 40 °C / Storage : -40 °C to +85 °C

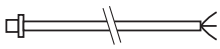
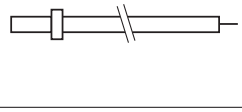
Humidity

0 % to 80 % RH (no condensing)

Accessories

AC line input cable 2.5 m (1), Instruction Manual (1)
Shielded HV output cable 2.5 m(flying lead)(1)
(For 140 kV, 160 kV,type optionally available)

INPUT,OUTPUT CONNECTOR AND CABLE

AC INPUT	15 W to 300 W model		3-pin plug
	15 W to 300 W model -L (200 V) option		OPEN
	3000 W model 4000 W model		OPEN
OUTPUT	30 kV		*CN-30-MHVP
	40 kV		*CN-45-MHVP
	50 kV,60 kV(under 300 W)		*CN-60-MHVP
	80 kV to 120 kV		*CN-120AR-MHVP
	140 kV,160 kV	Output connector and cable are separate items.	

*Standard cable length is 2.5 m.
For 5 meter length, suffix (5) to the model number. (e.g.) CN-120AR-MHVP (5)

OPTIONS

-L(200V)	**200 VAC to 240 VAC single phase** (only for 15 to 300 W type)
-L(200V3P)	**200 VAC to 220 VAC three phase** (only for 3000 W and 4000 W model)
-LB	**Bias output.** -300 V variable 2.5 mA
-LT1	**Interlock remote reset** **AC line remote reset** (recovery from HV disable status)
-LX	**HV connector compatible with XR series**
CNXK-160-3P(5)	**HV output cable for 140 kV and 160 kV**(Plugs on both end 5 meters)
CNXK-160-3P(10)	**HV output cable for 140 kV and 160 kV**(Plugs on both end 10 meters)

How to order Add -L mark to the model number when ordering.
<Example> XKg-160P1.87-LBT1 (200V) with CNXK-160-3P(5)
Option code is ordered alphabetically and by input voltage value.

More Information of Our Products Related

Digital Controller

CO / USB series

Interface : GPIB / RS-232C / RS-485 / USB

- High resolution 16-bit(1 / 65535)
- Thorough measures against noises
- Complete isolation by fiber optic cable
- Listner / Talker function

The CO / USB series is a line of adapters used to digitally control Matsusada's High Voltage,DC, and AC power supplies via personal computer.
It is ideally suited to building safe, stable, varsatile and highly accurate automatic inspection and measurement systems, saving your time and cutting labor costs.
And, the fiber optic connection secures electrical isolation, resulting in safer operation even when combined with power supplies of different potentials.

For more information, please refer to CO / USB series catalog.

X-ray HV Power Supply Anode ground type

XPg series (Switching power supply)

- HV power supply designed for XRD, XRF and X-ray tube
- Maximum 3 kW and 4 kW output power models are also available.
- For Anode ground type X-ray tube
- Integrated Floating AC Filament Supply
- Low ripple and high stability
- Digital interface
- Constant Voltage/Current operation with full protection for safety operation

XPg Series is high stability and low ripple negative X-ray power supply with floating AC filament supply and generates stable X-ray output. Interlock and useful function are installed for safer and convenient operation. With combination with digital controller CO/USB series, control via GPIB, RS-232C, RS-485 and USB is available.

Contact us for various kinds of Power supplies

**As a pioneer of power supply manufacturing,
Matsusada Precision offers solutions to meet various
needs with its expertise through direct sales.
Please visit our website and contact us for more information.**

Contact Us **www.matsusada.com**

Contact with phone or fax

USA	Other country or region
North Carolina office	International office in Japan
TEL(704)496-2644	TEL+81-6-6150-5088
FAX(704)496-2643	FAX+81-6-6150-5089

Manufacturer warranty

We warrant the specification, unless otherwise specified, at max. rated output after warm up, and scope of application is between 10% and 100% of max. rated output. We warrant that products contained in this catalog (hereinafter, the “Products”) are free from defects in material and workmanship under normal use for a period of one (1) year from the date of shipment thereof. However, the warranty period for X-ray detectors and X-ray source shall be either one (1) year from the date of shipment or 1,000 hours, whichever shorter. The above warranty shall not apply to any Product which, at our sole judgment, has been: i) Repaired or altered by persons unauthorized by us; or ii) Connected, installed, adjusted or used otherwise than in accordance with the instructions furnished by us (including being used in an inappropriate installation environment, such as in corrosive gas, high temperature and humidity). We are not liable for any loss, damage or failure of the Products after the shipment thereof caused by external factors such as disasters. We will not inspect, adjust or repair any of our power supply products in the field or at any customer site. If you suspect that there has been a power supply failure in the field, please inspect your whole unit by yourself in an effort to determine that the problem is, in fact, arising out of our power supply products. If it is found that the problem is arising out of such power supply product after inspection, please contact your local sales office for additional troubleshooting. A “Return Merchandise Authorization” is required in case the power supply must be sent back to the factory in Japan for inspection and repair. We, at our sole discretion repair or replace such defective products at no cost to the purchaser. We assume no liability to the purchaser or any third party for special, incidental, consequential, or other damages resulting from a breach of the foregoing warranty. This warranty excludes any and all other warranties not set forth herein, express or implied, including without limitation the implied warranties of merchantability or fitness for a particular purpose. The Products are not designed and produced for such applications as requiring extremely high reliability and safety, or involving human lives (such as nuclear power, aerospace, social infrastructure facility, medical equipment, etc.). The use under such environment is not covered by this warranty and may require additional design and manufacturing processes. No modification or supplement of this warranty shall be binding unless in writing and signed by a duly authorized officer of Matsusada. Matsusada reserves the right to make any changes in the contents of catalogs or specifications at any time without advance notice. Due to compelling reason such as unavailability of components used, products might be un available or unable to repair. The products specified in catalogs or specifications are designed for use by the person who has enough expertise or under the control of such person, and not for general consumers. Schematics of products shall not be submitted to users. Test result or test data for the products shall be available upon request with charge.
Make sure you read the specification in the latest catalog before you order. Contact nearby sales office for the latest catalog.
PLEASE SEE THE LINK BELOW FOR THE COMPLETE WARRANTY TERMS
https://www.matsusada.com/support/manufacturer_warranty.html

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