High voltage and
large output of $120 \mathrm{kV} / 13 \mathrm{~kW}$ at maximum

# High Power High Voltage Power Supply 

AKP Series \(\underset{\substack{1 \mathrm{kV} to 120 \mathrm{kV}<br>12 \mathrm{~kW} and 13 \mathrm{~kW}}}{ }\)



## AKP series <br> The sophisticated high voltage power supply achieves high voltage and high power of 120 kV and 13 kW at maximum



## Features

The single unit can output power as high as 13 kW .
Master / slave function further enables extension at maximum 52 kW .Compatible with digital control by means of various interfaces including Ethernet *, USB, RS-232C etc. (optional).The extensive lineup ranging from 1 kV to 120 kV allows you to select the most suitable model according to the intended use.
The full protective circuits, such as output short-circuit and protection from arc discharge, are included as the standard functions.
*Ethernet is a registered trademark of Fuji Xerox Co., Ltd.

## Summary

AKP series is the high voltage power supply that can output high voltage and high power of 120 kV and 13 kW at maximum on its own. The extensive lineup ranging from 1 to 120 kV allows you to select a model with the necessary output at the minimum expense. Power output as high as 52 kW may also be achieved by integration into the system, various remote controls or master/slave connection.

## Lineup

*Contact our sales staff for delivery dates.

| Max. output voltage | Max. output current | Max. output power | Model |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Positive output type | Negative output type |
| 1 kV | 13A | 13kW | AKP-1P13000 | AKP-1N13000 |
| 1.5 kV | 8.6A |  | AKP-1.5P8600 | AKP-1.5N8600 |
| 2 kV | 6.5A |  | AKP-2P6500 | AKP-2N6500 |
| 3kV | 4.3A |  | AKP-3P4300 | AKP-3N4300 |
| 4 kV | 3.2A |  | AKP-4P3200 | AKP-4N3200 |
| 5 kV | 2.6A |  | AKP-5P2600 | AKP-5N2600 |
| 6kV | 2.1 A |  | AKP-6P2100 | AKP-6N2100 |
| 10kV | 1.3A |  | AKP-10P1300 | AKP-10N1300 |
| 12 kV | 1.08A |  | AKP-12P1080 | AKP-12N1080 |
| 15kV | 860 mA |  | AKP-15P860 | AKP-15N860 |
| 20kV | 650 mA |  | AKP-20P650 | AKP-20N650 |
| 30 kV | 430 mA |  | AKP-30P430 | AKP-30N430 |
| 40kV | 320 mA |  | AKP-40P320 | AKP-40N320 |
| 50 kV | 260 mA |  | AKP-50P260 | AKP-50N260 |
| 60 kV | 210 mA |  | AKP-60P210 | AKP-60N210 |
| 70 kV | 180 mA |  | AKP-70P180 | AKP-70N180 |
| 80 kV | 150 mA | 12kW | AKP-80P150 | AKP-80N150 |
| 100 kV | 120 mA |  | AKP-100P120 | AKP-100N120 |
| 120kV | 100 mA |  | AKP-120P100 | AKP-120N100 |


| Input voltage / current | 208VAC, $50 / 60 \mathrm{~Hz}$, 3-phase / 44A typ. |
| :---: | :---: |
| Output control | Local Voltage : Front panel 10-turn potentiometer |
|  | Current : Front panel 10-turn potentiometer |
|  | Remote Voltage : External control voltage of 0 to 10 Vdc (input impedance of $1 \mathrm{M} \Omega$ or higher) or external variable resistance of $5 \mathrm{k} \Omega$ |
|  | Current: External control voltage of 0 to 10 Vdc (input impedance of $1 \mathrm{M} \Omega$ or higher) or external variable resistance of $5 \mathrm{k} \Omega$ |
| Voltage regulation | Line : $0.05 \%+500 \mathrm{mV}$ of max. output voltage (against $\pm 10 \%$ input change) <br> Load : $0.05 \%+500 \mathrm{mV}$ of max. output current (against 10 to $100 \%$ load change) |
| Current regulation | Line $0.05 \%$ of max. output current (against $\pm 10 \%$ input change) Load : $0.05 \%+100 \mu \mathrm{~A}$ of max. output current (against 10 to $100 \%$ load change) |
| Output display | Output voltage : 3.5-digit digital meter $\pm 1999$ / Output current : 3.5 -digit digital meter 1999 |
| Monitor display | Output voltage monitor: $10 \mathrm{~V} / \mathrm{Max}$. output voltage (output impedance of $1 \mathrm{k} \Omega$ ) Output current monitor : $10 \mathrm{~V} /$ Max. output current (output impedance of $1 \mathrm{k} \Omega$ ) |
| Ripple | $0.3 \% \mathrm{p}-\mathrm{p}+1 \mathrm{Vrms}$ |
| Stability | 0.02\%H (after 1-hour warm up) |
| Temperature coefficient | $0.01 \% /{ }^{\circ} \mathrm{C}$ |
| Protections | Overvoltage protection (cut off at $110 \%$ of rated voltage, manual recovery), <br> Overcurrent protection (output current limit by voltage drooping characteristics), <br> Protection from output short-circuit and arc discharge, Overheat protection (output cut off, manual recovery) |
| Other functions | Remote switch ON / OFF (by external relay), Door switch (by external relay), Output status signal output (by internal relay) |
| Operating temperature | $0^{\circ} \mathrm{C}$ to $+40^{\circ} \mathrm{C}$ |
| Storage temperature | $-20^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Humidity | $30 \%$ to $80 \%$ RH (no condensation) |
| Accessories | 2.5 m long output HV shielded cable (flying lead) 1 Instruction manual 1 |

## Dimensions inch(mm)



## Options

-LF Floating ground (withstand voltage 50 Vdc ) *1
Used to measure current in load
All equipments that connect to Remote Control Connector
(TB1) must be on floating ground in case this feature is intended to use.
(Cannot be used for allowing a high-voltage power supply to float.)
-LiMs $\quad$ Master / slave control *1 *2
A master device can control up to three slave devices.
(The sum of the max. rated power must be 52 kW or less.)
-LOc Cut off output at the time of overcurrent *2
-LW Slow start *1
Reaches the setting voltage approximately 10 seconds
after the OUTPUT and remote switches are ON.
-L(200V) 200 VAC, $\pm 10 \%$, 3-phase
(Input current is around $105 \%$ of 3 -phase 208 V )
-L(220V) 220 VĀC̄ $\pm 10 \%$, 3 -phase
(Input current is around $95 \%$ of 3-phase 208V)
-L(400V) 400 VAC, $\pm 10 \%$, 3-phase
(Input current 23A typ.)
-L(3m) The length of HV output shielded cable is changed to 3 m .
-L(5m) The length of HV output shielded cable is changed to 5 m . (Available only for the models with output voltage of 40 kV or less)

- $\overline{\mathrm{L}}(7 \mathrm{~m})$ The length of HV output shielded cable is changed to 7 m . (Available only for the models with output voltage of 15 kV or less)


|  | 1 kV to 60 kV models | 70 kV to 120 kV models |
| :---: | :---: | :---: |
| D | $21.65(550)$ | $24.02(610)$ |

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## How to place an order

When ordering, suffix above option mark to the model number.
AKP-120N100-LFMsW (220V) (3m)
(in order of alphabets, input voltage and output cable)


## USA/Canada : +1-888-652-8651 other countries : +81-6-6150-5089

## Customer Inquiry Sheet (AKP series)

Please copy this page and above fax number after filling out form below.

I would likeA quotationAn explanation of productA demonstrationTo purchaseOther (

Give us your requirement / comment
$\left[\begin{array}{l}{[ }\end{array}\right]$

Please fill in below.

| Address: |  |
| :---: | :---: |
| Company: |  |
| Dept.: | Title: |
| Name: |  |
| Tel: | Fax: |
| E-mail: |  |

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. If any Product is showed to be defective as satisfactory to us, we, at our sole discretion, repair or replace such defective Products at no cost to the purchaser. We assume no liabiity 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. Regarding RoHS compliance, Matsusada Precision Inc. does not intentionally use objectionable substances in the products listed within this catalog. Matsusada Precision Inc. manufactures products using components which, according to our suppliers, are "RoHS compliant parts". However, Matsusada Precision does not analyze each and every unit to confirm. Therefore, there may be some customized products which do not comply to RoHS. Please contact your nearby sales office for confirmation.


[^0]:    * 1 : In case of selecting -LF or -LW option is selected along with -LMs option, select -LF or -LW option for all AKP series for master/slave connection.
    * 2 : In case of cutting off overcurrent output at the time of master/slave connection, select -LOc option only for the master device (other options may be combined for use), not for the slave devices (other options may be combined). Any other combination cannot cut off overcurrent output during master/slave connection. The slave device used on its own requires the standard CC/CV operation for output as it cannot mount -LOc option.

