

High-voltage output of $\pm 3.1\text{kV}$
and ultra low ripple of only 1mVp-p!

Ultra low noise High stability HV power supply

$\pm 3.1\text{kV}$
15.5W

ASX
series



ASX series

HV power supply with overwhelming low noise and high stability



ASX series is a high-performance high-voltage power supply with the high stability and ultra-low ripple as low as 1mVp-p. Highest standard in its class.

The ASX series is ideal for measuring faint light with PMT that requires low noise and long-term stability, or for standard power supply that requires accurate setting and reproducibility of output voltage.

Such low ripple of 1mVp-p at output voltage of 3kV is greater than AE series and the stability is 50ppm, which is as good a performance as AE series. ASX series have been chosen by many institutions because of this high performance. Also, 5-digit setting voltage display and digital setting method by three rotary encoders are adopted to enhance this high performance to achieve accurate and speedy setting and ease of reproduction. This model is ideal for those who cannot satisfy with the performance of existing high-voltage power supply.

FEATURES

ULTRA-LOW RIPPLE· HIGH STABILITY

ASX series boast high performance of mere 1mVp-p ripple. Clear signal can be obtained when used as a bias power supply for detector without creating high-frequency oscillation noise or spike noise. Also great stability and temperature coefficient of 50ppm is realized.

OUTSTANDING OPERABILITY

Speedy and reliable voltage setting is made possible by 5-digit setting voltage meter and three rotary encoders. Also, a setting accuracy of 150ppm(0.5V) has realized high reproducibility. It is equipped with memory function of setting voltage for convenience of use.

HIGH RELIABILITY· EXCELLENT PROTECTION CIRCUIT

Needless to say no vacuum tube is used and it is all-solid state for reliability based on the latest design idea. For safe use, it has malfunction prevention circuit and double/triple protection circuit, for example, in case polarity is changed by mistake during operation.

LINEUP

Output Voltage	Output Current	Power	MODEL	Ripple
0 to ± 3100 V	5mA	15.5W	ASX-3R5	1mVp-p
			ASX-3R5-5	5mVp-p

APPLICATIONS

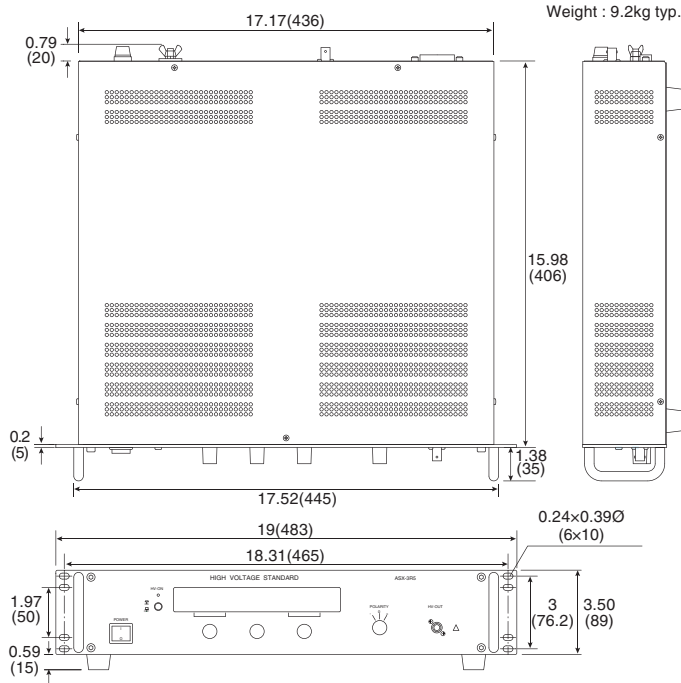
- PMT(Photomultiplier)
- Nuclear equipment
- MCP(Micro channel plate)
- Precise measurement
- Geiger counter
- As reference power supply

SPECIFICATIONS

Input voltage	100V / 115V / 200V / 230VAC $\pm 10\%$ 50 / 60Hz 1 ϕ Switched by rear panel switch
Output voltage control	By rotary encoder on front panel
Switching polarity	Switched by front panel switch (positive, negative)
Regulation	Line : ± 40 ppm(for $\pm 10\%$ input change) Load : 40ppm(for 10% to 100% change)
Stability	50ppm / Hr, 0.01%/8Hr
Temperature coefficient	50ppm / $^{\circ}$ C
Setting accuracy	Less than 170ppm(FS)
Setting voltage display	5-digit digital meter ± 3100.0

Protection	Over current protection (standard : HV output cut-off, manual recovery) (with -LC option : Limit the output current by dropping output voltage) Effective in 105% to 120% of the rated output current. This changes depending on output voltage or whether it has -LW option. Protection against output short-circuit and arc discharge, power failure protection
Temperature	Operating : 0 to $+40^{\circ}$ C Storage : -20° C to $+70^{\circ}$ C Humidity : 20% to 80%RH(no condensation)
Accessories	AC line input cable 3P 2.5m (1) Shielded HV output cable 2.5m(flying lead) BNC-HV(MHV) with a plug (1) Instruction manual (1) Battery for output setting memory(N-cell x2)

DIMENSIONS inch(mm)



INPUT / OUTPUT CABLE

Input	Standard		CABLE TYPE1 (with 3 pin plug 125V 10A rating)
	Standard		CN-BNC-HVP
Output*	Other		CN-BNC-HVPP (With MHV)
	Other		CN-BNC-HVPSP (With SHV)

*Contact our sales office for detail.

OPTIONS

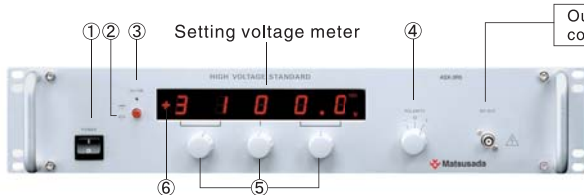
- LA** Following functions are to be added.
 - Door switch**
HV output cut off by external switch
 - Remote switch ON/OFF**
HV output ON/OFF by external relay
 - Output voltage monitor**
0 to 10V/maximum output voltage(output impedance 1kΩ)
same polarity as HV output.
- LC** **Current limit**
Limits output current by dropping output voltage.
- LW** **Slow start**
Takes about 10 seconds to reach a set voltage from turning on high-voltage switch.
- LRs** **RS-232C control**
For output ON/OFF,output voltage setting(resolution 0.1V) and switching polarity.
- LG** **GPIO control**
For output ON/OFF,output voltage setting(resolution 0.1V) and switching polarity.
- L(3m)** } High voltage output shielded cable length change
- L(5m)** } Please choose high voltage output cable length from 3, 5, 7 meters.
- L(7m)** } (Please contact nearby sales office if specific length other than above)

-LRs option and -LG option cannot be selected together.
Need to be selected either one.

When ordering, suffix the above option mark to the model number.
<e.g.>ASX-3R5-5LACRs(7m)
Alphabetical and cable length order

FUNCTIONS

Normal Operation: Output ④ → ① → ② → ⑤, conversely to stop operation.



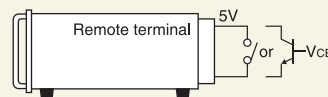
Output connector, BNC-HV(MHV)
connected together inside.



- ① **POWER ON/OFF switch:** This has priority over all operations.
- ② **OUTPUT ON/OFF switch**
This is for urgent OFF or resume the output when remote mode well as output ON/OFF when local mode. Also used for manual recovery of protection function. (Output is possible only when OUTPUT switch is ON even when remote switch is used).
*Please turn ② ON after turning ① on. When this is done reverse, protection will work and output will be cut off and turns to OV (short at 1.5MΩ)(lights of ③ and ⑥ are off).
- ③ **OUTPUT ON display LED**
Lights up in a status when output is possible or when output. (Goes off when cut off by protection circuit)
- ④ **Polarity switching switch**
Please change the polarity when POWER is OFF. If switched when ON, output will be cut off (will be shorted out at 1.5MΩ) (lights of ③ and ⑥ are off) and the output to be fixed at the position of "0".
- ⑤ **Output setting dial:** Rotary encoder
- ⑥ **Set polarity display:** Entrained to ④ (however the light goes off when cut off by protection circuit)
- ⑦ **AC input select switch**
- ⑧ **Fuse 3A**
- ⑨ **AC connector (inlet)**
- ⑩ **GND terminal M6**
- ⑪ **Battery for memory High Voltage setting** (2 N cells)
- ⑫ **Connector for GPIB, RS-232C** (optional)

REMOTE TERMINAL M4 (-LA option model)

● REMOTE SWITCH ON/OFF



Output	External relay	Open collector
ON	Short	$V_{CE} \leq 0.4V$
OFF	Open	$V_{CE} \geq 5V$

Sink Current $\geq 10mA$

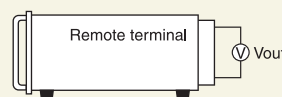
● DOOR SWITCH



Sink Current $\geq 10mA$

Output is possible in external relay short or a status of V_{CE} less than 0.4V. Output will be cut off when open or 5V or more. To output again, turn OUTPUT switch ON after resetting by turning OUTPUT switch OFF in a status of short or 0.4V or less.

● OUTPUT MONITOR



0 to $\pm 10V/0$ to MAX
Output imp 1kΩ



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Customer Inquiry Sheet (ASX series)

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

☐ I would like

- ☐ A quotation ☐ An explanation of product ☐ A demonstration ☐ To purchase
- ☐ Other ()

■ Give us your requirement / comment

■ Please fill in below.

Address:	
Company:	
Dept.:	Title:
Name:	
Tel:	Fax:
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Warranty

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 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.). 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. The use under such environment is not covered by this warranty and may require additional design and manufacturing processes.


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