

NEW

Low profile / High power Rack-mount type HV power supply

1kV to 120kV / 30W to 2200W

AU series



*Please ask for CE marked models.



AU series

Best & Long Seller
of Rack-mount type HV power supply!
Maximum 2.2kW output power
in this ultra low profile design



AU series is a high performance, high-reliability and high-quality DC high voltage power supply as a result of our high-voltage power technology built up over the years. High efficiency and ultra miniaturization is realized with our switching and voltage isolation technology.

With wide lineup of over 300 models and various options the best suitable model for your application can be selected from the output range of 1kV to 120kV / 30W to 2.2kW. AU series has various remote control and monitor functions as standard, and by adding digital control interface it will contribute to the extensibility for ATE (Automatic Test Equipment) system as well as to various high-voltage experiments and to evaluations of inverters and power devices. AU series is only a third to a half size of conventional power supplies and dedicated to compactness of device and saving space of facilities. Double and triple protections are added for even safer operation. With new master-slave option higher power output operation is now possible.

LINEUP

Output Voltage	Output Current	Output Power	MODEL
1kV	30mA	30W	AU-1*30
	60mA	60W	AU-1*60
	100mA	100W	AU-1*100
	150mA	150W	AU-1*150
	300mA	300W	AU-1*300
	600mA	600W	AU-1*600
	1200mA	1200W	AU-1*1200
	2200mA	2200W	AU-1*2200
1.5kV	400mA	600W	AU-1.5*400
	800mA	1200W	AU-1.5*800
	1460mA	2200W	AU-1.5*1460
2kV	15mA	30W	AU-2*15
	30mA	60W	AU-2*30
	50mA	100W	AU-2*50
	75mA	150W	AU-2*75
	150mA	300W	AU-2*150
	300mA	600W	AU-2*300
	600mA	1200W	AU-2*600
	1100mA	2200W	AU-2*1100
3kV	10mA	30W	AU-3*10
	20mA	60W	AU-3*20
	33mA	100W	AU-3*33
	50mA	150W	AU-3*50
	100mA	300W	AU-3*100
	200mA	600W	AU-3*200
	400mA	1200W	AU-3*400
	733mA	2200W	AU-3*733
5kV	6mA	30W	AU-5*6
	12mA	60W	AU-5*12
	20mA	100W	AU-5*20
	30mA	150W	AU-5*30
	60mA	300W	AU-5*60
	120mA	600W	AU-5*120
	240mA	1200W	AU-5*240
	440mA	2200W	AU-5*440
6kV	5mA	30W	AU-6*5
	10mA	60W	AU-6*10
	16mA	100W	AU-6*16
	25mA	150W	AU-6*25
	50mA	300W	AU-6*50
	100mA	600W	AU-6*100
	200mA	1200W	AU-6*200
	366mA	2200W	AU-6*366
10kV	3mA	30W	AU-10*3
	6mA	60W	AU-10*6
	10mA	100W	AU-10*10
	15mA	150W	AU-10*15
	30mA	300W	AU-10*30
	60mA	600W	AU-10*60
	120mA	1200W	AU-10*120
	220mA	2200W	AU-10*220
15kV	2mA	30W	AU-15*2
	4mA	60W	AU-15*4
	6.6mA	100W	AU-15*6.6
	10mA	150W	AU-15*10
	20mA	300W	AU-15*20
	40mA	600W	AU-15*40
	80mA	1200W	AU-15*80
	146mA	2200W	AU-15*146
20kV	1.5mA	30W	AU-20*1.5
	3mA	60W	AU-20*3
	5mA	100W	AU-20*5
	7.5mA	150W	AU-20*7.5
	15mA	300W	AU-20*15
	30mA	600W	AU-20*30
	60mA	1200W	AU-20*60
	110mA	2200W	AU-20*110

Output Voltage	Output Current	Output Power	MODEL
30kV	1mA	30W	AU-30*1
	2mA	60W	AU-30*2
	3.3mA	100W	AU-30*3.3
	5mA	150W	AU-30*5
	10mA	300W	AU-30*10
	20mA	600W	AU-30*20
	40mA	1200W	AU-30*40
	73.3mA	2200W	AU-30*73.3
40kV	0.75mA	30W	AU-40*0.75
	1.5mA	60W	AU-40*1.5
	2.5mA	100W	AU-40*2.5
	3.75mA	150W	AU-40*3.75
	7.5mA	300W	AU-40*7.5
	15mA	600W	AU-40*15
	30mA	1200W	AU-40*30
50kV	0.6mA	30W	AU-50*0.6
	1.2mA	60W	AU-50*1.2
	2mA	100W	AU-50*2
	3mA	150W	AU-50*3
	6mA	300W	AU-50*6
	12mA	600W	AU-50*12
	24mA	1200W	AU-50*24
60kV	0.5mA	30W	AU-60*0.5
	1mA	60W	AU-60*1
	1.6mA	100W	AU-60*1.6
	2.5mA	150W	AU-60*2.5
	5mA	300W	AU-60*5
	10mA	600W	AU-60*10
	20mA	1200W	AU-60*20
80kV	0.37mA	30W	AU-80*0.37
	0.75mA	60W	AU-80*0.75
	1.25mA	100W	AU-80*1.25
	1.87mA	150W	AU-80*1.87
	3.75mA	300W	AU-80*3.75
	7.5mA	600W	AU-80*7.5
	15mA	1200W	AU-80*15
100kV	0.3mA	30W	AU-100*0.3
	0.6mA	60W	AU-100*0.6
	1mA	100W	AU-100*1
	1.5mA	150W	AU-100*1.5
	3mA	300W	AU-100*3
	6mA	600W	AU-100*6
	12mA	1200W	AU-100*12
120kV	0.25mA	30W	AU-120*0.25
	0.5mA	60W	AU-120*0.5
	0.83mA	100W	AU-120*0.83
	1.25mA	150W	AU-120*1.25
	2.5mA	300W	AU-120*2.5
	5mA	600W	AU-120*5
	10mA	1200W	AU-120*10
	18.3mA	2200W	AU-120*18.3

* P...Positive output N...Negative output R...Reversible output

<e.g.> AU-1R30 : 0V to $\pm 1kV$ / 0A to 30mA

Positive, negative or reversible high voltage with respect to chassis ground.

Units from 1kV to 6kV, the polarity may be reversed by swapping the internal cables.

Units from 10kV to 120kV, by swapping the internal high voltage module.

FEATURES



WIDE RANGE OF LINEUP

The best output range and function from abundance of lineup of 1kV to 120kV / 30W to 2.2kW, over 300 models can be selected. Therefore no need to choose a product with over output or specifications avoiding wasted investment.

AU series has -LC option for automatic switch of constant voltage / constant current modes as well as other various options such as different input voltage or slow ramp up are available.



FULL OF REMOTE FUNCTIONS

High-voltage output voltage and output current (output cut off value for standard type, and current limit value for AU with -LC option) can be controlled. Also equipped with output ON / OFF, monitor output for voltage / current and status output of high voltage is equipped and door switch is standard as a safety function.

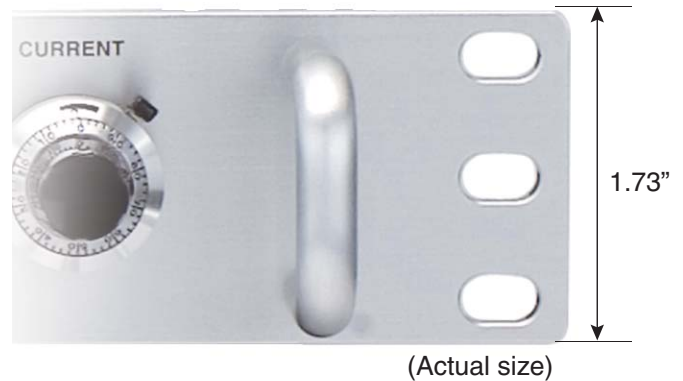
Also interface of GPIB, RS-232C, RS-485 and USB can be added as an option for computer control. A system integration with other measuring instruments or control devices can be constructed for faster testing and development. It's easy to build a system up with the combination of our DC (low voltage) power supplies or AC power supplies.



ULTRA LOW PROFILE / SPACE SAVING

Panel height is only 1.73" (models less than 1kV to 60kV / 30W to 300W models) and 19-inch standard rack mount type. Miniaturization and high reliability that are conflicting themes for high-voltage power supplies are cleared by our high voltage insulation technology.

AU series has been receiving good reputation for applications requires space saving such as inspection system of production line, or requires combination several power supplies.



APPLICATIONS

- Evaluation for inverters or power devices(IGBT, MOS-FET)
- ATE(Automatic Test Equipment)
- Electron Beams
- Ion Beams
- X-ray tube
- Aging of electronic components
- Capacitor Charging
- Insulator Testing
- All kinds of High-Voltage Testing

SPECIFICATIONS

We take special requirements for each specification such as ripple or temperature coef. Contact to local sales office for details.

Input Voltage 30W to 300W 100VAC to 120VAC $\pm 10\%$ 50/60Hz single phase
600W to 2200W 200VAC to 240VAC $\pm 10\%$ 50/60Hz single phase
2200W 200VAC to 240VAC $\pm 10\%$ 50/60Hz three-phase(option)

AC input power(MAX) *option

AC input voltage Output power	100V to 120V	200V to 240V
30W	90VA	* 90VA
60W	130VA	* 130VA
100W	200VA	* 200VA
150W	270VA	* 270VA
300W	520VA	* 520VA
600W	* 1300VA	1300VA
1200W	—	2600VA
2200W(1Ø)	—	2800VA
*2200W(3Ø)	—	2800VA

Rush current

AC input voltage Output power	100V to 120V	200V to 240V
30 to 1200W	30A(≤ 10 ms)	30A(≤ 10 ms)

AC input voltage Output power	1Ø 200V to 240V	3Ø 200V to 240V
2200W	50A(≤ 10 ms)	50A(≤ 10 ms)

Output Voltage Control Local : 10-turn potentiometer on front panel
Remote : External control voltage 0 to 10Vdc (input impedance more than 1M Ω) or by external 5k Ω potentiometer

Voltage Regulation Line : ± 50 ppm for $\pm 10\%$ input line change
Load : 50ppm for 10% to 100% load change
50ppm +400mV for 10% to 100% load change (2200W models)

Ripple less than 0.1%p-p
0.3%p-p+1Vrms(2200W models)
0.1%p-p+1Vrms(2200W models with -L(200V3P) option)

Stability 0.01% / Hr

Temperature Coef. 0.01% / $^{\circ}\text{C}$

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

Monitor Output Voltage monitor : 10V / maximum output voltage (output impedance 1k Ω)
Current monitor : 10V / maximum output current (output impedance 1k Ω)

Protections Over voltage protection. (Cut-off when 110% of rating, manual recovery)
Over current protection. (high-voltage cut-off, manual recovery or recovery by remote set)
Protection against output short-circuit and arc discharge.
Over temperature protection. (output cut-off, manual recovery)

Other Functions Remote switch ON/OFF(by external relay)
The output will be on only when both output switch on front panel and remote switch are ON.

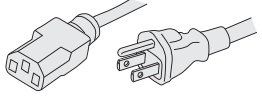
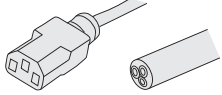
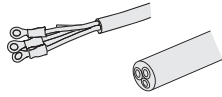
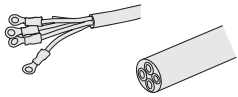
Door switch(by external relay)
Output status signal output(by internal relay)
Remote reset (Over current cut-off protection mode shall be reset by remote signal.)

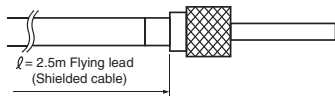
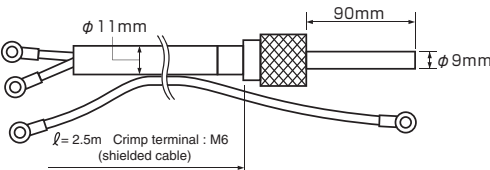
Temperature Operating temp. 0 to $+50^{\circ}\text{C}$
Storage temp. -20°C to $+70^{\circ}\text{C}$
Humidity 20% to 80%RH (no condensation)

Accessories AC line input cable 2.5m(1)
Shielded HV output cable 2.5m (flying lead)(1)*
Instruction manual(1)

* : When you need to extend the length of the cable, please choose -L(3m), -L(5m) or -L(7m) option (\rightarrow P.7). Or, please ask us for production separately.

INPUT / OUTPUT CABLE

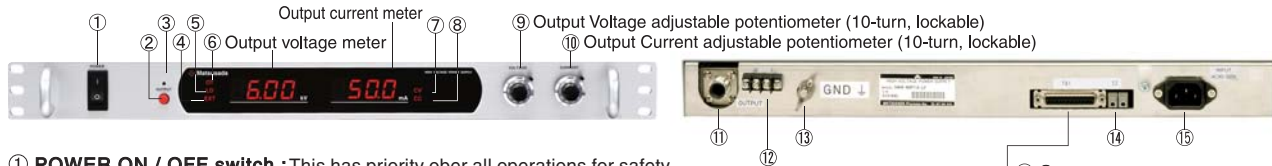
Input cable	
for 30W to 300W models	for 30W to 300W models (with -L(220V) option)
	
CABLE TYPE 1 125V / 10A	CABLE TYPE 3 250V / 10A
for 600W, 1200W, 2200W models	for 2200W models (with -L(200V3P) option)
	
CABLE TYPE 5 250V / 25A	CABLE TYPE 6* 250V / 25A

Output cable
for 30W to 1200W / 2200W(≥ 2 kV) models
 $\ell = 2.5$ m Flying lead (Shielded cable) Depending on output voltage, length will be varied. Please contact nearby sales office for details.
CN-□-MHVP
for 2200W (1kV, 1.5kV) models
 $\phi 11$ mm, 90mm, $\phi 9$ mm $\ell = 2.5$ m Crimp terminal : M6 (shielded cable)
CN-15PR-MHVP

*Please purchase it separately.

FUNCTIONS

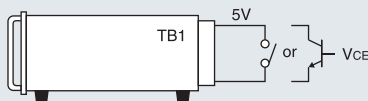
Normal operation Output ①→②→⑨→⑩, conversely to stop operation.



- ① **POWER ON / OFF switch** : This has priority over all operations for safety.
- ② **OUTPUT ON / OFF switch** : Used for urgent OFF or resume the output when remote mode as 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)
- 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 **External control display LED** : Lights up during external control.
- ⑤ **Door switch display LED** : Lights up when door switch operates. (output cut off during the light is on)
- ⑥ **Over temperature protection display LED** : Lights up when internal part reaches excess temperature by abnormal heating.
- ⑦ **Operation mode display LED** : Lights up during operation of constant voltage.
- ⑧ **Operation mode display LED** : Lights up when over current is cut off. Lights up during operation of constant current (unit with -LC option).
- ⑪ **Output connector** (Matsusada's property)
- ⑫ **Floating ground terminal(-LF Option)**
- ⑬ **GND Terminal(M6)**
- ⑭ **S2 switch**
- ⑮ **AC Input connector**
up to 300W models : Inlet
600W to 2.2kW models : Terminal(M4)

REMOTE CONTROL CONNECTOR (TB1) D-Sub 25pin female (mating connector enclosed). Use for GPIB connection too.

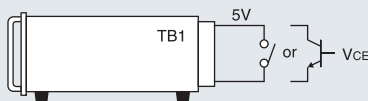
REMOTE/LOCAL change



Mode	Output relay	Open collector
REMOTE	SHORT	$V_{CE} \leq 0.4V$
LOCAL	OPEN	$V_{CE} \geq 2V$

Sink Current $\geq 10mA$

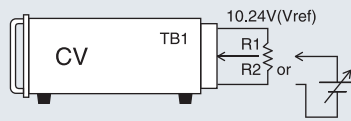
REMOTE HV ON/OFF



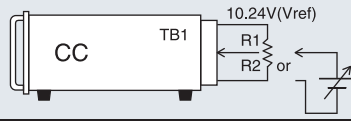
Output	Output relay	Open collector
ON	SHORT	$V_{CE} \leq 0.4V$
OFF	OPEN	$V_{CE} \geq 2V$

Sink Current $\geq 10mA$

OUTPUT CONTROL Remote analog programming



Output Voltage	LRv	Vcon
0 to MAX	R2: 0Ω to 5kΩ	0V to 10V Input imp $\geq 1M\Omega$

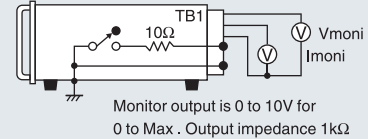


*Output Current	LRC	Icon
0 to MAX	R2: 0Ω to 5kΩ	0V to 10V Input imp over 1MΩ

*Model with -LC

- It is possible to conduct control with the combination of Vcon and output current setting potentiometer ⑩ of front panel.
- Open circuit (fixed at MAX value) is possible by entering Vref.

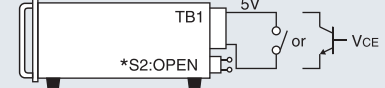
OUTPUT MONITOR and STATUS



Monitor output is 0 to 10V for 0 to Max. Output impedance 1kΩ

Internal relay of status output turns ON in a status when output is possible or when output (entrained to OUTPUT ON display LED). Contact open-circuit voltage 30V, permissible current 100mA max.

DOOR SWITCH

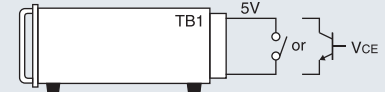


It is possible to output in external relay short or a status of V_{CE} less than 0.4V. Output will be cut off when open or 2V or more. To resume the output again, turn OUTPUT switch ON after resetting by turning OUTPUT switch OFF in a status of short or less than 0.4V.

Sink Current $\geq 10mA$

*Door switch become effective when S2 terminal is open

REMOTE RESET

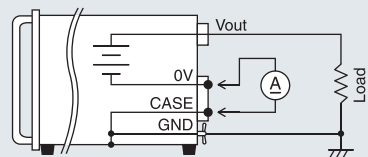


Output relay	Open collector	Timing
OPEN	$V_{CE} \geq 2V$	
SHORT	$V_{CE} \leq 0.4V$	

Sink Current $\geq 10mA$

Reset

-LF option : FLOATING GROUND TERMINAL (M3)

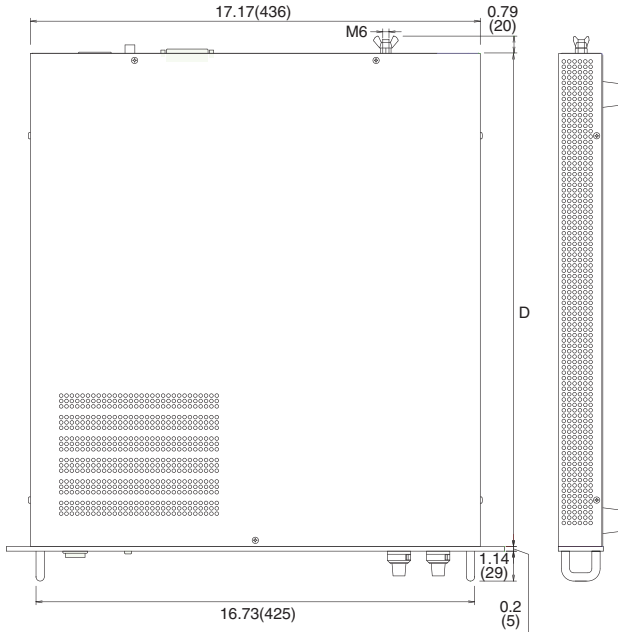


Case GND"CASE" and power supply GND"0V" can be isolated up to 50V. Minimal current in load can be measured by measuring the current between these 2 points to avoid the effect of ground noise.

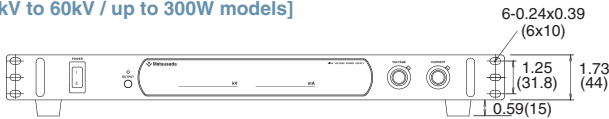
*Not for floating applications

*All equipments that connect to Remote Control Connector (TB1) must be on floating ground in case this feature is intended to use.

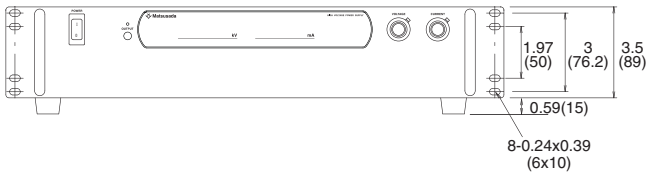
DIMENSIONS inch(mm)



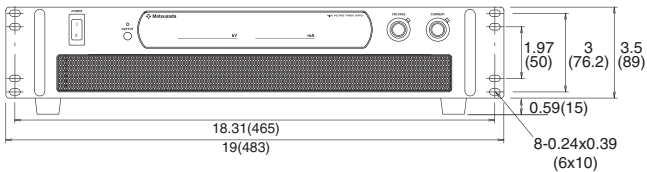
[1kV to 60kV / up to 300W models]



[1kV to 60kV / 600W, 1200W models]
[80kV to 120kV / 30W to 1200W models]



[2200W models]



MODEL	D
1kV to 60kV	18.82(478)
80kV to 120kV	23.86(606)

OPTIONS

- LStc Constant Current status signal**
Constant Current mode or when OCP(Over Current Protection) activated, the open collector will turn on.(Vce > 2V)
- LStv Constant Voltage status signal**
When operation mode is Constant Voltage mode, the open collector will turn on.(Vce > 2V)
- LC Constant voltage and constant current*2**
Current regulation 0.05%
(-LC option eliminates Overload Trip function)
- LF Floating ground(withstanding voltage of 50Vdc)*1**
Used when measuring minimal 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 the purpose of floating high-voltage power supply.)
- LMs Master slave control (600W, 1.2kW and 2.2kW models only)*1*2*3**
Maximum of 4 slave units can be controlled with one master unit.
(Sum of maximum rated output shall be less than 6kW.)
- LW Slow start*1**
Takes about 10 seconds to reach a set voltage from when OUTPUT switch, remote switch and remote switch are turned on.
- L(220V) 200VAC to 240VAC single phase input.(30W to 300W models only)**
- L(115V) 100VAC to 120VAC single phase input.(600W models only)**
- L(U) Input voltage switch over 100VAC to 120VAC/200VAC to 240VAC single phase input.**
Internal switch over.(30W to 300W models only)
- L(200V3P) three-phase input (2200W models only)**
- L(3m) The length of HV output shielded cable is changed to 3m.**
- L(5m) The length of HV output shielded cable is changed to 5m.**
(only for ≤ 40kV models)
- L(7m) The length of HV output shielded cable is changed to 7m.**
(only for ≤ 15kV models)

*1 In case selecting -LMs option with -LF option or -LW option, all AU power supplies which connected as Master-Slave, need to equip -LF option or -LW option.

*2 In case power supply operate as cut off the output when overcurrent with Master-Slave connection, do not select -LC option for Master unit(the other options can be selected), and select -LC option for only Slave unit(the other options can be also selected together). Combinations other than above, cut off the output when overcurrent will not work.
And also, Slave unit is equipped with -LC option, therefore, if Slave unit is used individually, out will be either CV or CC.

*3 In case you operate power supplies with CV/CC mode under Master-Slave connection, select -LC option for Master unit and all Slave units (the other options can be also selected together). Combinations other than above, CV/CC will not work.
And also, Master unit and each Slave unit equipped with -LC option, therefore, if each unit is used individually, out will be either CV or CC.

When ordering, suffix the above option mark to the model number.

<e.g>AU-15P80-LCFMsStcStvW(7m)

AU-30N10-LCFStcStvW(U)(5m)

AU-100R22-LCFMsStcStvW(200V3P)(3m)

Alphabetical, input voltage and cable length order

*Digital control option is available with combination of CO series.



USA/Canada : +1-888-652-8651

other countries : +81-6-6150-5089

Customer Inquiry Sheet (AU 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:
E-mail:	

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.). 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.



Matsusada Precision Inc.

For products www.matsusada.com/product For contact www.matsusada.com/contact

San Jose Office : 2570 N.First Street Suite 200 San Jose, CA 95131
Tel: +1-408-273-4573 Fax: +1-408-273-4673
New York Office : 80 Orville Drive Suite 100 Bohemia, NY 11716
Tel: +1-631-244-1407 Fax: +1-631-244-1496

Dallas Office : 5430 LBJ Freeway, Suite 1200 Dallas, TX 75240
Tel: +1-972-663-9336 Fax: +1-972-663-9337

Boston Office : 859 Willard St. One Adams Place, Suite 418 Quincy, MA 02169
Tel: +1-781-353-6407 Fax: +1-781-353-6476

International Office : Osaka-City, Osaka Japan
Tel: +81-6-6150-5088 Fax: +81-6-6150-5089
Headquarters : 745 Aoji-cho Kusatsu Shiga 525-0041 Japan
Tel: +81-77-561-2111 Fax: +81-77-561-2112