

NEW

Low profile/High power Rack-mount High Voltage power supply

WIDE RANGE OF LINEUP

FULL OF REMOTE FUNCTIONS

ULTRA LOW PROFILE/SPACE SAVING

AU series

- ▶ 1kV to 120kV
- ▶ 0.25mA to 2200mA
- ▶ 30W to 2200W



Up to 300 W models



4TECT

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MADE IN
JAPAN



AU series

Best & Long Seller of Rack-mount
High Voltage power supply !

Maximum 2200W output power
in ultra low profile design

1kV to 60kV/30W to 300W models



80kV to 120kV/30W to 300W models

1kV to 120kV/600W,1200W models



2200 W models



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 compact developed through our unique switching and voltage isolation technology.

With a wide lineup of over 300 models and a diverse options, we provide you with most suitable models from the output range of 1 kV to 120 kV/30 W to 2.2 kW.

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.

The 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 available.

FEATURES

WIDE RANGE OF LINEUP

The best output range and function from abundance of lineup of 1 kV to 120 kV/30 W to 2.2 kW, 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. 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, The PC control is available by adding a digital controller for LAN, USB, RS-232C, RS-485, and GPIB.

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 1 kV to 60 kV/30 W to 300 W 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

LINEUP

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

Output Voltage	Output Current [mA]	Output Power [W]	MODEL
20 kV	1.5	30	★ AU-20*1.5
	3	60	★ AU-20*3
	5	100	★ AU-20*5
	7.5	150	★ AU-20*7.5
	15	300	★ AU-20*15
	30	600	AU-20*30
	60	1200	AU-20*60
	110	2200	AU-20*110
30 kV	1	30	★ AU-30*1
	2	60	★ AU-30*2
	3.3	100	★ AU-30*3.3
	5	150	★ AU-30*5
	10	300	★ AU-30*10
	20	600	AU-30*20
40	1200	AU-30*40	
73.3	2200	AU-30*73.3	
40 kV	0.75	30	★ AU-40*0.75
	1.5	60	★ AU-40*1.5
	2.5	100	★ AU-40*2.5
	3.75	150	★ AU-40*3.75
	7.5	300	★ AU-40*7.5
	15	600	AU-40*15
30	1200	AU-40*30	
55	2200	AU-40*55	
50 kV	0.6	30	★ AU-50*0.6
	1.2	60	★ AU-50*1.2
	2	100	★ AU-50*2
	3	150	★ AU-50*3
	6	300	★ AU-50*6
	12	600	AU-50*12
24	1200	AU-50*24	
44	2200	AU-50*44	
60 kV	0.5	30	★ AU-60*0.5
	1	60	★ AU-60*1
	1.6	100	★ AU-60*1.6
	2.5	150	★ AU-60*2.5
	5	300	★ AU-60*5
	10	600	AU-60*10
20	1200	AU-60*20	
36.6	2200	AU-60*36.6	
80 kV	0.37	30	★ AU-80*0.37
	0.75	60	★ AU-80*0.75
	1.25	100	★ AU-80*1.25
	1.87	150	★ AU-80*1.87
	3.75	300	★ AU-80*3.75
	7.5	600	AU-80*7.5
15	1200	AU-80*15	
27.5	2200	AU-80*27.5	
100 kV	0.3	30	★ AU-100*0.3
	0.6	60	★ AU-100*0.6
	1	100	★ AU-100*1
	1.5	150	★ AU-100*1.5
	3	300	★ AU-100*3
	6	600	AU-100*6
12	1200	AU-100*12	
22	2200	AU-100*22	
120 kV	0.25	30	★ AU-120*0.25
	0.5	60	★ AU-120*0.5
	0.83	100	★ AU-120*0.83
	1.25	150	★ AU-120*1.25
	2.5	300	★ AU-120*2.5
	5	600	AU-120*5
10	1200	AU-120*10	
18.3	2200	AU-120*18.3	

* P: Positive polarity output N: Negative polarity output R: Reversible polarity output

<Example> AU-1R30: 0 V to ±1 kV/30 mA

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

Polarity switching of units from 1kV to 6 kV is performed by swapping the internal connectors. As of units from 10 kV to 120 kV, it is done by swapping the internal high voltage module.

★: CE marking models.

They correspond to Low Voltage Directive and EMC Directive.

As for CE marking, the models which have not yet acquired CE marking at present are going to acquire them in the near future.

If you need the latest information about the status of the acquisition, please contact the nearest sales office.

SPECIFICATIONS

The specifications, unless otherwise indicated, are at the maximum rated output after warm-up, and the ranges are based on 10% to 100% of the maximum rated output.
 We take special requirements for each specification such as ripple or temperature coef. Contact to local sales office for details.

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

AC input power (MAX) *option

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

Rush current

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

AC input voltage	Single phase	Three-phase
Output power	200 V to 240 V	200 V to 240 V
2200 W	50 A (≤ 10 ms)	50 A (≤ 10 ms)

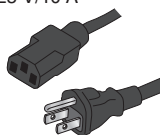
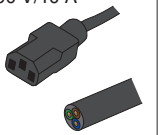
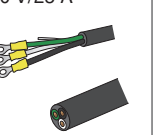
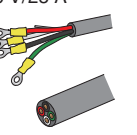
Output voltage control	Local: 10-turn potentiometer on front panel Remote: External control voltage 0 Vdc to 10 Vdc (input impedance more than 1 M Ω) or by external 5 k Ω potentiometer
Voltage regulation	Line: ± 50 ppm for $\pm 10\%$ input line change Load: 50 ppm for 10% to 100% load change/50 ppm +400 mV for 10% to 100% load change (2200 W models)
Ripple	less than 0.1%p-p 0.3%p-p +1 Vrms (2200 W models) 0.1%p-p +1 Vrms (2200 W models with -L(200V3P) option)
Stability	0.01%/Hr
Temperature coef.	0.01%/ $^{\circ}$ C
Output display	Output voltage: 3.5-digit digital meter Output current: 3.5-digit digital meter
Monitor output	Voltage monitor: 10 V/maximum output voltage (output impedance 1 k Ω) Current monitor: 10 V/maximum output current (output impedance 1 k Ω)
Protections	Overvoltage protection (Cut-off when 110% of rating, manual recovery) Overcurrent protection (high-voltage cut-off, manual recovery or recovery by remote set) Protection against output short-circuit and arc discharge Overtemperature protection (output cut-off, manual recovery)
Other functions	Remote switch ON/OFF (by external relay) *1 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 (Overcurrent cut-off protection mode shall be reset by remote signal.)
Temperature	Operating temperature: 0 to +50 $^{\circ}$ C Storage temperature: -20 $^{\circ}$ C to +70 $^{\circ}$ C Relative humidity: 20% to 80%, non condensing
Accessories	AC line input cable 2.5 meters \times 1 Shielded HV output cable 2.5 meters (flying lead) \times 1*2 Instruction manual \times 1

*1 If you will frequently turn ON/OFF of output by a remote switch, please contact us before purchasing.

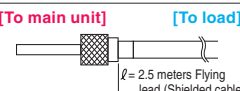
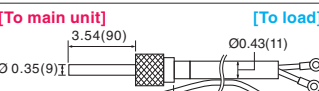
*2 If you need a longer cable, please choose -L(3m), -L(5m), or -L(7m) option (See P. 9). Or, please ask us for production.

INPUT/OUTPUT CABLE

Input cable

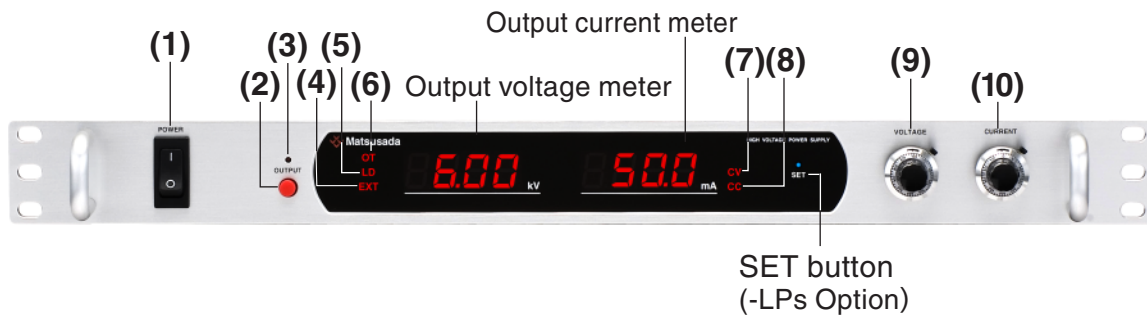
Standard	Standard -L(220V) option	Standard	Sold separately -L(200V3P) option
30W to 300W models		600W, 1200W, 2200W models	
CABLE TYPE 1	CABLE TYPE 3	CABLE TYPE 5	CABLE TYPE 6
125 V/10 A	250 V/10 A	250 V/25 A	250 V/25 A
			

Output cable [inch(mm)]

Standard	Standard
CN-□-MHVP	CN-15PR -MHVP
30W to 1200W/ 2200W (≥ 2 kV) models	2200 W (1 kV, 1.5 kV) models
[To main unit]  [To load]	[To main unit]  [To load]
Depending on output voltage, length will be varied. Please contact nearby sales office for details.	$\ell = 2.5$ meters Crimp terminal: M6 (shielded cable)

FUNCTIONS

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



- (1) **POWER ON/OFF switch:** This has priority over all operations for safety.
- (2) **OUTPUT ON/OFF button:** 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 button 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).
- (9) **Output Voltage adjustable potentiometer (10-turn,lockable)**
- (10) **Output Current adjustable potentiometer (10-turn,lockable)**

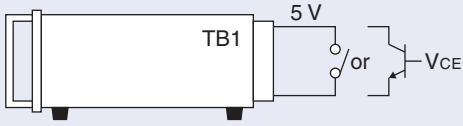


- (11) **Output connector** (Matsusada' s property)
- (12) **GND Terminal (M6)**
- (13) **S2 switch**
- (14) **AC input connector** up to 300 W models: Inlet
600 W to 2.2 kW models: Terminal (M4)

REMOTE CONTROL CONNECTOR (TB1)

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

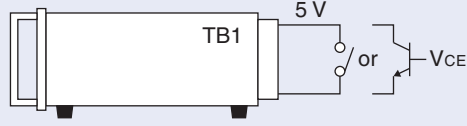
REMOTE/LOCAL change



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

Sink Current $\geq 10 \text{ mA}$

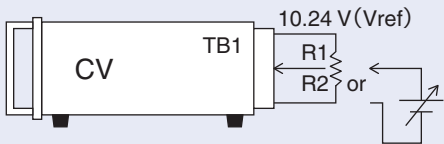
REMOTE/LOCAL change



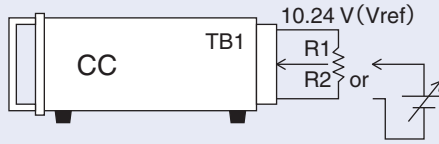
Mode	Output relay	Open collector
REMOTE	SHORT	$V_{CE} \leq 0.4 \text{ V}$
LOCAL	OPEN	$V_{CE} \geq 2 \text{ V}$

Sink Current $\geq 10 \text{ mA}$

OUTPUT CONTROL Remote analog programming



Output Voltage	LRv	Vcon
0 to MAX	R2: 0 to 5 k Ω	0 to 10 V Input impedance $\geq 1 \text{ M}\Omega$

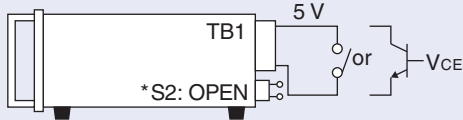


Output Current	LRc	Icon
0 to MAX	R2: 0 to 5 k Ω	0 to 10 V Input impedance $\geq 1 \text{ M}\Omega$

* 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.

DOOR SWITCH/INTER LOCK

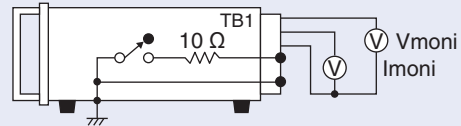


It is possible to output in external relay short or a status of V_{CE} less than 0.4 V. Output will be cut off when open or 2 V or more. To resume the output again, turn OUTPUT button ON after resetting by turning OUTPUT button OFF in a status of short or less than 0.4 V.

Sink Current $\geq 10 \text{ mA}$

* Door switch becomes effective when S2 terminal is open.

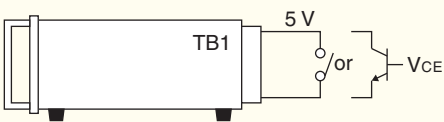
OUTPUT MONITOR AND STATUS



Monitor output is 0 to 10 V for 0 to Max
Output impedance 1 k Ω

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 30 V, permissible current 100 mA max.

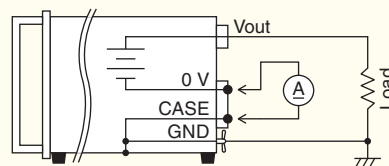
REMOTE RESET



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

Sink Current $\geq 10 \text{ mA}$

-LF option: FLOATING GROUND TERMINAL (M3)

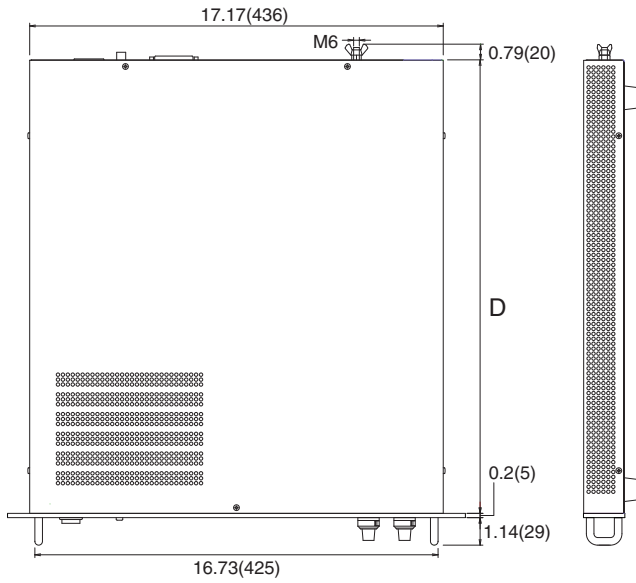


Case GND "CASE" and power supply GND "0 V" can be isolated up to 50 V.
Minimal current in load can be measured by measuring the current between these 2 points to avoid the effect of ground noise.

* Not for floating applications

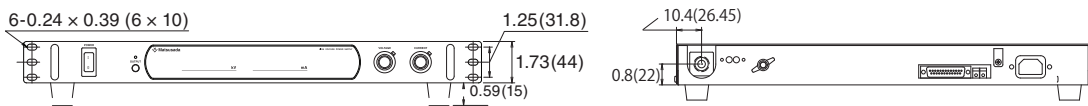
* All equipments that connect to Remote Control Connector (TB1) must be on floating ground in case this feature is intended to use.

DIMENSIONS [inch (mm)]

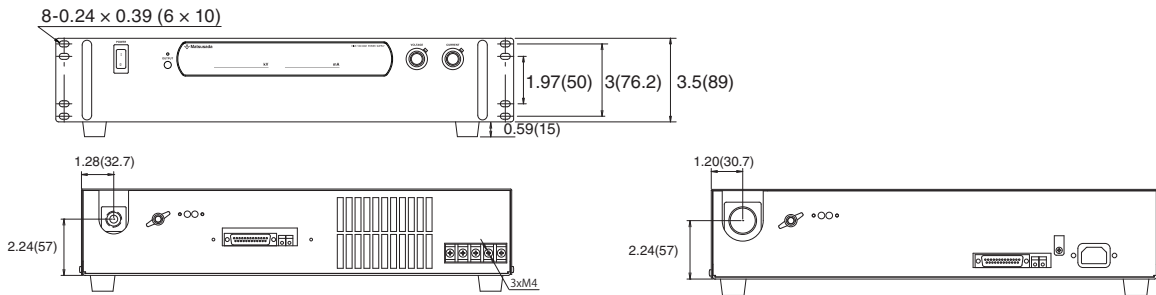


MODEL	D
1 kV to 60 kV	18.82(478)
80 kV to 120 kV	23.86(606)

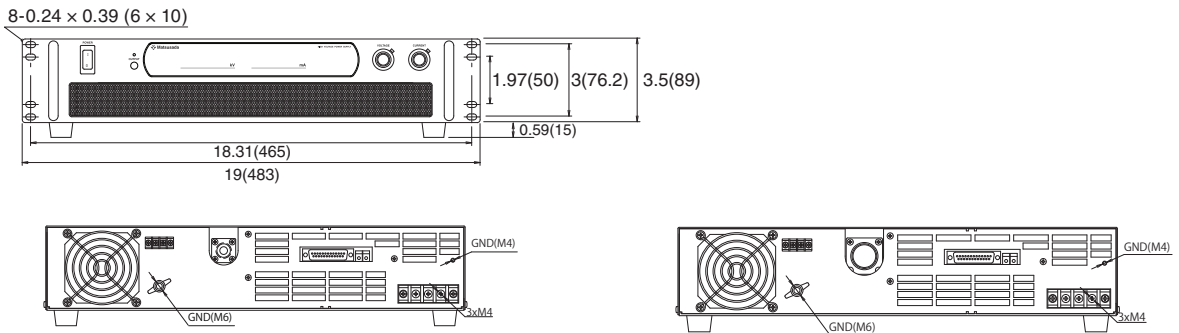
[1 kV to 60 kV/30W to 300 W models]



[80 kV to 120 kV/30 W to 300 W models] [1 kV to 120 kV/600 W , 1200 W models]



[2200 W models]



OPTIONS

- LC** **Constant voltage and constant current** *1
Current regulation 0.05% (-LC option eliminates Overload Trip function)

- LF** **Floating ground** (withstanding voltage of 50 Vdc)*2
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 (600 W, 1.2 kW and 2.2 kW models only)** *1 *2 *3
Maximum of 4 slave units can be controlled with one master unit.

- LPs** **Setting value display**
The set voltage value and the set current value are displayed on the meter, while you pressing the SET button on the front panel.
(This button is attached only when -LPs option is chosen.)

- LStc** **Constant current status signal**
Constant Current mode or when OCP (Overcurrent Protection) activated, the open collector will turn on. ($V_{CE} > 2\text{ V}$)

- LStv** **Constant voltage status signal**
When operation mode is Constant Voltage mode, the open collector will turn on. ($V_{CE} > 2\text{ V}$)

- LW** **Slow start** *2
Takes around 10 seconds from turning on OUTPUT switch, remote switch, and remote reset to reach maximum rated voltage
(about 5 seconds at half the maximum rated voltage as output voltage).

- L(U)** Input voltage switch over 100 Vac to 120 Vac/200 Vac to 240 Vac single phase input. Internal switch over. (30 W to 300 W models only)

- L(115V)** 100 Vac to 120 Vac single phase input. (600 W models only)
- L(220V)** 200 Vac to 240 Vac single phase input. (30 W to 300 W models only)
- L(200V3P)** **three-phase input** (2200 W models only)

- L(3m)** The length of HV output shielded cable is changed to 3 meters.
- L(5m)** The length of HV output shielded cable is changed to 5 meters. (only for $\leq 40\text{ kV}$ models)
- L(7m)** The length of HV output shielded cable is changed to 7 meters. (only for $\leq 15\text{ kV}$ models)

*1 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.

*2 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.

*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.

How to order When ordering, add Option No. in the following order by alphabet, input voltage, and output cable length to Model No.
<Example> AU-15P80-LCFMsPsStcStvW(7m), AU-30N10-LCFStcStvW(U)(5m), AU-100R22-LCFMsStcStvW(200V3P)(3m)

Accessory (Sold separately)

Optical Communication

Optical isolation adapters, utilize fiber optic cables for the digital communication, which enables extremely reliable communication even in noisy environments such as in factories and for long-distance control. By using optical fibers, they are electrically isolated, so safe operation is possible even in power supply configurations with potential differences.

Application Control of high voltage power supplies via LAN, USB, RS-232C, RS-485, or GPIB.

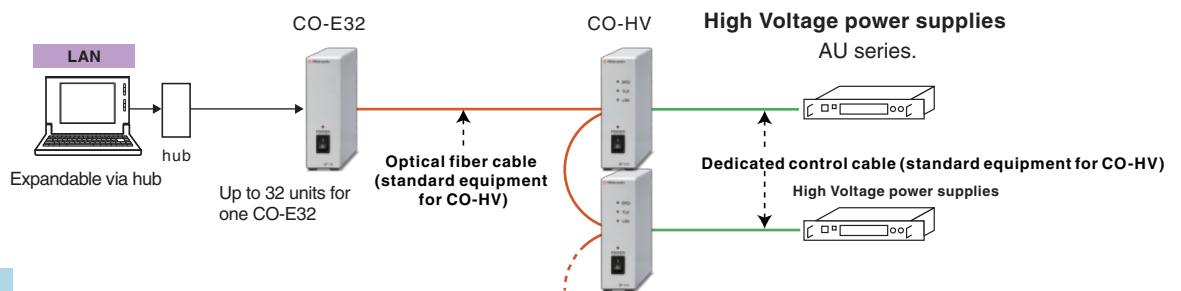
Connection Using fiber optical cables, the adapter for each interface is connected to CO-HV units. And with the dedicated control cable, the CO-HV units are connected to high voltage power supply AU series.

Number of unit Up to 32 pairs with CO-HV unit and high voltage power supply are available. With GPIB, by setting the address, you can connect a maximum of 448 high voltage power supply units (14 addresses x 32 units).

Features The communication system is well suited for such situations where there is a distance between the computer and the high voltage power supply or noisy environments. Also, it is especially ideal for use in combination with DC power supplies. The standard cable length is 2 meters, and it can be optionally extended up to 40 meters.

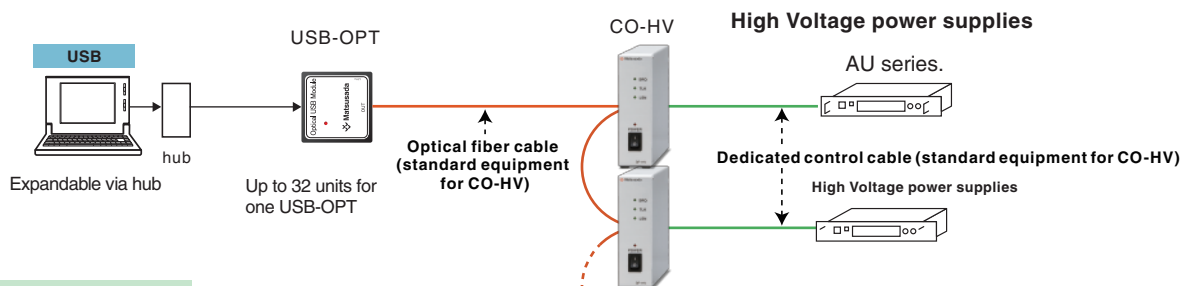
LAN

Order both **CO-E32** and **CO-HV (with CO-AR cables)** together.



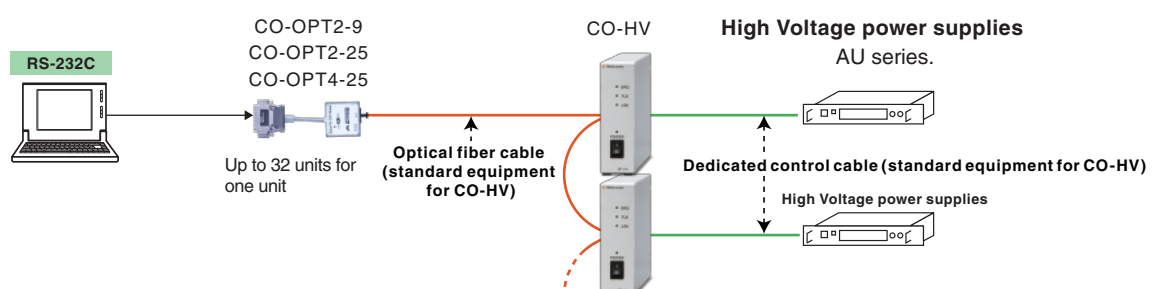
USB

Order both **USB-OPT** and **CO-HV (with CO-AR cables)** together.



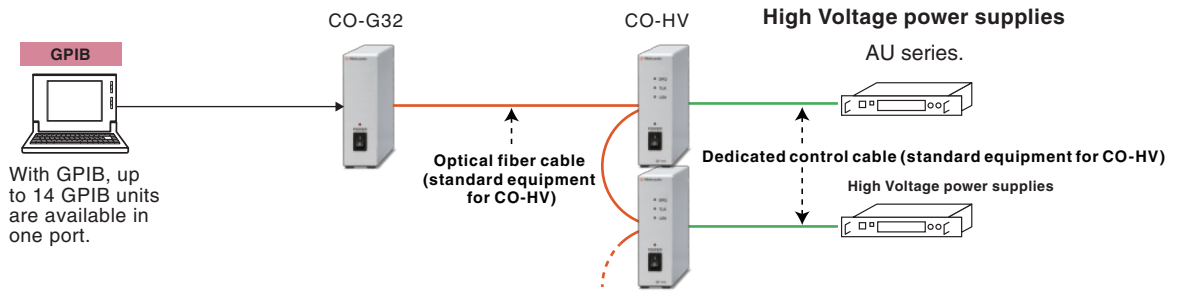
RS-232C and RS-485

Order **CO-OPT2-9**, **CO-OPT2-25**, or **CO-OPT4-25** along with **CO-HV (with CO-AR cables)** together.



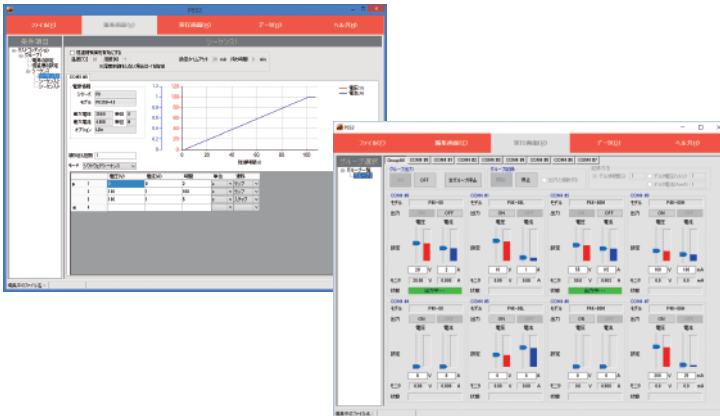
GPIB

Order both **CO-G32** and **CO-HV (with CO-AR cables)** together.

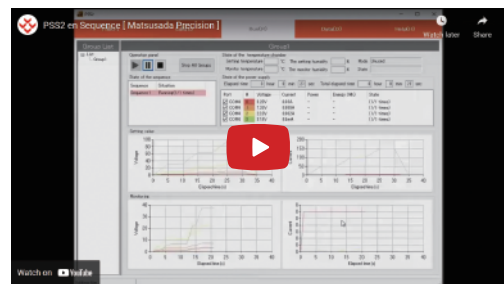


The Automated test software for power supplies and electronic loads (PSS2en)

PSS2en is the dedicated software which can actuate various power supplies, electronic loads and digital controller for power supplies manufactured by Matsusada Precision Inc. with simple set up. It is the perfect for the aging test, the burn-in test and the withstand voltage test for electronic parts, and for the endurance test, intermittent/continuous operation test or various simulation test for electric component of automobile.



You can watch the program operation video.



<https://www.matsusada.com/product/dcont/controller/pss2/>
Matsusada PSS2

For details, contact our sales representatives.

High Strength Space-Saving Rack RAC series

One rack holds a lot of power supplies! Large storage and compact installation space in a single unit contributing to efficient operation. And all the standard models have casters for easy maneuvering.

RAC series is a slim design rack that can store EIA-compliant 19" or 23" rack-mount power supplies and electronic loads in one place. In addition to high strength feature, it has a well compact design for easily installing several units within a rack in the minimum height and depth, which is the perfect solution for space utilization.



Who We Are

Matsusada Precision Inc. has manufactured High voltage power supplies for more than 50 years in Japan. Recognized by Japanese customers who demand high-quality levels, we have become a high voltage power supply manufacturer which has the highest market share in Japan. Currently, we are developing products not only for high-voltage power supplies, but also for DC power supplies, AC power supplies, electronic loads, high-voltage amplifiers, bipolar power supplies, and X-ray inspection equipment.

We have contributed to customers in various industries such as Semiconductor Production Equipment, Photomultiplier, IGBT, Electrostatic Chuck, Electron Beam, Electrospinning, Plasma, Motor for Electric vehicles, etc.

In addition, we have a direct sales system to respond promptly to customers. Our technical support team with many years of experience will respond promptly from Japan.

Our mission is to deliver products that meet Japan's strict quality standards to customers all over the world. We believe that if you contact us, you will surely find the power supply you need

Matsusada Precision



 **Matsusada Precision Inc.**

4TECT

ООО «4TECT»

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