

NEW

Most suitable for precise current load by
setting output current in minimum span 10 μ A.

Ultra-low Noise Programmable DC Power Supply

R4GT series

Output Voltage	Output Current	Output Power
6V to 36V	0.01A to 0.3A	0.1W to 7.2W



Control via
CC-Link is
available.
(option)

- Pulse & Ramp sequence operation
- Stopping automatically is available if the value of output current reaches the preset accumulated value.
- It is possible to preset the output current value from 0.01mA to 0.1mA.

R4GT series

High Resolution
Programmable
DC Power Supply



Precise Setting of Current and Output with High Resolution D/A and A/D Convertor.

R4GT series is a DC power supply for precision plating so that setting minute current and output are enabled as based on ultra-low noise DC power supplies R4G series which have gotten favorable reception.

These are applicable to tests for luminous elements, LED, organic electroluminescence (OEL), etc. which handle minute current.

Superior usability is realized with equipped FINE function which can set quickly voltage and current.

Moreover, as these correspond to digital communication, applicable widely from experiments to automation line.

Voltage and Current Display with four digits Indicator

Both voltage and current are indicated with four digits. It provides high accuracy output control than ever before by the unit of 1 mV/10 mV and 0.01/0.1 mA (differing in models). Minute setting and output are enabled without multimeters.

Ultra-low Ripple and High Speed Response

High speed response with ultra-low ripple and noise as linear regulator system is applied. These are best for usage which the fundamental performance is important.

Various Functions equipped as Standard

As analog remote control and various status signal output are equipped as standard, it is easy to build in them on automation line.

Applicable to Digital Interface (option)

They are applicable to various digital interfaces. These are able to fit in with your various automatic measuring and production facilities.

Superior Usability

These realize simple operation to be able to make various setting speedy and exactly.

Lineup

- Please avoid utilizing them under corrosive gas or plentiful moisture environment.
- All the models in the below table is positive common power supply. Please contact our sales office for the negative one power supply.

Output Voltage	Output Current	Output Power	Model	Output Min. Setting Unit *		Power Consump.	Weight
				Voltage	Current		
0 to 6 V	0 to 0.3 A	1.8 W	R4GT6-0.3	1 mV	0.1 mA	Approx. 22 VA	Approx. 3 kg
0 to 10 V	0 to 0.01 A	0.1 W	R4GT10-0.01	10 mV	0.01 mA	Approx. 20 VA	
0 to 18 V	0 to 0.1 A	1.8 W	R4GT18-0.1		0.1 mA	Approx. 22 VA	
	0 to 0.2 A	3.6 W	R4GT18-0.2		0.1 mA	Approx. 27 VA	
0 to 36 V	0 to 0.1 A	3.6 W	R4GT36-0.1		0.1 mA	Approx. 30 VA	
	0 to 0.2 A	7.2 W	R4GT36-0.2		0.1 mA	Approx. 35 VA	

* Values are ones at local control. It is possible to set more fine values at remote control by digital communication. Refer to page 4 "Digital Control Function".

Specifications

The specifications, unless otherwise indicated, are at the maximum rated output after two hours of warm-up, and the ranges are based on 10% to 100% of the maximum rated output.

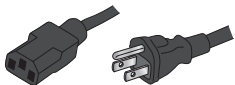
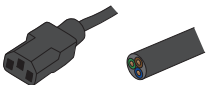
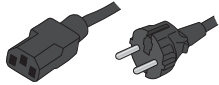
Input voltage	120 Vac ±10%, 50 Hz/60 Hz, single phase						
Output control	[Local] Constant Voltage: Rotary Encoder on the Front Panel, Constant Current: Rotary Encoder on the Front Panel [Remote] Constant Voltage: External Control Voltage 0 to 10 Vdc, Constant Current: External Control Voltage 0 to 10 Vdc						
Stability	0.05%/8 H of maximum output voltage						
Temp.coefficient	0.01%/°C of maximum output voltage typ. 0.02%/°C of maximum output current						
Operating characteristics	Model	Constant-Voltage Characteristics			Constant-Current characteristics		
		Ripple [mVrms]	Input Variation [mV] *1	Load Variation [mV] *2	Ripple [mArms]	Input Variation [mA] *1	Load Variation [mA] *2
	R4GT6-0.3	0.5	1	2	1	1	5
	R4GT10-0.01	0.5	1	2	0.5	1	2
	R4GT18-0.1	0.5	1	2	0.5	1	3
	R4GT18-0.2	0.5	1	2	0.5	1	5
	R4GT36-0.1	0.5	2	2	0.5	1	3
	R4GT36-0.2	0.5	2	2	0.5	1	5
Output display	Output Voltage: 4-digit digital indicator/Accuracy: ±(0.3%rdg +2-digit) Output Current: 4-digit digital indicator/Accuracy: ±(0.5%rdg +4-digit)						
Monitor output	Output Voltage Monitor: 10 V/max. output voltage Output Current Monitor: 10 V/max. output current						
Protection	- Over Voltage Protection (OVP): Cut off the output at the set point - Over Current Protection (OCP): Cut off the output at the set point 						

*1: For AC change $\pm 10\%$

*2: For load change from 10% to 100%

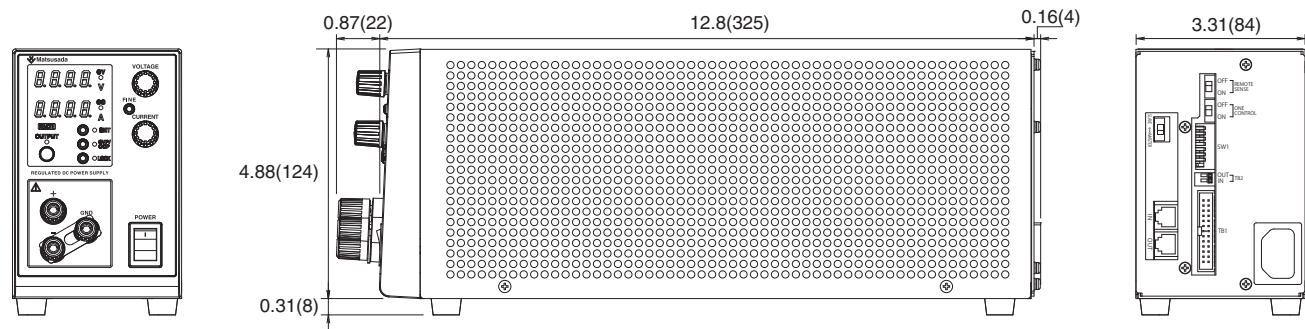
*3: When installed on a rack, 100 mm and larger space should be made up and down, but if it is not able, make forced cooling.
As we have a rack mounting adapter equipped forced cooling fan, please inquire our sales staff about it.

AC Input Cable

Standard	Standard For -L(200V), -L(220V), -L(240V) option	Sold separately
CABLE TYPE 1	CABLE TYPE 3	CABLE TYPE 4
125 V/10 A	250 V/10 A	250 V/10 A
		

Dimensions [inch (mm)]

Digital interface on the rear panel is equipped only when optional -LGob, -LGmb, -LMi, -LCK, or -LUs1 is selected.



Digital Control Function (at selected various optional digital interface)

Control Function	Output ON/OFF setting Display of various Status (Output/Operation/OVP/OCP/Interlock) Digital Control Max. 16 units (-LGob option models: 32 units) Package Control Multiple Units Hooked	
Write Function	Setting Output Voltage Setting Output Current	Percent Mode *1, Voltage or Current Value Mode *2
	Setting OVP Setting OCP	Percent Mode *1, Voltage or Current Value Mode *2
Read Function	Measured Output Voltage Measured Output Current	Percent Mode *1, Voltage or Current Value Mode *2
	Setting Output Voltage Setting Output Current	Percent Mode *1, Voltage or Current Value Mode *2
	Setting OVP Setting OCP	Percent Mode *1, Voltage or Current Value Mode *2

*1: Minimum setting unit for each model is one ten-thousandth (100.00%).
*2: Minimum setting unit for each model is one count of the indicator.

Standard Functions

Remote Control

Output Control

Vout/Iout	Control Voltage
0 to MAX	0 to about 10 Vdc Input Imp. 500 kΩ

Output Monitor

Output	0 to about 10 Vdc Output Imp. 1 kΩ	0 to about 10 Vdc Output Imp. 1 kΩ
0 to MAX		

Output of Status

COMMON is floating with the output of Open Collector foreach COMMON.
Voltage Resistance 30 Vdc, Sink Current ≤ 5 mA

PowerON	ON at Power ON status
OUTPUT	ON at OUTPUT status
FLT	ON at abnormal status: ON for the status of OVP, OCP and Interlock (LD)
CV	ON at CV or CC status

* Use control voltage as floating but not grounding. Potential on COMMON is the same one of + output terminal. If COMMON in customer's equipment is grounded, not only power supply can not be controlled, but also damage of equipment may be caused. And if multi-channel and non-isolated Programmable Logic Controller (PLC) is utilized, please take care that ground of other equipment is connected through the PLC in a certain case.

Remote Switch ON/OFF Parallel Operation by One Control Remote Sensing

Remote Switch ON/OFF

Output	Relay	Open Collector
ON	Short	$V_{CE} \leq 0.4 \text{ V}$
OFF	Open	$V_{CE} \geq 2 \text{ V}$

- Sink current 1 mA
- Logic of OUTPUT can be made reverse.

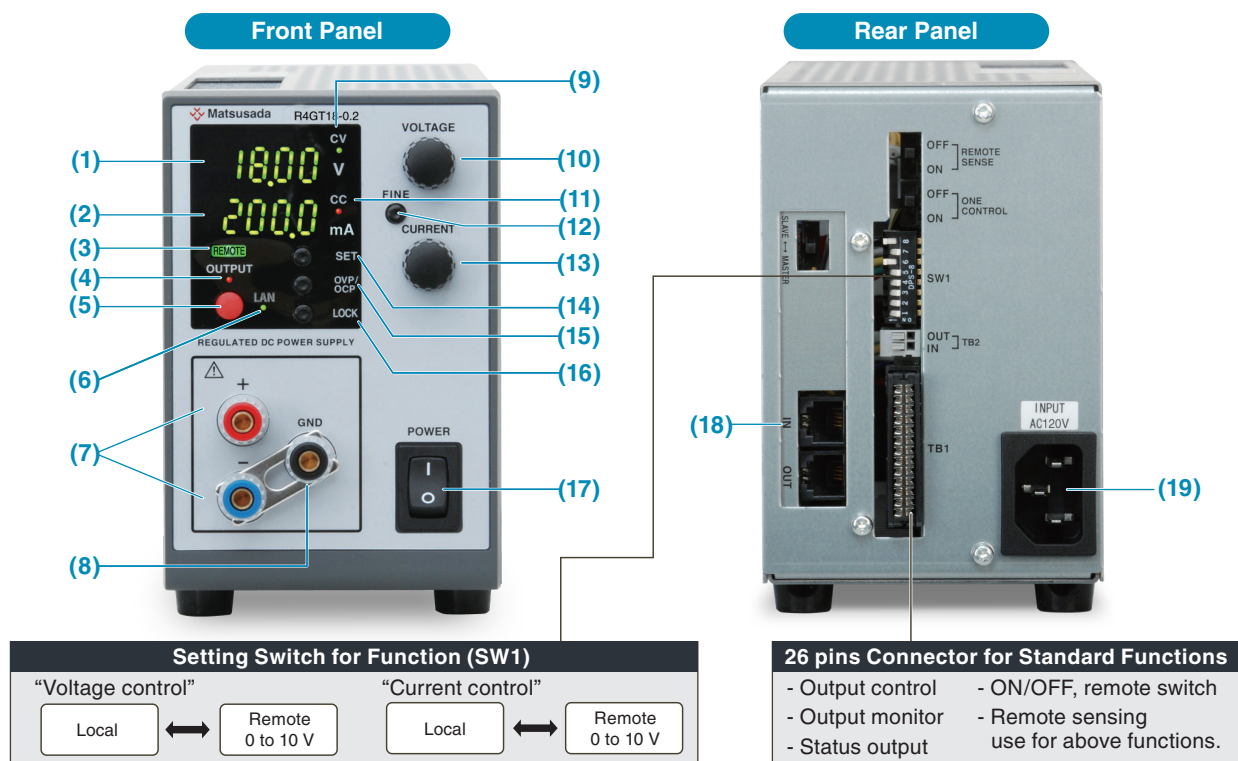
Parallel Operation by One Control

One master unit can control several slave units that are parallel connected. It is possible to increase output current by connecting two units of the same model power supply in parallel.

Remote Sensing

Prevent to degrade stability due to voltage drop ($V_o - V_L$) by resistance (R) in output wiring or contact resistance. (up to max. 0.5 V)

Explanation for Functions



- (1) Indicate output voltage and OVP setting
- (2) Indicate output current and OCP setting
- (3) Display remote programming On: remote control of voltage or current.
- (4) Display OUTPUT On: output ON.
- (5) ON/OFF switch for output
Using for output ON/OFF at local and reset of protection functions.
- (6) Display LAN Only for -LMi optional model
- (7) Output Terminal
- (8) GND Terminal
- (9) Display Constant Voltage (CV) operation mode

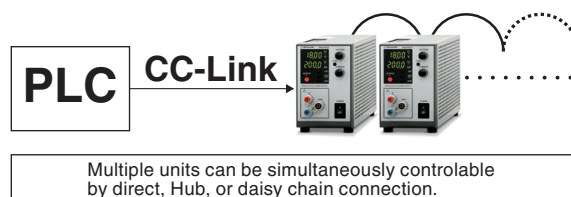
- (10) Knob to set output voltage(double as to set OVP)
- (11) Display Constant Current (CC) operation mode
- (12) FINE Switch Changing setting digits at setting output voltage/current
- (13) Knob to set output current (double as to set OCP)
- (14) Preset Switch for output
- (15) Setting Switch for OVP/OCP
- (16) Setting Switch for Key Lock
- (17) ON/OFF Switch for Power Prioritizing this over all actions for safety.
- (18) Interface Board Pictures above are as of -LGmb option.
- (19) Input Terminal

Options

-LCK: CC-Link Interface Board

NEW *1

CC-Link master unit such as PLC can control power supplies with CC-Link compatible with CC-Link ver1.10, possible to operate as CC-Link device station. One unit occupies two stations, maximum 32 units can be controllable. Please refer to CC-Link association web for CC-Link detail.

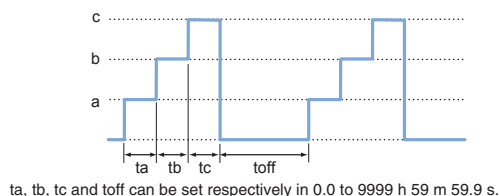


-LDe: Pulse/Ramp Sequence

Following output controls of **A** to **E** are applicable.

A. Pulse Sequence

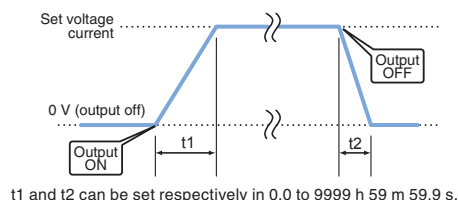
Sequential operation is possible by using voltage and current set on each memory a, b and c in combination with multi-set function. Not only continuous operation, but also it is possible to specify the times. It is best fit to evaluation tests for products as various operations, like as repeat of a and b only or repeat of b, c and off only, are enabled by setting time of memory a, b, c or off to 0.0.



B. Ramp operation

It enables to make ramp action up to set voltage or current (or from the set voltage or current to 0 V or 0 A). It is useful to like to rise (reduce) voltage or current slowly.

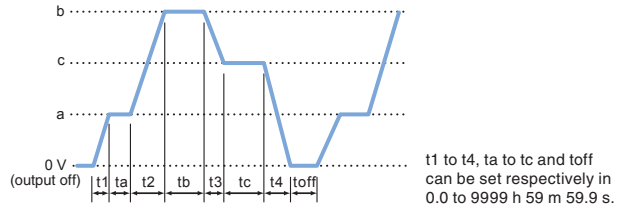
* As for the lamp operation, you can select “Both setting voltage and current”, “Voltage setting only”, or “Current setting only”.



Options

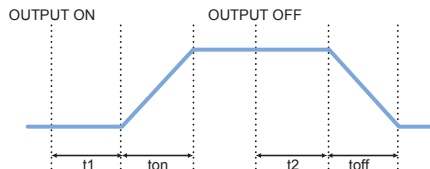
C. Pulse Sequence + Ramp

It is also possible to use pulse sequence combined with ramp action. If multi-set function is combined with the too, it is able to make sequence action by using voltage or current set on memory a, b and c. Not only continuous operation, but also it is possible to specify the times. It is useful in various aspects as it is possible to rise (reduce) voltage or current slowly up to 20 set value.



D. Delayed Trigger Ramp

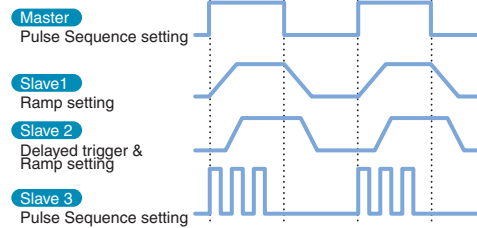
This is one of the combinations with Delayed Trigger Function and Ramp Function, after OUTPUT is made ON, ramp output is started in time delayed.



* t1 and t2 can be set respectively in 0.0 to 99.9 s.
* ton can be set in 0.1 s to 9999 h 59 m 59.9 s and toff can be set in 0.0 to 9999 h 59 m 59.9 s

E. Master Follow

Pulse sequence actions at master-slave and output signal to slave units at ramp action are transmitted. with this function, it is possible to make slave units to output on different output condition from the master unit. (Only for -LGmb models)



-LGmb: Digital Interface Board *1 *2

Enable digit control via LAN/USB/RS-232C/RS-485/GPIB as well as one control with Master/Slave.

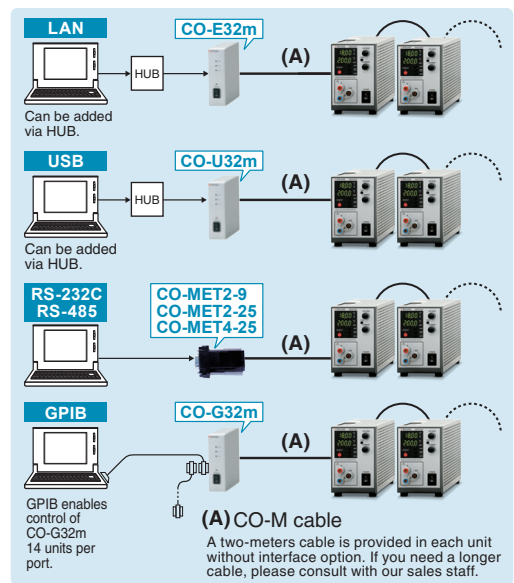
- LGmb: Digital Interface board + CO-M cable 2 meters
- LGmb(Mc0.15): Digital Interface board + CO-M cable 0.15 meters
- LGmb(Mc0.5): Digital Interface board + CO-M cable 0.5 meters

Adapters (separately sold)

An adapter is required separately, when using the Adapter. The following adapters are available according to the connection method between PC and sequencer.

- **CO-E32m**: Adapter for LAN
Total 16 units can be connected to one CO-E32m. LAN cable is not provided.
- **CO-U32m**: Adapter for USB
Total 16 units can be connected to one CO-U32m. USB cable is not provided.
- **CO-MET2-9**: Adapter for RS-232C (9 pin)
D-sub ⇄ Modular jack Total 16 units can be connected to each CO-MET2-9.
- **CO-MET2-25**: Adapter for RS-232C (25 pin)
D-sub ⇄ Modular jack Total 16 units can be connected to each CO-MET2-25.
- **CO-MET4-25**: Adapter for RS-485 (25 pin)
D-sub ⇄ Modular jack Total 16 units can be connected to each CO-MET4-25.
- **CO-G32m**: Adapter for GPIB
Total 16 units can be connected to one CO-G32m. GPIB cable is not provided.

For details, refer to CO/USB series datasheet.



Master/slave



When noisy environment is presumed, the following -LGob option (optical interface) is required.

-LGob: Optical Interface Board *1 *2

With optical communication, isolation control is performed. As complete isolation is performed by means of optical fiber, this enables advance prevention of erroneous operation involved with transient phenomenon caused by surges, inductive lightning, external noise, etc.

- LGob: Optical interface board + optical cable 2 meters
- LGob(Fc5): Optical interface board + optical cable 5 meters
- LGob(Fc10): Optical interface board + optical cable 10 meters
- LGob(Fc20): Optical interface board + optical cable 20 meters
- LGob(Fc40): Optical interface board + optical cable 40 meters

Select the optional optical interface board (-LGob) when using this DC power supply under the following conditions.

- Noisy environment including factories (Example: Motors or coils are used near power supplies and loads).
- Using with high voltage floating (more than 250 V).
- Installation distance of 2 meters or more between the DC power supply and a controller such as a computer, laptop, or Programmable Logic Controller (PLC).

Adapters (separately sold)

To use the optical interface, you need to prepare an optical interface adapter separately. The following interface adapters are available according to the communication method of your controller port.

- CO-E32: Adapter for LAN

Total 32 units can be connected to one CO-E32. LAN cable is not provided.



- USB-OPT: Adapter for USB

Total 32 units can be connected to one USB-OPT. USB cable is not provided.



- CO-OPT2-9: Adapter for RS-232C (9 pin)

Total 32 units can be connected to each CO-OPT2-9.



- CO-OPT2-25: Adapter for RS-232C (25 pin)

Total 32 units can be connected to each CO-OPT2-25.



- CO-OPT4-25: Adapter for RS-485 (25 pin)

Total 32 units can be connected to each CO-OPT4-25.

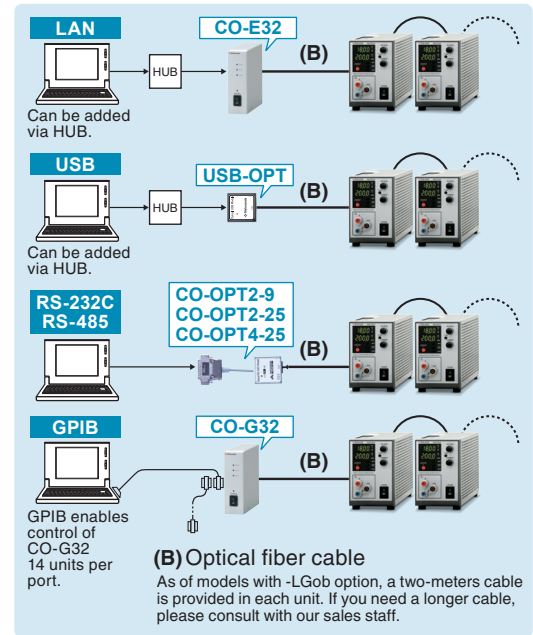


- CO-G32: Adapter for GPIB

Total 32 units can be connected to one CO-G32. GPIB cable is not provided.



For details, refer to CO/USB series datasheet.



-LH: Higher isolation voltage

This option make the isolation voltage to be ± 500 Vdc, which enable extended capability of series operation.

-Llc: Integrating Function of Output Current

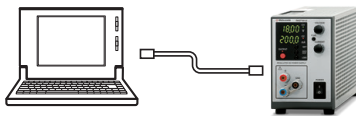
Output current is integrated and that is displayed. (Up to Max. 100 AH) Integrated value is kept during output is OFF. It is very useful to manage plating solution as maximum integrated current to stop the output can be preset.

-Lmi: Multi Digital Interface ^{*1}

Digital control is available with LAN, USB (USB/TMC), RS-485 (Multi-Drop). (These interfaces cannot be used simultaneously. RS-485 supports FULL DUPLEX communication only.) Also, the option employs IVI driver corresponding to SCPI command, enabling faster development of control program using programming languages including Labview, VisualBasic, and C#.

-LU1: USB Interface Board ^{*1 *2}

Digital Control is enabled via USB.



It is possible to hook one unit per one USB port equipped on a personal computer. If number of USB ports equipped on the PC to be used is in lacking, use a USB hub. But there is a case that the hub is not operated correctly.

-LZ: Handle for carrying ^{*1} It is available for all the models (getting higher by 8 mm).

-L(200V), -L(220V), -L(240V) It is applicable to other input voltage than 120 Vac.

Note: Accuracy of the timer during sequence operation $\pm 0.1\%$. Please take care of usage at long running operation.

^{*1}: Either one of these options is selectable.

^{*2}: For the detail function of optical interface, USB interface, RS-232C interface and digital interface, please refer to the catalogue of digital controller CO/USB series.

How to Order When ordering, add Option No. to Model No. Add AC input voltage at the end. **<Example> R4GT18-0.2-LDeGob(Fc10)(200 V)**

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.

Sales office

USA

North Carolina office

TEL(704)496-2644

FAX(704)496-2643

North Carolina office 9:00-17:00

Other country or region

International office in Japan

TEL+81-6-6150-5088

FAX+81-6-6150-5089

International office in Japan 9:00-17:00

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Contact Us

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