

High Resolution DC Power Supplies For Precision Plating

R4GT Series

VOLTAGE

POWER

0

1800 🕻

2000

EGULATED DC POWER SH



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

Ultra-low Noise Programmable DC Power Supplies

R4GT series

Output Voltage : 10 V to 36 V

- Output Current : 0.01 A to 2 A
- Output Power : 0.1 W to 36 W

Control via CC-Link and EtherCAT is available.

- The new function ; 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 exactly by 0.01 mA or 0.1 mA.

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R4GT series

High Resolution Programmable DC Power Supplies

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

R4GT series is DC power supplies 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 4 digits Indicator

Both voltage and current are indicated with 4 digits. Output control in finer unit than ever before, "0.01 mA to 10 mV", is possible. Minute setting and output are enabled without multimeters.

Ultra-low Ripple and High Speed Respondence

High speed respondence with ultra-low ripple and noise as linear regulator system is applied. These are best fit 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 type power supply. Please contact our sales office for the negative-type power supply.

Output Voltage	Output Current Ou	Output Power		Output Min. Setting Unit *1		Power Consump.	Weight
(V)	(A)	(W)	Model	Voltage	Current	(Approx.)(VA)	(Approx.)(kg)
0 to 10	0 to 0.01	0.1	R4GT10-0.01	10 mV	0.01 mA	20	3
	0 to 0.1	1.8	R4GT18-0.1	10 mV	0.1 mA	22	3
0 to 18	0 to 0.2	3.6	R4GT18-0.2	10 mV	0.1 mA	27	3
01010	0 to 2	36	R4GT18-2	10 mV	1 mA	90	3
	0 to 5	90	R4GTS18-5 *2	10 mV	1 mA	220	6.5
	0 to 0.1	3.6	R4GT36-0.1	10 mV	0.1 mA	30	3
0 to 36	0 to 0.2	7.2	R4GT36-0.2	10 mV	0.1 mA	35	3
	0 to 1	36	R4GT36-1	10 mV	1 mA	90	3

*1 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") *2 R4GTS18-5 is coming soon. The lead time of this model is different with other models, so please contact our sales office for the lead time detail.

Specifications

R4GTS18-5 is coming soon. The lead time of this model is different with other models, so please contact our sales office for the lead time detail.

Input Voltage Output Control Stability Temp.Coefficient	 115 Vac±10 %, 50 / 60 Hz, single phase Local : Constant Voltage Rotary Encoder on the Front Panel Constant Current Rotary Encoder on the Front Panel Remote : Constant Voltage External Control Voltage 0Vdc to 10Vdc Constant Current External Control Voltage 0Vdc to 10Vdc 0.05 % / 8 H of maximum output voltage 0.01 % / °C of maximum output voltage typ. 0.02 % / °C of maximum output voltage typ. 						
Operating		Constant-Voltage Characteristics Constant-Current characteristics					
Characteristics	Model	Ripple Input Variation Load Variat (mVrms) (mV) *1 (mV) *2			Ripple (mArms)	Input Variation (mA) ^{*1} (mA) ^{*2}	
	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
	R4GT18-2	0.5	1	2	1	2	10
	R4GT36-0.1	0.5	2	2	0.5	1	3
	R4GT36-0.2	0.5	2	2	0.5	1	5
	R4GT36-1	0.5	2	2	1	2	10
Output Display Monitor Output Protection	Output Current : 4-digit digital indicator Accuracy : ±(0.5 %rdg+3-digit) for 36 W model ±(0.5 %rdg+4-digit) for other models						
Functions	ON / OFF with Remote Switch (TTL or External Relay), Prevention of Miss Operation by Locked Key Last Set Memory, Remote Sensing Signal Output for Status (CV, CC, TROUBLE, OUTPUT, Power ON) Delayed Trigger Function : Individual setting for ON Delay / OFF Delay (0.0 to 99.9 sec) Multi Set Function : Memory "a" to "t" for voltage or current can be set separately with usual preset of voltage or current.						
Transient Response Time	Recovery Time 50 µs (for load change of 10 % to	0 100 %)					
Operation Temperature	0 °C to +40 °C *3						
Storage Temperature	-20 °C to +70 °C						
	0 % to 80 % RH(no conder						
Dielectric Strength Voltage	For 1minute at 1000 V betw	veen the input p	ower supply and	the output term	inal and betw	een the input pov	ver supply and the chassis
Grounding Withstand Volt.	±250 V-DC (Grounding plus and minas terminals are possible)						
Accessories	Instruction Manual : 1 A	C input cable, 3	cores for single	phase type : 1			
*1 : For AC change ±10 *2 : For load change fro							

*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

CABLE TYPE 1 (included as standard) 125 V / 10 A	CABLE TYPE 3 -L(200 V), -L(220 V), -L(240 V) attached as option 250 V / 10 A	CABLE TYPE 4 (to be sold separately) 250 V / 10 A

Dimensions inch (mm)

(Please contact our sales office for the dimensions' detail of R4GTS18-5.)

Digital interface on the rear panel is equipped only when optional -LGob, -LGmb, -LEt 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 / Door Switch) Digital Control Max. 16 units(-LGob option models : 32 units) Package Control Multiple Units Hooked			
	Setting Output Voltage Setting Output Current	Percent Mode ^{*1} , Voltage or Current Value Mode, ^{*2}		
Write Function	Setting OVP Setting OCP	Percent Mode ^{*1} , Voltage or Current Value Mode, ^{*2}		
	Measured Output Voltage Measured Output Current	Percent Mode ^{*1} , Voltage or Current Value Mode, ^{*2}		
Read 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}		

*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







Slave units hooked in parallel

It is possible to enhance output

current by hooking in parallel 2

can be controlled with one

same units and more.

master unit.

Output of Status



Remote Sensing

(up to max. 0.5 V)

OUTPUT

lo

+S

-s

Prevent to degrade stability due to

voltage drop (Vo-VL) by resistance (R)

in output wiring or contact resistance.

Vc

Vi

Load

COMMON is floating with the output of Open Collector for

each COMMON.

Voltage Resistance 30 Vdc, Sink Current ≦5 mA

* 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 sequencer is utilized, please take care that ground of other equipment is connected through the sequencer in a certain case.

out

in

out

in

R4GT

R4GT

R4G1

Load

Remote Switch ON / OFF



· Sink current 1 mA

· Logic of OUTPUT can be made reverse.



Explanation for Functions



- 1 Indicate output voltage and OVP setting
- Indicate output current and OCP setting
- Oisplay remote programming Lighten during remote control of voltage or current.
- Display OUTPUT
- Lighten during output ON.
- ON / OFF switch for output This use for output ON / OFF at local and reset of protection functions.
- 6 Output Terminal
- GND Terminal
- 8 Display Constant Voltage (CV) operation mode
- Shop to set output voltage(double as to set OVP)

- Display Constant Current (CC) operation mode
- FINE Switch Changeover setting digits at setting output voltage / current
- Knob to set output current (double as to set OCP)
- B Preset Switch for output
- ③ Setting Switch for OVP / OCP
- **(b)** Setting Switch for Key Lock
- ON / OFF Switch for Power This has priority over all actions for safety.
- Interface Board
 - Picture shows ones at optional -LGmb.
- Input Terminal

Options

-LCk : CC-Link Interface Board

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 2 stations, maximum 32 units can be controllable. Please refer to CC-Link association web for CC-Link detail.



-LGob : Optical Interface Board *1 *2

- -LGob : Optical Interface board + Optical cable 2 m
- -LGob(Fc5) : Optical Interface board + Optical cable 5 m
- -LGob(Fc10) : Optical Interface board + Optical cable 10 m
- -LGob(Fc20) : Optical Interface board + Optical cable 20 m
- -LGob(Fc40) : Optical Interface board + Optical cable 40 m

Insulation control is made with optical communication.

As perfect insulation is made by optical fiber it is able to forestall miss operation by transient phenomenon caused by surge, dielectric thunder or foreign noise, etc Various Adapters (sold separately)



When use them under following conditions, select -LGob always. • Noisy environment as in a factory. (Ex. Motors or coils are used near to the

- load or the power supply)
- · Used in high voltage floating. (250 V and higher)
- · Our power supply and controller (PC or PLC) can not be installed within 2m.

-LEc : EtherCAT Interface Board *1

NEW

EtherCAT master unit such as PLC can control power supplies with EhterCAT. EtherCAT can be directly connected, star connection via Hub, or daisy chain connection is also possible.

NEW



-LGmb : Digital Interface Board *1 '

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

In addition to digital control via LAN (Ethernet*), USB, RS-232C, RS-485 and GPIB are possible, one control in master-slave operation is enabled. *Ethernet is the registered band of Xerox CO., Ltd.



Please select -LGob, if use them under a noisy environment.

Up to 16 units ban be hooked on Master-slave function. (Same model units are hooked.)

-LEt : LAN (Ethernet) Interface Board *1 *2

Digital control is applicable via LAN (Ethernet)



-LIc : 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.

-LUs1: USB Interface Board ^{*1 *2}

Digital Control via USB is enabled.



It is possible to hook 1 unit per 1 USB port equipped on the 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.

-L(120 V), -L(200 V), -L(220 V), -L(240 V)

It is applicable to other input voltage than 115 V AC.

-LDe: Pulse / Ramp Sequence (This Option can be selected only on R4GT10-0.01, R4GT18-0.1, R4GT18-0.2, R4GT36-0.1, R4GT36-0.2.)

If control plural R4GT with

Ethernet, a hub is required

between the personal

computer and R4GT.

Following output controls of A \sim 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

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.

* For ramp action, it is possible to select [both of set voltage and current], [only set voltage] or [only set current].

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.







E. Master Follow

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



Note : Accuracy of the timer during sequence operation ±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 series.

Please suffix above optional codes on the tall of Model NO. How to Order

<Ex.> R4GT18-0.2-LDeGob(Fc10)(120 V) AC input voltage is to be the tail.

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

Customer Inquiry Sheet (R4GT 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 requi	rement / comment		

Please fill in below.

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

We warrant the specification, unless otherwise specified, at max. rated output after warm up, and scope of application is between 10% and 100% of max. rated output. 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 siture of the Products after the shipment thereof caused by external factors such as disasters. We will not inspect, adjust or repair any of our power supply products in the field or at any customer site. If you suspect that there has been a power supply failure in the field, please inspect your whole unit by yourself in an effort to determine that the problem is, in fact, arising out of our power supply products. If it is found that the problem is arising out of such power supply product after inspection, please contact your local sales office for additional troubleshooting. A "Return Merchandise Authorization" is required in case he power supply must be sent back to the factory in Japan for inspection and repair. 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. No modification or supplement of this warranty shall be binding unless in writing and signed by a duly authorized officer of Matsusada. Matsusada reserves the right to make any changes in the contents of catalogs or specifications at any time without advance notce. Due to compelling reason such as unavailability of components used, products might be un available or unable to repair. The products specified in catalogs or specifications are designed for use by the person who has enough expertise or under the control of such person, and not for general consumers. Schematics of products shall not be submitted to users. Test result or test data for the products shall be available upon request with charge

Make sure you read the specification in the latest catalog before you order. Contact nearby sales office for the latest catalog. PLEASE SEE THE LINK BELOW FOR THE COMPLETE WARRANTY TERMS

http://www.matsusada.com/site/warrany.htm

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