Matsusada Precision

Large-Capacity DC Power Supply

REM Series

NEW

High Power DC Supply Up to 120kW

Space saving with 19.3-inch rack, 490min width!

REM series

- Output voltage: 1000V max
- Output current: 6000A max
- Output power: 120kW max

Slim size with 19.3-inch width

High power up to 120kW in a single rack

Reducing power consumption with 90% of high efficiency, with power factor improvement circuit (option) contributing to smaller power distribution facilities.

MADE IN JAPAN

www.matsusada.com

Large-capacity
DC power supply

REM series

Achieves High Power up to 120kW in a Single Smart Rack

Only 19.3-inch (490mm) in width! (*)

(*) With consideration for the stability of installation, the model whose height is more than a certain level adopts the 19-inch rack of 21.7-inch (550 mm) in width.
(⇒ refer to “ Dimensions” in page. 04)

REM series is a large-capacity DC power supply ensuring safe for power output with 120 kW maximum power. If necessary, you can change the construction of the device so as to use as a smaller DC power supply in an effort to improve the capacity investiment with higher efficiency. Further, it is equipped with the LCD display that indicates the sum of output current and full protective circuits as standard functions, and strongly supports your R&D activities.

Main applications

[Electric Vehicle/Hybrid Electric Vehicle/Automotive equipment]
For Evaluation tests for Inverters, DC/DC converters, DC motors, Relays and Harness and so on

[Solar cells-related field]
For Evaluation tests for Power conditioners and Junction boxes and so on

[Others]
For Charging of secondary betteries, Evaluation tests for fuses, connectors and lamps, and various Electrolysis including Hydrogen production

Lineup

*1: The operation is checked only with each power supply device itself. No rated output operation is checked after the device is assembled.
*2: The number of power supply units *3: Predictive value *4: Typical value

Max. output voltage (V)	Max. output current (A)	Max. output power (kW) *1	Model	*2	Ripple *3 (rms)		Input current (A)*4 -LPfc option	
					mVrms	Arms	not	equipped
10	2000	20	REM10-2000	2	50	9.6	99	71
	3000	30	REM10-3000	3	60	14.4	144	106
	4000	40	REM10-4000	4	70	19.2	189	141
	5000	50	REM10-5000	5	80	24	234	176
	6000	60	REM10-6000	6	100	28.8	279	211

Max. output voltage (V)	Max. output current (A)	Max. output power (kW) *1	Model	*2	Ripple *3 (rms)		Input current (A)*4 -LPfc option	
					mVrms	Arms	not	equipped
15	1400	21	REM15-1400	2	50	7	99	71
	2100	31.5	REM15-2100	3	70	10.5	144	106
	2800	42	REM15-2800	4	100	14	189	141
	3500	52.5	REM15-3500	5	100	17.5	234	176
	4200	63	REM15-4200	6	150	21	279	211
	4900	73.5	REM15-4900	7	150	24.5	324	246
	5600	84	REM15-5600	8	150	28	369	281

Max. output voltage (V)	Max. output current (A)	Max. output power (kW) *1	Model	*2	Ripple *3 (rms)		Input current (A)*4	
							-LPfc option	
					mVrms	Arms	not	equipped
20	1200	24	REM20-1200	2	50	4.8	108	80
	1800	36	REM20-1800	3	70	7.2	162	119
	2400	48	REM20-2400	4	100	9.6	216	159
	3000	60	REM20-3000	5	150	12	270	198
	3600	72	REM20-3600	6	200	14.4	324	238
	4200	84	REM20-4200	7	200	16.8	378	278
	4800	96	REM20-4800	8	200	19.2	432	317
30	800	24	REM30-800	2	50	1.6	108	80
	1200	36	REM30-1200	3	70	2.4	162	119
	1600	48	REM30-1600	4	100	3.2	216	159
	2000	60	REM30-2000	5	150	4	270	198
	2400	72	REM30-2400	6	200	4.8	324	238
	2800	84	REM30-2800	7	250	5.6	378	278
	3200	96	REM30-3200	8	250	6.4	432	317
35	680	24	REM35-680	2	50	4.8	108	80
	1020	36	REM35-1020	3	70	7.2	162	119
	1360	48	REM35-1360	4	100	9.6	216	159
	1700	59.5	REM35-1700	5	150	12	270	198
	2040	71	REM35-2040	6	200	14.4	324	238
	2380	84	REM35-2380	7	250	16.8	378	278
	2720	96	REM35-2720	8	250	19.2	432	317
45	520	23	REM45-520	2	70	2.6	108	80
	780	35	REM45-780	3	100	3.9	162	119
	1040	47	REM45-1040	4	150	5.2	216	159
	1300	58.5	REM45-1300	5	200	6.5	270	198
	1560	70	REM45-1560	6	200	7.8	324	238
	1820	82	REM45-1820	7	250	9.1	378	278
	2080	94	REM45-2080	8	250	10.4	432	317
60	440	26.4	REM60-440	2	50	1	122	90
	660	39.6	REM60-660	3	70	1.5	183	135
	880	52.8	REM60-880	4	80	2	243	180
	1100	66	REM60-1100	5	90	2.5	305	225
	1320	79.2	REM60-1320	6	100	3	365	270
	1540	92.4	REM60-1540	7	150	3.5	426	315
	1760	105.6	REM60-1760	8	150	4	486	360
80	300	24	REM80-300	2	120	2	108	80
	450	36	REM80-450	3	150	3	162	119
	600	48	REM80-600	4	180	4	216	159
	750	60	REM80-750	5	200	5	270	198
	900	72	REM80-900	6	250	6	324	238
	1050	84	REM80-1050	7	250	7	378	278
	1200	96	REM80-1200	8	250	8	432	317
90	300	27	REM90-300	2	120	2	122	90
	450	40.5	REM90-450	3	150	3	183	135
	600	54	REM90-600	4	180	4	243	180
	750	67.5	REM90-750	5	200	5	305	225
	900	81	REM90-900	6	250	6	365	270
	1050	94.5	REM90-1050	7	250	7	426	315
	1200	108	REM90-1200	8	250	8	486	360
100	300	30	REM100-300	2	120	2	135	99
	450	45	REM100-450	3	150	3	203	149
	600	60	REM100-600	4	180	4	270	198
	750	75	REM100-750	5	200	5	338	248
	900	90	REM100-900	6	250	6	405	297
	1050	105	REM100-1050	7	250	7	473	347
	1200	120	REM100-1200	8	250	8	540	396
110	272	30	REM110-272	2	150	0.4	135	99
	408	44.8	REM110-408	3	200	0.6	203	149
	544	59.8	REM110-544	4	250	0.8	270	198
	680	74.8	REM110-680	5	300	1	338	248
	816	89.7	REM110-816	6	350	1.2	405	297
	952	104.7	REM110-952	7	400	1.4	473	347
	1088	120	REM110-1088	8	450	1.6	540	396

Max. output voltage (V)	Max. output current (A)	Max. output power (kW) *1	Model	*2	Ripple *3 (rms)		Input current (A)*4	
							-LPfc option	
					mVrms	Arms	not	equipped
120	250	30	REM120-250	2	150	0.4	135	99
	375	45	REM120-375	3	200	0.6	203	149
	500	60	REM120-500	4	250	0.8	270	198
	625	75	REM120-625	5	300	1	338	248
	750	90	REM120-750	6	350	1.2	405	297
	875	105	REM120-875	7	400	1.4	473	347
	1000	120	REM120-1000	8	450	1.6	540	396
150	200	30	REM150-200	2	150	0.4	135	99
	300	45	REM150-300	3	200	0.6	203	149
	400	60	REM150-400	4	250	0.8	270	198
	500	75	REM150-500	5	300	1	338	248
	600	90	REM150-600	6	350	1.2	405	297
	700	105	REM150-700	7	400	1.4	473	347
	800	120	REM150-800	8	450	1.6	540	396
200	150	30	REM200-150	2	250	1.06	135	99
	225	45	REM200-225	3	300	1.59	203	149
	300	60	REM200-300	4	350	2.12	270	198
	375	75	REM200-375	5	400	2.65	338	248
	450	90	REM200-450	6	450	3.18	405	297
	525	105	REM200-525	7	500	3.71	473	347
	600	120	REM200-600	8	550	4.24	540	396
300	100	30	REM300-100	2	200	0.2	135	99
	150	45	REM300-150	3	250	0.3	203	149
	200	60	REM300-200	4	300	0.4	270	198
	250	75	REM300-250	5	350	0.5	338	248
	300	90	REM300-300	6	400	0.6	405	297
	350	105	REM300-350	7	450	0.7	473	347
	400	120	REM300-400	8	500	0.8	540	396
350	84	29	REM350-84	2	200	0.2	135	99
	126	44	REM350-126	3	250	0.3	203	149
	168	59	REM350-168	4	300	0.4	270	198
	210	73.5	REM350-210	5	350	0.5	338	248
	252	88	REM350-252	6	400	0.6	405	297
	294	103	REM350-294	7	450	0.7	473	347
	336	118	REM350-336	8	500	0.8	540	396
500	60	30	REM500-60	2	250	0.2	135	99
	90	45	REM500-90	3	300	0.3	203	149
	120	60	REM500-120	4	350	0.4	270	198
	150	75	REM500-150	5	400	0.5	338	248
	180	90	REM500-180	6	450	0.6	405	297
	210	105	REM500-210	7	500	0.7	473	347
	240	120	REM500-240	8	550	0.8	540	396
600	50	30	REM600-50	2	200	0.1	135	99
	75	45	REM600-75	3	250	0.15	203	149
	100	60	REM600-100	4	300	0.2	270	198
	125	75	REM600-125	5	350	0.25	338	248
	150	90	REM600-150	6	400	0.3	405	297
	175	105	REM600-175	7	450	0.35	473	347
	200	120	REM600-200	8	500	0.4	540	396
650	46	30	REM650-46	2	350	0.2	135	99
	69	45	REM650-69	3	400	0.3	203	149
	92	60	REM650-92	4	450	0.4	270	198
	115	75	REM650-115	5	500	0.5	338	248
	138	90	REM650-138	6	550	0.6	405	297
	161	105	REM650-161	7	600	0.7	473	347
	184	120	REM650-184	8	650	0.8	540	396
1000	30	30	REM1000*-30	2	500	0.6	135	99
	45	45	REM1000*-45	3	600	0.9	203	149
	60	60	REM1000*-60	4	800	1.2	270	198
	75	75	REM1000*-75	5	1000	1.5	338	248
	90	90	REM1000*-90	6	1100	1.8	405	297
	105	105	REM1000*-105	7	1200	2.1	473	347
	120	120	REM1000*-120	8	1300	2.4	540	396

All the lineup models are to be housed in a single dedicated 19-inch rack. (See page 04 for dimensions and other information.)
Extendable up to 360 kW, the device is suitable for larger power operation.
However, note the following points for extension:

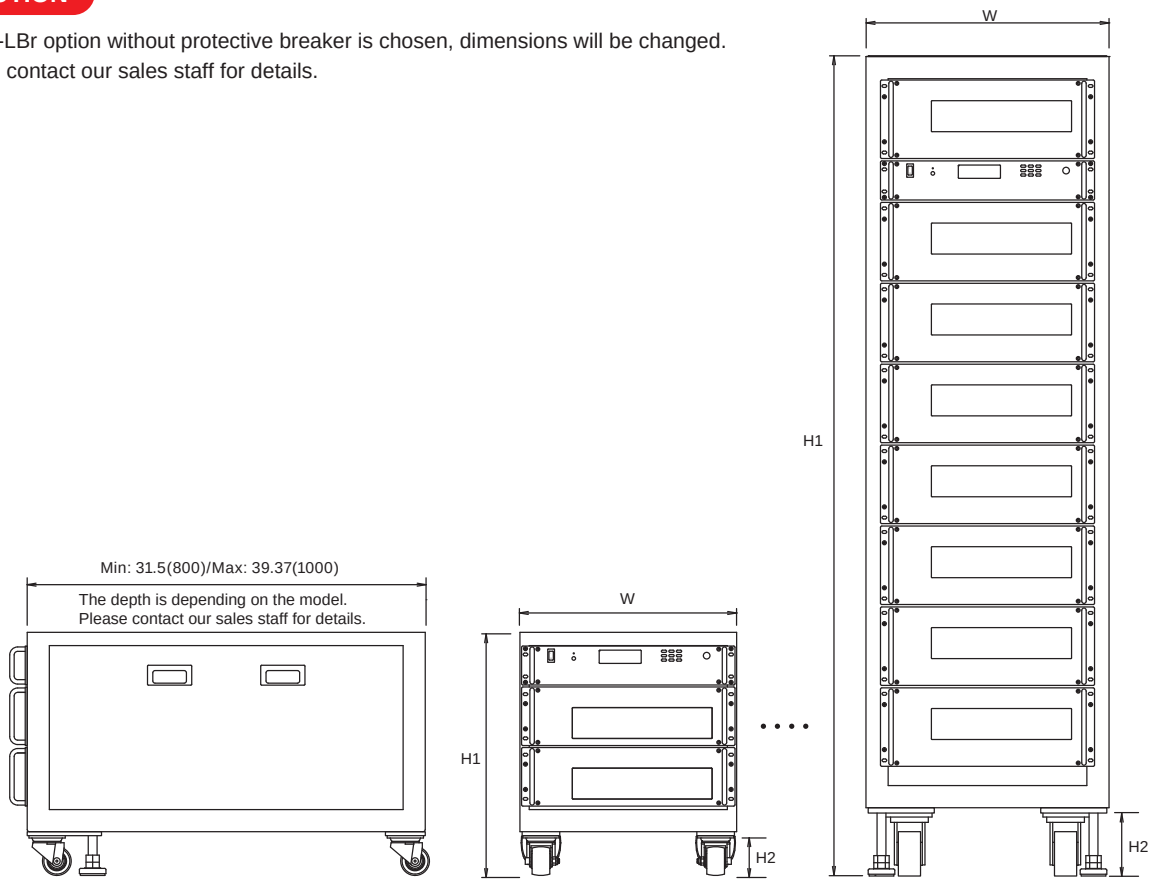
- Extension is allowed only with the same model.
- You must be responsible for wiring or other operations for extension.
- You might have to allocate space for mounting additional racks. Prior to extension, please contact our sales staff concerning the total number of racks.
- Both input and output is made for each rack regardless of the number of racks used. A breaker is mounted on each rack when the –LBr option is selected (see page 06). Breakers cannot be integrated.

* P: Positive output * N: Negative output

Dimensions inch (mm)

CAUTION

When -LBr option without protective breaker is chosen, dimensions will be changed.
Please contact our sales staff for details.



Minimum size
W: 19.29-inch(490 mm) type

Maximum size
W: 21.65-inch(550 mm) type

Number of power supplies	W inch(mm)		H1 inch(mm)		H2 inch(mm)		Weight (approx. kg)			
	-LPfc option		-LPfc option		-LPfc option		10 to 20 V models		30 V to 1 kV models	
							-LPfc option		-LPfc option	
	without	with	without	with	without	with	without	with	without	with
2	19.29(490)	19.29(490)	21.65(550)	25.59(650)	3.54(90)	3.54(90)	160	180	130	150
3	19.29(490)	19.29(490)	27.17(690)	32.68(830)	3.54(90)	3.54(90)	220	250	160	190
4	19.29(490)	19.29(490)	32.68(830)	41.34(1050)	3.54(90)	3.54(90)	270	310	210	260
5	19.29(490)	19.29(490)	38.19(970)	47.24(1200)	3.54(90)	3.54(90)	330	380	250	300
6	19.29(490)	19.29(490)	43.70(1110)	54.72(1390)	3.54(90)	3.54(90)	360	420	300	360
7	19.29(490)	21.65(550)	49.21(1250)	64.96(1650)	3.54(90)	5.51(140)	400	530	330	460
8	19.29(490)	21.65(550)	54.72(1390)	72.83(1850)	3.54(90)	5.51(140)	440	580	360	500

For the models without the -LBr option, the power supply unit section stands by for output at the time when power is fed from the AC line and starts output in response to the output control signal from the controller section. The controller section is not activated only by power feeding from the AC line but stands by after the POWER switch on the front panel is pressed.
The dimensions of the power supply which is put into the rack are different depending on selecting -LPfc option.

[Attention]

- Both types are forcedly air-cooled. Make sure to allocate space of 30 cm or wider in front and at the back of the system rack.
- The screws of the input part are shown at right description. ⇒ Input current ≦ 240 A: M10, 245 to 385 A: M12, ≧ 390 A: M16
- The screws at the output part of both types vary by specifications. Contact our sales staff for details.
- As a preventive measure against falling, it is possible to fix REM series to a wall using eyebolts (optional). However, it does not necessarily guarantee for fall prevention. Please judge yourself whther preventive measures against falling are necessary or what measures should be taken.

Specifications of system

Input voltage	220 Vac ±10%, 50 or 60 Hz, three-phase
Operating temperature	0 to 40°C
Storage temperature	-20 to 70°C
Storage humidity	20 to 80%RH (no condensation)
Accessory	Instruction manual

Specifications of Power Supply Unit

Voltage regulation	Line : 0.1% of max. output (against fluctuation by AC ±10%) Load: 0.2% of max. output (against load fluctuation by 10 to 100%)
Current regulation	Line : 0.1% of max. output (against fluctuation by AC ±10%) Load: 0.2% of max. output (against load fluctuation by 10 to 100%)
Stability	0.05% of max. output voltage per 8 hours
Temperature coefficient	0.02%/°C of max. output voltage 0.03%/°C of max. output current
Withstand voltage	Between input power source and output terminal, between input power source and chassis 1500 Vac for a minute

Power Supply Controller Specifications

Output control	Output voltage: Setting with front rotary encoder (with preset functions) Output current: Setting with front rotary encoder (with preset functions)
Output display	Output voltage: 4-digit digital meter (accuracy: 1%FS ±1 dgt) Output current: 4-digit digital meter (accuracy: 1%FS ±1 dgt) Sum of the current from all connected power supplies units is displayed.
Protections	Overvoltage protection (OVP) Cut off at the set value Setting range: 5 to 110% of output voltage Setting with front rotary encoder Over temperature protection (OTP) Cut off output at the time of internal anomalous heating Reset (after decreasing to the normal temperature): Automatic recovery or manual recovery with the POWER switch (switchable) Input voltage drop (ACF) and power failure protection Cut off output when input voltage drops by 20% or more Reset (at normal voltage or after recovery from power failure): Manual recovery with the OUTPUT switch at the time of power failure protection (re-output protecting function) Automatic recovery when blackout protection is cancelled
Other functions	Output : ON/OFF Memory function (10 memories) Front panel lock function

Analog remote control is included as the standard equipment

Remote switch ON/OFF
Turns ON/OFF output by the external relay or TTL

Output voltage/current control
External control output of 0 to 10 Vdc/max. output, or External variable resistance of 0 to 10 kΩ/max. output
* The max. response time from control voltage input to the actual outputis 2 seconds.

Output voltage/current monitor
0 to 10 Vdc/max. output

Status signal output
OUTPUT, CV, CC, Trouble

Options

-LPfc **Power factor correction circuit** *1

-LEb **Eyebolt** Four eyebolts are attached to the top side. It enables you to move REM series by using cranes and so on.

-LBr **Protective breaker** *2 Each rack is equipped with one protective breaker.

-LGob **Optical Interface Board** *3

-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

It is isolated by optical communication. It makes it possible to prevent malfunction caused by transient phenomenon such as surge, induced lightning, and external noise due to perfectly isolated by optical fiber.

-LEt **Ethernet Interface Board** *3 Enable digital control via Ethernet

-LUs1 **USB Interface Board** *3 Enable digital control via USB
Corresponding OS: Microsoft Windows XP/Vista/7/8/10
(All can correspond to both the 32-bit version and the 64-bit version.)
(Microsoft and Windows are registered trademarks of Microsoft Corporation.)

-LGb **GPIB Interface board** *3

-L(400V) **Input Voltage 400 Vac** ±10% (available soon)

-LPp **Preventive covers for operational errors** The U-shaped covers are attached to both the upper and lower parts respectively of the OUTPUT switch on the power supply controller.

*1 The dimenshions and weight of the whole unit will change. Please refer to page 04.
*2 The dimenshions and weight of the whole unit will change. Please contact our sales staff for details.
*3 The controller for power supplies has the interface port on the rear panel.
These options cannot be chosen together. Need to be chosen either one.

How to Order

When ordering, suffix the above option number to the model number.
<e.g.> REM10-2000-LBrEbEtPfc(400V), in order of alphabets and numbers

Besides, a single power supply equipped with REM series is available. To order, please specify the code as follows.

RE(1)-(2)–LGob(3)-BP

(1): Voltage (of REM)
(2): Current (the REM current divided by the number of the units)
(3): Pfc·····using for power factor improvement circuit
400 V·····for AC input voltage 400 V

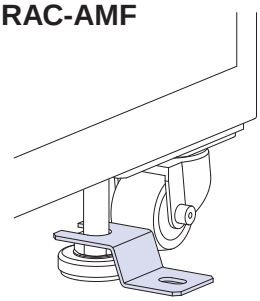
Sample model number to order: RE-10-1000-LGobPfc(400V)-BP
*Accessories including Instruction Manual or two-meter optical cables are not included.

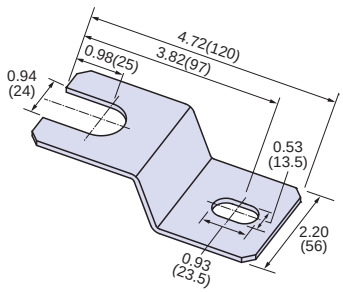
Accessory

Base plate for anchor bolt (made of stainless steel) with 2 pieces in a set

inch (mm)

Model: RAC-AMF





Width of a rack	Attached number
19.29(490)	2 (a set)
21.65(550)	4 (two sets)

Introduction of other product

Please contact our sales staff for detailed catalog of each models.

Regenerative DC power supply — PBR series

[Main Applications]

- Evaluation of such automotive components as inverters and capacitors (PCU, ECU, etc.)
- Evaluation motors and generators
- Charge/discharge testing of rechargeable batteries and capacitors (as option)

Next-generation model with high power and wide output range up to 15kW in a 19-inch, 3U rack

Power running or Regeneration at Maximum	
Output voltage	80 Vdc, 500 Vdc
Output current	100 to 360 A
Output power	10 kW, 15 kW

- Bidirectional operation designed for DC power supplies as well as DC electric loads and also providing regenerative function.
- Easy front panel operation enables the sequence setting and the operation logging
- Output expansion available with parallel connections

High Power DC Turbo Power Supply — PRT series

Achieves voltage/current output that is three times higher than previous DC power supplies within the range of 15 kW

Max. output voltage	80 to 1500 V
Max. output current	30 to 510 A
Max. output power	5 kW, 10 kW, 15 kW

- Expansion up to 150 kW is possible by increasing the output current with parallel connections
- Various types of sequence control settings and operation are possible using just the device without a PC
- Supports simulation of various rechargeable batteries with variable internal resistance function

Four-quadrant fast response Bi-polar Power Supply — DOP series

High power and high speed responce

Max. output voltage	±5 to ±300 V
Max. output current	±1 to ±200 A
Max. output power	150 W to 2 kW

- It is a four-quadrant bi-polar power supply which source and sink electric power
- It is the most appropriate for transient response test with such high power and broad bandwidth
- With a detailed output voltage lineup of 40 or more, an optimum one suirtable for the application

High power, Versatile Programmable DC power supply — REK/REKJ series

"Compact" "High power" "Multi-function" DC programmable power supply with superior operability

Max. output voltage	6 to 1500 V
Max. output current	1.0 to 1200 A
Max. output power	770 W to 15 kW

- It achieves high power maximum 2.5 kW by 1U (1.73-inch/44 mm) height, maximum 5.5 kW by 2U (3.5-inch/89 mm) height, maximum 15.3 kW by 3U (5.24-inch/133 mm) height.
- With low noise switching method and worldwide input, it can be used anywhere in the world.
- It has standard built-in digital interface such as LAN (Ethernet) and USB, which can help to establish automatic measuring system or production equipment.

FAX

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

other countries : +81-6-6150-5089

Customer Inquiry Sheet (REM 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:	

Manufacturer warranty

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 failure 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 the 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 notice. 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
https://www.matsusada.com/site/warranty.html

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