

NEW

Ultra Compact Desktop AC Power Supplies

AC : 0 to 310V / 2000VAmax / 1Hz to 550Hz

DC : 0 to ± 438 V / 1320Wmax

DRS 500
(500VA model)

DRS 1000
(1kVA model)

DRS2000
(2kVA model)

DRS series

- ▶ Sequence function is now available.
- ▶ Multifunction and high power in overwhelming compact size.
- ▶ The instantaneous power failure function and the measurement function are also installed as standard function.



DRS series

AC : 0 to 155V, 0 to 310V / 2000VAmax / 1 to 550Hz
 DC : 0 to ±219V, 0 to ±438V / 1320Wmax

Operational usability well considered.
 Desktop size Multifunction AC Power Supplies



■ High power of 2kVA max. in one half rack size of 210mm width. (DRS2000)

- Distinctive small footprint and weight reduction thanks to implementation of switching amplifying technology, compared to those of the linear amplifying method.
- In addition to the sequence function and the instantaneous power failure function, also the measurement function is equipped as standard.
- The wide range for output voltage (up to 155V / up to 310V).
- Peak current is 4 times of rated one. (crest factor=4)
- Analogue remote control and USB are equipped as standard. (applicable to various interfaces by option)

DRS series are well-regulated AC power supplies realized multifunction and high power in unparalleled compact size.

They are a new type AC power supply which has high quality output combined with the wonder small-footprint size desired in experiments, evaluations or cell production, etc. Despite its compactness, DRS has adopted universal AC input, as well as having universal output terminal on the front panel, allowing users to easily operate borderlessly.

Moreover, the instantaneous power failure function, the sequence function and the measurement function are installed as standard function and then it is applicable to test and evaluation of AC input devices at instantaneous power failure or under the destabilized input condition.

Lineup

Model		AC		DC	
		Lo(0 to 155V) range	Hi(0 to 310V) range	Lo(0 to ±219V) range	Hi(0 to ±348V) range
DRS500	Max. Output Power	500VA		330W	
	Max. Output Current	5.00A	2.50A	2.25A	1.10A
DRS1000	Max. Output Power	1000VA		660W	
	Max. Output Current	10.00A	5.00A	4.50A	2.20A
DRS2000	Max. Output Power	2000VA		1320W	
	Max. Output Current	20.00A	10.00A	9.00A	4.40A

NOTE

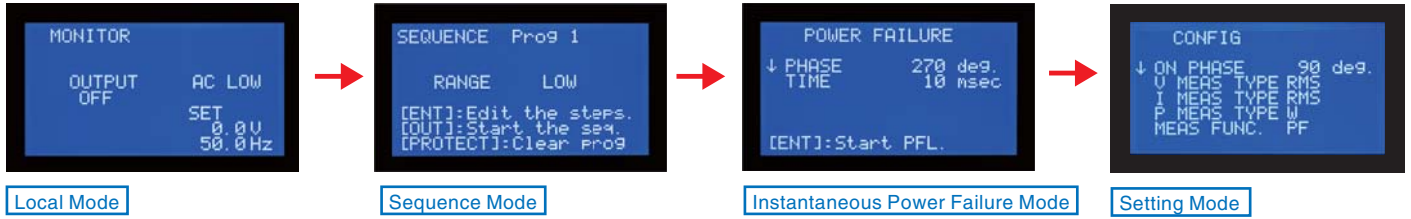
DRS series are not available to such application that electric power is infused externally or regeneration behavior is made. Therefore they are not suitable for such devices that “returning generated electric power to AC line” or “being connected directly to the commercial system”.
 Please make AC output in combination with our high speed four-quadrant bipolar power supplies and such devices.

Features

Simple operations and easy activation

Pressing "Mode" switch allows operation mode to change as follows. (AC Mode only)

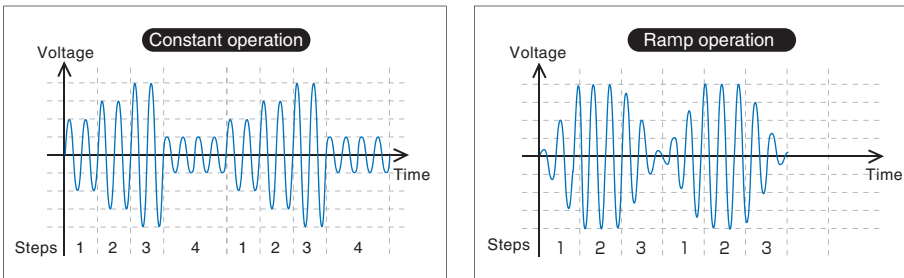
Local Mode → Sequence Mode → Instantaneous Power Failure Mode → Setting Mode → Local Mode



If pushed ENTER on this screen, screen is changed as below.

Sequence Mode

It is possible to program frequently used wave patterns and output based on it. The test patterns can be set by the operation on the front panel and by the remote control.



Edit Screen for Sequence



Number of Saved Program : 3
 Max. Step Number : 32
 Step Time : 1ms to 999.999s
 Number of Jump : 1 to 999 or limitless
 Operation : Constant, Ramp
 Settable Parameters : AC voltage, Frequency, Step time, Number of Jumps.

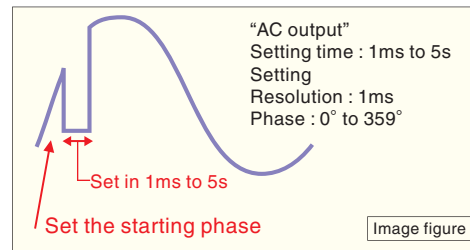
Instantaneous Power Failure Mode

It is possible to conduct instantaneous power failure test of the AC input devices. It can reproduce the situations where AC input line is unstable or instantaneous power failure happens, thus the operating conditions of AC Input device (tested device) can be checked under such environment.



Setting time of Instantaneous Power Failure

It is able to set time of instantaneous power failure with 1ms unit in 1ms to 5s turning the rotary encoder.

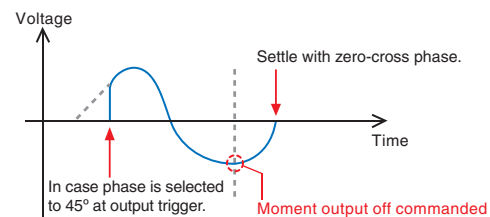


Various measurement function

- ▶ Output Voltage (RMS value, Average value, Peak value)
- ▶ Output Current (RMS value, Average value, Peak value)
- ▶ Output Power (Effective power, Apparent power, Reactive power)
- ▶ Power factor
- ▶ Crest factor
- ▶ Keeping peak current value

Selectable phase at output ON

This feature allows to select phase when output is triggered on. Output off results in Zero cross phase. (sec chart.)



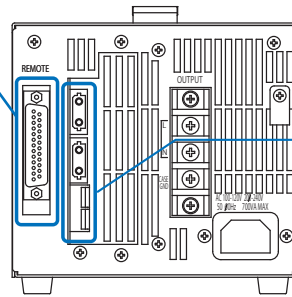
Remote control

“Standard Function and Plenty of Options”

As the external control and the USB interface are equipped as standard, they are applicable to automation of production line immediately. And control by RS-232C, RS-485 and GPIB are possible by the interface option.

Remote Control

- Output ON / OFF
- Voltage Control
- Frequency Control
- Switching Range
- Output of Fault
- Door Switch
- Remote / Local
- Selection of Control



Interface

- USB
- Options
 - Optical Interface (USB, RS-232C, RS-485, GPIB)
 - GPIB

“Connector for Remote Control (REMOTE)”

Switching Remote / Local

It is able to switch Each or All Modes of Voltage, Frequency and Range with TTL signal.

Modes	External Relay	TTL
Remote	Shorted	LOW
Local	Opened	HIGH

Remote Switch On / Off

It is able to On / Off Output with Relay or TTL signal.

OUTPUT	External Relay	TTL
ON	Shorted	LOW
OFF	Opened	HIGH

Output Status

COMMON is floating with the Open Collector Output.
Withstand Voltage : 30Vdc
Sink Current : ≤5mA

*COMMON of REMOTE and the chassis is connected internally.

Voltage

Vout	Vcon
0 to MAX	0Vdc to 10Vdc Input imp. 10kΩ

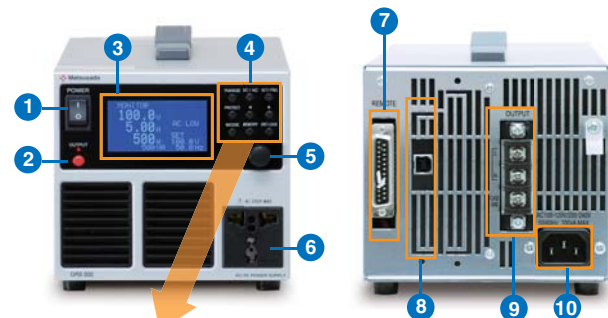
Frequency

Fout	Fcon
0 to MAX	0Vdc to 10Vdc Input imp. 10kΩ

Output Control

Ranges	External Relay	TTL
Hi (200V) Range	Shorted	LOW
Lo (100V) Range	Opened	HIGH

Functions



- a** RANGE : To switch ranges (H⇄L)
 - b** DC / AC : To switch DC and AC mode. (DC⇄AC)
 - c** VLT / FRQ : To switch setting modes for Voltage / Frequency
 - d** PROTECT : To switch setting mode for Protection Function
 - e** : To move the cursor left.
 - f** Shifting key : To move the cursor right.
 - g** MODE : To switch sequence mode and Instantaneous power failure mode.
 - h** MEMORY : To switch the mode for MEMORY to call up or to register.
 - i** ENTER / LOCK : To decide on ENTER function or MEMORY mode and to lock of operation system.

- 1** **Power Switch** ON / OFF Switch for power
- 2** **Output Button** ON / OFF Switch for output of the power supply. The lamp is lightened at output ON.
- 3** **Liquid crystal display** To indicate Status, Settings and Monitor.
- 4** **Control Key** Usability is pursued in consideration of functions commonly-used.
- 5** **Rotary Encoder** To setting of Voltage and Frequency and to set function of Protection Memories.
- 6** **Outlet for output** Applicable outlet for plugs of every country.
- 7** **Connector for Remote Control**
This is applicable to Remote switch, Door switch, External voltage control, External frequency control, External range control.
- 8** **Digital Interface**
 - USB(standard)** It is able to control externally by connecting with USB port on PC.
 - GPIB Option** Able to connect with GPIB used up to now.
 - Optical Communication Option** As insulation control is made by optical communication, it is able to utilize without regard to noise and potential difference. It is able to combine with USB, GPIB, RS-232C or RS-485 in combination with adapter for optical conversion.
- 9** **Terminal board for output**
- 10** **Inlet for input (DRS2000 : Terminal board)**
Input voltage is switched automatically 90V-132V or 180V-250V and applicable to world wide input and equipped power factor improvement circuit internally.

Specifications

Input	Input Voltage : 90V-132V / 180V-250VAC automatic switching, 50 / 60Hz, single phase Input Current : [DRS500] 7A typical (at 100VAC, max. Output) / 3.5A typical (at 200VAC, max. output) [DRS1000] 14A typical (at 100VAC, max. Output) / 7A typical (at 200VAC, max. output) [DRS2000] 28A typical (at 100VAC, max. Output) / 14A typical (at 200VAC, max. output)
Efficiency	≥70%(at rated output)
Power Factor	≥0.9 (at rated output)
Output Voltage Setting Range	Lo (100V) range : AC 0V to 155V / DC 0V to ±219V Hi (200V) range : AC 0V to 310V / DC 0V to ±438V
Number of Phase	Single
Output Frequency	DC, 1Hz to 550Hz
Peak Current of Maximum Output	4 times of maximum output current (effective value) (crest factor=4)
Output Voltage Control	Voltage range : Lo (100V) and Hi (200V) switching with the selector switch on the front panel Variable Voltage : Local --- With the rotary encoder on the front panel Remote --- With the external control voltage, Vcon-in = 0Vdc to 10Vdc
Voltage Regulation	versus input : ±0.15% (at Variation of AC±10%) versus load : ±0.15% (at 100V), ±0.3% (at 200V)
Voltage Stability	0.05% / Hr
Temp. Coefficient For Voltage	±0.05% / °C
Distortion Factor of Output Waveform	0.5% at 50 / 60Hz, 80V to 150V, 160V to 300V (at power factor of load = 1)
Setting of Output Frequency	Local : with the rotary encoder on the front panel Remote : with the external control voltage, Fcon-in=0Vdc to 10Vdc
Setting Accuracy of Frequency	≤0.03% (at environmental temperature 20°C and output frequency ≥40Hz)
Temp. Coefficient for Frequency	≤0.1Hz (at environmental variation ±10°C)
Protection	Short-Circuit Protection on Output, Overvoltage, Overcurrent, Overpower, Electrical Surge of Input, Over-temperature Protection, Blackout Protection
Other Functions	Remote Switch for ON / OFF (TTL or external relay), Door switch(external relay), Remote Switching Voltage Range, Remote Switching Frequency, Output of Fault Status, Preset Function (10 memories)

Output Display

		DRS500	DRS1000	DRS2000	
Voltage Measurement *1	RMS value	Resolution	0.1V		
		Accuracy	At 45 to 65Hz ±(0.5% of rdg+0.3V) (Lo range), ±(0.5% of rdg+0.6V) (Hi range) At DC and 65 to 550Hz ±(0.7% of rdg+0.9V) (Lo range), ±(0.7% of rdg+1.8V) (Hi range)		
		DC average value	Resolution	0.1V	
	Peak value	Accuracy	±(0.5% of rdg +0.4V) (Lo range), ±(0.5% of rdg +0.8V) (Hi range)		
		Resolution	0.1V		
		Accuracy	At 45 to 65Hz ±(1.5% of rdg +3V) (Lo range), ±(1.5% of rdg +6V) (Hi range)		
Current Measurement *2	RMS value	Resolution	0.01A	0.01A	0.01A
		Accuracy	At 45 to 65Hz ±(0.5% of rdg+0.02A)	At 45 to 65Hz ±(0.5% of rdg+0.04A)	At 45 to 65Hz ±(0.5% of rdg+0.08A)
		DC average value	Resolution	0.01A	0.01A
	Peak value	Accuracy	±(0.5% of rdg +0.04A)	±(0.5% of rdg +0.08A)	±(0.5% of rdg +0.16A)
		Resolution	0.01A	0.01A	0.01A
		Accuracy	At 45 to 65Hz ±(2% of rdg +0.2A)	At 45 to 65Hz ±(2% of rdg +0.4A)	At 45 to 65Hz ±(2% of rdg +0.8A)
Power Measurement	Effective power *3	Resolution	1W		
		Accuracy	At 45 to 65Hz ±(2% of rdg+1W)	At 45 to 65Hz ±(2% of rdg+1W)	At 45 to 65Hz ±(2% of rdg+2W)
		DC average value	Resolution	1var	1var
	Reactive power *4	Accuracy	At 45 to 65Hz ±(2% of rdg+1var)	At 45 to 65Hz ±(2% of rdg+1var)	At 45 to 65Hz ±(2% of rdg+2var)
		Resolution	1VA	1VA	1VA
		Accuracy	At 45 to 65Hz ±(2% of rdg+1VA)	At 45 to 65Hz ±(2% of rdg+1VA)	At 45 to 65Hz ±(2% of rdg+2VA)
Apparent power *5	DC average value	Resolution	1VA	1VA	1VA
	Accuracy	At 45 to 65Hz ±(2% of rdg+6VA)	At 45 to 65Hz ±(2% of rdg+12VA)	At 45 to 65Hz ±(2% of rdg+24VA)	
	DC average value	Resolution	1VA	1VA	1VA
Accuracy	At 45 to 65Hz ±(2% of rdg+6VA)	At 45 to 65Hz ±(2% of rdg+12VA)	At 45 to 65Hz ±(2% of rdg+24VA)		

- *1 23°C ±5°C AC mode ; Lo range : 15.5V to 155V / Hi range : 31V to 310V
DC mode ; Lo range : 21.9V to 219V / Hi range : 43.8V to 438V
- *2 23°C ±5°C When waveform is of the crest factor 3 and smaller and output current is 5% to 100% of the maximum current.
- *3 23°C ±5°C Power factor of load : 0.5 to 1, output voltage ≥50V and output current is 5% to 100% of the maximum current.
- *4 23°C ±5°C Power factor of load : 0 to 0.5, output voltage ≥50V and output current is 5% to 100% of the maximum current.
- *5 23°C ±5°C Output voltage ≥50V and output current is 5% to 100% of the maximum current.

Operation Temp.	0°C to +40°C
Storage Temp.	-20°C to +60°C
Storage Humidity	20% to 80%RH (no condensation)
Output Terminals	Front panel : Universal Outlet(one) Rear panel : Terminal board

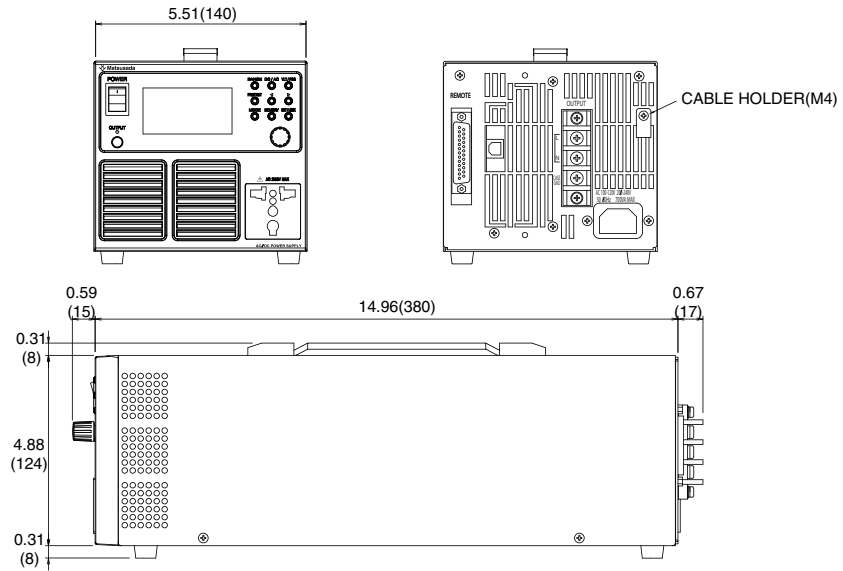
Accessories

Instruction Manual : 1, Cover for Output Terminal : 1, Cover for Remote Connector : 1,
Input AC cable, 2.5m length(only for DRS500 and DRS1000)⇒Please refer to page.7 "AC input cable" for detail of AC input cable.

Dimensions inch (mm)

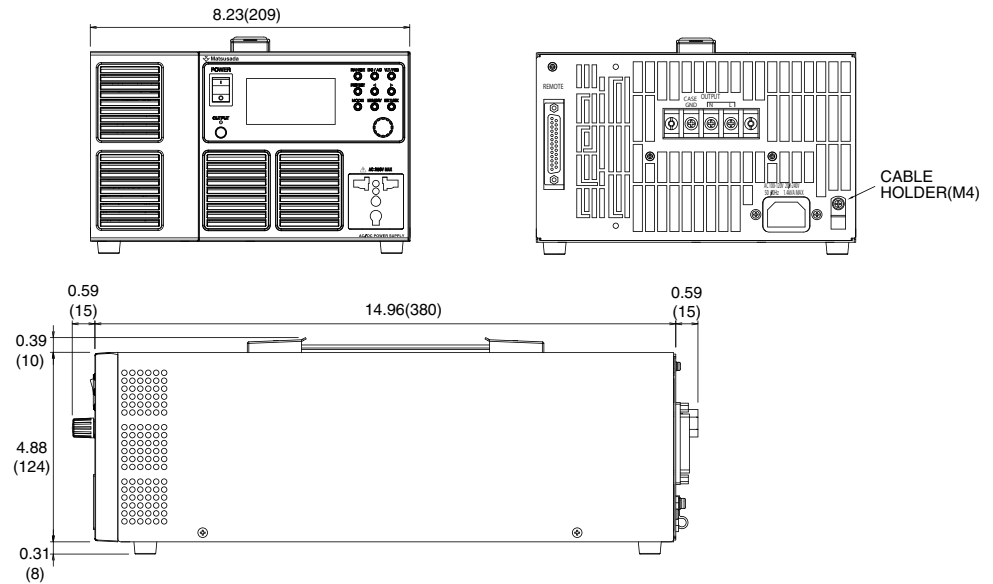
DRS500

Weight : Approx. 5kg



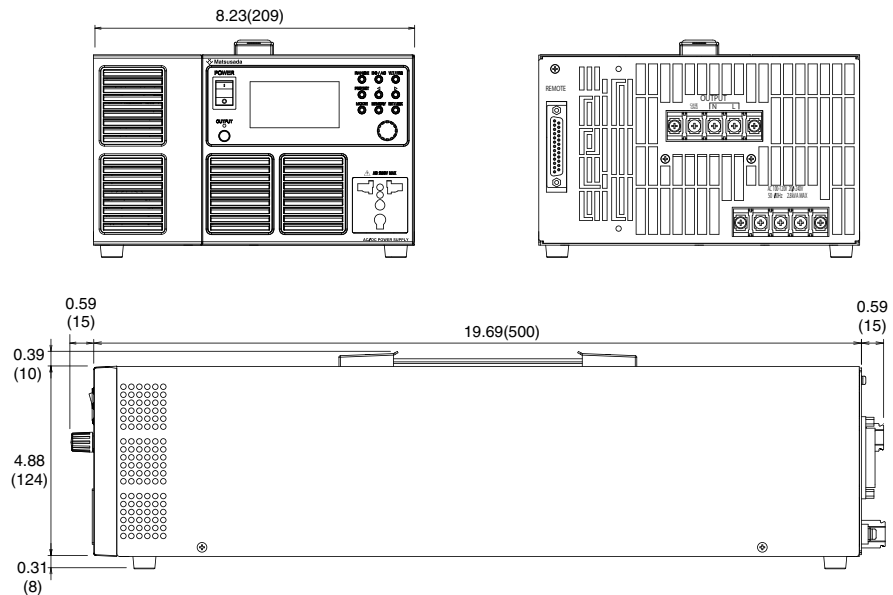
DRS1000

Weight : Approx. 8kg



DRS2000

Weight : Approx. 11kg

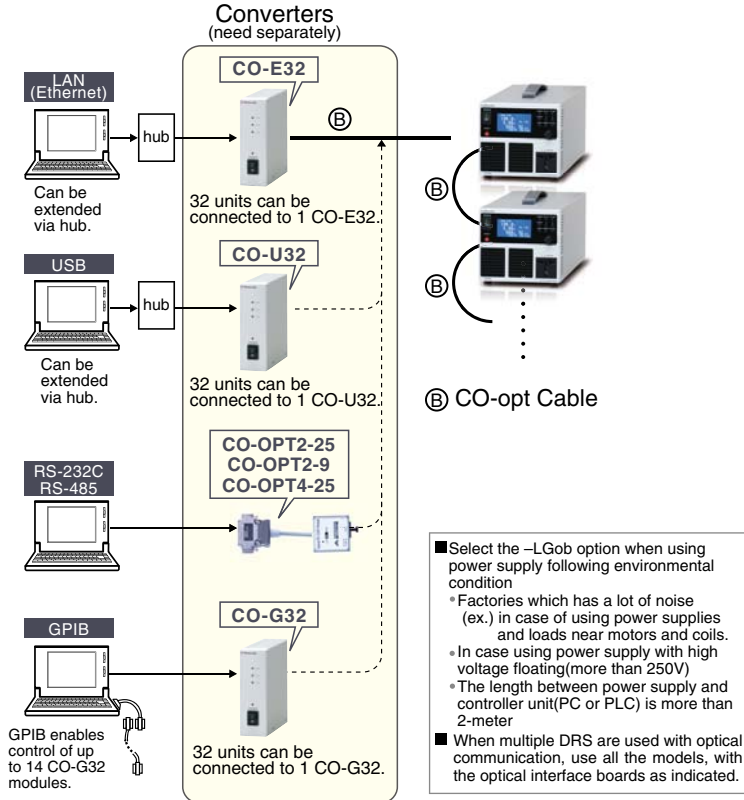


Options

-L Gob : Optical Interface Board *

- L Gob : Optical interface board + optical cable 2m
- L Gob(Fc5) : Optical interface board + optical cable 5m
- L Gob(Fc10) : Optical interface board + optical cable 10m
- L Gob(Fc20) : Optical interface board + optical cable 20m
- L Gob(Fc40) : Optical interface board + optical cable 40m

Optical communication offers insulation control. It is to prevent malfunction such as transient phenomenon by surge, lightning induction, and exogenous noise.



-L Gb : GPIB interface Board *

ON / OFF with the Remote Switch, Switching Voltage Range, Variable Voltage, Variable Frequency, Status, Monitor for Voltage and Current.

-LNh : No Carry Handle equipped

To eliminate carry handle on top of the power supply case.

-LN : Selectable Blackout recovery

This option allows users to select the power supply output either automatically or manually recover after blackout finish and AC input recover.
 (with this option "blackout protection active" or "disabled" can be selectable from remote controll connector. Open will activate, short will disable blackout protection.)

* Either one of these options may be selected.

How to Order Please suffix above optional codes on the tall of Model number.
 (Example) DRS500-LGbNNh
 DRS1000-LGob(Fc10)NNh (alphabetical)

It is able to contain in a 19 inches rack with the dedicated adapter for mounting rack (Model No. : RMO-133H-DRJ). Please inquire our sales staff for detail.

AC Input Cable

DRS500	CABLE TYPE 1 125V / 10A (Included as standard)	CABLE TYPE 3 250V / 10A (Sold separately)	CABLE TYPE 4 250V / 10A (Sold separately)
DRS1000	CABLE TYPE 8 125V / 15A (Included as standard)	CABLE TYPE 3 250V / 10A (Sold separately)	CABLE TYPE 4 250V / 10A (Sold separately)
DRS2000	CABLE TYPE 5 250V / 25A (Sold separately)	CABLE TYPE 11 250V / 35A (Sold separately)	



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

Customer Inquiry Sheet (DRS 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
<http://www.matsusada.com/site/warranty.html>



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