Matsusada Precision

NEW

Four-quadrant fast response bi-polar power supply

DJOP series

▶ Output voltage : 0V to ±60V

▶ Maximum output power : 60W

▶ Frequency bandwidth : DC to 30kHz

DJOPseries

Four-quadrant fast response bi-polar power supply

DJOP series is four-quadrant bi-polar power supply which source and sink electric power. They can be used in 2-mode of a constant voltage (CV) or a constant current (CC). Thanks to the original design, phenomenal light weight and compact size power supply, which is 140mm width, and weigh 3kg has been achieved. They are ultra compact and high speed, driving output proportional to the input waveform such as a sine wave, triangular wave, saw wave, and square wave. All the models are completely solid-state with output voltage between ±10V to ±60V.

DJOP series is most appropriate for evaluation test such as solar panels, the instruments driven by battery and the IC which control battery.

> Even faster model, DOS series, amplifier with function generator, DOPF series, or more high power model, DOP series, are available. Contact to local sales office for details.

Applications

▶ Suitable to evaluate battery driven equipment to use as a simulated battery
▶ Inductive load such as coil and transformer
▶ Capacitive load like capacitor
▶ Various motor tests
▶ voltage regulation tests for in-vehicle electrical component
▶ Evaluation test for solar panel related devices
▶ For surface treatment

Features

Response speed
Newly developed DJOP Series is the most appropriate for transient response test with such high power and broad bandwidth.

Wide lineup
Select a model fitting for your applications from the lineup of various output voltage and current.

DC bias
10-turn potentiometer to be used for the output setting volume when used as the DC power supply and for the bias setting when used as AC power supluy is equipped.

DC output meter
3-digit digital meter displays the DC value of the output voltage and current. (The option of rms indication is available.)

Compact & light weight
For maximum compactness and light weight, DJOP Series has been improved for small footprint and easy carry.

Constant voltage (CV) / Constant current (CC)
A single switch selects between CV and CC modes.

Four-quadrant action
DJOP Series can be used both as a high speed response DC power supply and as an electronic load.

Complete protective function
Protective function against over voltage/current and protective measures against output short-circuit are completely provided.

Master-slave
The option of Master-slave control will resolve power shortages.

Lineup

★ Please consult with our sales office about the specifications except the following list.

Model	Output voltage V(rms value)	Output current A (rms value)	Output power W	Frequency bandwidth kHz (-3dB)	Weight kg
DJOP10-5	±10(7)	±5(3.5)	50	DC to 30	3
DJOP20-3	±20(14)	±3(2.1)	60		
DJOP30-2	±30(21)	±2(1.4)	60		
DJOP60-1	±60(42)	±1(0.7)			

Specifications

Input voltage	85V to 264Vac / 50/60Hz / single phase	**Regulation**	Input : 0.05% (for ±10% input change) Load : 0.05% (for 10% to 100% load change)
Input current	1.5A max @115Vac input	**Temperature coef.**	200ppm / °C
External control voltage (Vcon-in)	−10V to +10V (input impedance : more than 10kΩ)	**Output monitor**	Output voltage : −10V to +10V ±1%F.S. Output current : −10V to +10V ±1%F.S. Output impedance : 1kΩ
Output display (DC value)	Voltage : 3-digit digital meter ±999 Current : 3-digit digital meter ±999	**Protections**	Over voltage protection, over current protection, against short-circuit and blackout
DC bias	−100% to +100% by 10-turn potentiometer	**Operating temp.**	0°C to +40°C
Ripple	<CV mode> less than 0.02%rms <CC mode> less than 0.2%rms	**Storage temp.**	−20°C to +70°C
Stability	0.016%/Hr typ.	**Humidity**	20% to 80%RH (no condensation)
Setting accuracy	±0.5%F.S.	**Accessories**	AC input cable 2.5m (1) (3-pin connector 125V type) Instruction manual (1)
Distortion	<CV mode> 0.05% <CV mode> 0.5% (at rated output or resistor load)		

Protections

Over voltage protection (O.V.P)

DOP series is equipped with over voltage protection, which protects load by limiting voltage up to approx. 120% of the rated output voltage even at abnormal conditions.

*-LVI option(output voltage limitter) enable to control the output in 0 to approx. 110% range.

Over current protection (O.C.P)

DOP series is also equipped with over current protection, which protects power supplies and load by limiting current up to approx. 120% of the rated output current.

*-LII option(output current limitter) enable to control the output in 0 to approx. 110% range.

High speed over current protection

DOP series is provided with 2 types of over current protections, high speed over current protection to limit the pulse current, and standard over current protection to limit the static current.

The standard over current protection limits the static current, responding at around 1ms. Additional high speed over current protection can limit pulse current of square waveforms or from capacitor at approx. 2 times more current of rating.
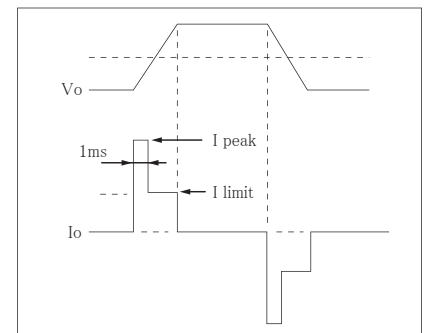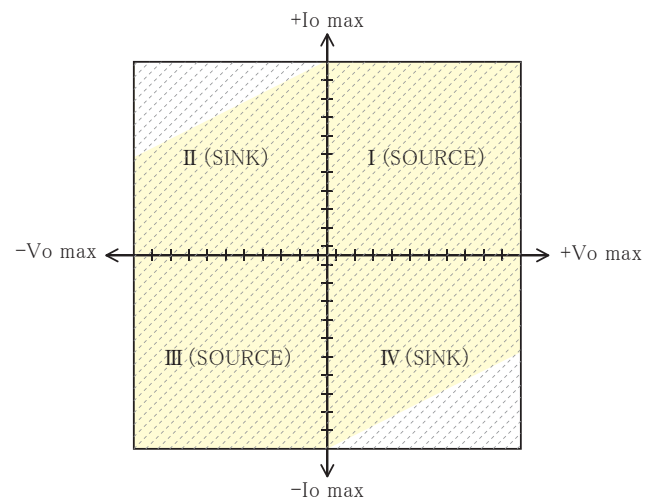

Output range

DOP series is a bi-polar power supply which can perform four-quadrant operation. They can supply (source) and absorb (sink) current in the field of the drawing on the right.

Vo max : rated output voltage
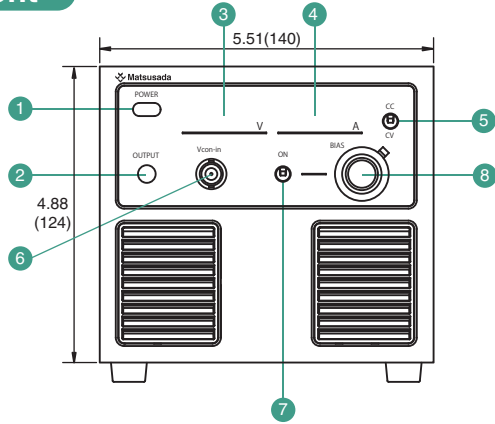Io max : rated output current

Range of AC operation (with 50Hz or more frequency and 50 % of duty and without any DC bias)
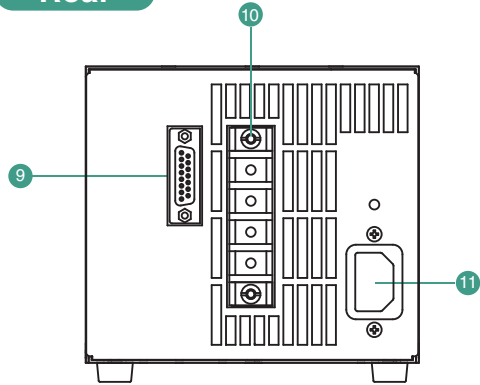
Range of DC operation
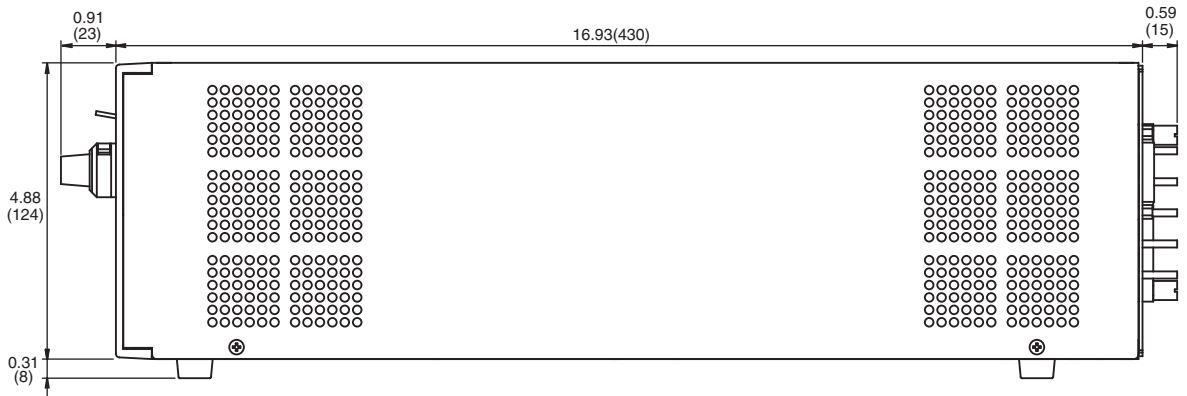
Dimensions inch(mm) / Functions

Front

5.51(140)

4.88
(124)

Matsusada
POWER
OUTPUT   Vcon-in   ON   BIAS
V   A   CC CV

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Rear

⑩ ⑨ ⑪

Side

0.91
(23)
16.93(430)
0.59
(15)

4.88
(124)

0.31
(8)

① POWER ON/OFF switch
② OUTPUT ON/OFF switch
③ Output voltage meter
④ Output current meter
⑤ CV/CC select switch
⑥ Vcon-in terminal
⑦ Bias ON/OFF switch
⑧ Bias setting dial
⑨ Control connector
⑩ Output terminal
⑪ AC input terminal

CV/CC setting selection

Inputting voltage via Vcon-in enables the control of output voltage V when CV control is selected and output current A when CC control is selected.

Vcon	In CV mode Output voltage	In CC mode Output current
−10V	−Rating	−Rating
0V	0V	0A
+10V	+Rating	+Rating

Use of BIAS

When the "BIAS ON/OFF switch" is flipped to ON, bias can be changed with the "BIAS setting dial." Bias of the voltage can be set when CV control is selected, and that of the current can be when CC control is selected.

Scale	In CV mode Output voltage	In CC mode Output current
000(ccw)	−Rating	−Rating
500	0V	0A
1000(cw)	+Rating	+Rating

AC input cable

CABLE TYPE 1	CABLE TYPE 3	CABLE TYPE 4
125V / 10A (Standard) (up to 120V)	250V / 10A (Separately)	250V / 10A (Separately)

Options

-LD Door switch
-LS Remote switch

When ordering, suffix the following option mark to the model number.
<e.g> DJOP60-1-LDS (Alphabetical order)

Characteristic of amplifier

Rise time

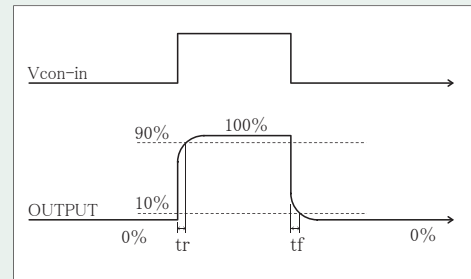(Stepping time): The response time is sometimes described by the rise time (as shown in the drawing on the right).
The rise time of an amplifier at a response speed of (= frequency bandwidth) Fc (Hz) is generally acquired by "tr $\fallingdotseq$ 0.35/fc."
Fall time tf is the same as tr.
Frequency bandwidth
 : at 30kHz or lower, tr = tf = around 12 μs
 : at 20kHz or lower, tr = tf = around 18 μs

Response speed

When accurate output waveforms are required, select a amplifier with a frequency bandwidth higher enough than the operating frequency.
In case of using sine waves, 3 to 5 times more frequency bandwidth is required, and around 10times more in case of square waves in general. Inadequate bandwidth causes not only decrease in the output amplitude but much difference between the input and output phases. Therefore operating the product while monitoring the actual output waveforms is recommended.
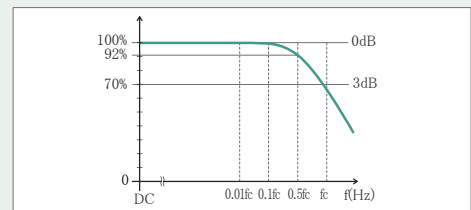
Capacitative load

Capacitative load may cause oscillation.
In such cases, placed a power resistance in series with the output.
Be careful that the frequency bandwidth is limited depending on the resistance and capacitance placed in series when capacitative load.

Inductive load

Some inductance of inductive load may cause resonance in CC mode.
In such cases, connect a C-R series circuit between output terminals to prevent resonance.

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

Customer Inquiry Sheet (DJOP 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:	

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