DC Output (only single-phase output)

	DP060LM	DP120LM	DP180LM
Power capacity	6 kW	12 kW	18 kW
Mode	Floating output, the Lo terminal can be grounded.		
Rated output voltage	100 V / 200 V		
Voltage setting range	−227 V to +227 V / −454 V to +454 V, Setting resolution : 0.1 V		
Voltage accuracy *15	± (|0.5% of set| + 0.6 V / 1.2 V)		
Maximum source current *16	60 A / 30 A	120 A / 60 A	180 A / 90 A
Maximum instantaneous source current *17	Peak value (Apk) which is four times of the maximum current		Peak value (Apk) which is three times of the maximum current
Short sink current *18	100 % or less of maximum source current (reverse power flow time ≤ 20 ms, discontinuous, 40°C or lower)		

Stability and Distortion

Output Voltage Stability	Fluctuation with input voltage (Phase voltage) *19 : Within ±0.15% Fluctuation with output current (Phase voltage) *20 DC (Only single-phase output) : Within ±0.15 V/±0.30 V, 45 Hz to 65 Hz : Within ±0.15 V/±0.30 V, 40 Hz to 550 Hz : Within ±0.5 V/±1.0 V Fluctuation with ambient temperature (Phase voltage) *21 : Within ±0.01 %/°C (typ.)
Distortion of Output Voltage Waveform *22	0.5 % or lower

Power Input

	DP060LM	DP120LM	DP180LM
Voltage (Specify when ordering)	Overvoltage Category II		
	1P2W input : 200 V to 230 V ±15 %, with limited to 250 V or lower 3P3W input : 200 V to 220 V ±15 %, with limited to 250 V or lower 3P4W input : 380 V (phase voltage : 220 V) ±15 %, with limited to 433 V (phase voltage : 250 V) or lower.		3P3W input : 200 V to 220 V ±15 %, with limited to 250 V or lower 3P4W input : 380 V (phase voltage : 220 V) ±15 %, with limited to 433 V (phase voltage : 250 V) or lower.
Frequency	50 Hz ±2 Hz or 60 Hz ±2 Hz		
Power factor*23	0.90 or higher (typ.)		
Efficiency *23	77% or higher (typ.)		
Maximum power consumption	9 kVA or lower	18 kVA or lower	27 kVA or lower

General Specifications

	DP060LM		DP120LM		DP180LM	
Multi-phase output	Single-phase	Polyphase	Single-phase	Polyphase	Single-phase	Polyphase
Interface	USB (USB1.1, USBTMC), RS-232 (Equipped as standard) GPIB, LAN (IEEE 802.3, LXI 1.4 Core 2011) (Specify when ordering)					
Withstand voltage	AC 1500 V or DC 2130 V 1 minute					
Operating temperature/humidity	0°C to +50°C, 5% to 85%RH (absolute humidity : 1 to 25 g/m³, without condensation) Some specifications are limited by the temperature range					
Dimensions (mm) (not including protrusions)	455(W)×887(H)×803(D)		455(W)×1407(H)×803(D)		910(W)×1580(H)×803(D)	
Weight	Approx. 125 kg		Approx. 200 kg		Approx. 350 kg	
Power input terminal (rear)	M6 screw		3P3W : M8 upset bolt, 3P4W : M6 screw		M10 upset bolt	
Output terminal	M6 screw		M8 upset bolt	M6 screw	M10 upset bolt	M6 screw
Sensing input terminal (rear)	M4 screw					
EMC	—		KN 11, KN 61000-6-2		—	
Accessories	Instruction Manual, CD-ROM (Control Software, LabVIEW Driver, Instruction Manual for Remote Control and Control Software) Control cable (D-sub 25 pin connector), Stabilizer (DP120LM only)					

*1 Can be set only in the polyphase output.
*2 For phase voltage setting in the polyphase output. In balanced mode all phases are collectively set and in unbalanced mode each phase is individually set .
*3 In the case of 10 V to 150 V/20 V to 300 V, sine wave, no load, 45 Hz to 65 Hz, DC voltage setting 0 V, 23°C±5C. For phase voltage setting in the polyphase output.
*4 Line voltage can be set only in balanced mode and sine wave.
*5 If the output voltage is higher than the rated value, this is limited (lowered) to satisfy the power capacity. If there is the DC superimposition, the active current of ACDC satisfies the maximum current. In the case of 40 Hz or lower or 400 Hz or higher, and that the ambient temperature is 40°C or higher, the maximum current may decrease.
For phase current setting in the polyphase output.
*6 For the capacitor input type rectified load (crest factor=4 or 3), the rated output voltage, and 45 Hz to 65 Hz.
*7 In the case rated output voltage, 50 Hz or 60 Hz. If the output voltage is higher than the rated value, this is limited to satisfy the power capacity. It may reduce short reverse power flow if ambient temperature is 40°C or higher or repeated interval of reverse power flow is 15 minutes or less.
*8 External power injection or regeneration which is over short reverse power flow capacity is not available.
*9 For 45 Hz to 65 Hz, the rated output voltage, no load and the resistance load for the maximum current, and the operating temperature.
*10 For 40 Hz to 550 Hz, sine wave, the rated output voltage, the resistance load for the maximum current at 55 Hz, and 55 Hz reference.
*11 Setting for the L1 phase in the polyphase ouput. The component of the phase angle setting is added for the other phases.
*12 Can be set only with unbalance mode in the polyphase output.
*13 In the case of 50 V or higher, sine wave, and same load condition and voltage setting for all phases.
*14 In the case of the AC mode and 23°C±5°C.
*15 In the case of −212 V to −10 V, +10 V to +212 V / −424 V to −20 V, +20 V to +424 V, no load, AC setting 0 V, 23°C±5°C.
*16 If the output voltage is higher than the rated value, this is limited (lowered) to satisfy the power capacity. If there is the AC superimposition, the active current of DC+AC satisfies the maximum current. In the case that the ambient temperature is 40 °C or higher, the maximum current may decrease.
*17 Instantaneous = within 2 ms, at the rated output voltage.
*18 In the case rated output voltage. If the output voltage is higher than the rated value, this is limited to satisfy the power capacity. It may reduce short reverse power flow if ambient temperature is 40°C or higher or repeated interval of reverse power flow is 15 minutes or less.
*19 For power input 170 V to 250 V (3P3W) or 323 V to 433 V (3P4W), power input 200 V reference (3P3W) or 380 V reference (3P4W), the resistance load at the maximum current, the rated output voltage, DC (only single-phase output) or 45 Hz to 65 Hz. Transition state immediately after a change of the input power-supply voltage is not included. For phase voltage setting in the polyphase output.
*20 In the case that the output current is changed from 0% to 100% of the maximum current. For output voltage 75 V to 150 V/150 V to 300 V, no load reference. However, if the output voltage is higher than the rated value, the maximum current is limited to satisfy the power capacity. For phase voltage setting in the polyphase output.
*21 For power input 200 V (3P3W) or 380 V (3P4W), no load, the rated output voltage, DC (only single-phase output) or 45 Hz to 65 Hz. For phase voltage setting in the polyphase output.
*22 40 Hz to 550 Hz, 50 % or higher of the rated output voltage, the maximum current or lower, AC and ACDC modes, THD+N.
*23 In the case of AC-INT, the rated output voltage, the resistance load at the maximum current, 45 Hz to 65 Hz output.

Note : The contents of this catalog are current as of Juiy 2, 2019
●Products appearance and specificaitons are subject to change without notice.
●Before purchase contact us to confirm the latest specifications, price and delivery date.

NF Corporation
Head Office
6-3-20 Tsunashima Higashi, Kohoku-ku, Yokohama 223-8508, Japan
http://www.nfcorp.co.jp/english/

NF Techno Commerce Co., Ltd. International Sales Division
6-3-14 Tsunashima Higashi, Kohoku-ku, Yokohama 223-0052, Japan
Phone : +81-45-777-7604 Fax : +81-45-777-7605

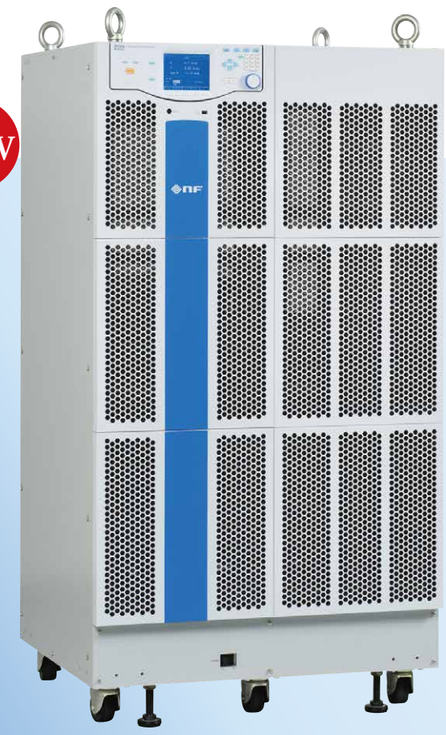
Strong & Smart

Smarter, More Powerful !!

PROGRAMMABLE AC POWER SOURCE

DP SERIES

MULTI-PHASE MODEL



NEW

With a Single Compact Unit

Multiple outputs for multiple uses

Switch between single-phase, single-phase three-wire, and three-phase

DP180LM

NEW LINEUP

DP060LM 6kVA DP120LM 12kVA DP180LM 18kVA

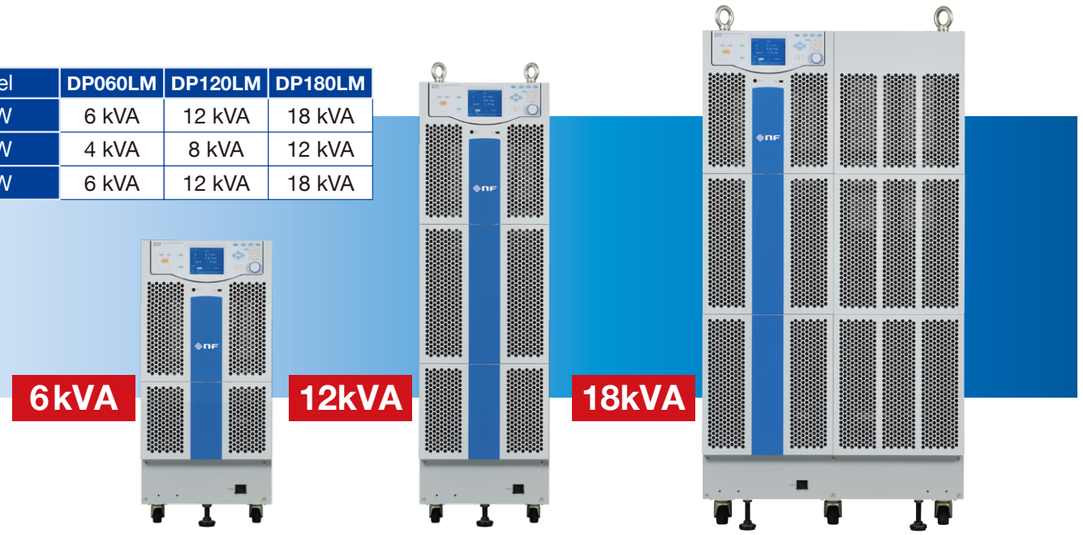
NF Corporation

MULTI-PHASE MODEL

6 kVA, 12 kVA and 18 kVA models added to multi-phase lineup that allows switching between 1P2W, 1P3W, and 3P4W outputs. Diverse testing can be done with a single unit that offers the full function and performance of the DP Series.

Switch between 1P2W, 1P3W, and 3P4W

Model	DP060LM	DP120LM	DP180LM
1P2W	6 kVA	12 kVA	18 kVA
1P3W	4 kVA	8 kVA	12 kVA
3P4W	6 kVA	12 kVA	18 kVA



DP060LM DP120LM DP180LM

AC Power Source with Hybrid Power Control

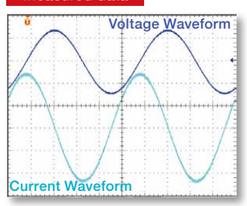
The DP Series is the choice.

Highly robust, low distortion

Hybrid power control provides highly robust operation. Stable driving for both capacitive and inductive loads without switching response characteristics. Low distortion output, too.

Output waveform when driving a 1000 μF capacitor load

Measured data



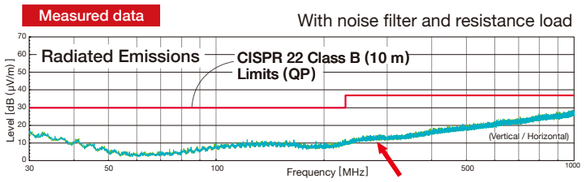
No resonance or distortion, even with a high-capacitance noise filter connected

Low noise

Low noise for both conduction and radiation. Suitable for use in CVCF for anechoic chambers or EMC testing.

Measured data

With noise filter and resistance load



Actual measured value (Peak)

Reverse power flow 100%

DP060LM, DP120LM and DP180LM multi-phase models can handle 100% reverse power flow (regeneration) of 20 ms or less. For example, when the load is an inverter that has an AC reactor for improving the power factor, etc., the reverse power flow that occurs when the inverter power supply is turned off can be absorbed.

Load protection
Variable current limiter function

Equipped with a variable limiter for the peak current and effective current. The limiter can be set to continuous operation or output off. Using the limiter for loads that have a large inrush current eliminates the need to introduce a high-capacity power supply to match the inrush current.

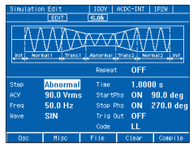
Single compact space-saving unit

The DP060LM, DP120LM and DP180LM multi-phase models are single compact units that can be used for single phase, three wire single phase, and three-phase testing, saving space and reducing costs because separate units are not needed for each type of testing .

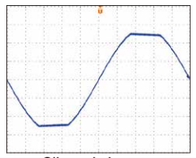
Various Functions

- Measurement Functions
  Voltage, Current, Power , Harmonic current (up to 40th order), Load power factor, Crest factor, Sync frequency
- Current Limiter Function
  Positive/negative peak current value and RMS current value
- Remote Sensing, AGC (Automatic Gain Control), Autocal (Output Voltage Compensation)
- Sequence Function
- AC Line Simulation
- Clipped Sine Wave, Arbitrary Waveform

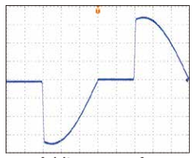
▲Sequence function



▲AC line simulation



▲Clipped sine wave

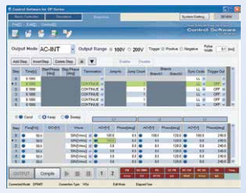


▲Arbitrary waveform

- External Control I/O
  - CONTROL I/O
  - Used to control Voltage Dip simulator and Reference impedance network
- Interface
  - RS-232, USB (equipped as standard)
  - GPIB or LAN (LXI) (Specify when ordering)
- Control Software (included by default)

Control Software

Enables control of basic parameters for output via a PC, including data logging, and creating/editing of sequence, simulation and arbitrary waveforms.



▲Sequence editing

▲Editing for simulation

Specifications

Specifications are valid under the following settings and conditions, unless otherwise noted.
Load : Resistance load of power factor 1, Signal source: INT (internal signal source), Output voltage waveform : Sine wave, Remote sensing : Off, AGC/Autocal : Off, Current Limiter : Factory default setting

- [set] indicates a setting value, and [rdg] indicates a read value. The description noted with "/" indicates that the specification changes by the output range, such as "100 V range specification / 200 V range specification."
- The input voltage is noted as line voltage in three-phase four-wire input, unless otherwise noted.
- A value with the accuracy is the guaranteed value of the specification.
- A value without the accuracy is the nominal value or representative value (shown as typ.) .

AC/DC Mode and Signal Source

	Single-phase output	Polyphase output
AC/DC mode	AC, ACDC, DC	AC, ACDC
Signal source	INT, VCA, SYNC, EXT, ADD	INT, VCA, SYNC

AC Output

	DP060LM		DP120LM		DP180LM	
Multi-phase output	Single-phase	Polyphase	Single-phase	Polyphase	Single-phase	Polyphase
Power capacity	**6 kVA**	1P3W : **4 kVA** 3P4W : **6 kVA**	**12 kVA**	1P3W : **8 kVA** 3P4W : **12 kVA**	**18 kVA**	1P3W : **12 kVA** 3P4W : **18 kVA**
Mode	1P2W Floating output, the Lo terminal can be grounded.	1P3W 3P4W (Y-connection) Floating output, the N-terminal can be grounded.	1P2W Floating output, the Lo terminal can be grounded.	1P3W 3P4W (Y-connection) Floating output, the N-terminal can be grounded.	1P2W Floating output, the Lo terminal can be grounded.	1P3W 3P4W (Y-connection) Floating output, the N-terminal can be grounded.
Setting mode *1	—	Balanced, Unbalanced	—	Balanced, Unbalanced	—	Balanced, Unbalanced
Rated output voltage	100 V / 200 V					
Voltage setting range *2	0.0 V to 160.0 V / 0.0 V to 320.0 V, Arbitrary wave : 0.0 Vp-p to 454.0 Vp-p / 0.0 Vp-p to 908.0 Vp-p, Setting resolution : 0.1 V					
Voltage accuracy *3	± (0.5 % of set + 0.6 V / 1.2 V)					
Line voltage setting range *4	—	1P3W : 0.0 V to 320.0 V / 0.0 V to 640.0 V 3P4W : 0.0 V to 277.2 V / 0.00 V to 554.2 V Setting resolution : 0.2 V	—	1P3W : 0.0 V to 320.0 V / 0.0 V to 640.0 V 3P4W : 0.0 V to 277.2 V / 0.00 V to 554.2 V Setting resolution : 0.2 V	—	1P3W : 0.0 V to 320.0 V / 0.0 V to 640.0 V 3P4W : 0.0 V to 277.2 V / 0.00 V to 554.2 V Setting resolution : 0.2 V
Maximum current *5	60 A / 30 A	20 A / 10 A	120 A / 60 A	40 A / 20 A	180 A / 90 A	60 A / 30 A
Maximum peak current *6	Peak value (Apk) which is four times of the maximum current				Peak value (Apk) which is three times of the max. current	
Short reverse power flow *7 *8	100 % or less of maximum current (RMS) (reverse power flow time ≤ 20 ms, discontinuous, 40°C or lower)					
Load power factor *8	0 to 1 (phase lead or phase lag, 45 Hz to 65 Hz)					
Frequency setting range	40.00 Hz to 550.00 Hz (AC mode) , 1.00 Hz to 550.00 Hz (ACDC mode) , Setting resolution : 0.01 Hz					
Frequency accuracy	±0.01 % of set (23°C ±5°C)					
Frequency stability *9	±0.005%					
Voltage frequency characteristic*10	±1%					
Output waveform	Sine wave, arbitrary wave (16 types) , clipped sine wave (3 types)					
Output on phase setting range*11	0.0° to 359.9° variable, Setting resolution : 0.1°					
Output off phase setting range*11	0.0° to 359.9° variable (active/inactive selectable) , Setting resolution : 0.1°					
Setting range of the phase angle *12	—	1P3W L2 phase : 180.0°±35.0° 3P4W L2 phase : 120.0°±35.0° L3 phase : 240.0°±35.0° Setting resolution : 0.1°	—	1P3W L2 phase : 180.0°±35.0° 3P4W L2 phase : 120.0°±35.0° L3 phase : 240.0°±35.0° Setting resolution : 0.1°	—	1P3W L2 phase : 180.0°±35.0° 3P4W L2 phase : 120.0°±35.0° L3 phase : 240.0°±35.0° Setting resolution : 0.1°
Phase angle accuracy *13	—	45 Hz to 65 Hz : ±1.0° 40 Hz to 550 Hz : ±2.0°	—	45 Hz to 65 Hz : ±1.0° 40 Hz to 550 Hz : ±2.0°	—	45 Hz to 65 Hz : ±1.0° 40 Hz to 550 Hz : ±2.0°
DC offset *14	Within ± 20 mV (typ.), fine adjustment available					