

Specifications

[BP4610 / BP4620]

Output

Output voltage range	Any 120 Vp-p between -115 V and +115 V
Maximum output voltage CV mode* ¹ (R _L =Resistive load)	DC to 0.5 kHz : $\pm 60 \text{ V}$ (R _L = $6\Omega^{*2} / 3\Omega^{*3}$) 0.5 kHz to 70 kHz : $\pm 60 \text{ V}$ (R _L = $4\Omega^{*2} / 2\Omega^{*3}$) 70 kHz to 150 kHz : $\pm 50 \text{ V}$ (R _L = $6\Omega^{*2} / 3\Omega^{*3}$)
Maximum output current CC mode* ¹ (R _L =Resistive load)	DC to 0.5 kHz : $\pm 10 \text{ A}^{*2} / \pm 20 \text{ A}^{*3}$ (R _L = $6\Omega^{*2} / 3\Omega^{*3}$) 0.5 kHz to 30 kHz : $\pm 15 \text{ A}^{*2} / \pm 30 \text{ A}^{*3}$ (R _L = $4\Omega^{*2} / 2\Omega^{*3}$) 30 kHz to 70 kHz : $\pm 8.3 \text{ A}^{*2} / \pm 16.6 \text{ A}^{*3}$ (R _L = $6\Omega^{*2} / 3\Omega^{*3}$)
Small amplitude frequency characteristics* ¹	CV mode : DC to 200 kHz (amplitude 12 Vp-p) CC mode : DC to 70kHz (amplitude 12 Vp-p)
Response calibration function	Response characteristics can be adjusted with knobs on the front panel (Time constant: T, Voltage: V, and Current: I)
Rise / Fall time* ¹	CV mode : 2.5 μs (square $\pm 60 \text{ V}$) CC mode : 4 μs (square $\pm 10 \text{ A}^{*2} / \pm 20 \text{ A}^{*3}$)
Output impedance* ¹	CV mode : $7 \text{ m}\Omega + 1.3 \mu\text{H}^{*2} / 3.5 \text{ m}\Omega + 0.65 \mu\text{H}^{*3}$ CC mode : $10 \text{ k}\Omega / 0.45 \mu\text{F}^{*2} / 5 \text{ k}\Omega / 0.90 \mu\text{F}^{*3}$
Output voltage limiter	+ voltage setting range : +7 V to +117 V (resolution 0.1 V) - voltage setting range : -7 V to -117 V (resolution 0.1 V) (The difference between the + voltage and the - voltage setting is restricted to 24 V or higher and 124 V or lower.)
Output current limiter	+ current setting range : +1 A to +26 $\text{A}^{*2} / +2$ to +52 A^{*3} (resolution 0.1 A) - current setting range : -1 A to -26 $\text{A}^{*2} / -2$ to +52 A^{*3} (resolution 0.1 A)
Residual noise	CV mode : 50 mVrms or lower CC mode : 8 mArms or lower (The input terminal is shorted. 10 Hz to 300 kHz)

Signal Sources

Selectable from among internal source, external signal, and internal source + external signal.

Internal signal source	DC	Amplitude setting range : CV mode $\pm 115 \text{ V}$ (resolution 0.01 V) CC mode $\pm 10 \text{ A}^{*2}$ (resolution 0.001 A) $\pm 20 \text{ A}^{*3}$ (resolution 0.001 A)
	Superimposed AC	Waveform : Sine, Square, Arbitrary (16 types) Frequency setting range : 1 Hz to 100 kHz (resolution 0.1 Hz) Amplitude setting range : CV mode 0 to 120 Vp-p (resolution 0.1 Vp-p) CC mode 0 to 30 Ap-p ^{*2} (resolution 0.01 Ap-p) 0 to 60 Ap-p ^{*3} (resolution 0.01 Ap-p)
External signal input		Frequency range : DC to 200 kHz Gain : CV mode 100 times (100V / 1V), In phase CC mode 10 times (10 A / 1 V) ^{*2} , In phase 20 times (20 A / 1 V) ^{*3} , In phase

Sequence Function

Number of sequences		1 sequence for each of the CV mode and CC mode
Number of steps		1 to 255 (within 1 sequence)
Step time		0.1 ms to 999.9999 s (resolution 0.1 ms)
Operation within each steps		Constant or linear sweep
Parameters	CV mode	DC voltage, Superimposed AC voltage, Frequency, Waveform, Step sync output 2 bits
	CC mode	DC current, Superimposed AC current, Frequency, Waveform, Step sync output 2 bits
Jump count		1 to 999, or continuous
Sequence control	Start	Start the sequence.
	Stop	Stop the sequence.
	Hold	Maintains settings at that point. The operation resumes at sequence start.
	Branch	Branches to the specified step.

Others

Monitor output	Voltage, Current
Measurement functions	DC output voltage, DC output current, AC output voltage, AC output current
Arbitrary waveform memory	16 (1024 words, 16 bit.) Write is performed via the USB interface.
Store / Recall memory	The basic settings can be saved to memories No. 1 to No. 30
Protective functions	If Output voltage over, output current over, internal output loss, Power supply anomaly, Internal overheating and operation panel anomaly are detected, the protective function works.
Interface	USB (USBTMC / USB488,USB1.1)
Other function	Output ON / OFF function, external control input / output, key lock, beep, reset, self-diagnosis function
Power input	BP4610 : 100 V to 230 V $\pm 10\%$ 250 V or lower BP4620 : 200 V to 230 V $\pm 10\%$ 50 Hz / 60 Hz $\pm 2\%$
Power consumption/ Power factor	BP4610 : Maximum of 1200 VA, Power factor 0.95 (at AC 100 V) BP4620 : Maximum of 2400 VA, Power factor 0.93 (at AC 200 V)
Ambient temperature / Humidity range	Performance Guarantee : +5 to +35°C / 5 to 85%RH with absolute humidity of 1 to 25g/m ³ and no condensation Storing Conditions : -10 to +50°C / 5 to 95%RH with absolute humidity of 1 to 29g / m ³ and no condensation
Dimensions (W×H×D)(mm)	BP4610 : 430(W) × 176(H) × 551(D) (No protrusions) BP4620 : 430(W) × 354(H) × 551(D) (No protrusions)
Weight (Approx.)	BP4610 : 26 kg BP4620 : 53 kg
Accessory	Manual, CD-ROM, Ferrite core (for USB cable) , Power code set

*¹ Typical values. These vary depending on the adjustment with the response calibration function. *² BP4610 *³ BP4620

[BP4630 / BP4640 / BP4650 / BP4660 / BP4670 / BP4680 / BP4690 / BP46100]

Output

*Adjusted characteristics R_L: Resistive load

Maximum output voltage* CV mode				
DC	+115 V (set + Vo limit to 117 V and - Vo limit to -7 V) -115 V (set + Vo limit to 7 V and - Vo limit to -117 V)			
	BP4630	BP4640	BP4650	BP4660
	RL=7.7 Ω	RL=5.8 Ω	RL=4.6 Ω	RL=3.8 Ω
	BP4670	BP4680	BP4690	BP46100
DC to 0.5 kHz	$\pm 60 \text{ V}$			
	BP4630	BP4640	BP4650	BP4660
	RL=2.0 Ω	RL=1.5 Ω	RL=1.2 Ω	RL=1.0 Ω
	BP4670	BP4680	BP4690	BP46100
0.5 kHz to 40 kHz	$\pm 60 \text{ V}$			
	BP4630	BP4640	BP4650	BP4660
	RL=1.3 Ω	RL=1.0 Ω	RL=0.80 Ω	RL=0.67 Ω
	BP4670	BP4680	BP4690	BP46100
40 kHz to 150 kHz	$\pm 50 \text{ V}$			
	BP4630	BP4640	BP4650	BP4660
	RL=2.0 Ω	RL=1.5 Ω	RL=1.2 Ω	RL=1.0 Ω
	BP4670	BP4680	BP4690	BP46100
Maximum output current* CC mode				
DC to 0.5 kHz	$\pm 30 \text{ A}$			
	BP4630	BP4640	BP4650	BP4660
	RL=2.0 Ω	RL=1.5 Ω	RL=1.2 Ω	RL=1.0 Ω
	BP4670	BP4680	BP4690	BP46100
0.5 kHz to 30 kHz	$\pm 45 \text{ A}$			
	BP4630	BP4640	BP4650	BP4660
	RL=1.3 Ω	RL=1.0 Ω	RL=0.80 Ω	RL=0.67 Ω
	BP4670	BP4680	BP4690	BP46100
30 kHz to 70 kHz	$\pm 24.9 \text{ A}$			
	BP4630	BP4640	BP4650	BP4660
	RL=2.0 Ω	RL=1.5 Ω	RL=1.2 Ω	RL=1.0 Ω
	BP4670	BP4680	BP4690	BP46100

Bipolar DC Power Supply BP Series

Small amplitude frequency characteristics*	CV mode : BP4630 to BP4650 : DC to 200 kHz (amplitude 12 Vp-p, 500 Hz reference) BP4660 to BP46100 : DC to 170kHz (amplitude 12 Vp-p, 500 Hz reference) CC mode : DC to 70kHz (amplitude 12 Vp-p, 500 Hz reference)			
Response calibration function	Response characteristics can be adjusted with knobs on the front panel (Time constant: T, Voltage: V, and Current: I)			
Rise / Fall time	CV mode BP4630 to BP4650 : 2.5 μ s (adjusted, square $\pm$ 60 V) BP4660 to BP46100 : 2.7 μ s (adjusted, square $\pm$ 60 V) CC mode BP4630 to BP4650 : 4 μ s (adjusted, square, for the following current) BP4660 to BP46100 : 4.2 μ s (adjusted, square, for the following current)			
Output impedance	CV mode* :			
	BP4630	BP4640	BP4650	BP4660
	2.3 m Ω +	1.8 m Ω +	1.4 m Ω +	1.2 m Ω +
	0.43 μ H	0.33 μ H	0.31 μ H	0.3 μ H
	BP4670	BP4680	BP4690	BP46100
	1 m Ω +	0.9 m Ω +	0.8 m Ω +	0.7 m Ω +
	0.29 μ H	0.27 μ H	0.26 μ H	0.24 μ H
	CC mode* :			
	BP4630	BP4640	BP4650	BP4660
	3.3 k Ω //	2.5 k Ω //	2 k Ω //	1.7 k Ω //
Output voltage limiter	+7 V to +117 V (initial : +62 V, resolution 0.1 V)			
	-117 V to -7 V (initial : -62 V, resolution 0.1 V)			
	Note : The difference between the + voltage and the - voltage setting is restricted to 24 V or higher and 124 V or lower.			
	BP4630	BP4640	BP4650	BP4660
	+3 A to +78 A	+4 A to +104 A	+5 A to +130 A	+6 A to +156 A
	BP4670	BP4680	BP4690	BP46100
	+7A to +182 A	+8 A to +208 A	+9 A to +234 A	+10 A to +260 A
	BP4630	BP4640	BP4650	BP4660
	-78A to -3A	-104A to -4A	-130A to -5A	-156 A to -6 A
	BP4670	BP4680	BP4690	BP46100
Output current limiter	+7A to +182 A			
	BP4630	BP4640	BP4650	BP4660
	-78A to -3A	-104A to -4A	-130A to -5A	-156 A to -6 A
	BP4670	BP4680	BP4690	BP46100
	-182 A to -7 A	-208 A to -8 A	-234 A to -9 A	-260 A to -10 A

Signal Sources

Selectable from among internal source, external signal, and internal source + external signal.

Internal signal source					
CV mode					
AC voltage	DC voltage setting range	-115 to +115 V (resolution 0.01 V)			
	Amplitude setting range	0 Vp-p to 120 Vp-p (resolution 0.1 Vp-p)			
	Waveform	Sine, Square, Arbitrary (16 types)			
	Frequency setting range	1 Hz to 100 kHz (resolution 0.1 Hz)			
CC mode					
DC current	Setting range	BP4630	BP4640	BP4650	BP4660
		-30 A to +30 A	-40 A to +40 A	-50 A to +50 A	-60 A to +60 A
		BP4670	BP4680	BP4690	BP46100
		-70 A to +70 A	-80 A to +80 A	-90 A to +90 A	-100 A to +100 A
	Resolution	0.01A			
AC current	Amplitude setting range	BP4630	BP4640	BP4650	BP4660
		0 Ap-p to 90 Ap-p	0 Ap-p to 120 Ap-p	0 Ap-p to 150 Ap-p	0 Ap-p to 180 Ap-p
		BP4670	BP4680	BP4690	BP46100
		0 Ap-p to 210 Ap-p	0 Ap-p to 240 Ap-p	0 Ap-p to 270 Ap-p	0 Ap-p to 300 Ap-p
	Resolution	0.1 Ap-p			
	Waveform	Sine, Square, Arbitrary (16 types)			
	Frequency setting range	1 Hz to 100 kHz (resolution 0.1 Hz)			
External signal input					
Phase		In phase			
Input impedance		10 kΩ			
Non-destructive max. input voltage		±5 V			
Frequency range		DC to 200 kHz			
Gain		CV mode : 100			
		CC mode :			
		BP4630	BP4640	BP4650	BP4660
		30 A / V	40 A / V	50 A / V	60 A / V
		BP4670	BP4680	BP4690	BP46100
	70 A / V	80 A / V	90 A / V	100 A / V	

Sequence Function

Number of sequences	1 sequence for each of the CV mode and CC mode	
Number of steps	1 to 255 (within 1 sequence)	
Step time	0.1 ms to 999.9999 s (resolution 0.1 ms)	
Operation within each steps	Constant or linear sweep	
Parameters	CV mode	DC voltage, Superimposed AC voltage, Frequency, Waveform, Step sync output 2 bits
	CC mode	DC current, Superimposed AC current, Frequency, Waveform, Step sync output 2 bits
Jump count	1 to 999, or continuous	
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Others

Monitor output	Voltage, Current			
Measurement functions	DC output voltage, DC output current, AC output voltage, AC output current			
Arbitrary waveform memory	16 (1024 words, 16 bit.) Write is performed via the USB interface.			
Store / Recall memory	The basic settings can be saved to memories No. 1 to No. 30			
Protective functions	If Output voltage over, output current over, internal output loss, Power supply anomaly, Internal overheating and operation panel anomaly are detected, the protective function works.			
Interface	USB (USBTMC / USB488,USB1.1)			
Other function	Output ON / OFF function, external control input / output, key lock, beep, reset, self-diagnosis function			
Power input	BP4630 : single-phase 180 V to 250 V, 50 Hz/60 Hz $\pm$ 2 Hz BP4640 to BP46100 (specify on order): three-phase, 3-wire 180 V to 250 V or three-phase, 4-wire 323 V to 433 V 50 Hz/60 Hz $\pm$ 2 Hz			
Power factor (Approx.)	0.93			
Power consumption	BP4630	BP4640	BP4650	BP4660
	3.6 kVA	4.8 kVA	6 kVA	7.2 kVA
	BP4670	BP4680	BP4690	BP46100
	8.4 kVA	9.6 kVA	10.8 kVA	12 kVA
Dimensions (W×H×D)(mm) (No Protrusions)	BP4630 : 430(W) × 710(H) × 686(D)			
	BP4640 / BP4650 : 505(W) × 1150(H) × 700(D)			
	BP4660 to BP46100 : 995(W) × 1150(H) × 700(D)			
Weight (Approx.)	BP4630	BP4640	BP4650	BP4660
	97 kg	165 kg	180 kg	260 kg
	BP4670	BP4680	BP4690	BP46100
	280 kg	300 kg	320 kg	340 kg
EMC (Excluding BP4630)	KN 11 (Group 1, Class A) KN 61000-6-2			
Accessory	Manual, CD-ROM, Ferrite core (for USB cable)			

Note: The contents of this catalog are current as of April 12, 2021.
Product appearance and specifications are subject to change without notice.
Before purchase, contact us to confirm the latest specifications, price and delivery date.

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