

Unless otherwise noted, below setting and conditions are specified after 30 minute warm up period.

- Output Waveform: sine wave • Output Polarity : In-phase
- Load: 50 Ω (Power Factor 1, nominal value) • Input Impedance : 50 Ω
- Gain Setting : ×50 (CAL)

The following values with accuracy represents warranted performance, values without accuracy are not warranted, they are typical values(typ.) or reference values. Reference values are only supplementary data to use for reference, they do not guarantee performance.

## Input

Input type	Input A, Input B or addition of input A and input B (When two inputs are on, the maximum input voltage is within ±10 V in total)
Input impedance	50 Ω±5%, 10 kΩ±5% switchable (Unbalanced, switch between two inputs A and B at once)
Maximum input voltage	±10 V
Non-destructive input voltage	±11 V
Input terminals	BNC connector Input A : Front panel, Input B : Rear panel Lo side is connected to the chassis.

## Output

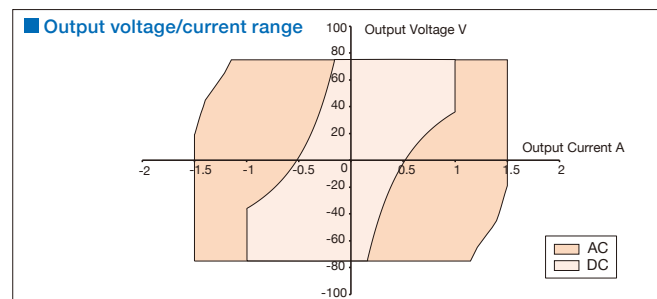
Output mode	Constant Voltage (CV)
Output polarity	In-phase or reversed phase (switchable with switch on front panel)
Gain setting function	Fixed : ×1, ×10, ×20, ×50 Variable: ×1(CAL) to ×3 consecutive Gain Setting is (Fixed)×(Variable).
Gain error	±5% (Fixed Gain : ×1, ×10, ×20, and ×50, Variable Gain : CAL, at 400 Hz)
Maximum output voltage	Load of Resistance 50 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) Load of Resistance 75 Ω ±75 V (DC to 1 MHz)
Maximum current (AC)	1.06 Arms, 3 Ap-p (40 Hz to 1 MHz)
Maximum current (DC)	±1 A
Low amplitude frequency characteristics	DC to 100 kHz : -1 dB to +1 dB (Output Amplitude 10 Vrms, 100 kHz to 1 MHz : -3 dB to +1 dB reference 400 Hz)
Slew rate	475 V/μs or above (Input Square wave, output 150 Vp-p)
Output DC offset	Adjustment Range : ±0.5 V or above (Input Terminal Short circuit) Temperature Drift : within ±(1+0.1×G) mV/°C (typ.) *G is gain (DC bias off)
Output DC bias	±75 V or above on/off with switch on front panel
Harmonic distortion factor	0.1% or less (40 Hz to 1 kHz, output 40 Vrms) 0.5% or less (1 kHz to 100 kHz, output 40 Vrms)
Spurious	-30 dBc or less (100 kHz to 1 MHz, output 40 Vrms)
Output noise	(3.6+0.08×G) mVrms or less *G is gain (Input terminal short circuit, bandwidth 10 Hz to 1 MHz)
Output impedance	[0.19+0.0155√f (1+j)] Ω or less (typ.) f : frequency (Hz)
Output terminals	BNC connector Terminal Number : 2 (1 for front panel and 1 for rear panel) Lo side is connect to chassis. Terminals on front panel and rear panel are connected in parallel.

## Output voltage monitor

Monitor ratio	1/100 of output voltage (1 V / 100 V), same polarity as output voltage
Monitor accuracy	±5.0% (DC to 1 MHz) (Error between output voltage and monitor output conversion voltage, load impedance 1 MΩ)
Output impedance	50 Ω±5%
Output terminal	BNC connector (rear panel)

## Output level LED meter

Display item	Output voltage and Output current
Detection method	Level display from 0% to 100% with 11 LEDs. Average value detection (AC+DC). Calibrated with sine wave.
Full scale (100%)	Voltage : 75 V Current : 1.06 A



## Protection function

Overload	By detecting excessive output current or excessive internal power loss, the output current is clipped and the front panel overload LED lights up. Output turns off if the overload condition continues for 10 seconds or longer. If the overload continues for 60 seconds or longer, the mode switches to disabled mode.
Output overvoltage	Output turns off when an error is detected. If the error continues for 60 seconds or longer, the mode switches to disabled mode.
Internal power supply error	The internal power error LED on the front panel flashes when an error is detected. Then output off, the mode switches to disabled mode.
Internal temperature error	The front panel overload LED lights up when an error is detected. Output turns off if the temperature error continues for 10 seconds or longer. If the overload continues for 60 seconds or longer, the mode switches to disabled mode.
Cooling fan error	Output turns off when an error is detected. The mode switches to disabled mode.

Disable mode: All operations except power off are disabled.

## External control input/output

Control input	Control item	Output on/off
	Control input valid/invalid	Setting with the DIP switch on the rear panel
	Input level	Hi : +4.0 V or more Lo : +1.0 V or less
	Non-destructive input	+6 V/-5 V
	Input type	Photocoupler LED input (series resistance 150 Ω)
Status output	Signal detection cycle	50 ms
	Output type	Open collector output
	Range of voltage and current	15 V or less, 10 mA or less
	Status item	Output on/off (output on is short-circuited), Overload (output overload is short-circuited)
Terminals	State update cycle	10 ms
		D-sub 9-pin multi connector (rear panel)

## Output on/off control

Output on/off	Controlled by front panel switch or external control input (When the external control input is valid, only output off is valid for front panel operation)
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## Power-on status setting

Setting method	The DIP switch on the rear panel
Setting items (8 items)	Output (on/off), Gain, External control (on/off), Output polarity, input A (on/off), input B (on/off), Input impedance (50Ω/10kΩ), DC bias (on/off)

## General Information

Power input	AC100 V to 230 V±10% (Maximum voltage 250 V), Overvoltage category II 50 Hz ±2 Hz or 60 Hz ±2 Hz (Single-phase), Power consumption (Maximum) 290 VA Power factor 0.95 or more
Withstanding voltage*	AC1500 V
Insulation resistance*	10 MΩ or higher (DC 500 V)
Operating environment	Indoor use, Pollution degree 2
Altitude	2000 m or lower
Guaranteed operation	0°C to +40°C 5% RH to 85% RH, (Absolute humidity 1 to 25 g/m <sup>3</sup> , no condensation)
Guaranteed performance	+5°C to +35°C 5% RH to 85% RH, (Absolute humidity 1 to 25 g/m <sup>3</sup> , no condensation)
Storage conditions	-10°C to +50°C 5% RH to 85% RH, (Absolute humidity 1 to 29 g/m <sup>3</sup> , no condensation)
Dimensions (W×H×D) mm	220×132.5×450 (no protrusions)
Weight (approx.)	10 kg

\*Between power input vs. others and chassis in total

## High Speed Bipolar Amplifier lineup

Please choose according to your application.

Model name	Frequency characteristics	Output voltage	Output current	Slew rate
HSA4051	DC to 500 kHz	300 Vp-p	2.83 Ap-p	450 V/μs
HSA4052	DC to 500 kHz	300 Vp-p	5.66 Ap-p	450 V/μs
HSA4101	DC to 10 MHz	142 Vp-p	2.8 Ap-p	5000 V/μs
BA4825	DC to 2 MHz	300 Vp-p	0.5 Arms	500 V/μs

\*Note: The contents of this catalog are current as of June 10th, 2020.

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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