Specifications

Unless otherwise noted, below setting and conditions are specified after a 30 minute warm up period.
•Output Waveform: sine wave •Output Polarity: In-phase
•Load: (Power Factor 1, nominal value)
50Ω (HSA42011), 25Ω (HSA42012), 12.5Ω (HSA42014)
•Input Impedance: 50Ω •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 Format	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 maximum input voltage	±11 V
Input Terminals	BNC connector Input A: Front panel, Input B: Rea panel Lo side is connected to the chassis.

Output

	HSA42011	HSA42012	HSA42014
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 Accuracy	±5% (Fixed Gain:×1, ×10,×20, and ×50, Variable Gain: CAL, at 400 Hz)		
Maximum Output Voltage R_L: Load of resistance	R_L: 50 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) R_L: 75 Ω ±75 V (DC to 1 MHz)	R_L: 25 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) R_L: 37.5 Ω ±75 V (DC to 1 MHz)	R_L: 12.5 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) R_L: 18.8 Ω ±75 V (DC to 1 MHz)
Maximum Output Current(AC)	1.06 Arms, 3 Ap-p (40 Hz to 1 MHz)	2.12 Arms, 6 Ap-p (40 Hz to 1 MHz)	4.24 Arms, 12 Ap-p (40 Hz to 1 MHz)
Maximum Output Current(DC)	±1 A	± 2 A	±4 A
Low Amplitude Frequency response	DC to 100 kHz −1 dB to +1 dB 100 kHz to 1 MHz −3 dB to +1 dB (Output Amplitude 10 Vrms, reference 400 Hz)		
Slew Rate	475 V/μs or above		
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 Rate	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		
Output Impedance	[0.19+0.0155 $\sqrt{f}$×(1+j)] Ω or less (typ.)	[0.19+0.00803 $\sqrt{f}$×(1+j)] Ω or less (typ.)	[0.19+0.00460 $\sqrt{f}$×(1+j)] Ω or less (typ.)
Output Terminals	BNC connector, two terminals (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

	HSA42011	HSA42012	HSA42014
Display item	Output voltage and Output current Level display from 0% to 100% with 11 LEDs.		
Detection method	Average value detection (AC+DC). Calibrated with sine wave.		
Full scale (100%)	Voltage: 75 V Current: 1.06 A	Voltage: 75 V Current: 2.12 A	Voltage: 75 V Current: 4.24 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 disable 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 changes to disable 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 changes to disable mode.
Cooling fan error	Output turns off when an error is detected. The mode switches to disable 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
	Maximum Input Voltage(Non-destructive)	+6 V/−5 V
	Input circuit format	Photocoupler LED input (series resistance 150 Ω)
	Signal detection cycle	50 ms
Status output	Output circuit format	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)
	State update cycle	10 ms
Terminals		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)

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 (50 Ω/10 kΩ), DC bias (on/off)

General Information

	HSA42011	HSA42012	HSA42014
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 factor 0.95 or more		
Power Consumption	290 VA or less	580 VA or less	1050 VA or less
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		
Operation Conditions	0°C to +40°C 5% to 85% RH, (Absolute humidity 1 to 25 g/m³, no condensation)		
Performance Conditions	+5°C to +35°C 5% to 85% RH, (Absolute humidity 1 to 25 g/m³, no condensation)		
Storage conditions	−10°C to +50°C 5% to 95% RH, (Absolute humidity 1 to 29 g/m³, no condensation)		
Dimensions (W×H×D) mm (no protrusions)	220×132.5×450	290×132.5×450	350×177×450
Weight (approx.)	9 kg	11 kg	16 kg

*Between power input vs. others and chassis in total

*Note: The contents of this catalog are current as of November 6th, 2024.
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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