Specifications

Settings and Conditions · 30 minute warm-up · Waveform : sine wave · Polarity : In-phase · DC mode · Gain Setting : ×100 (CAL)
· Load (PF 1, nominal value) : 100 Ω (HSA42051) , 50 Ω (HSA42052) · Input Impedance : 50 Ω

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 : Rea panel Lo side is connected to the chassis.

Output

Output mode	Constant Voltage (CV)	
AC/DC mode	DC or AC	
Output polarity	In-phase or reversed phase (switchable with switch on front panel)	
Gain setting function	Fixed : ×1, ×20, ×40, ×100 Variable: ×1(CAL) to ×3 consecutive Gain Setting is (Fixed)×(Variable).	
Gain error	±5% (Fixed Gain : ×1, ×20, ×40, and ×100, Variable Gain: CAL, Input voltage 0.1Vrms or more, at 400 Hz)	
Maximum output voltage		
DC mode	Load of Resistance 100 Ω*1	100 Vrms (40 Hz to 200 kHz) 40 Vrms (20 Hz to 500 kHz)
	Load of Resistance 150 Ω*2	±150 V (DC to 50 kHz) ±140 V (50 kHz to 200 kHz) ±55 V (200 kHz to 500 kHz)
AC mode	Load of Resistance 100 Ω*1	100 Vrms (40 Hz to 200 kHz) 40 Vrms (20 Hz to 500 kHz)
	Load of Resistance 150Ω*2	±150 V (10 Hz to 50 kHz) ±140 V (50 kHz to 200 kHz) ±55 V (200 kHz to 500 kHz)
Maximum current (AC)	**HSA42051** : 1Arms、2.83Ap-p（40Hz～200kHz） **HSA42052** : 2Arms、5.66Ap-p（40Hz～200kHz）	
Maximum current (DC)	**HSA42051** : ±1 A **HSA42052** : ±2 A	
Low amplitude frequency response		
DC mode	DC to 100 kHz : -0.3 dB to +0.3 dB 100 kHz to 300 kHz : -1 dB to +0.5 dB 300 kHz to 500 kHz : -3 dB to +0.5 dB (Output Amplitude 20 Vrms, reference 400 Hz)	
AC mode	10 Hz to 100 kHz : -0.3 dB to +0.3 dB 100 kHz to 300 kHz : -1 dB to +0.5 dB 300 kHz to 500 kHz : -3 dB to +0.5 dB (Output Amplitude 20 Vrms, reference 400 Hz)	
Slew rate	450 V/μs or above	
Output DC offset*3		
DC mode	Adjustment Range : ±1 V or above (Input Terminal Short circuit)	
AC mode	Adjustment Range : ±1 mV or above	
Output DC bias	±150 V or above on/off with switch on front panel	
Harmonic distortion factor	0.1% or less (40 Hz to 1 kHz, output 80 Vrms) 0.5% or less (1 kHz to 20 kHz, output 80 Vrms)	
Spurious	-46 dBc or less (20 kHz to 50 kHz, output 80 Vrms) -30 dBc or less (50 kHz to 500 kHz, output 30 Vrms)	
Output noise*3	(7.2+0.16×G) mVrms or less (G=1 to 3) (1+0.4×G) mVrms or less (G=20 to 300) (Input terminal short circuit, bandwidth 10 Hz to 1 MHz)	
Output impedance*4	**HSA42051** : [0.19+0.016 $\sqrt{f}$ (1+j)] Ω or less (typ.) **HSA42052** : [0.19+0.0084 $\sqrt{f}$ (1+j)] Ω or less (typ.)	
Output terminals	BNC connector Number of terminals: 2 (One each on the front and rear panels) Lo side is connect to chassis. Terminals on front panel and rear panel are connected in parallel.	

*1 50Ω for HSA42052 *2 75Ω for HSA42052
*3 G means gain. *4 f means frequency, unit is Hz.

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 500 kHz) (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 Level display from 0% to 100% with 11 LEDs.
Detection method	Average value detection (AC+DC). Calibrated with sine wave.
Full scale (100%)	**HSA42051** : Voltage : 150 V Current : 1 A **HSA42052** : Voltage : 150 V Current : 2 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.
Output overvoltage	Output turns off when an error is detected.
Internal power supply error	The internal power error LED on the front panel flashes when an error is detected.Then output off.
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.
Cooling fan error	Output turns off when an error is detected.

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)
	Signal detection cycle	50 ms
Status output	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)
	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 (9 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) AC/DC mode (AC/DC)

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) 1050 VA Power factor 0.95 or more (AC 100V, 50Hz)
Consumption Power	**HSA42051** : 580 VA or more **HSA42052** : 1050 VA or more
Withstanding voltage*	AC1500 V
Insulation resistance*	10 MΩ or higher (DC 500 V)
Operating environment	Indoor use, Pollution degree 2
Guaranteed performance	+5°C to + 35°C 5% RH to 85% RH, (Absolute humidity 1 to 25g/m3, no condensation)
Storage conditions	−10°to + 50°C 5% RH to 85% RH, (Absolute humidity 1 to 29g/m3, no condensation)
Dimensions (W×H×D) mm	**HSA42051** : 290（W）×132.5（H）×450（D）mm **HSA42052** : 350（W）×177（H）×450（D）mm
Weight (approx.)	**HSA42051** : 11kg **HSA42052** : 16kg

*Between power input vs. others and chassis in total

*Note: The contents of this catalog are current as of June 23th, 2023.
Product appearance and specifications are subject to change without notice.
Before purchase, contact us to confirm the latest specifications, price and delivery date.