

# Specifications

## HSA series

Model	HSA 4011	HSA 4012	HSA 4014	
Frequency range	DC to 1MHz			
Output	Maximum voltage	150Vp-p (±75V) RL=50Ω 50Vrms (40Hz to 500kHz) 45Vrms (20Hz to 1MHz) RL=100Ω ±75V (DC to 100kHz) ±70V (DC to 500kHz) ±65V (DC to 1MHz)	150Vp-p (±75V) ● ±75V range RL=25Ω 50Vrms (40Hz to 500kHz) 40Vrms (20Hz to 1MHz) RL=75Ω ±75V (DC to 100kHz) ±55V (DC to 1MHz) ● -25 to +125V range RL=125Ω -25 to +125V (DC to 100kHz) -5 to +105V (DC to 1MHz) ● -125 to +25V range RL=125Ω -125 to +25V (DC to 100kHz) -105 to +5V (DC to 1MHz)	150Vp-p (±75V) ● ±75V range RL=12.5Ω 50Vrms (40Hz to 500kHz) 40Vrms (20Hz to 1MHz) RL=37.5Ω ±75V (DC to 100kHz) ±55V (DC to 1MHz) ● -25 to +125V range RL=62.5Ω -25 to +125V (DC to 100kHz) -5 to +105V (DC to 1MHz) ● -125 to +25V range RL=62.5Ω -125 to +25V (DC to 100kHz) -105 to +5V (DC to 1MHz)
	Maximum current	1A rms, 2.82Ap-p (40Hz to 1MHz) ±0.75A (DC to 40Hz)	2A rms, 5.66Ap-p (40Hz to 500kHz) ±1.0A (DC to 40Hz)	4A rms, 11.3Ap-p (40Hz to 500kHz) ±2.0A (DC to 40Hz)
	Slew rate	600V/μs typ.	400V/μs typ.	400V/μs typ.
	Impedance	0.5Ω +1.5μH max.	0.25Ω +0.8μH max.	0.125Ω +0.4μH max.
	Preamplifier output	Inverted phase of input. (Available for 2 units BTL connection), Connector BNC- R on rear panel		
	DC bias	±50V (by 10 turns potentiometer)	±100V (by 10 turns potentiometer)	
	Other functions	Monitor meter*1, Monitor output, DC offset adjustment, Output ON/OFF switch		
	Type	2 inputs of A and B (Enable to add), Same phase both of A and B input against output		
	Impedance	50Ω/600Ω selectable		
	Gain	×10, ×20, ×50, ×100 and ×(1 to 3) variable continuously		
Frequency response	1MHz (+0.5 to -1dB, 10Vrms)	1MHz (+0.5 to -3dB, 10Vrms, ±75V range)		
Input voltage	AC100V (One of 120V/200V/240V can be modified by factory option), 48Hz to 62Hz			
Power consumption	200W/300VA	340W/500VA	700W/900VA	
Dimensions (mm)/Weight	220(W)×132.5(H)×450(D)/approx.10kg	290(W)×132.5(H)×450(D)/approx.13kg	290(W)×177(H)×450(D)/approx.18kg	
Reference	*1 Average value indication of DC+AC			

Model	HSA 4051	HSA 4052	HSA 4101	
Frequency range	DC to 500kHz		DC to 10MHz	
Output	Maximum voltage	300Vp-p (±150V) ● ±150V range RL=100Ω 100Vrms (40Hz to 200kHz) 40Vrms (20Hz to 500kHz) RL=300Ω ±150V (DC to 50kHz) ±55V (DC to 500kHz) ● -50 to +250V range RL=500Ω -50 to +250V (DC to 50kHz) +45 to +155V (DC to 500kHz) ● -250 to +50V range RL=500Ω -250 to +50V (DC to 50kHz) -155 to -45V (DC to 500kHz)	300Vp-p (±150V) ● ±150V range RL=50Ω 100Vrms (40Hz to 200kHz) 40Vrms (20Hz to 500kHz) RL=150Ω ±150V (DC to 50kHz) ±55V (DC to 500kHz) ● -50 to +250V range RL=250Ω -50 to +250V (DC to 50kHz) +45 to +155V (DC to 500kHz) ● -250 to +50V range RL=250Ω -250 to +50V (DC to 50kHz) -155 to -45V (DC to 500kHz)	142Vp-p (±71V) RL=50Ω 50Vrms (40Hz to 100kHz) 46Vrms (100kHz to 1MHz) 35Vrms (1MHz to 10MHz) 17Vrms (10MHz to 20MHz) RL=71Ω ±71V (DC to 40Hz)
	Maximum current	1A rms, 2.83Ap-p (40Hz to 200kHz) ±0.5A (DC to 40Hz)	2A rms, 5.66Ap-p (40Hz to 200kHz) ±1.0A (DC to 40Hz)	±1.4A(40Hz to 100kHz), ±1.3A (100kHz to 1MHz) ±1.0A (1MHz to 10MHz), ±1A (DC to 40Hz)
	Slew rate	450V/μs typ.	450V/μs typ.	5000V/μs typ.
	Impedance	1Ω +3.2μH max.	0.5Ω +1.6μH max.	1.5Ω +0.5μH typ.
	Preamplifier output	Opposite phase of input.(Available for 2 units BTL connection), Connector BNC-R on rear panel		---
	DC bias	±200V (by 10 turns potentiometer)		±70V (by 10 turns potentiometer)
	Other functions	Monitor meter*1, Monitor output, DC offset adjustment, Output ON/OFF switch		
	Type	2 inputs of A and B (Enable to add), Same phase both of A and B input against output		one input (enable to change polarity)
	Impedance	50Ω/600Ω selectable		50Ω
	Gain	×20, ×40, ×100, ×200 and ×(1 to 3) variable continuously		×10, ×20, ×50, ×100 and ×(0.4 to 1) variable continuously
Frequency response	500kHz (+0.5 to -3dB, 20Vrms, ±150V range)		10MHz (+0.5 to -3dB, 10Vrms)*2	
Input voltage	AC100V (One of 120V/200V/240V can be modified by factory option), 48Hz to 62Hz		AC85V to 138V, AC170V to 250V, 48Hz to 62Hz	
Power consumption	340W/500VA	700W/900VA	400W/700VA	
Dimensions (mm)/Weight	290(W)×132.5(H)×450(D)/approx.13kg	290(W)×177(H)×450(D)/approx.18kg	220(W)×177(H)×450(D)/approx.7.8kg	
Reference	*1 Average value indication of DC+AC		※Only HSA 4101 enables input coupling (AC/DC) to change.	
			*2 DC mode :DC to 100kHz(±0.3dB), AC mode :40Hz cutoff frequency HPF is inserted.	