

OWNER'S MANUAL

MANUEL DE L'UTILISATEUR

Pre-Release



SYNERGY
SA221S

Synergy SA221S Powered Speaker

Thank you for choosing Yorkville's Synergy SA221S subwoofer, the companion subwoofer to the SA153. The SA series excels in sound reinforcement applications where a line array is desired but cannot be easily accommodated.

Cabinet Features

The SA221S is constructed of high strength multiply birch plywood for ultimate durability. There are 2 woofers, each 21-inch-long-throw.

Electronic Features

A Yorkville proprietary DSP platform provides processing to prevent over-excursion (X-Max), voice coil overheating (VC thermal) and clipping. The DSP uses IIR filters for crossover and equalization and there is a small delay added to time align with the SA153 top box. The X-Max limiter and the VC thermal limiter are both frequency sensitive and calibrated to match the characteristics of the driver and cabinet system. The VC-thermal limiter can be advanced to limit the power draw in cases where there is less than ample power available. The X-Max limiter is faster, pretty much instantaneous. The VC-thermal limiter is slower reacting, typically operating near the end of a bass beat at 120 bpm.

The amplifier is a high headroom Class-D design. There is a large capacitor bank so that bass transients are less dependent on the quality of the power line.

The limiter indicators indicate when the X-max or VC thermal limiters are active. Typically, the X-max limiter is more active but this is content dependent. The effect of the line power advance can be observed by carefully watching these limit lights as the control is changed while operating in limit. The VC-therm indicator will come on sooner as the Average Power limiter is advanced. With many types of music, the effect of the VC-therm limiter will be minimal.

1. Power Switch and Indicator

The green power LED illuminates when the power switch is turned to the On position and AC voltage is supplied. When the power is removed or the power switched is moved to the off position the green power indicator will blink while the power supply is discharging. The processing circuitry will not reboot unless the power supply is fully discharged before being turned back on. It is not necessary to reboot however. Turning the power back on before the power supply is discharged will simply resume normal operation.

2. PowerCON TRUE AC loop thru

As a standard, the AC inlet on the SA221S accepts locking PowerCON TRUE power cords. There is also an AC outlet that can be used to loop power through to other cabinets in your array using a male to female PowerCON TRUE looping power cord. Check with your local Yorkville dealer for availability of these accessory cords.

Warning: Do not exceed a total load of 20 A on the looping AC chain.

3. Input Jack

This female-XLR accepts line level XLR microphone cables. For best noise reduction use balanced sources.

4. Dual Link Outputs

These XLR male connectors can be used with a standard XLR cable to daisy-chain up to 20 SA221S or SA315 cabinets without signal degradation. Simply loop from one cabinet's Link jack to the next cabinet's Input jack. In many cases this limit of 20 cabinets can be exceeded, consult Yorkville Sound for more details.

5. SA221S Level Control

This control adjusts the volume level of the SA221S relative to the input signal level. Mixers and other audio sources connected to the SA221S tend to have different output voltages, which mean the level control on the SA221S is used to fine tune the cabinet's volume relative to the mixer settings. It is perfectly acceptable to set the SA221S Level above or below the center 0 dB setting.

6. Clip, X-Max, VC-Therm, Activity Indicators

The Clip and Limit LED indicators illuminate to guide the user to proper operating levels.

Illumination either of the yellow Limit LEDs indicates that a level has been reached where the SA221S limiters are reducing the signal internally to prevent damage or distortion. It also indicates that further increases in input level or increasing the SA221S Level control position will not appreciably increase acoustic output.

The red Clip LED indicates that the input level is excessive and further increases in level will cause severe distortion. The input signal should be reduced at the source until Clip activity ceases. The clip indicator comes on at 12 Vrms, 16 volts peak. The input clips at 17 Vrms, 24 volts peak.

The activity Indicator comes on at 5 mVrms or -45 dBV.

7. Average Power Limit Control

The average power limit control allows the power to be reduced to allow operation on limited power availability. Full power transients will be allowed through but if the average power is excessive then the power will be limited. This control works by advancing the limiter that limits the voice coil temperature. In the 100% position the power is limited only by the voice coil temperature. In the 75% position music with deep continuous bass will be limited but many types of music will not. In the 50% position only certain types of music will not be limited, primarily music without deep bass or where the bass is unprocessed. Voice applications typically will not be limited in the 50% position.

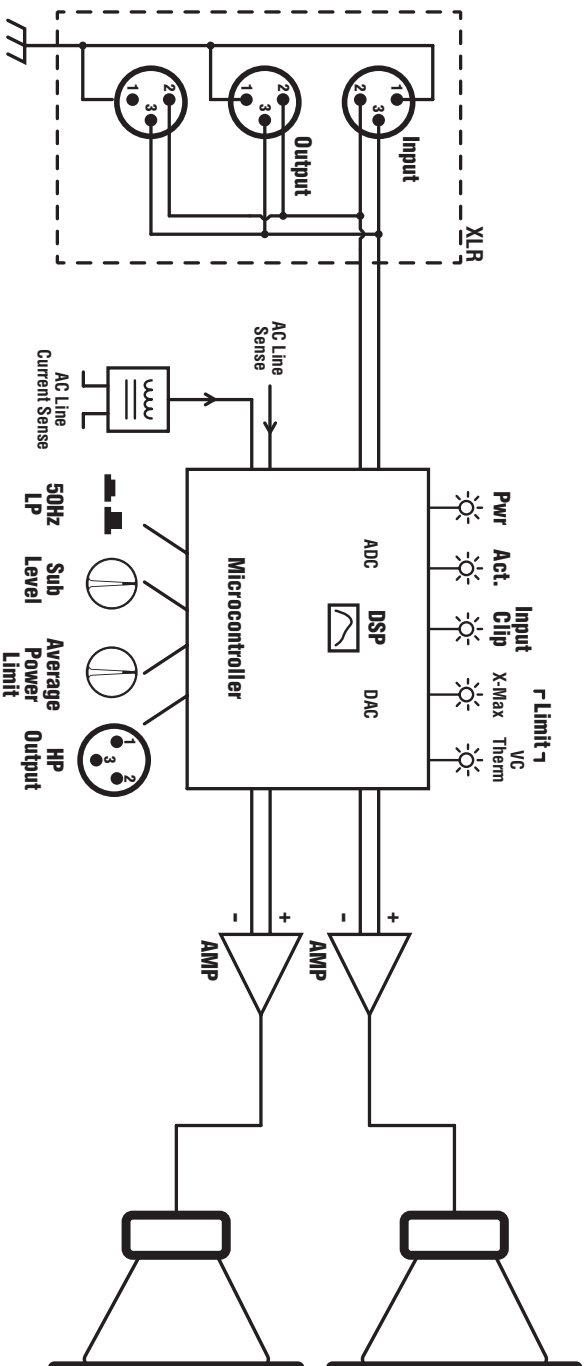
Specifications	
Active or Passive	Active
Program Power (watts)	6000 watts program 17000 watts peak
Measured Max SPL (C-Weighted, Max Hold)	130.6 dB Cont., 142.6 dB Peak
Frequency Response (Hz +/- 3dB)	28Hz-100Hz
Crossover Frequency (Hz)	50 or 100 Hz lowpass
Cabinet Configuration	Bass Reflex
Driver Configuration	2x21-inch LF woofer
LF Driver(s)	21-inch Neo with 4.5-inch Tetra Coil
LF Program Power (watts)	6000 watts Program, 17000 watts Peak
LF Impedance (ohms)	2 ohm Load (2 x 4 ohm)
LF Protection	Excursion, Voice Coil Thermal (RMS)
LF Power Amplifier (watts)	6000 watts program (17000 watts peak)
LF Amplifier Type	Class D
Cooling Scheme	Convection
Power Cable	Removable Locking Powercon True Input and Loop Thru Output
Power Switch	Yes
Power Consumption (typ/max)	1440 VA / 1920 VA
Inputs	1 XLR with 2x XLR Parallel out, Impedance 35k ohms
Input Sensitivity (Vrms Sine)	Line in 1.4 at center, 0.56 at max
Level Controls	Volume, -∞, 0dB, 8dB (Min, Top, Max)
EQ Controls	Thermal Limiter Advance for power consumption management
Limiter	Excursion, Thermal (RMS), Clipping
LED Indicators	Power, Excursion Limit, Thermal (RMS) Limit, Input Clip, Activity
Enclosure Materials	Multiply 15mm Birch Plywood
Casters	4 x Locking Swivel Casters On Rear Of Cabinet
Stand Adapter	2 (1 Top, 1 Side)
UHMW Skid Glides	2 Rear
Stacking Feature	Rubber Feet and Cups (Side and Bottom)
Covering / Finish	Paint
Dimensions (DWH inches)	32.750 (37.750 including casters) x 29.750 x 47.5
Dimensions (DWH cm)	83.2 (95.8 including casters) x 75.5 x 120.6
Weight (lbs/kg)	319/145

**Specifications subject to change without notice*

Optional Synergy Series Accessories		
YS Part	Name	Description
SAPICKUPBAR1	Pickup Bar	Single column cabinet hanging hardware (2x SA153 plus 1x SA315S MAX)
SABUMPER1	Flying Bumper	4 wide flying bumper (8x SA153 plus 4x SA315S MAX)
SA153COVER	SA153 Cabinet Cover	Covers two cabinets (stacked)
SA315SCOVER	SA315S Cabinet Cover	Covers one cabinet
SADOLLY1	Cabinet Dolly	Holds 2x SA153 (stacked) or 1 x SA315S

Block Diagram SA221S

DESIGNED & MANUFACTURED BY YORKVILLE SOUND





Two & Ten Year Warranty

Unlimited Warranty

Yorkville's two and ten-year unlimited warranty on this product is transferable and does not require registration with Yorkville Sound or your dealer. If this product should fail for any reason within two years of the original purchase date (ten years for the wooden enclosure), simply return it to your Yorkville dealer with original proof of purchase and it will be repaired free of charge. This includes all Yorkville products, except for the YSM Series studio monitors, Coliseum Mini Series and TX Series Loudspeakers.

Freight charges, consequential damages, weather damage, damage as a result of improper installation, damages due to exposure to extreme humidity, accident or natural disaster are excluded under the terms of this warranty. Warranty does not cover consumables such as vacuum tubes or par bulbs. See your Yorkville dealer for more details. Warranty valid only in Canada and the United States.

Garantie Illimitée

La garantie illimitée de deux et dix ans de ce produit est transférable. Il n'est pas nécessaire de faire enregistrer votre nom auprès de Yorkville Sound ou de votre détaillant. Si, pour une raison quelconque, ce produit devient défectueux durant les deux années qui suivent la date d'achat initial (dix ans pour l'ébénisterie), retournez-le simplement à votre détaillant Yorkville avec la preuve d'achat original et il sera réparé gratuitement. Ceci inclus tous les produits Yorkville à l'exception de la série de moniteurs de studio YSM, la mini série Coliseum et de la série TX.

Les frais de port et de manutention ainsi que les dommages indirects ou dommages causés par désastres naturels, extrême humidité ou mauvaise installation ne sont pas couverts par cette garantie. Cette garantie ne couvre pas les produits consommables tels que lampe d'amplificateur ou ampoules "PAR". Voir votre détaillant Yorkville pour plus de détails. Cette garantie n'est valide qu'au Canada et aux États Unis d'Amérique.

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REAL People.



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