

## Key Features:

- ▶ Multi-format Powered Subwoofer for Dolby Prologic, AC-3, DTS and other Surround Formats.
- ▶ 250 Watt Continuous Power Amplifier with Multi-Voltage capability.
- ▶ Linear Spatial Reference design based on spatial response measurements and psychoacoustic principles.
- ▶ Differential Drive® Technology with dynamic braking for extended low frequency response and low power compression.
- ▶ Carbon Fiber Composite Baffle for low cabinet resonance and stable inertial ground.
- ▶ Linear Dynamics Aperture Port Design eliminates port noise and reduces port compression.

The LSR12P Linear Spatial Reference Studio Monitor combines JBL's latest in transducer and system technology with recent breakthroughs in psychoacoustic research to provide a more accurate studio reference.

The Linear Spatial Reference (LSR) philosophy is based on a set of design goals that carefully control the overall performance of the system in a variety of acoustic spaces. Instead of focusing on a simple measure such as on-axis frequency response, LSR designs require much better control over dispersion via transducer selection and crossover frequency design. Critical decisions of image placement, EQ, balance and timbre are typically made within +/- 15° vertically and +/- 30° horizontally. This workspace is where the engineer, producer and artist make critical mixing decisions and this is the area that LSR is optimized for superb in room response. By incorporating LSR into the system design requirements, placement rules are relaxed, a more stable image is maintained and off-axis coloration is minimized.



## 252F Low Frequency Transducer:

The Neodymium 12" woofer is based on JBL's patented Differential Drive technology. With the Neodymium structure and dual drive coils power compression is kept to a minimum. An added third coil between the drive coils acts as a dynamic brake to limit excess excursion and reduce audible distortion at the highest levels. The cone is made of a carbon fiber/polypropylene composite forming a rigid piston area supported by a soft butyl rubber surround.

## LSR12P Amplification:

A 250 Watt continuous power amplifier is integrated into the LSR12P and provides correct drive levels for optimized frequency response. Amplification is class A-B in an all discrete topology. High current storage capacitors and a multi-tap toroidal transformer supply exceptionally stable output current for exceptional dynamic headroom.

## LSR12P Signal Processing:

Subwoofer signals are fed by the Left, Center, Right and Discrete inputs. This unique arrangement provides excellent bass management for a wide variety of formats. The subwoofer signals can be derived from the front channels or from the discrete input with a simple remote switch contact. Alternatively, the subwoofer can be muted with full range signals routed to the front channels for comparison with or without subwoofer support. Calibrated input levels for -10 dBV and +4 dBu inputs are included. In addition, an input attenuator can be inserted into the circuit for continuously variable level control to fine tune subwoofer level matching.

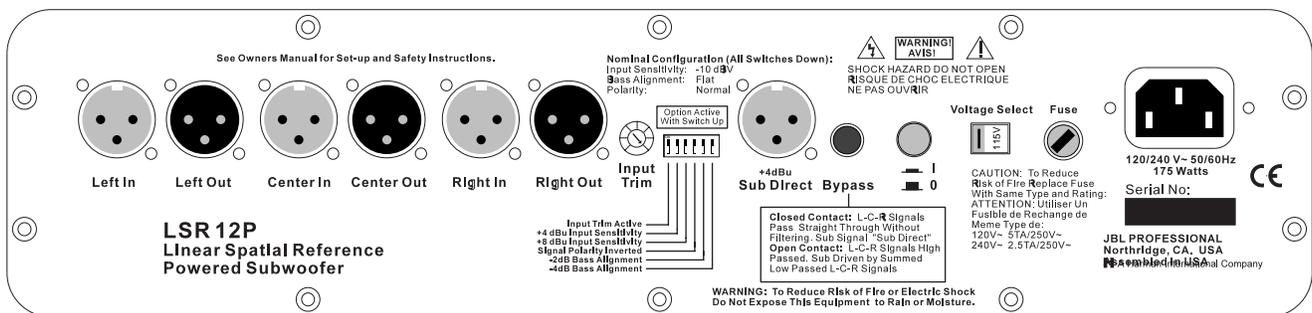
Subwoofer low pass filtering uses steep 5th order low pass filtering to minimize the possibility of localization of the subwoofer acoustic output. High pass filtering for the Left, Center and Right outputs are at 12 dB/Octave.

## ▶ LSR12P Linear Spatial Reference Active Subwoofer System

### LSR12P User Controls:

There are six dip switches that allow the user to optimize the LSR12P's performance. The first three switch settings adjust the calibration level of the Left, Center and Right Inputs. These inputs default to -10 dBv when all three switches are off. A signal to any of the three main inputs will drive the output level of the LSR12P to 96 dB SPL A weighted at 1 meter. Putting switch one on will insert a variable attenuator into the circuit which allows this level to be trimmed from 0 to -13 dB from the nominal input level.

If +4 dBu nominal input is desired, moving switch two up will change the input sensitivity to a nominal +4 dBu for 96 dBA SPL at 1 meter. Switch three adjusts the Nominal Level to +8 dB for the reference level output. With both switch two and three in the on position, a 12 dB nominal input is required to reach the 96 dBA SPL output. Switch one can be inserted with any of these switch settings to allow fine tuning of levels.



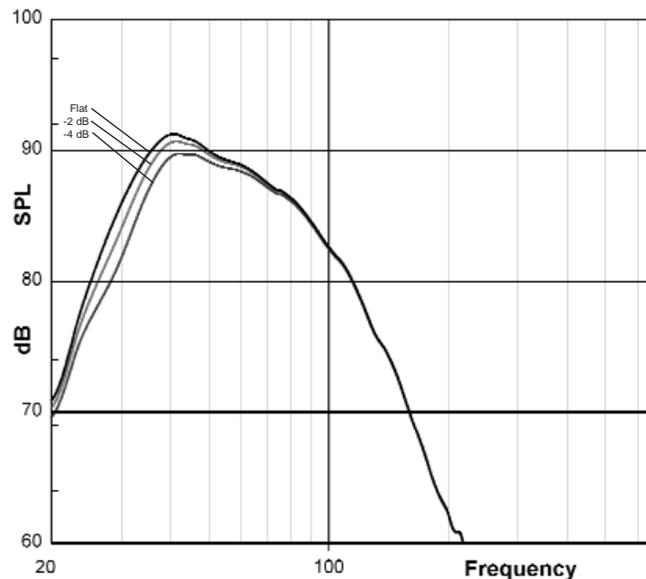
### LSR12P Boundary Compensation:

Switch four inverts the signal polarity of the subwoofer feed. This is used to correct for placement mismatch between the subwoofer and satellite spacing. Due to the varied placement options available in modern control room environments, it is suggested that this switch be adjusted after the final placement of the woofer is determined.

Switches five and six adjust the low frequency spectrum to compensate for boundary effects when a subwoofer is placed against walls or corners. Switch five reduces the output level below 50 Hz by 2 dB. Switch six reduces the output level below 50 Hz by 4 dB.

### Discrete and Bypass Operation:

A 1/4" jack is included on the back panel which allows remote control bypass of the subwoofer and selection of the discrete input. Shorting the Tip and Sleeve of the jack will remove the high pass filtering from the Left, Center and Right outputs and sources the subwoofer feed from the discrete input.



# Specifications:

## System:

Frequency Response (-6 dB) :	28 Hz - 80 Hz <sup>1</sup>
Low Frequency Extension:	User controls set to default
-3 dB:	34 Hz
-10 dB:	26 Hz
Enclosure resonance frequency:	28 Hz
Low - High Frequency Crossover:	80 Hz (4th order electroacoustic Linkwitz-Riley)
Distortion, 96 dB SPL / 1m:	
Low Frequency (< 80 Hz):	
2nd Harmonic:	<2%
3rd Harmonic:	<1%
Maximum Continuous SPL:	>112 dB SPL / 1 m (35 Hz - 80 Hz)
Maximum Peak SPL:	>115 dB SPL / 1 m (35 Hz - 80 Hz)
Calibrated Input Sensitivity:	
XLR, +4 dBu:	96 dB/1 m
XLR, -10 dBV:	96 dB/1 m
Power Non-Linearity (20 Hz - 200 Hz):	
30 watts:	< 0.4 dB
100 watts:	< 1.0 dB
Power/Clip/Bypass Indications:	Green LED - Normal Operation Amber LED - Bypass Mode Red LED - Limiter Activated

## Amplifier:

Low Frequency Topology:	Class A-B, All Discrete
Sine Wave Power Rating:	260 Watts (<0.5% THD into rated impedance)
THD+N, 1/2 power:	<0.05%
AC Input Voltage:	115/230 VAC, 50/60 Hz (User Selectable)
AC Input Voltage Operating Range:	+/- 15%
AC Input Connector:	IEC
Self Generated Noise Level:	<10 dBA SPL/1 m

## Transducers:

Low Frequency Model:	252F
Diameter:	300 mm (12 in.)
Voice Coil:	50 mm (2 in.) Differential Drive with Dynamic Braking Coil
Magnet Type:	Neodymium with integral heat sink
Cone Type:	Carbon Fiber Composite
Impedance:	2 ohm

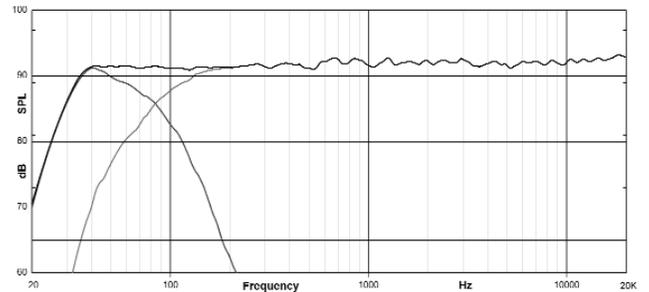
## User Controls:

Low Frequency Control (< 50 Hz)	+2 dB, 0 dB, -2 dB
Left, Center and Right Inputs:	XLR Balanced (-10 dBV/+4 dBu Nominal, Pin 2 Hot)
Discrete Input:	XLR Balanced (+4 dBu Nominal, Pin 2 Hot)
Calibrated Input Level <sup>1</sup> :	-10 dBV, +4 dBu, +8 dBu
Variable Input Attenuation <sup>1</sup> :	0 - 13 dB
Left, Center and Right Outputs:	XLR Balanced (-10 dBV/+4 dBu Nominal, Pin 2 Hot)
Output High Pass Filters:	80 Hz 2nd Order Bessel (Selectable to Full Range)
Polarity Adjustment:	Normal or Inverted
Remote Bypass Connector:	1/4" Tip/Sleeve Jack

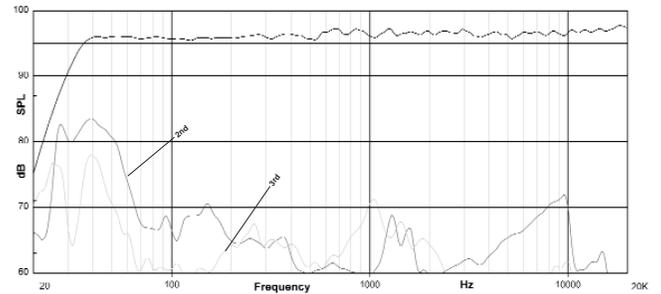
## Physical:

Finish:	Black, Low-Gloss, "Sand Texture"
Baffle Material:	Carbon Fiber Composite
Enclosure Volume (net):	50 liter (1.8 cu. ft.)
Net Weight:	22.7 kg (50 lbs)
Dimensions (WxHxD):	63.5 x 39.4 x 29.2 cm (25.0 x 15.5 x 11.5 in.)

## Amplitude contribution with LSR12P and 28P



## 96 dB/1 m (Distortion raised 20 dB)



## Notes:

### 1 Left, Center and Right Inputs

2 Produces Quasi-fourth order Linkwitz-Riley Acoustic High pass alignment when used with LSR28P or LSR32.

All measurements unless otherwise stated made anechoically in a 4π environment at 2 meters and referenced to 1 meter by the inverse square law.

The reference measurement microphone position is located perpendicular to the upper edge of the center of woofer trim ring.

Acoustic Loading provided by the listening room will increase maximum SPL capabilities and low frequency bass extension as compared to stated anechoic values.

Distortion measurements performed with the input voltage necessary to produce the stated "A" weighted SPL level at the stated measurement distance. Distortion figures refer to the maximum distortion measured in any 1/10th octave wide band in the stated frequency range.

JBL continually engages in research related to produce improvement. New materials, production methods, and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current JBL product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.

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