

# RL18S Specifications



## Features

- Custom-designed transducers and porting, signature EAW Focusing™ and DynO™ dynamic optimization processing
- 1,000 watts of Class-D Power Factor Corrected amplification
- Cardioid pattern can be generated in seconds with two button presses
- LED mute function, robust PowerCon inlet and loop connectors
- Integral wooden handles, rugged grille and RoadCoat™ enclosure, pole cup, hyper-black front EAW logo

## Applications

Concerts, Corporate AV, Portable, Live Clubs, Concert Halls, Theaters, Auditoriums, Houses of Worship

## Description

From corporate events to festivals, every aspect of Redline has been targeted at making life easier for the live sound professional. From transducers and electronics to enclosure design and fitments, Redline is built to live in the working world of demanding clients, tight schedules and even tighter budgets.

The RL18S includes a complete on-board 1,000-watt electronics package mated to a highly-customized precision transducer engineered to meet the specific demands of the Redline family. In addition to signature EAW acoustical design, DynO™ algorithms optimize the power transfer from amplifiers to transducers to audience to optimize headroom and integrity of sound at maximum output. Push-button cardioid functionality (using two or more RL18S subwoofers) keeps low-frequency energy off the stage and on the audience, and a rear-panel LED mute keeps Redline invisible in aesthetically-sensitive situations.

The RL18S enclosure incorporates EAW's signature SB rear angle to minimize input panel visibility in cardioid mode, integral road glove-ready wood handles and sleek but strong sculpted grilles on RoadCoat™ enclosures.

Six year warranty on enclosure. Two year warranty on electronics.

## 18 INCH SELF-POWERED LOUDSPEAKER

See NOTES TABULAR DATA for details

### CONFIGURATION

#### SUBSYSTEM

	TRANSDUCER	LOADING
VLF	1x 18 in, 4 in voice coil cone	Vented

#### Operating Mode

	Amplifier Channels	Signal Processing
Single amp	VLF	DSP w/DynO™

### ACOUSTICAL PERFORMANCE

#### OPERATING RANGE

30 Hz to 160 Hz

#### Nominal Beamwidth

Horiz 360°      Vert 360°

#### Axial Output Limit (whole space SPL)

		Average	Peak
Calculated	VLF	121 dB	127 dB

### ELECTRICAL PERFORMANCE

#### Input

Type Electronically balanced XLRF

#### Loop

Type Electronically balanced XLRM

#### Amplifier

	VLF
Type	Class D
Maximum Output	1000 W @ 8 ohm
Driver Protection	Integral DSP limiting

#### AC Mains (nominal)

Connector	Neutrik PowerCon®
Input	100 V to 240 V
Frequency	50 Hz to 60 Hz

#### Indicators (LED)

Amplifier Status	Green (Normal), Red (Fault)
Signal Present	Green
Limiter Active	Yellow
Clip	Red
Mode	3 x Yellow

### ORDERING DATA

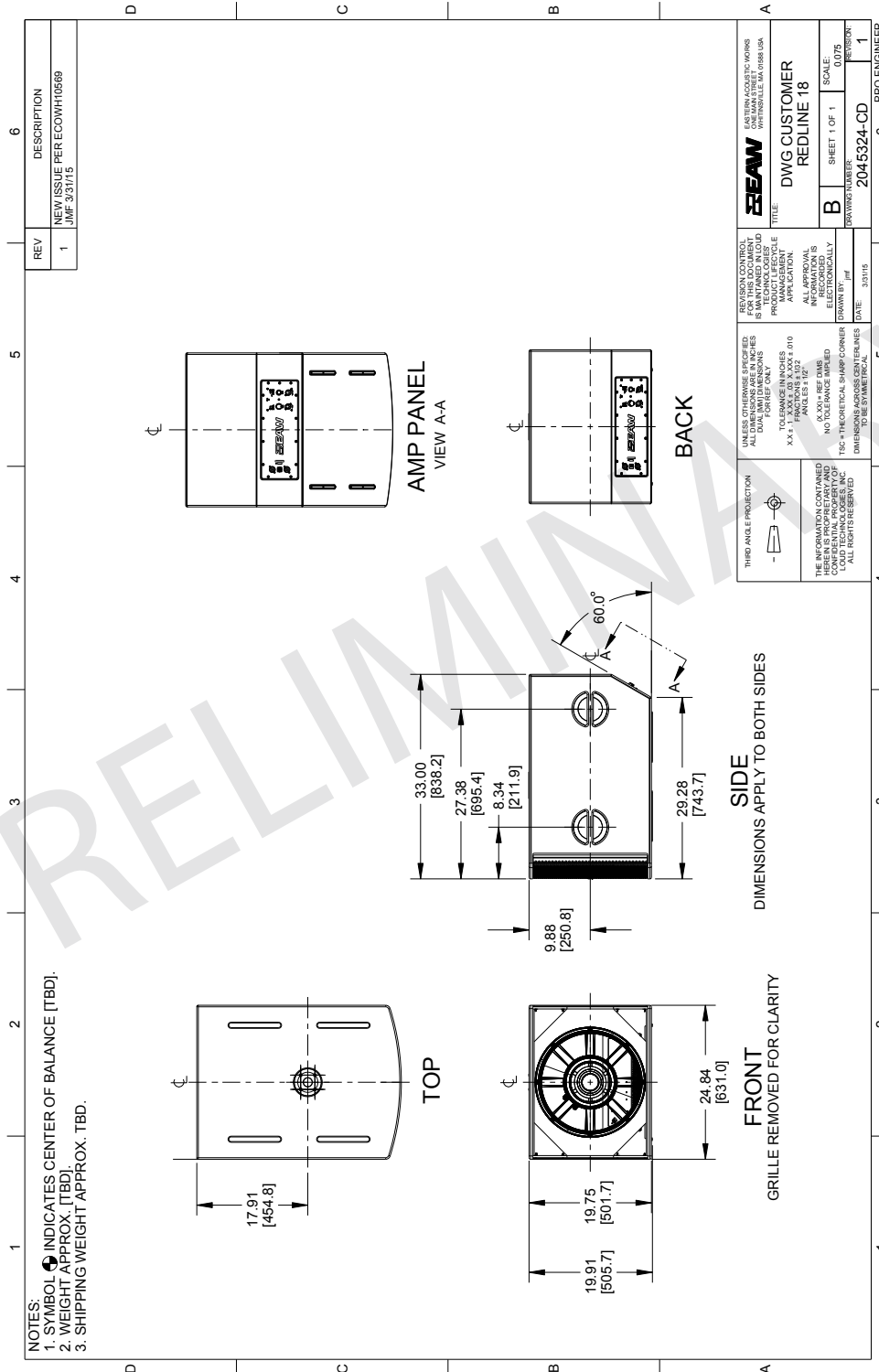
Description	Part Number
EAW RL18S SELF-POWERED SUBWOOFER	2045322-90

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## Enclosure

- Material** Exterior-grade hardwood plywood
- Finish** Weather-resistant textured RoadCoat™
- Grille** Pre-treated, powder-coated perforated steel

**NOTE:** This drawing has been reduced. Do not scale.

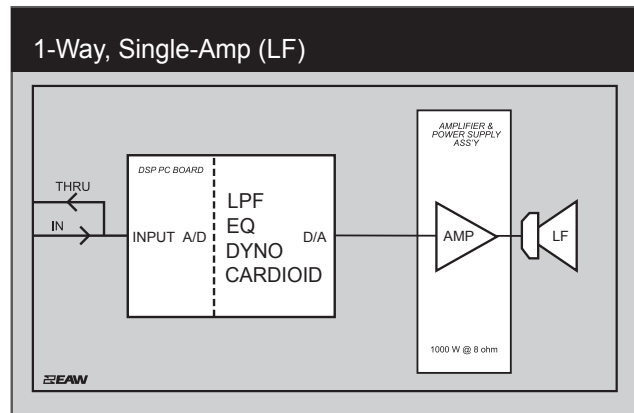


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## Input Panel



## Signal Diagram



## Legend

- HPF** High Pass Filter for crossover –or– Recommended High Pass Filter
- LPF** Low Pass Filter for crossover
- LF/MF/HF** Low Frequency / Mid Frequency / High Frequency
- AMP** User Supplied Power Amplifier –or– Integral Amplifier for NT products
- XVR** Passive LPFs, HPFs, and EQ integral to the loudspeaker
- EAW Focusing** Digital Signal Processor capable of implementing EAW Focusing
- EAW DynO** Digital Signal Processor capable of implementing EAW DynO processing

## Notes

### TABULAR DATA

1. **Measurement/Data Processing Systems:** Primary – FChart; proprietary EAW software; Secondary – Brüel & Kjær 2012.
2. **Microphone Systems:** Earthworks M30; Brüel & Kjær 4133
3. **Measurements:** Dual channel FFT; length: 32 768 samples; sample rate: 48 kHz; logarithmic sine wave sweep.
4. **Measurement System Qualification** (includes all uncertainties): SPL: accuracy +/-0.2 dB @ 1 kHz, precision +/-0.5 dB 20 Hz to 20 kHz, resolution 0.05 dB; Frequency: accuracy +/-1 %, precision +/-0.1 Hz, resolution the larger of 1.5 Hz or 1/48 octave; Time: accuracy +/-10.4 µs, precision +/-0.5 µs, resolution 10.4 µs; Angular: accuracy +/-1°, precision +/-0.5°, resolution 0.5°.
5. **Environment:** Measurements time-windowed and processed to eliminate room effects, approximating an anechoic environment. Data processed as anechoic or fractional space, as noted.
6. **Measurement Distance:** 7.46 m. Acoustic responses represent complex summation of the subsystems at 20 m. SPL is referenced to other distances using the Inverse Square Law.
7. **Enclosure Orientation:** For beamwidth and polar specifications, as shown in Mechanical Specification drawing.
8. **Volts:** Measured rms value of the test signal.
9. **Watts:** Per audio industry practice, "loudspeaker watts" are calculated as voltage squared divided by rated nominal impedance. Thus, these are not True Watt units of energy as defined by International Standard.
10. **SPL:** (Sound Pressure Level) Equivalent to the average level of a signal referenced to 0 dB SPL = 20 microPascals.
11. **Subsystem:** This lists the transducer(s) and their acoustic loading for each passband. Sub = Subwoofer, LF = Low Frequency, MF = Mid Frequency, HF = High Frequency.
12. **Operating Mode:** User selectable configurations. Between system elements, a comma (,) = separate amplifier channels; a slash (/) = single amplifier channel. DSP = Digital Signal Processor.  
IMPORTANT: To achieve the specified performance, the listed external signal processing must be used with EAW-provided settings.
13. **Operating Range:** Range where the processed Frequency Response stays within -10 dB SPL of the power averaged SPL within this range; measured on the geometric axis. Narrow band dips are excepted.
14. **Nominal Beamwidth:** Design angle for the -6 dB SPL points, referenced to 0 dB SPL as the highest level.
15. **Axial Sensitivity:** Power averaged SPL over the Operating Range with an input voltage that would produce 1 W at the nominal impedance; measured with no external processing on the geometric axis, referenced to 1 m.
16. **Nominal Impedance:** Selected 4, 8, or 16 ohm resistance such that the minimum impedance point is no more than 20% below this resistance over the Operating Range.
17. **Accelerated Life Test:** Maximum test input voltage applied with an EIA-426B defined spectrum; measured with recommended signal processing and Recommended Protection Filter.
18. **Calculated Axial Output Limit:** Highest average and peak SPLs possible during the Accelerated Life Test. The Peak SPL represents the 2:1 (6 dB) crest factor of the Life Test signal.
19. **High Pass Filter:** This helps protect the loudspeaker from excessive input signal levels at frequencies below the Operating Range.

### GRAPHIC DATA

1. **Resolution:** To remove insignificant fine details, 1/12 octave cepstral smoothing was applied to acoustic frequency responses and 1/3 octave cepstral smoothing was applied to the beamwidth and impedance data. Other graphs are plotted using raw data.
2. **Frequency Responses:** Variation in acoustic output level with frequency for a constant input signal. Processed: normalized to 0 dB SPL. Unprocessed inputs: 2 V (4 ohm nominal impedance), 2.83 V (8 ohm nominal impedance), or 4 V (16 ohm nominal impedance) referenced to a distance of 1 m.
3. **Processor Response:** The variation in output level with frequency for a constant input signal of 0.775 V = 0 dB reference.
4. **Beamwidth:** Average angle for each 1/3 octave frequency band where, starting from the rear of the loudspeaker, the output first reaches -6 dB SPL referenced to 0 dB SPL as the highest level. This method means the output may drop below -6 dB SPL within the beamwidth angle.
5. **Impedance:** Variation in impedance magnitude, in ohms, with frequency without regard to voltage/current phase. This means the impedance values may not be used to calculate True Watts (see 9 above).
6. **Polar Data:** Horizontal and vertical polar responses for each 1/3 octave frequency band 100 Hz to 16 kHz or Operating Range.