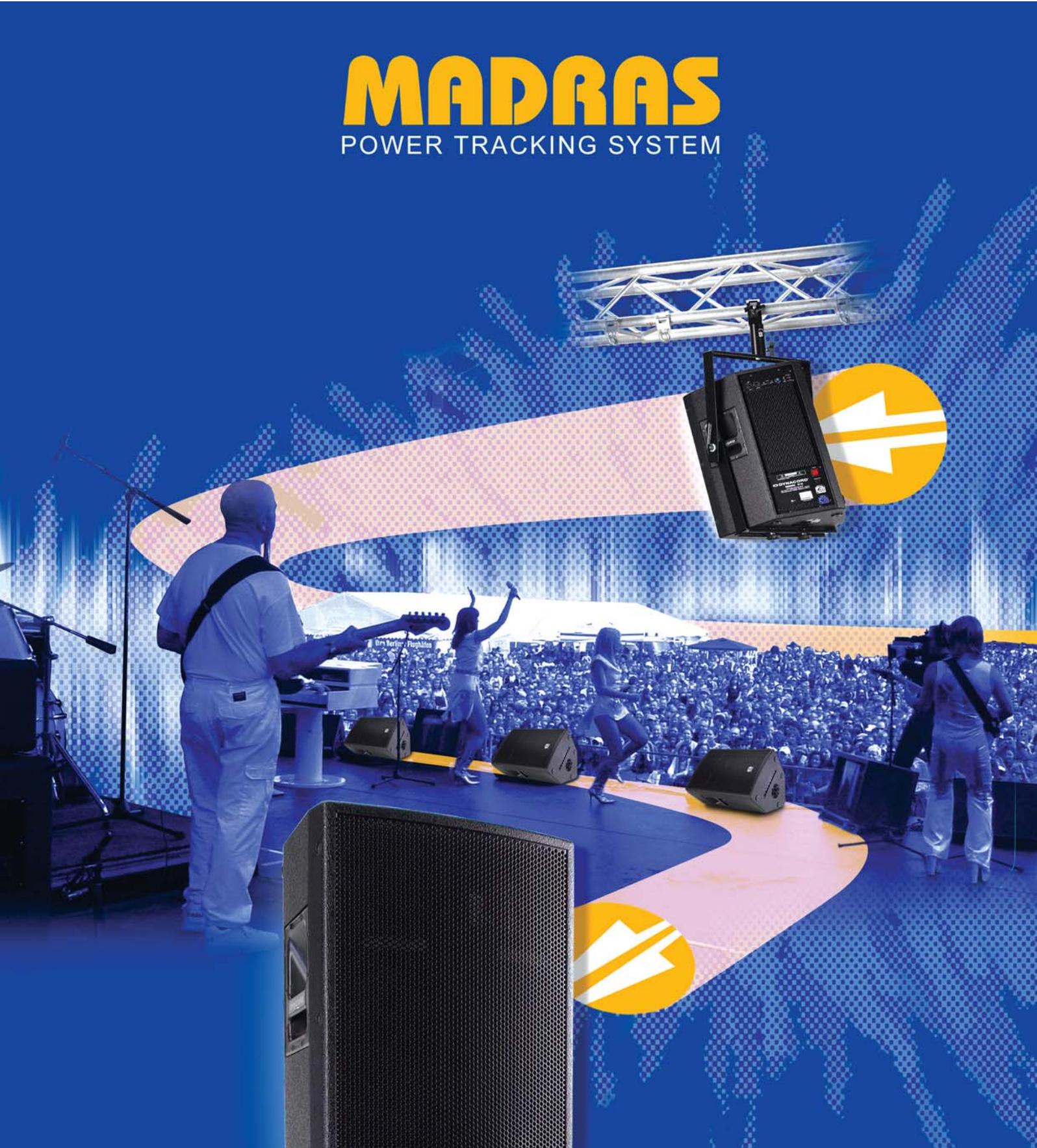


# MADRAS

POWER TRACKING SYSTEM



**ACTIVE LOUDSPEAKER SYSTEMS  
FOR PRO AUDIO  
APPLICATIONS**

# MADRAS

POWER TRACKING SYSTEM

## ➡ BASICS

There is an increasing demand for active loudspeaker cabinets for universal use in pro audio systems and fixed installations.

Their installation, setting-up and operation can be undertaken by untrained personnel and even extensive active sound reinforcement systems are intuitive and easy to control.

Systems employing such loudspeakers are also extremely reliable, since every cabinet contains its own controller and amplifier sections. Elaborate programming and complex load calculations of the kind required by rack-oriented systems with digital controllers is not necessary.

Furthermore, it is possible to react quickly and flexibly to the changing demands of each location; the transportation headaches associated with large, heavy racks are also avoided.

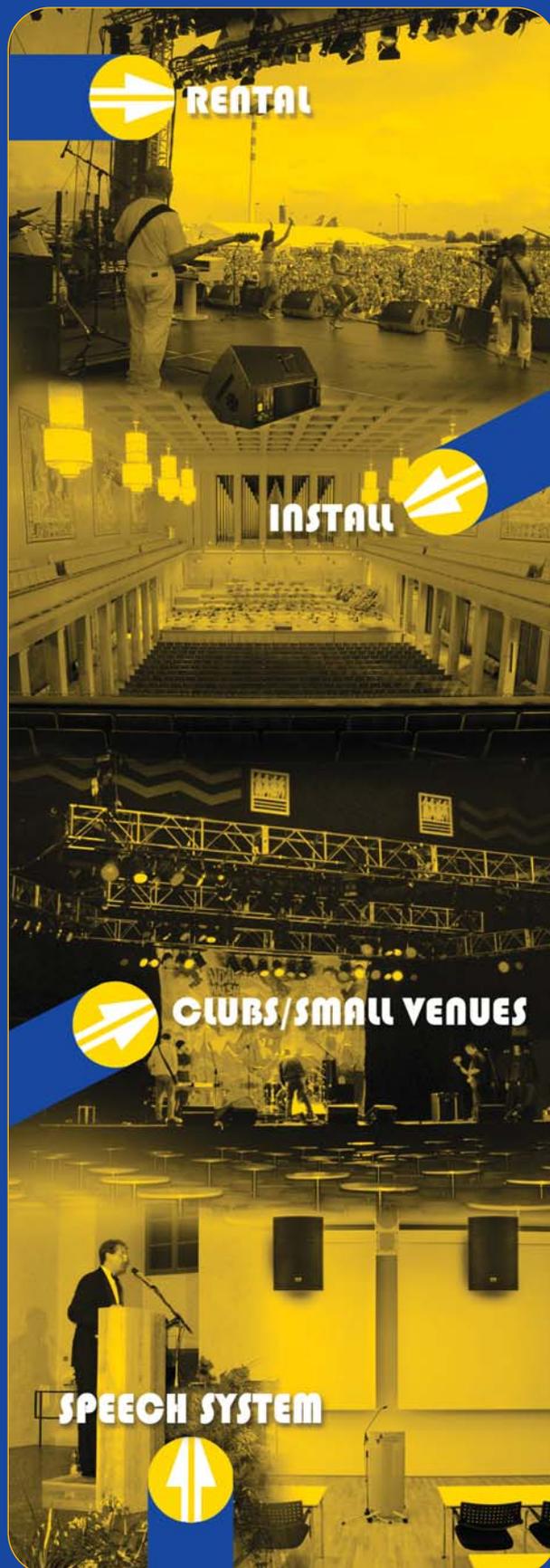
Up until now, however, the use of active speakers often involved compromises in terms of sound quality, sound pressure levels and projection, since most of the active systems on the market were designed with multimedia rather than pro audio applications in mind — a fact that is reflected in their electronic and loudspeaker components.

That's why DYNACORD developed the **MADRAS** system specifically for high quality pro audio applications.

Uncompromising acoustic and electronic design as well as the use of the finest transducers combine here to achieve a level of quality previously only available from complex, rack-oriented multi-way systems with their own controllers.

## ➡ APPLICATIONS

- ➡ **m 15** Universal full-range system
- ➡ **m 15** High quality speech system
- ➡ **m 15** A/V, theatre- and broadcast applications
- ➡ **m 15** High power front- or side-fill system
- ➡ **m 15** High power active 2-way floor-monitor
- ➡ **m 15 + m 18** High power drum-fill
- ➡ **m 15 + 2 x m 18** PA club system



## SYSTEM FEATURES

### M 15

- ➔ Active 2-way FULLRANGE cabinet with a 15" LF- and 3" voice-coil HF-driver
- ➔ Integrated Hi-Power Class H amps with 460W for the LF- and 140W for the HF-range
- ➔ Switch to MID-HIGH operation for monitor or delay applications
- ➔ Wide horizontal coverage (80°)
- ➔ Voice Coil Tracking Protection for maximum SPL with maximum operational safety
- ➔ Asymmetric enclosure design for optimum PA and monitor applications
- ➔ Safe and lockable PowerCon mains connection and through socket
- ➔ Extensive range of yokes and flying accessories with integrated rigging rails

### M 212

- ➔ Active 2-way FULLRANGE cabinet with two 12" Electro-Voice ND-12A neodymium transducers for the low-midrange and an Electro-Voice ND-6 neodymium driver with an 80° x 55° constant-directivity horn
- ➔ Integrated high-power class H power amplifier delivering 460W for the LF range and high-power class A-B power amplifier delivering 140W for the HF range
- ➔ Peak SPL of over 131dB/1m
- ➔ Voice coil tracking protection for maximum SPL combined with maximum operating safety
- ➔ Wide assortment of mounting and flying hardware accessories, integrated rigging rails

### M 18

- ➔ Active subwoofer with 18" driver and integrated controller
- ➔ Voice Coil Tracking Protection for maximum SPL with maximum operational safety
- ➔ Integrated Hi-Power Class H 800 W amp
- ➔ Safe and lockable PowerCon mains connection and through socket
- ➔ The M 18 offer grooves for problem-free stacking of cabinets M 15 and M 212



# MADRAS

POWER TRACKING SYSTEM



**m 15** all-purpose 600W active 2-way cabinet



The **MADRAS M 15** is equipped with an Electro-Voice ND-6 neodymium driver with a 3-inch voice coil for the HF range and a 15" Electro-Voice EVX 155 for the LF range. These are driven by the integrated crossover (124 Hz, Linkwitz-Riley 24 dB/Octave) with signal processing and a two-way power stage with separate LF- and HF-channels. A slide switch allows you to select between "Full-range" and "Mid-High" operation modes.

A high-efficiency Class H power amplifier is used for the low frequency range — a decision that results in reduced thermal power loss, lower power consumption and a notable reduction in the overall weight of the unit. A separate power amplifier is used for the higher frequencies. Both power stages are convection cooled, thereby eliminating annoying fan noise.



The power amplifier has an output of 600 watts (460 W LF and 140 W HF) and peak sound pressure levels in excess of 128 dB / 1 m can be achieved with minimal distortion.



This active enclosure projects twice as far as conventional passive ones, whilst the 80° x 55° (H x V) coverage pattern is wide enough to avoid the alignment problems associated with enclosures with narrower coverage.



The frequency response of the **MADRAS M 15** is extremely linear. The horizontal and vertical radiation patterns are also extraordinarily uniform, which means that the **MADRAS M 15** is far less susceptible to feedback than comparable enclosures and therefore the ideal choice also for high-powered monitoring applications.



The fully-electronic **VOICE COIL TRACKING PROTECTION** provides reliable protection for the transducers from thermal overload whilst offering the widest possible dynamic range.





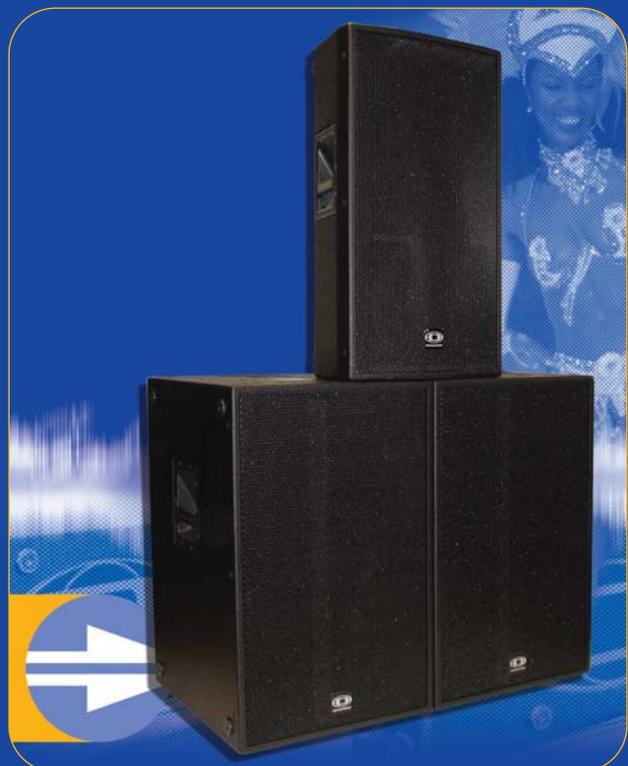
## M 212 all-purpose 600W active 2-way cabinet

The **MADRAS M 212** is equipped with two 12" Electro-Voice ND-12A neodymium transducers for the low-midrange and an Electro-Voice ND-6 neodymium driver with a 3" voice coil and an 80° x 55° constant-directivity horn. It therefore delivers precisely the high SPL in the low-midrange demanded by many medium-sized venues. The preferred application for **MADRAS M 212** enclosures is in high-quality, high-power active 3-way systems, in combination with sub-woofers such as the **MADRAS M 18**, where they represent unusually powerful and far-reaching MID-HIGH components. The **MADRAS M 212** can, however, be used without an additional sub-woofer as it performs flawlessly as a full-range enclosure.

The **MADRAS M 212** is controlled by an integrated crossover (124 Hz, Linkwitz-Riley 24dB/octave) with signal processing and an integrated 2-way power amplifier with separate LF and HF channels. The operational mode of the **MADRAS M 212** can be switched easily from FULLRANGE to MID-HIGH.



- ➔ With a power amplifier rated at 600W (460W LF + 140W HF), peak sound pressure levels of over 131dB/1m can be produced with a minimum of distortion. It is therefore capable of projecting the sound almost twice the distance of conventional passive enclosures.
- ➔ The use of class H technology reduces the thermal power loss, the mains power consumption and the weight of the power amplifiers. Both power stages are convection-cooled, so there is no annoying fan noise.
- ➔ The frequency response of the **MADRAS M 212** is extremely linear and the coverage is extraordinarily even. The vertical coverage in the low-midrange is also excellent, thanks to the vertical configuration of the two 12" neodymium transducers. The **MADRAS M 212** therefore delivers extremely high gain-before-feedback making it especially well-suited to high-quality, high-power monitoring applications.
- ➔ The fully-electronic **VOICE COIL TRACKING PROTECTION** provides reliable protection against thermal overload, whilst retaining the maximum possible dynamic range.



# MADRAS

POWER TRACKING SYSTEM



**m 18** M18 active 800W sub-woofer



The **MADRAS M 18** is an active direct-radiating subwoofer with an integrated controller and an Electro-Voice EVX 180 B 18" woofer.

The integrated controller with its 124 Hz 24dB/Oct Linkwitz-Riley filter and the electronically balanced XLR sockets makes it possible to create a complete active 3-way system using active satellites such as the **MADRAS M 15** (Mode setting: Mid-High). The frequency and phase response of the **MADRAS M 18** also allow its direct use in parallel with existing full-range speakers. A line signal from a separate mixing console output can be fed into the **MADRAS M 18** subwoofer and the satellites balanced with ease using the integrated level control.

The **MADRAS M 18** is equipped with an 800W high-efficiency Class H power amplifier. The use of Class H technology results in reduced thermal power loss, lower power consumption and a notable reduction in the overall weight of the unit. The power amplifier is convection-cooled, thereby eliminating annoying fan noise.



- ⇒ The fully-electronic **VOICE COIL TRACKING PROTECTION** technology is used to protect the 18-inch woofer from thermal overload.
- ⇒ The **MADRAS M 18** is therefore especially well-suited to rental applications of all kinds — including the most demanding. The birch multiplex enclosure is sealed with a black, impact-resistant textured paint, whilst the robust, powder-coated steel grille protects the woofer from mechanical damage.
- ⇒ The current flow is safeguarded by a PowerCon locking mains connector. A PowerCon Mains Out connector is also provided to supply other units. The audio input signal is fed into the unit via an XLR socket and an additional XLR socket allows the signal to be routed to the next cabinet.
- ⇒ The electronically-balanced inputs are equipped with a level control for level matching. Four robust handles and four professional-quality casters are provided to facilitate transportation.
- ⇒ A threaded stand adaptor is provided for the mounting of satellites such as the **MADRAS M 15**.



## RK-4 Rigging-Kit



With the optional **RK-4** Rigging Kit, consisting of 2 x CSST and 1 x Single-Stud, the **MADRAS M 15** and **M212** can be flown vertically or horizontally from the truss. With the included Single-Stud and an external adjuster belt, it is easy to obtain just the right angle of tilt.

## FB-M15 / FB-M212 MADRAS Flying System



The **FB-M15/ FB-M212** Flying Frame with integrated TV spud are the basic versions of the all-purpose **MADRAS** Flying System.

With the optionally available **TC-TV** (truss clamp on TV spud), the top cabinet can be hung safely on the truss and fixed in either a vertical or a horizontal position.

With the optionally available **PM-TV** (stand adapter on TV spud, not shown), the cabinet can be fixed in either a horizontal or a vertical position on an ordinary stand.

112 927	MADRAS M15	230V active 2-way full-range cabinet
112 928	MADRAS M18	230V active sub-woofer cabinet
112 943	MADRAS M212	230V active 2-way full-range cabinet
112 934	PC 150	PowerCon > PowerCon Cable 150cm
112 935	PC 800	PowerCon > PowerCon Cable 800cm
112 936	PCS 500	PowerCon > Schuko Cable 500cm
112 695	TC-04	2" TRUSS CLAMP
112 939	RK-4	RIGGING-KIT / MADRAS M15 / Incl. TV-Spud
112 964	FB-M212	FLYING FRAME M212 / Incl. TV-Spud
112 940	FB-M15	FLYING FRAME M15 / Incl. TV-Spud
112 941	TC-TV	ADAPTER Truss clamp > TV-Spud
112 942	PM-TV	ADAPTER Integral stand adapter > TV-Spud

# MADRAS

## POWER TRACKING SYSTEM

### m 15 2-Way Fullrange Cabinet

#### Power Amplifier-, Inputs- & Crossover -Specs

SPL 1W/1m	100 dB
Max. SPL 1m (Cont. Prog.)	128 dB
Frequency Range (-10 dB)	50Hz.....19kHz
Component Low (Transducer)	Electro-Voice EVX 155 (359561)
Component High (Transducer)	Electro-Voice ND6-16 Driver (361663)
High Frequency Horn	Electro-Voice HP8055 80°x55° (345799)
Cabinet Style	18 mm birch plywood 4+4 plastic feet (ABS) 2 handles 1 pole mount
Outfit	Cabinet surface black varnished
Dimensions (WxHxD)	430 x 630 x 432 mm
Weight	38 kg

Max. Dynamic Output Power (IHF-A)	LO 540W HI 160W
Max. Continuous Output Power	LO 460W (THD=1%, 400 Hz) HI 140W (THD=1%, 4kHz)
Power Amplifier Design	High efficiency Class H
THD+N, Rated	<0.01%
Input Impedance (balanced)	20kΩ
Crossover Mode Switch	Fullrange/Mid-High 24dB/Octave, Linkwitz Riley, 124 Hz
Level Control	-∞.....+6 dB
Cooling	Convection cooled, passive
Protection	Audio limiter High temperature DC, HF, Back-EMF, Peak-current limiters, Inrush current limiter, Turn-on delay, Thermal (speaker & Amplifier)
Power Requirements	100V, 120V, 230V, 240V / 50 Hz - 60 Hz
Warranty	36 Months

### m 212 2-Way Fullrange Cabinet

#### Power Amplifier-, Inputs- & Crossover -Specs

SPL 2.83V/1m	103 dB
Max. SPL 1m (Calculated)	131 dB
Frequency Range (-10 dB)	65Hz.....19kHz
Component Low (Transducer)	Electro-Voice 2 x ND12A (360439)
Component High (Transducer)	Electro-Voice ND6-16 Driver (361663)
High Frequency Horn	Electro-Voice HP8055 80°x55° (345799)
Cabinet Style	18 mm birch plywood 4+4 plastic feet (ABS) 2 handles 1 pole mount
Outfit	Black - 2 Comp. paint Powder coated steel grille
Dimensions (WxHxD)	430 x 800 x 432 mm
Weight	42 kg

Max. Dynamic Output Power (IHF-A)	LO 540W HI 160W
Max. Continuous Output Power	LO 460W (THD=1%, 400 Hz) HI 140W (THD=1%, 4kHz)
Power Amplifier Design	High efficiency Class H
THD+N, Rated	<0.01%
Input Impedance (balanced)	20kΩ
Crossover Mode Switch	Fullrange/Mid-High 24dB/Octave, Linkwitz Riley, 124 Hz
Level Control	-∞.....+6 dB
Cooling	Convection cooled, passive
Protection	Audio limiter High temperature DC, HF, Back-EMF, Peak-current limiters, Inrush current limiter, Turn-on delay, Thermal (speaker & Amplifier)
Power Requirements	100V, 120V, 230V, 240V / 50 Hz - 60 Hz
Warranty	36 Months

### m 18 800W Active Subwoofer

#### Power Amplifier-, Inputs- & Crossover -Specs

SPL 1W/1m	98 dB
Max. SPL 1m (Cont. Prog.)	127 dB
Frequency Range (-10 dB)	35Hz.....145Hz
Woofer	Electro-Voice EVX 180B (349397)
Cabinet Style	18 mm birch plywood 8 plastic feet (ABS) 4 transport castors 4 handles 1 pole mount threaded flange
Outfit	Black - 2 Comp. paint Powder coated steel grille
Dimensions (WxHxD)	505 x 805 x 698 mm
Weight	54 kg

Max. Dynamic Output Power (IHF-A)	800W
Max. Continuous Output Power	540W (THD=1%, 100 Hz)
Power Amplifier Design	High efficiency Class H
THD+N, Rated	<0.05%
Input Impedance (balanced)	20kΩ
Level Control	-∞.....+6 dB
Internal Crossover	24dB/Octave, Linkwitz Riley, 124 Hz
Cooling	Convection cooled, passive
Protection	Audio limiter High temperature DC, HF, Back-EMF, Peak-current limiters, Inrush current limiter, Turn-on delay, Thermal (speaker & Amplifier)
Power Requirements	100V, 120V, 230V, 240V / 50 Hz - 60 Hz
Warranty	36 Months

Internal amplifier at rated conditions, all power ratings at minimum speaker impedance (LO 6Ω / HI 12Ω) unless otherwise specified.

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