

DVA **T12**DVA **T8**DVA **T4**DRK**-20M** 

# **Digital Array** System & Subs





# Digital Array Systems & Subs

Line array technology has revolutionized sound reinforcement, particularly for large venues and events. Arraying several speaker cabinets vertically is a far more effective method of delivering and directing sound. Line array's signal levels do not drop off as steeply with increasing distance as is the case with conventional systems. What's more, their patterns of throw are very wide despite the systems' lean configurations. Until recently this technology saw limited use mainly in large, elaborate, and costly projects and installations. But with arrival of DVA, true line array technology is now available for a wide range of portable and permanent sound reinforcement applications.

Factoring all the many different parameters and users' needs into the design equation, the dBTechnologies team of engineers developed a line array system that is easy to configure, exceedingly light, and tremendously versatile. What's more, the managed to take all these vital criteria into account without imposing limits on curving capacity and the number of arrayed components. Called DVA, this system makes the most of line array technology's considerable audio benefits.

Leveraging state-of-the-art technologies, materials, and many years experience developing powered speaker systems, dBTechnologies has turned up a line array series that raises the performance bar for handling, versatility, and return on investment.

dBTechnologies has a competitive edge. Our engineers' deep insight into power electronics, DSP programming, acoustics, mechanics, materials, and manufacturing practices enables us to independently develop innovative solutions in each of these areas. Such comprehensive R&D proficiency puts us in a unique position: We are able to transform inspired ideas into premium-quality products that deliver outstanding performance at an unrivalled price-point.

The DVA series stands as a shining example of this all-around ability. Nowhere are the benefits of integrated amps, active crossovers, and processor-driven control more apparent than in DVA three-way line array units.

- Fully powered units, freely scalable to setups of any size.
- None of the impedance and amp channel availability concerns associated with passive models.
- Lossless signal path with no need for speaker cables.
- Extremely tough yet remarkably light enclosures.
- Digital controller (DSP) onboard for utmost operating safety.















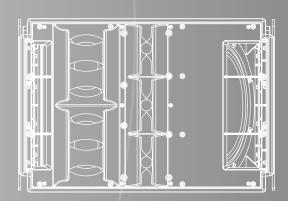
The global group of dBTechnologies companies develops and manufactures individual speaker components autonomously, and often specifically for the given application. We do not subscribe to the practice of equalizing and optimizing speakers with elaborate technology to bring them up to our standards. Instead, it has been our long-standing policy to build from the bottom up components with specs tailored to deliver the best audio performance for the application.

**DVA T12** is a step up the evolutionary ladder from the successful DVA T4 line array system. Although it provides more power and has greater range, its active three-way design makes it just as **easy to set up and install as its predecessor**.

# 

## Full of Technology

- LONG-THROW SYSTEM
- FULLY POWERED THREE-WAY UNIT FREELY SCALABLE TO SETUPS OF ANY SIZE
- LOSSLESS SIGNAL PATH WITH NO NEED FOR SPEAKER CABLES
- SEQUENTIALLY CONFIGURABLE ARRAY SEGMENTS
- HIGH-END DIGITAL CONTROLLER (DSP) ON BOARD
- NETWORK-READY WITH AN INTEGRATED RDNET PORT
- HARDWARE COMPATIBLE WITH DVA T8 SYSTEMS
- NONE OF THE IMPEDANCE AND AMP CHANNEL AVAILABILITY CONCERNS ASSOCIATED WITH PASSIVE MODELS





# 3-Way Active Line Array Module

### **DVA T12**

### **Technical Data**

Speaker Type: 3-Way Active Line Array Module

#### Acoustical data

Frequency Response [+/- 3dB]: 60 - 19.000 Hz

Max SPL: One Unit: 136 dB

HF: 3x1 "

Voice Coil HF: 1.4 "

Directivity: 100x10° Single unit Horn: Integrated CD Horn

MF: 2x 6.5

Type MF: Neodymium Sealed Basket Phase

Plug Horn Loaded

Voice Coil MF: 2 "

LF: 12 "

Type LF: Neodymium Voice Coil LF: 3 "

### **Amplifier**

Amp Technology: Digipro® G2

Amp Class: Class D HF Amp: 350 W RMS MF Amp: 350 W RMS LF Amp: 710 W RMS

### Processor

Controller: DSP 56 bit

Cooling: Convection

AD/DA Converter: 24 bit/96 kHz

System Presets: 8, HF/Low-mid correction Limiter: Dual Active Limiter Multiband RMS,

Peak, Thermal

Crossover Frequency MF-HF: 1800 Hz

Slope MF-HF: 24 dB/Octave

Crossover Frequency LF-MF: 420 Hz Slope LF-MF: 24 dB/Octave

Signal Input: 1x XLR fem, Bal.

Signal Output: 1x XLR male, Bal.

Network: RDnet remote control RJ45 connector

IN/OUT

Power Socket: 1x Powercon In 1x Powercon Out

Voltage Range: 90 - 240 V

### Mechanics

Housing: Polypropylen PP Aluminium reinforced

Housing Design: Trapezoidal 10°

Rain cover: Included

Rigging Points: Integrated rigging hardware

Width: 580 mm (23.2 in) Height: 386 mm (15.44 in) Depth: 430 mm (17.2 in) Weight: 29,9 kg (63.93 lbs)



**The DVA T12** features state-of-the-art neodymium speakers and high-performance digital amps with total of 1,410W output power. In combination with top-drawer DSP and premium quality AD-DA converter, it delivers high-definition sonic images with massive SPL for large sound reinforcement applications.



**Weighing just 29kg**, this remarkably compact unit belies its unobtrusive look by enabling you to set up very powerful line arrays that deliver extraordinary performance.









### **Extended low-end performance**

A 12" neodymium woofer in a band-pass housing covers the low frequency range. Remarkably powerful, it packs an assertive punch that reaches down to 60 Hz to enable fullrange applications. The 12" woofer is slanted inside the housing, giving the cabinet a lean, unobtrusive look.

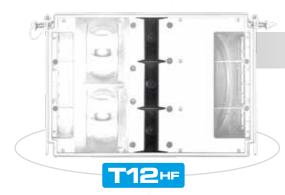
- 12" neodymium woofer
- Fullrange capability from 60Hz up



### Accurate and awesomely efficient midrange response

The DVA T12's two 6.5" neodymium midrange are placed close together to maximize coherent coupling and response for those critical midrange frequencies. The speaker resides in a sealed basket to optimize the displacement volume. This makes the midrange even more responsive.

With a high BL factor, it reacts far faster to transients and renders each attack with awesome accuracy. Both 6.5" midrange are equipped with an optimized phase plug and feed into a frontloaded horn to achieve a uniform coverage pattern.



### High-definition top end

The 1" neodymium HF drivers feature 1.4" Mylar diaphragms. Exceptionally light and responsive, they deliver richly detailed signals with remarkably linear frequency response. Specially developed for use in line arrays, these ultra compact drivers may be deployed in very close proximity to one another. This is essential to minimize interference in such arrays.

The DVA T12 is loaded with three HF drivers tuned specifically for the custom designed array horn. This combination maximizes the coupling of the drivers' outputs and extends the range of the HF signal.



### T12

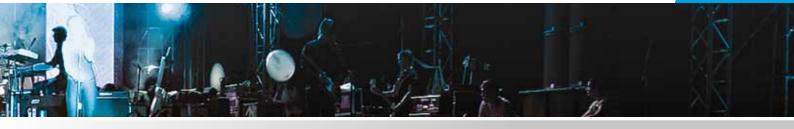
### Consistent coverage pattern

The DVA T12 features constant directivity horns, HF drivers, and midrange speakers optimized to deliver a uniform 100°-by-10° coverage pattern.

The DVA makes the most of two acoustical effects to help distribute SPL evenly. One is the vector addition of individual horns' output, with the other being cylindrical wave formation. The coverage pattern may be adapted to suit the sound reinforcement application by varying the length of the array and adjusting the splay between individual components.

- Uniform 100°-by-10° coverage pattern
- Evenly distributed SPL





### **Ground stacks**

DRK-10 and DRK-20 harnesses can also serve to stack cabinets on the ground when rigging points are unavailable or the ceiling is too low. A special bracket adjusts the inclination down to 7.5°. The DRK-10/20 fits perfectly on an upright DVA S30 subwoofer. Equipped with two receptacles for quick-release pins, it is readily attached without tools.

The DVA S30 subwoofer sports two 18" speakers, a bass reflex horn, a 3000W power amp, and an internal DSP. (To learn more about it, see the chapter entitled Active Subwoofer).

Line array benefits in ground-stacked configurations





### **Compatible with DVA T8 units:**

DVA T12 and DVA T8 series housings and rigging hardware are compatible. This means DVA T8 units may be flown right below a T12 array for use as down-fills in large PA systems.

■ Compatible DVA T8's may serve as far-fill extensions

### **Power Supply**

The PFC switched-mode power supply allows up to four DVA T12 units to be connected to one phase.

When connecting large systems (up to 12 units), we recommend splitting up the power feed using a 16ACEKON adapter, tapped and spliced to feed three weatherproofed Power-Con connectors.





















**DVA T8** is the latest and most advanced incarnation of a string of successful line array systems that started with the DVA T4. Loaded with state-of-the-art neodymium woofers, the DVA T8 features a **high-performance digital power amp with 700W/RMS total output, a high-end 56-bit DSP, and premium-quality AD-DA converters.** 

These superior components come together to deliver superior audio quality and high SPL.

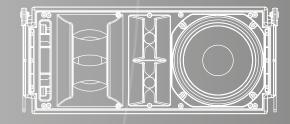
Remarkably easy to handle, this **lightweight**, **14.2kg** line array's powerful performance belies its look of subdued elegance and small footprint.

It's hard to believe that something so petite can pack such a mighty punch.



## Full of Technology

- 3-WAY ACTIVE WITH A 700W/RMS DIGITAL POWER AMP
- HIGH-END 56-BIT DSP ON BOARD
- 96 KHZ SAMPLING RATE
- NETWORK-READY WITH AN INTEGRATED RDNET PORT
- SIX MODULES CONNECTED TO ONE 16A PHASE PLACE
- LOSSLESS SIGNAL PATH WITH NO NEED FOR SPEAKER CABLES
- ACOUSTICALLY COMPATIBLE WITH THE DVA T12
- MECHANICALLY COMPATIBLE WITH THE DVA T12





# 3-Way Active Line Array Module



NEW PRODUCT 2013

### **DVA T8**

### **Technical Data**

Speaker Type: 3-Way Active Line Array Module

#### Acoustical data

Frequency Response [+/- 3dB]: 66 - 18.000 Hz

Max SPL: One Unit: 132 dB

HF: 2x1 "

Voice Coil HF: 1.4 "

Directivity: 100x15° Single unit

MF: 1x 6.5 "

Voice Coil MF: 2 "

LF: 8 " Voice Coil LF: 2.5 "

### Amplifier

Amp Technology: Digipro® G2 Amp Class: Class D HF Amp: 175 W RMS MF Amp: 175 W RMS LF Amp: 350 W RMS

### Processor

Cooling: Convection

Controller: DSP 56 bit with double precision filters

AD/DA Converter: 24 bit/96 kHz

System Presets: 9, (8xHF and Low-mid correction) Limiter: Dual Active Limiter Multiband RMS,

Peak, Thermal

Crossover Frequency MF-HF: 1900 Hz Slope MF-HF: 24 dB/Octave Crossover Frequency LF-MF: 400 Hz Slope LF-MF: 24 dB/Octave

### Input

Signal Input: 1x XLR fem, Bal. Signal Output: 1x XLR male, Bal.

Network: RDnet remote control RJ45 connector

IN/OUT

Power Socket: 1x Powercon In 1x Powercon Out

Voltage Range: 90 - 240 V

### Mechanics

Housing: Polypropylen PP Metal reinforced

Housing Design: Trapezoidal 15°

Rain cover: Included

Rigging Points: Integrated rigging hardware

Width: 580 mm (23.2 in) Height: 240 mm (9.6 in) Depth: 327 mm (13.08 in) Weight: 14.2 kg (31.3 lbs)

### **Top Performance Paired with Total Control**

The DVA T8 is a fully active, three-way speaker system equipped with the same innovative technologies that feature so prominently in the DVA T12.

Its power supply, DSP, power amps, woofers and drivers were all developed and painstakingly tuned specifically for the DVA T8 system by the dBTechnologies team of engineers.



### Precise directivity

The DVA T8 sports constant directivity horns, HF drivers, and midrange woofers optimized to deliver a uniform 100°-by-15° coverage pattern. It makes the most of two acoustical effects to help distribute SPL evenly.

One is the vector addition of individual horns' output; the other is cylindrical wave formation. These two effects come together to create a uniform coverage pattern that is easily adapted to different venues by varying the length of the array and adjusting the splay between individual components.

- Uniform coverage pattern
- Evenly distributed SPL









### High-definition top end

The 1" neodymium HF drivers feature 1.4" Mylar diaphragms. Exceptionally light and responsive, they deliver richly detailed signals with remarkably linear frequency response. Developed especially for use in line arrays, these drivers may be deployed in very close proximity to one another. This is essential to minimize interference in such arrays.

- Two 1" neodymium HF drivers with array horn
- Remarkably transparent response



### Accurate, awesomely efficient midrange response

Loaded with a custom 6.5" neodymium midrange, the DVA T8 also delivers excellent midrange response, which has such a formative influence on shaping the sonic image. The midrange is housed in a sealed chassis. Its high BL factor makes it even more responsive so that it renders transients faithfully. A phase plug feeds into a frontloaded horn tuned to achieve a uniform coverage pattern.

- One 6.5" neodymium midrange with a frontloaded horn
- Superior transient response



### **Extended low-end performance**

A powerful 8" neodymium woofer, paired with a 350W power amp, covers the low frequency range with an assertive punch that reaches down to 70 Hz.

- 8" neodymium woofer
- Fullrange capability from 70 Hz up







### Extraordinary dynamic range and natural sound

The DVA T8's signal processors and AD/DA converters were engineered to achieve transcendent sound quality with great fidelity and dynamic range with 56-bit digital signal processing at a sampling rate of 96 kHz.

DSPs equalize every signal path, aligning phases and time, and handle loads with digital peak, RMS, and thermal limiters to maximize operating safety, power management and performance even at threshold levels.

- Excellent audio specs
- Perfect system equalization



### Easy setup - configuration at the touch of a button

The DVA T8's DSP offers eight system presets that adapt the unit to its assigned task in the array.

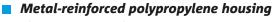
They adjust the gain structure and EQ for the near-field/ midfield and far-field positions to compensate for high frequencies absorbed by air as well as for low/ midrange frequency coupling as the array length increases. No further manual adjustments are necessary. All presets may be selected using the rear-mounted rotary encoder or downloaded from a PC using RDnet software.

- Simplest system configuration
- Very fast setup



### Durable yet light hybrid polypropylene enclosure

This enclosure's surface is immune to knocks and scratches and fully resistant to water and moisture. A sophisticated metal skeleton provides internal bracing that connects its component parts, reinforces the housing and soften resonance.



- Light yet exceedingly durable
- Integrated rain proofing









### Compact yet remarkably powerful

Digipro®G2 digital power amps - compact yet remarkably powerful

The DVA T8 sports three Class-D digipro® power amps, one for each signal path. Embodying the latest advance in digital high-performance amps, the digipro®'s sophisticated technology delivers more from less – that is, maximum power from a package designed to minimized weight and size.

- **700 W/RMS**
- High performance and transparency with true dynamic response



### SMPS with PFC for consistently superb performance

The DVA T8's power supply consists of independent networked devices. **Incorporating the latest IT technology**, it was engineered to maximize operating safety, efficiency, and performance.

The main 750W power supply provides plenty of juice to the power amps and features **PFC** (power factor correction). A secondary power supply feeds the microcontrollers and the DSP, and serves to ramp up check routines and the main power supply. The smart **IPOS™** (Intelligent Power-On Sequence) circuit keeps the overall system's inrush current low.

- Wide-range 90-to-240V SMPS power supply with PFC
- IPOS™ circuit for low inrush current

### High reliability and operating safety

The processor monitors amp's temperature, voltage, current, impedance, input, output, and other data independently and continuously. It detects problems such as an impending overload, and attenuates the signal gradually in small steps or mutes it altogether, depending on the given temperature and level.

- Real-time operating status monitoring
- Status report delivery via the DVA USB Manager





### Handling, Stacking and Flying Cabinets

The DVA T8 comes with built-in rigging hardware. The splay between enclosures may be adjusted in incrementally from 0° to 15°. The DRK-10 harness holds up to 16 flown T4 units. At just 14.2 kg, the DVA T8 is exceptionally light so an array with six elements weighs less than 100 kg. This is an advantage greatly appreciated by everyone who handles and transports the array.

A single person can rig up and fly the system, even from trusses and towers rated to handle lighter loads.

- Very light point load
- Precise alignment
- DRK-10 harness flies up to 16 units



### **Compatible with DVA T12 units**

DVA T8 and DVA T12 series housings are acoustically and mechanically compatible. This means DVA T12 units may be flown right above a T8 array for use as far-fills.

Compatible DVA T12s may serve as far-fill extensions

### DSA 4 pole mount adapter

The DSA 4 pole mount adapter holds up to 3 DVA T8 modules on one pole. A set screw adjusts the tilt angle, smoothly and precisely. Compact PA systems can be configured for smaller applications simply by adding S1518N subwoofers to the setup.



### **Ground stacks with DVA subwoofers**

The DRK-10 harness can also serve to stack cabinets on the ground when rigging points are unavailable or the ceiling is too low.













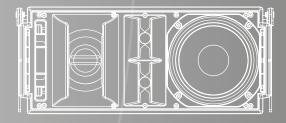


A three-way active line array system, the **DVA T4** has set new standards in the sound reinforcement industry since its 2007 market launch. Better yet, it has brought the benefits of real line array technology to a much wider range of users.

Equipped with top-notch features and engineered for maximum versatility, the **DVA T4 delivers premium performance and ensures excellent return on investment.** 

## Full of Technology

- 8 MODULES (2 METERS ARRAY) CONNECTED TO ONE 16A PHASE PLACE JUST 125 KG LOAD ON THE PICK-POINT
- FULLY POWERED UNITS, FREELY SCALABLE TO SETUPS OF ANY SIZE
- LOSSLESS SIGNAL PATH WITH NO NEED FOR SPEAKER CABLES
- NONE OF THE IMPEDANCE AND AMP CHANNEL AVAILABILITY CONCERNS ASSOCIATED WITH PASSIVE MODELS
- SEQUENTIALLY CONFIGURABLE ARRAY SEGMENTS
- DIGITAL CONTROLLER (DSP) ONBOARD FOR UTMOST OPERATING SAFETY





# 3-Way Active Line Array Module

### **DVA T4**

### **Technical Data**

Speaker Type: 3-Way Active Line Array Module

#### **Acoustical data**

Frequency Response [+/- 3dB]: 80 - 19.000 Hz

Max SPL: One Unit: 128 dB

HF: 2x1 "

Voice Coil HF: 1.4 "

Directivity: 100x15 ° Single unit

MF: 1x 6.5 "

Voice Coil MF: 1.5 "

LF: 8 "

Voice Coil LF: 2.5 "

#### **Amplifier**

Amp Technology: Digipro® Amp Class: Class D HF Amp: 100 W RMS MF Amp: 100 W RMS LF Amp: 220 W RMS Cooling: Convection

### Processor

Controller: Analog Devices AD/DA Converter: DSP 24 bit/48 kHz System Presets: 8, HF/Low-mid correction Limiter: Dual Active Limiter Multiband RMS, Peak, Thermal

Crossover Frequency MF-HF: 1800 Hz Slope MF-HF: 24 dB/Octave Crossover Frequency LF-MF: 400 Hz Slope LF-MF: 24 dB/Octave

### Input

Signal Input: 1x XLR fem, sym Signal Output: 1x XLR male, sym.

Power Socket: 1x Powercon In 1x Powercon Out

Voltage Range: 90 - 240 V

### Mechanics

Housing: Polypropylen PP reinforced Housing Design: Trapezoidal 15°

Rigging Points: Integrated rigging hardware

Width: 580 mm (23.2 in) Height: 240 mm (9.6 in) Depth: 327 mm (13.08 in) Weight: 13.8 kg (30.42 lbs) **The DVA 74** is equipped with unique digital power amps that provide a total of 420W RMS. Driven by Digipro® technology, their resolution is several-fold that of conventional digital amps. They render signals very accurately with this high-definition audio capability.

Sonic images are almost impossible to distinguish from those of analog sources, even in the HF range. The amps are equipped with high-quality delta-sigma converters.



**The DVA T4's** digital power amp features DPP™ (Digital Power Processing) technology and a multiband compressor/ limiter with separate response curves for each signal path. Its dynamic range is exceptionally wide.

For example, headroom in the middle and high-frequency bands ranges up to 22dB. This innovative circuitry not only maximizes dynamic response, it also ensures signals are rendered accurately and uniformly even at threshold levels.









### Reliability

The 8" Neodymium-Woofer is equipped with a high power 2.5" voice coil to provide superior sound pressure level in a very compact size.

8" vc 2.5" Neodymium woofer



### High Efficiency

The 6.5" Neodymium-Midrange speaker has a sealed basket to provide an optimized volume capacity including high sensitivity and superb sound reproduction. It also has a horn exit including phase plug for defined and linear sound emission.

■ 6.5" vc 1.5" Neodymium Midrange



### State-of-the-Art Drivers

The build in 1"Neodymium- Drivers are equipped with a 1.4" Mylar- Membrane which allow a very quick response and provide a linear frequency range at a surprisingly low weight. This driver was specially designed for the use with Line-Arrays. Its compact measurements allow very close proximity which is a main factor for minimum interference.

2x 1" vc 1.4" Neodymium drivers



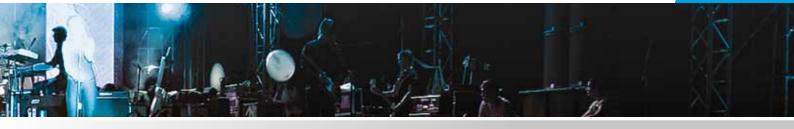
### **Constant Directivity**

The DVA T4 Top is equipped with a constant directivity horn for the High and Mid section and offers a nominal coverage angle of 100°x15°. The CD-Horn provides high flexibility and a good natured attitude if for instance the Array is not aligned correctly.

The DVA uses apart from the formation of cylindrical waves (very much depending on the number of T4 elements) the vector summing of the individual horns. This means that with growing distance to the source (if set up correctly) the listener perceives more and more vector sums of the single elements.

However it has to be considered, that the fewer elements are used to spread the sound to a specific area, the stronger must be the curving of them. That's how the effect of optimised SPL distribution is managed.





### **Groundstacking**

TIn case there are no possibilities to fly the system or the ceiling of the venue is not high enough, the DRK-10 can be used for groundstacking too.

A special bracket provides an inclination up to 7.5°.

The DRK-10 fits exactly onto the surface of an upright positioned DVA S20 subwoofer and can be mounted by two quick release pins on top of the sub.

The combination of a DVA S10 subwoofer and a DSA-4 pole mount adaptor holding up to three DVA T4 mid-/high-range units is a great solution for smaller applications and for delay zone sound reinforcement.

The continuously adjustable DSA-4 adaptor lets you aim the mid-/high-range units.





### Flying the cabinets

The DVA T4 comes with precisely engineered flying hardware.

The hardware in combination with the extremely low weight of a T4 top allows easy and fast setup of the whole system. The curving can be adjusted in steps of 2.5° within a range of 0° and 15°. For an optimum of performance the system should be principally flown.

The DRK-10 flying frame holds up to 16 T4. For professional handling the frame is well balanced and the angle of inclination can be corrected with the upper rear flying rails.

The DSA-4 adapter attaches to the bottom cabinet and secures the rig to the truss with half-couplers and a pipe. We recommend using this adapter to prevent the stack from twisting and swinging.

The combination of DVA S10 subwoofers and DVA T4 mid-/high-range units in a flown array packs a mighty fullrange punch with serious SPL. This setup is the preferred configuration in venues where you are unable to place bass bins on the floor or where you wish to cover bleachers or balconies.

### Handling, stacking, and flying the DVA T4

The DVA T4 Line-Array element has a sensational weight of only 13,8kg. The obvious advantage for handling and transport also makes flying possible where under normal circumstances the trussing is not strong enough to support also flying of the audio devices an Array of six T4 Tops therefore weighs less than 100 kg.

For system dimensioning please refer to DVA Composer simulation software.











The new DRK-20M is the first motorized fly bar in the world for line array systems.

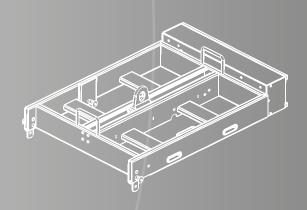
Equipped with a system that modifies the clusters focal point, it is possible to adjust the inclination of the sound system in any moment without having to lower the loudspeakers; this makes it possible to change the sound coverage, when necessary, even during the event.

This system can be directed from RDNet or by simply using a manual remote control connected with a standard XLR cable.

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## Full of Technology

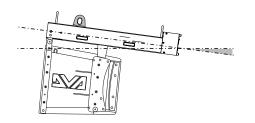
- MOTORIZED FLYBAR
- **ACCELEROMETER ON BOARD**
- REAL TIME DATA USING RDNET SOFTWARE
- MANUAL REMOTE CONTROL
- SAME WEIGHT CAPACITY OF DRK-20
- EXTREMELY ACCURATE 0,5° AIMING RESOLUTION

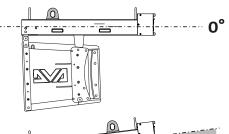


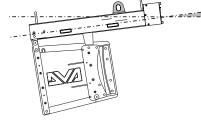


# DRK-20M Motorized Rigging Frame









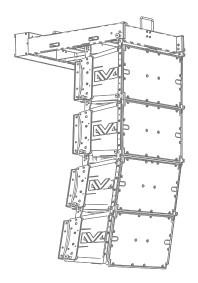
### The New DRK-20M

The new DRK-20 M is also equipped with an RD\_NET interface, in order to control each of its functions through a computer and monitor its position in real time.

The new motorized Fly bar is also very useful in facilitating the installation of line array modules by adjusting the clusters inclination progressively, as each single modules' applied angles vary.

Thanks to its solid structure in special steel, it is possible to hang speakers of the DVA series with a weight of up to 1000kg, TUV certified.



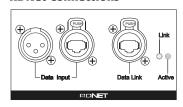




### RDNet Control Mode (Plug in)



### **RDNet Connections**



### Remote Control Connectioncs

