HDL 50-A THE SYSTEM

PHILOSOPHY >

The demands of modern sound reinforcement systems are higher than ever before. Besides pure performance - high sound pressure levels, constant directivity and sound quality other aspects are important for rental and production companies such as reduced weight and ease of use to optimize transport and rigging time.

HDL 50-A is changing the concept of large format arrays, providing primary performances to an extended market of professional users.

THE SYSTEM

> The HDL 50-A is a fully active 3-way speaker system that is equipped with both modern and innovative technology. Each component from the power supply to the input board with DSP to the output stages to woofers and drivers has been consistently and specially developed by RCF's experienced engineering teams for the realization of the HDL 50-A system, with all components carefully matched to each other. This complete integration of all components allows not only superior performance and maximum operational reliability, but also provides users easy handling and plug & play comfort.

Besides this important fact, active speakers offer valuable advantages: while passive speakers often need long cable runs, the energy loss due to the cable resistance is a huge factor. This effect is not seen in powered speakers where the amplifier is just a couple of centimeters away from the transducer.

APPLICATIONS > Long throw systems. Touring sound reinforcement for large-sized venues. High quality reinforcement of music and speech. Stadiums, arenas, concert halls.

An active sound reinforcement system means more than just having amplifiers packed into a speaker housing.
Only when each single component such as high frequency drivers, midranges and woofers are controlled by individual DSP settings can the user benefit from this technology.

Scaling a line array is the most important aspect when talking about best performance and coverage. Where passive systems have limits in impedance load or number of amplifier channels, an active RCF sound system is freely scalable and individually controllable.

TECHNOLOGIES

> RCF develops advanced transducer technology including the application of high-tech materials such as Neodymium, Carbon Fiber, Pure Titanium, Kevlar, Kapton and Mylar hybrids. With over 60 years of design and manufacturing experience in the market, RCF has been instrumental in technological inventions such as carbon fiber cone molding, double silicon spiders, inside/outside voice coil windings to edge wound voice coil manufacturing and pure titanium diaphragm forming. Our latest developments have resulted in designing state of the art neodymium magnetic circuits, radically new voice coil ventilation systems and ground breaking direct drive voice coil assemblies.

DUAL SILICONE SPIDERS

RCF's original invention of the dual silicone sealed spider design offers many advantages: the two spiders offer double resistance to fatigue. The silicone between the cloth layers, being a very high memory material, provides the best shape stability to the spiders. The system, being sealed, functions as an air pump expelling hot air and drawing in cool air every time the cone assembly moves.

COMPLEX HYPER-VENTING COOLINGS

In our complex cooling designs individual components come together to create an ideal ventilation system. Finned cooling channels dissipate heat efficiently, the dust cap and the sealed spiders function as an air pump expelling hot air and drawing in cool air every time the cone assembly moves. Many openings are situated directly on the transducer's side and on the rear plate.

INSIDE - OUTSIDE VOICE COILS

RCF has developed a unique voice coil, combining the advantages of inside/outside technology to the superior quality of polyimide-imide materials (wire resins and formers resins).
The inside/outside coil offers many advantages:

- The dissipation surface is doubled;
- The adhesion area to the former is doubled;
- During thermal expansion the Former is squeezed between inside and outside layers offering the best mechanical resistance.

DIRECT DRIVE VOICE COIL ASSEMBLIES

The top of the former is bent and bonded directly to the edge of the titanium diaphragm resulting in a Direct Drive configuration. Direct Drive guarantees optimal transfer of energy between the voice coil and the dome assembly, providing smoother, extended frequency response beyond 10 KHz, reducing break up modes and lowering distortion. This assembly delivers high power handling along with excellent mechanical and thermal properties that make RCF neodymium compression drivers robust and reliable.

CUSTOM HIGH FREQUENCY WAVEGUIDES

The HDL 50-A custom 4PATH designed waveguide allows a precise coverage of 90 x 10 degrees, while also delivering a superb, linear high frequency response. The unique shape of the four ducts forming the guide creates an ideal isophasic load from 700 Hz to the highest audible frequencies.

TECHNOLOGIES

THE RDNet ADVANTAGE

> HDL 50-A features the unique RDNet interface, by means of which all components can be configured and controlled remotely from the front of house location for maximum system control.

RDNet is a 'daisy chain' network based on the RS485 protocol, which is very stable and easy to use. An RDNet Control8 port is linked to the 'Data Input' of the first device, from which its 'Data Link' output is linked to the second device input and so on. It is possible to link up to 32 devices to each port (max. 256 speakers controlled simultaneously). When using Ethernet (through a dedicated switch), it is possible to link up to 20 Control8 per computer. Even extremely large systems can be easily organized and managed by RDNet.

An innovative example is the recent large-scale installation of RCF speakers at the Baku Olympic Stadium in Azerbaijan.

POWER AND CONTROL

A 4400 W peak power digital amplifier powers the HDL 50-A: 1100 W for the HF, 1100 W for Midrange section and 2200 W for the LF. New generation DSP handles all the processing within the cabinet and allows adjustment of Cluster size and HF projection.

All these setting are accessed by the encoder on the rear of the cabinets or using the integrated RDNet remote control. The easy-to-access controls on the back of the speaker allow a number of simple optimizations to be carried out at the flick of a switch.

ADVANCED FIR FILTERING

Finite Impulse Response filters. FIR filters offer a flat phase response starting from 250 Hz to 20 kHz. All frequencies are arrive at the ears simoultaneously and this provides correct impulse response with an unrivaled resolution and offset in depth.

The special algorithm for FIR filter's creation permits to optimize the global latency introduced by the FIR to the system without sacrificing its filtering accuracy over all the audible frequency range.

AIR ABSORPTION & HF CORRECTION

Traditional sound reinforcement systems suffer from losses in high frequency sound due to air absorption at greater distances. RCF has developed an innovative algorithm to compensate for these high frequency loss in the system. Special phase-neutral filters

are used to achieve coherent distribution of sound for all listeners.
Thanks to individual DSP settings in each module and the integrated network, this is achieved very easily and precisely.

BUILT-IN INCLINOMETERS

Aiming the system is the most important pre-condition to get a proper working line array to achieve high reach and precise coverage. In each HDL 50-A line array module an inclinometer is built-in to give information about

the real tilt angle of each cabinet via RDNet software.

HDL 50-A

ACTIVE THREE-WAY LINE ARRAY MODULE

The HDL 50-A is an active 3-way line array module for large events, indoors and outdoors. Equipped with 2x12″ woofers, 4x symmetrical 6.5″ midranges and two 2″ drivers, it offers excellent playback quality and high sound pressure levels with a built-in 4400W powerful digital amplifier. Using advanced neodymium magnets and a groundbreaking new housing constructed from lightweight plywood and polypropylene, it has a remarkably low weight of only 56 kg.

- 4400 Watt, 3 way amplification
- 140 dB max SPL
- 8 x high power neodymium transducers
- 48 kHz, 32 bit DSP processing
- RDNet on board
- Remote monitoring and control
- Symmetrical design
- Extremely low weight

p.n. 130.00.477 (100 V - 240 V)

MAXIMUM EFFICIENCY

The HDL 50-A is a true active high power ready to use touring system. Equipped with a high efficiency digital amplifier that delivers superior SPL, while reducing energy requirement. The integrated processing and the cabling reduction will make the set-up faster and easier and, thanks to its compact size, the truck space requirement reduces to the minimum.

V-SHAPED SYMMETRICAL DESIGN

The symmetrical design of the cabinet produces identical left and right coverage. The component positioning and special DSP crossover filtering of the HDL 50-A take care of the constant directivity without spots of break up or attenuation.
The originally designed V-SHAPED front baffle provides:
- Coplanar midranges and woofers
- Controlled LF dispersion
- Central space to host the HF guide.
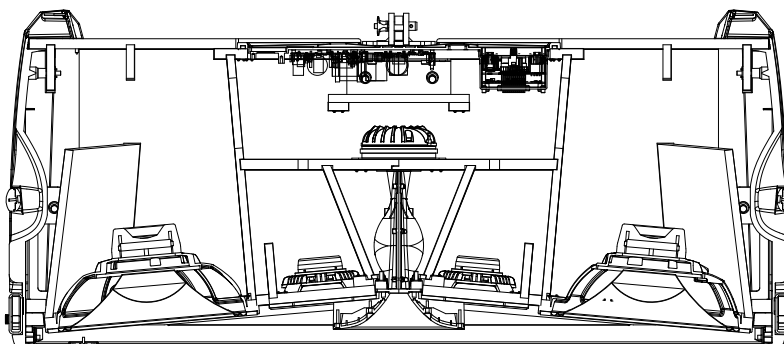
HIGH FREQUENCIES

The two ND 840 large format compression driver deliver one of the key advantages of the
HDL 50-A: the 3.0″ voice coil allows a crossover point of 800 Hz and therefore this driver can produce almost all of the vocal range. This allows better coverage and superior efficiency.

MID FREQUENCIES

- 4 x 2.0″ voice coil 6.0″ neo midranges
- Water resistant fiber doped cone
- Polycotton M-roll surround
- High power magnetic structure

LOW FREQUENCIES

- 2 X 3.0″ voice coil neodymium 12″ woofers
- Water resistant fiber doped cone
- Polycotton M-roll surround
- Hypervented magnetic structure

CABINET

The HDL 50-A tour grade system comes in a composite
wooden-polypropylene enclosure, and is equipped with
two aluminum side handles with rubber handgrips and
two rear handles for portability.

CONFIGURABLE MECHANICS

The integrated mechanics are both fast and
reconfigurable, allowing the system engineer to create
J-shaped and spiral arrays with 0.5° resolution.
The heavy-duty front grille is power coated.
A special transparent-to-sound foam backing inside helps
to further protect the transducers from dust.

SUB 9007-AS

ACTIVE HIGH POWER SUBWOOFER

The SUB 9007-AS is one of the most powerful 2x21" subwoofers in the field of live sound. Featuring two, high power, hyper-vented 21" neodymium woofers with 4.0" inside-outside voice coils, this cabinet deliver a serious amount of low frequencies. Powered by a 7200 W digital amplifier, the SUB 9007-AS can perform in the most demanding situations. The housing of the SUB 9007-AS matches the RCF D-Line HDL50-A and HDL20-A array systems, enabling stacked systems matched in a perfect combination.

- 7200 Watt Peak power – 3600 Watt RMS
- 143 dB max SPL
- 25 Hz – 120 Hz frequency response
- 2 x 21" Woofer
- DSP controlled Input section with selectable presets
- RDNet remote and control
- Delay control
- Baltic birch tour grade cabinet

p.n. 130.00.493 (100 V - 240 V)

HYPERVENTED HIGH POWER NEODYMIUM WOOFERS

The new custom designed 21" transducers join the ultimate power performance to the incredibly lightweight.
RCF manufacture these components to deliver the cleanest, punchiest and undistorted low frequencies reproduction.
In order to dissipate the heat generated by the powerful 4.0" voice coil, RCF engineers have developed a unique

DSP PROCESSING

A new generation DSP handles all the processing within the cabinet and allows control of soft clipping limiters, RMS limits, amplitude and phase equalization. From the enconder on the input panel it is possible to adjust gain, low pass and high pass crossovers, delay, phase and cardioid equalization. Using the integrated RDNet remote control it's also possible to access all these setting.

HEAVILY BRACED PLYWOOD CABINET

The cabinet is made of high quality birch plywood with every layer glued with a special water resistant adhesive that makes the cabinet weatherproof. The heavily braced internal structure of the cabinet survives long-term use and transportation and presents two separate acoustic chambers for the woofers and a separate housing for the amplifier to guarantee the best components efficiency and reliability. The heavy-duty front grille integrates a central reinforcement bar and is power coated. The SUB 9007-AS is equipped with 8 aluminum handles (4 per side) with ergonomic rubber handgrip and is ready to be equipped with transportation wheels.

ventilation system that offers the best thermal dissipation and the lowest power compression.
The Hyper Ventilation System is the result of a complex combination of ventilation ducts in the voice coil former, in the magnetic structure and in the woofer basket.

INDEPENDENT AMPLIFICATION CHANNELS

Two separate class D amplifiers ensure top efficiency levels and maximum reliability for an extensive use of the subwoofer during tours. Each amplifier delivers 3600 W to the 21" woofers and the regulated power supply guarantees full power from 100 V to 260 V. The amplifier houses on a unique Vibrostop floating aluminum panel for extra protection during transportation.

STACKING HDL 50-A OR HDL 20-A

Up to four HDL 50-A can be horizontally stacked on top of the SUB 9007-AS. Up to four HDL 20-A can be vertically stacked on top of the SUB 9007-AS.

STACKING **HDL20-A**

STACKING **HDL 50-A**

SUB 9006-AS

ACTIVE HIGH POWER SUBWOOFER

The SUB 9006-AS has been designed to render effortless low frequency transients with a very fast response. As a self-powered system, the transducers, amplification and DSP control electronics of the SUB 9006-AS are designed to optimize performance and maximize its power. The SUB 9006-AS's low tuned cabinet houses two RCF Precision new back-vented long-excursion high-power 18" inch cone drivers, providing a fast and controlled reproduction of the bass frequency range. It features a four-layer 4" inside/outside voice coil to minimize power compression and extend the life of this product.

- 7200 Watt Peak power – 3600 Watt RMS
- 142 dB max SPL
- 30 Hz – 120 Hz frequency response
- 2 x 18" Woofer
- DSP controlled Input section with selectable presets
- RDNet remote and control
- Delay control
- Baltic birch tour grade cabinet

p.n. 130.00.494 (100 V - 240 V)

VENTED ALUMINIUM PANEL

The amplifier is housed on a unique Vibrostop floating aluminum panel for extra protection during transportation.

HEAVY DUTY CABINET

The cabinet is in made of high quality birch plywood with every layer glued with a special water resistant adhesive that makes the cabinet weatherproof. The heavy-duty front grille integrates a central reinforcement bar and is power coated. The SUB 9006-AS is equipped with 8 aluminum handles (4 per side) with ergonomic rubber handgrip and is ready to be equipped with transportation front cart.

LOCKING POINTS

The front of the cabinet integrates two locking points to insert and fix the wood protection cover that has been specially designed to protect the subwoofer during transportation. The accessory is made in strong Baltic birch plywood finished with a scratch resistant paint and can be left on even when using the TTS 56-A protection cover.

TWO INDEPENDENT CHANNELS

Two separate class D amplifiers ensure top efficiency levels and maximum reliability for an extensive use of the subwoofer during tours. Each amplifier delivers 3600 W to the 18" woofers and the regulated power supply guarantees full power from 100 V to 260 V.

CUSTOM HIGH POWER NEODYMIUM WOOFERS

The new custom designed 18" transducers join the ultimate power performance to an incredible light weight. RCF manufacture these components to deliver the cleanest, punchiest and undistorted low frequencies reproduction. In order to dissipate the heat generated by the powerful 4.0" voice coil, RCF engineers have developed a unique ventilation system that offers the best thermal dissipation and the lowest power compression.

HDL 53-AS

ACTIVE HIGH POWER BASS MODULE

The HDL 53-AS is the perfect extension to HDL 50-A. This 3x12" subwoofer comes in the same housing like HDL 50-A and allows perfect integration in the array shape like: Flown above HDL 50-A in one array or as separate Sub-Array behind HDL 50-A array with the same shape to allow cardioid dispersion in a wide low and low-mid range to keep the stage clean from feedbacks.

- 3300 Watt Peak power – 1650 Watt RMS
- 139 dB max SPL
- 35 Hz – 100 Hz frequency response
- 3 x 12" Woofer
- DSP controlled Input section with selectable presets
- RDNet remote and control
- Maximum output, perfect audio fidelity
- Tour grade cabinet and mechanics

p.n. 133.00.508 (100 V - 240 V)

INNOVATIVE DESIGN

The 3 x 12" RCF Precision neodymium woofers with 3" voice coil ensure powerful coverage in a frequency range between 35 Hz and 100 Hz.
The accurate design and assembly of mechanical components allows an easy rigging above, side to side or in the back of the TTL 6-A.
The integration of three channels of digital amplification and the advanced digital processing set a new standard for low distortion and noise.

ADVANCED PROCESSING

A 32-bit floating-point DSP processing manages:
- System's crossover and transducers' alignment
- Programmable system's equalisation
- Input sensitivity reduction
- Soft limiter and gentle compressor for very high signal inputs
- RMS current monitoring and transducer protection
A specially developed algorithm takes care of the frequency-dependent soft limiter, offering the listener the same system linearity, from very low-level signals to the maximum amplifier output.

TOUR GRADE CABINET

The HDL 53-AS tour grade system comes in a composite wooden-polypropylene enclosure, and is equipped with two aluminium side handles with rubber handgrips and two rear handles for portability.
The integrated mechanics are both fast and reconfigurable, allowing the system engineer to create J-shaped and spiral arrays with 0.5° resolution. The heavy-duty front grille is power coated. A special transparent-to-sound foam backing inside helps to further protect the transducers from dust.

HIGH POWER WOOFERS

- 3 X 3.0" voice coil neodymium 12" woofers
- Water resistant fibre doped cone
- Polycotton M-roll surround
- Hypervented neodymium magnetic structure

RDNet

REMOTE MONITORING AND CONTROL

RDNet software enables to remotely control and manage professional speakers and audio objects/devices. Each single device, with its own built-in communication board, microcontroller and DSP, is an active part of the brain of the system, able to store presets, receive commands and continuously send status information. RDNet includes several new functions as well as multiple improvements.

AUTOMATICALLY SCANNING

When online the RDNet Control 8 unit sequentially scans all audio devices, which are automatically assigned to digital addresses. The loudspeaker objects are automatically added to the software synoptic and the software shows an object for each loudspeaker (or any other audio device) that has been found.

FULL CONTROL TO EVERY SINGLE SPEAKER

Thanks to the unique RDNet software, the sound engineer has full control of every single speaker. RDNet provides extensive information such as firmware version of the speaker, temperatures, levels, inclinometers and many more. Every single component can be monitored, from the DSP via the output stage up to the individual speakers. Even extremely large systems can be easily organized and managed by this software.
A very unique feature is the curve function that creates sub-arcs and sets the arc's opening angles just by selecting the value. Even complex cardioid subwoofer configurations for large events can be designed all in one go.

- Read out tilt angles of individual modules
- Select system presets
- Test individual components
- Group modules together
- Adjust gain and delay
- Set equalizers

CONTROL 8

8 OUTPUT MASTER UNIT

The RDNet Control 8 is a real-time monitor and control system able to manage up to 256 devices linked 32 per bus in 8 buses. All the data collected from the slaves are delivered to the sound engineer by USB in a local installation or by Ethernet from remote locations. The interface can be directly connected to the DSP on board of HDL products through the exclusive RDNet protocol making it possible to address single cabinets or groups, specific presets or modification parameters in real-time. The key point of RDNet Control 8, in fact, is to ensure minimum refresh time (at least 5 per second) of all the system data performance like RMS signals, compressor activities, temperatures, fans speed and warnings.

- ■ RDNet control and monitoring in a single device by Ethernet or USB
- ■ Up to 8 subnet of up to 32 slaves devices
- ■ Automatic network configuration and registration
- ■ Slave devices status and functions real time control
- ■ Monitoring and display of faults and warnings
- ■ User configurations storage and recall

p.n. 171.70.154

TOPOLOGY FLEXIBILITY

The RDNet CONTROL 8 unit can manage up to 8 subnets. Up to 32 audio devices can be connected to each subnet (8 subnets x 32 = total 256 audio devices).

COMMUNICATION FLEXIBILITY

The link between the PC and the RDNet CONTROL 8 unit can be made through USB port or Ethernet port.

CONTROL FLEXIBILITY

The PC cyclically requires the RDNet CONTROL 8 unit the operating state of audio devices that make up the communication network. All data are collected by the central unit that performs a sequential scan of all audio devices. Digital address allocation is automatic. Information relating to the functioning of all audio devices is acquired in real-time, feature that allows a network global view. It is possible to check each single audio device and edit its parameters (e.g. output level, mute, equalization, delay, etc.) by using the PC software. The audio device overall configuration can be saved as file in the PC and later reloaded. It is possible to synchronize all parameter values of the RDNet CONTROL 8 unit to the ones of the PC software preset.
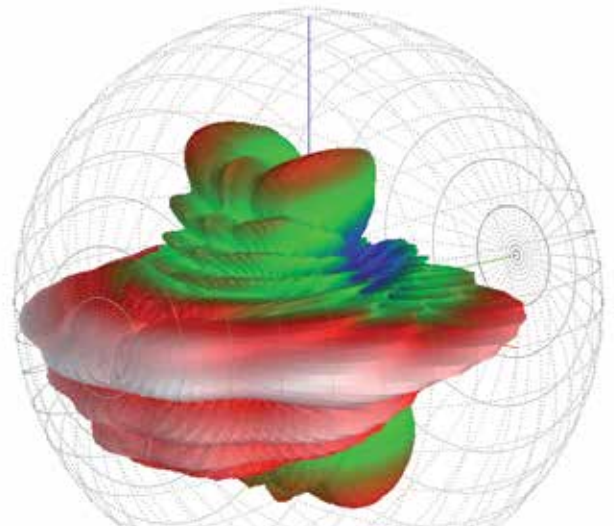
EASE FOCUS INTEGRATION

EASE Focus is a three-dimensional, acoustic simulation software for the configuration and modeling of line array systems, two-way speakers and subwoofer configurations (available in version III). Even complex system designs for large-scale events can be simulated.
EASE offers direct integration of HDL 50-A and Subwoofers in the advanced Ease Focus III release.

DX 1616

MATRIX AUDIO PROCESSOR

DX 1616 AES-Dante remote software. This network-based software designed for Microsoft Windows and Mac OSX allows the management of the DX 1616 Matrix Sound Processor.
-Pre-Amp configuration, selecting source types like analog, AES/EBU, Dante
-Designing Input groups for festival applications
-Input source processing with EQ, delay and compressor
-Powerful 16x16 router to assign processing tasks to flexible output patches.

- ■ Hybrid architecture DSP
- ■ 48 KHz sampling, 40 bit floating point engine
- ■ 16 x 16 I/O matrix
- ■ Dante enabled network audio transport
- ■ 8 AES/EBU inputs - 8 AES/EBU outputs
- ■ Ethernet connectivity and control
- ■ Maximum latency 3 ms
- ■ Easy to use software GUI

p.n. 123.99.033

DSP MODULE

The DSP module offers high pass filters, low pass filters, parametric EQ, all pass filters, level, compressor and output delay for perfect system control even if no RDNet controlled speaker is part of the system.

HOME

The home screen gives the most important information of the signal flow to the system engineer in one view. All inputs with pre-fade level meters including the routing to dedicated DSP modules for typical system tasks for main PA, side PA, subwoofer and distributed speakers. Useful groups of inputs allow easy setup and configuration for any large event application with several mixing desks or multiple sources.

SOURCE PROCESSING

The powerful source processing window allows the configuration of the input preamps (analog, AES/EBU, mic/line) and Dante inputs as well. For each source the user can adjust gain, polarity, input EQ, input compressor and input delay.

OUTPUT PATCH

Thanks to 16 analog outputs, DX 1616 offers flexible routing possibilities. The engineer can use up to 16 individual DSP modules for each output or he can even assign several analog outputs to a specific DSP module to use these outputs as high quality line drivers. In combination with the RCF CP16 control panel any demand of wiring the audio system is supported.
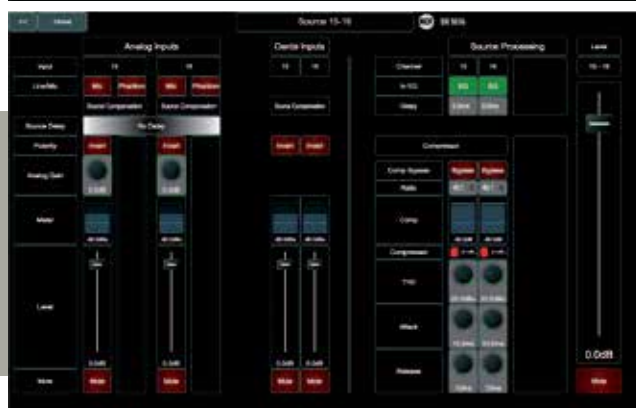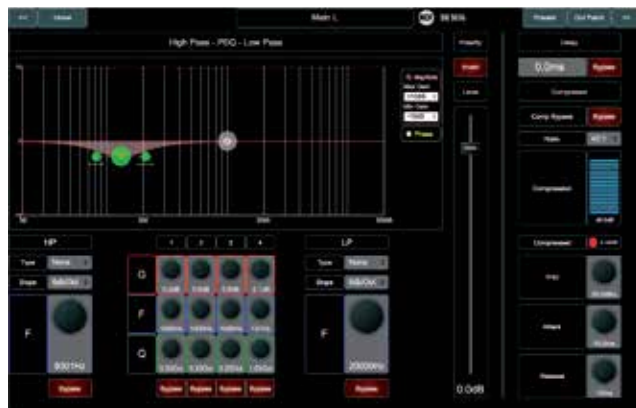
CR 16-ND

CONTROL RACK

The CR 16-ND is a 10 Unit flight case designed to control the HDL 50-A line array system. The CR 16-ND includes one Control 8 that manages the RDNet connection to up to 256 devices, one DX 1616 matrix processor that takes care of audio signals routing and processing and one CP 16 control panel to bring audio and control signals to 4 x LK 25 multipin outputs. Each LK 25 has four audio channels, two RDNet channels and two spare sends. Each signal is doubled to XLR redundant outputs.

- 10 RU flight case on shock mounts
- DX 1616 matrix audio processor
- CONTROL 8 master unit
- CP16 control panel
- 16 analog audio inputs, 16 analog audio outputs
- 8 AES/EBU inputs - 8 AES/EBU outputs
- Dante input
- 4 x LK 25 multicore audio/RDNet outputs

DIGITAL I/O

The DX 1616 matrix audio processor features Ethernet control, Dante redundant inputs, eight AES/EBU inputs and outputs. The signals are managed from a 40 bit floating point, high resolution DSP.

DX 1616 matrix audio processor

AUDIO AND CONTROL CENTER

With modern audio technologies, the sound system has to accept several source types such as analog signals, digital signals and even audio via network. With the CR 16-ND RCF provides the perfect companion and control center. While RDNet takes care of the individual speaker or group of speakers, the DX 1616 matrix signal processor will manage up to 16 inputs - no matter if they come as analog signal, AES/EBU or even via Dante. Thanks to a powerful DSP matrix, the engineer can assign each source to processing routines and flexible output patches.

To ensure worldwide HDL 50-A system standards, the CP 16 control panel is part of the CR 16-ND control rack offering Ethercon sockets, XLR inputs and outputs, multi-pin outputs. Perfectly designed to match the RCF cabling solution.

PR-63

POWER RACK

The Power Rack PR-63 features the PD 63 A-419 power distribution with a 63 A Cekon power input with 5 m fixed cable. The three-phase power is distributed in a 32 A Cekon output, 4 x LKS19 output, 6 x Powercon output, 1 Powercon auxiliary output to power the CR 16-ND Control Rack.

All outputs are equipped with individual RCBOs (Residual Current-operated Circuit-Breaker with Overcurrent protection) for maximum reliability. In case of damage, only the faulty output is missed while the rest of the system continues to function.

- 63 Ampere Cekon power input with 5 m cable
- 32 Cekon outputs
- 4 x LKS 19 outputs
- 6 x Powercon outputs + 1 Powercon auxiliary output
- 24 x individual power line RCBOs
- 32 Ampere and Auxiliary individual front RCBOs
- Tour Grade flight case construction

p.n. 121.00.006

63-AMPERE RACK

From a single 63-Ampere Cekon connector the power rack delivers power distribution to large PA systems, including up to 12+12 left-right line array systems, a large subwoofers system and a complete stage monitoring.
32-Ampere power output for chain motors and 16-Ampere Powercon output to supply CR 16-ND are included.

In a sound reinforcement system, power has to be managed in a clever and safe way to ensure highest reliability and only by using high quality cables and sockets will it be touring proof.

The LKS 19 power cable provides 6 x 20 A power feeds in a very tight pack to run up to 12 x HDL 50-A (two HDL 50-A will be linked with a 0.6 m Powercon cable). For additional speakers or even for the subwoofers close to the PR-63, the Powercon sockets can be used in parallel to the LKS 19 sockets.

LK 25 MULTIPIN

The LK 25 connectors feature easy-grip long and slim metal locking rings, aluminum back shells and skin tops with anti-bending spring. The studs are roller version to ensure easier coupling and a longer number of operations due to a lower wear and tear of coupling ramps.
Each cable brings 4 audio channels, 2 RDNet control channels and 2 patchable spare lines. RCF offers a dedicated LK 25 fan out cable and two extension cables (10 m and 20 m).

SOLIDLY BUILT CABLES

RCF offers professional cables solidly built and easy to handle. All LK 25 and LKS 25 connections grant IP 67 protection and high strength for the intensive use and winding operations.

Cabling and transportation

CONTROL RACK

Besides the speaker design, the transportation and weather protection are an integral part of the system.

The HDL 50-A Kart allows four HDL 50-A speakers to be transported and to pre-configure the splay angles easily while still positioned on the ground.

All subwoofers are equipped with detachable front wheel boards, which makes the setup easy without having the rattling noise of wheels displayed towards the audience when using subs in cardioid setups.

RCF active sound reinforcement systems feature sophisticated weather protection to ensure a safe operation even under worse weather condition.

LKS 19 CONNECTORS

Thanks to the use of LKS 19 power distribution system with dedicated fan out cables it is possible to connect up to 12 HDL 50-A or SUB 9007-AS from a single 19 pin connector. One single cable run can power a full sized line array column. RCF offers dedicated fan out cables for arrays and subwoofers as well as extension cables of 10 m or 20 m.

DEDICATED ACCESSORIES

A full range of custom accessories complements the HDL 50-A system. Starting from suspension and stacking to cabling and transportation, RCF provides solutions for a practical assembly, use and transportation from the smallest to the largest HDL 50-A system.

> **FLYBAR HDL 50-A**
> Suspension bar to fly up to 20 pcs of HDL 50-A or HDL 53-AS in combination.

p.n. 133.60.334

> **QUICK LOCK PINS KIT 4F**
> 4 x front pin set for HDL 50-A module. To be used as front compression locking or as a spare set in case original pins are damaged or lost.

p.n. 133.60.335

> **QUICK LOCK PINS KIT 4R**
> 4 x rear pin set for HDL 50-A module. To be used as a spare set in case original pins are damaged or lost.

p.n. 133.60.340

> **AC 4PIN FLYBAR TTL 55**
> 4 x pin set for HDL 50-A Flybar. To be used as a spare set in case original pins are damaged or lost.

p.n. 133.60.132

> **FLYBAR PICK UP TTL 55-A**
> Flybar pick up point (including 2 quick lock pins) to be added to the Flybar accessories in case the pick up is made with 2 motors.

p.n. 133.60.127

> **HOIST SPACING CHAIN**
> Hoist connection chain to distance the motor and the chain bag from the suspending Flybar. Helps keeping properly vertically balanced the system. One chain every pick up point.

p.n. 133.60.129

> **SAFETY CHAIN TTL 55**
> To be added to the Flybar to provide a secondary safety (specially when the cluster is suspended with a single motor). 1 pcs for every Flybar suggested.

p.n. 133.60.128

> **AC CONNECTOR PLATE SUB 8006**
Accessory to lock the HDL FLY BAR to the SUB 9007-AS or SUB 9006-AS with the M20 fixing point.

p.n. 133.60.231

TRANSPORTATION

> **HDL 50-A 4X KART**
120 x 65 cart with heavy-duty wheels. Transport cart for 4 x HDL 50-A or 4 x HDL 53-AS.

p.n. 133.60.336

> **SUB 9007-AS FRONT KART**
Detachable front wheel board including 4 x 100 mm blue wheels.

p.n. 133.60.348

> **SUB 9006-AS FRONT KART**
Detachable front wheel board including 4 x 100 mm blue wheels.

p.n. 133.60.361

> **COVER 4 X HDL 50-A**
Transport cover to protect 4 x HDL 50-A on cart.

p.n. 133.60.338

> **COVER SUB 9007-AS**
Transport cover for SUB 9007-AS with handles cut-outs when SUB 9007-AS is standing on wheel board.

p.n. 133.60.339

> **COVER SUB 9006-AS**
Transport cover for SUB 9006-AS with handles cut-outs when SUB 9007-AS is standing on wheel board.

p.n. 133.60.363

RAIN PROTECTION

> RP 50-01 RAIN PROTECTION
Rain protection for HDL 50-A, HDL 53-AS amp panel.

p.n. 133.60.337

> RP 9007 RAIN PROTECTION
Rain protection for SUB 9007-AS amp panel.

p.n. 133.60.352

> RP 9006 RAIN PROTECTION
Rain protection for SUB 9006-AS amp panel.

p.n. 133.60.362

CONTROL AND AUDIO CABLES

> LK 25-2 FAN OUT
LK 25 multipin cable fan out with LK 25 female connector and 8 x XLR male outputs. Length 2 m.

p.n. 123.99.021

> LK 25-10 MULTIPIN
LK 25 male to female extension multi-pin cable.
Length 10 m.

p.n. 123.99.023

> LKS 25-20 MULTIPIN
LK 25 male to female extension multi-pin cable.
Length 20 m.

p.n. 123.99.022

> ETHERCON CABLE 0.7 M
Ethercon link cable 0.7 m to link HDL 50-A / HDL 53-AS.

p.n. 123.99.016

> ETHERCON CABLE 1.5 M
Ethercon link cable 1.5 m to link SUB 900(6)7-AS.

p.n. 123.99.017

> ETHERCON CABLE 3 M
Ethercon link cable 3 m to link SUB 900(6)7-AS.

p.n. 123.99.035

> ETHERCON CABLE 5 M
Ethercon link cable 5 m to link SUB 900(6)7-AS.

p.n. 123.99.018

> ETHERCON TO XLR F ADAPTER 0.2 M
To adapts XLR female connector to RJ45 RDNet
socket on the speaker.

p.n. 123.99.019

> ETHERCON TO XLR M ADAPTER 0.2 M
To adapts XLR male connector to RJ45 RDNet socket
on the speaker.

p.n. 123.99.020

POWER DISTRIBUTIONS CABLES

> **LKS 19 ARRAY FAN OUT**
LKS 19 male connector to 6x Neutrik Powercon.

p.n. 123.99.024

> **LKS 19 SUB FAN OUT**
LKS 19 male connector to 6x Neutrik Powercon.

p.n. 123.99.025

> **LKS 19 BREAK OUT**
LKS19 input to 6x Powercon outputs with Neutrik® weather protection. 1x LKS19 output.

p.n. 123.99.026

> **LKS 19-10 POWER CABLE**
LKS 19 male to female extension power cable, length 10 m. Feeds 6 power lines.

p.n. 123.99.027

> **LKS 19-20 POWER CABLE**
LKS 19 male to female extension power cable, length 20 m. Feeds 6 power lines.

p.n. 133.60.146

> **POWERCON LINK 0.7 M**
Powercon link cable 0.7 m to link HDL 50-A or HDL 53-AS.

p.n. 123.99.031

> **POWERCON LINK 1.5 M**
Powercon link cable 1.5 m to link SUB 900(6)7-AS to HDL 50-A or another subwoofer.

p.n. 123.99.030

> **POWERCON LINK 5 M**
Powercon link cable 5 m to link SUB 900(6)7-AS to another subwoofer.

p.n. 123.99.029

> **POWERCON LINK 10 M**
Powercon link cable 10 m to link distributed speakers.

p.n. 123.99.028

EQUIPMENT

				MINI	SMALL
SYSTEM					
130.00.477	N	>	HDL 50-A 100-240V	12	16
130.00.493	N	>	SUB 9007-AS 100-240 V	8	10
SUSPENSION					
133.60.334	N	>	FLYBAR HDL 50-A	2	2
133.60.335	R	>	QUICK LOCK PINS KIT 4F	2	2
133.60.340	R	>	QUICK LOCK PINS KIT 4R	2	2
133.60.132	R	>	AC 4PIN FLY BAR TTL 55	1	1
133.60.127	O	>	FLY BAR PICK UP TTL 55-A	-	-
133.60.129	R	>	HOIST SPACING CHAIN	2	2
133.60.128	O	>	SAFETY CHAIN TTL 55	-	-

				MINI	SMALL
TRANSPORTATION					
133.60.336	N	>	HDL 50-A 4X KART	4	4
133.60.348	N	>	SUB 9007-AS FRONT KART	8	10
133.60.338	R	>	COVER 4 X HDL 50-A	4	4
133.60.339	R	>	COVER SUB 9007	8	10
RAIN PROTECTIONS					
133.60.337	R	>	RP50-01 RAIN PROTECTION	12	16
133.60.352	R	>	RP 9007 RAIN PROTECTION	8	10
SYSTEM CONTROL - CABLING					
121.00.004	R	>	CR 16-ND CONTROL RACK	1	1
123.99.021	R	>	LKS 25-2 FANOUT	3	3

MINI SYSTEM   6 + 6 / 8 SUB

— LK 25   — AUDIO SIGNAL   — RD NET   — LKS 19   — POWER DISTRIBUTION

CR 16-ND
CONTROL RACK

PR-63
POWER RACK
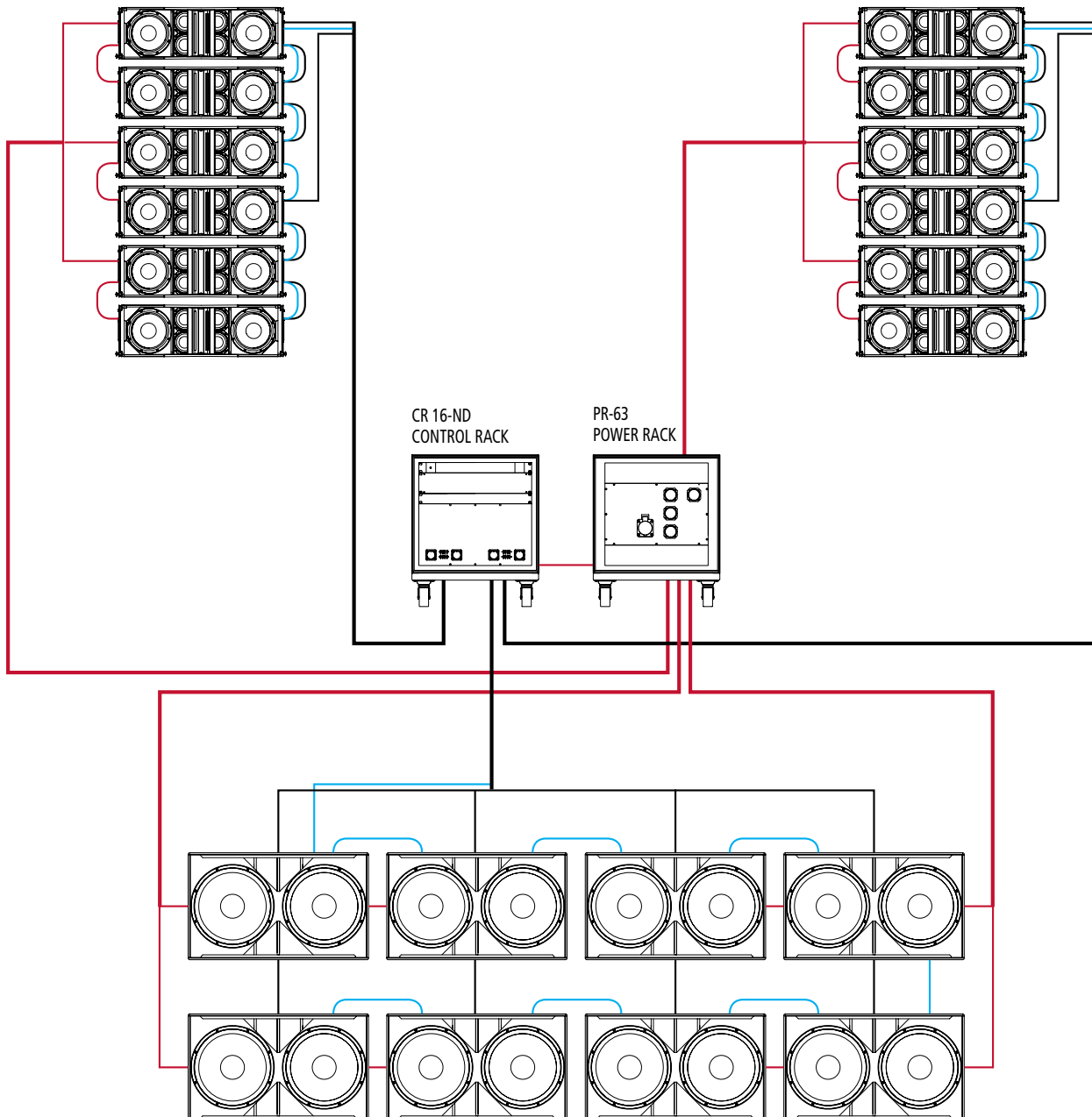
			MINI	SMALL
123.99.022	R	> LK 25-20 MULTIPIN	2	2
123.99.023	R	> LK 25-10 MULTIPIN	1	1
123.99.016	R	> ETHERCON CABLE 0.7 M	12	16
123.99.017	R	> ETHERCON CABLE 1.5 M	4	5
123.99.035	R	> ETHERCON CABLE 3 M	3	4
123.99.018	O	> ETHERCON CABLE 5 M	-	-
123.99.019	R	> ETHERCON XLR F 0.2 M	3	3
123.99.020	O	> ETHERCON XLR M 0.2 M	-	-
POWER DISTRIBUTION - CABLING				
121.00.006	R	> POWER RACK PR-63	1	1
123.99.024	R	> LKS 19 ARRAY FAN OUT	2	2

			MINI	SMALL
123.99.025	R	> LKS 19 SUB FAN OUT	2	2
133.60.146	R	> LKS 19-20 POWER CABLE	2	2
123.99.027	R	> LKS 19-10 POWER CABLE	2	2
123.99.026	O	> LKS 19 BREAKOUT	-	-
123.99.031	R	> POWERCON LINK 0.7 M	6	8
123.99.030	O	> POWERCON LINK 1.5 M	-	-
123.99.029	R	> POWERCON LINK 5 M	1	1
123.99.028	O	> POWERCON LINK 10 M	-	-

N **>** NECESSARY
R **>** RECCOMENDED
O **>** OPTIONAL

SMALL SYSTEM   8 + 8 / 10 SUB

LK 25 ———— AUDIO SIGNAL ———— RD NET   LKS 19 ———— POWER DISTRIBUTION

CR 16-ND
CONTROL RACK

PR-63
POWER RACK
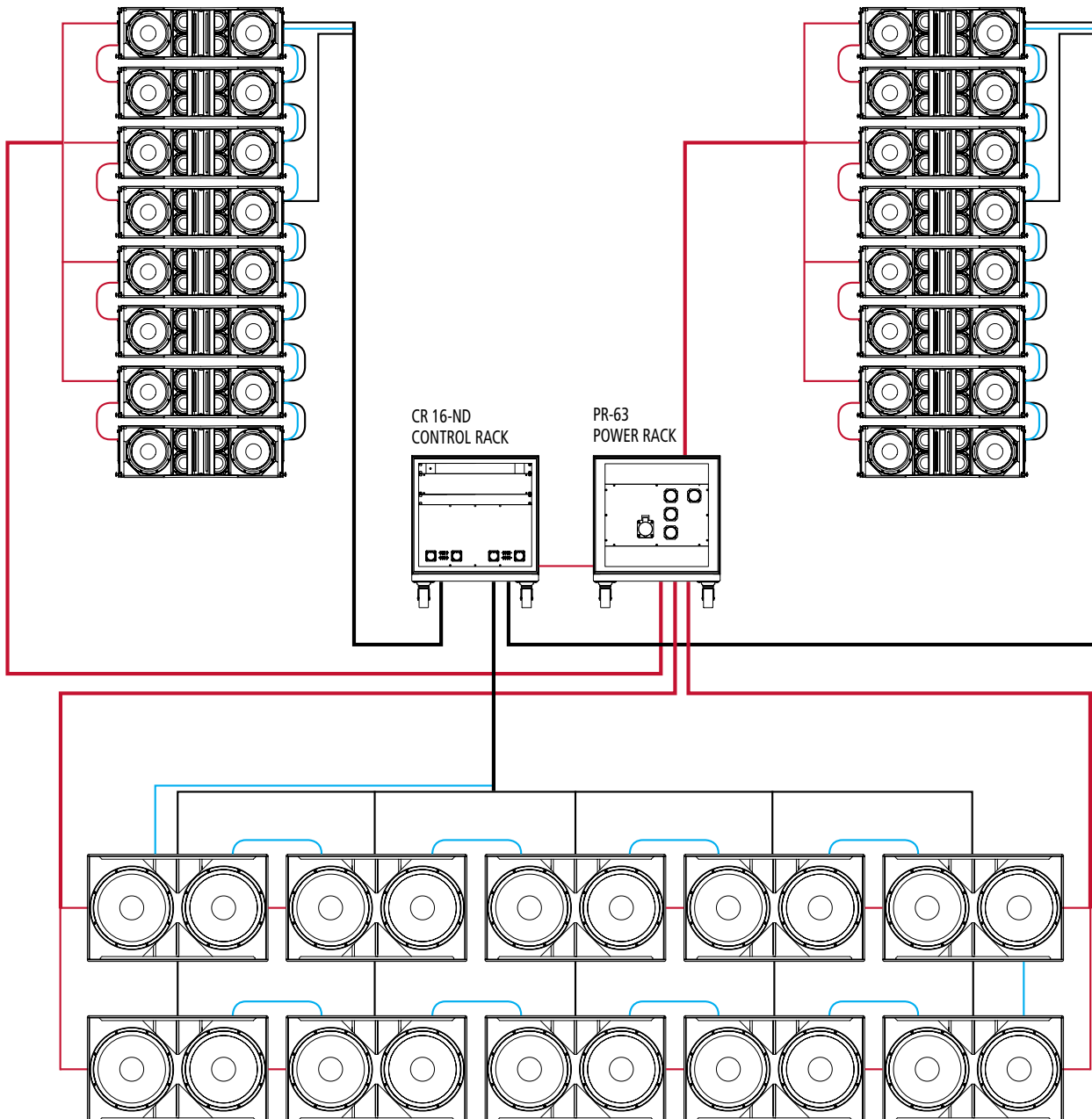
EQUIPMENT

SYSTEM

130.00.477	N	>	HDL 50-A 100-240V	24
130.00.493	N	>	SUB 9007-AS 100-240 V	16

SUSPENSION

133.60.334	N	>	FLYBAR HDL 50-A	2
133.60.335	R	>	QUICK LOCK PINS KIT 4F	2
133.60.340	R	>	QUICK LOCK PINS KIT 4R	2
133.60.132	R	>	AC 4PIN FLY BAR TTL 55	1
133.60.127	O	>	FLY BAR PICK UP TTL 55-A	-
133.60.129	R	>	HOIST SPACING CHAIN	2
133.60.128	O	>	SAFETY CHAIN TTL 55	-

TRANSPORTATION

133.60.336	N	>	HDL 50-A 4X KART	6
133.60.348	N	>	SUB 9007-AS FRONT KART	16
133.60.338	R	>	COVER 4 X HDL 50-A	6
133.60.339	R	>	COVER SUB 9007	16

RAIN PROTECTIONS

133.60.337	R	>	RP50-01 RAIN PROTECTION	24
133.60.352	R	>	RP 9007 RAIN PROTECTION	16

SYSTEM CONTROL - CABLING

121.00.004	R	>	CR 16-ND CONTROL RACK	1
123.99.021	R	>	LKS 25-2 FANOUT	4

MEDIUM SYSTEM   12 + 12 / 16 SUB

—— LK 25   —— AUDIO SIGNAL   —— RD NET   —— LKS 19   —— POWER DISTRIBUTION

CR 16-ND
CONTROL RACK
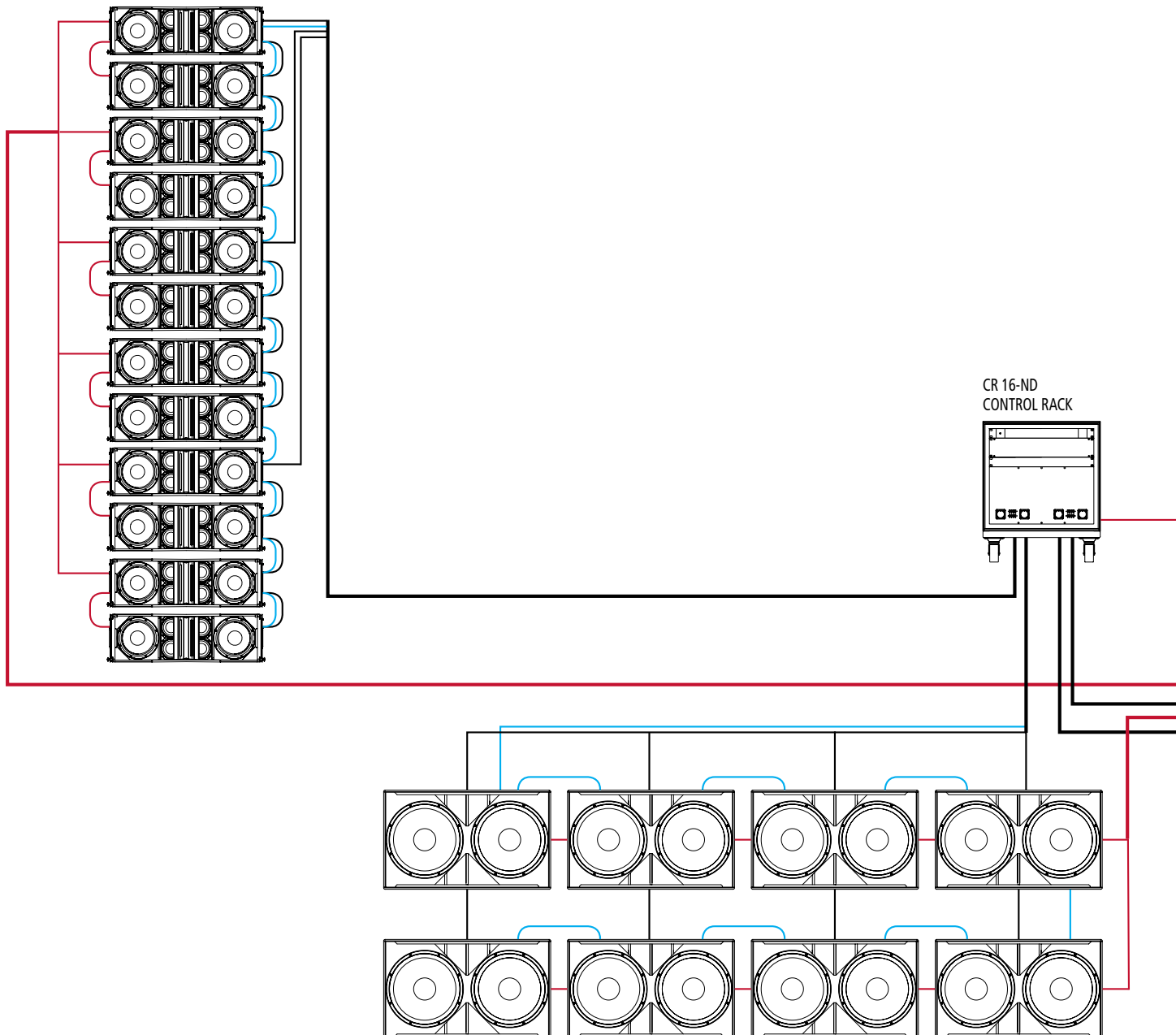
|			
123.99.022	R >	LK 25-20 MULTIPIN	4
123.99.023	R >	LK 25-10 MULTIPIN	2
123.99.016	R >	ETHERCON CABLE 0.7 M	24
123.99.017	R >	ETHERCON CABLE 1.5 M	8
123.99.035	R >	ETHERCON CABLE 3 M	7
123.99.018	O >	ETHERCON CABLE 5 M	-
123.99.019	R >	ETHERCON XLR F 0.2 M	4
123.99.020	O >	ETHERCON XLR M 0.2 M	-

POWER DISTRIBUTION - CABLING

121.00.006	R >	POWER RACK PR-63	1
123.99.024	R >	LKS 19 ARRAY FAN OUT	2

123.99.025	R >	LKS 19 SUB FAN OUT	2
133.60.146	R >	LKS 19-20 POWER CABLE	4
123.99.027	R >	LKS 19-10 POWER CABLE	2
123.99.026	O >	LKS 19 BREAKOUT	-
123.99.031	R >	POWERCON LINK 0.7 M	12
123.99.030	O >	POWERCON LINK 1.5 M	-
123.99.029	R >	POWERCON LINK 5 M	5
123.99.028	O >	POWERCON LINK 10 M	-

N > NECESSARY
R > RECCOMENDED
O > OPTIONAL

PR-63
POWER RACK
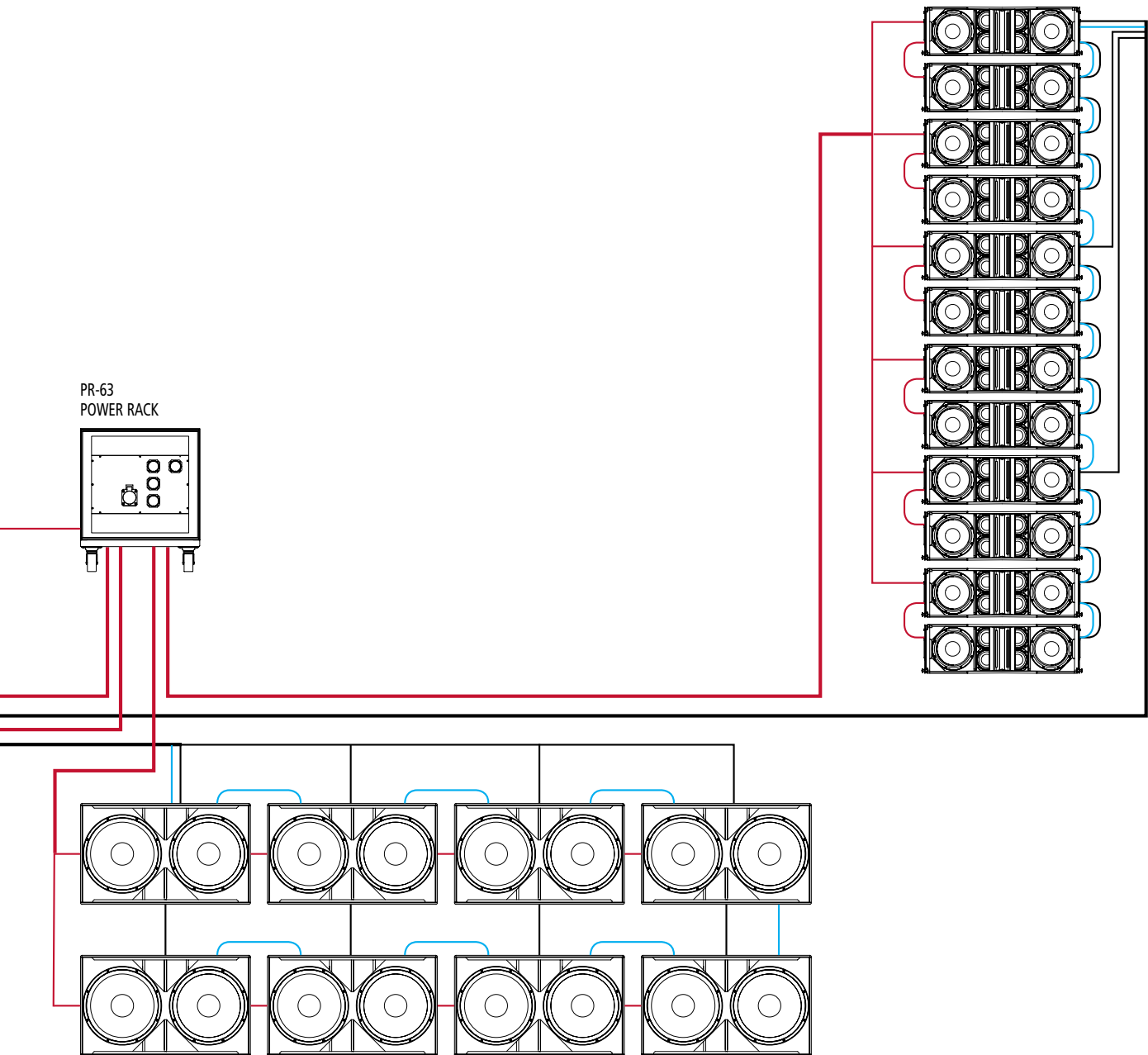
EQUIPMENT

SYSTEM

130.00.477	N	>	HDL 50-A 100-240V	32
130.00.493	N	>	SUB 9007-AS 100-240 V	20

SUSPENSION

133.60.334	N	>	FLYBAR HDL 50-A	2
133.60.335	R	>	QUICK LOCK PINS KIT 4F	2
133.60.340	R	>	QUICK LOCK PINS KIT 4R	2
133.60.132	R	>	AC 4PIN FLY BAR TTL 55	1
133.60.127	O	>	FLY BAR PICK UP TTL 55-A	-
133.60.129	R	>	HOIST SPACING CHAIN	2
133.60.128	O	>	SAFETY CHAIN TTL 55	-

TRANSPORTATION

133.60.336	N	>	HDL 50-A 4X KART	8
133.60.348	N	>	SUB 9007-AS FRONT KART	20
133.60.338	R	>	COVER 4 X HDL 50-A	8
133.60.339	R	>	COVER SUB 9007	20

RAIN PROTECTIONS

133.60.337	R	>	RP50-01 RAIN PROTECTION	32
133.60.352	R	>	RP 9007 RAIN PROTECTION	20

SYSTEM CONTROL - CABLING

121.00.004	R	>	CR 16-ND CONTROL RACK	1
123.99.021	R	>	LKS 25-2 FANOUT	4

LARGE SYSTEM   16 + 16 / 20 SUB

LK 25 —— AUDIO SIGNAL —— RD NET   LKS 19 —— POWER DISTRIBUTION

PR-63
POWER RACK

CR 16-ND
CONTROL RACK
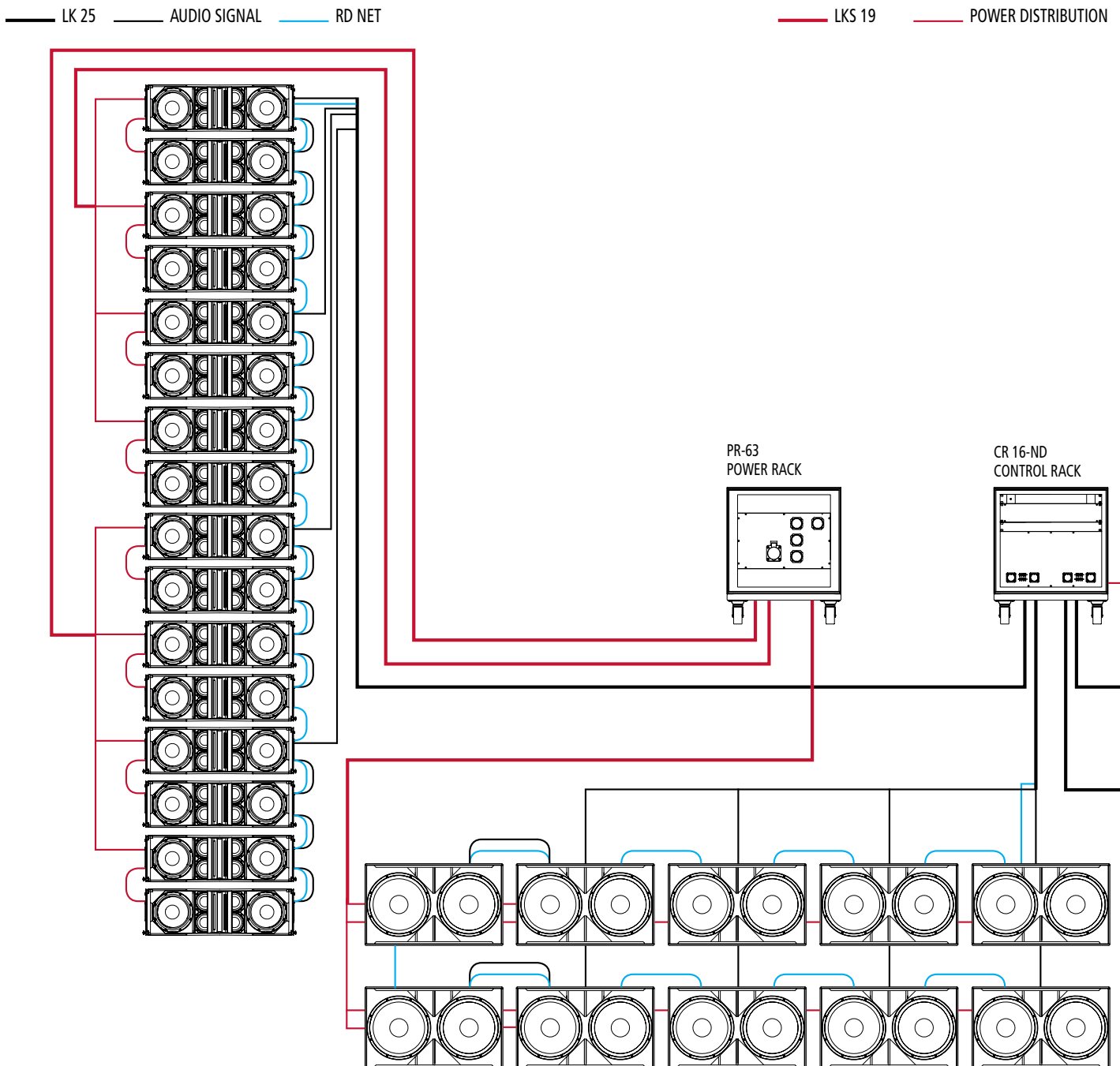
123.99.022	R >	LK 25-20 MULTIPIN	4
123.99.023	R >	LK 25-10 MULTIPIN	2
123.99.016	R >	ETHERCON CABLE 0.7 M	32
123.99.017	R >	ETHERCON CABLE 1.5 M	10
123.99.035	R >	ETHERCON CABLE 3 M	9
123.99.018	O >	ETHERCON CABLE 5 M	-
123.99.019	R >	ETHERCON XLR F 0.2 M	4
123.99.020	O >	ETHERCON XLR M 0.2 M	-

POWER DISTRIBUTION - CABLING

121.00.006	R >	POWER RACK PR-63	2
123.99.024	R >	LKS 19 ARRAY FAN OUT	4

123.99.025	R >	LKS 19 SUB FAN OUT	2
133.60.146	R >	LKS 19-20 POWER CABLE	4
123.99.027	R >	LKS 19-10 POWER CABLE	2
123.99.026	O >	LKS 19 BREAKOUT	-
123.99.031	R >	POWERCON LINK 0.7 M	16
123.99.030	O >	POWERCON LINK 1.5 M	-
123.99.029	R >	POWERCON LINK 5 M	9
123.99.028	O >	POWERCON LINK 10 M	-

N > NECESSARY
R > RECCOMENDED
O > OPTIONAL

PR-63
POWER RACK
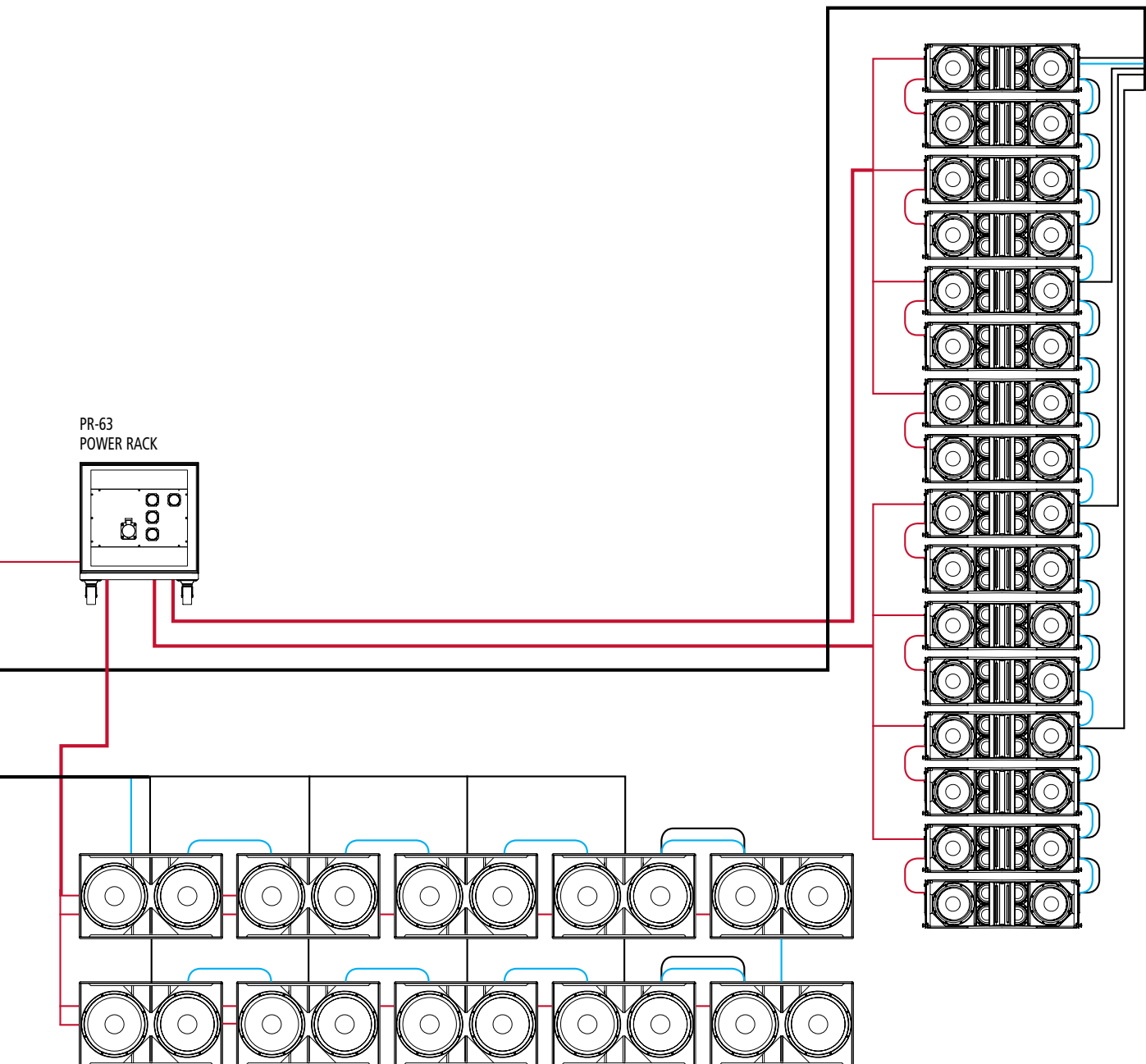
EQUIPMENT

SYSTEM

130.00.477	N	> HDL 50-A 100-240V	64
130.00.493	N	> SUB 9007-AS 100-240 V	32

SUSPENSION

133.60.334	N	> FLYBAR HDL 50-A	4
133.60.335	R	> QUICK LOCK PINS KIT 4F	2
133.60.340	R	> QUICK LOCK PINS KIT 4R	2
133.60.132	R	> AC 4PIN FLY BAR TTL 55	1
133.60.127	O	> FLY BAR PICK UP TTL 55-A	-
133.60.129	R	> HOIST SPACING CHAIN	4
133.60.128	O	> SAFETY CHAIN TTL 55	-

TRANSPORTATION

133.60.336	N	> HDL 50-A 4X KART	16
133.60.348	N	> SUB 9007-AS FRONT KART	32
133.60.338	R	> COVER 4 X HDL 50-A	16
133.60.339	R	> COVER SUB 9007	32

RAIN PROTECTIONS

133.60.337	R	> RP50-01 RAIN PROTECTION	64
133.60.352	R	> RP 9007 RAIN PROTECTION	32

SYSTEM CONTROL - CABLING

121.00.004	R	> CR 16-ND CONTROL RACK	1
123.99.021	R	> LKS 25-2 FANOUT	4

EXTRALARGE SYSTEM   20 + 20 / 12 + 12 SIDE / 32 SUB

LK 25 ——— AUDIO SIGNAL ——— RD NET   LKS 19 ——— POWER DISTRIBUTION

PR-63
POWER RACK

CR 16-ND
CONTROL RACK
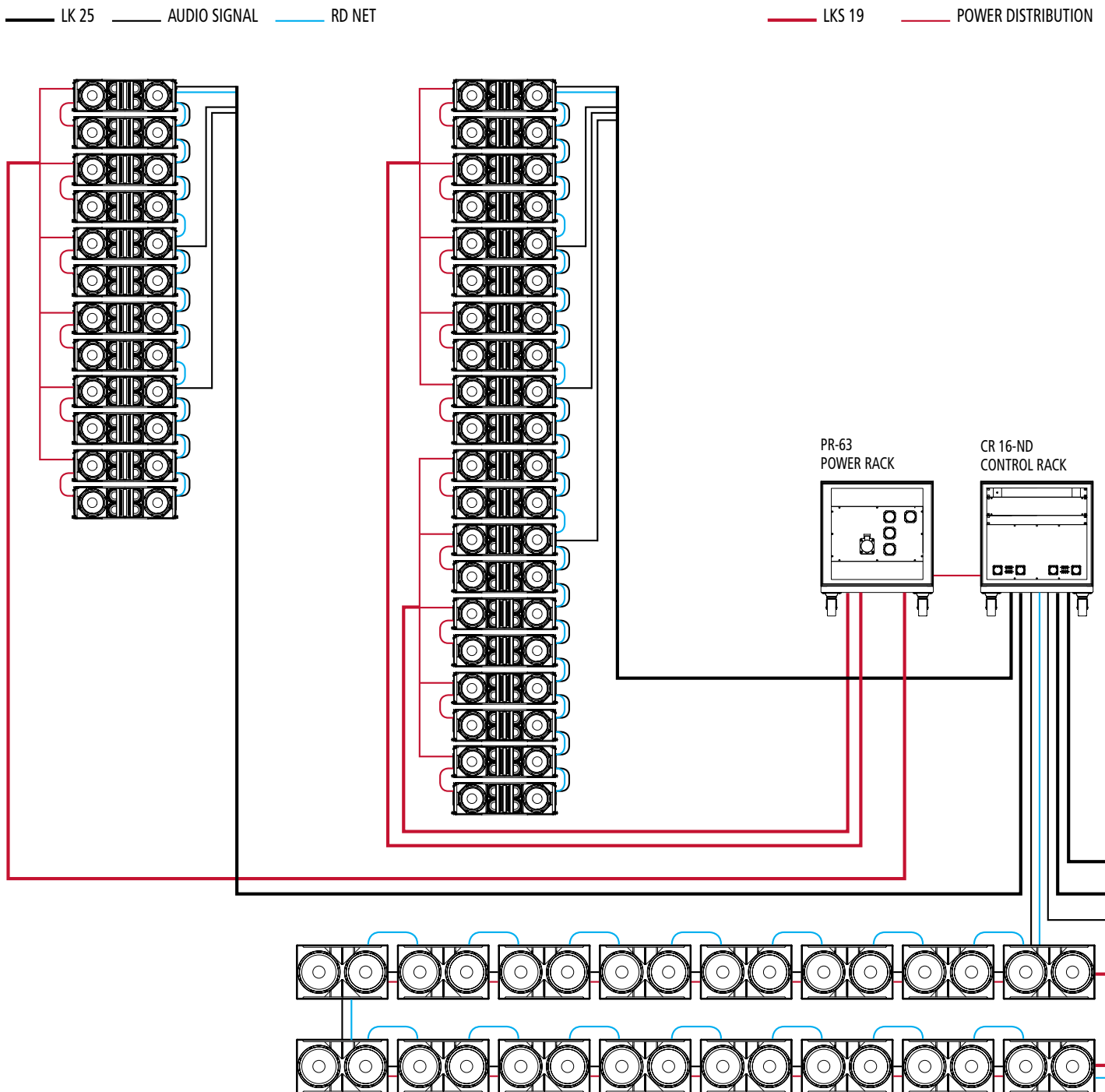
123.99.022 R	>	LK 25-20 MULTIPIN	8
123.99.023 R	>	LK 25-10 MULTIPIN	2
123.99.016 R	>	ETHERCON CABLE 0.7 M	64
123.99.017 R	>	ETHERCON CABLE 1.5 M	16
123.99.035 R	>	ETHERCON CABLE 3 M	15
123.99.018 O	>	ETHERCON CABLE 5 M	-
123.99.019 R	>	ETHERCON XLR F 0.2 M	6
123.99.020 O	>	ETHERCON XLR M 0.2 M	-

POWER DISTRIBUTION - CABLING

121.00.006 R	>	POWER RACK PR-63	3
123.99.024 R	>	LKS 19 ARRAY FAN OUT	6

123.99.025 R	>	LKS 19 SUB FAN OUT	4
133.60.146 R	>	LKS 19-20 POWER CABLE	12
123.99.027 R	>	LKS 19-10 POWER CABLE	4
123.99.026 O	>	LKS 19 BREAKOUT	-
123.99.031 R	>	POWERCON LINK 0.7 M	28
123.99.030 O	>	POWERCON LINK 1.5 M	-
123.99.029 R	>	POWERCON LINK 5 M	9
123.99.028 O	>	POWERCON LINK 10 M	-

N > NECESSARY
R > RECCOMENDED
O > OPTIONAL

PR-63
POWER RACK

PR-63
POWER RACK
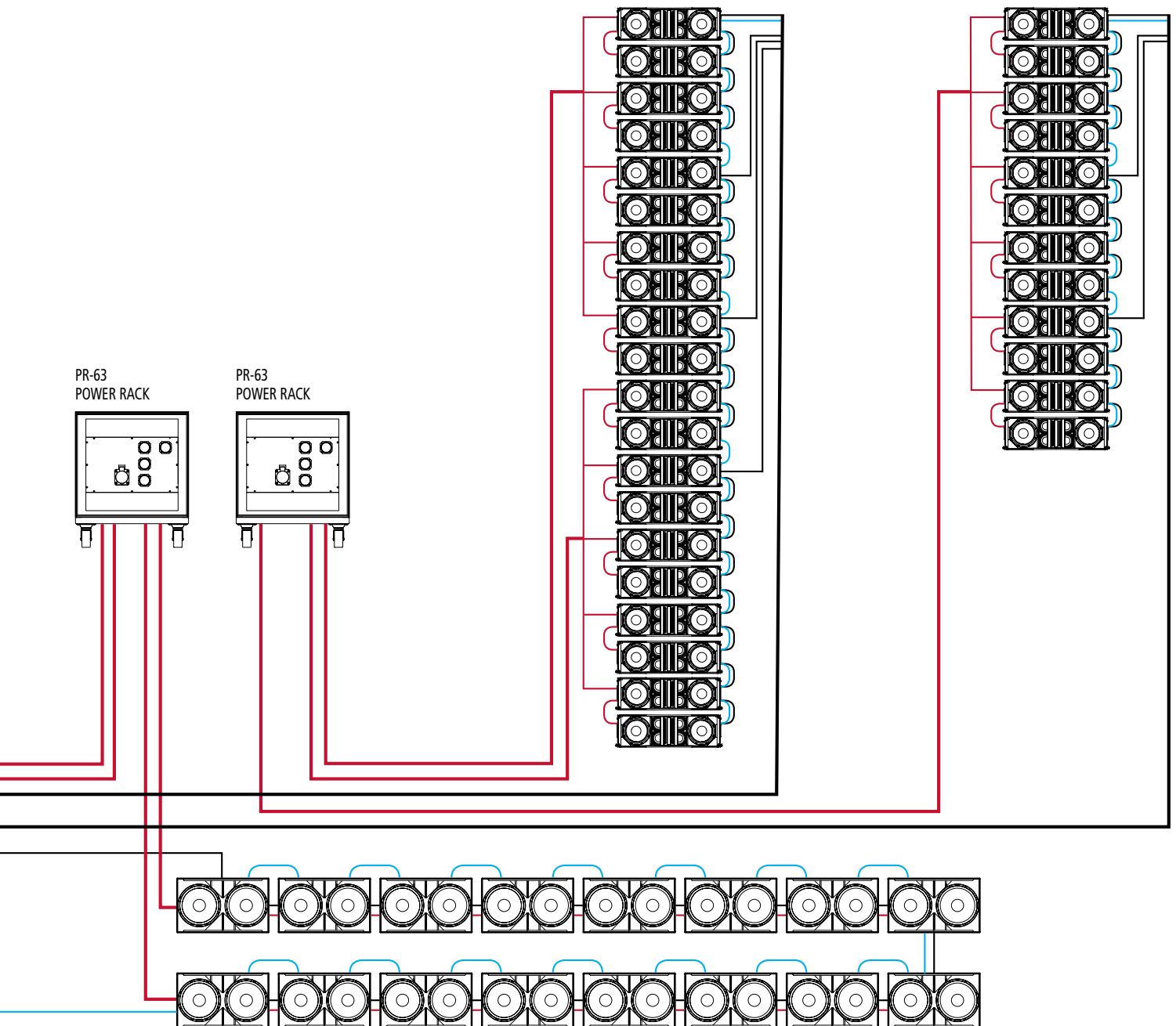
SPECIFICATIONS

	HDL 50-A	SUB 9007-AS	SUB 9006-AS	HDL 53-AS
ACOUSTICAL SPECS.				
FREQUENCY RESPONSE	40 Hz - 20 kHz	25 Hz - 120 Hz	30 Hz - 120 Hz	35 Hz - 120 Hz
MAX SPL	140 dB	143 dB	142 dB	139 dB
HORIZONTAL COVERAGE ANGLE	90°	-	-	-
VERTICAL COVERAGE ANGLE	10°	-	-	-
COMPRESSION DRIVER	2x1.4", 3.0"v.c.	-	-	-
MIDRANGE	4x6.0", 2.0"v.c.	-	-	-
FULLRANGE	-	-	-	-
WOOFER	2x12", 3.0"v.c.	2x21", 4.0" v.c.	2x18", 4.0" v.c.	3x12", 4.0" v.c.
INPUTS				
INPUT CONNECTOR	XLR male, RDNet	XLR, RDNet	XLR, RDNet	XLR, RDNet
OUTPUT CONNECTOR	XLR female, RDNet	XLR, RDNet	XLR, RDNet	XLR, RDNet
INPUT SENSITIVITY	+ 4 dBu	+ 4 dBu	+ 4 dBu	+ 4 dBu
PROCESSOR				
CROSSOVER FREQUENCY	200-800 Hz	Selectable	Selectable	Selectable
PROTECTIONS	thermal, RMS	thermal, RMS	thermal, RMS	thermal, RMS
LIMITER	soft limiter	fast limiter	fast limiter	fast limiter
CONTROLS	Cluster size, HF air correction,	Gain,EQ, phase, xover, delay, cardioid	Gain,EQ, phase, xover, delay, cardioid	Gain,EQ, phase, xover, delay
AMPLIFIER				
TOTAL POWER	4400 W Peak	7200 W Peak	7200 W Peak	3300 W Peak
HIGH FREQUENCIES	1100 W Peak	-	-	-
MID FREQUENCIES	1100 W Peak	-	-	-
LOW FREQUENCIES	2200 W Peak	7200 W Peak	7200 W Peak	3300 W Peak
COOLING	convection	convection	convection	convection
CONNECTIONS	Powercon in-out	Powercon in-out	Powercon in-out	Powercon in-out
PHYSICAL SPECS.				
HEIGHT	366 mm (14.42")	708 mm (27.89")	558 mm (21.9")	366 mm (14.42")
WIDTH	1171 mm (46.1")	1188 mm (46.8")	1188 mm (46.8")	1171 mm (46.1")
DEPTH	502 mm (19.78")	780 mm (30.71")	780 mm (30.71")	502 mm (19.78")
WEIGHT	56.0 Kg (123.4 lbs)	98.0 Kg (216.0 lbs)	86.0 Kg (189.4 lbs)	50.0 Kg (110.1 lbs)
CABINET	Baltic birch plywood	Baltic birch plywood	Baltic birch plywood	Baltic birch plywood
HARDWARE	Integrated mechanics	2 Pole mounts	2 Pole mounts	Integrated mechanics
HANDLES	2 side, 2 rear	8 side	8 side	2 side, 2 rear

RCF sound culture