STEERABLE
ACTIVE LINE ARRAY
SPEAKER SYSTEM
SR-D8

DSP Beam Steering with instant simulation and high-speed communication allowing reduced time in design and acoustic performance
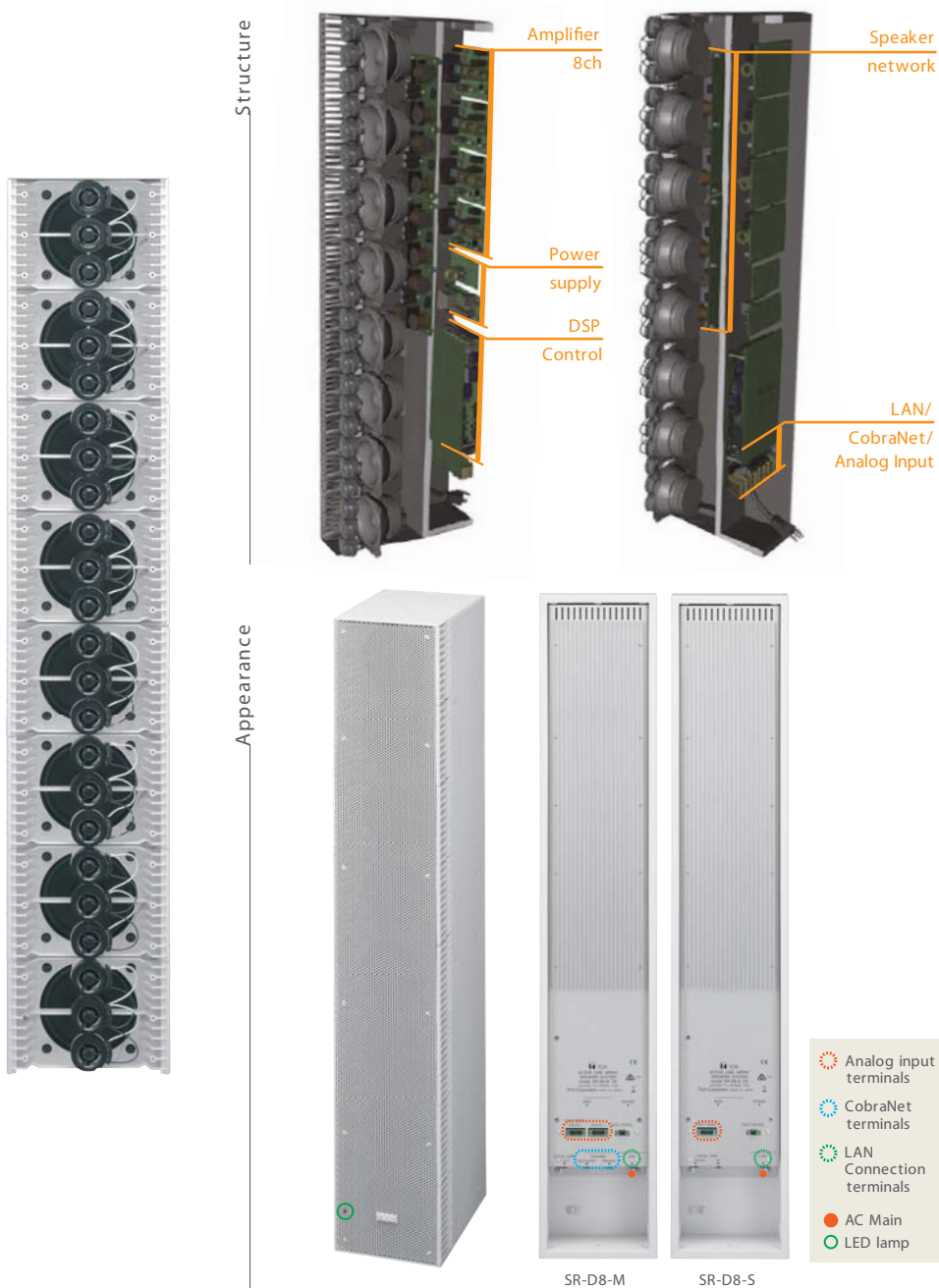
Optimal Parameter Settings Produce Clear Sound

TOA brought together its proprietary line array technology and digital signal processing (DSP) technology in developing the SR-D8 active line array speaker. As well as processing both analog and digital audio input, this innovative speaker harnesses 8 built-in digital amplifiers to project sound waves to targeted areas with greater precision than is possible with conventional speakers. By digitally shaping the width and angle of acoustic beams, it can steer sound precisely to desired areas without requiring a change of installation location.

This feature makes it well suited for use in venues where structural or design considerations make it hard to move speakers about or where unwanted reverberation must be kept to a minimum.

Features and Benefits

Structure

Amplifier 8ch

Speaker network

Power supply

DSP Control

LAN/ CobraNet/ Analog Input

Appearance

SR-D8-M   SR-D8-S

Analog input terminals

CobraNet terminals

LAN Connection terminals

AC Main

LED lamp

A maximum total of 16 speakers (in up to four stacks) can be controlled as a single unit via GUI-operated software.

The GUI software provides control of all functions, including mixing, digital signal processing, and simulations.

The intuitive control software enables instant simulations that—coupled with exceptionally high communication speeds— drastically reduce the time required for designing systems and tuning their acoustic performance. Users can immediately see and hear the results of changing the parameter settings.

The speaker comes with a wealth of DSP functions, including gain, mute, compression, delay, auto-mixing, high/low pass filters, high/low shelving filters, and a notch filter.

Equipped with two analog audio input terminals and four digital audio input terminals for CobraNet connection, the speaker supports 6 x 2 matrix mixing. Using the Auto-mix function—which can be set for each input—enables users to prioritize selected inputs for broadcasting.

Users can switch from one preset to another, either directly, using the GUI interface, or remotely, using a web browser and the control unit's Ethernet connection.

Amplifier modules are constantly monitored for excess temperature and current.

Active Line Array Speaker

Wall

Variable beam angle -45° to +45°

Variable beam width 0° to +45°

→ Center of sound beam   ◣ Width of sound beam

Floor

Scene A

Wall

2ⁿᵈ Floor

Floor

Scene B

Wall

2ⁿᵈ Floor

Floor

Vertical beam width is adjustable by increments of 1° within a range of 45°, while the vertical beam steering angle is adjustable from -45° to +45° in increments of 1°.

When targeting two separate areas at the same time, sufficient coverage can be achieved by splitting the beam into two directions and adjusting the width and vertical angle of each beam. Such beam splitting is especially effective when simultaneously covering both floor and balcony seating.

By calculating the various parameters of steering settings from parameters such as speaker setting and audience setting, users can make the system automatically set the angle and width of the beam so that it goes precisely in the direction of the set audience location.

Connection Image

SR-D8-M SR-D8-M SR-D8-M SR-D8-M

SR-D8-S SR-D8-S SR-D8-S

SR-D8-S SR-D8-S

Network

PC

Up to three SR-D8-S slave speakers can be connected to one SR-D8-M main speaker to produce a line array. This maximum four-unit configuration is referred to as one stack. Up to 16 speakers (in four stacks) can be controlled from a single PC by connecting the four main speakers to a LAN.

Unique GUI software for designing a perfect matching acoustic field

Adjusting mixing and DSP parameter settings, running simulations, and communicating—all can be done through the same GUI interface. The highly intuitive GUI enables quick and easy adjustment of settings, with a simulated graph of the sound pressure distribution providing a visual check of coverage areas according to the settings.
The simulation function—along with the exceptionally high communication speeds—allows users to immediately see and hear the results of changing the parameter settings.

Main screen of the GUI control software

System Tree View

Speakers and stacks are shown in this window in a tree configuration.

System Configuration View

This window displays CobraNet routing and Grouping Settings.

Preset View

Users can display presets of settings by their allocated number or name; load presets onto speakers; or store settings on speakers using their preset numbers.

Operation View

Selecting a stack or a speaker in the System Tree view-or selecting CobraNet Routing or Grouping Setting in the System Configuration view-allows users to access a view depicting the status of the system and settings.

Contents View

Through this window, users can precisely adjust settings for each function selected in the Operation window.

Mixer View

As well as displaying the input level for each input channel, this window allows users to set functions such as auto-mix (for gating or ducking), fader, and 6 x 2 matrix. The fader can also be set independently for each output channel, with a view provided of the mixing output level.

Active Line Array Speaker

DSP View

Users can adjust a number of signal processing functions independently for each speaker, including settings for muting, gain adjustment, high- and low-pass filters, and compressors.

Beam Steering View

By setting parameters such as speaker location, audience position, and beam angle and width, users can control the vertical steering angle of sound beams projected from a speaker. Users can also see an instant visual simulation of how changes to the settings affect the steering of the beams.

Active Line Array Speaker

Beam Steering Simulation

The simulated images below are for illustrative purposes only.

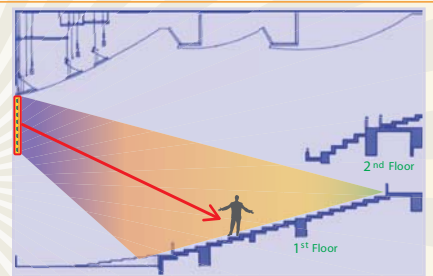### a. Beam width: 0°/Beam angle: 0°
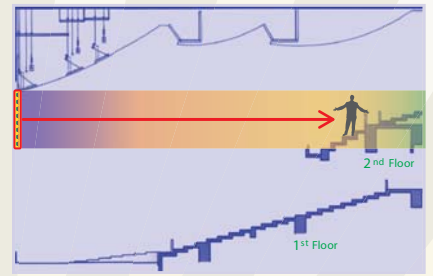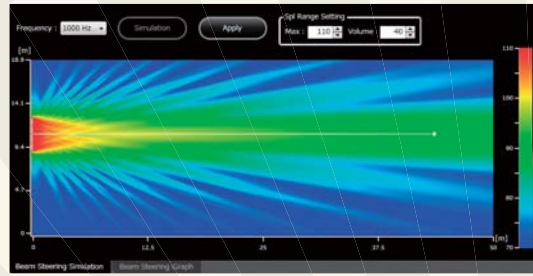
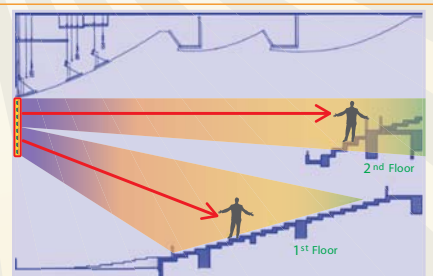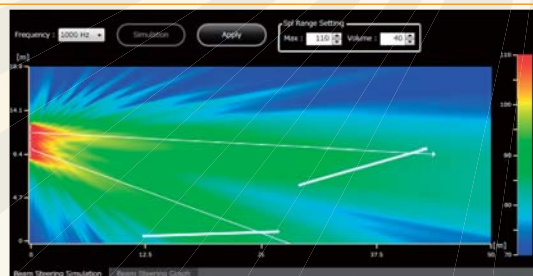### b. Beam width: 30°/Beam angle: 0°
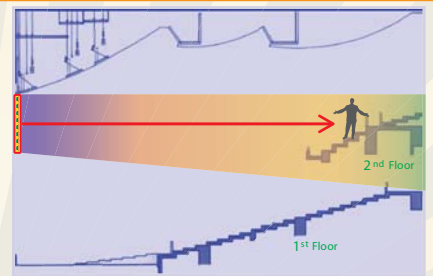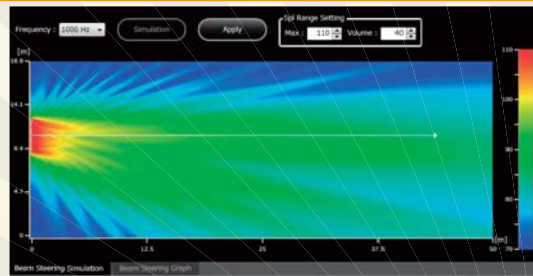
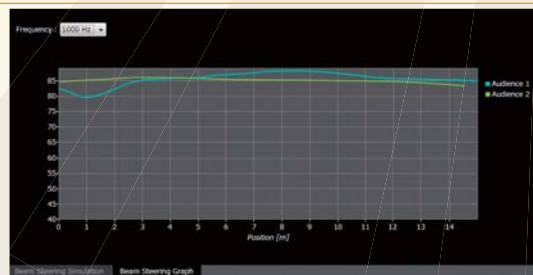### c. Beam width: 30°/Beam angle: -20°
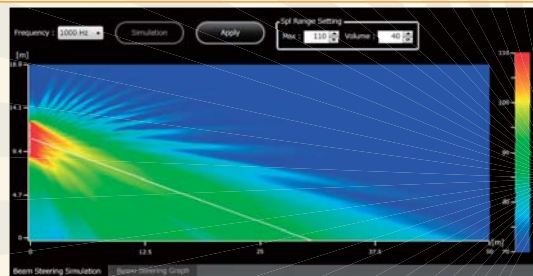
d. Beam split in two directions

Beam splitting point: At the center point of all the transducers in a single stack.

e. Beam Steering Graph

The Beam Steering Simulation view graphically displays the sound pressure distribution to the audience.

Main speaker			SR-D8-M	
Power Source			120 V AC, 60 Hz	
Power Consumption			320 W (Rated output), 72 W (Based on UL/CSA Standards)	
Frequency Response			130 Hz - 20 kHz	
S/N Ratio			100 dB or more (A-weighted), DSP+Amplifier	
Coverage	Horizontal		90°	
	Vertical Beam Width		Up to 45°	
	Vertical Beam Angle		±45° (Adjustable by using the supplied SR-D8 setting software)	
Amplification System			Class D, 8 channels	
Speaker Component			Low frequency: 10 cm cone-type x 8 High frequency: 2.5 cm balanced dome-type x 24	
Output			30 W, 1 channel (1% THD+N)	
Maximum SPL			Max. 93 dB SPL (A-weighted, pink noise, 30 m)	
Line Input			2 analog audio inputs, +4 dB*, 10 k ohms, electronically-balanced, Removable terminal block (3 P)	
Sampling Frequency			48 kHz	
Network I/F	Audio	CobraNet	100BASE-TX, PRIMARY/SECONDARY 2 system	
		Connection cable	Shielded twisted pair (STP) CAT5 or higher LAN cable To be connected via the specified switching hub	
		Max. distance	100m (109.36 yd) (connected via a switching hub)	
			* This network should be completely independent of other LAN.	
	Control	LAN	TCP/IP, 100BASE-TX 1 system RJ45 receptacle (etherCON: NEUTRIK)	
		Connection cable	Shielded twisted pair (STP) CAT5 or higher LAN cable To be connected via the specified switching hub	
		Max. distance	100 m (109.36 yd) (connected via a switching hub)	
	Communication between Main and Slave Units	LOCAL LINK	TOA original digital audio transmission, RJ45 receptacle (etherCON: NEUTRIK)	
		Connection cable	Shielded twisted pair (STP) CAT5 or higher LAN cable	
Signal Processing			Gain, Mute, Compression, Parametric EQ, High/Low shelving filters, Low/High-pass filters, All-pass filter, Notch filter, Horn EQ, Delay, Input matrix setting, 32 presets, etc	
Finish			Enclosure: MDF, white, paint Front grille: Punched steel plate, white, acrylic paint	
Dimensions			160 (W) x 895 (H) x 255 (D) mm (6.3" x 10.04" x 35.24")	
Weight			21 kg (46.3 lb)	
Accessory			Power supply cord (2m (6.56 ft)) x 1, Removable terminal plug (3 P) x 2, Removable terminal plug (2 P) x 1, CD-ROM (setting software) x 1	

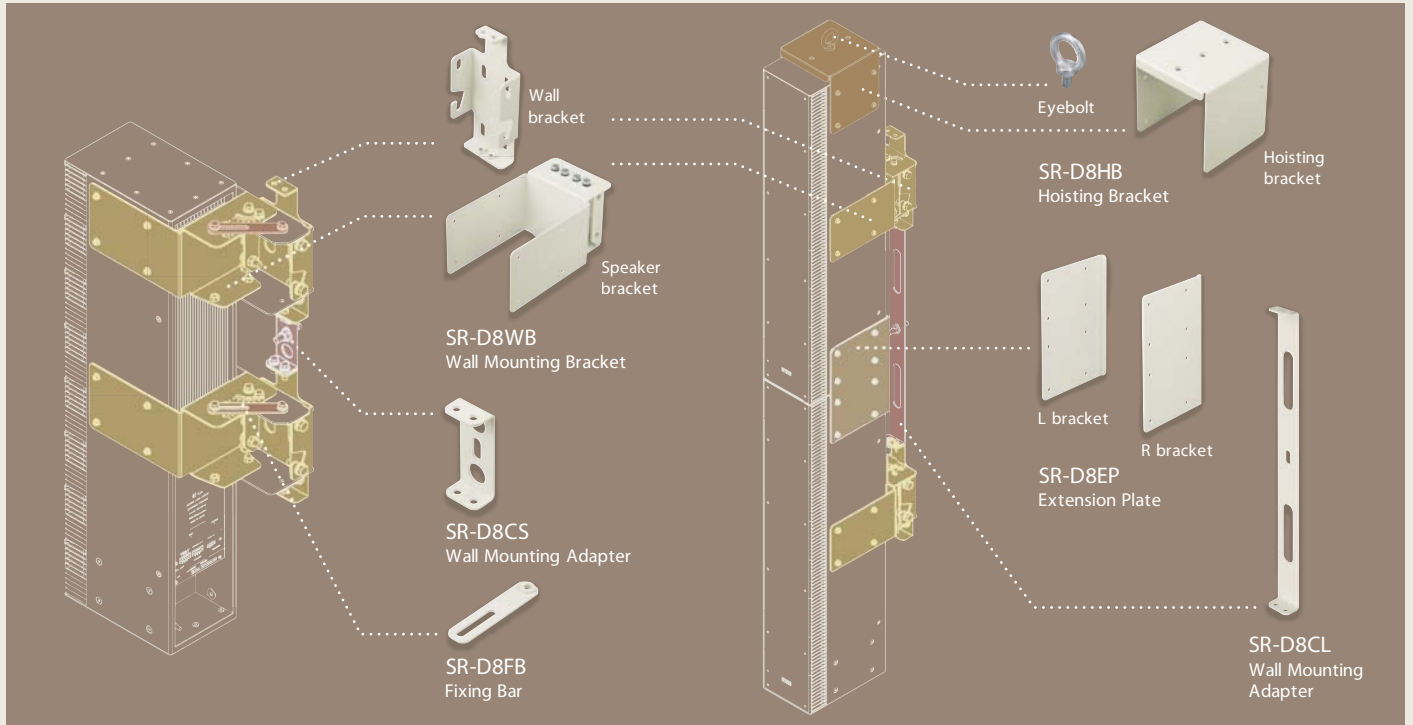| Slave speaker			SR-D8-S	
Power Source			120 V AC, 60 Hz	
Power Consumption			315 W (Rated output), 72 W (Based on UL/CSA Standards)	
Frequency Response			130 Hz - 20 kHz	
S/N Ratio			100 dB or more (A-weighted), DSP+Amplifier	
Coverage	Horizontal		90°	
	Vertical Beam Width		Up to 45°	
	Vertical Beam Angle		±45° (Adjustable by using the supplied SR-D8 setting software)	
Amplification System			Class D, 8 channels	
Speaker Component			Low frequency: 10 cm cone-type x 8 High frequency: 2.5 cm balanced dome-type x 24	
Output			30 W, 1 channel (1% THD+N)	
Maximum SPL			Max. 93 dB SPL (A-weighted, pink noise, 30 m)	
Line Input			—	
Sampling Frequency			48 kHz	
Network I/F	Audio		—	
	Control	LAN	TCP/IP, 100BASE-TX 1 system (auto-negotiation) RJ45 receptacle (etherCON: NEUTRIK)	
		Connection cable	Shielded twisted pair (STP) CAT5 or higher LAN cable To be connected via the specified switching hub	
		Max. distance	100 m (109.36 yd) (connected via a switching hub)	
	Communication between Main and Slave Units	LOCAL LINK	TOA original digital audio transmission RJ45 receptacle (etherCON: NEUTRIK)	
		Connection cable	Shielded twisted pair (STP) CAT5 or higher LAN cable	
Signal Processing			Gain, Mute, Compression, Parametric EQ, High/Low shelving filters, Low/High-pass filters, All-pass filter, Notch filter, Horn EQ, Delay, Input matrix setting, 32 presets, etc	
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Dimensions			160 (W) x 895 (H) x 255 (D) mm (6.3" x 10.04" x 35.24")	
Weight			21 kg (46.3 lb)	
Accessory			Power supply cord (2m (6.56 ft)) x 1, Removable terminal plug (3 P) x 1, Removable terminal plug (2 P) x 1	

※ CobraNet is a registered trademark of Cirrus Logic Corporation.
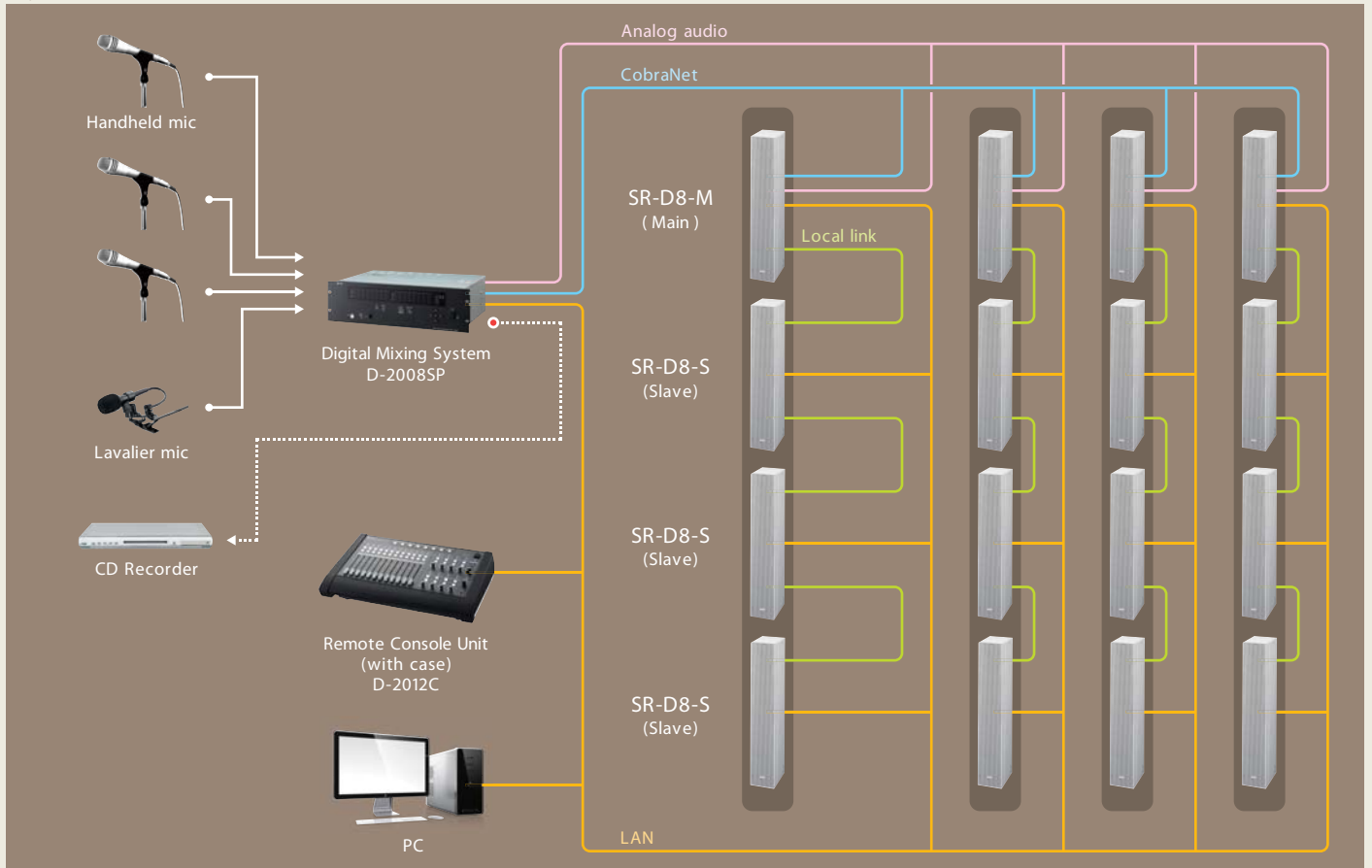※ etherCON is a registered trademark of NEUTRIK Corporation.

Specifications

Active Line Array Speaker

Optional Accessories

Wall bracket

Speaker bracket

SR-D8WB
Wall Mounting Bracket

SR-D8CS
Wall Mounting Adapter

SR-D8FB
Fixing Bar

Eyebolt

SR-D8HB
Hoisting Bracket

Hoisting bracket

L bracket

R bracket

SR-D8EP
Extension Plate

SR-D8CL
Wall Mounting Adapter

System Example

Analog audio

CobraNet

Handheld mic

SR-D8-M
(Main)

Local link

Digital Mixing System
D-2008SP

SR-D8-S
(Slave)

Lavalier mic

SR-D8-S
(Slave)

CD Recorder

Remote Console Unit
(with case)
D-2012C

SR-D8-S
(Slave)

PC

LAN

*In this case, either analog audio or CobraNet will be used.