StepArray SA250S

Based on the new line-array concept DGRC*, StepArray active columns feature an ideal control of the radiated field, thus ensuring perfect speech intelligibility. Their wide frequency bandwidth and their high dynamic capability yield an amazingly clear sound for optimum acoustic comfort.

Model SA250S is dedicated to speech and music diffusion over a tilted audience area : amphitheaters, theatres, gymnasiums… Its nominal range is 28 m .

DSP processor UT26 ensures filtering (gain, EQ, delay, directivity, lp protection…) as well as high level functions such as automatic adjustment of the diffusion level according to the background noise, low signal-to-noise detection, detection of acoustic perturbation …

Only 124 mm wide, it can easily fit in the interior design of the room.

➢ Speech Intelligibility
Implementing the DGRC* principle illustrated below, StepArray columns provide a strong direct sound and minimize the energy of the sound reflected by the room for perfect speech intelligibility, even in highly reverberant environments, even far from the column.

➢ Homogeneous SPL
An unbelievable homogeneity of the SPL and timbre is achieved over the audience area by implementing the DGRC principle.

➢ Acoustic Comfort
Column SA250S uses 30 high quality three inch loudspeakers. Sound is amazingly clear and sharp. With the microphone option, the level of diffusion can be automatically adjusted according to the background noise level in the room.

➢ Aesthetics
With their slim shape and a wide choice of colors, StepArray columns can be made almost invisible.
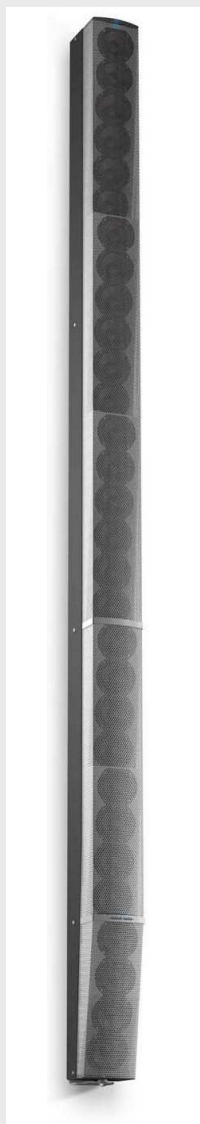
➢ Cost-effectiveness
Public address in a large room requires only very few StepArray columns. Cabling is reduced to a minimum. Maintenance is easy.

➢ Easy installation
Column SA250S operates with processor UT26 and amplifier MPA6150. Installation (flush mounted on a wall or suspended at the ceiling) is very straightforward. Simplicity of the directivity control principle makes their tuning easy and robust.

➢ CAD
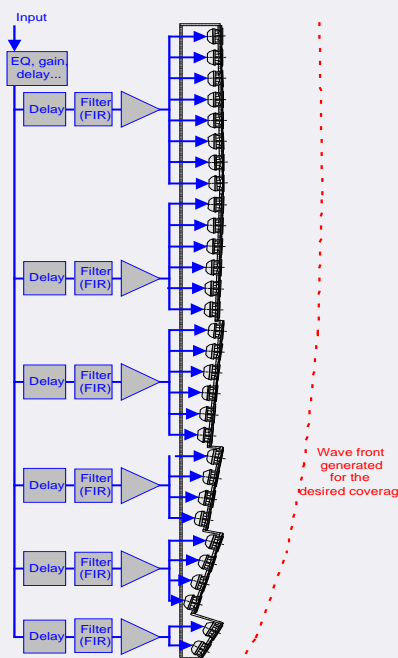We supply directivity files for modeling the column radiation with CATT and EASE.

➢ High-level DSP functions
In addition to directivity control, the DSP ensures EQ, delay, lp protection, RS485 interface (to PC), CAG function (automatic level adjustment based on background noise), AXV function (automatic detection of acoustic perturbation), LSNR function (Automatic low signal-to-noise detection).

➢ SAdrive PC control software
SAdrive can control up to 255 StepArray columns. It allows adjustment of all DSP parameters, create groups, supervise the system operation…

Principe DGRC* des colonnes StepArray
synthèse des line-arrays géométrique et électronique.
* Digital & Geometric Radiation Control, breveté.

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FT-SA250S-0208-A

SA250S – Technical Data [1]

Column SA250P operates with DSP processor UT26 and amplifier MPA6105. Several columns can share the same processor (see StepArray General Presentation).

➤ Acoustical Data

Listening zone	Tilted (6-20°)
Nominale distance range (±3dB, 500Hz-2kHz)	28 m
Max SPL (pink noise)	95dB$_{SPL}$ at 20m
Frequency bandwidth (20m, -6dB)	220Hz-16kHz
Horizontal opening angle (-6dB 1kHz-2kHz)	180°

➤ Electrical data [1]

- Signal Inputs :
  2 symmetrical analog 0dBU line inputs [2] (XLR-F)
  Stereo Digital input AES/EBU (XLR-F).
  Dynamic range [3] : > 93dB Lin.
- Connection to PC : SuD9-M or SubD25-F [4].
- Command link between columns : SudB25, max 300m.
- Symmetrical filtered output for Sub bass (option).
- Other characteristics : see UT26 data sheet.
- Amplifier MPA6150
  6 channel, 100W /chan under 8Ω, 150W /chan under 4Ω.
- Mains : 230v – 50Hz, max: 800VA.

➤ Software data [1]

- Equalization, delay 170ms, gain, limiter, lp protection.
- CAG function [5] : Automatic level adjustment according to background noise in the room.
- LSNR function [5] : Automatic detection of low signal-to-noise ratio during diffusion of a message.
- AXV function [5] : Automatic detection of acoustic perturbation (e.g. accidental displacement of the column).
- Input priority management [6] : input 1 overrules input 2 (e.g. announcement overrules music background).

➤ SAdrive : Tuning and exploitation

SAdrive PC software allows creation of configurations comprising up to 255 StepArray processors, adjust all DSP parameters (directivity, EQ, delay, gains,…) of columns or groups of columns, save / load presets…

A control PC running SAdrive supervises operation of the processor(s) : DSP whatchdog, bus operation, overloads, lp overheat, LSNR,… (see SAdrive presentation).

StepArray columns can be used without running SAdrive.

➤ Options

- CV232 : For interfacing a PC on the RS232 port of UT26.
- MICSA : Microphone for CAG, AXV, LSNR functions.
- SUB : Filtered analog output on UT26 for a sub bass.
- COL : Specific RAL color.
- SSS : Conformity to standard EN-60849.

[1] With processor UT26 and amplifier MPA6150. Data are subject to change without notice.
[2] Headroom 9.5dB. Only one with Microphone option (MICSA).
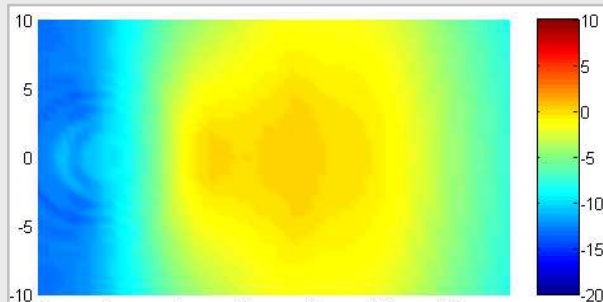[3] Max continuous output level at 1kHz / output level when input is 0v.
[4] SubD9 RS232 with option CV232; SubD25 RS485 otherwise. 38400 baud.
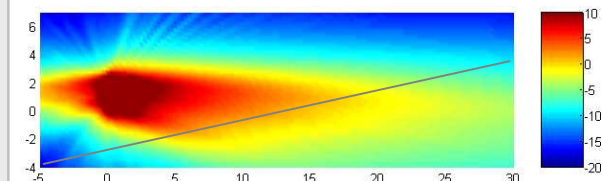[5] With Microphone option (MICSA).
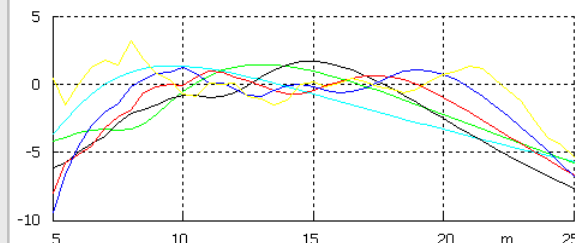[6] Not available with Microphone option.

➤ Physical data

Operation under shelter, temperature : 0-40℃
Dimensions (HxWxD) : 2505x124x151 mm. Weight : 24 kg.
Materials : steel and PVC.
Protection grid : perforated steel.
Colors : White (RAL9010), Grey (RAL7035),
Black (RAL9011), other RAL on demand (COL option).
Flush mounted or suspended with accessories (supplied).

SA250S: sound level (dB referenced to the average value from 5 to 20m) on a listening plane tilted by 12°, oct 500Hz-2kHz.

SA250S : sound level (dB referenced to the average value from 5 to 20m) in the vertical median plane, oct 500Hz-2kHz. The gray line corresponds to a 12°tilt.

SA250S. sound level (dB referenced to the average value from 5 to 20m) per octave vs distance on a plane tilted by 12°. The bottom of the column is at altitude 0. Cyan: 250Hz ; green : 500Hz ; black : 1kHz ; red : 2kHz ; blue : 4kHz ; yellow : 8kHz.

SA250S :
Directivity in the horizontal plane measured at 12m.

Opening angles at –6dB :

Octave	Angle
250 Hz	360 °
500 Hz	360 °
1 kHz	220 °
2 kHz	140 °
4 kHz	130 °
8 kHz	65 °

500Hz
1000Hz
2000Hz
4000Hz
8000Hz

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