

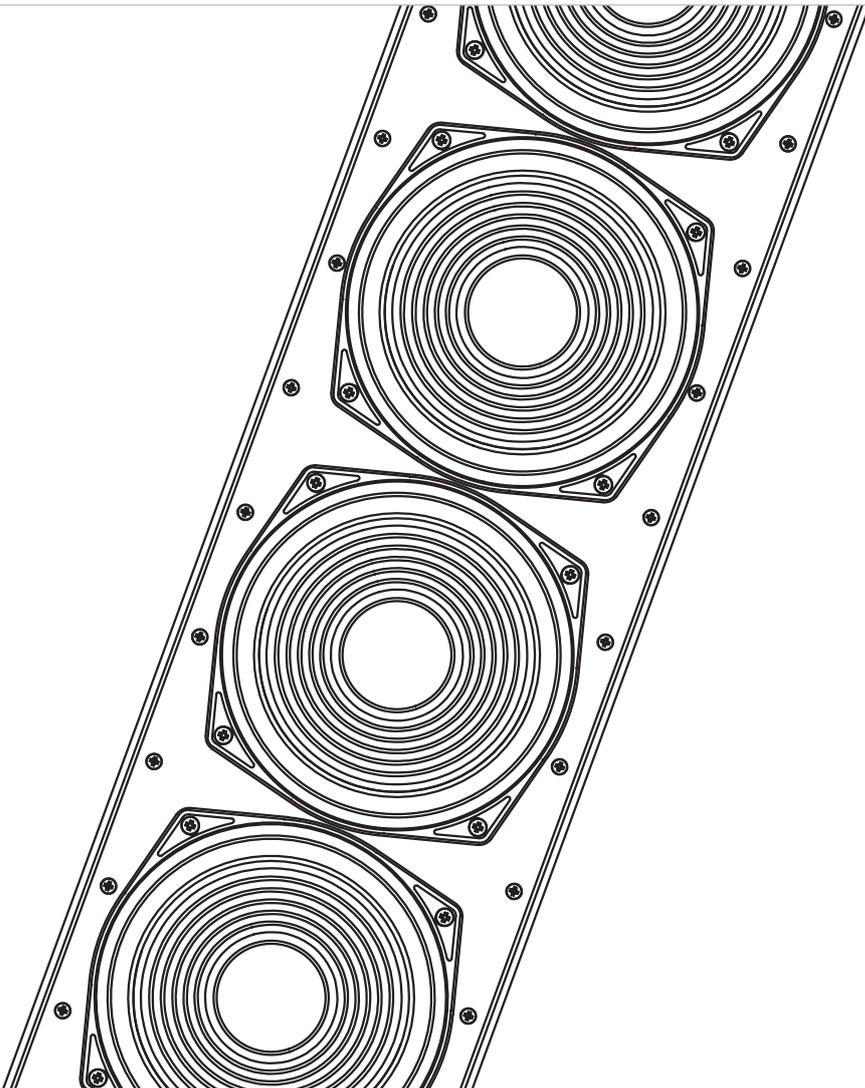
HP-DS170



Datasheet

Applies to Part Number: 587870

Intellivox - HP-DS170



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1. Architectural and engineering specifications

The loudspeaker unit shall be constructed as a line-array of ten 6.5" loudspeakers and two coaxially mounted HF compression drivers.

All signal processing functions, necessary to properly drive a directivity controlled line-array with electrical aiming properties, shall be built into the loudspeaker enclosure.

Electronics shall consist of an audio input module, two input / twelve output channel DSP, twelve power amplifiers with protection circuitry (each power amplifier shall drive one loudspeaker) and a switched-mode power supply. There shall be no internal fan(s). The input section shall be transformer balanced. All necessary array signal processing shall be implemented in the digital domain by means of a 900MFLOPS 32bits DSP. The DSP shall realize appropriate output channel filters and delays. Besides the aforementioned, the DSP shall be able to realize EQ, pre-delay, volume and autogain, and compression as required.

The DSP software and coefficients shall reside in non-volatile memory in order to facilitate adaptations and software updates.

The control unit shall be equipped with a fully isolated RS-485 based full-duplex serial network interface. This control unit shall serve three main functions:

- Remote monitoring of parameters like status of the DSP, amplifiers and loads, external pilot tone, status of the ambient noise sensing microphone, chassis temperature, ambient noise level etc.
- Remote control of beam parameters, input related parameters, volume, pre-delay, EQ, autogain configuration and surveillance related parameters.
- Updating DSP software and factory unit programming.

The loudspeaker enclosure shall be constructed of stainless steel finished with an epoxy coating. At the back side of the enclosure a total of two bracket attachment points shall be provided (located near the outer ends). The protective front shall consist of a perforated steel grill which can be clicked onto four snap-in studs mounted on the enclosure.

The complete loudspeaker unit shall meet the following criteria:

Typical frequency range of the complete array 140 - 18k Hz on axis (+/- 3 dB), max. SPL at 30 m of 97 dB_{SPL} continuous and 105 dB_{SPL} peak, adjustable vertical beam shape is defined by the DDS (Digital Directivity Synthesis) algorithm, fixed horizontal opening angle of 100° (-6 dB, averaged 1k to 8k Hz).

Dimensions are 1698 mm (66.9") H x 198 mm (7.8") W x 189 mm (7.4") D.

Weight 56 kg (123 lbs).

The enclosure protection shall be IP 55.

The loudspeaker unit shall be the JBL Professional® model Intellivox HP-DS170.

2. Specifications

Acoustical:¹

Freq range ²	- 6.5" Loudspeaker	: 260 - 6k5 Hz (+/- 3 dB)
	- 1" Driver	: 700 - 18k Hz (+/- 3 dB)
	- Complete array	: 140 - 18k Hz (+/- 3 dB)
Max SPL ³	- Continuous	: 97 dB _{SPL} (A-weighted at 30 m)
	- Peak	: 105 dB _{SPL} (A-weighted at 30 m)
Coverage	- Horizontal (fixed)	: 100° (-6 dB, averaged 1k - 8k Hz)
	- Vertical (adjustable)	: defined by the DDS algorithm
	- Typical throw	: 25 m
Dynamic range ⁴		: >98 dB

Electrical:

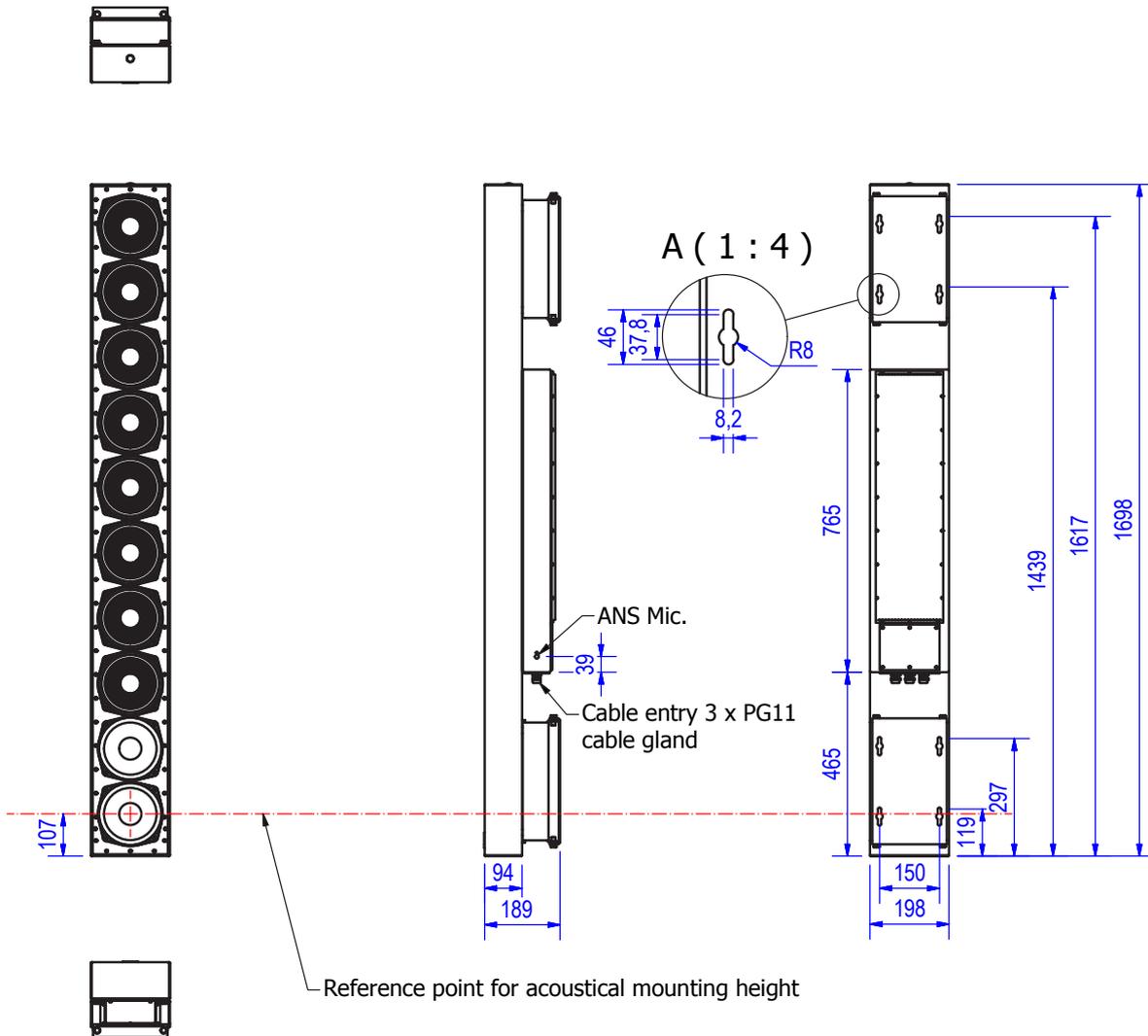
Input ⁵	- Number of inputs	: 2
	- Nominal level	: 0 dBV (RMS)
	- Maximum level	: +19 dBV (peak)
	- Type	: transformer balanced
	- Impedance (balanced)	: 6k8 Ω
100 V inputs	- Number of inputs ⁶	: 1
	- Nominal level	: 40 dBV (RMS)
	- Impedance (balanced)	: 500k Ω
	- Monitoring	: software configurable input impedance switching, (2k2 Ω on status OK, 500k Ω on failure)
DSP module	- Type	: floating point 900 MFLOPS 32 bits
	- Memory	: 64 Mb SDRAM + 10 Mb non volatile
	- AD conversion:	: 24 bits sigma-delta 128 x oversampling
	- Auxilliary processor	: single cycle RISC
	- Sample rate	: 48.0 kHz (default)
	- Latency ⁷	: 3.9 ms
	- Signal processing	: - 21 sec (pre-delay) + 2 x 10 sec (input channel delay) - equalizer and compensation filtering - volume - individual RMS and peak limiters on each output - ambient noise level dependent gain adaptation ('fail-safe') - twelve output filters + delay ringbuffers - dual input configuration
Control unit	- Network interface type	: serial full-duplex RS-485, autoswitching 115k2, 57k6, 38k4, 19k2 baud, optically isolated
	- Maximum number of units ⁸	: 126 units
	- Remote surveillance	: - general status (DSP running, signal present etc.) - amplifier monitoring and load monitoring schemes - external pilot tone detection (20k5 - 28k Hz, level > -22 dBV) - built-in monitored ambient noise sensing microphone - thermal overload protection
	- Failure relay	: - available on external connector, maskable failure conditions SPDT 100 mA / 24 V - volt-free or impedance-sensing (10k / 20k Ω) operation mode
	- Status indication	: - bi-colour LED on front (failure relay status / identify) - LED display in connector bay on rear (error code)
Power amps	- Type	: PWM (class D)
	- Power	: 12 x 100 W _{rms} (8 Ω)
	- Protection	: - thermal - short circuit

Connectors ⁹	- Audio line inputs ¹⁰	: Phoenix type MC 1,5/ 3-ST-3,81 (2 x) p1 = Line +, p2 = GND, p3 = Line -
	- Audio 100 V input ¹¹	: Phoenix type MSTB 2,5/ 2-ST-5,08 p1 = 100 V +, p2 = 100 V -
	- RS-485 interface	: Phoenix type MC 1,5/ 5-ST-3,81 p1 = DGND, p2 = Y, p3 = Z, p4 = B, p5 = A
	- Failure relay ¹²	: Phoenix type MC 1,5/ 3-ST-3,81 p1 = Common, p2 = 10k/20k Ω, p3=short/open
	- Mains ¹¹	: Phoenix GMSTB 2,5/ 3-ST-7,62 p1 = Protective Earth (PE), p2 = Neutral (N), p3 = Live (L)
PSU	- Rated mains voltage	: 100 V to 240 V, 50 to 60 Hz
	- Mains fuse(s)	: 1 x 8 A quick-blow/anti-surge 20 x 5 mm glass fuse (type F8A HBC)
	- Power consumption ¹³	: - 35 W / 0.29 A @ 230 V (idle, load monitoring on) - 170 W / 0.8 A @ 230 V (male speech STIPA) - 860 W / 3.8 A @ 230 V (rated full load)
	- Power factor	: - PF > 0.9 at > 120 W continuous load - active PFC
	- Max mains inrush current	: 10 A short-time peak (@ 230 V)
	- Leakage current ¹⁴	: 0.8 mA (@ 230 V)
	- Protection	: - peak output current limiting - average output current limiting - under-voltage and over-voltage lock out
Fans	- Type	: fanless design
General:		
	Temperature range (ambient)	: 0 to 50 °C (32 - 122 °F)
	Transducers	: 10 x 6.5" : 2 x 1" compression driver, coaxially mounted
	Dimensions (H x W x D) ¹⁵	: 1698 mm (66.9") x 198 mm (7.8") x 189 mm (7.4")
	Default colour	- Enclosure and grill : RAL 9010 (white) - Speaker baffle : RAL 9011 (black)
	Weight	: 56 kg (123 lbs)
	Enclosure material	- Enclosure : stainless steel (AISI 304) with epoxy coating - Grill : perforated galvanized steel with epoxy coating + stainless steel (AISI 316) mesh
	Enclosure protection ¹⁶	: IP 55
	Standards	- EMC : EN 55103-1:2009 + A1:2012; E1, E2, E3 + CISPR 32:2015 EN 55103-2:2009; E1, E2, E3 - Safety : IEC 60065:2014 (8th edition)

Notes:

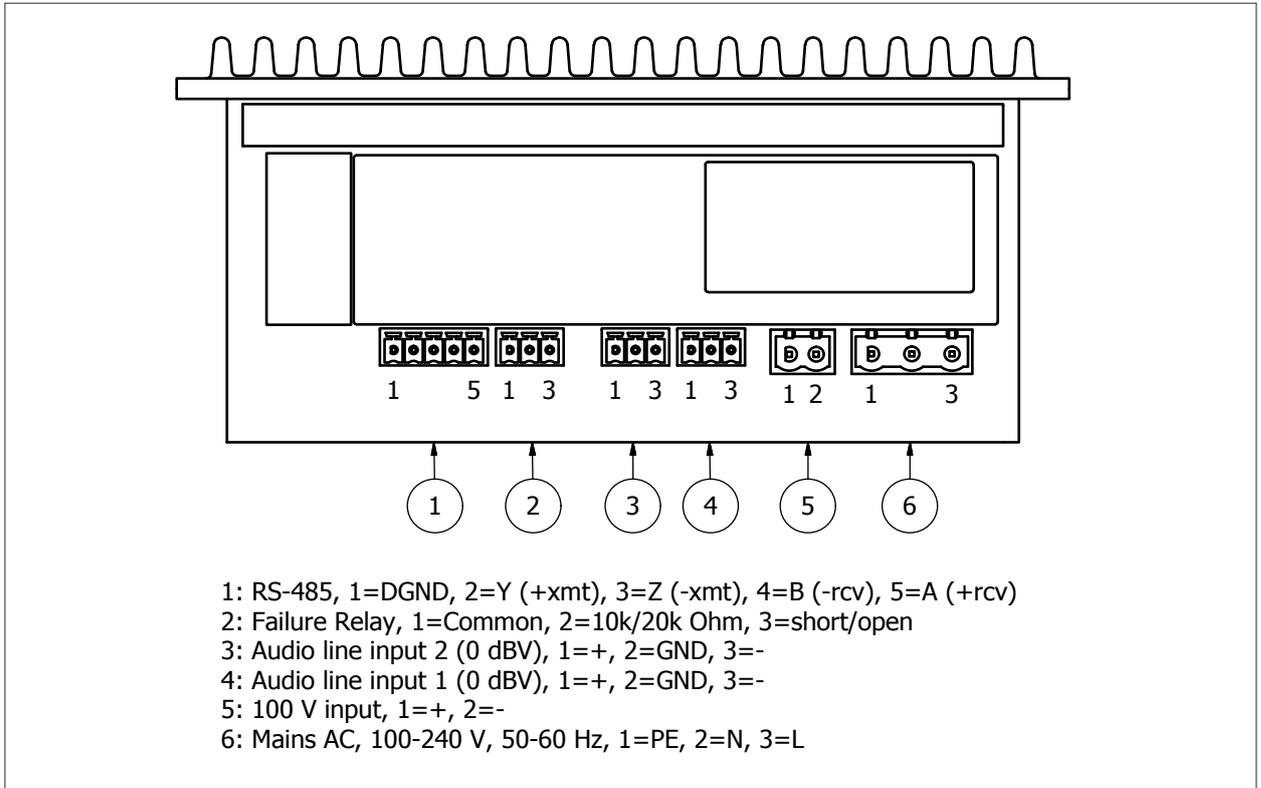
1. Measured outside under semi-anechoic 'full-space' conditions with typical filter and delay settings unless stated otherwise.
2. Single transducer data is determined from 1/3 octave averaged data measured on-axis. The frequency response of the complete array is depending on the actual signal processing parameters and air absorption (at larger distances). A typical bandwidth is specified for the complete array under 'full-space' radiation conditions. Frequency extremes represent -3dB values with respect to the reference level in the transition band.
3. Levels are valid for pink noise (100 to 20k Hz bandwidth) with a crest factor of 8 dB. Default EQ and minimum opening angle setting. 'Continuous' is the RMS level, 'Peak' is the absolute peak level, both determined at the onset of the output limiters.
4. Valid for each amplifier output individually. Measured as the difference (in dB) between the maximum rms output level (with sine input signal) and the A-weighted rms noise output level within 20 to 20k Hz bandwidth (open input, no signal present). All filters flat and all gains set to 0 dB. Overall acoustical dynamic range for a nominal device configuration will exceed the specified figure.
5. Specs valid for default input board type.
6. Either the line input 1 or the 100 V input can be connected.
7. Minimum latency due to hardware and frame processing from analogue input to amplifier output.
8. Maximum number that can be connected to one RS-485 subnet, multiple subnets can be controlled by one host PC.
9. All Phoenix type numbers refer to the required cable parts, a complete set of connectors is supplied with the product. All connectors are located in the connector bay. Default cable entry is 3 x PG11 cable gland, suitable for outer cable diameter of 5 to 10 mm.
10. For solid and stranded wires with conductor cross sections from 0.14 to 1.5 mm².
11. For solid and stranded wires with conductor cross sections from 0.2 to 2.5 mm².
12. For volt-free operation use p1 and p3. If the device is powered and the status is OK (no masked failure), p1 is connected to p3. When a fault condition occurs p1 is disconnected from p3 (open circuit). For impedance-sensing operation use p1 and p2. The impedance between p1 and p2 is 10 k Ω if the device is powered and the status is OK (no masked failure). When a fault condition occurs the impedance between p1 and p2 rises to 20k Ω.
13. Typical values, valid for nominal operating temperature.
14. Typical value according to IEC 60990.
15. Depth including mounting hinge brackets and HF compression drivers cover.
16. Defined according to EN 60529:1991/A1:2000.

3. Mechanical Details. Not to Scale

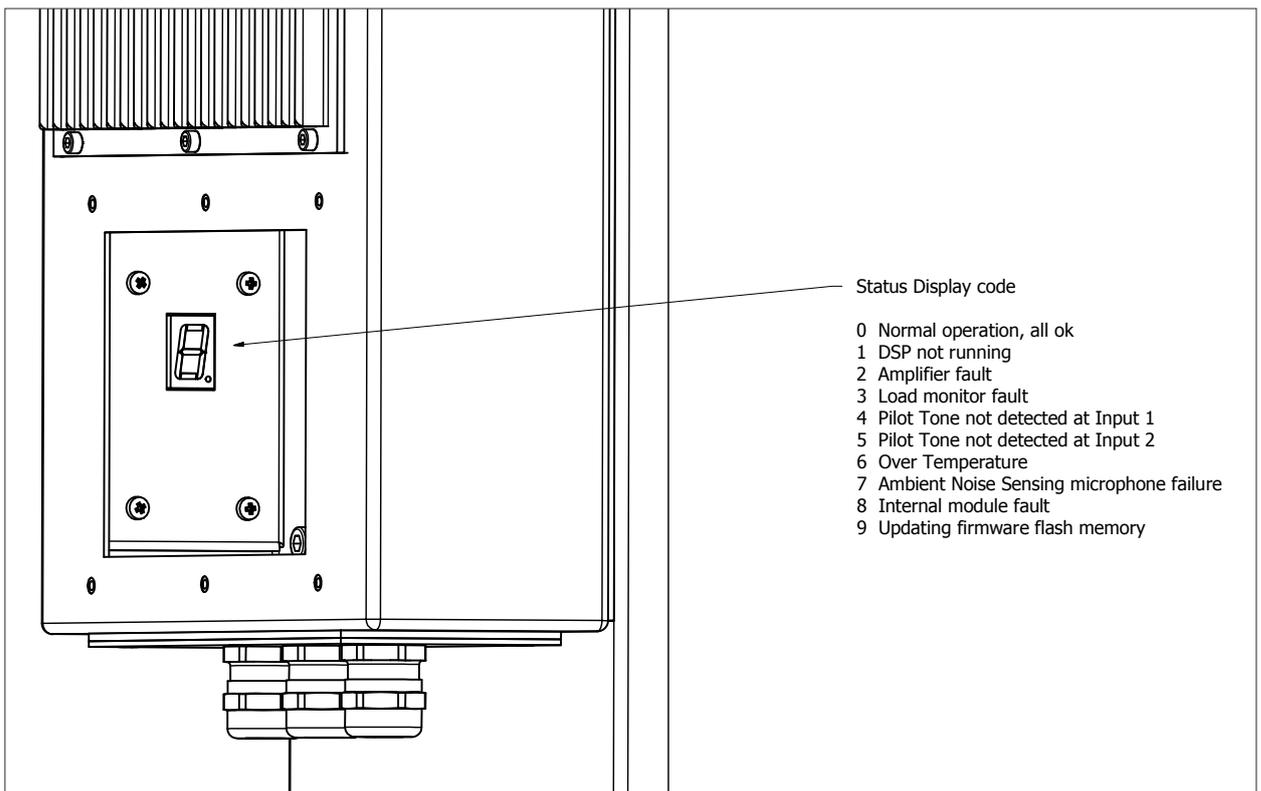


3. Mechanical Details. Not to Scale

Connectors



LED display

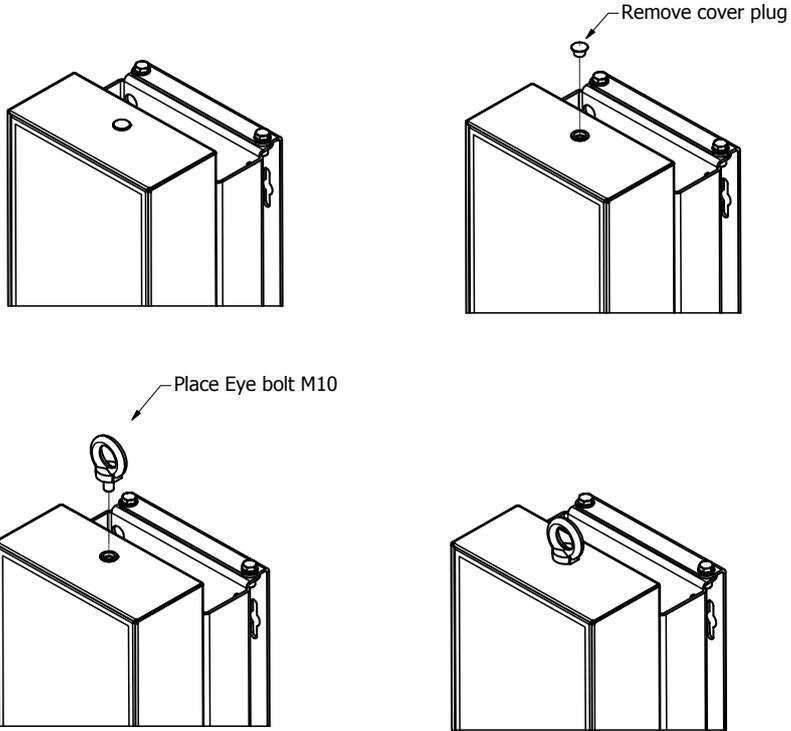


3. Mechanical Details. Not to Scale

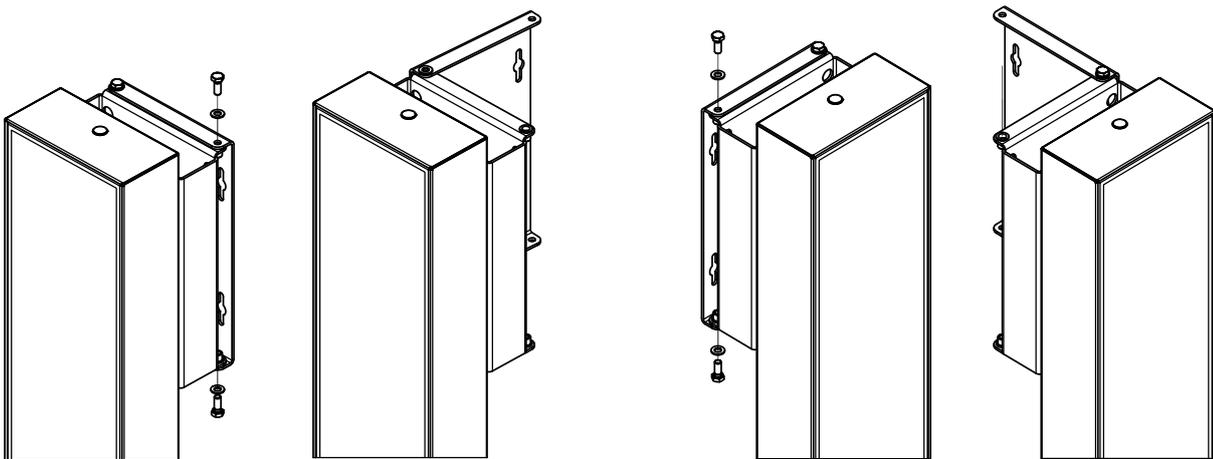
Lifting point

Important note:

1. After the job is done, remove eyebolt and replace cover plug.
2. Lifting point should only be used for lifting during the installation of the unit and should NOT be used as a permanent fixing point.



Hinge details



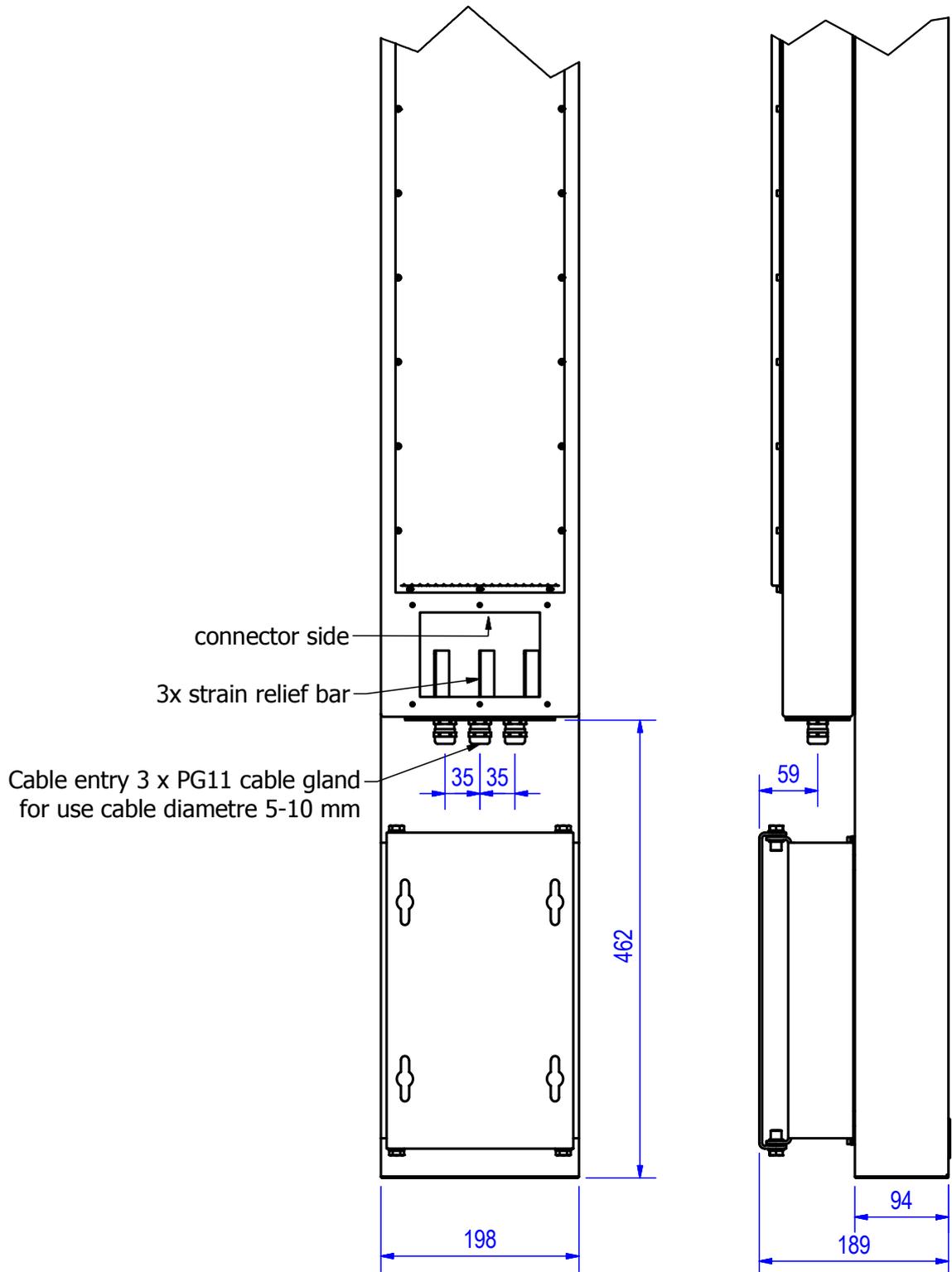
Rotating Left

Rotation Right

Remove bolts on one side of each hinge.
Adjustable up to 90 degrees

3. Mechanical Details. Not to Scale

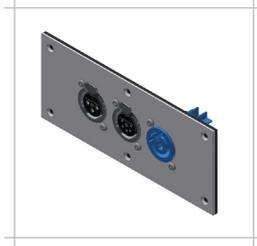
Cable entry details



4. Optional Accessories

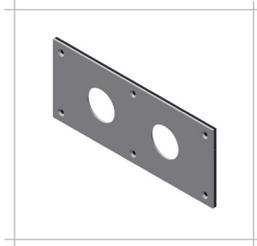
**Intellivox HP-series
XLR Input plate**

Order code: 802145

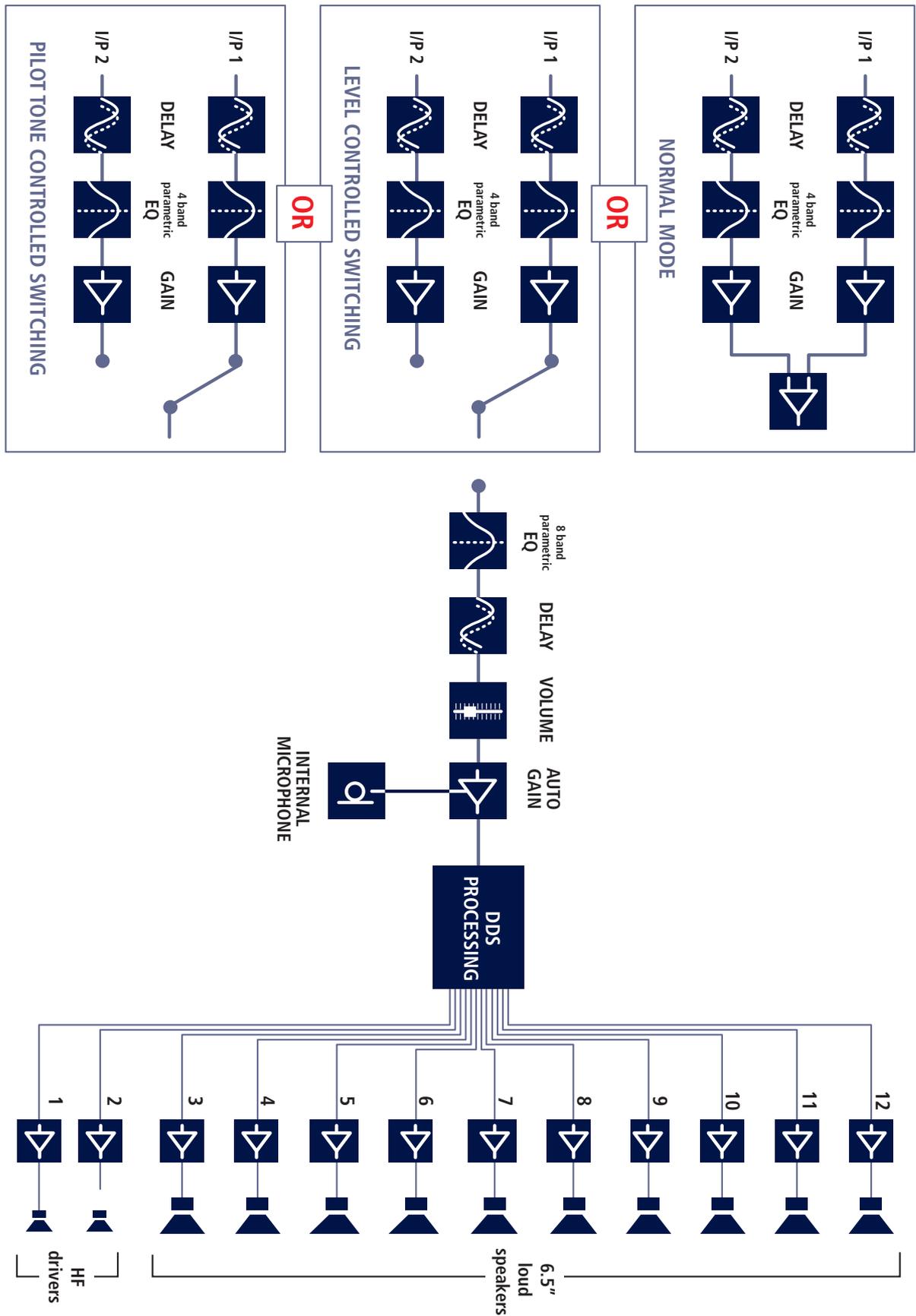


**Intellivox HP-series
Cable gland plate
with two M25 holes**

Order code: 802140



5. DSP Block Diagrams





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