# 10CX650

Single Magnet Ferrite Coaxial Transducer

## KeyFeatures

- 94.0 dB LF/106.5 dB HF SPL 1W/1m average sensitivity
- Single magnet motor
- 400W LF - 140W HF maximum program power handling
- 65 mm (2.5") LF voice coil
- 44 mm (1.75") HF PEN diaphragm
- Proprietary Phase Plug design
- HF copper sleeve for reduced distortion and higher output
- 90 degrees nominal conical dispersion
- Atmos™ ready*
- Extended LF design
- Suitable for very compact enclosures and stage monitors

*Atmos™ is a Dolby registered trademark. Atmos is a cinema audio design standard

## Description

The 10CX650 is a 10" - 1" coaxial transducer designed for use in compact reflex enclosures and stage monitors as small as 30 lt, with a nominal dispersion of 90 degrees.

The high force ceramic single magnet structure makes the 10CX650 a lightweight speaker for its performance class - only 6 kg (13.2 lb).

The 65 mm (2.5 in) LF edgewound CCAW voice coil employs our Interleaved Sandwich Voice coil (ISV) technology, in which a high strength fiberglass former carries windings on both the outer and inner surfaces to achieve a balanced coil with a uniform distribution of mass and motion energy. This results in an extremely linear motor assembly.

The low profile curvilinear LF cone provides a smooth response within its intended frequency range and maximum reliability under high mechanical stress.

Equipped with a proprietary hybrid radial tangerine phase plug, the integrated HF compression driver has been designed to give smooth coherent wavefront at the horn entrance in all working frequency ranges with a high level of manufacturing consistency. The phase plug, with its short openings and high flare rate value, assures low distortion and remarkable improvements in mid-high frequency reproduction. A copper sleeve reduces inductance values above 10kHz, improving phase and impedance linearization.

The HF diaphragm assembly is made with a proprietary treated Polyethylene material. Thanks to its superior diaphragm dimensional stability, the polyethylene shows consistent behavior throughout its whole working life. Moreover, this particular material with its very high value of elasticity modulus is capable of superior transient and intermodulation distortion response. The flat suspension shape is designed to maintain low stiffness and low mid band distortion and response.

An edge-wound aluminum voice coil wound on proprietary treated Nomex completes the diaphragm assembly. Thanks to its physical properties, the proprietary treated Nomex former shows a 30% higher value of tensile elongation at a working operative temperature, when compared to Kapton. This feature enables proper energy transfer control from the voice coil to the dome in real working conditions. Moreover, this former material is suitable for use in damp and wet environments.

A specific dedicated HF driver throat design has also been chosen, maximizing the cone's profile coupling.

## Models

| Model | Code | Info |
|-------|------|------|
| 8CX650 | 022108CX00 | |
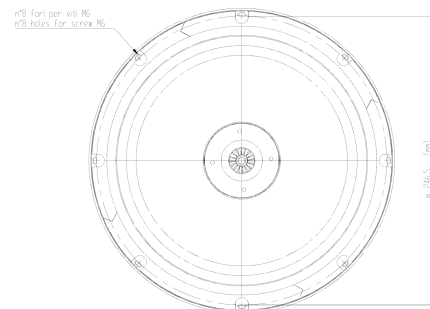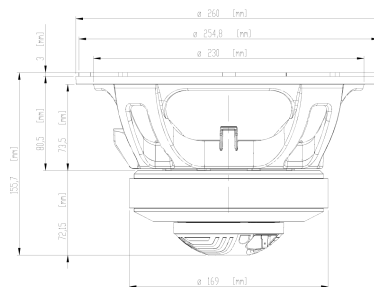
## General Specifications

| | |
|---|---|
| Nominal Diameter | 260 mm (10 in) |
| Rated Impedance | 8 Ohm |
| AES Power | 200 W |
| Program Power | 400 W |
| Peak Power | 800 W |
| Sensitivity | 94 dB |
| Frequency Range | 60 - 4800 Hz |
| Power Compression @-10dB | (20W) 0.3 dB |
| Power Compression @-3dB | (100W) 1.3 dB |
| Power Compression @Full Power | (200W) 2.3 dB |
| Max Recomm. Frequency | 1500 Hz |
| Recomm. Enclosure Volume | 25 - 45 lt. (0.88 - 1.59 cuft) |
| Minimum Impedance | 6.1 Ohm at 25°C |
| Max Peak To Peak Excursion | 26 mm (1 in) |
| Voice Coil Diameter | 65 mm (2.56 in) |
| Voice Coil winding material | Edgewound copper |
| Suspension | Double roll, Polycotton |
| Cone | Curvilinear composite |

## Thiele Small Parameters

| | |
|---|---|
| Fs | 54 Hz |
| Re | 5.1 Ohm |
| Sd | 0,0346 sq.mt. (53.63 sq.in.) |
| Qms | 5.90 |
| Qes | 0,39 |
| Qts | 0,35 |
| Vas | 36.4 lt. (1.29 cu.ft) |
| Mms | 39.5 gr. (0.09 lb) |
| BL | 14 Tm |
| Linear Mathematical Xmax | ± 6mm (±0,24 in) |
| Le (1kHz) | 0.90 mH |
| Half space efficiency | 1.5 % |

## Mounting information

| | |
|---|---|
| Overall diameter | 260 mm (10.24 in) |
| Mounting holes diameter | 6.1 mm (0,24 in) |
| Bolt circle diameter | 243.5 - 246.5 mm (9.59 - 9.70 in) |
| Front mount baffle cutout ø | 230 mm (9.06 in) |
| Rear mount baffle cutout ø | 231 mm (9.09 in) |
| Total depth | 155 mm (6.10 in) |
| Flange and gasket thickness | 8.9 mm (0,39 in) |
| Net weight | 6,2 kg (13,66 lb) |
| Shipping weight | 6,8 kg (14,99 lb) |
| Packaging Dimensions | 6,8 kg (14,99 lb) |

**FREQUENCY RESPONSE**
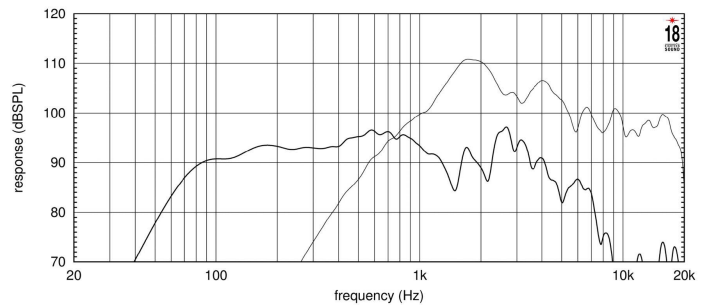


**FREQUENCY RESPONSE MADE IN 25 LT. ENCLOSURE TUNED AT 65 Hz IN FREE FIELD (4π) ENVIRONMENT. ENCLOSURE CLOSES THE REAR OF THE DRIVER, THE THIN LINE REPRESENTS HIGH FREQUENCY FREE AIR IMPEDANCE CURVE**
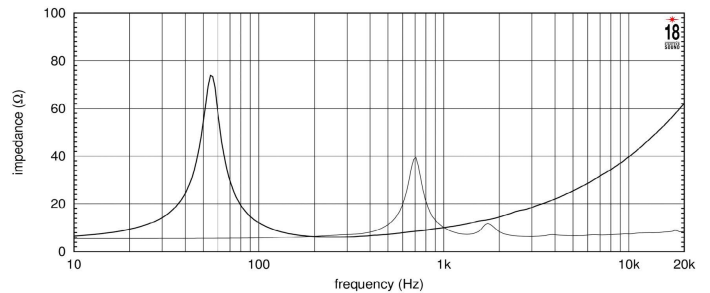


## Notes

1) AES power is determined according to AES2-1984 (r2003) standard<br />

2) Program power rating is measured in 25 lit. enclosure tuned at 65 Hz using a 70-700 Hz band limited pink noise test signal applied for 2 hours and with 50% duty cycle. Power measured on minimum impedance<br />

3) The peak power rating represent the maximum permitted instantaneous peak power level over a maximum period of 10 ms which will be withstood by the loudspeaker without damage.<br />

4) Sensitivity represents the averaged value of acoustic output as measured on the forward central axis of cone, at distance 1m from the baffle panel, when connected to 2.83V sine wave test signal swept between 100 Hz and 1000 Hz with the test specimen mounted in the same enclosure as given for 2 above.<br />

5) Frequency range is given as the band of frequencies delineated by the lower and upper limits where the output level drops by 10 dB below the rated sensitivity in half space environment.<br />

6) Power compression represents the loss of sensitivity for the specified power, measured from 70 to 700Hz after a 5 min pink noise preconditioning test at the specified power.<br />

7) Continuous Power is defined as a level that is 3 dB greater than the one measured with the new AES2-2012 standard, using continuous pink noise having 12 dB crest factor for 2 hours.<br />

8) Program power is defined as 3 dB greater than continuous power rating.<br />

9) Sensitivity represents the averaged value of acoustic output as measured on the forward central axis of cone, at distance 1m from the baffle panel, when connected to 2.83V sine wave test signal swept between 1000 Hz and 4000 Hz with the test specimen mounted in the same enclosure as given for 2 above.<br />

10) Minimum crossover frequency require at least 12 dB/oct. slope high pass filter, preferred 24dB/oct. slope high pass filter LR<br />

11) Thiele - Small parameters are measured after the test specimen has been conditioned by 1 hour 20 Hz sine and represent the expected long term parameters after a short period of use.<br />

12) Linear Mat. Xmax is calculated as; (Hvc-Hg)/2 + Hg/4 where Hvc is the coil depth and Hg is gap depth.<br />