

TDK Technologies & Products Press Conference 2019

## **PiezoListen™ – a new kind of piezo speaker for new applications**

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**TDK has developed a new kind of ultra-thin piezo speaker that enables completely new integrated multimedia solutions in a wide range of devices and living spaces. Whether smartphones, tablets and notebooks, TV sets and surround systems, or car dashboards, bathroom mirrors and kitchen surfaces, PiezoListen™ generates sound from the entire display, screen or other surfaces, opening up many new possibilities for creating a realistic sound experience.**

The ultra-thin speakers are based on advanced multilayer piezo technology and feature a wide frequency range and high sound pressure. Now design engineers can use nearly any display or surface to produce sound, integrate acoustic solutions without changing exterior design, and create stylish and futuristic designs (Figure 1).



*Figure 1: With PiezoListen™ TV screens can double as sound positioning tweeters.*

### **Expanded lineup of ultra-thin speakers**

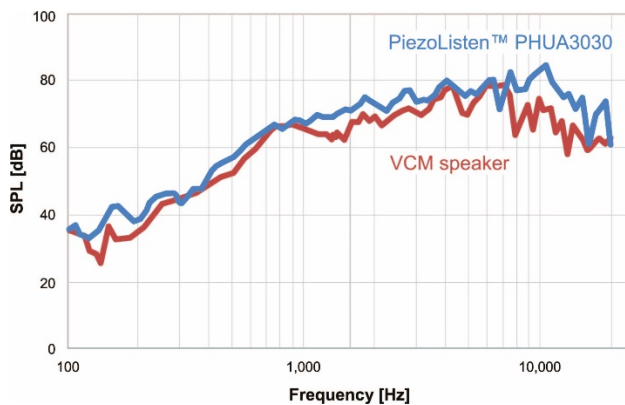
The PiezoListen series of piezo speakers now includes the PHUA6630\* wide dynamic range speaker with an operating frequency range of 400 Hz to 20 kHz (Figure 2). This product has a footprint of 66 x 30 mm and complements the existing PHUA3030\* speaker, which was introduced in May 2019. Also new in the series are two new sound positioning speakers with an operating frequency range of 1000 Hz to 20 kHz. The miniature PHUA2010\* features dimensions of just 20 x 10 mm, while the PHUA3015\* speaker measures in at 30 x 15 mm. Samples are available for all types.

TYPE	PHUA2010	PHUA3015	PHUA3030	PHUA6630
<b>Class</b>	Speaker for ICT devices and positioning tweeter		High power, wide range for automotive, TV, displays and other surfaces	
<b>Frequency range [Hz]</b>	1000 to 20,000		400 to 20,000	
<b>Footprint [mm]</b>	20 x 10	30 x 15	30 x 30	66 x 30
<b>Thickness [mm]</b>	0.49	0.49	0.49	0.76
<b>Max. Input voltage [V<sub>p-p</sub>]</b>	24 (±12)	24 (±12)	24 (±12)	48 (±24)
<b>Capacitance [μF]</b> (1 kHz, 1 V)	1 ±15%	2.3 ±15%	4.8 ±15%	7.8 ±15%
<b>Output power [W<sub>rms</sub>]</b> (1 kHz, V <sub>max</sub> )	0.6	1.4	2.7	14.8

**Figure 2:** The PiezoListen™ portfolio includes wide-range speakers for ICT devices and as positioning tweeters as well as high-power wide-range speakers for TV displays and other surfaces.

### Unbeatable form factor and integration benefits

With a thickness as low as 0.49 mm the PiezoListen type PHUA3030\* is the thinnest speaker that is able to cover a wide frequency range from as low as 400 Hz up to 20 kHz. The PHUA3015\*, which is suitable for tweeter applications, compares favorably to conventional electromagnetic tweeters: It is 50 times thinner, takes up >98 percent less space, is 97 percent lighter, and even features a wider frequency range. In addition, PiezoListen delivers a sound pressure level (SPM) over the operating frequency range that is comparable with that of a conventional VCM speaker (Figure 3). Thanks to its unbeatable form factor, PiezoListen speakers are easy to integrate into existing applications without changes to the exterior designs, thus enabling flexible acoustic solutions that deliver good sound performance.



**Figure 3:** The sound pressure level (SPL) of PiezoListen™ is comparable to that of a conventional VCM speaker.



## Advanced multilayer and material technologies

The development of the low-profile, high-displacement piezoelectric speakers was made possible by TDK's patented multilayer and material technologies. With PiezoListen TDK will enable completely new integrated acoustic solutions and thus contribute to the evolution of customer application design.

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