

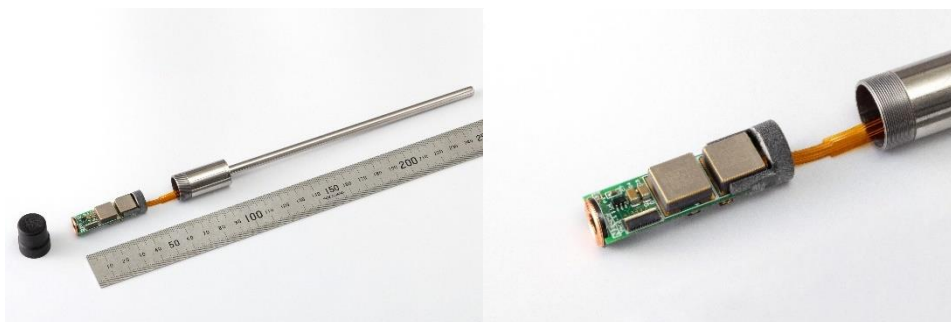
January 16, 2025

Maxell, Ltd.

CO-WORKS Co., Ltd.

Maxell's All-solid-state Battery "PSB401010H" Adopted for the Wireless Cooking Temperature Sensor Device "NICK" Jointly Developed by CO-WORKS and YOSHINOYA

Started Demonstration Experiment for Visualizing the Cooking Process in Beef Cooker has Started at Selected YOSHINOYA Restaurants



The wireless cooking temperature sensor device "NICK" using all-solid-state batteries (left), and the Maxell's all-solid-state battery "PSB401010H" mounted on the circuit board (enlarged view, right)

The ceramic-packaged all-solid-state battery "PSB401010H" of Maxell, Ltd. (President and Representative Director: Keiji Nakamura / hereinafter "Maxell") has been adopted in the wireless cooking temperature sensor device "NICK" jointly developed by CO-WORKS Co., Ltd. (President and Representative Director: Yoshikazu Awaji / hereinafter "CO-WORKS") and YOSHINOYA CO., LTD. (President and Representative Director: Yasutaka Kawamura / hereafter "YOSHINOYA"). The "NICK" is equipped with a temperature sensor, a communication module, all-solid-state batteries and a power receiving coil, capable of measuring and visualizing the temperature of ingredients in cooking equipment within a range of up to 100°C. A demonstration experiment using the "NICK" has recently started at selected YOSHINOYA restaurants.

In restaurants such as YOSHINOYA, various initiatives are underway to maintain and enhance food quality, including the management of cooking data and the optimization of the processes. The "NICK", jointly developed by CO-WORKS and YOSHINOYA, is a commercialized product of the solution "Beef Cooker ZENRYOKU Sensing^{*1}" which won the open innovation program "Gyu-don Tech (Beef Bowl Tech)" hosted by YOSHINOYA. The device is being developed with the aim of sharing cooking data among restaurants and optimizing cooking skills and processes, which enables users to maintain high quality and provide stable products.

In order to measure temperature in the high-temperature range close to 100°C, most conventional portable temperature sensors with communication functions have been designed with only the temperature sensor part encased in a probe (a needle component for insertion

into the measured part), while the other main unit (including the battery and the electronic board) is separated from the sensor to mitigate the effects of high temperatures, which has led to limitations on installation locations.

Particularly, batteries may experience deterioration due to chemical reactions when exposed to high-temperature environments, such as 100°C. Therefore, it is necessary to place the main unit of the device away from the temperature sensing component, in a cooler area. This requirement has restricted the design flexibility of the device. By adopting Maxell's rechargeable all-solid-state battery, the PSB401010H, as the device's power source, the operating temperature range has expanded, allowing for use in high-temperature environments, as the battery features high heat resistance*². Furthermore, by integrating the temperature measurement sensor with the main unit, the device can now be placed more conveniently than the separated types, which we believe will contribute to increased convenience for restaurant staff utilizing the device.

The cooking wireless temperature device “NICK” will be exhibited at the Maxell booth during the 39th NEPCON Japan, held at Tokyo Big Sight (Koto-ku, Tokyo) from January 22 to 24, 2025.

*1 Beef Cooker ZENRYOKU Sensing: Name of the solution of sensing cooking condition in the beef cooker

*2 high heat-resistance: Please see Maxell's all-solid-state battery web page for details.

https://biz.maxell.com/en/rechargeable_batteries/allsolidstate.html

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CO-WORKS Web Page (Japanese only)

<https://co-works.co.jp>

All-solid-state batteries Web Page

https://biz.maxell.com/en/rechargeable_batteries/allsolidstate.html

Contacts

“All-solid-state batteries”

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The cooking temperature sensor device “NICK” (Japanese only)

CO-WORKS Co., Ltd.

Inquiry Form: <https://co-works.co.jp/contact/>