



October, 2018

Ball Wave Inc.

## **Ball Wave to Begin Accepting Orders for the FalconTrace mini (FT-300WT) High-speed Portable Trace-Moisture Analyzer**

*World's first sensor for accurate monitoring of fluctuating trace-moisture content in manufacturing environments boasts unprecedented temporal resolution of single seconds or less*

Ball Wave Inc., headquartered in the city of Sendai in Japan's Miyagi Prefecture and led by CEO Shingo Akao, will begin accepting orders for its new **FalconTrace mini (FT-300WT)**, a portable trace-moisture analyzer capable of high-sensitivity detection of high-purity industrial gases and ultra-minute quantities of water in manufacturing environments. The unprecedented operating speed of the **FalconTrace mini**—unrivaled by any existing trace-moisture analyzer—allows real-time *in situ* monitoring, with astonishing temporal resolution on the order of single seconds or less, of fluctuating concentrations of water molecules in gases used in manufacturing processes.

In the semiconductor-device industry—because of the rapid progress in miniaturization and high integration—the residual water content of the gases used in manufacturing processes must now be controlled to levels of 1 ppm or below. However, to date, the only existing trace-moisture analyzers with the sensitivity required to detect such minuscule water concentrations have been large, expensive optical instruments, which are too unwieldy to be installed in production lines. Moreover, the response speeds of existing trace-moisture analyzers are not sufficient to allow their use in the control of production lines.

Similarly, the manufacturing process for lithium-ion batteries involves a procedure in which the battery material is wet-coated on a substrate film, which is then dried and roll-pressed for incorporation into cells. Because the presence of any residual water during this process can dramatically degrade the performance or lifetime of the final battery, the procedure is carried out in an ultra-dry environment known as a *super-dry room*. A key limitation of existing trace-moisture analyzers is that their response times are too slow to be useful for controlling super-dry rooms.

The revolutionary speed and accuracy of the **FalconTrace mini** derive from the remarkable properties of *ball-SAW sensors*, a core technology developed by Ball Wave Inc. Ball-SAW sensors are high-speed, high-sensitivity gas sensors that exploit a phenomenon that seems to defy the laws of physics: long-distance propagation of surface acoustic waves (SAWs) on a



spherical object. Because the sensor itself is just a tiny crystal ball—only 3.3 mm in diameter—the **FalconTrace mini** is easy to install *in-situ* for accurate monitoring of semiconductor process lines, production lines for lithium-ion batteries, and in other industrial environments. Moreover, the rapid response time of the sensor unit and the small volume of the sensor cell allow accurate monitoring of moisture-content fluctuations with a high temporal resolution on the order of single seconds or below.

In addition to trace-moisture analyzers for industrial applications, Ball Wave is also developing high-sensitivity miniature hydrogen-gas sensors, palm-sized portable gas chromatographs, and other innovative gas-measurement technologies that will usher in the hydrogen-based society of the future and protect the Earth's environment.

**【FalconTrace mini (FT-300WT)】**

Shipping to begin: November 2018

See the pamphlet for product specifications and other information.

**About Ball Wave Inc.**

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