

<p style="text-align: center;">Epson Toyocom Develops New Pre-Tilted Gyro-Sensor for In-Dash Navigation Systems</p>
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Epson Toyocom Corporation, a leader in the design and manufacture of crystal-based electronic products, today announced that it has developed a new pre-tilted gyro-sensor that can be installed in car navigation systems. As the latest addition to the XV-8000 series, the XV-8000LK is ideal for dead reckoning (“DR”)^{*1}, a method used in car navigation to determine position.

For the gyro-sensors in the XV-8000 series Epson Toyocom employed its unique crystal gyro-element design for outstanding stability. The company also leveraged its technological competencies in QMEMS^{*2}, low power analog circuits, and packaging to achieve both high stability and a small form factor.

Gyro-sensors installed in in-dash car navigation systems for DR become tilted when the systems are mounted in inclined dashboards. DR software is used to compensate for this tilt and provide greater navigational accuracy. However, depending on the inclination of the dashboard, DR correction software is not always able to fully correct for this tilt, a fact that spurred market demand for gyro-sensors that are themselves pre-tilted.

The sensor in the recently developed XV-8000LK is assembled with a pre-tilt angle in the package. This pre-tilt affords greater flexibility in determining the installation angle.

The XV-8000LK is available in two types. One type has a tilt angle of 10 degrees, and the other has a tilt angle of 20 degrees. The pre-tilted sensors offer dramatically more flexibility in DR software setup.

Epson Toyocom intends to continue filling out its lineup of miniature yet powerful and usability-enhanced gyro-sensors that enable emerging car navigation possibilities and to providing solutions that answer users' needs.

The new gyro-sensor and other crystal devices will be on display at the Epson Toyocom booth (No. 6E116) at CEATEC JAPAN 2007, to be held at Makuhari Messe from October 2 to 6.

XV-8000LK Features

1. Ultra-small form factor: 6.0 x 4.8 x 3.3 mm
2. Stable output with built-in crystal gyro elements and temperature compensation circuit
3. Pre-tilt angles: 10 & 20 degrees
4. Superior resistance to shock and vibration; ideal for automobile applications
5. Thermal sensor output terminal enables use for correcting system temperature
6. Airtight structure provides excellent environmental resistance
7. Lead-free^{*3}

Main Specifications of the XV-8000LK

Item	Specification	Unit
Supply voltage	4.75 to 5.25	V
Operating temperature range	-40 to +85	°C
Scale factor	25.0	mV/deg/sec
Zero-point voltage	2.5	V
Zero-point voltage temperature variation	±3.5	%
Rate range	±60	deg/sec
External dimensions	6.0 × 4.8 × 3.3t	Mm

Glossary

*1 The accuracy of DR processing in estimating vehicle location in a car navigation system can be improved by adding angle calculations based on car speed and gyro sensors to the positioning calculations based on GPS.

*2 QMEMS is a combination of “Quartz,” a crystalline material with excellent characteristics such as high stability and high precision, and “MEMS,” a microfabrication technology. QMEMS quartz devices are created using quartz material instead of the semiconductors used by MEMS. We perform precision microfabrication on the quartz material to offer high performance in a compact package.

*3 No lead is used on the terminals or inside of this product. Compliant with the E.U. RoHS Directive.