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Epson Toyocom Develops New High-Precision Quartz Pressure Sensors
— Unique architecture enables the XP-7000 series to directly measure fluid pressure —

Epson Toyocom Corporation, the leader in crystal devices, today announced the development of a new series of high-precision quartz pressure sensors. The sensors in the new XP-7000 series feature an architecture that allows fluid pressure to be directly transmitted to a pressure-sensing element.
Commercial development is scheduled for October 2009.

Most pressure sensors used for high-precision measurements contain a pressure-transmitting medium such as oil. The XP-7000 series, however, uses a frequency-stable QMEMS(*1) tuning-fork crystal unit(*2) as a pressure-sensing element and Epson Toyocom's unique pressure-transmitting architecture to directly read pressure to an accuracy of ±0.05% FS.

Concern for the environment has risen in recent years. The sensors in the XP-7000 series are eco-considerate products that do not release oil or gas. In addition, the unique architecture employed by Epson Toyocom enabled the company to reduce the cubic volume of the new sensors by approximately 43% compared to their predecessors.

Leveraging these characteristics, the new sensors are ideally suited to applications such as precisely and accurately measuring the water level of rivers and sewers, fluid pressure levels in environments with stringent cleanliness requirements, and pressures in industrial plant equipment.

The two models in the XP-7000 series are the XP-7000MB and the XP-7001MB. The XP-7000MB is equipped with a buffer circuit to maintain output levels even with long cables. The XP-7001MB supports low current.

Main Features

(1) Pressure reading accuracy of ±0.05 %FS
(2) Clean environmental performance, with no release of oil or gas
(3) Small size (22 mm diameter x 40 mm length; 43% smaller than predecessors)

Main Specifications

Item	Specification	Note
Pressure measurement range	0 to100 kPa (gauge pressure)	Water level: 0 to 10 m
Pressure reading accuracy	±0.05 %FS	After pressure value conversion (including linearity, hysteresis, and repeatability)
Temperature characteristics	±0.05 %FS	After compensation processing by a built-in temperature sensor
Operating temperature range	-10ºC to +50ºC	
Output voltage	+12 V DC	
Supply voltage	8 mA Typ.	XP-7000MB (with buffer circuitry)
	1 mA Typ.	XP-7001MB (without buffer circuitry)
External dimensions	dia. 22 mm x 40 mm	Excluding the protruding portion of the base
Material	316L stainless steel	Pressure sensing unit

Glossary

(*1) QMEMS
QMEMS is a combination of “Quartz,” a crystalline material with excellent characteristics such as excellent frequency stability and high precision, and “MEMS” (micro electro mechanical system). QMEMS devices, produced via a microfabrication process on a quartz material instead of on a semiconductor material like MEMS, offer high performance in a compact package.
QMEMS is a registered trademark of Epson Toyocom.

(*2) Double-ended tuning fork crystal unit
This uses the flexure vibration of two combined tuning fork type crystal units. It features a high Q (resonance sharpness) value, excellent stability, high precision, and fast responsiveness.

For product enquiries, please locate your regional Epson Toyocom representative at:
http://www.epsontoyocom.co.jp/english/company/place/kaigai_network.html

About Epson Toyocom

Epson Toyocom Corporation is the global leader in crystal devices, which serve as the heart and pulse for a wide range of electronic products for consumers and industry. Utilizing its innovative hybrid quartz microfabrication technology, QMEMS, Epson Toyocom offers technological expertise in timing, sensing, and optical devices, and maintains its leadership position by providing customer-specific combinations and solutions. http://www.epsontoyocom.co.jp/english/