

SENSING TECHNOLOGY

Accelerometers for structure health monitoring

Seiko Epson has added two high-performance products to its lineup of three-axis accelerometers. The M-A552AC1 supports the CAN communications protocol while the M-A552AR1 supports EIA-422. MA-A552AC1 also supports CANopen.

Samples of the products will begin shipping in the summer of 2019, with volume production scheduled for the spring of 2020. Epson's accelerometers, first launched in 2014, have been used in an array of applications. Aging social infrastructure and the soaring cost of infrastructure maintenance, monitoring, and renewal are recognized as serious social problems for nations and communities. This recognition is driving a growing need for technology to monitor the health of structures using sensors.

In May 2019, Epson began shipping samples of another accelerometer, the M-A352, to give momentum to the spread of structure health monitoring technology. The M-A352 provides the necessary noise performance of 1 $\mu\text{g}/\text{Hz}$ or better (servo accelerometer class).

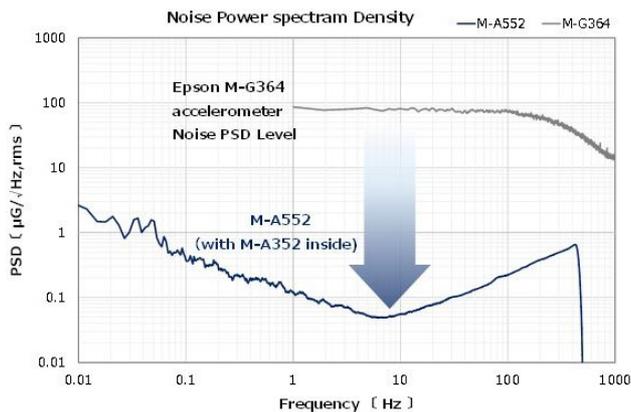
The M-A552AC1 and M-A552AR1 boast the same performance as the M-A352 but come equipped with CAN and EIA-422 interfaces, respectively. These interfaces are widely used in industrial applications and demand for them has been strong. They are housed in metal packages that provide IP67-equivalent protection against water and dust.



The M-A552AC1 supports CAN and CANopen (Photo: Epson)



The M-A552AR1 (Photo: Epson)



Example of a key feature (Photo: Epson)

This level of protection against the elements enables these products to be used in a range of industrial applications that require long distances and stability and reliability. These products offer the level of performance required for structure health monitoring and other industrial applications, as well as the flexibility to enable system construction, said the company. They also enable to build multi-node (multi-point) measurement systems, synchronized measurement systems, and other measurement systems.

The accelerometers can be used in structure health monitoring (e.g., of buildings, roadway structures, bridges, tunnels, and steel towers), earthquake detection, environmental vibration measurement, industrial equipment monitoring, unmanned vehicles (e.g., terrestrial vehicles, undersea probes), and the measurement of the vibration and path of industrial

equipment and vehicles.

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