

EPSON'S M-A552 ACCELEROMETERS IDEAL FOR STRUCTURE HEALTH MONITORING

– Epson acceleration sensing technology helps realize safer social infrastructure –

Seiko Epson Corporation (TSE: 6724, “Epson”) has added two new high-performance products to its lineup of three-axis accelerometers. The M-A552AC1 supports the CAN¹ communications protocol while the M-A552AR1 supports RS-422². Samples of the new 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, earning an excellent reputation for outstanding performance and quality. 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 new accelerometer, the M-A352, to give momentum to the spread of serious structure health monitoring technology. The M-A352 provides the necessary noise performance of 1 $\mu\text{G}/\sqrt{\text{Hz}}$ or better (servo accelerometer³ class) along with outstanding durability and manufacturability, ensuring stable supply and cost competitiveness.

The M-A552AC1 and M-A552AR1 boast the same performance as the M-A352 but come standard equipped with the CAN and RS-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.

This high level of protection against the elements enables these products to be used in a wide range of industrial applications that require long distances and excellent stability and reliability.

These products offer the high level of performance required for structure health monitoring and other industrial applications, as well as the flexibility to enable easy system construction. They also make it easy to build multi-node (multi-point) measurement systems, synchronized measurement systems, and other complex, sophisticated measurement systems. Since they are easy to install, connect, and use even outdoors and under other harsh environmental conditions, these accelerometers can sharply reduce customer system development times.

¹ Controller Area Network (CAN) is a network protocol that is widely used for automotive devices and industrial products.

² RS-422 is a serial communication standard that is primarily used for industrial products.

³ A servo accelerometer is a high-accuracy accelerometer that is widely used in earthquake detection and to measure slight vibrations of civil engineering structures.

Product features

- High shock resistance: 1,200 G (quadruple that of the products in Epson’s M-A550 series)
- Low noise: 0.5 $\mu\text{G}/\sqrt{\text{Hz}}$ typ.
- Wide dynamic range: 27 bits
- Original noise-resistance direct digital conversion technology

Applications

These 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.

Product number	MA-A552AC1	MA-A552AR1
Communications interface	CAN	RS-422 (4-wire, full-duplex)
Communications protocol	CANopen compliant	-
Bit rate	1 Mbps (max.)	460 kbps, fixed
Sensor	Epson M-A352 accelerometer	
Rate range	±15 G	
Bias error	2 mG	
Scale factor	0.06 µG/LSB	
Noise density	0.5 µG/√Hz, rms @0.5 Hz or more	
Shock resistance	1,200 G @0.2ms, half-sin	
Supply voltage	9 V to 32 V	
Current consumption	35 mA typ. @ 12 V	49 mA typ. @ 12 V
Operating temperature range	-30°C to +70°C	
Water and dust protection	Equivalent to IP67	
Size	65 x 60 x 30 mm (including projection parts)	
Weight	128 g	

* These specifications are subject to change without notice.

Notes

- Related news release Announced September 3, 2018: "Epson's M-A352 Accelerometer Ideal for Structure Health Monitoring"
<https://www.epson-electronics.de/electronics/cms/index/446?id=6403>
- Related links
Please see the website below for further details about these products. Inquiries can also be made from this website. https://global.epson.com/products_and_drivers/sensing_system/

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