

Sensorex®

High performance digital & analogue servo- accelerometer SX41800



Meggitt (Sensorex) SX41800 is a high performance digital RS485 (MODBUS) servo-accelerometer designed to deliver an output proportional to acceleration.

The incorporation of an optical infrared sensor and an inertial mass with servo feedback, as well as optical position measurement and friction-free mounting, gives the SX41800 outstanding accuracy, long term stability and high reliability.

Unit can directly interface with any standard PC, with fully user-selectable acquisition and set-up parameters. Analog voltage output is also available. Moreover, an integrated auto-test function enables checks of servo loop and associated functions. Also, the damped servo mechanism being fully oil immersed, this device offers high resistance to shocks and vibrations.

Meggitt (Sensorex) SX41800 is also CE EN 50155 railway norm & CE EN 61326 norm qualified.

Principle:

A galvanometer located within the core of this sensor is sensitive to the effects of gravity. While subjected to acceleration, the inertial mass, mounted on a coil, tends to move with respect to the sensitive axis. This movement is then measured by an optical detector and converted into a current. The current brings the inertial mass back to its original position. By measuring the required current for maintaining pendulum stability, the servo-accelerometer produces an output that is proportional to the applied acceleration.

Characteristics

- Analog output ($\pm 5V$) & digital output (RS485)
- Specially designed for severe environments (shocks, vibrations, electromagnetic perturbations)
- Very long term stability
- Outstanding performances
- Conform to European Standard of Electromagnetic Compatibility
- Oil damped servo mechanism
- Autotest function

Applications

- Linear acceleration/ deceleration measurements
- Automatic train position control (ATC, ATP, ERTMS)
- Low frequency vibration measurements (seismic monitoring)
- Structure and building movement monitoring



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Specifications

Outputs	Voltage output $\pm 5V$ and digital RS485			
Power supply	9V to 30V			
Consumption	< 40 mA			
Bandwidth	0.01Hz to 3Hz adjustable			
Non linearity	< 0.02% of FS			
Cross axis sensitivity	< 0.005g/g			
Bias	< 0.02% of FS			
Bias stability over 1 year	$\pm 2.5mg$			
Analogue output sensitivity	$\pm 0.1g$ 49V/g	$\pm 0.25g$ 19.6V/g	$\pm 0.5g$ $\pm 9.8V/g$	$\pm 1g$ $\pm 4.9V/g$
Tolerance on sensitivity	0.2%			
Sensitivity stability over 1 year	$\pm 2500ppm$			
Resolution	Digital output : 0.002% of FS Analogue output : 0.01% of FS			
Electrical noise	< 1mVrms (3Hz-300kHz)			
Zero thermal drift	50ppm/°C (0.005% of FS/°C)			
Sensitivity thermal drift	100ppm/°C			
Output impedance	10 Ω			
Operating temperature	-40°C to +85°C			
Storage temperature	-55°C to +85°C			
Vibrations	10g / 20Hz to 2000Hz			
Shocks	500g / 1ms			
Protection	IP 65			

Selection guide

Range	Product code
$\pm 0.1g$	690041832
$\pm 0.25g$	690041842
$\pm 0.5g$	690041852
$\pm 1g$	690041862

Note: accelerometers are supplied with a 2 meter shielded cable and a 8 pin M12 connector.