

DIGITAL SERVO-ACCELEROMETER HIGH PERFORMANCE : SX41800 SERIES



SPECIFICATIONS

- RS 485 (MODBUS) & ± 5 V output
- Range ± 0.1 to ± 1 g
- Auto-test function
- Specially designed for use in severe environment (shocks, vibrations, electro-magnetic perturbations)
- Very high long term stability
- Outstanding performances
- Oil damped servo mechanism
- CE EN 50155 Railway norm & CE EN 61326 Norm qualified

GENERAL DESCRIPTION

The SX 41800 servo-accelerometer offers a ± 0.1 to ± 1 g measurement range. Its digital RS485 (MODBUS) output allows direct interfacing with a standard PC, and all acquisition & set-up parameters can be chosen by the user. An analogue ± 5 V voltage output is also available on one of the pins.

This accelerometer requires an unipolar 9-30V power supply, and delivers an output proportional to the acceleration.

Moreover, an integrated auto-test function allows checking of the servo loop and of most associated functions.

Because the whole mechanism is immersed in oil, this device presents a high resistance to shocks and vibrations, as well as an important damping factor. Use of an inertial mass with servo feedback, optical position pick-up and friction free mounting give the SX 41800 an outstanding accuracy and long term stability and high reliability.

OPERATING PRINCIPLE

The core of this sensor is a galvanometer, sensitive to gravity.

When the unit is subjected to an acceleration, the inertial mass, mounted on a coil, will tend to move with respect to the housing. This movement is then picked-up by an optical detector, and turned into a current which is re-injected into the coil. This current will bring the inertial mass back to the neutral position.

By measuring the current required to keep the pendulum stable, an output is obtained that will be proportional to the applied acceleration.

APPLICATIONS

- Linear acceleration / deceleration measures
- Automatic train position control (ATC, ATP, ERTMS)
- Low frequency vibration measurement (seismic monitoring)
- Structure monitoring

GENERAL SPECIFICATIONS (AT 25°C)

Characteristics	Digital output	Voltage output
Measurement range	± 0.1 ; ± 0.25 ; ± 0.5 & ± 1 g	
Power supply	9 to 30 V	
Consumption	< 40 mA	
Output signal	RS485 (Modbus)	± 5 V
Linearity error (least squares)	< 0.02 % of full scale (FS)	
Zero residual signal	0.02 % FS	
Electrical noise (3 to 300kHz)	0.005 % FS	< 1mV
Non repeatability	< 0.005 % FS	
Frequency response (at -3dB)	Adjustable until 10 Hz (according to range)	
Cross axis sensitivity (Y axis)	0.005 g/g	
Zero thermal drift	0.005 % of FS/°C	
Sensitivity thermal drift	0.01 % of signal/°C	
Auto test function	Yes	

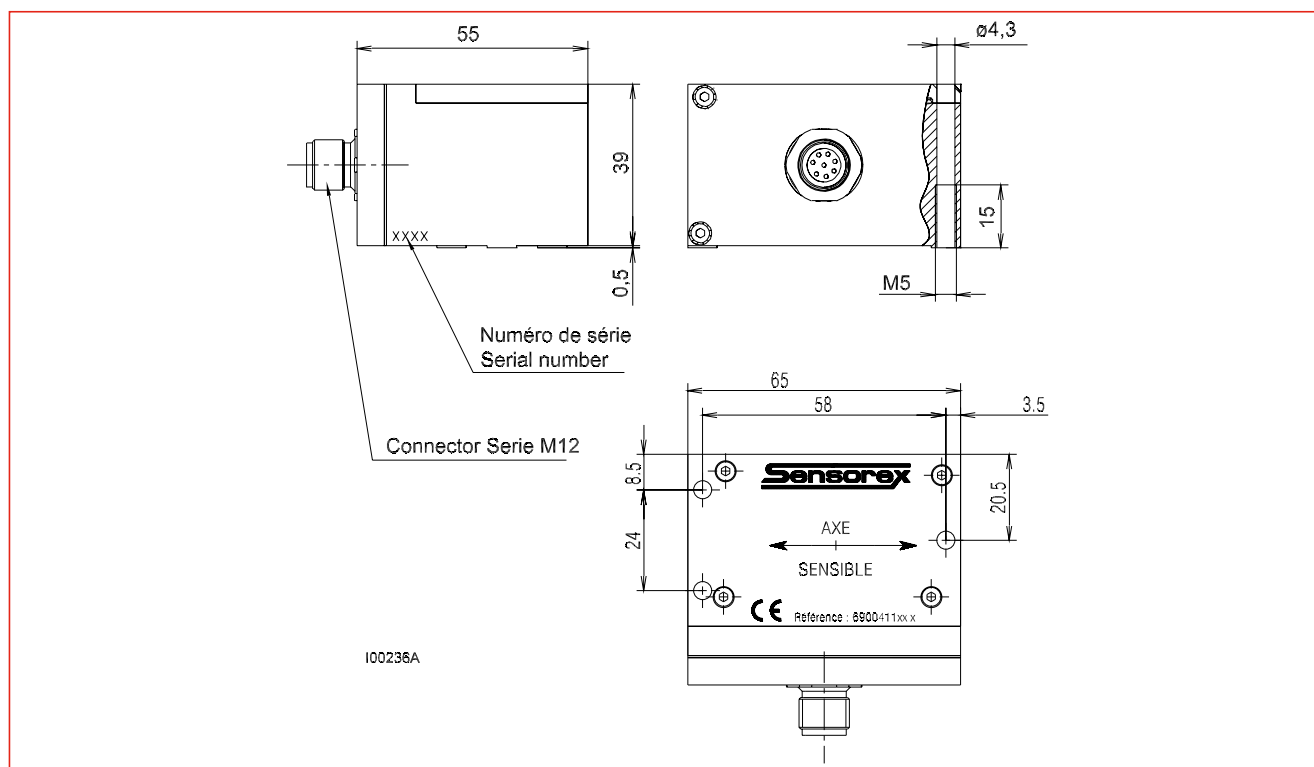
GENERAL SPECIFICATIONS (AT 25°C)

Environment	
Operating temperature	- 40 to + 85 °C
Storage temperature	- 55 to + 85 °C
Electro-magnetic compatibility	NF - EN 61326
Railway norm	NF - EN 50155
Vibration	10g rms from 20 to 2000 Hz
Shock	500 g / 1 ms
Protection	IP 65
Weight	300 grams (without cable)

SELECTION GUIDE

Range (g)	± 0,1	± 0,25	± 0,5	± 1
Reference	41832	41842	41852	41862

INTERFACE DRAWING



Nb : Standard mounting is horizontal, please consult us for vertical acceleration measurement.

CONNECTION

Wire	Function	Pin
Red	+ V power supply	8
Brown	0 V power supply	2
Green	Voltage output	3
Grey	Ground signal	5
Pink	N/A	6
Blue	A (RS 485)	7
Yellow	B (RS 485)	4
White	Ground (serial interface)	1

This SX 41800 is supplied with a 2m shielded cable + M12 connector 8 pins.