

SERVO INCLINOMETER/ACCELEROMETER SX 41200 SERIES



SPECIFICATIONS

- 6 ranges :

$\pm 3,00^\circ$	(0,05 G) - 0,5 ms ⁻²
$\pm 5,75^\circ$	(0,10 G) - 1,0 ms ⁻²
$\pm 14,50^\circ$	(0,25 G) - 2,5 ms ⁻²
$\pm 30,00^\circ$	(0,50 G) - 5,0 ms ⁻²
$\pm 45,00^\circ$	(0,70 G) - 7,0 ms ⁻²
$\pm 90,00^\circ$	(1,00 G) - 10,0 ms ⁻²
- High performance.
- Excellent temperature stability.
- Very high resistance to shock and vibration (French military specification GAM T 13).
- Rugged, watertight and miniature housing.
- Conforms to European Standard of Electromagnetic Compatibility.

GENERAL DESCRIPTION

The SX 41200 series inclinometer/accelerometer is a closed loop instrumentation transducer. The sensing element is a galvanometer pendulum associated with an optical position sensor. The instrument is powered by a single unregulated voltage (10 to 30 V). It features a bidirectional output ($\pm 5,0$ V).

Two versions are available :

- Output voltage proportional to the sine of the angle (component of the gravity acceleration).
- Output voltage proportional to the angle.

Together, the hardness of the housing and the hydromechanical damping allow it to be used under severe environments (shocks, vibrations).

PRINCIPLE OF OPERATION

When the instrument is submitted to a certain angle, alpha, the pendulous mass tends to move in the direction of the inclination. Its position is detected and converted into a current which feeds back to the galvanometer in order to bring it back to its initial position. This current, proportional to the measured gravity, passes through a precision resistor and provides the output voltage.

An output amplifier gives a low output impedance.

APPLICATIONS

Industry

- Alignment of structures (rolling mills, alternators, ...).
- Safety purpose (cranes, offshore platforms, ...).
- Levelling (roads, railway tracks, ...).
- Angular measurements..

Defense

- Positionning of shooting platforms, radar antennas, ...
- Detection of ship roll and pitch, ...

Railway

- ATC, ATP

GENERAL SPECIFICATIONS (at 25 °C)

Excitation voltage	10 to 30 V 35 mA max.
Output	± 5 VDC ± 5 % or ± 4 -20 mA (15 V power supply minimum and 300 Ohm max. load)
Non linearity error (least squares method)	$\pm 0,05$ % FSO (Full Scale Output) standard ; $\pm 0,02$ % FSO optional (except $\pm 90^\circ$ range)
Initial unbalance	$\leq 0,15$ % FSO
Non repeatability and hysteresis	$\leq 0,001$ % FSO
Output noise	≤ 2 mV rms
Output impedance	≤ 10 Ohm
Bandwidth	3 to 15 Hz according to range
Cross axis sensitivity	$\leq 0,005$ g/g
Housing/sensitive axis alignment	$\pm 0,5^\circ$
Thermal zero drift	$\leq 0,01$ % FSO/ $^\circ$ C
Thermal sensitivity drift	$\leq 0,01$ % reading/ $^\circ$ C
Weight	250 g

Environmental characteristics

Operating temperature range	- 40 to + 80 $^\circ$ C
Storage temperature	- 55 to + 85 $^\circ$ C
Sine vibrations	5 G eff. from 10 to 500 Hz
Shocks	200 G - 6 ms
Airplane transportation	- 40 $^\circ$ C - 265 mbar
Protection	IP65
Electromagnetic compatibility norms	NF EN 61326 (Industrial)
Railway applications	EN 50155

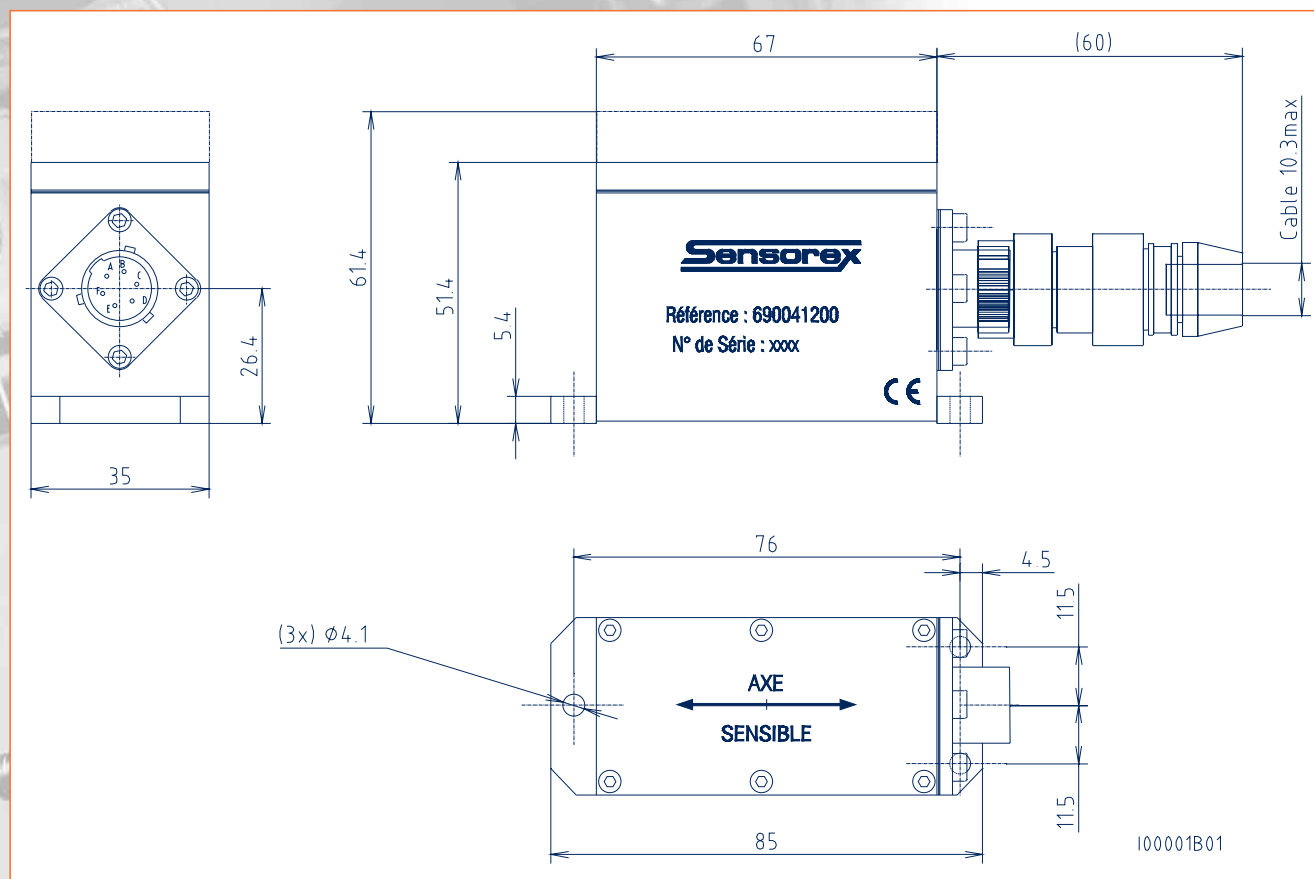
SELECTION GUIDE

Range	± 5 V output	4-20 mA output
$\pm 3^\circ$	41289	41285
$\pm 5,75^\circ$	41219	41215
$\pm 14,5^\circ$	41229	41225
$\pm 30^\circ$	41239	41235
$\pm 45^\circ$	41249	41245
$\pm 90^\circ$	41259	41255

OPTIONS

- 0,02 % linearity
- Special bandwidth.
- Zero offset (unipolar output).
- Special range and output signal.

INTERFACE DRAWING



CONNECTION

Connector HE301B (plug supplied)

- A : + V power supply
- B : 0 V power supply
- C : Signal output voltage (high)
- D : Signal output voltage (low)
- E : NC
- F : NC