SERVO INCLINOMETER/ACCELEROMETER
SX 41200 SERIES

SPECIFICATIONS

- 6 ranges : ± 3,00 ° (0,05 G) - 0,5 ms^{-2}
  ± 5,75 ° (0,10 G) - 1,0 ms^{-2}
  ± 14,50 ° (0,25 G) - 2,5 ms^{-2}
  ± 30,00 ° (0,50 G) - 5,0 ms^{-2}
  ± 45,00 ° (0,70 G) - 7,0 ms^{-2}
  ± 90,00 ° (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 (± 5,0 V).

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. - 4-20 mA version: 55 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)	± 0,05 % FSO (Full Scale Output) standard ; ± 0,02 % FSO optional (except ± 90° range)
Initial unbalance	≤ 0,15 % FSO
Non repeatability and hysteresis	≤ 0,001 % FSO
Output noise	≤ 2 mV rms

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GENERAL SPECIFICATIONS (at 25 °C)

Output impedance	≤ 10 Ohm
Bandwidth	3 to 15 Hz according to range
Cross axis sensitivity	≤ 0,005 g/g
Housing/sensitive axis alignment	± 0,5°
Thermal zero drift	≤ 0,01 % FSO/°C
Thermal sensitivity drift	≤ 0,01 % reading/°C
Weight	250 g
Environmental characteristics	
Operating temperature range	- 40 to + 80 °C
Storage temperature	- 55 to + 85 °C
Sine vibrations	5 G eff. from 10 to 500 Hz
Shocks	200 G - 6 ms
Airplane transportation	- 40 °C - 265 mbar
Protection	IP65
Electromagnetic compatibility norms	NF EN 61326 (Industrial)
Railway applications	EN 50155

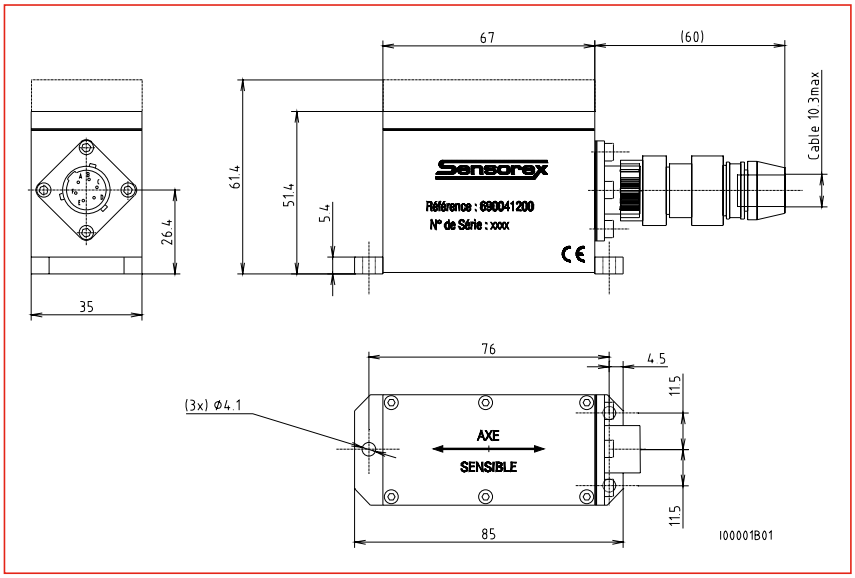
SELECTION GUIDE

Range	± 5 V output	4-20 mA output	Bandwidth
± 3°	41289	41285	4 Hz
± 5,75°	41219	41215	4 Hz
± 14,5°	41229	41225	5 Hz
± 30°	41239	41235	6 Hz
± 45°	41249	41245	8 Hz
± 90°	41259	41255	12 Hz

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

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