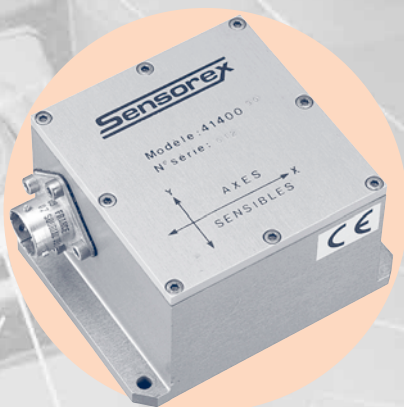


DUAL AXIS SERVO-INCLINOMETER/ ACCELEROMETER : SX 41400 SERIES



SPECIFICATIONS

- 6 ranges :

$\pm 3,00^\circ$	(0,05 G)	-	$0,5 \text{ ms}^{-2}$
$\pm 5,75^\circ$	(0,10 G)	-	$1,0 \text{ ms}^{-2}$
$\pm 14,50^\circ$	(0,25 G)	-	$2,5 \text{ ms}^{-2}$
$\pm 30,00^\circ$	(0,50 G)	-	$5,0 \text{ ms}^{-2}$
$\pm 45,00^\circ$	(0,70 G)	-	$7,0 \text{ ms}^{-2}$
$\pm 90,00^\circ$	(1,00 G)	-	$10,0 \text{ ms}^{-2}$
- High performance.
- Excellent temperature stability.
- Very high resistance to shock and vibration
- Rugged and watertight housing.
- Hybrid technology servo amplifier.
- Conforms to European Standard of Electromagnetic Compatibility.

GENERAL DESCRIPTION

The SX 41400 series inclinometer/accelerometer from Sensorex is a dual axis closed loop instrumentation transducer which can measure angles in two perpendicular directions. 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). The two outputs are proportional to the sine of the angle (component of the gravity acceleration). Its hard housing and the hydromechanical damping allow this transducer to be used under severe environments (shocks, vibrations).

PRINCIPLE OF OPERATION

When the instrument is submitted to a certain angle, 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

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

GENERAL SPECIFICATIONS (at 25 °C)

Excitation voltage	10 to 30 V 60 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)	$\pm 0,05$ % Full Scale Output (FSO) 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
Non perpendicularity of axis	$< 1,0^\circ$
Weight	500 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)

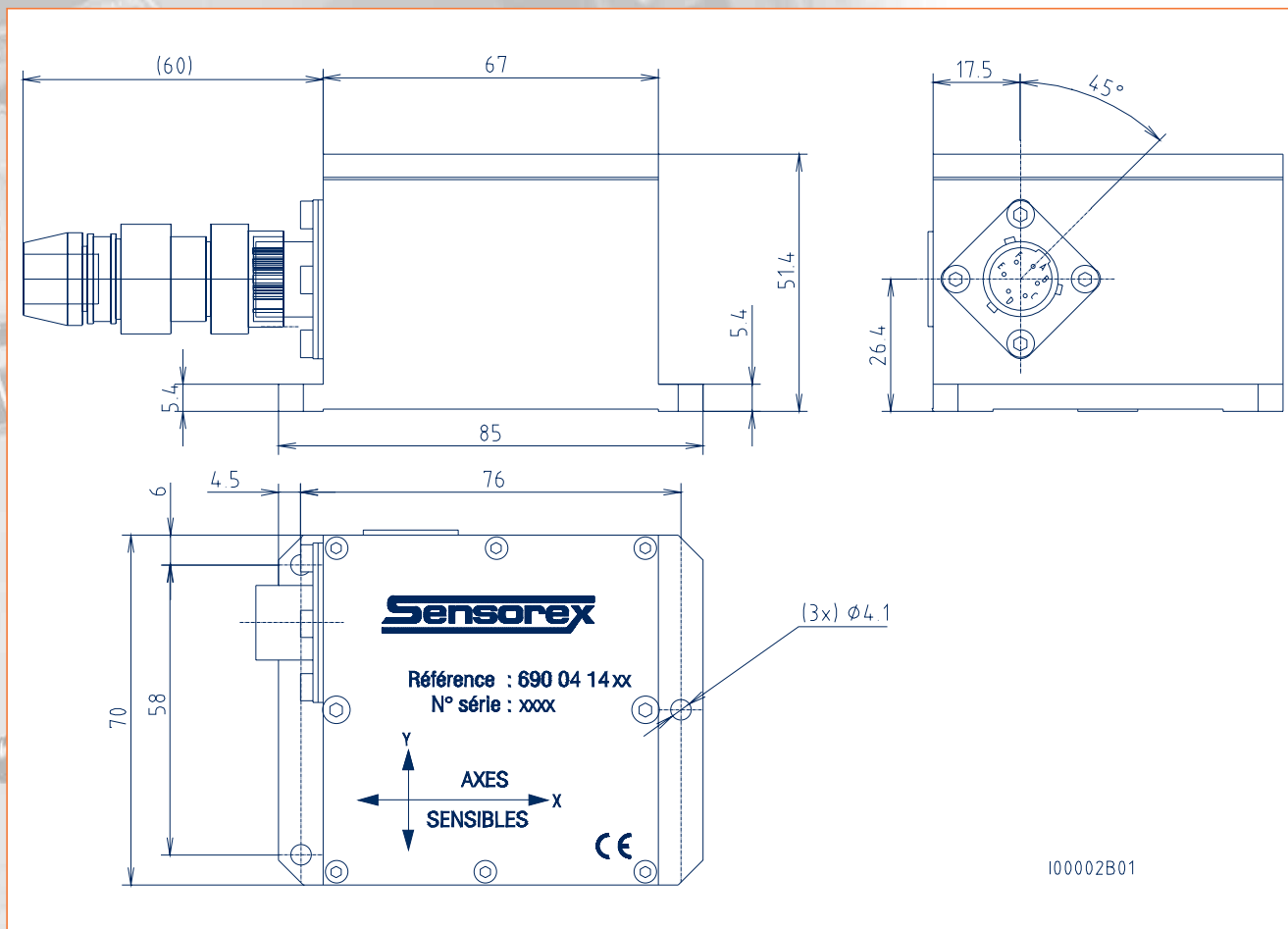
SELECTION GUIDE

Range	± 5 V output	4-20 mA output
$\pm 3^\circ$	41489	41485
$\pm 5,75^\circ$	41419	41415
$\pm 14,5^\circ$	41429	41425
$\pm 30^\circ$	41439	41435
$\pm 45^\circ$	41449	41445
$\pm 90^\circ$	41459	41455

OPTIONS

- 0,02 % linearity.
- Special bandwidth.
- Special range and output signal.
- Shifted initial unbalance (unipolar output).
- Integrated temperature sensor.

INTERFACE DRAWING



CONNECTIONS

Connecteur HE301B (plug supplied)

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