queensgate
a brand of PRIOR

More to Prior than meets the eye

NS-2000

Sensor Controller

The NS2000 is a single channel stand-alone electronic module for driving the NX and NC NanoSensor series. It operates by measuring the change in capacitance of a parallel plate capacitor and outputs an analogue voltage proportional to the NanoSensor gap.

The voltage output varies linearly between -5V and +5V as the sensor gap changes from 50% to 150% of the nominal NanoSensor gap, this scaling is user settable.

Its compact size, stand alone operation and high resolution makes this ideal for upgrading existing systems where Nanopositioning is required.

Key features

- Sub-nanometre position resolution
- Zero hysteresis
- User adjustable measurement bandwidth (50Hz, 500Hz or 5kHz)
- User adjustable amplifier gain (for applications that do not use the full measuring range)
- Selectable long ('-L') or short ('- S') measuring range (2pF or 10pF capacitance)
- Compact stand-alone module

Applications

When combined with Nanosensors

- Metrology
- Precision engineering
- Vibration measurement
- Building custom closed loop Nanopositioning systems

NS-2000
Sensor Controller

Technical Specifications

Parameter	Value	Unit	Comments
State physical			
Size (Width x Depth x Height)	218 x 77 x 34	mm	
Power supply	±15 ±1	V	
Current requirement	70	mA Typ	
Sensor output	-5 to +5	V	Note 1
Dynamic physical (Typical values)			
Scale factor	0.1 or 0.05 or 0.01	GV^{-1}	
Noise level (-S)	<0.05	$ppmHz^{-1/2}$ rms	Note 2
Noise level (-L)	<0.15	$ppmHz^{-1/2}$ rms	Note 2
Thermal drift	5	$ppmK^{-1}$ Typ	Note 2
Warm-up time	10	Minutes	
Warm-up drift	80	ppm	Note 2
PS rejection	10	$ppmV^{-1}$	Note 2
Linearity error	<0.2	%	Note 3
Bandwidth	50, 500, 5000 ±10%	Hz	

Notes
1. Greater range is available at reduced performance.
2. ppm refers to parts per million of the nominal gap.
3. Linearity error depends on the accuracy of the sensor installation.
   Linearity errors as low as 0.02% can be achieved.
   Please contact Prior Scientific/Queensgate Instruments Ltd. for further details.

Ordering Information

Part Number	Description
QGNS-2000	NS-2000 Series Sensor Controller

PRIOR Scientific

bsi. ISO 9001 Quality Management FM 83854

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