

## NF1000: HIGH PRECISION MEMS NORTH SEEKER SENSOR

### ■ PRODUCT DESCRIPTION

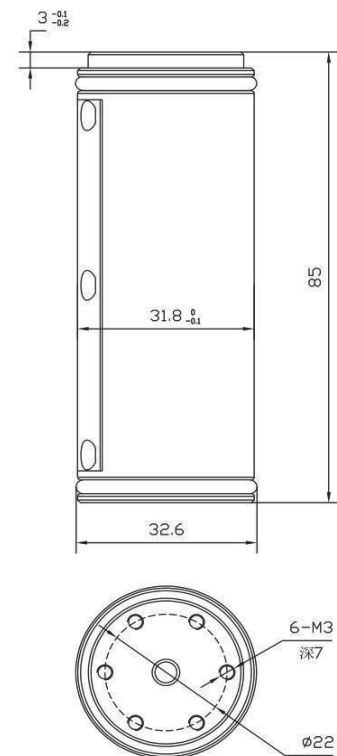


The NF1000 MEMS inertial north finder is a strapdown north finding solution composed of high-performance MEMS gyroscope and MEMS accelerometer, which can directly measure wellbore inclination angle and tool face angle. The three-axis MEMS gyroscope is sensitive to the angular motion of the carrier, and the three-axis MEMS accelerometer is sensitive to the linear acceleration of the carrier. The module internally compensates for the zero position, scale factor, non-orthogonal error, and acceleration related terms of all temperature parameters, which can maintain high measurement accuracy for a long time.

### ■ PRODUCT MAIN SPECIFICATION

MEMS gyroscope	
Range (°/s)	±200
Zero position (°/h, 1 $\sigma$ )	≤0.2
Zero bias stability (°/h, 10s smooth)	≤0.1
Zero bias instability (°/h, Allan)	≤0.02
Zero bias repeatability (°/h)	≤0.1
Angle random walk (°/√h)	≤0.01
Scale factor nonlinearity (ppm)	≤100
Cross coupling (rad)	≤0.001
Bandwidth (Hz)	≥50
MEMS accelerometer	
Range (g)	±30
Zero position (mg, 1 $\sigma$ )	≤1
Zero bias stability ( $\mu$ g, 10s smooth)	≤100
Zero bias stability ( $\mu$ g, allan)	≤50
Zero bias repeatability ( $\mu$ g)	≤100
Speed random walk (mm/s/√h)	≤40
Scale factor nonlinearity (ppm)	≤500
Cross coupling (rad)	≤0.001
Bandwidth (Hz)	≥50
Navigation accuracy	
North finding accuracy (°, 1 $\sigma$ )	1secL (L represents latitude)
Horizontal attitude alignment accuracy (°, 1 $\sigma$ )	zero point one five
Heading maintenance accuracy (°, 1 $\sigma$ )	0.5°*h
Horizontal attitude maintenance accuracy (°, 1 $\sigma$ )	0.2°*h
Attitude tracking measurement accuracy (°, 1 $\sigma$ )	zero point one
Electrical/mechanical interface	
Power supply (V)	5~12
Power (W)	≤1.5
Start time (s)	≤2
Communication interface	1 RSS-422, 1 synchronous output
Update rate (Hz)	two hundred
Size (mm × mm × mm)	Φ31.8 × 85
Weight (g)	≤400

### ■ PRODUCT DIMENSION



- Orientation in complex environments, like mines
- Individual seeking north
- Underwater navigation
- Petroleum inclinometer and north search
- Pipeline measurement