CODEVINTEC
Tecnologie per le Scienze della Terra e del Mare

45° 27' 39.384" N
9° 07' 30.145" E

Lily Borehole Tiltmeter
Self-Leveling

The LILY Self-Leveling Borehole Tiltmeter is designed for volcanic and tectonic research and for monitoring of hydraulic fracturing and other subsurface processes in the oil and gas industry.

Features & Benefits

- LILY is the culmination of over 25 years of experience in the fields of instrumentation and geophysics by the engineers and scientists at Jewell Instruments. Its small diameter and high-pressure stainless steel housing give it ruggedness and versatility for demanding field projects.

Jewell Instruments

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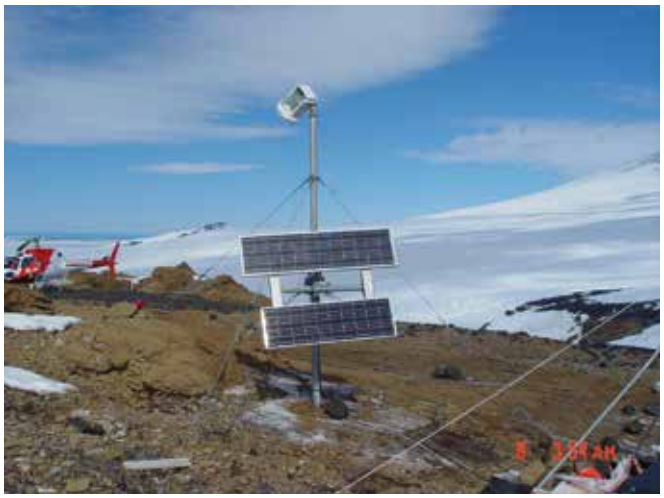
Codevintec Italiana srl, Milano

Designed for volcanic and tectonic research

The dual-axis tiltmeter senses angular movement in two orthogonal vertical planes using precision electrolytic tilt sensors. The digital electronics convert the tilt signals to an easily recorded RS232 and RS422 data stream consisting of tilt, azimuth, temperature, serial number and clock time. Data output in NMEA 0183 format is a standard feature.
The LILY tilt sensors can self-level on command through a range of ±10 degrees and have <5 nanoradians resolution over a dynamic range of ±330 microradians. LILY incorporates an innovative new design* that achieves high mechanical stability, necessary for stable long-term measurements, at a much lower cost than was previously possible in instruments of this type.



Photos: courtesy INGV - Catania

Technical specifications

Channels	X tilt, Y tilt, azimuth, temperature
Resolution	< 5 Nano radians
Repeatability	Same as resolution under static conditions
Measurement range	±330 µradians
Self leveling range	± 10 degrees
Linearity	0.2% of full span
Frequency response	< 1 Hz
Temperature coefs.	Span: KS = +0.02%/°C, Zero: KZ = ±3 µradians/°C, typical
Azimuth detection	On-board magnetic compass, 0° to 360° output
Sample rates	User-selectable from 10/second to 1/hour
Data storage	2 Megabytes of nonvolatile Flash Memory (64,000 samples)
Data formats	Formats: NEMA XDR, Trimble proprietary, Ashtech compatible, Simple (x, y, temperature, serial number)
Serial output	RS232 and RS422. Baud Rate: 9600, 19200 (default), 28800, 57600, 115200, 230400
Real-time clock	Present. Accuracy better than 10 minutes/ year, timestamp output
Power requirements	7 to 28 VDC @ 30 mA when sampling or transmitting, < 10 mA in sleep mode, sampling 1/minute, 250 mV peak-to-peak ripple max, reverse polarity protected
Surge protection	All input and output lines are tranzorb protected
Connections	8-pin high-pressure neoprene connector standard, other connections available
Environmental	-8°C to +85°C operation and storage. -25°C version available. Pressure rating: 207 bars (3000 psi) *Titanium high pressure-applications option available at request
Dimension & weight	51 mm (2 inches) diameter x 915 mm (36 inches); detectable handle is 150 mm (6 inches) long. 4.5 kg (10 lb.)
Materials	304 stainless steel, nonmagnetic *Titanium available at request

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