

DETECT 6EX

Features:

- ▲ 127mm (5 inch) stroke length - 6 point extensometer
- ▲ High accuracy (0.5% FS) +resolution (0.01% FS) using [DETECT](#) technology.
- ▲ Single rod design reduces manufacturing costs.
- ▲ Inherently digital
- ▲ Microcontroller provides output in real world units
- ▲ Microcontroller stores sensor ID & Calibration Coeffs. in FLASH memory
- ▲ Smallest electronics head (25mm diameter 150mm long)
- ▲ On-board digital temperature sensor for accurate compensation
- ▲ Non-contact technology provides immunity to hostile environment
- ▲ High survivability following blasts and vibration
- ▲ Easy to install and maintain. Arrives on site fully assembled.
- ▲ Low cost readout unit
- ▲ Guaranteed lowest price in class

YieldPoint's unique 6-Point Extensometer (DETECT-6EX) combines a novel single-rod design for improved accuracy and digital; signal processing to result in dramatically improved reliability compared to similar priced existing technology. This high precision digital instrument comprises 6 down-probe long range eddy current displacement sensors and an on-board digital temperature sensor.

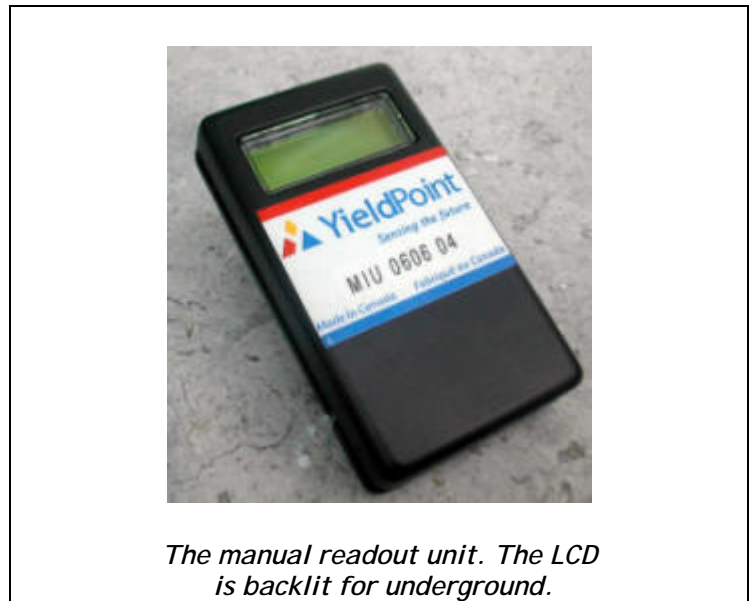
The inherently digital nature of the signals eliminates the necessity for expensive analog-to-digital conversion and results in low cost readout unit that reads data directly in real world units (mm and °C). The sensor output is a 1-wire frequency modulated (CMOS and TTL compatible) digital signal which can be read by a low cost electronic meter or tachometer, and can be routinely interfaced with digital channels on PLCs. The signals themselves are robust (0-5V square waves) can be transmitted over 1000ft of lead-wire, and if broken the lead-wire can be twisted and taped together. Frequency modulation is widely recognized as preferable for the harsh mining environment where amplitude signals are prone to inaccuracies. Both the resolution (<0.01mm) and accuracy (<0.50%) are an order of magnitude better than for similarly priced alternatives. The [single rod](#) design that avoids the translation results in a further enhancement of the instrument's accuracy.



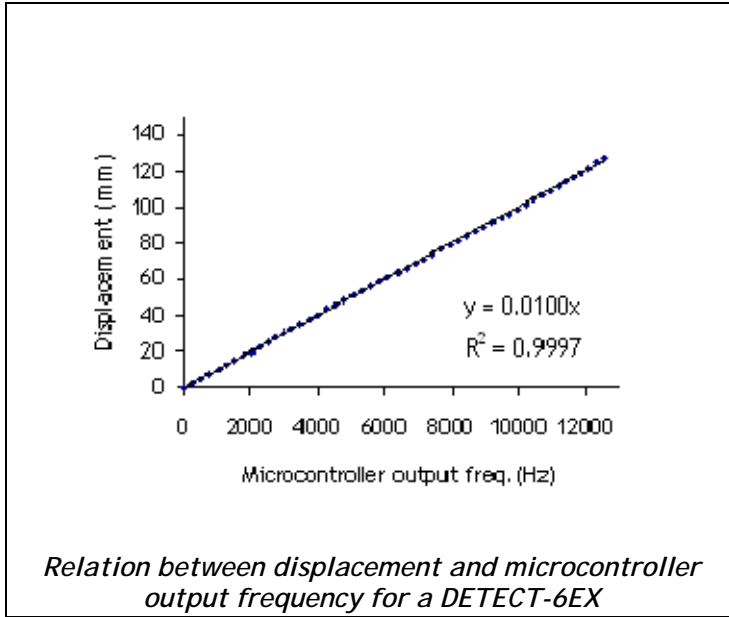
The 6EX can be coiled to a 1.25m diameter

Manual Readout

Readout can be made using YieldPoint's low cost manual interrogation unit, with a backlit LCD. An on-board microcontroller performs diagnostics on the leadwires, recognizes the sensor type and ID and outputs the displacement and temperature data in mm and °C. A jumper inside the unit can be used to configure the unit for either SI or imperial units.



The manual readout unit. The LCD is backlit for underground.



Since [DETECT](#) technology involves non-contact sensing the design is inherently waterproof; therefore it is especially suited for monitoring the displacement of backfill or pastefill. The DETECT-6EX is suitable for embedment in concrete structures.

The 6EX is typically grouted in a 50mm (2") percussion borehole. The maximum length of the instrument is 15m (50ft). If necessary multiple sensors can be "decked" in the same hole.

Automated Data Retrieval

Clusters of sensors (4 per Slave) can be polled YieldPoint's DESTINY (Digitally Enabled Sensor Transducer and Instrumentation Network from YieldPoint) technology. DESTINY/IP is a low cost, low maintenance RS-485 sensor network (modbus protocol), that interfaces with ethernet running TCP/IP. Other versions of DESTINY can interface with the pre-existing leaky feeder wireless or even an ESG seismic system.

This solution can save time and money by transmitting data directly to a central control room or an engineer's desktop computer.

Applications

DETECT-6EX extensometers provide detailed information concerning the stability of small, medium and large scale underground excavations. The 6EX is primarily designed as a low cost solution to monitor the stability of underground stopes (hanging walls, backs and brows), crusher stations as well as detailed monitoring of garages, shaft stations and drift intersections.

Specific applications include:

- ▲Monitoring stope HWs
- ▲Monitoring stope backs
- ▲Monitoring brows
- ▲Monitoring crusher stations
- ▲Monitoring intersection stability
- ▲Monitoring shaft stability
- ▲Monitoring pillar stability
- ▲Mining under backfill

Specification

Dimensions: up to 15m (50ft) length.

Borehole size: 50mm+

Core Technology:

Long range eddy current displacement sensor (oscillation Frequency 100 - 12,700Hz @ 100Hz/mm)

Temperature sensor (oscillation frequency 10Hz/°C)

Output Signal:- CMOS + TTL compatible 0-5V square wave train.

Displ. Range (F.S.): - 127mm, 101.6mm or 50.8mm.

Displ. Resolution: - 0.01mm with manual readout

Displ. Linearity: - typically 0.25% F.S.

Displ. Accuracy: - better than +/- 0.5mm.

Temp. Range: -40 to 125°C

Temp Accuracy: +/- 2°C -Digitally trimmed at 0°C and 25°C

Temp Resolution: 0.1°C

Temp coeff : <0.01%F.S./°C (0-50°C)