

DETECT GMM

Features:

- ▲ 125mm (5 inch) stroke length
- ▲ High accuracy (0.5% FS) +resolution (0.01% FS) using DETECT technology.
- ▲ Inherently digital
- ▲ Microcontroller provides output in real world units (mm and °C)
- ▲ Microcontroller stores sensor ID & Calibration Coeffs. in Flash EEPROM
- ▲ Digital temperature sensor for accurate compensation
- ▲ Immunity to hostile environment
- ▲ High survivability to shock and vibration
- ▲ Easy to install and maintain
- ▲ Low cost readout unit which detects damaged leadwires
- ▲ Easy to interface with PLC's
- ▲ Competitively priced

YieldPoint's GMM (Ground Movement Monitor) uses proprietary DETECT technology to produce a high precision digital instrument comprising a long range eddy current sensor and a digital temperature sensor. An on-board microcontroller provides temperature compensation and outputs a digital signal. Both the resolution (<0.01mm) and accuracy (0.5% linearity typical) are an order of magnitude better than for similarly priced technology. The inherently digital form of the signals eliminates the necessity for expensive analog-to-digital conversion and results in low cost readout unit that outputs data in real world units (mm and °C). Readings can also be made with a CMOS tachometer or interfaced directly to the digital channels of a PLC.

A Frequency modulated output signal is widely recognized as preferable for the harsh mining environment. The signal can be routinely transmitted over 1000ft of lead-wire.

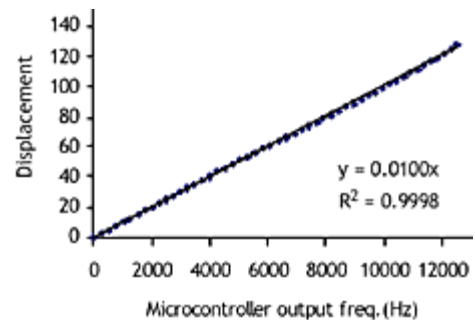
Manual Readout

Readout can be made using YieldPoint's low cost manual readout box, which 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 DETECT GMM and manual readout unit. The output is directly in mm with a resolution of 10 microns

The DETECT-GMM is easy to install by attaching to a 5/8" rock-bolt, but can be used in a wide number of other applications. The digital temperature sensor, besides providing temperature compensation, can provide information concerning the curing of concrete or backfill.



The relation between displacement and microcontroller output frequency for a DETECT-GMM

Applications

- ▲ Monitoring tunnels and drifts.
- ▲ Monitoring FW/HW access
- ▲ Monitoring intersections and wide spans
- ▲ Monitoring brows
- ▲ Monitoring fill mats
- ▲ Monitoring bulkheads

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.

Specification

Borehole size: 30mm+

Range (F.S.) - 125mm, 100mm or 50mm. Temp: -40 to 125°C

Core Technology

long range eddy current sensor (oscillation Frequency 100 - 12,600Hz @ 100Hz/mm)

temperature sensor (oscillation frequency 10Hz/°K)

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

Displ. Range (F.S.) - 125mm, 100mm or 50mm.

Displ. Resolution - 0.01mm with hand held readout

Displ. Linearity - typically 0.25% F.S

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

Temp. Range -40 - 125°C

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

Temp Resolution 0.1°C

Temp coeff for eddy current sensor : <0.01%FS/°C (0-50°C)