The SMART MPBX

Our integrated electronic readout head, standard on all SMART instruments, is small enough to be recessed into a 50 mm diameter borehole. The SMART MPBX arrives ready to install. Uncoil, wedge in the hole, and grout. That's it.

The SMART MPBX

Since its introduction in 1998, the SMART MPBX (**M**ulti**P**oint **B**orehole e**X**tensometer) has revolutionized the extensometer market for geotechnical applications, making Mine Design Technologies a world leader in this field.

MDT's SMART MPBX is a flexible borehole extensometer with up to six anchor points and an integrated electronic readout head. The sensor and head are small enough to be recessed into a 50 mm (2 inch) diameter borehole.

Fabrication

The SMART MPBX is assembled in flexible fibreglass and can be coiled on a 2.4 m (5 ft) diameter. Fibreglass rods are anchored at user-specified distances along the instrument, and lengths of up to 60 m (197 ft) can be manufactured. However, the compact design of the instrument head allows multiple instruments to be 'decked' in the same borehole, allowing better resolution (i.e. shorter distance between anchor points) for long boreholes.

The SMART MPBX

Installation of the SMART MPBX is very similar to that of a cable bolt. It will fit comfortably in a 50 mm (2 in) diameter percussion drilled borehole.

Our compact head eliminates the need for reaming borehole collars or drilling oversized boreholes as required with other extensometers. The MPBX is then grouted in place using either collar or end (toe) grouting. The leadwires are enclosed in a UV sensitized high density polyethylene (UV-HDPE) cover, which allows the leadwires to be protected by shotcreting, if required. MDT personnel can be contracted to assist with training and installation.

The instruments can be read using several methods: our battery-powered wireless acquisition system from Newtrax (www.newtrax.com), our battery-powered SMART Log datalogger, our wired SMART Remote system, or using the manual handheld readout box.

Mine Design technologies

www.mdt.ca

The SMART MPBX

Key Advantages

- Can be monitored *wirelessly*
- The SMART MPBX arrives on site ready to install – no assembly is required.
- The SMART MPBX head is fully recessed into the borehole and the readout wire can be protected by shotcrete. With this configuration, the instrument is virtually immune to damage from blasting and regular mine activities.
- The SMART MPBX is an inexpensive, yet tough, ground movement monitoring instrument with up to six anchor points at locations specified by the user.
- The data generated is easily interpreted.

Engineering Support

The staff at MDT has extensive backgrounds in rock mechanics and geotechnical design, specializing in instrumentation, ground support, and data acquisition. Along with our partner company MD Engineering (www.mdeng.ca), we can provide complete service for our instrumentation, including recommendations for particular instruments, design of instrumentation programs, data acquisition systems, and data analysis and interpretation.

The SMART MPBX Specifications

Length up to 60 m
Diameter 33 mm
Weight 0.5kg/m
Borehole diameter 50 mm minimum
Transducer Linear potentiometers
Stroke 31.75, 63.5, 127, 190.5, 254, or 508 mm
Linearity +/- 2% (1% available upon request)

MPBXs can be used to monitor movements around large underground caverns

Data Acquisition and Analysis

Data from the SMART MPBX can be stored and analyzed in one location using our SMARTRemote and MineMonitor software. If a wireless system from Newtrax (www.newtrax.com) is used then the raw data will be available via the web interface to anyone with access.

The output corresponding to the displacement from the anchor points can be plotted with time to indicate the rate at which the rock mass is moving. By comparing the relative movement between adjacent anchor points, the location of cracks and the extent of the movement can be determined. Since the instrument is fully grouted, there is no risk of anchor slip.

To Order

Please specify:

- MPBX length
- Number of anchor points (1-6)
- The location of the anchor points relative to the instrument head
- Leadwire length
- Potentiometer length

www.mdt.ca

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