

The DEI PLUS is the latest in a long line of rotary blast hole drill monitoring products from Thunderbird. It is a completely redesigned version of the Drilling Efficiency Indicator (DEI), which was introduced to the mining industry in 1982.



The DEI has proven during the past two decades to be an extremely useful and reliable tool for the driller. Many of the systems sold during the early 1980s are still operating at surface mines around the world. The new DEI PLUS has been designed to provide the drill operator with a great deal more information than is available from the DEI, which will further enhance the drill performance. The DEI PLUS is plug compatible with the DEI so that an upgrade can be performed in a matter of minutes. In addition, DEI PLUS can be easily upgraded to a DEI+LOGGER for the on-board storage of drilling activities and information.

The DEI PLUS uses the latest in display technology to provide an extremely rugged, sunlight-readable, crisp display. The electronics have been designed to allow the DEI PLUS to store data and conduct extensive on-board calculations. The system has built-in diagnostics and troubleshooting to provide ease of use and training.

### DEI PLUS Screen Features

#### *Drill Screen*

Depth, Rate of Penetration, Target Depth, Drill Time and Estimated Time to Complete the hole. A bar graph shows the target and drilled depth. A second screen graphically displays ROP vs. Depth.



#### *Pipe-in-Hole*

This unique warning feature prevents drill component damage caused by tramping while drill pipe is still in the ground.



#### *Previous Hole*

The operator has access to all of the above data for holes previously drilled.

## ***Current Shift Statistics***

Total Number of Holes, Total Depth, Total Drill Time, Average Depth, Average ROP, and Average Hole Drill Time.



## ***Previous Shift Statistics***

This same data is available for previous shifts to provide the operator with a performance reference.

## ***Production Statistics***

The system will also accumulate production information until reset. This data includes Total Number of Holes, Total Depth, Average Depth, Average ROP, and Average Hole Drill Time.



- ***Other Features/Screens Include:***
  - Target depth settings
  - ROP and depth alarms
  - Calibration instruction
  - Diagnostics and troubleshooting
  - Help screens
  - Spare parts lists

## **DEI+LOGGER**

The DEI PLUS can be upgraded with software to incorporate features previously available in Thunderbird's Stratalogger. The data entry is via the DEI PLUS display keys. Up to 1 MB of data can be stored. Logged data can be off-loaded from DEI+LOGGER with PDA or radio telemetry.

The following data entry screens are provided:

- Hole Number and Pattern Number
- Delay Codes
- Operator I.D
- Drilling Conditions
- Bit/Hammer, Stabilizers, Drill Steel, Subs, etc. by serial number

## **DEI PLUS TECHNICAL SPECIFICATIONS**

<b>Operating Temp:</b>	-40°C to +55°C
<b>Storage Temp: -</b>	-55°C to +70°C
<b>Input voltage:</b>	Machine 24 VDC
<b>Calibration:</b>	Via onboard display
<b>Display size:</b>	115mm x 86mm (4.5" x 3.4") ¼ VGA electro-luminescent display
<b>Resolution:</b>	320 x 240 pixels
<b>Viewing angle:</b>	160° minimum
<b>Display color:</b>	High contrast Amber
<b>I/O (12):</b>	Power; Optical Encoder; RPM Sensor; Bit Air Switch; 4 ea. RS-232 Ports; Rotary Torque; Pulldown; Remote Zero Hole; Relay for Alarms.
<b>Display housing:</b>	Sealed Aircraft-grade aluminum.
<b>Housing size:</b>	Width x Height x Depth 184mm x 159mm x 108mm (7-1/4" x 6-1/4" x 4-1/4")
<b>Display weight:</b>	2.27 Kg (5.0 lbs)

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