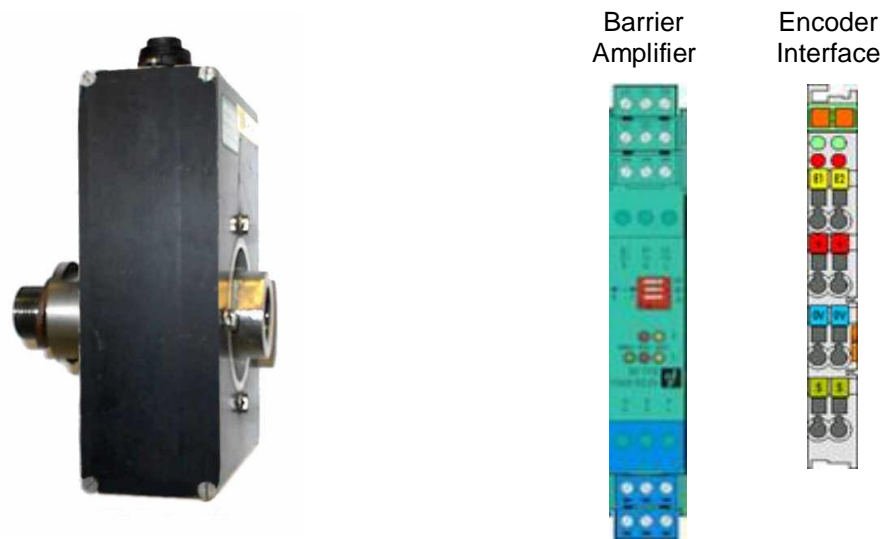


RATE OF PENETRATION (B10)



Rotary Encoder to Register Travelling Block Movements

- Hook position
- Depth
- ROP per m / 0.2 m
- Drilling rate
- Travelling block speed
- Acceleration
- Bit run time
- Bit depth
- Draw-works speed
- Time for tripping operations

Parameter Specifications

- Measuring range 25 pulses per rotation
- System accuracy ± 1 cm vertical movement of the travelling block
- System resolution 1/25 of the draw-works drum revolution

Principle of Operation

The rotary encoder is fitted to the main drive shaft of the draw-works. The encoder produces pulse signals in correspondence to the drum rotation and speed. The rotations of two separate pulse discs are registered inductively by proximity switches. A 90° signal phase shift enables the indication of the actual state of motion.

Maintenance

Once the system is set up and calibrated, generally no maintenance will be required.

Visual routine checks (daily); check the sensor positioning weekly or after each tripping operation, re-adjust if necessary

Data Processing

The powerful DMS software records, visualizes and displays data on different locations on the well site.

The DMS submits the setting of individual alarms for “High” and “Low” limits.

Acoustic alarms can be set at selected intervals, e.g. to indicate that a lag corrected cuttings sample is due.

Technical Specifications

SENSOR B-10

- **Type or model:** Two-channel rotary encoder
- **Certified for hazardous area:** Intrinsically safe to EEx ia IIC T6
- **Certificate of conformity:** PTB No. Ex-83/2022X
- **Operating temperature range:** -25 °C ... +100 °C
- **Supply voltage:** 8 V DC
- **Installation point :** Fitted to the main drive shaft of the draw-works drum

Evaluation Unit

- | | | |
|-------------------------------------|---|---|
| | Impulse Counter B10 | Ex-Barrier Amplifier with BUS System |
| ▪ Type or model | Two-channel rotary encoder - Inputs [EEx ia] IIC | Barrier Amplifier - EEx ia IIC |
| ▪ Certificate of conformity: | BASEEFA No. Ex-93C2412 | TÜV 99 ATEX 1499 X |
| ▪ Signal output : | 4 – 20 mA | 4 – 20 mA |
| ▪ Supply voltage: | 8 V DC | 24 V DC |
| ▪ Bus System: | Not applicable | Field bus independent connectors |
| ▪ Installation: | Logging unit; plugged into 19-inch frame (DMS rack) | |