

Absolute vs Incremental Magnetic Encoders

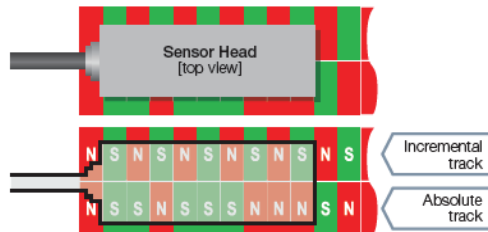
COMPARISON OF ABSOLUTE AND INCREMENTAL MEASUREMENT SYSTEMS

What is the difference between absolute and incremental magnetic encoders?

How it works

Absolut

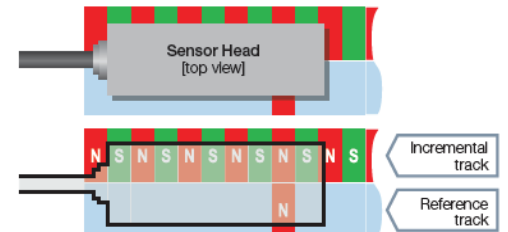
The sensor head glides over the tape which is encoded with magnetic poles. Internal magnetic sensors detect the encoded information – similar to an audio cassette tape.



The measuring system returns the absolute value of the current position. This absolute position information is immediately available even after power loss, without homing.

VS

Incremental



The measuring system returns the relative value of the current position. It delivers positive or negative pulses (increments), according to the direction of travel. After power-loss the current position is not known, so homing is required.

Strengths

- Absolute position value available immediately after power-on; no homing required
- Diagnostic information increases position data reliability
- Synchronized data protocol enables real-time applications

- Long measuring length, theoretically infinite
- Lower cost
- Compatible with nearly all controllers

Challenges

- Higher overall cost than incremental systems
- Usually higher mechanical accuracy required
- Maximum measuring length dependent upon track coding scheme

- Homing required to identify current absolute position
- Limited diagnostic information
- Lower position data reliability

Common applications

Absolute Linear Encoders

- Pick & Place systems
- Dispensing systems
- X-Y-Z machine axis positioning

Inkrementelle Systeme

- Automated assembly and packaging
- Storage and retrieval systems
- Motion systems – speed control

Typical examples



BML S1G Absolute Magnetic Linear Encoder



BML S1F Incremental Linear Encoder