

# Absolute-ENCODER Z6

Electronically readable  
mechanical index  
for diaphragm meters



## Applications

The Absolute-ENCODER index is an ideal combination of mechanical and electronic indexes for the improvement of data quality between gas meters and follow-up system

## Brief information

The main principle of this technology is a touchless opto electronic scanning process, which registers the position of each of the individual drums on the mechanical index. The readout process of the Absolute-ENCODER is thus the legal equivalent of a manual, or visual, readout of the mechanical index on site. The index does not need a battery or its own power supply as the reading device supplies the energy required at the time of reading only. The type of interface can be selected as required and can thus be adapted to suit the application at hand.

**Operation:** The individual drums of the mechanical index are scanned opto-electronically. For this purpose, each drum has three slots, which are of different lengths and are ordered asymmetrically. Five beams of light then scan the slots to determine their position. The slots are ordered in such a way that every position of the drum and thus the number on each drum is clearly identifiable.

The light barriers consist of phototransistors, LEDs and photoconductors, which are all scanned and evaluated one after the other.

This process is controlled by a micro-controller. The micro-controller exactly defines the position of each individual drum and transmits this position as part of a pre-defined protocol to the relevant reading device (e.g. RF based AMR transponder, temperature corrector, data logger or Bus system). After finishing the reading process, the Absolute-ENCODER does not require any electrical power until the next readout process starts.

In addition to the position of the drums, the protocol also transfers their value. This means that it is no longer necessary to parameterise the reading device with pulse value, meter serial number etc, which was always the case when reproducing the volume via pulses. This 'plug-and-play' principle eliminates the need to set parameters and any errors that might occur in there.

**Interface variations:** The Absolute-ENCODER currently has two different interface variations with which it can be connected to a number of different devices.

**M-BUS** - The M-BUS interface is particularly suitable for connecting several meters to a data collection system (M-BUS Master) in the field of industrial or residential metering. The M-BUS is a cost effective two-wire bus system for metering data in accordance with EN 13757.

**SCR \*** - This low-power interface works with a protocol in accordance with IEC 62056-21 (formerly IEC 1107) and is already quite common in water meters. With the help of a small, separate, external circuitry the SCR interface can be made fully compatible with the CLO interface to IEC 62056-21.

## Main features

- Opto-electronic readout of the mechanical original meter reading
- Remote data readout of the mechanical index
- No power supply required
- PTB approval to EC 71/318
- PTB approval in accordance with EN 1359
- Unrestricted validity of calibration
- ATEX approval under development
- Different data interfaces available
- Connection via simple terminal module
- Maintenance-free

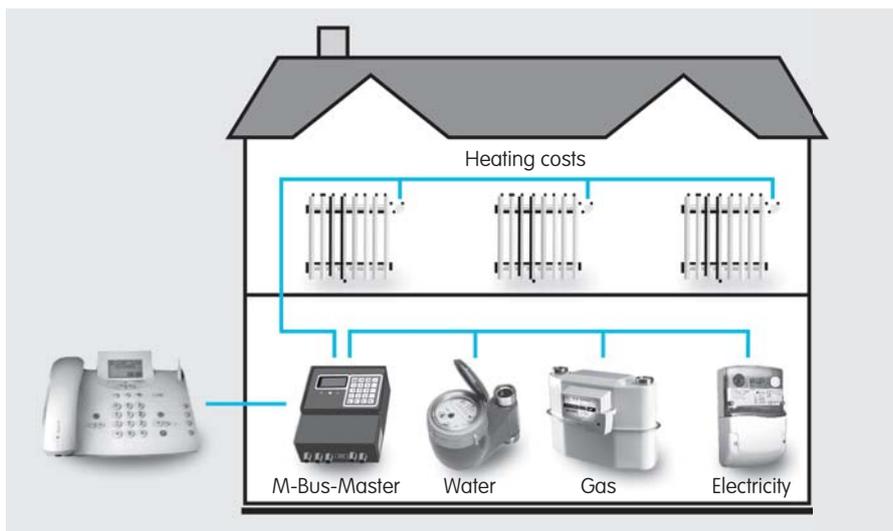
\* System for Communication and Readout of Meters

# Absolute ENCODER Z6: Electronically readable mechanical index

Technical data	
Number of drums	7 scanned + 1 unscanned
Temperature range	-25 °C to +55 °C
Protection class	IP 52
Interfaces	SCR, M-Bus (EN 13757)
Meter types	BK-G2.5 V1.2 up to G100 diaphragm meters
LF pulser	Non existent

## Example: Application with M-Bus interface

The M-BUS is a cost-optimised two-wire field bus conforming in terms of hardware and protocol (European Standard EN 13757). Any common metering device in the field of residential metering can be switched into this bus system, provided that is equipped with the M-BUS interface



Diaphragm meter with ENCODER Z6 in a M-Bus installation

## Example: Application with SCR interface



Diagram showing the transfer of original meter reading via SCR interface to a battery-operated RF transponder for remote data readout purposes

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