

# ACM

## BGZ with Absolute ENCODER and ACM with wireless link option for smart metering



### Applications

Media: natural gas, propane and butane\*  
Industries: gas industry  
Tasks: remote data readout

### Brief information

To promote the protection of the environment, European countries aim to preserve energy resources. Private customers should be aware of and regularly informed of their energy consumption. Smart metering is a new technology that provides regular consumption values using remote readout. Individual energy consumption is made more transparent to the customer, who is then able to systematically gain energy awareness and reduce energy costs.

Article 21b of the Energy Industry Act requires that meter operators offer and install measuring devices showing the relevant connection users the actual energy consumption and the actual time of use.

The Absolute ENCODER combines the positive features of a mechanical and electronic index. The Absolute ENCODER's communication modules make it possible to cover the diverse requirements in practice.

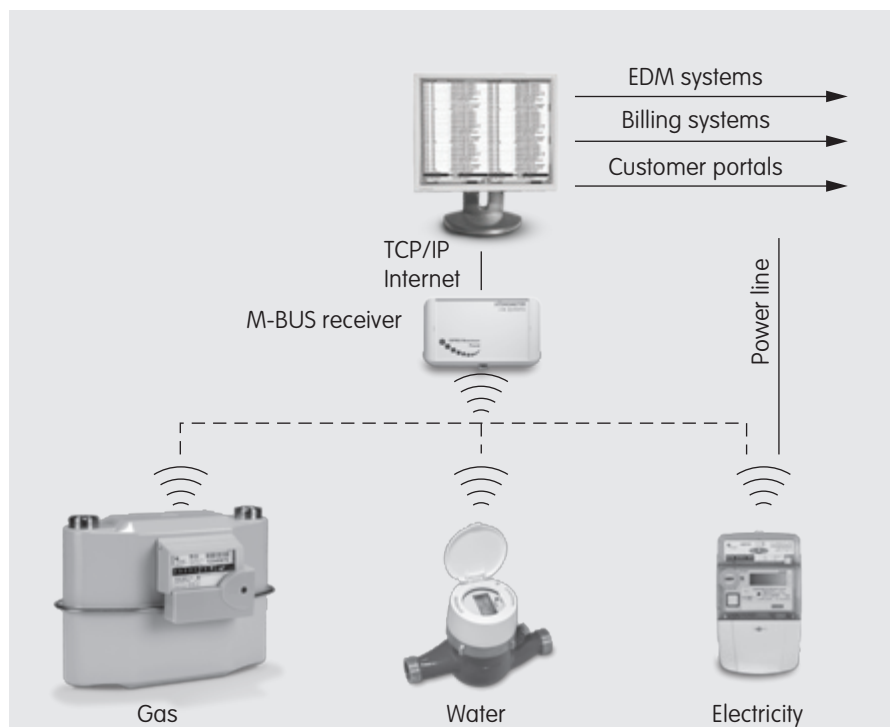
The Absolute ENCODER's consistent modular design concept minimises the efforts and expenditure of installation, commissioning and data provision. This ensures investment security for future uses.

### Main features

- Recording and forwarding absolute meter readings.
- Cable-based or wireless data communication available as options.
- Opto-electronic scanning of the digit rollers. Re-calibration periods are not reduced – they can continue to be increased using random sampling procedures.
- No battery in the index. Power supply via communication module. The part of the meter of relevance in terms of calibration technology remains unaffected.
- Battery-free cable-based communication.
- The wireless link can be extended using a repeater.
- Simple plug-in installation of communication modules with immediate availability.
- Encrypted data transmission.

### Options

- Integrated valve in gas meter G4 (see Smart valve data sheet).
- Communication modules for absolute encoder can be retrofitted.
- Mechanical temperature compensation from G2.5 to G25 possible..



\*Gases in acc. with EN 437

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## System description

The Absolute ENCODER provides the absolute meter reading. The communication module transfers the data to a downstream receiving unit that functions as M-Bus master (e.g. electricity meter, data concentrator, multi-utility controller MUC).

Depending on the local installation situation, either a cable-based or wireless communication module can be selected for data transmission. The communication protocols comply with EN 13757 (Communication systems for meters and remote reading of meters).

They are designed as a plug & play solution and are simply plugged into and sealed to the encoder index. The connected receiving unit is synchronised automatically. The communication modules are delivered fully programmed.

The modular connection between the communication module and encoder index enables modules to be replaced at any time without further programming effort. The part of the meter of relevance in terms of calibration technology remains unaffected.

### ACM M-BUS WIRE

The cable-based ACM (Encoder Communication Module) functions in accordance with EN 13757 and is directly connected to the M-BUS master (e.g. electricity meter, data concentrator).

### WAVE SYSTEM

If the distance between the cable-based M-BUS master and the gas meter is too big or if another construction interrupts the connection, the WAVE SYSTEM can be used:

The data is transferred from the ACM transmitter to the receiver over a wireless link. The receiver is connected to the receiving unit by a cable.

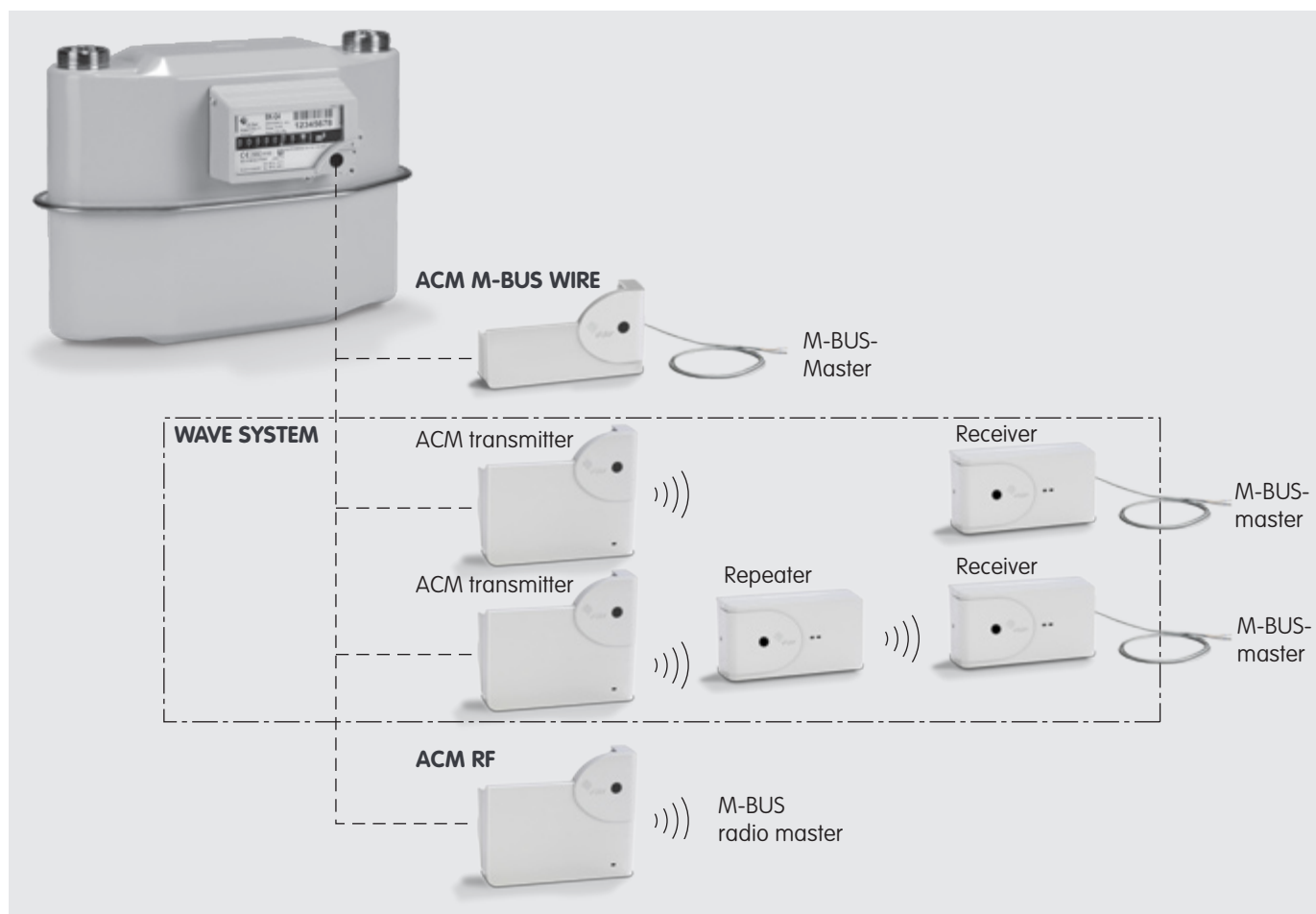
If the quality of the wireless link is not adequate, a repeater can be connected into the link. The data is transferred from the repeater to the receiver over a wireless link. The receiver is connected to the receiving unit by a cable.

In the WAVE SYSTEM, the appliances operate on the basis of a secured point-to-point connection. Only prefabricated module pairs can communicate with each other. This ensures that radio signals cannot be affected by any other appliances in the household.

### ACM RF

The wireless communication module ACM RF can be used as an alternative to cable-based communication.

This communicates directly with a receiving unit that functions as M-Bus radio master.



## Energy supply

### **ACM M-BUS WIRE**

The cable-based communication module operates without a battery. The energy required is supplied via the M-BUS. If no data is transferred, no electrical energy is consumed.

### **WAVE SYSTEM**

The wireless ACM transmitter is battery powered. The battery supplies the index with power during the reading process. The mechanical encoder index is optoelectronically scanned, with this being the only time there is any requirement for power. This minimises energy consumption.

The optional repeater is also battery powered. However, the cable-based receiver is supplied with energy via the M-BUS.

### **ACM RF**

The wireless radio module is battery powered. The battery supplies the index with power only during the reading process.

## Installation

The plug-in communication module is plugged into the encoder index via a 4-pin plug. The plug connector automatically produces synchronisation.

A screw to secure the connection and a seal are included in the delivery. Thanks to the separate seal, which does not affect the calibration-relevant part of the gas meter, the connection cable of the ACM M-BUS WIRE can be installed on site and simply replaced at any time. The connection cable is included in the delivery.

With the WAVE SYSTEM, the receiver and the optional repeater are supplied with a support panel. With the wide variety of mounting options provided by the support panel, the appliance can be mounted on either the wall, a pipe or a DIN rail.



DIN rail

## Technical data

### **Communication modules**

Enclosure: IP 54.

Ambient temperature: -25 to +55°C.

M-BUS transfer of status and error messages in accordance with EN 13757.

All of the Absolute ENCODER's components help prolong the service life of the whole meter.

### **ACM M-BUS WIRE**

Connection cable design: 2 m (other dimensions on request), flexible, two-core cable LiYY, 0.25 mm<sup>2</sup>.

The free cable end has 2 wire end ferrules.

### **ACM RF, WAVE SYSTEM**

ACM RF, ACM transmitter and the repeater are designed for max. 4 control commands per hour over the entire 15 year battery life.

Other wireless technologies can be integrated in the radio module housing on request.

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ACM EN01

A26.06.2009

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