

## GWFcoder®

Key technology for the automated reading of water and gas meters

### Our strength: Your benefit

- Transfer of the effective meter reading:  
**No data loss and guaranteed security of the billing data**
- Batteryless register:  
**No service life restriction**
- No programming required when commissioning the meter in a readout system (Plug & Play):  
**Easy and fast on-site installation**

### Application

- Automated mobile or fixed network readout of relevant billing data of water and gas meters
- Wired or radio remote readout of hard to access metering installations, e.g.
  - Meter pits
  - Commercial and industrial metering
  - Reservoirs
  - Transfer or infeed points for water organisations

### Features

- Proven mechanical roller register with serial interfaces
- Wired M-Bus according EN 13757-2/3
- SCR(IEC) according 62056-21 mode A
- Wireless M-Bus according EN 13757-4 in combination with RCM® radio
- Greater level of information and readout accuracy compared to meters with pulse output
- Guaranteed correlation between electronic readout and register reading
- Reactionless readout of the data set via the GWF patented opto-electronic GWFcoder® technology
- Enables the retrofitting of wired or wireless automated reading without having to modify the water or gas meter – «Plug & Play»

### GWFcoder®-Data protocol IEC

Medium:	Water / gas
Absolute meter reading:	12365,421m <sup>3</sup>
Serial number:	43215678
Meter production date:	29-07-13
Meter size:	DN 20 / G 4

### Options

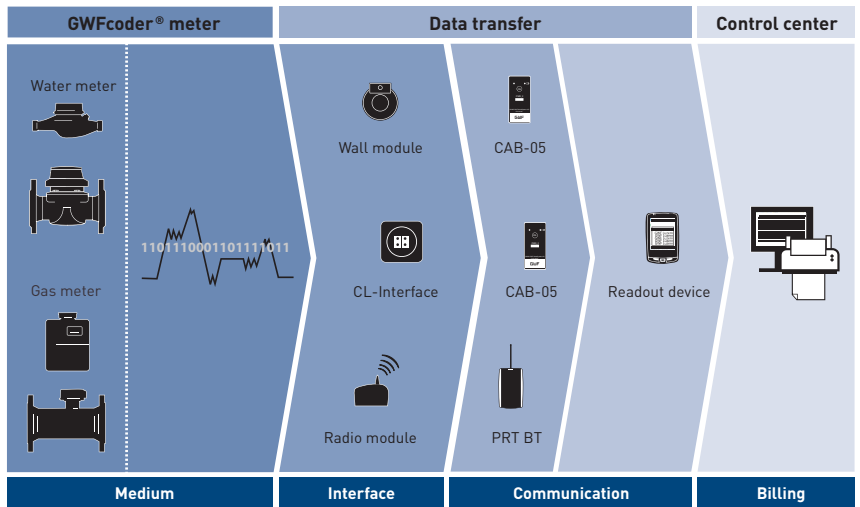
- Flood-proof execution (IP68) due to hermetically sealed roller register made of glass/cooper

# Reading technologies

Water and gas meters with GWFcoder® register are ideal for future upgrading to remote or direct readout technologies

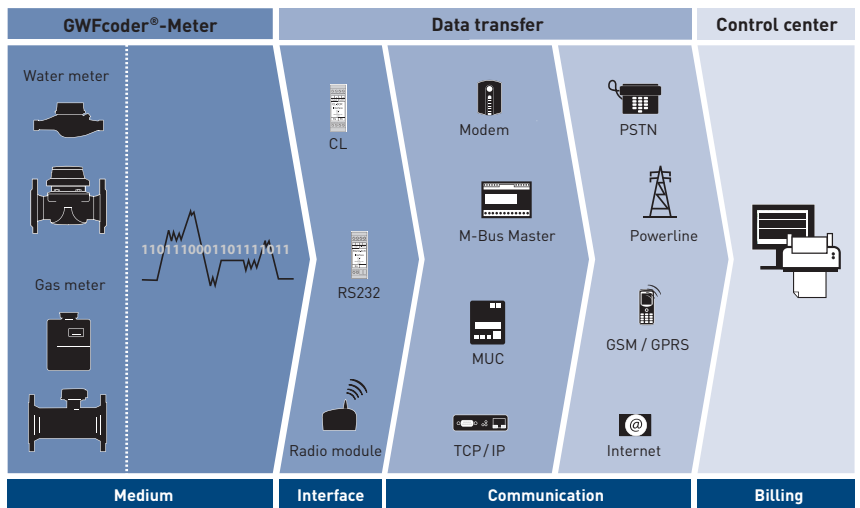
## Mobile on-site reading

- Direct or outside wall readout via the inductive interface; transmission distance of up to max. 150m
- Outside wall readout via the CL interface without access to the measuring point; transmission distance of up to max. 150m
- Mobile «walk-by» meter reading or «drive-by» meter reading from a moving vehicle without access to the property



## Remote meter reading

- The GWFcoder® technology enables the combined remote reading of water, gas and electricity meters
- Depending on the interface at the communication unit (e.g. modem), various interfaces are available to integrate the GWFcoder® water and gas meters in the remote meter reading.



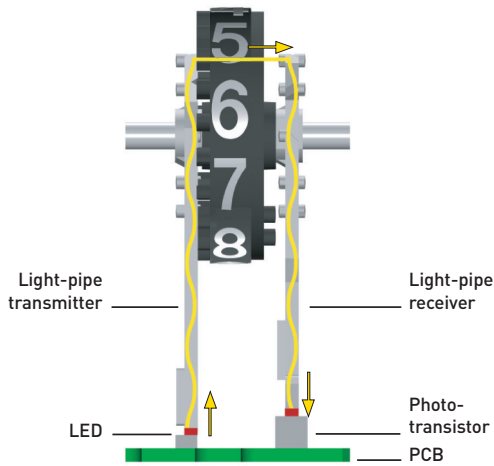
# Encoder register variants



# GWFcoder®-Technology

## The 2<sup>nd</sup> generation – even more flexible

The well-established GWFcoder®-system reads the absolute mechanical register value precisely and reliably and provides the data through standardized interfaces. The number wheels with three various long, asymmetrically arranged slots are being scanned through light pipes which are connected to five light emitting diodes (LED). Thus, the exact position of each number wheel can be detected and the encoded absolute register read can be transmitted as part of the protocol by the GWFcoder®-interface. This GWF patented functional principle is being used in millions of installations worldwide since more than 15 years. The GWFcoder®-interface guarantees absolute correlation between the electronic readout and the register reading and provides an incomparably higher level of information compared to meters with pulse output. Meters with GWFcoder®-technology do not contain a battery which, in turn, does not compromise existing revision cycles. The readout device supplies the power for the readout.



GWF enhanced the reliable Smart Metering technology in its 2<sup>nd</sup> generation, so that 8 instead of 5 number wheels are being scanned and therefore a resolution of 1 liter is possible. Moreover, all products with multi-protocol functionality provide the flexibility to switch between M-Bus and SCR(IEC) which leads to an easy and fast «Plug & Play» installation on site.

In combination with the GWF radio module RCM® the third interface can be used for wireless M-Bus.

## Standards and interface

GWFcoder® registers can be implemented with all common interface definitions such as:

### Interface

- SCR(IEC):** IEC 62056-21 Mode A (IEC 1107)
- M-Bus:** EN 13757-2/3
- Namur:** EN 60947-5-6 (large-scale gas measurement)
- Sensus:** UI-1203
- Wireless M-Bus:** EN 13757-4 in combination with RCM®

## Comparison «absolute meter reading» vs. pulse

### GWFcoder® technology:

Transfers the effective meter reading. The read-out value in the billing system and the invoice are the same as the meter reading.

### Pulse transfer:

The potential sources of error for a reproduced meter reading with pulse transmission are:

- Bouncing
- Backflow water
- Temporary signal interruption
- Double pulses
- Incorrect pulse value

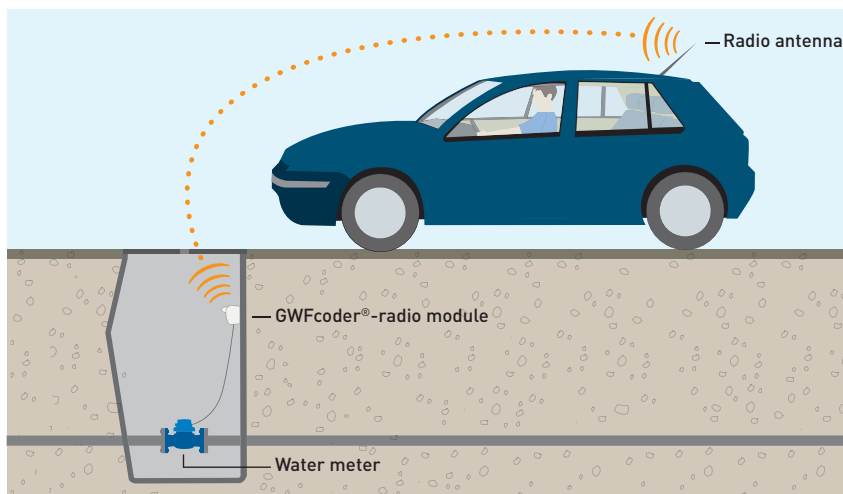
The readout value in the billing system and the invoice may differ from the meter reading.

Encoder register		$V = 11011100011011110110$ Index transferral	725196 	
Reed contact		$V =$ Pulse counting	725153 	

# Applications

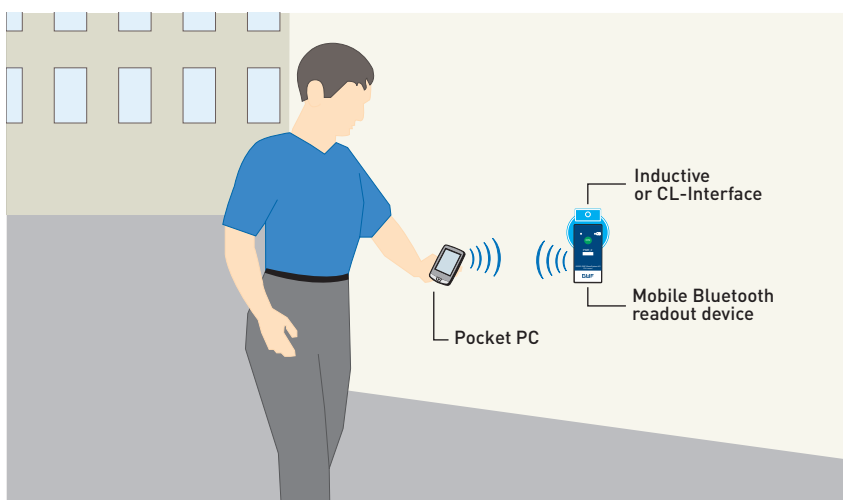
## Wireless pit readout

Meter with GWFcoder® register and GWF radio module (type RCM®) is read out by radio using a mobile infrastructure.



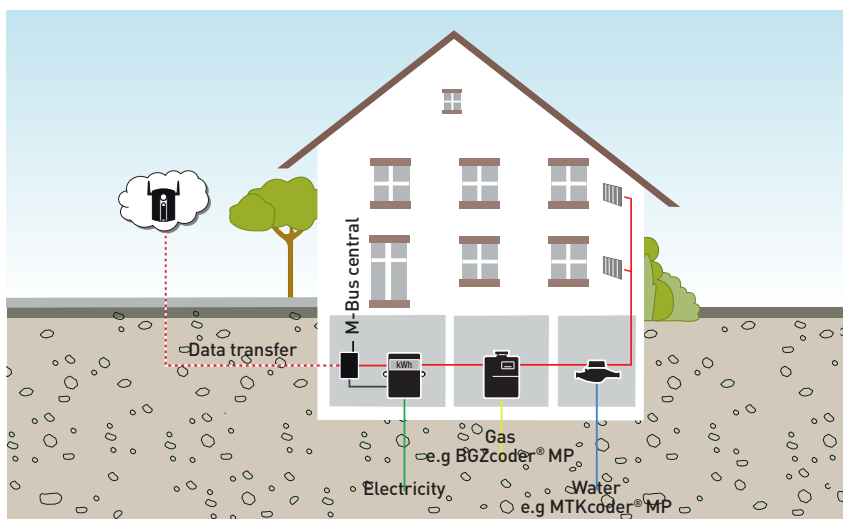
## GWFRead Mobile - Wall pad reading

Encoder meters with a wall pad can be read without entering the property by means of an inductive wall pad. The meter data is then automatically assigned to the customer. The meter readout device then transmits this data wireless via Bluetooth to the Mobile readout device.



## M-Bus remote reading

The meters with GWFcoder® register are connected to an M-Bus remote reading system. This ensures that the meter data is transferred directly via an M-Bus data centre or level converter to a PC where the data is further processed.



EPe40101 – 01.07.2013  
Subject to modification