



### Description

The HRI-Mei is a data capture device for Meistream bulk water meters. All MeiStream registers are prepared to receive the HRI-Mei.

The HRI-Mei can also be mounted afterwards without breaking the meter's seal

The HRI-Mei provides a high resolution pulse output with water flow direction detection.

Also the data interface can be used for M-Bus applications or for MiniBus devices like MiniPad or Sensus((S))cout-MB

With the HRI-Mei all known data interfaces with Encoder, Electronic and Hybrid registers can be replaced.

Also other applications requiring reed switches or optical pulse outputs can be supported with only this one data capture device.

### Special features

Compatible to bulk water meters with Meistream register.

Load-free inductive scanning of the meter's pointer.

No magnetic influence.

Retrofittable.

Detection of water flow direction

Electronic pulse output means no switch bouncing

Pulse-weight, mode and length can be changed on site.

Self diagnostic and tamper detection

Battery lifetime up to 12 years. With external power supply i.e. a M-Bus central unit lifetime can be expanded.

Sealed housing (IP68)

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## Applications

Meter reading based for billing purposes i.e. mobile reading systems.

Meter remote reading and profiling via cable fixed networks with M-Bus, radio modem or GSM network.

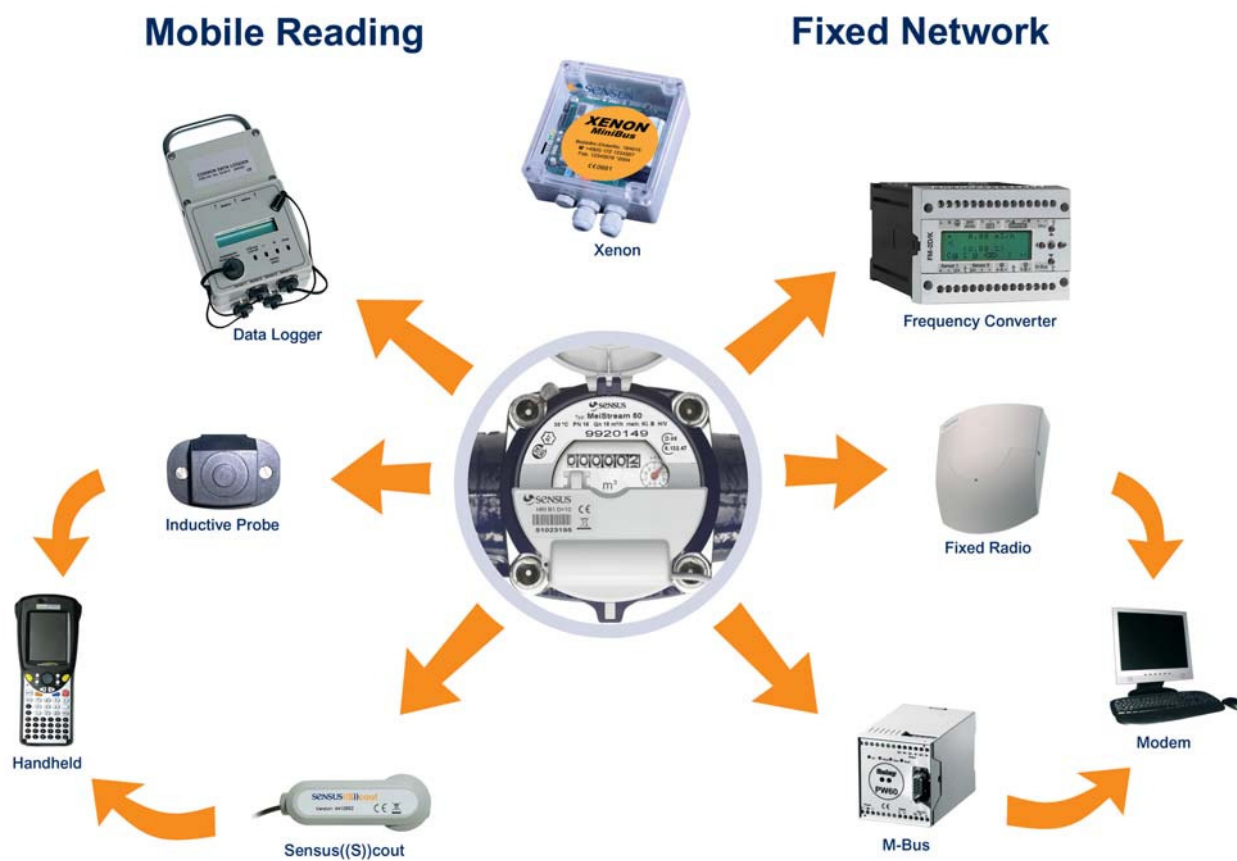
Industrial control applications with the FM-1D/K or FM-2D/K

Data logging in conjunction with various data loggers; i.e. CDL.

Logging and transfer of flow profiles in conjunction with XENON internet access.

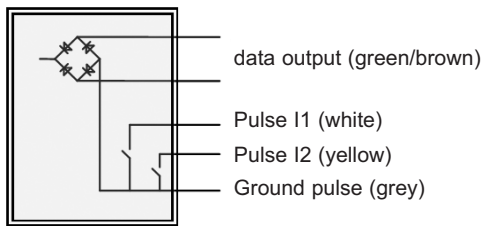
Robust design allows the use of the HRI in difficult situations like flooded pits.

## System Overview



## Technical Data

cable length 3m



### Pulse output

According to pulse mode  
Opto-OD (NAMUR) compatible:  
programmable pulse weights  
(10, 25,...,1000) litre/pulse  
Pulse length 32ms  
NAMUR acc. EN 60947-5-6

Reed-RD compatible:  
programmable pulse weights  
(10, 25,...,10000) litre/pulse  
Pulse length 32, 128 or 500ms  
max. Voltage 48 Vdc  
max. current 0,2 A  
max. switching capacity 4 W

### Data interface

M-Bus and MiniBus  
Autom. detection of baud rate (300/2400Bd) and type of interface.  
Data protocol according IEC870-5/EN1434-3

### Transferred Data

Meter index  
Fabrication number  
Meter ID. equivalent to secondary address  
Monthly meter index for programmable day  
Meter index for programmable yearly key date and for the year before  
Min./max. water flow with date/time  
Backward water volume with date/time  
Broken pipe and leakage detection with programmable flow thresholds  
Tamper detection.

### Programmable Data

All changeable data can be set with MiniCom software via the M-Bus/MiniBus data interface. MiniCom download is free of charge on the Sensus web site.

## Pulse Modes

The HRI-Mei provides 6 different pulse output modes via 2 lines.

### Mode B1:

is used for remote pulse collectors with only one pulse input.

I1: balanced pulses(\*)

I2: alarm (\*\*)

(\*) Backward pulses are compensated by suppressing the same quantity of forward pulses

(\*\*) alarms can be programmed for broken pipe, leakage, tampering, cable cut and indicated by ground level at the output.

### Mode B2:

I1: Forward pulses

I2: Backward pulses

### Mode B3:

I1: For-/Backward pulses

I2: signal for the flow direction(\*)

(\*) Ground level means forward flow

### Mode B4:

as mode B1, but line I2 is inverted.

### Mode B5:

Opto-OD (NAMUR) pulse output

I1: pulses with flow direction code

I2: not used

### Mode B6:

NAMUR (as OD-AM) pulse output

I1: balanced pulses as mode B1

I2: not used

### Temperature range:

HRI-Mei standard for cold water (30°C) and warm water (50°C).

HRI-Mei optional variant for heat application up to 90°C water temperature.

Environmental temperature range: -10 ... +60°C

## Following Sensus pulse outputs can be set:

Previous pulse outputs	Litres/pulse
RD01, RD011	10 to 100.000 lpp
OD01, OD03, OD07-L, OD07-24V, OD07-24S	10 to 1.000 lpp
R01, R011	10 to 100.000 lpp
OP01, OP03	10 to 1.000 lpp
OD AM	10 to 1.000 lpp
OD02/EX(cold), * special HRI-Mei variant	10 to 1.000 lpp

10 litre per pulses with 32ms pulse length only.

All other pulse weights can be set to 500ms pulse length.

For HRI-Mei (90°C) heat meter application 128ms pulse length possible.

For DN150-300 min pulse weight 100lpp.

## Order information

HRI-Mei variant	Settings	Application	Order no.
HRI-Mei/B1/D100/T500/50°C*	Pulse Mode 1 Pulse weight 100 lpp Pulse length 500ms	Cold water for DN40....125	MEI1ACG2XX
HRI-Mei/B5/D10/T32/50°C*	Pulse Mode 5 Pulse weight 10 lpp Pulse length 32ms	Cold water for DN40....125	MEI1EAD2XX
HRI-Mei-CDL/D10/50°C*	Pulse Mode 2 Pulse weight 10 lpp With CDL plug	CDL data logging Cold water for DN40....125	MEI3XXD2XX
HRI-Mei/B1/D1000/T500/50°C*	Pulse Mode 1 Pulse weight 1000 lpp Pulse length 500ms	Cold water for DN 150.....300	MEI1ACK3XX
HRI-Mei/B5/D100/T32/50°C*	Pulse Mode 5 Pulse weight 100 lpp Pulse length 32ms	Cold water for DN 150.....300	MEI1EAG3XX
HRI-Mei-CDL/D100/50°C*	Pulse Mode 2 Pulse weight 100 lpp With CDL plug	Cold water for DN 150.....300	MEI3XXG3XX

All other variants on request.

\* for cold water up to 50°C