

# Pulse/Data sensor (M-Bus)

For water meter with HRI preparation

AT 7275CY

## Internet variants

### Range of application

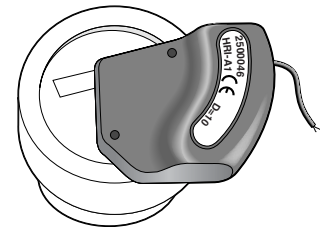
Cyble is an inductive universal sensor for remote reading/transfer of measurement values via M-bus, pulse or wireless M-bus from water meter to data center or measurement systems. The sensor is compatible with Armatecs mechanical meter e.g. piston meter Aquadis AT 7420B/AT 7430B, single jet meters AT 7051, apartment meter AT 7080B, AT 7085B and bulk meter AT 7110B.

*Cyble sensor* is an electronic register with a data interface which depending on model either supports M-bus, pulse or wireless M-Bus (wM-Bus).

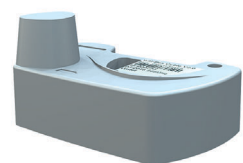
Cyble M-Bus communication module sends following data; Time and Date, Primary- and Secondary adress, volume, back flow and alarms for tampering and low battery level.

Cyble wireless communication module has an electronic register that sends via wM-Bus (T1 mode) OMS, frequency 868 MHz. Data, with following data; Time and Date, Primary- and Secondary adress, volume, back flow and alarms for tampering and low battery level.

*Cyble Pulse transducer* with reliable, low frequency (LF) pulse output, type open collector. Shielded against external magnetic fields. Compensates/indicates flow direction. The pulse is polarity independent.



AT 7275HRI



## Quality assurance

### CE-marking

The product is manufactured according to the requirements for electromagnetic compatibility in accordance with EEC Directive 98/34, European Standard EN61000-6-1, EN 50081-1, EN 50081-2, EN 50082-1, EN 50082-2.

## Function and design

The Cyble device inductively reads the number of rotations on the metal indicator, located under the glass on the water meter's display board. The modules are pre-programmed with a K-factor, when multiplied with the High Frequency (HF)-signal enables transmission of larger pulse weights. The HF-signal equals 1 pulse per rotation. The relation between the number of rotations and the read pointer equals K, where  $LF = HF \times K$ . KLF for different meters is shown in the table below.

The Cyble module has a built-in lithium battery for 12 years of operation. Measurement value and settings are maintained in case of power failure (e.g. interference on the M-Bus loop). In case of power failure, M-Bus module will continue to register values.

Meters	KLF=1	KLF=10	KLF=100
AT 7080B/ 7085B DN 15-20	1 L	10 L	100 L
AT 7420B	1 L	10 L	100 L
AT 7051 DN 15-25	1 L	10 L	100 L
AT 7051 DN 40	10 L	100 L	1 m <sup>3</sup>
AT 7110B DN 50-125	10 L	100 L	1 m <sup>3</sup>
AT 7110B DN 150-300	100 L	1 m <sup>3</sup>	10 m <sup>3</sup>

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## Technical data

Cable length:	5 m (does not apply to wireless module)
Protection:	IP 68 (Hermetically sealed)
Storage temperature:	-20 °C to +55 °C
Ambient temperature:	-10 °C to +55 °C
Battery:	Lithium. Lifetime 12 years (pulse), 15 years (M-Bus)

## Data interface

Type:	M-bus ( 1 load unit = 1,5 mA)
Speed:	Automatic recognition, 300/2400 Baud
Protocol:	According to IEC 870 / EN 13757
Data:	Measurement and measurement number (18 numbers as standard)
Max Cable length:	According to M-bus specifications

Measurement readings and settings remain in the event of any external power failure on the data receiver (e.g M-bus loop malfunctions). During power failure, the Cyble M-Bus unit will continue to register values.

## Pulse output (I1, I2) enl. ISO/TC 30/SC 7/ WG 8

Pulse type:	Open Collector, (non- potential dependent)
Power supply	DC
Input voltage:	max 24 V
Input current:	max 100 mA
Input power:	max 30 W
Max power	1 W
Pulse length	65 ms for K1

## Accessories and options

### Cyble Pulse encoder

- The output pulse (on the sensor indicated KLF) is available with pulse rate: 1, 10, 100, 1000 liters per pulse. The pulse rate is permanently programmed from the factory. Sensors with pulse rate 10 are most commonly used.

### M-Bus sensor

In standard version; meter values in M-bus telegram is shown with 8 digits (litre resolution)

## Installation

The meters prepared for Cyble units have an indicator equipped with a metal plate.

Assembly of the Cyble unit is done without the need to break any seals on the sensor, and this can be done either directly when the meter is mounted or afterwards when the meter already has been mounted.

The Cyble-unit is screwed into place, with the supplied screws, on prepared at-

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tachment points on the dial of the meter house .

The pulse encoder connection cable can be extended up to 50m, whereas the M-Bus wiring cable can be extended in accordance with the M-bus standard. Transient volt protection is recommended for outdoor wiring.

The Cyble-unit is supplied with a two-wire connection cable. Cable colors are white and brown.

## Marking

The Cyble-sensor is always labeled with the manufacturer's number, for M-Bus modules corresponds to the secondary adress. The Cyble pulse encoder is by default marked with a K and LF-number.

## How to order

Exampel: AT 7275CY-M		
AT 7275CY	-M	M= wired M-Bus accord to EN 13757
Fig. no.	Sensor type KLF=Pulse encoder M=M-bus	1 / 10 / 100 /1000 liters per pulse. M = wired M-Bus, wM = wireless M-bus