

## Wireless M-bus pulse counter type **wMBHL-2**

## **wM-BUS Series**

### Instruction Manual

**wMBHL** is microcontroller-based pulse counter with 2 pulse inputs and wireless m-bus interface.

It is used for connection of tax meters with pulse outputs for wireless readout. It can be mounted on the wall, not for DIN-rail and comes in IP 54 enclosure. **wMBHL** does not support tariffs, but user can set initial value for each pulse input and multiplier (pulse weight). Device works on battery and has estimated life of 10 years, while transmitting every minute. Minimum pulse length to be measured is 50ms (10Hz pulses), which for water meters is more than enough.

#### 1. Main technical parameters

- pulse inputs - 2
- supply voltage - 3.6 Vdc
- wireless m-bus mode - T1, OMS compatible
- pulse frequency, max - 20 Hz
- input NO resistance - 470 kOhm
- indication - one yellow LED
- storage temperature - -50+90 °C
- air humidity, working - 40÷90 %
- dimensions (H/W/D max) - 150/65/50mm (with flange)
- communication parameters - 4800 bps, Even
- weight - < 30 g
- battery - 3.6Vdc, 10+1 years life
- protection class - IP 68

#### 2. How **wMBHL** works

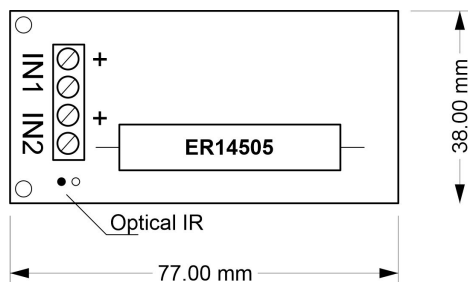
**wMBHL** comes into storage mode. This means that the counter is not enabled to transmit and count pulses. This is made in order to preserve battery. Device can be turned ON via our software, using optical head. Once enabled pulse counter CAN NOT be returned in storage mode. Then **wMBHL** starts to work in normal mode. This means that all pulses on the two inputs are counted and stored in internal memory. Each minute device sends a wireless m-bus telegram in mode T1, in which total value for both inputs is transmitted. Total value is calculated by taking in hand pulse weight (multiplier) and initial value, set for each input. By default initial value is 0 and multiplier is 1 (1/pulse). User can set different pulse ratio and also different mediums measured (VIF codes), defined by the m-bus standart.

Transmitting time can be changed from 10 seconds to 3 minutes, by step of 10 seconds. User can also save AES-128 key (Mode 5) and enable or disable AES encryption of the telegram.

The battery life is guaranteed for 10 years of work, transmitting every minute.

#### Turning **wMBHL** on

Turning on **wMBHL** is done via **wMBHL** setting software and is irreversible. Below can be seen the main printed circuit board.



### 3. Mounting and electrical connections

**wMBHL** can be mounted on a wall or other horizontal or vertical surface. Every connection should be made with 0.25mm<sup>2</sup> □ 1.5mm<sup>2</sup> isolated cables, according to the following table:

No. on the picture	Description
<b>IN 1+</b>	Positive terminal pulse input 1 - if open collector used
<b>IN 1-</b>	Negative terminal pulse input 1
<b>IN 2+</b>	Positive terminal pulse input 2 - if open collector used
<b>IN 2-</b>	Negative terminal pulse input 2

Max. length of each pulse input cable is 15m for twisted pair 0.5mm<sup>2</sup>.

#### 4. Inputs and pulse counting

**wMBHL** has two independent inputs for pulse counting. Pulse weight for each input can be programmed independently. The pulses are collected in separate arrays for every input. Pulse counts specially of **wMBHL** can be changed through the Gineers software and IR optical probe. The idea is to have same on counter and water-meter. Pulse counters are stored in non-volatile memory at every power interruption. The data is also saved in non-volatile memory once a month.

Maximum pulse frequency can be 20Hz. The input pulses can come from:

- non-potential contact (reed contact)
- transistor opto-coupler output
- open collector, if it can work on 3.3Vdc/0.2mA

In the last two cases the polarity must be observed. The minimum resistance of the open contact should be greater than 1 MOhm, while the maximum resistance (including connecting cable resistance) should be less than 1 kOhm. Connecting cable length should be no greater than 15m. It is recommended to use twisted pair cable type.

Counters rollover to zero when value of 99999999 is reached.

#### 6. Warranty

The warranty of the device is limited to 3 years from the date of sale. If the device shows any defect or malfunctions during that period, the manufacturer is obligated to repair the device in its own service for manufacturer's expense, or, if the repair is impossible, to replace the device with the new one. The transportation costs to the manufacturer's service are due to the client. The warranty voids if this manual's instructions are not met, warranty seals are removed or the device was opened by unauthorized by the manufacturer personnel.

Serial/ ID number: .....

Date of sale: .....

Signature: .....

#### 7. Package contains

- **wMBHL** - 1 pc.
- Instruction manual - 1 pc.

#### 8. Manufacturer

Gineers Ltd., building 7, "Iskarsko chausse" 7 blvd.,  
 TCE, 1528 Sofia, Bulgaria  
 Tel/fax (+359-2) 9758105,  
 URL: <http://www.gineers.com>,  
 e-mail: [office@gineers.com](mailto:office@gineers.com)

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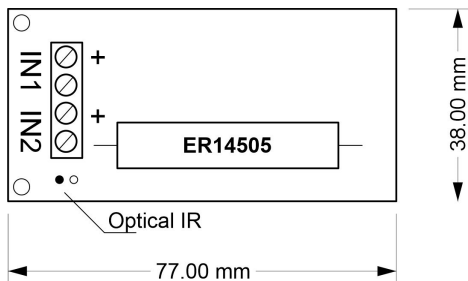
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