

# ADDRA Ultrasonic Water Meter. WMbus & LoRaWAN Data Transmission



## WMbus OMS T1 DATA TRANSMISSION (868 MHz)

The data and alarms transmitted by the meters via the WMbus T1 OMS protocol are listed below:

Manufacturer code  
Device serial number  
Version  
Device type  
Date and time of transmission  
Total volume at the time of transmission the time of transmission  
Total forward volume at the time of transmission the time of transmission  
Total reverse volume at the time of transmission the time of transmission  
Water temperature  
Battery percent

Valve status / alarms:

“Clock invalid” – System time not valid  
“Tamper” – Meter case opened  
“Low bat” – Critical battery level (appear before one year before 0% level)  
“Hardware fault” – Meter internal hardware fault  
“Frmw changed” – Firmware version was updated  
“Leakage” – Water flow during more than 24 hours detected  
“Dry” – Water is absent during long time  
“Backflow” – Reverse water flow more than Q1 detected  
“Burst” – Water flow  $\geq$  Q3 during long time detected  
“Low temp” – Low ambient temperature detected

In the WMbus protocol, a transmission is expected to be sent every 20 seconds, from 8:00 to 18:00 - from Monday to Friday, for a total of 468,000 transmissions per year, without battery autonomy problems.

The message payload includes:

Preamble:	8 bytes
Sync:	3 bytes
Headers:	17 bytes
Application payload:	39 bytes
CRC:	2 bytes
Total:	69 bytes



36, Dragomirna str. Kishinev, MD-2008, Republic of Moldova  
**Phone:** +373 22 930 012 **Fax:** +373 22 930 012



## LORAWAN DATA TRANSMISSION (868 MHz)

The data transmitted with the LoRaWAN protocol are:

- Current date and time
- Valve Status/Alarms
- Battery percent (optional)
- Current volume
- Log date and time
- Volume at log date and time
- Delta volume 1
- Delta volume 2
- Delta volume 3
- Delta volume 4
- Delta volume 5
- Delta volume 6
- Delta volume 7
- Delta volume 8
- Delta volume 9
- Delta volume 10
- Delta volume 11
- Delta volume 12
- Delta volume 13
- Delta volume 14

Valve Status/Alarms:

- "Clock invalid" – System time not valid
- "Tamper" – Meter case opened
- "Low bat" – Critical battery level (appear before one year before 0% level)
- "Hardware fault" – Meter internal hardware fault
- "Frmw changed" – Firmware version was updated
- "Leakage" – Water flow during more than 24 hours detected
- "Dry" – Water is absent during long time
- "Backflow" – Reverse water flow more than Q1 detected
- "Burst" – Water flow  $\geq$  Q3 during long time detected
- "Low temp" – Low ambient temperature detected

Each transmission contains 15 hourly values, 2 transmissions per day.

The message payload includes:

Preamble:	8 bytes
Sync:	4 bytes
Headers:	13 bytes
Application payload:	51 bytes
CRC:	2 bytes
Total:	78 bytes

## Battery Life

Based on the work model and calculation we can see that the water meter can work **more than 16 years** with full functionality and using both RF protocols (LoRa and WMBUS).

The ADD Grup manufacturer carries out the following tests on batteries based on the international standard IEC 60086-4, ER CE-EMC, ISO9001, ISO14001, REACH SGS, UN38.3. All these certificates and reports are available via additional requests.



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