
WMBUS DATA FORMAT

TEMP/HUMIDITY/PRESSURE/RADON DEVICE (LAN-WMBUS-Q-R)



Verify correct device and version

This document applies to the device LAN-WMBUS-Q-R with protocol version 2.

There are two ways of finding out the protocol version of the device; Either by looking at the label on the device or by looking at the data packets sent out by the device. See chapters **Protocol version in data packets** and **Protocol version in label** for more information.

Protocol version in data packets

If it is possible to check the information in the data packets sent out by the device, then the protocol version is included in the data field called *A-Field Protocol version*. For more information, see chapter **WMBUS-data format**.

Protocol version in label

The protocol version can be found by scanning the label. An example of the label is shown in the figure below and the relevant information is described by LAS.00014000.2C.01, where

- **Manufacturer code:** LAS
- **Serial number:** 00014163
- **Device type:** 2C
- **Protocol version:** 02

WMBUS-data format

| | |
|-------------|--|
| Art nr. | LAN-WMBUS-Q-R: Radon |
| Version | 2 |
| Information | Packet is sent every 60 seconds in T-mode. Temperature, humidity, pressure is sampled every 60 seconds. Radon value is updated every 10 minutes. |
| DR1 | Temperature: Last measured value. Unit: °C |
| DR2 | Temperature: Average last hour. Unit: °C |
| DR3 | Humidity: Last measured value. Unit: %RH |
| DR4 | Humidity: Average last hour. Unit: %RH |
| DR7 | Radon: Last calculated value (Dimensionless subunit 2) Unit: Bq/m³ |
| DR8 | Radon: Average last hour (Dimensionless subunit 2 storage 1) Unit: Bq/m³ |
| DR9 | Pressure: Last measured value Unit: mbar |
| DR10 | Pressure: Average last hour Unit: mbar |
| DR13 | Software revision |
| DR14 | Sensor total operating time in days |
| DR15 | Protocol version |
| DR17 | Indications and status bits |

| Byte No | Field Name | Content | Info | Byte data | |
|---------|---------------|------------------------------|--------------------------------------|--|--------------|
| 1 | L-Field | Length | | | Linklayer |
| 2 | C-Field | SND-NR | | 0x44 | |
| 3 | M-Field | Meter Manufacturer code | LAS | 0x33 | |
| 4 | M-Field | Meter Manufacturer code | | 0x30 | |
| 5 | A-Field | Meter serial number (LSB) | Example: 0001067 | 0x67 | |
| 6 | A-Field | Meter serial number | | 0x00 | |
| 7 | A-Field | Meter serial number | | 0x01 | |
| 8 | A-Field | Meter serial number (MSB) | | 0x00 | |
| 9 | A-Field | Protocol version | | 0x03 | |
| 10 | A-Field | Meter type | Environment Sensor. | 0x2C | |
| 11 | CI-Field | Short header | | 0x7A | Networklayer |
| 12 | Access no. | Transmission counter | Example: 7 | 0x07 | |
| 13 | Status | Device status (error/alarms) | Refer to Table 1 for possible values | 0x00 | |
| 14 | Configuration | Number of encrypted blocks | Example: 3 | 0x03 | |
| 15 | Configuration | Encryption | | No encryption: 0x00 Encryption mode 5: 0x05 | |
| 16 | AES-Verify | Encryption Verification | | 0x2F | DATA blocks |
| 17 | AES-Verify | Encryption Verification | | 0x2F | |
| 18 | DR1 | DIF | 16-bit integer | 0x02 | |
| 19 | DR1 | VIF | External temperature 0.01°C | 0x65 | |
| 20 | DR1 | Value (LSB) | Example: 0x1122 | 0x22 | |
| 21 | DR1 | Value (MSB) | | 0x11 | |
| 22 | DR2 | DIF | 16-bit integer + Storage 1 | 0x42 = Value OK 0x72 = Not enough values | |
| 23 | DR2 | VIF | External temperature 0.01°C | 0x65 | |
| 24 | DR2 | Value (LSB) | Example: 0x4365 | 0x65 | |
| 25 | DR2 | Value (MSB) | | 0x43 | |
| 26 | DR3 | DIF | 16-bit integer | 0x02 | |
| 27 | DR3 | VIF | Extension table | 0xFB | |
| 28 | DR3 | VIF | Relative humidity 0.1%RH | 0x1A | |
| 29 | DR3 | Value (LSB) | Example: 0x1122 | 0x22 | |
| 30 | DR3 | Value (MSB) | | 0x11 | |
| 31 | DR4 | DIF | 16-bit integer + Storage 1 | 0x42 = Value OK 0x72 = Not enough values | |
| 32 | DR4 | VIF | Extension table | 0xFB | |
| 33 | DR4 | VIF | Relative humidity 0.1%RH | 0x1A | |
| 34 | DR4 | Value (LSB) | Example: 0x1122 | 0x22 | |
| 35 | DR4 | Value (MSB) | | 0x11 | |
| 36 | DR5 | DIF | 16-bit integer | 0x82 | |
| 37 | DR5 | DIFE | Subunit 2 | 0x80 | |
| 38 | DR5 | DIFE | Subunit 2 | 0x40 | |
| 39 | DR5 | VIF | Extension table | 0xFD | |
| 40 | DR5 | VIF | Dimensionless Radon value | 0x3A | |
| 41 | DR5 | Value (LSB) | Example: 0x1122 | 0x22 | |
| 42 | DR5 | Value (MSB) | | 0x11 | |
| 43 | DR6 | DIF | 16-bit integer + Storage 1 | 0xC2 = Value OK 0x72 = Not enough values | |
| 44 | DR6 | DIFE | Subunit 2 | 0x80 | |
| 45 | DR6 | DIFE | Subunit 2 | 0x40 | |
| 46 | DR6 | VIF | Extension table | 0xFD | |
| 47 | DR6 | VIF | Dimensionless Radon value avg | 0x3A | |
| 48 | DR6 | Value (LSB) | Example: 0x2233 | 0x33 | |

| | | | | |
|----|------|-------------|----------------------------|---|
| 49 | DR6 | Value (MSB) | | 0x22 |
| 50 | DR7 | DIF | 16-bit integer | 0x02 |
| 51 | DR7 | VIF | Pressure mbar | 0x68 |
| 52 | DR7 | Value (LSB) | Example: 0x1122 | 0x22 |
| 53 | DR7 | Value (MSB) | | 0x11 |
| 54 | DR8 | DIF | 16-bit integer + Storage 1 | 0x42 = Value OK 0x72 = Not enough values |
| 55 | DR8 | VIF | Pressure mbar | 0x68 |
| 56 | DR8 | Value (LSB) | Example: 0x1122 | 0x22 |
| 57 | DR8 | Value (MSB) | | 0x11 |
| 58 | DR9 | DIF | 16-bit integer | 0x02 |
| 59 | DR9 | VIF | Extension table | 0xFD |
| 60 | DR9 | VIF | Version | 0x0F |
| 61 | DR9 | Value (LSB) | Example: 0x0025 | 0x25 |
| 62 | DR9 | Value (MSB) | | 0x00 |
| 63 | DR10 | DIF | 16-bit integer | 0x02 |
| 64 | DR10 | VIF | Total Operating Time Days | 0x27 |
| 65 | DR10 | Value (LSB) | Example: 10 days (0x000A) | 0x0A |
| 66 | DR10 | Value (MSB) | | 0x00 |
| 67 | DR11 | DIF | 8-bit integer | 0x01 |
| 68 | DR11 | VIF | Extension table | 0xFD |
| 69 | DR11 | VIF | Model/Version | 0x0C |
| 70 | DR11 | Value | Example: 2 | 0x02 |
| 71 | DR12 | DIF | 16-bit integer | 0x02 |
| 72 | DR12 | VIF | Extension table | 0xFD |
| 73 | DR12 | VIF | Digital input | 0x1B |
| 74 | DR12 | Value (LSB) | Example: 0x0447 | 0x47 |
| 75 | DR12 | Value (MSB) | | 0x04 |

Table 1: Status byte with errors and alerts

| Bit | Info |
|----------|------------------------------|
| 0 (0x01) | X |
| 1 (0x02) | X |
| 2 (0x04) | X |
| 3 (0x08) | X |
| 4 (0x10) | CO2 Calibration not yet done |
| 5 (0x20) | X |
| 6 (0x40) | Radon: External sensor error |
| 7 (0x80) | CO2: External sensor error |

Table 2: Indications and status bits

| Bit | Info |
|-------------|---|
| 0 (0x0001) | Always 1 |
| 1 (0x0002) | LED indication enabled |
| 2 (0x0004) | Sound indication enabled |
| 3 (0x0008) | CO2: External error |
| 4 (0x0010) | X |
| 5 (0x0020) | X |
| 6 (0x0040) | CO2: Calibration not done |
| 7 (0x0080) | X |
| 8 (0x0100) | Radon: Normal operation |
| 9 (0x0200) | Radon: Not initialized |
| 10 (0x0400) | Radon: Ready Note: This bit is also set at startup before first valid value is sampled (15 minutes) |
| 11 (0x0800) | Radon error: Replacement needed |
| 12 (0x1000) | Radon error: Value overflow |
| 13 (0x2000) | Radon: Unit set OK |
| 14 (0x4000) | Radon: No response |
| 15 (0x8000) | X |