LANSEN
WIRELESS BUILDING TECHNOLOGY

WMBUS DATA FORMAT

TEMP/HUMIDITY/CO2 DEVICE (LAN-WMBUS-E-CO2)

Version: 3.2

Verify correct device and version

This document applies to the device LAN-WMBUS-E-CO2 with protocol version 3. 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.

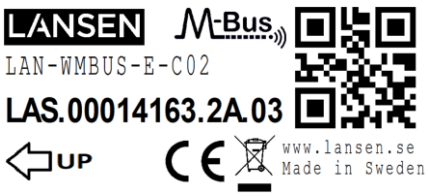
Protocol version in data packets

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 on the label. An example of the label is shown in the figure below and the relevant information is described by LAS.00014000.2A.03, where

- **Manufacturer code:** LAS
- **Serial number:** 00014163
- **Device type:** 2A
- **Protocol version:** 03



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WMBUS-data format

Art nr.	LAN-WMBUS-E-CO2
Version	3
Information	Packet is sent every 90 seconds in T-mode. Temperature, CO2, and humidity is sampled every 6 minutes.
DR1	Temperature: Last measured value
DR2	Temperature: Average last hour
DR3	Temperature: Average last 24 hours
DR4	Humidity: Last measured value
DR5	Humidity: Average last hour
DR6	Humidity: Average last 24 hours
DR7	CO2: Last measured value
DR8	CO2: Average last hour
DR9	CO2: Average last 24 hours
DR10	Last used calibration value
DR11	Minutes to next calibration
DR12	Software revision

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	CO2 sensor device	0x2A	
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 + Extension	0x82 = Value OK 0xB2 = Not enough values	
27	DR3	DIFE	Storage 2	0x01	
28	DR3	VIF	External temperature 0.01°C	0x65	
29	DR3	Value (LSB)	**Example:** 0x1122	0x22	
30	DR3	Value (MSB)		0x11	
31	DR4	DIF	16-bit integer	0x02	
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 + Storage 1	0x42 = Value OK 0x72 = Not enough values	

37	DR5	VIF	Extension table	0xFB
38	DR5	VIF	Relative humidity 0.1%RH	0x1A
39	DR5	Value (LSB)	**Example:** 0x1122	0x22
40	DR5	Value (MSB)		0x11
41	DR6	DIF	16-bit integer + Extension	0x82 = Value OK 0xB2 = Not enough values
42	DR6	DIFE	Storage 2	0x01
43	DR6	VIF	Extension table	0xFB
44	DR6	VIF	Relative humidity 0.1%RH	0x1A
45	DR6	Value (LSB)	**Example:** 0x1122	0x22
46	DR6	Value (MSB)		0x11
47	DR7	DIF	16-bit integer	0x02
48	DR7	VIF	Extension table	0xFD
49	DR7	VIF	Dimensionless	0x3A
50	DR7	Value (LSB)	**Example:** 0x1122	0x22
51	DR7	Value (MSB)		0x11
52	DR8	DIF	16-bit integer + Storage 1	0x42 = Value OK 0x72 = Not enough values
53	DR8	VIF	Extension table	0xFD
54	DR8	VIF	Dimensionless	0x3A
55	DR8	Value (LSB)	**Example:** 0x2233	0x33
56	DR8	Value (MSB)		0x22
57	DR9	DIF	16-bit integer + Extension	0x82 = Value OK 0xB2 = Not enough values
58	DR9	DIFE	Storage 2	0x01
59	DR9	VIF	Extension table	0xFD
60	DR9	VIF	Dimensionless	0x3A
61	DR9	Value (LSB)	**Example:** 0x0102	0x02
62	DR9	Value (MSB)		0x01
63	DR10	DIF	16-bit integer + Extension	0xC2
64	DR10	DIFE	Storage 3	0x01
65	DR10	VIF	Extension table	0xFD
66	DR10	VIF	Dimensionless	0x3A
67	DR10	Value (LSB)	**Example:** 0x2324	0x24
68	DR10	Value (MSB)		0x23
69	DR11	DIF	16-bit integer	0x82
70	DR11	DIFE	Subunit 1	0x40
71	DR11	VIF	Extension table	0xFD
72	DR11	VIF	Dimensionless	0x3A
73	DR11	Value (LSB)	Example: 0x0002	0x02
74	DR11	Value (MSB)		0x00
75	DR12	DIF	16-bit integer	0x02
76	DR12	VIF	Extension table	0xFD
77	DR12	VIF	Version	0x0F
78	DR12	Value (LSB)	Example: 0x0025	0x25
79	DR12	Value (MSB)		0x00

Table 1: Status byte with errors and alerts

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