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## WMBUS DATA FORMAT

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OCCUPANCY DETECTOR: LAN-WMBUS-OD-PIR



## Verify correct device and version

This document applies to the device LAN-WMBUS-OD-PIR with protocol version 4. 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** below 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-format**.

### Protocol version in label

The protocol version can be found on the label. An example of a label is shown in the figure below. Scanning the QR-code reveals the information regarding the device, in this case LAS.00037352.1F.04, where

- **Manufacturer code:** LAS
- **Serial number:** 00037352
- **Device type:** 1F
- **Protocol version:** 04



## WMBUS-format

Art nr.	LAN-WMBUS-OD-PIR
Version	4 (0x04)
Information	Packet is sent synchronous every 120 seconds in C-mode, format A (T-mode, format A on request). Packet is also sent asynchronous if device detects movement for the first time in 10 minutes.
DR1	<b>Motion detected:</b> Active if motion was detected past five minutes.
DR2	<b>Current alarm status:</b> Shows if motion has been detected within certain time interval.
DR3	<b>Number on minutes with activity in a row:</b> If motion has been detected during a 10-minute period, it counts as activity.
DR4	<b>Number of minutes since last alarm:</b> Stops counting at 65535 minutes (approximately 64 days).
DR5	<b>Total number of motion detections (slow):</b> Increments maximum every 5 minutes, i.e., a new movement can be detected when 5 minutes passed since the last movement.  <b>Note:</b> This counter will wrap when the value 65535 is reached.
DR6	<b>Total number of motion detections (fast):</b> Increments maximum every 10 seconds, i.e., a new movement can be detected when 10 seconds passed since the last movement.  <b>Note:</b> This counter will wrap when the value 65535 is reached.
DR7	<b>On time:</b> Number of days since last startup. Resets if batteries are removed and reinserted.
DR8	<b>Total on time:</b> Number of days since first startup. Does not reset if batteries are removed.
DR9	<b>Version</b>

Byte No	Field Name	Content	Info	Byte Data	
1.	L-Field	Length			Link layer
2.	C-Field	SND-NR		0x44	
3.	M-Field	Meter Manufacturer code	LAS	0x30	
4.	M-Field	Meter Manufacturer code		0x33	
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		0x0A	
10.	A-Field	Meter type	Motion sensor	0x1F	
11.	CI-Field	Short header		0x7A	Network layer
12.	Access no.	Transmission counter	Example: 7	0x07	
13.	Status	Device status (error/alarms)	Refer to <b>Table 1</b> for possible values	0x00	
14.	Configuration	Number of encrypted blocks	Example: 3	0x03	
15.	Configuration	Encryption	Encryption mode 5 + Synchronized: 0x25	0x25	
16.	AES-Verify	Encryption Verification		0x2F	
17.	AES-Verify	Encryption Verification		0x2F	
18.	DR1	DIF	8-bit integer	0x01	Motion detected
19.	DR1	VIF	Extension table	0xFD	
20.	DR1	VIFE	Digital Input	0x1B	
21.	DR1	Value	No alarm = 0 Alarm = 1	0x01	Current alarm status
22.	DR2	DIF	16-bit integer Storage 1	0x42	
23.	DR2	VIF	Extension table	0xFD	
24.	DR2	VIFE	Digital Input	0x1B	
25.	DR2	Value (LSB)	Refer to <b>Table 2</b> for possible values	0x00	
26.	DR2	Value (MSB)		0x00	
27.	DR3	DIF	16 Bit integer + storage 2	0x82	PIR active minutes
28.	DR3	DIFE	Storage 2	0x01	
29.	DR3	VIF	Extension	0x02	
30.	DR3	VIFE	Dimensionless	0xFD	
31.	DR3	Value (LSB)	Example: 288 minutes (0x0120)	0x20	
32.	DR3	Value (MSB)		0x01	
33.	DR4	DIF	16 Bit integer + storage 3	0xC2	PIR minutes since alarm
34.	DR4	DIFE	storage 3	0x01	

35.	DR4	VIF	Extension	0x02	
36.	DR4	VIFE	Dimensionless	0xFD	
37.	DR4	Value (LSB)	<b>Example:</b> 30 minutes (0x1E)	0x1E	
38.	DR4	Value (MSB)		0x00	
39.	DR5	DIF	16 Bit integer + storage 4	0xC2	PIR total number of motions detected (slow)
40.	DR5	VIF	Extension	0x02	
41.	DR5	VIF	Dimensionless	0xFD	
42.	DR5	Value (LSB)	<b>Example:</b> 260 times (0x0104)	0x04	
43.	DR5	Value (MSB)		0x01	
44.	DR6	DIF	16 Bit integer + storage 5	0xC2	PIR total number of motions detected (fast)
45.	DR6	VIF	Extension	0x02	
46.	DR6	VIF	Dimensionless	0xFD	
47.	DR6	Value (LSB)	<b>Example:</b> 400 times (0x0190)	0x90	
48.	DR6	Value (MSB)		0x01	
49.	DR7	DIF	16-bit integer	0x02	On time (days)
50.	DR7	VIF	On Time Days	0x23	
51.	DR7	Value (LSB)	<b>Example:</b> 2 days (0x0002)	0x02	
52.	DR7	Value (MSB)		0x00	
53.	DR8	DIF	16-bit integer	0x02	Total on time (days)
54.	DR8	VIF	Total Operating Time Days	0x27	
55.	DR8	Value (LSB)	<b>Example:</b> 4 days (0x0004)	0x04	
56.	DR8	Value (MSB)		0x00	
57.	DR9	DIF	16-bit integer	0x02	Version (build ID)
58.	DR9	VIF	Extension table	0xFD	
59.	DR9	VIF	Version	0xF	
60.	DR9	Value (LSB)	<b>Example:</b> 0x0004	0x04	
61.	DR9	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)	Motion detected past 120-240 seconds
6 (0x40)	Motion detected past 10 minutes
7 (0x80)	Motion detected past 24 hours

Table 2: Meaning of bits for current alarm status (DR2)

Bit	Info
0 (0x01)	Motion detected past 120-240 seconds
1 (0x02)	Motion detected past 10 minutes
2 (0x04)	Motion detected past 60 minutes
3 (0x08)	Motion detected past 24 hours

## Revision history.

Rev	Date	Name	Info
4.0	20211022	Martin Stanic	First version of the document.