
WMBUS DATA FORMAT

GATEWAY

LAN-WMBUS-GW5-BE-LR-A1/A2-(X)-CATM1-(X)
LAN-WMBUS-GW5-BE-LR-A1/A2-(X)-CAT1/4G-(X)
LAN-WMBUS-GW5-M-LR-A1/A2-(X)-CATM1-(X)
LAN-WMBUS-GW5-M-LR-A1/A2-(X)-CAT1/4G-(X)



Verify correct device and version

This document applies to our gateways LAN-WMBUS-GW5 with protocol version 11 (0x0B). 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

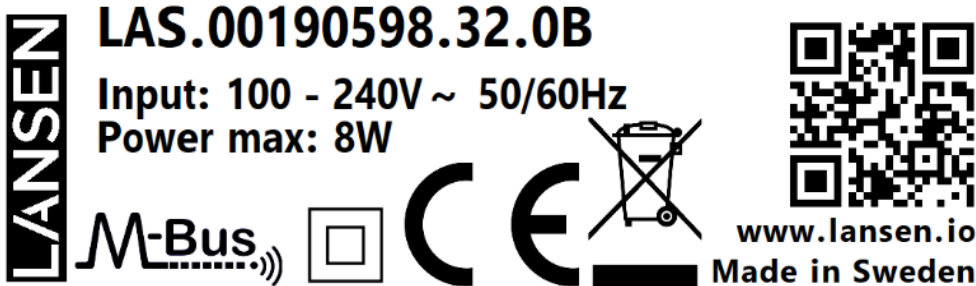
If it is possible to check the information in the data packets sent out by the device, then the protocol version is included in the data field called *A-Field Protocol version*. See chapter Error! Reference source not found..

Protocol version in label

The protocol version can be found on the label. An example of a label is shown in the figure below and the relevant information is described by LAS.00190598.32.0B, where:

- **Manufacturer code:** LAS
- **Serial number:** 00190598
- **Device type:** 32
- **Protocol version:** 0B

LAN - WMBUS - GW5 - M - LR - A1 - CAT1/4G



Status Packet

A status packet contains information and settings about the gateway and the packet is sent at regular intervals.

In other words, a status packet is sent:

- Every 12 hours over the MQTT interface.
- On every new connection to the MQTT server.
- Every minute over the wM-Bus interface (default in C mode, frame format A).

Note: Information in DR1 – DR11 below are the same as for the repeater.	
DR1	Total number of packets transmitted over MQTT since power up
DR2	Used routing slots (maximum 2000) used (whitelist devices).
DR3	Software version of gateway
DR4	Is the bridge listening now? (1=Yes, 0=NO)
DR5	Seconds to mode change (Listen→Sleep or Sleep→Listen). Maximum 32767 seconds
DR6	Value on parameter "Listen timer"
DR7	Value on parameter "Pause timer" (0=The gateway will always listen)
DR8	Shows which weekday(s) the gateway is listening. See Error! Reference source not found. for more information
DR9	Value on parameter "Start time", shown as minutes after midnight (-1=Not used)
DR10	Current time
DR11	Current battery level. Battery level is always 3600 for battery version and 5000 for mains version
DR12	IMEI number
DR13	ICCID number of SIM-card number
DR14	RSSI in the LTE M1 network (connection between the gateway and the base station)
DR15	Hardware model
DR16	Hardware version
DR17	On time (days) since powerup
DR18	Number of seconds for which the modem has been active
DR19	Number of seconds for which the wM-Bus radio has been in listen mode
DR20	Shows which weekday(s) gateway will upload data. See Error! Reference source not found. for more information Note: Has no function if parameter <i>alwaysonlineMQTT</i> is enabled.
DR21	The time for which the modem will upload stored data, shown as minutes after midnight (-1=Not used) Note: Has no function if parameter <i>alwaysonlineMQTT</i> is enabled.
DR22	The interval for which the modem will upload data. Maximum 1440 minutes (24 hours). Can be combined with days to upload data (see DR20).
DR23	Number of NTP server connection retries since last successful NTP connection.

Byte No.	Field Name	Content	Info	Byte data (example)	Layer
1	Start	Start-byte		0x68	Data Link
2	L-Field	Telegram length	If packet is longer than 255 then both L-fields should be added, otherwise the L-fields are the same.	0x45	
3	L-field	Telegram length		0x45	
4	Start	Start-byte		0x68	
5	C-Field	SND_NR		0x44	
6	A-Field	Primary addressing	0xFD = Use secondary addressing	0xFD	
7	CI-Field	Long header (0x72)		0x72	Transport
8	ID-Field	Identification number (LSB)		0x00	
9	ID-Field	Identification number	Example: 33221100	0x11	
10	ID-Field	Identification number		0x22	

11	ID-Field	Identification number (MSB)		0x33	
12	Manufacturer	Manufacturer code (LSB)	LAS	0x33	
13	Manufacturer	Manufacturer code (MSB)		0x30	
14	Version	Version		0x07	
15	Type	Device type		0x1B	
16	Acc.	Access number		0x01	
17	Status	Errors and alerts	Example: Low battery	0x04	
18	Config.	Configuration field	Example: Encryption off	0x00	
19	Config.	Configuration field		0x00	
20	ID-Field	DIF	8-digit BCD	0x0C	
21	ID-Field	VIF	Fabrication number	0x78	
22	ID-Field	Gateway serial number (LSB)	Example: 00000008	0x08	
23	ID-Field	Gateway serial number		0x00	
24	ID-Field	Gateway serial number		0x00	
25	ID-Field	Gateway serial number (MSB)		0x00	
26	DR1	DIF	32-bit integer	0x04	Number of total packets transmitted over MQTT since power up
27	DR1	VIF	Extension table	0xFD	
28	DR1	VIFE	Dimensionless	0x3A	
29	DR1	Value (LSB)	Example: 65793 (0x010101)	0x01	
31	DR1	Value		0x01	
32	DR1	Value		0x01	
33	DR1	Value (MSB)		0x00	
34	DR2	DIF	16-bit integer + Extension	0x82	Used routing slots
35	DR2	DIFE	Subunit 1	0x40	
36	DR2	VIF	Extension table	0xFD	
37	DR2	VIFE	Dimensionless	0x3A	
38	DR2	Value (LSB)	Example: 521 (0x0209)	0x09	
39	DR2	Value (MSB)		0x02	
40	DR3	DIF	16-bit integer	0x02	Software version of gateway
41	DR3	VIF	Extension table	0xFD	
42	DR3	VIFE	Version	0x0F	
43	DR3	Value (LSB)	Example: 120 (0x0078)	0x78	
44	DR3	Value (MSB)		0x00	
45	DR4	DIF	8-bit integer + Extension	0x81	Is the bridge listening now? (1=Yes, 0=NO)
46	DR4	DIFE	Subunit 2	0x80	
47	DR4	DIFE	Subunit 2	0x40	
48	DR4	VIF	Extension table	0xFD	
49	DR4	VIFE	Dimensionless	0x3A	
50	DR4	Value	Example: Yes (0x01)	0x01	
51	DR5	DIF	32-bit integer + Extension	0x84	Seconds to mode change
52	DR5	DIFE	Subunit 3	0xC0	
53	DR5	DIFE	Subunit 3	0x40	
54	DR5	VIF	Extension table	0xFD	
55	DR5	VIFE	Dimensionless	0x3A	
56	DR5	Value (LSB)	Example: 5803 (0x000016AB)	0xAB	
57	DR5	Value		0x16	
58	DR5	Value		0x00	
59	DR5	Value (MSB)		0x00	
60	DR6	DIF	16-bit integer + Storage 1	0x42	
61	DR6	VIF	Extension table	0xFD	

62	DR6	VIFE	Dimensionless	0x3A	Value on parameter "Listen timer"
63	DR6	Value (LSB)	Example: 20 (0x0014)	0x14	
64	DR6	Value (MSB)		0x00	

65	DR7	DIF	16-bit integer + Extension	0x82	Value on parameter "Pause timer"
66	DR7	DIFE	Storage 2	0x01	
67	DR7	VIF	Extension table	0xFD	
68	DR7	VIFE	Dimensionless	0x3A	
69	DR7	Value (LSB)	Example: 1420 (0x058C)	0x8C	
70	DR7	Value (MSB)		0x05	
71	DR8	DIF	8-bit integer + Storage + Extension	0xC1	Which weekdays the gateway is listening
72	DR8	DIFE	Storage 3	0x01	
73	DR8	VIF	Extension table	0xFD	
74	DR8	VIFE	Dimensionless	0x3A	
75	DR8	Value	Example: Mondays Note: See Error! Reference source not found. for more info.	0x02	
76	DR9	DIF	16-bit integer + Extension	0x82	Value on parameter "Start time", shown as minutes after midnight
77	DR9	DIFE	Storage 4	0x02	
78	DR9	VIF	Extension table	0xFD	
79	DR9	VIFE	Dimensionless	0x3A	
80	DR9	Value (LSB)	Example: 10:01 (0x0259)	0x59	
81	DR9	Value (MSB)		0x02	
82	DR10	DIF	48-bit integer	0x06	Current time
83	DR10	VIF	Time Type I format	0x6D	
84	DR10	Current Time	Example: 2001-0101 00:01:02	0x02	
85	DR10	Current Time		0x01	
86	DR10	Current Time		0xC0	
87	DR10	Current Time		0x01	
88	DR10	Current Time		0x01	
89	DR10	Current Time		0x00	
90	DR11	DIF	16-bit integer	0x02	Current battery level
91	DR11	DIFE	Extension table	0xFD	
92	DR11	VIF	Voltage (mV)	0x46	
93	DR11	Value (LSB)	Example: 3600 (0x0E10)	0x10	
94	DR11	Value (MSB)		0x0E	
95	DR12	DIF	Variable Length	0xCD	IMEI number
96	DR12	DIFE	Storage 5	0x02	
97	DR12	VIFE	Extension table	0xFD	
98	DR12	VIF	Dimensionless	0x3A	
99	DR12	LVAR	IMEI string length (15 bytes)	0x0F	
100	DR12	IMEI Ascii string (LSB)	Example: 012345678901234	0x34	
101	DR12	IMEI Ascii string		0x33	
102	DR12	IMEI Ascii string		0x32	
103	DR12	IMEI Ascii string		0x31	
104	DR12	IMEI Ascii string		0x30	
105	DR12	IMEI Ascii string		0x39	
106	DR12	IMEI Ascii string		0x38	
107	DR12	IMEI Ascii string		0x37	

108	DR12	EMEI Ascii string		0x36	
109	DR12	EMEI Ascii string		0x35	
110	DR12	EMEI Ascii string		0x34	
111	DR12	EMEI Ascii string		0x33	
112	DR12	EMEI Ascii string		0x32	
113	DR12	EMEI Ascii string		0x31	
114	DR12	EMEI Ascii string (MSB)		0x30	

115	DR13	DIF	Variable Length	0x8D	ICCID number of SIM-card number
116	DR13	DIFE	Storage 6	0x03	
117	DR13	VIF	Extension table	0xFD	
118	DR13	VIFE	Dimensionless	0x3A	
119	DR13	LVAR	ICCID string length (19-20 bytes)	0x14	
120	DR13	ICCID Ascii string (LSB)	Example: 01234567890123456789	0x39	
121	DR13	ICCID Ascii string		0x38	
122	DR13	ICCID Ascii string		0x37	
123	DR13	ICCID Ascii string		0x36	
124	DR13	ICCID Ascii string		0x35	
125	DR13	ICCID Ascii string		0x34	
126	DR13	ICCID Ascii string		0x33	
127	DR13	ICCID Ascii string		0x32	
128	DR13	ICCID Ascii string		0x31	
129	DR13	ICCID Ascii string		0x30	
130	DR13	ICCID Ascii string		0x39	
131	DR13	ICCID Ascii string		0x38	
132	DR13	ICCID Ascii string		0x37	
133	DR13	ICCID Ascii string		0x36	
134	DR13	ICCID Ascii string		0x35	
135	DR13	ICCID Ascii string		0x34	
136	DR13	ICCID Ascii string		0x33	
137	DR13	ICCID Ascii string		0x32	
138	DR13	ICCID Ascii string		0x31	
139	DR13	ICCID Ascii string (MSB)		0x30	
140	DR14	DIF	8-bit integer	0x01	RSSI in the LTE M1 network
141	DR14	VIF	Extension table	0xFD	
142	DR14	VIFE	RSSI	0x71	
143	DR14	Value	Example: -71 Note: Calculate this value as two's (2's) complement	0xB9	
144	DR15	DIF	8-bit integer	0x01	Hardware model
145	DR15	VIF	Extension table	0xFD	
146	DR15	VIFE	Model version	0x0C	
147	DR15	Value	Example: 0x01	0x01	
148	DR16	DIF	8-bit integer	0x01	Hardware version
149	DR16	VIF	Extension table	0xFD	
150	DR16	VIFE	Hardware version	0x0D	
151	DR16	Value	Example: 0x01	0x01	
152	DR17	DIF	16-bit integer	0x02	On time (days) since powerup
153	DR17	VIF	On time days	0x23	

154	DR17	Value (LSB)	Example: 2051	0x03	Number of seconds for which the modem has been active
155	DR17	Value (MSB)		0x08	
156	DR18	DIF	32-bit integer	0x04	
157	DR18	VIF	Operating time seconds	0x24	
158	DR18	Value (LSB)	Example: 9173511 seconds (0x008BFA07)	0x07	
159	DR18	Value		0xFA	
160	DR18	Value		0x8B	
161	DR18	Value (MSB)		0x00	

162	DR19	DIF	32-bit integer + Extension	0x84	Number of seconds for which the wM-Bus radio has been in listen mode
163	DR19	DIFE	Subunit 1	0x40	
164	DR19	VIF	Operating time seconds	0x24	
165	DR19	Value (LSB)	Example: 9173511 seconds (0x008BFA07)	0x07	
166	DR19	Value		0xFA	
167	DR19	Value		0x8B	
168	DR19	Value (MSB)	0x00		
169	DR20	DIF	8-bit integer + Storage + Extension	0xC1	Shows which weekday(s) gateway will upload data
170	DR20	DIFE	Storage 7	0x03	
171	DR20	VIF	Extension table	0xFD	
172	DR20	VIFE	Dimensionless	0x3A	
173	DR20	Value	Example: Monday + Wednesday Note: Refer to Error! Reference source not found..	0x0A	
174	DR21	DIF	16-bit integer + Extension	0x82	The time for which the modem will upload stored data, shown as minutes after midnight
175	DR21	DIFE	Storage 8	0x04	
176	DR21	VIF	Extension table	0xFD	
177	DR21	VIFE	Dimensionless	0x3A	
178	DR21	Value (LSB)	Example: 00:30	0x1E	
179	DR21	Value (MSB)		0x00	
180	DR22	DIF	16-bit integer + Extension + storage	0xC2	The interval for which the modem will upload data
181	DR22	DIFE	Storage 9	0x04	
182	DR22	VIF	Extension table	0xFD	
183	DR22	VIFE	Dimensionless	0x3A	
184	DR22	Value (LSB)	Example: 30 minutes	0x1E	
185	DR22	Value (MSB)		0x00	
186	DR23	DIF	16-bit integer + Extension	0x82	Number of NTP server connection retries since last successful NTP connection
187	DR23	DIFE	Storage 5	0x05	
188	DR23	VIF	Extension table	0xFD	
189	DR23	VIFE	Dimensionless	0x3A	
190	DR23	Value (LSB)	Example: 5	0x05	
191	DR23	Value (MSB)		0x00	

Application

Table 1: Explanation of status bits used by the battery driven gateways

Bit	Info
0 (0x01)	X
1 (0x02)	X
2 (0x04)	Low battery
3 (0x08)	X
4 (0x10)	X
5 (0x20)	X
6 (0x40)	X
7 (0x80)	X

Table 2: Bit representation for days when gateway is listening

Bit	Info
0 (0x01)	Sunday
1 (0x02)	Monday
2 (0x04)	Tuesday
3 (0x08)	Wednesday
4 (0x10)	Thursday
5 (0x20)	Friday
6 (0x40)	Saturday
7 (0x80)	NOT USED