

LANSEN

WMBUS Data format *LAN-WMBUS-WMBUS-GW5*

Lansen Systems AB

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Verify correct device and version

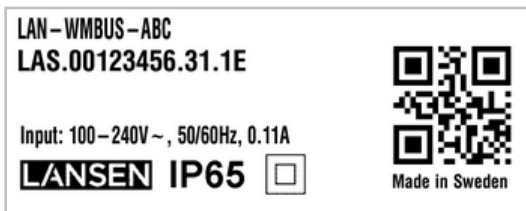
This document applies to Gateway 5 devices with *protocol version 30 (1E)*. Find the protocol version by looking at the label on the device or by inspecting the data packets sent by the device.

Protocol version in data packets

The *protocol version* is included in the data field *A-Field Protocol version*. For more information, see [Status packet](#).

Protocol version in device label

Find the unique device identifier on the device label.



Example 1. The protocol version is the last segment of the unique identifier.

LAN.00123456.31.1E

Status packet

A status packet contains information and settings about the gateway.

A status packet is sent:

- Every 12 h 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).

Table 1. Data records of a Status packet.

Data Record	Description
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 s
DR6	Value on parameter Listen timer
DR7	Value on parameter Pause timer (0=The gateway will always listen)
DR8	Weekday(s) the gateway is listening. See Table 4 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 the modem has been active
DR19	Number of seconds the wM-Bus radio has been in listen mode
DR20	Weekday(s) the gateway will upload data. See Table 4 for more information Note: Has no function if parameter MQTT Always Online is enabled.
DR21	The time the modem will upload stored data, shown as minutes after midnight (-1=Not used) Note: Has no function if parameter MQTT Always Online is enabled.
DR22	The interval the modem uploads data. Maximum 1440 min (24 h). Can be combined with days to upload data (see DR20).
DR23	Number of NTP server connection retries since last successful NTP connection.
DR24	Month/day(s) the gateway will upload data. Note: Has no function if parameter MQTT Always Online is enabled.
DR25	Weeks the gateway uploads data. 1 = Every week, 2 = Every other week, 3 = Every third week etc. Note: Has no function if parameter MQTT Always Online is enabled.
DR26	Month/days(s) the gateway is listening.
DR27	Weekdays the gateway is listening
DR28	Extension card type
DR29	Extension card software version
DR30	Network interface type
DR31	Network interface card software version

Data Link layer

Byte No.	Field Name	Content	Info	Byte data (example)
1	Start	Start-byte		0x68
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

Transport Layer

Byte No.	Field Name	Content	Info	Byte data (example)
7	CI-Field	Long header (0x72)		0x72
8	ID-Field	Identification number (LSB)	Example: 33221100	0x00
9	ID-Field	Identification number		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

Application Layer

Byte No.	Field Name	Content	Info	Byte data (example)
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

Data record 1: Number of total packets transmitted over MQTT since power up

Byte No.	Field Name	Content	Info	Byte data (example)
26	DR1	DIF	32-bit integer	0x04
27	DR1	VIF	Extension table	0xFD
28	DR1	VIFE	Dimensionless	0x3A
29	DR1	Value (LSB)	Example: 65793 (0x010101)	0x01
30	DR1	Value		0x01
31	DR1	Value		0x01
32	DR1	Value (MSB)		0x00

Data record 2: Used routing slots

Byte No.	Field Name	Content	Info	Byte data (example)
33	DR2	DIF	16-bit integer + Extension	0x82
34	DR2	DIFE	Subunit 1	0x40
35	DR2	VIF	Extension table	0xFD
36	DR2	VIFE	Dimensionless	0x3A
37	DR2	Value (LSB)	Example: 521 (0x0209)	0x09
38	DR2	Value (MSB)		0x02

Data record 3: Software version of gateway

Byte No.	Field Name	Content	Info	Byte data (example)
39	DR3	DIF	16-bit integer	0x02
40	DR3	VIF	Extension table	0xFD
41	DR3	VIFE	Version	0x0F
42	DR3	Value (LSB)	Example: 120 (0x0078)	0x78
43	DR3	Value (MSB)		0x00

Data record 4: Is the bridge listening now? (1=Yes, 0=NO)

Byte No.	Field Name	Content	Info	Byte data (example)
44	DR4	DIF	8-bit integer + Extension	0x81
45	DR4	DIFE	Subunit 2	0x80
46	DR4	DIFE	Subunit 2	0x40
47	DR4	VIF	Extension table	0xFD
48	DR4	VIFE	Dimensionless	0x3A
49	DR4	Value	Example: Yes (0x01)	0x01

Data record 5: Seconds to mode change

Byte No.	Field Name	Content	Info	Byte data (example)
50	DR5	DIF	32-bit integer + Extension	0x84
51	DR5	DIFE	Subunit 3	0xC0
52	DR5	DIFE	Subunit 3	0x40
53	DR5	VIF	Extension table	0xFD
54	DR5	VIFE	Dimensionless	0x3A
55	DR5	Value (LSB)	Example: 5803 (0x000016AB)	0xAB
56	DR5	Value		0x16
57	DR5	Value		0x00
58	DR5	Value (MSB)		0x00

Data record 6: Value on parameter **Listen timer**

Byte No.	Field Name	Content	Info	Byte data (example)
59	DR6	DIF	16-bit integer + Storage 1	0x42
60	DR6	VIF	Extension table	0xFD
61	DR6	VIFE	Dimensionless	0x3A
62	DR6	Value (LSB)	Example: 20 (0x0014)	0x14
63	DR6	Value (MSB)		0x00

Data record 7: Value on parameter **Pause timer**

Byte No.	Field Name	Content	Info	Byte data (example)
64	DR7	DIF	16-bit integer + Extension	0x82
65	DR7	DIFE	Storage 2	0x01
66	DR7	VIF	Extension table	0xFD
67	DR7	VIFE	Dimensionless	0x3A
68	DR7	Value (LSB)	Example: 1420 (0x058C)	0x8C
69	DR7	Value (MSB)		0x05

Data record 8: Weekdays the gateway is listening

Byte No.	Field Name	Content	Info	Byte data (example)
70	DR8	DIF	8-bit integer + Storage + Extension	0xC1
71	DR8	DIFE	Storage 3	0x01
72	DR8	VIF	Extension table	0xFD
73	DR8	VIFE	Dimensionless	0x3A
74	DR8	Value	Example: Mondays Note: See Table 4 for more info.	0x02

*Data record 9: Value on parameter **Start time**, shown as minutes after midnight*

Byte No.	Field Name	Content	Info	Byte data (example)
75	DR9	DIF	16-bit integer + Extension	0x82
76	DR9	DIFE	Storage 4	0x02
77	DR9	VIF	Extension table	0xFD
78	DR9	VIFE	Dimensionless	0x3A
79	DR9	Value (LSB)	Example: 10:01 (0x0259)	0x59
80	DR9	Value (MSB)		0x02

Data record 10: Current time

Byte No.	Field Name	Content	Info	Byte data (example)
81	DR10	DIF	48-bit integer	0x06
82	DR10	VIF	Time Type I format	0x6D
83	DR10	Current Time	Example: 2001-0101 00:01:02	0x02
84	DR10	Current Time		0x01
85	DR10	Current Time		0xC0
86	DR10	Current Time		0x01
87	DR10	Current Time		0x01
88	DR10	Current Time		0x00

Data record 11: Current battery level

Byte No.	Field Name	Content	Info	Byte data (example)
89	DR11	DIF	16-bit integer	0x02
90	DR11	DIFE	Extension table	0xFD
91	DR11	VIF	Voltage (mV)	0x46
92	DR11	Value (LSB)	Example: 3600 (0x0E10)	0x10
93	DR11	Value (MSB)		0x0E

Data record 12: IMEI number

Byte No.	Field Name	Content	Info	Byte data (example)
94	DR12	DIF	Variable Length	0xCD
95	DR12	DIFE	Storage 5	0x02
96	DR12	VIFE	Extension table	0xFD
97	DR12	VIF	Dimensionless	0x3A
98	DR12	LVAR	IMEI string length (15 bytes)	0x0F
99	DR12	IMEI Ascii string (LSB)	Example: 012345678901234	0x34
100	DR12	IMEI Ascii string		0x33
101	DR12	IMEI Ascii string		0x32
102	DR12	IMEI Ascii string		0x31
103	DR12	IMEI Ascii string		0x30
104	DR12	IMEI Ascii string		0x39
105	DR12	IMEI Ascii string		0x38
106	DR12	IMEI Ascii string		0x37
107	DR12	IMEI Ascii string		0x36
108	DR12	IMEI Ascii string		0x35
109	DR12	IMEI Ascii string		0x34
110	DR12	IMEI Ascii string		0x33
111	DR12	IMEI Ascii string		0x32
112	DR12	IMEI Ascii string		0x31
113	DR12	IMEI Ascii string (MSB)		0x30

Data record 13: ICCID number of SIM-card number

Byte No.	Field Name	Content	Info	Byte data (example)
114	DR13	DIF	Variable Length	0x8D
115	DR13	DIFE	Storage 6	0x03
116	DR13	VIF	Extension table	0xFD
117	DR13	VIFE	Dimensionless	0x3A
118	DR13	LVAR	ICCID string length (19-20 bytes)	0x14

Byte No.	Field Name	Content	Info	Byte data (example)
119	DR13	ICCID Ascii string (LSB)	Example: 01234567890123456789	0x39
120	DR13	ICCID Ascii string		0x38
121	DR13	ICCID Ascii string		0x37
122	DR13	ICCID Ascii string		0x36
123	DR13	ICCID Ascii string		0x35
124	DR13	ICCID Ascii string		0x34
125	DR13	ICCID Ascii string		0x33
126	DR13	ICCID Ascii string		0x32
127	DR13	ICCID Ascii string		0x31
128	DR13	ICCID Ascii string		0x30
129	DR13	ICCID Ascii string		0x39
130	DR13	ICCID Ascii string		0x38
131	DR13	ICCID Ascii string		0x37
132	DR13	ICCID Ascii string		0x36
133	DR13	ICCID Ascii string		0x35
134	DR13	ICCID Ascii string		0x34
135	DR13	ICCID Ascii string		0x33
136	DR13	ICCID Ascii string		0x32
137	DR13	ICCID Ascii string		0x31
138	DR13	ICCID Ascii string (MSB)		0x30

Data record 14: RSSI in the LTE M1 network

Byte No.	Field Name	Content	Info	Byte data (example)
139	DR14	DIF	8-bit integer	0x01
140	DR14	VIF	Extension table	0xFD
141	DR14	VIFE	RSSI	0x71
142	DR14	Value	Example: -71 Note: Calculate this value as two's (2's) complement	0xB9

Data record 15: Hardware model

Byte No.	Field Name	Content	Info	Byte data (example)
143	DR15	DIF	8-bit integer	0x01
144	DR15	VIF	Extension table	0xFD
145	DR15	VIFE	Model version	0x0C
146	DR15	Value	Example: 0x01	0x01

Data record 16: Hardware version

Byte No.	Field Name	Content	Info	Byte data (example)
147	DR16	DIF	8-bit integer	0x01
148	DR16	VIF	Extension table	0xFD
149	DR16	VIFE	Hardware version	0x0D
150	DR16	Value	Example: 0x01	0x01

Data record 17: On time (days) since powerup

Byte No.	Field Name	Content	Info	Byte data (example)
151	DR17	DIF	16-bit integer	0x02
152	DR17	VIF	On time days	0x23
153	DR17	Value (LSB)	Example: 2051	0x03
154	DR17	Value (MSB)		0x08

Data record 18: Number of seconds the modem has been active

Byte No.	Field Name	Content	Info	Byte data (example)
155	DR18	DIF	32-bit integer	0x04
156	DR18	VIF	Operating time seconds	0x24
157	DR18	Value (LSB)	Example: 9173511 s (0x008BFA07)	0x07
158	DR18	Value		0xFA
159	DR18	Value		0x8B
160	DR18	Value (MSB)		0x00

Data record 19: Number of seconds the wM-Bus radio has been in listen mode

Byte No.	Field Name	Content	Info	Byte data (example)
161	DR19	DIF	32-bit integer + Extension	0x84
162	DR19	DIFE	Subunit 1	0x40
163	DR19	VIF	Operating time seconds	0x24
164	DR19	Value (LSB)	Example: 9173511 s (0x008BFA07)	0x07
165	DR19	Value		0xFA
166	DR19	Value		0x8B
167	DR19	Value (MSB)		0x00

Data record 20: Weekday(s) gateway uploads data

Byte No.	Field Name	Content	Info	Byte data (example)
168	DR20	DIF	8-bit integer + Storage + Extension	0xC1
169	DR20	DIFE	Storage 7	0x03
170	DR20	VIF	Extension table	0xFD

Byte No.	Field Name	Content	Info	Byte data (example)
171	DR20	VIFE	Dimensionless	0x3A
172	DR20	Value	Example: Monday + Wednesday Note: Refer to Table 4 .	0x0A

Data record 21: The time the modem uploads stored data, shown as minutes from midnight

Byte No.	Field Name	Content	Info	Byte data (example)
173	DR21	DIF	16-bit integer + Extension	0x82
174	DR21	DIFE	Storage 8	0x04
175	DR21	VIFE	Dimensionless	0x3A
176	DR21	VIF	Extension table	0xFD
177	DR21	Value (LSB)	Example: 00:30	0x1E
178	DR21	Value (MSB)		0x00

Data record 22: The interval for modem data uploads

Byte No.	Field Name	Content	Info	Byte data (example)
179	DR22	DIF	16-bit integer + Extension + storage	0xC2
180	DR22	DIFE	Storage 9	0x04
181	DR22	VIF	Extension table	0xFD
182	DR22	VIFE	Dimensionless	0x3A
183	DR22	Value (LSB)	Example: 30 min	0x1E
184	DR22	Value (MSB)		0x00

Data record 23: Number of NTP server connection retries since last successful NTP connection

Byte No.	Field Name	Content	Info	Byte data (example)
185	DR23	DIF	16-bit integer + Extension	0x82
186	DR23	DIFE	Storage 10	0x05
187	DR23	VIF	Extension table	0xFD
188	DR23	VIFE	Dimensionless	0x3A
189	DR23	Value (LSB)	Example: 5	0x05
190	DR23	Value (MSB)		0x00

Data record 24: Day(s) of the month gateway uploads data

Byte No.	Field Name	Content	Info	Byte data (example)
191	DR24	DIF	32-bit integer + Extension	0xC4
192	DR24	DIFE	Storage 11	0x05
193	DR24	VIF	Extension table	0xFD

Byte No.	Field Name	Content	Info	Byte data (example)
194	DR24	VIFE	Dimensionless Example: First day of the month	0x3A
195	DR24	Value (LSB)		0x01
196	DR24	Value		0x00
197	DR24	Value		0x00
198	DR24	Value (MSB)		0x00

Data record 25: Weeks gateway uploads data

Byte No.	Field Name	Content	Info	Byte data (example)
199	DR25	DIF	8-bit integer + Storage + Extension	0x81
200	DR25	DIFE	Storage 12	0x06
201	DR25	VIF	Extension table	0xFD
202	DR25	VIFE	Dimensionless	0x3A
203	DR25	Value	Example: Every week	0x01

Data record 26: Days of the month the gateway is listening

Byte No.	Field Name	Content	Info	Byte data (example)
204	DR26	DIF	32-bit integer + Extension	0x84
205	DR26	DIFE	Storage 13	0x06
206	DR26	VIF	Extension table	0xFD
207	DR26	VIFE	Dimensionless	0x3A
208	DR26	Value (LSB)	Example: First day of the month	0x01
209	DR26	Value		0x00
210	DR26	Value		0x00
211	DR26	Value (MSB)		0x00

Data record 27: Weekday(s) the gateway is listening

Byte No.	Field Name	Content	Info	Byte data (example)
212	DR27	DIF	8-bit integer	0x84
213	DR27	DIFE	Storage 14	0x07
214	DR27	VIF	Extension table	0xFD
215	DR27	VIFE	Dimensionless	0x3A
216	DR27	Value	Example: Weekday(s) the gateway is listening	0x01

Data record 28: Extension card type

Byte No.	Field Name	Content	Info	Byte data (example)
217	DR28	DIF	8-bit integer + Extension	0xC1

Byte No.	Field Name	Content	Info	Byte data (example)
218	DR28	DIFE	Storage 15	0x07
219	DR28	VIF	Extension table	0xFD
220	DR28	VIFE	Dimensionless	0x3A
221	DR28	Value	Example: Pulse	0x01

Data record 29: Extension card version

Byte No.	Field Name	Content	Info	Byte data (example)
222	DR29	DIF	16-bit integer + Extension	0xC1
223	DR29	DIFE	Storage 16	0x08
224	DR29	VIF	Extension table	0xFD
225	DR29	VIFE	Dimensionless	0x3A
226	DR29	Value (LSB)	Example: v.1	0x01
227	DR29	Value (MSB)		0x00

Data record 30: Network interface type

Byte No.	Field Name	Content	Info	Byte data (example)
228	DR30	DIF	8-bit integer + Extension	0xC1
229	DR30	DIFE	Storage 17	0x08
230	DR30	VIF	Extension table	0xFD
231	DR30	VIFE	Dimensionless	0x3A
232	DR30	Value	Example: ETH	0x01

Table 2. Data record 31: Network interface card software version

Byte No.	Field Name	Content	Info	Byte data (example)
233	DR31	DIF	16-bit integer + Extension	0x82
234	DR31	DIFE	Storage 18	0x09
235	DR31	VIF	Extension table	0xFD
236	DR31	VIFE	Dimensionless	0x3A
237	DR31	Value (LSB)	Example: v.1	0x01
238	DR31	Value (MSB)		0x00

Table 3. Status bits used by battery operated gateways

Bit	Info
1 (0x01)	X
2 (0x02)	X
3 (0x04)	Low battery
4 (0x08)	X
5 (0x10)	X
6 (0x20)	X
7 (0x40)	X
8 (0x80)	X

Table 4. Bit representation for days when gateway is listening

Bit	Info
1 (0x01)	Sunday
2 (0x02)	Monday
3 (0x04)	Tuesday
4 (0x08)	Wednesday
5 (0x10)	Thursday
6 (0x20)	Friday
7 (0x40)	Saturday
8 (0x80)	NOT USED