## LAN-WMBUS-G

Wireless MBUS, high performance Temperature, Humidity and Pulse counting device.

The LAN-WMBUS-G-T(E)/(H)-(P) is a temperature/humidity sensor and pulse counter. It is used for measuring ambient temperature and for counting pulses from water meters, energy meters etc. The device has the following advanced features;

- ➢ Wireless MBUS EN13757-3/4:2013 Standard. S, T and C-mode are supported.
- ➢ Superb antenna design and high output power for long range.
- ➢ On board temperature sensor. (T), (TE), (TH).
- ➢ Humidity sensor (TH)
- ➢ 2 Digital pulse inputs (P)
- ➢ Sabotage detection if opened of removed from wall.

- ➢ AES 128 encryption. CBC Mode 5 OMS compliant.
- ➢ Very long battery lifetime, typical at least 16 years.
- ➢ Wide operating temperature range – 20 to +55 degree C.
- ➢ Plug & Play. Works right out the box, no complex installation needed.
- ➢ Low battery alarm.
- ➢ Available with optional high quality battery.

Product Matrix

Article Number	Temperature sensor range	Accuracy typical at 25 degrees C.	Humidity sensor	External inputs
LAN-WMBUS-G-T	0 to +45 gr C	± 0.3	–	–
LAN-WMBUS-G-T-P	0 to +45 gr C	± 0.3	–	2
LAN-WMBUS-G-TE	–20 to +55 gr C	± 0.3	–	–
LAN-WMBUS-G-TE-P	–20 to +55 gr C	± 0.3	–	2
LAN-WMBUS-G-TH	–20 to +55 gr C	± 0.3	Yes	–
LAN-WMBUS-G-TH-P	–20 to +55 gr C	± 0.3	Yes	2
LAN-WMBUS-G-P	–	–	–	2
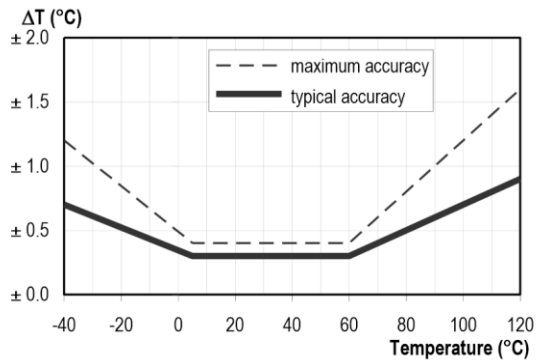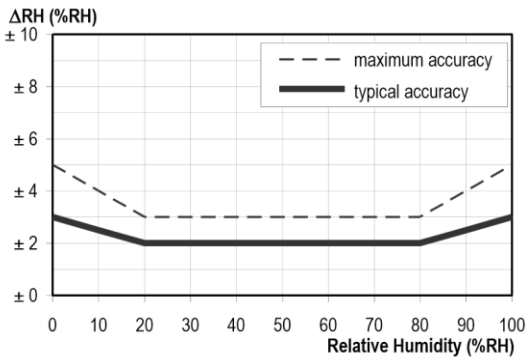
Temperature and humidity characteristics for the –TH and TE device.
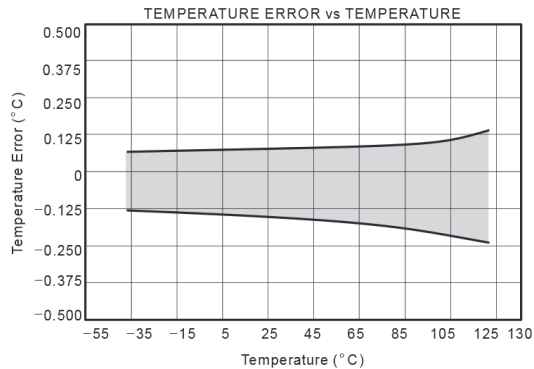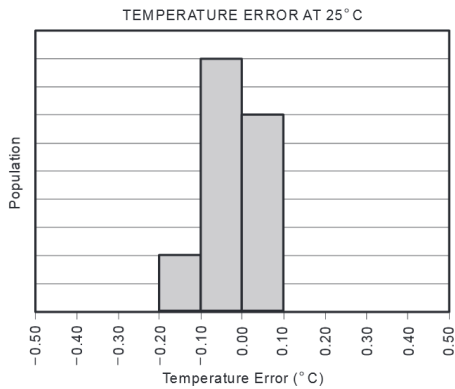
Temperature characteristics for –TH and TE device if the high precision temperature sensor is added, contact us for more information.

Radio characteristics	
Frequency	S–Mode 868.3 MHz T–Mode 868.95 MHz C–Mode 868.95 MHz
Chiprate	S–Mode 32.378 kcps T–Mode 100 kcps C–Mode 100 kcps
Datarate	S–Mode Chiprate /2 T–Mode Chiprate x 2/3 C–Mode Chiprate
RF output power	12 dBm
Antenna	Integrated
Transmission intervals	15 minutes (other intervals are also available upon request) 30 seconds during the first 4 minutes after powerup.
Retransmission	3 times in total.

Power and battery	
Power consumption	Max 40 mA,
Battery type	SAFT LS 14500 3.6 V – AA Primary Li–SOCL2 (recommended)
Max operating voltage	3.6V
Minimum operating voltage	2.8V
Lifetime	Typical more than 16 years. Depends on MBUS mode, pulses/s, transmission interval etc. Contact us for more information.

W–MBUS Info	
Header type	EN13757–3 APPLAYER LONG TRANSPORT HEADER (0X72)
Encryption	AES 128 CBC (mode 5)
Sensor type	0x1B Room sensor device (standard other setting if requested) This setting can be ordered to any other value but has probably no use if the only interest is the number of pulses and the conversion is handled on the server-side.
Low battery warning	Yes
Manufacture code	LAS (standard, other code if requested)

Visiting address

Lansen Systems AB
Science Park
Pilefeltsgatan 73
Halmstad

Mail adress

Lansen Systems AB
Box 186
SE–301 05 Halmstad
Sweden

Email

info@lansen.se

www.lansen.se

–T, TE and TH variant	
Temperature value	4 BCD digits , 1 decimal ex 201 = 20.1 gr C) ex F201 = – 20.1 gr C.
Humidity value	2 BCD digits, 0 decimal (ex 20 = 20 %)

–P variant	
Pulse value. Example: 012345678912	12 BCD digits, instantiations accumulated value from the power up of the device
Pulse conversion	No conversion, Units for H.C.A Dimensionless.
Number of input ports	2 Digital
Valid inputs	Digital signal 0V and 2.8–3.6V or an open close circuit.
Minimum pulse width	Interrupt based > 5 Ms.

Operating conditions	
Storage temperature	– 55 to + 85 gr C
Operating temperature,	–20 to + 55 gr C
Relative moisture	Less than 95% non–condensing

Casing	
Colour	White
Dimensions	25,5 x 105 x 22 mm
Material	ABS

Conformity	
EMC	EN 301489
Safety	EN 60950
Radio	EN 300 220

Features for easier installation.	
Red LED indication when input-pulse is detected	**When:** During 4 minutes from the point a battery was inserted into the device. **What:** The LED lights up for 2 seconds after a pulse is sensed on either of the digital inputs. **Why:** In order to verify that the cable connection is working correctly and that the installation was successful.
Red LED indication when sabotage is detected	**When:** When the device is opened or removed from the wall. (sabotage is detected) **What:** The LED flashes for 4 seconds at 4 Hz. **Why:** In order to verify that the sabotage detection is working.
Red LED indication when sabotage is restored	**When:** When the device is closed or placed against the wall again(sabotage is restored) **What:** The LED flashes for 2 seconds at 1 Hz. **Why:** In order to verify that the sabotage is restored and the device is closed and mounted correctly.

MBUS - Data format.

Sabotage Detected Message. The sabotage message is always sent in two ways:	
Sabotage using Error Flag message. The message is only sent when the status of sabotage is changed.	0x02; (DIF field 2 byte integer) 0xFD; (VIF Extension table) 0x97; 0x1D; (VIFE Error flags binary 16 bits) (2 bytes) Sabotage detected ….XXXX1 (Bit 0) Sabotage restored ….XXXX0 (Bit 0)
Sabotage using the manufacture specific status-byte in EN13757-3 APPLAYER LONG TRANSPORT HEADER (0X72). The bit is set to 1 as long as sabotage is detected.	Sabotage detected 1 (Bit 5) Sabotage restored 0 (Bit 5)

Low battery	
Low battery is sent using the power low bit in the status-byte in EN13757-3 APPLAYER LONG TRANSPORT HEADER (0X72)	Battery low 1 (Bit 2) Battery OK 0 (Bit 2)

Humidity	Humidity 20%
DATA_FIELD_BCD_2_DIGIT	0x09
VIF_VIFE_EXTENSION_TABLE_USED_INSTEAD	0xFB
VIFE_RELATIVE_HUMIDITY_0_DECIMAL	0x1B
Humidity Value	0x20

Temperature	Temperature 20.3 grC
DATA_FIELD_BCD_4_DIGIT;	0x0A
VIF_EXTERNAL_TEMPERATURE_TENTH_OF_DEGREE;	0x66
Temperature Value	0x02,0x03

Pulses	Number of pulses 012345678912
DATA_FIELD_BCD_12_DIGIT;	0x0E
VIF_HCA_DIMENSIONLESS;	0x6E
Number of pulses detected	0x01,0x23,0x45,0x67,0x89,0x12

Changelog			
Revision 1.5	Changed the packet type for sabotage to better comply with the Alarm message in the MBUS standard. The new version is used in software version 2 of the LAN-WMBUS-G. Corrected the physical size of the device.	Martin Hallberg	2015-10-12
Revision 1.4	Changed the Led indication for sabotage. Clarified the sabotage and low battery information. Sabotage detection is no longer optional. Temperature accuracy is now always 0,3 gr C if not higher is requested. Updated information regarding battery lifetime.	Martin Hallberg	2015-05-11
Revision 1.3	Changed from Pulse conversion 10 lites/pulse to H.C.A dimensionless	Martin Hallberg	2015-02-19

Visiting address

Lansen Systems AB
Science Park
Pilefeltsgatan 73
Halmstad

Mail adress

Lansen Systems AB
Box 186
SE-301 05 Halmstad
Sweden

Email

info@lansen.se

www.lansen.se