

## DEVICE

The battery or mains powered wireless M-Bus bridge is a highly configurable plug-and-play device used for collecting data from Wireless M-Bus meters and transmitting the data using LTE-M1. The enclosure is designed to make the bridge as discrete as possible.

## PERFORMANCE

Long range and high sensitivity is achieved by using the latest technology in radio transceivers with sharp filtering and lowest noise amplifier. The performance in an urban environment with lots of radio disturbances from mobile phones, TV etc., is guaranteed with high performance front end filter. This gives super blocking even when placed close to RF-transmitters.

## ANTENNA

The device have many options regarding antennas. Both internal and external antenna interface is selectable to have maximum performance in each given installation. The internal antennas are mounted at 90 degrees from each other to take advantage of both horizontal and vertical polarizations for maximum range while minimizing multipath problems. The antenna diversity prevents losses due to different polarization, especially indoors since meters and gateways can be mounted both to the sides and above/below the repeater.

The external SMA-interfaces are suitable for antennas to cover larger areas or long distances, both for collecting wireless M-Bus data or to transmit the data using LTE-M1.

## LISTEN TIME (MAXIMIZE BATTERY LIFETIME)

To maximize the battery lifetime and still get the data when needed, a number of possible configuration parameters can be used, such as:

- Number of minutes to be active / not active
- Specific time during the day to start listen for meter data (e.g., at 12:30)
- Specific days to be active (e.g., Mondays and Wednesdays)
- Suppression timer (limit number of packets stored per meter/ week/day/hour)

## FIRMWARE UPGRADE

The bridge firmware can be upgraded remotely using MQTT.

## FILTERING AND MINIMIZE DATA

The list below displays a couple of parameters that can be used as filtering to minimize data transfer and memory usage.

- Only receive data from specific manufacturer, i.e., "LAS"
- Only receive data from specific meter (White List)
- Only receive one message per week/day/hour per device

## BRIDGE WITH LANSEN REPEATER

If the bridge is used together with a Lansen repeater, the bridge can optionally extract and append the extra routing information added by the Lansen repeater, such as:

- How good the repeater received the message from a sensor
- Which repeater transmitted each message to the bridge
- Number of hops for the message before reaching the bridge

## BRIDGE WITH REPEATERS IN BATTERY NETWORK

Sometimes there are radio shadows between meters and bridge and then a Lansen repeater can be used. In the case of using a battery powered repeater, it is important that the repeater and bridge are synchronized so they are active at the same time.

The Lansen bridge makes sure that this synchronization is maintained during the entire service life to ensure the system can operate optimally at any given time.

## CONFIGURATION

Configuration can be done in different ways and is easiest with a Lansen Wireless M-BUS programming dongle together with our program, Lansen Configurator. However, configuration can also be done with other wireless M-BUS transmitters or by doing remote configuration using the MQTT protocol.

It is possible to activate the 128 bit AES-key (TBI) so all configuration data is encrypted and the bridge only accepts encrypted data.

## CLOUD

The gateway connects using MQTT client to an MQTT server to deliver the raw M-Bus packets. This gives a 2-way connection between the bridge and the cloud. If the sever is down, packets are buffered in the bridge for later delivery. All packets are stored and will survive a power loss if desirable depending on configuration. The bridge can work in two ways:

Constant connected (only for mains powered)

MQTT Connection to the server is always on. This means it is always possible to change parameters and transmit data to the bridge. Data is transmitted immediately to the cloud when data is received. If the connection to the MQTT server is down the messages are stored in the flash memory and transmitted when the MQTT connection is back again.

Intervall mode (Battery or Mains powered)

The bridge starts up a predefined intervall, for example:

- Start at 12 pm every day
- Listen for data for 20 minutes and store in the bridge
- Transmitt the data to the server
- Listen for incoming configuration parameters\*



## FIRMWARE

INPUT MODE	T+C-mode (default) or S-mode
OUTPUT MODE	C-mode (default) or T-mode or S-mode
MAX SENSORS	2000 sensors
MAX WMBUS LENGTH	255 bytes
FILTERING	0 min to 127 hours suppression timer, RSSI, manufacturer, whitelisting, etc.
SECURITY	Supports receiving of Security Profile A and B according to OMS 4 or any W-Mbus compatible message.
STATUS TX INTERVAL	60 seconds

## GENERAL INFORMATION

POWER SUPPLY	M: 100-305 VAC B: 2xER34615*, 38Ah, 3.6V + supercap *Lithium < 5g/cell, UN3091 class 9
STANDARDS	2014/53/EU (RED) EN 13757-3/4:2013, OMS EN 61000-6-1 (R4/uR, 3V/m) EN 61000-6-2 (R4-LR/RX4, 10V/m)
TEMPERATURE	M: Max: -30°/+85°, rec. -30°/+50° BE: Max: -30°/+85°, rec. -30°/+50°

## RADIO CLOUD

TYPE	LTE-M1
CLOUD PROTOCOL	MQTT 3.1 (M-Bus compatible data)
ANTENNA	Internal high bandwidth antenna. Opt. External SMA int.

## STORAGE

TYPE	Flash ( survive powerloss)
SIZE	~128 Mbit ~270000 wM-BUS telegram can be stored if size is around 50 bytes.

## RADIO

RECEIVER CLASS	2
TRANSMISSION	Listen before talk, polite spectrum access
HARDWARE FILTER	For LTE/GSM/GPRS and other disturbances:
RADIATED POWER	~14 dBm (< 25mW)
SENSITIVITY	Down to S/T,C -111 dBm/-108 dBm* *The sensitivity can be enhanced using the range extender LAN-WMBUS-FAMP-868
INPUT RF LIMIT	18 dBm

## ENCLOSURE

DIMENSIONS	150x150x53 mm,
IP-CLASSIFICATION	A1: IP40 A2: IP65 & IP67
COLOR	RAL 9003 (signal white)
MATERIAL	UV-resistant PC/ABS
FLAMMABILITY RATING	UL 94 HB

## ACCESSORY

LAN-WMBUS-D1-TC	Configuration dongle
LANSEN CONFIGURATOR	Configuration software
LAN-A-PMB-KIT-ID58-78	Pole mounting kit
LAN-MAG-R4	Magnet with telescopic shaft
LAN-R4-IP-KIT	Sealing kit for A2 enclosure

## CURRENT CONSUMPTION

w-Mbus radio I	12mA
LTE-M1	Typical 120 - 150 mA in transmission Max 600mA

## OPTIONS FOR LAN-WMBUS-B4 BRIDGE

LAN-WMBUS	SERIES	POWER OPTION	ANTENNA (wM-Bus)	ENCLOSURE IP-CLASS	CLOUD CONNECTION	ANTENNA (CLOUD TYPE)
	<b>B4</b> Standard bridge	<b>BE</b> 3.6V/38Ah+supercap for extended use in lower temperatures	<b>(Blank)</b> Dual internal antenna	<b>A1</b> IP40. Suited for indoor use	<b>CATM1</b>	<b>(Blank)</b> Internal antenna
		<b>M</b> 230 VAC	<b>X</b> SMA connector for external antenna	<b>A2</b> IP65 & IP67. Suited for indoor and outdoor use		<b>X</b> SMA connector for external antenna

Examples	Battery	Dual w-Mbus Internal antenna	External w-Mbus SMA interface	LTE-M1 antenna	Enclosure
LAN-WMBUS-B4-BE-A1-CATM1	X	X		Internal	IP40
LAN-WMBUS-B4-M-A2-CATM1		X		External SMA interface	IP65 & IP67