



- ✔ Receiving measurements from Wireless M-Bus OMS / Sensus RF compatible devices
- ✔ Transferring collected measurements over LTE Cat NB-IoT – frequency band B20, B8 or LoRaWAN network
- ✔ Combining two LPWAN technologies in a single device (either NB-IoT or LoRaWAN)
- ✔ Remotely updating firmware

ECHO Lob Gateway V2 is a simple to use, cost and energy efficient device that receives, caches and finally forwards metering consumption data for up to 500 Wireless M-Bus / Sensus RF enabled devices, like water meters, electricity meters, heat meters through the Internet onto AURA Cloud Platform.

### ✓ KEY FEATURES

ECHO Lob Gateway V2 extends range of Wireless M-Bus / Sensus RF meters by collecting short range data and then uploads it using modern cellular IoT networks (Narrowband IoT) onto the Internet. Alternatively, an additional upload path via LoRaWAN networks is available. This unique feature of combining two LPWAN technologies in a single device might be used as a fallback if yet no modern NB-IoT network is available at the place of deployment.

Metering data is sent to the AURA Cloud Platform, where it gets parsed, displayed and made available for further processing. Because most Wireless M-Bus telegrams are encrypted, Platform allows adding decryption keys for individual meters, so that data can be decrypted by the Platform.

### TECHNICAL CHARACTERISTICS

<p><b>Type</b> <b>Description</b></p> <p><b>Cellular NB-IoT / LTE Cat. M1 Modem</b></p> <p>LTE SiP Antenna</p> <p>Supported LTE Band</p> <p>SIM card slot Supported LTE modes</p> <p>Data Upload</p> <p>Firmware Features</p> <p><b>LoRaWAN Fallback Upload</b></p> <p>LoRaWAN Protocol Activation method</p> <p>Typically RF range Ideal RF range TX Power</p>	<p><b>Gateway WMBUS / Sensus RF</b> <b>ECHO Lob Wireless M-Bus / Sensus RF NB-IoT Gateway V2</b></p> <p>Nordic nRF9160 Internal Monopole On Request: External Antenna (SMA female) Standard: B8, B20 (791 MHz - 969 MHz) Other Bands on request 4FF (Nano SIM) Narrowband IoT (NB-IoT) LTE Cat-M1 (on request) Secure CoAP over DTLS (via AURA IoT Platform) Plain UDP (any Platform) Certificate based authentication and encryption Remote configuration (via AURA IoT Platform) Remote firmware update (via AURA IoT Platform)</p> <p>Class A LoRaWAN 1.0.2 Eu868 Over-the-air activation (OTAA) Activation by personalization (ABP) ≤ 2km ≤ 10km (free line of sight) ≤ 14 dBm</p>
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## TECHNICAL CHARACTERISTICS

### Wireless M-Bus communication

Antenna	Internal Monopole On Request: External Antenna (SMA female)
Frequencies	868.3 MHz, 868.95 MHz
Supported wireless M-Bus modes	Unidirectional 868 MHz modes according to EN 13757-4: CI / TI (combined) SI Proprietary formats: Xylem SensusRF (Bubble Up)
Telegram storage size	64 kByte storage up to 500 telegrams (avg. size 100 Byte) 218 telegrams à 255 Byte (max telegram size)
Maximum white list size	minimum 150 different meters (2 KByte config size)
White list filters	Meter ID Manufacturer code (M-Field) Meter type (e.g. only water meters)
Supported meters per gateway	Standard: 500 On request: up to 1.000
Encryption	AES128 (Mode 5 + Mode 7)
RF reception range	up to 100m under ideal conditions Indoor ≤ 30m One Gateway every 2nd or 3rd Floor
Firmware features	Configurable wireless M-Bus collection intervals Automated upload of all received telegrams

### Additional I/O

Local configuration port	PC based initial configuration via USB adapter
LED	RGB Led to signal different operating modes

### Power Supply

Supply Voltage Connection	JST-XH connector
Nominal Supply Voltage	3.6V
Supply Voltage Range	3.3V - 5V
Std. Power supply	ER34615M 3.6V primary battery (D-cell)

### Current consumption @3.6V

Normal / Idle	≤ 3 mA
Wireless M-BUS RX	≤ 14 mA
LTE (NB-IoT, LTE Cat-M1) TX	≤ 500 mA
Sleep with RTC running	≤ 10 μA

### Mechanical dimensions

Size	130 mm x 82 mm x 55 mm (incl. DAE)
Weight	220g (excl. Battery) + Battery: ca. 114g
Housing Material	Industrial polycarbonate
Rating	Ip67 including pressure compensating element

### Environmental Requirements

Operating temperature range	-20°C to +55°C
Max. installation height	2 m

### Conformity



EN 300 220-1 (RF)  
EN 300 220-2 (RF)  
EN 301 908-1 (RF)  
EN 301 908-13 (RF)  
EN 301 489-3 & EN 301 489-52 (EMC)  
EN 62368-1 (Electrical Safety)  
EN 62311:2008 (Electrical Safety)  
EN 50581 (RoHS)



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