

EMB-Fem2GW-O

femto LoRaWAN® Gateway
868/915 MHz



Technical Specifications

EMB-Fem2GW-O is a multi-protocol outdoor network platform, designed to meet IoT (Internet Of Things) and M2M (Machine-2-Machine) scenarios in smart city environment. It enables LoRaWAN® connectivity to the cloud, covering the role of fully compliant LoRaWAN® Gateway in the network and city infrastructure.

EMB-Fem2GW-O provides the LoRaWAN® packet forwarder functionality and operates as a LoRaWAN® base station, receiving radio LoRa® packets and forwarding them to a LoRaWAN® network server. It has backhaul connection through Ethernet, or via 4G connection, available through SIM card and 4G mini PCI-express module. It includes GPS connectivity to locate the device.

The **EMB-Fem2GW-O** is based on the EMBIT miniPCI-express board, compatible with EMB-LR130x-mPCIe card. It manages simultaneous 8 LoRa® channels in order to handle thousands of end-devices. Thanks to a well-studied and meticulous RF design, the device is able to reach up to 15 km in rural areas and up to 3 km in urban areas. It is available both for the EU region (868 MHz) and US (915 MHz).

The OS system is based on Linux. Complete root access is provided allowing full customization of the software. The **EMB-Fem2GW-O** connectivity to the available network protocols is configurable and can be managed through a web interface.

Thanks to the **EMB-LR1303-mPCIe** RF core the **EMB-Fem2GW-O** provides spectral scan and LBT-sniffer functionalities¹.

Main features:

- Full compliance with LoRaWAN® network protocol on 868MHz and 915MHz band.
- Rapid deployment with existing LoRaWAN® compliant Network Server or your LoRaWAN® Network Server.
- Supports LoRaWAN® version 1.0.4, LoRa® Basic station V2.0.5 (+V2.1) and proprietary LoRa®.
- Powerful Semtech SX130x Multi SF channels handles thousands of end-devices.
- Optional wireless interfaces compliant to IEEE 802.15.4, ZigBee®, Wireless M-Bus, WiFi IEEE 802.11 b/g/n and BLE, LoRaWAN® or proprietary protocols.
- Easy, proactive monitoring for process.

Processor	MCU Broadcom BCM2711Quad-Core, ARM Cortex-A72 64-bit SoC @ 1.5 GHz
Ram Memory	RAM 2/4GB LPDDR4 SDRAM
Flash Memory	8/16/32 GB Emmc
LAN Connection	Ethernet RJ 45 10/100/1000
LoRaWAN® Connectivity	EMB-LR1302-mPCIe / EMB-LR1303-mPCIe / both EU (863-870 MHz) and US (902-928) 8 LoRaWAN® Channels up to +27dBm output power Spectral scan and LBT-sniffer functionalities.
Rx Sensitivity	up to -140 dBm @SF12 BW 125KHz
Connectivity	GPS - 4G/LTE
Ports	Ethernet RJ 45 10/100/1000 N-Type Antenna Connector
Temperature Range	-40 °C +85 °C
OS	Embedded Linux
Watchdog	Yes + Reboot + Recovery Mode
Power Source	IEEE 802.3af PoE
Chassis Type	IP 67 rated
RF Filters	High-Rejection Filters
Surge Protection/Anti Lighting	Yes
Antennas	868/915 MHz Omnidirectional 3 or 5 dBi
Back-Ends / Protocols	LoRa® Basic Station + PLUS Protocol + LNS Protocols
Intallation KIT	Pole Bracket
Dimensions	L:165mm W:165mm H:53mm
Certifications	CE according to RED - ROHS 2

¹For more technical RF details please refer to [EMB-LR1303-mPCIe](#)

