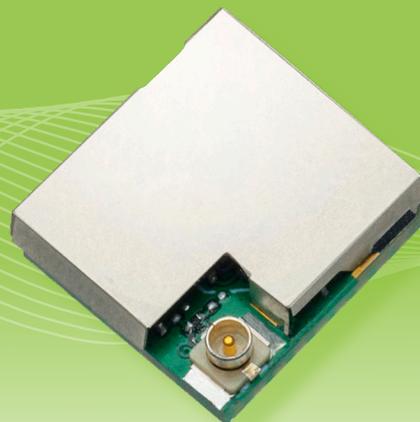


EMB-LRWL55

Long-Range LoRa® 2.4 GHz
OEM Micro Module



EMB-LRWL55 is the first ultra-low-power LoRaWAN® OEM module based on STM's new system-on-chip, STM32WL55xx. It is based on Arm® Cortex®-M4 and Cortex®-M0+ dual cores both running at 48 MHz, and a sub-GHz radio based-on Semtech's SX126x. **EMB-LRWL55** is a software open platform, which embeds a fully compliant LoRa® transceiver. The module can work with 868MHz EU ISM band and 915MHz US band both. The **EMB-LRWL55** boasts a tiny form factor of 12.8 x 13.5 x 2.5 mm with 32 pins LGA pads. The module has both low and high-power RF outputs which are switchable and is optimized for battery-powered devices. **EMB-LRWL55** can be configured as an embedded microsystem or simple data modem for low-power applications as well. This second application mode exploits EBI (Emit Binary Interface) commands, that can be sent via UART. Through them, all radio and network feature can be controlled and customized. **EMB-LRWL55** module provides a wide range of serial interfaces such as LPUART, USART, SPI, and GPIOs which can be interfaced with external devices.

EMB-LRWL55 supports full firmware updates & partial firmware update. Thanks to the Cortex-M0+, a full management of the firmware security is implemented, enhancing data-security and prevention to illegal accesses. The flex power control in power management reduces the overall application consumption because of 8 different low-power modes such as Low-power run, Sleep, Low-power sleep, stop 0, Stop 1, Stop 2, STANDBY with RAM retention, Standby, and Shutdown modes. Each mode can be configured in many ways, providing several additional sub-modes. The antenna can be connected using the U.FL connector or adopting the Ground-Signal-Ground pads. These features make **EMB-LRWL55** the perfect solution for small and battery powered LoRaWAN® end-devices, with the possibility to interface any kind of sensors.

The applications of **EMB-LRWL55** are endless. Some, of the most popular real-time use cases, are as follows:

- Smart Agriculture - Smart cities - Smart Healthcare - Smart Environment
- Smart Homes and Buildings - Smart fire evacuation systems -
- Smart Industrial Control - Smart metering, supply chain, and logistics

Technical Specifications

Transceiver	Semtech SX126x
Memory	256-Kbyte Flash memory, 64-Kbyte SRAM
Frequency	150 MHz to 960 MHz
Tx output power	Low power mode - +15 dBm High power mode- +22 dBm
Rx Sensitivity	-137 dBm for LoRa® @SF12
Interfaces	I2C, LPUART, USATH, SPI, GPIOs
Antenna interface	U.FL or GSG configuration
Supply voltage	1.8 V- 3.6V
Dimensions	12.8 x 13.4 x 2.5mm
Temperature Range	-40 °C +105 °C
Current Consumption	15 mA in Tx @10 dBm 87 mA in Tx @20 dBm 5 mA in Rx 31 nA in Shutdown mode
Part Number	EMB-LRWL55-UL EMB-LRWL55-PC



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