

EMB-LR1280S

Long-Range LoRa® 2.4 GHz
OEM Micro Module



EMB-LR1280S is the new ultra-low power 2.4 GHz band based OEM Embit module. It exploits Semtech's proprietary spread spectrum modulation technique to provide long range connectivity and high-interference immunity, outperforming any other 2.4 GHz technology in terms of communication range. The radio is fully compliant with the worldwide 2.4 GHz frequency band regulation and can operate anywhere in the world. Also, the use of the 2.4 GHz ISM radio band, being not subject to duty cycle, allows to enhance the overall transmission rate with respect to others sub 1-GHz solutions.

EMB-LR1280S is based on Semtech's SX1280 long range 2.4 GHz transceiver coupled with STM32L073 MCU. The MCU is equipped with up to 192 KB Flash memory and up to 20 KB of RAM memory. The module integrates two crystals, one at 52 MHz and one at 32 KHz and a Crypto Unit to protect the communication between the module and external interfaces, enhancing data security.

EMB-LR1280S can communicate with other devices through a wide range of serial interfaces: UART, I2C, USB, SPI, several digital and analog I/O ports useful for the management of external devices and interfaces. Moreover, the extremely reduced low power consumptions provided by the STM32L073 MCU, makes the **EMB-LR1280S** particularly suitable to implement long life battery powered devices.

EMB-LR1280S can be configured as an embedded micro system or simple data modem. The firmware can be easily developed starting from the Embit SDK. The Embit evaluation kit (EMB-LR1280-EVK) contains all the documentation, software and hardware tools to get started with the EMB-1280S module.

EMB-LR1280S is embedded with LoRaEMB and LoRa® 2.4 GHz stacks. The proprietary LoRaEMB protocol allows the node to be connected and operate within a star topology/point-to-point network, featuring all the main functionalities of an IEEE 802.11.4 based network. **EMB-LR1280S** is compliant with Semtech LoRa® 2.4 GHz specifications.

Leveraging both the advantages of LoRa® long range modulation and 2.4 GHz RF properties and regulation, the EMB-LR1280S represents a perfect solution for many industrial applications with the aim of ensuring worldwide deployment.

Technical Specifications

MCU	STM32L073
Transceiver	Semtech® SX1280
Memory	20 KB RAM/ 192KB Flash
Frequency	2400 ÷ 2500 MHz
Tx Output Power	up to 12 dBm
Rx Sensitivity	up to -132 dBm at 595 bps, -130 dBm at SF12 SB 203 KHz (476bps)
Digital I/O	15
Analog I/O	3 ADC Channels
Ports	Ethernet RJ 45 10/100/1000 N-Type Antenna Connector
Outdoor link range	up to 10 Km (Line of Sight)
Supply Voltage	1.8 - 3.6 V
Tx Current	34 mA @ +12 dBm
Rx Current	9.5 mA
Sleep Current	<= 1 uA
Antenna	U.FL connector or chip antenna
Dimension	15.5 x 20 x 2.3 mm
Connector	SMD Edge Connector
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Ordering Information	EMB-LR1280s/xx xx: - UL with micro U.fl connector - AN with ceramic antenna



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