

EMB-LR1276S

Long Range 868/915 MHz
LoRaWAN® OEM Micro Module



Technical Specifications

EMB-LR1276S is the new ultra-low power wireless OEM module featuring the Semtech LoRa® long range modulation providing ultra-long range communication and high interference immunity on the 868/915 MHz radio band. The **EMB-LR1276S** with its 11,5mm x 11,5mm form factor is the smallest LoRaWAN® module available on the market. It embeds a full LoRaWAN® compliant Class A and Class C protocol enabling the connection to any LoRaWAN® network infrastructure.

EMB-LR1276S is based on the new Microchip SAMR34 SiP, a 32-bit ARM Cortex M0+ coupled with a sub-1GHz RF transceiver based on Semtech SX1276 which fully supports both 868/915 MHz bands. The MCU is equipped with up to 256 KBytes of FLASH and up to 40 KBytes of SRAM memory. The module integrates two crystals, one at 32MHz and one at 32KHz and a Crypto Unit protect the communication between the module and external interfaces.

EMB-LR1276S can communicate with other devices through a wide range of interfaces: UART, I2C and SPI ports, up to 17 digital and 8 analog I/O ports useful for the management of external devices and interfaces. Thanks to the extremely reduced power consumption of the Microchip SAMR34 (less than 1 µA in XLS sleep mode), the **EMB-LR1276S** is a perfect solution to implement long life battery powered devices.

EMB-LR1276S firmware can be easily developed starting from the Embit SDK, allowing to establish LoRaWAN® compliant end-nodes or custom point-to-point networks. The Embit evaluation kit (**EMB-LR1276S-EVK**) contains all the documentation, software and hardware tools to get started with the **EMB-LR1276S** module.

With the LoRaWAN® disruptive long range wireless technology, the **EMB-LR1276S** delivers dramatic performance improvements for the AMI, IoT, M2M mobile and consumer markets. It offers a unique network scalability and 10x range extension over existing sub-1GHz solutions.

MCU	Microchip SAMR34 SiP (ATSAMD20Gxx + SX1276)
Transceiver	Semtech SX1276
Memory	40 KB RAM/ 265 KB Flash
Frequency	863 ÷ 870 MHz / 902 ÷ 928 MHz
Tx output power	Available at: up to +14 dBm (868 MHz) up to +18 dBm (915 MHz)
Rx sensitivity	up to -136 dBm
Data Rate	0.3 ÷ 37.5 kbps LoRa® 0.6 ÷ 300 kbps (G) FSK
Interfaces	USB/UART/I2C/SPI/ADC
Digital I/O	Up to 17 lines
Analog I/O	8 ADC channels
Outdoor link range	Up to 15 km
Supply voltage	1.8 — 3.6 V
Tx current	39 mA @+14 dBm 124 mA @ +18 dBm
Rx current	9.9 to 12 mA
Sleep Current	≤ 1 µA XLP sleep mode
Antenna	U.FL connector GSG pcb pads
Dimensions	11.5mm x11.5mm x 2.0mm
Connector	32 PINS LGA Connector
Temperature Range	-40 °C +85 °C
Certifications	CE
Ordering information:	EMB-LR1276S/PC with GSG PADS only EMB-LR1276S/UL with U.FL connector for external antenna



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