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LoRaWAN MCU Specification and Requirements

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Wireless, Sensing & Timing Products

This document is targeted to any manufacturer wishing to develop a system based on the LoRaWAN wireless protocol stack. Its aim is to provide guidance on the MCU requirements as well as on the connection between the radio and the MCU.

Module MCU Requirements

Parameters	Minimum Settings	Recommended Settings
MCU		
- RAM	4KB*	8KB
- Flash	32KB*	64KB
AES 128 bits	AES decryption in software	AES HW decryption block
Radio DIOs connected to MCU IRQ inputs	DIO0, DIO1, DIO2	DIO0, DIO1, DIO2, DIO3
SPI (4 wires: SCK, MOSI, MISO, NSS)	mandatory	
RTC (32.768 kHz XTAL)	Recommended for accurate time keeping	Mandatory for low-power Class B implementation
IEEE 64-bit Extended Unique Identifier (EUI-64)	Programmed in ROM	Hardcoded in MCU

* These parameters are representative of the standalone LoRaWAN, they may be insufficient depending on the application.

Radio DIO used by the LoRaWAN

DIO pin	LoRa	FSK
DIO0	TxDone, RxDone	TxDone, RxDone
DIO1	RxTimeout	FifoLevel
DIO2	/	SyncAddrDetect
DIO3	ValidHeader *	/
DIO4	/	/
DIO5	/	/

* Reserved for future usage

The radio DIO must be connected to IRQ input lines of the MCU for good operation of the LoRaWAN.

Contact Information

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