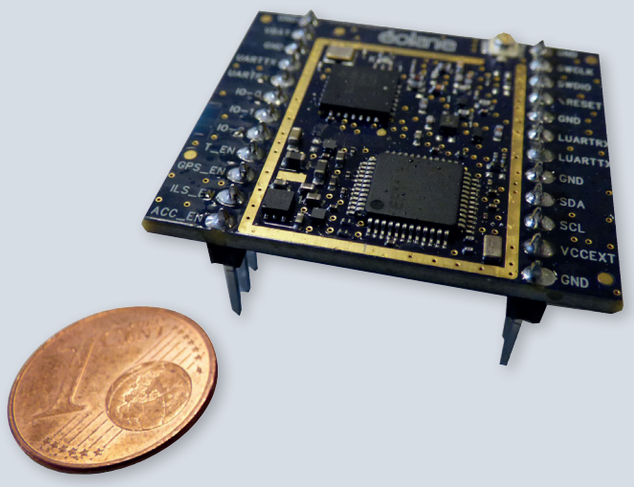
éolane

LoRa™ MODULE REFERENCE DESIGN

The LoRa™ Module Reference Design is the new generation long range and low power wireless eolane Module Reference Design based on LoRa™ technology. It integrates a Semtech's SX1272, a low power ARM M3 microcontroller and the LoRaWAN™ API stack in a very miniaturized footprint (18x26 mm²) for easer use in any IoT applications and products.



- For BtoB or BtoC applications requiring Long range communication, long term autonomy and low bitrate: Sensors M2M, IoT...
- "Ready To Use" reference design to reduce the development time, the cost and the project risk of LoRa sensors developments.
- Ultra miniaturized footprint:18x26 mm².
- Very high performances.
- Part of LoRa Development Kit for fast prototyping and product development

PRODUCT APPLICATION

Industry	Smart City, Sensors & Actuators for Factory management, Intelligent Parking
Energy	Smart Building, Smart Metering, AMR/AMI
Security	Alarms & Intrusions, Smoke detectors, Pet & Asset Tracking and Security
Telecom	Private Long range Network, Repeaters & Private Concentrators, Connected Objects, IoT

MAIN FEATURES

- 868 MHz / 915 MHz frequency band solution
- Ultra Low Consumption
- Sensitivity up to -143dbm
- Range up to 15 km
- Bidirectional wireless communication
- Small messages
- Robust RF Links
- Ultra-fast wake up
- LoRa™ Module Reference design dimensions: 26 mm x 18 mm
- Temperature Operating Range: -25°C to +75°C

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TECHNICAL SPECIFICATIONS

Performance

- Range up to 15km
- Transmitted power +14dBm by default / +20dBm
- Sensitivity: -137 dBm and -143 dBm (with SAW & LNA)
- Link budget up to 163 dB
- Operating Frequencies:
  - 868/915MHz ISM Bands (w/wo SAW & LNA)

Hardware

- Silabs ARM Cortex M3 Microcontroller EFM32
- Up to 128KB Flash and 16KB RAM
- Semtech Transceiver Sx1272
- Design option with or without LNA and SAW filter
- Embedded LDO for operating range 2V6 - 5V5
- 7x DIO, 1x I2C, 2x UART, 1x SWD (debug)

Communication Protocols

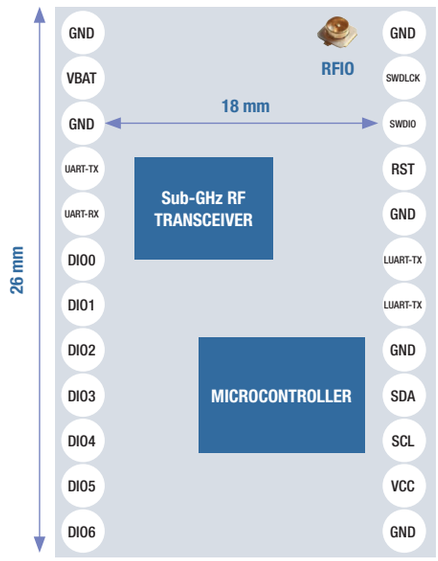
- LoRa SF6-SF12
- LoRaWAN1.0 Class A, Class C (compatible)
- FSK

Power consumption @ 25°C

- StandBy mode (RTC active): 2,1µA
- Transmit mode at 14 dBm: 45 mA
- Receive mode: 12 mA / 16 mA (with LNA)

Software / BSP

- BSP provided
- LoRaWan1.0 (API stack)
- Apps notes and documentations



ADDITIONAL SERVICES

LoRa Development Kit

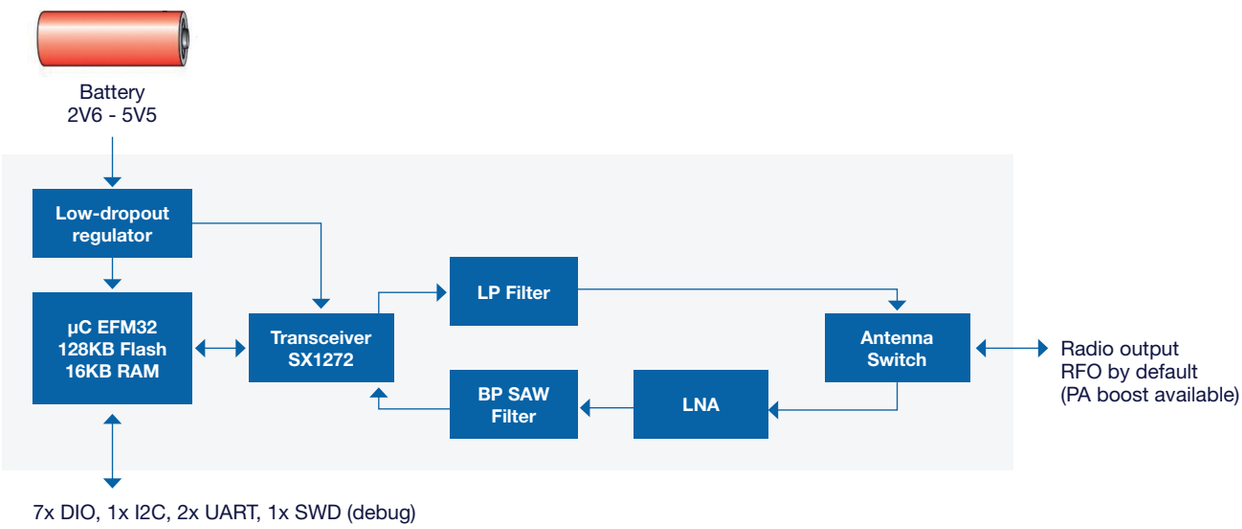
- LoRa™ Development Kit available with LoRa™ Module Reference Design
  Design for LoRa™ Sensors / Actuators end user development

Antenna design

- SMA connector for external antenna
- PCB antenna / Helix antenna

Housing

- Optional shield for radio part
- Ref Design integration and customization



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Janvier 2016 - Confidential - Preliminary Product brief – Subject to change without notice