LoRaWAN PRESSURE SENSOR NODE (LSN50v2-PS15)

Description

LoRaWAN Pressure Sensor is a Long Range LoRa Sensor Node with Water/Gas Pressure Sensor. It is designed for outdoor use and powered by Li/SOCl2 battery for long term use. It is designed to facilitate developers to quickly deploy industrial level LoRa and IoT solutions. This sensor Node wireless part is based on SX1276 allows the user to send data and reach extremely long ranges at low data-rates. It provides ultra-long range spread spectrum communication and high interference immunity whilst minimizing current consumption. It targets professional wireless sensor network applications such as irrigation systems, smart metering, smart cities, smartphone detection, building automation, and so on. MCU part uses STM32l0x chip from ST, STML0x is the ultra-low-power STM32L072xx microcontrollers incorporate the connectivity power of the universal serial bus (USB 2.0 crystal-less) with the high-performance ARM® Cortex®-M0+ 32-bit RISC core operating at a 32 MHz frequency, a memory protection unit (MPU), high-speed embedded memories (192 Kbytes of Flash program memory, 6 Kbytes of data EEPROM and 20 Kbytes of RAM) plus an extensive range of enhanced I/Os and peripherals.

Pressure Sensor Specification:

- Pressure sensor Range: 0-15bar
- Supply 3.3V DC Output
- I2CAccuracy: ±0.5% FS
- Pressure Port: G1/4 Male thread
- Electrical connection: pigtail cable 150cm

LoRa Specification

- Band: IN865
- Frequency: 865MHz to 867MHz
- Supports Class A
- 168 dB maximum link budget.
- +20 dBm - 100 mW constant RF output vs.
- +14 dBm high efficiency PA.
- Programmable bit rate up to 300 kbps.
- High sensitivity: down to -148 dBm.
- Bullet-proof front end: IIP3 = -12.5 dBm.
- Excellent blocking immunity.
- Low RX current of 10.3 mA, 200 nA register retention.
- Fully integrated synthesizer with a resolution of 61 Hz.
- FSK, GFSK, MSK, GMSK, LoRa™ and OOK modulation.
- Built-in bit synchronizer for clock recovery.
- Preamble detection.
- 127 dB Dynamic Range RSSI.
- Automatic RF Sense and CAD with ultra-fast AFC.
- Packet engine up to 256 bytes with CRC.
- Antenna: External

MCU Specification

- MCU: STM32L072CZT6
- Flash:192KB
- SRAM:20KB
- EEPROM:6KB
- Clock Speed: 32Mhz
- LoRa: SX1276

Absolute Maximum Ratings

- VCC: 0.5v ~ 3.9v
- Operating Tempature: -40 ~ 85°C
- I/O pins: 0.5v ~ VCC+0.5V

Common DC Characteristics

- Supply Voltage: 1.8v ~ 3.6v
- Operating Tempature: -40 ~ 85°C
- I/O pins: Refer STM32L072CZT6 datasheet

Power Consumption

- STOP Mode: 2.7µA @ 3.3v
- RX Mode: 7.2mA
- TX Mode: 125mA@ 20dbm

Battery

- Li/SOCI2 non re-chargeable battery
- Capacity: 8500mAh
- Self-Discharge: <1% / Year @ 25°C
- Max continuously current: 130mA
- Max boost current: 2A, 1 second