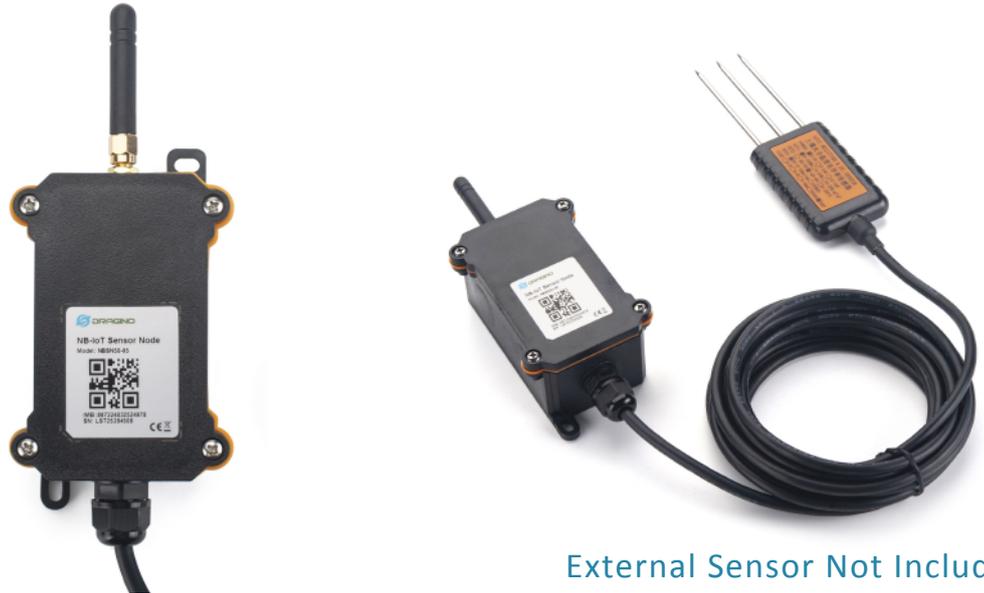# Waterproof Long Range Wireless NB-IoT Sensor Node

NBSN95

External Sensor Not Included

OVERVIEW:

NBSN95 is a Long Range NB-IoT Sensor Node. It is designed for outdoor data logging and powered by 8500mAh Li/SOCl2 battery for long term use and secure data transmission. System Integrator can use NBSN95 to rapidly deploy NB-IoT sensor node for their IoT solution. NBSN95 is easy to program, create and connect things everywhere.

NarrowBand-Internet of Things (NB-IoT) is a standards-based low power wide area (LPWA) technology developed to enable a wide range of new IoT devices and services. NB-IoT significantly improves the power consumption of user devices, system capacity and spectrum efficiency, especially in deep coverage.

To use NBSN95, user needs to check if there is NB-IoT coverage in local area and with the bands NBSN95 supports. If the local operate support it, user needs to get a NB-IoT SIM card from local operator and install NBSN95 to get NB-IoT network connection.

NBSN95 is an open source project. It is based on the STM32L072CZT6 ultra-low-power ARM® Cortex®-M0+ micro controller. Developers can get completely software and hardware design files and adapter for their projects.

Features:

- STM32L072CZT6 MCU
- NB Module: Quectel BC95-G
- Pre-load bootloader on USART1/USART2
- MDK-ARM Version 5.24a IDE
- I2C,LPUSART1,USB
- 2x12bit ADC, 1x12bit DAC
- 20 x Digital I/Os
- NB Bands: B1/B3/B8/B5/B20/B28
- Micro SIM card slot for NB-IoT SIM
- Baud rate configurable
- Open source hardware / software
- IP68 Waterproof Enclosure
- Ultra Low Power consumption
- AT Commands to change parameters
- 8.5 Ah Battery for long term use

Open Source NB-IoT Sensor Node

NBSN95

Internal View
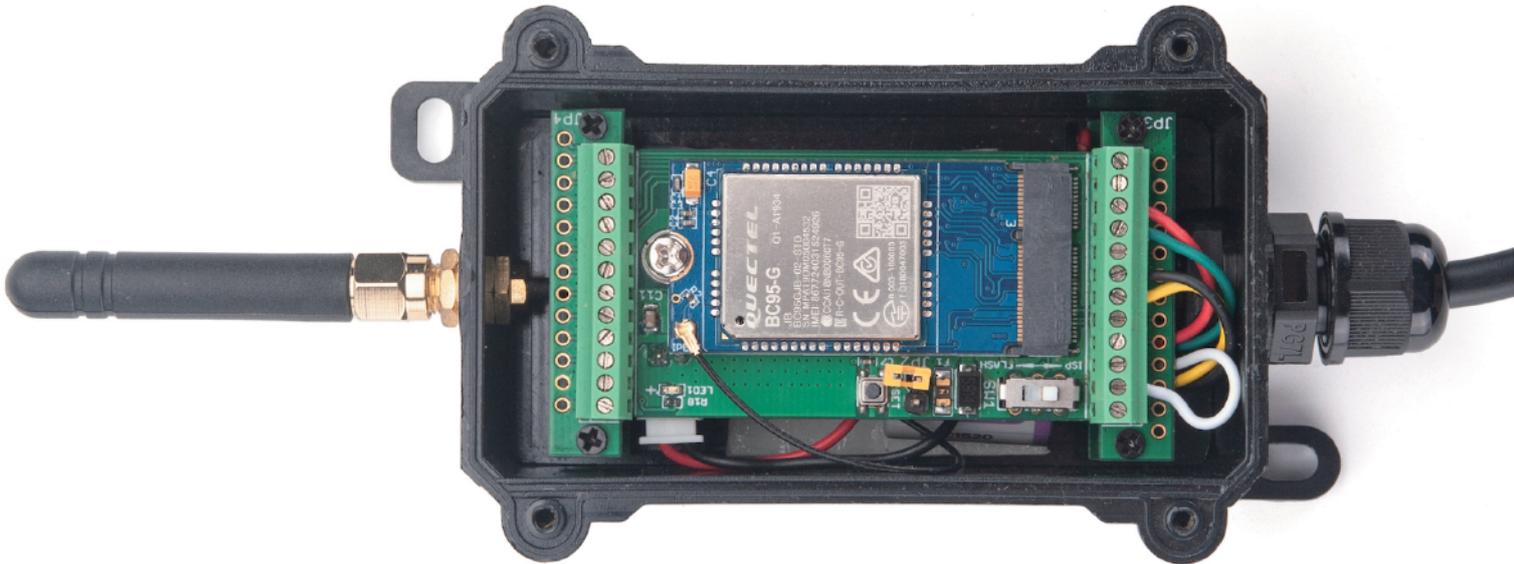
Specifications:

MCU Side:

- MCU: STM32L072CZT6
- Flash:192KB
- RAM:20KB
- EEPROM:6KB
- Clock Speed: 32Mhz

NB-IoT Module:

- NB Module: Quectel BC95-G
  - B1 @H-FDD: 2100MHz
  - B3 @H-FDD: 1800MHz
  - B8 @H-FDD: 900MHz
  - B5 @H-FDD: 850MHz
  - B20 @H-FDD: 800MHz
  - B28 @H-FDD: 700MHz
- Protocol: CoAP, UDP, MQTT

Absolute Maximum Ratings:

- I/O pins: 0.5v ~ VCC+0.5V

Common DC Characteristics:

- Supply Voltage: 2.1v ~ 3.6v
- Operating Tempature: -40 ~ 85°C
- I/O pins: Refer to STM32L072 datasheet

Power Consumption:

- STOP Mode: 10 uA @ 3.3v
- NB Transmit Mode:
  Average 40 ~ 200mA.
  *Detail See Power Analyze document

Battery:

- Li/SOCl2 unchargable battery
- Capacity: 8.5 Ah
- Self Discharge: <1% / Year @ 25°C
- Max continuously current: 500mA
- Max boost current: 2A, 1 second

Applications:

- Wireless Alarm and Security Systems
- Home and Building Automation
- Automated Meter Reading
- Industrial Monitoring and Control
- Long range Irrigation Systems,etc.

Dimensions:

- Size: mm
- Net Weight: g

Order Info- NBSN95-XX

XX:

- 12: With M12 waterproof cable hole
- 16: With M16 waterproof cable hole
- NH: No Hole