



Manhole

IoT Manhole with NB-IoT



Manhole

The IoT Manhole product is designed to be installed on a manhole everywhere, enabling detection of particular events like opening / closing of the iron cover and water flooding. The product consists of a small box powered by batteries, containing an electronic board. The initial set up of the MANHOLE is simple. The box must be fixed to the cover. MANHOLE is also provided with NFC and Bluetooth interface to allow simple activation and parameter upgrade by the maintainer using a standard Smartphone or Tablet. It sends messages to cloud through Narrow Band Module. The products will come with a security lock to avoid unintentional activation and battery discharge when stocked.

Characteristics

- ◆ ST Cortex M0+ USB Host (STM32L072)
- ◆ Bosch BME280 (Humidity, Temperature, Pressure) sensor.
- ◆ ST Time-of-Flight Level (VL53L1X)
- ◆ Bosch BMI160 (Gyroscope, Accelerometer) sensor.
- ◆ NXP NFC NTAG (NT3H2211)
- ◆ Microchip BM71 (Bluetooth Low Energy)
- ◆ Quectel NB-IoT Module (BC95-B20)

Main Functions

- ◆ Operational mode set up
 - ◆ Initial set up
 - ◆ Maintenance
 - ◆ Running mode
- ◆ Collecting data from each sensor
- ◆ Events identification:
 - ◆ Manhole cover open
 - ◆ Manhole flooded / unflooded
 - ◆ Diagnostic data (e.g. battery level, temperature, ...)
- ◆ Sending message to cloud
 - ◆ Normal condition message (on regular basis)
 - ◆ Alert message (on event)
 - ◆ Set up & parameters message
 - ◆ Data log and communication retrieval