

# Ultrasonic Liquid Level Sensor

## OVERVIEW:

The Dragino DDS20 series is a **Ultrasonic liquid level sensor** for Internet of Things solution. It uses **non-contact method** to measure the **height of liquid** in a container without opening the container, and send IoT platform via **LoRaWAN, NB-IoT or CAT-M1** network.

The sensor is installed directly below the container to detect the **height of the liquid level**. User doesn't need to open a hole on the container to be tested. The non-contact measurement makes the measurement safety, easier and possible for some strict situation.

The Dragino DDS20 series uses **ultrasonic sensing technology** for distance measurement. It is of high accuracy to measure various liquid such as: **toxic substances, strong acids, strong alkalis and various pure liquids** in high-temperature and high-pressure airtight containers.

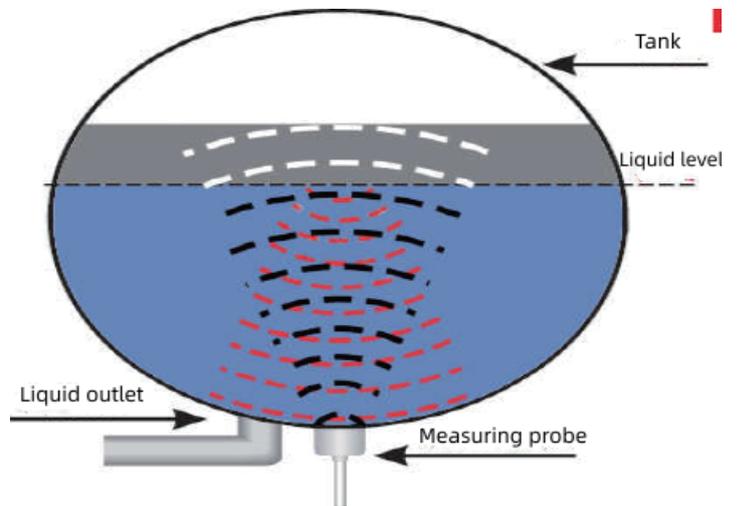
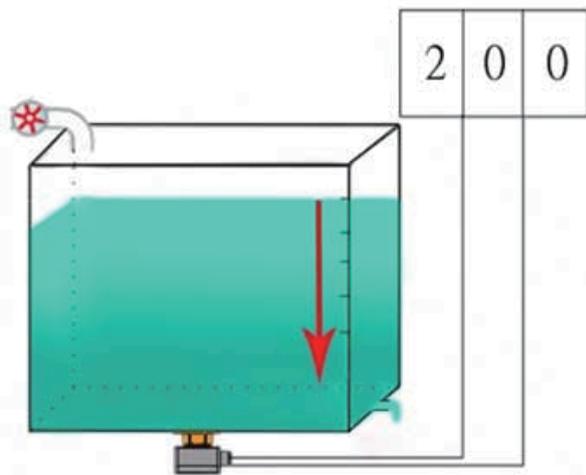
It supports **BLE configure and wireless OTA update** which make user easy to use.

The Dragino DDS20 series is powered by **8500mAh Li-SOCI2 battery** or **solar panel with Li-ion battery**, it is designed for long-term use up to several years.



## Applications:

### Smart liquid control solution



# Model Variants

Variants	DDS20-LB	DDS20-LS	DDS20-NB	DDS20-NS	DDS20-CB	DDS20-CS
Connectivity						
Configure Method	TTL, BLE, LoRaWAN	TTL, BLE, LoRaWAN	TTL, BLE, NB-IoT	TTL, BLE, NB-IoT	TTL, BLE, NB-IoT, LTE-M	TTL, BLE, NB-IoT, LTE-M
Upgrade Method	TTL, BLE, LoRa	TTL, BLE, LoRa	TTL, BLE	TTL, BLE	TTL, BLE	TTL, BLE
Features	<p><b>Sensor /Probe:</b></p> <ul style="list-style-type: none"> <li>* Liquid Level Measurement by Ultrasonic technology</li> <li>* Measure through container, No need to contact Liquid</li> <li>* Valid level range: 20mm - 2000mm</li> <li>* Accuracy: ±(5mm+5*0.5%) (S: Measure Value)</li> <li>* IP66 Waterproof Enclosure</li> </ul> <p><b>General Features:</b></p> <ul style="list-style-type: none"> <li>* Ultra-low power consumption</li> <li>* Support Bluetooth v5.1 remote configure and OTA update firmware</li> <li>* Uplink on periodically</li> <li>* GNSS for Location Report ( for -CB &amp; -CS models only)</li> <li>* Downlink to change configure</li> </ul>					
Battery & Power	 * 8500 mAh Li/SOCI2 Battery	 * Solar + 3000 mAh Li-ion Battery	 * 8500 mAh Li/SOCI2 Battery	 * Solar + 3000 mAh Li-ion Battery	 * 8500 mAh Li/SOCI2 Battery	 * Solar + 3000 mAh Li-ion Battery
Power Consumption	* Sleep Mode: 5uA @ 3.3v * LoRa Transmit Mode: 125mA @ 20dBm, 82mA @ 14dBm	* Sleep mode: 74uA@3.8V * LoRa Transmit Mode: 206mA@14dBm, 236mA@20dBm	* Sleep mode: 14uA@3.3V * Max Transmit power: 350mA@3.3V	* Sleep mode: 74uA@3.4V * Max Transmit power: 350mA@3.4V	* Sleep mode: 14uA@3.3V * Max Transmit power: 350mA@3.3V	* Sleep mode: 74uA@3.4V * Max Transmit power: 350mA@3.4V
Supply Voltage	2.5v ~ 3.6v	3.7v ~ 4.2v	2.5v ~ 3.6v	3.7v ~ 4.2v	2.6v ~ 3.6v	3.7v ~ 4.2v
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C

## Battery & Enclosure Option:

### Li-SOCI2 Battery & Enclosure:



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

### Solar Version & Enclosure:



- 3000mAh Re-chargeable battery
- 0.9W on board solar pannel Suitable to used in the place where sun is sufficient



- This icon means support location feature by: GPS/GLONASS/BDS/Galileo/QZSS

## Wireless Option:



- LoRaWAN 1.0.3 Class A
- Bands: CN470/EU433/KR920/US915/EU868/AS923/AU915/IN865
- OTAA or ABP Mode.
- World Wide Unique LoRaWAN Key
- RX sensitivity: down to -139 dBm.
- Max +22 dBm - 100 mW RF output



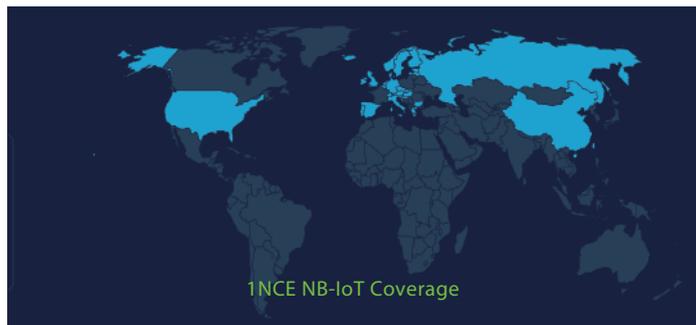
- CAT NB2 Bands:
- For -NB & -NS: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85
- For -CB & -CS: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85
- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink



- CAT-M1 / LTE-M Bands: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85
- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink

# What is 1T version for NB-IoT version?

The 1T version of NB-IoT Ultrasonic Liquid Level Sensor is with a) 1NCE SIM Card & 2) ThingsEye Pre-configured. 1NCE SIM Card (10 Years Cellular service with 500MB Data Traffic, Enough for devices to uplink 10 years at 1hour interval).



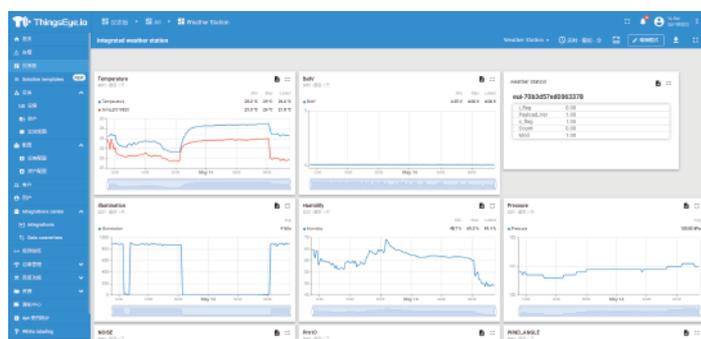
**NB-IoT Network :** Austria, Belgium, Bulgaria, China, Croatia, Czech Republic, Denmark, Estonia, Finland, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Norway, Portugal, Puerto Rico, Russia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, USA, US Virgin Islands.

**LTE-M Network :** Argentina, Austria, Australia, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Japan, Jersey, Korea, Republic of, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Puerto Rico, Romania, Spain, Sweden, Switzerland, Taiwan, USA, US Virgin Islands.

## ThingsEye.io platform:

1T version with ThingsEye IoT service pre-installed. This save a lot of work from user side to configure IoT server.

Below is Dash Board is the demo in ThingsEye.io.



## Order Info:



Part Number: DDS20-LB-XX

XX: The default frequency band

- XX: Frequency Bands, options: EU433,CN470, EU868,IN865,KR920,AS923,AU915,US915

Part Number: DDS20-LS-XX

XX: The default frequency band

- XX: Frequency Bands, options: EU433,CN470, EU868,IN865,KR920,AS923,AU915,US915



Part Number: DDS20-NB-XX

XX:

- **GE:** General version (Exclude SIM card)
- **1T:** with 1NCE\* 10 years 500MB SIM card Pre-configure to ThingsEye server

Part Number: DDS20-NS-XX

XX:

- **GE:** General version (Exclude SIM card)
- **1T:** with 1NCE\* 10 years 500MB SIM card Pre-configure to ThingsEye server



Part Number: DDS20-CB-XX

XX:

- **GE:** General version (Exclude SIM card)
- **1T:** with 1NCE\* 10 years 500MB SIM card Pre-configure to ThingsEye server

Part Number: DDS20-CS-XX

XX:

- **GE:** General version (Exclude SIM card)
- **1T:** with 1NCE\* 10 years 500MB SIM card Pre-configure to ThingsEye server

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