

Temperature Sensor

OVERVIEW:

The Dragino D20/D20S/D22/D23 is a **Temperature Sensor** for Internet of Things solution. It will convert the Temperature reading to upload the sensor data send to IoT platform via **LoRaWAN, NB-IoT or CAT-M1** network.

The temperature sensor measure $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ with accuracy $\pm 0.5^{\circ}\text{C}$ (max $\pm 2.0^{\circ}\text{C}$).

The temperature sensor supports **temperature alarm feature**, user can set temperature alarm for instant notice. It supports **Datalog feature**, can save the data when there is no network and uplink when network recover.

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

The Temperature Sensor 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.



Application:



HVAC



Pipeline Liquid



Warehouse Monitor















Chemical Storage

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Model Variants

| Variants | D2x-LB | D2x-LS | D2x-NB | D2x-NS | D2x-CB | D2x-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>Sensor /Probe:</p> <ul style="list-style-type: none"> * 1 ~ 3 External Temperature Probes * Measure range: -55°C ~ 125°C * Accuracy: ±0.5°C (max ±2.0 °C) * Temperature alarm <p>General Features:</p> <ul style="list-style-type: none"> * Ultra-low power consumption * Support Bluetooth v5.1 remote configure and OTA update firmware * Uplink on periodically * GNSS for Location Report (for -CB & -CS models only) * Downlink to change configure | | | | | |
| 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

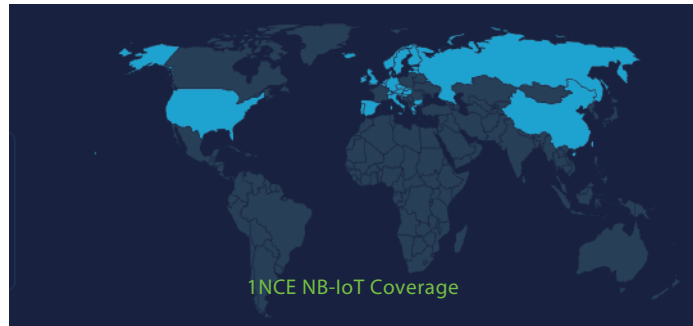


- CAT-M1 / LTE-M Bands: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85
- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink

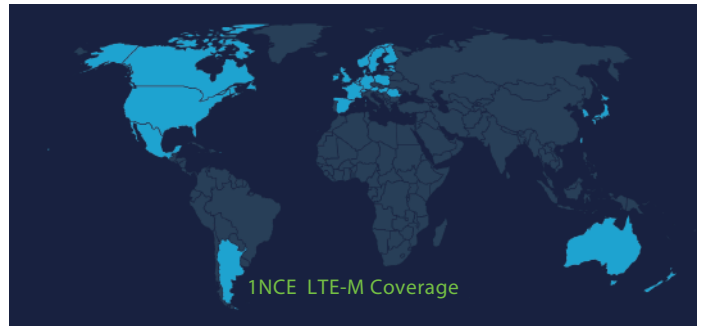
What is 1T version for NB-IoT version?

The 1T version of NB-IoT Temperature 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: D20/D20S/D22/D23-LB-XX

XX: The default frequency band

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

Part Number: D20/D20S/D22/D23-LS-XX

XX: The default frequency band

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



Part Number: D20/D20S/D22/D23-NB-XX

XX:

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

Part Number: D20/D20S/D22/D23-NS-XX

XX:

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



Part Number: D20/D20S/D22/D23-CB-XX

XX:

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

Part Number: D20/D20S/D22/D23-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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