

LoRaWAN/NB-IoT Thermocouple Converter

OVERVIEW:

The Dragino TC01/TC11 series is Thermocouple Converter for Internet of Things solution. It is used to measure the industrial environment temperature, and then upload to IoT server via LoRaWAN or NB-IoT network.

The TC11 used in K-Type thermocouple can measure $-50^{\circ}\text{C} \sim 200^{\circ}\text{C}$. TC01 is with 2 open wire so user can connect a 3rd party K, J, N, R, S, T, E, or B type thermocouple.

TC01/TC11 supports temperature alarm feature, user can set temperature alarm for instant notice. TC01/TC11 supports Datalog feature, It will record the data when there is no network coverage and users can retrieve the sensor value later to ensure no miss for every sensor reading.

TC01/TC11 supports BLE configure and wireless OTA update which make user easy to use.

The TC01/TC11 is powered by 8500mAh Li-SOCI2 battery or solar panel with li-on battery, it is designed for long-term use up to several years.



Application:



Home Appliican



HVAC


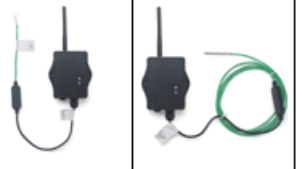

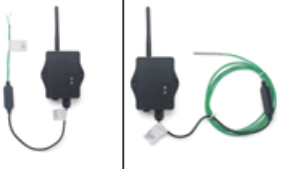






Industrial Heating Equipment



Heat Exchanger

Model Variants

Variants	TC01-LB/TC11-LB	TC01-LS/TC11-LS	TC01-NB/TC11-NB	TC01-NS/TC11-NS
Appearance				
Connectivity				
Configure Method	TTL, BLE, LoRaWAN	TTL, BLE, LoRaWAN	TTL, BLE, NB-IoT	TTL, BLE, NB-IoT
Upgrade Method	TTL, BLE, LoRa	TTL, BLE, LoRa	TTL, BLE	TTL, BLE
Features	<ul style="list-style-type: none"> * Ultra-low power consumption * K Type Thermocouple (-50 ~ 200°C) (For model TC11) * 2 wire to 3rd party Thermocouple (For model TC01) * Temperature Alarm * Datalog Feature * Support Bluetooth v5.1 remote configure and OTA update firmware * Uplink on periodically * Downlink to change configure 			
Battery & Power	* Li/SOCI2 Battery	* Solar + Li-on Battery	* Li/SOCI2 Battery	* Solar + Li-on Battery
Power Consumption	<ul style="list-style-type: none"> * Sleep Mode: 5uA @ 3.3v * LoRa Transmit Mode: 125mA @ 20dBm, 82mA @ 14dBm 	<ul style="list-style-type: none"> * Sleep mode: 74uA@3.8V * LoRa Transmit Mode: 206mA@14dBm, 236mA@20dBm 	<ul style="list-style-type: none"> * Sleep mode: 14uA@3.3V * Max Transmit power: 350mA@3.3V 	<ul style="list-style-type: none"> * 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
Operating Temperature	-50 ~ 200°C	-50 ~ 200°C	-50 ~ 200°C	-50 ~ 200°C

Battery & Enclosure Option:



Li-SOCI2 Battery:

- 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:

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

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



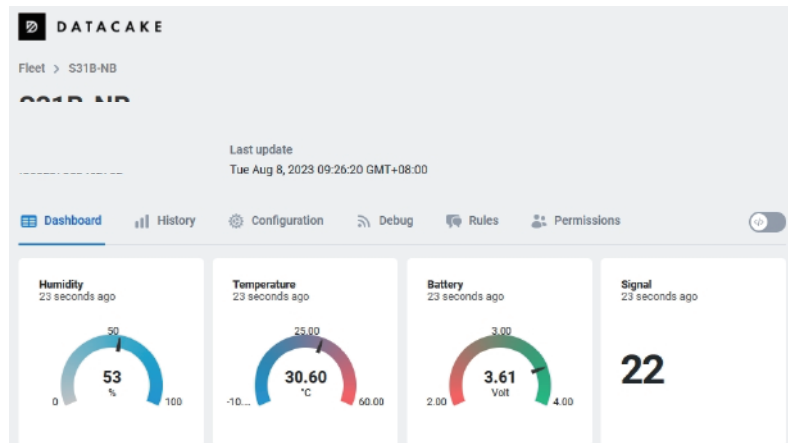
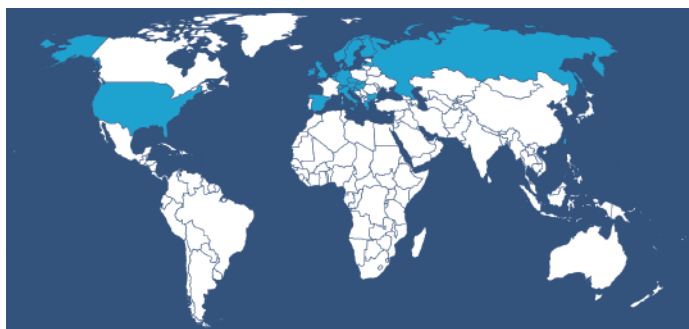
- NB-IoT Bands, B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85 @H-FDD
- Uplink via MQTT, MQTTs, TCP, or UDP
- Multiply Sampling and one uplink

What is 1D version for NB-IoT version?

The 1D version of NB-IoT Thermocouple Converter is with 1NCE SIM Card and DataCake IoT Service.

1NCE card provides 10 years lifetime for NB-IoT connection and Includes 500MB data traffic which is enough for 10 years normal uplink for the NB-IoT Sensor.

Coverage of 1NCE card is NB-IoT network coverage: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Norway, Puerto Rico, Russia, Slovak, Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, USA, US Virgin Islands.



1D version with DataCake 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 DataCake.

Order Info:

Part Number: TC01/TC11-LB-XX

XX: The default frequency band

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

Part Number: TC01/TC11-NB-XX

XX:

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

Part Number: TC01/TC11-LS-XX

XX: The default frequency band

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

Part Number: TC01/TC11-NS-XX

XX:

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

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