

RS485/UART to LoRaWAN/NB-IoT/CAT-M1 Converter

OVERVIEW:

The Dragino RS485 series is a [RS485 / UART to LoRaWAN/NB-IoT/CAT-M1 Converter](#) for Internet of Things solutions. User can connect RS485 or UART sensors to the converter, and configure the converter to periodically read sensor data and upload via [LoRaWAN](#), [NB-IoT](#) or [CAT-M1](#) network to IoT server.

The Dragino RS485 outdoor converter can interface to [RS485 sensor](#), [3.3v/5v UART TTL sensor](#) or [interrupt sensor](#). The RS485 converter provides a [3.3v output](#) and a [5v output](#) to power external sensors. Both output voltages are controllable to minimize the total system power consumption.

The Dragino RS485 series is [IP67 waterproof](#) and powered by [8500mAh Li-SOCI2 battery](#) or [solar panel with li-on battery](#), it is designed for long term use for several years.

It supports [BLE configure](#) and [OTA update](#) which make user easy to use.



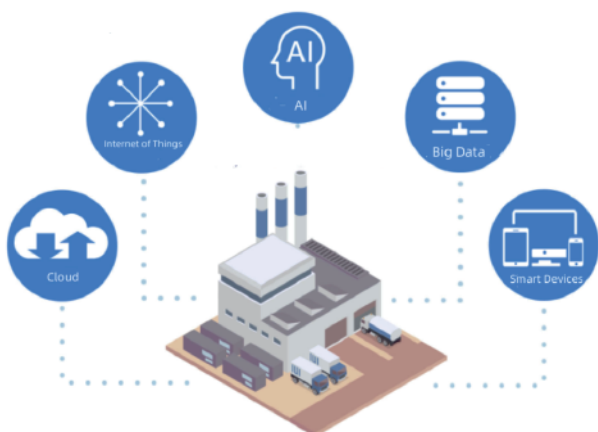
Application:



Smart City



Smart Farm



Smart Factory



Smart Building

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Model Variants

Variants	RS485-LB	RS485-LS	RS485-NB	RS485-NS	RS485-CB	RS485-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
Hardware	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB	MCU: 48Mhz ARM Flash: 256KB RAM: 64KB
Features	General Features: * +5v controllable output * 3 x Interrupt or Digital IN/OUT pins * 1 x RS485 Interface , 1 x I2C Interface * 1 x UART Interface , 3.3v or 5v * 1 x one wire interface * Support multiply RS485 devices by flexible rules * Support Modbus protocol * 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-on Battery	 * 8500 mAh Li/SOCI2 Battery	 * Solar + 3000 mAh Li-on Battery	 * 8500 mAh Li/SOCI2 Battery	 * Solar + 3000 mAh Li-on 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

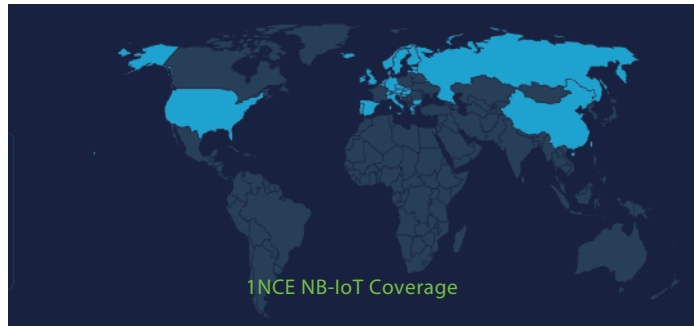
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What is 1T version for NB-IoT version?

The 1T version of NB-IoT RS485/UART to LoRaWAN/NB-IoT/CAT-M1 Converter 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.

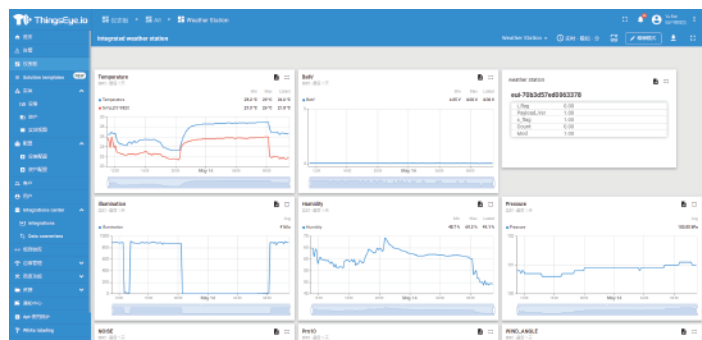


LTE-M Network : Argentina, Austria, Australia, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Japan, Jersey, Korea, Republic of, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Puerto Rico, Romania, Spain, Sweden, Switzerland, Taiwan, 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: RS485-LB-XX-YY

XX: The default frequency band

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

YY: The grand connector hole size

- YY: Hole size, options: M12, M16

Part Number: RS485-LS-XX-YY

XX: The default frequency band

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

YY: The grand connector hole size

- YY: Hole size, options: M12, M16



Part Number: RS485-NB-XX-YY

XX:

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

YY: The grand connector hole size

- YY: Hole size, options: M12, M16

Part Number: RS485-NS-XX-YY

XX:

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

YY: The grand connector hole size

- YY: Hole size, options: M12, M16



Part Number: RS485-CB-XX-YY

XX:

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

YY: The grand connector hole size

- YY: Hole size, options: M12, M16

Part Number: RS485-CS-XX-YY

XX:

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

YY: The grand connector hole size

- YY: Hole size, options: M12, M16

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