SDI-12 to LoRaWAN/NB-IoT/CAT-M1 Converter

OVERVIEW:

The Dragino SDI-12 series outdoor end node is a SDI-12 to LoRaWAN/NB-IoT/CAI-M1 Converter designed for Smart Agriculture solution.

The Dragino SDI-12 (Serial Digital Interface at 1200 baud) is an asynchronous serial communications protocol for intelligent sensors that monitor environment data. SDI-12 protocol is widely used in Agriculture sensor and Weather Station sensors.

The Dragino SDI-12 series have SDI-12 interface and support 12v output to power external SDI-12 sensor. It can get the environment data from SDI-12 sensor and sends out the data via LoRaWAN, NB-IoT or CAT-M1 wireless protocol.

The Dragino SDI-12 series supports BLE configure and OTA update which make user easy to use.

The Dragino SDI-12 series 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:

UAV Farming

Monitoring Farm

Precision Farming

Tracking & Tracing

Internet of Things for Smart Agriculture

Supply Chains Management

Monitoring Forestry

Aquaponics Farms

Analytic Data & Prediction

Model Variants

Variants	SDI-12-LB	SDI-12-LS	SDI-12-NB	SDI-12-NS	SDI-12-CB	SDI-12-CS
Connectivity	LoRaWAN	LoRaWAN	NB-IoT	NB-IoT	NB-IoT LTE-M GNSS	NB-IoT LTE-M GNSS
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:** * Controllable 3.3v, 5v and 12v output to power external sensor * SDI-12 Protocol to connect to SDI-12 Sensor * 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/SOCl2 Battery	* Solar + 3000 mAh Li-on Battery	* 8500 mAh Li/SOCl2 Battery	* Solar + 3000 mAh Li-on Battery	* 8500 mAh Li/SOCl2 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℃	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃	-40 ~ 85℃

Battery & Enclosure Option:

Li-SOCl2 Battery & Enclosure:
- Li/SOCl2 un-chargeable battery
- Capacity: 8500mAh
- Self-Discharge: <1% / Year @ 25℃
- 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®
- LoRaWAN 1.0.3 Class A
- Bands: CN470/EU433/KR920/US915/EU868/AS923/AU915/IN865
- OTAA or ABP Mode.
- World Wide Unique LoRaWAN Key
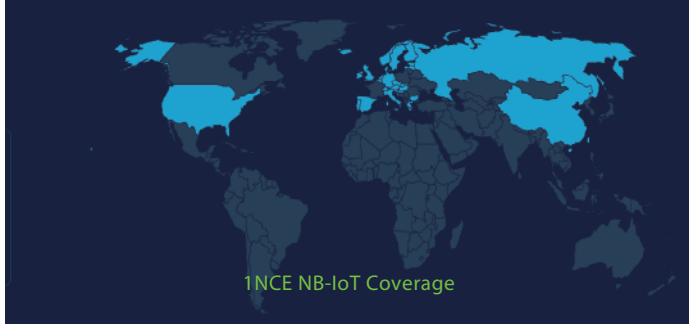- RX sensitivity: down to -139 dBm.
- Max +22 dBm - 100 mW RF output

NB-IoT
- 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
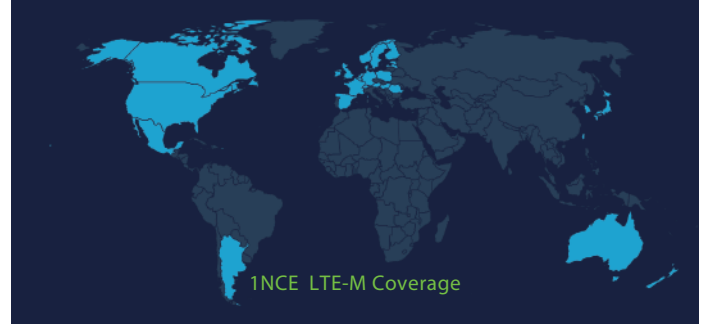- Uplink via MQTT, MQTTs, TCP, UDP or CoAP
- Multiply Sampling and one uplink

LTE-M
- 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 SDI-12 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).

1NCE NB-IoT Coverage

1NCE LTE-M Coverage

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, Repiblic 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 confgure IoT server.

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

Order Info:

Part Number: SDI-12-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: SDI-12-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: SDI-12-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: SDI-12-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: SDI-12-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: SDI-12-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