

Soil Moisture & EC Sensor Transmitter

OVERVIEW:

The Dragino SE0X series is a **Soil Moisture & EC Sensor** for IoT of Agriculture which can **equipped with 4 sensor probes**. It is designed to measure the soil moisture of saline-alkali soil and loamy soil. The soil sensor uses **FDR method** to calculate the soil moisture with the compensation from soil temperature and conductivity. It also has been calibrated in factory for Mineral soil type.

It **detects Soil Moisture, Soil Temperature and Soil Conductivity**, and uploads the value via wireless to LoRaWAN, NB-IoT or CAT-M1 Server.

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

The Dragino SE0X 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.



Model SE0X series doesn't include probes. Probes are purchased separately.

Applications:



Green House



Orchard Nursery















Farmland



Soil Research

Model Variants

Variants	SEOX-LB	SEOX-LS	SEOX-NB	SEOX-NS	SEOX-CB	SEOX-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>Support Sensor /Probe: (Order Separated):</p> <ul style="list-style-type: none"> * External up to 4 sensor probes, probe length: 2.5m * Monitor Soil Moisture * Monitor Soil Temperature * Monitor Soil Conductivity * IP66 Waterproof Enclosure <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

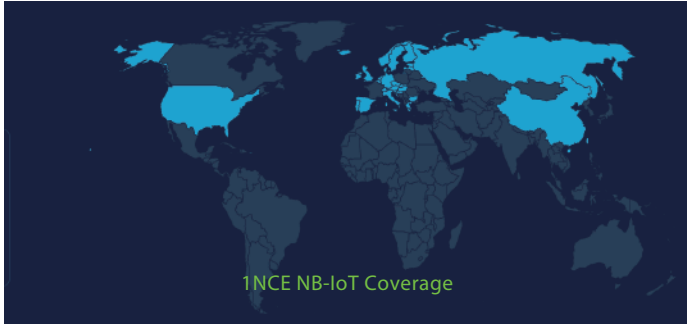
Dragino Technology Co., Limited

Room 202, Block B, BCT Incubation Bases (BaoChengTai), No.8 CaiYunRoad
LongCheng Street, LongGang District ; Shenzhen 518116,China
Direct: +86 755 86610829 | Fax: +86 755 86647123

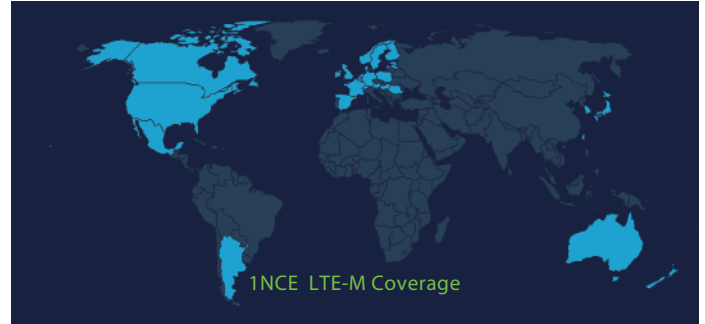
WWW.DRAGINO.COM
sales@dragino.com

What is 1T version for NB-IoT version?

The 1T version of NB-IoT Soil Moisture & EC Sensor Transmitter is with 1) 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:

Model SE0X series doesn't include probes. Probes(DR-SE-6P) are purchased separately.



Part Number: SE0X-LB-XX

XX: The default frequency band

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

Probe Model: DR-SE-6P

Part Number: SE0X-LS-XX

XX: The default frequency band

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

Probe Model: DR-SE-6P



Part Number: SE0X-NB-XX

XX:

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

Probe Model: DR-SE-6P

Part Number: SE0X-NS-XX

XX:

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

Probe Model: DR-SE-6P



Part Number: SE0X-CB-XX

XX:

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

Probe Model: DR-SE-6P

Part Number: SE0X-CS-XX

XX:

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

Probe Model: DR-SE-6P

Dragino Technology Co., Limited

Room 202, Block B, BCT Incubation Bases (BaoChengTai), No.8 CaiYunRoad LongCheng Street, LongGang District ; Shenzhen 518116,China
Direct: +86 755 86610829 | Fax: +86 755 86647123

WWW.DRAGINO.COM
sales@dragino.com