Water Quality Sensor Transmitter

OVERVIEW:

The Dragino WQS series main unit is advanced instruments designed for comprehensive water quality monitoring across various applications. They are ideal for monitoring tap water, industrial water, environmental water, and wastewater,etc,which offer precise and reliable measurements to ensure water quality standards are met.

The Dragino WQS series main unit supports 1-3 probes. supports connecting 1 to 3 water quality probes, including EC, pH, DO, ORP, and TS probes.

It detects water quality parameters, 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 WQS 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.

Model WQS series doesn't include probes. Probes are purchased seperately

Applications:

Wastewater Monitoring	Environmental Water Monitoring
General Water Treatment	Tap Water
Industrial Production	Chemical Reaction
Industrial Water	Surface Water

DR-ECK1.0 -- Water Electrical Conductivity Sensor:

※ Power supply: DC 7~30V
※ Power consumption: ≤0.5W
※ Interface: RS485. 9600 Baud Rate
※ EC range: K= 0 ~ 2000μs/cm;
※ EC Resolution: 1 μS/cm
※ EC Accuracy: ±1%FS
※ Temperature Measure Range: -20 ~ 60 °C, Resolution: 0.1°C
※ Temperature Accuracy: ±0.5 °C
※ Working environment: Temperature range: 0~60 °C
※ Equipped with salinity and TDS conversion function
※ IP Rated: IP68
※ Pressure resistance: 0.6MPa

DR-ECK10.0 -- Water Electrical Conductivity Sensor:

※ Power supply: DC 7~30V
※ Power consumption: ≤0.5W
※ Interface: RS485. 9600 Baud Rate
※ EC range: K= 10 ~ 20000 μs/cm;
※ EC Resolution: 10 μS/cm
※ EC Accuracy: ±1%FS
※ Temperature Measure Range: -20 ~ 60 °C, Resolution: 0.1°C
※ Temperature Accuracy: ±0.5 °C
※ Working environment: Temperature range: 0~60 °C
※ Equipped with salinity and TDS conversion function
※ IP Rated: IP68
※ Pressure resistance: 0.6MPa

DR-PH01 -- Water PH Sensor:

※ Power supply: DC 7~30V
※ Power consumption: ≤0.5W
※ Interface: RS485. 9600 Baud Rate
※ PH Range: 0 ~ 14.00 PH
※ Resolution: 0.01 PH
※ PH Accuracy: ±0.15 PH
※ Auto Temperature Compensate
※ Temperature Measure Range: 0 ~ 60 °C, Resolution: 0.1 °C
※ Temperature Accuracy: ±0.5 °C
※ Working environment: Temperature range: 0~60 °C
※ The reference electrode adopts a double salt bridge design
※ IP Rated: IP68
※ Pressure resistance: 0.6MPa

Water Quality Sensor Transmitter -- Probe Option

DR-ORP1 -- Oxidation-Reduction Potential Sensor:

- ※ Power supply: DC 7~30V
- ※ Power consumption: ≤0.5W
- ※ Interface: RS485. 9600 Baud Rate
- ※ High purity platinum electrode for ORP
- ※ ORP Range: -1999 ~ 1999 mV; Resolution: 1mV
- ※ ORP Accuracy: ±3 mV
- ※ Auto Temperature Compensate
- ※ Working environment: Temperature range: 0~60 °C; Humidity < 85% RH
- ※ IP Rated: IP68
- ※ Pressure resistance: 0.6MPa

DR-DO1 -- Dissolved Oxygen Sensor:

- ※ Power supply: DC 5~24V
- ※ Power consumption: ≤0.5W
- ※ Interface: RS485. 9600 Baud Rate
- ※ Optical Dissolved Oxygen Measurement
- ※ DO Range: 0 ~ 20.00 mg/L , Resolution: 0.01 mg/L
- ※ DO Accuracy: ± 3%
- ※ Temperature Measure Range: 0 ~ 50 °C, Resolution: 0.01 °C
- ※ Temperature Accuracy: ±0.5 °C
- ※ Working environment: Temperature range: 0~60 °C; Humidity < 95% RH
- ※ The electrode adopts high-quality low-noise cable
- ※ IP Rated: IP68
- ※ Pressure resistance: 0.6MPa

DR-TS1 -- Water Turbidity Sensor:

- ※ Power supply: DC 5~24V
- ※ Power consumption: ≤0.5W
- ※ Interface: RS485. 9600 Baud Rate
- ※ Measurement range: 0.1~1000.0 NTU
- ※ Resolution: 0.1 NTU
- ※ Accuracy: ± 5%
- ※ Stability: ≤3mV/24 hours
- ※ Working environment: Temperature range: 0~60 °C; Humidity ≤ 95% RH
- ※ IP Rated: IP68
- ※ Pressure resistance: 0.6MPa

Model Variants

Variants	WQS-LB	WQS-LS	WQS-NB	WQS-NS	WQS-CB	WQS-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
Features	*Measure water quality and provide information for water quality conditions * Low power consumption * Support EC / PH / DO / ORP/ TS Type Water Quality Probe * Support 1 ~ 3 probes * Support Bluetooth v5.1 remote configure and update firmwar * 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@3.3 * Max Transmit power: 350mA@3.3V	* Sleep mode: 74uA@3.4V * Max Transmit power: 350mA@3.4V	* Sleep mode: 14uA@3.3 * 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/SOCl2 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

- 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.
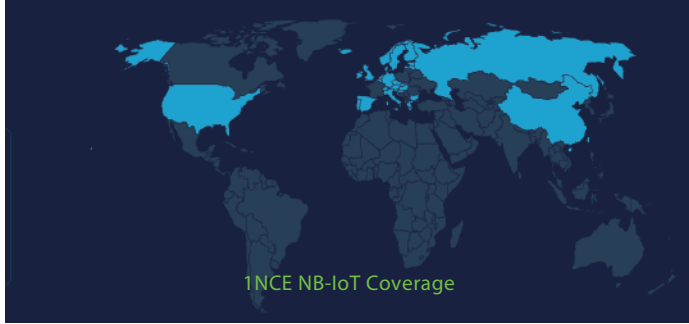- Max +22 dBm - 100 mW RF output

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 Water Quality Sensor Transmitter 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: WQS-LB-XX

XX: The default frequency band

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

Probe Options: DR-ECK1.0, DR-ECK10.0, DR-PH01, DR-ORP1, DR-DO1, DR-TS1

Part Number: WQS-LS-XX

XX: The default frequency band

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

Probe Options: DR-ECK1.0, DR-ECK10.0, DR-PH01, DR-ORP1, DR-DO1, DR-TS1

 NB-IoT

Part Number: WQS-NB-XX

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

Probe Options: DR-ECK1.0, DR-ECK10.0, DR-PH01, DR-ORP1, DR-DO1, DR-TS1

Part Number: WQS-NS-XX

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

Probe Options: DR-ECK1.0, DR-ECK10.0, DR-PH01, DR-ORP1, DR-DO1, DR-TS1

 NB-IoT **LTE-M**   GNSS

Part Number: WQS-CB-XX

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

Probe Options: DR-ECK1.0, DR-ECK10.0, DR-PH01, DR-ORP1, DR-DO1, DR-TS1

Part Number: WQS-CS-XX

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

Probe Options: DR-ECK1.0, DR-ECK10.0, DR-PH01, DR-ORP1, DR-DO1, DR-TS1