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Our Services



IoT Solutions

Smart device integration & monitoring



Automation

Process automation solutions



AutoCAD Design

Professional CAD solutions



SketchUp

3D modeling & visualization



Fire Protection Design

Safety system planning



Plastic Molding

Custom mold design & production



Web Apps

Custom web application development



Server Integration

Enterprise server solutions



TEROS 12 LIIS

Advanced Soil Moisture Sensor



Product Specifications

General Information

- Brand: BGT
- Model: TEROS 12 LIIS
- Country of Origin: China
- Ingress Protection: IP68
- Operating Temperature: -40°C to $+85^{\circ}\text{C}$
- Sensor Material: Stainless steel rods with fully sealed epoxy body

Measurement Technique

- Soil Moisture: Frequency Domain Reflectometry (FDR)
- Electrical Conductivity (EC): AC Excitation Method

Electrical Specifications

- Power Supply: 3.6V – 16V DC
- Quiescent Current: 30 μA
- Measuring Current: 10 mA (150 ms measurement cycle)

Measurement Specifications

Soil Moisture Measurement

- Dielectric Permittivity: 1 – 81 (Air to Water)
- Resolution: ± 0.1 (1-40) / ± 0.5 (40-81)
- Accuracy: $\pm 2\%$ (1-40) / $\pm 5\%$ (40-81)
- VWC Range: 0% – 100%

Electrical Conductivity (EC)

- Range: 0 – 23 dS/m
- Resolution: 0.01 dS/m (0-7) / 0.05 dS/m (7-23)
- Accuracy: $\pm 5\%$ (0-7) / $\pm 15\%$ (7-23)
- Temperature Compensation: 0°C – 50°C

Temperature Measurement

- Range: -40°C to $+80^{\circ}\text{C}$
- Resolution: 0.1°C
- Accuracy: $\pm 0.5^{\circ}\text{C}$

Interface & Connectivity

- Output Interface: LIIS IoT Control CLOUD-Compatible
- Data Logging Device: LIIS IoT Control Device

LIIS2254

Tube 5-Layer Soil Sensor



Product Specifications

General Information

Brand
LIIS SENTEC

Model
LIIS2254 Tube 5-Layer

Product Type
4-20mA Soil Moisture, Temperature, and Humidity Sensor

Country of Origin
China

Output Interface
LIIS IoT Control CLOUD

Data Logger
LIIS IoT Control Device

Display
LIIS IoT Web Page

Electrical & Mechanical Specifications

Working Voltage

- 10-30V DC (for 4-20mA output)
- 5-24V DC (for RS485 output)

Signal Output
4-20mA analog current loop, RS485 (Modbus protocol)

Electrical Connections
Direct lead connection

Probe Specifications

- Diameter: 3 mm
- Type: Multi-layer soil parameter detector

Power Consumption

- Peak: 1.2 W
- Typical: 0.4 W

Measurement Parameters

Soil Temperature

- Range: -40°C to +80°C
- Accuracy: ±0.5°C (at 25°C)
- Resolution: 0.1°C

Soil Moisture (VWC)

- Range: 0 – 100%
- Accuracy: ±3% RH (within 5–95% RH at 25°C)
- Resolution: 0.1%

Relative Humidity (RH)

- Range: 0 – 100% RH
- Accuracy: ±3% RH (5–95% RH at 25°C)
- Resolution: 0.1% RH

Key Features

Multi-Layer Soil Detection
Capable of measuring soil moisture, temperature, and humidity at 5 distinct soil layers using a single integrated tubular sensor.

Dual Signal Output
Supports both 4-20mA analog current loop and RS485 Modbus digital communication, enabling compatibility with a wide range of IoT control systems, data loggers, and industrial devices.

Compact and Durable Design
3 mm probe diameter makes it suitable for narrow tubes and compact soil profiles. Constructed with anti-corrosion and durable materials for reliable long-term in-ground installation.

Wide Operating Range
Designed for harsh outdoor, greenhouse, or industrial environments with a wide operating temperature of -40°C to +80°C.

Low Power Consumption
Max 1.2 W during measurement, typically 0.4 W during operation — optimized for IoT and remote field deployments.

Power Consumption Estimation

Typical Operation (0.4W)

- Hourly: 0.4 Wh
- Daily: 9.6 Wh/day

Maximum Operation (1.2W)

- Hourly: 1.2 Wh
- Daily: 28.8 Wh/day

Note: Peak draw occurs only during brief measurement bursts — actual average will be closer to 9.6 Wh/day

LIIS SEM2253

Soil Temperature & Moisture Sensor



Product Specifications

General Information

Brand
LIIS SENTEC

Model Number
SEM2253

Product Name
4-20mA Soil Moisture, Temperature, and Humidity Sensor

Country of Origin
China

Output Interface
LIIS IoT Control CLOUD

Data Logger
LIIS IoT Control Device

Display Interface
LIIS IoT Web Page

Measurement Specifications

Soil Temperature

- Range: -40°C to +80°C
- Accuracy: ±0.5°C (at 25°C)
- Resolution: 0.1°C

Soil Moisture (VWC)

- Range: 0 – 100% RH
- Accuracy: ±3% RH (within 5–95% RH at 25°C)
- Resolution: 0.1%

Electrical & Mechanical Specifications

Working Voltage

- 10-30V DC (4-20mA output)
- 5-24V DC (RS485 output)

Signal Output
4–20mA Analog Current Loop, RS485 (Modbus protocol)

Electrical Connections
Direct lead connection

Probe Dimensions

- Length: 70 mm
- Diameter: 3 mm

Power Consumption

- Peak: 1.2 W
- Typical: 0.4 W

Key Features

Dual Signal Output

Supports both 4-20mA analog current loop and RS485 Modbus communication, ideal for a wide range of industrial, agricultural, and IoT applications.

Compact and Durable Design

70 mm stainless steel probe with a 3 mm diameter for minimal soil disturbance and reliable long-term in-ground use.

Fast and Accurate Measurements

Delivers rapid, high-accuracy readings for soil temperature and moisture conditions, suitable for both precision agriculture and environmental monitoring.

Low Power, Wide Supply Range

Operates efficiently between 10–30V DC (analog) and 5–24V DC (RS485), with low typical power consumption of 0.4 W — perfect for remote field installations.

Power Consumption Estimation

Typical Operation (0.4W)

- Hourly: 0.4 Wh
- Daily: 9.6 Wh/day

Maximum Operation (1.2W)

- Hourly: 1.2 Wh
- Daily: 28.8 Wh/day

ⓘ Actual average consumption remains closer to 9.6 Wh/day, as the higher power draw only occurs during short measurement bursts.

Summary Table

Working Voltage	10-30V DC (4-20mA), 5-24V DC (RS485)
Signal Output	4–20mA, RS485 (Modbus protocol)
Power Consumption	Typical 0.4 W, Max 1.2 W
Operating Temperature	-40°C to +80°C
Soil Moisture Range	0 – 100% RH (±3%, 0.1% resolution)
Soil Temperature Range	-40°C to +80°C (±0.5°C, 0.1°C resolution)
Probe Length	70 mm
Probe Diameter	3 mm
Electrical Connections	Direct lead
Communication Protocol	Modbus RS485, 4-20mA Current Loop

LIIS SEM225B

Leaf Wetness Measurement Sensor



Product Specifications

General Information

Brand
LIIS SENTEC

Model Number
SEM225B

Product Name
Leaf Wetness Measurement Sensor

Country of Origin
China

Measurement Parameters

Leaf Wetness
Measurement Range: 0–100%

Temperature
Measurement Range: -40°C to +80°C

Electrical & Output Specifications

Signal Output Options
4–20mA, 0–5V, RS485 (Modbus)

Working Voltage
5V DC, 12–24V DC

Repeatability
< ±3% FS

Accuracy

- Wetness: ±5% RH (@ 25°C)
- Temperature: ±1°C (@ 25°C)

Operating Temperature Range
-40°C to +80°C

Interface & Integration

Output Interface
LIIS IoT Control CLOUD

Compatible Data Logger
LIIS IoT Control Device

Display
LIIS IoT Web Page Interface

Usage
Humidity & Wetness Sensing in Agriculture, Greenhouses, Smart Irrigation Systems

Key Features

Multi-Output Support
Provides flexible signal options — 4–20mA, 0–5V analog, and RS485 Modbus digital output — making it adaptable for different control and monitoring systems.

High Environmental Resilience
Wide operating temperature range from -40°C to +80°C, suitable for outdoor and greenhouse applications in diverse weather conditions.

Precision Measurement
Reliable accuracy for leaf wetness (±5% RH) and temperature (±1°C) ensuring dependable readings for precision agriculture and plant health monitoring.

IoT Ready
Seamlessly connects to LIIS IoT Control Cloud, IoT Data Logger, and LIIS Web Dashboard for real-time data viewing, alerts, and historical data analysis.

LIIS TEROS 21

Soil Water Potential Sensor



Product Specifications

General Information

- Brand
- LIIS SENTEC
- Model Number
- TEROS 21
- Country of Origin
- China
- Output Interface
- LIIS IoT Control CLOUD
- Data Logger Compatibility
- LIIS IoT Control Device, METER ZL5, EM60, EMS0, or any 3.6–15VDC serial/SDI-12 system
- Display
- LIIS IoT Web Page

Measurement Specifications

- Water Potential
- Range: 0 to –100,000 kPa (1.70 to 6.00 pF)
 - Resolution: 0.1 kPa
 - Accuracy: ±(10% of reading + 2 kPa) from –100 to –5 kPa
- Notes:
- On a wetting path, readings can go up to 0 kPa.
 - The sensor is not well-calibrated beyond -100 kPa — see the user manual for advanced usage guidelines

- Temperature
- Range: –40.00 to 60.00°C
 - Resolution: 0.10°C
 - Accuracy: ±1.00°C

Dielectric Measurement Frequency: 70 MHz

Communication & Electrical Specifications

- Communication Protocol: DDI Serial or SDI-12
 - Supply Voltage: 3.6 VDC (Min) — 15.0 VDC (Max)
 - Digital Input:
 - Logic High: 2.8–5.0 V
 - Logic Low: –0.3–0.8 V
 - Current Drain:
 - During Measurement: 3.0–16.0 mA (Typical: 5.0 mA)
 - While Asleep: 0.0 mA
 - Power Up Time:
 - DDI: Max 50 ms
 - SDI-12: Typical 175 ms
 - Measurement Duration: Typical 175 ms

Physical Specifications

- Dimensions (L × W × H): 9.6 cm × 3.5 cm × 1.5 cm
 - Sensor Diameter: 3.2 cm
 - Operating Temperature Range: –40.00°C to 60.00°C
 - Cable Length: 5 m (Standard), 75 m (Maximum Custom)
 - Connector Type: 3.5 mm stereo plug or stripped & tinned wires
- Note: Contact customer support for custom cable options or high-temperature applications.

Certifications & Recognition

- Compliance:
- EM ISO/IEC 17050:2010 (CE Mark)
 - EN 55011:2016 / A
- Awards:
- 2022 AES0 Innovation Award Winner

Summary Table

Water Potential Range	0 to –100,000 kPa (1.70 to 6.00 pF)
Temperature Range	–40.00 to 60.00°C
Dielectric Measurement Freq	70 MHz
Output Options	DDI Serial / SDI-12
Supply Voltage	3.6 to 15.0 VDC
Current Drain (Typical)	5.0 mA (Measurement) / 0.0 mA (Sleep)
Power Up Time	50 ms (DDI) / 175 ms (SDI-12)
Measurement Duration	175 ms
Compliance & Awards	CE Mark; AES0 Innovation Award 2022

IIS ECH2O EC-5

Volumetric Water Content Soil Moisture Sensor



Product Specifications

📌 General Information

Brand	Model Number
LIIS SENTEC	BGT-SM
Product Name	
ECH2O EC-5 Volumetric Water Content Soil Moisture Sensor	
Country of Origin	Output Interface
China	LIIS IoT Control CLOUD
Data Logger	Display
LIIS IoT Control Device	LIIS IoT Web Page

🌿 Measurement Specifications

- Soil Moisture
- Range: 0 – 100.00%
 - Accuracy:
 - 0–50%: ±3%
 - 50–100%: ±5%
- Temperature
- Range: -40.00°C ~ +85.00°C
- Response
- Response Time: < 1 second

🔌 Electrical & Communication

- Power Supply: 2.5 – 16 VDC
- Output Signal: Analog Voltage (Max 2000 mV)
- Measuring Method: Frequency Domain Reflectometry (FDR)
- Protection Level: IP68

🏠 Environmental Specifications

- Operating Temperature: -40.00°C ~ +85.00°C
- Storage Temperature: -40.00°C ~ +85.00°C

📊 Summary Table

Soil Moisture Range	0 – 100.00%
Accuracy	0–50%: ±3%
	50–100%: ±5%
Temperature Range	-40.00°C ~ +85.00°C
Response Time	< 1 second
Power Supply	2.5 – 16 VDC
Output Type	Analog Voltage (Max 2000 mV)
Measuring Method	FDR (Frequency Domain Reflectometry)
Protection Level	IP68

LIIS WH65LP

Weather Station



Product Specifications

📌 General Information

Brand	Model Number
LIIS SENTEC	WH65LP
Country of Origin	Output Interface
China	LIIS IoT Control CLOUD
Data Logger	Display
LIIS IoT Control Device	LIIS IoT Web Page

🔌 Communication Protocol

UART Format:	Measuring Interval:
• Baud Rate: 9600	16 seconds
• Parity: None	
• Bits: 8	
• Stop: 1	

📊 Measurement Specifications

Temperature

- Range: -30°C to 60°C
- Accuracy: $\pm 1^{\circ}\text{C}$
- Resolution: 0.1°C

Relative Humidity

- Range: 10% to 99%
- Accuracy: $\pm 5\%$

Rain Volume

- Display Range: 0 – 9999mm
- Accuracy: $\pm 10\%$
- Resolution:
 - 0.3mm (rain volume < 1000mm)
 - 1mm (rain volume > 1000mm)

Wind Speed

- Range: 0-50m/s (0~100mph)
- Accuracy:
 - $\pm 1\text{m/s}$ (wind speed < 5m/s)
 - $\pm 10\%$ (wind speed > 5m/s)

Light

- Range: 0-300k Lux
- Accuracy: $\pm 15\%$

Air Pressure

- Range: 300-1100hPa (8.85-32.5inHg)
- Accuracy: $\pm 3\text{hPa}$ (700-1100hPa)

LIIS RD-SM-C-01

Capacitive Soil Moisture Sensor



Product Specifications

General Information

Brand	LIIS SENTEC (Manufactured by HONDETEC)	Model Number	RD-SM-C-01
Product Name	Capacitive Soil Moisture Sensor	Series	Soil Sensor
Country of Origin	China (Beijing)	Output Interface	LIIS IoT Control CLOUD
Data Logger	LIIS IoT Control Device	Display	LIIS IoT Web Page

Sensor Characteristics

Sensor Type	Capacitive
Output Signal	0 – 3.3V Analog
Wireless Connectivity (Optional)	GPRS / LoRa / LoRaWAN / Wi-Fi
Application	Soil Moisture Monitoring
Theory	Capacitive Measurement Principle

Environmental & Durability

Waterproof Rating	IP68
Corrosion Resistance	Anti-corrosion, Acid and Alkali Resistant

Summary Table

Product Name	Capacitive Soil Moisture Sensor
Model Number	RD-SM-C-01
Output Type	0 – 3.3V Analog
Wireless Options	GPRS, LoRa, LoRaWAN, Wi-Fi
Waterproof Rating	IP68
Special Features	Waterproof, Anti-corrosion, Acid and Alkali Resistant
Application	Soil Moisture Monitoring