



Soil Moisture Series

Real-time monitoring of soil temperature and humidity for large-scale agricultural applications, greenhouse management, and fruit orchards' automatic irrigation systems.

RS485 · Modbus RTU

NB-IoT uplink

IP68

Soil Moisture + Temperature Sensor



OVERVIEW / 01

The WaveForm Labs **Moisturelevel Series** is a family of precision sensors. The RS485 Soil Sensor is designed for real-time monitoring of soil temperature and humidity, ideal for large-scale agricultural applications, greenhouse management, and fruit orchards' automatic irrigation systems. Utilizing the MODBUS-RTU protocol via RS485 communication, the sensor provides reliable and fast data acquisition, making it compatible with various irrigation and climate control systems. Each sensor delivers accurate soil moisture readings via an industry-standard RS485 Modbus RTU interface and transmits data wirelessly over NB-IoT to a cloud-hosted SaaS dashboard.

SPECIFICATIONS / 03

Parameter	WFL-SM100
MEASUREMENT	
Measuring range	0 - 100% soil moisture
Accuracy	0-50% @±2%, 50-100% @±3%
Measurement frequency	60 minutes (configurable on request)
Sensor principle	Soil Moisture + Temperature Sensor
ELECTRICAL	
Supply voltage	4.5 V DC
Current draw (active)	< 25 mA @ 4.5 V
Current draw (sleep)	< 10 µA
Reverse polarity protection	Yes
Battery type	3 AA batteries
Battery life	Approx. 5 years.
MECHANICAL	
Sensor housing material	Stainless steel
Base-unit material	Polycarbonaat (V0)
IP rating	IP68
Operating temperature	-20 °C to +70 °C
Cable length (standard)	1 m (custom on request)
Connector	4-pin SD-13 male

KEY FEATURES / 02

- NB-IoT cloud uplink
- IP68-rated
- Ultra-low sleep current (< 10 µA)
- Works on 3 AA batteries
- RS485 bus – 1200m cable run
- AES-128 encrypted payloads end-to-end
- Quick-connect 4-pin SD-13 male cable assembly

AT A GLANCE / 03

Range	-20 °C ~ +70 °C
Resolution	0.1 °C
Accuracy	± 0.5 °C
Sleep current	< 10 µA
Interface	RS485 Modbus RTU
Uplink	LTE Cat-NB1, NarrowBand IoT
IP rating	IP68
Operating temp.	-20 / +70 °C



WFL · SM100

SM100

Large-scale agricultural applications, greenhouse management, and fruit orchards' automatic irrigation systems.

SM100

◆ COMMUNICATION / 05

RS485 · MODBUS RTU

- ◆ Half-duplex, 2-wire bus
- ◆ Max cable run 1200 m

NB-IOT UPLINK

- ◆ Configurable report interval on request
- ◆ AES-128 payload encryption
- ◆ Informational Dashboard
- ◆ Direct SaaS API (optional)

◆ ORDERING / 06

MODEL

PART NUMBER

WFL-SM100

WFL-SM100-RS-NB

Custom cable lengths and SIM configurations available on request. Contact your local distributor or visit waveformlabs.io.

◆ COMPLIANCE / 07