

Description	SMR101A
Probe Range	0 to 100 %VWC saturation
Probe Resolution	0.002 m ³ /m ³
Probe Accuracy	±3% typical, All soils
Logger Accuracy	+0.01% FSR
Typical Battery Life	10 months typical at a 1 minute reading rate with a 350 Ω load
Reading Rate	4 Hz up to once every 24 hours
Memory	115,200
Required Interface Package	IFC200
Probe Life Expectancy	3-5 years
Logger Operating Environment	-40 °C to +80 °C (-40 °F to +176 °F) 0 %RH to 90 %RH non-condensing
Probe Operating Environment	0 °C to +60 °C (32 °F to +140 °F), 0 %RH to 100 %RH
Logger Dimensions	1.4 in x 2.5 in x 0.6 in (36 mm x 64 mm x 16 mm)
Probe Dimensions	2.1 in x 0.6 in x 0.06 in (55 mm x 15 mm x 1.5 mm)
Cable Length	16 ft (5 m) (Tinned, Wire Leads)
Weight	7 oz (198 g)
Approvals	—

Battery Warning

WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 80 °C (176 °F).

Specifications subject to change.

See MadgeTech's terms and conditions at www.madgetech.com

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SMR101A

Soil Moisture Recorder with EC-5 probe

Product Notes

The SMR101A measures Volumetric Water Content (VWC) over a range of 0 to 100%. The system can be used in for most soil types as well as soil-less media with minimal salinity and textural effects.

EC Probe Soil Insertion

Refer to the “ECHO Probe Insertion Guide” application note on the MadgeTech website for instructions on how to insert the probe into the soil.

Calibrating Soil Moisture Probes

Refer to the “Calibrating ECH20 Soil Moisture Probes” application note on the MadgeTech website for information on how to calibrate the probe.

Additional Information

The following application notes can be downloaded from the website:

- Response of the ECH20 Soil Moisture Probe to variation in the water content, soil type, and solution electrical conductivity.
- Measuring water content in organic soils using ECH20 probe.

LEDs

- Green LED: Every 10 seconds to indicate logging and 15 seconds to indicate delay start mode.
- Red LED: Every 10 seconds to indicate low battery and/or memory and 1 seconds to indicate an alarm condition.

Multiple Start/Stop Mode Activation

- To start device: Press and hold the pushbutton for 5 seconds, the green LED will flash during this time. The device has started logging.
- To stop the device: Press and hold the pushbutton for 5 seconds, the red LED will flash during this time. The device has stopped logging.

Engineering Units Quick Reference

Unit Description	Unit Label	Offset	Gain
VWC	%	-40.1	0.119
VWC	m3/m3	-0.0004	0.00119

Installation Guide

Installing the Interface cable

- IFC200
Insert the device into a USB port. The drivers will install automatically.

Installing the software

Insert the Software USB Stick in an open USB port. If the autorun does not appear, locate the drive on the computer and double click on Autorun.exe. Follow the instructions provided in the Wizard.

Device Operation

Connecting and Starting the data logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Connect the USB end of the interface cable into an open USB port on the computer.
- The device will appear in the Connected Devices list, highlight the desired data logger.
- For most applications, select “**Custom Start**” from the menu bar and choose the desired start method, reading rate and other parameters appropriate for the data logging application and click “**Start**”. (“**Quick Start**” applies the most recent custom start options, “**Batch Start**” is used for managing multiple loggers at once, “**Real Time Start**” stores the dataset as it records while connected to the logger.)
- The status of the device will change to “**Running**”, “**Waiting to Start**” or “**Waiting to Manual Start**”, depending upon your start method.
- Disconnect the data logger from the interface cable and place it in the environment to measure. *Note: The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.*

Downloading data from a data logger

- Connect the logger to the interface cable.
- Highlight the data logger in the Connected Devices list. Click “**Stop**” on the menu bar.
- Once the data logger is stopped, with the logger highlighted, click “**Download**”. You will be prompted to name your report.
- Downloading will offload and save all the recorded data to the PC.

Device Maintenance

Battery Replacement

Materials:

Small Phillips Head Screwdriver, 3/32” HEX Driver

Replacement Battery (LTC-7PN)

- Remove the Data Logger from the Waterbox using the Allen Key.
- Puncture the center of the back label with the screw driver and unscrew the enclosure.
- Remove the battery by pulling it perpendicular to the circuit board.
- Insert the new battery into the terminals and then screw the enclosure back together.

Note: Be sure not to over tighten the screws or strip the threads.

Recalibration

The SMR101A system is based on strain measurement in mVs. The device is calibrated at 0 volts and 900-1000 mV. If a more accurate calibration is desired, refer to the Calibrating ECH20 Soil Moisture Probes application note on the MadgeTech website.

Pricing:

Recalibration \$40.00

Additional Services:

Verification Point \$15.00 per point

*Prices and specifications subject to change. See MadgeTech’s terms and conditions at www.madgetech.com
To send devices to MadgeTech for calibration, service or repair, please use the MadgeTech RMA Process by visiting www.madgetech.com, then under the services tab, select RMA Process.*