Specifications subject to change without notice
For additional information, please contact the Soil Scout team at info@soilscout.com

Hydra100 Scout (Periodically Transmitting Undergound Sensor Unit)

Radio power	27.0 dBm (500 mW) ERP, Bandwidth <250 kHz, duty cycle <0,001%.
Frequency Variants	869.525 MHz (ITU-1) Europe & selected other markets 921.700 MHz (ITU-2) Americas, Australia, NZ & selected other markets 920-925 MHz (FHSS) Hong Kong, China Custom Information upon request
Battery capacity	3000 mAh, encapsulated primary lithium
Life expectancy	Up to 20 years @ 1 cycle per 20 minutes
Encapsulation	Black polyurethane molding
Dimensions (L×W×H, mass)	129 × 59 × 25 mm, 100 g (5.1" × 2.3" × 1.0", 3.5 oz)
Sensors	Temperature 3-prong integrated Capacitive (moisture content) & Resistive (EC / salinity) DDS (Dual Depth Sensor) has same specification for both sensing heads
Moisture Accuracy	± 2 % mean error (1 % with correct soil type, 1 % installation repeatability) Salinity-compensated capacitance sensor, 95MHz
	Resolution 0.3 %-points (in default soil type)
EC Accuracy	± 0.2 dS/m mean error, Typical resolution 0.1 dS/m, Range 0 to 20 dS/m Four-electrode Wenner probe, 1kHz
Dielectric Accuracy	± 2 % mean error, Resolution 0.5 to 1.5 ε, Range 1 to 135 ε
Temperature Accuracy	Range -40 to +80 °C / -40 to 176 °F Accuracy: +/- 0.1 °C / 0.18 °F
Resolution	-40 to -11 °C 1.00 °C -40 to 12 °F 1.80 °F -10 to +10 °C 0.25 °C -12 to +50 °F 0.45 °F +10.5 to +80 °C 0.50 °C +51 to +176 °F 0.90 °F

Happi100 Scout (Undergound Sensor Unit with Oxygen Sensor)

Dimensions (L×W×H, mass)	129 × 88 × 55 mm, 170 g (5.1" × 3.5" × 2.2", 6 oz)
Sensors	Temperature 3-prong integrated Capacitive (moisture content) Galvanic cell-type oxygen
Oxygen Range	0 to 21%
Oxygen Accuracy	± 1 % across range when calibrated in ambient air
Life expectancy	More than 5 years in oxygen concentrations not exceeding open air

Other specifications as with Hydra100

Base Station 200 (Receive-only 4G Gateway)

Receiver RF sensitivity	-100 dBm, BNC connector
Frequency Variants	869.525 MHz (ITU-1) Europe & selected other markets 921.700 MHz (ITU-2) Americas, Australia, NZ & selected other markets 920-925 MHz (FHSS) Hong Kong, China Custom Information upon request
Operating Voltage	10-24 VDC, 500 mA In-built 2Wp solar panel and 20Wh Li-ion battery (3 days)
Power Supply	100-240 VAC with 5 m (16'4") lead (included)
Dimensions (W×H×D, mass)	175 x 140 x 100 mm, 1300 g (6.9" x 5.5" x 3.9", 45 oz) [1]
Mounting	50 mm (2") pole mount / wall mount
Data interface	4G modem with 3G/2G fallback / Custom [2]

Wide selection of Omni-directional / Directional antennas are compatible

[1]   Excluding interface ports.
[2]   SIM-card is supplied for most regions.

Echo Repeater 200 (Packet Repeating Transmitter)

Receiver RF sensitivity	-100 dBm, BNC connector
Frequency Variants	869.525 MHz (ITU-1) Europe & selected other markets 921.700 MHz (ITU-2) Americas, Australia, NZ & selected other markets 920-925 MHz (FHSS) Hong Kong, China Custom Information upon request
Operating Voltage	10-24 VDC, 500 mA In-built 2Wp solar panel and 20Wh Li-ion battery (10 days)
Power Supply	Mains power supply available as accessory (same as used for Base Station)
Dimensions (W×H×D, mass)	175 × 140 × 100 mm, 1200 g (6.9" x 5.5" x 3.9", 42 oz)
Mounting	50 mm (2") pole mount / wall mount
Radio transmit power	27 dBm (500 mW) ERP, Bandwidth <250 kHz, duty cycle <0,1%
Transmit Range	10 km / 6 miles line-of-sight from Echo to Base / another Echo [3]

3) Any obstacles (vegetation, hills, buildings) between the radios will decrease range. Base Stations & Echos dynamically daisy chain.

Soil Scout Hub (Online Monitoring and Analysis Service)

Connectivity	Web based HTTPS browser interface at https://soilscouts.fi
Preferred browsers	Chrome, Firefox, Safari
API	Query-type RESTful JSON API with JWT-based authentication
User Functionalities	User/Site/Preference management Hardware device management Real-time data view, History Graph view, Map view System alarms, Device grouping, Email alerts Historical data comparison tool Data download in CSV format
Server components	Google Cloud hosted Linux server in Finland Timescale database Nginx web server React frontend
Security	HTTPS protocol, user-specifically isolated data access
Backup	Obtained measurement data is never deleted Hosted server complete backup daily, stored for 30 days