



HydroSense II

HydroSense II Handheld Soil Moisture Sensor



Fast and Portable

Soil Water Content Measurements

Overview

The HS2 is the handheld display for the new Hydrosense II soil-water sensor. When paired with either the CS658 or CS659 portable soil-water probes, it replaces the previous Hydrosense soil-water system. It features a new handheld

display and a new probe design. The HS2 handheld has been designed to be compact and portable, with the layout of the buttons allowing for operation with one hand.

Benefits and Features

- › Compact and lightweight
- › Read real-time soil-water content measurements in the field
- › Large LCD display for easy operation
- › Onboard data storage for up to 1500 points
- › Onboard GPS for geotagging measurements
- › Bluetooth connection to PC software
- › Export to Google Earth, GPX and CSV
- › Probe redesign for easy insertion and removal from soil

Technical Description

Handheld Display

The display consists of a 76 mm LCD and four navigation buttons that make changing settings and taking measurements as easy as possible. An integrated GPS tags each measurement with a latitude and longitude.

Zones can be created on the unit which group measurements together so that average soil moisture can be calculated for an area. The current position and zone are shown on the display so that measurements can be taken in the same zone.

Data storage has been added to allow more than 1000 measurements to be stored on the device. The data can

then be downloaded to a PC via Bluetooth for viewing and archiving.

Soil Moisture Probe

The new soil moisture probe uses the same accurate measurement technique as the old probe, but the probe housing has been redesigned to aid insertion into and removal from hard soils. The probe rods are secured to the probe housing with ferrule nuts to provide extra stability during insertion. A molded plastic grip connects the sensor cable to housing to provide better grip.

Software

New PC software has been developed to make the most of the data storage capability of the HS2. The software

connects to the HS2 via Bluetooth to avoid the need for extra cables.

The software allows the user to:

- ▶ View data in table and chart views

- ▶ Edit zone positions and sizes
- ▶ Change device settings
- ▶ Export data to CSV to interface with 3rd party software
- ▶ View zones and measurements in Google Earth

Specifications

Measurements Made	Volumetric water content (VWC) of porous media (such as soil)
Required Equipment	HS2 is a complete system.
Soil Suitability	Short rods are easy to install in hard soil. Suitable for soils with higher electrical conductivity.
Rods	Replaceable
Sensors	Interchangeable sensors; can swap the 12 cm and 20 cm sensors with the reader.

Handheld Display

Display	128 x 64 pixel graphic LCD
Backlight	Blue and white LED (brightness-adjustable)
GPS Accuracy	<ul style="list-style-type: none"> ▶ ±1 ms time with GPS sync ▶ ±5 m (16.4 ft) typical
Bluetooth Range	~10 m (~30 ft)
Data Storage	> 1000 records (ring memory)
Zone Storage	> 100 records
Power Supply	6 Vdc, 4 AA batteries
Battery Life	6 to 12 months (typical usage)
Dimensions	200 x 100 x 58 mm (7.9 x 3.9 x 2.3 in.)
Weight	340 g (12 oz)

Typical Power Consumption of Display

Sleep	20 µA
Backlight Off	2 mA

Backlight at 60%	18 mA
Backlight at 100%	30 mA
GPS Active	35 mA
Bluetooth Active	30 mA

Probe Options

-NOTE-	<i>The CS659 and CS658 cannot share rods.</i>
Water Content Accuracy	<ul style="list-style-type: none"> ▶ 3% typical (Accuracy assumes solution EC of < 6.5 dS/m when using the CS659 12-cm probe.) ▶ 3% typical (Accuracy assumes solution EC of < 4 dS/m when using the CS658 20-cm probe.)
Volumetric Water Content Resolution	< 0.05%
Volumetric Water Content Range	0% to 50% VWC
Cable Type	Spiral
Cable Length	250 cm (98 in.) extended
Rod Diameter	5 mm (0.14 in.)
Rod Length	<ul style="list-style-type: none"> ▶ 120 mm (4.7 in.) for the CS659 12-cm probe ▶ 200 mm (7.9 in.) for the CS658 20-cm probe
Body Dimensions	100 x 92 x 40 mm (3.9 x 3.6 x 1.6 in.)
Weight	450 g (15.9 oz)

For comprehensive details, visit: www.campbellsci.eu/hs2 



80 Hathern Road, Shepshed, LE12 9GX UK | +(0)1509 828888 | sale@campbellsci.co.uk | www.campbellsci.eu
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