

# HS2 HydroSense II

## Soil Moisture Measurement System



The Hydrosense II is a portable, handheld device for easily obtaining soil measurements. It is the next generation of the Hydrosense soil-water measurement system. Improvements over its predecessor include a more rugged probe design, additional navigation buttons for the display, expanded memory, an internal GPS receiver, Bluetooth communications, and more powerful PC software.

### Benefits/Features

- Large LCD and four navigation button that simplifies operation
- Splashproof housing
- Onboard data storage of more than 1000 points
- Integrated GPS receiver for tagging measurements
- Bluetooth for wireless connection to PC
- Data exportable to Google Earth, GPX and CSV
- Rugged probe design that allows insertion into harder soils



The HydroSense II software allows you to view zones and measurements using Google Earth.

### Soil Moisture Sensors

Two sensor options are offered. The CS658 has 20-cm rods and the CS659 has 12-cm rods. These soil moisture sensors use innovative techniques to monitor soil volumetric water content, bulk electrical conductivity, and temperature.

The sensors' rugged design allows them to be inserted into harder soils. Their rods attach to the housing using ferrule nuts. A molded plastic grip securely fastens the cable to the housing.

### Handheld Display

The HS2 is a compact and portable handheld display with a button layout that enables one-hand operation. A three-inch LCD and four navigation buttons simplify the process of changing settings and taking measurements. Approximately 1000 measurements can be stored in its internal memory. The integrated GPS receiver allows each measurement to be tagged with its latitude and longitude. The measurements can then be grouped into zones and each zone's average soil moisture calculated.



### Software

The HydroSense II data is transmitted from the HS2 to a PC via Bluetooth. PC software designed specifically for the Hydrosense II allows the user to:

- Show data in a table or chart •

Edit zone positions and sizes

- Change device settings
- View zones and measurements in Google Earth
- Export data to CSV to interface with third party software

## Ordering Information

### HydroSense II Displays

**HS2** CSA HydroSense II Display w/Carrying Case

### Sensor Options (choose one)

- NS** No soil water content sensor.
- 12** CS659 water content sensor and 12-cm rods.
- 20** CS658 water content sensor and 20-cm rods.

### Common Accessory

**28411** Bluetooth 2.1 USB Micro Adapter for for the HS2 HydroSense II Display.

### Replacement Parts

- 10184** One 12-cm long rod for the CS659 water content sensor (Sensor Option -12). Purchase the 10184 when you need to replace only one 12-cm rod on the CS659 (the 18591 orders two 12-cm rods; see below).
- 18591** Two 12-cm long rods for the CS659 water content sensor (Sensor Option -12).
- 26483** One 20-cm long rod for the CS658 water content sensor (Sensor Option -20). Purchase the 26483 when you need to replace only one 20-cm rod on the CS658 (the 26485 orders two 20-cm rods; see below).
- 26485** Two 20-cm long rods for the CS658 water content sensor (Sensor Option -20).
- 26156** Open Ended 7/16 Wrench used to remove the nut that fastens the rods to a CS658 or CS659 water content sensor.

## Handheld Display Specifications

<b>Display:</b>	128 x 64 pixel graphic LCD
<b>Backlight:</b>	Blue and white LED, brightness adjustable
<b>GPS Accuracy:</b>	±5 m (16.4 ft) typical; ±1 ms time with GPS sync
<b>Bluetooth Range:</b>	~10 ms
<b>Data Storage:</b>	>1000 records (ring memory)
<b>Zone Storage:</b>	>100 records
<b>Power Supply:</b>	6 Vdc, 4 AA batteries
<b>Battery Life:</b>	6 to 12 months, depending on usage
<b>Typical Power Consumption</b>	
<b>Sleep:</b>	20 µA
<b>Backlight Off:</b>	mA
<b>Backlight at 60%:</b>	18 mA
<b>Backlight at 100%:</b>	35 mA
<b>GPS Active:</b>	30 mA
<b>Bluetooth Active:</b>	mA
<b>Dimensions</b>	
<b>Height:</b>	200 mm (7.9 in.)
<b>Width:</b>	100 mm (3.9 in.)
<b>Depth:</b>	58 mm (2.3 in.)
<b>Weight:</b>	340 g (12 oz.)

## Soil Probes Specifications

### CS658 Water Content Probe (option -20)<sup>1</sup>

#### Volumetric Water Content using Topp Equation

<b>Range:</b>	0% to 50% VWC
<b>Accuracy:</b>	3% typical (solution electrical conductivity < 4 dS/m)
<b>Resolution:</b>	< 0.05%

#### Body Dimensions

<b>Height:</b>	100 mm (3.9 in.)
<b>Width:</b>	92 mm (3.6 in.)
<b>Depth:</b>	40 mm (1.6 in.)

#### Rod Dimensions

<b>Length:</b>	200 mm (7.9 in.)
<b>Diameter:</b>	5 mm (0.14 in.)

**Weight:** 450 g (15.9 oz)

**Cable:** Spiral, 250 cm (98 in.) extended

### CS659 Water Content Probe (option -12)<sup>1</sup>

#### Volumetric Water Content using Topp Equation

<b>Range:</b>	0% to 50% VWC
<b>Accuracy:</b>	3% typical (solution electrical conductivity < 6.5 dS/m)
<b>Resolution:</b>	< 0.05%

#### Body Dimensions

<b>Height:</b>	100 mm (3.9 in.)
<b>Width:</b>	92 mm (3.6 in.)
<b>Depth:</b>	40 mm (1.6 in.)

#### Rod Dimensions

<b>Length:</b>	120 mm (4.7 in.)
<b>Diameter:</b>	5 mm (0.14 in.)

**Weight:** 450 g (15.9 oz)

**Cable:** Spiral, 250 cm (98 in.) extended

<sup>1</sup>The CS658 and CS659 cannot share rods (i.e., 12-cm rods cannot be used with the CS658, and 20-cm rods cannot be used with the CS659).

