



**DOVE**  
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## Information

### Water, conductivity and temperature sensing equipment

Over the years we have tested and used a wide range of sensors for water determination in field and container growing systems. Of those we have tested we have found the following units most reliable and well priced.

#### **Sensors**

The sensor is an important part of the system. All sensors come with a 3.5mm three pin plug and a 5 mt cable. Cable lengths of up to 70mts are available on request. .



**EC-5**

**10HS**

**5TE**

**Teros 12**

#### **EC5**

The EC-5 determines volumetric water content (VWC ) by measuring the dielectric constant of the media using capacitance/frequency domain technology. The sensor uses a 70 MHz frequency, which minimizes salinity and soil texture effects, making the EC-5 accurate in almost any soil or soil-less media. Factory calibrations are included for mineral soils, potting soils, rockwool, and perlite. The sensor is made with a 5cm length and 5mt cable as standard, with a soil influence volume of 0.2lts. The EC5 will plug into the Procheck hand held device, EM5b or EM50 loggers.

#### **10HS**

The 10HS determines volumetric water content (VWC) by measuring the dielectric constant of the soil using capacitance/frequency domain technology. Using a 70 MHz frequency minimizes salinity and textural effects, making the 10HS accurate in most soils. The sensor is made with a 10cm length and 5m cable as standard, with a soil influence volume of 1.3lts. The 10HS will plug into the Procheck hand held device, EM5b or EM50 loggers.

**Use plant protection products safely. Always read the label and product information before use**

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## **5TE**

All three measurements (water content, temperature, and EC) are made independently and it determines volumetric water content (VWC ) by measuring the dielectric constant of the media using capacitance/frequency domain technology. The sensor uses a 70 MHz frequency, which minimizes salinity and textural effects, making it accurate in almost any soil type. Because of large air spaces in potting soil and soil-less media, the 5TE cannot be used accurately in growing media or soil-less substrates so use the GS3 for those applications. The 5TE measures temperature with an onboard thermistor and electrical conductivity using a stainless steel electrode array.

VWC in mineral soils is calculated using the Topp equation; other calibrations provided on request. Temperature and electrical conductivity is factory calibrated for all soil types.

## **Teros 12**

The Teros 12 measures water content, temperature, and EC independently. Its 70 MHz frequency minimizes salinity and soil texture effects, making it accurate in almost any soil or soilless media. Stainless steel needles have an extended surface area to optimize EC measurements while minimizing substrate disturbance during insertion. Temperature is measured with an onboard thermistor and electrical conductivity using a stainless steel electrode array. The internal circuitry is same cutting edge design but it has been optimized for use in soilless substrates. The steel needles not only pierce the substrates for perfect contact, but they also improve the sensor's ability to measure EC in porous substrates like peat or perlite. The sensor works well in mineral soils too.

## **Hand held readers**



Plug in the hand-held ProCheck to get a real-time reading from any of the sensors. During large-scale sensor installations, ProCheck lets you monitor volumetric water content as a sensor is installed and readout values help you detect installation problems.

ProCheck is often used to spot check soil moisture, but it can instantaneously read any soil moisture or environmental sensor. Press a button to save up to 5,000 individual readings. Each reading includes sensor type, date, time, raw value, calibrated value, and calibration coefficients.

When reading soil moisture sensors, pick from a list of supplied factory calibrations for both soil and soilless media or input your own calibration. Data stored can be downloaded in EXCEL format using the included software.

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## Loggers

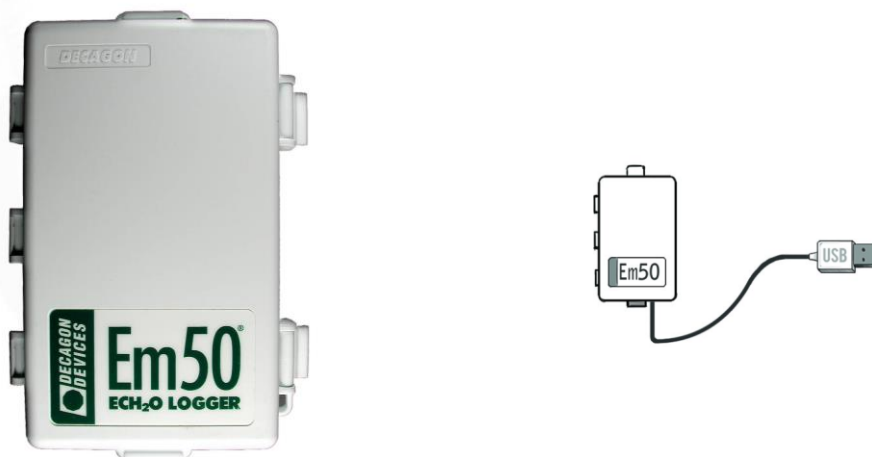
### Em5b

The Em5b is a low cost, limited use four-channel mini-logger. It only powers and reads the EC-5 soil moisture sensors, the rain gauges, and the ECT temperature sensor. It is designed for use over the whole growing season and runs for 5-6 months on 4 AAA-size alkaline batteries and has 46K of Flash Data memory (138 days at 1 scan/hour). The Em5b comes with ECH<sub>2</sub>O Utility software for setting up and downloading data and a USB or RS232 cable for downloading data.



### Em50

The Em50 is a self-contained data logger built to power, read, and log data from five sensors. The Em50 doesn't need an enclosure or an external power source. The logger case itself is rated IP55 for long-term outdoor use, and the logger will run and power its sensors for one to three years on 5 AA batteries. The Em50 has 5 sensor ports and one communication port. The Em50 is configured by plugging a laptop or handheld into the communication port and the ECH<sub>2</sub>O software is included which provides setup windows where you name the logger, set the logger clock, select the type of sensor on each port, and specify how often you want the sensors read. The Em50 stores more than 36,000 data scans. A scan includes the logger name, date, time, and measurements from each of the five ports.



A wide range of other sensors are available to work with the loggers. These include:

- Tensiometer
- Anemometer
- Rain gauge (tipping bucket)

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- Humidity sensor
- Leaf wetness sensor
- Radiation sensor (PAR)
- Air temperature
- Irrigation operation sensing
- Soil temperature

We can also provide a system that combines soil moisture sensing and two or more depths, a rain gauge and irrigation mains monitor enables real-time irrigation application sensing to be recorded. From the data you can determine exact irrigation requirements and adjust applications to ensure optimum plant growth, efficient water applications and energy uses. With appropriate software you can see a plants view of your irrigation efficiency. Call or email John for details.

Current prices (09-12-2020)

EC5	£116.00
10HS	£124.00
5TE	£319.00
Teros 12	£253.00
Em50	£653.00
Em5b	£361.00
Procheck	£532.00

All prices are subject to VAT at the standard rate and a small postal charge.