

#### Gro • Point™ Sensor Specifications

##### Sensor Options

- GP-SS for sandy soils
- GP-MS for most soils
- GP-HS for high salinity & clay soils

##### Moisture range

- 8 - 42% (0.08 - 0.42m<sub>3</sub>/m<sub>3</sub>)

##### Accuracy

- <1% (+/- 0.01m<sub>3</sub>/m<sub>3</sub>)

##### Temperature range

- Operating: 32 to 150°F (0 to 65°C)
- Storage: -4 to 160°F (-20 to 70°C)

##### Output format

- Standard format: 0.5 - 5.0 mA
- Optional formats: 0 - 2.5V, 4 - 20 mA

##### Cable Length

- Standard Length: 9.8ft (3 m)

##### Connection

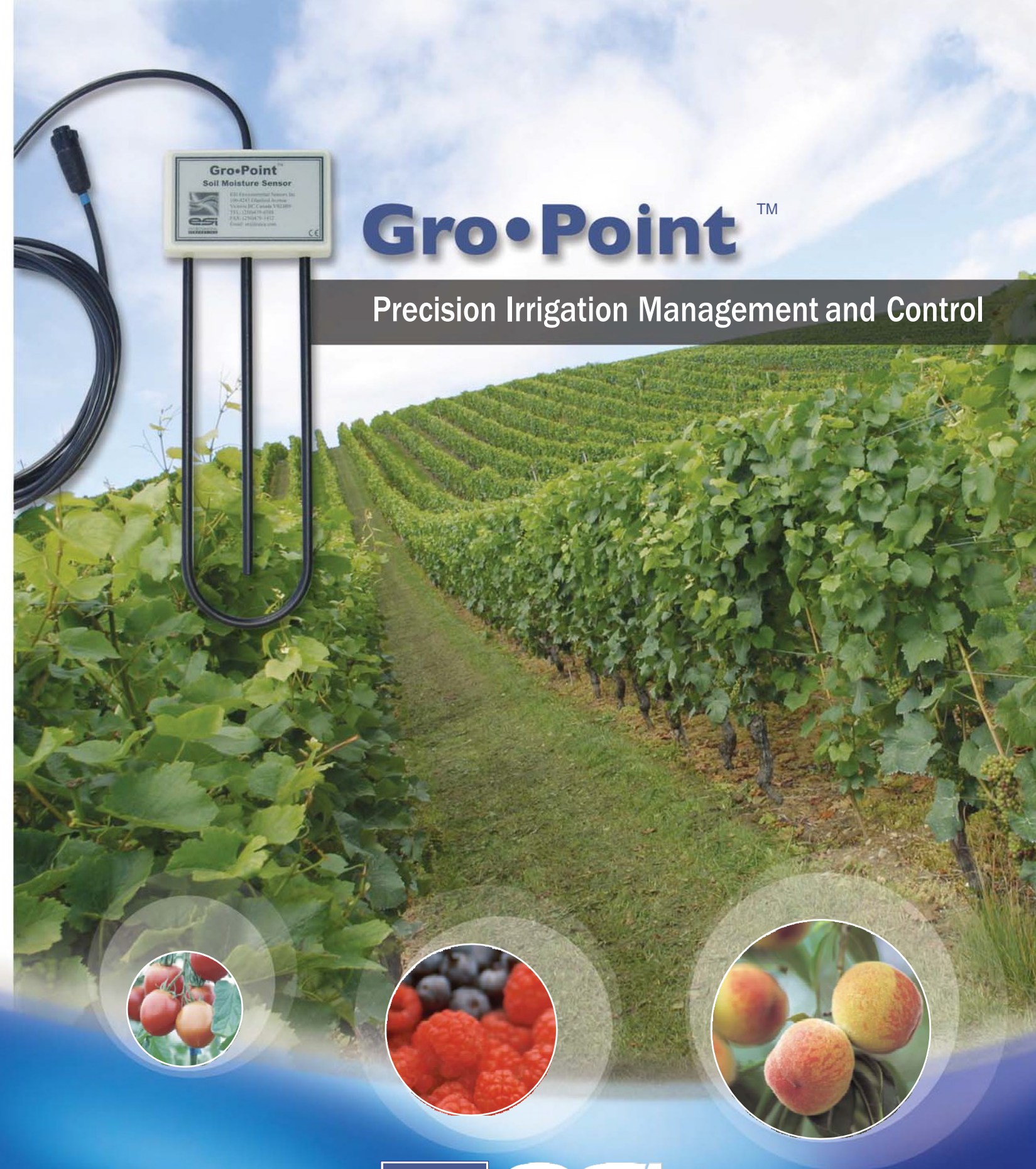
- Standard: 3 Pin, IP66/IP68 rated environmental connector

##### Power Requirements

- Standard: 5.5 - 18 VDC, 10 - 20mA (max)

##### Mechanical

- Weight: 1.15 lb (525g)
- Dimensions: 3.75" x 1.5" x 9.5" (9.5 x 3.8 x 24 cm)



# Gro•Point™

## Precision Irrigation Management and Control



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SENSORS INC.

There's a lot happening below the surface™





### Gro•Point™ Moisture Solution

Gro•Point™ is a cost effective, moisture-sensing system that provides accurate measurement of soil moisture, by volume, for all soils

A good knowledge of soil moisture can lead to higher yields, better quality crops, optimized water and power use and reduced leaching and loss of fertilizer. Saving money while generating higher quality crops with greater yield will ensure your operation maximizes profitability while differentiating your business as an environmental leader in water management.

The Gro•Point™ Moisture Sensor operates on a similar principle to radar. The sensor, (which measures the speed of electromagnetic waves) is very sensitive to

soil moisture surrounding the probe. This is the most accurate and reliable method of measuring water content in soil.

It is easy to install the Gro•Point™ sensor in your crop's root zone and read the percentage soil moisture on the Gro•Point™ Display Unit, record it with a Datalogger, or view it on your PC with our Wireless Software system.

### Gro•Point™ & Irrigation Control Systems

Gro•Point™ moisture monitoring systems can be operated manually with a hand-held display unit or automatically as a part of sophisticated irrigation control system.

#### Gro•Point™ Sensor

Manufactured in stainless steel with all electronics sealed in water-proof epoxy, Gro•Point™ provides years of reliable service.

- Responds immediately and accurately to changes in soil moisture.
- Designed to remain in the soil for the growing season or be installed permanently.
- Unit is rugged, easy to use and maintenance-free.
- Management tool for obtaining higher yields and better quality crops.
- Optimizes water use and reduces excessive leaching, saving fertilizer and energy.

#### Gro•Point™ Hand-Held Display Unit

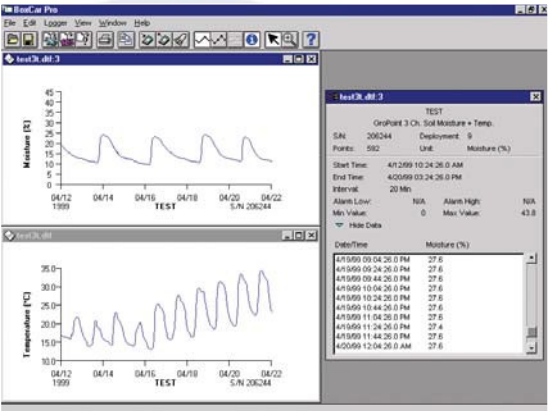
The unit displays the soil moisture content (as a percentage) measured by the sensor.

- Used to monitor the Gro•Point™ moisture sensor output instantaneously.
- Readings appear on a display as a percentage of volumetric moisture content.

#### Gro•Point™ Single-Valve Controller and Programmer

The Single Valve Controller controls timed irrigation events - based on user-adjustable soil moisture thresholds and moisture readings provided by Gro•Point™.

- Determine whether an irrigation valve is to be turned on or off based on real time soil moisture information
- Only apply water when it is needed, optimizing your operation
- Programmable thresholds allow you to define when to allow irrigation events.



#### Gro•Point™ Dataloggers

Dataloggers record sensor readings at time intervals selected by the user, from seconds up to nine hours.

- Data storage is in nonvolatile EEPROM memory and is maintained even if the battery fails.
- Batteries last more than one year under normal operation.
- Dataloggers can store up to 32,520 measurements divided between the sensor inputs. Data can be downloaded from this unit to the Field Data Shuttle or a PC.
- Weather resistant enclosure.

#### Gro•Point™ Shuttle

The shuttle is used to transfer data electronically from the field to a computer for easy data retrieval.

- Each field data shuttle can record from up to fifty Dataloggers sampling at 20 minute intervals.
- Dataloggers are automatically identified and recorded individually.
- Each time the shuttle downloads data, it checks the battery voltage and restarts a new measurement cycle.
- Each datalogger is identified and recorded individually.

#### Gro•Graph™ Datalogger Software

Windows™ based software, which is used for displaying the data from the shuttle or the datalogger, includes full feature programming, data collection and graphing software.

- Includes powdery mildew model for vineyards and degree days calculations.
- Software advantages include determining field capacity, onset of stress and depth of irrigation.

#### Gro•Point™ Wireless

Use Gro•Point™ Wireless to avoid trenching cables long distances and communicate soil moisture and temperature data more than 2 miles from Gro•Point™ sensor installation sites. Transmit data to your PC and use Gro•Point™ Wireless Software to set alarms based on parameters you define.

- Alert/Alarm modes for frost protection and irrigation scheduling
- Automated wireless Irrigation control through feedback to your controller (see available outputs)
- Easy to install and use with little effort or training
- Low power, plug-and-play, weatherproof and durable
- Avoid problems and costs associated with cabling and trenching
- Real time moisture and temperature data sent to computer, cellular modem, irrigation controller, frost protection system, data logger, long-range radio telemetry.



# Low Cost Irrigation Monitoring and Control