



GroLine

Robust, easy-to-use meters and testers developed to provide growers with hassle-free measurement of parameters needed to maximise plant growth.

HI-981420 and HI-981421

GroLine pH, EC/TDS Monitor

with Multi-parameter Probe



Monitoring

The HI-981420 and HI-981421 GroLine Monitors provide 24 hour continuous monitoring of pH, conductivity (EC or TDS), and temperature in hydroponic nutrients. The LCD can display all three essential hydroponic nutrients measurements at one time, a 3-second cycle of single measurements, or a real-time graph screen with options for measurement selection and log recall.

Quick and simple to set-up, this monitor can be used either manually (HI-981420) or in-line (HI-981421) and can be integrated with a fertiliser system if required.

Features

- Selectable EC to TDS ppm conversion Afactor: choice of either a 0.5 or 0.7 conversion factor
- IP65 rated enclosure: designed to withstand harsh growing environments
- Large LCD with plant-friendly green back-lighting: meter displays a clock tag that will disappear when the reading has achieved stability
- 3 sensors combined in a single rugged probe body: pH electrode with renewable cloth junction, amperometric EC/TDS sensor, and an internal temperature sensor for temperature compensated readings
- Ambient light sensor: for automatic LCD dimming
- Data logging for 30 days: logs every 15 minutes for last 30 days, stores min, max, and average values
- Data transfer: USB-C port for easy data transfer to memory stick or PC
- High and low alarms with LED indicator: warns when process is out of desired range by flashing display and message
- Automatic Temperature Compensation
- 24 hour summary screens (plot and details)
- Calibration reminder
- GLP feature calibration data for the pH and EC (up to 5 calibrations)

HI-1285-8

Simpler with a combination probe

The HI-1285-8 is a 3-in-1 pre-amplified combination probe. This probe is built to be durable and features two graphite sensors for reliable conductivity readings. A built-in temperature sensor ensures fast, accurately compensated readings even during sudden temperature fluctuations.

HI-1285-9

In-line probe

The supplied HI-1285-9 measures pH, EC and temperature in one convenient, rugged multi-parameter probe. A solid-state pre-amplifier is integrated into the probe to protect the pH measurement from transient electrical noise. Sources of electrical noise include ballasts used in lighting, pumps to circulate water and nutrient solutions. The HI-1285-9 incorporates two graphite EC sensors for reliable conductivity readings.

Ordering Information

HI-981420-02 (230V) is supplied with **HI-1285-8** multi-parameter probe, Quick Cal buffer solution sachets (2), **HI-700661** electrode cleaning solution sachets for agriculture (2), power adaptor, quality certificates and instruction manual.

HI-981421-02 (230V) is supplied with **HI-1285-9** multi-parameter probe, Quick Cal buffer solution sachets (2), **HI-700661** electrode cleaning solution sachets for agriculture (2), 12VDC power adapter, quality certificates and instruction manual.

Look out for our Quick Cal logo for compatible products.

Quick Cal
Compatible

Quick Cal

Quick Cal is for use with Hanna's GroLine pH and/or EC/TDS meters. Using the Quick Cal function found in compatible meters allows for single point calibration for pH and/or conductivity sensors.



HI-981412 GroLine pH Dosing System



HI-981413 GroLine Nutrient Dosing System



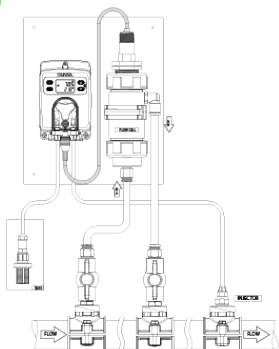
Dosing

HI-981413 nutrient dosing system and HI-981412 for pH are both engineered for maintaining the concentration of fertiliser or pH of nutrient solutions and irrigation water. The HI-981412 was developed to be an inexpensive solution for the horticulturist to maintain the ideal pH at all times. Simply insert the probe and injection valve in-line with the recirculation pump and provide the chemical to be dosed.

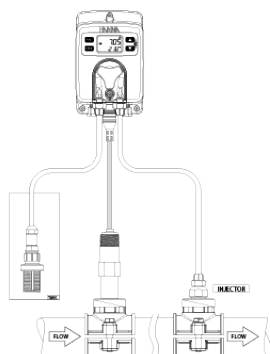
Both systems are available in multiple configurations including a meter and probe option, a kit for in-line mounting and a complete package that includes bypass loop and panel mounted flow cell. The kit for in-line and flow cell models include aspiration tubing with filter and dispensing tubing with injecting valve.

- Low maintenance peristaltic dosing pump
- Automatic proportional pump control
- Quick connect probe input with water proof seal
- Programmable alarm system
- Adjustable flow rate for better control
- Multi-coloured LCD display

In-line Dosing Flow Cell System



In-line Dosing System



HI-30033 EC/Temperature Probe



The HI-981413 uses the HI-30033 probe that incorporates both EC (TDS) and temperature sensors and connects to the controller with a single waterproof Quick Connect DIN connector. The PVDF body of the probe has a 1/2" threaded fitting for insertion to an in-line "T" fitting or the flow cell. The back end part of the probe has a 3/4" NPT threads for submersion/tank mounting.

HI-10063 Amplified pH/Temperature Probe



The HI-981412 uses the HI-10063 amplified probe that incorporates both the pH and temperature sensors and connects to the controller with a single waterproof Quick Connect DIN connector. The built-in amplifier helps to reduce electrical noise from the recirculation pumps to provide for a stable, reliable measurement. The pH glass used is ideal for low conductivity water and provides for a fast response. The pH glass used is ideal for low conductivity water and provides for fast response. The PVDF body of the probe has a 1/2" threaded fitting for insertion to an in-line "T" fitting or the flow cell. The back end part of the probe has a 3/4" NPT threads for submersion/tank mounting.

Ordering Information

HI-981412-00 is supplied with **HI-10063** pH/temperature probe, 4.01 pH buffer solution, 20mL (3), 7.01 pH buffer solution, 20 mL (3) power connection cable, instruction manual and quality certificates for instrument and probe.

HI-981412-10 (with in-line mounting kit) is supplied as **HI-981412-00** (above) controller, **HI-10063** pH/temperature probe, controller aspiration filter, controller injector, 1/2" thread, saddle for ø 50mm pipe (2), aspiration PVC tube (flexible) (5m), dispensing PE injection tube (rigid) (5m), valves (2).

HI-981412-20 (with flow-cell mounting kit) is supplied with **HI-981412-00** (above) controller, **HI-10063** pH/temperature probe, flow cell for **HI-981412/BL101**, mounting panel assembly for **HI-981412/BL101**, controller aspiration filter, controller injector, 1/2" thread, saddle for ø 50mm pipe (3), aspiration PVC tube (flexible) (5m), dispensing PE injection tube (rigid) (15m), tubing adapter 1/2" - 6mm with record (2), valves (2).

HI-981413-00 is supplied with **HI-30033** EC/TDS/temperature probe, conductivity calibration solution, 20mL (3), power connection cable, instruction manual and quality certificates for instrument and probe.

HI-981413-10 (with in-line mounting kit) is supplied with **HI-981413-00** (above) controller, **HI-30033** EC/TDS/temperature probe, controller aspiration filter, controller injector, 1/2" thread, saddle for ø 50mm pipe (2), aspiration PVC tube (flexible) (5m), dispensing PE injection tube (rigid) (5m), valves (2).

HI-981413-20 (with flow-cell mounting kit) is supplied with **HI-981413-00** (above) controller, **HI-30033** EC/TDS/temperature probe, flow cell for **HI-981413/BL101**, mounting panel assembly for **HI-981413/BL101**, controller aspiration filter, controller injector, 1/2" thread, saddle for ø 50mm pipe (3), aspiration PVC tube (flexible) (5m), dispensing PE injection tube (rigid) (15m), tubing adapter 1/2" - 6mm with record (2), valves (2).

HI-9814

GroLine Portable pH/EC/TDS Meter

with Multi-parameter Probe

Testing



The HI-9814 is a slim, lightweight and waterproof portable meter that measures pH, conductivity (EC), total dissolved solids (TDS) and temperature with a single amplified probe. All operations and settings, including calibration buffers and temperature scale selections, are made through only two buttons.

- Waterproof and floats for easy retrieval
- 3-in-1 amplified probe with pH, EC/TDS and temperature sensors
- Quick Cal mode to calibrate pH and EC/TDS with one solution
- EC to TDS conversion factor selectable between 0.5 (500 ppm) and 0.7 (700 ppm)
- Replaceable multi-parameter probe for HI-1285-7
- HI-1294 pH/temperature probe for direct soil

HI-98118

GroLine pH / Temperature Tester

with Extractable pH Electrode Junction

Testing



The HI-98118 pH/temperature tester is ideal for measuring the pH of a hydroponic nutrient solution. This slim and ergonomic meter fits comfortably in your hand. The HI-98118 has a large, easy-to-read LCD display that shows both pH and temperature along with calibration, stability and low battery indicators. All operations are simplified to just two buttons. One is for turning the meter on/off and the other for automatic one or two-point calibration.

- Waterproof and floats for easy retrieval
- Two-button operation
- Quick Calibration mode using Hanna Quick Cal pH/EC calibration solution
- 1,000 hour battery life

HI-98131

GroLine Pocket pH/EC/TDS/Temperature Tester

with Replaceable pH Electrode Cartridge



The HI-98131 is a slim, lightweight and waterproof pocket sized meter that measures pH, conductivity (EC), total dissolved solids (TDS) and temperature. All operations and settings, including calibration buffers and temperature scale selections, are made using two buttons.

- Waterproof and floats for easy retrieval
- Quick Cal mode to calibrate pH and EC/TDS with one solution
- TDS conversion factor selectable between 0.5 (500 ppm) and 0.7 (700 ppm)
- Replaceable pH electrode equals lower whole life costs

HI-98115

GroLine pH Tester

with Replaceable Electrode



The HI-98115 pH tester offers advanced features for the measurement of pH in hydroponic nutrient solutions. The HI-98115 is a very simple meter to operate with all functions including turning on/off and calibration are performed with a single button.

- One-button operation
- 1,000 hour battery life
- Enhanced display for clear pH results together with stability indicator and calibration tags
- pH electrode can be changed when needed without having to buy a new meter
- Replaceable pH electrode HI-1271

HI-98318

GroLine EC/TDS/Temperature Tester

with Graphite Sensor

Testing



The HI-98318 is a slim, lightweight and waterproof pocket sized meter that measures conductivity (EC), total dissolved solids (TDS) and temperature. All operations and settings, including calibration buffers and temperature scale selections are made using two buttons.

- Waterproof and floats for easy retrieval
- Two-button operation
- Quick Calibration mode using Hanna Quick Cal pH/EC calibration solution
- Dual level display shows EC/TDS together with temperature

Quick Cal
Compatible

HI-98331

Groline Direct Soil EC and Temperature Tester

with Built-In Stainless Steel Penetration Probe



The HI-9833 is a rugged and reliable pocket-sized tester that offers quick and accurate readings. This direct soil EC tester features a stainless steel penetration probe for direct measurement of conductivity. Compact in size, with single button operation and automatic calibration, the HI-9833 is an excellent choice for taking direct conductivity measurements in soil.

- Direct readings in soil, one-button operation
- 114mm (4.5") stainless steel penetration probe
- Automatic Temperature Compensation
- Robust stainless steel penetration probe
- Replacement probe HI-73331

HI-981030

GroLine Soil pH Tester

Testing



Designed to bring simplicity to pH testing of soil, the HI-981030 GroLine Soil pH Tester is designed for taking direct pH measurements in soil for environmental and agricultural testing. The built-in probe features an open reference junction, conical glass tip and a removable sleeve design making it ideal for measuring the pH of soil.

- ± 0.05 pH accuracy
- Comes with all the necessary solutions and batteries, everything you need to get started measuring right away
- Specialised electrode for spot checking the pH of soil and soil slurries

HI-9810302

Groline HALO2 Wireless Soil pH Tester



The HALO2 GroLine Wireless pH Tester (HI-9810302) is designed to bring simplicity to pH testing of soil or soil slurries HI-9810302 can be used as a stand alone pH tester or can be connected to the Hanna Lab app.

- Open-source Bluetooth allows easy integration into current data logging systems
- IP65 water resistant protection
- Specialised electrode for spot checking the pH of soil and soil slurries
- Use as a stand-alone tester or connect to your phone/tablet via Bluetooth for datalogging, direct readout and note taking

HI-99121 Direct Soil pH Portable Meter



Designed to bring simplicity to pH testing of soil, the HI-99121 Direct Soil pH Portable Meter is designed specifically for soil analysis.

The specialised probe features a rugged conical tip, open junction design and a glass body making it ideal for measuring the pH of soil directly or after preparation of a soil slurry with deionised water.

- ± 0.02 pH accuracy
- Includes a plastic auger to break through harder soils
- Specialised for the direct pH measurement of soil

HI-98168 Direct Soil pH / Temperature Meter



The HI-98168 is a rugged, waterproof, portable pH meter that allows for the direct measure of soil pH. This portable instrument has all the performance features of a benchtop meter. It is supplied with a specialised pH electrode that has a rugged conical tip, open junction design and a glass body making it ideal for measuring the pH of soil directly or after preparation of a soil slurry with deionised water.

- ± 0.02 pH accuracy
- IP67 rated waterproof, rugged enclosure
- GLP functions
- Calibration time-out feature
- Automatic temperature compensation
- Data logging with PC connectivity

Testing

Calibration and Maintenance Solutions

Quick Calibration Solution

(for use with the HI-9814, HI-98131, HI-98118 and HI-98318).

Quick Cal

pH/EC quick calibration solutions

HI-5036-023 230 mL bottle
HI-5036-012 120 mL bottle
HI-50036P 20 mL sachets (25)
HI-5036-50 500 mL bottle

pH Buffer Solutions

pH 4.01

Calibration solutions

± 0.02 pH 25 @ 25 °C (77°F)

HI-7004-023 230mL bottle
HI-7004-012 120mL bottle
HI-7004L
HI-70041L
HI-70041G

pH 7.01

Calibration solutions

± 0.02 pH 25 @ 25 °C (77°F)

HI-7007-023 230mL bottle
HI-7007-012 120mL bottle
HI-7007L
HI-70071L
HI-70071G

pH 10.01

Calibration solutions

± 0.02 pH 25 @ 25 °C (77°F)

HI-70010-023 230mL bottle
HI-70010-012 120mL bottle
HI-70010L 500mL bottle
HI-700101L 1 Litre Bottle
HI-700101G 3.78 Litre Bottle

Solutions



Conductivity Solutions

1.41 mS/cm

Conductivity standard solution

HI-7031-023 230 mL bottle
HI-7031-012 120 mL bottle
HI-7031L 500 mL bottle

5000 μ S/cm

Conductivity standard solution

HI-7039-023 230 mL bottle
HI-7039-012 120 mL bottle

pH Cleaning and Storage Solutions

Cleaning Solution for pH Electrodes

HI-7061-023 230 mL bottle
HI-7061-012 120 mL bottle
HI-7061L 500 mL bottle

Storage Solution for pH Electrodes

HI-70300-023 230 mL bottle
HI-70300-012 120 mL bottle
HI-70300-50 500 mL bottle

HI-12943 Direct Soil and Soilless Media pH Electrode



The HI-12943 is a glass body, refillable, single junction pH electrode with a DIN connector that is compatible with the HI-9814 Groline portable pH/EC/TDS meter.

HI-1271 Spare pH Electrode for HI-98100



The HI-1271 is the spare pH electrode for the HI-98100, HI-98103, and HI-98115 Checker pH meters. Replacing the pH electrode is easy. Simply unscrew the old probe and screw on the new one.

HI-710030 Green Shockproof Rubber Boot



HI-710030 is a green rubber boot that fits and protects the HI-9814 pH/EC/TDS meter.

About HANNA Instruments - World leader in pH and titration science, manufacturing over 3000 products in our European manufacturing facility.

Here at Hanna Instruments we design, manufacture, supply and support all our products directly. With offices in over 45 countries, you are never far from a Hanna service center. The Groline range was developed in response to growers looking for robust testing meters able to take everyday knocks and accidental drops.

Manufactured in our ISO9001 European production facility, Hanna pocket testers are covered by a 1-year warranty, whereas on-line monitors and professional portable meters are supplied with a 2-year warranty.

Your local Hanna stockist: