

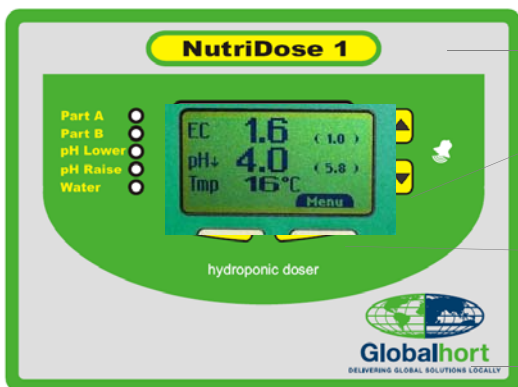
Nutridose 1™

Simple Nutrient & Fertigation Control

Description

A simple nutrient and fertigation controller designed with ease of use and grower demands in mind. The NutriDose 1™ easily and simply monitors a grower's nutrient levels in their NFT or fertigation reservoir and doses nutrient based on the grower's ideal levels required.

The additional feature for NFT growers is the ability to have a day and night nutrient feeding level which can be automatically adjusted by the addition of a secondary fill valve to dilute the nutrient to begin the growing day.



Users can enable and force any Function operation directly from unit

Changes in all settings can be affected from control unit

Users can scroll through settings and view current status of the nutrient

Robust Splash resistant case with liquid crystal digital display of all readings and settings

Advantages to the Grower

The NutriDose 1™ will expertly manage the nutrient to optimize it for your plants, this can:

- Increase fruit set and/or flower quality
- Create fewer stressed and vulnerable plants
- Provide the grower flexibility in control
- Provide peace of mind when not on site

Remote Monitoring & Alarms

The NutriDose 1™ has an inbuilt alarms that provide an audible sound on the control unit. In addition when connected to a PC the system will dial out via the computer's modem and advise the grower's nominated number that an alarm threshold has been breached.

Applications

Small to Medium
NFT
Fertigation
Irrigation Systems

NutriDose 1™ Controls

pH Dosers
Nutrient Dosers
Secondary Fill Valve+
Irrigation Pump/Solenoid+

NutriDose 1™ Monitors

pH
EC/CF/TDS
Temperature
Environment Temperature+
Solar Radiation+
Relative Humidity+

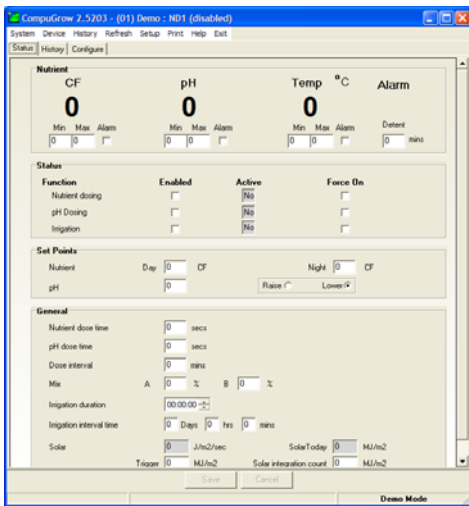
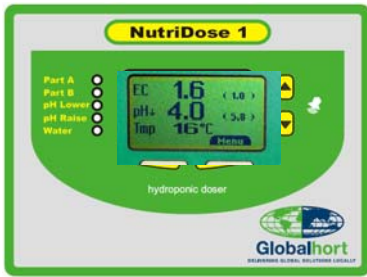
+ Optional

Optional Features

1-20 Irrigation zones
PC Interface
Solar Sensor
Environment Sensor
1-25 Additional
Temperature Sensors with
simple temperature probe

NutriDose 1™

Simple Nutrient & Fertigation Control



Technical Specifications

Sensors *Optional

EC	Relative Humidity*
pH	Environment Temperature*
Solar Radiation*	Temperature
Outputs Controlled	
Nutrient Dosers	pH Dosers
Secondary Fill Valve*	Fertigation Pump*
Outputs	12-24v AC or DC
PC Communication	PC Can be up to 1.2km from unit. Requires data cable. Preferably Cat 5E Stranded 4 pair twisted
System Reports	Exports CSV files.
Alarms	Contact closure and Audible on unit. Sound card activation on PC and Dial out via modem if activated
Electrical	Power 115/230v AC, 50/60Hz, 50Va
Physical	Weight 2.5kg

The NutriDose 1 is a simple, rugged hydroponic EC/pH doser. The controller has a simple menu system that allows you to set the nutrient EC and pH set point, calibrate the sensors and set irrigation timings. In its basic form it will automatically add nutrient stock solutions and correct the pH of solution in a mixing tank. It can also be used to periodically switch on an irrigation pump for a drip irrigated or flood-drain system.

An optional PC interface may be added which will allow the NutriDose to communicate with a PC running CompuGrow software. This allows a PC, which can be up to 1200 metres away, to view readings, view and change settings, log data for viewing in graphical format and sound alarms should anything go wrong. The PC can even be set to call a telephone and even send a text message to a GSM cell phone (if supported by local telecom provider). One PC can be connected to many controllers over a total distance of up to 1200m (3000ft).

Direct drive of peristaltic pumps and/or solenoid valves (reduces total cost)
 Auxiliary output may be used as an irrigation output
 Auxiliary output may alternatively be used to add water to lower EC during specified time periods can help to avoid tip-burn in lettuce etc
 Optional solar sensor may be added to provide solar integration for irrigation triggering.
 Serviceable – easy to unplug wiring and swap out circuit board (no need for technician to visit site)

Dosing

The NutriDose 1 measures the nutrient strength in solution and whenever the reading falls below the set point it automatically operates pumps or solenoid valves to add more concentrated nutrient. The nutrient stock solutions can be one-part or, more usually, two-part (A & B). After adding a timed dose (user set), the controller waits for an interval (user set) to allow the added nutrient to thoroughly mix-in before checking to see if a further dose is required. A similar process is used for pH correction. When dosing acid to lower the pH the controller will automatically make allowance for the fact that EC dosing usually lowers the pH in addition to raising the EC. This avoids the tendency to overdose pH that some dosers may have.

Auxiliary output - Irrigation

An auxiliary output is provided that may be used to periodically switch on an irrigation pump to deliver water to a flood-drain table or via drippers to a crop growing in media pots, bags or slabs. The irrigation duration is set by the user and the interval between irrigations can be set to different values for day and night. Alternatively, a solar sensor may be added to provide solar integration triggering during the day. By this means the interval between irrigation's is automatically adjusted to match the transpiration rate of the crop. When a solar integrator is used, the day intervals are set to the maximum expected time and provide a fail-safe backup so that if a trigger is not generated by the solar sensor, the timer will eventually force an irrigation. Solar integration avoids the media becoming saturated in cool/dull weather and becoming too dry in hot/sunny conditions.

Auxiliary output – add water

The controller can have two EC set points, one for day and one for night. There are a number of theories that suggest altering the EC between day and night can assist in reducing tip-burn in lettuce and blossom-end-rot in tomatoes and capsicum. One suggestion is that the EC is lowered during the day to allow free transpiration whilst the others recommend lowering it at night when calcium translocation is easiest. Whichever theory you subscribe to, the NutriDose 1 can automate the process. The auxiliary output may be used to operate a two level mixing tank. At the beginning of each day, (or each night) water is automatically added to the mixing tank in order to dilute the EC to the "low EC" set-point. This low EC is maintained by the doser for the remainder of the time period after which it switches to the higher EC setpoint. (To make use of this feature with irrigated systems, the NutriDose 1 PLUS must be used)

Alarms

There are three possible alarms; one on the controller (buzzer plus light), another on the PC (if sound card fitted) and the third by the PC dialling a remote telephone or cell phone (MODEM required in PC). If your telecom provider supports TAP interface to the cellular network then it is possible to send SMS text messages, in the event of an alarm, via the Modem on your PC to your cell phone.

Solar Sensor (OPTIONAL)

A small solar sensor may be connected which adds a number of features:-

- 1) The NutriDose 1 has a built-in solar integrator which is used for irrigation triggering
- 2) Allows solar radiation to be logged and displayed graphically

Environment sensor (OPTIONAL)

As an alternative to the solar sensor above, a small environment sensor may be connected. This allows the data-logging of air temperature and relative humidity in addition to solar energy.

PC interface (OPTIONAL)

An interface to a PC may be added by plugging a small interface module into the main circuit board inside the controller. This allows full communication to a PC running the CompuGrow software via a small interface box at the PC. The CompuGrow software allows all readings and settings to be viewed, settings to be changed and logged data to be viewed graphically. The logged data can include EC, pH, Nutrient temperature, solar energy, integrated solar and if an environment sensor is added, can also display air temperature and humidity. The PC interface also provides an enhanced alarm system to warn against anything going wrong. If an alarm occurs, it can be set to sound an alert through it's speakers and also dial out to a remote telephone.