

NutriDose 1 Mk2

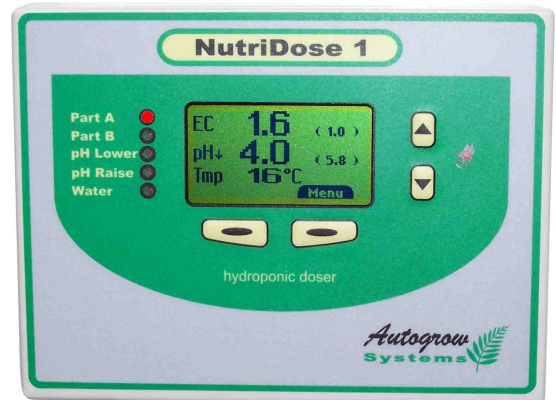
Simple rugged doser with optional PC interface

The NutriDose1 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 etc. 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 1200metres 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 fitted with a GSM modem). One PC can be connected to many controllers over a total distance of up to 1200m (3000ft).

Features:-

- Simple to operate
- Reliable – fail safe dosing inhibits – two year warranty
- Doses both EC and pH lower or raise and also measures nutrient temperature.
- Units can be changed to EC, CF or TDS(ppm)
- 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 or to auto-synchronise dawn/dusk times.
- Serviceable – easy to unplug wiring and swap out circuit board (no need for technician to visit site)
- Fail-safe dosing – dosing stops if EC or pH out of range
- Optional PC interface to CompuGrow software



Dosing

The NutriDose1 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 irrigations 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 NutriDose1 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 flashing 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 a GSM modem is fitted then the PC can send a text message to a GSM cell phone. Each alarm has a separate enable.

Solar Sensor(OPTIONAL)

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

- 1) The NutriDose1 has a built-in solar integrator which is used for irrigation triggering
- 2) It automatically allows the basic NutriDose1 to determine the period of the day when the sunshine is significant. This is useful where a different EC for day and night is to be used.
- 3) Similarly, different irrigation periods for day and night may be required and the light sensor allows the controller to automatically detect dawn and dusk.

When ordering, specify the Autogrow “one wire” solar sensor.

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. *When ordering, specify the Autogrow “one wire” enviro sensor with solar.*

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. If a GSM modem is connected it can even send a text message to a standard GSM cell phone.