

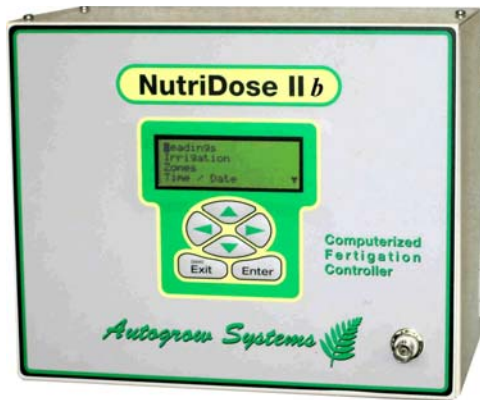
# Nutridose 2b™

## Superior Fertigation Control

### Description

An advanced nutrient and fertigation controller designed with ease of use and grower demands in mind. The NutriDose 2b™ monitors the environment and runs irrigation based on solar and/or time and can also account for high temperature and/or humidity and automatically adjust the nutrient and or irrigation set point.

High quality professional grower fertigation controller with all the options that any grower may need or want!



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 2b™ 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 2b™ 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 computers modem and advise the growers nominated number that an alarm threshold has been breached.

### Applications

Medium to large fertigation or Irrigation Systems

### NutriDose 2b™ Controls

pH Dosers  
Nutrient Dosers  
Thermostat on/off  
Irrigation Pump  
Misting/Fogging  
Filter backwash  
1-30 Solenoids\*

### NutriDose 2b™ Monitors

pH  
EC/CF/TDS  
Temperature  
Environment Temperature  
Solar Radiation  
Wind\*  
Rain\*  
Relative Humidity\*  
+ Optional

### Optional Features

Outdoor & Indoor crop irrigation account for environment

Flow Meter Interface

1-25 Additional Temperature Sensors with simple temperature probe

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### Technical Specifications

#### Irrigation Zones 1-30

#### Sensors \*Optional

Relative Humidity
Environment Temperature
Temperature (other)
Solar Radiation
pH
EC
Wind*
Rain*
Flow*

#### Outputs Controlled

pH Dosers
Fertigation Pump
Fogging/Misting
Fertigation zones
Nutrient Dosers
Temperature on/off

#### Outputs

PC Communication	PC Can be up to 1.2km from unit. Requires data cable. Preferably Cat 5E Stranded 4 pair twisted
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System Reports	Exports CSV files. Can log in 1-5 minute intervals Stores all data for up to 10 days without computer connection
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Alarms	Contact closure and Audible on unit. Sound card activation on PC and Dial out via modem if activated
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Electrical	Power 115/230v AC, 50/60Hz, 50Va
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Physical	Weight 4.5kg 11 Switch controls
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A complete "batch" fertigation controller

- Fills, stirs, doses batch tank then irrigates
- Doses nutrients A,B and pH lower, pH raise

- Different EC day/night by zone
- Each zone can have different mix
- Each zone can have different EC
- Each zone can have different solar trigger
- Monitors nutrient temperature
- Manual overrides on all functions
- 24V AC outputs to direct drive solenoid valves and pumps

The NutriDose II **b** is a computerized, feature packed, batch fertigation controller for up to 30 irrigation zones. Each of the 30 zones can have its own solar integrator (from a single sensor), whose rate of integration may be modified for temperature, relative humidity and, in the case of outside zones, wind and rain. In addition, up to 8 irrigations per day can be programmed to occur at a specific time of day. This is useful for forcing irrigations to occur during the early morning or evening. It is often used to schedule two waterings, close together at dawn after which it immediately switches to automatic scheduling using the solar integrator. This ensures all plant pots or bags start the day fully watered.

The programmed irrigations can individually select from mix1, mix2 or water only and each zone can have a different EC for mix 1 and for mix 2. The ability to select different mixes in this way is useful to provide a special mix in the evening perhaps containing extra calcium or other additive or else a different mix for some zones where a different crop may be grown. During the time period when the solar integrator is active, it is possible to allow the EC to automatically adjust to suit the weather conditions. In sunny weather the EC will automatically be lowered to allow rapid transpiration, whilst in cloudy weather the EC is raised to help avoid the plants becoming spindly. The extent that this can happen and the rate at which the EC can change are fully programmable and each zone can be set to work between different EC limits.

The controller can be set to operate in one of three possible **Irrigation** modes

#### 1) Single trigger – single batch

In this mode one large tank is dosed and fed sequentially to all zones. Each zone receives the same EC, pH and recipe. Either mix1, mix2 or plain water may be selected for day (solar time zone) and for each irrigation specified during the night (programmed time zone)

#### 2) Single trigger – multiple batch

In this mode a single trigger causes all irrigation zones to be sequentially watered from a small tank which is refilled/dosed for each subsequent zone in turn. This allows the grower to specify a different EC and pH for each zone. In addition, each zone can be dosed from one of two different mixes or by plain water.

#### 3) Multiple trigger – single batch

This mode allows each zone to have its own trigger point so that plants that require frequent watering can be mixed with those that need watering less often. The main reservoir is normally kept filled and dosed continuously (almost like in a Recirculating system). Switches are available to cause dosing during each of "filling", "waiting" and "irrigation" phases.

#### 4) Multiple trigger – multiple batch

Here, each zone has its own trigger point and when triggered the tank is dosed and fed to the zone corresponding to that trigger. Note that only one zone is irrigated, the tank is then refilled and waits for another trigger to occur. This mode affords the greatest level of flexibility as now it is possible to mix different crops that require quite different watering/feeding regimes and even inside and outside crops can be served by the one controller. Outside zones are triggered from an outside weather station that takes into account solar, temperature, humidity, wind speed and rainfall.

#### Dosing

The controller has four timed outputs that can be used for A and B fertilisers, acid or alkali. The controller can be set to use the main pump to stir the tank during dosing.

When dosing, one of two sets of stock solution can be selected from. This is useful for applying a special additive once per day, for having a vegetative and a generative mix for crops at different stages, a different recipe for night feeding or even a different recipe for different crops on different zones.

#### Filter backwash

An auxiliary output can be used for periodically back flushing a filter at times when irrigation is not active. If an irrigation is triggered during a backflush, the flushing will complete and then immediately switch to irrigation.

#### PC connection

The controller may be connected to a PC computer for setting, data logging and alarms. The PC provides a very user-friendly interface although it is possible to set and use the controller completely stand-alone. The PC interface also provides remote alarms and data/event logging. The PC interface is highly recommended as it provides much more information to the grower and also a much simpler interface. The same Compugrow software, interface and cable can also be used to connect to other Autogrow control and monitoring devices.

#### Input modules:-

The inputs used will depend on the type of operation required. For instance, if some zones are out in the open then an external weather-station is required. If some irrigation zones are inside a greenhouse then an internal environment sensor system is needed. If volumetric ratio injection is required or if the user requires monitoring of water and/or chemical usage then a water meter and/or fert flow meters together with a flow meter interface module is required. When used in conjunction with the Autogrow AutoVent 2 or 3 it can obtain environment information from this controller and does not need its own sensors.

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### Typical components Lists

#### Fertigation

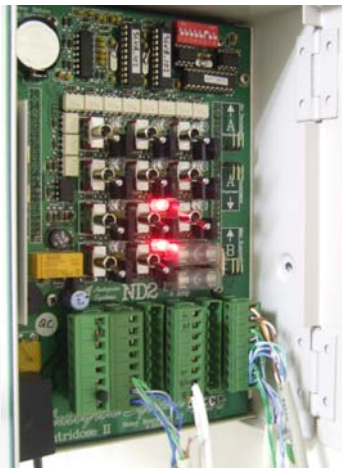
Main Irrigation Pump  
Float Valves  
Bix Solenoids  
Sample Pots  
A/B Or Acid Tanks  
Dosing System  
Pipe and fittings  
Nutridose 2B  
Output Module  
Probe Set  
24Ac Relays  
One Ways Valve  
Dosing Pump Driver  
Batch Tank  
Irrigation Solenoids and fittings  
Irrigation Cable and Connectors  
Filter  
Alloy Frame  
Manufacture  
Test and Specification  
Misc Fittings  
Pressure Gauges  
Installation  
Data Cable

#### Irrigation Fittings

Drippers 3LPH  
Sub Main  
Main Line & elbows  
Inline valves  
End Flushers  
Offtakes and Grommets  
Punch Tool for drippers  
Elbows Main Line  
End Stops Main line

#### Chemigation System

Spring Check Valve  
Pressur Gauges  
Alloy Frame  
Mounting brachets  
Manufacture  
Dosing unit  
Pipe and fittings  
Inline multivalves



### Polyethylene Pipes



We can develop a system proposal for you to encompass all your needs and typically provide you more control and monitoring options than you may already have.

### A typical System Proposal includes:

- System layout diagram and description
- Technical performance specifications
- Components list
- Brief of discussions
- Terms and conditions
- Installation schedule
- System Principle Discussion
- Optional Items presentation
- Pricing summary and detailed
- Consumable items list & description
- Support service details
- Estimate parameters

### Optional Services

- Nutrient water consumption
- estimate by month
- Nutrient formulation and/or supply
- Consultancy pre or post
- Installation partial or full

### Typical Optional Components

- Run off monitors
- Temperature monitors
- Chemigation
- Output module controller
- Water pretreatment systems
- Run off Remix Systems
- Run off treatment systems
- Fogging systems
- Plant Raising systems
- Drippers, drip tape
- PVC and PE pipe and fittings

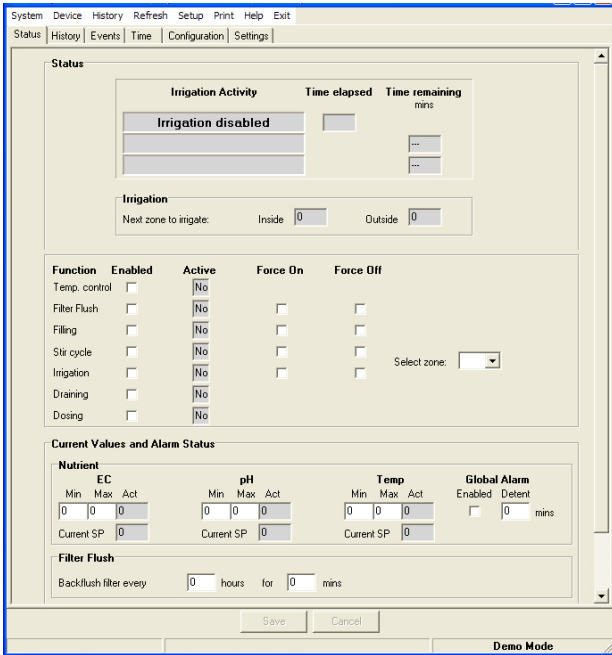
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### Software & Settings

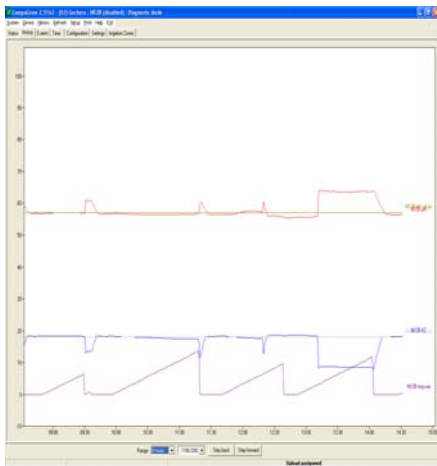
Whilst all changes can be made to settings for the system on the control unit itself the CompuGrow software makes this task a breeze.

The software screenshot below shows the typical page that a grower would have displayed on their computer. This page allows the user to 'enable' functions and potentially force events to happen remotely e.g. an irrigation.



### Software Graphs

Users can make a number of 'favorite' graphs to include monitored data from a variety of systems installed from environment to run to actual pH levels. All these variable can be displayed on one graph but users typically create a multitude displaying what they most want to see compared together e.g. Solar radiation and temperature.



### Typical System Layout

Whilst the Nutridose 2B™ has a typical layout the exact configuration depends on:

- Frequency of nutrient
- Volume of nutrient dosing
- Batch tank size
- Irrigation zone size
- Crop
- Expansion requirements

### We can assist you in sizing:

- Irrigation pumps
- Dosing units
- Pipes
- Layouts
- Tank

### Options for Dosing Systems

- **Peristaltic Pumps** Typically used for systems that are small to medium that require few irrigation's per day. These pumps are very reliable and simple and do not require filter systems. They are capable of typically pumping 15-20 LPH of nutrient into a system.
- **High Volume Solenoids** Typically used for medium sized systems that require nutrient to be dosed quickly and in volume. This system requires several components and whilst working well has a higher maintenance requirement than the Solenoid Venturi Combo.
- **Solenoid Venturi Combo** Typically used for large systems that require rapid and accurate nutrient dosing. This system is robust and requires only infrequent maintenance. This system can deliver almost any nutrient dosing volumes that any grower may require

### Typical batch system

