

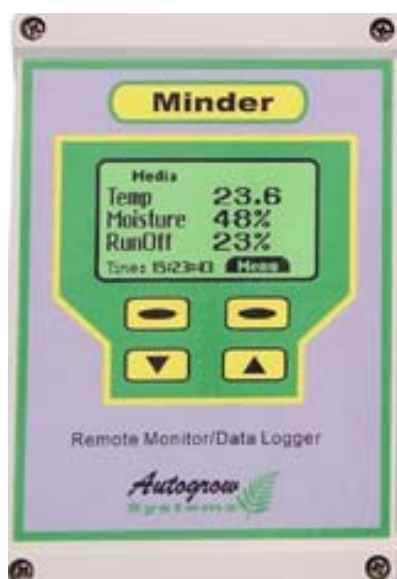
Minder™

Online Monitoring

Description

A simple fertigation monitor designed with ease of use and grower demands in mind. The Minder™ easily and simply monitors a various nutrient and media levels and records this data for use by the grower.

With our advanced Fertigation systems the grower knows clearly how much water is being irrigated and what it contains. What the grower often doesn't know, or has to use tedious methods to define are the all-important root zone conditions, the Minder™ is the answer!



Users can view such variables is volume of runoff up to the minute

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 Nutrient Minder™ will expertly monitor the nutrient and advise the grower:

- If Something 'Goes Wrong' with their fertigation system
- If the monitored variables exceed a maximum or minimum alarm threshold
- How much runoff has occurred that day and when
- What the pH and EC of the run off were
- What the current media temperature and moisture content are

Remote Monitoring & Alarms

The Nutrient Minder™ has 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

Any situation where runoff and/or media conditions need to be monitored

Minder™ Monitors

Runoff pH
EC/CF

Temperature
Irrigation Volume
and timing , pH
EC/CF

Runoff volume & Timing
Moisture Content of media

Run Off Monitoring

The feature of run off measurement tells the grower how the media is responding to irrigation. For example the grower may start irrigating at 8.00am and not see any run off until 1.00pm. This indicates the media is being dried down excessively prior to nightfall or not being wetted up quickly in the morning and yield will be reduced.

Optional Features

1-25 Additional
Temperature Sensors with
simple temperature probe

Minder™

Online Monitoring

Technical Specifications

Sensors

EC

Temperature

pH

Relative Moisture Content

Runoff Volume

Run off Time

Irrigation Volume

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 1.5kg

Specifications

These monitors can be used on-line to a PC or off-line for data logging

On-Line

The monitors may be grouped into different systems. Usually a group will represent one greenhouse so that viewing is organised in a logical way.

Alarms may be set for each monitor and even for each measured variable. Data is logged to the hard disk of the computer for later graphical display.

Off-line

Whenever a PC is not connected the monitors continue in off-line mode. In this mode they record data every 5 minutes to an internal memory. They may then be carried to a PC and as soon as they switched on and connected to the computer, the data will be uploaded for logging to disk and display. The maximum data storage is limited to 10 days.

EC, pH, Temperature

Display EC and pH to two decimal points resolution. Accuracy of EC and pH will depend on calibration. If used in an electrically quiet area and properly calibrated at a temperature within 10 deg C of application temperature, accuracy will be better than +/- 0.2 error

Nutrient temperature resolution to 1 decimal point
Temperature accuracy better than 0.5 deg C without calibration, 0.2 deg C with calibration

Easy to recalibrate in any standard solution. Calibrations are stored in permanent memory (ie they are still there if the power fails)

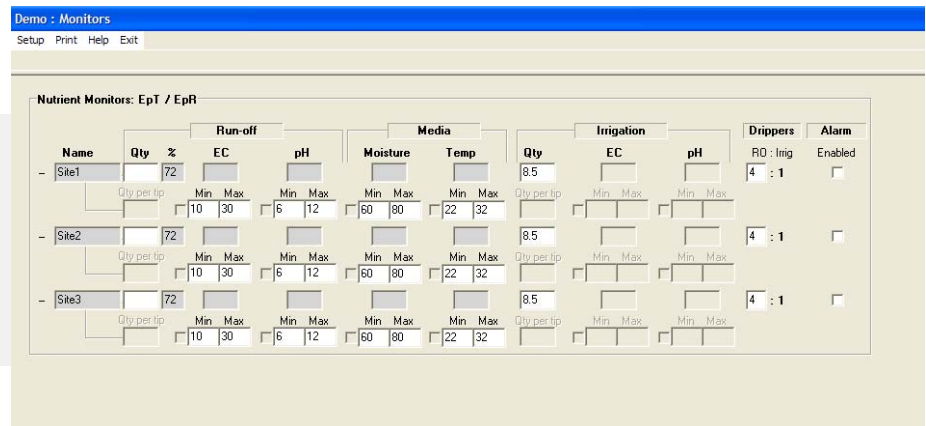
EC, pH, Run-off quantity

EC and pH are same as above. Run-off quantity is measured by counting pulses from a flow meter. The run-off resolution is fixed at 5mL per pulse to suit the Autogrow tipping spoon sensor.

Software & Settings

The software screenshot below shows the typical page that a grower would have displayed on their computer. This page allows the user to:

- Adjust alarm thresholds
- View current system readings
- Compare multiple monitors
- Compare monitors and temperature sensors



Software Graphs

Users can make a number of 'favorite' graphs to include monitored data from a variety of systems installed from environment (if installed) to runoff levels. All these variables can be displayed on one graph but users typically create a multitude displaying what they most want to see compared together e.g. moisture and temperature.

Users can adjust the range of data displayed from 5 minutes to 1 week. This allows the user to see trends in any aspect that is monitored.

Example: The grower views data from a week and notes a gradual trend upwards in the EC of the runoff. This probably indicates that the plants are receiving too infrequent fertigation. The grower can adjust fertigation frequency and in one week note if the EC is now trending towards their desired runoff.

