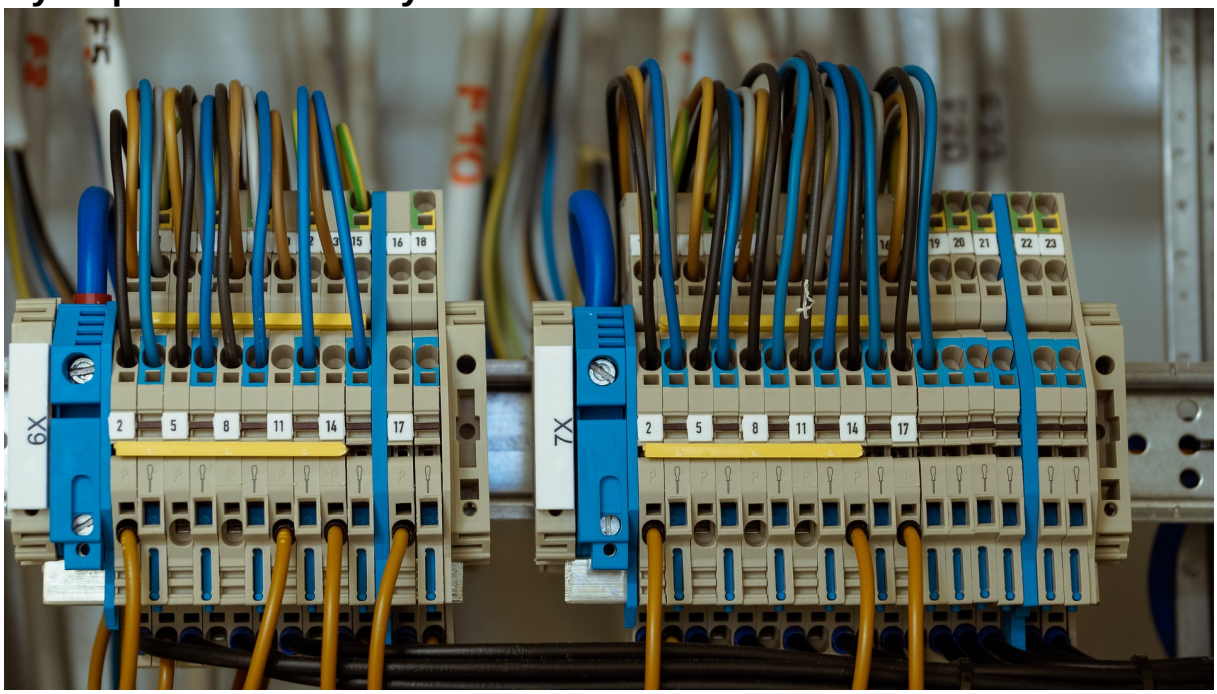
Hydroponics control system 3-3-1



Semi-Autonomous System for Controlling a Hydroponic System
Price incl. tax 1'910,95 €
Sales price without tax 1'910,95 €
Tax amount

Ask a question about this product
ManufacturerBorgmann Aquaponik Hydroponik

Description
Semi-autonomous system for controlling a hydroponic system

For small systems (less than 1000 liters / 200 plants, we use 2 plants and 10 liters of nutrient solution per meter of system) in the home or garden, we offer a microcontroller from RaspBerry. This has Debian as the operating system and basic control software is installed that controls the dosing pumps for the nutrient solution.

The set has three dosing pumps, as most commercially available nutrient solutions are also divided into three parts in order to optimally combine the corresponding nutrients depending on the growth phase (growth, flowering, fruit). As a rule, these are the usual NPK fertilizers and a collection of micronutrients.
In order to save the somewhat more complex real-time analysis at the beginning, an EC and pH measuring device is included to check the solutions by hand. The nutrient consumption is determined several times by hand and then administered cyclically using the determined values ??by the dosing pumps after programming. The nutrient solution should then be checked by hand every three to four days.
This small system can be expanded to include several sensors in order to supply the plants completely autonomously. Since the greater autonomy of the system is technically somewhat more demanding, we would like to offer interested customers a small system that they can expand as desired. Further sensors towards higher automation include EC and pH sensors as well as a water level detector that monitors water consumption and replenishes the system's used water if necessary. These can be retrofitted here. The control software and microcontroller are for a capacity of about 100 tomato plants at 50 meters. So a system with approx. 500 liters of nutrient solution using NFT (nutrient film technology) is suitable. For larger systems, we recommend standard PCs running Linux that are operated in watchdog mode should one of the devices fail.
The system can be expanded with two dosing pumps to control the acid or base value of the nutrient solution.
For small systems, we recommend replacing the entire nutrient solution every three weeks, depending on the type of plant, as this is cheaper on this scale than analyzing all the important nutrient variables individually.
Consisting of:

- RaspBerry 4B, 4GB
- SD card 16 GB with Ubuntu operating system
- 3 dosing pumps for nutrient solution 1, 2 and 3
- Micro-HDMI to HDMI adapter for standard screens
- 20.4 watt power supply for Raspberry 4 (5.1 volt output)
- An EC value hand tester
- A pH value hand tester

The system is finished and assembled ready for operation.
The software is installed and preconfigured.

Expansion option
Using the environmental sensors, an additional module can be used to control the ventilation of the greenhouse as well as the artificial lighting - if a greenhouse is not used. Please contact us.
Screenshot example control center
The configuration can be designed as desired; multiple “dashboards” and multi-user operation are possible.


EC
pH
Temperatur
Feuchtigkeit
Dampfdruckdefizit
Taupunkt
Nährstoff A
20 ml
Nährstoff B
20 ml
Nährstoff C
20 ml
Säure
190 ml
Base
2400 ml
Betrieb
Messung Nr.: 72.
(Inaktiv) Pumpe Nährstoff A
(Inaktiv) Pumpe Nährstoff B
(Inaktiv) Pumpe Nährstoff C
(Inaktiv) Pumpe saure Lösung
(Inaktiv) Pumpe basische Lösung
Nährstoffverbrauch A
Säureverbrauch
Baseverbrauch

Units in box: 1