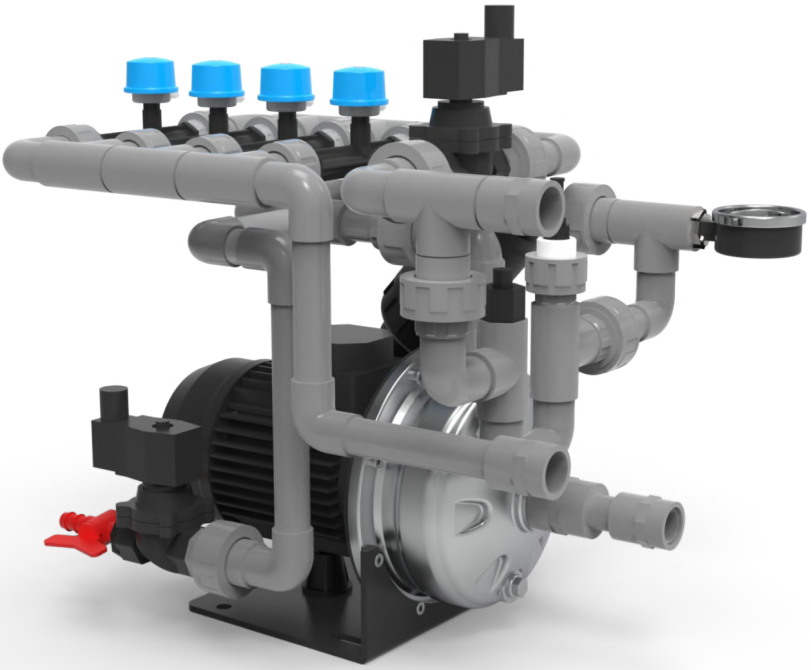
Visionary Farms

Mixer

Advanced nutrient solution preparation and delivery system



Can be used in

Vertical farming
Indoor farming
Small-scale at-home farm
Hydroponic greenhouse
Hydroponic cannabis cultivation
Retail

Mixer was designed specifically for indoor cultivation and vertical farming to deliver nutrients to plants grown using hydroponics with accuracy and precision. Mixer is the most compact solution available on the market today, leaving more space for cultivation.

The mixer system can supply up to 200 sqm of cultivation area and 3 separate feeding contours. However, when used in drip irrigation mode, the Mixer system can serve an unlimited size of cultivation area.

Mixer is a part of a system consisting of:

- the main pump (included);
- volume, pressure, temperature, pH and EC sensors (included);
- nutrient ejector and injector valves (included);
- freshwater supply valve and drainage valve (included);
- up to 3 feeding contour valves (included);
- mixing tank (not included);
- containers with nutrient concentrates and pH adjustors (not included).

The system of valves and sensors allows for round-the-clock monitoring and control of nutrient solutions preparation and delivery.

The Mixer system needs to be connected to a freshwater source and foul water drainage.

Measures

EC level
pH level
pressure
nutrient solution volume
nutrient solution temperature

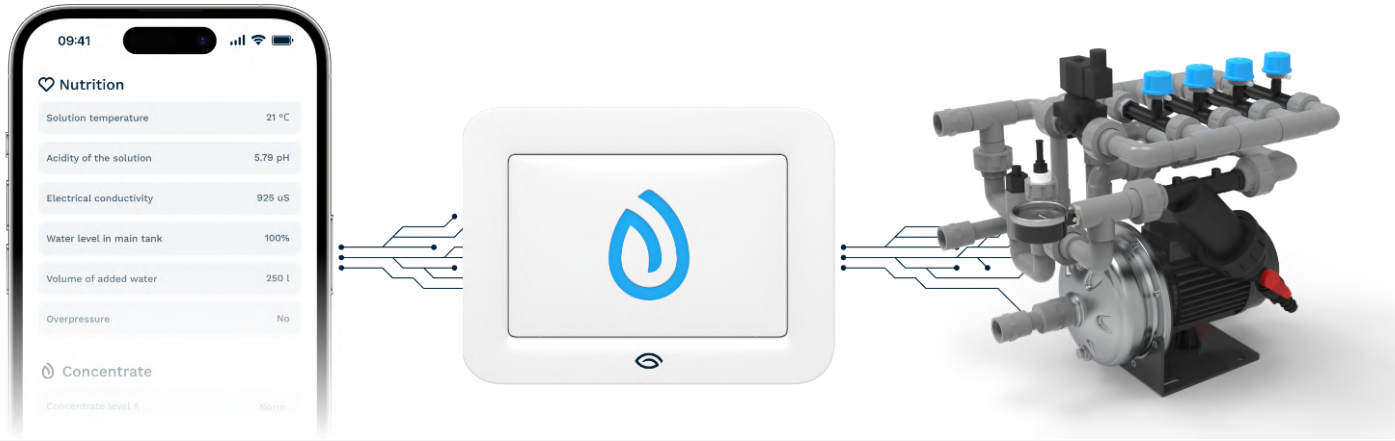
Control through Aqua

Mobile app controlled via Aqua controller

Part of the Visionary Farms ecosystem

Mixer works with the Visionary Farms Aqua controller to set and maintain mixing and dosing parameters of nutrient solution preparation and delivery in advanced hydroponic systems. You can set your desired parameters manually in the mobile app or use the automated cultivation recipes available with the Visionary Farms Cloud subscription.

Using Aqua with the Cloud subscription allows you to control and monitor your farm remotely. Alternatively, you can use the free local mode to control and monitor the conditions on your farm by connecting to the same Wi-Fi network.



A pairing with the Aqua controller to automate...

Nutrient solution preparation

EC working range
pH working range
nutrient solution temperature
nutrient solution volume
fertilizers and pH adjustor
ejector valves
fresh water valve

Irrigation regime

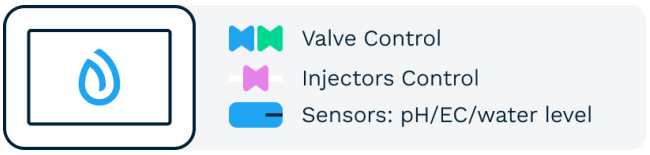
duration of irrigation
pause between instances of irrigation
main pump
feeding contours valves
drainage valve

Devices

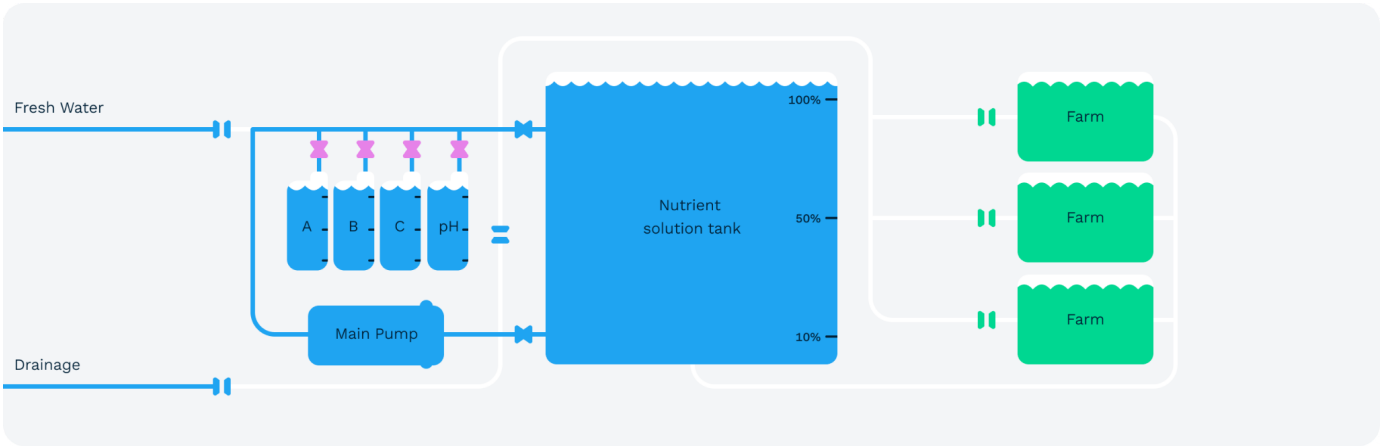
additional pump (if needed)
any other device (if needed)

Working regimes

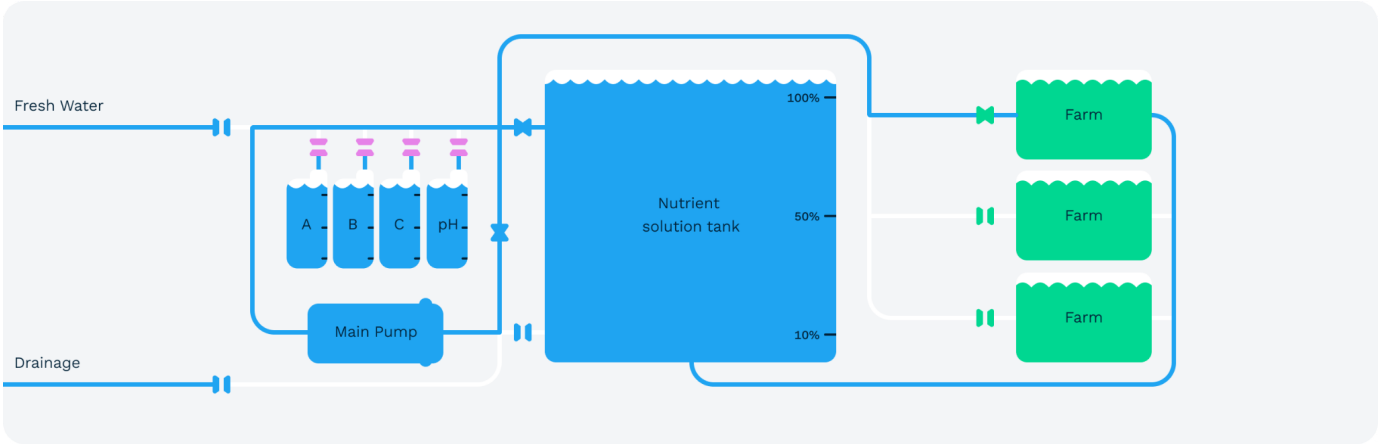
Aqua automatically switches the solution preparation and delivery system between different modes, depending on the manually set irrigation parameters (free mode) or the automatically set parameters specified by the cultivation recipe (if the subscription is activated).



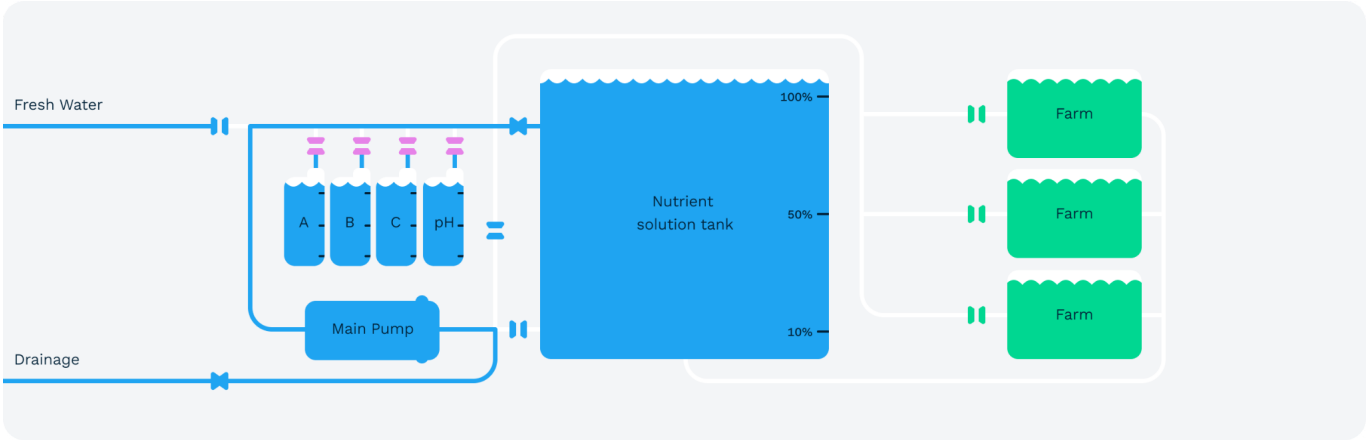
Mixing



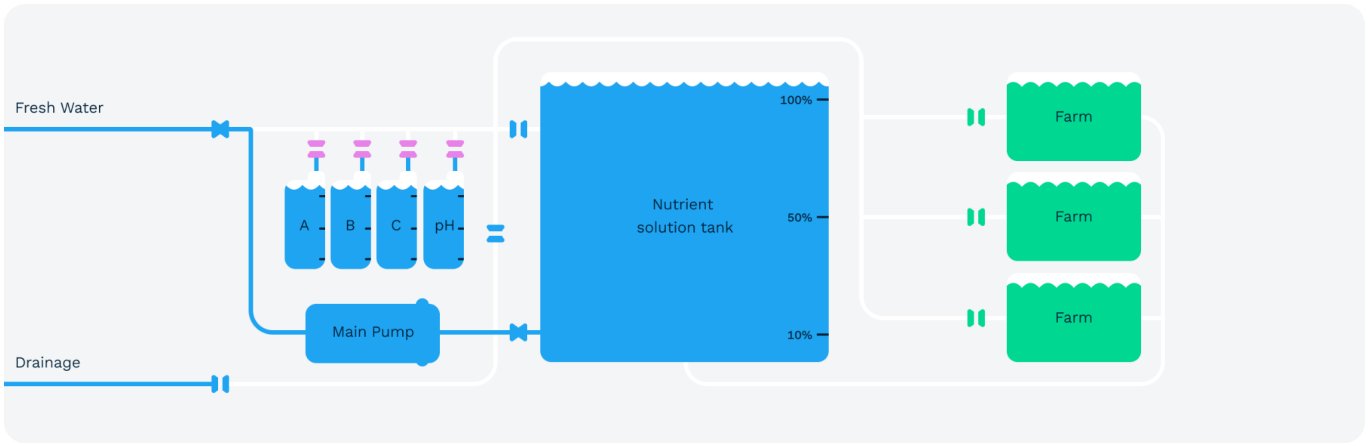
Feeding



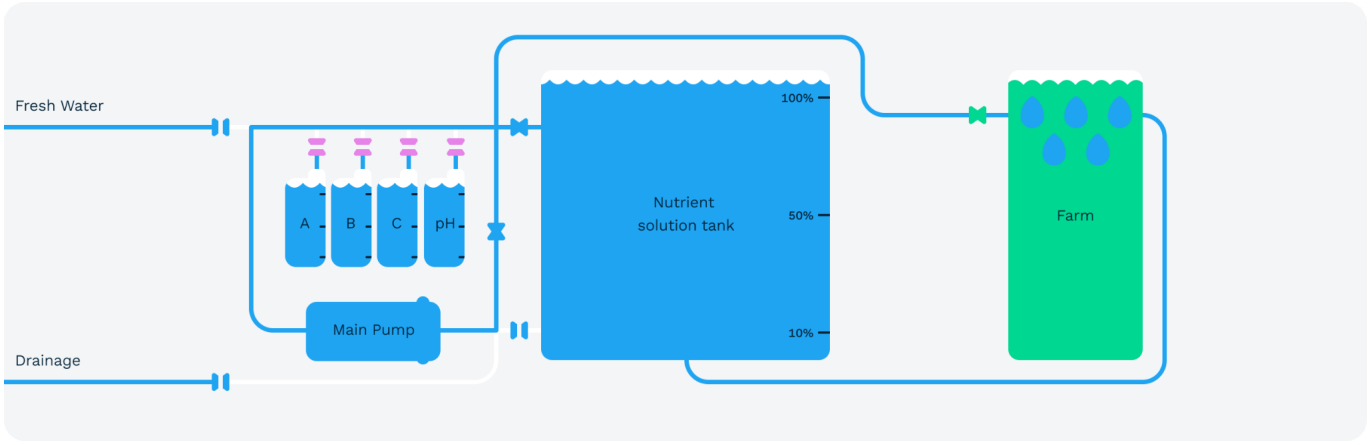
Draining



Pumping water



Drip irrigation



Working requirements

Power supply
120-277V

Clean water
supply

Incoming
water filters

recommended

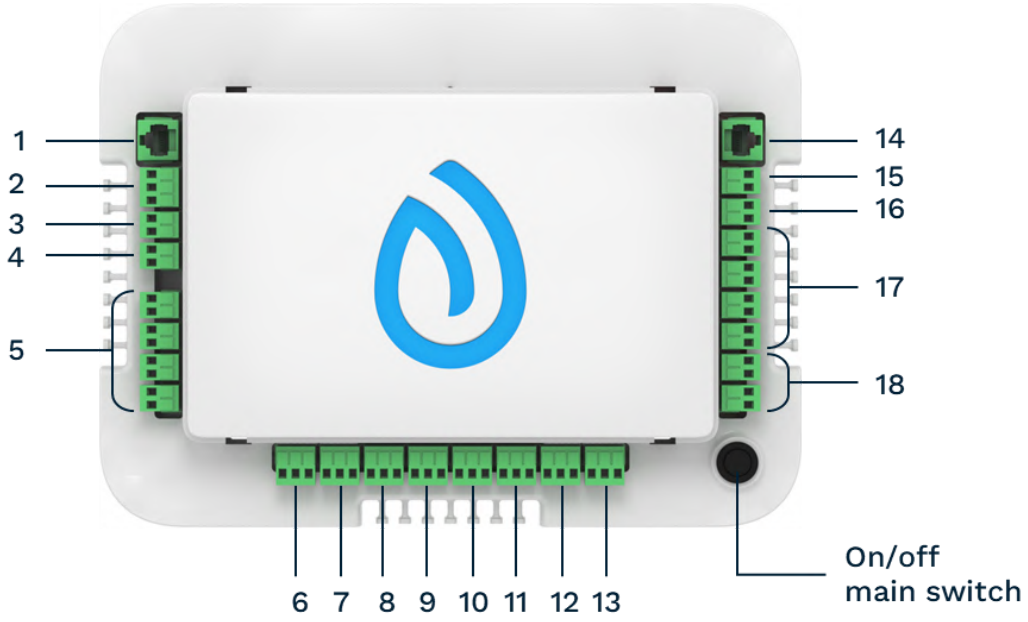
Wi-Fi
connection

Visionary Farms
Aqua controller

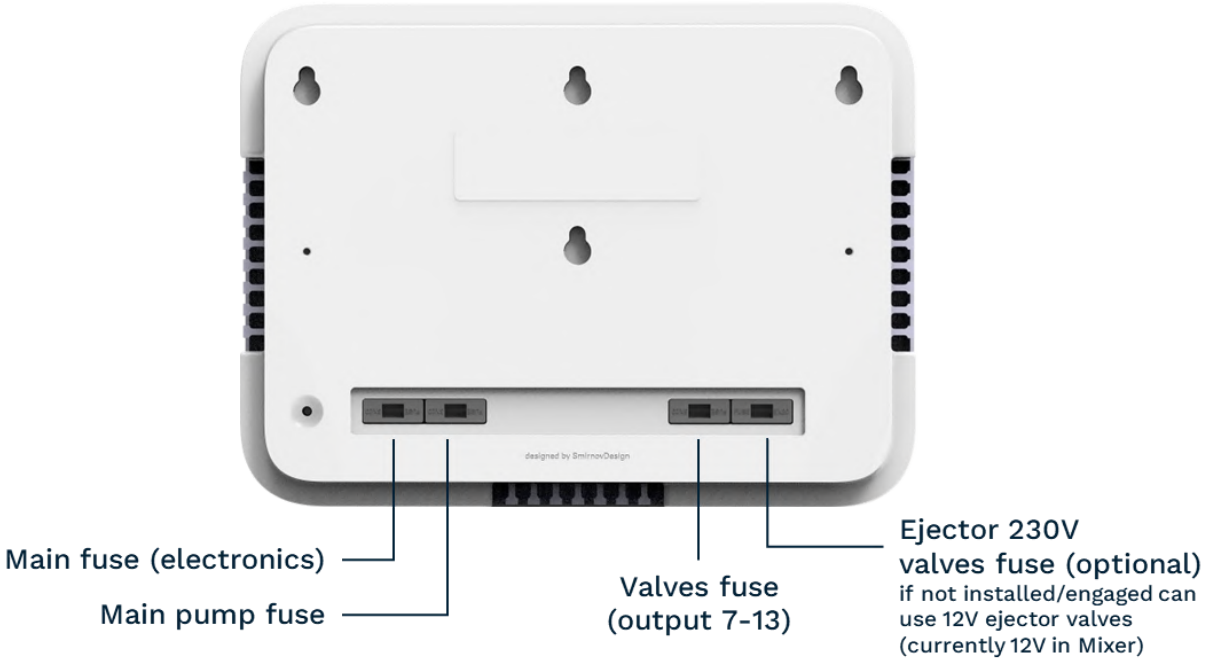
or third party controller

Drainage for waste
water removal

Technical data

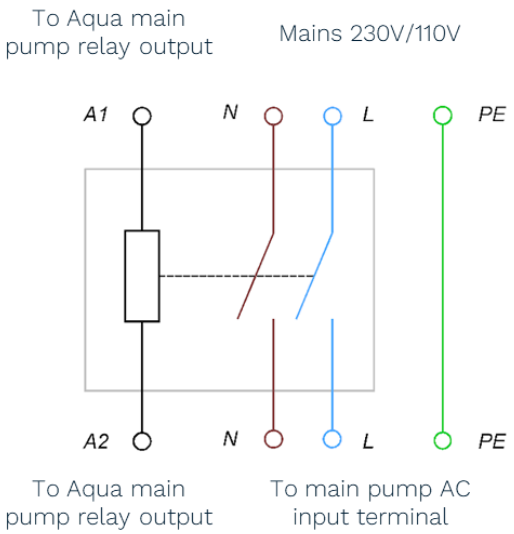


1 Tank fill level sensors RJ45
2 Reserve input
3 Water meter
4 Emergency button - in case of issues, controller goes to idle mode
5 Ejector valves or peristaltic pumps outputs
6 Main pump (has a separate fuse max power consumption 450W)
7 Fresh water valve
8 Mixing valve
9 Drain valve
10 Outline valve 1
11 Power supply
12 Lan input RJ45
13 EC sensor
14 Nutrient solution temperature sensor
15 Primary pH sensor
16 Secondary pH sensor
17 Four contactors I2C Bus
18 RS485 Bus

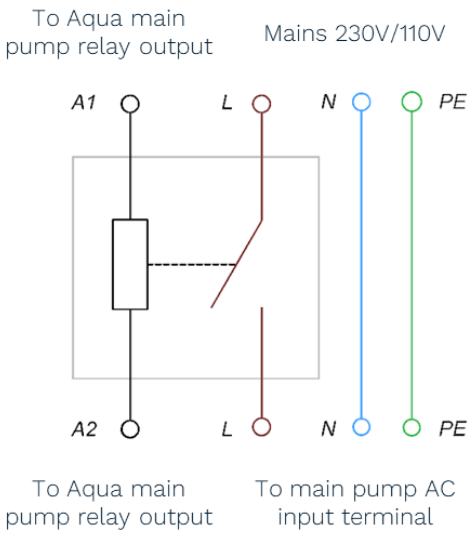


In industrial settings, the Mixer system should be connected to the low voltage control pump output on the Aqua controller via a mono or bipolar AC contactor with 24V control circuit as per the scheme below.

Bipolar contactor connection scheme



Monopolar contactor connection scheme



Control:

Relay 24V output

Electrical characteristics:

Power consumption, W:	380
Insulation class (IEC 61140:2016)	I

Conformity and standards:

EMC emission class:	B (EN 55032:2012 (CISPR32))
Environment:	RoHS directive compliment.

Characteristics:

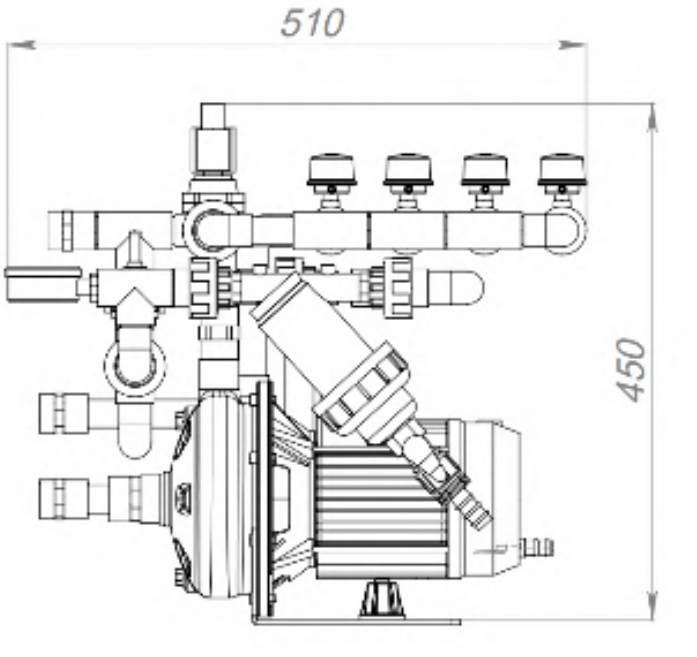
PH range, ph:	0 - 14
EC range, mS·cm:	0.01 – 20
Solution temperature range, °C:	0/+60
Solution pressure range, bar:	0.5 – 2
Maximum flow speed l.p.m:	80
Maximum ejector efficiency, ml·m:	85
Maximum solution components quantity:	4
Cultivation area per unit, m2	200

Operating and storage conditions:

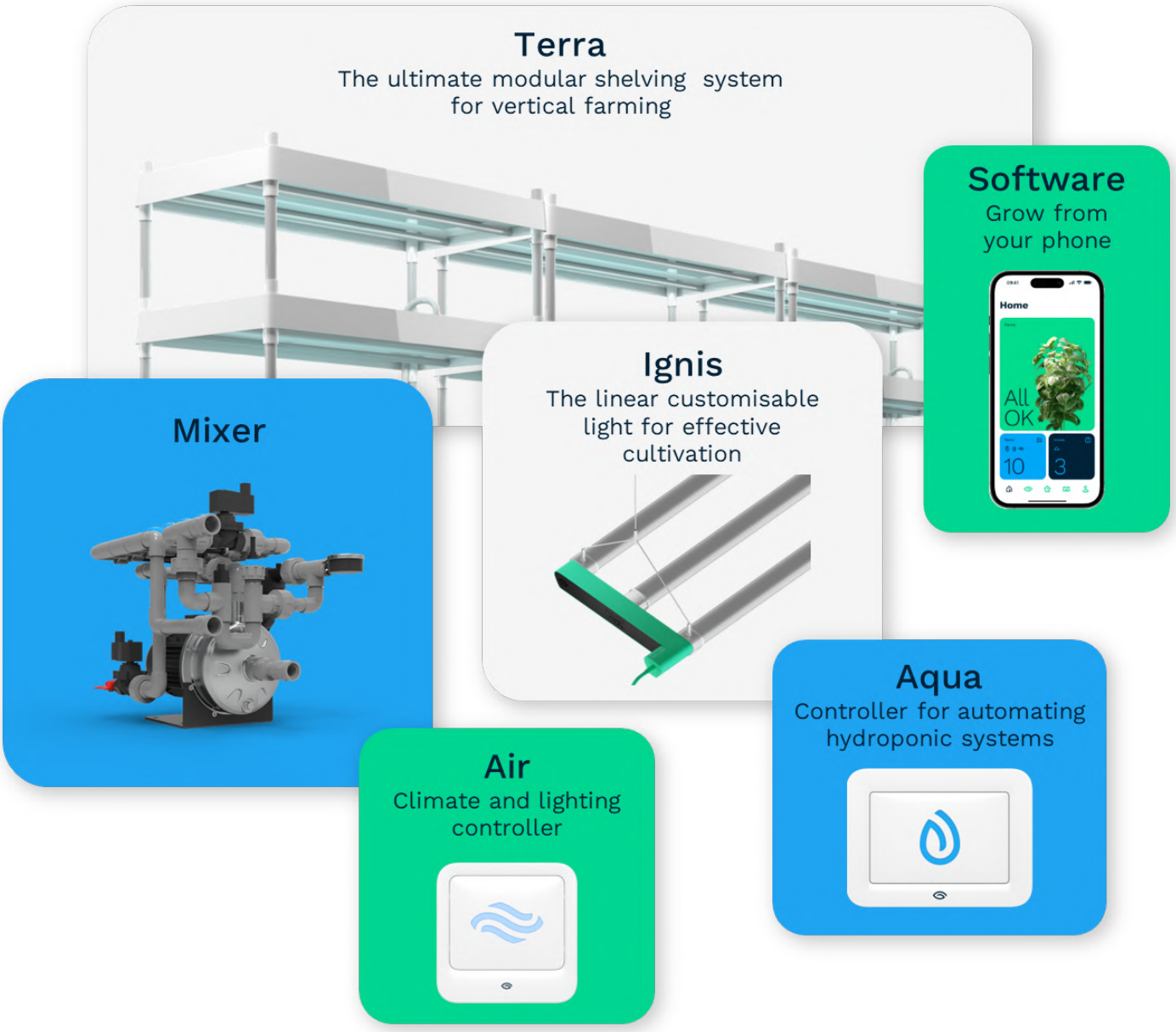
Ambient temperature:	0 °C to +40 °C
Relative humidity:	Max. 100 %, noncondensing
Storage temperature:	–10 °C to +50 °C

Mechanical data:

Dimensions:	47mm x 50mm x 600, 900, 1200mm
Weight, kg:	38
Color body:	Dark
Material:	Steel, Polycarbonate (PC)
Mounting:	Standalone installation
IP rating:	IP68



Mixer works with the Visionary Farms ecosystem



Cloud subscription

Whilst you can set parameters manually without the cloud subscription, using it unlocks Air's full potential and maximises the capabilities of your farm.

Control anytime, anywhere

Control and monitor the conditions on your farm remotely using the Visionary Farms app.

Cultivation recipes for 60+ varieties

Achieve better yields with automatic settings and maintenance based on 7+ years of research.

Access to full analytics

Gain valuable insights into your farm from Air's sensors.

Smart cultivation tips

From our plant science experts personalised to the varieties you are growing.

Operations management functionality

Automatic task scheduling and delegation among farm team members, notifications of any issues.

Full technical support

From our software and hardware engineers and plant science experts.

Projects using Mixer

Restaurant “Parnik”

Parnik is a trendy salad bar. All of the herbs, microgreens and leafy greens used in its dishes are grown directly in-house using Visionary Farms technology.

The project was completed in January 2020 and continues to operate using Visionary Farms hardware and software.

Two leafy greens farms

With the help of Visionary Farms lighting, hardware and consulting services, in 2020, the first city farm in the Udmurtia region was launched, which grows greens all year round.

“The founder of Visionary Farms was the first person to help me understand urban farming, and only thanks to him I was able to build and operate my first vertical farm.”

Andrey Golovkin, urban vertical farmer

Rocket, Romaine lettuce, Binex lettuce, Swiss chard + Dunstar lettuce

$97k
Revenue in 2022

228m²
Total cultivation area

350kg
Total monthly harvest

Strawberry greenhouse

This greenhouse, created in 2021, boasts uninterrupted strawberry production for 10 months out of the year.

It was created using Visionary Farms lighting, hardware and software solutions and consulting services.

450m²
Total cultivation area

4 tonnes
Total monthly harvest

$103k
Revenue in 2022