

# Aqua-X System / NFS-1

## Aqua -X Irrigation Control System

The NFS-1 / Aqua-X System is a professional-grade irrigation control system. It is a fully customizable modular system. The NFS-1 is the brain of the Aqua-X system. It comes standard with a touch spot and a water detector for water leak detection and watering confirmation. Installation is simple and the system is easy to expand.



**NFS-1** for Aqua-X Control System

The NFS-1 has an LCD display and 6-buttons to allow the user to change setpoints and access functions on the Aqua-x. The timers can be set-up to be recycling timers, or schedule timers with 12 individual customizable irrigation schedules that operate at specific times of day with different durations. The ON Timers can be set as low as 1 second. OFF times can be set down as low as 1 minute.

A maximum of 5 control modules can be connected to each NFS-1. Users can manage irrigation times for nutrient tanks or Dosatron systems. Trolmaster recommends using the NFS-1 / Aqua-X system to control up to 30 individual outputs ( 24V or 110V ).

The NFS-1 also offers pH, EC, and water temperature monitoring as well as historical data logging. The user also can monitor the moisture level of the growing medium using the optional WCS-1 sensors.

## Specification

### AQUA-X (NFS-1)

#### Product Capacity

<b>OA6-24 24V Control Board</b>	Max. 5pcs per NFS-1 controller
<b>OA6-110 110V Control Board</b>	Max. 5pcs each per NFS-1 controller
<b>DSP-1 Program Device Station</b>	Max. 5pcs per NFS-1 controller
<b>Water Detector</b>	Max. 25pcs per NFS-1 controller
<b>Water Content</b>	Max. 8pcs per NFS-1 controller
<b>AMP-2 Sensor Board</b>	Max. 1pc per NFS-1 controller
<b>PCT-1 or PCT-2 EC / Temp Sensor</b>	Max. 1pc per NFS-1 controller
<b>PPH-1 or PPH-2 pH Sensor</b>	Max. 1pc per NFS-1 controller

#### Package Contents

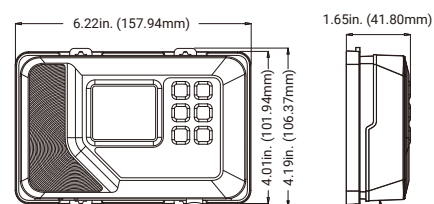
<b>Aqua-X Irrigation Controller</b>	1
<b>Water Detector</b>	1
<b>Touch Spot</b>	1
<b>12V Power Adapter</b>	1

#### Display & Control

<b>Size</b>	Backlit 128x128 LCD Display
<b>Control</b>	Button Control
<b>Language</b>	English (International)
<b>micro-SD</b>	Save/Copy/Import/Export data

#### Dimensions & G.W.

<b>Dimensions</b>	275*164*62mm
<b>Approx. G.W.</b>	1.08 kg



#### Power Supply

<b>Supply Voltage</b>	100-240VAC, 50/60Hz
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# Connection

with RJ12 Splitter Hubs

The sensors and control modules ( device stations ) are connected to the NFS-1 with a standard RJ12 cable and RJ12 Y-splitters, making installation as simple as plug-and-play. The modules are “daisy-chained” together using the RJ12 cables allowing for flexible installation, and future expansion. To make installation even easier, you can also use the SPH-1 8-port hub instead of using the Y-splitters.

# Remote Control

Mobile App

The LCD interface and buttons on the NFS-1 can be used to change settings and view data, PLUS the HCS-1 can be controlled with a free smartphone App which offers remote monitoring, remote settings and receiving push alert notifications anytime, anywhere. Complete control of your grow room can be achieved remotely.

# Steps To Connect To The App

To connect the NFS-1 to your App, first connect it to the Internet. Use a CAT 5/6 cable to connect the NFS-1 to your router directly for the most reliable connection. When the controller is connected to the internet, the internet symbol will be displayed on the lower right corner of the LCD display. To link the NFS-1 to the App, simply open the TM app and scan the QR code on the front LCD screen of the controller. (Go to System – QR Code.)

# Control

with Aqua -X System

Device modules like the OA6-110, OA6-24, and DSP-1&2 allow the Aqua-X to control devices like pumps and valves with 110/240 V and 24V control.

## OA6-110 110/240 V

small 110V  
pumps/valves (< 1.5A)

## OA6-24\* 24 V

24 VAC devices  
e.g. solenoid valves/pumps  
(< 0.2A)

## DSP-1&2

Any device up to 10 amps  
\* at 120V or less for DSP-1  
\* at 240V or less for DSP-2

The OA6 series both have 6 separately controlled outlets, each with individual time setting.

**Each NFS-1 allows up to 5 control modules to be connected. A maximum of 30 devices can be controlled ( e.g. Solenoid Valves and Pumps ), when using the OA6 series of control modules.**

Our exclusive Master Pump Link allows the user to automatically control a central pump if used with the OA6-24 control module. When any of the 24 volt solenoids are activated, the pump will automatically operate eliminating the need to coordinate two separate timers for the pump and solenoids.

NOTE \*An OA6-24 connected with a DSP module using the master pump link function will only be counted as 1 control module.

Examples of Possible Combinations ( **5** modules in total ) :

<b>OA6-110</b>	x 3
<b>OA6-24</b>	x 1
<b>DSP module</b>	x 1

or

<b>OA6-110</b>	x 1
<b>DSP module</b>	x 2
<b>OA6-24 (+ DSP module)</b> <small>master pump link</small>	x 2

or

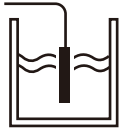
<b>OA6-110</b>	x 1
<b>DSP module</b>	x 4

# Water Monitoring

pH, EC, Temperature

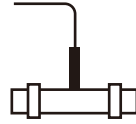
## PPH & PCT Sensors

The PPH and PCT sensors can be connected to the system by using the AMP-2 Sensor Board to detect pH, and EC & temperature of the water respectively. Minimum and maximum "limits" can be set on the Aqua-X providing 24/7 notification of pH, EC and temperatures that are out of limits.



### Tank

The PPH-1 and PCT-1 probes are designed to be used in an open stock water tank.



### Pipe

The PPH-2 and PCT-2 probes are heavy duty probes designed to be used inline with existing PVC piping.

# Water Detection

Water Detection

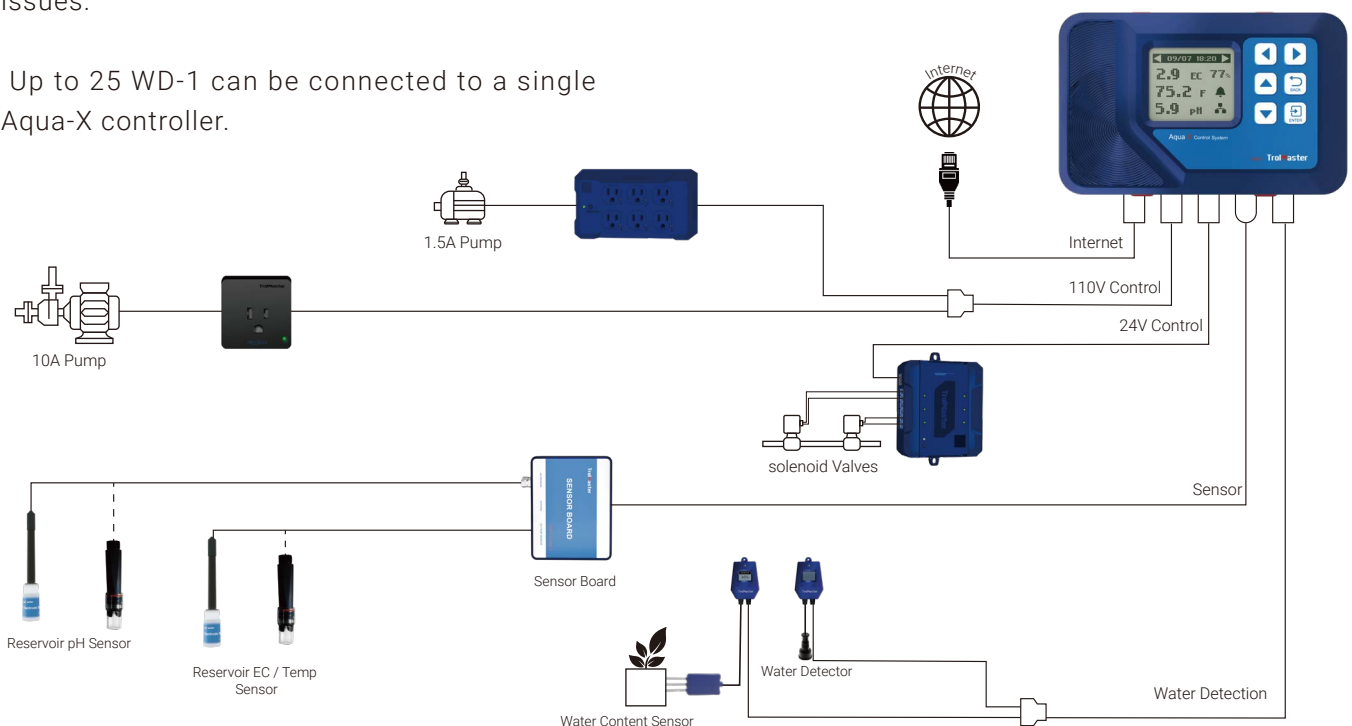
## Water Detector (WD-1)

The WD-1 water detector can be used with NFS-1 in the Aqua-X system as a leak detector to monitor water leaking or a water verification monitor to confirm each of the irrigation zones are working each time they are activated. This innovative watering confirmation feature can prevent crop losses caused by watering failures. Users will receive alerts on the app notifying them of any issues.

Up to 25 WD-1 can be connected to a single Aqua-X controller.




## Water Content Sensor (WCS-1)

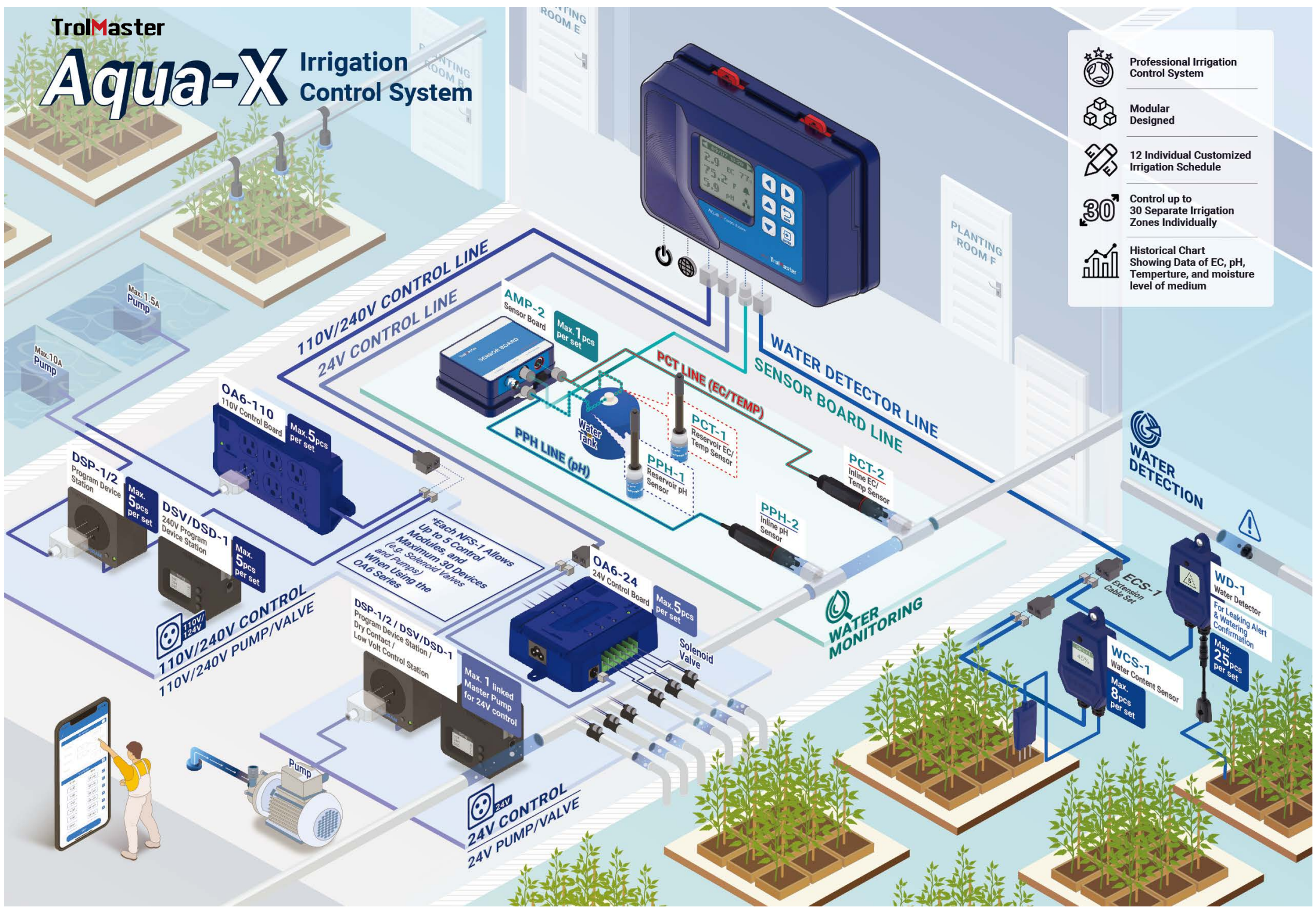
The Aqua-X also features the ability to monitor moisture levels of the growing medium by connecting Water Content Sensors to the NFS-1. Each NFS-1 controller allows up to 8 WCS-1 to be connected.



TrolMaster

# Aqua-X Irrigation Control System

-  Professional Irrigation Control System
-  Modular Designed
-  12 Individual Customized Irrigation Schedule
-  Control up to 30 Separate Irrigation Zones Individually
-  Historical Chart Showing Data of EC, pH, Temperature, and moisture level of medium



\*Each NFS-1 Allows Up to 5 Control Modules and Maximum 30 Devices (e.g. Solenoid Valves and Pumps) When Using the OAG Series

110V/240V CONTROL  
110V/240V PUMP/VALVE

24V CONTROL  
24V PUMP/VALVE

WATER MONITORING

WATER DETECTION