Water Content Sensor (WCS-1)
User Manual



OVERVIEW

Thank you for purchasing TrolMaster's WCS-1 Water Content Sensor. It is specifically designed to measure the water content data (percentage) of the grow media in the Aqua-X Control System.

Each set of WCS-1 includes a three-prong sensor and a transfer module (Display Screen & Button). When measuring, the three prong sensor of a Water Content Sensor is inserted into the grow media such as soil or rock wool to be measured. After connecting the WCS-1 to the NFS-1 Controller with the RJ12 cable, press the ADDRESSING button on the WCS-1 and then the NFS-1 will assign an address to the WCS-1 automatically. The address number and the measured water content data (percentage) will be displayed on the screen accordingly. The main interface of the NFS-1 screen will display the measured water content data. If there are multiple Water Content Sensors (up to 8pcs) connected to the NFS-1 Controller, the NFS-1 screen will display the average value.

After downloading the app, you could read the water content data (percentage) and historical data (graph) on your Smartphone and receive messages if the current value of the grow media exceeds your highest and lowest alarm setting range.

FEATURES

- LCD Display, Easy Operation
- Addressing Button
- Water Content Real-time Measuring
- Water Content Alarm When Setpoint Exceeded

PACKAGE CONTENTS

- 1 x Water Content Sensor
- 1 x 16ft RJ12 Cable
- 1 x RJ12 T-Splitter

SPECIFICATIONS

Input Voltage	12V ⎓ 0.1A
Input Current	0.1A
Operating Environments	Temperature: 32~122°F (0~50°C) Humidity: ≤90%RH
Measuring Range	0~100%
Package Dimensions (L*W*H)	275 x 164 x 65 mm / 10.83 x 6.46 x 2.56 inch

NOTE:

1. Multiple Water Content Sensors (up to 8pcs) can be corrected to the Aqua-X Control System and the LCD Display of the Aqua-X Controller will show the average value.
2. It's suggested to connect one three-prong sensor under one Water Content Sensor (WCS-1).
3. When the Water Content Sensor (WCS-1) is successfully connected to the Aqua-Xand the three-prong sensor is placed into the grow media such as soil or rock wool etc., the Aqua-X Controller will send an alarm message to your Smartphone if the current value of water content exceeds the highest setpoint or the lowest setpoint. You can also check the alarm messages in the Alarm Message page of the Aqua-X Controller.

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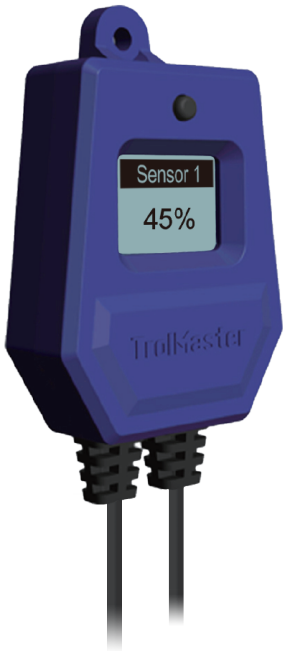
CONFORMS TO
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FRONT PANEL



INSTALLATION

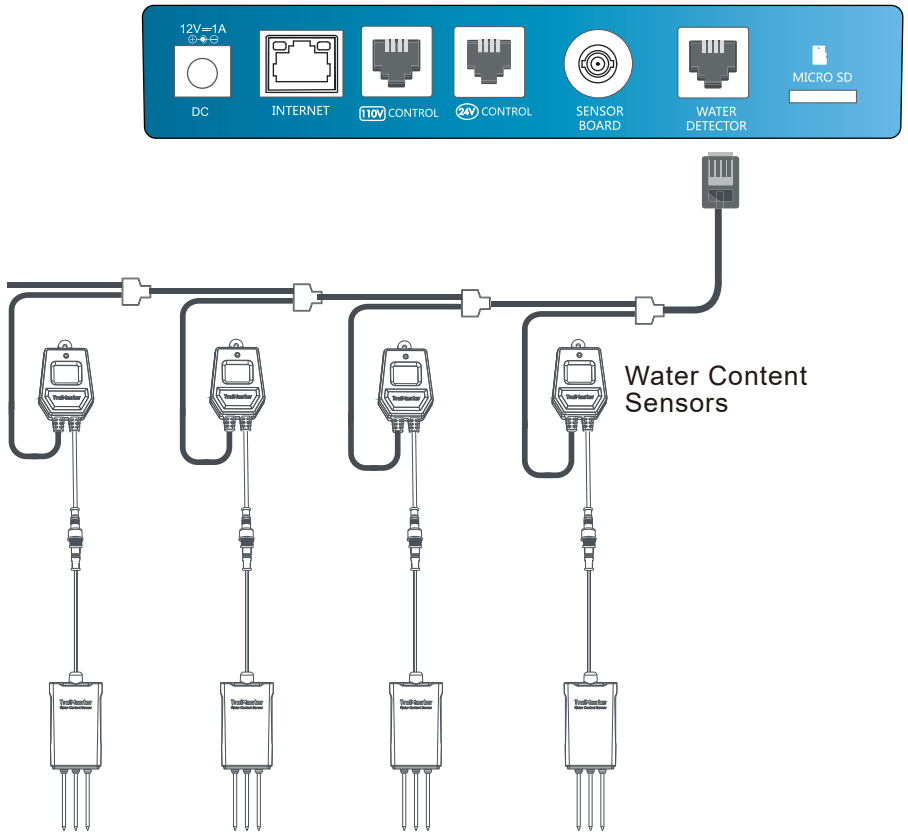
Mount the Water Content Sensor near the grow media such as soil or rock wool etc. Use a screw to mount the Water Content Sensor on the wall or fix it through the top hole with a string.



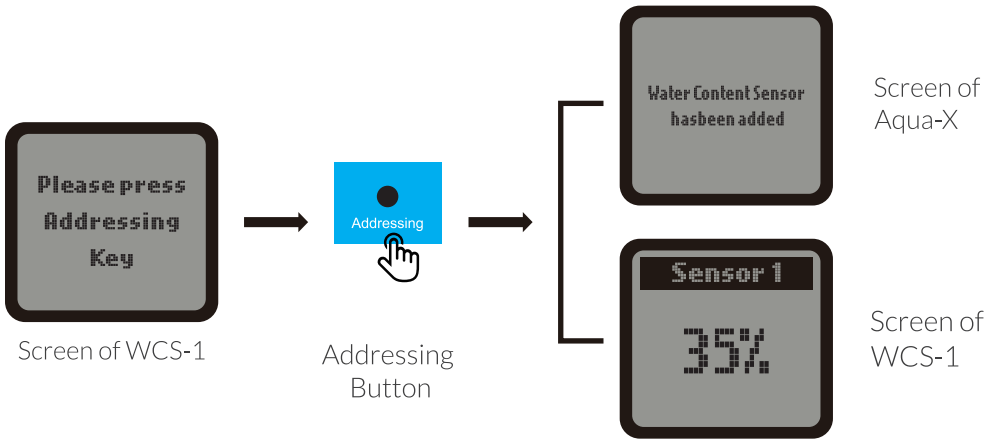
OPERATION INSTRUCTIONS

1. Connection to Aqua-X

Connect a short RJ12 cable to the Water Detector terminal on the bottom panel of the Aqua-X Controller. Then connect the other end of the RJ12 cable to a T-shape Splitter. Plug the RJ12 cable (left) of the first WCS-1 into either socket of the T-Splitter. Use another short RJ12 cable to connect to the 2nd T-Splitter for the connection of the 2nd Water Content Sensor. Similarly, other Water Content Sensors (up to 8pcs) can be connected to one Aqua-X Controller.



Press the Addressing button on the WCS-1 unit so that the Aquo-X Controller will assign an address to the WCS-1 unit accordingly. The LCD screen of the WCS-1 Water Content Sensor will show a percentage indicating that the Water Content Sensor is connected successfully.



2. Calibration (Old version)

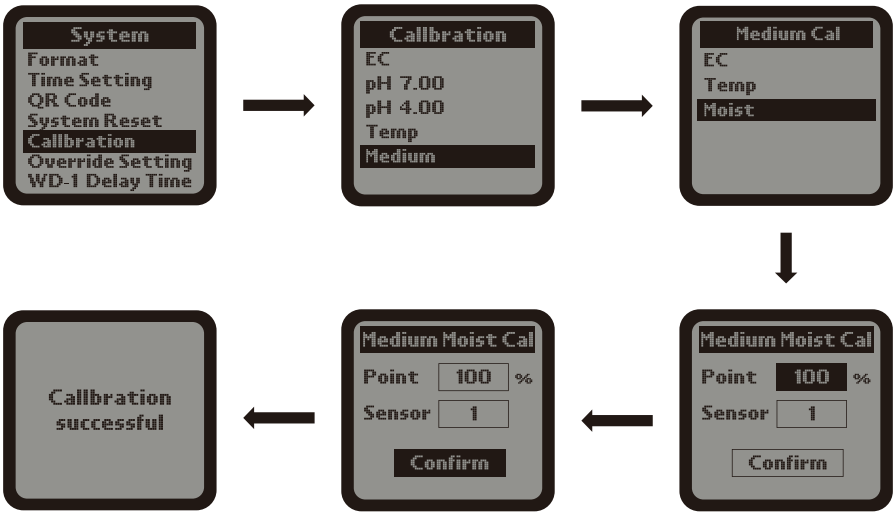
The sensitivity of the sensor probe is affected by the EC level significantly. It is recommended to calibrate the sensor in the target sample before measurement. A two-point calibration could simply apply. Firstly, vertically immerse the probe into a fully saturated sample, press and hold the addressing button for 5 seconds to calibrate to 100%. Then remove the probe and wipe it dry, press the addressing button 5 times to calibrate a dry probe to 0%.

3. Calibration (New version)

The updated version of WCS-1 with a TM logo on the bottom right can be calibrated on the controller.

4. Calibration on the NFS-1

- Press the "Enter" button on the NFS-1, then choose "System Settings".
- Select "Calibration" and then Medium.
- Choose to calibrate either Moist (Water Content).
- Move the cursor to the item you want to calibrate and then press the "Enter" button.
- With the cursor on the box labeled "Point" press Enter.
- Select the new calibration point with the Up and Down arrow button and then press the "Enter" button.
- Move the cursor down to select the sensor you want to calibrate in the "Sensor" box.
- Use the up and down arrow buttons to choose the sensor to calibrate, and then press "Confirm" to complete the process. The LCD screen will display a message "Calibration successful".



NFS-1 Demonstration

5. Calibration on HCS-2 & NFS-2

- Tap nut icon.
- Choose Calibration.
- Tap Enter below Medium Moisture.
- Calibrate for 0% water content, choose the sensor you're calibrating.
- Tap Save, then continue to calibrate for 100% water content.
- Save setting.

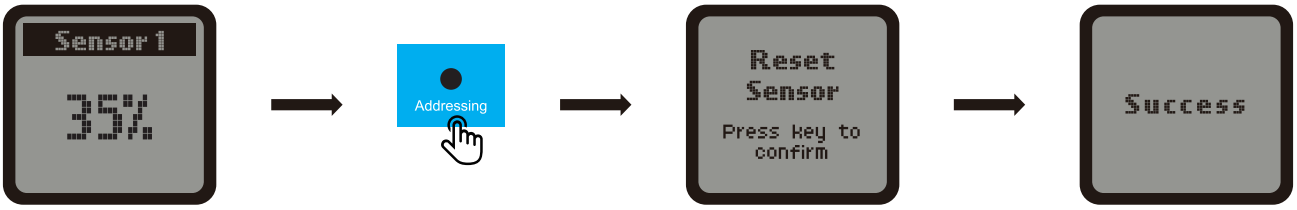
NOTE :

Use your test feedwater to flush your grow media sample from the top of the container or block until the water is coming out the bottom. Be sure that the entire sample is fully saturated for the calibration for 100%. Wait for 7-10 minutes for gravity to work to allow the excess to exit the bottom of your sample.

If the probe was not removed from the medium after calibration for 100%, the calibration for 0% moisture level will not proceed, and the LCD screen will display "Error".

6. Calibration Factory Reset on WCS-1

You can reset the WCS-1 and clear cache data of all previous calibrations to keep the measurements and calibration result stable and accurate in cases when you notice the calibration results are errored. Press and hold the addressing button for 5 seconds to reset. Press again to confirm and you will see a "success" message; or else it will return to the main interface after 5 seconds.



Screen of WCS-1 Addressing Button

WARNING: **DO NOT** allow the WCS-1 Dry Contact Board to be exposed to water or excessive heat. DO NOT open or attempt to repair or disassemble the controller, as there are no user-serviceable parts inside. Opening the controller will void the warranty.

If the surface of WCS-1 Dry Contact Board is dirty, wipe it with a dry towel. The WCS-1 Dry Contact Board operates under natural ventilation conditions.

AVERTISSEMENT: NE PAS exposer la carte de contact sec WCS-1 à l'eau ou à une chaleur excessive. NE PAS ouvrir ou tenter de réparer ou de démonter le contrÃleur, car il ne contient aucune pièce réparable par l'utilisateur. Louverture du contr'leur annulera la garantie.

Si la surface de la carte de contact sec WCS-1 est sale, essuyez-la avec une serviette sèche. La carte de contact sec WCS-1 fonctionne dans des conditions de ventilation naturelle.

For any issues or concerns with our products, DO NOT return them to the store. Please contact our tech support department at **support@trolmaster.com** or call **877-420-9876**.

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