

# BaseStation 1000 Irrigation Controller

## Keeping a Pond or Cistern Full

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If you have a pond or a cistern that is fed from an external water source, you can use a Baseline biSensor soil moisture sensor with your Baseline controller to monitor the water level in a pond or cistern and turn on a valve when the water drops below a specified level. You program the controller to turn off the valve based on the time that it takes to refill the water.

Perform the following steps to use a biSensor to maintain the water level in a reservoir:

Step 1 – Determine the acceptable low water level in the reservoir, and then calculate how much time is needed to refill the reservoir.

Step 2 – Install the biSensor in the reservoir at the low water level and wire it to the controller.

Step 3 – Program the controller to detect the low water reading.

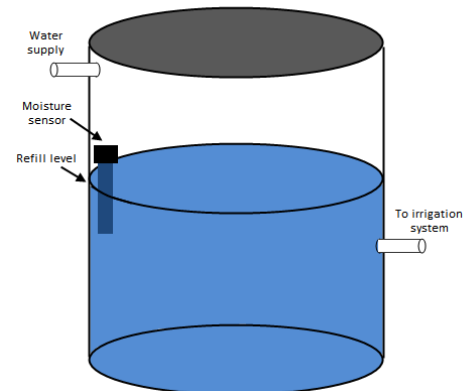
Step 4 – When the controller detects the low water reading, program the controller to open the valve for the water supply and allow it to run for the specified refill time.

### Step 1 – Determining the acceptable low water level in the reservoir, and calculating refill time

Determine how low you want the water level to be when it needs to start refilling. Use the height of the water in the reservoir rather than a measured quantity. You will position the biSensor in the tank at this level.

When the reservoir is at the refill level, turn on the water supply and record the amount of time that it takes to fill.

**Note:** If you are irrigating from reservoir while it is filling, refer to our recommendations in [Baseline Solutions for Irrigating from a Pond or Cistern](#).



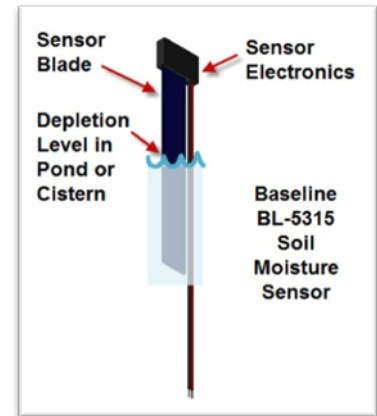
## Step 2 – Installing the biSensor in the Reservoir

Take note of the serial number of the biSensor that you are installing in the reservoir. You will need this number when you program the controller.

For best results, position the biSensor vertically in the reservoir. It doesn't matter which end is up, but mount the sensor so the wires can be routed out of the reservoir. Make sure that at least half of the biSensor blade is below the water at the depletion level.

**IMPORTANT!** When mounting the biSensor, do not drill or nail through any part of the biSensor; it will void the biSensor warranty. A suggested method for mounting the biSensor is to install a pole in the reservoir and attach the biSensor to the pole with zip ties.

Mount the biSensor securely so it does not move. Variations in the position of the biSensor will result in erratic behavior.



Follow the wiring instructions in the biSensor installation guide to connect the biSensor to the two-wire path or to the biSensor ports on the controller or on the powered biCoder.

Make sure that you maintain polarity on the wire connections.

Fasten the wiring with wire nuts, and then test communication with the controller before you complete the installation with waterproof connectors.

## Step 3 – Programming the Controller to Detect the Low Water Reading

### Assign the biSensor

1. On the BaseStation 1000 controller, press the **Search & Assign** button. The Search & Assign menu displays.
2. Press the **↑** or **↓** button to highlight the **Moisture Sensor** option, and then press the **OK** button to select it. The Moisture Sensor screen displays.
3. If the **Device Assignment** option is highlighted, press the **OK** button to select it. If Device Assignment is not highlighted, press the **↑** or **↓** button to highlight it, and then press the **OK** button. The Moisture Assignment screen displays.
4. When the **Search** option in the Action column is highlighted, press the **OK** button to search for biSensors.

When the controller finds the devices, their serial numbers display in the Action column.

5. Press the **↑** or **↓** button to move through the list of devices in the Action column. Highlight the serial number of the biSensor that you installed in the reservoir.
6. Press the **⇒** button to move to the Moisture Sensor column.

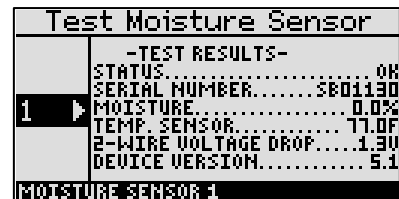
## Maintaining the Water Level in a Pond or Cistern with a Start Condition

7. Press the  $\uparrow$  or  $\downarrow$  button to move through the list. Highlight the number that you want to assign the biSensor to.
8. Press the **OK** button. The serial number of the device that you selected in the Action column now displays next to the number in the Moisture Sensor column.

### Take a biSensor Reading

1. When the reservoir is at the level where it should be refilled, press the **Test** button on the controller. The Test menu displays.
2. Press the  $\uparrow$  or  $\downarrow$  button to highlight the **Test Moisture Sensor** option, and then press the **OK** button. The Test Moisture Sensor screen displays.
3. Press the  $\uparrow$  or  $\downarrow$  button to select the biSensor that you installed in the reservoir.
4. Press the **OK** button to test the biSensor.

**Note:** If any zones or programs are running when the test is activated, watering will pause for 10 minutes. The test results display the moisture percentage.



Test Moisture Sensor	
	-TEST RESULTS-
	STATUS..... OK
	SERIAL NUMBER..... 8801130
1	▶ MOISTURE..... 0.0%
	TEMP. SENSOR..... 77.0F
	2-WIRE VOLTAGE DROP..... 1.30
	DEVICE VERSION..... 5.1
MOISTURE SENSOR 1	

5. Write down the moisture reading.
6. Press the **RUN** button to return to the Run menu.

## Step 4 – Programming the Controller to Open the Valve for the Water Supply

### Designate a Valve and a Program to Fill the Reservoir

In order to have the system operate only the valve that fills the reservoir, make sure that the biCoder for that valve is assigned as a single device in a program.

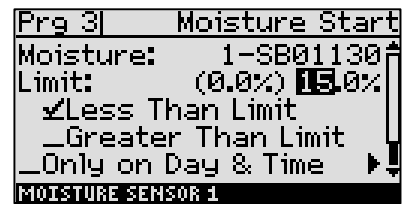
1. On the BaseStation 1000 controller, press the **Program Setup** button, and then select the **Zone Runtimes** option.
2. On the Zone Runtimes screen, press the **PRG** button to select a program number that is not used for any other watering. The Program number displays in the upper-left corner of the Zone Runtimes screen.
3. Press the  $\downarrow$  button to highlight the serial number of the biCoder for the valve that fills the reservoir, and then press the **+** or **-** button to enter a runtime that is long enough to fill the reservoir.
4. Remember this program number.

**Note:** If you want the reservoir to fill while other zones are running, be sure to set the number of concurrent zones for the controller to allow for this.

### Configure the Start Condition

1. On the BaseStation 1000 controller, press the **Program Setup** button. The Program Setup menu displays.
2. Press the **PRG** button until the program that you set up for the fill valve displays in the upper-left corner of the screen.  
**Note:** To move backwards in the list of programs, press and hold the PRG button, and then press the – button repeatedly.
3. Press the ↓ button to highlight the **Setup Prg. Start** option, and then press the **OK** button. The Setup Prg. Start screen displays the list of start conditions.
4. Press the ↓ button to highlight the **Moisture Start** option, and then press the **OK** button. A checkmark displays next to the Moisture Start option.
5. Press the ⇨ button to configure the moisture start settings.

6. Notice that the serial number for one of your biSensors is highlighted in the **Moisture** field. If this is the serial number for the biSensor that monitors the **refill level** in the reservoir, no change is required. If you need to use a different biSensor, press the + or – button to select a different serial number.



7. Press the ↓ button to highlight the **Limit** field, and then press the + or – button to enter the **refill moisture reading** that you wrote down from the biSensor test.

**Note:** In the Limit field, the value in parentheses is the most current reading from the soil moisture biSensor. Keep in mind that the biSensor is read every 10 minutes.

8. Press the ↓ button to highlight **Less Than Limit**, and then press the **OK** button.
9. Make sure **Only on Day & Time** is not selected.
10. Do not start the **Calibration**.
11. Press the **RUN** button to exit Program Setup.

When the biSensor reading matches the value that you entered in the Limit field, the controller will open the valve to refill the reservoir and run for the amount of time that you configured in the Zone Runtimes screen.

## Troubleshooting

If you set up your BaseStation 1000 controller according to these instructions and your system is not working as expected, review the following issues:

**Issue:** The moisture sensor is behaving erratically.

Make sure that the moisture sensor is securely mounted in the reservoir. If the water movement in the reservoir causes the sensor to move, the sensor will behave erratically.

**Issue:** The reservoir is over filling.

Make sure that the run time for the zone is accurate based on the fill rate.

Make sure that the zone does not have a run time in another program.

**Issue:** The reservoir is going dry.

Make sure that the moisture sensor didn't move.

Make sure the zone that is designated to fill the reservoir is enabled.

If there is a master valve on the water source used to fill the reservoir, make sure that the master valve turns on when the zone runs.

Make sure that enough water remains in the reservoir below the depletion level to allow time for the controller to read the sensor and respond. The required quantity of reserved water will vary depending on the following factors:

- Whether the moisture sensor is connected over two-wire or conventional wire
- Whether water is being drawn from the reservoir while it is being filled
- The flow rate for the fill and the flow rate for the depletion (if applicable)