

# BaseStation 3200 Irrigation Controller Setting Up POC Priorities

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With Baseline's BaseStation 3200 irrigation controller, you can use water from multiple sources to run your irrigation programs. When an irrigation system is connected to multiple water sources, the water manager usually wants to use the water from each source in a prioritized manner – typically based on the cost of the water from each source.

The BaseStation 3200 controller supports 8 water sources – also known as points of connection or POCs. If you have flow devices and master valves associated with each water source, the controller can manage each one independently based on the priorities that you set up.

In order to draw water from separate sources based on priority, your piping structure must be designed so that your separate water sources feed into one mainline used by your programs and you must have a flow device such as Baseline's BHM series hydrometer with a normally closed master valve.

The BaseStation 3200 controller accommodates many ways of configuring the POCs and mainlines. For an explanation of the various scenarios, refer to [Understanding Points of Connection and Mainlines](#).

You can also configure the BaseStation 3200 irrigation controller to shut down watering based on the amount water left in a reservoir. Refer to the following documents:

[BaseStation 3200 – Stop Watering Based on a POC Empty Condition](#)

[BaseStation 3200 – Shutting Down Irrigation Due to Low Water in a Pond or Cistern](#)

## Overview of the Steps for Setting Up POC Priorities

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Step 1 – Install the flow devices.

Step 2 – Search for and assign the flow devices. (Optional, depending on whether you have flow devices in addition to master valves.)

Step 3 – Search for and assign the master valves.

Step 4 – Assign the master valves and flow devices to water sources.

Step 5 – Prioritize your POCs.

Step 6 – Assign water sources to a mainline.

Step 7 – Assign programs to mainlines.

Step 8 – Consider the mainline operating limits.

## Step 1 – Install the Flow Devices

Follow the instructions that came with your flow devices to install them in the proper locations for monitoring the flow from your water sources.

Create a diagram that shows your POCs by number and priority and the serial numbers of the associated flow devices.

## Step 2 – Search For and Assign the Flow Devices

The BaseStation 3200 supports up to 8 flow sensors or meters, which manage and monitor flow across a site as independent or connected hydraulic systems organized into mainline groupings.

In addition to finding flow biCoders, this search finds two-wire flow meters with integrated master valves.

1. On the BaseStation 3200 controller, turn the dial to the **Water Sources** position.
2. Press the **Next** or **Previous** button to select **Flow Meters Setup**, and then press the **Enter** button.
3. Press the **+** or **-** button to select **Search** in the Flow Meters column.
4. Press the **Enter** button to search for flow meters. The system lists the serial numbers of all flow meters that it finds.
5. Press the **+** or **-** button to select the flow meter that you want to enable.

Flow Meters	Water Sources
Flow Meters	Enable <input type="text" value="YES"/>
-	K-Value <input type="text" value="na"/>
Search	Offset <input type="text" value="-0.316"/>
00W0268	or <input type="text" value="35.3"/>
-	
-	
-	
Flow Device	
00W0268: POC 1	<input type="button" value="Help"/>

- Note:** By default, the flow device is assigned to POC 1. The next procedure explains how to change those settings.
6. Press the **Next** button to move to the **Enable** field. Press the **+** or **-** button to toggle the value in the field between **YES** and **NO**.
  7. Press the **Next** button to move to the **K-Value** field.

**Note:** The K-Value is a calibration factor for a flow device expressed in pulses per unit volume. The K-Value is used to calibrate the volumetric throughput of a flow device. Manufacturers give the K-Value (or K-Factor) of their flow device in the device specification.

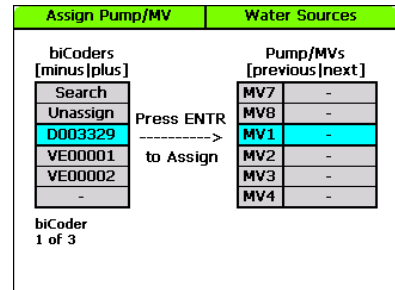
- If the device is a Baseline flow biCoder, the correct K-Value automatically displays in the field. Press the **+** or **-** button to change the K-Value if necessary.
  - If the device is not a Baseline flow biCoder, you need to enter the K-Value manually. Find the K-Value for the device in the manufacturer’s documentation, and then press the **+** or **-** button to enter the number in the K-Value field.
8. Press the **Next** button to move to the **Offset** field.

**Note:** The offset is a calibration factor for a flow device that compensates for limitations in the device’s ability to measure small signals adequately. Manufacturers give the maximum amount of offset associated with their flow device in the device specification.

- If the device is a Baseline flow biCoder, the correct offset automatically displays in the field. Press the + or – button to change the offset if necessary.
- If the device is not a Baseline flow biCoder, you need to enter the offset manually. Find the offset for the device in the manufacturer’s documentation, and then press the + or – button to enter the number in the Offset field.
- If the device does not have an offset value, you can enter the pulses per gallon in the **Pulses/GAL** field to provide the same compensation factor as the offset.

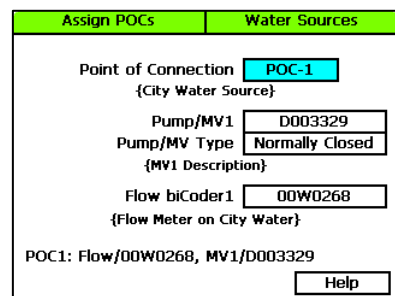
### Step 3 – Search For and Assign the Master Valves

1. Turn the dial to the **Water Sources** position.
2. The **Assign Decoders to Pumps/MVs** option should be highlighted in the box on the left. If it is not highlighted, press the **Next** button to highlight the option.
3. Press the **Enter** button. The Assign Pump/MV screen displays.
4. The **Search** option should be highlighted in the box on the left. If it is not highlighted, press the + or – button to highlight **Search**.
5. Press the **Enter** button. The system lists the serial numbers of all pump/MV devices that it finds.
6. Press the + or – button to highlight the serial number of the pump/MV device that you want to assign, and then press the **Enter** button. The serial number moves from the list on the left to an MV address row on the right.



### Step 4 – Assign the Master Valves and Flow Devices to Water Sources

1. Turn the dial to the **Water Sources** position.
2. Press the **Next** button to highlight the **Assign Devices to Water Sources** option.
3. Press the **Enter** button. The Assign POCs screen displays.
4. In the **Point of Connection** field, press the + or – button to select the POC that you want to assign devices to.
5. Press the **Next** button to move to the **Pump/MV** field, and then press the + button to find the device that you want to assign.
6. Press the **Next** button to move to the **Pump/MV Type** field, and then press the + button to select **Normally Closed**.
7. Press the **Next** button to move to the **Flow biCoder** field, and then press the + button to find the device that you want to assign.
8. When you have finished making changes, turn the dial to the RUN position.



## Step 5 – Prioritize Your POCs

With the flow device on the output from your reservoir, you can set up flow limits and budgets for this POC. The fields on the Setup POCs screen are described as follows:

- **POC Priority** – When you have multiple POCs on a mainline, the priority setting allows you to use the POC with the lowest cost of water first (high priority), but you can only set priorities when you have a normally closed master valve installed on the POCs. The system will use the high priority water source first, and then switch to medium, and finally to low.
- **Design Flow** – In this field, you can enter the specified gallons per minute (GPM) for the point of connection (POC) that supplies water through the flow device to the rest of the irrigation system. The BaseStation 3200 uses this value to manage the number of concurrent zones so that the water source is used as efficiently as possible. If you set this value to zero, you cannot use this GPM amount to control zone concurrency.
- **High Flow Limit** – The system uses the GPM value in this field as a critical limit. When this value is greater than zero, the system compares the limit against the measured reading from the flow device every minute. If the flow rate reading exceeds the limit for three or four minutes in a row, the system generates an alert.

If you set the Shut Down field to Y (yes), then programs using this POC will be stopped and corresponding master valves (MVs) will be shut off when the flow rate exceeds the limit.

- **Unscheduled Flow Limit** – When this limit is set to greater than zero, the system monitors the flow 24x7 for any flow that does not correspond to running programs.

If the flow exceeds the limit for several minutes, the system generates an alert. If you set the Shut Down field to Y (yes), then the associated MVs will turn off.

- **Monthly Budget** – When the value in this field is greater than zero, the system monitors the total water used during a single month.

If the monthly water used exceeds this number, an alert is generated. If you set the Shut Down field to Y (yes), then the associated MVs are shut off and water is stopped until the first of the next month.

If you do not have a moisture sensor or float switch on your POC, you can use the Monthly Budget setting with or without water rationing to stop drawing water from that POC and have the system switch to the next POC.

- **Water Rationing** – When you enable water rationing, the system determines the daily water ration by dividing the number of gallons in the Monthly Budget field by the number of days in the month. The system will use only the ration amount for daily watering. If a day is skipped, that water ration is available the next day.

## BaseStation 3200 – Setting Up POC Priorities

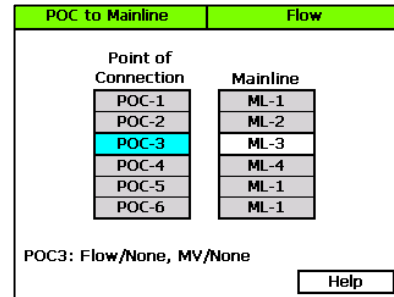
1. Turn the dial to the **Water Sources** position.
2. Press the **Next** button to highlight the **Water Sources (POCs) Setup** option.
3. Press the **Enter** button. The Setup POCs screen displays.
4. In the **Water Source** field, press the + button to select the POC that you want to set up.
5. Press the **Next** button to move to the **Use This POC** field, and then press the + button to set the field to **Enabled**.
6. Press the **Next** button to move to the **POC Priority** field, and then press the + or – button to set the priority as High, Medium, Low, or Off.
7. Press the **Next** button to move to the **Design Flow GPM** field, and then press the + or – button to enter the amount of flow in gallons per minute (GPM) that is allowed through this point of connection for the irrigation system.
8. Press the **Next** button to move to the **High Flow Limit GPM** field, and then press the + or – button to enter the maximum amount of flow in gallons per minute.
9. Press the **Next** button to move to the **Shut Down** field. If you want programs using this POC to be stopped and corresponding MVs shut off when the flow rate exceeds the limit, press the + button to enter a **Y** (yes) in the field. If you do not want excessive flow to shut down the system, enter an **N** (no) in the field.
10. Press the **Next** button to move to the **Unscheduled Flow Limit GPM** field, and then press the + or – button to enter the maximum amount of unscheduled flow in gallons per minute.
11. Press the **Next** button to move to the **Shut Down** field. If you want the associated MVs to turn off when an unscheduled flow exceeds this limit, press the + button to enter a **Y** (yes) in the field. If you do not want excessive flow to shut down the system, enter an **N** (no) in the field.
12. Press the **Next** button to move to the **Monthly Budget Gal** field, and then press the + or – button to enter the maximum amount of water that can be used per month in gallons.
13. Press the **Next** button to move to the **Shut Down** field. If you want the associated MVs to turn off when the amount of water used exceeds this limit, press the + button to enter a **Y** (yes) in the field. If you do not want excessive water use to shut down the system, enter an **N** (no) in the field.
14. Press the **Next** button to move to the **Water Rationing** field. To enable water rationing, press the + button to display **Enabled** in the field.

Setup POCs	Water Sources
Water Source	POC 1
Use This POC	Enabled
POC Priority	Medium
Design Flow GPM	1.00K
High Flow Limit GPM	1.00K
Unscheduled Flow GPM	50.0
Monthly Budget GAL	0.00
Water Rationing	Disabled
POC1: Flow/00W0268, MV/None	
POC Empty = Never	
<input type="button" value="Help"/>	

## Step 6 – Assign Water Sources to a Mainline

All water sources are automatically assigned to mainline #1, but you can change the settings to match your irrigation system’s watering topology.

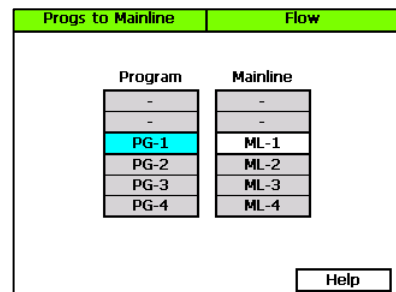
1. Turn the dial to the **Flow** position.
2. Press the **Next** button to highlight the **Assign Water Sources to Mainlines** option.
3. Press the **Enter** button. The POC to Mainline screen displays.
4. In the **Point of Connection** column, press the + or – button to highlight the POC that you want to assign to a mainline.
5. Press the **Next** button to move to the **Mainline** column, and then press the + or – button to highlight the mainline that you want to assign to that POC.
6. Press the **Previous** button to return to the **Point of Connection** column.
7. Repeat steps 4 - 6 until you have assigned all POCs to the corresponding mainlines.



## Step 7 – Assign Programs to Mainlines

The BaseStation 3200 supports 99 programs and 8 mainlines. By default, the mainlines are numbered in the controller from 1 – 8 regardless of whether your system has more than one. All programs are automatically assigned to mainline #1, but you can change the settings to match your irrigation system.

1. Turn the dial to the **Flow** position.
2. Press the **Next** button to highlight the **Assign Programs to Mainlines** option.
3. Press the **Enter** button. The Progs to Mainline screen displays.
4. In the **Program** column, press the + or – button to highlight the program that you want to assign to a mainline.
5. Press the **Next** button to move to the **Mainline** column, and then press the + or – button to highlight the mainline that you want to assign to that program.
6. Press the **Previous** button to return to the **Program** column.
7. Repeat steps 4 - 6 until you have assigned all programs to the corresponding mainlines.



## Step 8 – Consider the Mainline Operating Limits

After you have configured your POCs, devices, and priorities, you need to consider the mainline operating limits to ensure that your irrigation system behaves as expected.

To set up the mainline, turn the dial to the **Flow** position, and then press the **Next** button to highlight the **Setup Mainline Operating Limits** option.

- **Design Flow GPM** – This field is the flow rating for the mainline in gallons per minute (GPM). This flow is likely different from the design flow of the POC/flow device. When a mainline has multiple POCs with different capacities, the controller uses the constrained design flow to determine the actual available flow for watering.

For example, consider the following design flows:

Flow Device #1 = 50 GPM

Flow Device #2 = 75 GPM

Mainline #1 = 100 GPM

In the example, you might assume that the controller would use 100 GPM for managing zone concurrency. However, if flow device #2 is shut off because it is a lower priority, the controller uses 50 GPM for zone concurrency.

- **Pipe Fill Time** – This field represents the time that it takes to fill the pipe and achieve a steady flow rate after a valve change. The default value is 2 minutes, but you can set it to any value between 1 and 30 minutes. Zone changes are made at the top of the minute, and the zone is considered stable after the pipe fill time. One minute after the pipe fill time, a valid flow is calculated (over the last minute interval).
- **Concurrent Zones by Flow** – When you set up the design flow for the mainline and then set this field to YES, the controller will use the design flow of the individual zones (or learned flow) and will turn on zones that are waiting to water until their design flow is equal to or less than the available flow on the mainline.

For example, with 100 GPM available, the system can run three zones at 30 GPM and a fourth at 10 GPM at one time – later there may be two zones at 30 GPM and one at 20 GPM (the system cannot always hit 100 GPM exactly).

- **Flow Variance Settings**
  - **High Flow Variance Alarm** – You can set the high variance limit to Off or to any value between 1% and 100%. During normal program watering, the controller compares the sum of the design flow (or learned flow) from all running zones against the measured flow of the flow device (or the sum of all flow devices supplying water to the mainline). The measured flow may be higher or lower than the expected flow. When the ratio becomes greater than the variance, then an alarm is generated. For example, if the expected flow is 50 GPM, and the High Alarm variance is 25%, then the acceptable flow range is up to 55 GPM.

- **High Flow Shutdown** – Set this field to Y (yes) to have the system shut down when the high variance exceeds the limits. A high alarm prompts the system to determine the zone (or set of zones) that is causing the high flow variance. The currently running zones are marked as “suspects” and are shut off. The program continues to water with another set of zones and one of the suspect zones. If the variance is within limits, the zone will be marked as good and watering will continue. If the variance is out of limit, then the zone will be marked as a failure and shut down. This method allows watering to continue almost without interruption, while isolating the faulty zone or zones.
- **Low Flow Variance Alarm** – You can set the low variance limit to Off or from 1% to 100%. During normal program watering, the controller compares the sum of the design flow (or learned flow) from all running zones against the measured flow of the flow device (or the sum of all flow devices supplying water to the mainline). The measured flow may be higher or lower than the expected flow. When the ratio becomes greater than the variance, then an alarm is generated. For example, if the expected flow is 50 GPM, and the Low Alarm variance is 25%, then the acceptable flow range is down to 45 GPM.
- **Low Flow Shutdown** – Set this field to Y (yes) to have the system shut down when the low variance exceeds the limits. A low alarm prompts the system to determine the zone (or set of zones) that is causing the low flow variance. The currently running zones are marked as “suspects” and are shut off. The program continues to water with another set of zones and one of the suspect zones. If the variance is within limits, the zone will be marked as good and watering will continue. If the variance is out of limit, then the zone will be marked as a failure and shut down. This method allows watering to continue almost without interruption, while isolating the faulty zone or zones.