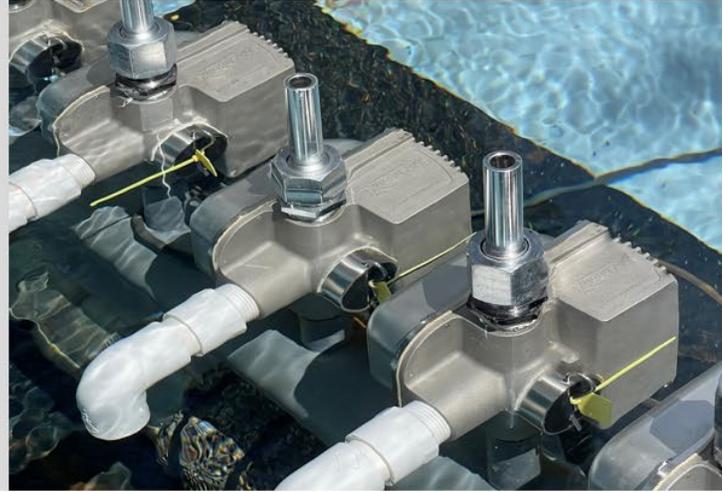


SplashBotix SplashValve

Fast-acting proportional flow control technology designed to enable the next generation of aquatic features and installations.



SplashBotix SplashValve RDM Guide

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SplashValve
Diverter Valve

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About this Guide

The SplashValve is a high-performance fountain device. The device offers extensive RDM functionality and RDM customization, even for the most demanding fountain show applications. However, adjustments to some of the extended RDM PIDs should be made with caution. It is highly recommended you consult the factory with any specific questions you may have about these settings.

Most applications require only the “Basic settings” or “Basic Info” settings area. This settings menu allows the user to set the DMX address and find product information about their SplashValve unit(s).

For assistance navigating these basic settings, please find below a comprehensive overview of the settings menu and the recommended settings for each settings area.

Device ID Button

Enabling the device identification button will cause the SplashValve to cycle bypass to effect and back continuously, allowing the user to find it, among other units, once installed. SplashValve will ignore DMX commands while in “ident mode”.

RESTORE TO FACTORY DEFAULTS Button

This allows the user to set all settings back to factory defaults. In the event changes to the RDM setting have been made in error, this will set all settings back to the factory default settings.

Note: this will clear ALL user settings. Attention should be paid to the specific settings the user wishes to keep, and these settings should be carefully documented, as this operation will revert all settings back to default.

If the device is in Turbo Mode, then it resets the gains and speeds to Turbo defaults; otherwise, they are reset to standard defaults. The factory defaults settings area does not reset the following:

- Device Model Description
- Manufacturer
- Device Label
- Positive Hard Stop
- Negative Hard Stop
- Terminating Resistor State

- Device Address
- Software Version
- RDM UID number

RDM Settings

DMX address

This is the start address for DMX control. This can be set from 1 to 512 and does not support multi-universe addressing.

Nozzle Curve Coefficient 0

This is a non-linear curve defined for a particular nozzle type to create a linear response to the 0 to 255 DMX channel value. Consult factory when needing a custom curve characteristic. This valve should be left set to factory values by default.

Nozzle Curve Coefficient 1

This is a non-linear curve defined for a particular nozzle type to create a linear response to the 0 to 255 DMX channel value. Consult factory when needing a custom curve characteristic. This valve should be left set to factory values by default.

Nozzle Curve Coefficient 2

This is a non-linear curve defined for a particular nozzle type to create a linear response to the 0 to 255 DMX channel value. Consult factory when needing a custom curve characteristic. This valve should be left set to factory values by default.

Nozzle Curve Coefficient 3

This is a non-linear curve defined for a particular nozzle type to create a linear response to the 0 to 255 DMX channel value. Consult factory when needing a custom curve characteristic. This valve should be left set to factory values by default.

Nozzle Curve Coefficient 4

This is a non-linear curve defined for a particular nozzle type to create a linear response to the 0 to 255 DMX channel value. Consult factory when needing a custom curve characteristic. This valve should be left set to factory values by default.

Nozzle Curve Coefficient 5

This is a non-linear curve defined for a particular nozzle type to create a linear response to the 0 to 255 DMX channel value. Consult factory when needing a custom curve characteristic. This valve should be left set to factory values by default.

Nozzle Trim Minimum

This setting allows the user to set the lowest nozzle water height. This value can be set from 0 to Nozzle Trim Maximum. The DMX “dimmer” channel is automatically scaled between this value and the Nozzle Trim Maximum.

Nozzle Trim Maximum

This setting allows the user to set the highest nozzle water height. This value can be set from Nozzle Trim Minimum to 255. The DMX “dimmer” channel is automatically scaled between the Nozzle Trim Minimum and this value. This function replaces the need for a manual nozzle trim valve, typically located just before the nozzle, allowing a water feature to be “balanced” via RDM.

Stepper Maximum Acceleration

This setting adjusts the rate at which the SplashValve reacts to the change in DMX command. This should generally be left to the factory value unless a specific water effect requires a faster reaction time. Increasing this value can adversely affect the “smoothness” of the water effect. This value is set via RDM and cannot be dynamically adjusted via DMX during a programmed water feature show. Consult the factory when adjusting this value for more information as correct adjustment depends on your specific installation. Setting range is 5 to 200000 x 0.1 RPM/Second

Stepper Maximum Velocity

This setting adjusts the maximum rate at which SplashValve reacts to the change in DMX command. This should normally be left to the factory value unless a specific water effect requires a faster reaction time. Increasing this value can adversely affect the “smoothness” of the water effect. This value is set via RDM and cannot be dynamically adjusted via DMX during a programmed water feature show. Consult the factory when adjusting this value for more information as correct adjustment depends on your specific installation. The setting range is 10 to 12000 x 0.1 RPM.

Stepper Maximum Current

This setting adjusts the maximum current in amperes supplied to the SplashValve. This changes how each unit reacts to the change in DMX command. This should normally be left to the factory value unless a specific water effect requires a faster reaction time. Increasing this value can adversely affect the “smoothness” of the water effect and how much power is used by each unit. This value is set via RDM and cannot be dynamically adjusted via DMX during a programmed water feature show. Consult the factory when adjusting this value for more information as correct adjustment depends on your specific installation. The setting range is 0 to 2700 milliamps.

Stepper Homing Option

This setting determines whether the SplashValve is “homed” at each power cycle (=1) or if it no longer “homes” when power is cycled (=0). For most installations, SplashValve should be homed once prior to show programming. Once a home routine is completed, this value should be set to “0” to prevent re-homing on power cycles. Consult factory for questions related to your specific installation. Supply pumps should be off and at zero flow during the homing process. Do not “home” while supply pumps

are in operation as this could adversely affect the homing process. Homing on every power cycle could result in varied nozzle heights during show operation.

Stepper Homing Velocity

This setting determines the speed at which the SplashValve is “homed”. This value should be left at the factory setting. Consult the factory for questions related to your specific installation prior to changing this value.

Stepper Homing Current

This setting determines the motor current used when the SplashValve is “homed”, changing its torque. This value should be left at the factory setting. Consult the factory for questions related to your specific installation prior to changing this value.

Position Loop Int Gain, Position Loop Der Gain, Serial Port Debug Flags, Encoder Feedback Type, SplashValve Control Word

These values are to be set and utilized only by the factory. These values should never be adjusted by the user.

Valve Closed Offset

This setting is a fine tune adjustment of the valve’s full closed (bypass) position. This is normally set to the factory setting but can be adjusted to precisely adjust the bypass positioning. Consult the factory for questions related to your specific installation prior to changing this value.

Valve Open Offset

This setting is a fine tune adjustment of the valve full open (effect) position. This is normally set to the factory setting but can be adjusted to precisely adjust the full open positioning. Consult the factory for questions related to your specific installation prior to changing this value.

Idle Current Time

This setting is the amount of time when no movement or DMX commands have been sent allowing the SplashValve current to return to “Idle” level rather than the value set by Stepper Maximum Current. The default setting is 15000ms. The allowable range of this setting is 400ms to 120000ms. Consult the factory for questions related to your specific installation prior to changing this value.

Valve Control Mode

This value is not to be changed, and should be utilized only by the factory. These values should never be adjusted by the user.

Enable Turbo Mode

A value of '1' loads the factory default Turbo mode gains on the valve. A value of '0' loads the standard gains on the valve. For most applications, standard mode should be used as these settings are more robust to environmental inconsistencies such as grit and debris than the turbo mode settings.

Enabling Terminating Resistor

A value of '1' enables the on board terminating resistor. This should be done on the last valve in a long a multi-drop DMX network. A value of '0' disables the terminating resistor.

DMX Loss Valve Position

This value determines what position the valve will move to in the event of a network loss. The value ranges from 0% of full scale or full bypass mode to 100% of full scale or fully open. This can be used to set the valves at a predetermined height when no show controller is attached to the system.

DMX Flicker Window

This setting allows the user to adjust for poor DMX network conditions by allowing the SplashValve to ignore minor amounts of network "flicker" and for generating a smooth motion profile through the incoming points. A setting of 0 disables this feature. If enabled with a greater than zero setpoint, this value can be adjusted from 1 to 6 DMX frames. The higher this setpoint the greater the latency to DMX command. This setting is normally set to 2. Consult the factory for questions related to your specific installation prior to changing this value.

Sensors

Via RDM, SplashValve can transmit two sensors.

Sensor#1 is "spool valve position" which is the angle of rotation of the SplashValve spool in relation to the commanded DMX signal. SplashValve spool rotation will be between 0 and 90 degrees.

(Provided trim points are set to 0 and 255)

- 0 DEGREES =0 DMX command channel value.
- 90 DEGREES =255 DMX command channel value.
- 45 DEGREES =127/128 DMX command channel value.

NOTE: The 0~255 DMX command signal is automatically scaled between all the min and max trim levels. Thus, the position of the spool angle will change relative to the commanded DMX based on trim positions. For example, if the trims have removed 10 degrees of rotation and 5 degrees at the upper and lower limit, then a DMX command signal of 127 would equal roughly 40 degrees.

Sensor#2 is "board temperature", which reports the temperature of the SplashValve controller. These sensors are normally not used but are for purposes of debug reporting system status.

- Normal operational temperature = ~55 °C