

# LMV-3

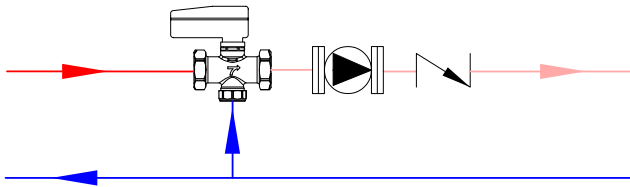
## LEGEND MIXING VALVE

### Introduction

The Legend 3-way mixing valve, LMV-3, is designed for use in hydronic heating and cooling systems. This valve is designed to provide a desired system fluid temperature by mixing fluid at a higher temperature from the heat source (typically a boiler) with fluid at a lower temperature returning from the heating zone. For cooling applications it can be installed to mix cooler fluid from the chiller (or other cooling water sources) with warmer fluid returning from the zones to achieve the desired system chilled fluid temperature.

The desired fluid mixed temperature can be controlled for any particular application with the LMV-3 by pairing it with one of two actuators also available from Legend: The 24 V Floating model (p/n 800-720) which requires an external controller, or a Stand Alone model (p/n 800-721) that operates on its own.

The Legend 3-way mixing valve, LMV-3, should always be installed between the heat source (in a heating system) or chilled source (in a cooling system) and the device(s) that require(s) the mixed water temperature. In addition to the position of the valve, a circulator pump is required. The circulator must be pumping away from the LMV-3 on the blended water port, providing flow out to the portion of the system that requires the controlled water temperature (See Flow Diagram). The LMV-3 mixing valve must be paired with one of eight LegendConnect™ system adaptors available for it. The LegendConnect™ adaptors are used on the larger "run" connections on the LMV-3 mixing valve and the by-pass port is a 1" compression connection.



**Pictured:**  
Flow Diagram

- A. Installation / Assembly of the Valve
- B. By-pass Port
- C. Actuator Mounting
- D. Wiring

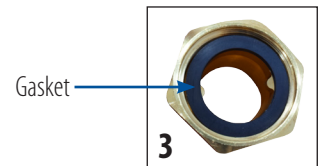
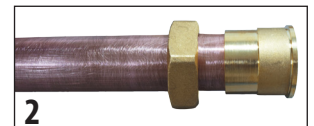
### A. Installation / Assembly

1. To install the LMV-3 Mixing Valve, remove the Union Nut and EPDM Gasket from both sides and set them aside. **(1)**
2. Install the system pipe into the selected LegendConnect™ adaptor using standard piping practices. (For more detailed instructions on installing the LegendConnect™ adaptors, please review the LegendConnect™ Installation Manual.)
3. After the system piping is connected to the LegendConnect™ adaptor, take the union nut that was removed in step 1, and slide it over the system pipe. **(2)**
4. Insert the EPDM gasket that was removed in step 1 into the union nut, **(3)** and loosely snug it to the LMV-3 Mixing Valve. **Note:** The LMV-3 Mixing Valve has a specific flow pattern, so be aware of this prior to installing the valve into the system. Repeat steps 2 thru 4 for the other side.
5. After both sides of the valve are connected to the system piping, position the valve upside down and hand tighten the union nuts. **(4)**

## Installation Guide



**Pictured:**  
LMV-3 with LegendConnect™ Adapters



Gasket



# Installation Guide

## LMV-3

### LEGEND MIXING VALVE

#### B. By-pass Port

Once the LMV-3 mixing valve has been mounted, the by-pass line can be connected to it. The by-pass line is a Compression type fitting for 1" rigid copper tube (Type K, L or M) only. Connect as follows:

1. Before you insert pipe into the by-pass connection, the Reducing Ring must be installed. This should have shipped loose in the box with the LMV-3 valve. **(5)** Insert the Reducing Ring into the by-pass port, with the O-ring side going in first, pushing it all the way in until it seats into the body of the valve. **(6)**
2. Using a permanent marker, make a visual reference point and mark the tubing 1" from the end of the pipe that will be inserted into the LMV-3 Mixing valve. **(7)**
3. Slide the Compression nut and Compression Ring over the end of the 1" copper pipe that is being used for the by-pass line.
4. Insert the 1" copper pipe into the by-pass port and push the Reducing Ring all the way in.
5. Slide the Compression Sleeve and Nut up to the valve and hand tighten it to the valve.
6. Using a wrench, fully tighten the compression nut onto the by-pass port. Inspect the pipe to sure that the visual reference point created in Step 2, is very close to the Compression Nut. **(8)**
7. Rotate the LMV-3 to the desired mounting position and use a wrench to tighten the union nuts. Typically no more than 1/4 turn past hand tight is required. **(9)**
8. Finish plumbing the by-pass piping to the system.

#### C. Actuator Mounting

There are two motorized actuators from Legend for the LMV-3 Mixing valve. The model 800-720 is a floating point actuator that must be wired and controlled with a 24V Floating Output controller. The model 800-721 is a Stand-Alone actuator that has an On-board controller and built in sensor bulb to monitor the delivered supply temperature.

To mount one of these actuators:

1. Remove the blue handle that was supplied with the LMV-3 Mixing Valve, by turning it counter-clockwise. **(10)**
2. Put the blue handle in a safe place in case it is needed in the future.
3. Put the selected motorized actuator in position on top of the LMV-3 Mixing Valve. **(11)**
4. Turn the brass retaining ring clockwise until tight. **(12)**
5. It is not necessary to tighten the brass retaining ring with a wrench, hand tight is sufficient

#### D. Wiring

##### 24V Floating - P/N 800-761

1. Requires a supply voltage of 24 VAC.
2. Needs to be connected to a 24 V floating output controller.
3. Electrical connections are as follows
  - Brown - Drive up to allow additional mixing.
  - Green - Drive down to reduce the amount of mixing
  - White - Common

##### Stand Alone - P/N 800-762

1. Requires supply voltage of 24 VAC.
2. Electrical connections are as follows
  - Brown - 24 V Supply Power
  - Gray - 24 V Supply Power
3. The remaining wires are not used.

