

Honeywell

SV2 Series Valves Mixing Units

V2MUxxxx-0x0



INTRODUCTION

This document provides installation instructions and tubing connection information for the Honeywell SV2 Series Premix valves V2MU Series Mixing units.

Other applicable publications are:

- 32-00018, SV2 Series Installation Instructions
- 32-00029, SV2 Series User Manual
- 32-00030, HMI Tool Installation Instructions
- 32-00031, HMI/PC Tool User Manual
- 32-00037, PC Tool Installation Instructions
- 32-00180, Premix Accessories Installation Instructions

SPECIFICATIONS

Pressure Feedback Connections:

Set of 3 on each side to accommodate different mountings

- 2 x gas pressure "A"
- 2 x reference pressure "B"
- 3 x air pressure "C"

Preferred Pulse Line Materials and Dimensions:

- Air pressure line: Aluminum or Stainless steel, $\varnothing 8 \times 1$ mm
 - Gas pressure line: Polyethylene, $\varnothing 8 \times 1.25$ mm
 - Reference pressure line: Aluminum or Stainless steel, $\varnothing 8 \times 1$ mm
- Fittings should not restrict the inner preferred pulse line diameter

INSTALLATION INSTRUCTIONS

EDITION 07.19 · 32-00044E-05 · EN

NOTE: Fittings and tubing must be ordered separately due to the variety of possible appliance configurations.

Accessory Kits:

Tubing kit part numbers:

- Plastic V2MUTUBEPL-000B
- Metal V2MUTUBEAL-000B (1000mm/39.4 in long)

Fitting kit part numbers for plastic tubing only:

- Straight V2MUFITPLSTR-000B
- 90 Degree Swivel V2MUFITPL90D-000B
- Tee Swivel V2MUFITPLTEE-000B

Fitting kit part numbers for metal tubing only:

- Straight V2MUFITMESTR-000B
- 90 Degree Swivel V2MUFITME90D-000B
- Passive heat exchanger kit: HEATEXCHANGER-000
- Pre-filter replacement: FARMODFILTER-000B

NOTE: Metal pulse line kits come with straight tubing that can be formed to specific application needs by the customer.

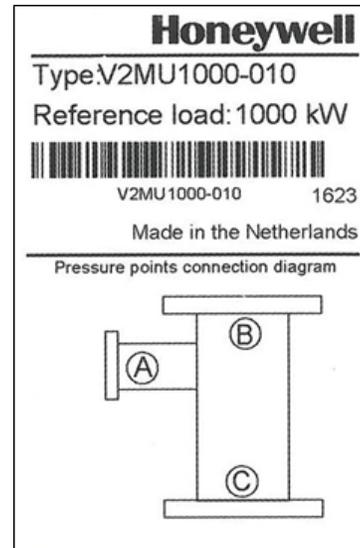


Fig. 1. Pressure pickup point connections on label..

When Installing This Product...

1. Read these instructions and the appropriate product literature carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Installer must be a trained, experienced combustion service technician.
3. Check the ratings on the product to make sure the product is suitable for your application.
4. After installation is complete, carry out a thorough checkout of product operation as laid out in this document and documents 32-00018 (SV2 Series safety shut-off valve Installation Instructions) and 32-00040 (FARMOD Installation Instructions).

INSTALLATION CONSIDERATIONS

IMPORTANT:

- The fittings selected by Honeywell from specific brands and types assure free sample flow to and from the SV2 Series fuel/air ratio premix valve.
- If any other fittings are used, the sample flow to and from the valve can easily get obstructed and affect the combustion quality.
- For this reason it is strongly recommended to use the fittings selected by Honeywell.
- The Honeywell fittings for metal tubing are suitable for either aluminum or stainless steel tubing.

NOTE: Aluminum tubing shall preferably fulfill the following requirements to mate with the recommended fittings:

- Diameter and wall thickness: 8 x 1 mm.
- Dimensions and tolerances according DIN EN754-7/8.
- Material AW6063 according DIN EN573.
- Tempering T832 according DIN EN515.
- Mechanical properties according DIN EN754-2.

Extension Piping

NOTE: For optimal fuel/air ratio performance, it is recommended to assemble an extension pipe between the V2V gas valve and V2MU Mixing Unit as indicated in Table 1. Alternatively, a 90-degree elbow with an inner diameter as specified in the table can be used.

| Mixing Unit Part Number | Gas Extension Pipe Minimum Length [mm / in] | Gas Elbow Inner Diameter [mm / in] |
|----------------------------------|---------------------------------------------|------------------------------------|
| V2MU0300 | 222 / 8.7 | 44.3 / 1.74 |
| V2MU0500 V2MU0800 V2MU1000 | 330 / 13.0 | 66.0 / 2.60 |
| V2MU2000 | 425 / 16.7 | 84.9 / 3.34 |

Table 1. Minimum piping length between V2MU mixing units and SV2 Series valve.

NOTES:

- If a manual safety shut-off valve is assembled between the gas valve and the Mixing Unit, the MSOV length can be subtracted from the minimum recommended lengths in Table 1.
- If the V2MU2000 is assembled directly to the valve, remove the valve's factory supplied outlet O-ring and mount the V2MU2000 using its factory supplied O-ring in the flange of the V2MU2000 for sealing purposes.
- Shorter pipe lengths may be possible but must be tested to ensure acceptable performance.

| Mixing Unit Part Number | M5 x 14 mm | M8 x 16 mm | M8 x 20 mm | Nut (M8) | Washer |
|----------------------------------|------------|------------|------------|----------|--------|
| V2MU0300 | 4 | -- | -- | -- | -- |
| V2MU0500 V2MU0800 V2MU1000 | -- | 4 | -- | 4 | 4 |
| V2MU2000 | -- | -- | 4 | 4 | -- |

Table 2. Provided fastening materials.

Pulse Line Assembly

IMPORTANT

- The Fuel/Air Ratio Module operates properly only if the pulse line fittings are properly tightened and the flow through the pulse lines is un-obstructed.
 - Recommended tightening torque for all fittings is 6 ± 1.2 Nm (53.1 ± 10.6 in-lbf).
 - To assemble the aluminum tube and fitting, first tap the reinforcing sleeve into the tube (with the smooth side of the sleeve ahead). Then fit the tube into the fitting and tighten the nut until you can feel a contact. Finally tighten with 1.5 turns of the nut.
 - Proper measures shall be taken to ensure the pulse lines are not twisted or kinked during connection and that they can't be unintentionally kinked after the installation has been taken into operation.
 - Protect pulse lines against damage and keep the lines free from any contact to potential vibrating surfaces.
- In all cases, avoid creating a siphon-like shape.
- A wide variety of pulse line slopes and shapes may be needed to fit into a particular appliance; best engineering practice would be '1/2 bubble' on a level (1/4 inch of drop per 1 foot of run or about 6 mm drop per 0.31 m of run). However, practical limitations may require some deviation from it. Please consult Honeywell Thermal Solutions with your particular geometrical arrangement if in doubt.

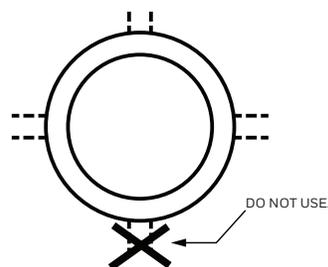


Fig. 2. V2MU mixing unit pulse line connections.

IMPORTANT (Refer to Fig. 2)

- To avoid condensate from a backdraft entering any pulse line of the Fuel/Air Ratio Module, downwards pointing pressure tabs on the V2MU mixing unit or any other device shall not be used.
- Partial blockage of the air intake of the V2MU mixing unit can potentially influence the air pressure signal to the valve.
 - Proper measures shall be taken to avoid a partial air intake blockage of the V2MU mixing unit. Inspection of the V2MU air intake shall be part of the annual maintenance of the appliance.

NOTE: If the appliance is equipped with a sealed air chamber and the SV2 Series valve with FARMOD (Fuel/Air Ratio Module) is contained in the sealed chamber, it is allowed to not use the air pressure pulse line.

Air Pre-Filter

The air pre-filter is included with every premix valve and is available as a field replacement part as well. The air pre-filter **MUST** be installed in every premix system, regardless of whether the Heat Exchanger is used.

The filter must be mounted between the V2MU mixing unit and the valve FARMOD in the air pulse line.

NOTES:

- Due to the variety of possible appliance configurations, the fittings and tubing must be ordered separately.
- The customer must furnish an appropriate filter mounting bracket for their chosen location.

IMPORTANT

- The filter should be mounted as close to the valve FARMOD as possible.
- Replacement of the filter shall be included in the annual appliance maintenance procedures.

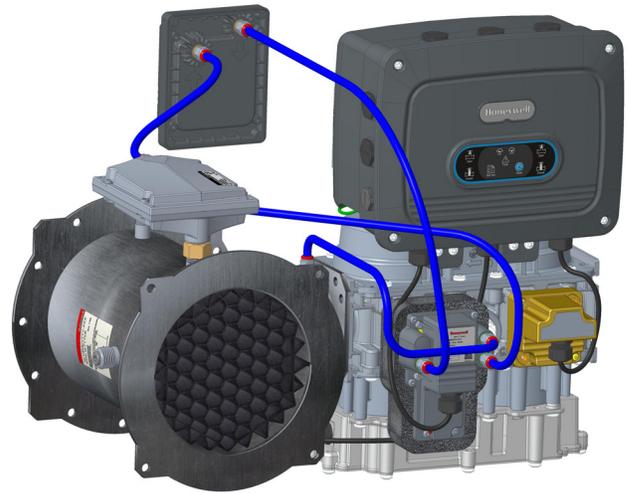
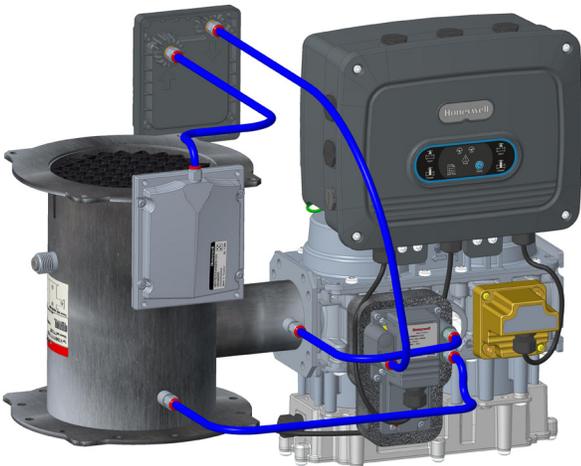


Fig. 3. Pre-Filter installation.

Outdoor Air Installations**! WARNING**

Direct water ingress (from mist, rain, or pressure wash, for example) into the pulse lines should be avoided or prevented.

IMPORTANT

- When the valve is installed in an area with a temperature continuously lower than the combustion air intake temperature, a risk of condensate formation in the air pulse line is present, which can affect the fuel/air ratio control, depending on the appliance and permanently damage the FARMOD and the system.
- In this case it is strongly recommended to install the Honeywell SV2 Series HEATEXCHANGER-000 kit for a complete condensation/dehumidification solution to avoid permanent damage to the FARMOD and the system.
- When using the Honeywell HEATEXCHANGER-000 kit, the valve + FARMOD may be installed above or below the mixing unit + Heat Exchanger, but above is preferred.
- If the potential for condensation exists and the full Honeywell dehumidification system is not used, Honeywell cannot provide any guidance regarding the valve/FARMOD position versus the mixing unit because this configuration has not been designed or tested.
- To prevent condensation formation due to backdraft, it is recommended to purge the application after each burner operation.
- If there is never a risk of condensation, meaning the ambient room temperature is above the combustion air dew point at all times, the SV2 Series Heat Exchanger kit is not necessary. In this case the valve + FARMOD can be mounted above or below the mixing unit.

NOTES:

- Refer to the Premix Accessories installation instructions, document 32-00180, which is available online and shipped with every Heat Exchanger.
- The Heat Exchanger and the filter must be mounted between the V2MU mixing unit and the FARMOD in the air pulse line, with the Heat Exchanger first and the filter mounted as close to the FARMOD as possible.

INSTALLATION

WARNING

Explosion or Fire Hazard

Can cause severe injury, death, or property damage.

- Turn off gas supply before starting installation.
- Disconnect power supplies before beginning installation.
- More than one disconnect can be involved.

IMPORTANT

Ensure that the pick-up points used are never on the bottom side of the mixing unit to avoid condensate entering / blocking the signal tubes.

Assemble the Mixing unit as follows:

1. Ensure that line voltage has been removed from the appliance.
2. Place fan O-ring (provided by fan manufacturer) in the fan groove.
3. Align the Mixing Unit to the fan, ensuring the end WITHOUT honeycomb interfaces with it.

4. Attach the Mixing Unit to the fan using 6 appropriate screws (not provided).
5. Assemble the extension pipe/elbow/MSOV between the V2V gas valve and the V2MU Mixing Unit according to Table 1 (not provided).
6. Assemble the SV2 Series gas valve to the Mixing Unit or extension piping/elbow/MSOV (if applicable) using 4 bolts, nuts and washers according to Table 2. (provided with Mixing Unit).
 - a. For the V2MU0300, the bolts may be directly screwed into the valve body.
 - b. For the V2MU0500, V2MU0800 and V2MU1000, either the nut or bolt head can be assembled into the gas valve slots.
 - c. If the V2MU2000 is assembled directly to the valve, remove the valve's factory supplied outlet O-ring and mount the V2MU2000 using its factory supplied O-ring in the flange of the V2MU2000 for sealing purposes.
7. Take out 1 set of plugs (1 x "A", 1 x "B", 1 x "C") from the Mixing Unit and mount 3 x the tube connection fittings. The recommended tightening torque is 1.5 Nm (13.3 in-lbf).

NOTES:

- **DO NOT connect the fittings on the bottom side of the Mixing Unit!**
 - **Parts from the feedback tubing kits may be used (refer to page 1).**
8. Create the tubing connections between the Mixing Unit and the SV2 Series gas valve. Connect "A" to "A", "B" to "B" and "C" to "C". Refer to Fig. 1.

For more information on this product and the entire SV2 Series product line, please refer to the SV2 Series User Guide located on our website at <https://combustion.honeywell.com/sv2>

For More Information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschröder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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