

## SV2 Series Valve Fuel Air Ratio Modules

FARMODxx-000

### INSTALLATION INSTRUCTIONS



### INTRODUCTION

This document provides installation instructions and wiring information for the Honeywell SV2 Series valves Fuel Air Ratio Modules. Other applicable publications are:

- 32-00017, Pressure Module Installation Instructions
- 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

### SPECIFICATIONS

#### Dimensions:

Refer to Fig. 1.

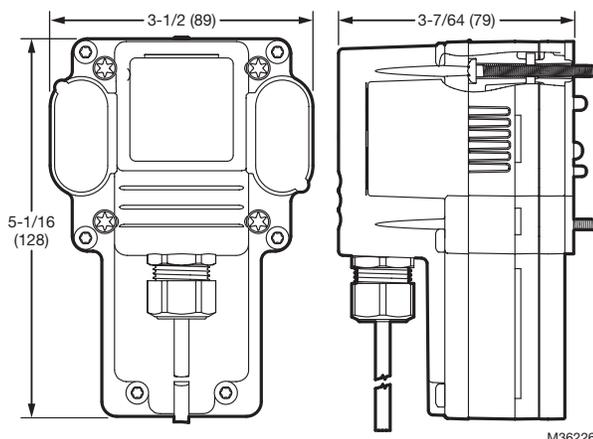


Fig. 1. C6097

#### Environmental Ratings:

NEMA 1 / IP20 or NEMA 4 / IP66

#### Operating Temperature Range:

NEMA 1 / IP20 versions: +5°F to 150°F / -15°C to 65°C  
NEMA 4 / IP66 versions: +5°F to 150°F / -15°C to 65°C

#### Contact Ratings:

The Fuel Air Ratio Module does not contain any contact connections.

### 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. Do not exceed the ratings on the Fuel Air Ratio Module.
4. After installation is complete, carry out a thorough checkout of product operation as laid out in this document and document 32-00018 (SV2 Series safety shut-off valve Installation Instructions).



## FUEL AIR RATIO MODULE SELECTION

The Fuel Air Ratio Module in this package is intended as a field replacement for the Fuel Air Ratio Module of the SV2 Series V2V or V2P valves.

The Fuel Air Ratio Modules can be mounted in position B and D on the valve body only and are keyed for a specific mounting orientation. When replacing the Fuel Air Module in the field, ensure that it is placed in the exact same location as the original.

Cord length of each Fuel Air Ratio Module differs per part number model. See Table 1 for the appropriate Fuel Air Ratio Module.

Fuel Air Ratio Module	Enclosure Rating	Valve Size	Valve Models	Valve Function
FARMOD14-xxx	NEMA1 / IP20	DN20 (3/4 in.)	V2VxAx1/2...	Premix
		DN25 (1.0 in.)	V2VxBx1/2...	Premix
FARMOD44-xxx <sup>1</sup>	NEMA 4 / IP66	DN20 (3/4 in.)	V2VxAx3/4...	Premix
		DN25 (1.0 in.)	V2VxBx3/4...	Premix
		DN40 (1-1/2 in.)	V2VxCx3/4...	Premix
		DN50 (2.0 in.)	V2VxDx3/4...	Premix
FARMOD1x-xxx	NEMA1 / IP20	DN20 (3/4 in.)	V2PxAx1/2...	Fuel Air Proportional
		DN25 (1.0 in.)	V2PxBx1/2...	Fuel Air Proportional
FARMOD4x-xxx <sup>1</sup>	NEMA 4 / IP66	DN20 (3/4 in.)	V2PxAx3/4...	Fuel Air Proportional
		DN25 (1.0 in.)	V2PxBx3/4...	Fuel Air Proportional
		DN40 (1-1/2 in.)	V2PxCx3/4...	Fuel Air Proportional
		DN50 (2.0 in.)	V2PxDx3/4...	Fuel Air Proportional

1. On smaller valve sizes, the extra cord length may be placed inside the electronics enclosure.

Table 1. Fuel Air Ratio Module selection.

## 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.

### WARNING

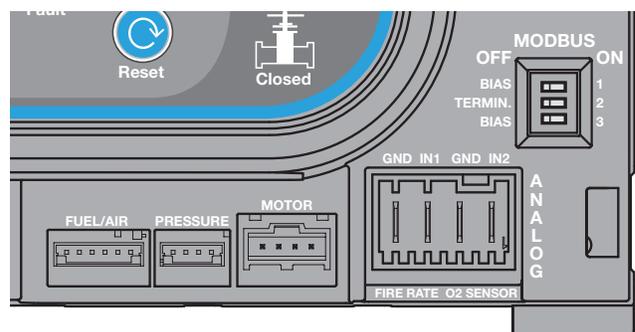
**Electric Shock Hazard**  
Can cause serious personal injury or death.

- Disconnect power supply before beginning installation.
- More than one disconnection can be involved.

### Disassembly of Original FARMOD

If applicable, remove the original Fuel Air Ratio Module from the valve following the instructions below.

1. Ensure that the line Voltage has been removed from the valve.
2. Take care that dirt does not enter the gas valve or pulse lines during handling.
3. Remove the valve front electrical enclosure retaining screws with the appropriate tool to access the customer wiring terminals.
4. Disconnect the Fuel Air Ratio Module connector from the socket inside main valve electrical enclosure labeled 'FUEL/AIR'. Refer to Fig. 2.



MCR36227

Fig. 2. Fuel Air Ratio Module connector location.

5. Loosening of FARMOD wiring.
    - a. For NEMA 4 / IP66 electrical enclosures, loosen and remove the cord grip to release the FARMOD wiring from the valve electronics enclosure, leaving the nut in place inside the electrical enclosure.
    - b. For NEMA 1 / IP 20 valve electrical enclosures cut any existing tie wrap to release the FARMOD wiring from the valve electrical enclosure.
  6. Remove the FARMOD wiring from the valve electrical enclosure.
  7. Disconnect the pulse lines from Port A, B and C as indicated in Fig. 3 if applicable.
  8. Remove the four (4) torx screws as shown in Fig. 3 and completely remove the Fuel Air Ratio Module from the valve.
4. Attach the Fuel Air Ratio Module to the valve body using the four (4) screws provided (M4x40). Verify the Fuel Air Ratio Module is flush against the casting and the Insulation Gasket is in place. The maximum tightening torque is  $2 \pm 0.2$  Nm ( $18 \pm 2$  in-lbf).
  5. Inspect/clean the sealing and mating seal surfaces and assemble the appropriate pulse line fittings to Port A, B and C if applicable. Follow the instructions of your fitting manufacturer for maximum tightening torques. The maximum tightening torque shall not exceed 9 Nm (80 in-lbf).
  6. Attach the pulse lines to the pulse line fittings, following the instructions of the burner or boiler manufacturer. Attach each pulse line to its corresponding fitting on the mixing unit or burner.

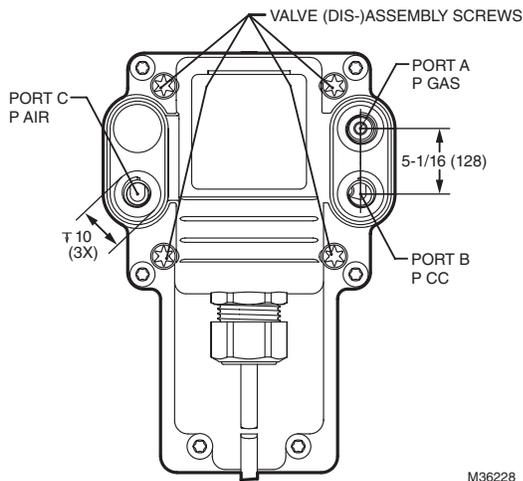


Fig. 3. Fuel Air Ratio Module pulse line connections

## Fuel Air Ratio Module Wiring

### IMPORTANT

Connect Fuel Air Ratio Module wire terminating connector to the appropriate socket inside main valve electrical enclosure labeled 'FUEL/AIR.'

1. Remove the valve front electrical enclosure retaining screws with the appropriate tool to access the customer wiring terminals.
2. For NEMA 4 / IP66 electrical enclosures, use the cable entry point just above the Fuel Air Ratio Module location.
  - a. Thread the Fuel Air Ratio Module connector end through the valve electrical enclosure hole and retained nut from the disassembly of the original FARMOD.
  - b. Insert the terminating connector in the slot labeled 'FUEL/AIR'. Refer to Fig. 2.
  - c. Thread extra cable length inside electrical enclosure as desired. Insert the Fuel Air Ratio Module threaded cord grip into the hole and tighten, using the retained nut. The maximum tightening torque is  $3.95 \pm 0.25$  Nm ( $35.5 \pm 2.5$  in-lbf).
3. For NEMA 1 / IP 20 valve electrical enclosures thread the Fuel Air Ratio Module connector end through the slot in the bottom center of the electrical enclosure.
  - a. Insert the termination connector in the slot labeled 'FUEL/AIR'. Refer to Fig. 2.
  - b. Thread extra cable length inside electrical enclosure as desired and dress the cable to one of the provided wire clips on the bottom of the electrical enclosure.
4. Replace the front electrical enclosure and tighten the screws if electrical wiring is complete. Maximum tightening torque  $1.4 \pm 0.14$  Nm ( $12.32 \pm 1.32$  in-lbf).
5. Restore line voltage to the valve if wiring is complete.

## Installation of New FARMOD

### 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. During connection of the pulse lines, ensure that the pulse lines are not twisted or kinked to avoid obstructed flows.

Assemble the Fuel Air Ratio Module to the valve following the instructions below.

**NOTE: Ensure that the FARMOD is placed in the exact same location as the original.**

1. Ensure that the line voltage has been removed from the valve.
2. Take care that dirt does not enter the gas valve or pulse lines during handling.
3. Assemble the Fuel Air Ratio Module to the valve body by mating its two locating posts into the valve locating holes.

## Fuel Air Ratio Module Leak Check

### **WARNING**

#### **Explosion or Fire Hazard**

**Can cause severe injury, death, or property damage.**

#### **IMPORTANT**

Leak check should be performed during the initial burner system startup or whenever the valve or Fuel Air Ratio Module are replaced. It is recommended that this test also be included in the scheduled inspection and maintenance procedures.

- Do not put the system into service until you have satisfactorily completed the following Fuel Air Ratio Module leak test (FARMOD model dependent), all applicable tests as described in the valve checkout and operation section of the SV2 Series valve installation instructions (32-00018), the flame safeguard control manual as well as any other required by the burner manufacturer.
- All tests must be performed by a trained, experienced combustion service technician.
- Close all manual fuel shut-off valves as soon as trouble occurs. After the installation is complete, cycle the valve several times with the manual fuel shut-off cock closed. Make sure the valve and actuators function properly.

#### **IMPORTANT**

The procedure below is only valid if the Fuel Air Ratio Module is applied on a Fuel Air Proportional valve (V2P models). Do not apply this method to Fuel Air Ratio Modules applied on a Premix valve (V2V models).

1. If applicable, open the downstream manual gas valve(s).
2. Open the upstream manual gas valve(s).
3. Fire the burner to apply pressure to the Fuel Air Ratio Module.
4. Apply rich soap and water solution around pulse line fittings to make sure there are no leaks.

5. If a leak is found, de-energize the control system to make sure no power goes to the valve seats, close the upstream manual valve(s), disconnect the pulse line(s) and / or pulse line fittings and inspect/clean the sealing and mating seal surfaces. Reconnect pulse line(s) and fittings as necessary and restore power.
6. Repeat leak check steps 1 to 5.
7. When no leaks are found, put the system into service after all applicable tests as described in the valve checkout and operation section of the SV2 Series valve installation instructions (32-00018) and flame safeguard control manual are completed as well as any other required by the burner manufacturer.

## PROGRAMMING AND SETUP

#### **IMPORTANT**

During the initial valve setup using the HMI or PC tools, any intelligent features, such as low gas pressure, high gas pressure, VPS (valve proving sequence) operation and fuel air operation, requiring setup must be completed before the valve will be operational.

Refer to the HMI / PC Tool documents listed on page 1 for valve setup instructions.



Fig. 4. HMI.



## Disposal and Recycling

Waste electrical products should not be disposed of with general waste.

Please recycle where these facilities exist. Check with your local authority for recycling advice.

#### Automation and Control Solutions

##### Americas:

Honeywell International Inc.  
1985 Douglas Drive North  
Golden Valley, MN 55422  
customer.honeywell.com

##### Asia:

Honeywell (Tianjin) Limited  
No. 158, NanHai Road  
Tianjin, 300457, P.R.C.  
<http://customer-ap.honeywell.com>

##### Europe, Middle East, Africa:

Honeywell Technologies Sàrl  
La Piece 16  
1180 Rolle  
Switzerland  
<http://ecc.emea.honeywell.com>

##### Australia:

Honeywell Ltd Australia  
2 Richardson Place  
North Ryde NSW 2113  
<http://eccpacific.honeywell.com.au>

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 <http://www.combustion.honeywell.com/SV2Series>



® U.S. Registered Trademark.  
© 2016 Honeywell International Inc.  
32-00040-01 M.S. 06-16  
Printed in U.S.A.

# Honeywell