

Honeywell

V2F, V2V Models SV2 Series Safety Shut-off Valves

INSTALLATION INSTRUCTIONS



INTRODUCTION

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

- 32-00017, Pressure Module Installation Instructions
- 32-00037, PC Tool Installation Instructions
- 32-00029, SV2 Series User Manual
- 32-00030, HMI Tool Installation Instructions
- 32-00031, HMI/PC Tool User Manual
- 32-00044, Mixing Units Installation Instructions
- 32-00151, SV2 Series Security Manual
- 32-00180, Premix Accessory Installation Instructions

FEATURES

- Side flexible, modular electronics
- HMI or PC Tools for programming, monitoring and troubleshooting
- Communication BUS (model dependent)

INDEX

INTRODUCTION	1	WIRING	31
FEATURES	1	VALVE CHECKOUT AND OPERATION	51
SPECIFICATIONS	2	FINAL WIRING CHECK AND STATIC CHECKOUT	53
VALVE CAPACITY RATINGS	4	PROGRAMMING AND SETUP	54
VALVE ACCESSORIES AND REPLACEMENT PARTS	8	FINISH	56
DIMENSIONAL INFORMATION	13	VALVE INTERFACE, PASSWORD RESET	57
REMOVE FROM BOX	19		
INSTALLATION	19		

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 given in the instructions and on the product to make sure the product is suitable for your application. Do not exceed the valve ratings.
4. Disconnect the power supply before beginning installation to prevent electrical shock and equipment damage.
5. All wiring must comply with the National Electric Code (NEC) and any applicable local electrical codes, ordinances and regulations.
6. After installation is complete, carry out a thorough checkout of product operation as laid out in this document.

CYBER SECURITY NOTICE

SV2 Series products contain electronics and software. Care should be taken by the installer / facility management to guard against unauthorized access to the valve and to the programming interface for parameter modification (if applicable).

Unauthorized access to change the valve wiring interface, replace parts, change device hardware or software should not be permitted. Failure to do so may pose a safety risk.

A tamper evident label has been placed inside the valve electrical enclosure to indicate if access has occurred. The label resides between the valve main electronics assembly and the electrical enclosure which houses it.

NOTE: The valve main electronics assembly is field replaceable and as such, this seal must be broken in order to replace it.



32-00018-09

SPECIFICATIONS

Valve Inlet / Outlet Port Sizes:

1, 1-1/2, 2 inches
DN25, DN40, DN50

Flange Sizes:

Valve size: 1 inch (DN25):
1/2, 3/4, 1 and 1 1/4 in. NPT or BSPP
DN15, 20, 25, 32

Valve size: 1 1/2 and 2 in. (DN40 and DN50):
1, 1 1/4, 1 1/2, 2 in. NPT or BSPP
DN25, 32, 40, 50

Pressure Port Sizes:

1/8 in. (3 mm) NPT or BSP

Flange Pressure tap sizes and threads:

NPT flanges:
1/8-27" (3 mm) NPT. Torque 7±1 Nm (62±9 in-lbf).
BSP flanges:
1/8-28" (3 mm) BSP. Torque 1.5±0.15 Nm (13.3±1.3 in-lbf).

NOVV Port Sizes:

1 in. (DN25) valves: 3/4 in NPT
1-1/2 and 2 in. (DN40/DN50) valves: 1 in. NPT

Capacity Ratings:

See Table 1 and Figs. 1-6

Valve Electrical Ratings (given per coil):

1 in. valves (DN25)
24 VAC, 50/60 Hz, Vtest/Vrms 24VAC, Pull in (2 sec)
1.6 amps/35 Watts, Hold 0.8 amps/15 Watts
100-120 VAC, 50/60 Hz, Vtest/Vrms 120VAC, Pull in (2 sec)
0.5 amps/55 Watts, Hold 0.3 amps/20 Watts
200-240 VAC, 50/60 Hz, Vtest/Vrms 240VAC, Pull in (2 sec)
0.3 amps/55 Watts, Hold 0.2 amps/20 Watts
1.5 in. and 2 in. valves (DN40/50)
100-120 VAC, 50/60 Hz, Vtest/Vrms 120VAC, Pull in (2 sec)
1.0 amps/110 Watts, Hold 0.5 amps/40 Watts¹
200-240 VAC, 50/60 Hz, Vtest/Vrms 240VAC, Pull in (2 sec)
0.6 amps/110 Watts, Hold 0.3 amps/40 Watts

All voltages are -15%/+10%VAC

¹ Hold in voltage is 94 VAC at 63 °C (145 °F) or -6 %

All values at 20 °C (68 °F)

External Load Relay Ratings:

ILK / Interlock: 24, 100-240 VAC, 50/60 Hz, 8 amps
VPS / Valve Proving contact: 24, 100-240 VAC, 50/60 Hz, 0.1 amps
POC / Proof of Closure contact: 24, 100-240 VAC, 50/60 Hz, 0.1 amps

SSOV Class Ratings:

24 VAC models are Class B rated
100-240 VAC models are Class A rated
Safety combination valve for control of gaseous fluids in gas consuming appliances in accordance with international standards

Pressure Ratings

Fuel/air versions (V2V): 7.25 psi / 0.5 kg/cm² / 500 mbar

NOTE: In most cases the fuel/air valve inlet pressure needs to be limited/regulated between limits depending on the application.

On/off versions (V2F): 10 psi / 0.7 kg/cm² / 689 mbar
MOPD: 9.94 psi / 685 mbar

Valve Opening Time:

1 second maximum at 68 °F (20 °C)

Valve Closing Time:

1 second maximum at 68 °F (20 °C)

CV Ratings:

1.0 in (DN25) valve with flanges 0.5 in/0.75/1/1.25 =
DN15/20/25/32: 6.8/9.3/10.1/10.6

1.5 in (DN40) valve with flanges 1 in/1.25/1.5/2 = DN25/32/40/50:
21.5/25.6/25.9/26.8

2.0 in (DN50) valve with flanges 1 in/1.25/1.5/2 = DN25/32/40/50:
27.2/36.7/40.7/45.0

Mounting Position:

Vertical to 90 degrees from vertical, refer to Fig. 12.

Material:

Valve body: Die-cast aluminum alloy
Electrical enclosure: Valox™ 553

Closing Spring:

AISI 302 steel

Valve Plunger:

11SMn30 steel with electroless nickel plating sliding on anti-friction bearing

Seals and Gaskets:

Hydrocarbon resistant NBR rubber

Torsion and Bending Stress:

Pipe connections meet group 2 according to EN161 requirements

Electrical Equipment:

AC rectified coils with separated rectifier and power saving circuitry inside the cover

Coil Insulation Solenoid Valves:

Insulation material is specified according to class F

Duty Cycle:

Coils are suitable for permanent energizing via SV2 Series valve electronics with power saving

Weight:

1 in. valves (DN25)
On/Off: 18.8 lb (8.5 kg)
Fuel/Air: 20.0 lb (9.1 kg)
1.5 and 2 in (DN40/50) valves
On/Off: 46.1 lb (20.9 kg)
Fuel/Air: 50.2 lb (22.8 kg)

Dimensions:

See Fig. 7–Fig. 11.

Approvals:

cULus (Underwriters Laboratories): Electrically operated valves.
Vol 11 valve body, Vol 12 control boards. - for 24/120 VAC valves
UL429, UL353 and UL1998.
NEMA 1 / IP20 valves: Recognized
NEMA 4 / IP66 valves: Listed
FM7400, FM3510 Approved - PENDING for 24/120 VAC valves
CSD-1 Acceptable - for 24/120 VAC valves
CSA Approved for US and Canada - for 24/120 VAC valves
ANSI Z21.20-2014 CAN/CSA-C22.2 NO. 60730-2-5-14 /
UL 60730-2-5
ANSI Z21.21-2015 CSA 6.5-2015
Commercial / Industrial Certified - for 24/120 VAC valves
FCC Part 15, Class A Digital Device
Complies with standard ANSI Z21.21-CSA6.5 - for 24/120 VAC valves

CE Approved per:

EN1643:2014 Safety and control devices for gas burners and gas burning appliances - Valve proving systems for automatic shutoff valves
EN 13611:2015 Safety and control devices for gas burners and gas burning appliances - General requirements
EN 1854:2010 Pressure sensing devices for gas burners and gas burning appliances
EN 161:2011 + A3:2013 Automatic shut-off valves for gas burners and gas appliances

EN 12067-2:2004 Gas/air ratio controls for gas burners and gas burning appliances. Electronic types.

EN 126:2012 Multifunctional controls for gas burning appliances

EN 298:2012 Automatic burner control systems for burners and appliances burning gaseous or liquid fuels

Pin number 0063CQ1175

Certificate # 18GR0759/00

NOTE: The Pressure Module and Fuel/Air Module are not stand-alone products and must be used with a SV2 Series valve and thus are specified as part of the valve approvals.

Applicable Gas Types:

Natural gas or liquid propane (LP) only

EU designations: 2nd and 3rd families

Environmental Ratings:

Electrical enclosure: NEMA 1 / IP20 or NEMA 4 / IP66

Storage/Shipping Conditions:

-40 to 150 °F (-40 to 66 °C)

95% RH at 104 °F (40 °C) and 30 in. Hg (1013.25 mbar)

Maximum storage duration of 6 months at these conditions.

Operating/Fluid Temperature Range:

Premix (V2V) models: +5 to 145 °F / -15 to 63 °C

On/Off (V2F) BSP models: +5 to 145 °F / -15 to 63 °C

On/Off (V2F) NPT models: -40 to 145 °F / -40 to 63 °C

Operating Humidity Range:

95% RH at 104 °F (40°C) for 14 days

Non-condensing for NEMA 1 / IP20 valve versions

Environmental Usage Conditions:

Ambient Conditions:

- Protect the valve from rainfall, dirt and dust, e.g. with a protective housing.
- Condensation and dew in and on the valve are not permitted.
- No icing permitted
- Avoid direct sunlight or radiation from red-hot surfaces on the valve.
- Avoid corrosive influences, e.g. salty ambient air or SO₂.
- Permitted relative humidity: min 5%, max 95%.
- The valve may only be stored/installed in enclosed rooms/buildings.
- Long-term use in the upper ambient temperature range accelerates the aging of the elastomer materials and reduces the service life.
- This valve is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.

Mechanical Conditions:

- Gaseous fuel must be clean and dry in all temperature conditions and must not contain condensate.

Logistics:

- Protect the valve from external forces (blows, shocks, vibration).
- The ambient conditions described in this document apply to transport.

SECURE MODBUS® COMMUNICATION

For SV2 Series valve configuration and monitoring, Modbus communication utilizing an RS-485 BUS is used.

The SV2 Series valves include a Honeywell-specific secure Modbus protocol. Standard Modbus RTU protocol is used, however, safety-related and writable parameters are covered by a secure layer. As a result, they are only writable when accessed using a valid user access level and an appropriate user interface, which are designed to work with the secure layer. Read only Modbus addresses can be accessed without the Honeywell user interface or the secure Modbus layer

USER ACCESS LEVELS

A 3-level user access level framework has been implemented into the SV2 Series valves, consisting of the User, Installer and OEM levels.

- **OEM:** Read/write rights with the ability to assign read/write parameter groups for the OEM and Installer levels. OEM is defined as the original provider/programmer of the valve.
- **Installer:** Read/write rights as assigned by the OEM.
- **User:** Read only rights via HMI/PC Tool and the ability to reset fault codes via valve display.

Valves are shipped with default OEM and Installer passwords pre-configured. These passwords have to be changed before the valve can be used in an application without user observation.

NOTES:

- **Default passwords are automatically pre-filled in the appropriate field during the initial user login.**
- **The OEM can choose to create the Installer main password or allow the Installer to assign it at the initial login.**

Forgetting to change the default password results in persistent lockout when the secured session is terminated.

This is a security measure that avoids using a valve in unsecure mode (without proper password configuration).

Should the Installer and/or OEM main access level passwords be lost, password reset is possible, if the reset mechanisms were enabled by the OEM. The reset mechanism will vary between the Installer and OEM levels. Note that cycling of the valve or user interface power will not defeat this methodology.

A brief description of the password reset mechanism occurs at the end of this document. For detailed information regarding the OEM and Installer access level password assignments and the password reset feature, refer to the HMI/PC Tool User Manual and the SV2 Series Valve User Manual, documents 32-00031 and 32-00029. Both are available online at <https://customer.honeywell.com>.

INTELLIGENT FEATURES

Throughout this manual, reference is made to the available Intelligent Features in the SV2 Series valves. The 9th digit in the valve part number signifies the embedded Intelligence Feature level as follows:

- **5 = BASIC.** Basic functionality; no Modbus or Pressure Module compatibility.
- **6 = STANDARD.** Includes Modbus, Pressure Module compatible, external VPS using Pressure Module.

VALVE CAPACITY RATINGS

The SV2 Series valve ratings shown below are for both 4 in. w.c. and 1 in w.c..

Valve Capacity Designation / Internal Port Size			@ 4 in. w.c. pressure drop ^{1,2} (10 mbar)				@ 1 in. w.c. pressure drop ^{1,2} (2.5 mbar)			
			kW	MMB- TU/hr	SCFH (ft ³ /hr)	M ³ /hr	kW	MMB- TU/hr	SCFH (ft ³ /hr)	M ³ /hr
B	1.0 in.	DN25	300	1.0	1,000	28	150	0.5	500	14
C	1.5 in.	DN40	750	2.6	2600	74	380	1.3	1300	37
D	2.0 in.	DN50	1348	4.6	4600	130	674	2.3	2300	65

1. Refer to the notes below regarding standard conditions and conversions for different gases.

2. Stated capacities for valve with matching flange size

Table 1. Valve Capacity Rating.

VALVE CAPACITY CURVES

NOTES:

- Capacities for all curves and ratings shown for G20 gas (100% CH₄) with specific gravity / relative density of 0.555 at ANSI Z21.21 standard conditions of 15.6°C/60°F and 101.3 mbar / 406.9 in w.c. / 29.2 in Hg / 14.7 PSI pressure.
 - For other gas capacities, multiply the CFH or M3/HR by:
 - G25 / 86% CH₄, 14% N₂¹ (sp gr/relative density 0.612) 1.05
 - Natural gas (sp gr/relative density 0.640) 1.07
 - LP / liquid propane (sp gr/relative density 1.530) 1.66
 - G31 / 100% C₃H₈¹ (sp gr/relative density 1.550) 1.67
- ¹. Per EN437.

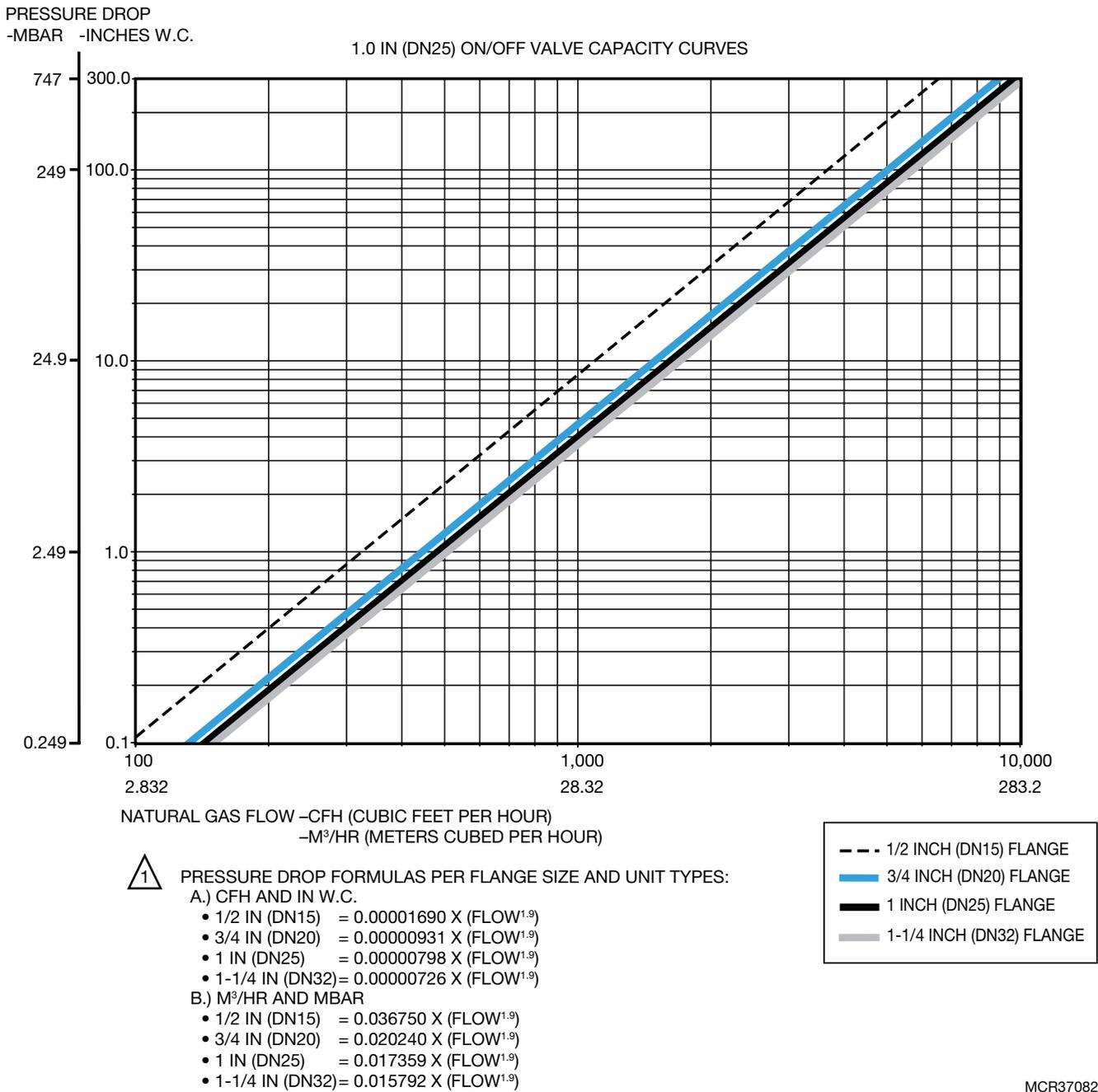
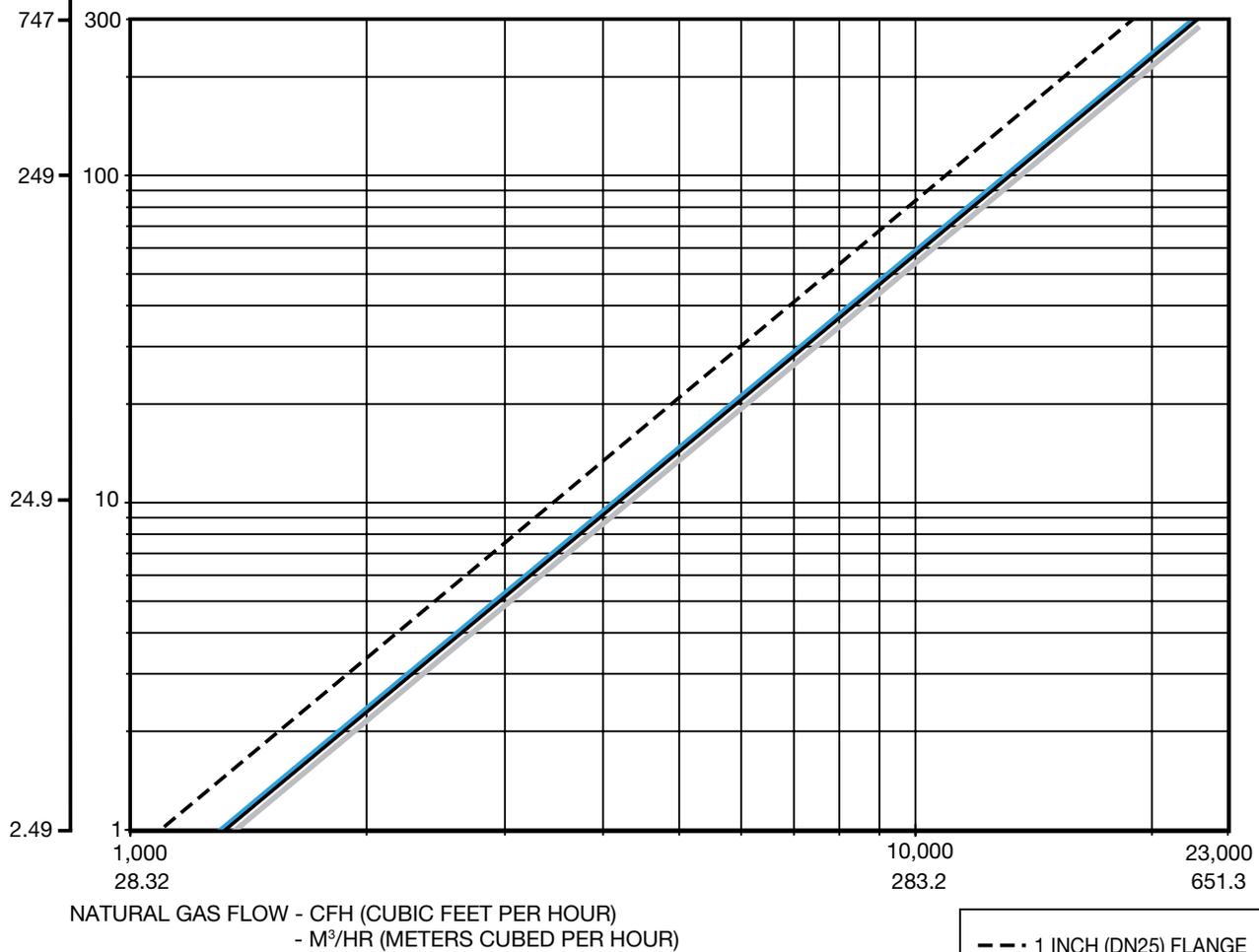


Fig. 1. 1 inch (DN25) Valve capacity curves.

PRESSURE DROP
-MBAR - INCHES W.C.

1.5 IN (DN40) ON/OFF VALVE CAPACITY CURVES



NATURAL GAS FLOW - CFH (CUBIC FEET PER HOUR)
- M³/HR (METERS CUBED PER HOUR)



△ PRESSURE DROP FORMULAS PER FLANGE SIZE AND UNIT TYPES:
A.) CFH AND IN W.C.

- 1 IN (DN25) = 0.000000838 X (FLOW²)
- 1-1/4 IN (DN32) = 0.000000592 X (FLOW²)
- 1-1/2 IN (DN40) = 0.000000578 X (FLOW²)
- 2 IN (DN50) = 0.000000539 X (FLOW²)

B.) M³/HR AND MBAR

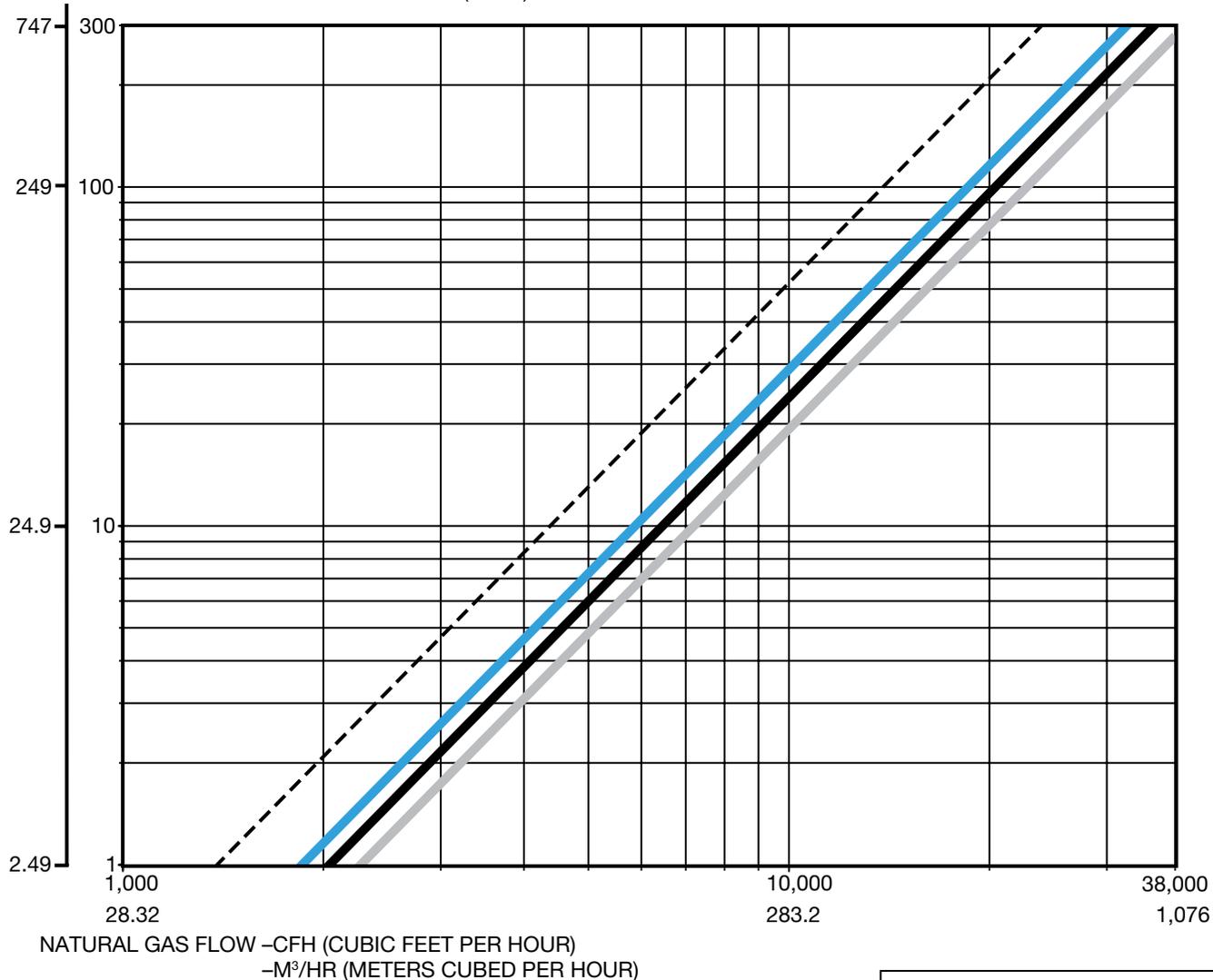
- 1 IN (DN25) = 0.002601 X (FLOW²)
- 1 1/4 IN (DN32) = 0.001838 X (FLOW²)
- 1-1/2 IN (DN40) = 0.0001795 X (FLOW²)
- 2 IN (DN50) = 0.0001673 X (FLOW²)

MCR37077

Fig. 2. 1.5 inch (DN40) On/off valve capacity curves.

PRESSURE DROP
-MBAR -INCHES W.C.

2.0 IN (DN50) ON/OFF VALVE CAPACITY CURVES



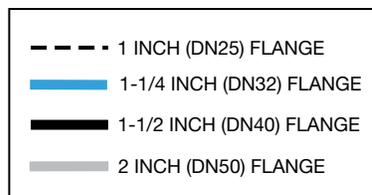
PRESSURE DROP FORMULAS PER FLANGE SIZE AND UNIT TYPES:

A.) CFH AND IN W.C.

- 1 IN (DN25) = 0.000000522 X (FLOW²)
- 1-1/4 IN (DN32) = 0.000000290 X (FLOW²)
- 1-1/2 IN (DN40) = 0.000000240 X (FLOW²)
- 2 IN (DN50) = 0.000000193 X (FLOW²)

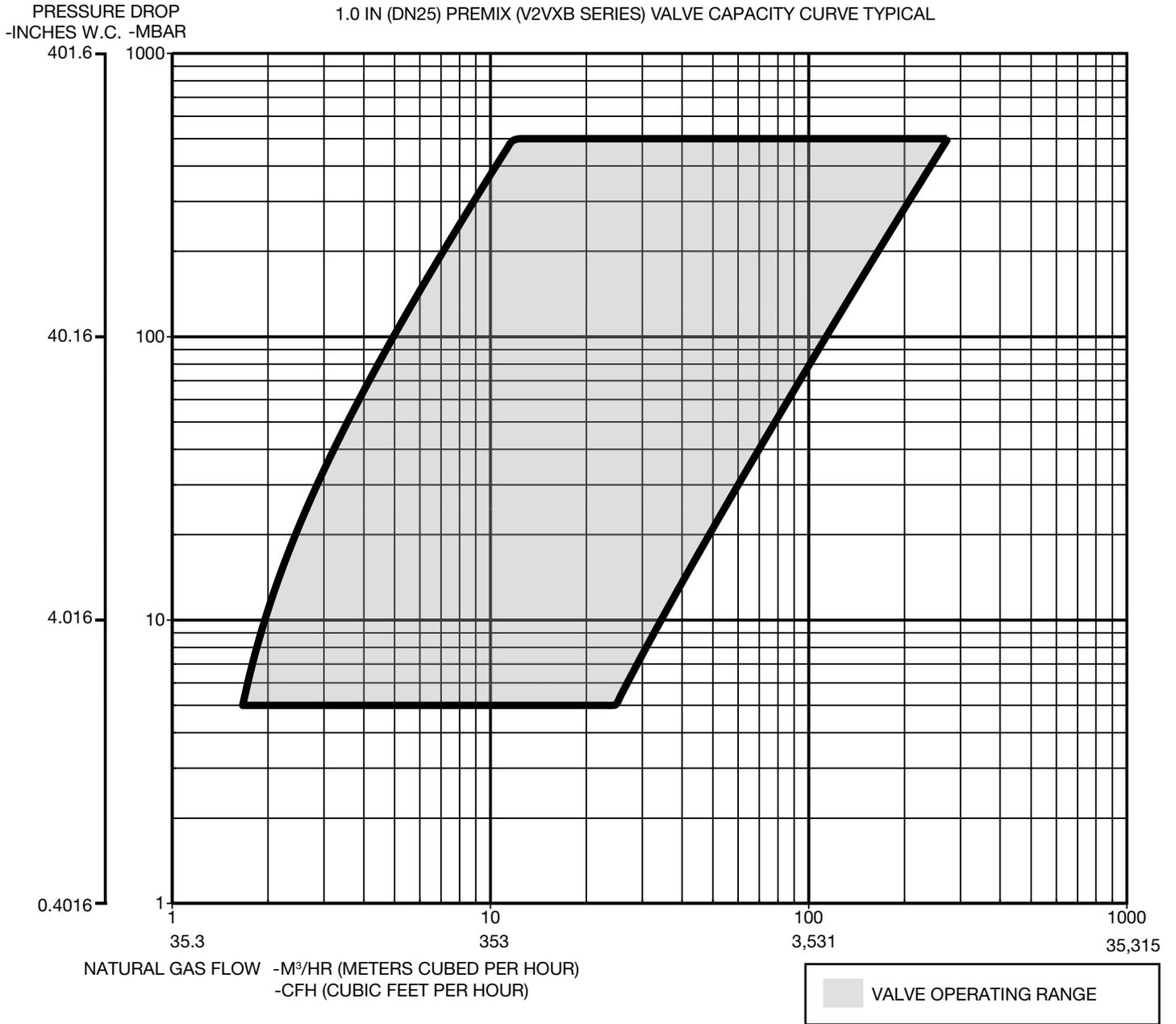
B.) M³/HR AND MBAR

- 1 IN (DN25) = 0.001620 X (FLOW²)
- 1-1/4 IN (DN32) = 0.000900 X (FLOW²)
- 1-1/2 IN (DN40) = 0.000745 X (FLOW²)
- 2 IN (DN50) = 0.000600 X (FLOW²)



MCR37078

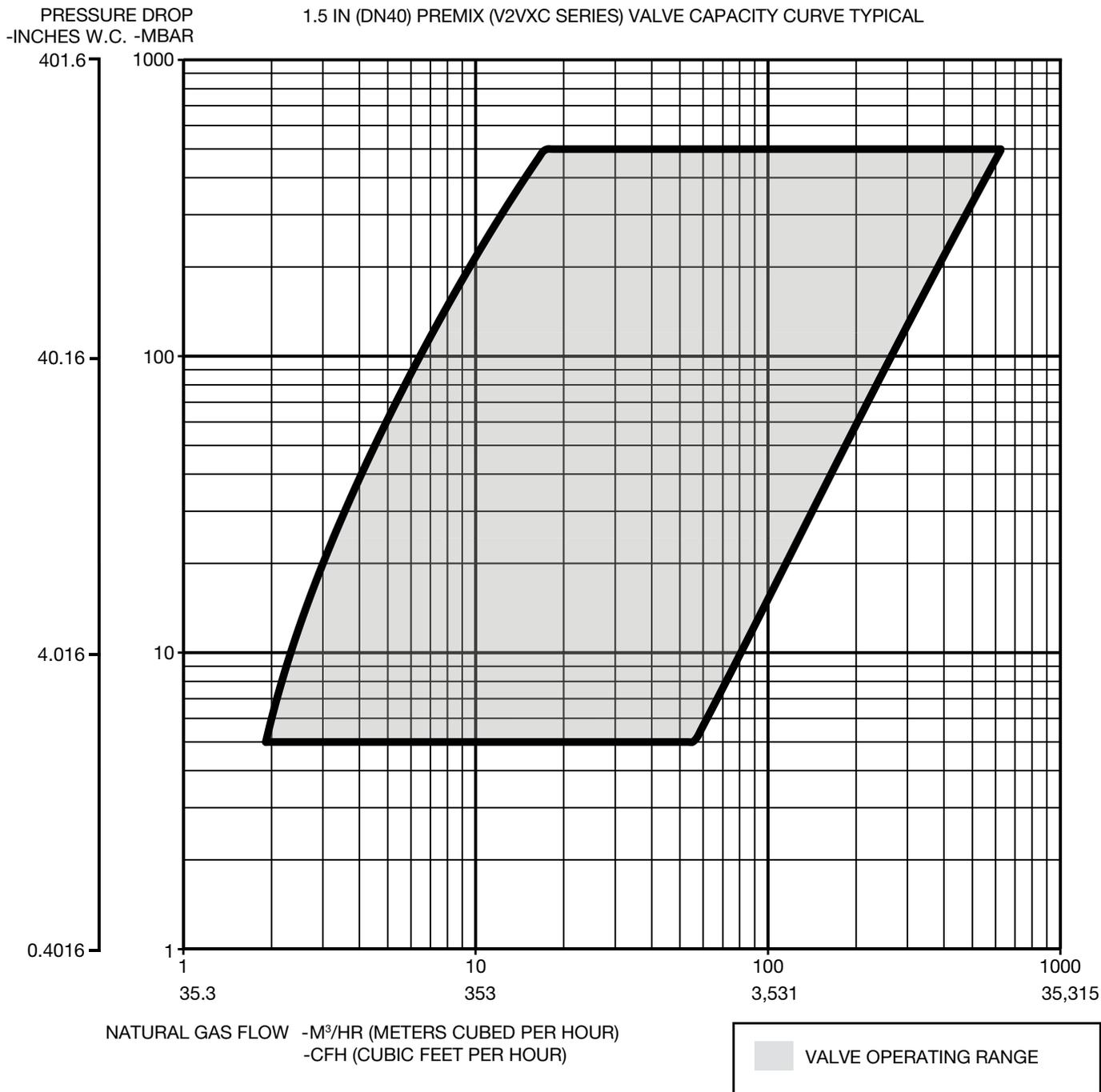
Fig. 3. 2.0 inch (DN50) On/off valve capacity curves.



- 1 VALVE CAPACITY IS MEASURED WITH 1.0 IN / DN25 FLANGES ASSEMBLED. THE VALVE CAPACITY WILL VARY WHEN PAIRED WITH SMALLER FLANGES.
- 2 CAPACITY CURVE REPRESENTS A VALVE TYPICAL GUARATEED MAXIMUM AND MINIMUM FLOW (WHEN THE FUEL CONTROL VALVE IS FULLY OPEN AND FULLY CLOSED). THE CAPACITY COVERS A 95% POPULATION CONFIDENCE.

M37241

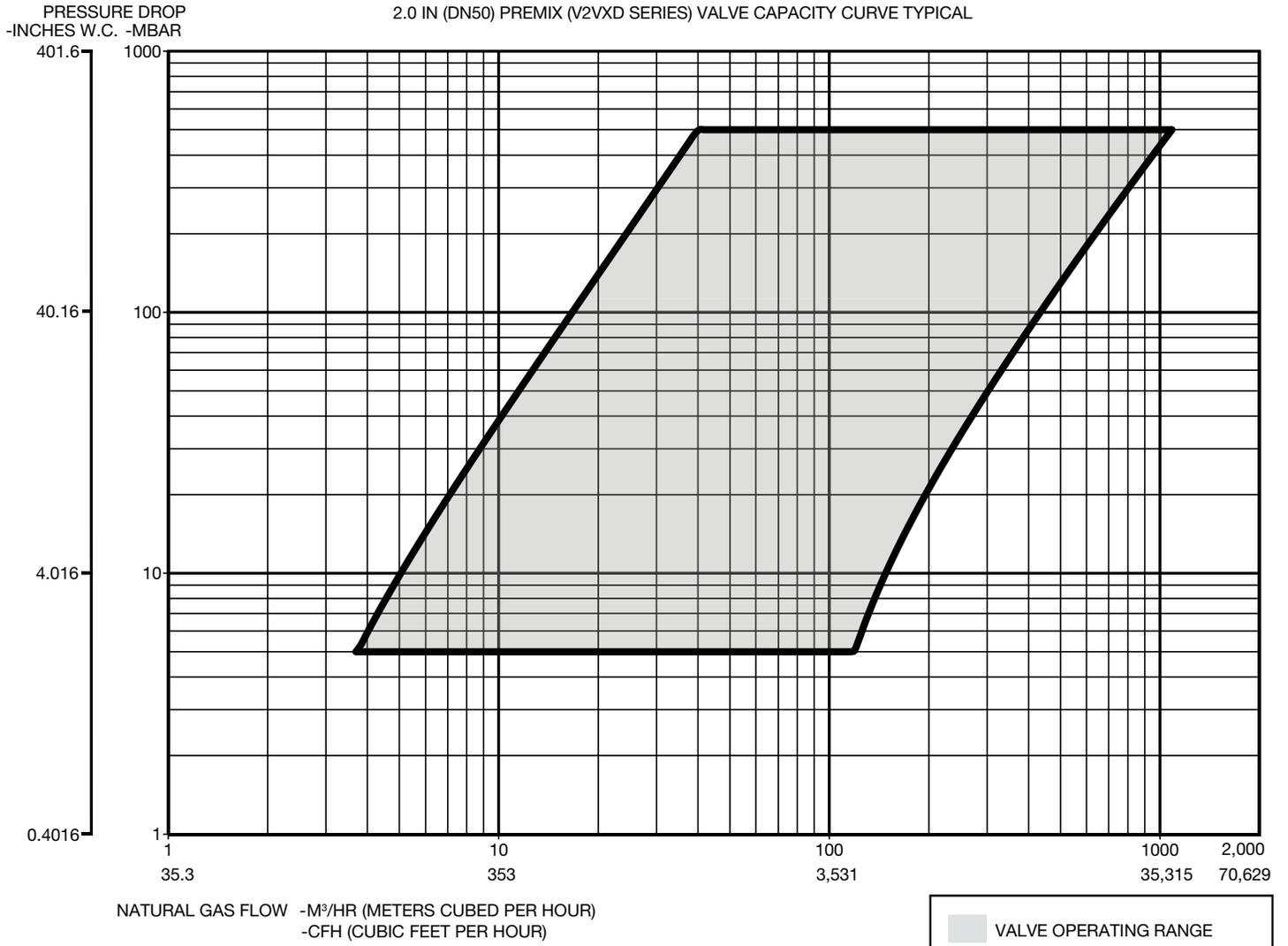
Fig. 4. 1.0 inch (DN25) Premix valve capacity curves.



- 1 VALVE CAPACITY IS MEASURED WITH 1.5 IN / DN40 FLANGES ASSEMBLED. THE VALVE CAPACITY WILL VARY WHEN PAIRED WITH SMALLER FLANGES.
- 2 CAPACITY CURVE REPRESENTS A VALVE TYPICAL GUARANTEED MAXIMUM AND MINIMUM FLOW (WHEN THE FUEL CONTROL VALVE IS FULLY OPEN AND FULLY CLOSED). THE CAPACITY COVERS A 95% POPULATION CONFIDENCE.

M37242

Fig. 5. 1.5 inch (DN40) Premix valve capacity curves.



- 1 VALVE CAPACITY IS MEASURED WITH 2.0 IN / DN50 FLANGES ASSEMBLED. THE VALVE CAPACITY WILL VARY WHEN PAIRED WITH SMALLER FLANGES.
- 2 CAPACITY CURVE REPRESENTS A VALVE TYPICAL GUARATEED MAXIMUM AND MINIMUM FLOW (WHEN THE FUEL CONTROL VALVE IS FULLY OPEN AND FULLY CLOSED). THE CAPACITY COVERS A 95% POPULATION CONFIDENCE.

M37243

Fig. 6. 2.0 inch (DN50) Premix valve capacity curves.

VALVE ACCESSORIES AND REPLACEMENT PARTS

The SV2 Series valve has required and optional accessories for installation, pressure switch operation, set-up and fuel/air applications. Flanges are required for each valve and must be ordered separately.

SV2 also has field replaceable electronics, modules, solenoids and filters.

Category	Part Number	Description	Applicable Model(s)
Flanges	FLANGEABNPT050	0.50 in / DN15 NPT flange, B capacity models	All
	FLANGEABNPT075	0.75 in / DN20 NPT flange, B capacity models	
	FLANGEABNPT100	1.00 in / DN25 NPT flange, B capacity models	
	FLANGEABNPT125	1.25 in / DN32 NPT flange, B capacity models	
	FLANGEABBSP050	0.50 in / DN15 BSP flange, B capacity models	
	FLANGEABBSP075	0.75 in / DN20 BSP flange, B capacity models	
	FLANGEABBSP100	1.00 in / DN25 BSP flange, B capacity models	
	FLANGEABBSP125	1.25 in / DN32 BSP flange, B capacity models	
	FLANGECDNPT100	1.00 in / DN25 NPT flange, C/D capacity models	
	FLANGECDNPT125	1.25 in / DN32 NPT flange, C/D capacity models	
	FLANGECDNPT150	1.50 in / DN40 NPT flange, C/D capacity models	
	FLANGECDNPT200	2.00 in / DN50 NPT flange, C/D capacity models	
	FLANGECDBSP100	1.00 in / DN25 BSP flange, C/D capacity models	
	FLANGECDBSP125	1.25 in / DN32 BSP flange, C/D capacity models	
	FLANGECDBSP150	1.50 in / DN40 BSP flange, C/D capacity models	
FLANGECDBSP200	2.00 in / DN50 BSP flange, C/D capacity models		
Programming Tools	HMITOOL-000	HMI touchscreen interface, 24VAC. NOTE: HMITOOL or PCTOOL required to setup intelligent features.	All models with Intelligent Features of 6
	AT72D1683/U	120VAC to 24VAC transformer, 40VA, universal mount (foot, plate, clamp)	
	AT72D1691/U	208/240VAC to 24VAC transformer, 40VA, universal mount (foot, plate, clamp)	
	PCTOOLKIT-000	PC interface software NOTE: HMITOOL or PCTOOL required to setup intelligent features.	
Pressure Modules	PRESSMOD11-000	For NEMA 1/IP20 enclosure, pressure range 0.8-40 mBar / 0.32-16 in wc / 0.012- 0.58 psi	All models with Intelligent Features of 6
	PRESSMOD12-000	For NEMA 1/IP20 enclosure, pressure range 2.6-160 mBar / 1.1-64 in wc / 0.038 - 2.3psi	
	PRESSMOD13-000	For NEMA 1/ IP20 enclosure, pressure range 8.4-600 mBar / 3.4-241 in wc/ 0.12-8.7 psi	
	PRESSMOD14-000	For NEMA 1/ IP20 enclosure, range range 16.8-1000 mBar / 6.7-401 in wc/ 0.25-14.5 psi	
	PRESSMOD41-000	For NEMA 4 / IP66 enclosure, pressure range 1.3-40 mBar / 0.51-16 in wc / 0.018 -0.58 psi	
	PRESSMOD42-000	For NEMA 4 / IP66 enclosure, pressure range 4-160 mBar / 1.6-64 in wc / 0.057-2.32 psi	
	PRESSMOD43-000	For NEMA 4 / IP66 enclosure, pressure range 10.5-600 mBar / 4.2-241 in wc/ 0.15-8.7 psi	
	PRESSMOD44-000	For NEMA 4 / IP66 enclosure, pressure range 21-1000 mBar / 8.5-401 in wc/ 0.3-14.5 psi	

Category	Part Number	Description	Applicable Model(s)
Replacement Parts	CONNECTORKIT-000	Valve replacement electrical connector kit	All
	REL4N024V5Q	Replacement electronics, NEMA 4 / IP66 enclosure, 24VAC, 50/60 Hz	IQ 5 models
	REL4N024V6Q	Replacement electronics, NEMA 4 / IP66 enclosure, 24VAC, 50/60 Hz	IQ 6 models
	REL4N230V5Q	Replacement electronics, NEMA 4 / IP66 enclosure, 100-240VAC, 50/60Hz	IQ 5 models
	REL4N230V6Q	Replacement electronics, NEMA 4 / IP66 enclosure, 100-240VAC, 50/60Hz	IQ 6 models
	REL1N024V6Q	Replacement electronics, NEMA 1 / IP20 with conduit connections, 24VAC, 50/60Hz	IQ 6 models
	REL1N230V6Q	Replacement electronics, NEMA 1/IP20, 100-240VAC, 50/60Hz	IQ 6 models
	COILCAB024V-000	Coil/Solenoids, 1.0 in, 24VAC, B capacity models	All
	COILAB120V-000	Coil/Solenoid, 0.75/1.00 in, 100-120VAC, B capacity models	
	COILAB240V-000	Coil/Solenoid, 0.75/1.00 in, 200-240VAC, B capacity models	
	COILCD024V-000	Coil/Solenoids, 1.5/2.0 in, 24VAC, C/D capacity models	
	COILCD120V-000	Coil/Solenoids, 1.5/2.0 in, 100-120VAC, C/D capacity models	
	COILCD240V-000	Coil/Solenoids, 1.5/2.0 in, 200-240VAC, C/D capacity models	
	50063482-001	HMITOOL replacement bag assembly; 8-pin connector, battery, hardware, 3 clamp filters	HMITOOL
	FARMOD14-000	Fuel/Air Module, NEMA 1/IP20, amplification factor 0.25-0.8, BSP 1/8 in port threading	All Premix (V2V) models
	FARMOD44-000	Fuel/Air Module, NEMA 4/IP66 with sealing cord grip, amplification factor 0.25-0.8, BSP 1/8 in port threading	
Premix Accessories	V2MU0300-010	SV2 Series mixing unit 300 kW (1.0MMBTU)	All Premix (V2V) models
	V2MU0500-010	SV2 Series mixing unit 500 kW (1.7MMBTU)	
	V2MU0800-010	SV2 Series mixing unit 800 kW (2.7MMBTU)	
	V2MU1000-010	SV2 Series mixing unit 1000 kW (3.4MMBTU)	
	V2MU2000-010	SV2 Series mixing unit 2000 kW (6.8MMBTU)	
	V2MUTUBEPL-000	Plastic feedback tubing kit. Contains plastic tubing (6mm ID, 8mm OD).	
	V2MUFITPLSTR-000	Plastic feedback tubing fittings kit, straight. Contains push-in fittings.	
	V2MUFITPL90D-000	Plastic feedback tubing fittings kit, 90 degree. Contains swivel push-in fittings.	
	V2MUFITPLTEE-000	Plastic feedback tubing fittings kit, tee. Contains push-in fittings.	
	V2MUTUBEAL-000	Metal feedback tubing kit. Contains aluminum tubing (6 mm ID, 8 mm OD, 1000 mm long).	
	V2MUFITMESTR-000	Metal feedback tubing fittings kit, straight. Contains compression fittings.	
	V2MUFITME90D-000	Metal feedback tubing fittings kit, 90 degree. Contains swivel compression fittings.	
	HEATEXCHANGER-000	Kit for premix applications. Includes heat exchanger, signal pipe insulation, mounting hardware to connect to the V2MU mixing unit and FARMOD insulating shoe. Fittings and tubing kits sold separately.	
	FARMODFILTER-000B	Field replacement pre-filter assembly for premix valves fuel/air ratio module. Bulk pack of 10.	All Premix (V2V) models

Table 2. Valve Accessories and Replacement Parts.

NOTE: The purchaser of any SV2 Series valves should keep the original packaging for a period of time, should any returns be required. The original packaging will provide the appropriate cushioning and protection for the valve during shipment back to Honeywell and will ensure no damage occurs to the valve due to handling.

DIMENSIONAL INFORMATION

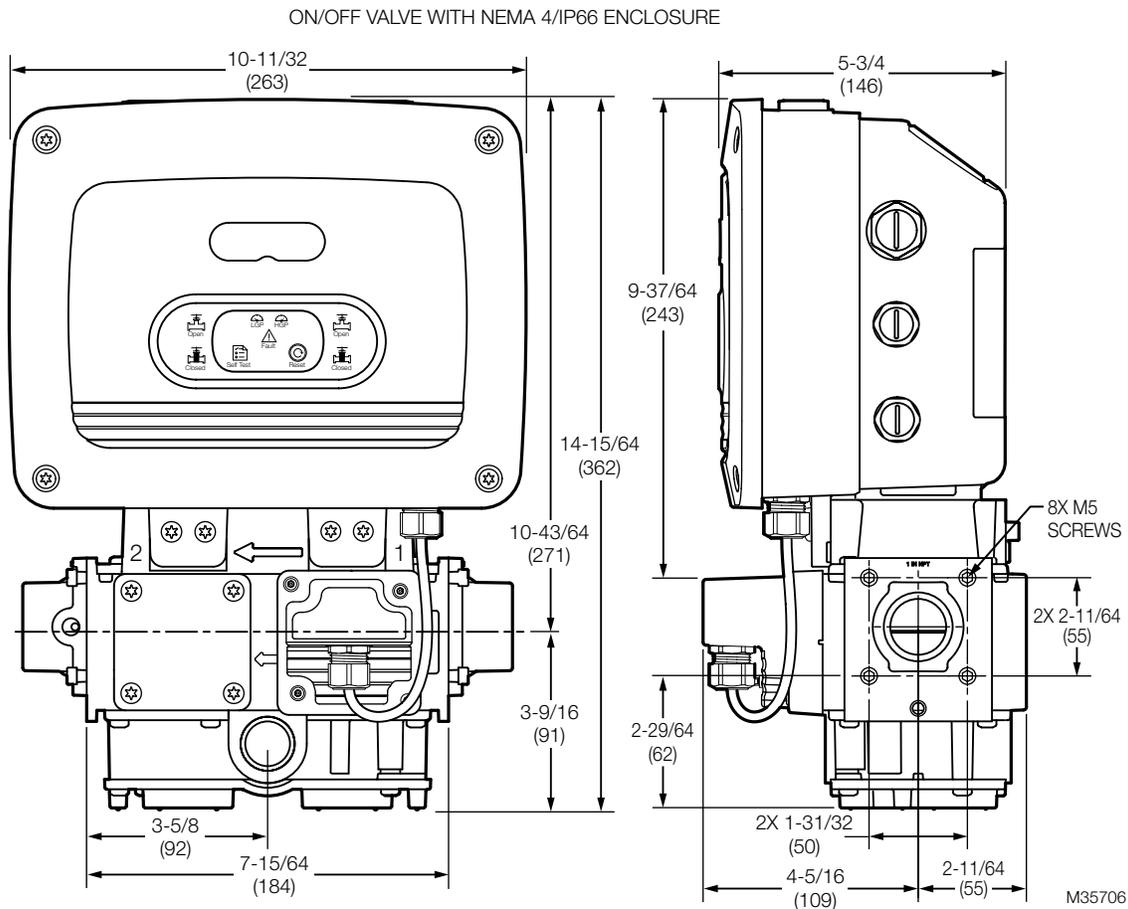


Fig. 7. 1 in. (DN25) On/off valve with NEMA 4 / IP66 enclosure.

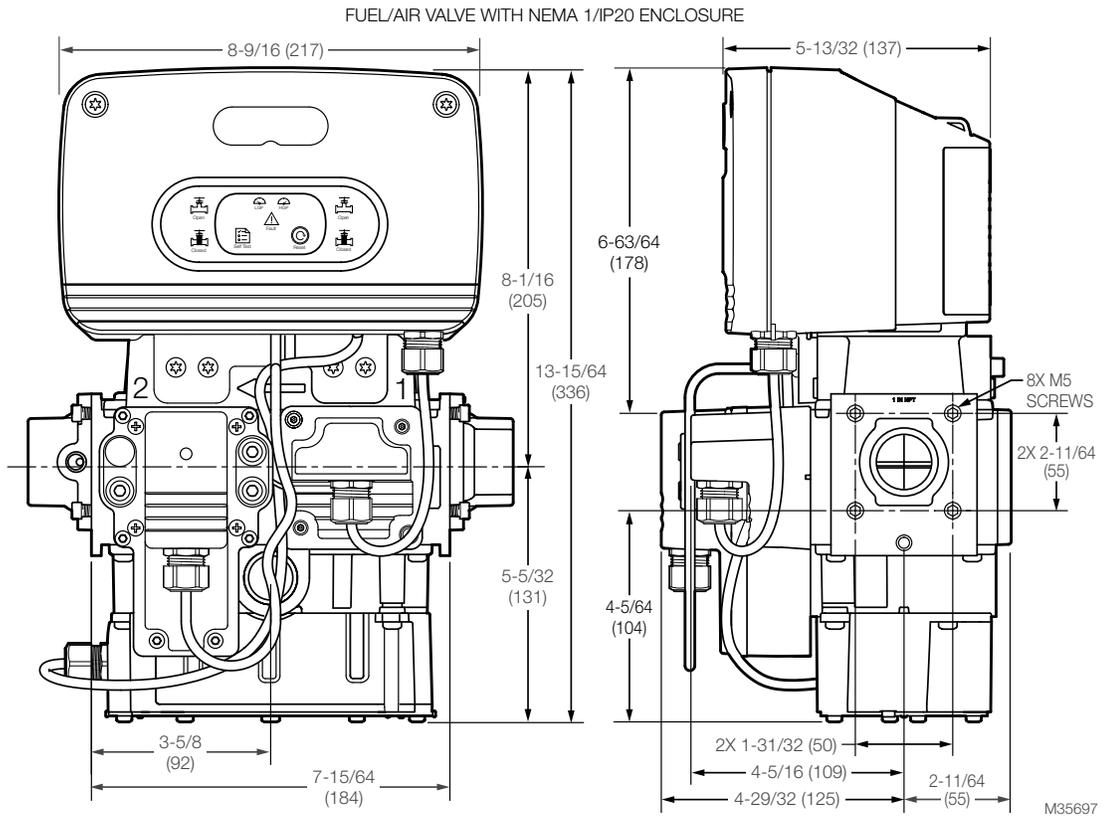


Fig. 8. 1 in. (DN25) Premix valve with NEMA 1/IP20 enclosure

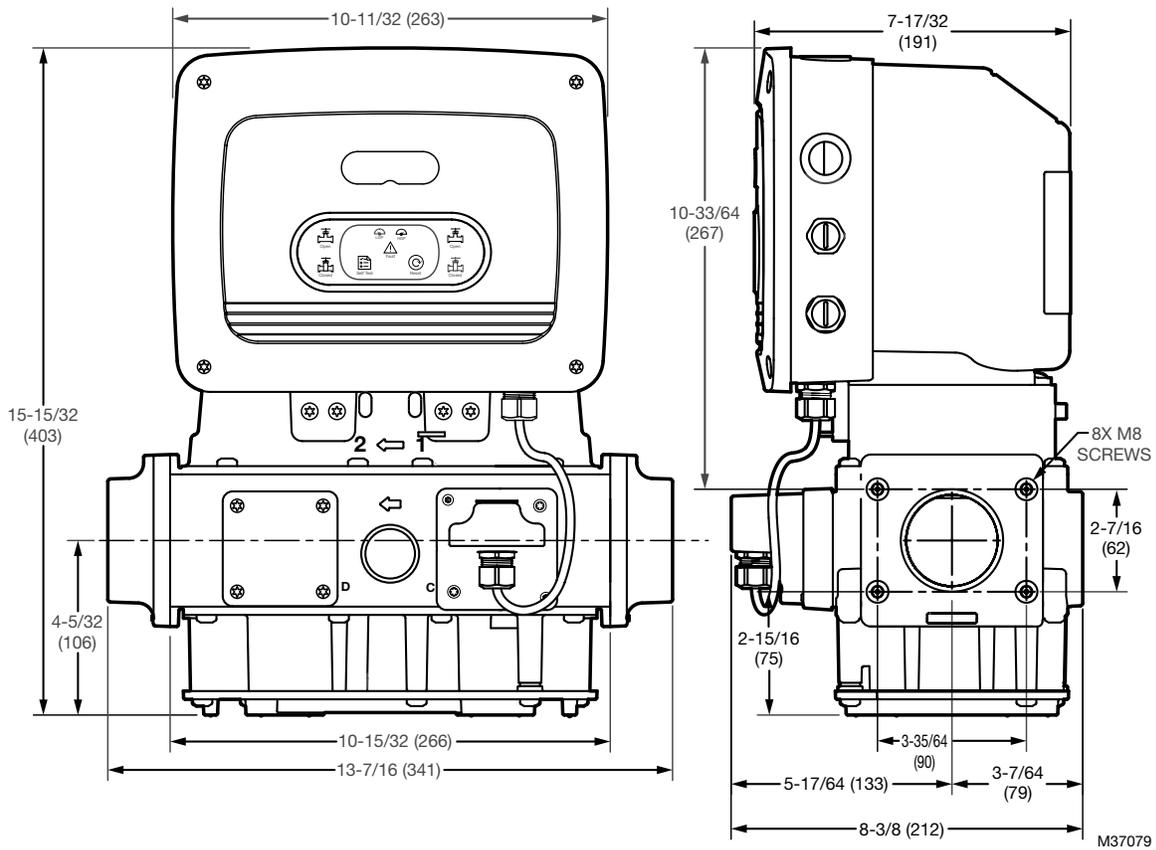


Fig. 9. 1.5/2.0 in. (DN40/50) On/off valve with NEMA 4 / IP66 enclosure

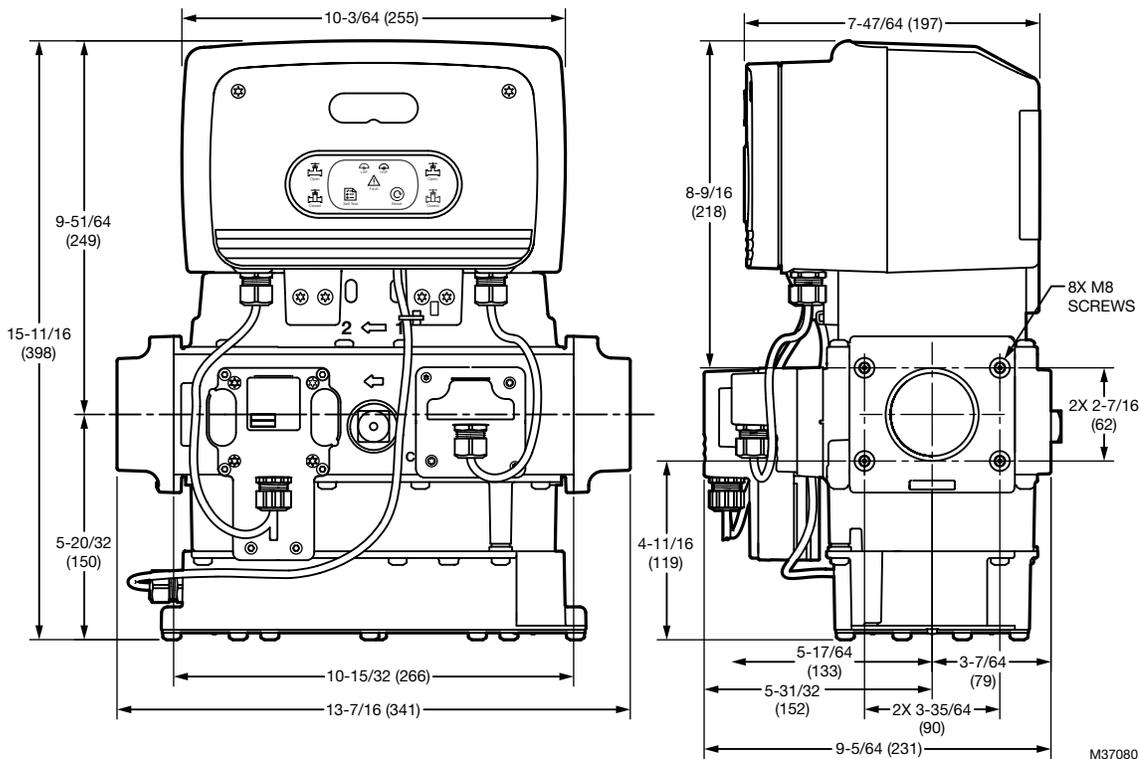


Fig. 10. 1.5/2.0 in (DN40/50) Fuel/air valve with NEMA 1/IP20 enclosure.

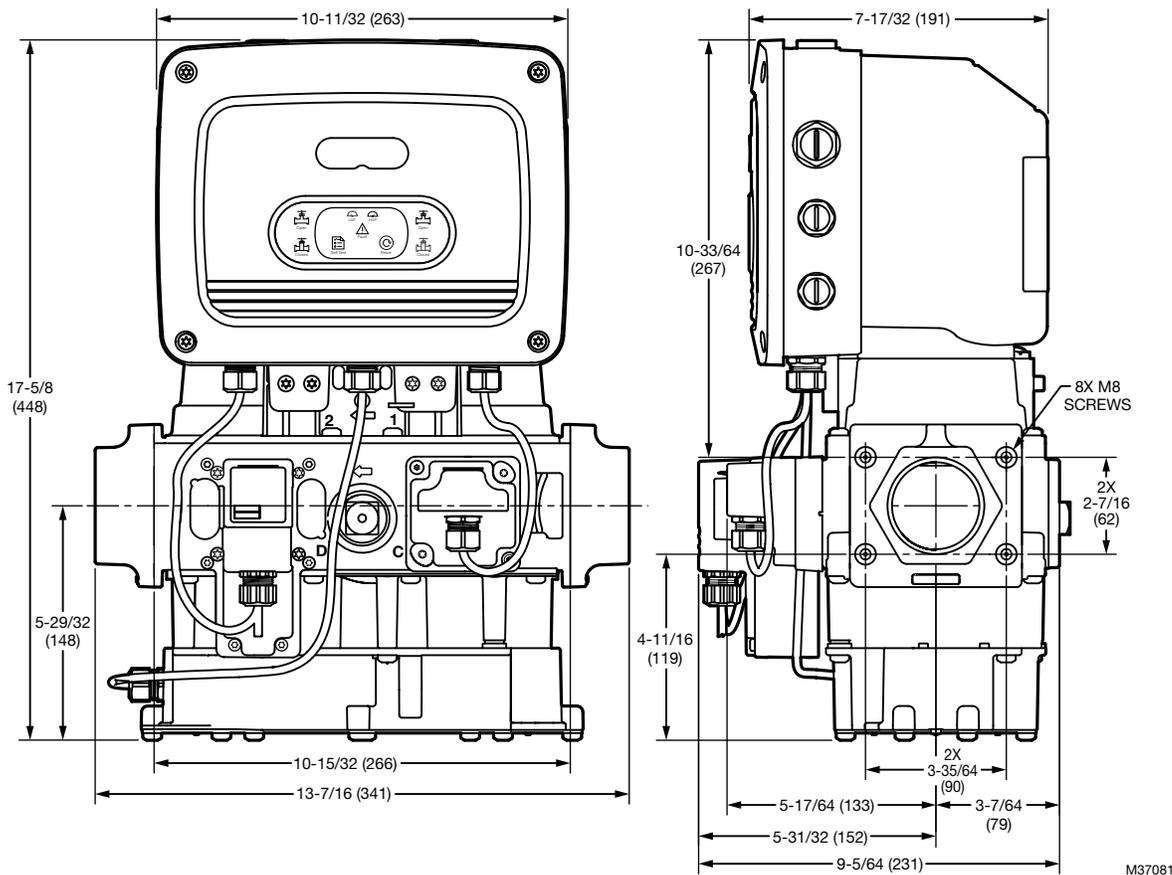


Fig. 11. 1.5/2.0 in (DN40/50) Fuel/air valve with NEMA 4 / IP66 enclosure

VALVE INSTALLATION QUICK START GUIDE

The SV2 Series valve installation steps are illustrated below with elaboration of each step in the following pages after the Quick Start Guide.

Please review this Quick Start Guide before installation to ensure a smooth install!



What's in the box

A. Valve



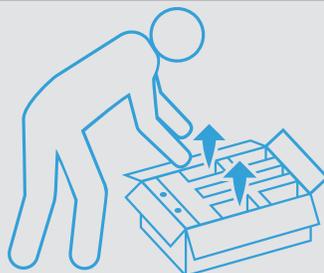
B. Accessory Box:

- Connectors (not EU) 
- Cord grips (NEMA 4 / IP66 versions only)
- Mounting Hardware (for C6907 Pressure Switch) 
- Installation Instructions 
- Premix pre-filter (Premix/V2V models)

C. Accessories Ordered Separately:

- Flanges
- Pressure Module
- HMI or PC Tool
- HMI transformer
- Mixing unit
- Pulse lines
- Pulse line fittings
- Heat Exchanger

1 Remove from box



2 Installation and Mounting

A. Orientation planning

B. Mounting flanges

C. Mount valve to flanges and piping

- 1 inch (DN25) valve bodies have drilled and tapped holes
- 1½ inch (DN40) and larger valve bodies with embedded slots for flange retaining nuts

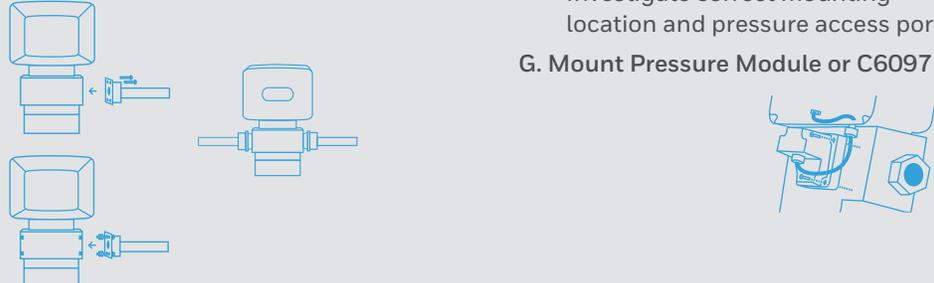
D. Vent valve connection

E. Premix mixing unit, pulse lines, air pre-filter and outdoor air installations planning

F. Pressure Module or C6097 planning

- Investigate correct mounting location and pressure access port

G. Mount Pressure Module or C6097



3 Wiring

A. Wiring and conduit recommendations.

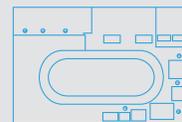
- Use only flexible conduit on NEMA 4 / IP66 enclosures.
- Wiring must comply with all applicable electrical codes, ordinances and regulations.
- All line voltage wiring must be NEC Class 1.
- Use lead wire, which can withstand 90°C (194°F) ambient temperatures.
- Power supply voltage and frequency must agree with those marked on the device.
- Load connected to the device must not exceed the ratings given in this document.
- Separate line and low voltage wiring to avoid signal interference. If using conduit, run line voltage and low voltage wiring in separate conduit.

B. Remove valve front electrical enclosure cover



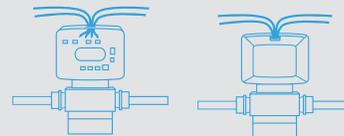
C. Estimate wiring:

- Observe unique line voltage, limits & interlock wiring required for the SV2 Series valves.
- More wires may be required than typical valves.



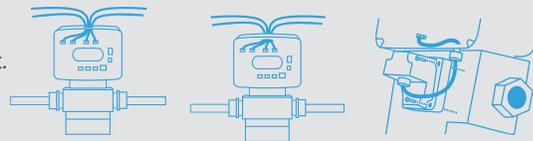
D. String wires:

- String wires through conduit, NEMA 4 / IP66 with conduit connections enclosure entry points, cord grips and nuts before wiring to connectors.
- String wires through NEMA 1 / IP20 enclosure rear opening or bottom slot before wiring to connectors.



E. Connect wires:

- Observe terminal labeling and proper electrical connector placement.
- Connect wires to the wire connectors.
- Plug electrical connectors into their proper sockets.
- Pressure Module must be field connected in electrical enclosure.



F. In connecting more than 1 valve to HMI / PC Tool or a building automation network, be sure to setup bias + termination resistors.

G. Install plugs and nuts in unused NEMA 4 / IP66 electronic enclosure wire entry locations.

- Low voltage, M16 x 1.5
- Line voltage, 1/2 in. NPT

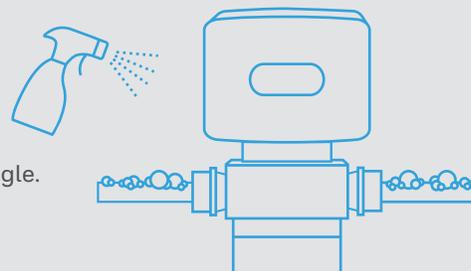
4 Checkout and Operation - Leak Check

You will need:

- Rich soap and water solution.
- Jar or glass filled with water.
- 1/4 in (6mm) flexible tubing.
- 1/4 in (6mm) aluminum or copper pilot tubing with 1 end cut at 45 angle.
- Manual test petcock

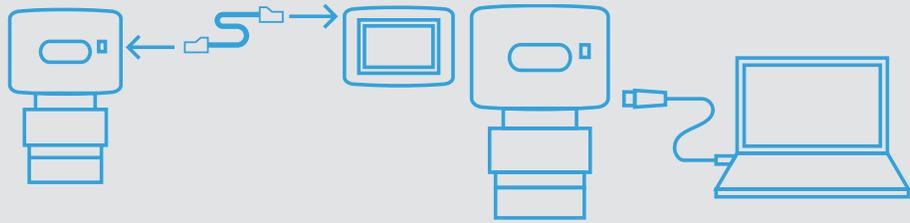
A. Valve connection and accessory leak test.

B. Valve seat leak test.



5 Programming & Setup

Any intelligent features requiring setup must be completed before the valve will be operational. The HMI or PC Tools are used for this purpose.



This includes:

- Valve modbus address + communication speed
- Low gas pressure
- High gas pressure
- External VPS (using Pressure Module)
- Fuel/air firing curve (Premix/V2V models)

- Connect Modbus wiring per HMI Tool or PC Tool Installation Instructions.
- Power SV2 Series valve and HMI or PC Tool.
- Complete setup as required and run on-board test procedures as required.

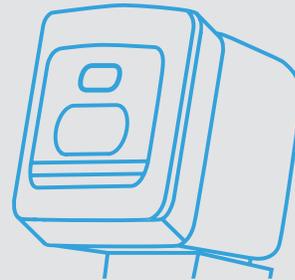
6 Wiring Checkout

A. Test:

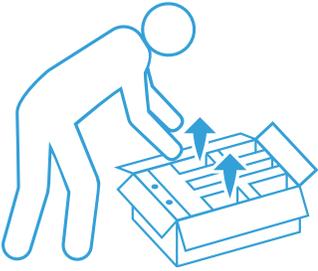
- Cycle the valve several times to verify proper function.
- Each limit and interlock.
- Following burner management system checkout guidelines.
- Any other recommended or required tests.

7 Finish

- Replace the electrical enclosure cover.
- Replace solenoid cover (if removed).
- Your valve is ready to use.



1 Remove from the box



There will be a second box packaged with the valve which contains accessory items and documentation. The box will contain:

- A bag of electrical connectors. Note that connectors are typically not provided with EU models. 
- Cord grips (NEMA 4 / IP66 versions only)
- Mounting hardware for C6097 pressure switches and/or SV2 Series valve pressure modules (M4x25) 
- Installation Instructions 
- Premix pre-filter (V2V models only)

Remove any other separately ordered accessory items from their packaging. This may include the following:

- Flanges
- Pressure Module
- HMI or PC Tool
- HMI transformer
- Mixing unit
- Pulse lines
- Pulse line fittings
- Heat Exchanger

2 Installation and Mounting

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 given in the instructions and on the product to make sure the product is suitable for your application. Do not exceed the valve ratings.
4. Disconnect the power supply before beginning installation to prevent electrical shock and equipment damage.
5. All wiring must comply with the National Electric Code (NEC) and any applicable local electrical codes, ordinances and regulations.
6. After installation is complete, carry out a thorough checkout of product operation as laid out in this document.

WARNING

**Explosion Hazard and Electrical Shock Hazard.
Can cause explosion, serious injury or death.**

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

IMPORTANT

- The valve must be installed so that the arrow on the valve points in the direction of the gas flow (gas pressure helps to close the valve).
- Make sure the O-ring seals (provided) are properly positioned and seated at the inlet and outlet flange connections.
- Do not remove the dust seal over the valve inlet and outlet until ready to connect piping.

WARNING

**Explosion Hazard and Electrical Shock Hazard.
Can cause explosion, serious injury or death.**

- Do not take valve apart.
- Do not use tools to operate valve.
- Do not use valve if it has been flooded.
- Call serviceman if valve does not work properly.

IMPORTANT

- Disassembly of the valve in the field may cause permanent damage to the valve and void the factory warranty.
- Fasteners containing lacquer paint indicate non-field accessible areas.
- Accessory modules may be removed or replaced as necessary in the field.

CAUTION

If valve has been dropped, do not use it.

- Dropping the valve may cause permanent damage to the valve.
- Replace entire valve and associated modules before use.

CAUTION

The SV2 Series valve should be used with clean gas free of particles bigger than 50 micrometers.

To ensure this requirement is met, an external filter element, such as the Honeywell Kromschroeder GFK or similar, can be added to the gas supply line.

A. Orientation Planning

The gas valve can be mounted plus or minus 90 degrees from the vertical. Refer to Fig. 12. Pay attention to the gas flow direction arrows on the valve body when planning the mounting orientation (refer to Fig. 20 and Fig. 21). The electronics and LEDs should be accessible when the valve is installed in the valve train for programming purposes and visual indication purposes.

NOTE: If the valve electronics needs to be moved to the opposite side of the valve for better access, refer to the Changing Electronics Orientation procedure in the SV2 Series User Manual, document 32-00029

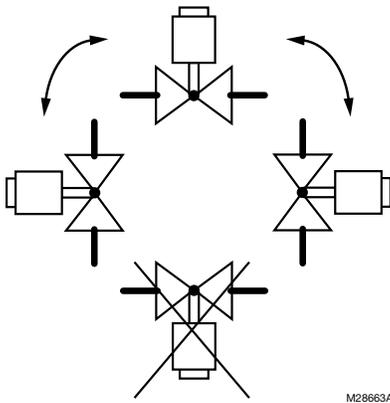


Fig. 12. Valve mounting position.

NOTICE

DO NOT attempt to change valve electronics side orientation without consulting the valve user manual.

- Reference document 32-00029 for detailed instructions on this procedure.

B. Flange Mounting to Main Gas Connection

NOTE: Flange installation instructions are packed with the flanges.

1. Remove the flanges from the box. Refer to Fig. 14.
2. Use a sound taper fitting with thread according to ISO7-1 or new, properly reamed pipe free from swarf.
3. Apply a moderate amount of good quality thread compound to the pipe for fitting only, leaving the two end threads bare. Ensure the thread compound is resistant to the action of liquid propane (LP) gas. Refer to Fig. 13.

NOTE: Ensure the gap left between the flanges when installed on the pipes does not exceed the valve body width otherwise the valve piping may be over stressed.

4. Screw the flanges onto the pipes. Refer to Fig. 14.

NOTES:

- The 1in/DN25 valve flange pressure port must be installed facing sideways (refer to Figs 7-8) due to the mounting hole orientations.
 - The 1.5-2.0inch/DN40-50 valve flange pressure port must be installed either facing up or down (refer to Figs 9-11) due to the mounting hole orientations.
5. Ensure the pressure taps on the flanges are oriented for access as needed. Refer to Fig. 14.
6. Ensure that inlet and outlet flanges are in line and separated from each other enough to allow the valve to be mounted between them without damaging the O-rings.

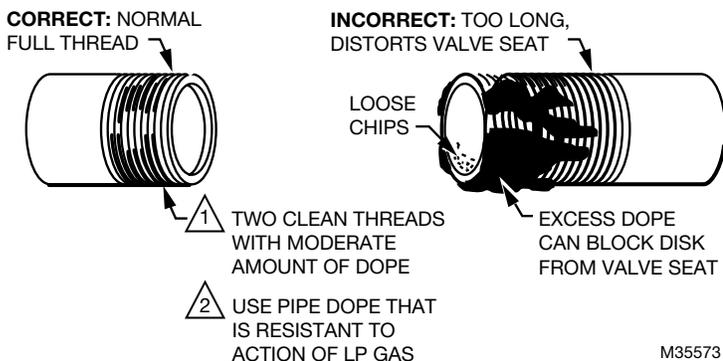
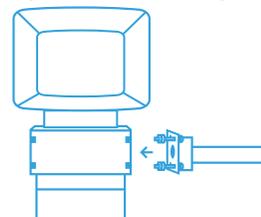
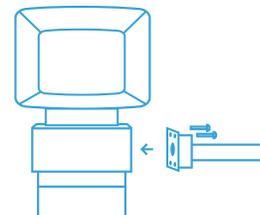
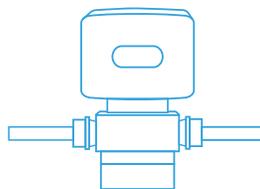


Fig. 13. Preparing pipelines.

C. Mounting Valve to Flange(s) and Piping

Depending on the the valve size, there are different techniques for mounting the valve to the flange(s) and piping per step 5 below.

1. Remove the paper covering over the valve inlet and outlet ports.
2. Take care that dirt does not enter the gas valve during handling.
3. Make sure O-ring surfaces on valve body and flange are clean.
4. Ensure the O-rings provided with the valve are properly positioned in the valve body O-ring groove. Refer to Fig. 14.
5. Mount gas valve between flanges using the screws provided for each flange.
 - a. 1 in. (DN25) valve bodies have drilled and tapped holes.
 - i. Slide valve into pipe train, supporting as necessary so that valve does not rotate.
 - ii. Insert provided screws into the flanges and tighten.
 - iii. Recommended tightening torque is 3.4 Nm (30 in-lbf).
 - b. 1 ½ in (DN40) and larger valve bodies have embedded slots for flange retaining nuts. Flanges are shipped with screws and retaining nuts.
 - i. In the embedded **valve body slots**, place 4 flange retaining nuts **on one side only of valve** (front or back), from inlet to outlet, such as side A/B only or C/D only as referenced in Fig. 21.
 - ii. On **each flange**, partially install screws and retaining nuts onto the **opposite side relative to the nut placement in step i**.
 - iii. Slide valve into pipe train, supporting as necessary so that valve does not rotate. Verify that the partially installed retaining nuts on the flange(s) slide into their respective slots on the valve body.
 - iv. Tighten the partially installed flange screws. Recommended tightening torque is 13.5-14.5 Nm (120-128 in-lbf).
 - v. Install and tighten remaining screws; first on top remaining valve body slots then second on bottom remaining slots. Tighten to the recommended torque above.

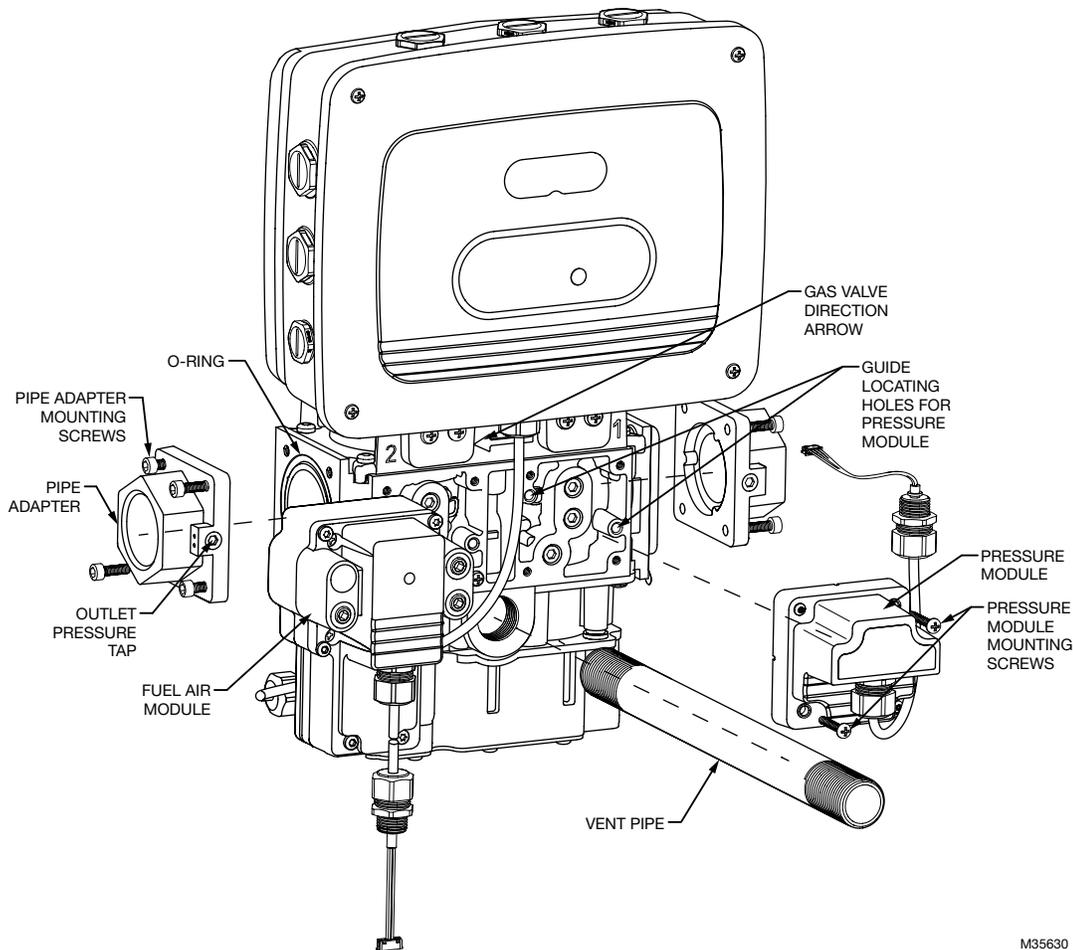


D. Vent Valve Connection

1. Take care that dirt does not enter the gas valve during handling.
2. Remove the vent plug from the side of the valve body. Refer to Fig. 14.

NOTE: If you need to replace the NOVV plug on the valve, the tightening torque should be between 72 to 88 Nm (53 to 65 ft-lbf).

3. Use a sound taper fitting thread according to ISO 7-1 or new, properly reamed pipe free from swart.
4. Apply a moderate amount of good quality thread compound to the pipe for fitting only leaving the two end threads. Ensure the thread compound is resistant to the action of liquid propane (LP) gas. Refer to Fig. 13.
5. Screw the fitting into the valve body.
6. Install vent valve per manufacturer's instructions



M35630

Fig. 14. Valve exploded view.

E. Premix Mixing Unit, Pulse Lines, Air Pre-Filter, Outdoor Air Installations and Start-Up Planning

Premix Mixing Unit 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 3. 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 3. Minimum piping length between V2MU mixing units and SV2 Series Premix 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 3.
- 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 16 mm	M8 x 16 mm	M8 x 20 mm	Nut (M8)	Washer
V2MU0300	4	-	-	-	-
V2MU0500, V2MU0800, V2MU1000	-	4	-	4	4
V2MU2000	-	-	4	4	-

Table 4. V2MU provided fastening materials.

Premix Pulse Lines

The Fuel/Air Module, which is attached to the valve, contains three pulse line connections for connection of air pressure, gas pressure and reference pressure of a gas/air mixing unit. The connections are indicated by A (gas), B (reference) and C (air). Corresponding connections exist on the SV2 Series mixing units as well. Refer to Fig. 15.

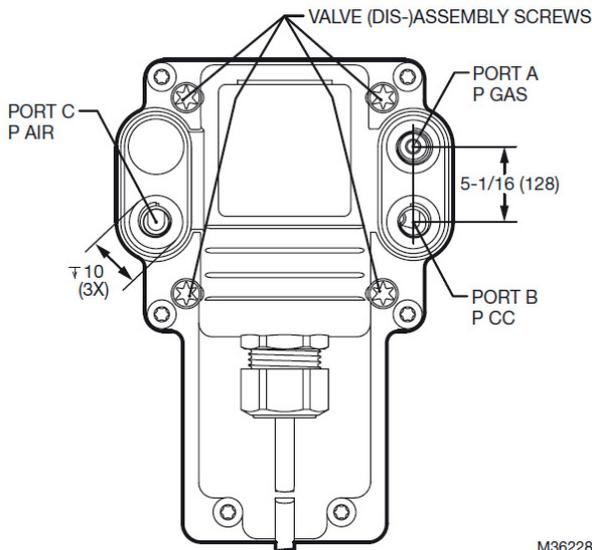


Fig. 15. FARMOD pulse line connections/mounting.

The pulse line tubing can be plastic or metal, depending on the connection point and approval body requirement. The Honeywell preferred pulse line connection for the reference pressure is aluminum or stainless steel. Honeywell offers several pulse line kits with separate tubing and fitting selections, as shown in Table 2, to facilitate myriad system configurations.

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.
 - 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 6mm drop per 0.31m of run). However, practical limitations may require some deviation from it. Please consult Honeywell Thermal Solutions with your particular geometrical arrangement if at doubt.

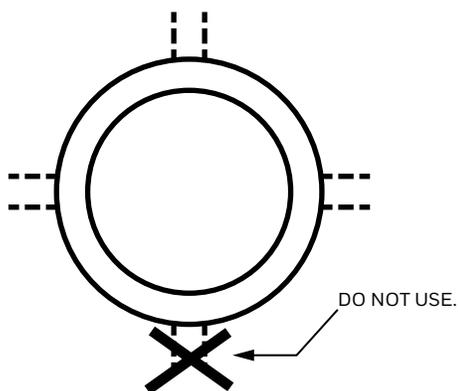


Fig. 16. V2MU mixing unit pulse line connections.

IMPORTANT (Refer to Fig. 16)

- To avoid condensate from back draft 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.

Attach the pulse lines to the pulse line fittings to Port A, B and C of the FARMOD as indicated in Fig. 3, following the instructions of the burner or boiler manufacturer. Attach each pulse line to its corresponding fitting on the mixing unit or burner.

Premix 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 is designed to remove fine dust particles from the air stream to the premix valve FARMOD, which can collect at the internal FARMOD orifice entrances, affecting flow resistance to the internal sensors and eventually cause nuisance lockouts.

The filter must be mounted between the V2MU mixing unit and the valve FARMOD in the air pulse line. When the Heat Exchanger is used, it must also be mounted between the V2MU mixing unit and the valve FARMOD, with the Heat Exchanger first and the filter second. Refer to Fig. 17.

NOTES:

- Due to the variety of possible appliance configurations, the fittings and tubing must be ordered separately. Refer to Table 2 for available part numbers and descriptions.
- 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.

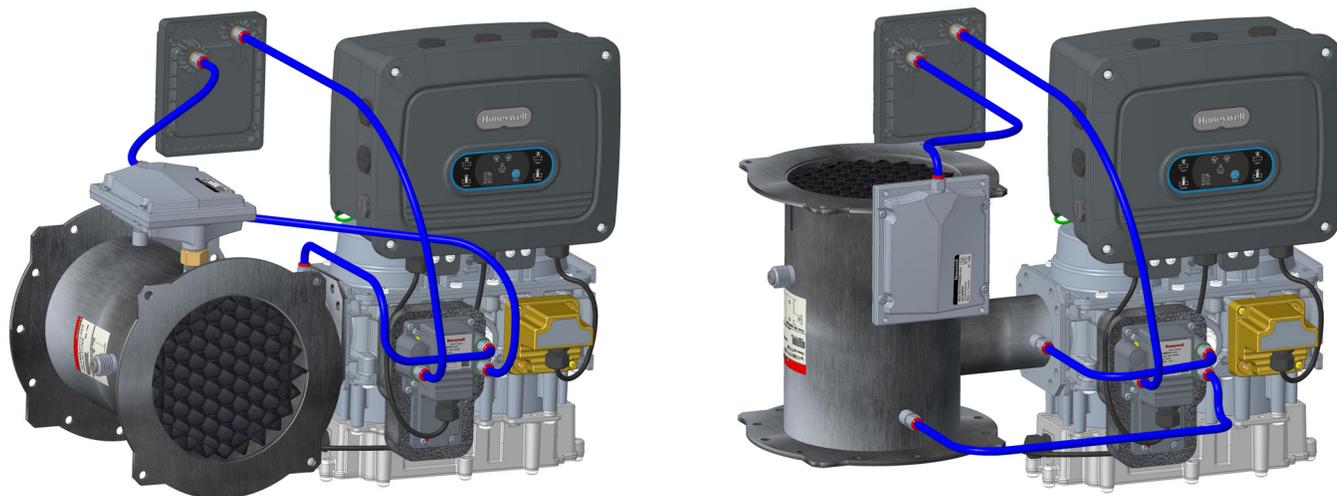


Fig. 17. Premix installation with valve, mixing unit, pre-filter, heat exchanger and FARMOD insulation.

Premix Outdoor Air Installations

⚠ WARNING

Direct water ingress (e.g. from mist, rain or pressure wash) 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 as this configuration has not been designed or tested.
- To prevent condensation formation due to back draft, 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 complete dehumidification system is not needed. In this case the valve + FARMOD can be mounted above or below the mixing unit.

The heat exchanger can be directly mounted to the V2MU mixing unit as shown in Fig. 17 and can be mounted in either a vertical or horizontal position, depending on the appliance configuration and available space. For remote mounting the heat exchanger, the customer must provide the appropriate bracket and/or install and connect as part of their appliance offering. Pulse line tubing and fitting between the mixer and heat exchanger is then required.

The inner diameter of the connection between the heat exchanger and the mixer shall not be smaller than 9mm at any point.

NOTES:

- The Heat Exchanger must always be mounted in a position that allows condensate to drain to the mixing unit. Accordingly, ensure that the mixer connection on the heat exchanger is the lowest point in regards to the heat exchanger mounting, otherwise water will be trapped inside the heat exchanger and will not drain appropriately.

- Excessive moisture can partially or fully clog the pulse lines between the mixing unit and the FARMOD and damage the FARMOD. In this case, the system will fail safely by causing a flame out, a valve lockout and/or may render the FARMOD unusable. Note that the FARMOD is field replaceable should this last instance occur.
- The Heat Exchanger and the filter must be mounted between the V2MU mixing unit and the FARMOD, with the Heat Exchanger first and the filter mounted as close to the FARMOD as possible. Refer to Fig. 17.
- For detailed installation instructions, refer to the Premix Accessories installation instructions, document 32-00180, which is available online and shipped with every Heat Exchanger.
- Refer to the V2MU Mixing Unit installation instructions, document 32-00044, which is available online and shipped with every V2MU.

Installation Sequence

The sequence of installation for the premix accessories is as follows; FARMOD insulation shoe (part of heat exchanger kit), heat exchanger, air pre-filter with pulse line tubing in between as required.

For detailed installation, refer to the Premix Accessories installation instructions, document, 32-00180, which is packed with the air pre-filter, heat exchanger, tubing and fitting kits.

Premix Start-Up

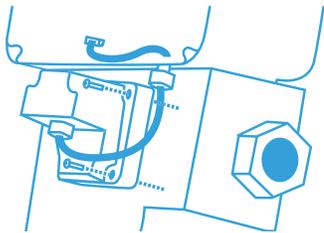
For detailed programming instructions via the HMI or PC Tools, refer to the valve user manual, document 32-00029, or the HMI/PC Tool user manual, document 32-00031. Both are available online at <https://customer.honeywell.com>.

IMPORTANT:

- The FARMOD (Fuel/Air Ratio Module) is standard equipped with a heating device. The heater will be powered whenever the valve electronics are powered. The FARMOD will feel warm after 1 hour of being powered. This is normal.
- As part of the appliance adjustments during commissioning, the site-specific calibration of the SV2 Series valve/appliance should be performed when the valve/appliance has reached a typical operating temperature for its installation/application in order to minimize the impact of component temperature changes on the fuel/air ratio.

F.–G. Pressure Module or C6097 Planning and Mounting

SV2 Series Pressure Module Placement and Connection



Refer to document 32-00017, which is packed with the Pressure Modules, for installation instructions regarding the placement, connection and wiring of the SV2 Series smart Pressure Modules. Applicable part numbers include:

- PRESSMOD11-000
- PRESSMOD12-000
- PRESSMOD13-000
- PRESSMOD14-000
- PRESSMOD41-000
- PRESSMOD42-000
- PRESSMOD43-000
- PRESSMOD44-000

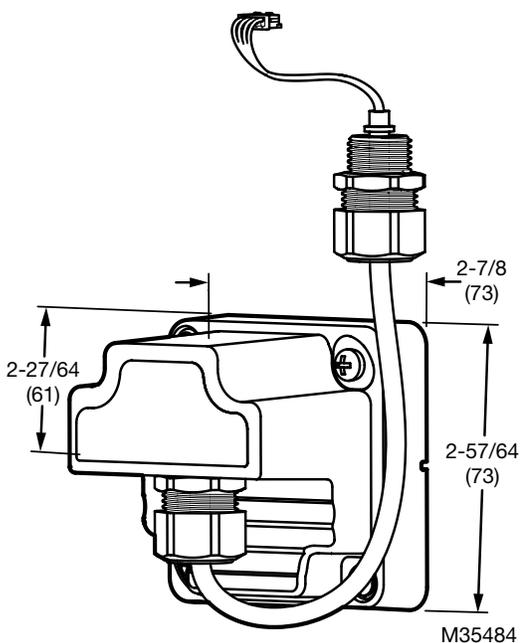


Fig. 18. SV2 Series Pressure Module.

Use of the SV2 Series smart Pressure Module is only applicable to valve versions with embedded intelligence. The 9th digit in the valve part number signifies the embedded Intelligence Feature level as follows:

- 6 = STANDARD. Includes Modbus, Pressure Module compatible, external VPS using Pressure Module.

NOTES:

- Accessing the Inlet (I) port of mounting locations A and C on V1 is not allowed for the Pressure Module. Refer to Fig. 21.
- The Pressure Module cannot be used at this time with fuel/air Premix valves for low gas pressure, high gas pressure or VPS. It is suggested to use the C6907 pressure switches for those functions instead. Refer to Table 5.

C6097 Pressure Switch Placement and Connection

⚠ WARNING

Explosion Hazard.

Can cause explosion, serious injury or death.

- The M4x25 screws (bag assembly 32305434-001) shipped with the SV2 valve **MUST** be used to secure the flange mount C6097 to the valve body
- **DO NOT** use the 8-32 screws provided with the flange mount C6097 pressure switch
- Failure to follow this advice can result in gas leakage and explosion



Fig. 19. C6097

C6097 flange mount pressure switches may be mounted directly on the SV2 Series valves and used for high gas pressure and VPS (valve proving system) switch operation. The NPT or Rp versions may be mounted to various valve pressure taps and can be used for high gas pressure, low gas pressure and VPS. The C6097 pressure switches may be used on all SV2 series valve models.

NOTES:

- Flange mount C6097s cannot be used for low gas pressure on the SV2 series valves.
- NPT or Rp mount C6097s may be used for low gas pressure mounted external to the valve, using the pressure tap on the inlet flange or using the Inlet (I) port on pressure access locations A and C on V1.

The flange mount C6097 pressure switches can be mounted in any of the four (4) positions on the valve body. The seals of the C6097 will only cover the center pressure access port of each location.

V1 seat mounting locations A and C access the Middle (M) and Inlet (I) pressure ports. V2 seat mounting locations B and D access the Outlet (O) and M (Middle) pressure ports. Refer to Fig. 21.

NOTES:

- The Inlet (I) port on V1 seat mounting locations A and C is only allowed for NPT/Rp mount pressure switches.
- The Middle (M) port on V2 seat mounting locations B and D is only allowed for NPT/Rp mount pressure switches.

The available pressure port locations for V1 and V2 seats for both sides of the valve are shown in Fig. 21. Pressure switch types, placement and associated functionality information can be found in Table 5.

Valve Model	Description	C6097 Functions	C6097 Mounting Style	Pressure Access Location	Pressure Port to Open
V2F	On/off	VPS	Flange	A/C on V1	Middle (M)
		High gas pressure		B/D on V2	Outlet (O)
		VPS	NPT or Rp (1/4 in)	B/D on V2	Middle (M)
		High gas pressure		Pressure tap on outlet flange	
		Low gas pressure		A/C on V1	Inlet (I)
				Pressure tap on inlet flange	
V2V	Premix	Low gas pressure	NPT or Rp (1/4 in)	Pressure tap on inlet flange	
		High gas pressure		A/C on V1	Inlet (I)
				Pressure tap on outlet flange Pressure tap on V2MU Any suitable location downstream of valve	
		Flange	B/D on V2 (other side of valve)	Outlet (O)	

Table 5. C6097 Pressure Switch Placement.

Preparation

1. Take care that dirt does not enter the gas valve during handling.
2. Select the correct pressure access location (A/B/C/D) to mount the C6097 and correct pressure port to open from the selection table. Refer to Table 5 and Fig. 21.

NOTE: You may want to mount the C6097 on the same side as the valve electrical enclosure for easy access when the valve is mounted in the valve train.

3. Remove the appropriate pressure access location cover (A/B/C/D) as identified in Fig. 20.

NOTE: If you need to replace a pressure access location cover, the tightening torque should be between 1.36 to 1.82 Nm (12 to 16 in-lbf).

C6097 Installation on SV2 Series Valve

WARNING

**Explosion Hazard and Electrical Shock Hazard.
Can cause explosion, serious injury or death.**

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

1. Ensure that line voltage has been removed from the valve.
2. Remove the appropriate pressure port plug (O, M or I) from the side of the valve body as identified in Table 5, Fig. 20, and Fig. 21.
3. Flange mount models:
 - a. Remove the label holding the O-ring in place and make sure O-ring is properly seated.
 - b. Assemble the C6097 to the valve body by mating its two screw holes and seal with the valve body. Refer to Fig. 20.
 - c. Attach the C6097 to the valve body using the two screws provided with the valve (M4x25). Verify the pressure module is flush against the casting to ensure the O-ring is compressed.
 - i. The tightening torque should be between 1.8 and 2.2 Nm (16 to 20 in-lbf).
4. NPT/Rp mount models:
 - a. Remove the dust seal, if present, from the positive pressure inlet.
 - b. C6097 has 1/4 in tapping while the SV2 pressure ports are 1/8 in (3mm), so a pipe reducer will be required.
 - c. Apply a moderate amount of good quality compound to the pipe for fitting only leaving the end threads bare. Ensure the thread compound is resistant to the action of liquid propane (LP) gas. Refer to Fig. 13.
 - d. Use a sound taper fitting thread according to ISO-7 (BS21, DIN2999) or new, properly reamed pipe, free from swarf.
 - e. Screw the C6097 onto the pipe, using the wrench boss incorporated in the housing.
 - f. Screw the pipe into the SV2 valve pressure port.
5. Refer to the C6097 pressure switch product data / instruction sheet for further installation, wiring and adjustment information, documents 65-0237 or EN1R-9172 9907R1-NE (continent dependent). Complete the electrical connections as instructed in the applicable document.

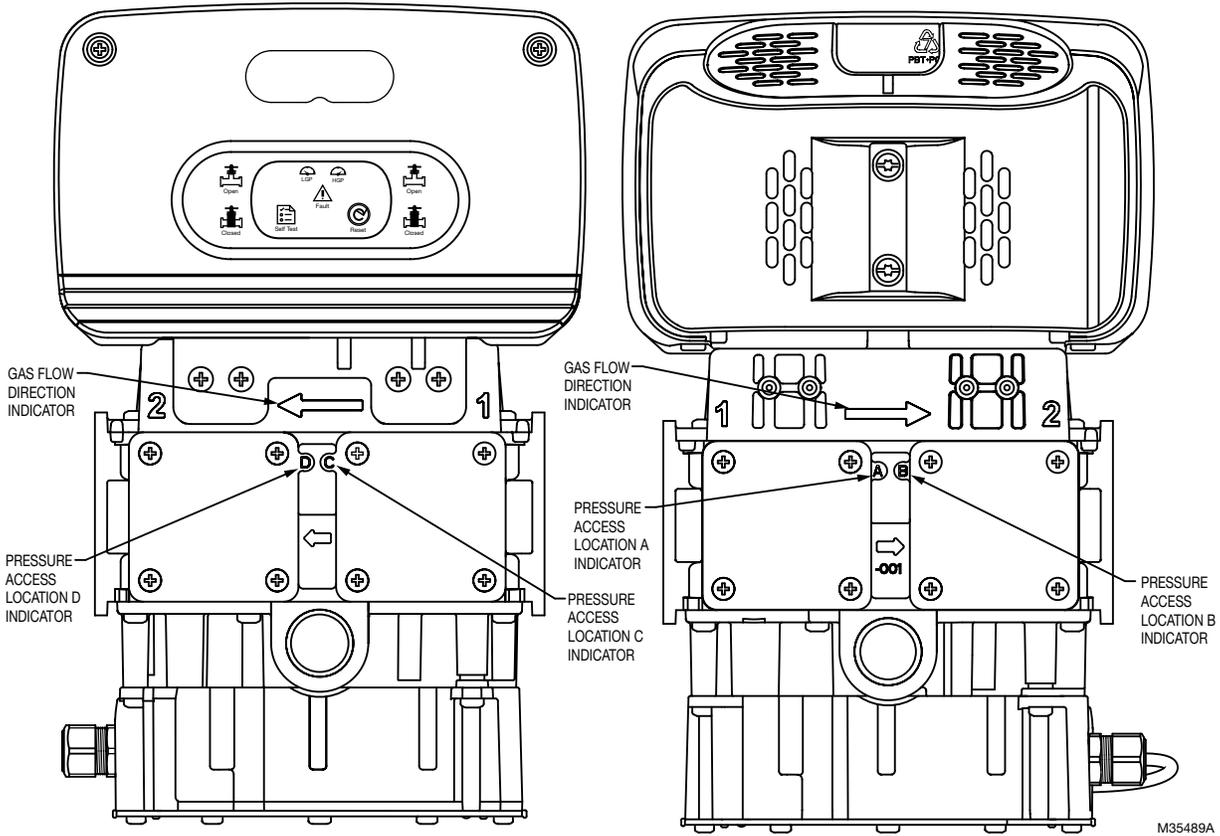


Fig. 20. Valve body and pressure port covers.

NOTE: If you need to replace a pressure access location cover, the tightening torque should be between 1.36 to 1.82 Nm (12 to 16 in-lbf).

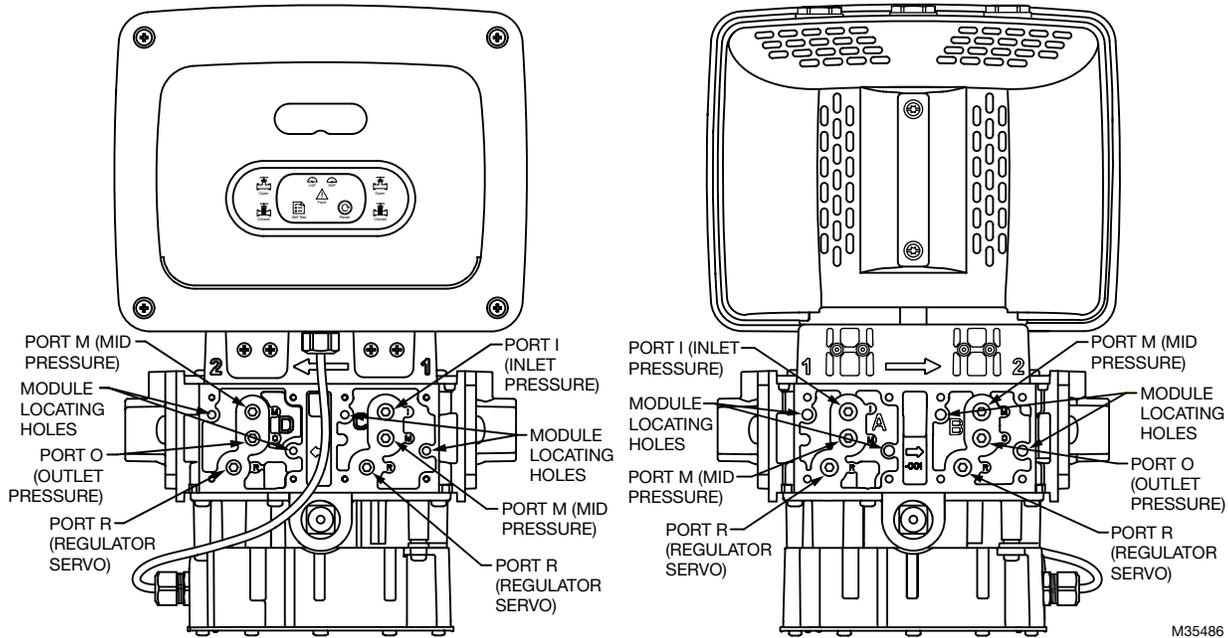


Fig. 21. Valve body and pressure ports.

3 WIRING

From the factory, several items will be fully wired internally via connectors inside the electrical enclosure. The factory wiring terminals can be found in Table 7. Customers may purchase the Honeywell SV2 Series valve with or without required electrical connectors (continent dependent).

If purchased with electrical connectors, they may be found in a bag assembly, housed in the accessory box that contains the literature and spare screws for mounting the pressure module or C6097 pressure switch.

If the valve is not purchased with the required electrical connectors, they may be purchased separately under part number CONNECTORKIT-000 or purchased externally. The appropriate connector information is shown in Table 6.

Vendor	Description	Vendor Part Number	SV2 Series Purpose	Required Quantity
Lumberg	RAST 5, 2 Pole	3611 02 K02M08	Mains supply	1
Lumberg	RAST 5, 3 Pole	3611 03 K04M08	RS-485 Modbus ¹	1
Lumberg	RAST 5, 4 Pole	3611 04 K120M08	Analog Fire Rate + Analog O2 Sensor ¹	2
Lumberg	RAST 5, 6 Pole	3611 06 K01M08	Control Wiring	1

1. Does not apply to BASIC (5) electronics, designated by the 9th digit in the valve model number.

Table 6. SV2 Valve Electrical Connectors Identification.

A. Wiring and Conduit Recommendations

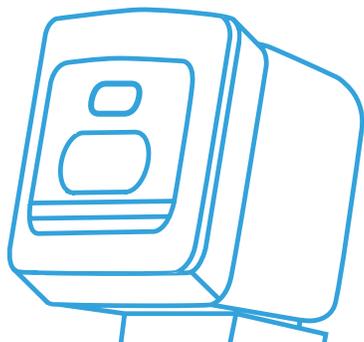
WARNING

Explosion Hazard and Electrical Shock Hazard.
Can cause explosion, serious injury or death.

- **Disconnect the power supply making wiring connections to prevent electrical shock and equipment damage.**
- **More than one power supply disconnect can be involved.**

IMPORTANT

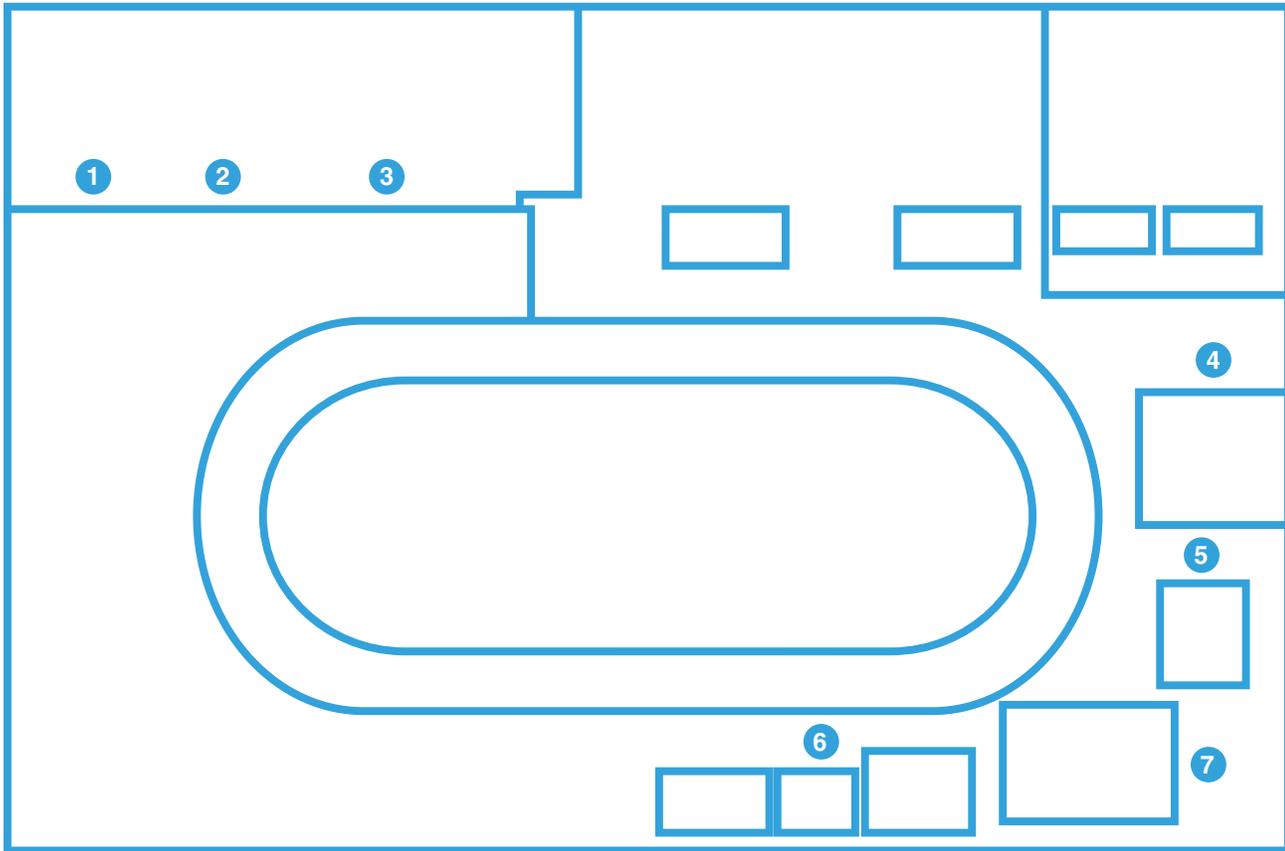
- Use only flexible conduit with the SV2 Series valve NEMA 4 / IP66 enclosures.
- Wiring must comply with all applicable electrical codes, ordinances and regulations.
- Wiring must comply with NEC Class 1 (line voltage) wiring.
- Use lead wire which can withstand 90 °C (194 °F) ambient temperatures.
- Voltage and frequency of the power supply connected to this control must agree with those marked on the device.
- Loads connected to the VPS (valve proving system) Switch and/or POC (proof of closure) Switch, if used, must not exceed the ratings given in Table 8.
- Separate line and low voltage to avoid signal interference. If using conduit, run line voltage and low voltage wiring in separate conduit.



B. Remove Electrical Enclosure Cover

To access the customer wiring terminals, remove the valve front electrical enclosure retaining screws with the appropriate tool. Set the cover aside.

C. Estimate Wiring



Note that the SV2 Series valves have unique line voltage, limit, interlock and VPS (valve proving system) wire routing. SV2 Series valves require line voltage power input at all times to the internal electronics. This is true of all SV2 Series valve models. Interlock wiring is run through all valve models for solenoid power saving feature. Interlock dry contact input/output also used for flame safeguard control ILK string with the Pressure Module for low gas pressure and high gas pressure functions. VPS switch contact output present on applicable models when the Pressure Module is used for VPS that is externally triggered by a separate device. Refer to Fig. 24 through Fig. 33 for proper valve wiring.

NOTE: Even when external C6097 pressure switches are used, the ILK wiring must be run through the valve.

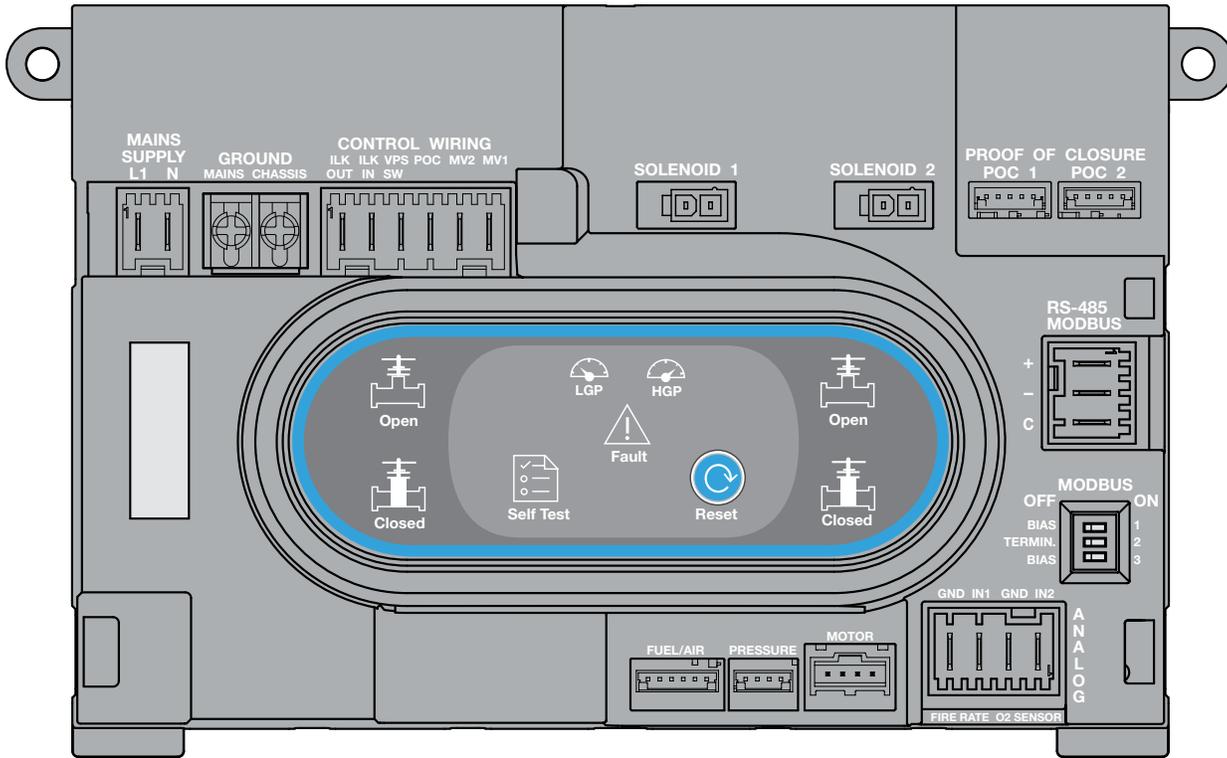
Certain models of the SV2 Series valves also have Modbus interface wiring as well as termination and bias resistor selections. The Modbus interface is used for programming intelligent features and connection to a building automation system.

Fig. 22 shows all of the wiring terminals inside the valve electronics enclosure. The factory wiring terminals can be found in Table 7 while the field wiring terminals and designations can be found in Table 8. A summary of the possible field wiring connectors is shown below, relative to the callouts in the illustration above.

1. Mains Supply L1 and N
2. Ground Mains and Chassis
3. ILK Out/In, VPS Switch output, POC output, Main Valve 1/2
4. RS-485 Modbus (not present on Basic Intelligence models)
5. Modbus termination and bias resistors (not present on Basic Intelligence models)
6. Pressure connection for Pressure Module
7. Analog GND/IN for Fire Rate and O2 Sensor (used for future enhancements)

Other – C6097/C437 pressure switches

NOTE: Use of certain terminals & items such as VPS Switch output, POC output, Modbus, 6 and 7 is model dependent. Refer to Table 8 for details.



MCR37255

Fig. 22. NEMA 4 / IP66 STANDARD (6) electronics interface.

NOTES:

- Electrical connections are the same for NEMA 1 / IP20 electrical assembly with the omission of POC 1 and POC 2.
- BASIC (5) electronics do not have any Modbus, Fuel/Air, Pressure, Motor or Analog connections

Description	Purpose	Applicable Model(s)
SOLENOID 1	Connection from Solenoid 1 to main electronics. Enables powering of solenoid.	All
SOLENOID 2	Connection from Solenoid 2 to main electronics. Enables powering of solenoid.	
PROOF OF CLOSURE		
POC 1	Connection from Solenoid 1 POC to main electronics. Tied to the valve interface Open and Closed LEDs. Refer to Fig. 22.	All (optional)
POC 2	Connection from Solenoid 2 POC to main electronics. Tied to the valve interface Open and Closed LEDs. Refer to Fig. 22.	
FUEL/AIR	Module that measures gas, air and gas/air mix inputs from fuel/air system to control the fuel/air valves. Works with stepper MOTOR.	V2V
MOTOR	Stepper motor performs valve modulation in response to changing conditions from the fuel/air module and burner system	V2V

Table 7. Factory Wiring Information.

Description	Terminal	Purpose	Rating ⁶	Applicable Model(s) ⁵
MAINS SUPPLY ¹	L1	Valve incoming voltage supply L1 connection	24, 100-240VAC, 15W	All
	N	Valve incoming voltage supply neutral connection		
GROUND (PROTECTIVE EARTH PE)	MAINS	Valve external ground connection	-	All
	CHASSIS	Valve chassis ground, connected to valve body grounding terminal		
CONTROL WIRING ²	ILK OUT	Interlock wiring run through all valve models for solenoid power saving feature. Dry contact output / input also used for flame safeguard control ILK string with Pressure Module for low gas pressure and high gas pressure functions.	24, 100-240VAC, 8A	All
	ILK IN			
	VPS SW	Line voltage output for Valve Proving System switch, using the Pressure Module, for external VPS conducted by a separate device	24, 100-240VAC, 0.1A	All models with Intelligent Features of 6 or 7
	POC	Line voltage output for Proof of Closure switch	24, 100-240VAC, 0.1A	All valves with POC
	MV2 ³	Main valve 2 and 1 incoming voltage from burner control. May be jumpered if external VPS is NOT performed or if valve is an internal VPS model (models with Intelligent Features of 9)	1 inch / DN25 Valves: 24VAC, 1.6A/35W 120VAC, 0.5A/55W 240VAC, 0.3A/55W 1.5-2.0 inch / DN40-50 Valves: 120VAC, 1.0A/110W 240VAC, 0.6A/110W Per coil pull-in (2 sec) at 20°C/68°F	All
MV1 ³				
RS-485 MODBUS ²	+	Modbus Data + connection	For HMI or PC Tools or building automation system connection	All models with Intelligent Features of 6
	-	Modbus Data - connection		
	C	Modbus common connection		
MODBUS BIAS RESISTORS	BIAS	Bias resistor for differential resistance	Refer to section F, entitled Valve Modbus Bias Setup	All models with Intelligent Features of 6
	TERM.	Termination resistor		
	BIAS	Bias resistor for differential resistance		
PRESSURE	-	Field connection for Pressure Module, which can be used for Low gas pressure, High gas pressure, VPS (external and internal), Leak detection or pressure monitoring	-	All models with Intelligent Features of 6
FIRE RATE ²	GND	Ground connection for firing rate analog input	-	For future enhancements
	IN1	Firing rate 4-20mA / 2-10VDC analog input for metering function		
O2 SENSOR ²	GND	Ground connection for oxygen sensor analog input	-	For future enhancements
	IN2	O2 sensor 4-20mA / 2-10VDC analog input for fuel/air adaptive		

- Run line voltage wires in separate conduit.
- Run low voltage wires in separate conduit. For the best Modbus communication performance, use shielded wire with two twisted pairs (Belden 9842 or equivalent). Connect + and - to one twisted pair, and C to both wires of the other twisted pair. Connect the shield to Earth Ground at the end of the connected external device (i.e. HMI or building automation system). Do not connect C to the shield. Route any noise producing wires in conduit separate from the HMI and as far away from the HMI as possible. For further Modbus wiring information, refer to HMI installation instructions, document 32-00030.
- MV2 and MV1 may be jumpered if there is no need to individually power them. MV2 and MV1 should NOT be jumpered if an external VPS control is used, which requires MV2 and MV1 to be powered individually. On valve models with internal VPS functionality, MV2 and MV1 may be jumpered as the VPS sequence is directed by the valve itself, rather than an external control.
- Installation, operation and maintenance shall conform with National Fire Protection Association standards, national and local codes and authorities having jurisdiction.
- Use of the Pressure Module is only applicable to valve versions with embedded intelligence;
 - 6 = STANDARD. Includes Modbus, Pressure Module, external VPS using Pressure Module.
- Rating may be valve supply voltage dependent.

Table 8. Field Wiring and Terminal Designation⁶.

D. String Wires

You will need to remove the electrical connectors from the accessory box as well any line / low voltage nuts and plugs and low voltage cord grips. Inclusion of these items is model dependent. Complete this step **BEFORE** wiring to the electrical connectors.

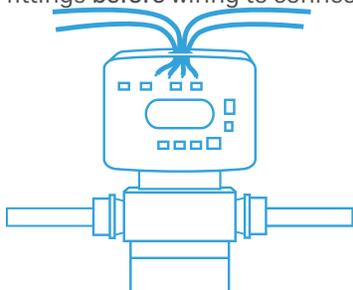
1. For NEMA 4 / IP66 enclosures:

NOTES:

- Use only flexible conduit with the SV2 Series valve NEMA 4 / IP66 enclosures.
 - There are 6 low voltage entry points using M16 x 1.5 cord grips and retaining nuts.
 - There are 6 entry points with 0.875 in (2.223 cm) holes for use with ½ in (1.27 cm) conduit or the provided 1/2 in NPT cord grip (for use with the RS-485 Modbus cable).
 - To maintain the NEMA 4 / IP66 enclosure rating when using the cord grips, the recommended wire ODs are as follows:
 - M16 x 1.5 cord grip: cable OD 1.7-5.8 mm (0.07-0.23 in)
 - ½ in NPT cord grip: cable OD 4.3-11.4 mm (0.17-0.45 in)
- a. Select the line and low voltage wire entry locations you wish to use.
 - b. If using cord grips for low voltage wires:
 - i. Place the small retaining nuts in the low voltage entry points you wish to use.
 - ii. String wires through the cord grips, low voltage entry points and nuts before wiring to connectors.
 - iii. Tighten M16 x 1.5 cord grips to 3.7 to 4.2 Nm (33 to 38 in-lbf).

NOTE: If using a cord grip for the RS-485 Modbus wiring, the provided 1/2 in NPT cord grip must be used due to the recommended cable size. One of the larger 0.875 in (2.223 cm) electronic enclosure holes must be used along with one of the ½ in lock nuts which secure factory assembled plugs. The torque to assemble the ½ in NPT lock nut to the cord grip is 4.5 to 5.1 Nm (40 to 45 in-lbf). The torque to tighten the cord grip sealing nut around the cord is 5.6 to 6.2 Nm (50 to 55 in-lbf).

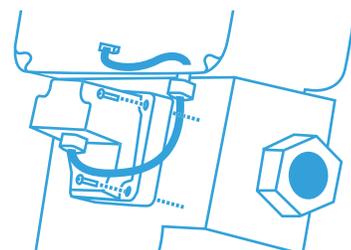
- c. If using conduit for low or line voltage wires:
 - i. String wires through the external conduit and through the valve enclosure entry points and conduit retaining fittings before wiring to connectors.



- ii. Torque conduit hardware to manufacturers recommended requirements.
- d. For the Pressure Module: Use the cable entry point just above the Pressure Module location or in the center of the electrical enclosure due to cable length. There are 3 low voltage entry points on the bottom of the electrical enclosure.

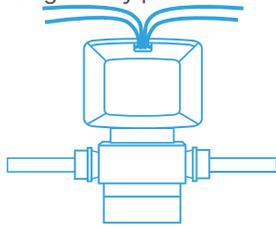
NOTE: A NEMA 4 / IP66 Pressure Module (PRESSMOD4x-000) must be used with a NEMA 4 / IP66 valve electrical enclosure to retain the enclosure rating.

- i. Place the retaining nut in the selected entry location.
- ii. Thread the Pressure Module connector end through the hole and nut.
- iii. Thread extra cable length inside electrical enclosure as desired.
- iv. Insert the Pressure Module threaded cord grip into the hole and tighten, using the retaining nut.
- v. Tighten cord grip to 3.7 to 4.2 Nm (33 to 38 in-lbf).



2. For 1 Inch / DN25 Valve NEMA 1 / IP20 enclosures:

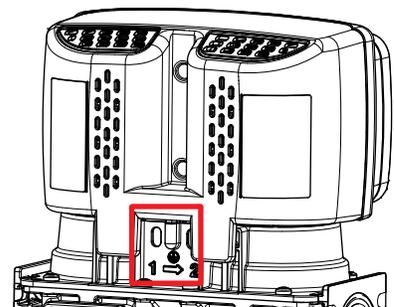
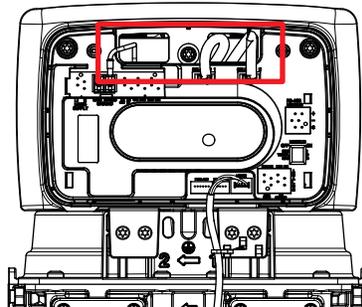
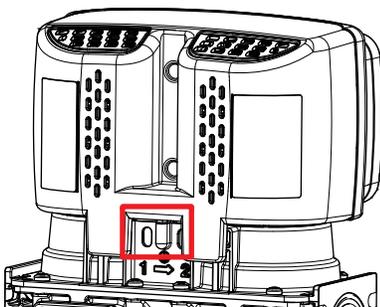
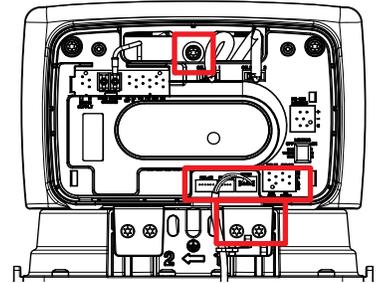
- a. String wires through enclosure rear opening or bottom slot before wiring to connectors. Separate the line and low voltage entry points.



- b. For wire strain relief, dress wires with a tie wrap to one of the wire clips located on the rear or bottom of the electrical enclosure.
- c. For the Pressure Module:
 - i. Thread the connector end through the slot in the bottom center of the electrical enclosure.
 - ii. 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.

3. For 1.5-2.0 Inch / DN40-50 NEMA 1 / IP 20 Enclosures

- The rear enclosure covering the solenoid coils must first be removed to access the line voltage mains and control wire routing area.
 - With the valve front electrical enclosure cover off, the back cover can be removed with one screw which is located above the valve interface on the front side of the valve.
- Before wiring to connectors, string wires through appropriate openings:
 - Low voltage wiring entry is at the bottom of the front electrical enclosure.
 - ♦ Strain relief is via a loop on the electrical enclosure fixation tab.
 - Line voltage wiring entry is at the bottom of the rear electrical enclosure. Route wires between the solenoids and through two rectangular openings at the top of the front electrical enclosure.
 - ♦ Wires may be secured to hooks embedded into the plastic on the rear exterior of the front electrical enclosure, just below the rectangular openings.
 - ♦ Strain relief is via eyes in the top part of the valve bonnet assembly, above the gas flow directional arrow.



- For the Pressure Module, thread the connector end through the slot in the bottom of the front electrical enclosure.

NOTE: A NEMA 1 / IP20 Pressure Module (PRESSMOD1x-000) must be used with a NEMA 1 / IP20 valve electrical enclosure.

E. Connect Wires

1. Be sure to observe the terminal labeling as shown below and proper electrical connector placement.
2. Connect wires to the proper terminal on the proper connector.
 - a. Refer to Table 8.
 - b. Refer to the Burner Control Interface Wiring, Fig. 24 through Fig. 33.
3. Plug electrical connectors into their proper sockets
4. Plug Pressure Module (if used) connector into the socket labeled 'PRESSURE'.

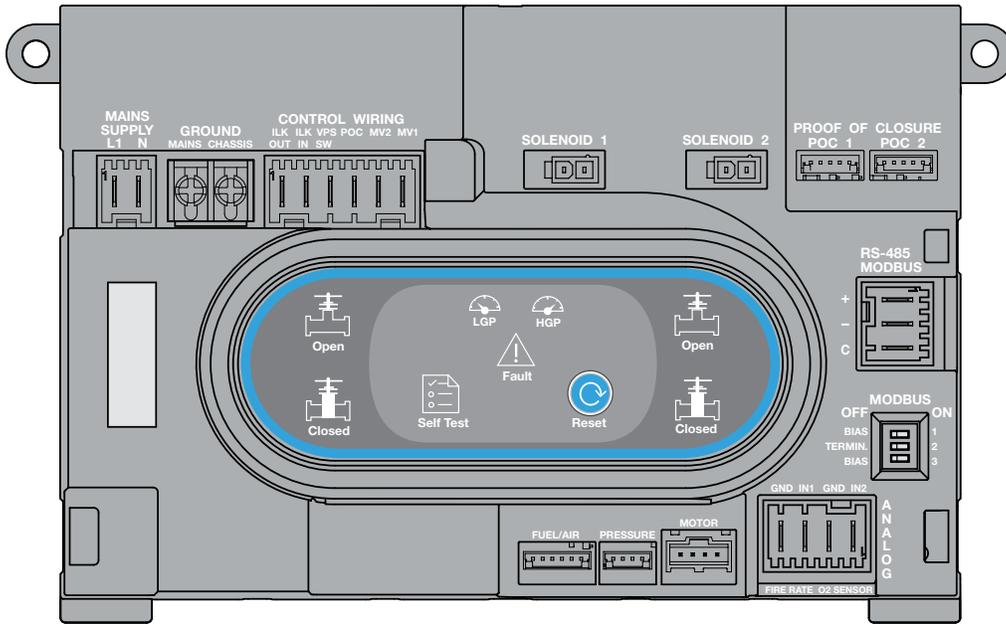
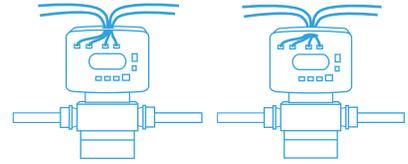


Fig. 23. NEMA 4 / IP66 STANDARD (6) electronics interface.

NOTES:

- Electrical connections are the same for NEMA 1 / IP20 electrical assembly with the omission of POC 1 and POC 2
- BASIC (5) electronics do not have any Modbus, Fuel/Air, Pressure, Motor or Analog connections.

F. Valve Modbus Bias Setup

The SV2 Series valve can communicate via Modbus RTU communication with any compatible device. Only RTU communications with 1 start bit, 8 data bits, 1 stop bit and no parity is supported.

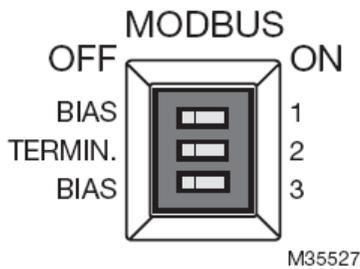
When more than one SV2 Series valve is connected to the HMI or PC Tools or directly connected to a building automation system, the Modbus termination and bias resistors should be adjusted appropriately. The resistors can be found inside the electrical enclosure on the right-hand side and are present in all intelligent valves models; valves where the 9th digit in the part number string are 6. Refer to Fig. 22.

The TERMIN. (termination) resistor in the ON position helps to improve signal integrity for the best performance in regards to EMC (electromagnetic compatibility). The termination resistor may be especially helpful to improve communication when the SV2 Series connected valve is at the end of the communication BUS.

The BIAS resistors in the ON position provide differential resistance for some older communication systems where communication can be lost with zero voltage present on the BUS. Resistors 1 and 3 should always be in the OFF or ON positions together. Refer to Table 9.

NOTE: If communication is problematic with all daisy-chained valves connected to the master control, adjusting the two BIAS resistors may solve the issue.

SV2 Series valve Modbus bias and termination resistors.



SV2 Series Valve		Differential Biasing					
Not at BUS end	At BUS end	Not required	Required		OFF	ON	
X		X		BIAS	X		1
				TERMIN.	X		2
				BIAS	X		3
X			X	BIAS		X	1
				TERMIN.	X		2
				BIAS		X	3
	X	X		BIAS	X		1
				TERMIN.		X	2
				BIAS	X		3
	X		X	BIAS		X	1
				TERMIN.		X	2
				BIAS		X	3

Table 9. Modbus bias resistor setup.

G. Install Plugs

For any remaining unused wire entry locations in the NEMA 4 / IP66 electronic enclosure, install plugs and associated nuts to ensure enclosure rating. There are two different sizes of plugs for line and low voltage. The proper size and tightening torques are shown below.

- a. Low voltage, M16 x 1.5: 3.7 to 4.2 Nm (33 to 38 in-lbf).
- b. Line voltage, ½ in. NPT: 4.5 to 5.1 Nm (40 to 45 in-lbf).

Burner Control Interface Wiring

IMPORTANT:

- If the burner management control does not have a running or lockout interlock input, consult the factory. The valve ILKIN terminal must be powered before MV1 and MV2 valve seats can be opened or a lockout will occur. The valve ILKIN terminal must be tied to the burner management control in some manner and not simply jumpered to L1 power.
- For the best Modbus communication performance, use shielded wire with two twisted pairs (Belden 9842 or equivalent). Connect + and - to one twisted pair, and C to both wires of the other twisted pair. Connect the shield to earth ground at the end of the connected external device (i.e. HMI, PC or building automation system). Do not connect C to the shield. Run any noise producing wires in conduit separate from the HMI Tool and as far away from the HMI as possible. For further Modbus wiring information, refer to the HMI installation instructions, document 32-00030.

Valve Operational Notes

After valve terminals MV1 and MV2 are powered, the valve will run internal self-diagnostics on its MV1 contact for 200-300 milliseconds and then close the contact to power the valve seats.

All SV2 Series valves have a power save feature built in. The ILKIN / ILKOUT circuit is used as a back-up to shut off the valve through the burner control ILK circuit. If for any reason the power save feature fails, the valve internal ILK contact is opened and a fault annunciated.

The valve internal ILK contact is closed at all times when the valve electronics are powered, unless there is a general fault condition, a Lo-Gas / Hi-Gas pressure lockout condition from the Pressure Module, or just after power-up before internal relay diagnostics are complete.

The valve POC (Proof of Closure) output terminal is energized when both valve seats are sensed closed and open if one or both valve seats are sensed as not closed. On BASIC and STANDARD electronics versions, the valve POC output will remain energized, even during a valve lockout condition.

When using the Pressure Module for the Lo-Gas / Hi-Gas limits, the software is only active after both MV1 and MV2 valve seats are powered.

North American Standards 7800 SERIES Operational Notes

The North American Standard EC/RM78xx controls ILK (Interlock) input must close by 10 seconds into pre-purge otherwise a recycle to the beginning of pre-purge will occur or a safety shutdown, depending on the model. The ILK input is ignored during post-purge.

The pre-ignition input terminal (via the valve POC output) must remain closed during standby through pre-purge otherwise the control returns to the standby state and hold for 30 seconds or a safety shutdown occurs, depending on the model.

The pre-ignition input terminal (via the valve POC output) must be closed within the first 5 seconds of post-purge or the burner control will lockout.

If the SV2 Series Pressure Module Lo-Gas / Hi-Gas limits are set to auto reset and one of them are tripped during the burner control Run cycle on a burner control with lockout interlocks, the burner control will lockout on ILK lockout and need to be manually reset. This occurs since the Pressure Module is located in the ILK circuit of the valve and burner control instead of the Limits circuit.

European Standards 7800 SERIES Operational Notes

The European Standards EC/RM78xx controls LOS (Lockout) input is monitored at all times for closure and will lockout if the input opens, but will continue post-purge if it opens during that sequence.

The pre-ignition input terminal (via the valve POC output) must:

- not be open an accumulative time of 30 seconds during standby
- remain closed during pre-purge through pre-ignition

otherwise a safety shutdown occurs.

At this time, the Pressure Module cannot be used for Lo-Gas / Hi-Gas limit operation on European 7800 SERIES models.

No External VPS (Valve Proving Sequence) used; electronics configuration BASIC (5) or STANDARD (6)

Wiring between the SV2 Series valve and Honeywell 7800 SERIES, SOLA, 7800 SERIES and ControLinks and SLATE is shown in this section.

7800 SERIES North American Standards (UL, CSA, FM, etc.)

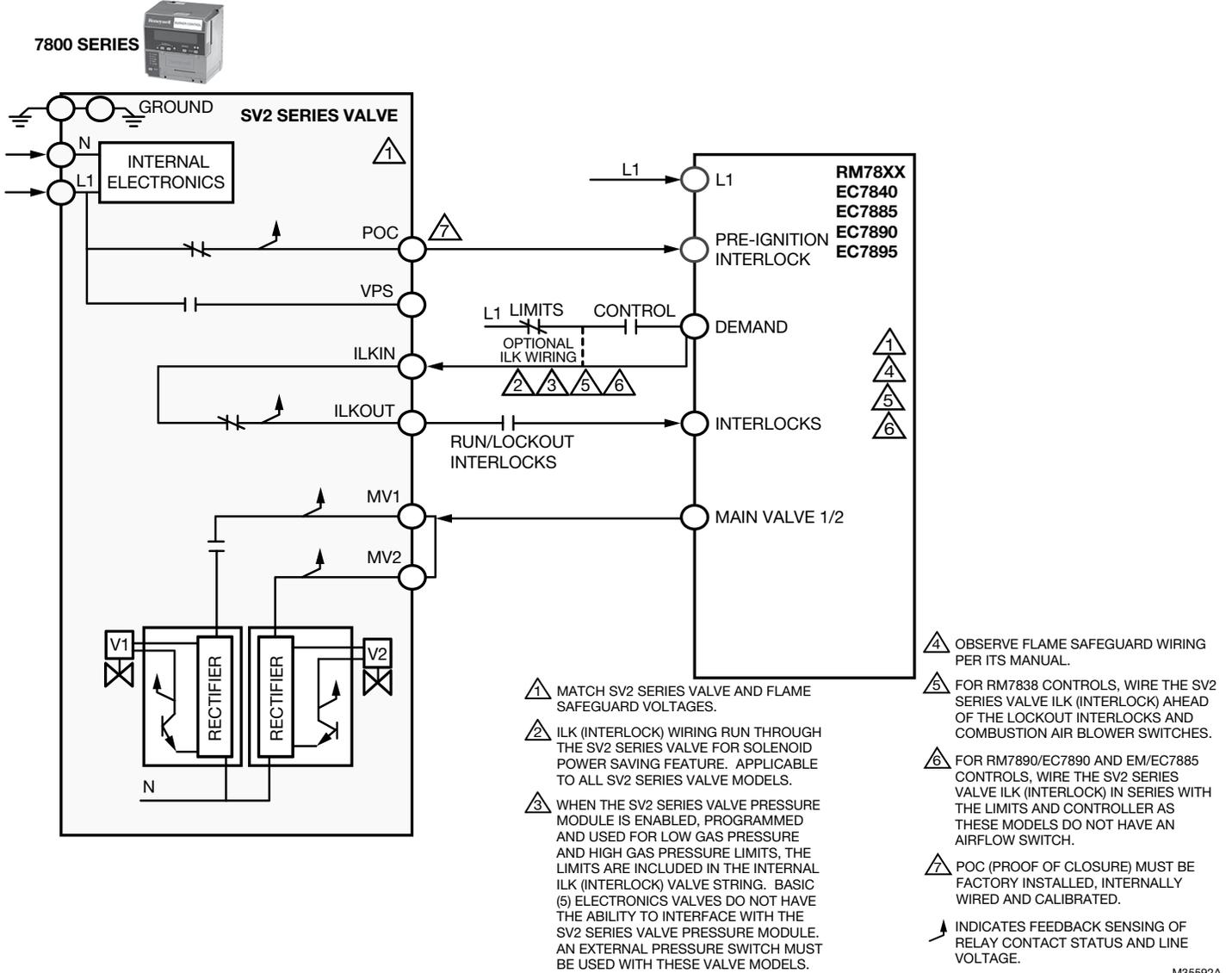
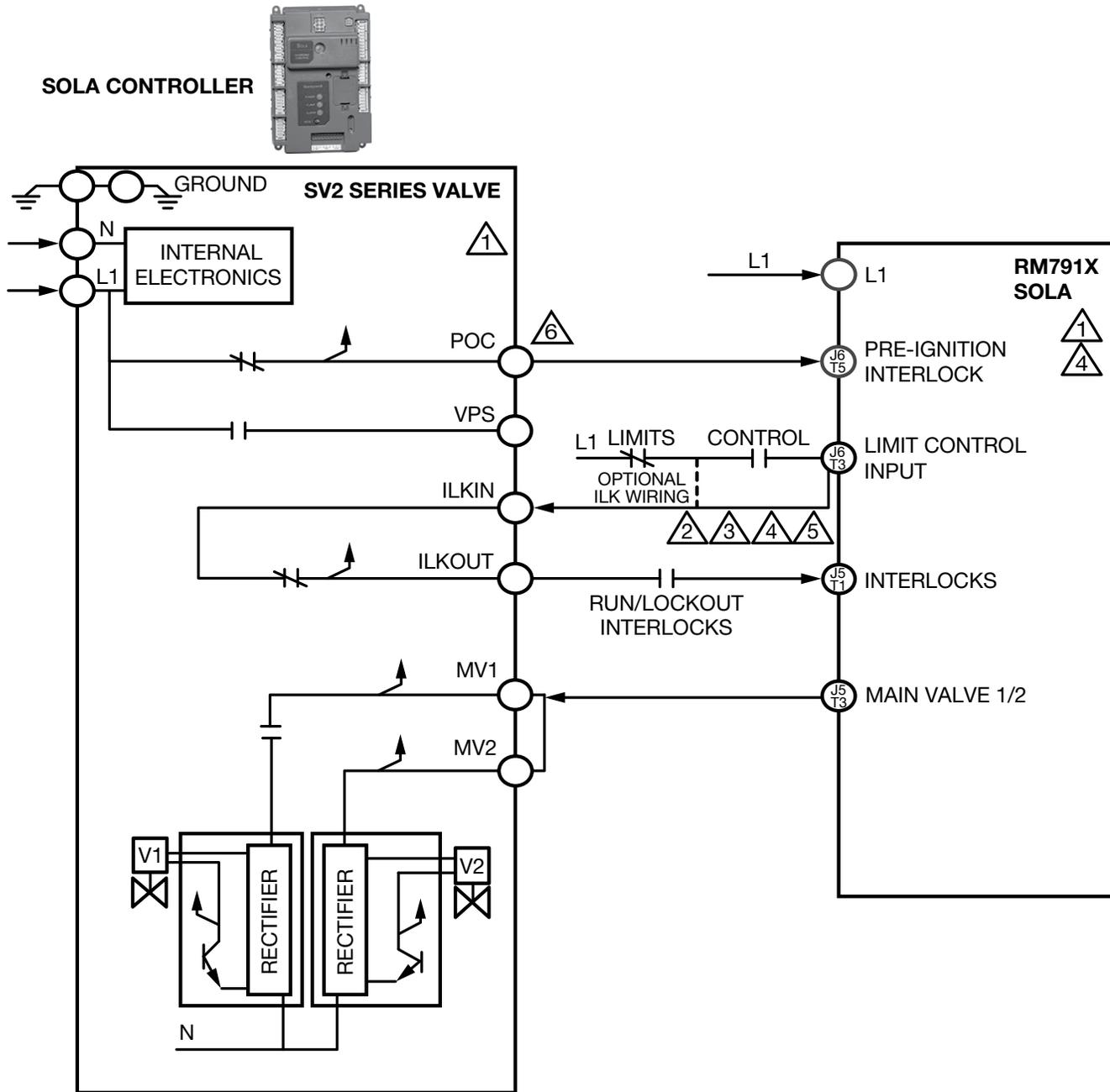


Fig. 24. 7800 SERIES with BASIC or STANDARD Electronics, No External VPS.

SOLA Controller



- ⚠ MATCH SV2 SERIES VALVE AND FLAME SAFEGUARD VOLTAGES.
- ⚠ ILK (INTERLOCK) WIRING RUN THROUGH THE SV2 SERIES VALVE FOR SOLENOID POWER SAVING FEATURE. APPLICABLE TO ALL SV2 SERIES VALVE MODELS.
- ⚠ WHEN THE SV2 SERIES VALVE PRESSURE MODULE IS ENABLED, PROGRAMMED AND USED FOR LOW GAS PRESSURE AND HIGH GAS PRESSURE LIMITS, THE LIMITS ARE INCLUDED IN THE INTERNAL ILK (INTERLOCK) VALVE STRING. BASIC (5) ELECTRONICS VALVES DO NOT HAVE THE ABILITY TO INTERFACE WITH THE SV2 SERIES VALVE PRESSURE MODULE. AN EXTERNAL PRESSURE SWITCH MUST BE USED WITH THESE VALVE MODELS.

- ⚠ OBSERVE FLAME SAFEGUARD WIRING PER ITS MANUAL.
- ⚠ IF SOLA INTERNAL OPERATING CONTROL IS USED, EXTERNAL CONTROL WIRING NOT APPLICABLE.
- ⚠ POC (PROOF OF CLOSURE) MUST BE FACTORY INSTALLED, INTERNALLY WIRED AND CALIBRATED.
- ⤴ INDICATES FEEDBACK SENSING OF RELAY CONTACT STATUS AND LINE VOLTAGE.

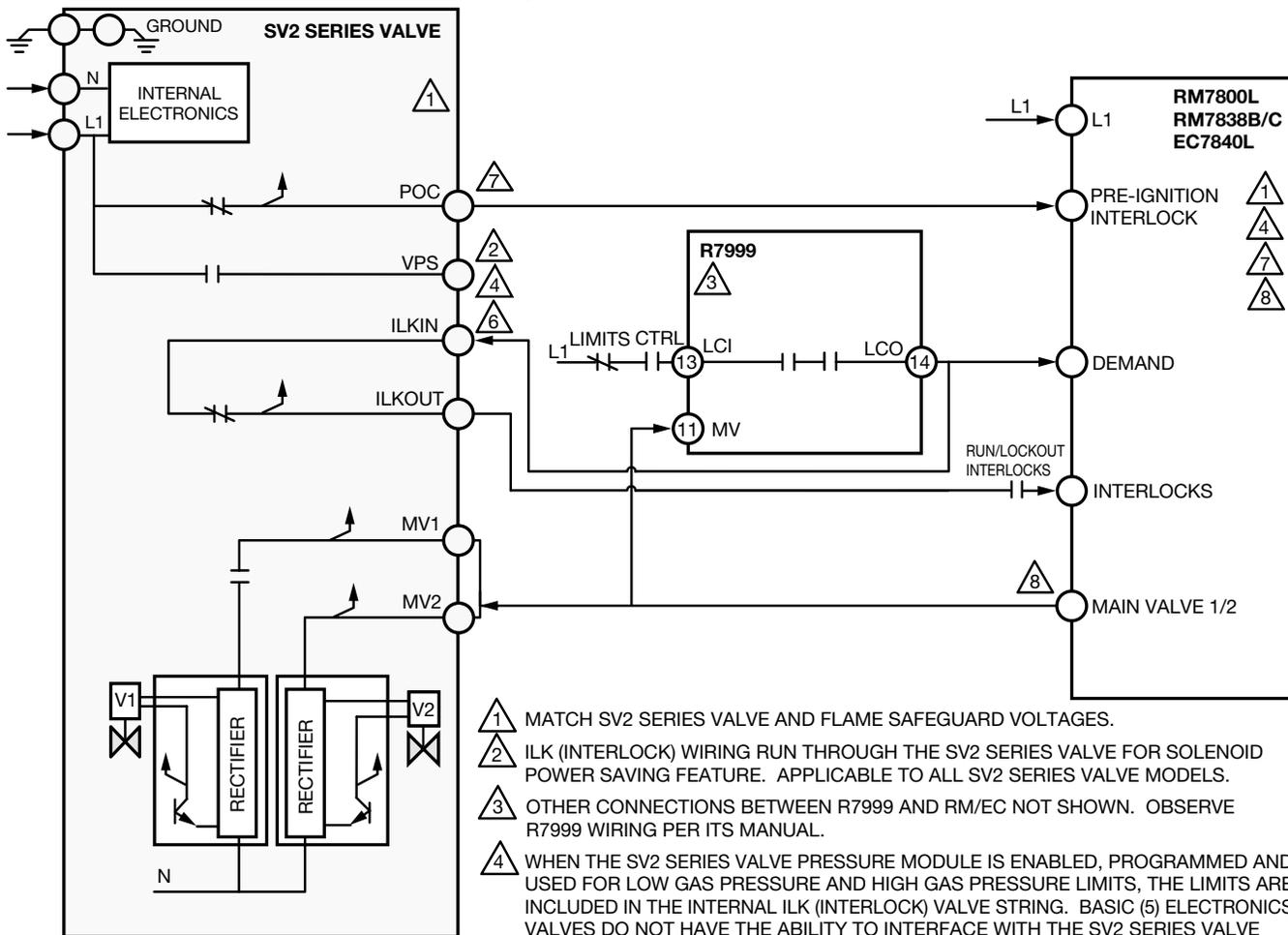
- ⚠ FOR RM7838 CONTROLS, WIRE THE SV2 SERIES VALVE ILK (INTERLOCK) AHEAD OF THE LOCKOUT INTERLOCKS AND COMBUSTION AIR BLOWER SWITCHES.
- ⚠ FOR RM7890/EC7890 CONTROLS, WIRE THE SV2 SERIES VALVE ILK (INTERLOCK) IN SERIES WITH THE LIMITS AND CONTROLLER AS THESE MODELS DO NOT HAVE AN AIRFLOW SWITCH.
- ⚠ POC (PROOF OF CLOSURE) MUST BE FACTORY INSTALLED, INTERNALLY WIRED AND CALIBRATED.
- ⤴ INDICATES FEEDBACK SENSING OF RELAY CONTACT STATUS AND LINE VOLTAGE

M35594E

Fig. 26. SOLA with STANDARD Electronics, No External VPS.

7800 SERIES and ControlLinks

7800 SERIES AND ControlLinks

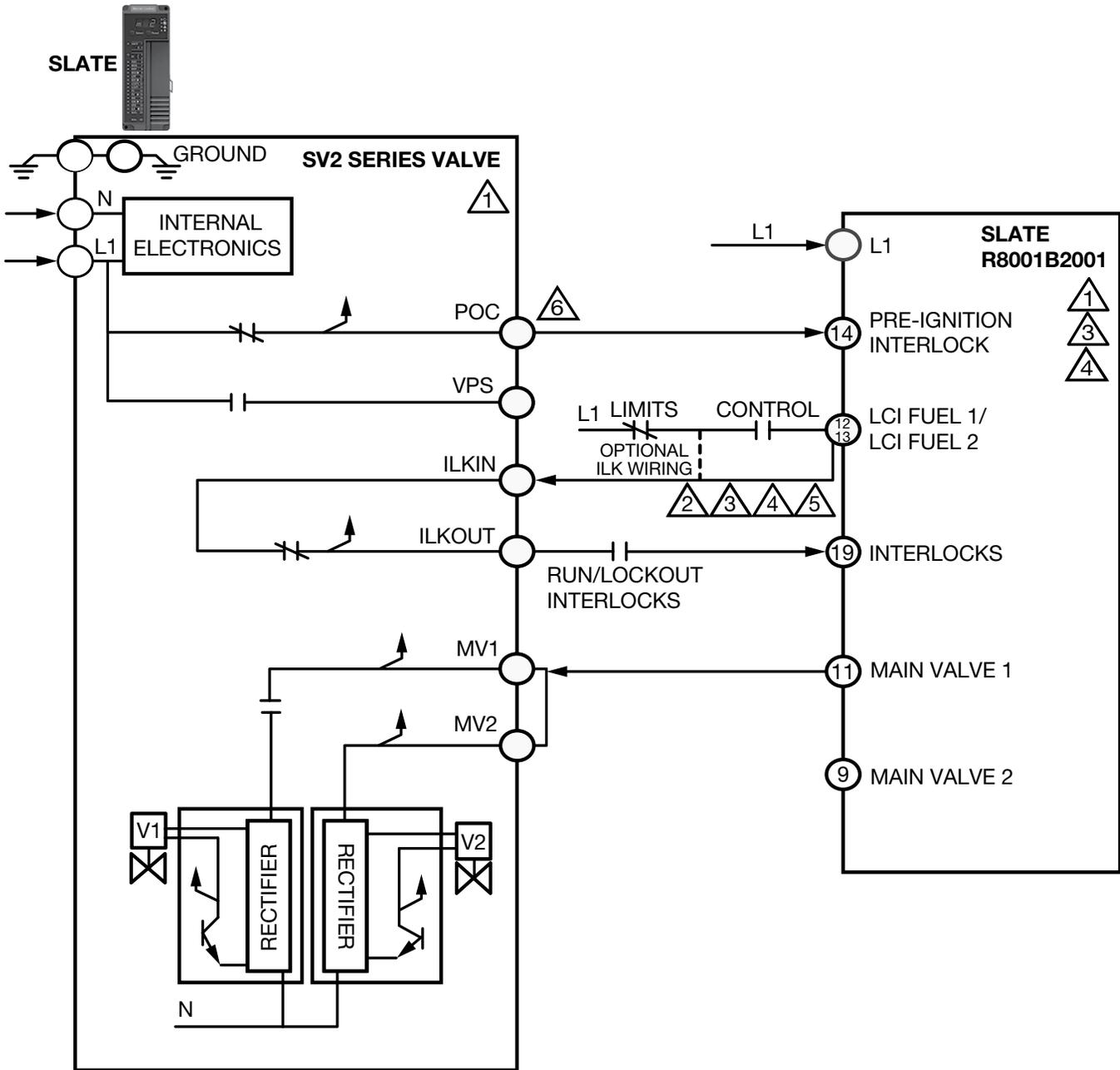


- 1 MATCH SV2 SERIES VALVE AND FLAME SAFEGUARD VOLTAGES.
 - 2 ILK (INTERLOCK) WIRING RUN THROUGH THE SV2 SERIES VALVE FOR SOLENOID POWER SAVING FEATURE. APPLICABLE TO ALL SV2 SERIES VALVE MODELS.
 - 3 OTHER CONNECTIONS BETWEEN R7999 AND RM/EC NOT SHOWN. OBSERVE R7999 WIRING PER ITS MANUAL.
 - 4 WHEN THE SV2 SERIES VALVE PRESSURE MODULE IS ENABLED, PROGRAMMED AND USED FOR LOW GAS PRESSURE AND HIGH GAS PRESSURE LIMITS, THE LIMITS ARE INCLUDED IN THE INTERNAL ILK (INTERLOCK) VALVE STRING. BASIC (5) ELECTRONICS VALVES DO NOT HAVE THE ABILITY TO INTERFACE WITH THE SV2 SERIES VALVE PRESSURE MODULE. AN EXTERNAL PRESSURE SWITCH MUST BE USED WITH THESE VALVE MODELS.
 - 5 OBSERVE FLAME SAFEGUARD WIRING PER ITS MANUAL.
 - 6 FOR RM7838 CONTROLS, WIRE THE SV2 SERIES VALVE ILK (INTERLOCK) AHEAD OF THE LOCKOUT INTERLOCKS AND COMBUSTION AIR BLOWER SWITCHES.
 - 7 POC (PROOF OF CLOSURE) MUST BE FACTORY INSTALLED, INTERNALLY WIRED AND CALIBRATED.
 - 8 FOR DUAL FUEL APPLICATIONS, AN APPROVED CENTER-OFF POSITION FUEL SELECTION SWITCH IS REQUIRED. REFER TO R7999 MANUAL FOR FURTHER DETAILS.
- ↗ INDICATES FEEDBACK SENSING OF RELAY CONTACT STATUS AND LINE VOLTAGE.

M35595B

Fig. 27. 7800 SERIES and ControlLinks with BASIC or STANDARD Electronics, No External VPS.

SLATE™



- ⚠️ 1 MATCH SV2 SERIES VALVE AND FLAME SAFEGUARD VOLTAGES.
- ⚠️ 2 ILK (INTERLOCK) WIRING RUN THROUGH THE SV2 SERIES VALVE FOR SOLENOID POWER SAVING FEATURE. APPLICABLE TO ALL SV2 SERIES VALVE MODELS.
- ⚠️ 3 WHEN THE SV2 SERIES VALVE PRESSURE MODULE IS ENABLED, PROGRAMMED AND USED FOR LOW GAS PRESSURE AND HIGH GAS PRESSURE LIMITS, THE LIMITS ARE INCLUDED IN THE INTERNAL ILK (INTERLOCK) VALVE STRING. BASIC (5) ELECTRONICS VALVES DO NOT HAVE THE ABILITY TO INTERFACE WITH THE SV2 SERIES VALVE PRESSURE MODULE. AN EXTERNAL PRESSURE SWITCH MUST BE USED WITH THESE VALVE MODELS.
- ⚠️ 4 OBSERVE FLAME SAFEGUARD WIRING PER ITS MANUAL.
- ⚠️ 5 IF SLATE INTERNAL OPERATING CONTROL IS USED, EXTERNAL CONTROL WIRING NOT APPLICABLE.
- ⚠️ 6 POC (PROOF OF CLOSURE) MUST BE FACTORY INSTALLED, INTERNALLY WIRED AND CALIBRATED.
- ↗️ INDICATES FEEDBACK SENSING OF RELAY CONTACT STATUS AND LINE VOLTAGE.

M35596A

Fig. 28. SLATE with BASIC or STANDARD Electronics, No External VPS.

European Burner Controls European Standards (CE, EN, etc.)

Certain European burner controls do not have separate interlock circuits. The SV2 Series valves require that the ILKIN terminal be tied to the burner management control in some manner and not simply jumpered to L1 power.

Burner controls with independently switched line and neutral voltages will not work as is with the SV2 Series valves and require extra components plus wiring to make them work effectively with the SV2 Series valves.

As well, per European standards, the burner management control used shall have two line voltage switching elements in series that switch power to the valve coils. If the burner control does not have two switching elements in series, the following alternatives may be used in the European Union, per KIWA.

For systems where VPS is not used, MV1 and MV2 may be jumpered and powered together.

Option 1

Add an external safety relay to ensure that both the switched L1 and L2 (Neutral) of the burner control are used.

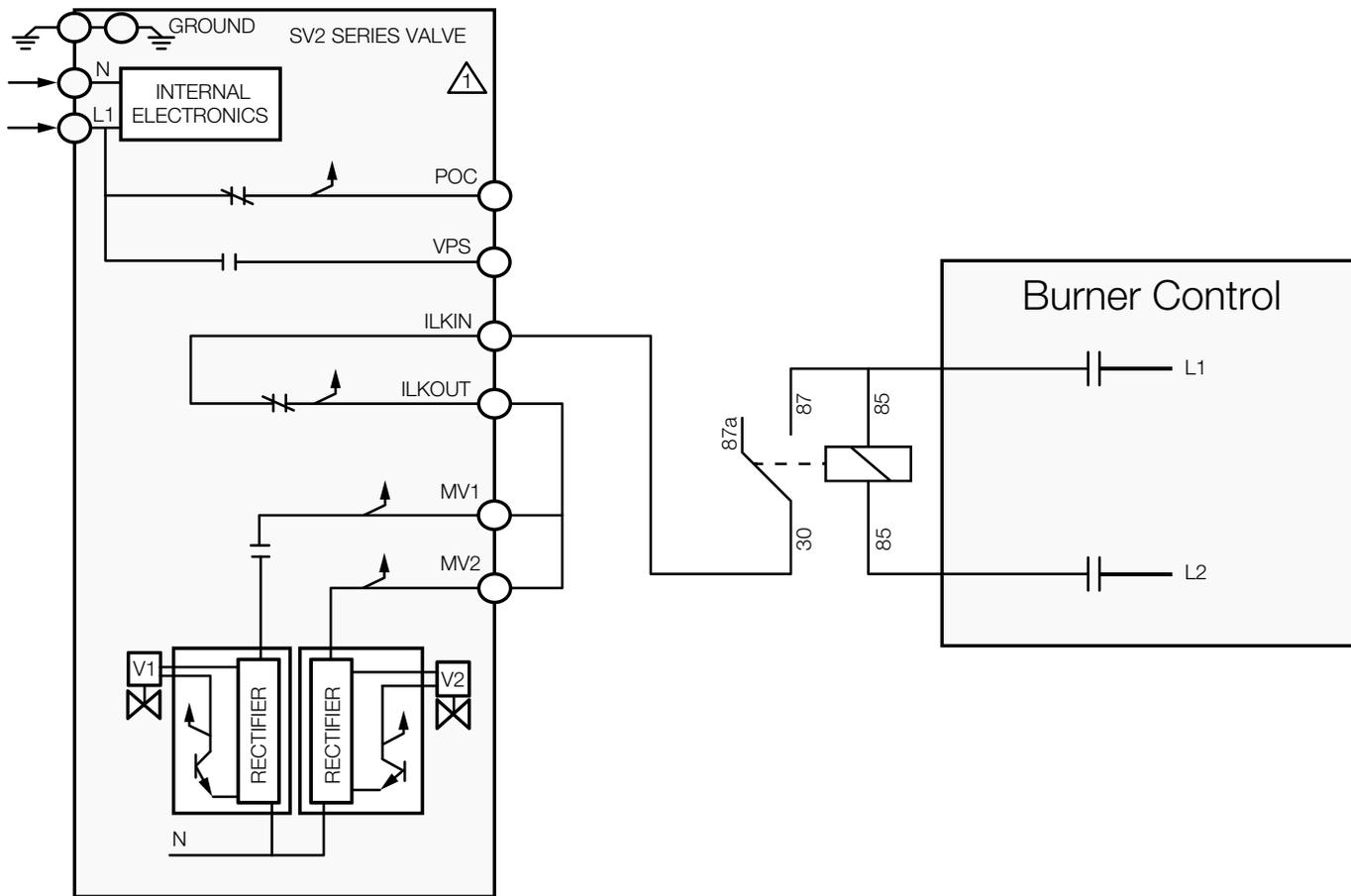


Fig. 29. European Burner Control with BASIC or STANDARD Electronics, No External VPS.

Option 2

Alternately, a transformer may be used. The transformer must be a double- or reinforced-isolated separation transformer, so that a short between the primary and secondary is excluded. EN298:2012 Annex E requires the use of either an EN61558-2-6 or EN61558-2-16 approved transformer, however, the actual meaningful requirement is the isolation strength of the transformer and not the fact that the secondary is an accessible voltage.

- Use a 240/240VAC transformer
- ILKIN is only energized if both relays are ON
- Transformer may also be used to convert 240/120/24VAC as desired. Match to appropriate SV2 Series valve model (24/120/240 VAC).

NOTE: EN61558-2-6 specifically requires that the “secondary does not exceed 50 VAC or 120 V ripple-free VDC”, whereas EN61558-2-16 does NOT have such a requirement. In this case, ONLY the reinforced isolation is relevant.

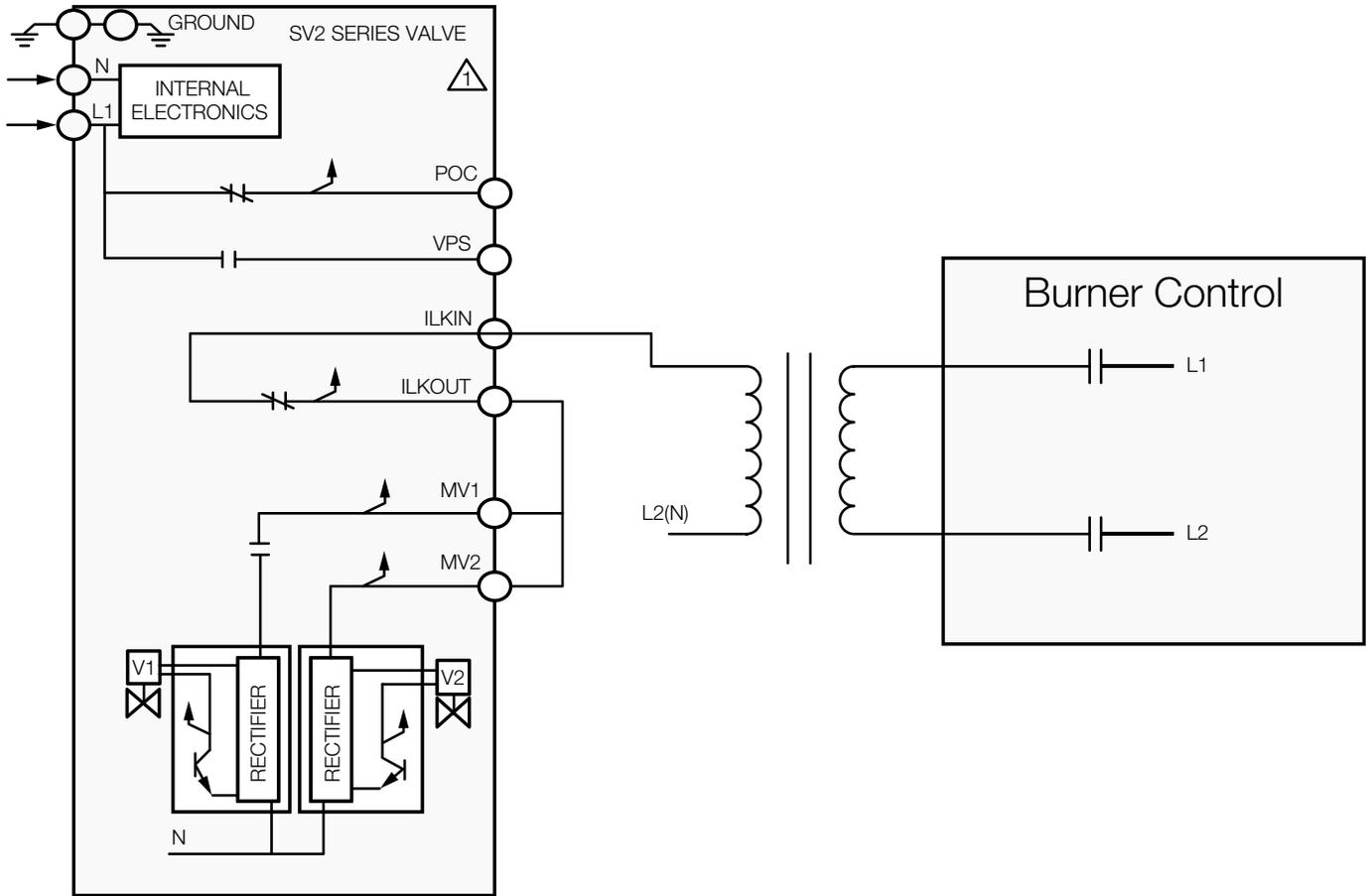


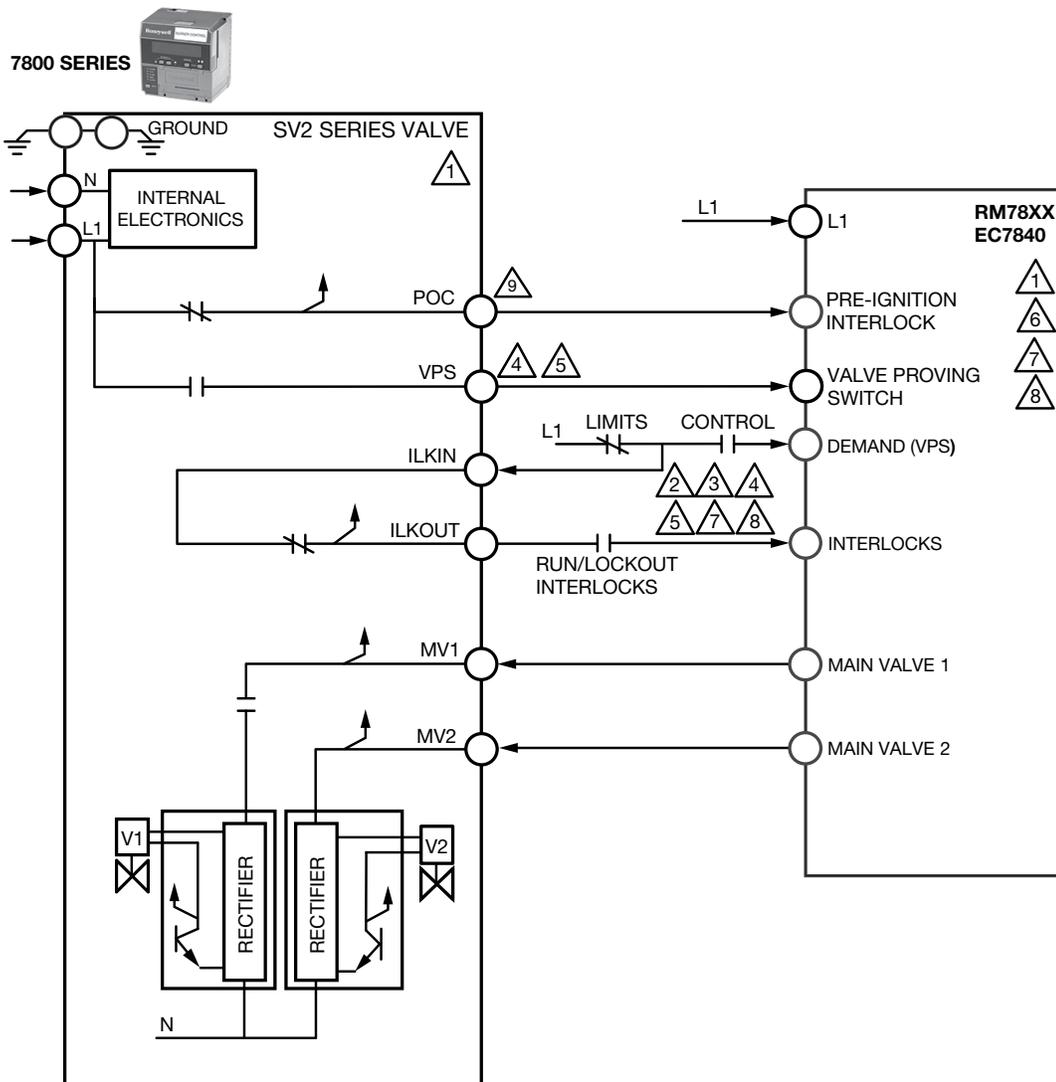
Fig. 30. European Burner Control with BASIC or STANDARD Electronics, No External VPS.

External VPS (Valve Proving Sequence) Used; Electronics configuration BASIC (5) with external pressure switch or STANDARD with Pressure Module

The SV2 Series valve Pressure Module is used with this scenario with the VPS switch output coming from the SV2 Series electronics.

Wiring between the SV2 Series valve and Honeywell 7800 SERIES, 7800 SERIES and ControlLinks and SLATE is shown in this section.

7800 SERIES North American Standards (UL, CSA, FM, etc.)



1 MATCH SV2 SERIES VALVE AND FLAME SAFEGUARD VOLTAGES.

2 ILK (INTERLOCK) WIRING RUN THROUGH THE SV2 SERIES VALVE FOR SOLENOID POWER SAVING FEATURE. APPLICABLE TO ALL SC2 SERIES VALVE MODELS.

3 ILK (INTERLOCK) WIRING AS SHOWN KEEPS VALVE SOLENOIDS ENERGIZED IF VPS IS PERFORMED AFTER, BOTH OR SPLIT RELATIVE TO THE CALL FOR HEAT DEMAND.

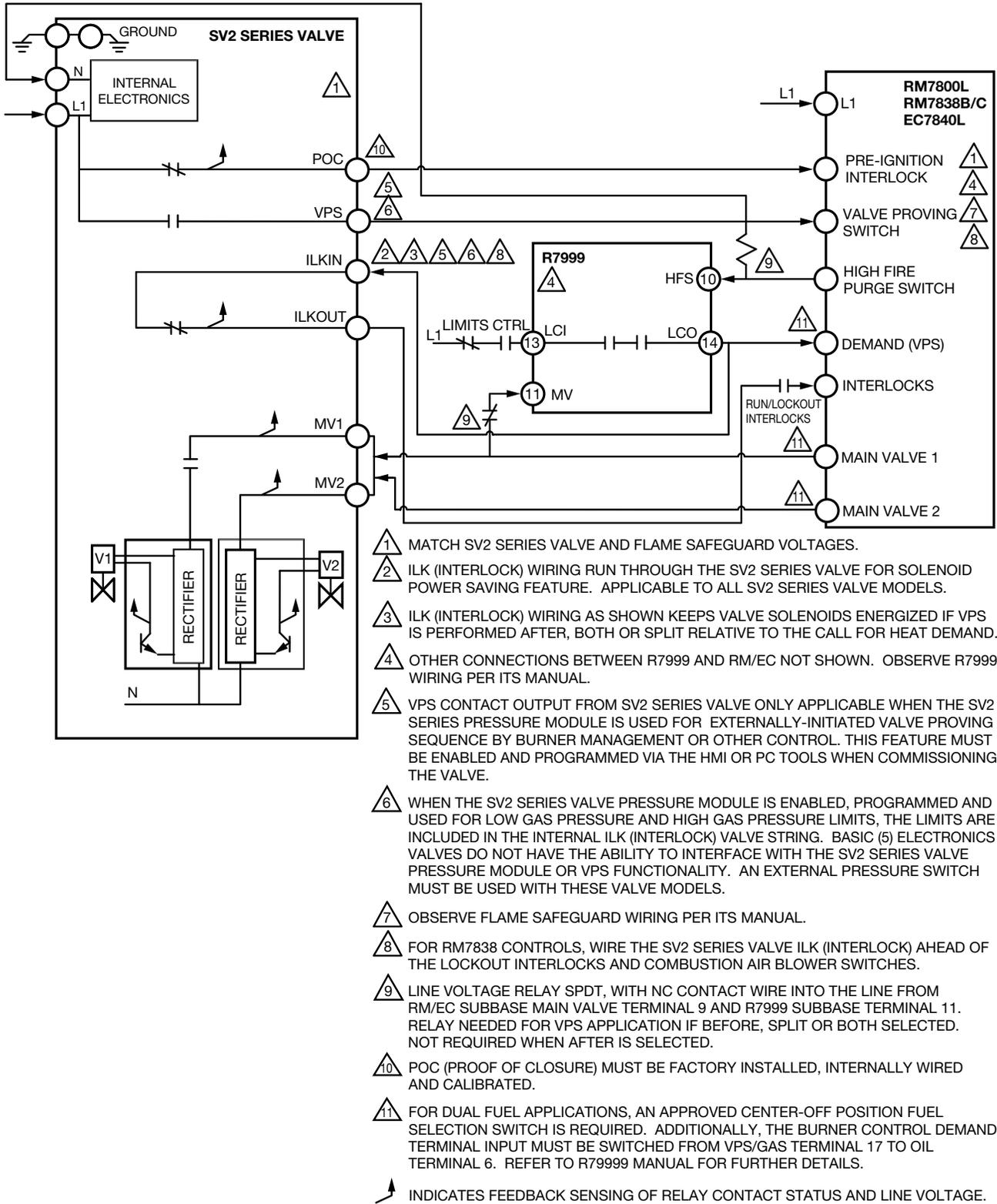
4 VPS CONTACT OUTPUT FROM SV2 SERIES VALVE ONLY APPLICABLE WHEN THE SV2 SERIES PRESSURE MODULE IS USED FOR EXTERNALLY-INITIATED VALVE PROVING SEQUENCE BY BURNER MANAGEMENT OR OTHER CONTROL. THIS FEATURE MUST BE ENABLED AND PROGRAMMED VIA THE HMI OR PC TOOLS WHEN COMMISSIONING THE VALVE.

5 WHEN THE SV2 SERIES VALVE PRESSURE MODULE IS ENABLED, PROGRAMMED AND USED FOR LOW GAS PRESSURE AND HIGH GAS PRESSURE LIMITS, THE LIMITS ARE INCLUDED IN THE INTERNAL ILK (INTERLOCK) VALVE STRING. BASIC (5) ELECTRONICS VALVES DO NOT HAVE THE ABILITY TO INTERFACE WITH THE SV2 SERIES VALVE PRESSURE MODULE OR VPS FUNCTIONALITY. AN EXTERNAL PRESSURE SWITCH MUST BE USED WITH THESE VALVE MODELS.

6 OBSERVE FLAME SAFEGUARD WIRING PER ITS MANUAL.

Fig. 31. 7800 SERIES with BASIC or STANDARD Electronics, External VPS Used.

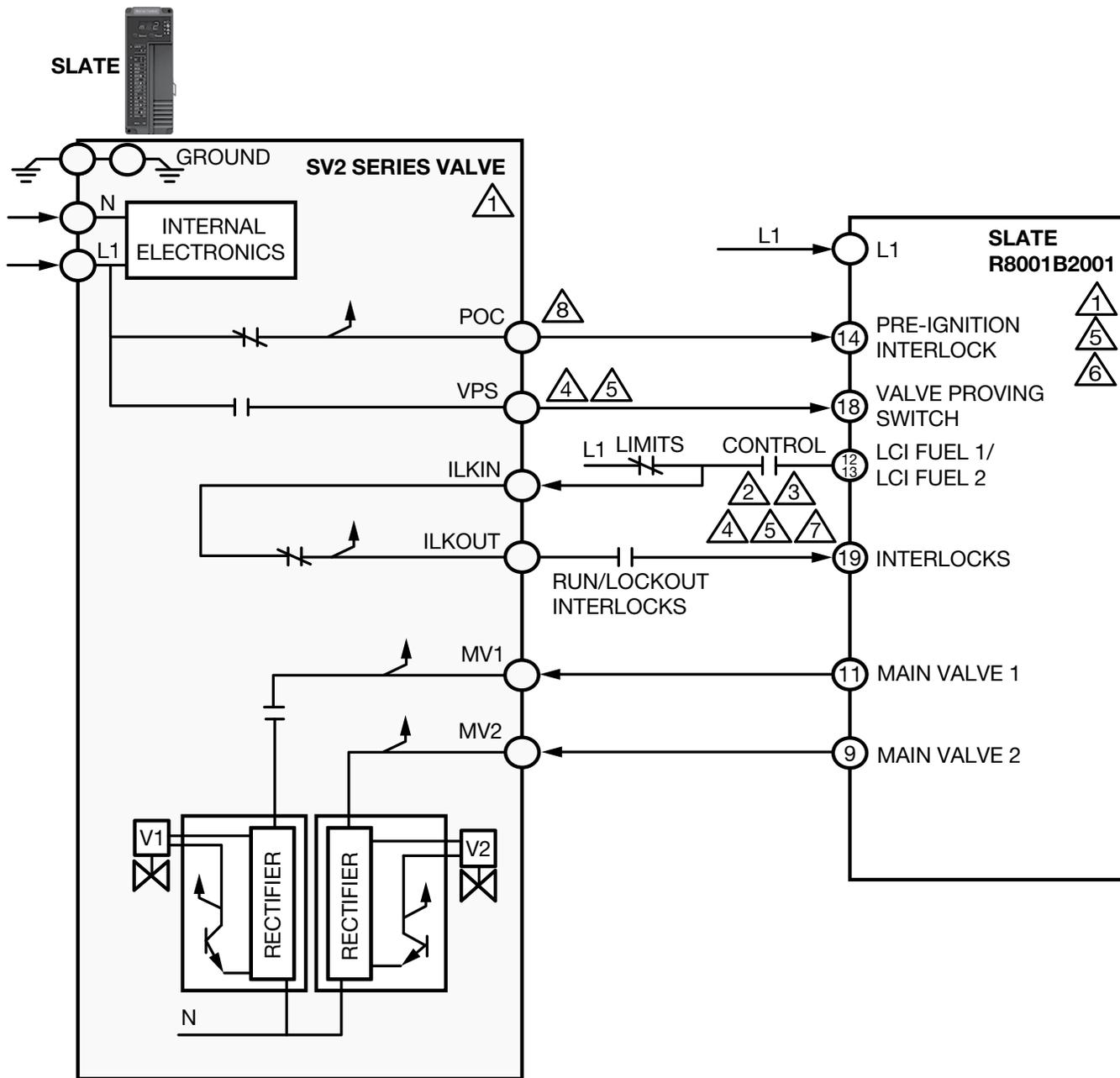
7800 SERIES and ControlLinks



M35597B

Fig. 32. 7800 SERIES and ControlLinks with BASIC or STANDARD Electronics, External VPS Used.

SLATE™



- ⚠ MATCH SV2 SERIES VALVE AND FLAME SAFEGUARD VOLTAGES.
- ⚠ ILK (INTERLOCK) WIRING RUN THROUGH THE SV2 SERIES VALVE FOR SOLENOID POWER SAVING FEATURE. APPLICABLE TO ALL SV2 SERIES VALVE MODELS.
- ⚠ ILK (INTERLOCK) WIRING AS SHOWN KEEPS VALVE SOLENOIDS ENERGIZED IF VPS IS PERFORMED AFTER, BOTH OR SPLIT RELATIVE TO THE CALL FOR HEAT DEMAND.

- ⚠ VPS CONTACT OUTPUT FROM SV2 SERIES VALVE ONLY APPLICABLE WHEN THE SV2 SERIES PRESSURE MODULE IS USED FOR EXTERNALLY-INITIATED VALVE PROVING SEQUENCE BY BURNER MANAGEMENT OR OTHER CONTROL. THIS FEATURE MUST BE ENABLED AND PROGRAMMED VIA THE HMI OR PC TOOLS WHEN COMMISSIONING THE VALVE.
- ⚠ WHEN THE SV2 SERIES VALVE PRESSURE MODULE IS ENABLED, PROGRAMMED AND USED FOR LOW GAS PRESSURE AND HIGH GAS PRESSURE LIMITS, THE LIMITS ARE INCLUDED IN THE INTERNAL ILK (INTERLOCK) VALVE STRING. BASIC (5) ELECTRONICS VALVES DO NOT HAVE THE ABILITY TO INTERFACE WITH THE SV2 SERIES VALVE PRESSURE MODULE OR VPS FUNCTIONALITY. AN EXTERNAL PRESSURE SWITCH MUST BE USED WITH THESE VALVE MODELS.

- ⚠ OBSERVE FLAME SAFEGUARD WIRING PER ITS MANUAL.
- ⚠ IF SLATE INTERNAL OPERATING CONTROL IS USED, EXTERNAL CONTROL WIRING NOT APPLICABLE.
- ⚠ POC (PROOF OF CLOSURE) MUST BE FACTORY INSTALLED, INTERNALLY WIRED AND CALIBRATED.
- INDICATES FEEDBACK SENSING OF RELAY CONTACT STATUS AND LINE VOLTAGE.

M35598B

Fig. 33. SLATE with BASIC or STANDARD Electronics, External VPS Used.

European Burner Controls European Standards (CE, EN, etc.)

Some European burner controls have low voltage limit and/or VPS terminals, which differs from the line voltage load terminals. The wiring diagram below addresses wiring of such controls with the SV2 Series valves.

Certain European burner controls do not have separate interlock circuits. The SV2 Series valves require that the ILKIN terminal be tied to the burner management control in some manner and not simply jumpered to L1 power.

Burner controls with independently switched line and neutral voltages will not work as is with the SV2 Series valves and require extra components plus wiring to make them work effectively with the SV2 Series valves.

As well, per European standards, the burner management control used shall have two line voltage switching elements in series that switch power to the valve coils. If the burner control does not two switching elements in series, the following alternatives may be used in the European Union, per KIWA.

For systems using VPS, MV1 and MV2 must be powered separately.

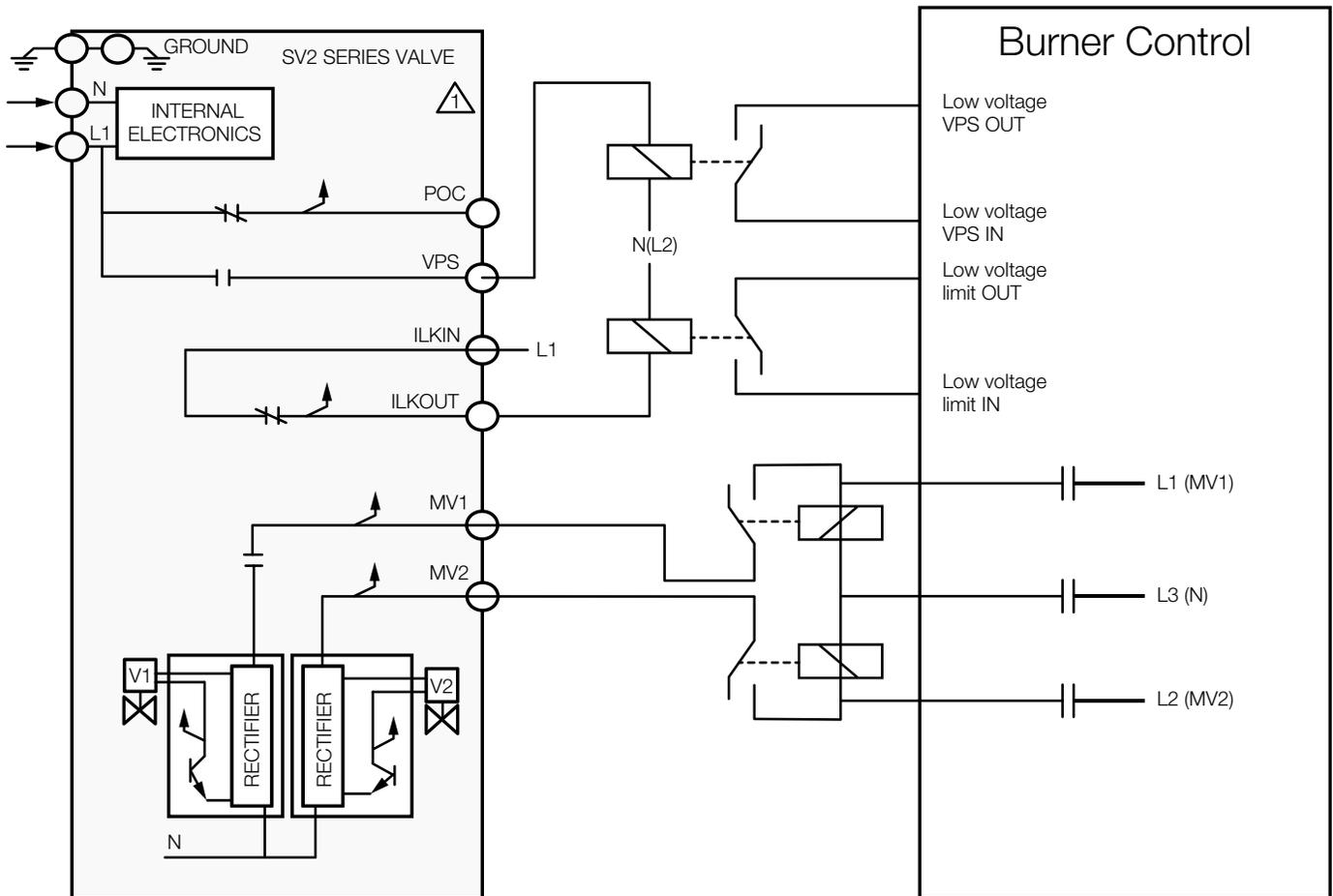


Fig. 34. European Burner Control with BASIC or STANDARD Electronics, External VPS Used.

4 VALVE CHECKOUT AND OPERATION

! WARNING

Explosion Hazard and Electrical Shock Hazard.
Can cause explosion, serious injury or death.

- Do not allow fuel to accumulate in the combustion chamber for longer than a few seconds without igniting. An explosive mixture can result.
- Do not put the system into service until you have satisfactorily completed the following Valve Seat Leak Test, all applicable tests described in the Checkout section of the flame safeguard control manual, and any other tests 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, perform the Valve Seat Leak Test before putting the valve into service.

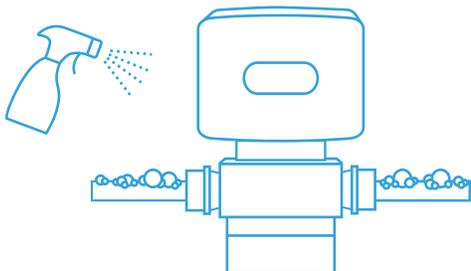
NOTE: In order to complete the leak test procedure outlined below, it is necessary to energize the valve seats. Valves with intelligent features can be readily energized if the Installer + OEM passwords have already been assigned, thereby removing faults associated with un-assigned passwords. For an un-programmed valve, the user must log in with the default OEM password and/or assign Installer + OEM passwords in order to bypass the fault conditions associated with un-assigned passwords in order to energize the valve seats. Default passwords are automatically pre-filled in the appropriate field during the initial user login.

A. Valve Connection and Accessory Leak Test

IMPORTANT

Leak check should be performed only by trained, experienced combustion service technician during the initial startup of the burner system, or whenever the valve is replaced. It is recommended that this test also be included in the scheduled inspection and maintenance procedures.

1. Gather required items:
 - a. Rich soap and water solution
2. Close the downstream manual gas valve(s), if present (refer to NOTE below).
3. Open the upstream manual gas valve(s).
4. Energize the valve train to apply gas pressure. Make sure no gas is released downstream to the burner.
5. Test with rich soap and water solution to make sure there is no leak at any pipe, flange, adapter, accessory module or valve mating surface.
6. De-energize the control system to make sure no power goes to the valves.



NOTE: If downstream manual gas valve(s) not present, only open/power SV2 Series valve V1 and check for leaks. Recheck for leaks on complete system when operational.

B. Valve Seat Leak Test (Refer to Fig. 35)

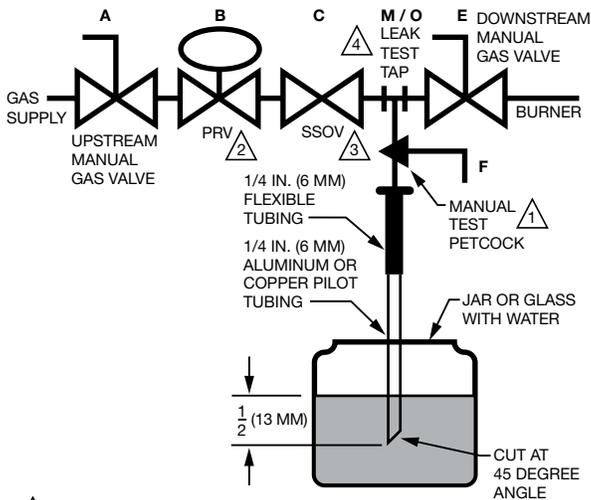
IMPORTANT

This is a test for checking the closure tightness of the gas shut-off valve. It should be performed only by trained, experienced combustion service technicians during the initial startup of the burner system or whenever the valve is replaced. It is recommended that this test should also be included in the scheduled inspection and maintenance procedures. Refer to Fig. 35.

⚠ WARNING

**Electrical Shock Hazard and Explosion Hazard.
Can cause explosion, serious injury or death.**

Remove the power from the system before beginning the valve leak test to prevent electrical shock. More than one disconnect may be involved. Power the system only when requested in the test procedure.



⚠ CAN ALSO BE A PERMANENT PETCOCK.

⚠ PRV = PRESSURE REGULATING VALVE.

⚠ SSOV = SAFETY SHUTOFF VALVE.

⚠ USE ONLY ONE OF THE DOWNSTREAM TAPS ON THE SSOV.

M9547H

Fig. 35. Valve seat leak test.

1. Gather required items:

- Glass or jar filled with water
- 1/4 in (6mm) flexible tubing,
- 1/4 in (6mm) aluminum or copper pilot tubing with one end cut at 45° angle,
- Manual test petcock.

NOTE: The use of a gas 'sniffer' if not recommended as an alternative to this procedure as it can only sense gas leaks through the outer wall. The procedure outlined below is designed to locate and quantify a gas leak.

- De-energize the control system to make sure no power goes to the valves.
- To test the first SSOV, close the upstream manual gas valve (A).
- Make sure the manual test petcock (F) is closed in the leak test tap assembly.
- Remove the 1/8 in (3mm) NPT or BSP plug from pressure tap point (M) on the valve. Refer to Fig. 21 and Fig. 35
- Install the leak test tap into pressure tap point (M) on the valve body.
- Open the upstream manual gas valve (A) to pressurize the first SSOV.
- Immerse the 1/4 in (6mm) tube vertically 1/2 in. (13mm) in a jar of water.
- Slowly open the manual test petcock (F).
- When the rate of bubbles coming through the water stabilizes, count the number of bubble appearing during a ten second period. Each bubble appearing represents a flow rate of 0.001 cfh (28 cch). Refer to Table 10.
- Close the upstream manual gas valve (A).

12. Close the manual test petcock (F).
13. Remove the leak test tap from the valve body.
14. Using a small amount of pipe sealant on the 1/8 in (3mm) NPT or BSP plug, re-install the plug in pressure tap point (M). Maximum tightening torque is 60 in-lbf (7 Nm).
15. To test the second SSOV, remove the 1/8 in. (3mm) NPT or BSP plug from the valve outlet flange (O).
16. Install the leak test tap into the valve outlet flange pressure tap (O).
17. Close the downstream manual gas valve (E).
18. Open the upstream manual gas valve (A).
19. Energize the first SSOV.
20. Immerse the 1/4 in. (6mm) tube vertically 1/2 in. (13mm) into a jar of water.
21. Slowly open the manual test petcock (F).
22. When the rate of bubbles coming through the water stabilizes, count the number of bubbles appearing during a ten second period. Each bubble appearing represents a flow rate of 0.001 cfh (28 cch). Refer to Table 10.
23. De-energize the first SSOV.
24. Remove the leak test tap from the outlet flange.
25. Using a small amount of pipe sealant on the 1/8 in. (3mm) NPT or BSP plug, re-install the plug in the valve outlet flange. Maximum tightening torque is 30 in-lbf (3 Nm).

Pipe Size DN (in. NPT or BSP)	Maximum Seat Leakage ¹ cch	Maximum Number of Bubbles in 1 minute	Maximum Seat Leakage ² cch	Maximum Number of Bubbles in 1 minute
DN25 (1)	235 cch	26	40 cch	4
DN20 (3/4)	235 cch	26	40 cch	4
DN25 (1)	235 cch	26	40 cch	4
DN32 (1 ¼)	235 cch	26	60 cch	7
DN40 (1 ½)	353 cch	39	60 cch	7
DN50 (2)	470 cch	52	60 cch	7

1. Based on air at standard conditions and test pressures provided by ANSI Z21.21-2012/CSA6.5-2012 paragraph 2.4.2 and a maximum of 235 cc/hr (air) per inch of seal-off diameter. Seal-off diameter is not to be confused with pipe size.

2. Based on air at standard conditions and test pressures provided by EN 161.

Table 10. Maximum Bubbles Per Pipe Size.

After the Test

1. Make sure the downstream manual gas valve (E) is closed.
2. Open the upstream manual gas valve (A) and energize the valve through the safety system.
3. Test with rich soap and water solution to make sure there are no leaks at the middle and valve outlet flange test taps (M) / (O) or any pipe adapter / valve mating surfaces.
4. De-energize the valve.
5. Cycle the valve several times with the manual fuel shut-off cock closed. Verify that the valve, accessory modules and control system function properly.
6. Open the downstream manual gas valve (E).
7. Restore the system to normal operation.

5 PROGRAMMING AND SETUP

The SV2 Series valve's intelligent features are programmed via the use of the HMI or PC Tool (HMITool-000 or PCTool-000). The programmable features, which are model dependent, include:

- Valve Modbus address + communication speed
- Pressure monitoring via Pressure Module
- Low gas pressure switch reset type and setting
- High gas pressure switch reset type and setting

- VPS (valve proving system)
- Fuel/air firing curve (Premix/V2V valves)

IMPORTANT

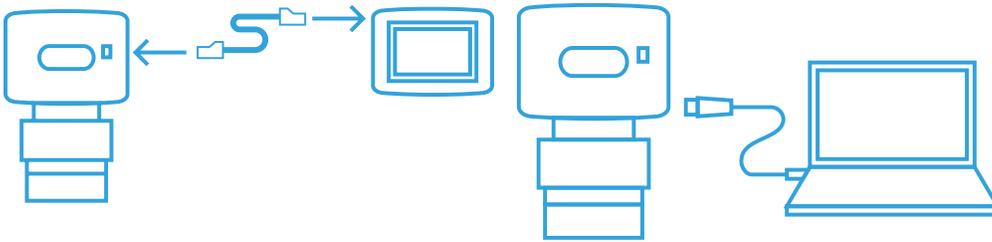
- You **DO NOT** have to enable and utilize the intelligent valve features.
- Any intelligent features used do require completion of setup and verification during the initial valve setup using the HMI or PC tools before the valve will be operational.
- When using the Pressure Module, you **MUST** use both the low gas pressure and high gas pressure settings.

Refer to the following documents for valve setup instructions using the HMI or PC Tools.

- 32-00023, PC Tool Installation Instructions
- 32-00030, HMI Tool Installation Instructions
- 32-00031, HMI / PC Tool User Manual

A. Connect Wiring

Connect the Modbus wiring per the HMI Tool or PC Tool installation instructions (whichever is used).



NOTE: An opto-isolated USB to RS-485 converter is recommended for use with the SV2 Series PC Tool to break ground loops.

B. Power Valve and Programming Tool

Power the valve and the HMI Tool or PC Tool. The welcoming screen as in Fig. 36 should be shown.



Fig. 36. Touchscreen HMI (HMITOOL-000).

C. Complete Setup

Follow the embedded wizards in the HMI or PC Tool to complete the setup of all applicable intelligent items as required. You may reference the HMI / PC Tool User Manual, document 32-00031.

6 Final Wiring Check and Static Checkout

A. Test

CAUTION

- Cycle the valve several times with the manual fuel shut-off valve closed. Verify that the valve, accessory modules and control system function properly.
- Test each limit and interlock to ensure system operates correctly as defined in the applicable flame safeguard control manual instructions.
- Follow burner management system checkout guidelines. For 7800 SERIES, refer to the “Checkout and Test” document (Form #65-0229).
- Perform any other recommended manufacturer or other required tests.

Troubleshooting

WARNING

Electrical Shock Hazard.

Can cause severe injury, death or property damage.

Use extreme caution when troubleshooting; line voltage is present.

IMPORTANT

Do not replace the valve until all other sources of trouble have been eliminated.

Service Information

WARNING

Explosion Hazard and Electrical Shock Hazard.

Can cause severe injury, death or property damage.

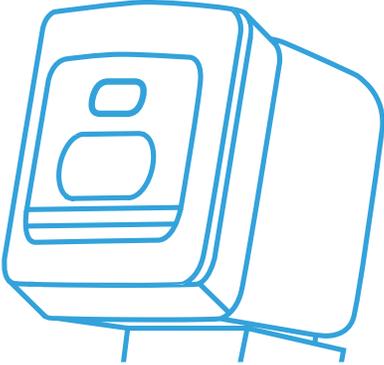
- Turn off gas supply and disconnect all electrical power to the valve before servicing
- Only trained, experienced combustion service technicians should attempt to service or repair flame safeguard controls, burner assemblies or valve trains.
- Refer to SV2 Series User Manual, 32-00029, for advice on component field replacements.

Scheduled Inspection and Maintenance

Setup and follow a schedule for periodic inspection and maintenance, including the burner, all other controls and the valves. It is recommended that the valve leak test in the Valve Checkout and Operation section of this manual be included in the periodic inspection and maintenance schedule. Refer to the instructions for the primary safety control(s) for more inspection and maintenance information.

7 FINISH

A. Replace Enclosure Cover



1. Replace the valve electrical enclosure cover.
2. Tightening torque for each fastener should be between 1.26 and 1.54 Nm (11 to 13.63 in-lbf).

B. Replace Solenoid Cover

1. Replace the solenoid cover if it has been removed during installation
2. Tightening torque should be between 2.2 to 2.35 Nm (19.5 to 20.8 in-lbf).

C. Your Valve is Ready to Use

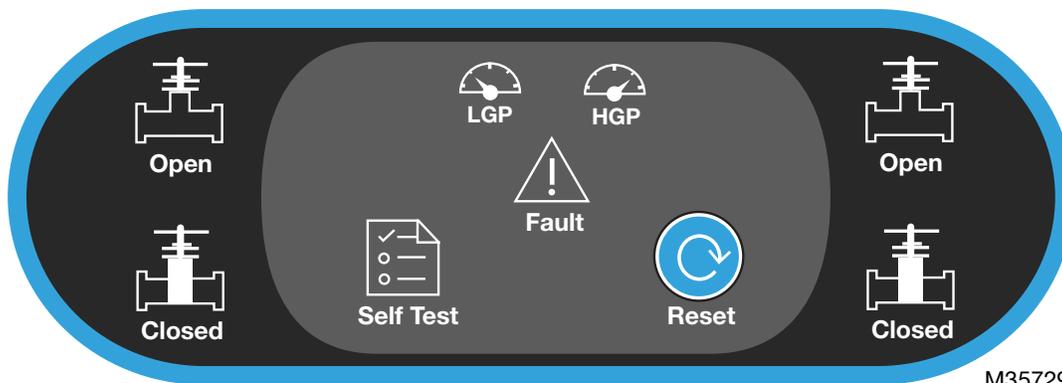
Your SV2 Series safety shut-off valve installation and setup is now complete!

VALVE INTERFACE

The valve interface contains 8 back lit LEDs, which are used to indicate the following conditions; valve seat open / closed or powered / not powered status, the presence of a general fault condition, low gas pressure or high gas pressure fault condition or if a self-test is in process.

The valve seat Open / Closed LEDs indicate the status of the valve seat over which they are situated ¹.

The valve interface also has a push Reset button, which is used to reset the valve in the event it is in lockout status, to verify safety parameters after setup and to reverse the Open / Closed LEDs when the valve electronics orientation is changed in the field (refer to Note 1 below).



M35729

Fig. 37. Valve interface.

LED	Purpose	Applicable Models
 Open	If a POC (proof of closure switch) is present on the valve, this LED indicates that the valve seat is open. This gives visual position indication per FM (Factory Mutual) 7400 and ANSI Z21.21 / CSA 6.5. LED gives status indication of the valve seat over which the LED is situated. ¹ If a POC (proof of closure switch) is NOT present, this LED indicates the solenoid is powered.	All valve models
 Closed	If a POC (proof of closure switch) is present on the valve, this LED indicates that the valve seat is closed. This gives visual position indication per FM (Factory Mutual) 7400 and ANSI Z21.21 / CSA 6.5. LED gives status indication of the valve seat over which the LED is situated. ¹ If a POC (proof of closure switch) is NOT present, this LED indicates the solenoid not powered.	
 Self Test	The Self Test LED indicates a valve test is being performed. Self Tests include circuit check during initial power-up, internal VPS, leak detection test, manual low gas or high gas pressure tests. NOTE: On BASIC intelligence valves, this only indicates a circuit check.	
 Fault	Indicates a fault condition exists.	
 LGP	Indicates a Low Gas Pressure fault condition exists when a SV2 Series Pressure Module is used on the valve. NOTE: The Fault LED will also be lit while this fault is active.	
 HGP	Indicates a High Gas Pressure fault condition exists when a SV2 Series Pressure Module is used on the valve. NOTE: The Fault LED will also be lit while this fault is active.	All models with Intelligent Features of 6

Table 11. Valve Interface LED Descriptions.

1. Valve electronics orientation is ordered as left-hand or right-hand mounted from the factory (defined as being viewed from the valve gas outlet / burner end). If the electronics orientation is changed in the field (as illustrated in the SV2 Series User Manual 32-00029), the LED orientation procedure must be completed to ensure the LED annunciation continues to indicate status of the valve seat over which it is situated. This procedure is part of the instructions in the SV2 Series User Manual for changing electronics orientation.

PASSWORD RESET FEATURE

Valves are shipped with default main OEM and Installer passwords pre-configured. These passwords have to be changed before the valve can be used in an application without user observation.

NOTE: The OEM can choose to create the Installer password or allow the Installer to assign it during their initial login.

Additionally, the OEM must assign a reset password for their OEM level usage.

Should the Installer and/or OEM main access level passwords be lost, password reset is possible, if the reset mechanisms were enabled by the OEM. The reset mechanism will vary between the Installer and OEM levels as indicated below. Note that cycling of the valve or user interface power will not defeat this methodology.

NOTES:

- The reset password/code simply allows the appropriate user to reset the current password back to the Honeywell factory default value. Once the password is reset, the user can then log in and assign new password(s).
- After password reset to the default value, if the affected OEM / Installer main and OEM reset passwords are not set to new non-default values, the valve will be in lockout status and will not operate unless the OEM user is logged in. The applicable password(s) must be configured in order to clear the fault code(s).

Installer Reset

An Installer level 12-character random code is generated at the factory, which is only applicable to a particular valve serial number. That code is placed on a card which is shipped with the valve in the accessory box. If the card should be lost, the code is also placed on the back of the valve main electronics assembly.

NOTES:

- The OEM can choose to enable or disable the Installer password reset function.
 - If it is enabled, the Installer can follow the reset instructions below.
 - If it is disabled and the main Installer password is lost, the Installer will not be able to reset the main password and will effectively be locked out of editing the valve.
 - In order to make editing possible, the OEM would have to login and enable the Installer password reset function or set a new Installer password.
- To access the Installer reset code on back of the valve main electronics assembly:
 - First remove power to the valve.
 - The tamper evident seal must be broken. Write the applicable code for reference after re-powering the valve.

To reset the Installer main password, access the valve using either the HMI Tool touchscreen display or the PC Tool. Select the appropriate access level and password type. Enter the 12-character random code as requested. Change the Installer level main password as requested.

OEM Reset

At the factory, the OEM will assign a main and a reset password for the valve. These 2 passwords cannot be the same. However, the reset password could be the same for all individual OEM valves/appliances.

NOTES:

- The OEM can choose to enable or disable the OEM password reset function.
 - If it is enabled, the OEM can follow the reset instructions below.
 - If it is disabled and the main OEM password is lost, the OEM will not be able to reset the password and will effectively be locked out of editing the valve at the OEM level.
 - If the Installer level main password is known, the OEM can access the valve using it and edit the parameters open to the Installer level.
 - In order to make OEM level editing possible, the valve main electronics would have to be replaced and the valve completely re-programmed at both the OEM & Installer levels.

To reset the OEM main password, access the valve using either the HMI Tool touchscreen display or the PC Tool. Select the appropriate access level and password type. Enter the OEM-assigned reset password. Change the OEM main level password as requested.

Refer to the HMI/PC Tool User Manual and the SV2 Series Valve User Manual, documents 32-00031 and 32-00029, for detailed information regarding the OEM and Installer access level password assignments and the password reset feature. Both are available online at <https://customer.honeywell.com>.

PATENTS

The following is a list of granted patents for the SV2 Series valve platform as of May 2017:

NOTE: Every effort is made to keep this information up to date, however, there may be patent grants in process that are not captured here.

Country	Title	Patent Number
United States	GAS VALVE WITH ELECTRONIC PROOF OF CLOSURE SYSTEM	8899264
	GAS VALVE WITH ELECTRONIC VALVE PROVING SYSTEM	9074770
	GAS VALVE WITH FUEL RATE MONITOR	8905063
	GAS VALVE WITH VALVE LEAKAGE TEST	8947242
	GAS VALVE WITH ELECTRONIC CYCLE COUNTER	8839815
	GAS VALVE WITH COMMUNICATION LINK	9557059
	A BURNER CONTROL SYSTEM	9234661
	A BURNER CONTROL SYSTEM	9657946
	GAS VALVE WITH ELECTRONIC HEALTH MONITORING	9645584
	VALVE CONTROL MODULE	D755927
	USER INTERFACE ICONS FOR A VALVE CONTROLLER	D771705
	USER INTERFACE FOR A VALVE CONTROLLER	D763921
	GAS VALVE WITH ACUTATOR DIAGNOSTICS	9835265
	GAS VALVE WITH OVERPRESSUREDIAGNOSTICS	9851103
	VALVE CONTROLLER CONFIGURED TO ESTIMATE FUEL CONSUMPTION	9846440
	GAS VALVE REGULATING DEVICE	9683674
	GAS VALVE WITH ELECTRONICS VALVE PROVING SYSTEM	9841122
	USER INTERFACE FOR A VALVE CONTROLLER	D763921
United Kingdom	GAS VALVE WITH ELECTRONIC VALVE PROVING SYSTEM	EP2604923
	GAS VALVE WITH FUEL RATE MONITOR	EP2604922
	GAS VALVE WITH COMMUNICATION LINK	EP2604924
Germany	GAS VALVE WITH ELECTRONIC VALVE PROVING SYSTEM	602012015895.6
	GAS VALVE WITH FUEL RATE MONITOR	602012002894.7
	GAS VALVE WITH COMMUNICATION LINK	602012007123.0
France	GAS VALVE WITH ELECTRONIC VALVE PROVING SYSTEM	EP2604923
	GAS VALVE WITH FUEL RATE MONITOR	EP2604922
	GAS VALVE WITH COMMUNICATION LINK	EP2604924
European Patent Convention	GAS VALVE WITH ELECTRONIC VALVE PROVING SYSTEM	EP2604923
	GAS VALVE WITH FUEL RATE MONITOR	EP2604922
	GAS VALVE WITH COMMUNICATION LINK	EP2604924
European Community Design	VALVE CONTROL MODULE	002619056-0001
	VALVE CONTROL MODULE	002619056-0002
	USER INTERFACE FOR A VALVE CONTROLLER	002692939-0001
	USER INTERFACE FOR A VALVE CONTROLLER	002692939-0002
China P.R.	VALVE CONTROL MODULE	ZL201530025751.4



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.

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.

Honeywell Process Solutions
Honeywell Thermal Solutions (HTS)
1250 West Sam Houston Parkway
South Houston, TX 77042

ThermalSolutions.honeywell.com

® U.S. Registered Trademark.
© 2018 Honeywell International Inc.
32-00018-09 M.S. Rev. 10-18
Printed in U.S.A.



Honeywell