

Engineering Specification

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

LEAD FREE*

Series PVS-7000 Flood Protection Valve Station with SentryPlus Alert® Technology

Series PVS-7000 Flood Protection Valve Station with SentryPlus Alert technology is a configured water flow control system assembled from proven, reliable components to meet exacting project application requirements. The configuration consists of Series LFF113FP automatic shutdown control valve and relay box, Reduced Pressure Zone backflow preventer (MasterSeries® LF860 Large), and SentryPlus Alert sensor technology. Flood protection against property damage is engineered through the automatic control valve, which regulates flow by hydraulic actuator, and the RPZ backflow preventer assembly equipped with a flood sensor. The relay box provides power to the Solenoid bypass valve mounted on the control valve and, when installed, the activation module attached to the flood sensor. These drop-in valve stations are factory preassembled and tested, ensuring quality and flow performance for critical building demands.

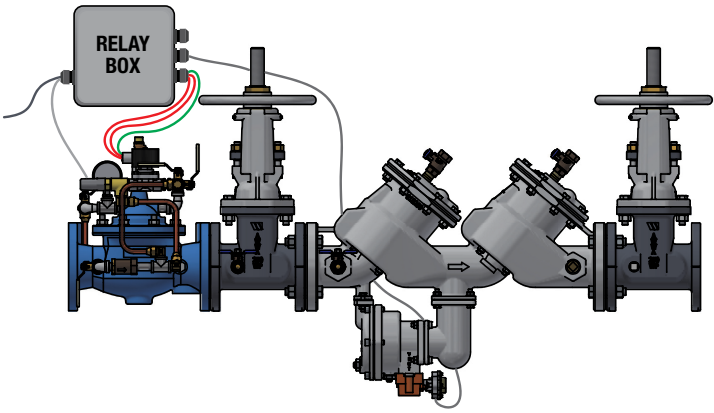
SentryPlus Alert technology consists of the flood sensor mounted on the exterior of the assembly relief valve and the activation module that ships with the control valve. Once activated, the sensor can detect continuous discharge and trigger the module to relay a signal energizing the Solenoid valve to shut down the control valve. NOTE: The sensor technology does not affect assembly functions or certifications.

Designed for use with building management systems, the alert system is also compatible with cellular network connectivity to suit the preference for wireless communication by text, email, or phone call. Cellular communication channels through Syncta® a web-based platform supporting the inspection and monitoring of backflow preventer assemblies. (NOTE: The Cellular Gateway must be purchased separately for this configuration.)

NOTICE

SentryPlus Alert technology is required to activate the flood sensor on the relief valve of the backflow preventer assembly. Without activation, the flood sensor is a passive component that has no communication with any other device. (For more information, download IS-LFF113FP.)

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.



Protection Valve Station including Watts LFF113FP shutdown control valve, relay box, and MasterSeries L860 Large backflow prevention assembly with flood sensor and activation module on assembly relief valve

Features

- Protects property by shutting off supply to the backflow preventer
- Prevents costly losses resulting from flooding and property damage, including higher insurance premiums and expensive mop-up operations
- Reduces the need for off-hour maintenance personnel, as the alert system, when activated, not only detects the failure but also triggers shutdown of the control valve and notification to a BMS application if configured
- Includes UL Classified, FM Approved, ASSE, IAPMO, and USC certified or listed components as required for service
- For use with MasterSeries LF860 Large backflow preventer assembly (Refer to ES-F-LF860L for product specification.)

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

NOTICE

Use of the Flood Protection Valve Station with SentryPlus Alert technology does not replace the need to comply with all required instructions, codes, and regulations related to the installation, operation, and maintenance of an RPZ backflow preventer, including the need to provide proper drainage in the event of a discharge.

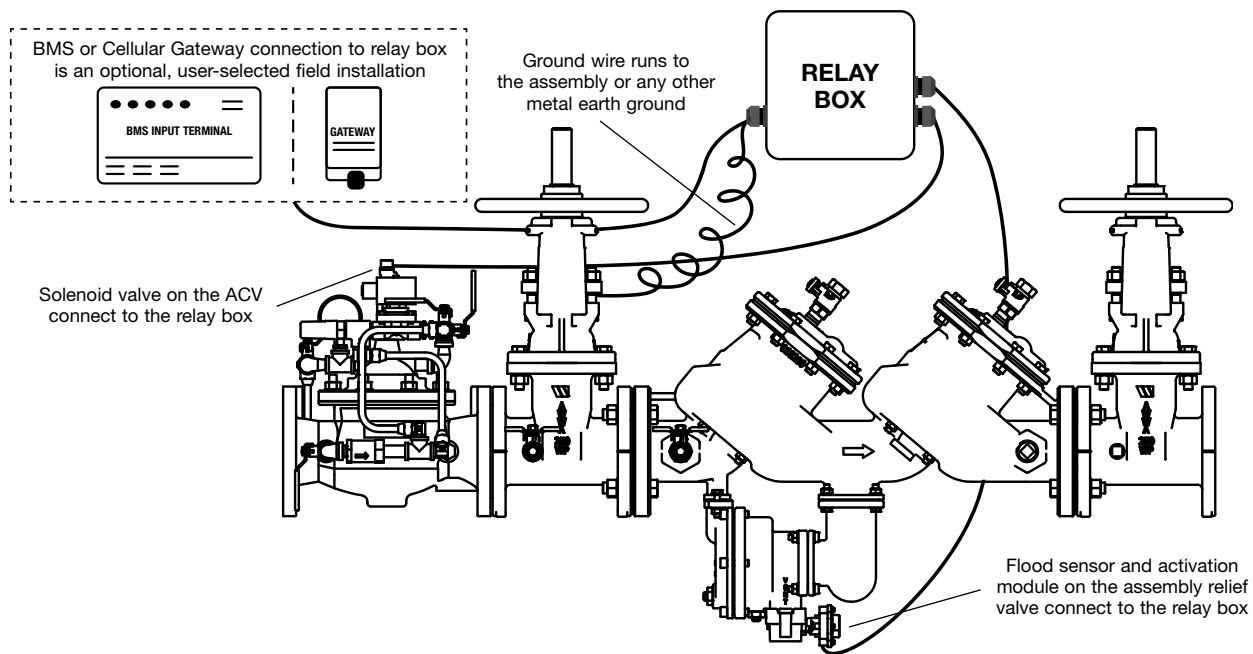
Watts® is not responsible for the failure of alerts due to connectivity issues, power outages, or improper installation.

FEBCO product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact FEBCO Technical Service. FEBCO reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on FEBCO products previously or subsequently sold.



A WATTS Brand

Typical Installation



Operation

Series PVS-7000 Flood Protection Valve Station with SentryPlus Alert technology helps protect against property damage that can occur from continuous relief valve discharge during normal operation. Continuous discharge can result from the following typical conditions:

- Fouled first check seat caused by dirt, debris, or rocks
- Failed first check spring
- Clogged or blocked relief valve sensing line
- Failed relief valve diaphragm

The shutdown control valve is a normally open valve designed for installation upstream of a Reduced Pressure Zone (RPZ) backflow preventer. With the integration of SentryPlus Alert technology, the valve closes when continuous discharge is detected by the flood sensor on the assembly relief valve. The sensor relays a signal to the activation module, which energizes the relay box and Solenoid bypass valve, both connected to the control valve.

The activation module receives a signal from the flood sensor when a discharge is detected. If the discharge meets the conditions of a qualifying event, the normally open contact is closed to provide a signal to the relay box. In turn, the relay box energizes the Solenoid valve (normally closed), which manually closes the main valve when engaged to provide automatic shutdown for flood protection. (The activation module mounted on the flood sensor has an adjustable time delay to avoid valve closure from intermittent or nuisance relief valve discharge.) The position indicator provides a visual sign of valve closure. The valve remains closed and cannot be reopened if flow stops or electrical service is interrupted; it must be manually reset after the RPZ is diagnosed and/or repaired.

The flood sensor comes installed on the backflow preventer assembly. (The sensor is installed on the valve exterior and does not alter valve functions or certifications.) The alert system is designed for use with BMS, with the activation module as a field installation. The alert system is also compatible with cellular networks to suit preference for wireless communication by text, email, or phone call. Cellular communication channels through the Syncta platform. The Cellular Gateway is a separate purchase.

Functional Specification

Operating Pressure: 175 psig

Operating Temperature: LF860 Large: 33°F – 140°F (0.5°C – 60°C) continuous

Hydrostatic Test Pressure: 350 psig

End Connections: 150# Flanged

Size: 2½ – 8"

Backflow Preventer: MasterSeries® LF860 Large

Shutoff Valve: OSY, NRS

Agency Approval (Backflow Preventer Only)

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at The University of Southern California (FCCCHR-USC)
- ASSE 1013 Listed
- UL Classified (US & Canada)**
- FM Approved**
- AWWA Standard C511 Compliant
- End connections compliant to ASME B16.1 Class 125 and AWWA Class D Flange
- NSF certified to NSF/ANSI 61-G

**Assembly configured with UL Classified and FM Approved OS&Y and BFG valves. Less valve or NRS assemblies are not UL Classified and FM Approved configurations.

Technical Specification

Connected Valve Stations with LF860 Backflow and ACV

The Reduced Pressure Zone assembly shall be installed on the potable water supply and at each point of cross-connection to protect against possible backpressure and backsiphonage conditions for high hazard/toxic applications. The assembly shall consist of a main line valve body composed of a pressure differential relief valve located in a zone between two (2) independently acting approved clapper style check modules with replaceable seats and disc rubbers. Servicing of the pressure differential relief valve and both check modules does not require any special tools; both check modules are accessed through independently top entry covers. This assembly shall be fitted with AWWA Compliant inlet/outlet resilient seated shutoff valves; when used on a Fire Sprinkler application, the assembly shall be fitted with UL Classified and FM Approved inlet/outlet resilient seated shutoff valves and contain four (4) properly located resilient seated test cocks as specified by AWWA Standard C511. The valve body shall incorporate a coating system with built-in electrochemical corrosion inhibitor and microbial inhibitor. Flow and pressure loss performance parameters shall meet the requirements of AWWA Standard C511. The assembly shall be FEBCO MasterSeries LF860 Large and shall include a sensor on the relief valve for flood detection.

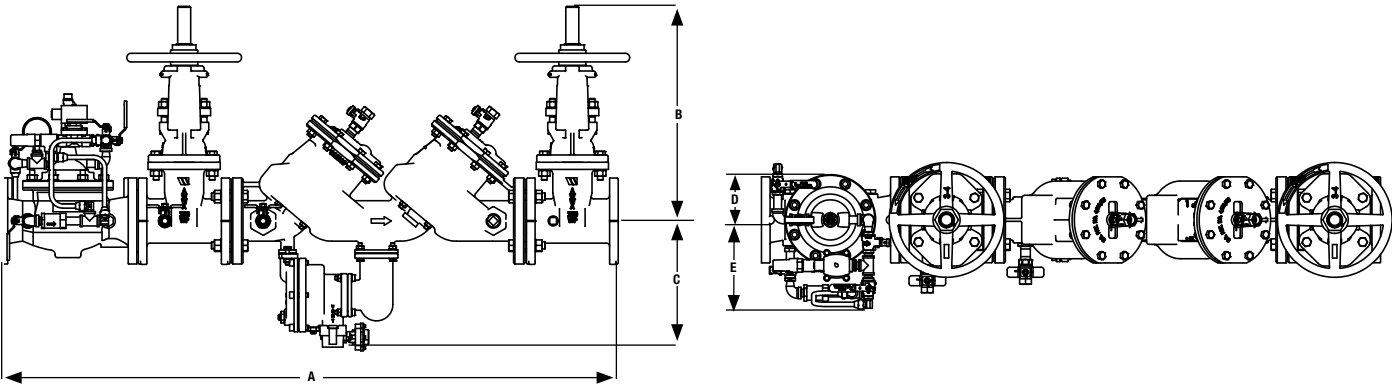
The Flood Protection Shutdown Control Valve shall be a normally open diaphragm valve installed upstream of the Reduced Pressure Zone backflow preventer assembly, and shall automatically close if the RPZ relief valve begins to discharge continuously. The shutdown shall be triggered by the flood sensor and activation module mounted to the assembly relief valve. (A time delay function in the activation module shall prevent the valve from closing when intermittent discharges occur.) If a continuous discharge occurs, the flood sensor installed on the assembly relief valve shall send a signal to the activation module, which in turn shall trigger the relay box to energize the Solenoid bypass valve to close the main control valve. Once closed, the control valve shall be reset manually.

The relay box shall be valve mounted with the relay prewired to the ACV Solenoid. The valve shall be equipped with a position indicator to provide a visual sign of valve closure. The position indicator shall be a stainless steel indicating rod that follows main valve stem movement as seen through a cylindrical borosilicate glass sight tube.

The relay box may also be connected to the input terminal of a Building Management System (BMS)/PLC controller. Alerts on potential flooding shall be handled by the BMS application. The alert technology shall also be compatible with cellular networks to suit user preference for wireless communication by text, email, or phone call. Cellular communication shall channel through the Syncra platform. The Cellular Gateway shall be a separate purchase and field installed.

The RPZ backflow assembly, flood protection shutdown control valve, relay box, and SentryPlus Alert technology shall be provided by the same manufacturer and be covered by a single warranty policy.

Dimensions and Weights



Series LFF113FP ACV and LF860 Large Backflow Preventer

Call customer service if you need assistance with technical details.

MODEL SIZE	DIMENSION (APPROXIMATE)										WEIGHT			
	A		B		C		D		E		NRS		OSY	
<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lb</i>	<i>kg</i>	<i>lb</i>	<i>kg</i>
2½	36½	927	16¾	416	11¾	288	4½	114	7⅞	181	315	143	319	145
3	38⅞	982	22¼	565	11¾	288	4½	114	7⅞	187	370	168	374	170
4	40⅞	1017	23¼	591	11½	291	5½	140	8⅞	206	524	238	535	243
6	54¾	1391	30⅞	765	12½	316	6½	165	9⅞	251	822	373	841	382
8	67⅞	1705	37¾	959	13⅝	345	7	178	11⅞	283	1456	661	1485	674

SentryPlus Alert Technology

The alert system can be installed with no disruption to service.

Activation module with 8-foot cable

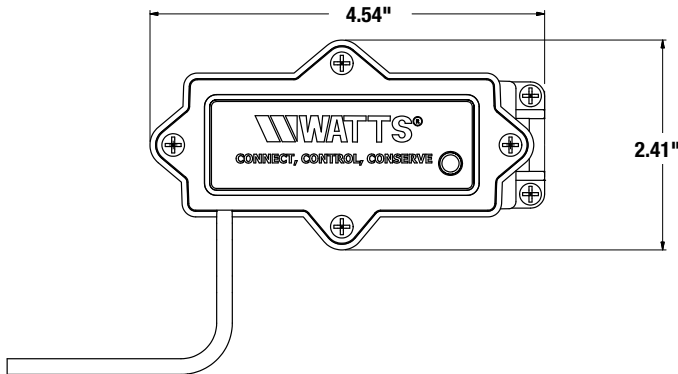
Ground wire



Activation module
with cable



Ground wire



Activation Module

The activation module contains the electronic circuit assembly, interfaces with the flood sensor, and provides connectivity to the BMS input terminal or the Cellular Gateway. Weight: <0.25 lb.

The module is designed with adjustable settings for wet threshold (sensitivity to water discharge) and timer delay (duration before alarm). For more information on custom flood sensor settings, download IS-FloodSensor-Settings 2144.



Ground Wire

24 AWG

Solid core, uninsulated, tinned copper wire

RoHS compliant

5 feet



Cellular Gateway

The Cellular Gateway is hardwired to the relay box for constant communication between the two devices. In turn, the Cellular Gateway communicates to the Watts Syncta platform when a qualifying discharge event occurs. Specifically, a signal about potential flood conditions from the Cellular Gateway prompts the Syncta application to alert users by email, phone call, or text message.

NOTE: This item is sold separately.

Wiring the Relay Box

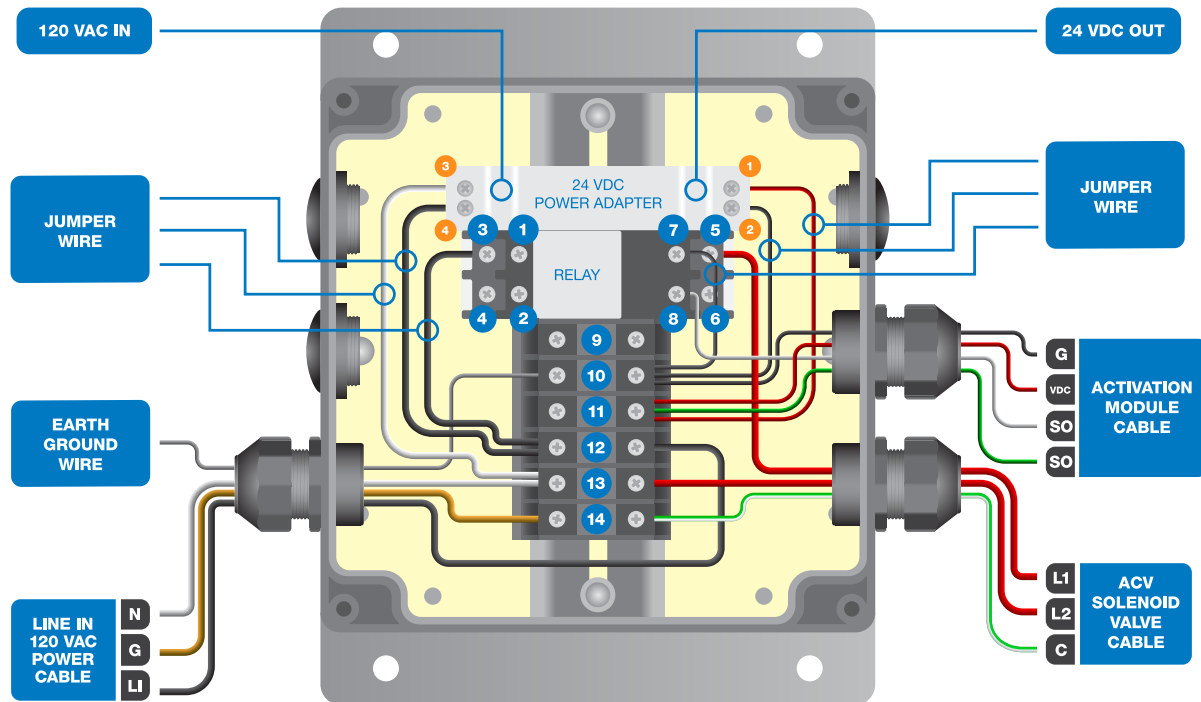
The relay box shall contain the electromagnetic device used to operate the LFF113FP Solenoid bypass valve. The relay box shall receive the signal from the flood sensor activation module and in turn shall be wired directly to the Solenoid valve.

Here, terminals 9 to 14 are numbered for reference and can be used in any order to make the cross-connections between the left and the right sides of the terminal block.

Relay terminals 4 and 6 shall be assigned for connection to the input terminals of the a building management system (BMS) or Cellular Gateway for real-time notification of potential flooding.

NOTICE

Certified electrician required to connect to the mains power and activation module to relay box.



Jumper Wire

Auxiliary terminal 12A to power adapter terminal 4 (AC/L)

Auxiliary terminal 12A to relay terminal 3

Auxiliary terminal 13A to power adapter terminal 3 (AC/N)

Earth Ground Wire

Metal base to auxiliary terminal 10A

Line In 120 VAC Power Cable

L1 to auxiliary terminal 12B

Ground to auxiliary terminal 14A

Neutral to auxiliary terminal 13A

BMS Cable (see page 7)

Input 1 to relay terminal 4

Input 1 to relay terminal 6

Cellular Gateway Cable (see page 7)

Input 1 to relay terminal 4

Input 1 to relay terminal 6

Ground to auxiliary terminal 10A

Power (+) 24VDC to auxiliary terminal 11A

Jumper Wire

Auxiliary terminal 11B to power adapter terminal 1 (+V)

Auxiliary terminal 10B to power adapter terminal 2 (-V)

Auxiliary terminal 10B to relay terminal 7

Activation Module Cable

Ground to auxiliary terminal 10B

24 VDC In to auxiliary terminal 11B

Signal Out (white) to relay terminal 8

Signal Out (green) to auxiliary terminal 11B

ACV Solenoid Valve Cable

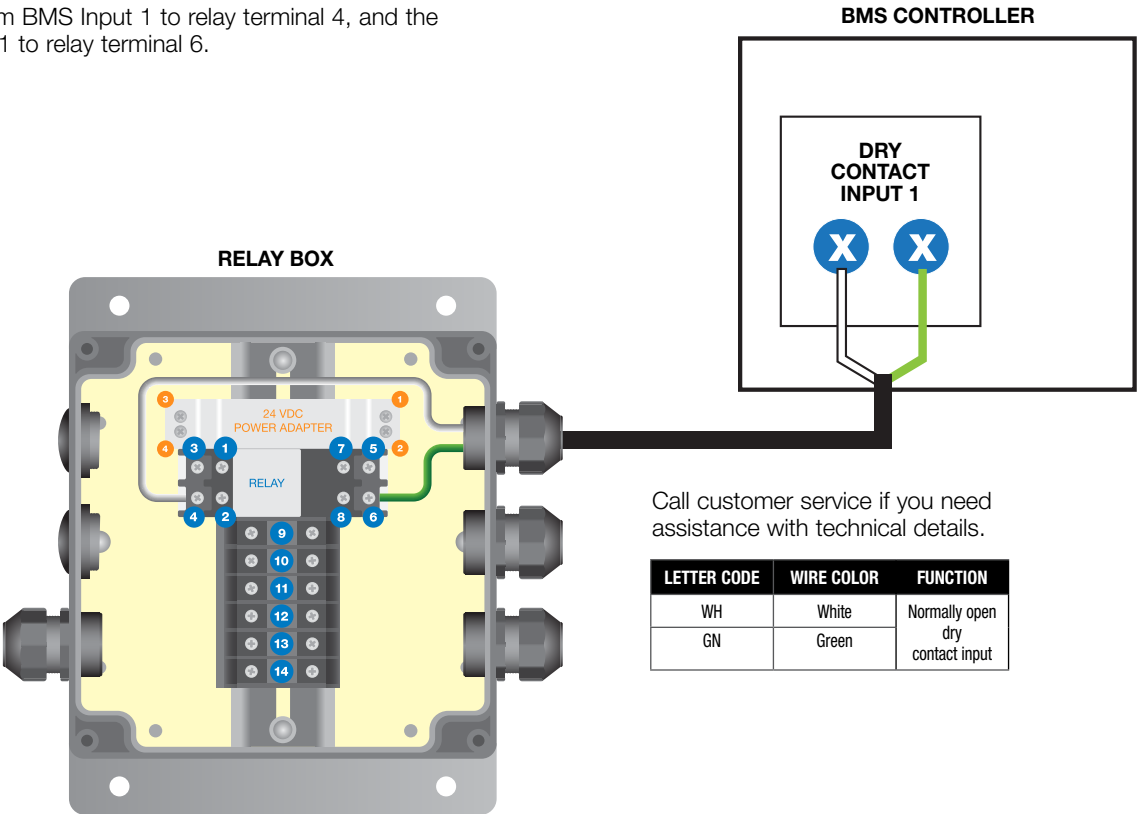
L1 to relay terminal 5

L2 to auxiliary terminal 13B

Common to auxiliary terminal 14B

Connecting the BMS to the Relay Box

One wire shall run from BMS Input 1 to relay terminal 4, and the other wire from Input 1 to relay terminal 6.



Connecting the Gateway to the Relay Box

OPTIONAL: Cellular network connectivity to receive alerts through Syncra is an optional field installation that is chosen and completed by the user.

A 4-conductor cable shall connect the Cellular Gateway terminals to the relay box terminals.

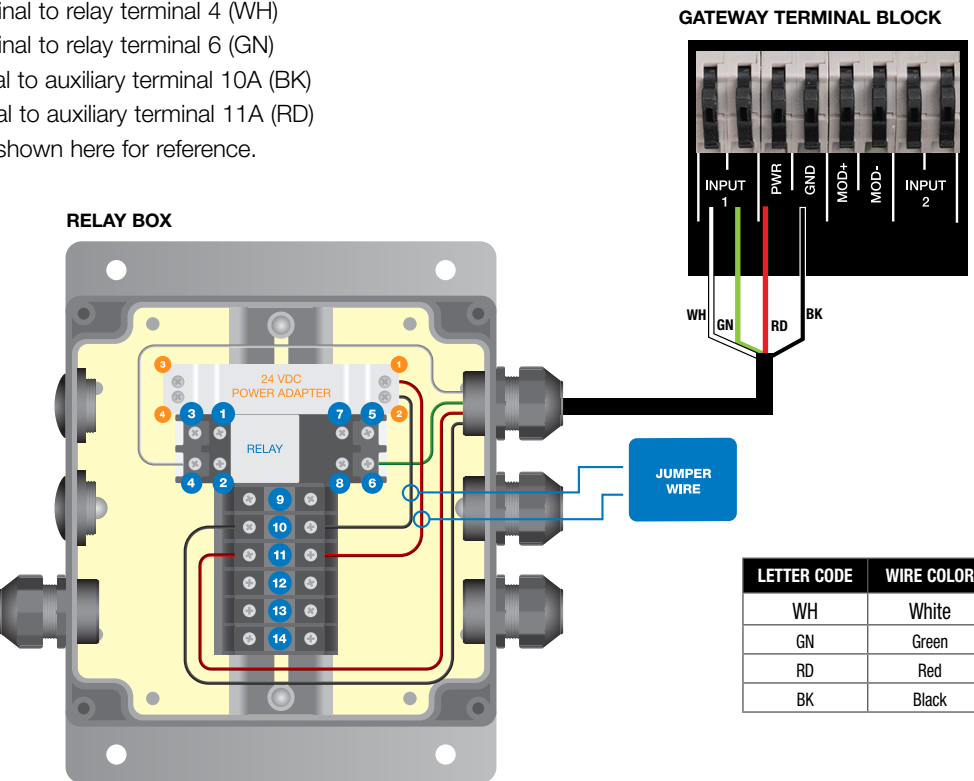
Gateway Input 1 terminal to relay terminal 4 (WH)

Gateway Input 1 terminal to relay terminal 6 (GN)

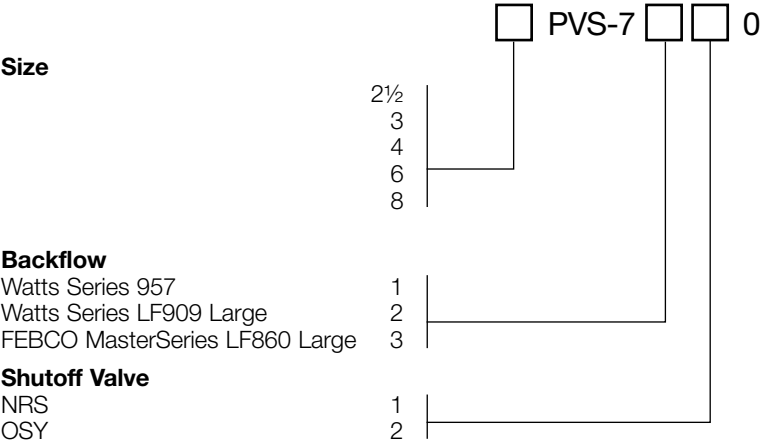
Gateway GND terminal to auxiliary terminal 10A (BK)

Gateway PWR terminal to auxiliary terminal 11A (RD)

NOTE: Jumper wires shown here for reference.



Ordering Information



Example: An 8" Valve Station with an LF860 backflow preventer and OSY shutoffs would be **8 PVS-7320**.



A **WATTS** Brand

