

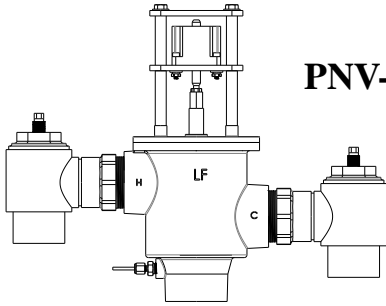


# NUCLEUS<sup>®</sup> PROTON<sup>®</sup>

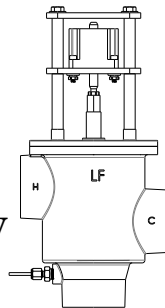
DIGITALLY CONTROLLED MIXING VALVE

## PNV-200-LF

- Digital Mixing Valve with integral RTD Sensor
- 2" sweat inlets, 2" NPT female outlet (51mm X 51mm)
- Valve controls at times of no use, 0.0 GPM\*\*
- Maximum operating pressure: 200 PSIG (1379 KPA)
- Controls water temperature to +/- 2°F in accordance with ASSE 1017
- Controls water temperature to +/- 2°F during times of low / no system demand
- Self-Balancing, do not need to adjust or balance recirculation
- Self-Cleaning, daily shuttle sweep keeps shuttle free of debris
- Automatic Hot/ Cold Water shutoff upon cold/ hot water inlet supply failure
- Alerts user when unit requires maintenance
- User programmable set point range between 65°F and 180°F, Displays outlet temperature
- Simple/intuitive user commissioning and setup
- UL Listed control box and 120V plug in power supply with 6' cord
  - Option for Backup Uninterruptable Power Supply in the event of primary power loss w/ approx. two hours run time



PNV-200-LF



PNV-200-LF-LCV

### STANDARD CONTROL BOX



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to [www.P65Warnings.Ca.gov](http://www.P65Warnings.Ca.gov)

### NEW "ENHANCED FEATURE SET" CONTROL BOX SEE SELECTABLE OPTIONS PAGE 2



This product is certified to meet Low Lead requirements of wetted surface area containing less than 0.25% lead by weight

Product is non-cancellable and non-returnable from date from order with factory. Signed submittal required with purchase order.

**\*\*NOTE:** The valve will maintain temperature with 0.0 GPM flow from the domestic hot water loop when properly installed near the hot water source with a continuously operating recirculation pump at 5 GPM.

### OPTIONS:

- \_\_\_ LCV – Less check valves, 2" female NPT in and out
- \_\_\_ IOT – Internet of Things, Modbus to Wi-Fi gateway that connects to the Cloud to allow online monitoring of outlet temperature and Modbus connectivity to BMS
- \_\_\_ BPS – Back-up Power Supply, uninterruptable power supply with up to 2 hours run time in case of primary power loss

Valve is Pending ASSE 1017 Certified



Valve is Pending CSA Certified



Valve electronics are UL Certified



1360 Elmwood Avenue, Cranston, RI 02910 USA

Phone: 401.461.1200 Fax: 401.941.5310

Email: [info@leonardvalve.com](mailto:info@leonardvalve.com)

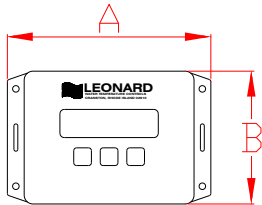
Web Site: <http://www.leonardvalve.com>

# PNV-CONTROLLER OPTIONS

## Standard Controller 1.0 Version



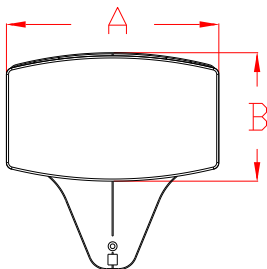
**A = 6"    B = 4"**  
**Depth = 1-3/4"**



## Enhanced Controller 2.0, 2.5, 3.0 Versions



**A = 8"    B = 4-3/4"**  
**Depth = 1-1/4"**



Leonard Valve Company reserves the right of product, or design modifications without notice or obligation.

## STANDARD CONTROLLER:

\_\_\_\_\_ **1.0** – See PAGE 1 for info

## ENHANCED CONTROLLER OPTIONS:

UL Listing Pending on 2.0, 2.5 and 3.0 controllers  
Note: Boxes not field upgradeable

\_\_\_\_\_ **2.0** – Enhanced Proton Controller with Programmable Disinfection Mode

### Options:

- \_\_\_\_\_ **REL** – 5 Relay Contacts that Switch during Alarm State
- Helpful for Remote Alerts Within Building to Assist Maintenance and Service Personnel
  - 5 Unique States:
    - Loss of Power
    - Broken Temperature Probe
    - “Out of Range” Temperature ( $\pm 10^{\circ}\text{F}$ )
    - Motor Connectivity and Operation
    - Maintenance (Service Required) @  $< 90\%$  Full travel

\_\_\_\_\_ **2.5** – Enhanced Proton Controller including all of 2.0 as well as BACnet MS/TP Connection which provides ability to serve up all data to BMS system

### Options:

- \_\_\_\_\_ **3T** – Three Additional Temperature Sensors for Monitoring of Inlet Hot, Inlet Cold, and Return Temperatures
- \_\_\_\_\_ **REL** – 5 Relay Contacts that Switch during Alarm State (as shown above)

\_\_\_\_\_ **3.0** – Enhanced Proton Controller including all of 2.5 as well as all items below as standard,

- WiFi – Wifi enabled
- 3T - 3 Additional Temperature Sensors for Monitoring of Inlet Hot, Inlet Cold and Return Temperatures
- REL - 5 Relay Contacts that Switch during Alarm State

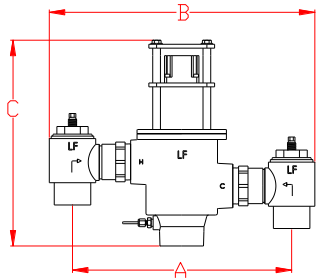
\*\*AVAILABLE  $\approx$  2<sup>nd</sup> Quarter 2023



1360 Elmwood Avenue, Cranston, RI 02910 USA  
Phone: 401.461.1200 Fax: 401.941.5310  
Email: [info@leonardvalve.com](mailto:info@leonardvalve.com)  
Web Site: <http://www.leonardvalve.com>

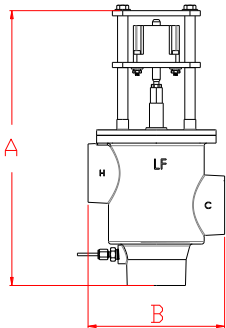
MINIMUM FLOW (GPM) (l/min)	PRESSURE DROP										
	5	⑩	⑮	⑳	25	30	35	40	45	50	PSI
	.3	.7	.97	1.4	1.7	2.1	2.4	2.8	3.1	3.4	BAR
0.25** (.95)	80	115	130	147	165	173	189	198	215	226	GPM
	303	435	492	556	625	655	715	750	814	856	l/min

### PNV-200-LF

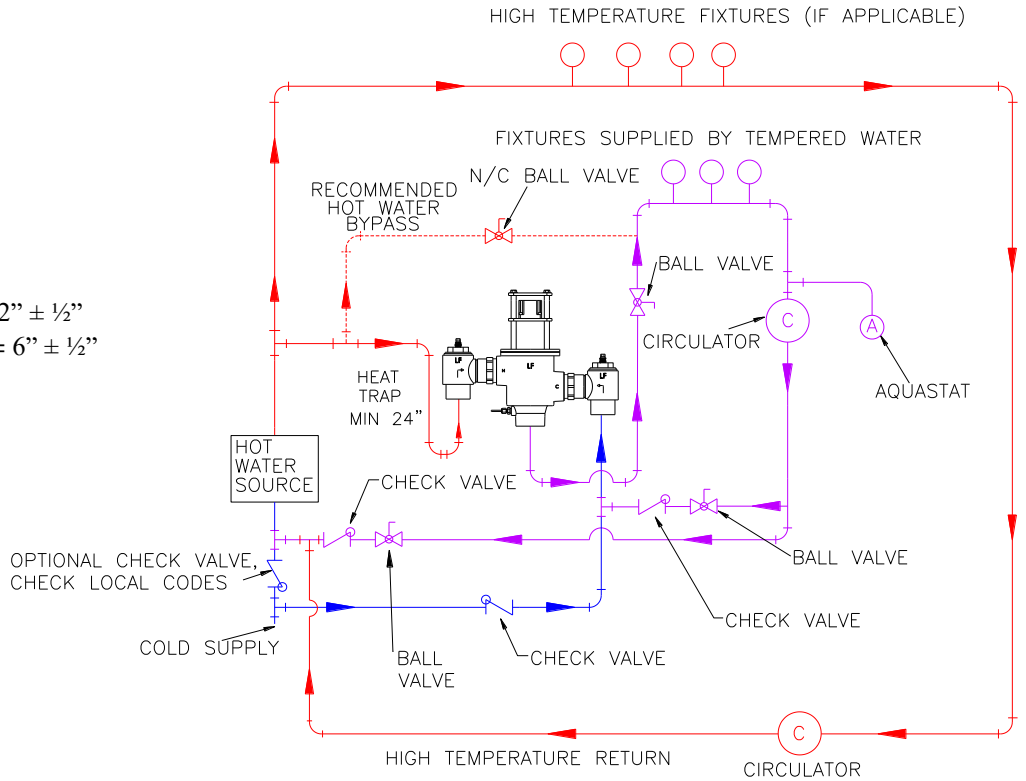


A = 14" ± 1/2"    B = 17-1/2" ± 1/2"  
C = 13-1/2" ± 1/2"    Depth = 6" ± 1/2"

### PNV-200-LF-LCV



A = 13" ± 1/2"    B = 6-1/2" ± 1/2"



**CAUTION!** All thermostatic water mixing valves have limitations. They will NOT provide the desired accuracy outside of their flow capacity range. Consult the Flow Capacity Chart and DO NOT OVERSIZE. Minimum flow must be no less than as indicated.

**NOTE:** Flow rates will vary depending on existing field conditions. Leonard Valve Company always recommends using CASPAK® sizing software for proper valve sizing and model number applications.

**Engineer's Approval**

Job # \_\_\_\_\_

Arch/Eng. \_\_\_\_\_

Contractor \_\_\_\_\_

Note: The models shown represent Leonard Products which are believed to be equivalent in type and function to items specified. Leonard Valve Company is not responsible for errors or omissions due to differences in interpretations of information provided.

Note: Leonard Valve Company reserves the right of product, or design modifications without notice or obligation.



1360 Elmwood Avenue, Cranston, RI 02910 USA  
Phone: 401.461.1200 Fax: 401.941.5310

Email: [info@leonardvalve.com](mailto:info@leonardvalve.com)

Web Site: <http://www.leonardvalve.com>