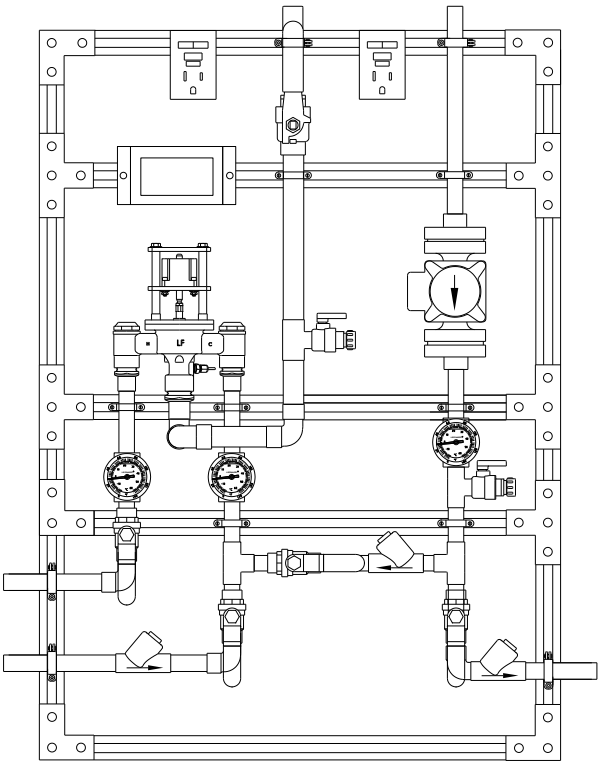
NUCLEUS PROTON®
DIGITALLY CONTROLLED MIXING VALVE

MEGATRON® MODEL PNV-100-LF DIGITAL TEMPERATURE CONTROL STATION



- Digital Mixing Valve with 3/4” inlet angled check stops, 1” Outlet and integral RTD Sensor
- 3/4" inlets, 1" outlet (19mm X 25mm), 3/4” return, copper tubing
- Valve controls at times of no use, 0.0 GPM**
- Maximum operating pressure: 125 PSIG (869 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
- Simple/intuitive user commissioning and setup
- Displays outlet temperature
- 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
- Factory assembled and tested

STANDARD CONTROL BOX

NEW “ENHANCED FEATURE SET” CONTROL BOX
SEE SELECTABLE OPTIONS PAGE 2

This product meets Low Lead requirements of wetted surface area containing less than 0.25% lead by weight

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

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

****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. Factory supplied circulator standard with TACO 0034E PLUS.

Valve is Pending ASSE 1017 Certified

Valve is Pending CSA Certified

Valve electronics are UL Certified

See Page 3 for Specification Detail, Page 5 for Piping Method Detail & Flow Capacity Chart, Pages 6 and 7 for Options

See Page 8 for Digitally Enhanced Megatron Proton

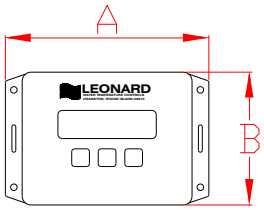
LEONARD
WATER TEMPERATURE CONTROLS

1360 Elmwood Avenue, Cranston, RI 02910 USA
Phone: 401.461.1200 Fax: 401.941.5310
Email: info@leonardvalve.com
Web Site: http://www.leonardvalve.com

PNV-CONTROLLER OPTIONS

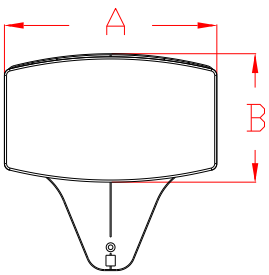
Standard Controller 1.0 Version

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”



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 Programable 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 (±10°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

**AVALIBLE ≈ 2nd Quarter 2023

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

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LEONARD MEGATRON® MODEL PNV-100-LF

Complete Digital Water Temperature Control Station to include:

- 3/4” inlet connections (copper tube)
- 1” outlet connection (copper tube)
- 3/4” return connections (copper tube)
- Leonard Proton Digitally Controlled Mixing Valve with simple two line LED display
- Leonard Factory check valves and full port ball valves on inlet piping
- Outlet Test Connection with ball valve and ¾” connection
- Full port ball valve mounted downstream of test connection on mixed water outlet of the system
- Subassembly with 3/4” return piping, Taco 0034E PLUS circulator, full port ball valves and check valves
- Two GFCI* switches. The circulator GFCI switch will be used to turn the circulator on or off for setup *Ground Fault Circuit Interrupter*
- System mounted on struts, galvanized. Struts shall be assembled with three hole flat angle plate on corners, four hole tee plates or two hole flat plate connectors on all other support pieces using 3/8” grip lock nuts and 3/8” x 1” hex head cap screws, washers and lock washers
- All electrical connections to be completed by Electrical Contractor
- Taco 0034E PLUS standard pump included and installed

  High-performance, variable speed, wet-rotor circulator with high-efficiency ECM permanent magnet technology, Simple 3-button control

  An intuitive digital user interface lets you choose between a variety of operating modes; activeADAPT™, five Constant Pressure curves, five Proportional Pressure curves, Min/Max fixed speed or speed control through 0-10V DC or PWM external input

  Digital LED screen displays; Watts, GPM, Head, RPM and diagnostic error codes

  Maximums of 34 feet of head and 50 GPM

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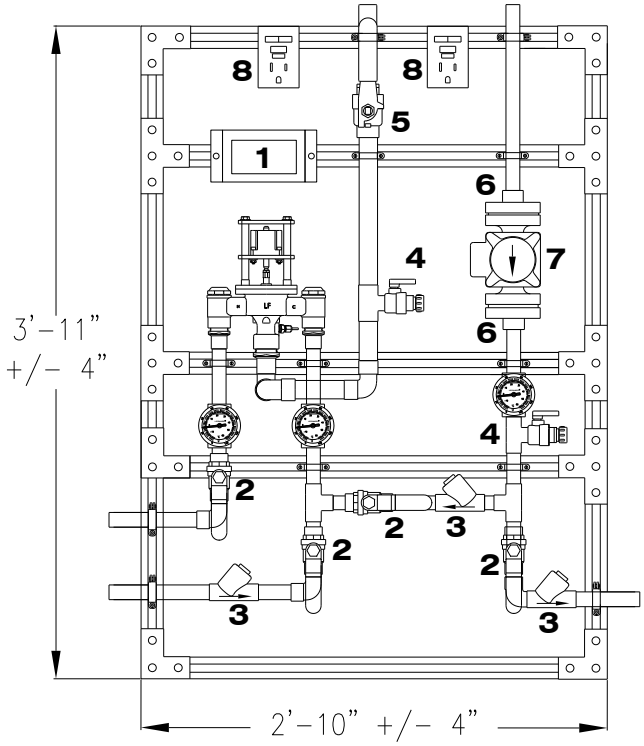
LEONARD MEGATRON® MODEL PNV-100-LF DIGITAL TEMPERATURE CONTROL STATION

***Image not to scale*, Dimensions will vary with any options**



1. **PROTON VALVE AND CONTROLS**
2. **3/4" FULL PORT BALL VALVE**
3. **3/4" CHECK VALVE**
4. **3/4" TEST CONNECTION**
5. **1" FULL PORT BALL VALVE**
6. **PUMP SHUT-OFFS**
7. **CIRCULATOR**
8. **GFCI ELECTRICAL OUTLET**

PROTON VALVE CONTROL BOX

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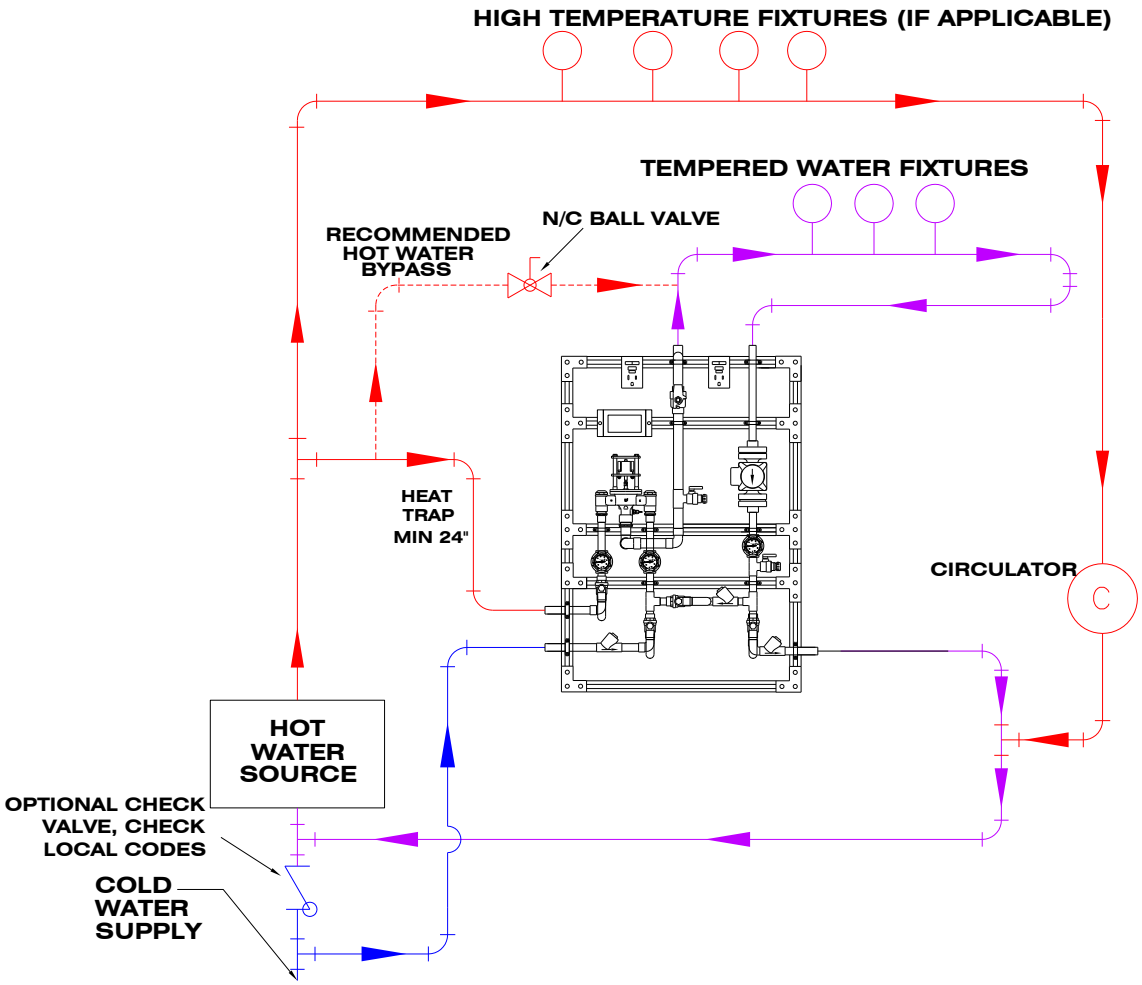
MEGATRON® MODEL PNV-100-LF
3/4” RETURN PIPING METHOD W

Image not to scale



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
17 64	25 95	28 106	32 121	36 136	39 148	43 163	45 170	48 182	51 193	GPM l/min

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

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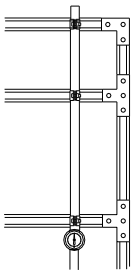
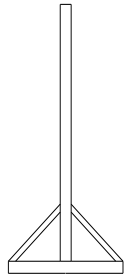
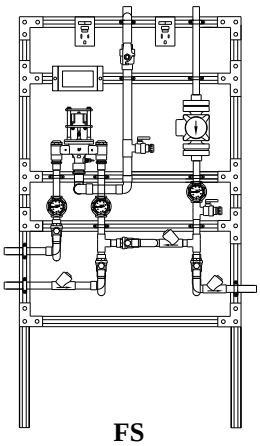
OPTIONS



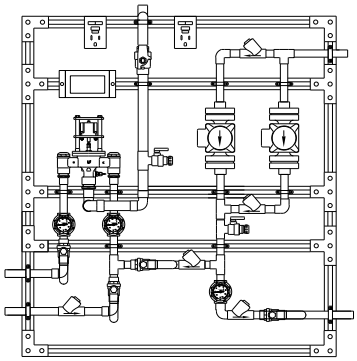
LC
Megatron® furnished without a circulator.



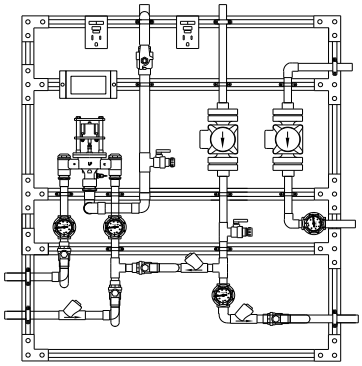
FM
Megatron® with 3 legs, 3 ½" feet and 45 degree braces front and back for mounting to floor in center of room.



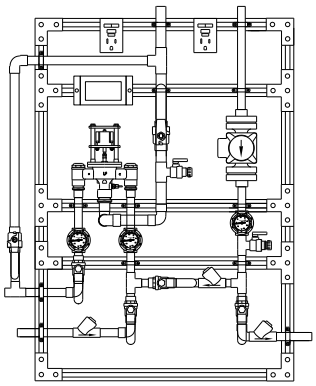
FS
Megatron® with separate legs to floor to support the unit without hangers.



2 PUMPS R
Redundant recirculation pump



2 PUMPS H
High temperature loop recirculation pump



HBP
High temperature by-pass flush with locking ball valve

OPTIONS *

___**LC** Less circulator
___**FM** Floor mount
___**FS** Free standing
___**2 PUMP R** Redundant recirculator pump
___**2 PUMP H** High temperature loop recirculator pump
___**HBP** High temperature by-pass flush
___**265-1** Timer, Analog, 24 hour
___**265-3** Timer, Digital, 7 day
___**HOA** HOA switch

OPTIONS (shown on next page) *

___**AL** Audio Visual Alarm
___**RDU** Remote Display Unit
___**SCO** Solenoid Control Option
___**BPS** Back up Power Supply
___**DA** Digital Aquastat
___**DG** Digital Gauges
___**User chosen pump** (specify on next page)

PIPING OPTIONS *

___**RP 1** 1" Return line size

*** Any option chosen will alter pricing**

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OPTION AL: Leonard Single Probe Digital Temperature Alarm

- Single Point Temperature Probe - Range: -148ºF to 212ºF Resolution: 1ºF
- User adjustable high & low set points and initial alarm delay period
- Audible & visual alarms
- Remote alarm contacts (SPDT) with adjustable relay delay period
- AL option replaces analog outlet dial thermometer with a single digital display

OPTION RDU: Leonard Remote Display Unit

- Activation by Primary Alarm's (pictured above) remote alarm contacts
- Alarm Delay Module with yellow, red, green LED indicators
- Recommended maximum distance from controller to RDU is 500'

SCO: Solenoid Control Option

- For use with Alarm relay switch
- Galvanized box with dimensions 6" Wide x 6" High x 4" Deep
- Solid state relay and terminal strip mounted and wired
- UL listed 100-240VAC power supply with 10' cord
- For either normally open or normally closed operation
- For use with 24-240 VAC solenoids only

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: Backup Power Supply

- Uninterruptable Power Supply with up to 2 hours run time in case of primary power loss

OPTION DA: Digital Aquastat

- Electronic digital aquastat with Nema 1 case and SPDT Relay Output, replaces standard aquastat

OPTION DG: Digital Gauges

- Replaces all analog gauges with digital gauges, inlet hot, inlet cold, outlet and return temperature

_____**OPTION**

USER CHOSEN PUMP

Standard pump is TACO 0034E PLUS, if another manufacturer is preferred please specify, but note that ANY change from standard pump will result in a **PRICE INCREASE**

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