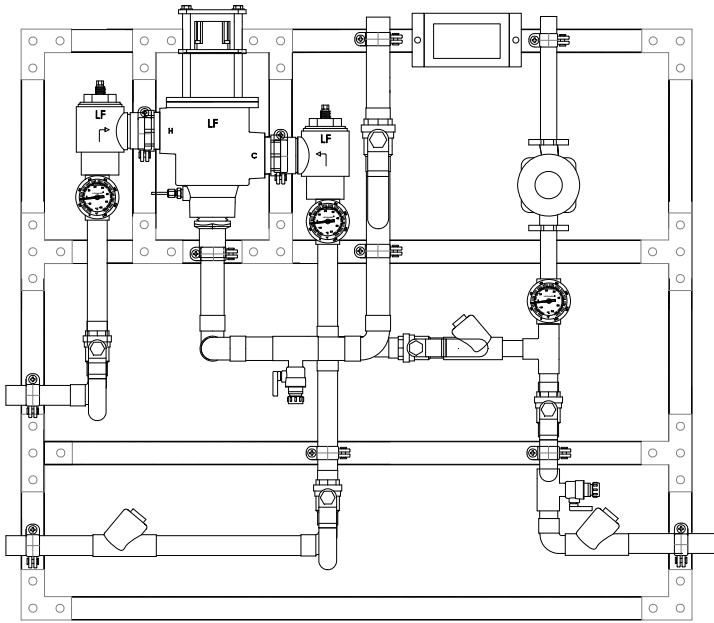


**MEGATRON® MODEL M-PNV-200-LF
DIGITAL TEMPERATURE
CONTROL STATION**



STANDARD CONTROL BOX



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



- Digital Mixing Valve with 2" inlet angled check stops, 2" Outlet and integral RTD Sensor
- 2" copper tubing inlet / outlet (51mm X 51mm), 1-1/4" return
- 0.25 GPM** (0.95 L/min) minimum flow capacity
- Maximum operating pressure: 125 PSIG (869 KPA)
- Controls water temperature to $\pm 2^\circ\text{F}$ in accordance with ASSE 1017
- Controls water temperature to $\pm 2^\circ\text{F}$ during times of low / no system demand
- Automatic Hot/Cold Water shutoff upon cold/ hot water inlet supply failure
- Self-Balancing - No need to manually adjust or balance recirculation
- Self-Cleaning - Daily shuttle sweep keeps shuttle free of debris
- Alerts user when unit requires maintenance
- Displays outlet temperature
- Simple user programmable set point, range between 65°F and 180°F
- UL Listed Control Box
- UL Listed 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

****NOTE:** The valve will maintain temperature with 0.25 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.

Valves are ASSE 1017 Certified



Valves are 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

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



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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

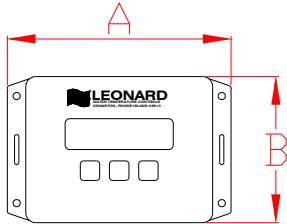
Product is non-cancellable and non-returnable from date of order with factory. Signed submittal required with purchase order.

PNV-CONTROLLER OPTIONS

Standard Controller 1.0 Version



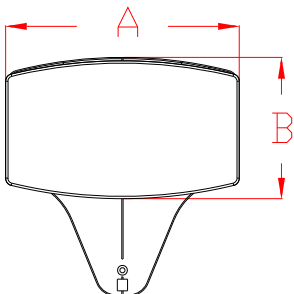
A = 6" B = 4"
Depth = 1-3/4"



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:

_____ 2.0 – Enhanced Proton Controller with Programmable Disinfection Mode

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

- 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



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LEONARD MEGATRON® MODEL M-PNV-200-LF

Complete Digital Water Temperature Control Station to include:

- 2” inlet connections (copper tube)
- 2” outlet connection (copper tube)
- 1-1/4” 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 3/4” connection
- Full port ball valve mounted downstream of test connection on mixed water outlet of the system
- Subassembly with 1-1/4” return piping, Taco 0034E PLUS circulator, full port ball valves and check valves
- 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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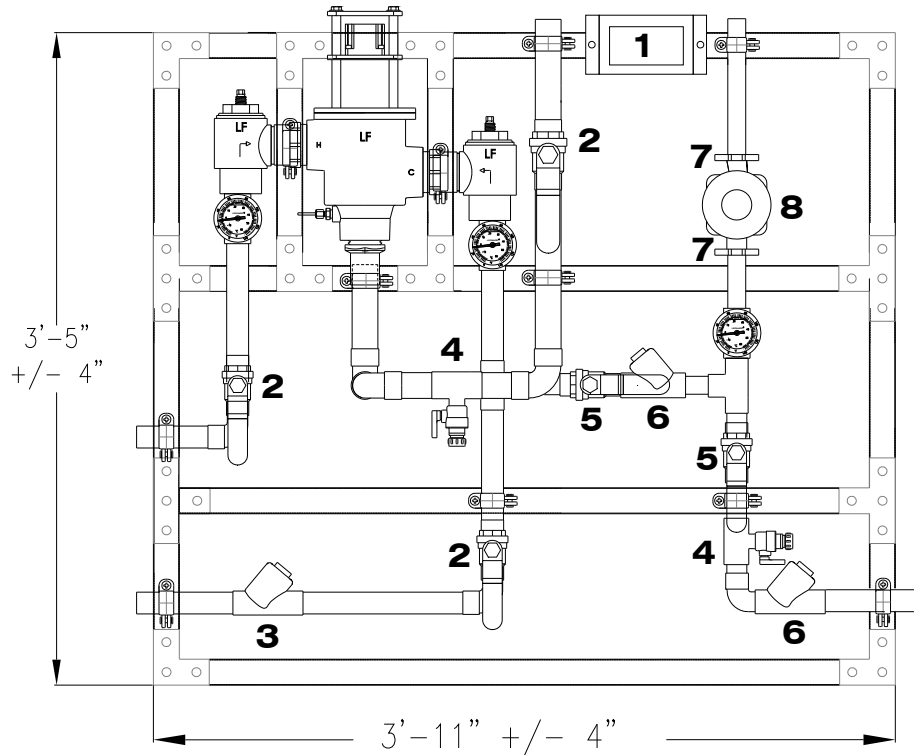
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LEONARD MEGATRON® MODEL M-PNV-200-LF DIGITAL TEMPERATURE CONTROL STATION

Image not to scale, Dimensions will vary with any options



- 1. PROTON VALVE AND CONTROLS
- 2. 2" FULL PORT BALL VALVE
- 3. 2" CHECK VALVE
- 4. 3/4" TEST CONNECTION
- 5. 1-1/4" FULL PORT BALL VALVE

- 6. 1-1/4" CHECK VALVE
- 7. PUMP SHUT-OFFS
- 8. CIRCULATOR

PROTON VALVE CONTROL BOX



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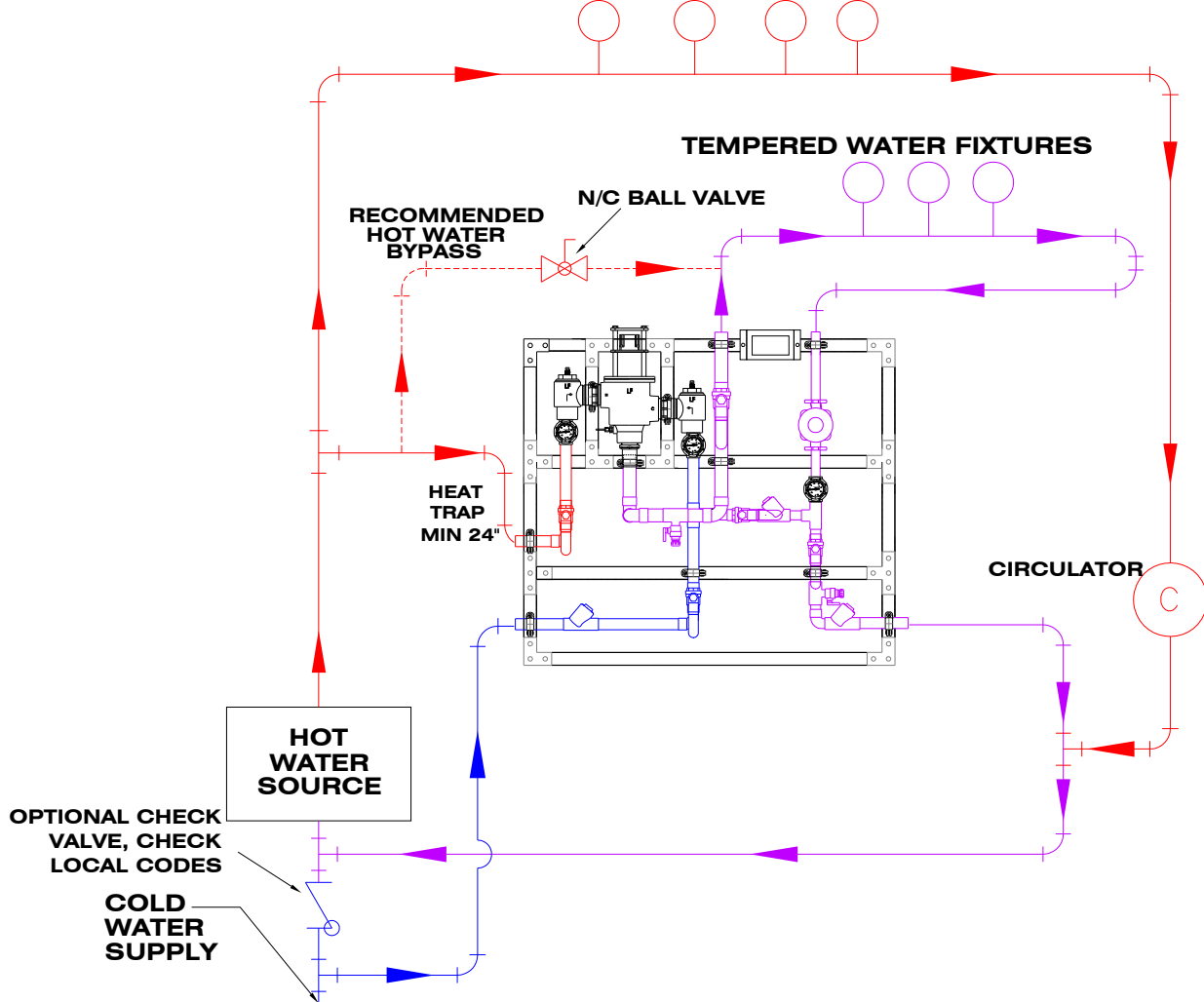
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MEGATRON® MODEL M-PNV-200-LF 1-1/4" RETURN PIPING METHOD W

Image not to scale

HIGH TEMPERATURE FIXTURES (IF APPLICABLE)



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



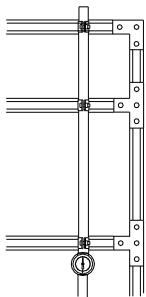
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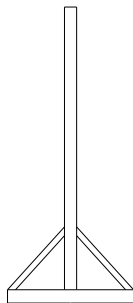
Web Site: <http://www.leonardvalve.com>

OPTIONS



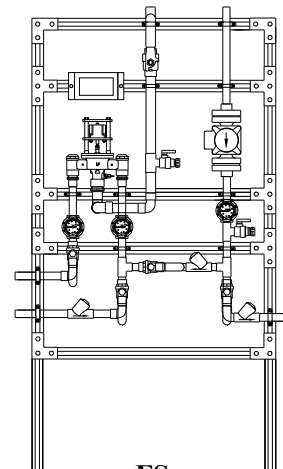
LC

Megatron® furnished without a circulator.



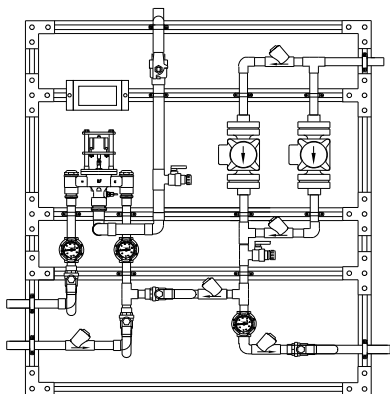
FM

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



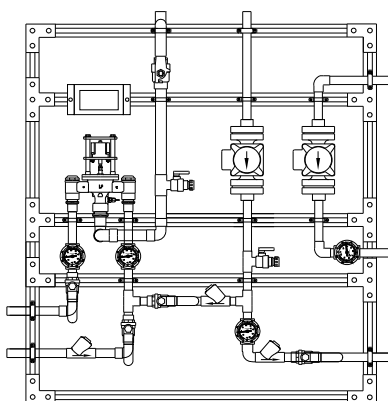
FS

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



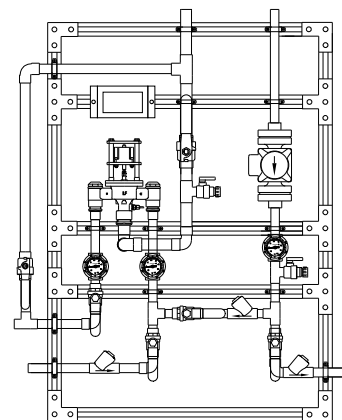
2 PUMPS R

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 1-1/2** 1-1/2” Return line size
- RP 2** 2” 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: -148°F to 212°F Resolution: 1°F
- 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



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



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**

Engineer's Approval	Job # _____
	Arch/Eng. _____
	Contractor _____
<p>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.</p>	



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