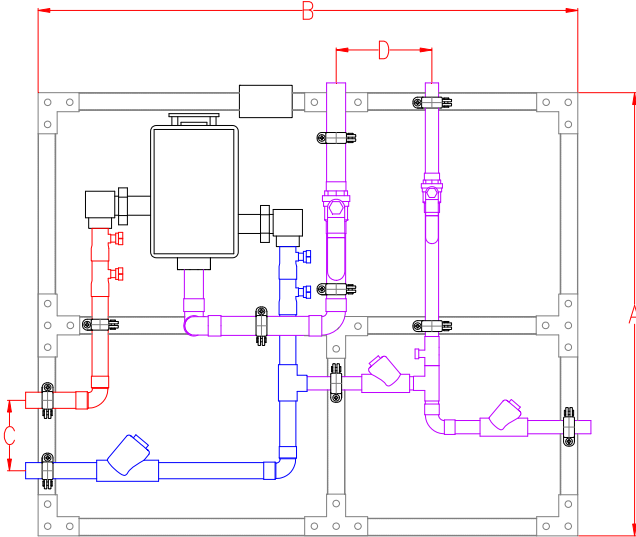




Submittal S-NV-150-LF-IF-R100
August, 2018

**MODEL NV-150-LF-IF-R100
DIGITAL TEMPERATURE
RECIRCULATION MANIFOLD**



APPROXIMATE DIMENSIONS
A = 3'-2" B = 3'-10" C = 6" D = 8-1/4"
Image not to scale

- Digital Mixing Valve with 1-1/4" inlet ball and check valves, 1-1/2" Outlet with ball valve and integral RTD Sensor
- Additional Integral RTD Sensors for three critical measurement points: Inlet Hot Water, Inlet Cold Water, and Return Water temperature
- Additional Integral Pressure Sensors for two critical measurement points: Inlet Hot Water and Inlet Cold Water
- Maximum operating pressure: 125 PSIG (860KPA)
- 1-1/4" inlets, 1-1/2" outlet (31.8mm X 38.1mm)
- 0.25 GPM** (0.95 L/min) minimum flow capacity
- Controls water temperature to $\pm 2^\circ\text{F}$ in accordance with ASSE 1017
- Controls water temperature to $\pm 2^\circ\text{F}$ at the NV-150-LF during times of low/no system demand
- Automatic Hot/ Cold Water shutoff upon cold/ hot water inlet supply failure
- User programmable for on-site configuration, high-temperature sanitization mode, and high/ low temperature alarm
- User adjustable settings at the controller or remotely through a Building Automation System/ Building Management System
- Six standard BMS Protocol Languages on-board communication
- Cloud based data logging and monitoring capabilities
- User programmable set point range between 65°F and 180°F
- Options to display 4 additional temperature inputs, 1 flow channel input, & 1 configurable flow or pressure
- UL Listed 120V plug in power supply with 6' cord
 - Option for Backup Uninterruptible Power Supply in the event of primary power loss w/ approx. two hours run time
- Factory assembled and tested



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

Valve assembly is compliant with Low-Lead requirements of wetted surface area containing less than 0.25% lead by weight. All other fittings and components, the sum total of which comprise the wetted surface of this product contains less than one quarter of one percent of lead by weight.

****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.

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

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.

See Page 2 for Specification Detail, Page 3 for Piping Method Detail & Flow Capacity Chart, Page 4 for Options

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.

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.

Valve assembly is ASSE 1017 Certified



Valve assembly is cUPC Certified



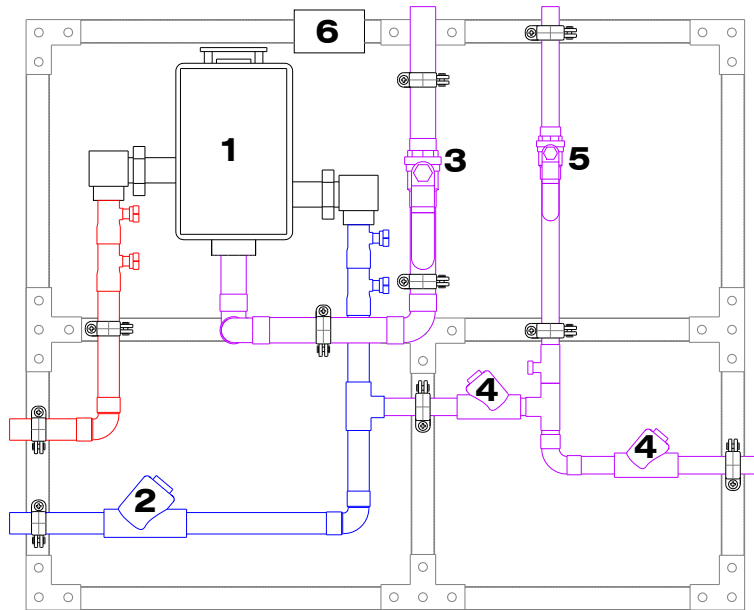
Valve electronics are UL Certified



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

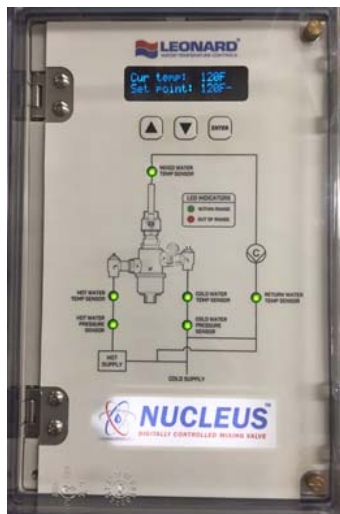
LEONARD MODEL NV-150-LF-IF-R100 DIGITAL TEMPERATURE RECIRCULATION MANIFOLD

Image not to scale



- | | |
|---------------------------------------|-----------------------------------|
| 1. NUCLEUS VALVE AND CONTROLS | 4. 1" CHECK VALVE |
| 2. 1-1/4" CHECK VALVE | 5. 1" FULL PORT BALL VALVE |
| 3. 1-1/2" FULL PORT BALL VALVE | 6. GFCI ELECTRICAL OUTLET |

NUCLEUS VALVE CONTROL BOX



1360 Elmwood Avenue, Cranston, RI 02910 USA

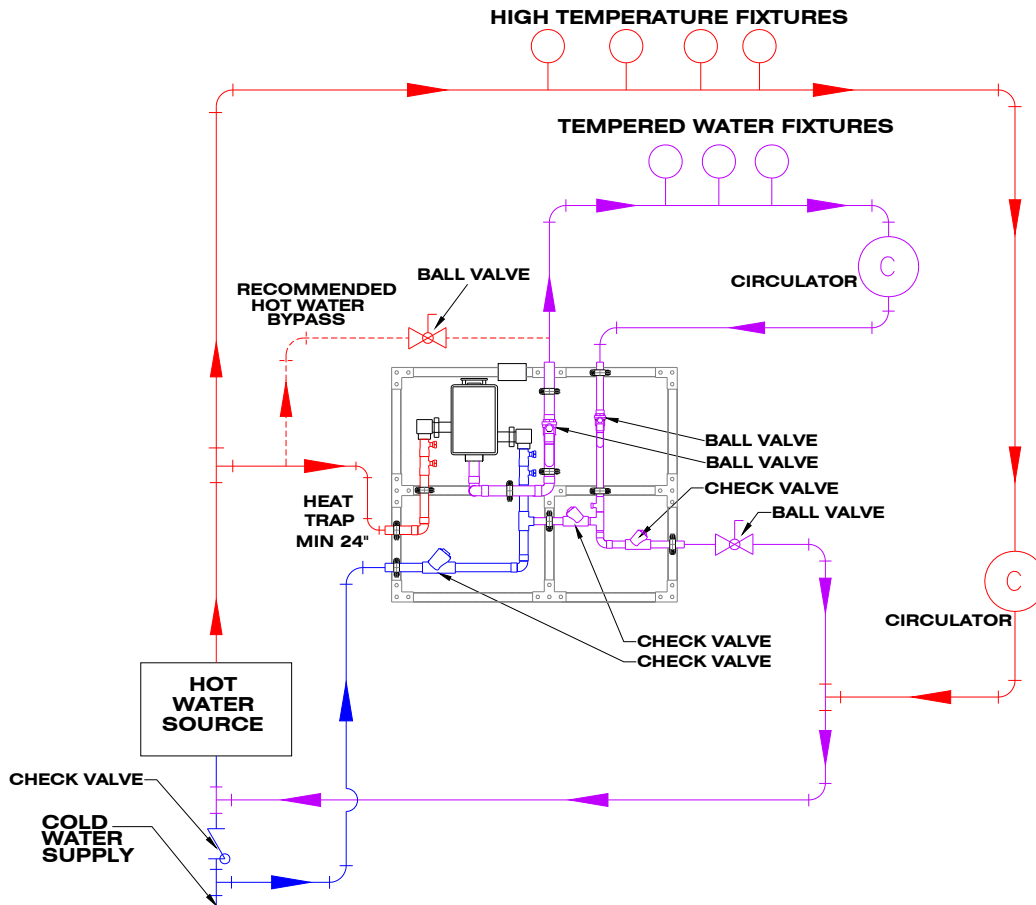
Phone: 401.461.1200 Fax: 401.941.5310

Email: info@leonardvalve.com

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

MODEL NV-150-LF-IF-R100 1" RETURN PIPING METHOD W

Image not to scale



MODEL NV-150-LF-IF-R100 Flow Capacity

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**	50	72	86	100	115	122	136	140	158	165	GPM
(0.95)**	189	273	326	379	435	462	515	530	598	625	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.



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>

OPTIONS AND ACCESSORIES

ANY OPTION CHOSEN WILL ALTER PRICING – CONTACT LEONARD VALVE COMPANY FACTORY

- ___ **RDU** Remote Display Unit
- ___ **SCO** Solenoid Control Option
- ___ **BPS** Backup Power Supply Unit
- ___ **DB** Daughter Board



___ **RDU – Remote Display Unit**

- Activated when Nucleus relay switch is in alarm mode
- Alarm Delay Module with yellow, red, green LED indicators
- UL listed 100-240VAC power supply with 10’ cord
- Unit includes 9V NiMH rechargeable battery back up
- User selectable timer
- VELCRO mounting strips provided
- Recommended maximum distance from controller to RDU is 500’



___ **SCO – Solenoid Control Option**

- For use with Nucleus 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

___ **DB – Daughter Board Option**

- To display up to 4 additional temperature inputs, 1 flow channel input, and 1 configurable flow or pressure input channel.
- Choose one or more below

- ___ **T5**
- ___ **T6**
- ___ **T7**

- ___ **T8**
- ___ **F1**
- ___ **F2** or ___ **P3**

ANY OPTION CHOSEN WILL ALTER PRICING – CONTACT LEONARD VALVE COMPANY FACTORY

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

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