DigiTemp – Digital Water Tempering System

DigiTemp is a domestic hot water main mixing station for commercial and institutional facilities that intelligently controls and monitors the water recirculation loop. It provides precisely controlled water temperature regulation within ±2°F to ASSE 1017, even during low and zero demand periods.

When paired with a PVI water heater, DigiTemp creates a safe system that helps maintain the appropriate water temperature you select for your facility. It delivers consistent hot water on demand wherever and whenever it is needed, in accordance with building codes. It also supports energy conservation through more efficient water temperature management – and in turn reduces energy costs for greater savings.
Features and Operation

Features and Benefits

- Configurable on location; does not require factory pre-programming or special software and laptop
- Controls water temperature to ±2°F in accordance with ASSE 1017
- Control ±2°F during periods of low/zero demand
- In case of power or cold water failure, valve flows full cold for safety with manual override feature to set mixed outlet temperature
- Settings can be adjusted/monitored at the controller or remotely through BAS (Building Automation System)
- 3.5" full-color, user-selectable touch screen display
- User programmable high-temperature sanitization mode
- Displays pressure, temperature and flow/BTU data
- Pass code protected for security
- User programmable high temperature alarm
- NSF 372 compliant
- Five-year warranty

System Operation with Smart Controller

DigiTemp maintains the recirculation loop temperature by energizing a field-supplied pump when loop temperature drops below a specified return limit and de-energizes the pump when proper loop temperature is re-established.

Its touchscreen control operates a 3-way valve through a high-speed actuator to precisely maintain the selected outlet temperature. Temperature and pressure sensors are included at key points within the panel to enable an immediate response to changes in fixture demand and supply water conditions.

A Sanitization Mode allows buildings with a thermal eradication protocol in place to control water-borne bacteria to deliver a higher water temperature for a pre-set duration to allow building maintenance staff sufficient time to open all of the fixtures.

DigiTemp can be connected to a building automation system (BAS) to provide read access to a range of temperature and pressure measurements and allow adjustment of the outlet temperature setting within a pre-programmed range. BACnet® IP, BACnet® MSTP and Modbus® protocols are all supported. Alert contact relays are included to aid in remote notifications.
Typical Applications

Single-Temperature Tempering

Illustrations are for concept only. Refer to manuals for complete piping details.
Dual-Temperature System with Tempering

- High-Temperature Fixtures
- Mixed-Temperature Fixtures
- Recirculation Pump (Supplied by Others)
- 140°F
- 120°F
- Expansion Tank
- Cold Water Makeup
- Check Valve
- Ball Valve
- Union
Specifications

Max Operating Pressure ............. 200 psi (1379 kPA)
Max Hot Water Temp. .................. 200°F (93°C)
Min Hot Water Supply Temp. .... 2°F (1°C) above set pt
Hot Water Inlet Temp. Range ......120-180°F (49-82°C)
Cold Water Inlet Range .......... 39-80°F (4-27°C)
Min Flow .................................. 0.5 gpm (1.89 lpm)
Temp. Adjustment Range .......... 80-180°F (27-82°C)
Listing /Compliance .............. ASSE 1017, cUPC,
                               NSF, CSA 24/UL873

Electrical Requirements** ........115/120 60Hz. 10 amps

*Refer to manual for complete details
**DigiTemp models V85 and V125

Flow Capacity at 50-50 Mixed Ratio

<table>
<thead>
<tr>
<th>Model</th>
<th>Valve Configuration</th>
<th>Min. System Draw</th>
<th>CV</th>
<th>5 psi (34 kPa)</th>
<th>10 psi (69 kPa)</th>
<th>20 psi (138 kPa)</th>
<th>Max. Flow @ 7.5 ft/sec (2.3 m/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V85</td>
<td>1.5&quot; Single Valve</td>
<td>0.5 gpm</td>
<td>26.88</td>
<td>60 gpm</td>
<td>85 gpm</td>
<td>120 gpm</td>
<td>41 gpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>227 lpm</td>
<td>322 lpm</td>
<td>454 lpm</td>
<td>155 lpm</td>
</tr>
<tr>
<td>V135</td>
<td>2&quot; Single Valve</td>
<td>0.5 gpm</td>
<td>42.70</td>
<td>96 gpm</td>
<td>135 gpm</td>
<td>191 gpm</td>
<td>75 gpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>363 lpm</td>
<td>511 lpm</td>
<td>723 lpm</td>
<td>284 lpm</td>
</tr>
<tr>
<td>V85-2</td>
<td>1.5&quot; Dual Valve</td>
<td>0.5 gpm</td>
<td>53.57</td>
<td>120 gpm</td>
<td>170 gpm</td>
<td>240 gpm</td>
<td>82 gpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>454 lpm</td>
<td>644 lpm</td>
<td>908 lpm</td>
<td>310 lpm</td>
</tr>
<tr>
<td>V135-2</td>
<td>2&quot; Dual Valve</td>
<td>0.5 gpm</td>
<td>85.27</td>
<td>192 gpm</td>
<td>270 gpm</td>
<td>382 gpm</td>
<td>150 gpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>727 lpm</td>
<td>1022 lpm</td>
<td>1446 lpm</td>
<td>568 lpm</td>
</tr>
</tbody>
</table>
### Ordering Information

#### Standard Capacity - Single Valve

<table>
<thead>
<tr>
<th>Valve</th>
<th>Inlets (in)</th>
<th>Outlet (in)</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V85</td>
<td>2” (50mm)</td>
<td>2 1/2” (63mm)</td>
<td>V85-1</td>
</tr>
<tr>
<td>V135</td>
<td>2 1/2” (63mm)</td>
<td>3” (75mm)</td>
<td>V135-1</td>
</tr>
</tbody>
</table>

- **Return Pipe Size**
  - 1”
  - 2”

- **Flow/BTU Package**
  - None
  - Flow/BTU Package

- **Strainers**
  - None
  - On inlets

*Strainers ship loose and must be installed by a plumber at the job site*

#### High Capacity - Dual Valve

<table>
<thead>
<tr>
<th>Valve</th>
<th>Inlets</th>
<th>Outlet</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V85</td>
<td>4” (100mm)</td>
<td>4” (100mm)</td>
<td>V85-2</td>
</tr>
<tr>
<td>V135</td>
<td>6” (150mm)</td>
<td>6” (150mm)</td>
<td>V135-2</td>
</tr>
</tbody>
</table>

- **Return Pipe Size**
  - 3”

- **Flow/BTU Package**
  - None
  - Flow/BTU Package

- **Strainers**
  - None
  - On inlets

*Strainers ship loose and must be installed by a plumber at the job site*
DigiTemp Light Commercial

The DigiTemp V23 and V55 are smart mixing valves designed for light commercial applications that controls water temperature to ±2°F in accordance with ASSE 1017. Connected through the native Building Automation System (BAS), DigiTemp’s sanitization mode addresses waterborne bacteria while a programmable temperature set-back feature lowers water temperature to a programed set point when the building is unoccupied. It flows full cold in the event of a power outage – returning to programmed settings once power is restored. The DigiTemp prevents overnight temperature creep, and automatically balances hot water distribution during low to no demand periods. Field configurability, simplified installation, and BAS connectivity make the DigiTemp the affordable digital mixing valve upgrade you’ve been waiting for.

Features

• Programmable set point range 60°F to 180°F
• Control water temperature ±2°F in accordance with ASSE 1017
• Lead Free* construction complies with lead free* installation requirement
• 3.5” full-color, user-selectable touch screen display
• High temperature Sanitization mode addresses waterborne bacteria
• In case of power failure, flows full cold for enhanced safety
• Manual override in the event of prolonged power loss
• Configurable on location. Does not require factory pre-programming, lap top or special software
• Control module supports Building Automation System (BAS) communication with BACnet MSTP and Modbus protocols. BAS is native to the unit and does not require a separate module or additional cost
• Mixed outlet temperature can be adjusted/ monitored at the valve or remotely by Building Automation System (BAS)
• Prevents overnight temperature creep, and automatically balances hot water distribution during low to no demand period
• Includes single operating sensor for a mixed outlet temperature reading
• Pass code protected for security, user specified
• Programmable high/low temperature alerts

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

Flow Capacity at 50-50 Mixed Ratio

<table>
<thead>
<tr>
<th>Model</th>
<th>Minimum System Draw</th>
<th>CV</th>
<th>5 psi (34 kPa)</th>
<th>10 psi (69 kPa)</th>
<th>20 psi (138 kPa)</th>
<th>Max. Flow @ 7.5 ft/sec (2.3 m/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V23</td>
<td>0.5 gpm</td>
<td>7.3</td>
<td>16 gpm</td>
<td>23 gpm</td>
<td>32 gpm</td>
<td>11.5 gpm</td>
</tr>
<tr>
<td>V55</td>
<td>0.5 gpm</td>
<td>17.5</td>
<td>39 gpm</td>
<td>55 gpm</td>
<td>78 gpm</td>
<td>29 gpm</td>
</tr>
</tbody>
</table>

*With a properly sized pump

Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Inlets (in)</th>
<th>Outlet (in)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>V55</td>
<td>1&quot;</td>
<td>1 1/4&quot;</td>
<td>5/16&quot;</td>
<td>4/16&quot;</td>
<td>4/4&quot;</td>
<td>3/8&quot;</td>
<td>2/4&quot;</td>
<td>5/8&quot;</td>
<td>5/8&quot;</td>
<td>4/16&quot;</td>
</tr>
</tbody>
</table>

Ordering Information

<table>
<thead>
<tr>
<th>Valve</th>
<th>Inlets (in)</th>
<th>Outlet (in)</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>V23</td>
<td>3/4&quot;</td>
<td>3/4&quot;</td>
<td>V23</td>
</tr>
<tr>
<td>V55</td>
<td>1&quot;</td>
<td>1 1/4&quot;</td>
<td>V55</td>
</tr>
</tbody>
</table>

Cabinets
Exposed no cabinets: N
Stainless Steel, Wall Mounted: S
Painted, Wall Mounted: P

View Port
None: N
Window: W
Typical Applications

Single-Temperature System

120°F to the building

MIXED-TEMPERATURE FIXTURES

RECIRCULATION PUMP (SUPPLIED BY OTHERS)

DigiTemp®
Digital Water Tempering System

140°F from the heater

HEAT TRAP

COLD/RETURN INLET

MIXED-TEMPERATURE RETURN

EXPANSION TANK

COLD WATER MAKEUP

MIXED-TEMPERATURE OUTLET

COLD INLET

HOT INLET

Check Valve

Ball Valve

Union
Two-Temperature System

HIGH-TEMPERATURE FIXTURES

120°F to the building

MIXED-TEMPERATURE OUTLET

DIGITEMP®
Digital Water Tempering System

140°F from the heater

HEAT TRAP

COLD INLET

EXPANSION TANK

COLD WATER MAKEUP

Fitting locations are for illustration only. Refer to specification sheets for details.

Check Valve
Ball Valve
Union

Recirculation Pump (Supplied by Others)