HEAT-TIMER® CORPORATION

EPU-D STEAM HEATING CONTROL

Single Boiler Light Commercial Steam Cycling Control

FEATURES

- Automatically cycles boiler operation based on outdoor temperature
- Thermal lockout prevents a new cycle from starting if there is sufficient heat within the building
- Heating System Sensor to indicate heat has circulated to all parts of the building
- Day and Night Scheduling for adjustable heat levels
- LED status lights to indicate heating system status

DESCRIPTION

The EPU-D is a steam cycling control designed specifically for light commercial building applications with a single steam boiler or steam valve. The EPU-D effectively regulates the boiler runtime based on the outdoor temperature. As the outdoor temperature falls, the EPU-D will run the boiler for a longer period allowing more heat into the building. This cycling concept maintains the ambient building temperature constant and comfortable. The EPU-D is equipped with an outdoor sensor and a heating system sensor. The heating system sensor signals to the panel that Steam has circulated throughout the building and begins the heating cycle. The heating system sensor will also determine if there is residual heat within the building and prevent a new heating cycle from starting, thus preventing overheating of the building and maximum energy savings.

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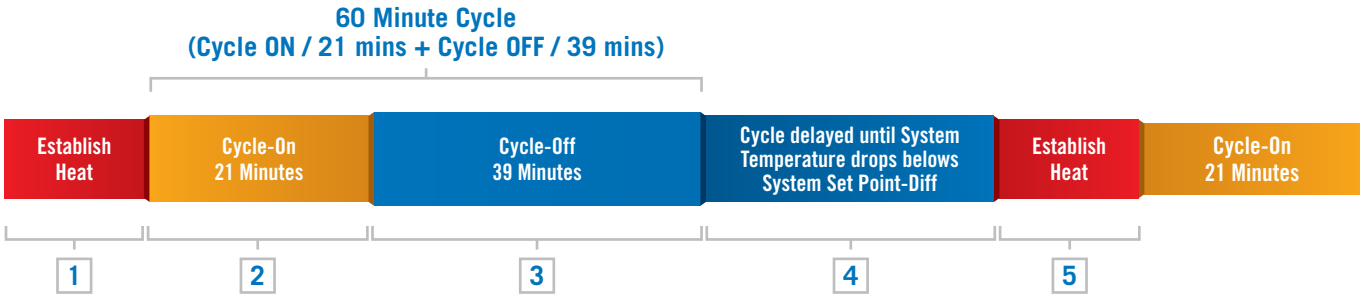
STEAM HEATING CONCEPT



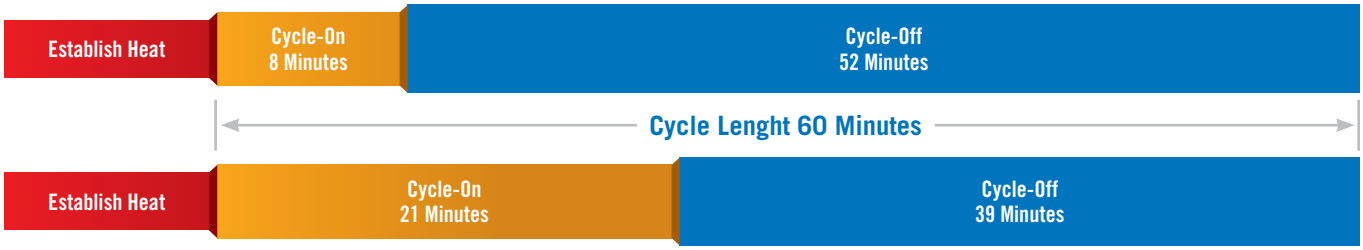
1. If the outdoor temperature falls below the adjustable outdoor cutoff temperature, the EPU-D control will initiate a call for heat by activating the boiler. The outdoor cutoff is factory set at 55° F (13°C) for Day and 40°F (4.5°C) for Night, but is fully adjustable. This is the start of the ESTABLISH HEAT period.
2. After “heat is established”, the Cycle-ON segment of the cycle begins.
3. After the Cycle-ON segment has ended, the Cycle-OFF segment of the cycle begins. The EPU-D turns off the boiler or closes the steam valve for the remainder of this segment.
4. After the Cycle-OFF segment has ended, the EPU-D once again activates the steam source unless either the outdoor temperature has risen above the cutoff or the thermal lockout is active.
5. Once the OFF cycle is completed and the Thermal lockout period is satisfied, the building’s system piping has cooled sufficiently, a new cycle begins.

The EPU-D continues to call for heat, keeping the steam source active, until the heating system sensor reaches its adjustable Set Point. This indicates that steam has gotten entirely through the system piping, or that “heat is established” within the building.

During the Cycle-ON segment, the EPU-D keeps the steam source activated. The length of the Cycle-ON segment is dependent on the outdoor temperature, the Day/Night setting, and several user-selectable adjustments that can be tuned to the specific heat loss characteristics of the building.

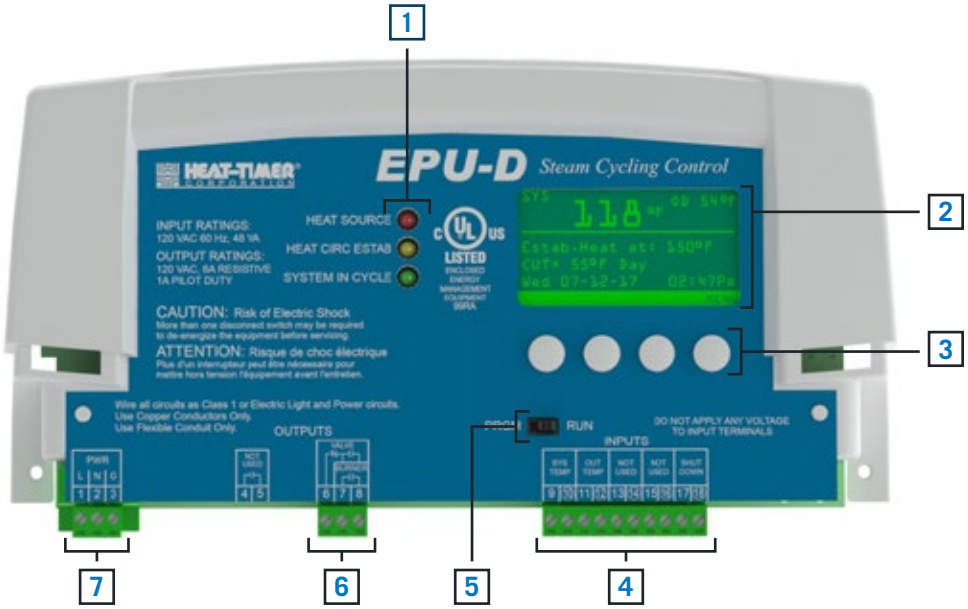
With the thermal lockout, the heating system sensor temperature must fall below the Set Point minus a preset differential before the heating source can be reactivated. This allows residual heat in the pipes to continue to heat the building. This prevents the building from being overheated while maintaining the indoor temperature of the building constant and comfortable.

SAMPLE MILD WEATHER CYCLE



SAMPLE COLD WEATHER CYCLE

CONTROL OVERVIEW



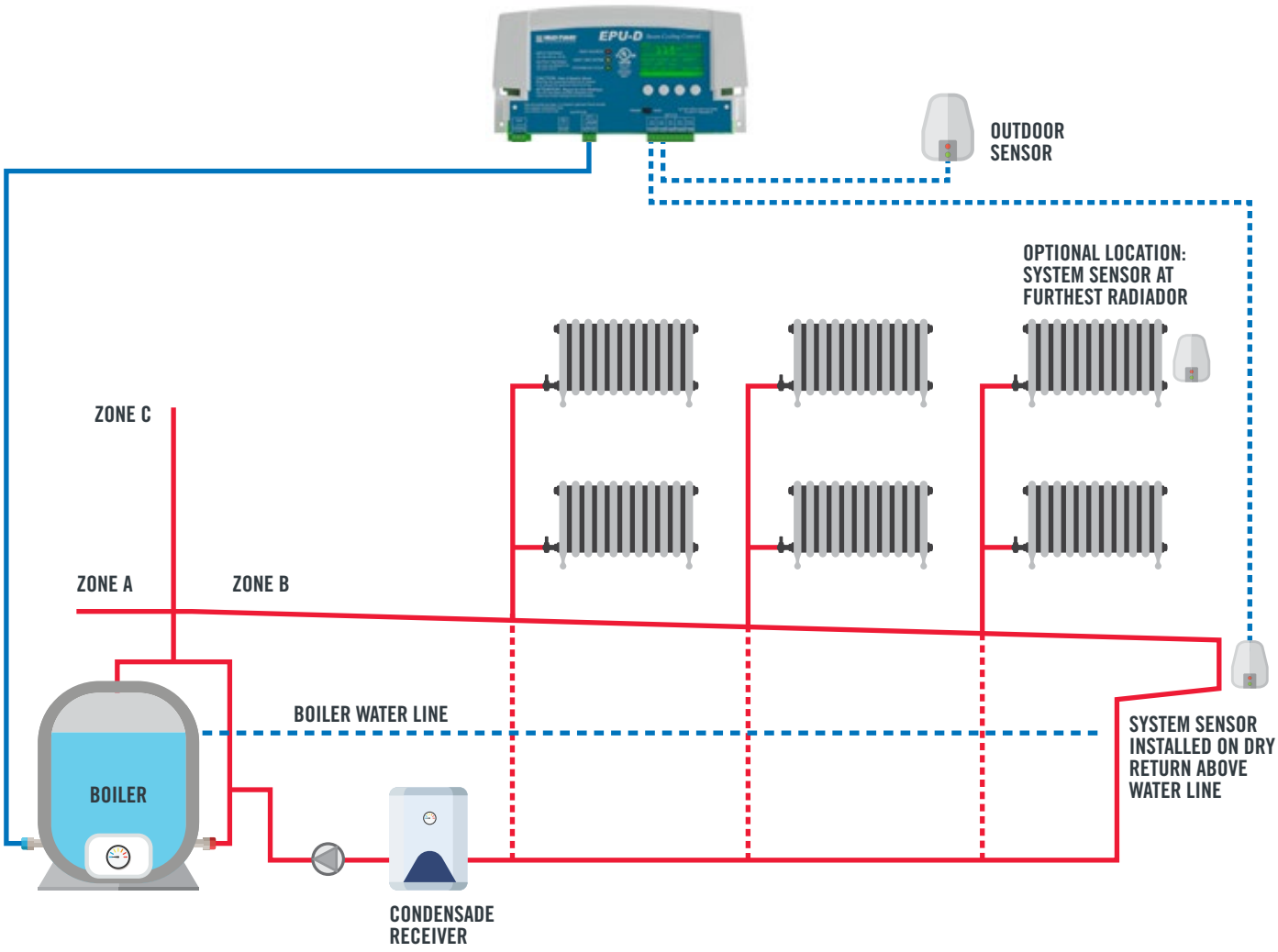
1. LED status lights
2. Digital display
3. Variable function menu buttons
4. Input connections
   - System temperature
   - Outdoor temperature
   - Remote shutdown
5. Program/Run switch
6. Output connections
   - Boiler burner
   - Motorized valve
7. 120VAC power input connection

SPECIFICATIONS

Voltage Input	120VAC 60Hz
Maximum Input Rating	48VA Maximum
Dimensions (W x H x D)	11” x 9” x 3¾” (279.4mm x 228.6mm x 95.25mm)
Weight	2.5Lbs (1.13kg)
Output Relays	1 Burner Output | 1 Valve Output
Output Relays Rating	Burner Output: 1A pilot duty at 120VAC 60Hz Valve Output: 6A resistive at 120VAC 60Hz
Inputs	System Temperature | Outdoor Temperature | Remote Shutdown
User Interface	Digital Display | Display Units; Temperature (°F and °C) Status Indicators (3 LEDs) | Variable-Function Buttons (4)

PIPING

EPU-D Module Installation with a 1 pipe Steam Heating System



PART NUMBERS

DESCRIPTION	PART NUMBER
EPU-D Control Module includes outdoor and heating system sensors	926840-00
3 in 1 Universal Sensor with Enclosure (Outdoor or Heating System Sensor)	904220-00