

## **CONTROL SYSTEM SPECIFICATION: *MODEL MPC PLATINUM*** ***SPECIFICATIONS***

### **AS MANUFACTURED BY HEAT-TIMER CORPORATION** **A WEATHER ACTUATED CONTROL FOR STEAM HEATING SYSTEMS**

The contractor shall furnish and install a microprocessor based control system. The control shall operate on 120VAC, with a maximum power of 30VA. The control shall be pre-engineered and programmed exclusively for the operation of steam heating systems. It shall incorporate the following four integrated functions: Outdoor temperature cutoff(s); day/night heat level programming; Boost (optimum start/stop); and system cycling (steam reset). The control panel shall be of modular construction to facilitate field modification, upgrading or repair. It shall include the following features:

#### **SEQUENCE OF OPERATION**

On a drop in outdoor temperature below the respective outdoor sensor set point the steam source shall be activated. When heat has been established in the building (as indicated by the system sensor, or pressure switch, or district steam option) the "on" portion of the cycle will commence. The steam source shall remain activated for a period of time determined by the outdoor temperature and respective heat adjustment setting. The control shall then assume the "off" portion of the cycle (steam source deactivated) and remain in this mode at least until the total cycle period has elapsed (the "on" plus "off" period always equal the total cycle period selected, i.e. between 10 to 240 min). If at the end of the total cycle period a sufficient level of heat remains in the system, the steam source will not be reactivated (Thermal lockout.) As soon as the system temperature drops below a pre-selected level the steam source will be reactivated.

#### **DISPLAY**

The control shall have a four line by eighty-character alphanumeric display capable of displaying both numbers and characters. The display shall be visible with no ambient light. All control operation information shall be available for display.

During times of inactivity, or 15 minutes after last user entry, the display shall enter a lower power mode. In this mode the control should display date and time of day, cycle status, day/night heat level, outdoor temperature and system temperature. In this mode, the display shall reduce visible light output. The control shall exit this mode whenever button or digital encoder activity is sensed.

#### **MEMORY & BACKUP**

The control shall store all configuration and settings on EE Prom. In case of power failure the control should be able to retrieve all of its latest settings.

#### **SENSORS**

The sensor circuitry shall be capable of 2 standard and up to 5 optional (sensor) inputs. Standard sensor inputs shall be of the thermistor type. Operating temperature range shall be -30° to 250°F. Optional (sensor) inputs shall include multiple thermistor type sensors, 4-20ma transducers or (relay) contacts.

#### **OUTDOOR SENSOR SET POINT**

The control shall provide two (2) integral outdoor sensor set points, one for Normal (Day) operation and one for Save (Night) operation. They shall be independently adjustable, in 1° increments. Their settings shall be digitally displayed. The range of settings are 20° to 100°F for Normal (Day) and off or 1° to 70°F for Save (Night). The settings shall be stored in EE Prom for an indefinite time period.

### **HEATING SYSTEM SENSOR SET POINT**

The control shall contain an integral Heating System Sensor set point adjustment within a digital display menu selection. The range of adjustment shall be 70° to 250°F. The sensor's set point and current temperature shall be digitally displayed.

### **TIME CLOCK**

A digital, 7 day electronic time clock shall be incorporated to switch between the Normal (Day) and Save (Night) modes of operation. The clock shall be capable of 4 separate Normal (Day)/Save (Night) schedules per day and each day can be programmed independently. The normal/save schedule shall be stored in EE Prom indefinitely. Copy and erase functions shall be provided to facilitate programming.

### **HEAT ADJUSTMENTS**

The control shall provide two (2) independent heat adjustments, one for Normal (Day) mode and one for Save (Night) mode. The heat adjustment shall allow for the selection of various "cycling" schedules that regulate the heating system in accordance with the outside temp.

### **MANUAL SHIFT FEATURE**

A menu selection option shall be provided to immediately switch from the Normal (Day) to Save (Night), Save to Normal mode, or extended day schedule. If a shift to Save (Night) or to Normal (Day) is selected the control shall remain as such until the next setting on the schedule. In Extended Day Schedule mode, a shift to Normal (Day) the control shall automatically revert back to the Save (Night) mode after an adjustable time delay that ranges from 60 to 240 minutes.

### **BOOST (OPTIMUM START/STOP)**

The control shall incorporate 3 separate field selectable "boost" functions. During the "boost" period the steam source will not be cycled. The digital display will indicate a boost is occurring and the type of boost.

The choices are:

1. Manual boost shall provide for a fixed warm-up period of 0-120 minutes.
2. Vari-Boost shall provide for an automatically variable warm-up period based on outside temp.
3. Vari-Boost with Early Shutdown shall provide an automatically variable warm-up with an automatically variable early switch to the Setback Save mode based on outside temp.

The Manual Boost, Vari-Boost or Vari-Boost & Early Shutdown setting shall be adjustable on the control panel.

### **THERMAL LOCKOUT**

A "Thermal Lockout" feature shall be provided to extend a cycle's "off" period based on heating system temperature. The degree of lockout shall be field adjustable from 3°F to 75°F. The lockout differential set point shall be digitally displayed.

### **CYCLE TIMES**

The total cycle time shall be field adjustable to a range between 10 to 240 minutes.

### **AUTO/BYPASS MANUAL SWITCH**

An Auto/Bypass switch shall be integrated into the control to select the required operating mode. In Bypass the heating system shall operate independently of the control. The Auto mode shall allow the control to regulate the heating system. A non-resetable counter shall record the cumulative days, hours and minutes in Bypass. The accumulated time in bypass shall be stored indefinitely in EE Prom.

## **SUMMER / WINTER MENU SELECTION**

A summer/winter menu selection shall be provided for summer shutdown. In the summer mode the control panel will not activate the steam source.

## **DISTRICT STEAM OPTION**

The control shall include a field activated "District Steam Option". Its function shall be to replace the heating system sensor and its set point with an adjustable time delay period that is adjustable between 0 to 30 minutes. This delay shall provide for proper steam distribution in buildings receiving steam from a central (or district) source. The delay time setting shall be digitally displayed.

## **OUTPUTS**

The control shall have the capability of providing 6 independent outputs. A LED will indicate which outputs are energized. The outputs include:

1. A heating output relay shall control the burner or main steam valve.
2. System output relay shall be active when the MPC Platinum requires steam and has optional Run-On.
3. An auxiliary clock relay shall provide a time-of-day switching function.
4. 3 optional relay outputs shall be provided for additional control strategies as specified.

## **REGULATORY APPROVALS**

The control shall be UL Listed; Tested per standard 916, Temperature Indicating and Regulating Equipment. It shall also be approved for use in NYC by the City of New York, Department of Environmental Protection.

## **ENCLOSURE**

A surface mounted, locking steel enclosure NEMA 1 type, minimum 18 gauge shall be provided.

## **NETWORK / COMMUNICATIONS CAPABILITY**

### **INTERNET COMMUNICATION**

The control shall optionally be capable of communicating to the Internet using a high-speed Internet connection. The connection can be either direct to the Internet or through a router that is configured and supplied by Heat-Timer.

### **RS232 AND DIALUP MODEM COMMUNICATION**

The control shall optionally be capable of communicating to Heat-Timer Visual Gold Plus Software. This connection shall be either using a direct connection RS232 to the PC with the Visual Gold Plus Software or using a dialup modem to dial into the control.

### **BACNET IP COMMUNICATION**

The control shall optionally be BACnet IP capable. It shall provide the user with BACnet communication Interface to an Energy Management System (EMS) or Building Management System (BMS) on the same or external BACnet network. The control is designed to be BACnet Application Specific Controller. It connects to the network using an Ethernet connection.

## **CONSIDERATION**

Purchase of Heat-Timer Model MPC Platinum controls shall include setup, installation supervision via phone, email, or written manual. Upon factory request, control start-up, installation supervision and personnel training are available.

The MPC Platinum control must be installed in accordance with the manufacturer's instructions and all applicable codes and regulations.