

**CONTROL SYSTEM SPECIFICATION: *MODEL SCP-6 SPECIFICATIONS***  
**AS MANUFACTURED BY HEAT-TIMER CORPORATION**  
**A MULTIPLE STAGE OUTPUT PANEL**

The contractor shall furnish and install a microprocessor-based control. The control shall be pre-engineered and programmed as an output panel for a boiler sequencing control (Heat-Timer Corporation Model HWRQ Platinum, Multi-MOD Platinum, Mini-MOD) for the operation of multiple boiler hot water systems. It shall incorporate the following integrated functions:

Adjustable boiler (secondary) pump run on delay, combustion air interlocks, primary pump lead-lag, and primary pump failure alarm. It shall include the following features:

#### **INPUTS**

The control shall have the capability of accepting a System Pump signal and signals for up to six stages of boilers from a boiler sequencing control. In addition, the control shall accept an input from a system flow switch and a combustion airflow switch. All input signals shall be dry contacts.

#### **LED INDICATIONS**

The control shall provide LED indication of power, system flow, and combustion air. The control shall also have LED indication for system pump failure. The system pump failure LED shall remain lit until the failure is cleared through a manual reset. Finally, the control shall have LED indication for each of the outputs.

#### **SYSTEM (PRIMARY) PUMP OUTPUTS**

The control shall have the capability of operating up to two system pumps. Each system pump output shall have a normally open contact for start/stop.

#### **SYSTEM (PRIMARY) PUMP SWITCHES**

A three position switch shall be provided for each system pump to set the operating mode of the respective pump. Each switch shall include ON, AUTO and OFF positions.

#### **SYSTEM (PRIMARY) PUMP LEAD-LAG**

The control shall have the capability to lead-lag the two system pumps in the following schemes: The lead pump shall switch every 24 hours, the lead pump shall switch every 7 days, the lead pump shall switch every time the system pump is activated, the lead pump shall always be the System Pump 1, the lead pump shall always be the System Pump 2.

#### **SYSTEM (PRIMARY) PUMP FAILURE ALARM**

The control shall have the capability of operating a system pump failure alarm. The alarm output shall have a normally open contact for start/stop. The alarm output shall be activated whenever the lead system pump cannot establish system flow or loses system flow for 30 seconds. Once the alarm has been activated, it shall not be cleared unless the manual reset button is pressed. The alarm shall have a three-position ON-AUTO-OFF switch to control its operation. In the ON mode, the alarm shall always be activated. In the AUTO mode, the alarm shall be activated when system flow fails or cannot be established. In the OFF mode, the alarm output shall be turned off.

#### **SYSTEM (PRIMARY) FLOW INTERLOCK**

The control shall be programmed so that if system flow is not proven within 30 seconds, neither the boiler pump outputs nor any of the boiler stage outputs shall be activated.

### **COMBUSTION AIR OUTPUT**

The control shall have the capability of operating a combustion air fan or damper. The combustion air output shall be single pole double throw contacts for start/stop.

### **COMBUSTION AIR SWITCH**

A three-position switch shall be provided to set the operating mode of the combustion air fan or damper. The switch shall include ON, AUTO and OFF positions.

### **COMBUSTION AIR INTERLOCK**

The control shall be programmed so that if the boiler sequencing control calls for any boiler stage to be active, the combustion air output shall be activated. However, no boiler output shall be activated until the combustion airflow is proven.

### **BOILER AND BOILER (SECONDARY) PUMP OUTPUTS**

The control shall have the capability of operating up to four boilers and boiler pumps. Each boiler output shall have a normally open contact for start/stop. Each boiler pump output shall have a normally open contact for start/stop.

### **BOILER (SECONDARY)\_PUMP RUN-ON DELAYS**

The control shall provide adjustable run-on delays for individual boiler pumps. When the boiler sequencing control turns a stage off, the control shall immediately deactivate the boiler output. However, the control shall leave the boiler pump output activated for the period of the run-on delay. The run-on delay period shall be adjustable from zero to 15 minutes.

### **BOILER AND BOILER (SECONDARY) PUMP SWITCHES**

A three-position switch shall be provided for each boiler stage to set the operating mode of the respective stage. Each switch shall include ON, AUTO and OFF positions.

### **CASCADING PANELS**

The controls shall be capable of being connected together to provide as many boiler stage outputs as needed. The first panel shall provide the system (primary) pump and combustion air outputs and up to four boiler stages with boiler (secondary) pumps. Each additional panel shall provide up to four additional boiler stage outputs with boiler pumps.

### **SEQUENCE OF OPERATION**

When the boiler sequencing panel calls for the system (primary) pump to be activated, the lead system pump output shall be activated. The control shall then wait up to 30 seconds for proof of system flow. If there is no proof of flow, the system pump failure alarm shall be activated, and the lag system pump output shall be activated. The control shall then wait for up to 30 more seconds for proof of system flow. If the control still does not receive proof of system flow, or proof of system flow is lost, no other outputs shall be activated. When the boiler sequencing panel calls for any of the boiler stage outputs to be activated, the combustion air output shall be activated. No boiler stage nor boiler pump shall be activated until there is proof of combustion air. If proof of combustion air is lost, any active boiler stage outputs shall immediately be turned off. The boiler stage pumps shall remain activated for the run-on delay period. When the boiler-sequencing panel turns an active stage off, the boiler stage output shall immediately be turned off. The boiler stage pumps shall remain activated for the run-on delay period.

### **CONSIDERATION**

Purchase of Heat-Timer SCP-6 shall include setup, installation supervision and a full training program for building personnel.

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