

TEMPERATURE CONTROLLERS

HIGH TEMPERATURE PILOT GUARD

ACTION:

Direct action; Pilot Output Pressure (Yellow) increases with temperature rise. As long as the temperature is above the set point, the output will remain at supply pressure. If the pilot flame goes out, the pressure decreases and drops to zero.

APPLICATIONS:

Used as a Pilot safety shutdown or as a high stack temperature shutdown.

Thermostat Bellows Assembly
Supply Pressure

TEMPERATURE RANGE:

-30°F minimum to 2100°F maximum -34°C minimum to 1149°C maximum

SUPPLY PRESSURE:

5 psig minimum to 30 psig maximum.

OPERATION:

This Thermostat consists of a STAINLESS TUBE for monitoring the pilot flame, which is connected by a Low Expansion Alloy Rod to a BELLOWS ASSEMBLY. The changes in the length of the STAINLESS TUBE operate a PILOT PLUG seat. The PILOT PLUG consists of two stainless balls rigidly connected together. The seat at BALL 1 is the Output Pressure vent (Yellow to Atmosphere). The seat at BALL 2 is the Supply Pressure inlet (Violet to Yellow).

Assume the set point on the HT 12PG is above the temperature of the system. The vent at BALL 1 is open and the inlet at BALL 2 is closed. Output Pressure (Yellow) is at 0 psig or vented.

As the temperature rises in the system, the STAINLESS TUBE or outer tube increases in length to move the Thermostat Bellows Assembly in a direction to first close the seat at BALL 1 (Yellow to Atmosphere) and open the seat at Ball 2 (Violet to Yellow). Output Pressure (Yellow) increases, opening a safety valve which was blocking gas supply for the burner and pilot light system.







*These are recommended spare parts and are stocked as repair kits.

A 1" NPT mounted collet for adjusting the HT 12 PG pilot guard for optimum sensing of the pilot flame is available. To order specify Cat. No. "YDE".

NO.

HBT

HBU

HBV

HBW

HBX

ASSEMBLY

HT 12 PG

HT 18 PG

HT 24 PG

HT 30 PG

HT 36 PG

MAX. TEMP.

°F

2100

2100

2100

2100

2100

MAX. TEMP. °C

1149

1149

1149

1149

1149

KIT

RLQ

RLQ

RLQ

RLQ

RLQ



TEMPERATURE CONTROLLERS

HIGH TEMPERATURE PILOT GUARD SCHEMATIC INSTALLATION



INSTALLATION:

It is recommended that a separate (Pressure Opening) safety (burner and pilot shutdown) valve be controlled by the HT 12PG. A bypass valve around this safety valve is recommended to assist during start up and restart. The bypass valve allows pilot lighting with no output from the pilot guard (cold start). After the pilot has heated the thermostat, the HT 12PG output pressure will hold the safety valve open and the bypass should be closed. If the bypass valve is omitted, the HT 12PG must be reset each time the unit is restarted.

Because of the high temperature of the pilot flame, the probe should only be placed in the outer most region of the pilot flame. The probe should not be put in the main burner flame.

Once the pilot guard has been installed, it is necessary to fine tune the set point to allow for rapid shutdown. Since each system's heat losses, mounting positions, etc, are different, there is not preset set point. By following the Start-up & Adjustment Procedure, the pilot guard can be tuned to each system for rapid system shutdown in the event of flame loss.

START UP & ADJUSTMENT PROCEDURE:

- 1. Open the bypass valve around the safety valve. If the bypass valve is omitted, proceed to step 2.
- Adust the HT 12PG for an output gauge pressure reading of approximately 50% of the supply pressure. (Counterclockwise to increase pressure and clockwise to decrease pressure).
- Light the pilot light according to the standard procedures taking all necessary safety precautions.
- 4. Watch the output gauge. As the temperature increases, the pressure on the output gauge will rise upward. As this occurs, readjust the HT 12PG control knob to maintain an output

pressure of approximately 50% of the supply pressure. (Adjust the control knob clockwise to decrease the output pressure).

- 5. Continue the process in step 4 until little change in the pressure reading on the output gauge is observed. (This time interval could be 15-20 minutes or longer). This process adjusts the HT 12PG to the maximum pilot flame temperature and insures a rapid system shutdown if the pilot flame goes out.
- 6. When the output pressure stabilizes, the control knob can be turned counterclockwise for 100% output pressure. The HT 12PG is now set. Close the bypass valve.
- 7. The burner system should now be cycled. Occasionally, drafting occurs during the burner cycle and cools down the HT 12PG enough for shutdown. If this occurs, turn the control knob counterclockwise approximately 1/8 of a turn at a time, until drafting will not cause a system shutdown.
- 8. Should the system ever shutdown, it is necessary to determine what caused the shutdown. If a cooling effect, due to drafting occurred, readjust the control knob counterclockwise approximately 1/8 of a turn at a time, until drafting will not cause a system shutdown.
- 9. To restart after shutdown, open the bypass valve and light the pilot. When the output pressure of the HT 12PG reaches 100% of the supply pressure, the system is operating and the bypass valve must be closed. If the bypass valve has been omitted, repeat steps 2-8.