EASTERN INSTRUMENTS

OPERATING INSTRUCTIONS- Heated Pitot Control - Standard Configuration

CUSTOMER SPECIFIC INFORMATION

EI JOB NO. 11-04013

OF PITOTS / ENCLOSURE = 4
WIRING OPTION = STANDARD
WATT DENSITY – 77W @ 277 VAC SUPPLY

PITOT REFERENCE DRW# 11-04013-200D1

1. Each pitot control is **entirely separate** and is supplied by its own customer's panel circuit breaker. Each pitot has its own Individual power connect terminals. There are no internal fuses or circuit breakers. The function of the control circuit is to maintain the pitot internal temp at 50°F when the ambient drops below 50°F. By setting the control point 18°F above freezing, there is an allowance for both error and temp drop internal to external pitot surfaces. Additionally, control has an overtemp limit which will prevent excessive temperatures.

2. Two controllers, one the TLA (temperature limit alarm) and the other the TC (temperature controller) manage two series mounted SSRs. Each has its own RTD.

3. For power to be applied to the pitot heat, both must be on, as indicated by an **"O1"** on the bottom row of each controller, and the corresponding green led on the appropriate SSR.

4. TLA operation

4.1 The set point value is displayed on the TLA controller in green. The normal limit value is 200°F. The TLA controls "SSR TLA", and turns SSR TLA **"on"** unless the limit value has been exceeded.

4.2 The pitot temperature is displayed on the TLA controller in red. The pitot temperature is normally incoming air temperature until the air temperature is below the TC set point, at which time the temperature is controlled to the TC set point.

4.3 **Normal operation of the TLA—Pitot below 175°F** will always have its corresponding SSR TLA **"on"** as indicated by lighted **"green"** LED on SSR TLA. The aux. contact will be closed. **"O1"** on the bottom of the controller will indicate the normally open aux. contact is closed.

4.4 **Abnormal operation of the TLA—Pitot above 175°F** will be in two steps.

4.4.1 Aux Contact Set point is set at 175°F, 25°F below the Temperature Limit of 200°F. The control logic is set so that the **n.o.** contact is de energized when the set point of 175°F is reached, opening the aux contact and stays de energized until the temperature falls back below 175°F, at which time it will reset itself and closing the **n.o.** aux contact. Additionally, loss of power or controller failure will result in a **n.o.** condition, the same as excess temperature. The aux. contact is available to the customer on the panel inside the control enclosure at the appropriate pitot terminal.

4.4.2 The temperature limit alarm is set to 200°F, and when exceeded, turns off SSR TLA and turns on **"DV"** and **"MN"** indicators on the bottom of the controller. Once the temperature falls below 200°F, **"DV"** turns off, leaving **"MN"** on. The reset button "**R**" on the controller will have to pushed to clear "**MN**", turning on SSR TLA as long as the temperature is below the temperature limit alarm value of 200°F. Loss of power to the controller or controller failure will turn off SSR TLA.

5. TC operation

5.1 The set point value is displayed on the TC controller in green. The normal set point value is 50°F, below which the controller energizes SSR TC to maintain the temperature of the pitot at 50°F. The pitot temperature is displayed in red, and should not go below the set point value of 50°F as long as the applied power does not go to 100%.

5.2 Toggling the **"D"** button on the controller will go through "**%P**" (% power), "**DV**" (deviation value from set point), "**°F", and** set point number. Leaving the display on "**%P**" will specify the power being sent to the heater. As previously stated, the control should maintain set point as long as 100% power is not reached.

5.3 The 4-20 ma temperature output signal is calibrated -50 to +250°F. It will repeat the digital value on the face of the controller until the limits are reached. The ma signal is available to the customer in the appropriate pitot terminal.

5.4 The controller should maintain set point to ~ +/- 5°F as long as steady state exists and the heater power limit is not reached. On start up or shut down, up to 50°F of over shoot may occur.

6. Operational Notes

6.1 The temperature readout on TLA and TC may be different by more than 10°F, depending on load and power conditions.

6.2 The aux. contact on TLA can be in series for one input only if desired.

6.3 The 4-20 ma signal should be monitored for temperature remotely. The most likely failure is a heater failure (open) which would be indicated by the pitot temp falling to an ambient temp below set point (50°F), with both TLA and TC “on” [Green LED’s].