Hot Runner Temperature Control System

4 & 6 ZONES PANEL

4 & 8 ZONES CONTROL PANEL

16 ZONES CONTROL PANEL

2 ZONES PANEL

Description:

Libratherm offers 2 to 16 zone control panel for Hot Runner temperature control system, widely used in plastic injection moulding. The panels are designed taking into consideration all the required controlling and safety features to accurately maintain the desired temperature of all the zones.. The main components of the control panel are listed below.

1) **PID Temperature Controller Model PID-723 :** This controller accepts the input from either K type or J type thermocouple or from RTD (Pt-100) sensor. The control output is in the form of DC pulse to drive external solid state relay or in the form of 4-20mA/0-5V signal to drive phase angle control SCR power regulator **(model LTC-16)**. The built in Power limit and Ramp time features allows the gradual heating to evaporate the moisture content in the heaters. The ramp heating can be achieved by opting for the SCR control instead of SSR control. The controller has dual display, the upper display shows the heater temperature and the lower display shows the heater current. The heater current in the form of 4-20mA signal is received from the separate heater monitoring card **(HMC-8)** as the second input. PID-723 has the built in logic to detect the heater break condition and to generate the HBA alarm. HBA relay output is also provided to activate audio/visual alarm. Depending upon the required number of heating zones, the number of PID controllers are used in the panel.

2) **SCR based Heater power Regulator (LTC-16) :** This power control module accepts the control signal of 4-20mA / 0-5V from the PID controller and in turn regulates the heater power very precisely. This module also has built settings for power limit, ramp up and ramp down for gradual increase and decrease of current flowing through the heater. The Phase angle control technique is used to fire the back to back connected SCRs – thereby giving smooth and uniform power control across the heater. The SCRs are rated suitably to control heater of up to 4 KW @ 230VAC. All the terminals for heater connections are brought out on the back panel terminals.

3) **Heater Monitoring Card (HMC-8):** This card is integrated and wired in the same control panel, which accepts the heater current through built in CT and converts the same to proportional (4-20)mA signal. This signal is connected to the PID controller as the second input to display the heater current and to generate the HBA condition.

4) **Pulse Width Modulation Card (PWM-4) :** This card is mainly used for the manual control of the heater power using front panel potentiometer. For the SCR based control panel, the heater power can be controlled manually in the MANUAL mode by feeding the analog signal to the SCR firing module. But for SSR based control panel – the manual operation is carried out using the PWM card. This card accepts the analog signal from the front panel potentiometer and generates the time proportional (variable duty cycle) pulse for the SSR. The percentage of power to be delivered can be set using the front panel potentiometer dial – marked as 0 to 100% power. Each such PWM-4 card can control 4 heaters in the manual mode.

5) **Other Panel Accessories :** Apart from the above important components, the panel is integrated with the banana terminals for thermocouples, Heavy duty mutli-pin Male/Female connector for the heaters, RYB phase indicating lamps, audio/visual alarm for HBA, Heavy duty plug / socket for the incoming mains supply, 2 pole MCBs in series with each heater and cooling fan to exhaust out the heat generated inside the panel. The panel is MS fabricated and duly powder coated for the lasting operation in the industrial environment.

For further information please contact:

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