Extruders Can Save Time and Money With Easy-to-Use PPC-2000

The PPC-2000 from Watlow is a programmable process controller that provides flexibility with easy-to-setup multi-loop process control and programmable logic control in one complete package.

Extrusion houses can now speed time to market with the quick, customizable options of the PPC-2000. This controller provides faster start up due to easy PID setup resulting in greater productivity levels and reduced process downtime.

The PPC-2000 Saves Time:

- Reduce engineering efforts through easy-to-setup PID control parameters with “fill-in-the-blank” and pull-down menus.
- ANAWIN® software spreadsheets ease channel parameter setup. All control loops can be viewed and edited from spreadsheets.
- Pre-configured closed-loop control eliminates labor intensive ladder logic PID programming.
- Flexible hardware platform permits hassle-free changes in the input/output without rewiring the system.
- Debug faster with logic simulation on the PC and test programs without PPC-2000 hardware.
- Solve downtime quickly with on-site inventory of spare modules. All modules can be used with any PPC- 2000 system small, medium or large.

The PPC-2000 Saves Money:

- Combined closed-loop and programmable control eliminates the need for two separate controllers.
- Universal analog input modules support a wide variety of signals from thermocouples to transducers, and save the cost of additional modules.
- High density, flexible I/O modules minimize hardware requirements.
- Built-in auto-tuning eliminates the need to purchase special auto-tuning software.
- Modular design allows the controller to grow with the application rather than replacing the controller.
- Prolong heater life with DZC (burst-fire) outputs.

The PPC-2000 supports 64 analog inputs and hundreds of digital I/O. Optional touch screen displays and LCD interfaces are available for easy viewing or editing of parameters on the processing/ shop floor.

The PPC-2000 is a uniquely powerful and cost-effective approach for temperature and process control applications, like extrusion, where other types of controls do not adequately solve the problem.

The PPC-2000 also offers processors the reliability of a three-year warranty.

WATLOW
ANAFAZE

314 Westridge Drive
Watsonville, California 95076 USA
Phone: +1 (831) 724-3800
Fax: +1 (831) 724-0320
Internet: www.watlow.com
e-mail: info@watlow.com

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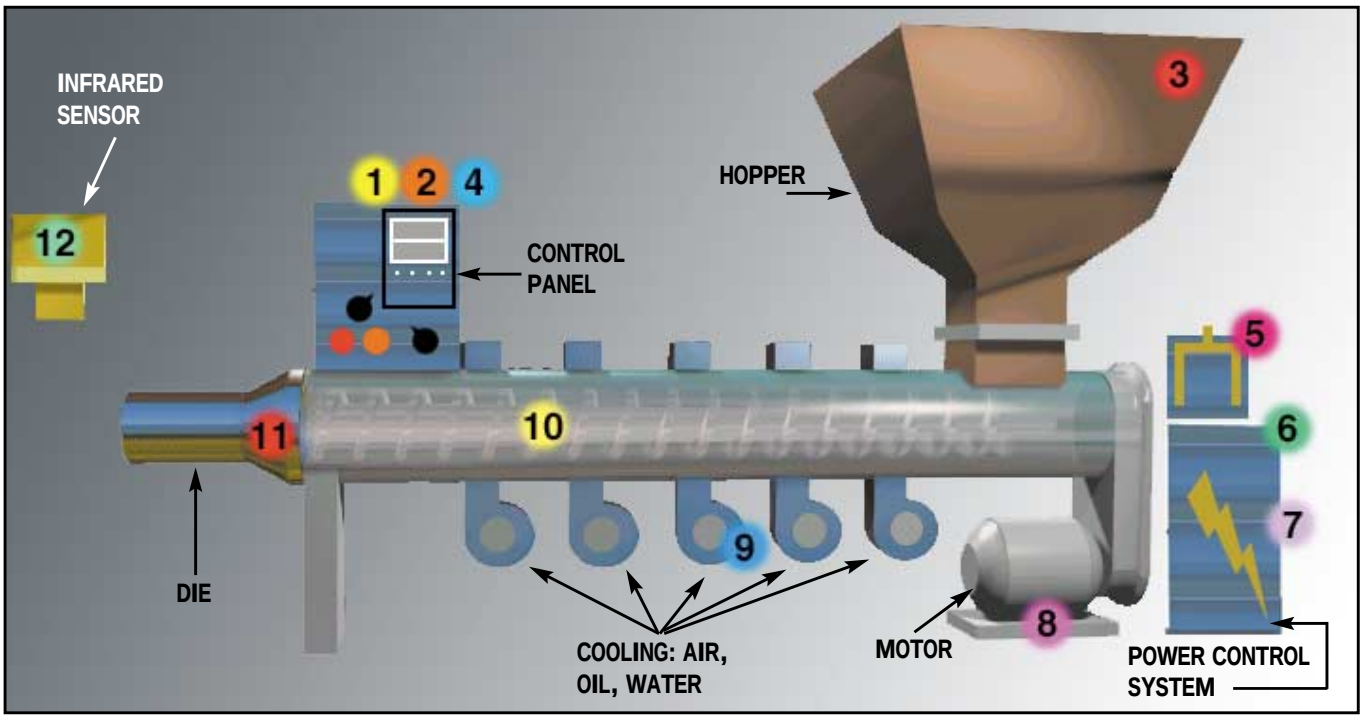

1 **Auto-tune** – Gets extruders up and running fast. This compensates for varying thermal lags on different extrusion machines. Auto-tune is an on-board software feature that captures the rate of temperature rise at full power (100% ON output to heater). View this setting on the HMI screen using ANAWIN®.

2 **Intelligent Response to Set Point Changes** – The control algorithm minimizes over- / under-shoot in response to process changes. The controller calculates the output based on feedback and the control algorithm. Each channel may either use ON/OFF, or any combination of proportional, Integral and Derivative (PID) control modes.

3 **Pinpoint Material Costs** – Optimize resin usage for each production run. The PPC-2000 can monitor raw material using load cell signals, allowing operators to compute and record raw materials consumed. Unit can also monitor % regrind and/or monitor additives to set color mix.

4 **Production Run Repeatability with Recipe/Job Setups** – Operators can select from multiple recipes to run different products. Recipes contain parameter settings that are unique for different production requirements.

5 **Beware of Mercury Contactors** – Although Watlow's PPC can fire mercury contactors directly, it is recommended for safety as well as environmental disposal concerns to remove MDRs from extruder systems.

The PPC has built-in features to control solid-state power switching devices available with the E-SAFE™ Relay and the family of DIN-A-MITES®s.

6 **Reduce Hardware Costs – the SSR vs. SCR Choice** – If SCRs are currently being utilized, the PPC can provide the control signals required to continue usage. SCRs provide a true soft-start capability since they supply power proportional to the 4-20mA control signal received. SCR disadvantages are possible AC line noise and high initial cost; these may outweigh the soft-start feature.

- **SSR Control Saves Money** – Watlow distributed zero-crossing, essentially a time-proportioning scheme, provides precise heater control by rapidly firing DIN-A-MITE SSRs. Not only are packaged SSRs less expensive than SCR's, but by utilizing the PPC-2000, processors won't need to purchase a packaged SSR system. Buy just the SSR/heat sink components. These typically cost much less than a packaged SSR system. The PPC's ability to run heaters with SSR and SCR controls is often reason enough to replace the extruders older temperature controllers.

7 **Reduce Power Cost** – Whether the extruder is utilizing mercury contactors, phase-angle fired SCRs or zero-angle fired SSRs to run the heaters, the PPC's power management features will save both energy and money.

- **'Soft' Startups** – An output limit can be set for each zone that will limit the power to the heaters. By limiting 'launch' power, lower power components can sometimes be used, saving additional money.

8 **Extend Motor Life** – The multiple I/O of Watlow's PPC provides an analog output signal for motor drive control. Screw speed increase/decrease uses rate limiting for seamless transfer. This reduces motor stress when speed is changed or when returning to auto after a manual stop. Monitor an alarm motor drive 'load' (amps, power usage) to guard against overtaxing motors and screws.

9 **Sophisticated Cooling Control** – Cooling control is often more critical than heating. The PPC has control algorithms for each type of cooling: water, air and oil.

10 **Consistent Screw Speeds** – Separate stand-alone screw speed controls are not required. The PPC control has a built-in tachometer to accept pulse signals to achieve better speed control for more consistent operation.

11 **Pressure Monitoring** – Input melt pressure and use the signal for alarm, control and data logging.

12 **Product Consistency** – Use Watlow infrared non-contact temperature sensors to monitor actual product temperature.