



The Global Leader in Thermal Technology

EnergyPilot

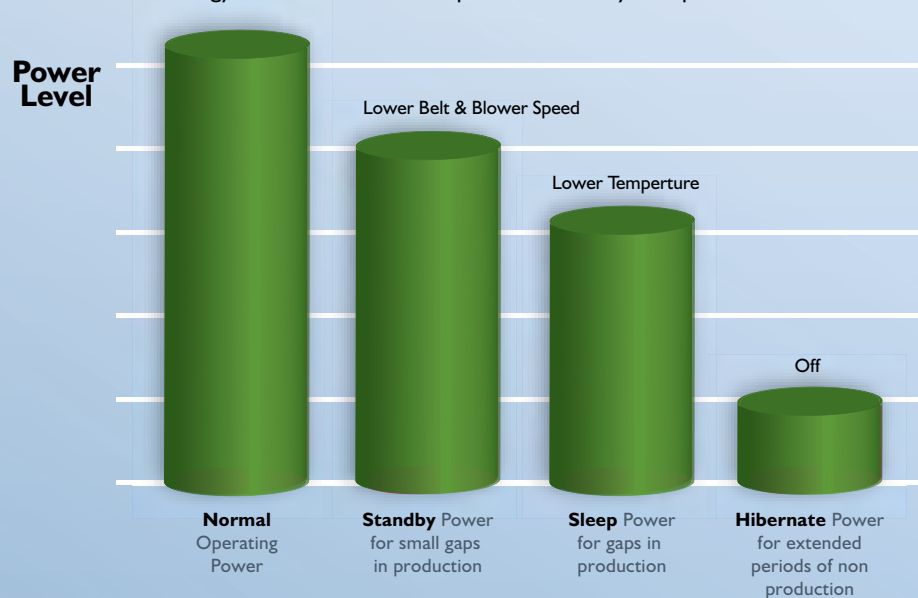
Built for Today. Ready for Tomorrow.

- **Lowers reflow oven operating costs**
- **Fully automatic operation**
- **Upstream oven recovery sensing**
- **Easily upgradeable**

BTU's Energy Pilot software enables tremendous energy savings by dynamically adjusting oven settings during gaps in production. BTU's superior thermal control allows for quick recovery of the thermal profile from standby and sleep modes. Designed exclusively for BTU reflow ovens, the software is easily field upgradeable.

MODES OF OPERATION

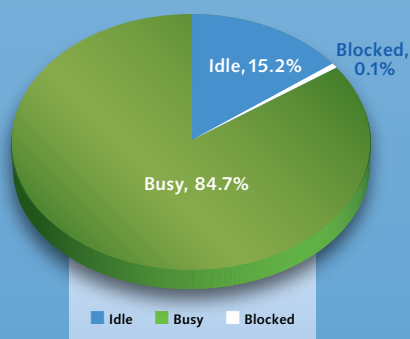
Energy Pilot has 3 modes of operation: Standby, Sleep and Hibernate



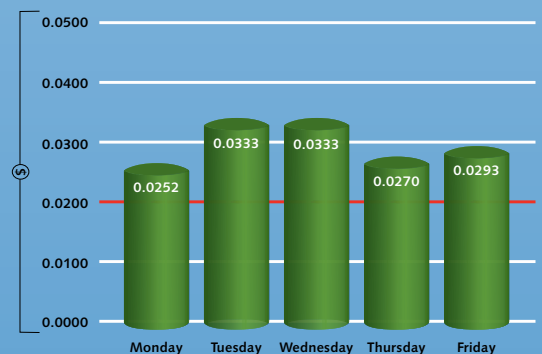
Utilizing a familiar user operating convention, Energy Pilot utilizes three modes of operation:

• STANDBY • SLEEP • HIBERNATE

UTILIZATION LANE 1 - BASIC



OPERATING COST PER UNIT



Energy Pilot also includes powerful process monitoring and customized graphical reporting capabilities. Reporting functions include cost per unit analysis, oven utilization along with other parameters that can be used to identify further efficiencies and savings.

Standby Mode

Intended for small gaps in production, temperature setpoints are not changed allowing for rapid recovery. In standby mode the blower speed is reduced using either the closed or open loop static pressure control option, and the conveyor speed is reduced. Other active

recipe settings remain unchanged. The power level required to maintain temperature with the slower blower and conveyor speeds is much less, and can reduce energy use 25% or more*, depending on the oven configuration.

Sleep Mode

Sleep Mode follows standby mode and is intended for longer gaps in production. Temperature setpoints are lowered when entering Sleep Mode. The Sleep Mode settings are configurable by the user: both the amount of reduction and which zones. The lower the temperature, the more power is saved. However, oven recovery times may be extended. For this reason, energy pilot supports a remote sensor input. With the optional remote sensor installed, the oven would

wake-up from Sleep Mode when new product is coming and will be ready to process product when it arrives.

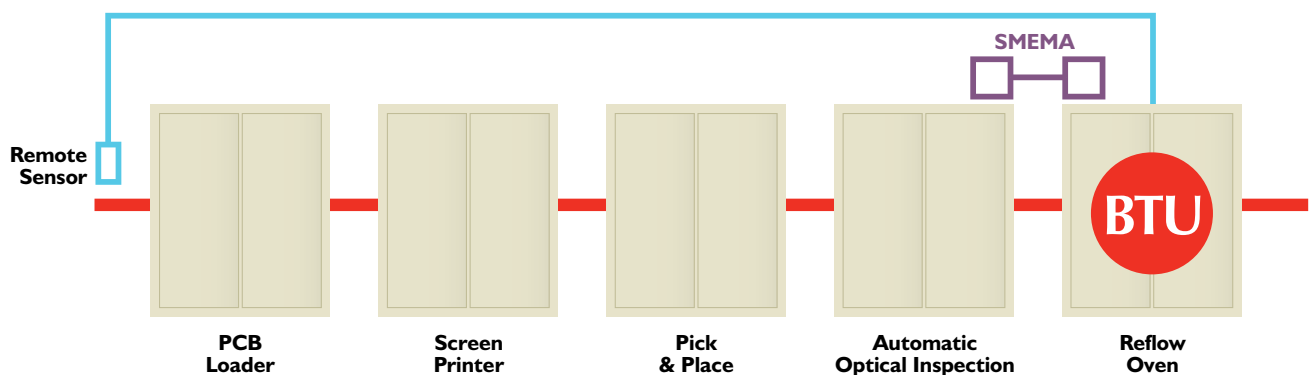
Sleep Mode with lower temperature, blower and conveyor settings, can reduce energy use 40% or more*, depending on the oven configuration and sleep settings. Nitrogen can also be shut off completely to maximize savings.

Hibernate Mode

For even longer production gaps or at the end of work shifts, the oven can go into Hibernate Mode. In this mode the heaters would be shut off and when the temperature reaches approximately 75°C, the blowers, belt, flux management and product cooling, etc. would be shut off leaving the oven in a dormant state.

Even in Hibernate Mode, the remote sensor can wake-up the oven, as can the operator by either using the wake-up button on the energy pilot toolbar or by simply running a recipe.

AUTOMATIC WAKE-UP SIGNALS (SMEMA & Remote Sensor)

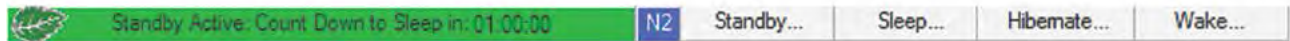


The Remote Sensor provides early notification that product is on its way:

- It prevents the oven going into Sleep Mode, so it remains ready to process the new product.
- If Sleeping, the oven will wake-up so its ready to process the new product by the time it arrives.

Nitrogen Savings

Energy Pilot works in conjunction with BTU's dynamic N₂ Idle Mode. While in Standby Mode, the oven can be in N₂ Idle Mode: with the blower and conveyor speed reduced, less N₂ is required to maintain the atmosphere. The energy pilot toolbar shows the N₂ status as shown below. The N₂ indicator is solid for normal N₂ flow and flashes when in N₂ Idle mode.



Energy Pilot Control: Automatic, Semi-Auto, Manual and Remote

Setup is flexible allowing operators to set up Energy Pilot to suit any manufacturing environment and energy saving strategy. One approach is to enable automatic mode - when the oven is idle it will transition into an energy saving mode. In manual mode the user will be prompted to allow Energy Pilot to engage. Alternatively, if a user is not present at the oven, the Energy Pilot can be configured to engage in a preset/configurable amount of time.

Energy Pilot can be controlled with OPC or SECS/GEM software options, as well as get oven status information. Remote control commands:

- Standby, Sleep, Hibernate and WakeUp
- Parameters: Enable, Disable, Now or hh:mm:ss

For example, you can issue commands to Sleep-in-00:10:00, or WakeUp-Now, which are sleep in 10 minutes and wake-up now respectively

What's needed to use Energy Pilot

Energy Pilot is a standard feature on any new reflow oven using Wincon 6.1 or higher. For older ovens contact BTU about upgrade options.

To reduce the blower speed in standby and sleep mode the oven must be fitted with open or closed loop static pressure control, Energy Pilot can be used without this feature but the energy savings will be limited.

Oven must have Smart Tracking and SMEMA, and SMEMA must be modified to use the upstream board available signal. Optionally a remote sensor input can be used.

To learn more visit: <http://www.btu.com/products-wincon-energypilot.htm>

