

# EPack

Compact SCR Power Controller

#### Reduce your costs

- Reduce energy costs
- Consistent quality
- Reduce scrap

#### Reduce engineering

- Easy integration
- Compact, easy installation
- Reduce commissioning time

#### Improve your process

- Advanced information for process improvement
- Improve process reliability



connect control improve

# The power to save is in your hands

Do you want to reduce the cost of your operations and improve productivity? The incredibly compact EPack Power Controller has the power to deliver real improvement to your bottom line.



**Are rising energy costs eating into your profit?**

**Would you like better efficiency and productivity from your process?**

EPack power controller can deliver real savings – significantly reducing your energy costs. Completely designed to get the best from your operations, it is quick and easy to install, integrate and commission. Its compact size makes it perfect even if space is a premium, yet its powerful and flexible features are designed to get the best from your process – keeping your costs minimized and productivity high.

[www.eurotherm.com/epack](http://www.eurotherm.com/epack)

## Connect - easily

Whether replacing an existing product or designing a new process, careful consideration has been given in the design of the EPack power controller to ensure fast and easy panel installation, commissioning, and integration into wider systems - all to save you time and money.



### Fast, easy configuration

- Units may be ordered with a pre-set configuration
- Quick Start configuration process for simple and rapid setup of firing mode, control type and other I/O functions
- Advanced, flexible configuration via iTools PC configuration software
- All configuration options may be protected with configurable passcode security

### Flexible connection options

- Wide choice of configurable analog input types; ideal for connection to pre-existing systems
- Ethernet connection for easy connection to all types of PLCs and higher level systems
- Devices can be daisy chained over fully integrated, dual port Ethernet to reduce the need for switches and routers
- Zero configuration networking (zeroconf) for PC tools connection

### Compact, easy installation

- Compact dimensions and side-by-side mounting enables easy installation even where space is a premium
- Pluggable connectors allow cabinets to be pre-wired and ensure easy maintenance

## Control - well

Energy costs and carbon taxation are major factors in determining fixed overhead costs for manufacturing and process operations. Good power control can significantly reduce process energy costs and ensure precise operation with reliable, repeatable quality. EPack power controllers provides these benefits in a compact package designed to ensure a rapid return on your investment.



### Save money on energy costs

- To obtain a significant reduction in energy costs EPack can make a significant difference to the fixed part of an energy contract and to the penalties applied by the energy supplier for poor power factor:
  - Better management of power demand reduces peak current and the fixed part of an energy contract
  - Advanced firing modes can provide significant improvement to the power factor without detrimental effect on productivity or quality. As tariffs and penalties are often determined by power factor of installations, reductions of up to 5% in energy costs are attainable

### Increase process precision and repeatability

- A wide variety of firing modes and load types ensure accurate application of electrical energy to increase process precision and repeatability, resulting in higher quality results, higher productivity and reduced scrap

## Improve - your overall process

The improved power control which the EPack instrument brings to your process will reduce energy costs, and improve quality and productivity. This controller brings additional benefits to enable real, continuous process improvement along with increased yield and productivity from your operation.



### Continuous process improvement

- Continuous enhancement to process performance can deliver significant bottom line improvements and meet demanding energy targets but requires measurement data to understand where savings and improvements can be made.
- EPack power controllers will collect extensive processing information without the need for additional external equipment or sensors. In addition to the main process values such as voltage, current and setpoint, advanced measurements such as impedance and energy consumption are available
  - Information is passed in real time to higher level asset management or data analysis systems using the integral Ethernet connection

### Improved yield and productivity

One of the simplest ways to increase productivity is to increase the availability of your installation. EPack provides functionality to reduce downtime caused by failure of key components such as heating elements.

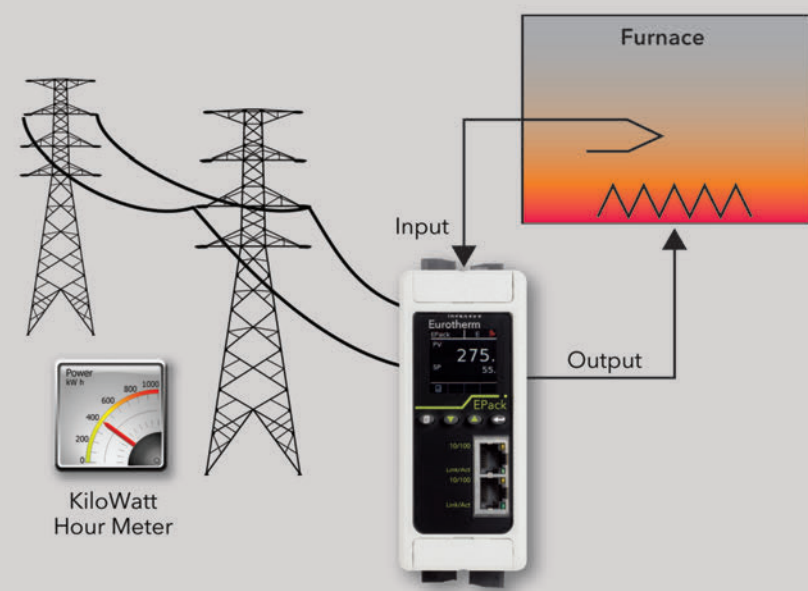
- The EPack instrument has the ability to detect a partial fault, such as the failure of a single heating element. Quick correction can reduce stress on other parts of the system and save time and money later
- The EPack power controller quickly detects and communicates a wide variety of fault conditions. When a problem is detected a message will be shown on the front panel display and passed via an integrated alarm relay for panel indication. Full diagnostic information is available via Ethernet communications to ensure rapid notification and quick fault remedy

# Practical functions for better control and improved performance for your operations

## Energy counter

Regular and precise tracking of process energy consumption can facilitate measures to reduce usage along with associated costs and carbon emissions. The EPack power controller incorporates an energy counter to totalise consumed energy. This provides measurement of active power in real time for use in evaluating energy saving measures and improving overall process efficiency.

Real time energy data can also be used for early detection of faults, such as defective insulation on a furnace, enabling quick remedial action to be carried out to return processes to optimum efficiency.



## Integrated Diagnostics

EPack continuously monitors and detects fault conditions, including short circuit, over-voltage and partial load failure conditions.

When a fault is detected, an alarm relay is available to switch security devices and provide a fault indication. Fault information is made available on the front face of the device and via Ethernet communications so that the problem can be corrected with minimal down-time.



## Infra-red control

The use of infra-red has become widespread in recent years because this thermal transfer method presents various advantages, in particular with consistency of production quality. Furthermore, productivity is increased with continuous processing negating the need for intermediate steps.

The EPack power controller provides a simple and efficient solution for different industrial processes based on infra-red heating with a specific firing mode which is optimized for this purpose. Typical applications include:

**Automotive:** sticking, drying of paint

**Composites:** thermoforming, sticking, pultrusion, heat treatment of fibres

**Paper:** layer drying, flocking, ink drying, coating polymerization

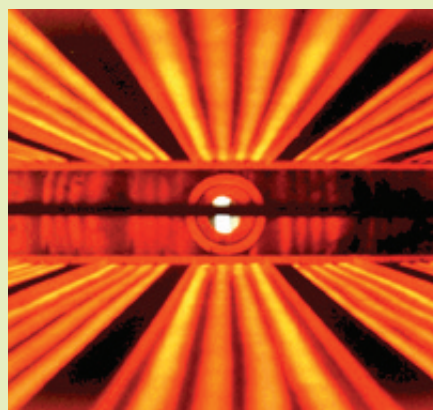
**Plastics:** thermoforming, sticking, paint/varnish baking, rotational molding, welding/fusion, pultrusion

**Packaging:** heat shrinkage, thermoforming, ink drying, enamel drying, glue reactivating

**Food & beverage:** surface/package sterilization, browning, baking, roasting, drying

**Steel:** prelaquering

**Textile:** coating processes, reticulation, flocking, graining, thermocontact welding





### Intelligent firing modes

The EPack power controller provides a comprehensive range of firing modes including:

- Phase angle
- Variable burst firing
- Fixed burst firing
- Intelligent half cycle
- Burst/phase angle switching

This choice of options allows power factor and harmonics on the electrical network to be optimized. This, in turn, reduces costs associated with penalties imposed by energy suppliers. New firing modes have been developed to comply with load specifications and to ensure optimum power consumption matched to different types of load, including infra-red, high temperature coefficient types, time dependent and constant resistive loads.



### Flexible choices to best suit your installation

The EPack power controller has flexible choices to best match your application requirements, minimize any changes to existing installations and optimize processes. There are just two mechanical variants, 32A and 63A. There are no other hardware variants and if your requirements change, additional features can be enabled with the use of a software key

### Powerful Configuration Tools

The EPack instrument is designed with multiple methods of configuration to dramatically reduce engineering time and cost:

- The unit can be pre-configured from the factory through an extended ordering code
- A Quick Start code may be entered through the front panel to configure the unit
- A Quick Start menu guides the user through confident and fast set up of firing mode, control type and other I/O functions via a series of front panel displays
- The comprehensive iTools PC configuration tool is available to access all configuration areas of the instrument. This powerful program enables configurations to be easily created, stored and copied to other devices - offering the potential for reduced initial engineering and easy ongoing maintenance

You will really like what this product can do for you

### CLEAR DISPLAY

Reduce networking problems  
EPack can be daisy-chained  
without routers and switches  
using dual Ethernet Ports

Plug and play configuration



Improve process  
reliability with partial  
fault detection enabling  
quick correction to  
reduce stresses on  
your system

A great choice of firing  
modes and load types  
to save you money

Energy Counters that  
could help you save money

# Real-world applications

Whether you select the EPack power controller for its exceptionally compact size, magnificent control, ease of use or flexibility, you can use it in a wide range of applications to address real process challenges, reduce engineering and maintenance time and, ultimately, increase the profitability of your operation.

## Plastics

The plastics industry is extremely competitive and, with rising resin costs, quality, reliability, capacity and system availability are vital to profitability.

EPack power controller is the perfect solution for the control of heating systems in all types of plastics processing. Its diagnostic functionality enables system faults to be quickly identified and corrected. Its use assists in minimizing downtime and unplanned maintenance. External fuses further reduce maintenance time, helping to maximize system availability.



## Glass - Float Manufacturing

The annealing lehr used in float manufacturing has several temperature controlled zones in which glass is heated and then cooled. EPack power controller has considerable benefits for production cost management when controlling the heating elements in these zones:

- The energy counter provides vital energy consumption information which can be used to evaluate process performance and identify areas of cost saving
- High process reliability is obtained through fast diagnosis of fault conditions
- Advanced firing modes offer power factor improvement with associated cost reductions
- Digital communications enables transfer of process information for further analysis and process improvement



## Food and Beverage

Drying, extrusion, cooking, sterilization/pasteurization, baking and browning are essential steps in several processes across many applications in the food industry. The EPack instrument provides an ideal solution to the control of heating elements in applications such as baking croissants in a tunnel furnace where the accuracy and precision the instrument provides ensures a consistent finish to the bake.

- With its extremely compact form, the EPack power controller is easy to install onto even smaller machines
- Simple setup and ease of use ensures reduced engineering costs and reliable operator use
- The instruments energy counter function can track energy consumption for production batches to provide a better understanding of the process and its associated costs
- Digital communications make information available to operators and supervisors on local operator panels or plant information systems







### Heat Treatment of Metals - High Frequency induction furnace



The use of induction heating in furnaces is being used more and more in the industry and offers many advantages including:

- Fast heating up of the furnace
- High power density
- Accurate localisation of the heating
- High temperature heating
- At high frequency, the induced currents are concentrated on the metal surface, making this an extremely adaptive method to treat the surfaces of metals

The high induction requires dedicated features on the power controller to limit the inrush current and efficiently control the power delivered. The advanced management of firing modes, range of control modes available and the existence of dedicated features such as delay triggering, make the EPack power controller ideal for these applications.

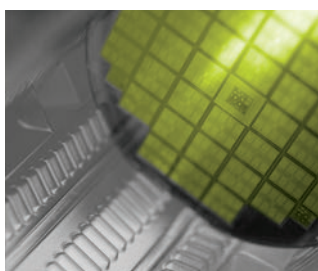
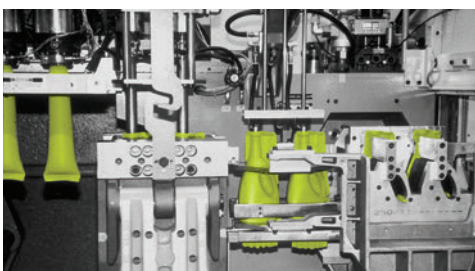
### Ceramics and Small Laboratory Applications - Compact Dental Furnace

Small laboratory furnaces, such as dental furnaces, are characterized by high temperatures and very compact sizes. Silicon carbide elements meet the temperature requirements but because resistance changes according to time and temperature, the method of control needs to adapt to the characteristics of the load. The EPack power controller delivers accurate measurement and true power control to deliver the exact power required which has a significant effect on the quality of the process. Furthermore, the extremely compact dimensions of the EPack instrument make it ideal for installation even into the narrowest of spaces available on these machines.



#### Ideal for:

Contactor, SSR replacement  
 Glass manufacture  
 Semi-conductor manufacturing  
 Food and beverage applications  
 Electric ovens, furnaces and kilns  
 Environmental chambers  
 Plastics applications



# Main features

|   |   |
|---|---|
| <b>Physical units</b>                         | Single phase 32A (16A/25A/32A)<br>Single phase 63A (40A/50A/63A)  |
| <b>Mounting</b>                               | DIN rail mounting or bulkhead mounting  |
| <b>Load types</b>                             | Low temperature class Loads (constant resistive loads)<br>Transformer primary<br>High temperature class loads (Molybdenum, Molybdenum di-silicate, Platinum)<br>Time temperature dependent loads (Graphite, Silicon Carbide)<br>Short and medium wave infra-red   |
| <b>Voltage</b>                                | Power supply up from 100V to 500V ac (user adjustable during commissioning) +10%/-15%   |
| <b>Supply frequency</b>                       | 50Hz to 60Hz (±3Hz)   |
| <b>Auxiliary power supply</b>                 | 100V to 500V +10%/-15% or 24V ac/dc ±20%  |
| <b>Control modes</b>                          | V <sup>2</sup> control, I <sup>2</sup> control, true power control, open loop with feed forward and trim modes, threshold limit by PA reduction, proportional limit by transfer V <sup>2</sup> <-> I <sup>2</sup> or P <-> I <sup>2</sup>   |
| <b>Firing modes</b>                           | Phase angle, variable burst firing, fixed burst firing, intelligent half cycle, burst/PA switching  |
| <b>I/O</b>                                    | One configurable analog input adjusted as 0-5V, 0-10V, 2-10V, 0-20mA or 4-20mA<br>One fixed digital input (logic, contact) for enable signal<br>One configurable digital input (logic, contact)<br>One alarm relay 2A (changeover) normally energised<br>This relay will be de-energised in case of serious alarms: short circuit thyristor, open thyristor, fuse blown, missing main, chop off; 24V supply fault |
| <b>Communication connection</b>               | Dual port Ethernet Modbus TCP comms   |
| <b>Display</b>                                | 1,5" TFT colour   |
| <b>Configuration</b>                          | Three methods: complete order code, configuration code or by software (iTools)  |
| <b>Features adjustable by the quick start</b> | Firing mode, control mode, analog input type, analog input function, digital input 2 function, Limit enable, transfer enable, nominal voltage, nominal current, load type, transformer (enable/disable)   |
| <b>Alarms</b>                                 | Short circuit thyristor detection, open thyristor detection, partial load failure (1 out of 6) detection, undervoltage/overvoltage detection, overcurrent (chop-off), comms network fault ....  |
| <b>Software features</b>                      | Energy measurement  |
| <b>Certifications</b>                         | CE - UL cUL   |
| <b>Environment</b>                            | Storage temperature from -25°C to +70°C<br>Usage operating : 0 - 45°C<br>Altitude : 1000m<br>Insulation category 3  |

## Regulation compliance

E-Pack power controllers also offer peace of mind when facing a global environment where industry regulations continue to be an essential part of engineering supply.

- Conformity to cUL directive (Canada and USA)
- CCC certification (China Compulsory Certificate)
- GOST-R Certificate of exemption



In addition, the power controllers' product standard (IEC 60947-4-3) guarantees EMC performance both for robustness of the product in a noisy environment and low noise emissions.

## Eurotherm: International sales and support

[www.eurotherm.com](http://www.eurotherm.com)

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