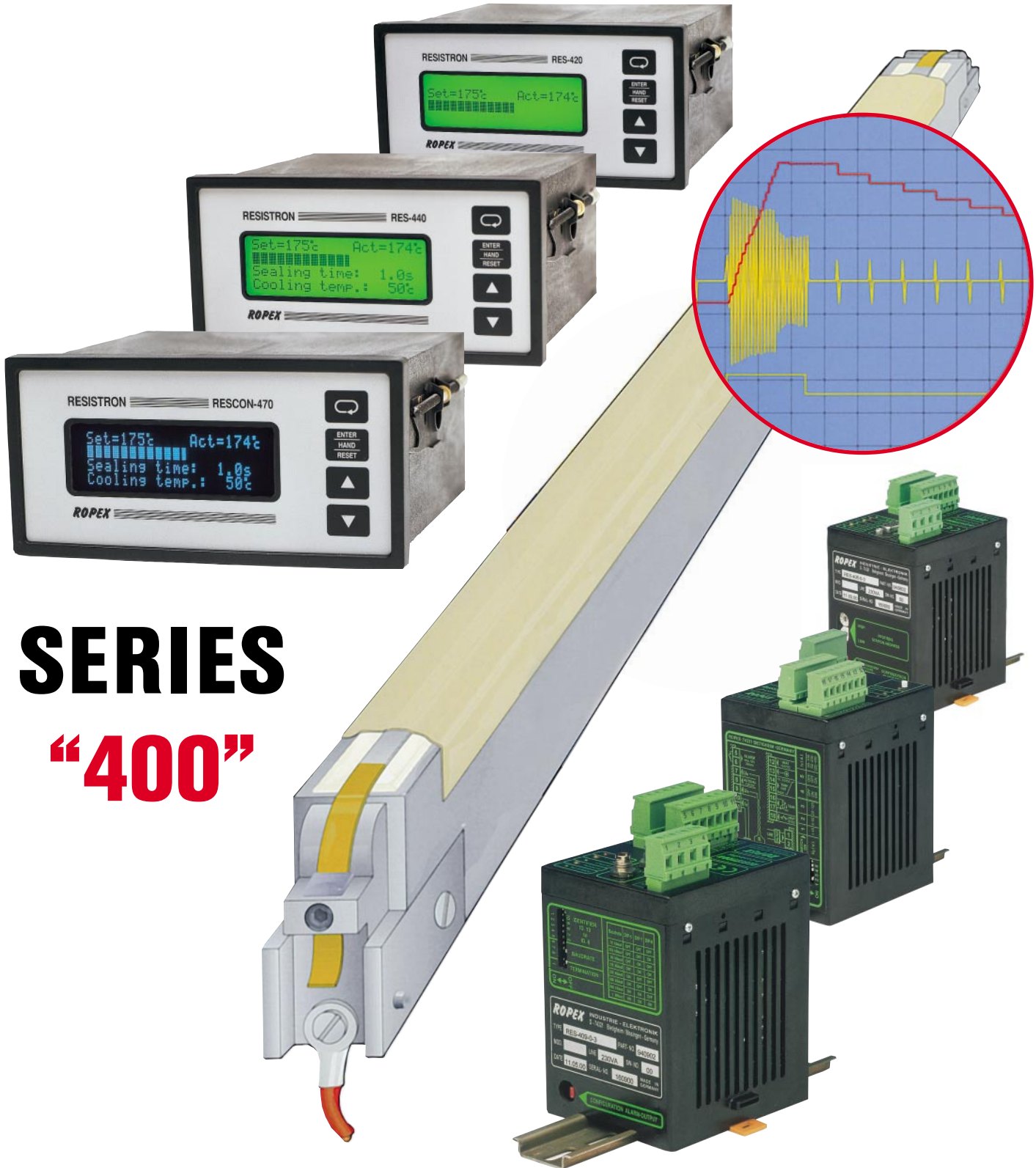


RESISTRON

ROPEX
INDUSTRIE - ELEKTRONIK



SERIES "400"

TEMPERATURE CONTROLLERS FOR HEATSEALING OF PLASTIC FILMS

Where are RESISTRON temperature controllers applied?

They are used in:

- Vertical and horizontal form/fill/seal bagging machines
- Bag filling and closing machines
- Wrapping machines
- Bag-making machines
- Group packaging machines
- Special machines

Why do you need RESISTRON temperature controllers?

Because...

- Machines are operating faster and many films are more difficult to seal
- Consistent sealing with integrity is essential under all operating conditions
- Machine users are demanding longer life for heat seal elements
- Machine downtime is more costly and must be avoided
- Customers are demanding better package quality
- RESISTRON temperature controllers provide reliability and functionality built upon 25 years of product development and know how.

What is the functionality of the RESISTRON temperature controllers?

Without the use of sensors, they precisely measure and regulate the temperature of heatseal elements such as:

- Heatseal Bands
- Beaded Bands
- Vertical Heatseal Tools
- Hot Air Blowers
- Cutting Wires
- Contoured Bands
- Contoured Sealing/Cutting Tools
- Special Heat Conductors

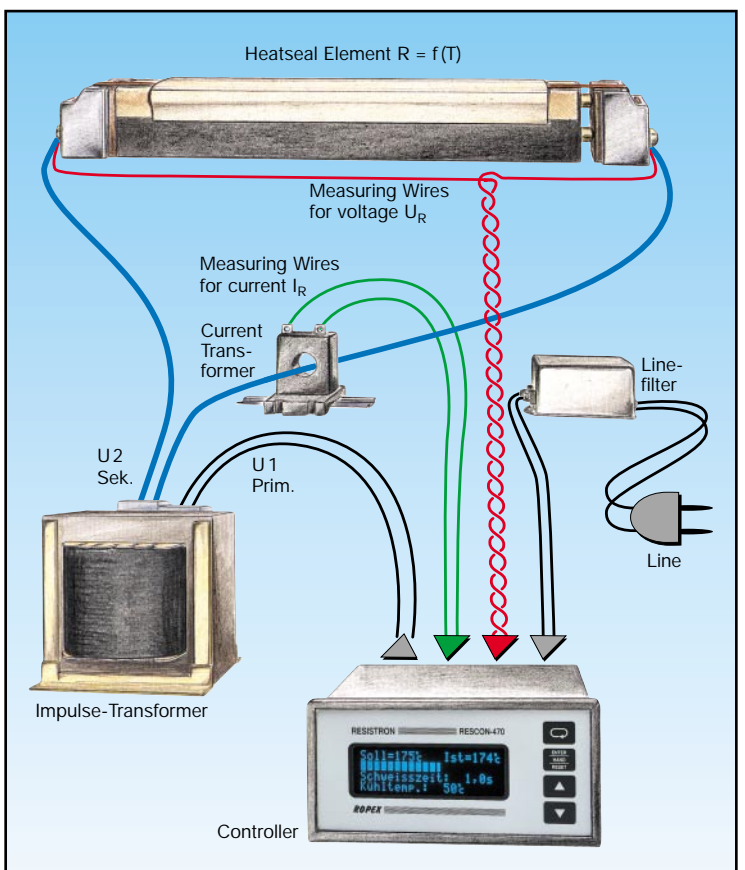
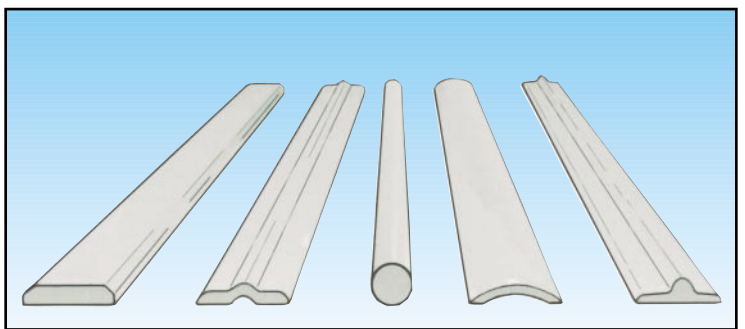
How does the RESISTRON temperature controller work?

By use of continuous current and voltage measurements the controller monitors the change of resistance in the heatseal element caused by temperature variation. This measurement cycle is executed 50 times/second (50Hz) or 60 times/second (60 Hz).

The controller then maintains the heatseal element temperature at the pre-selected set-point by adjusting the primary voltage of the power transformer by use of "phase-control". Any change in the heatseal element temperature causes a corresponding change in its resistance. The controller recognizes the changes and instantly responds. So it is assured that the actual temperature is always equal to the pre-selected set point. Even infinitesimal thermal changes are instantly recognized and corrected with precision.

The advantages of these techniques are:

- The heat is produced exactly when and where it is needed
 - ➔ instantaneous response to thermal changes
- Temperature measurement is accomplished directly by instantaneous electrical quantity (voltage and current) with a high sampling rate
 - ➔ virtually lag-free data measurement
- The small mass of the heatseal element allows for:
 - ➔ rapid heating
 - ➔ rapid cooling



Features of RESISTRON series „400“ temperature controllers

Three different housings

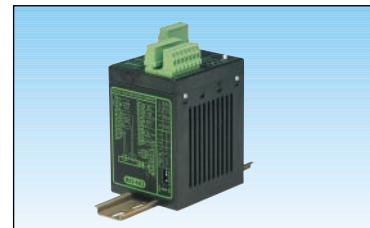
For various applications



- Panel mounted housing



- Controller with top hat rail housing (DIN-rail TS 35)
- With separate display- and operation panel



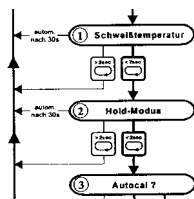
- Controller with top hat rail housing (DIN-rail TS 35)
- Analog or digital interfaces

Process monitoring



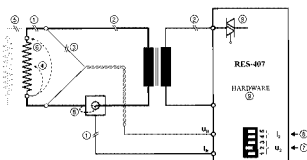
The multilingual display of pre-set and measured values, in real time or hold mode, provides the visualisation of process conditions and error messages. This is possible on LC- or VF-displays.

Flexible and simple operation



The “400” series controllers are a perfect solution for precise control of manual and automatic packaging and sealing machines. Simple menus including features like AUTOCAL, automatic line frequency adjustment and temperature range selection make operation easy.

Error detection



Trouble shooting with the “400” series controllers are simplified with a built in diagnostic tool. This tool supervises the controller itself and the external closed-loop system. When a fault occurs, an error message or code is displayed that identifies the nature and location of the problem.

Interfaces

PROFIBUS

Several interfaces like CAN-Bus, PROFIBUS, or analog signals make PLC and network connections easy with the “400” series controllers.

Hardware design



The “400” series controllers utilize modern micro-controllers and digital signal processing to provide important features like AUTOCAL, AUTOTUNE, temperature linearisation, error detection, input signal range extension (current- and voltage of the heatseal element) and closed-loop system dynamic enhancement.

Safety and conformity





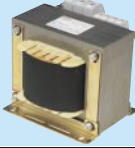




EN 50081-1
DIN EN 61010-1
(VDE 0411-1)
DIN EN 60204-1



Additional hardware and software features integrated into the design of the “400” series controllers provide increased operation reliability and prevent accidental overheating of the heatseal element.

These controllers are conform to valid international standards, guidelines and EMC-requirements to guarantee safe operation and high electrical EMC immunity.

Models of the RESISTRON series "400"

SERIES "400"	MODELS	CONSTRUCTION	AUTOCAL	TEMPERATURE ADJUSTMENT	DISPLAY OF TEMPERATURE	DIAGNOSTICS	ALARM TERMINAL	BOOSTER TERMINAL	COMPATIBILITY	FEATURES, APPLICATIONS
RES-420			● Display	LCD ● VFD ○	●	●	●	RES-210, 211, 220, 221	◆ For standard applications	
RES-440			● Display	LCD ● VFD ○ ATR ○	●	●	●	RES-222, 225, 230, 241, 242	◆ Variable timer functions ◆ Pre-heat feature	
RESCON 470		LCD: Liquid crystal display VFD: Vacuum fluorescent display	● Display	LCD ● VFD ○	●	●	●	-	◆ Programmable controller with 12 x Input / 10 x Output	
RES-430			● Display	LCD	●	-	-	RES-140*)	◆ Variable timer functions ◆ Low cost ◆ Secondary control	
RESCON 460			● Display	LCD	●	●	-	-	◆ Programmable controller with 6 x Input / 4 x Output ◆ Secondary control	
RES-408			● Display	LED	●	●	○	-	◆ Separate operation panel	
RES-401			● PD ○	ATR ○	-	-	-	RES-201*)	◆ Low cost	
RES-403			● PD ○	ATR ○	●	●	○	RES-203	◆ For standard applications	
RES-407			● 0-10VDC PD ○	0-10 VDC ATR ○	●	●	○	RES-207*)	◆ PLC-interface	
RES-406			● PROFIBUS	ATR ○	●	●	●	-	◆ PROFIBUS-interface	
RES-409	● CAN-Bus	ATR ○	●	●	●	-	◆ CAN-Bus-interface			
Accessories:		Power transformer		Line filter		Booster		Temp.-meter		Potentiometer
Line voltages: 115 VAC, 230 VAC, 400 VAC					*) With minor wiring changes					
● Standard	○ Option	◐ Accessory								



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