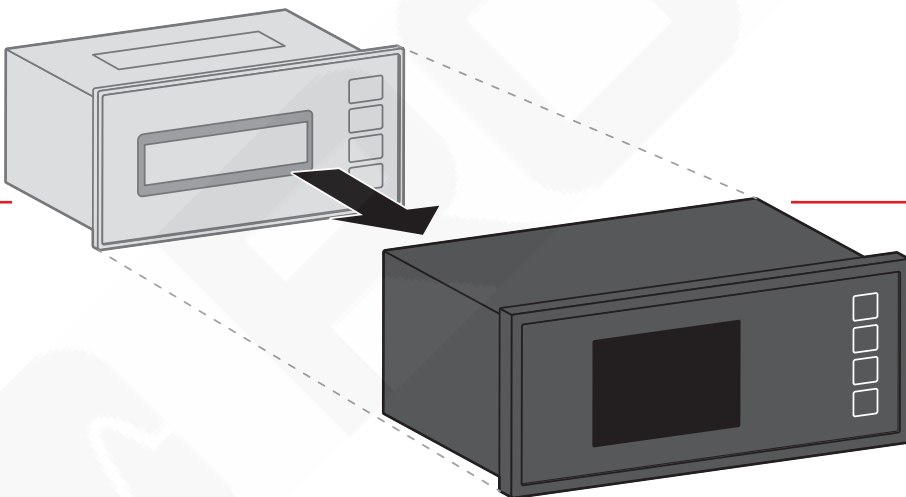


## Temperature controller

# RESISTRON® RES-5400/RES-5450

Conversion instructions from RES-440 to  
RES-5400/RES-5450



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### **Brands**

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# 1 Validity of the operating instructions

These operating instructions apply to the temperature controllers RESISTRON® RES-5400 and RES-5450 manufactured March 2024 and later.

# 2 Intended use

The temperature controllers RESISTRON® RES-5400 and RES-5450 are downward compatible with the previous version RESISTRON® RES-440.

This means that the temperature controller RESISTRON® RES-5400 or RES-5450 can be used instead of the RESISTRON® RES-440.

# 3 Selecting device

The temperature controllers RESISTRON® RES-5400 and RES-5450 have the following features:

- The line voltage can be anywhere within the range of 110 VAC to 480 VAC.
- The temperature controller is always equipped with a TFT display.

Line voltage	Article number	Display	Article number		Display
	RES-440		RES-5400	RES-5450	
115 VAC	744011	LCD	7540040	7545040	TFT
	744021	VFD			
230 VAC	744012	LCD			
	744022	VFD			
400 VAC	744013	LCD			
	744023	VFD			

## 3.1 Corresponding system components



### NOTICE

#### Malfunctioning due to use of devices from other manufacturers

Devices from other manufacturers can lead to malfunctions in the control loop.

- ▶ Use only original ROPEX accessories.
- ▶ Use only system components manufactured by ROPEX or that are approved for use with ROPEX equipment.


Device	Type		Certification	Article number
Current transformer	PEX-W5		• UL	885107
	PEX-W4 <sup>1)</sup>		• UL	885106
	PEX-W3 <sup>1)</sup>		-	885105
Line filter	LF-06480	6 A, 480 VAC	• UL	885500
	LF-35480	35 A, 480 VAC	-	885506

<sup>1</sup> No longer available

Device	Type		Certification	Article number
Line filter	LF-10520	10 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885504
	LF-16520	16 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885512
	LF-20520	20 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885510
	LF-30520	30 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885511
	LF-32520	32 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885513
	LF-50520	50 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885509
	LF-60520	60 A, 480 VAC	<ul style="list-style-type: none"> <li>• UL</li> <li>• CSA</li> </ul>	885514

## 4 What is new?

	Temperature controller	
	RES-440	RES-5400/RES-5450
Availability	Through 12/2023 (support until 31 Dec 2027)	Since 03/2024
Interface	DIAG  USB 2.0 in conjunction with the communication interface <i>CI-USB-1</i> , article no. 886550.	USB-C interface  The temperature controller can be connected to a PC to perform maintenance and startup with the aid of the visualization software <i>ROPEXvisual®</i> .
Line voltage	<ul style="list-style-type: none"> <li>• 115 VAC</li> <li>• 230 VAC</li> <li>• 400 VAC</li> </ul>	110 VAC...480 VAC
Display	Refer to section Selecting device [► 3]	
Signals	-	Additional input and output signals  The additional outputs can be used for control purposes inside of the machine.
	-	Relay K2
	-	RESET
	-	AUTOCAL
	-	ANALOG IN
	-	CH1
	-	U <sub>REF</sub>

	Temperature controller	
	RES-440	RES-5400/RES-5450
Signals	-	RES-5450: <ul style="list-style-type: none"> <li>• SENSOR 1</li> <li>• SENSOR 2</li> </ul> Load cells, thermocouplers, etc. can be connected to the inputs.
Output ALARM	Make contact	Changeover contact
TEMP. OK output or OUTPUT A1 output	TEMP. OK: Open collector semiconductor output, connected internally to GND	OUTPUT A1: Open-collector semiconductor output, without internal connection. Offers greater flexibility for high-side or low-side switching
Terminals	The assignment of the terminals has been changed; refer to section Terminal assignment [► 5]	
Menu structure	The configuration menu has been restructured. To make it easier to navigate in the configuration menu, there is now an additional drop-down menu. Use the drop-down menu to directly branch off to the newly defined menu categories; refer to section Overview of menu structure [► 10]	
Maximum start temperature (menu number 506)	-	Maximum temperature permitted upon START  Default: 100 °C  Adapt temperature to the application to prevent alarm 305.
Certification	-	 CSA for the US and Canada



Further information can be found in the operating instructions for the temperature controllers *RES-5400* and *RES-5450* and for the visualization software *ROPEXvisual*®; refer to [Homepage](#) > [Products](#) > [Downloads](#).

## 5 Connecting device

### 5.1 Terminal assignment


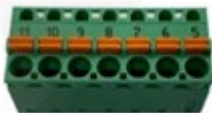

#### 5.1.1 Terminal strip for supply voltage and pulse transformer

**Note** The terminal strip for the supply voltage and for connection of the pulse transformer (terminals 1 to 4) is mechanically compatible with the previous terminal strip (terminals 12 to 15).

		Connection assignment	
		RES-440	RES-5400/ RES-5450
Terminal strip			
Signal	Pulse transformer	12, 13	3, 4
	Line voltage input	14, 15	1, 2

### 5.1.2 Terminal strip for control signals

The connection assignment of the terminal strip for the control signals (terminals 5 to 11 and 12 to 18) is no longer compatible with the previous assignment (terminals 1 to 11).

	Connection assignment	
	RES-440	RES-5400/RES-5450
Terminal strip	 Terminals 1 to 11	 Terminals 5 to 11   Terminals 12 to 18
	The control signals are on one terminal strip.	The control signals are divided between two terminal strips.
Type of terminal strip	Screw terminal	Spring-type terminal







The following table shows the assignment of the terminals.

RES-440		RES-5400/RES-5450	
Signal	Assignment	Signal	Assignment
BOOSTER +	1	BOOSTER CONTROL OUTPUT +	15
BOOSTER 0 V	2	BOOSTER CONTROL OUTPUT -	16
0 V (internal earth)	2, 11	-	
START 24 VDC	3	START	6
GND (protective ground/earth)	4	Protective earth	7
GND (reference earth for START signal)		GND (reference earth for START and ANALOG OUT signals)	18

RES-440		RES-5400/RES-5450	
Signal	Assignment	Signal	Assignment
ALARM (relay output)	5, 6	ALARM (relay output)	12, 13, 14
START contact	7 (connect to 2)	START	6 (connect to 5)
$I_R$ (current measurement)	8, 9	$I_R$ (current measurement)	10, 11
$U_R$ (voltage measurement)	10, 11	$U_R$ (voltage measurement)	8, 9
-	-	$U_{REF}$	5
-	-	ANALOG OUT	17

### 5.1.3 Terminal strip for additional signals at the top level

The assignment of the terminal strip for the additional signals (terminals 19 to 40) is no longer compatible with the previous assignment (terminals 16 to 26).

	Connection assignment	
	RES-440	RES-5400/RES-5450
Terminal strip	  Terminals 16 to 26	   (RES-5450)  Terminals 19 to 40
	The additional signals at the upper level are divided between two terminal strips.	The additional signals at the upper level are divided like this: <ul style="list-style-type: none"> <li>• RES-5400: 3 terminal strips</li> <li>• RES-5450: 4 terminal strips</li> </ul>
Type of terminal strip	Screw terminal	Spring-type terminal

The following table shows the assignment of the terminals.

RES-440		RES-5400/RES-5450	
Signal	Assignment	Signal	Assignment
Relay K1	16, 17, 18	Relay K1	21, 20, 19

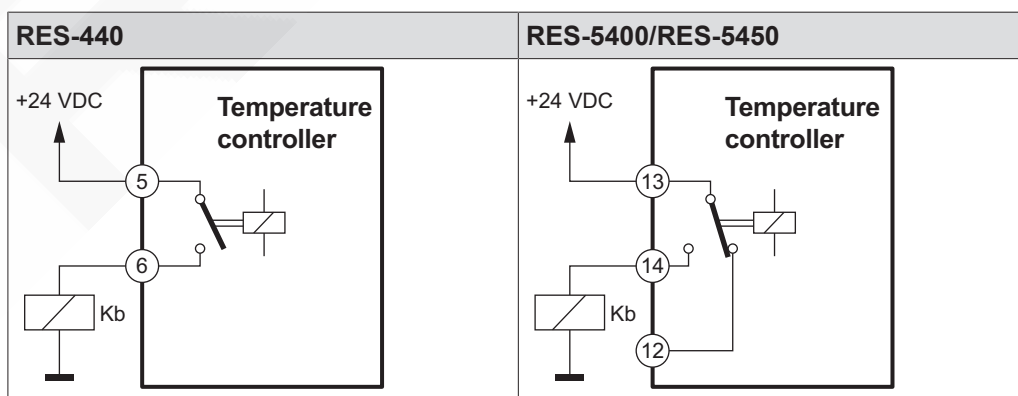
RES-440		RES-5400/RES-5450	
Signal	Assignment	Signal	Assignment
	-	Relay K2	24, 23, 22
Contact PREHEAT	19 (connect to 2)	PREHEAT	35 (connect to 5)
GND (reference earth for TEMP. OK, PREHEAT 24 VDC signals)	20	GND (reference earth for ANALOG IN, PREHEAT, AUTOCAL, RESET and CH1 signals)	39
TEMP. OK	21	OUTPUT A1	38 (connect 37 to 39)
PREHEAT 24 VDC	22	PREHEAT	35
0 V (internal earth for TEMP. OUT signal)	23	GND (reference earth for ANALOG OUT signal)	18
	-	ANALOG IN	36
TEMP. OUT +	24	ANALOG OUT	17
	-	CH1	40
	-	RES-5450: SENSOR 1	29, 30, 31, 32
	-	RES-5450: SENSOR 2	25, 26, 27, 28

## 5.2 ALARM output

Signal	RES-440	RES-5400/RES-5450
ALARM output	Relay make contact	Relay changeover contact

### 5.2.1 Connecting contactor Kb

The following circuit diagram shows how to connect the contactor Kb.





### 5.3 Connection diagram showing terminals

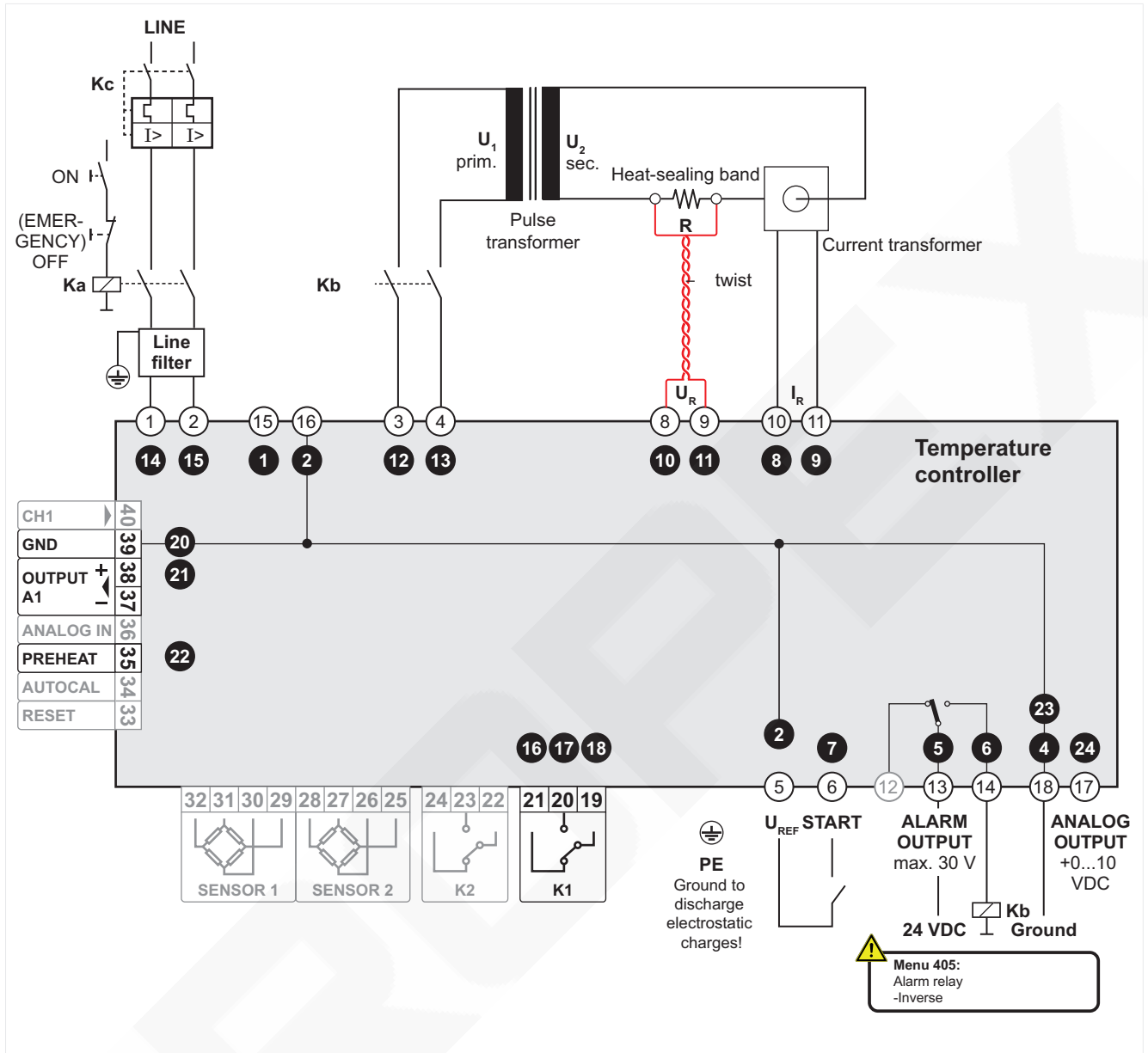


Illustration 1: Comparison of RES-440 and RES-5400/RES-5450 terminal assignment

How terminals are shown, example	Terminal assignment of temperature controller
6	RES-440
14	RES-5400/RES-5450
12	RES-5400/RES-5450 not connected
	Note: Terminals 25 to 32 are available only on the RES-5450.

Function	Achieved via	Terminal	
		RES-440	RES-5400/ RES-5450
PREHEAT	24 VDC signal	22	35
		20	39

Function	Achieved via	Terminal	
		RES-440	RES-5400/ RES-5450
PREHEAT	Contact	19	35
		2	5
HEAT	24 VDC signal	3	6
		20	39
		4	18
	Contact	7	6
		2	5

## 6 Overview of menu structure

Drop-down menu

	Menu group	Menu number
KONFIGURATION	Operation	2xx
Bedienung Heizelement	Heating element	3xx
Maschine	Machine	4xx
Diagnose Informationen	Diagnosis	5xx
	Information	6xx

Further information can be found in the operating instructions for the temperature controllers.

The following table provides an overview of the menu numbers required for retrofitting.

	RES-440	RES-5400/RES-5450	
Menu name	Menu number	Menu number	Drop-down menu
Sealing temperature	101	101	
Preheating temperature	102	102	
Start delay	103	403	Machine
Sealing time	104	104	
Cooling value	105	105	
Hold mode	106	203	Operation
AUTOCAL	107	107	
AUTOCOMP	108	108	
Language	201	201	Operation
Default	202	202	Operation
Alloy	203	301	Heating element
Temperature coefficient	204	302	Heating element
Temperature range	205	305	Heating element
Maximum temperature	206	306	Heating element

	RES-440	RES-5400/RES-5450	
Menu name	Menu number	Menu number	Drop-down menu
Setpoint reached	207	501	Diagnosis
Setpoint exceeded	208	502	Diagnosis
Timer function	209	401	Machine
Cooling mode	210	402	Machine
Beginning of sealing time	211	404	Machine
Function of relay K1	212	407	Machine
"MANUAL" and "AUTOCAL" buttons locked	213	206, 205	Operation
Cycles	214	601	Information
Alarm relay	215	405	Machine
Analog output	216	406	Machine
Temp. diagnosis	217	503	Diagnosis
Temp. diag. index	218	504	Diagnosis
Heatup timeout	219	505	Diagnosis
Length of measurement pulse	220	307	Heating element
AUTOCOMP	221	309	Heating element
Output A1	222	409	Machine
Constant regulation ratio	223	310	Heating element
Temperature unit	225	204	Operation
System time and date	226	603	Information