

Temperature controller

RESISTRON® RES-5002

Conversion instructions from RES-402,
RES-402-AC to RES-5002 for qualified
professionals



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1 Validity of the operating instructions

These operating instructions apply to all models of the temperature controller RESISTRON® RES-5002 manufactured January 2020 and later.

2 Intended use

The current version of the temperature controller RES-5002 is downward compatible with the previous temperature controllers RES-402 and RES-402-AC.

This means that the temperature controller RES-5002 can be used instead of the temperature controller RES-402 or RES-402-AC.

3 Selecting device

The temperature controller RESISTRON® RES-5002 has the following features:

- The line voltage can be anywhere within the range of 110 VAC to 480 VAC.

	Article number		
Line voltage	RES-402	RES-402-AC	RES-5002
115 VAC	740201	740205	7500200
230 VAC	740202	740206	
400 VAC	740203	740207	

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 ¹⁾		UL	885106
	PEX-W3 ¹⁾		-	885105
Mains filter	LF-06480	6 A, 480 VAC	UL	885500
	LF-35480	35 A, 480 VAC	-	885506
	LF-10520	10 A, 480 VAC	• UL • CSA	885504
	LF-50520	50 A, 480 VAC	• UL • CSA	885509

¹ No longer available

4 What is new?

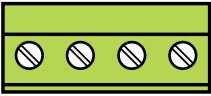
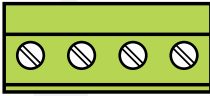
	Temperature controller	
	RES-402/RES-402-AC	RES-5002
Visualization software	<i>ROPEX visualization software</i>	<i>ROPEXvisual®</i>
Interface	DIAG USB 2.0 in conjunction with the communication interface <i>CI-USB-1</i> , article no. 886550.	Micro USB The temperature controller can be connected to a PC to make maintenance and startup easier with the aid of the visualization software <i>ROPEXvisual®</i> .
Line voltage	• 115 VAC • 230 VAC • 400 VAC	110 VAC...480 VAC The temperature controller automatically recognizes the line voltage.
	When the line voltage is being supplied, the temperature controller is ready for operation.	Once the line voltage is activated, the temperature controller switches from standby to measuring mode or control mode.
24 VDC supply voltage	Auxiliary voltage The temperature controller inputs and outputs are electrically isolated. The 24 VDC supply voltage supplies the isolation amplifiers and the optocouplers. If there is no 24 VDC supply voltage, no setpoint can be specified. In this case the actual value 0 °C is output at ANALOG output terminal 11.	Standby When the 24 VDC supply voltage is switched on but there is no line voltage, the temperature controller remains in standby. The actual value 0 °C is output at ANALOG output terminal 17. As soon as line voltage is supplied, the temperature controller switches to measuring mode or control mode.
Terminal strip for supply voltage (included) Terminals 1 to 4	Not mechanically compatible with the terminal strip of the <i>RES-5002</i>	Not mechanically compatible with the terminal strip of the <i>RES-401</i>
	Terminal assignment is identical.	Terminal assignment is identical.
Terminal strips for control signals (included) Terminals 5 to 18	Not mechanically compatible with the terminal strip of the <i>RES-5002</i>	Not mechanically compatible with the terminal strip of the <i>RES-401</i>
	-	Not compatible with the previous terminal assignment; refer to Connection diagram showing terminals
Start AUTOCAL feature	Button	► Connect an external button between the terminals 5 (AUTOCAL) and 12 (+24 VDC).
Secondary voltage range	0.4...80 V	0.4...120 V

	Temperature controller	
	RES-402/RES-402-AC	RES-5002
Output ALARM	Not configurable	Configurable with the aid of the slide
Error code display	-	In the even of an alarm, an error code is shown as voltage at the analog output and via <i>ROPEXvisual</i> ®.

Further information can be found in the operating instructions for the temperature controller *RES-5002* and for the visualization software *ROPEXvisual*®; refer to [Homepage](#) > [Products](#) > [Downloads](#).

5 Connecting device

5.1 Terminal strip supply voltage and pulse transformer

		Terminal assignment	
		RES-402/RES-402-AC	RES-5002
Terminal strip	Supply voltage Terminals 1 - 4		
		• Not mechanically compatible • Terminal assignment identical	
	Control signals Terminals 5 - 18		
		• Not mechanically compatible • Terminal assignment not identical	
Signal	I _R current measurement	5, 6	10, 11
	U _R voltage measurement	7, 8	8, 9
	ALARM OUTPUT	9	18
	U _{REF}	10	15
	ANALOG OUTPUT	11	17
	Ground (protective ground conductor)	12	14
	GND (ground) for E/A signals	13	13
	+24 VDC	14	12
	ANALOG INPUT (setpoint)	15	16
	CH 1 (AUTOCAL)	RES-402-AC: 16	5
	RESET	17	7
	START (HEAT)	18	6

5.2 Connection diagram showing terminals

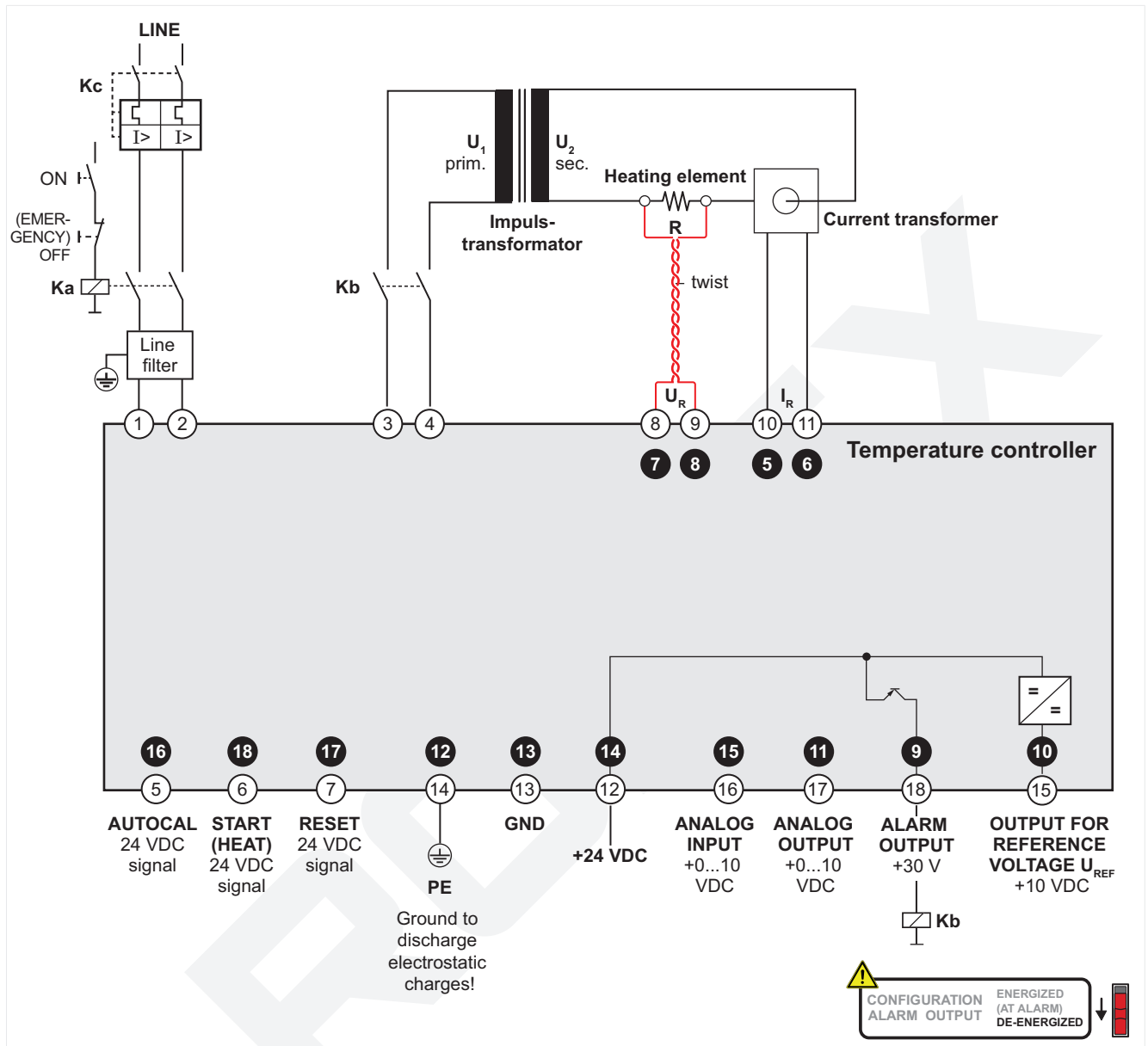


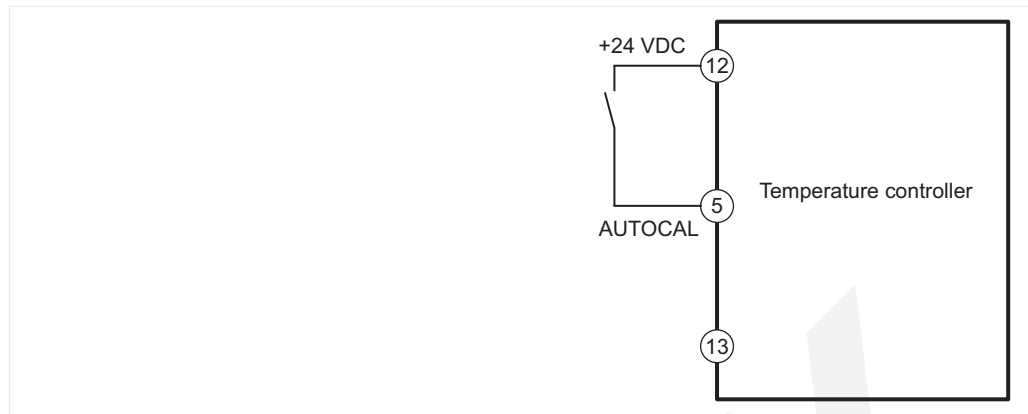
Illustration 1: Comparison of RES-402 and RES-5002 terminal assignment

How terminals are shown, example	Terminal assignment of temperature controller
6	RES-402/RES-402-AC
14	RES-5002

Note Terminal 16 is occupied by the AUTOCAL function only with the temperature controller model RES-402-AC. The terminal is used for other purposes with other models.

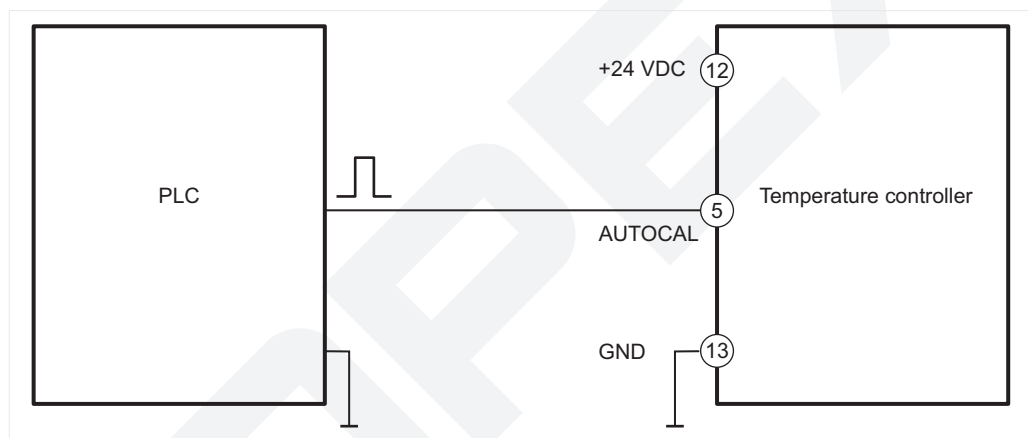
5.3 AUTOCAL connection

When adding an external button, proceed as follows:



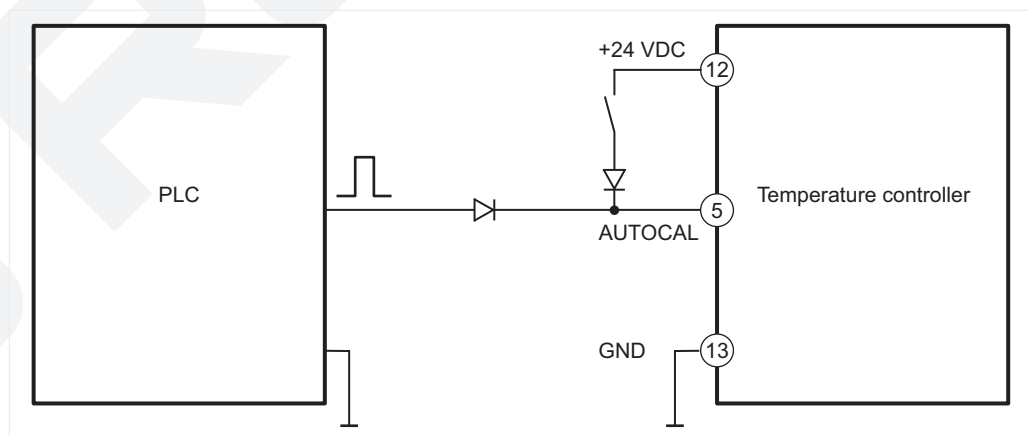
- Connect an external button to the temperature controller, between the terminals 5 (AUTOCAL) and 12 (+24 VDC).

If the PLC is to transmit the control signal AUTOCAL, proceed as follows:



The PLC transmits the control signal AUTOCAL to the temperature controller (terminal 5).

If an external button is to be installed and the PLC is to transmit the control signal AUTOCAL, proceed as follows:



1. Connect an external button to the temperature controller, between the terminals 5 (AUTOCAL) and 12 (+24 VDC).
2. Connect the control signal from the PLC to terminal 5.
3. Install one diode each in the control signal AUTOCAL from the PLC to the temperature controller and in the connection between the external button and terminal 5. This prevents short-circuiting.