RE81 TEMPERATURE CONTROLLER

Features:

IP65 | Auto tuning | PD14 compatible | eCon | SMART PID | ON/OFF control | Password protection

Inputs:

Outputs:

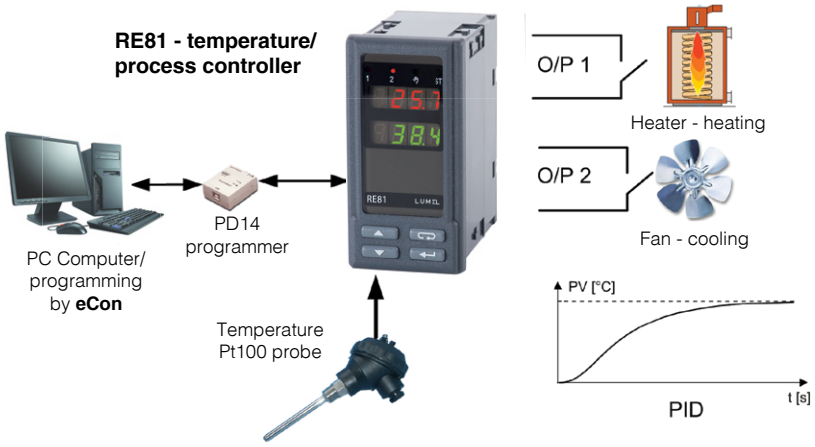
SSR output

Galvanic isolation:

Sup. | PD14 interface

- Control acc. to the PID, ON-OFF, heating/cooling algorithms or step-by-step control.
- Co-operates directly with resistance thermometers (RTD) or thermocouple sensors (TC).
- Automatic selection of PID parameters.
- 2 configurable outputs.
- Controller configuration by means of the free delivered eCon software.
- Error signaling by means of messages.
- Manual control mode.
- Frontal protection grade ensured by the casing: IP65.

Example of Application



Automatic control of heating and cooling with PID algorithm and autotuning.

Inputs

Sensor type	Range [°C]	Basic error [°C]	Remarks	Additional error
Resistance thermometer (acc. to EN 60751), measuring current 0.25mA				**Additional errors in rated operating conditions caused by:** • compensation of reference junction temperature changes **≤ 2°C** • line resistance change of the RTD sensor **≤ 50% of the basic error value/10K** • change of the ambient temperature **≤ 100% of the basic error/10K**
Pt100*)	-50..100	±0.8	Resistance of the sensor line < 10 Ω; one must connect with wires of the same section and length	
	0..250	±1.3		
	0..600	±3.0		
Thermocouple of J type (acc. to PN-EN 60584-1)				
Fe-CuNi	0..250	±2.0		
	0..600	±3.0		
	0..900	±4.0		
Thermocouple of K type (acc. to PN-EN 60584-1)				
NiCr-NiAl	0..600	±3.0		
	0..900	±4.0		
	0..1300	±6.0		
Thermocouple of S type (acc. to PN-EN 60584-1)				
PtRh10-Pt	0..1600	±8.0		

Outputs

Output kind	Properties
voltageless relay	switching contact, overload capacity: 5A/230V
binary voltage	voltage 6V, without isolation from the sensor side

Parameters of work

Detection of error in the measurement circuit:	thermocouple, Pt100	overflow of measuring range
Way of output operation	reverse: for heating	direct: for cooling
Signalling:	active output, auto-tuning, manual control	

External features		
Weight	< 0.25 kg	
Dimensions	48 x 96 x 93 mm	
Protection grade (acc. to EN 60529)	ensured by the housing: IP65	from the terminal side: IP20

Rated operating conditions		
Supply voltage	230 V a.c. ± 10%, 50/60Hz	power consumption: < 4 VA
Temperature	ambient: 0...23...50˚C	storage: -20...70˚C
Relative humidity	≤ 85%	condensation inadmissible
Operating position	any	
Preheating time	30 min	
Averaging time	≥ 0.33 s	

Safety and compatibility requirements		
Electromagnetic compatibility	Noise immunity	acc. to EN 61000-6-2
	Noise emissions	acc. to EN 61000-6-4
Isolation between circuits	basic	acc. to EN 61010-1
Pollution grade	2	
Installation category	III	
Maximal phase-to-earth operating voltage	for the supply circuit, outputs: 300 V	
	for input circuits: 50 V	
Altitude above sea level	< 2000 m	

Connection diagrams

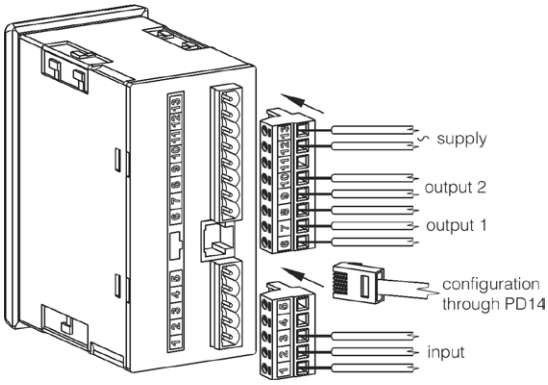
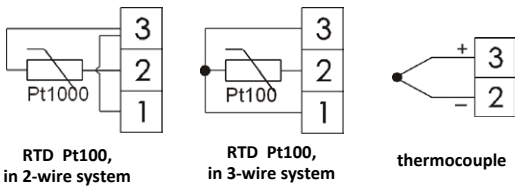
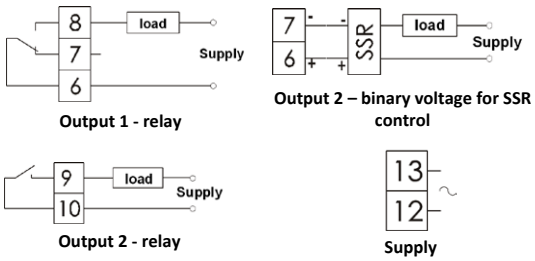


Fig. 1 View of the controller connection strips



RTD Pt100, in 2-wire system | **RTD Pt100, in 3-wire system** | **thermocouple**

Fig. 2. Connections of input signals



Output 1 - relay

Output 2 – binary voltage for SSR control

Output 2 - relay

Supply

Fig. 3. Supply and load circuit connections

Ordering

Ordering codes:

	RE81 -	XX	X	X	X	X
Input signal:						
RTD Pt100 (-50...100°C)		01				
RTD Pt100 (0...250°C)		02				
RTD Pt100 (0...600°C)		03				
Thermocouple J (Fe-CuNi)(0...250°C)		04				
Thermocouple J (Fe-CuNi)(0...600°C)		05				
Thermocouple J (Fe-CuNi)(0...900°C)		06				
Thermocouple K (NiCr-NiAl)(0...600°C)		07				
Thermocouple K (NiCr-NiAl)(0...900°C)		08				
Thermocouple K (NiCr-NiAl)(0...1300°C)		09				
Thermocouple S (PtRh10-Pt)(0...1600°C)		10				
Output*:						
relay			1			
binary 0/6 V for SSR control			2			
Version:						
standard				00		
custom-made**				XX		
Language:						
Polish					P	
English					E	
other**					X	
Acceptance tests:						
without extra requirements						0
with a extra quality inspection certificate						1
acc. to customer's request**						X

* - second output - relay
** - after agreeing with the manufacturer

Order example:

The code **RE81 - 06 2 00 E 0** means:

RE81 - temperature controller of RE81 type
06 - input: TC J, (0...900°C)
2 - output: binary 0/6 V for SSR control
00 - standard version
E - English language
0 - without extra requirements

See Also:

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