TEMPERATURE CONTROLLER RE55 type

NEW

APPLICATION

The R55 controller is a microprocessor controller with an analog setting and digital measurement of the measured value. The controller controls the temperature in objects through switching on and off the electrical control device, in accordance with the definite set point by the controller.
The controller co-operates directly with RTD and TC temperature sensors.
The controller is destined to control temperature in plastics industry, food and dehydration industries, and everywhere when it is necessary to stabilize temperature changes.

TECHNICAL DATA

Potentiometric setting of the set point:
- resolution of the set point setting: 0.1% of the controller range
- difference between the set point and the value set on the graduation: < 2% of the controller range

Measurement time: 0.5 s

Error detection in the measurement circuit:
- thermocouple, Pt100: measuring range exceeding

Control algorithm
P, PD, PI, PID, ON-OFF with hysteresis - PID controller

Setting range of controller parameters: see table 1

Kinds of outputs:
for control output:
- relay without voltage: change-over contact load 2 A/230 V
- logic voltage: 5 V voltage, 10 Ω resistance limiting the current (without isolation from the sensor side)

for alarm output:
- relay without voltage: normally open contact (NOC) load capacity 1A/230

Output operation:
- reverse: for heating
- direct: for cooling

Signalling:
- switching the main output on
- switching the main output off

Rated operating conditions:
- supply voltage: 85…253 V a.c./d.c.
- supply voltage frequency: 40…440 Hz
- ambient temperature: 0…23…50°C
- storage temperature: -20…+70°C
- relative air humidity: < 85% (without condensation)
- preliminary warm-up time: 30 min.
- external magnetic field: < 400 A/m
- operating position: any
- resistance of wires connecting the resistance thermometer with the controller: < 10 Ω/wire

Consumption: < 4 VA

Weight: < 0.3 kg

Overall dimensions: 96 × 96 × 65 mm

Panel cut-out: $91^{+0.6} \times 91^{+0.6}$ mm

Protection degree ensured by the housing: acc. to EN 60529
- from the frontal plate side: IP 40
- from terminal side: IP 20

Additional errors in rated operating conditions caused by:
- compensation of the thermocouple reference junction temperature change: ≤ 2°C
- changes of the RTD line resistance: ≤ 50% of the intrinsic error
- change of ambient temperature: ≤ 100% of the intrinsic error/10 K

Range, resolution and based intrinsic error for different executions

Table 1

Sensor type	Range °C	Resolution °C	Intrinsic error °C
Resistance thermometer (acc. EN 60751+A2), measuring current 0,25mA			
Pt100*	-50…100	0.1	± 0.8
	0…100	0.1	± 0.5
	0…150	0.1	± 0.8
	0…250	0.1	± 1.3
	0…400	0.1	± 2.0
	0…600	0.1	± 3.0
Thermocouple of J type (acc. EN 60584-1)			
Fe-CuNi	0…250	0.1	± 2.0
	0…400	0.1	± 2.0
	0…600	0.1	± 3.0
	0…900	0.1	± 4.0
Thermocouple of K type (acc. EN 60584-1)			
NiCr-NiAl	0…600	0.1	± 3.0
	0…900	0.1	± 4.0
	0…1300	1	± 6.0
Thermocouple of S type (acc. EN 60584-1)			
PtRh10-Pt	0…1600	1	± 8.0

*) Sensor line resistance < 100 Ω/wire, one must make the connection with wires of identical cross-section and length

LUMEL S.A., ul. Sulechowska 1, 65-022 Zielona Góra, Poland / tel.: +48 68 329 53 02, +48 68 329 53 04, fax: +48 68 325 40 91 / e-mail:export@lumel.com.pl / www.lumel.com.pl

Safety requirements acc. to EN 61010-1:

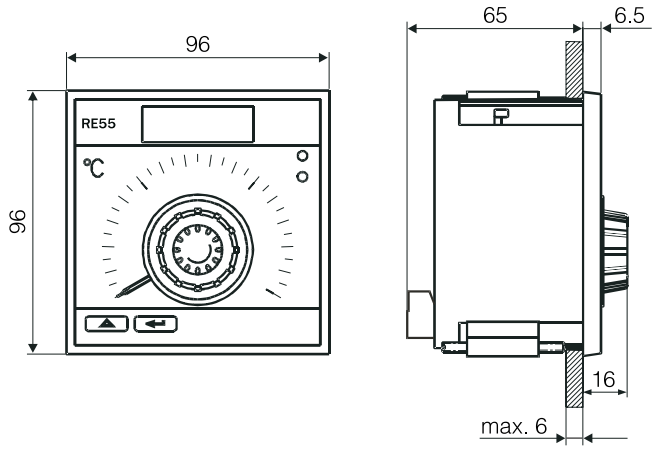
- isolation between circuit	basic
- installation category	III
- pollution degree	2
- maximal working voltage in relation to earth:	
- for the supply circuit	300 V
- for input circuits	50 V
- altitude above sea level	under 2000 m

Electromagnetic compatibility:

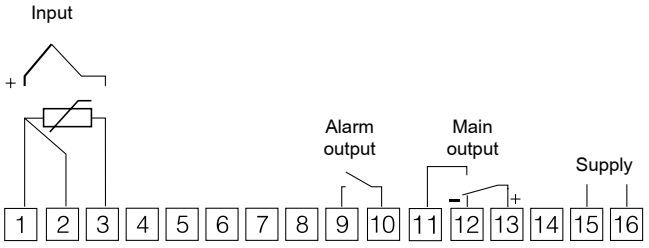
- immunity	acc. to EN 61000-6-2
- emission	acc. to EN 61000-6-4

Overall and mounting dimensions

Cut-out dimensions: $91^{+0,6}$ x $91^{+0,6}$



Electrical connections of external circuits



ORDERING CODES

Temperatura controller RE55 -	X	X	X	X	X

Input:

Pt100/1.3850	- 50... 100°C	**01**
	0... 100°C	**02**
	0... 150°C	**03**
	0... 250°C	**04**
	0... 400°C	**05**
	0... 600°C	**06**
Fe-CuNi (J)	0... 250°C	**07**
	0... 400°C	**08**
	0... 600°C	**09**
	0... 900°C	**10**
NiCr-NiAl (K)	0... 600°C	**11**
	0... 900°C	**12**
	0... 1300°C	**13**
PtRh10-Pr (S)	0... 1600°C	**14**
On order*		**99**

Kind of execution:

on-off controller	**1**
PID controller	**2**
controller configurable by push-buttons and with an alarm	**3**

Control output:

relay	**1**
voltage 0/5 V	**2**

Version:

standard	**0**
Custom-made	**5**

Acceptance tests:

without a legalisation certificate	**8**
with a legalisation certificate	**7**
acc. customer's agreement**	**X**

*) – After agrement with the manufacturer
**) – The code will be established by the manufacturer

EXAMPLE OF ORDER

The code: **RE55 02 3 1 0 0** means:

RE55 - temperature controller of RE55 type
02 - input Pt100, range: 0…100°C
3 - execution: controller configurable by push-buttons and with an alarm
1 - control output: relay
0 - standard version
8 - without an additional quality certificate.

LUMEL S.A., ul. Sulechowska 1, 65-022 Zielona Góra, Poland / tel.: +48 68 329 53 02, +48 68 329 53 04, fax: +48 68 325 40 91 / e-mail:export@lumel.com.pl / www.lumel.com.pl