CONTROLLER WITH UNIVERSAL TC AND RTD INPUT RE23 TYPE

NEW

CE

APPLICATION

The RE23 controller is destined to a constant-valued or a programmed control of temperature and other physical quantities e.g. pressure, humidity, level, flow.

The measured value, the set value parameters of the realized program or the output signal are displayed on two displays.

The measuring input is universal for TC, RTD or for linear standard signals.

The controller has one output enabling the heating or cooling type control. The manual control is also possible.

The controller possess a security function against the change of parameters, by means of a password.

For the constant-valued control, the autotuning function of PID setting selection is accessible.

During the programmed control, the controller controls the object acc. to the set value changing in time according to the *function named program*:

- the program is composed maximally of 9 segments,
- the program can be repeated (number of repetitions: 1...255),
- the program starts from the currently measured value PV0 or from the set value SP0,
- for each segment, one must give the duration (0...999 min.) and the set value at the segment end,
- after carrying out the program, the output is disabled or the control is continued.
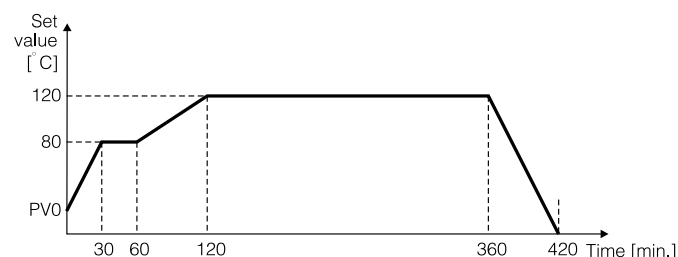
TECHNICAL DATA

Input signals and measuring ranges for sensor inputs

Table 1

Sensor type	Standard	Notation	Range
Pt100	EN 60751+A2	Pt100	-199...850°C
Pt1000	EN 60751+A2	Pt1000	-199...850°C
Fe-CuNi	EN 60584-1	J	-100...1200°C
Cu-CuNi	EN 60584-1	T	-100...400°C
NiCr-NiAl	EN 60584-1	K	-100...1372°C
PtRh10-Pt	EN 60584-1	S	0...1767°C
PtRh13-Pt	EN 60584-1	R	0...1767°C
PtRh30-PtRh6	EN 60584-1	B	0...1820°C 300...1820°C[1]
NiCr-CuNi	EN 60584-1	E	-100...999°C
NiCrSi-NiSi	EN 60584-1	N	-100...1300°C
NiCr-CuNi chromel-kopel	GOST R 8.585	L	-100...800°C

[1] range for which the measuring error is given

Input signals and measuring ranges for linear inputs.   Table 2

Sensor type	Notation	Range
Linear current input	I	0...20 mA
Linear current input	I	4...20 mA
Linear voltage input	U	0...5 V
Linear voltage input	U	0...10 V

Basic error of true value measurement:
- 0.2%, for RTD inputs,
- 0.3%, for TC inputs (0.5% - for B, R, S),
- 0.2% ± 1 digit, or linear inputs

Measurement time:
- for sensor inputs   0.33 s
- for linear inputs   0.16 s

Input resistance:
- for voltage input   150 kΩ
- for current input   4 Ω

Control algorithm   P, PD, PI, PID, too-state with hysteresis

Kind of outputs:
- relay   switch over contact, maximal load-carrying capacity:
  - voltage: 250 V a.c., 150 V d.c.
  - current: 5 A 250 V a.c., 5 A 30 V d.c.

- binary voltage   voltage: 5 V resistance limiting
  (without isolation from   the current 66 Ω
  the sensor side)

Signalling:
- output switching on
- programmed control
- manual control mode

Rated service conditions:
- supply voltage   230 V a.c. ± 10 %
                          110 V a.c. ± 10 %
                          24 V a.c. ± 10 %
- supply voltage frequency   50...60 Hz
- ambient temperature   0...23...50°C
- storage temperature   -20...+70°C
- relative air humidity   < 85 % (without condensation)

- external magnetic field   < 400 A/m
- preheating time   30 min
- work position   any
- resistance of wires connecting the resistance thermometer with the controller   < 20 Ω

Power consumption   < 3 VA

Weight   < 0.25 kg

IP protection ensured through the housing: acc. EN 60529
- from the frontal side   IP 40
- from terminal side   IP 20

Additional errors in rated working conditions caused by:
- compensation of the thermocouple cold junction $\leq 2\,^{\circ}C$,
- ambient temperature change $\leq 100\%$ of the basic error value/10 K.

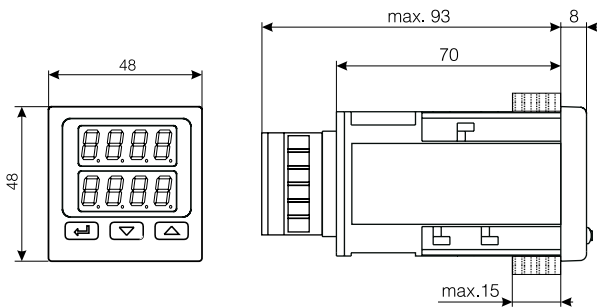**Safety requirements acc. to EN 61010-1**
- installation category   III
- level of pollution   2
- maximal working voltage in relation to ground:
  - for supply circuit, outputs   300 V a.c.
  - for input circuits   50 V a.c.

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

OVERALL AND ASSEMBLY DIMENSIONS

Pnel cut-out dinensions: 45$^{+0.6}$ x 45$^{+0.6}$ mm
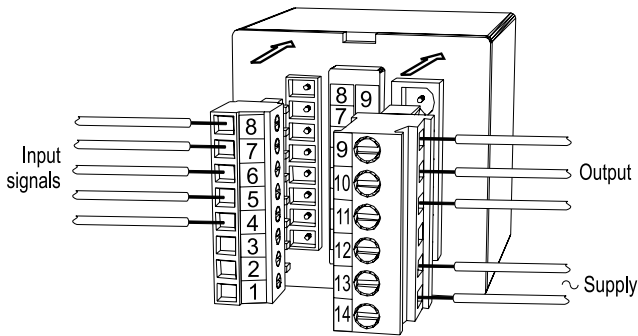

ELECTRICAL CONNECTION DIAGRAMS

Fig.1. View of controller connection strips.

ORDER CODES

Table 3

Controller RE23 -	X	X	X	X
Input:				
universal for TC and RTD............**1**				
universal linear current 0/4...20 mA, and linear voltage 0...5/10 V **2**				
on order......................................**X**				
Output:				
relay **1**				
binary 0/5 V to SSR control...............**2**				
on order...**X**				
Supply:				
230 V 50/60 Hz **1**				
110 V 50/60 Hz..**2**				
24 V 50/60 Hz **3**				
on order...**X**				
Additional requirements:				
without a quality inspection certificate...........**8**				
with a quality inspection certificate................**7**				
acc. to customer's agreement ** ....**X**				

* The version code is established by the manufacturer.
** After agreement with the manufacturer.

Ordering example:

The code: **RE23-1-2-3-7** means:
RE23 - controller with universal input + 1 output
1 - universal input for RTD and TC
2 - binary output 0/5 V to SSR control
3 - supply: 24 V a.c.
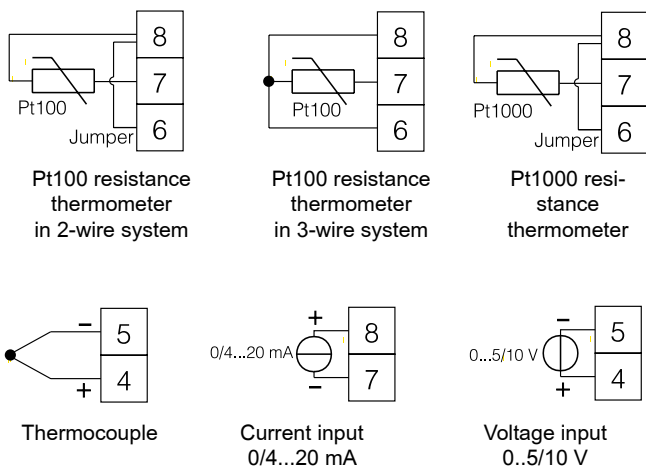7 - with an extra quality inspection certificate
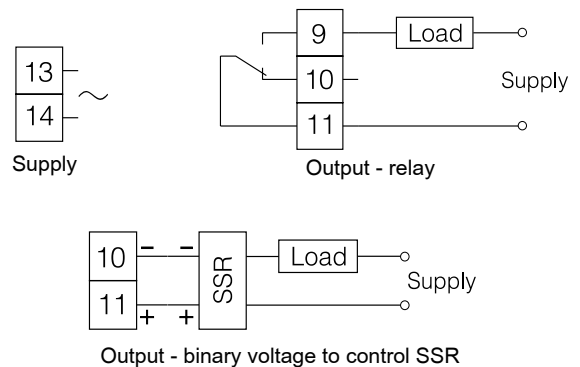

Fig.2. Connection of input signals.

Fig.3. Connection of the supply and load circuit.