FEATURES:
- Control acc. to the PID or ON/OFF algorithm.
- Direct co-operation with resistance thermometer or thermocouple sensors.
- Automatic selection of PID parameters.
- One control output, relay output or voltage output for SSR relay control.
- Manual control mode.

EXAMPLE OF APPLICATION

Automatic control of the heater using the PID algorithm with autotuning function

INPUTS:

<table>
<thead>
<tr>
<th>Sensor type</th>
<th>Range [°C]</th>
<th>Basic error [°C]</th>
<th>Remarks</th>
<th>Additional error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance thermometer (acc. to EN 60751), measuring current 0.25mA</td>
<td>-50...100</td>
<td>±0.8</td>
<td>Resistance of the sensor line &lt; 10 Ohm; one must connect with wires of the same section and length</td>
<td></td>
</tr>
<tr>
<td>Pt100*)</td>
<td>0.250</td>
<td>±1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.600</td>
<td>±3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermocouple of J type (acc. to EN 60584-1)</td>
<td>0.250</td>
<td>±2.0</td>
<td></td>
<td>Additional errors in rated operating conditions caused by:</td>
</tr>
<tr>
<td></td>
<td>0.600</td>
<td>±3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.900</td>
<td>±4.0</td>
<td></td>
<td>• compensation of reference junction temperature changes ±2°C</td>
</tr>
<tr>
<td>Thermocouple of K type (acc. to EN 60584-1)</td>
<td>0.600</td>
<td>±3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NiCr-NiAl</td>
<td>0.900</td>
<td>±4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.1300</td>
<td>±6.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermocouple of S type (acc. to EN 60584-1)</td>
<td>0.1600</td>
<td>±8.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OUTPUTS:

<table>
<thead>
<tr>
<th>Output kind</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>voltageless relay</td>
<td>switching contact, overload capacity: 5A/230V</td>
</tr>
<tr>
<td>binary voltage</td>
<td>voltage 6V, without isolation from the sensor side</td>
</tr>
</tbody>
</table>

PARAMETERS OF WORK

<table>
<thead>
<tr>
<th>Detection of error in the measurement circuit:</th>
<th>thermocouple, Pt100</th>
<th>overflow of measuring range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Way of output operation</td>
<td>reverse: for heating</td>
<td>direct: for cooling</td>
</tr>
<tr>
<td>Signalling:</td>
<td>active output, set point value display, auto-tuning, manual control</td>
<td></td>
</tr>
</tbody>
</table>
### RE71 TEMPERATURE CONTROLLER

#### External Features
- **Weight:** < 0.25 kg
- **Dimensions:** 48 x 48 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
- **Pollution grade:** 2
- **Installation category:** III
- **Maximal phase-to-earth operating voltage:**
  - for the supply circuit, outputs: 300 V
  - for input circuit: 50 V
- **Altitude above sea level:** < 2000 m

#### Connection Diagrams
- **Fig. 1 View of the controller connection strips**
- **Fig. 2 Connections of input signals**
- **Fig. 3 Connections of the supply and load circuit**

#### Ordering Codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE71-19A</td>
<td>Temperature controller of RE71 type</td>
</tr>
</tbody>
</table>

### Ordering
- **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

* - after agreeing with the manufacturer

Order example:

The code **RE71 - 06 2 00 E 0** means:
- **RE71** - temperature controller of RE71 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