Devices designed to display, control and regulate heating or cooling generators, with input for NTC, PTC(KTY), Pt 100, Thermocouple J and Thermocouple K type sensors. Both outputs with changeover relays can be configured for 2 independent stages, 2 related stages, neutral zone, or also as 1 stage + alarm.

**Warnings**
The use of the unit without observing the manufacturer’s instructions may alter its safety qualification.

To ensure correct operation of the apparatus, only probes supplied by AKO should be used.

**Versions and references**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MOUNTING</th>
<th>RELAYS</th>
<th>POWER SUPPLY, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKO-14724</td>
<td>Panel mounting</td>
<td>8A, 250 V, cos φ=1, SPDT</td>
<td>12 V = ± 20%</td>
</tr>
<tr>
<td>AKO-14725</td>
<td></td>
<td></td>
<td>120 V ± 8% - 12%</td>
</tr>
<tr>
<td>AKO-14726</td>
<td></td>
<td></td>
<td>230 V ± 10%</td>
</tr>
<tr>
<td>AKO-15225</td>
<td>DIN rail</td>
<td></td>
<td>120 V ± 8% - 12%</td>
</tr>
<tr>
<td>AKO-15226</td>
<td></td>
<td></td>
<td>230 V ± 10%</td>
</tr>
<tr>
<td>AKO-15227</td>
<td></td>
<td></td>
<td>24 V ± 20%</td>
</tr>
</tbody>
</table>

**Installation**
The controller should be installed in a place protected from vibrations, water and corrosive gasses, and where ambient temperature does not surpass the value specified in the technical data.

In order for the panel mounting units to be suitable having IP65 protection, the gasket should be properly installed between the apparatus and the perimeter of the panel cut-out where it is to be fitted.

In order to give a correct reading, the probe should be installed in a place without heat influences other than the temperature that is to be measured or controlled.

**Fastening units**
To fix the unit, place the fasteners 1 over the sliders 2 as shown in the figure. Move the fasteners in the direction of the arrow. By pressing tab 3 fasteners may be moved in the opposite direction of the arrow.

**Connection:**
See diagram in the unit rating plate. The probe and its lead should NEVER be installed in ducting along with power, control or power supply wiring.

The power supply circuit should be connected with a minimum 2 A, 230 V, switch located close to the unit. Power supply cables should be HO5VV-F 2x0,5 mm² or HO5V-K 2x0,5 mm². Section of connecting wires for relays contacts should range from 1 mm² to 2,5 mm².

**Front panel functions**

<table>
<thead>
<tr>
<th>LED R1</th>
<th>LED R2</th>
<th>LED AL</th>
<th>LED PR</th>
<th>LED UP</th>
<th>LED DOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel mounting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LEDs**
- **LED R1:** Relay 1 indicator enabled
- **LED R2:** Relay 2 indicator enabled
- **LED AL:** Alarm indicator enabled
- **LED PR:** Flashing, programming phase
- **LED °F:** Degrees °F indicator

**UP key:** Press once to cancel the alarms, but they remain displayed (optional by parameter A1A). When pressed for at least 5 seconds, the SP1 Set Point temperature of Relay R1 is displayed. In programming, it makes the displayed value increase.

**SET Key:** Press once to cancel the alarms, but they remain displayed (optional by parameter A1A). In programming, it accepts the modified value.

**DOWN key:** Press once to cancel the alarms, but they remain displayed (optional by parameter A1A). When pressed for at least 5 seconds, the SP2 Set Point temperature of Relay R2 is displayed. In programming, it makes the displayed value reduce.

**Adjustment and configuration**
It should only be programmed or modified by personnel who are fully conversant with the equipment operation and possibilities.

**Set Point temperature**
The factory SET POINT default value is 0°C.

- **Press ** key for at least 5 seconds to DISPLAY SET POINT in Relay R1 or ** key for Relay R2. It displays the CURRENT SET POINT value and LED "PR" starts flashing.
- **Press ** of ** keys to CHANGE SET POINT into the required value.
- **Press the ACCEPT THE NEW keys to ACCEPT THE NEW SET POINT.**
  - The display returns to the CURRENT TEMPERATURE display status and LED "PR" stops flashing.

**Parameters configuration**

**Level 1 Menus**
- **Press ** and ** simultaneously for at least 10 seconds.** The LED "PR" will be flashing, we are in the programming LEVEL 1 MENUS and the first menu "Po1" is displayed.
- **Press ** key to access the next menu and ** key to return to the previous one.
- **Pressing DISPLAY PARAMETER keys in the last menu EP, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.**
  - When PA is displayed, PASSWORD programmed in PAS parameter of Pr or parameter EP, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.
  - When PA is displayed, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.

**Level 2 Parameters**
- In the desired menu of LEVEL 1 MENUS, press keys DISPLAY PARAMETER, LEVEL 2 PARAMETERS programming is accessed. The first parameter of the selected menu is displayed on the screen.
- **Press ** key to access the next parameter and ** key to return to the previous one.
- **Pressing DISPLAY VALUE keys in the last parameter EP, the controller returns to the LEVEL 1 MENUS.**

**Level 3 Values**
- To DISPLAY CURRENT VALUE of any parameter, select the required one and press DISPLAY VALUE. Once it is displayed, you can CHANGE VALUE pressing ** or ** key.
- **Press ACCEPT THE NEW keys.** The programming returns to LEVEL 2 PARAMETERS.

**Adjustment and configuration**

**Set Point temperature**
The factory SET POINT default value is 0°C.

- **Press ** key for at least 5 seconds to DISPLAY SET POINT in Relay R1 or ** key for Relay R2. It displays the CURRENT SET POINT value and LED "PR" starts flashing.
- **Press ** of ** keys to CHANGE SET POINT into the required value.
- **Press the ACCEPT THE NEW keys to ACCEPT THE NEW SET POINT.** The display returns to the CURRENT TEMPERATURE display status and LED "PR" stops flashing.

**Parameters configuration**

**Level 1 Menus**
- **Press ** and ** simultaneously for at least 10 seconds.** The LED "PR" will be flashing, we are in the programming LEVEL 1 MENUS and the first menu "Po1" is displayed.
- **Press ** key to access the next menu and ** key to return to the previous one.
- **Pressing DISPLAY PARAMETER keys in the last menu EP, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.**
  - When PA is displayed, PASSWORD programmed in PAS parameter of Pr or parameter EP, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.
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- **Press ** key to access the next parameter and ** key to return to the previous one.
- **Pressing DISPLAY VALUE keys in the last parameter EP, the controller returns to the LEVEL 1 MENUS.**

**Level 3 Values**
- To DISPLAY CURRENT VALUE of any parameter, select the required one and press DISPLAY VALUE. Once it is displayed, you can CHANGE VALUE pressing ** or ** key.
- **Press ACCEPT THE NEW keys.** The programming returns to LEVEL 2 PARAMETERS.

**Adjustment and configuration**

**Set Point temperature**
The factory SET POINT default value is 0°C.

- **Press ** key for at least 5 seconds to DISPLAY SET POINT in Relay R1 or ** key for Relay R2. It displays the CURRENT SET POINT value and LED "PR" starts flashing.
- **Press ** of ** keys to CHANGE SET POINT into the required value.
- **Press the ACCEPT THE NEW keys to ACCEPT THE NEW SET POINT.** The display returns to the CURRENT TEMPERATURE display status and LED "PR" stops flashing.

**Parameters configuration**

**Level 1 Menus**
- **Press ** and ** simultaneously for at least 10 seconds.** The LED "PR" will be flashing, we are in the programming LEVEL 1 MENUS and the first menu "Po1" is displayed.
- **Press ** key to access the next menu and ** key to return to the previous one.
- **Pressing DISPLAY PARAMETER keys in the last menu EP, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.**
  - When PA is displayed, PASSWORD programmed in PAS parameter of Pr or parameter EP, the controller returns to the CURRENT TEMPERATURE display status and LED "PR" will stop flashing.
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**Level 2 Parameters**
- In the desired menu of LEVEL 1 MENUS, press keys DISPLAY PARAMETER, LEVEL 2 PARAMETERS programming is accessed. The first parameter of the selected menu is displayed on the screen.
- **Press ** key to access the next parameter and ** key to return to the previous one.
- **Pressing DISPLAY VALUE keys in the last parameter EP, the controller returns to the LEVEL 1 MENUS.**

**Level 3 Values**
- To DISPLAY CURRENT VALUE of any parameter, select the required one and press DISPLAY VALUE. Once it is displayed, you can CHANGE VALUE pressing ** or ** key.
- **Press ACCEPT THE NEW keys.** The programming returns to LEVEL 2 PARAMETERS.
**Menus, parameters and messages**

Values in the Def. column are factory-set.

In programming, it must be taken into consideration that the parameters and values depend on the option selected in theCfg configuration menu.

R1 and R2 relay operation and control

o2c = 1 Two independent stages

- **Operation for HEAT** (HC1 / HC2=1)
  - If d1 > 0
    - R1 Relay ON
    - R2 Relay OFF
  - If d1 < 0
    - R1 Relay OFF
    - R2 Relay ON
  - If d1 = 0
    - R1 Relay OFF
    - R2 Relay OFF

- **Operation for COLD** (HC1 / HC2=0)
  - If d1 > 0
    - R1 Relay ON
    - R2 Relay OFF
  - If d1 < 0
    - R1 Relay OFF
    - R2 Relay ON
  - If d1 = 0
    - R1 Relay OFF
    - R2 Relay OFF

o2c = 2 Two related stages

- **Operation for HEAT** (HC1 / HC2=1)
  - If d1 > 0
    - R1 Relay ON
    - R2 Relay ON
  - If d1 < 0
    - R1 Relay OFF
    - R2 Relay OFF
  - If d1 = 0
    - R1 Relay OFF
    - R2 Relay OFF

- **Operation for COLD** (HC1 / HC2=0)
  - If d1 > 0
    - R1 Relay ON
    - R2 Relay ON
  - If d1 < 0
    - R1 Relay OFF
    - R2 Relay OFF
  - If d1 = 0
    - R1 Relay OFF
    - R2 Relay OFF

o2c = 3 Neutral Zone

- **Operation for HEAT** (HC1 / HC2=1)
  - If d1 > 0
    - R1 Relay ON
    - R2 Relay OFF
  - If d1 < 0
    - R1 Relay OFF
    - R2 Relay ON
  - If d1 = 0
    - R1 Relay OFF
    - R2 Relay OFF

- **Operation for COLD** (HC1 / HC2=0)
  - If d1 > 0
    - R1 Relay ON
    - R2 Relay OFF
  - If d1 < 0
    - R1 Relay OFF
    - R2 Relay ON
  - If d1 = 0
    - R1 Relay OFF
    - R2 Relay OFF

ACo is the alarm configuration parameter

**Maintenance**

Clean the controller surface with a soft cloth and soap and water. Do not use abrasive detergents, petrol, alcohol or solvents.

**Parameters transfer**

AKO-14918 portable server, with no power supply, in which parameters programmed in a powered controller can be copied by transfer. Parameters can be transferred again from the server to other identical powered controllers. Panel mounting or DIN rail models.

**ACO-14918**