**AKO**Control

# The most suitable and flexible range of temperature and humidity control

ESC

SET

## AKOControl, technical table for Industrial and Commercial Refrigeration

| Model | Compressor Resistance | Defrost | Fan Resistance | Light/Aux/Alarm | Control Temperature | Enviroment Temperature | Defrost Temperature End | Digital input 1 | Digital input 2 | Power Supply | Buzzer | Real Time Clock | Communication RS485 | Slim Panel | Standard Panel | Big Display Panel | large Panel | DIN Rail | Wall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AKO-D14012 | | | | | | NTC/PTC | | | | 12/24V | | | | | x | | | | |
| AKO-D14023 | | | | | | NTC/PTC | | | | 230V | | | | | x | | | | |
| AKO-D14023-C | | | | | | NTC/PTC | | | | 90/240V | | | x | | x | | | | |
| AKO-13012 | | | | | | NTC | | | | 12V | | | | x | | | | | |
| AKO-13020 | | | | | | NTC | | | | 120V | | | | x | | | | | |
| AKO-13203 | | | | | | NTC | | | | 230V | | | | x | | | | | |
| AKO-14602 | | | | | | NTC/PTC | | | | 230V | | | | | | | | | x |
| AKO-14605 | | | | | | NTC | | | | 230V | | | | | | | | | x |
| AKO-D14112 | 12A(9) | | | | NTC/PTC | NTC/PTC | | x | | 12/24V | | | | | x | | | | |
| AKO-D14120 | 12A(9) | | | | NTC/PTC | | | x | | 120V | | | | | x | | | | |
| AKO-D14123 | 12A(9) | | | | NTC/PTC | | | x | | 230V | | | | | x | | | | |
| AKO-13112 | 12A(9) | | | | NTC | | | x | | 12V | | | | x | | | | | |
| AKO-13120 | 12A(9) | | | | NTC | | | x | | 120V | | | | x | | | | | |
| AKO-13123 | 12A(9) | | | | NTC | | | | | 230V | | | | x | | | | | |
| AKO-10123 | 12A(9) | | | 8(4)A | NTC | | | x | | 230V | | | | | | | x | | |
| AKO-D10123 | 12A(9) | | | | NTC/PTC | | | x | | 230V | | | | | | | x | | |
| AKO-14610 | 12A(9) | | | | NTC/PTC | | | | | 230V | | | | | | | | | x |
| AKO-14612 | 12A(9) | | | | NTC/PTC | | | | | 120V | | | | | | | | | x |
| AKO-14615 | 12A(9) | | | | NTC | | | | | 230V | | | | | | | | | x |
| AKOTIM-21TE | 12A(9) | | | | NTC | NTC | | x | | 230V | | | | | | | | x | |
| AKOTIM-21ATE | 12A(9) | | | 5(4)A | NTC | NTC | | x | | 230V | | | | | | | | x | |
| AKOTIM-21ARTE | 12A(9) | | | 5(4)A | NTC | NTC | | x | | 230V | | x | | | | | | x | |
| AKOTIM-21ARTEB | 12A(9) | | | 5(4)A | NTC | NTC | | x | | 230V | x | x | | | | | | x | |
| AKO-D14212 | 12A(9) | | | 8(4)A | NTC | NTC | | x | | 12V | | | | | x | | | | |
| AKO-D14220 | 12A(9) | | | 8(4)A | NTC | NTC | | x | | 120V | | | | | x | | | | |
| AKO-D14223 | 12A(9) | | | 8(4)A | NTC | NTC | | x | | 230V | | | | | x | | | | |
| AKO-10223 | 12A(9) | 8(4)A | | 8(4)A | NTC | NTC | NTC | x | x | 230V | | | | | | | x | | |
| AKO-D10223 | 12A(9) | 8(4)A | | 8(4)A | NTC | NTC | NTC | x | x | 230V | | | | | | | x | | |
| AKOTIM-22TE | 12A(9) | 8(4)A | | | NTC | NTC | NTC | x | | 230V | | | | | | | | x | |
| AKOTIM-22ATE | 12A(9) | 8(4)A | | 5(4)A | NTC | NTC | NTC | x | | 230V | | | | | | | | x | |
| AKOTIM-22ARTE | 12A(9) | 8(4)A | | 5(4)A | NTC | NTC | NTC | x | | 230V | | x | | | | | | x | |
| AKOTIM-22ARTEB | 12A(9) | 8(4)A | | 5(4)A | NTC | NTC | NTC | x | | 230V | x | x | | | | | | x | |
| AKO-D14312 | 12A(9) | | 5(4)A | 8(4)A | NTC | | NTC | x | | 12V | | | | | x | | | | |
| AKO-D14320 | 12A(9) | | 5(4)A | 8(4)A | NTC | | NTC | x | | 120V | | | | | x | | | | |
| AKO-D14323 | 12A(9) | | 5(4)A | 8(4)A | NTC | | NTC | x | | 230V | | | | | x | | | | |
| AKO-D14323-C | 12A(9) | | 5(4)A | 8(4)A | NTC | | NTC | x | | 90/240V | | | x | | x | | | | |
| AKO-D16323 | 12A(9) | 12A(9) | 5(4)A | | NTC | | NTC | x | x | 90/240V | | | | | | x | | | |
| AKO-10323 | 12A(9) | 8(4)A | 8(4)A | 8(4)A | NTC | | NTC | x | x | 230V | | | | | | | x | | |
| AKO-D10323 | 12A(9) | | 5(4)A | 8(4)A | NTC | | NTC | x | | 230V | | | | | | | x | | |
| AKO-14632 | 12A(9) | 10A | 5(4)A | | NTC | | NTC | x | | 230V | | | | | | | | | x |
| AKO-D14412 | 5(4)A | 5(4)A | 5(4)A | 5(4)A | NTC | | NTC | x | | 12V | | | | | x | | | | |
| AKO-D14412-RC | 5(4)A | 5(4)A | 5(4)A | 5(4)A | NTC | | NTC | x | | 12V | | x | x | | x | | | | |
| AKO-D14423 | 5(4)A | 5(4)A | 5(4)A | 5(4)A | NTC | | NTC | x | x | 230V | | | | | | | | x | |
| AKO-D14423-RC | 5(4)A | 5(4)A | 5(4)A | 5(4)A | NTC | | NTC | x | x | 90/240V | | x | x | | x | | | | |
| AKO-14642 | 12(9)A | 8(4)A | 5(4)A | 5(4)A | NTC | NTC | NTC | x | | 230V | | | | | | | | | x |
| AKOTIM-23TE | 12(9)A | 8(4)A | 5(4)A | | NTC | NTC | NTC | x | | 230V | | | | | | | | x | |
| AKOTIM-23ATE | 12(9)A | 8(4)A | 5(4)A | 5(4)A | NTC | NTC | NTC | x | | 230V | | | | | | | | x | |
| AKOTIM-23ARTE | 12(9)A | 8(4)A | 5(4)A | 5(4)A | NTC | NTC | NTC | x | | 230V | | x | | | | | | x | |
| AKOTIM-23ARTEB | 12(9)A | 8(4)A | 5(4)A | 5(4)A | NTC | NTC | NTC | x | | 230V | x | x | | | | | | x | |

# Application Scope

| | | |
|---|---|---|
| Bottle Cooler | Food Showcase | Wine Installations |
| Crystalised | Food Tables | Food Cabinets |
| Blast Cabinet | Food Self Services | Dishes Showcase |
| Market Showcase | Wall Cabinet | Modular Cabinets |
| Modular Cool Rooms <10m3 | Modular Cool Rooms >10m3 | Food Chest Coolers |
| Central Hills Coolers | Thermolabile Coolers | **Darwin** AKO-D14023/D14323 Pág.20 **Thermometer** AKO-13012 Pág.19 **CAMRegis** AKO-15762/16767 Pág.45 |

# Thermostats and thermometers Range from -50 ºC to +99 ºC, panel mounting, small format

**Small dimensions 66 x 32 x 56 mm.**

LThe dimensions of the panel cut-out make them exchangeable with traditional mechanical thermometers, by also integrating the thermostat and defrost clock function in a single unit. Programmable for cold and heat. Defrost by compressor stop. Possible password for entering programming, indication in °C or °F programme selectable and probe calibration.

**Application:** Industrial and commercial cold, displays, cabinets, etc.

- Temperature range -50 ºC to +99 ºC
- 2 Display digits  (ºC/ºF)
- Resolution  1 ºC
- Precision  ±1 ºC
- NTC Probe
- Panel cut-out dimensions 25,4 x 58 mm
- Front dimensions 32 x 66 mm
- Depth 51 mm
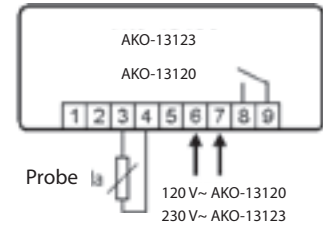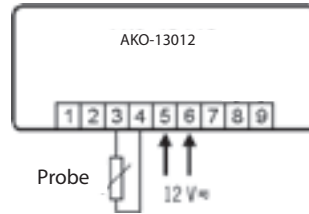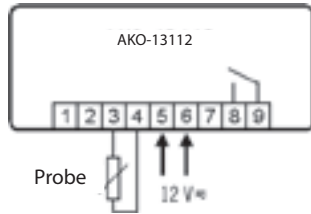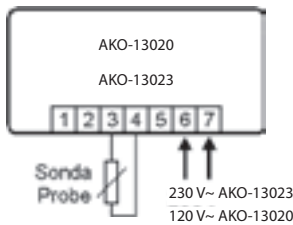
| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-13012 | 12 V≈, ºC / ºF probe NTC 1,5 m included | 1510 | 12 Unit |
| AKO-13020 | 120 V~, ºC / ºF probe NTC 1,5 m included | 1510 | 12 Unit |
| AKO-13023 | 230 V~, ºC / ºF probe NTC 1,5 m included | 1510 | 12 Unit |
| AKO-13112 | 12V≈, SPST relay 16 A, probe NTC included | 1510 | 12 Unit |
| AKO-13120 | 120V~, SPST relay 16 A, probe NTC included | 1510 | 12 Unit |
| AKO-13123 | 230V~, SPST relay 16 A, probe NTC included | 1510 | 12 Unit |

# Thermometers Range from -50 ºC to +150 ºC, panel mounting

**Temperature display.**

Temperature display in °C or °F with decimal point. NTC/PTC probe selectable byprogramme. Allows probe calibration. A single button for adjusting parameters.

The AKO-14023-C model has integrated RS-485 communication.

**Application:** Industrial and commercial refrigeration, displays, incubators, vehicles
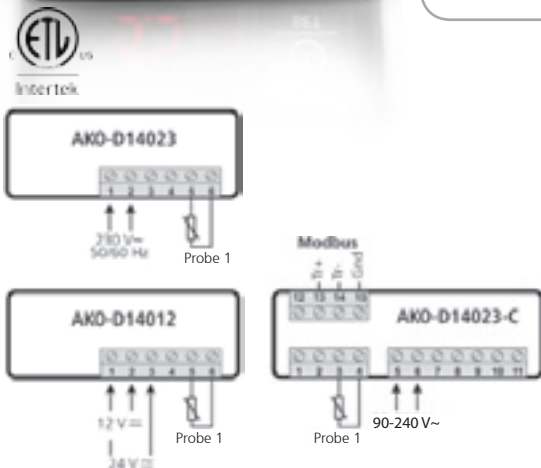
- With NTC probe, temperature range from -50.0 ºC to +99.9 ºC
- With PTC probe, temperature range from -50.0 ºC to+150 ºC
- 3-digit display (ºC/ºF)
- Resolution 0,1 ºC
- Accuracy ±1 ºC
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions79 x 38 mm
- Depth  43 mm (AKO-D14012 y AKO-D14023)
- Depth  61 mm (AKO-D14023-C)

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-D14012 | 12/24 V≈, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14023 | 230 V~, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14023-C | 90-240 V~, with communication, 1 NTC probe included | 1510 | 12 Units |

# Thermostats Range from -50ºC to +150 ºC, 1 relay output, panel mounting



**Programmable for cold and heat.**

Programmable for cold and heat. Display and control in °C and °F with decimal-point. NTC/PTC probe selectable by programme. Possible password protection for configuration. Defrost by compressor shutdown.

Configuration wizard depending on application (8 configurations).

**Application:** Industrial and commercial refrigeration, displays, incubators, vehicles
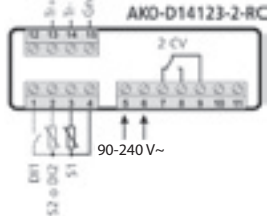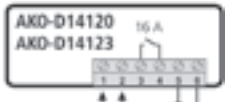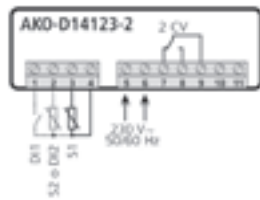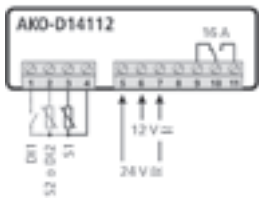
- With NTC probe, temperature range from -50.0 ºC to +99.9 ºC
- With PTC probe, temperature range from -50.0 ºC to +150 ºC
- 3 digits Display (ºC/º F)
- Resolution 0,1 ºC
- Accuracy ±1 ºC
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions79 x 38 mm
- Depth 43 mm (AKO-D14120 y AKO-D14123)
- Depth 61 mm (AKO-D14112 y AKO-D14123-2-RC)
- Compressor relay SPST 16 A: AC1=12, AC3=9 (AKO-D1412x)
- Compressor relay SPDT 2 CV: AC1=16, AC3=10 (AKO-D14123-2, AKO-D14123-2-RC)
- Compressor relay SPDT 16 A: AC1=12, AC3=9 (AKO-D14112)

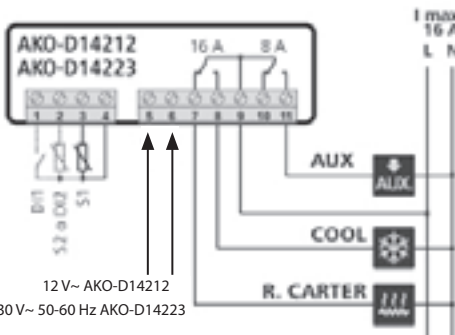| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-D14112 | 12/24 V≈, 1 SPDT relay 16 A, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14120 | 120 V~, 1 SPST 16 A, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14123 | 230 V~, 1 SPST relay 16 A, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14123-2 | 230 V~, 1 SPDT relay 2 CV, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14123-2-RC | 90-240 V~, 1 SPDT relay 2 CV, communication, 1 NTC probe included | 1510 | 12 Units |

# Temperature controller Range from -50 ºC to +99 ºC, 2 relays, panel mounting



**Compressor and auxiliary relay (defrost or fans).**

Auxiliary relay function programmable as Defrost, Fans, Alarm or Light. A 2nd optional probe allows ending the defrost process by temperature. Programmable digital inputs such as door, switch, external alarm, remote defrost, energy saving or continuous cycle. Configuration wizard depending on application (8 configurations).

**Application:** Industrial and commercial refrigeration, display cabinets, electrical

- Temperature range from -50.0 ºC to +99.9 ºC
- 3 Digits display (ºC/ºF)
- Resolution 0,1 ºC
- Accuracy ±1 ºC
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 61 mm
- Compressor relay SPDT 16 A: AC1=12, AC3=9
- Aux relay SPDT 8 A: AC1=8, AC3=4

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-D14212 | 12 V≈, 2 relays , 1 NTC probe included | 1510 | 12 Units |
| AKO-D14223 | 230 V~, 2 relays, 1 NTC probe included | 1510 | 12 Units |

**AKO**Control

# Temperature controllers Range from -50,0 ºC to +99,9 ºC, 3 relays, panel mounting



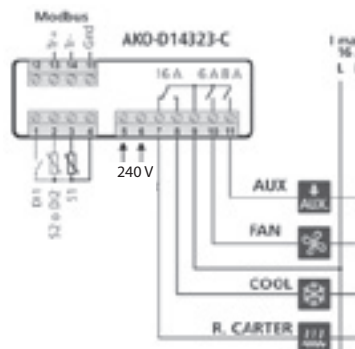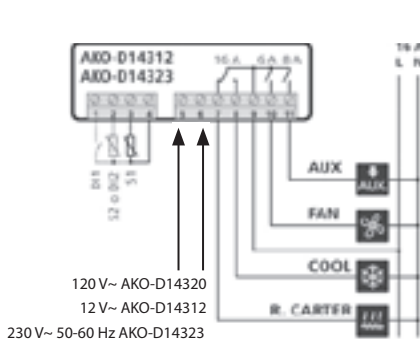**Compressor, fan and auxiliary relay.**

Auxiliary relay programmable as Defrost, Alarm or Light. Defrosts programmable by controlling compressor, resistances (or cycle reversal) and fans. A optional probe allows defrosting by temperature. Programmable digital inputs such as door switch, external alarm, remote defrost, energy saving or continuous cycle.

Configuration wizard depending on application (8 configurations). The AKO-14323-C model has integrated RS-485 communication.

**Application:** Industrial and commercial refrigeration, display cabinets, electrical panels, etc.



120 V~ AKO-D14320
12 V~ AKO-D14312
230 V~ 50-60 Hz AKO-D14323



240 V

- Temperature range  -50.0 ºC to +99.9 ºC
- Temperature Range (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy ±1 ºC
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions79 x 38 mm
- Depth 61 mm
- Compressor relay SPDT 16 A:  AC1=12, AC3=9
- Aux relay SPST 8 A:  AC1=8, AC3=4
- Fan relay SPST 6 A:  AC1=5, AC3=4

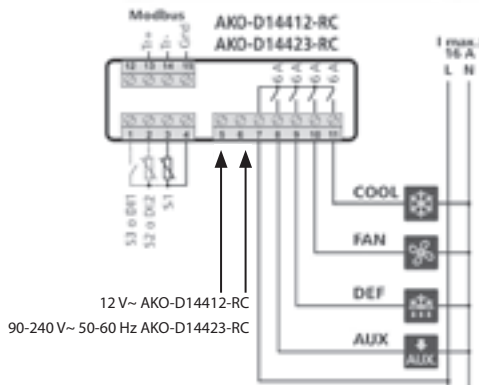| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-D14312 | 12 V≈, 3 relays, 1 NTC probe included | 1510 | 12  Units |
| AKO-D14320 | 120 V~, 3 relays,1 NTC probe included | 1510 | 12  Units |
| AKO-D14323 | 230 V~, 3 relays, 1 NTC probe includeda | 1510 | 12  Units |
| AKO-D14323-C | 90-240 V~,3 relays, communication, 1 NTC probe included | 1510 | 12  Units |

# Temperature controller Range from -50 ºC to +99 ºC, 4 relays



**Compressor and auxiliary relay (defrost or fans).**

Auxiliary relay programmable as an alarm, 2nd defrost, gas collection or light. Defrost by heat, air or cycle reversal, programmable by controlling compressor, resistances (or cycle reversal) and fans. Real-time clock for starting defrosts. A 2nd optional probe allows defrosting by temperature. Programmable digital inputs such as door switch, external alarm, remote defrost, energy saving or continuous cycle. Integrated RS-485 communications. Configuration wizard depending on application (8 configurations). (8 configurations) for AKO-D14412-RC and AKO-D14423-RC devices.

**Application:** Industrial and commercial refrigeration, display cabinets, electrical



12 V~ AKO-D14412-RC
90-240 V~ 50-60 Hz AKO-D14423-RC

- Temperature range from -50.0 ºC to +99.9 ºC
- 3 Digits display (°C/°F)
- Resolution 0.1 °C
- Accuracy ±1 °C
- Panel cut-out dimensions 71 x 29 mm
- Front panel dimensions 79 x 38 mm
- Depth 61 mm

- Compressor relay SPST 6A:  AC1=5, AC3=4
- Fan relay SPST 6A:  AC1=5, AC3=4
- Defrost relay SPST 6A:  AC1=5, AC3=4
- Aux relay SPST 6A:  AC1=5, AC3=4

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-D14412 | 12 V≈, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14423 | 90-240 V~,1 NTC probe included | 1510 | 12 Units |
| AKO-D14412-RC | 12 V≈, 4 relays, communication + real time clock, 1 NTC probe included | 1510 | 12 Units |
| AKO-D14423-RC | 90-240 V~, 4 relays, with communication and clock, 1 NTC probe included | 1510 | 12 Units |

# Temperature controllers Range from -50.0 ºC to +99.9 ºC, 3 relays, panel mounting
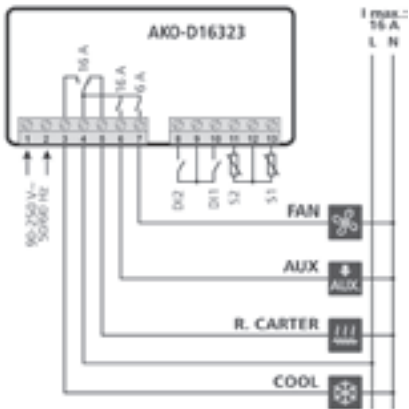
**Large display. Relay for compressor, fans and defrost.**

Defrosts programmable by controlling compressor, resistances (or cycle reversal) and fans. A 2nd optional probe allows defrosting by temperature. Auxiliary relay programmable as Defrost, Alarm or Light. Programmable digital inputs such as door switch, external alarm, remote defrost, energy saving or continuous cycle. Configuration wizard depending on application (8 configurations).

**Application:** Industrial and commercial refrigeration

- Temperature range -50 ºC to +99 ºC
- 2 digits Display (ºC/ºF)
- Resolution: 0,1 ºC on range -9,9 to 9,9 ºC (1 ºC in other range)
- Type of probe NTC
- Panel cut-out size124 x 85 mm
- Front panel dimensions139 x 100 mm
- Depth 40 mm
- Compressor relay SPDT 16 A: AC1=12, AC3=9
- Aux relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4

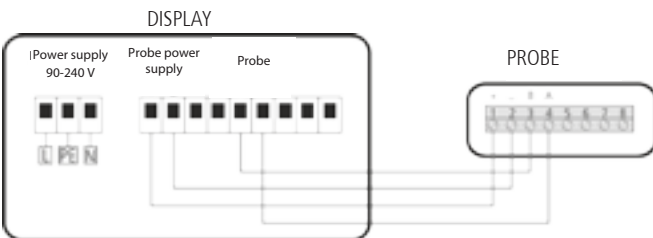| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-D16323 | 90-240 V~, 3 relays, 1 NTC probe included | 1512 | 12 Units |

# GRANVis Display of temperature and humidity

**Display of temperature and humidity for installation in buildings and public premises.**

Fast and easy installation, perfect visibility trought display and 3 digits of 100 mm in size allowing goog read up to 50 m included probe.

**Application:** Small's supermarkets, sports centers, restaurants, bus stations, train stations, airports, etc..

- Temperature range -9 ºC to +60 ºC
- 3 digits display (ºC/ºF)
- Temperature accuracy 0,5 %
- Humidity accuracy2 % (10 up to 90 %)
- Front panel dimensions 482 x 368 mm
- Depth 41 mm
- Power supply 90-240 V

DISPLAY

Power supply 90-240 V    Probe power supply    Probe

PROBE

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-D17023 | GRANVis display of temperature and humidity | 1510 | 1 Units |

# Thermostat and Thermometer Range from -50 ºC to +99 ºC, wall mounting



**Programmable temperature display for cold and heat.**

Dislay and control in °C and °F. Possibility of blocking parameters. Defrost by compressor shutdown. NTC probe included in the kit, extendable with AKO-15586. Fixing holes suitable for universal recessed box.

**Application:** Industrial and commercial refrigeration, displays, cabinets, incubators, vehicles, etc...

- Temperature range  -50 ºC to +99 ºC
- 2 digits display (ºC/ºF)
- Resolution 1 ºC
- Accuracy ±1 ºC
- Dimensions 80 x 120 x 37 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
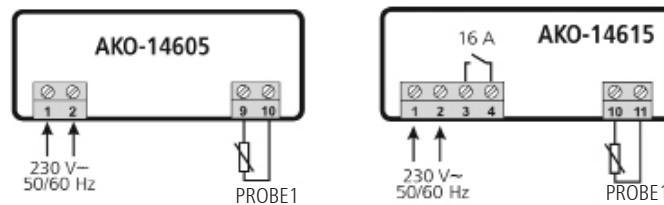


| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-14605 | 230 V~, 1 NTC probe included | 1510 | 12 Units |
| AKO-14615 | 230 V~, 1 relay SPST 16A, 1 NTC probe included | 1510 | 12 Units |

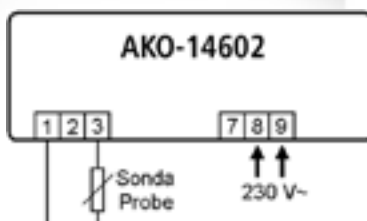# Thermometers Range from -50 ºC to +150 ºC, wall mounting



**Sonda NTC o PTC seleccionable por programa.**

Temperature display in cold and heat applications. Allows probe calibration, display in °C or °F and password to enter programming. Fixing holes adapted to universal embedding box.

**Application:** Industrial and commercial cold, cold rooms, industrial warehouses, etc.

- NTC probe temperature range -50.0 ºC to +99.9 ºC
- PTC temperature range -50.0 ºC to +150 ºC
- 3 digits display (ºC/ºF)
- Resolution 0,1 ºC

- Accuracy ±1 ºC
- Box dimensions 171 x 94 x 42 mm
- Powe supply 230 V~ ±10%, 50/60 Hz



| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-14602 | Thermometer 230 V~, 1 NTC probe included | 1510 | 10 Units |

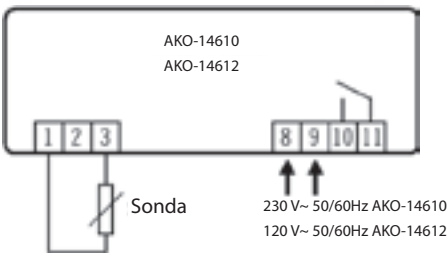# Temperature controllers  Range from -50 ºC to +150 ºC, 1 output relay, wall mounting

**Programmable for cold and heat.**

NTC or PTC probe programme-selectable. Display and control with decimal point. Wall mounting. Fixing holes adapted to universal embedding box. Parameter protection by password. Indication in °C o °F.

**Application:**  Industrial and commercial cold, cold rooms stores, incubators, industrial warehouses, etc.

- NTC probe temperature range -50.0 ºC to +99.9 ºC
- PTC probe temperature tange -50.0 ºC to +150 ºC
- 3 digits display (ºC/ºF)
- Resolution 0,1 ºC

- Accuracy ±1 ºC
- Box dimensions 171 x 94 x 42 mm
- Control relay SPST 16 A: AC1=12, AC3=9

AKO-14610
AKO-14612

Sonda    230 V~ 50/60Hz AKO-14610
120 V~ 50/60Hz AKO-14612

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-14610 | Controller 230 V~, 1 SPST relay, 1 NTC probe included | 1510 | 10 Units |
| AKO-14612 | Controller  120 V~, 1 SPST relay, 1 NTC probe included | 1510 | 10 Units |

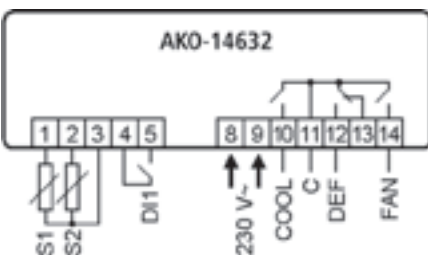# Temperature controllers Range from -50 ºC to +99 ºC, 3 relays, wall mounting

**Defrost by electric heat, air or hot gas bypass.**

Programmable defrost by regulating the compressor, resistances (or hot gas bypass) and fans. With a 2nd optional probe, it enables defrost by temperature. Password enabled for entering the programming. Indication in °C o °F selectable by programme and probe calibration.

**Application:** Industrial and commercial cold, cold room stores, etc.

- Temperature range -50.0 ºC to +99.9 ºC
- 3 digits display (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy  ±1 ºC
- NTC probe
- Box dimensions 171 x 94 x 42 mm

- Digital input for door contact
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 16 A: AC1=5, AC3=4
- Defrost relay SPDT 16 A: AC1=8, AC3=4
- Power supply  230 V~ ±10%,50/60 Hz

AKO-14632

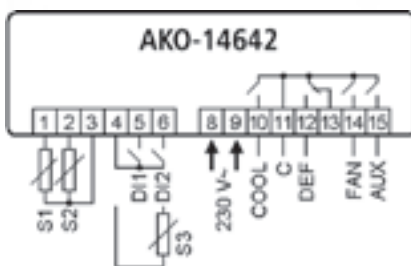| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-14632 | Controller 230 V~, 3 relays, 1 NTC probe included | 1510 | 10 Units |

# Temperature controllers Range from -50 ºC to +99 ºC, 4 relays, wall mounting

**Configurable auxiliary relay.**

Defrost by electric heat, air or hot gas bypass, programmable by regulating the compressor, resistances (or hot gas bypass) and fans. With a 2nd optional probe, it enables defrost by temperature. Auxiliary relay configurable for indicating alarms, defrost 2nd evaporator or solenoid control. Possible stop for pump down. Input for independent temperature probe or defrost control in 2nd evaporator. Digital input for door contact.

**Application:** Industrial and commercial cold, cold room stores, etc.

- Temperature range -50.0 ºC to +99.9 ºC
- Display 3 Digits (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy  ±1 ºC
- NTC probe
- Box dimensions 171 x 94 x 42 mm

- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4
- Defros relay SPDT 8 A: AC1=8, AC3=4
- Aux relay SPST 6 A: AC1=5, AC3=4
- Power supply 230V~ ±10%, 50/60 Hz

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-14642 | Controller 230 V~, 4 relays, 1 NTC probe included | 1510 | 10 Units |

# Large frontal temperature controllers  2,3 and 4 relays, panel mounting

**Compressor and light relay.**

6 keys: Up, Down, Set, Escape, Light and ON/OFF. Pushbutton to turn the unit on and off and light switch. Defrost by compressor shutdown. Continuous cycle is possible. Password enabled for enter-ing programming, programme-selectable indication in °C o °F Digital input configurable for door contact, severe alarm, remote defrost, change in set-point temperature.

**Application:** Industrial and commercial cold, cold room stores, etc.
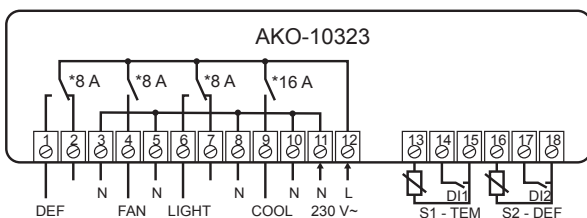
- Temperature range -50 ºC to +99 ºC
- 3 digits display (ºC/ºF)
- Resolution 0,1 ºC
- Accuracy ±1  ºC
- NTC probe
- Panel cut-out dimensions 150 x 31 mm
- Box dimensions 149 x 30 x 57,7 mm
- Frame 174 x 34 mm
- Compressor relay SPST 16 A: AC1=16, AC3=10
- Light relay  SPDT 8 A: AC1=8, AC3=4
- Defrost relay SPDT 8 A: AC1=8, AC3=4 (solo AKO-10223 y AKO-10323)
- Fans relay  SPDT 8 A: AC1=8, AC3=4 (only AKO-10223 and AKO-10323)
- Power supply 230 V~ ±10%, 50/60 Hz

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-10123 | Controlller 1 control relay + light relay 230 V~ | 1510 | 10 Units |
| AKO-10223 | Controlller 2  control relay + light relay 230 V~ | 1510 | 10 Units |
| AKO-10323 | Controlller 3  control relay +light relay 230 V~ | 1510 | 10 Units |

# Extended panel temperature controllers 1,2,3, relays, panel mounting



**Compressor relay, auxiliary and fans (3 relays controls only).**

Auxiliary relay programmable as defrost, alarm or light. Programmable defrost controlling compressor, electric heat (or inverted cycle) and fans. With a 2nd optional probe it enable defrost by temperature. Configurable digital input for door contact, external alarm, remote defrost, energy (saving) or contiunous cycle.

Assistant to put on service (8 settings). It incorporates two switches for auxiliary functions ideal for controlling furniture on/off, lights, etc.

**Application:** Industrial and commercial cold, displays, electric panels, etc.
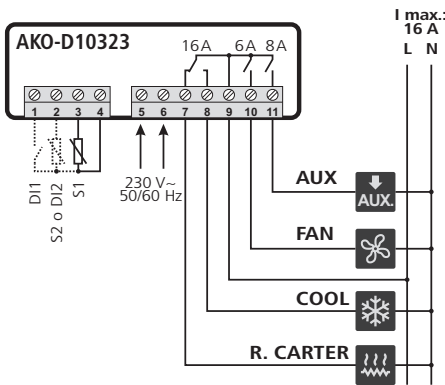


- Temperature range -50 ºC to +99 ºC
- Temperature range (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy  ±1 ºC
- NTC probe
- Panel cut-out dimensions 136 x 29 mm
- Box dimensions 70 x 61 x 28,5 mm
- Frame 181 x 38 mm
- Compressor relay SPST 16 A: AC1=16, AC3=10
- Light relay  SPDT 8 A: AC1=8, AC3=4
- Aux relay  SPST 8 A: AC1=8, AC3=4
- Fans relay SPST 6 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-D10123 | Controller 1 control relay + light switch and on/off 230 V~ | 1510 | 10 Units |
| AKO-D10223 | Controller 2 control relay + light switch and on/off 230 V~ | 1510 | 10 Units |
| AKO-D10323 | Controller 3 control relay + light switch and on/off 230 V~ | 1510 | 10 Units |

# Thermometers Range from -50 ºC to +70 ºC, panel mounting



AKO-80032

**Battery thermometers.**

Temperature display in cold and heat applications.

**Application:** Industrial and commercial cold, displays.

- Temperature range -50 ºC to +70 ºC
- LCD display
- Resolution  0,1 ºC
- Accuracy ±1 ºC
- Battery power supply 1,5 V (G10)
- Dimensions AKO-80025  48 x 28,6 x 14 mm
- Dimensions AKO-80032  85,2 x 29,2 x 14,8 mm



AKO-80025

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-80025 | 1,5 V Batteries (G10), probe 3 m | 1510 | 25 Units |
| AKO-80032 | Solar power supply + 1,5 V batteries (G10), probe 2 m | 1510 | 25 Units |

# Temperature controllers   Range from -99,9 ºC to +1370 ºC, 48 x 48 format

**Input for Pt100 probe, J and K thermocouple.**

ON/OFF Control. Programmable for cold and heat. With the 2 outputs, the controller can be used to work as a stage plus alarm.

**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with Pt100 probe -99,9ºC to +850,0 ºC
- Temperature range with thermocouple J -99,9 ºC to +800,0 ºC
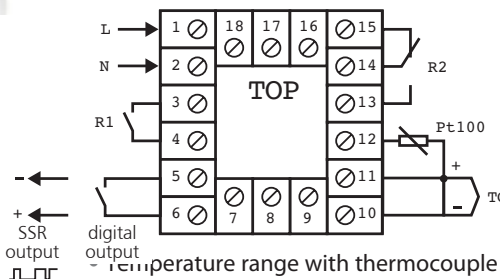
K -99,9 ºC to +1370 ºC
- Resolution 0,1 ºC
- Accuracy  ±1 ºC
- 4 Digits display (ºC/ºF)
- Control output SSR 12 Vdc, max. 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions  45 x 45 mm
- Depth  119 mm
- R1 SPST relay 6 A, 250 V, cos∞= 1
- Relé R2 SPDT 5 A, 250 V, cos∞= 1

- Temperature range with thermocouple

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-15440 | Controller ON/OFF power supply from 20 up to 48 V≈ | 1535 | 1 Unit |
| AKO-15490 | Controller ON/OFF power supply from 100 up to 240 V~ | 1535 | 1 Unit |

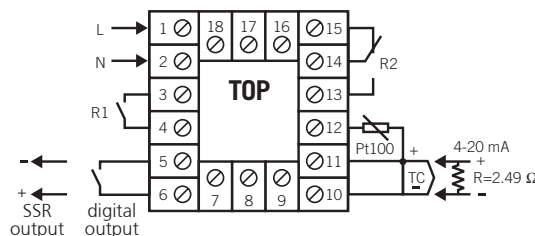# PID controller, 48 x 48 format Range from -99,9 ºC up to +1370 ºC

**Input for Pt100 probe, Thermocouple J and K, 4-20mA**

Programmable for cold and heat. Controller PID or ON/OFF programme-selectable. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20mA. With the 2 outputs, the controller can be used to work as a stage plus alarm. Digital input configurable for SetPoint change or start-stop of the unit.

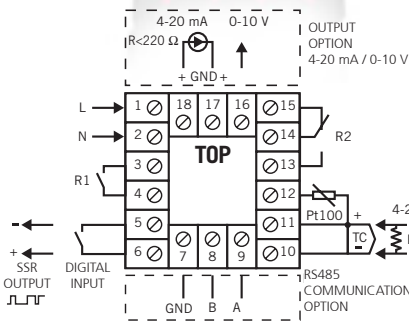**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range probe Pt100 -99,9ºC to +850,0 ºC
- Temperature range wit termocouple J -99,9 ºC to +800,0 ºC

- Temperature range with termocouple K -99,9 ºC to +1370 ºC
- Temperature range with termocouple 4-20mA -999 ºC to +2500 ºC
- Resolution  0,1 ºC
- Accuracy  ±1 ºC
- Display 4 Digits (ºC/ºF)
- SSR control output 12 Vdc, max. 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth  119 mm
- R1 relay SPST 6 A, 250 V, cos∞= 1
- R2 relay SPDT 5 A, 250 V, cos∞= 1

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-15400 | Controller with power supply from 20 up to 48 V≈ | 1535 | 1 Unit |
| AKO-15450 | Controlador con alimentación from 100 up to 240 V~ | 1535 | 1 Unit |

# PID controller, 48 x 48 format Range -99,9 ºC to +1370 ºC, output 4-20 mA/0-10 V



**With 4-20mA/0-10V output.**

Programmable for cold and heat. Controller PID or ON/OFF programme-selec-table. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20 mA. With the 2 outputs, the controller can be used to work as a stage plus alarm. With the 4-20 mA/0-10V output option, we have an analogue output to govern a valve or to resend the signal to a variator or PLC.

With the RS-485 communication option, the unit can be connected to a network working with ModBus protocol.

**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with probe Pt100
-99,9 ºC to +850,0 ºC
- Temperature range with probe thermocouple J
-99,9 ºC to +800,0 ºC
- Temperature range with probe thermocouple K
-99,9 ºC to +1370 ºC
- Temperature range with 4-20 mA
-999 ºC to +2500 ºC

- Resolución 0,1 ºC
- Precisión ±1 ºC
- Visualización 4 Dígitos (ºC/ºF)
- Salida control SSR 12 Vdc, máximo 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 relay SPST 6 A, 250 V, cos∞= 1
- R2 SPDT 5 A, 250 V, cos∞= 1

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-15430 | 20 to 48 V≈, with 4-20 mA | 1535 | 1 Unit* |
| AKO-15437 | 20 to 48 V≈, with 4-20 mA output and communication | 1535 | 1 Unit* |
| AKO-15480 | 100 to 240 V~, with 4-20 mA output and communication | 1535 | 1 Unit. |
| AKO-15487 | 100 to 240 V~, with 4-20 mA output and communication | 1535 | 1 Unit. |

*Available on request

# PID controller, 48 x 48 format 48 x 48 Range from -99,9 ºC to +1370 ºC, 3 relays
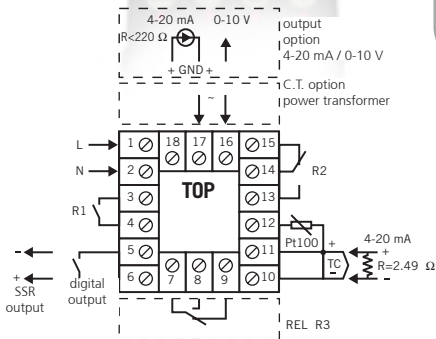


**With additional relay output.**

Programmable for cold and heat. Controller PID or ON/OFF programme-select-able. Self-tuning function. Probe input configurable as Pt100, thermocouple J and K, 4-20 mA. Digital input configurable for SetPoint change or start-stop of the unit. With the 3 outputs, the controller can operate as a two stage, a neutral zone, with alarm signalling. With the 4-20 mA/0-10V output option, we have an analogue output to govern a valve or to resend the signal to a variator or PLC. With the option of an input for current transformer (C.T.) the breakage of the heating resistance can be detected.
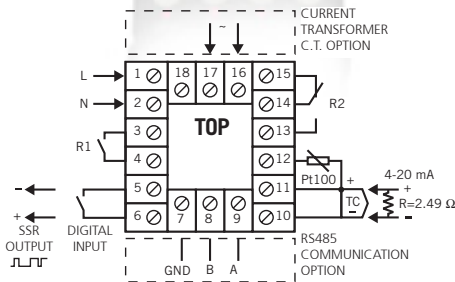
**Application:** Ovens, electrical panels, industrial installations, etc.

- Temperature range with probe Pt100
-99,9 ºC a +850,0 ºC
- Temperature range with thermocouple J
-99,9 ºC to +800,0 ºC
- Temperature range with thermocouple K
-99,9 ºC to +1370 ºC
- Temperature range with 4-20 mA
-999 ºC to +2500 ºC
- Resolution 0,1 ºC , Accuracy ±1 ºC

- 4 Digits display (ºC/ºF)
- Output control SSR 12 Vdc, maximum 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depht 119 mm
- R1 relay SPST 6 A, 250V, cos∞= 1
- R2 relay SPDT 5 A, 250V, cos∞= 1
- R3 relay SPDT 5 A, 250V, cos∞= 1

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-15410 | 20 to 48 V≈, relay 3 SPDT 5 A | 1535 | 1 Unit* |
| AKO-15413 | 20 to 48 V≈, relay 3 SPDT 5 A, with 4-20 mA output | 1535 | 1 Unit* |
| AKO-15415 | 20 to 48 V≈, relay 3 SPDT 5 A, wit input for C.T. | 1535 | 1 Unit* |
| AKO-15460 | 100 to 240 V~, relay 3 SPDT 5 A | 1535 | 1 Unit. |
| AKO-15463 | 100 to 240 V~, relay 3 SPDT 5 A, with output 4-20 mA | 1535 | 1 Unit. |
| AKO-15465 | 100 to 240 V~, relay 3 SPDT 5 A, with output for C.T. | 1535 | 1 Unit* |
| AKO-80033 | Intensity transformer (CT) 25 A/0,05 A | 1590 | 25 Units |

*Available on request

# Control PID, formato 48 x 48 with RS485 communication

- Temperature range with probe Pt100 -99,9 ºC to +850,0 ºC
- Temperature range with thermocouple J -99,9 ºC to +800,0 ºC
- Temperature range with thermocouple K -99,9 ºC to +1370 ºC
- Temperature range with 4-20 mA -999 ºC to +2500 ºC

- Resolution 0,1 ºC / Accuracy ±1 ºC
- 4 Digits display (ºC/ºF)
- Ouput control SSR 12 Vdc, max 10 mA
- Front part dimensions 48 x 48 mm
- Panel cut-out dimensions 45 x 45 mm
- Depth 119 mm
- R1 relay SPST 6 A, 250 V, cos∞= 1
- R2 relay SPDT 5 A, 250 V, cos∞= 1

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-15401 | 20 to 48 V≈, with input for C.T. | 1535 | 1 Unit* |
| AKO-15402 | 20 to 48 V≈, with communication | 1535 | 1 Unit* |
| AKO-15403 | 20 to 48 V≈, with input C.T. y comunicación | 1535 | 1 Unit* |
| AKO-15451 | 100 to 240 V~, with input C.T. | 1535 | 1 Unit* |
| AKO-15452 | 100 to 240 V~, with communication | 1535 | 1 Unit |
| AKO-15453 | 100 to 240 V~, with input C.T. and communication | 1535 | 1 Unit* |
| AKO-80033 | Intensity transformer (C.T.) 25 A/0,05 A | 1590 | 25 Units |

* Available on request

# Input controllers 4/20 mA Range from -50,0 ºC to +600 ºC, 2 relays, panel mounting
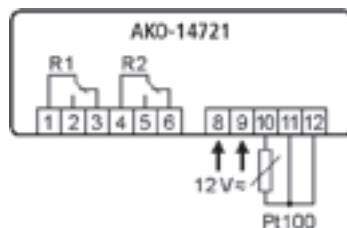
- Temperature range -50 ºC to +600 ºC
- 3 digits display
- Resolution1 ºC
- Accuracy ±0,5 ºC
- Pt100 probe
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- Control relay 2 SPDT 8 A, 250 V, cos∞= 1
- Power supply 12 V~ ±15%, 50/60 Hz

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-14721 | 12 V≈, Pt-100 probe no included | 1530 | 12 Units |

# Temperature or humidity controllers 2 relays output, panel mounting

**Input for Pt100, NTC, PTC probes, J and K thermocouple, 4-20 mA**

Programmable for cold and heat.

With the 2 relay outputs, the controller can be used to work as 2 independent stages, 2 related stages, neutral zone and one stage plus alarm.

Digital input for SetPoint change.

**Application** Ovens, electric panels, industrial installations, incubators, etc.

- Temperature range with probe Pt100 -100 ºC to +440 ºC
- Temperature range with probe NTC -50 ºC to +100 ºC
- Temperature range with probe PTC -50 ºC to +150 ºC
- Range 4-20 mA from -999 to + 999
- Temperature range with thermocouple J 0 ºC to +600 ºC
- Temperature range with thermocouple K 0 ºC to +1000 ºC
- Resolution 0,1 ºC (1 ºC for thermocouples J, K)
- Accuracy ±1 ºC (±2 ºC for thermocouples J, K)
- 3 Digits display (ºC/ºF)
- Panel cut-out dimensions 71 x 29 mm
- Front part dimensions 79 x 38 mm
- Depth 61 mm
- Control relay 1, 8 A SPST-SPDT: AC1=8, AC3=4
- Control relay 2, 8 A SPDT: AC1=8, AC3=4

**AKO-D14724/6/6-C**

Modbus*
Tr+ Tr- Gnd
12 13 14 15
8 A    8 A
1 2 3 4   5 6 7 8 9 10 11
Pt100          R2 | R1
NTC
PTC
TC +
12 V= ..........................**AKO-D14724**
230 V~ 50/60 Hz............**AKO-D14726**
90-240 V~ 50/60 Hz.......**AKO-D14726-C**
4-20mA          digital input

*depending reference

**AKO-D14727/9/9-C**

Modbus*
Tr+ Tr- Gnd
12 13 14 15
8 A    8 A
1 2 3 4   5 6 7 8 9 10 11
Pt100          R2 | R1
NTC
PTC
TC +
12 V= ..........................**AKO-D14727**
120 V~ 50/60 Hz............**AKO-D14728**
230 V~ 50/60 Hz............**AKO-D14729**
90-240 V~ 50/60 Hz.......**AKO-D14729-C**
4-20mA          digital input

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-D14724 | 12 V≈, temperature or humidity controller | 1530 | 12 Units |
| AKO-D14726 | 230 V~, temperature or humidity controller | 1530 | 12 Units |
| AKO-D14726-C | 90-240 V~, temperature or humidity controller + communication | 1530 | 12 Units |
| AKO-D14728 | 12 V≈, temperature or humidity controller | 1530 | 12 Units |
| AKO-D14729 | 230 V~, temperature or humidity controller | 1530 | 12 Units |
| AKO-D14729-C | 90-240 V~, temperature or humidity controller + communication | 1530 | 12 Units |

# Temperature controllers   Range from -99,9 ºC to +999 ºC, 2 relays, DIN rail mounting

**Input for Pt100, NTC, PTC probes, J and K thermocouple.**

With the 2 relay outputs, the controller can be used to work as 2 independent stages, 2 related stages, neutral zone and one stage plus alarm. Digital input for SetPoint change.
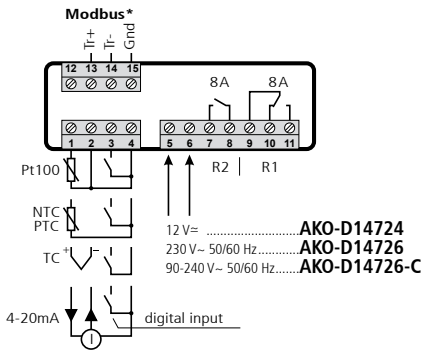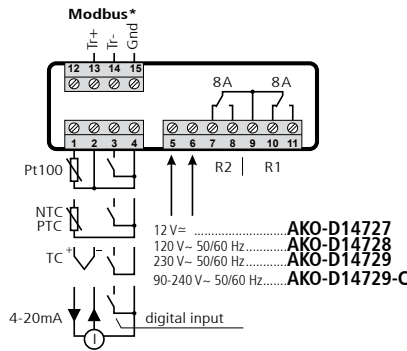
**Application:** Ovens, electric panels, industrial installations, incubators, etc.

- Temperature range wit probe Pt100 -100 ºC to +440 ºC
- Temperature range wit probe NTC -50 ºC to +100 ºC
- Temperature range wit probe PTC -50 ºC to +100 ºC

- Temperature range wit thermocouple J 0 ºC a +600 ºC
- Temperature range wit thermocouple  K 0 ºC a + 999 ºC
- Display 3 Digits (ºC/ºF)
- Resolution 0,1 ºC (1 ºC for thermocouples, J, K)
- Accuracy  ±1 ºC (±2 ºC for thermocouples, J, K)
- Box dimensions 70 x 90 x 58 mm (4 DIN modules)
- Front part dimensions 42,2 x 66,2 mm
- Control relays 2 SPDT 8 A: AC1=8, AC3=4
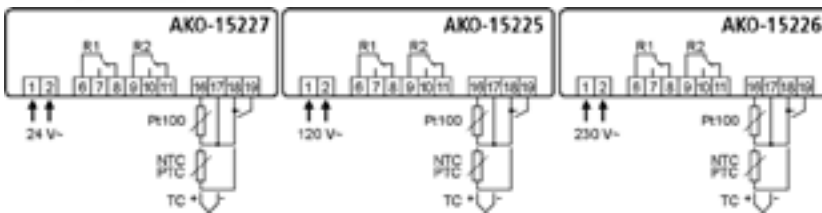
| Referencie | Description | Family | Pack |
|---|---|---|---|
| AKO-15227 | 24 V≈, for DIN rail 4 modules, 70 x 58 x 90 mm | 1530 | 6 Units |
| AKO-15225 | 120 V~, for DIN rail 4 modules, 70 x 58 x 90 mm | 1530 | 6 Units |
| AKO-15226 | 230 V~, for DIN rail 4 modules, 70 x 58 x 90 mm | 1530 | 6 Units |

# Solar energy controllers Differential thermostat 2 relays, wall mounting

**Pump controls, support resistance or air-thermal.**

Input for 2 probes. Probe 1 configurable as NTC or PTC, probe 2 NTC. De-icing function. Second relay programmable as air-thermal regulating function to limit the temperature in the solar panel or thermostat function for the support resistance in the accumulator. Parameter protection by password. Test pushbuttons. Low consumption. Fixing holes adapted to universal embedding box.

**Application:** Thermal solar energy installations

- With NTC probe, temperature range from -50.0 ºC to +99.9 ºC
- With PTC probe, temperature range from -50.0 ºC to +150 ºC
- 3 digits display (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy  ±1 ºC
- Box dimensions 171 x 94 x 42 mm
- Pump relay SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4
- Power supply  230V~ ±10%,50/60 Hz
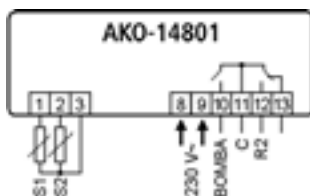
| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-14801 | Controller 230 V~, 2 relays, 1 NTC probe included | 1530 | 10 Units |

# Solar energy controllers Panel differential thermostat

**Panel differential thermostat**
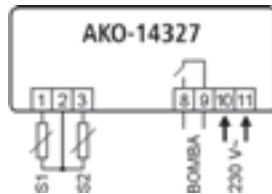
Input for 2 NTC probes. De-icing function. Pump stop for excessive temperature in probe 2. Low consumption.

**Application:** Thermal solar energy installations

AKO-14327

- Temperature range from -50.0 ºC to + 99.9 ºC
- Resolution  1 ºC
- Accuracy ±1 ºC
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- RPump relay SPST 16 A: AC1=10, AC3=7
- Powe Supply 230  V~ ±10%, 50/60 Hz

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-14327 | Controller 230 V~, 1 relay, 1 NTC probe included | 1530 | 12 Units |

# Solar energy controllers Differential thermostat, DIN rail mounting (4 modules)

**DIN rail format for panel integration.**

Input for 2 NTC probes. De-icing function. Pump stop for excessive temperature in probe 2. Low consumption.

**Application:** Thermal solar energy installations

AKO-15224

- Temperature range from -50 ºC to +99,9 ºC
- Display 3 Digits (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy ±1 ºC
- NTC probe
- Box dimensions  70 x 90 x 58 mm (4 DIN modules)
- Front part dimensions  42,2 x 66,2 mm
- Pump relay SPST 16 A: AC1=12, AC3=9
- Power supply 230 V~ ±10%, 50/60 Hz

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-15224 | Controller 230 V~, 1 relay, 1 NTC probe included | 1530 | 6 Units |

# Temperature controllers 2 relays, up to 2 probes, panel mounting



**Multifunction**

The two probe inputs may be linked with the relay outputs for the functions of thermometer and thermostat in cold and heat applications, as a differential control of the two probes, double thermostat, two stages, neutral zone, etc. The configuration of the menus means that certain parameters may or may not be adjusted by the user, so that they might exclusively have the information and adjustment that the use of the machine requires. It is possible to modify the functions of the keys on the front and the temperature display. The configuration may be blocked by password.

**Application:** Solar energy, electric panels, industrial installations, etc

- Temperature range from -50 °C to + 99,9 °C
- 3 digits display (°C/°F)
- Resolution 0,1 °C
- Accuracy 0,5 °C
- NTC probe (1 included)
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions 75,8 x 33,8 mm
- Depth 61 mm
- Relay R1 SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4



| Referencie | Description | Family | Pack |
|---|---|---|---|
| AKO-14722 | 12 V≈, for panel cut-out 70,5 x 28,5 mm | 1530 | 12 Units |
| AKO-14723 | 230 V~, for panel cut-out 70,5 x 28,5 mm | 1530 | 12 Units |

# Temperature controllers 2 relays, up to 2 probes, DIN rail mounting



**Multifunction**

The two probe inputs may be linked with the relay outputs for the functions of thermometer and thermostat in cold and heat applications, as a differential control of the two probes, double thermostat, two stages, neutral zone, etc. The configuration of the menus means that certain parameters may or may not be adjusted by the user, so that they might exclusively have the information and adjustment that the use of the machine requires. It is possible to modify the functions of the keys on the front and the temperature display. The configuration may be blocked by password.

**Appplication:** Solar energy, electric panels, industrial installations, etc

- Temperature range from -50 °C to + 99,9 °C
- 3 digits displays (°C/°F)
- Resolution 0,1 °C
- Accuracy 0,5 °C
- NTC probe (1 incluida)
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Relay R1 SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz
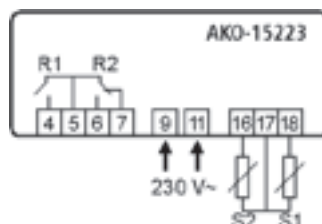


| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-15223 | 230 V~, for DIN rail | 1530 | 6 Units |

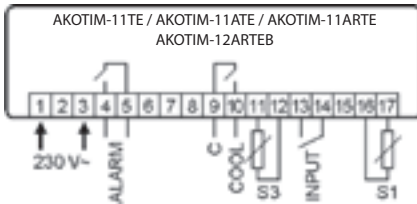# Modular controllers **AKO**TIM Range from -50 ºC to +99 ºC, 1 relay, panel mounting

**Compressor control relay**

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

Programme-selectable indication in °C o °F 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by compressor stop.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range from -50 ºC to + 99,9 ºC
- 3 digits display (ºC/ºF)
- Resolution 0,1 ºC
- Accuracy ±1 ºC
- NTC probe
- Front part dimensions 75,8 x 33,8 mm

- Panel cut-out dimensions 70,5 x 28,5 mm
- Depth 61 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-11TE)
- Power supply 230 V~ ±10%, 50/60 Hz

AKOTIM-11TE / AKOTIM-11ATE / AKOTIM-11ARTE
AKOTIM-12ARTEB

| Reference | alarm relay | Real time clock | Buzzer | Family | Pack |
|---|---|---|---|---|---|
| AKOTIM-11TE | - | - | - | 1520 | 12 Units |
| AKOTIM-11ATE | yes | - | - | 1520 | 12 Units |
| AKOTIM-11ARTE | yes | yes | - | 1520 | 12 Units |
| AKOTIM-11ARTEB | yes | yes | yes | 1520 | 12 Units |

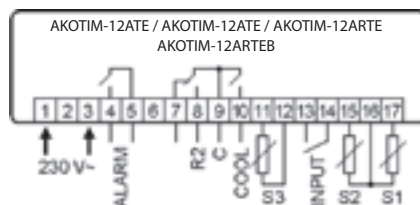# Modular controllers **AKO**TIM Range from -50º C to +99,9 ºC, 2 relays, panel mounting

**Compressor relay and R2 (defrost or fans)**

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other parameters of use to the HACCP, 3 inputs for regulating probe, evaporator and independent temperature. Digital input for door contact. Defrost by electric heat or air. Programme-selectable indication in °C o °F.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range -50 ºC to +99,9 ºC
- 3 digits display (ºC/ºF)

- Resolution 0,1 ºC
- Accuracy ±1 ºC
- NTC probe
- Front part dimensions 75,8 x 33,8 mm
- Panel cut-out dimensions 70,5 x 28,5 mm
- Depth 61 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Relay R2 SPDT 8 A: AC1=8, AC3=4
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-12TE)
- Power supply 230 V~ ±10%, 50/60 Hz

AKOTIM-12ATE / AKOTIM-12ATE / AKOTIM-12ARTE
AKOTIM-12ARTEB

| Reference | Alarm relay | Real Time clock | Buzzer | Familiy | Pack |
|---|---|---|---|---|---|
| AKOTIM-12TE | - | - | - | 1520 | 12 Units |
| AKOTIM-12ATE | yes | - | - | 1520 | 12 Units |
| AKOTIM-12ARTE | yes | yes | - | 1520 | 12 Units. |
| AKOTIM-12ARTEB | yes | yes | yes | 1520 | 12 Units |

# Modular controllers **AKO**TIM Range from -50 ºC to + 99,9 ºC, 3 relays, panel mounting

**Relay for compressor, fans and defrost**

Used to regulate the temperature of cold generators and to display the infor-mation from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

Programme-selectable indication in °C or °F. 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by electric heat, air or hot gas bypass

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

AKOTIM-13ATE / AKOTIM-13ATE / AKOTIM-13ARTE
AKOTIM-13ARTEB

| Reference | Alarm relay | Real time clock | Buzzer | Family | Pack |
|---|---|---|---|---|---|
| AKOTIM-13TE | - | - | - | 1520 | 12 Units |
| AKOTIM-13ATE | yes | - | - | 1520 | 12 Units |
| AKOTIM-13ARTE | yes | yes | - | 1520 | 12 Units |
| AKOTIM-13ARTEB | yes | yes | yes | 1520 | 12 Units |

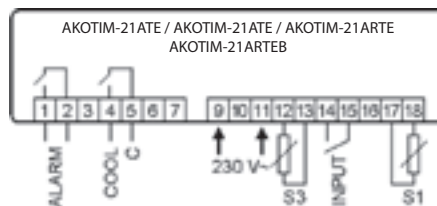# Controles modulares **AKO**TIM Range from -50 ºC to +99,9 ºC, 1 relay, rail DIN mounting

**Compressor control relay**

Used to regulate the temperature of cold generators and to display the infor-mation from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACC. Programme-selectable indication in °C o °F. 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by compres-sor stop.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range from -50 ºC to +99,9 ºC
- 3 digit display (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy  ±1 ºC

- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4
- Defros relay SPDT 8 A: AC1=8, AC3=4
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-21TE)
- Power supply 230 V~ ±10%, 50/60 Hz

AKOTIM-21ATE / AKOTIM-21ATE / AKOTIM-21ARTE
AKOTIM-21ARTEB

| Reference | alarm relay | Real time clock | Buzzer | Familiy | Pack |
|---|---|---|---|---|---|
| AKOTIM-21TE | - | - | - | 1520 | 6 Units |
| AKOTIM-21ATE | yes | - | - | 1520 | 6 Units |
| AKOTIM-21ARTE | yes | yes | - | 1520 | 6 Units |
| AKOTIM-21ARTEB | yes | yes | yes | 1520 | 6 Units |

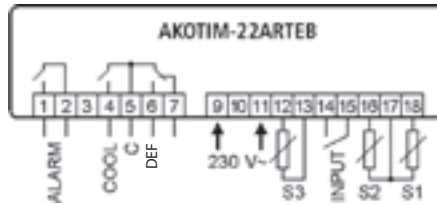# Modular controllers **AKO**TIM  Range from -50 ºC to +99,9 ºC, 2 relays, DIN rail mounting

**Compressor relay and R2 (defrost or fans)**

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

3 inputs for regulating probe, evaporator and independent temperature. Digital input for door contact. Defrost by electric heat or air. Programme-selectable indication in °C o °F.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range from -50 ºC to +99,9 ºC
- 3 digits display (ºC/ºF)
- Resolution 0,1 ºC
- Accuracy ±1 ºC
- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Alarm relay SPST 6 A: AC1=5, AC3=4 (No AKOTIM-22TE)
- Power supply 230 V~ ±10%, 50/60 Hz

| Reference | Alarm relay | Real time clock | Buzzer | Family | Pack |
|---|---|---|---|---|---|
| AKOTIM-22TE | - | - | - | 1520 | 6 Units |
| AKOTIM-22ATE | Si | - | - | 1520 | 6 Units |
| AKOTIM-22ARTE | Si | Si | - | 1520 | 6 Units |
| AKOTIM-22ARTEB | Si | Si | Si | 1520 | 6 Units |

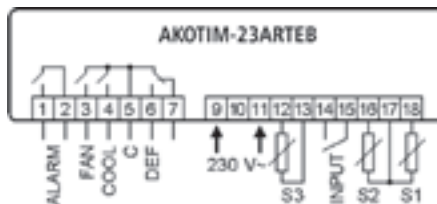# Modular controllers **AKO**TIM  Range from -50 ºC to +99,9 ºC, 3 relays, DIN rail mounting

**Relay for compressor, fans and defrost**

Used to regulate the temperature of cold generators and to display the information from the operation log on, the refrigeration time, the defrost time and the complete cycle. They store information on the maximum and minimum temperatures reached, in addition to other useful parameters to the HACCP.

Programme-selectable indication in °C or °F. 2 inputs for control probe and independent temperature. Digital input for door contact. Defrost by electric heat, air or hot gas bypass.

**Application:** Industrial and commercial cold, displays, electrical panels, etc.

- Temperature range -50 ºC to +99,9 ºC
- 3 digit display (ºC/ºF)
- Resolution 0,1 ºC
- Accuracy ±1 ºC
- NTC probe
- Box dimensions 70 x 90 x 58 mm (4 modules DIN)
- Front part dimensions 42,2 x 66,2 mm
- Compressor relay SPST 16 A: AC1=12, AC3=9
- Fan relay SPST 6 A: AC1=5, AC3=4
- Defrost relay SPDT 8 A: AC1=8, AC3=4
- Power supply 230 V~ ±10%, 50/60 Hz

| Reference | Alarm relay | Real time clock | Buzzer | Familiy | Pack |
|---|---|---|---|---|---|
| AKOTIM-23TE | - | - | - | 1520 | 6 Units |
| AKOTIM-23ATE | yes | - | - | 1520 | 6 Units. |
| AKOTIM-23ARTE | yes | yes | - | 1520 | 6 Units |
| AKOTIM-23ARTEB | yes | yes | yes | 1520 | 6 Units |

# Compressors and condensers rack up to 4 stages

**Operating modes, proportional band and neutral zone**

4 stage controller for compressors or condensers. Compressor rotation by operating hours. Probe reading configurable by pressure or temperature probe. 5 relay outputs: 4 control outputs and 1 alarm output. Also with 6 digital inputs, 4 for the compressor protection thermal switches, 1 for high pressure switch and 1 for low pressure switch..

**Application:** Cold installations

- Power supply 12 V~ ±20%, 50/60 Hz
- RelaysR1,R2,R3 y R14 SPST 6 A: AC1=5, AC3=4
- Alarm relay SPDT 8 A: AC1=8, AC3=4
- Panel cut-out dimensions 70,5 x 28,5 mm
- Front part dimensions75,8 x 33,8 mm
- Depth 61 mm
- 3 digit display

- Accuracy  (4-20 mA) ±1%
- Accuracy  (NTC) ±1%
- Resolution (4-20 mA) 0,01
- Resolution (NTC) 0,1 ºC
- Scale with input 4-20 mA -99.9 a + 99.9
- Temperature range (NTC) -50 ºC a + 105 ºC
- NTC probe or 4-20 mA
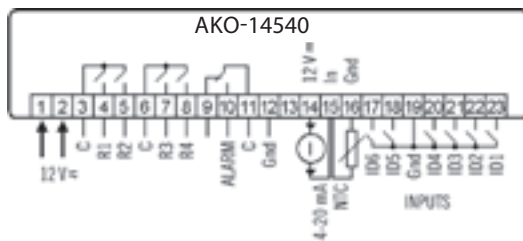
AKO-14540

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-14540 | Compresor and condensers station 4 stages, 12 V | 1560 | 1 Unit |
| AKO-15590 | Transformer 120-230 V/12 V rack | 1590 | 12 Units |

# Temperature controllers Range from -50 ºC to +350 ºC, 1 relay in IP65 box



**Suitable for outdoors**

It is designed to regulate the temperature of pipes, tanks, valves, processing equipment, etc. that require local control and are installed outdoors or in aggressive atmospheres, either due to dirt, humidity, corrosion, etc.

**Application:** Industrial installations, agricultural, etc.
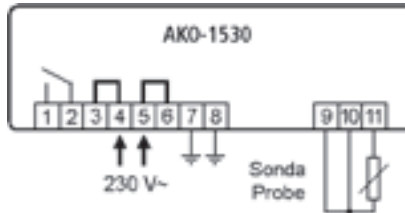


- Temperature range  -50 ºC to +350 ºC
- 3 digit display (ºC/ºF)
- Resolution  0,1 ºC
- Accuracy  ±0,5 ºC
- Pt100 probe
- Box dimensions 120 x 160 x 66 mm
- Work temperature -30 ºC to +60 ºC
- Protection IP65
- Control relay  SPST 20 A: AC1=20, AC3=12
- Power supply  230 V~ ±10%, 50/60 Hz

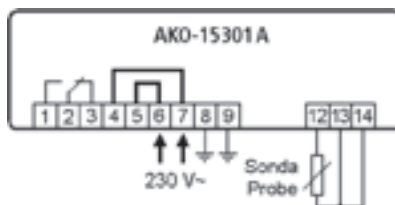| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-1530 | Thermostat up to 350 ºC, relay 20 A SPST, without probe | 1530 | 5 Units |
| AKO-717425 | Thermostat to pipe fixing support | 2190 | 1 Unit |
| AKO-15595 | Probe Pt-100, from –50 to 200 ºC, 1,5 m of cable with braid | 1590 | 5 Units |

# Temperature controllers  Energy controller



**Energy saving.**

A controller designed to adjust the energy contribution from heating cables or other heat sources, in applications in which it must vary in line with the ambient temperature.

Its use is particularly suitable in system where, once designed and applied, the only variable that influences in the system is the ambient temperature.

**Application:** Electric traces, avoid freezing on ramps, terraces, etc.



- Temperature range  -40 ºC to +200 ºC
- Visualizador 3 dígitos (ºC/ºF)
- Resolución  0,1 ºC
- Precisión  ±0,5 ºC
- Sonda tipo  Pt100
- Box dimensions 120 x 160 x 66 mm
- ProtectionIP65
- Control relay  SPST 10 A: AC1=10, AC3=6
- Power supply 230 V~ ±10%, 50/60 Hz

| Reference | Description | Family | Pack |
|-----------|-------------|--------|------|
| AKO-15301A | Energy regulator ambient temperature function, 10 A relay | 1530 | 1 Unit |
| AKO-15599 | Pt-100 probe for ambient temperature | 1590 | 1 Unit |

# Mechanic Thermostat EEx ed IIC T5

**This thermostat is approved for use in Zone 1 and 2 classified area´s.**

It is designed for use and ajustable control thermostats for freeze protection and temperature maintenance applications requiring pipewall or tankwall sensing. Each thermostat is available in four temperature control and bulb exposure temperatures ranges.

**Application:** Electrical Tracing

- Temperature range 0 ºC to +200 ºC
- Maximum pipe exposure temperature 230 ºC
- Operating ambient temp.-45 ºC to +55 ºC
- Differential 5 ºC
- Switch rating 16 A
- Junction box with M25
- Enclosure rating IP66
- Bulb and capillary stainless steel

| Referencia | Descripción | Family | Pack |
|---|---|---|---|
| AKO-71658 | Electric heat tracing control EEx ed 0 to 200 ºC, pipe, for 7126x y 71219 | 1530 | 1 Unit |
| AKO-71659 | Electric heat tracing control EEx ed 0 to 200 ºC, wall, for 7126x y 71219 | 1530 | 1 Unit |
| AKO-71660 | Electric heat tracing control EEx ed 0 to 200 ºC, pipe, for 7121x, 7124x, 7125x | 1530 | 1 Unit |
| AKO-71661 | Electric heat tracing control EEx ed 0 to 200 ºC, wall, for 7121x, 7124x, 7125x | 1530 | 1 Unit |

# Temperature controllers Ice and snow centre

**Guaranteeing energy savings of 80% with respect to control by means ofthermostats.**

This ice control centre is used in automatic heating installations for open spaces. With this system, the heating comes on only if there is a chance of freezing, for example, snow, ice or sleet and automatically turns off after thawing.

**Aplication:** To avoid ice on ramps, terraces, roofs, guttering, etc.

- Measurement of temperature, humidity, ice and snow
- Floor temperature range  –40 ºC to +70 ºC
- Programme after heat from 10 min to 120 min
- Consumption meter in hours

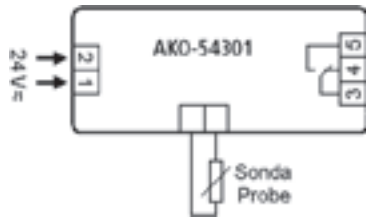| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-80015 | Ice and snow centre | 1590 | 1 Unit |
| AKO-80016 | Temp. and humidity probe for ramps, streets, pavements and terraces | 1590 | 1 Unit |
| AKO-80020 | Ice and snow probe for ramps, streets, pavements and terraces | 1590 | 1 Unit |
| AKO-80030 | Ice and snow ramp for roofs and guttering | 1590 | 1 Unit |
| AKO-80031 | Ice and snow ramp for roofs and guttering | 1590 | 1 Unit |

# Temperature controllers Thermostats for lifts

**DIN rail mounting**

They are used to comply with the directive 95/16/EC in lift machinery rooms. Minimum alarm level adjusted to +5 °C and maximum alarm to +40 °C. 3 indication leds: Maximum, minimum alarm and temperature OK. Includes an NTC probe with 1,5 m of cable.

**Application:** Lifts

- Relay connected between 5 ºC and 40 ºC
- Accuracy ±5 ºC
- NTC probe
- Box dimension 18 x 90 x 58 mm (1 module DIN)
- Depth 61 mm
- Relay SPDT 8 A, 24 V, cos∞= 1
- Power supply 24 V~ ± 20% 50/60 Hz

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-54301 | 24 V~, DIN rail mounting, temp. fixed. min. 5 ºC max. 40 ºC | 1530 | 12 Units |

# Probes and accessories Accesories

AKO-155908

AKO-14910

AKO-15586

AKO-80004A

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-14910 | Transparent lid for front protection | 1590 | 120 Units (B) |
| AKO-15586 | Metre of cable for extending probes, 3 x 0,5 mm2 shielded | 1590 | 100 m(A) |
| AKO-155908 | Stainless steel sheath, 1/2" Gas thread | 1590 | 10 Units |
| AKO-80004A | Converter from Pt-100 to 4-20 mA | 1590 | 1 Unit |

(A) The meters of packaged material are the standard ones; however, we reserve the right to supply in different lengths those indicated.
(B) Minimum, indivisible pack units.

# Probes and accessories Temperature probes

| Reference | Description | Familia | Pack |
|---|---|---|---|
| AKO-14901 | NTC probe, from –50 to 100 ºC, 1,5 m of cable | 1590 | 48 Units |
| AKO-14902 | NTC probe, from –50 to 100 ºC, 2,0 m of cable | 1590 | 48 Units |
| AKO-14903 | NTC probe, from –50 to 100 ºC, 3,0 m of cable | 1590 | 48 Units |
| AKO-14906 | NTC probe, from –50 to 100 ºC, 6,0 mof cable | 1590 | 24 Units |
| AKO-14915 | NTC probe, from –50 to 100 ºC, stainless steel connector, 3,0 m of cable | 1590 | 1 Units |
| AKO-15561 | NTC probe, from –50 to 100 ºC, IP68 protection, AISI 304. 1,5 m of cable | 1590 | 10 Units |
| AKO-155801 | PTC probe, from –50 to 150 ºC, 1,5 m of cable | 1590 | 10 Units |
| AKO-155802 | PTC probe, from –50 to 150 ºC, 2,0 m of cable | 1590 | 10 Units |
| AKO-155803 | PTC probe, from –50 to 150 ºC, 3,0 m of cable | 1590 | 10 Units |
| AKO-155807 | PTC probe, from –50 to 150 ºC, 7,0 m of cable | 1590 | 10 Units |
| AKO-155815 | PTC probe, from –50 to 150 ºC, 15,0 m of cable | 1590 | 5 Units |
| AKO-155830 | PTC probe, from –50 to 150 ºC, 30,0 m of cable | 1590 | 1 Unit |
| AKO-15582 | Pt-100 probe, from –50 to 180 ºC, 2,0 m of cable with braid | 1590 | 1 Unit |
| AKO-15584 | Pt-100 probe, from –50 to 180 ºC, 10,0 m of cable without braid | 1590 | 1 Unit |
| AKO-15585A | Pt-100 probe, from –40 to 180 ºC, 2,0 m of cable without braid | 1590 | 1 Unit |
| AKO-15595 | Pt-100 probe, from –50 to 200 ºC, 1,5 m of cable with braid | 1590 | 5 Units |
| AKO-15587 | Pt-100 probe, from –60 to 350 ºC, 2,0 m of cable with braid | 1590 | 1 Unit |
| AKO-15597 | Pt-100 probe, from –70 to 200 ºC, 2,0 m of teflon cable | 1590 | 1 Unit |
| AKO-15598 | Pt-100 probe, from –200 to 600 ºC, 1,5 m of MI cable | 1590 | 1 Unit |
| AKO-15599 | Pt-100 probe for environment temperature | 1590 | 1 Unit |
| AKO-80008 | Pt-100 probe EExd IIT6, IP65 box, to drums | 1590 | 1 Unit |
| AKO-80019 | Pt-100 probe EExd IIT6, for Ex zone and pipes | 1590 | 1 Unit |
| AKO-15601 | J probe, de 0 a 600 ºC, 3,0 m of cable | 1590 | 1 Unit |
| AKO-15602 | K probe, de 0 a 1.000 ºC, 3,0 m of cable | 1590 | 1 Unit |
| AKO-15586 | Metre of cable for extending probes, 3 x 0,5 mm2 shielded | 1590 | 100 m (A) |

(A) The meters of packaged material are the standard ones; however, we reserve the right to supply in different lengths those indicated.

# Parameter servers



> **Tools for copying parameters**
>
> The programmers are particularly recommended for manufacturers that must adjust the equipment with just one configuration. The portable servers allow the installer to rapidly load a pre-programmed configuration into the equipment, without having to enter the programming routine.

| Reference | Description | Family | Pack |
|---|---|---|---|
| AKO-14916 | Programmer for AKO-14412, AKO-14423 | 1580 | 6 Units |
| AKO-14917* | CMOS / RS485 converter module | 1580 | 6 Units |
| AKO-14918* | Portable server for AKO-14xxx | 1580 | 10 Units |
| AKO-14920 | Portable server for AKO-14012 a AKO-14123, AKO-14129 | 1580 | 1 Unit |
| AKO-14922 | Portable server for AKO-10123 a AKO-10323 | 1580 | 1 Unit |
| AKO-80018 | Power supply 230/12 V for programmers | 1580 | 1 Unit |
| AKO-D14918 | Portable server for Darwin | 1580 | 10 Units |

*Portable server incompatible with AKOCONTROL DARWIN

# Probes and accessories Quick Table

## NTC temperature probes

| Reference | Description | Temperature range |
|---|---|---|
| (A) AKO-14901 | TPE cable 1.5 meter long 15x Ø mm long cable | range -50 °C to 105 °C |
| (A) AKO-14902 | TPE cable 2 meter long 15x Ø mm, long cable | range -50 °C to 105 °C |
| (A) AKO-14903 | TPE cable 3 meter long 15x Ø mm, 6 mm bulb | range -50 °C to 105 °C |
| (A) AKO-14906 | TPE 6 meter long cable 15xØ mm, 6 mm bulb | range -50 °C to 105 °C |
| (B) AKO-15561 | special evaporator and IP68 submersible stainless steel bulb 6mm | range -50 °C to 105 °C |
| (C) AKO-14915 | click special probe, silicone cable 3 meter AISI 304 stainless steel bulb 100xØ3mm | range -50 °C to 110 °C |

## PTC temperature probes

| Reference | Description | Temperature range |
|---|---|---|
| AKO-155801 | silicone cable 1.5 meter long tainless steel bulb 6 mm 40x Ø mm | range -50 °C to 105 °C |
| AKO-155802 | silicone cable 2 meter long stainless steel bulb 6 mm 40x Ø mm | range -50 °C to 150 °C |
| AKO-155803 | silicone cable 3 meter long stainless steel bulb 6 mm 40x Ø mm | range -50 °C to 150 °C |
| AKO-155807 | silicone cable 7 meter long stainless steel bulb 6 mm 40x Ø mm | range -50 °C to 150 °C |
| AKO-155815 | silicone cable 15 meter long stainless steel bulb 6 mm 40x Ø mm | range -50 °C to 150 °C |
| AKO-155830 | silicone cable 30 meter long tainless steel bulb 6 mm 40x Ø mm | range -50 °C to 150 °C |

## Pt100 temperature probes

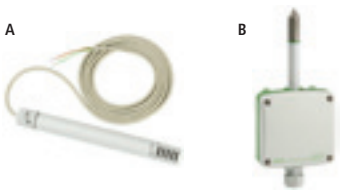| Reference | Description | Temperature range |
|---|---|---|
| (A) AKO-15585A | cable 2 meter long silicone AISI 316 stainless steel bulb 100 Ø mm | range -40 °C to 180 °C |
| AKO-15587 | cable 2 meter long fiberglass AISI 316 stainless steel bulb 100 Ø mm | range -60 °C to 350 °C |
| (B) AKO-15596 | cable 1.6 meter long silicone AISI 316 stain. steel bulb in angle Ø6 mm | range -200 °C to 200 °C |
| (C) AKO-15597 | cable 2 meter long teflon AISI 316 stainless steel bulb 100 Ø mm | range -100 °C to 200 °C |

## Type Thernocouple temperature probes

| Reference | Description | Temperature range |
|---|---|---|
| AKO-15601 | J-type thermocouple, fiberglass 3 meters AISI 316 stainless steel bulb 100 Ø 3mm | range -0 °C to 100 °C |
| AKO-15602 | K-type thermocouple, fiberglass 3 meters stainless steel bulb 4.5mm 150 x Ø | range -0 °C to 600 °C |

## 4-20 humidity probes

| Reference | Description | Temperature range |
|---|---|---|
| (A) AKO-80040 | Tubular humidity probe Stainless Steel Filter. 10% to 95% | range -10 °C to 70 °C |
| (B) AKO-80013 | HVAC applications dryers Stainless Steel Filter. 10% to 95% RH | range -5 °C to 50 °C |

## Accessories for controllers

| Reference | Description | Temperature range |
|---|---|---|
| (A) AKO-1490 | Transparent cover for front protection equipment Panel Fixing (Minimum order 120 units) | |
| (B) AKO-15586 | Shielded cable 30x30 5 m2, for extension of probes NTC, PTC and PT100 (price per meter) | |
| (C) AKO-15908 | Thread 1/2 "GAS. Diameter 8 mm, length 140 mm AISI 304 stainless steel sheath | |

## Transformers and Power

| Reference | Description | Temperature range |
|---|---|---|
| (C) AKO-80014A | Power supply 115-230 V/ 24 V, 1A Probe power AKO-80013 and AKO-80014 A | |
| (A) AKO-15589 | Power converter 14 to 30 V /125 V, 5 VA. DIN rail mounting This device is used when you want to power a 24 V thermostat Power up to 10 probes | |
| (B) AKO-15590 | Transformer 120-230 V /12 V, maximum consumption 3 VA | |