

CE Data Sheet - DARWIN temperature controllers

1 - Quick Selection Guide

| | Relay outputs | | | | Inputs | | | | | Options | | | Panel | | | |
|------------------------|---------------|---------|-----|-----------|---------------------|---|---|--------------------------------|--------------------------------|--------------|-----------------|--------------------------|-------------|------------|---------|-------------------------|
| | Compressor | Defrost | Fan | Auxiliary | Temperature control | End of defrost temperature ^(a) | Room temperature/ End of defrost 2 ^(b) | Digital input 1 ^(b) | Digital input 2 ^(a) | Power supply | Real Time Clock | Integrated Communication | Depth 43 mm | Depth 61mm | Standar | Extended (+ 2 switches) |
| Thermometers | | | | | | | | | | | | | | | | |
| AKO-D14012 | - | - | - | - | NTC/PTC | - | - | - | - | 12/24 V | - | - | • | - | • | - |
| AKO-D14023 | - | - | - | - | NTC/PTC | - | - | - | - | 230 V | - | - | • | - | • | - |
| AKO-D14023-C | - | - | - | - | NTC/PTC | - | - | - | - | 90-260 V | - | • | - | • | • | - |
| 1-relay drivers | | | | | | | | | | | | | | | | |
| AKO-D14112 | 16 A | - | - | - | NTC/PTC | NTC/PTC | - | • | • | 12/24 V | - | - | - | • | • | - |
| AKO-D14120 | 16 A | - | - | - | NTC/PTC | - | - | - | - | 120 V | - | - | • | - | • | - |
| AKO-D14123 | 16 A | - | - | - | NTC/PTC | - | - | - | - | 230 V | - | - | • | - | - | • |
| AKO-D10123 | 16 A | - | - | - | NTC/PTC | - | - | - | - | 230 V | - | - | • | - | • | - |
| AKO-D14123-2 | 2 CV | - | - | - | NTC/PTC | NTC/PTC | - | • | • | 230 V | - | - | - | • | • | - |
| AKO-D14123-2-RC | 2 CV | - | - | - | NTC/PTC | NTC/PTC | - | • | • | 90-260 V | • | • | - | • | • | - |
| AKO-D14125 | 16 A | - | - | - | NTC/PTC | - | - | - | - | 230 V | - | - | • | - | • | - |
| 2-relay drivers | | | | | | | | | | | | | | | | |
| AKO-D14212 | 16 A | - | - | 8 A | NTC | NTC | - | • | • | 12 V | - | - | - | • | • | - |
| AKO-D14223 | 16 A | - | - | 8 A | NTC | NTC | - | • | • | 230 V | - | - | - | • | • | - |
| AKO-D10223 | 16 A | - | - | 8 A | NTC | NTC | - | • | • | 230 V | - | - | - | • | - | • |
| 3-relay drivers | | | | | | | | | | | | | | | | |
| AKO-D14312 | 16 A | - | 6 A | 8 A | NTC | NTC | - | • | • | 12 V | - | - | - | • | • | - |
| AKO-D14323 | 16 A | - | 6 A | 8 A | NTC | NTC | - | • | • | 230 V | - | - | - | • | • | - |
| AKO-D10323 | 16 A | - | 6 A | 8 A | NTC | NTC | - | • | • | 230 V | - | - | - | • | - | • |
| AKO-D14323-C | 16 A | - | 6 A | 8 A | NTC | NTC | - | • | • | 90-260 V | - | • | - | • | • | - |
| 4-relay drivers | | | | | | | | | | | | | | | | |
| AKO-D14412-RC | 6 A | 6 A | 6 A | 6 A | NTC | NTC | NTC | • | • | 12 V | • | • | - | • | • | - |
| AKO-D14423-RC | 6 A | 6 A | 6 A | 6 A | NTC | NTC | NTC | • | • | 90-260 V | • | • | - | • | • | - |

(a) The end of defrost probe and digital input 2 share the same input.

(b) The room temperature probe or end of defrost 2 and digital input 2 share the same input.

2- Quick Feature Selection Guide

| | Thermometers | | | 1 Relay | | | | | | 2 Relays | | | 3 Relays | | | | 4 Relays | | |
|--|--------------|------------|--------------|------------|------------|------------|------------|--------------|-----------------|------------|------------|------------|------------|------------|------------|------------|--------------|---------------|---------------|
| | AKO-D14012 | AKO-D14023 | AKO-D14023-C | AKO-D14112 | AKO-D14120 | AKO-D14123 | AKO-D10123 | AKO-D14123-2 | AKO-D14123-2-RC | AKO-D14125 | AKO-D14212 | AKO-D14223 | AKO-D10223 | AKO-D14312 | AKO-D14323 | AKO-D10323 | AKO-D14323-C | AKO-D14412-RC | AKO-D14423-RC |
| Operating modes | | | | | | | | | | | | | | | | | | | |
| Cold | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Heat | - | - | - | • | • | • | • | • | • | • | - | - | - | - | - | - | - | - | - |
| Control | | | | | | | | | | | | | | | | | | | |
| Compressor | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Crankcase heater | - | - | - | • | - | - | - | • | • | - | • | • | • | • | • | • | • | - | - |
| Evaporator fans | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | • | • | • | • | • | • |
| Defrost | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | • |
| Defrost 2nd fan | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 |
| Alarm | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Light | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Solenoid (gas collection) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 |
| Display | | | | | | | | | | | | | | | | | | | |
| Temperature | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Output icons | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Error messages | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Communications | | | | | | | | | | | | | | | | | | | |
| Modbus RTU | - | - | • | - | - | - | - | - | • | - | - | - | - | - | - | - | • | • | • |
| Defrost type | | | | | | | | | | | | | | | | | | | |
| Compressor off | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Fan / air | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | • | • | • | • | • | • |
| Resistors | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | • |
| Inverted cycle | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | • |
| Start of defrost | | | | | | | | | | | | | | | | | | | |
| By cycles | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| By compressor times | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| By clock (6 programs) | - | - | - | - | - | - | - | - | • | - | - | - | - | - | - | - | - | • | • |
| On equipment startup | - | - | - | • | - | - | - | • | • | - | • | • | • | • | • | • | • | • | • |
| Completion of Defrost | | | | | | | | | | | | | | | | | | | |
| By maximum time | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| By temperature probe 2 | - | - | - | 0 | - | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| By temperature probe 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 |
| Operating temperature change | | | | | | | | | | | | | | | | | | | |
| Energy saving | - | - | - | 0 | - | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fast freezing | - | - | - | 0 | - | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Alarms | | | | | | | | | | | | | | | | | | | |
| Maximum temperature | - | - | - | • | - | - | - | • | • | - | • | • | • | • | • | • | • | • | • |
| Minimum temperature | - | - | - | • | - | - | - | • | • | - | • | • | • | • | • | • | • | • | • |
| External alarm by digital input | - | - | - | 0 | - | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Severe external alarm by digital in. | - | - | - | 0 | - | - | - | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Configurations depending on application | | | | | | | | | | | | | | | | | | | |
| Multipurpose | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Frozen | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Fruit and Vegetables | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Fresh Fish | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Soft Drinks | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Bottle Racks | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| AC/Ventilators | - | - | - | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Heat/Incubators | - | - | - | • | • | • | • | • | • | • | * | * | * | * | * | * | * | * | * |

• Standard
 0 Depending on configuration
 - Not available
 * We recommend equipment with one relay only

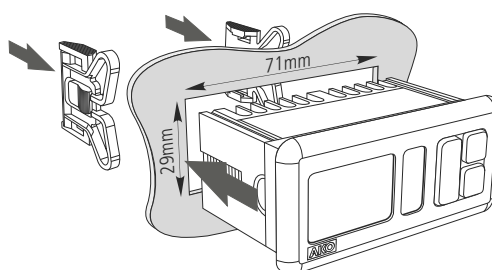
3 - Thermometers

- Ideal for temperature indication.
- Temperature display in °C or °F with decimal point.
- NTC/PTC probe selectable by program. Allow probe calibration.

- A single button for adjusting parameters.
- Integrated communications (depending on model).
- 1 NTC probe included.

| | AKO-D14012 | AKO-D14023 | AKO-D14023-C |
|---------------------------|---|----------------|-------------------|
| Input | | | |
| NTC/PTC Probe | 1 | | |
| Options | | | |
| Integrated Communications | - | - | RS485 Modbus RTU |
| Technical Features | | | |
| Protection degree | IP65 | | |
| Panel cutout dimensions | 71 x 29 mm | | |
| Front panel dimensions | 79 x 38 mm | | |
| Power Supply | 12/24 V \approx | 230 V 50/60 Hz | 90-260 V 50/60 Hz |
| Power consumption | 2.5 VA | 3.5 VA | 6 VA |
| Depth | 43 mm | | 61 mm |
| Keys | 1, silicone | | |
| NTC temperature range | -50,0 °C to +99,9 °C (-58,0 °F to 211 °F) | | |
| PTC temperature range | -50,0 °C to +150 °C (-58,0 °F to 302 °F) | | |
| Display | Red, 3 digits, negative sign and status LEDs | | |
| Resolution | 0,1 °C | | |
| Installation | Panel-mounted with anchors | | |
| Working temperature | -10 to 50 °C, humidity <90 % | | |
| Storage temperature | -30 to 70 °C, humidity <90 % | | |
| Connection | Connections via screw terminals. Cables up to 2.5 mm ² | | |

3.1- Front panel and fixing:



Wiring diagram [page 8](#)

4 - 1 relay controller

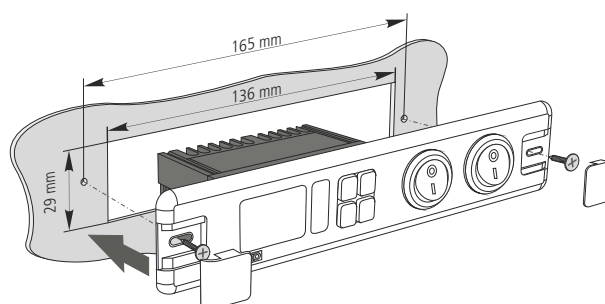
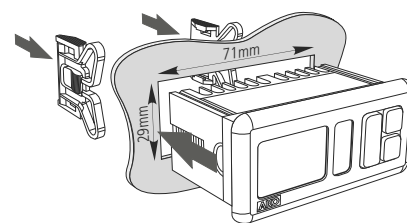
- Ideal for positive service (temperatures above 3 °C) and static refrigerated units with positive temperature.
- HOT/COLD operation selectable by program.
- Wizard to simplify startup with the 8 most common applications (soft drinks, fruit and vegetables, frozen, etc.)
- Defrost by compressor shutdown.

- Temperature display in °C or °F with decimal point.
- NTC/PTC probe selectable by program. Allows probe calibration.
- Configurable digital inputs (door, external alarm, severe external alarm, remote defrosting, ECO mode, or rapid cooling).
- Integrated communications (depending on model).
- 1 NTC probe included (except model **AKO-14125**).

| | AKO-D14120 | AKO-D14123 | AKO-D10123 | AKO-D14125 | AKO-D14112 | AKO-D14123-2 | AKO-D14123-2-RC |
|---|---|---------------------|---------------------|---------------------|---------------------------|----------------------------|----------------------------|
| Input | | | | | | | |
| NTC/PTC Probe | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| NTC/PTC Probe or digital in. ¹ | – | – | – | – | 1 | 1 | 1 |
| Digital input | – | – | – | – | 1 | 1 | 1 |
| Outputs (according to EN60730-1) | | | | | | | |
| 16 A control relay [rest. (induc.)] | Simple SPST 12(9) A | Simple SPST 12(9) A | Simple SPST 12(9) A | Simple SPST 12(9) A | Double throw SPDT 12(9) A | – | – |
| 2 VA control relay [rest. (induc.)] | – | – | – | – | – | Double throw SPDT 16(10) A | Double throw SPDT 16(10) A |
| Options | | | | | | | |
| Integrated Communications | – | – | – | – | – | – | RS485 Modbus RTU |
| Real Time Clock | – | – | – | – | – | – | Si |
| Technical Features | | | | | | | |
| Protection degree | IP65 | IP65 | IP50 | IP65 | IP65 | IP65 | IP65 |
| Panel cutout dimensions | 71 x 29 mm | 71 x 29 mm | 136 x 29 mm | 71 x 29 mm | 71 x 29 mm | 71 x 29 mm | 71 x 29 mm |
| Front panel dimensions | 79 x 38 mm | 79 x 38 mm | 181 x 29 mm | 79 x 38 mm | 79 x 38 mm | 79 x 38 mm | 79 x 38 mm |
| Power supply | 120 V 50/60 Hz | 230 V 50/60 Hz | 230 V 50/60 Hz | 230 V 50/60 Hz | 12/24 V≈ | 230 V 50/60 Hz | 90-260 V 50/60 Hz |
| Power consumption | 4 VA | 3.5 VA | 3.5 VA | 3.5 VA | 2.5 VA | 3.5 VA | 7 VA |
| Depth | 43 mm | | | | 61 mm | | |
| Keys | 3, silicone | | | | 4, silicone | | |
| NTC temperature range | -50,0 °C to +99,9 °C (-58,0 °F to 211 °F) | | | | | | |
| PTC temperature range | -50,0 °C to +150 °C (-58,0 °F to 302 °F) | | | | | | |
| Display | Red, 3 digits, negative sign and status LEDs | | | | | | |
| Resolution | 0,1 °C | | | | | | |
| No. control relays | 100.000 operations according to EN60730-1 | | | | | | |
| Installation | Panel-mounted with anchors | | | | | | |
| Work temperature | -10 to 50 °C, humidity <90 % | | | | | | |
| Storage temperature | -30 to 70 °C, humidity <90 % | | | | | | |
| Connection | Connections via screw terminals. Cables up to 2.5 mm ² | | | | | | |

¹ Input configurable as probe or digital input

4.1- Front panel and fixing:



Wiring diagram [page 8](#)

5- 2 relay controllers

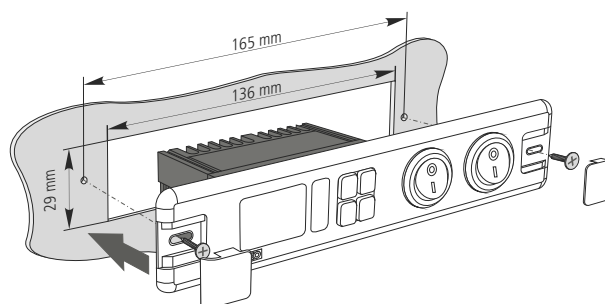
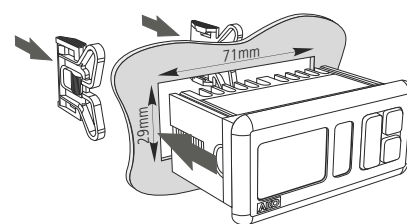
- Ideal for positive service (temperatures above 3 °C) with air defrosting, ventilated refrigerated units with a positive temperature and static refrigerated units with a negative temperature.
- Defrost by compressor shutdown, air, resistance, and cycle reversal.
- Auxiliary relay configurable for fans, defrost, alarm or light.
- Temperature display in °C or °F with decimal point.

- Wizard to simplify startup with the 8 most common applications (soft drinks, fruit and vegetables, frozen, etc.).
- NTC probe. Allow calibration of probe 1.
- Configurable digital inputs (door, external alarm, severe external alarm, remote defrosting, ECO mode, or rapid cooling).
- Includes 1 NTC probe

| | AKO-D14212 | AKO-D14223 | AKO-D10223 |
|--|---|---------------------------|---------------------------|
| Inputs | | | |
| NTC Probe | 1 | 1 | 1 |
| NTC Probe or Digital input ¹ | 1 | 1 | 1 |
| Digital input | 1 | 1 | 1 |
| Outputs (according to EN60730-1) | | | |
| 16 A control relay [rest. (induc.)] | Double throw SPDT 12(9) A | Double throw SPDT 12(9) A | Double throw SPDT 12(9) A |
| 8 A auxiliary relay [resist. (induc.)] | Double throw SPDT 8(4) A | Double throw SPDT 8(4) A | Double throw SPDT 8(4) A |
| Technical Features | | | |
| Protection degree | IP65 | IP65 | IP50 |
| Panel cutout dimensions | 71 x 29 mm | 71 x 29 mm | 136 x 29 mm |
| Front panel dimensions | 79 x 38 mm | 79 x 38 mm | 181 x 38 mm |
| Power supply | 12 V \approx | 230 V 50/60 Hz | |
| Power consumption | 2 VA | 3.75 VA | |
| Depth | 61 mm | | |
| Keys | 4, silicone | | |
| NTC temperature range | -50,0 °C to +99 °C (-58,0 °F to 211 °F) | | |
| Display | Red, 3 digits, negative sign and status LEDs | | |
| Resolution | 0,1 °C | | |
| No. control relays | 100.000 operations according to EN60730-1 | | |
| Installation | Panel-mounted with anchors | | |
| Work temperature | -10 to 50 °C, humidity <90 % | | |
| Storage temperature | -30 to 70 °C, humidity <90 % | | |
| Connection | Connections via screw terminals. Cables up to 2.5 mm ² | | |

¹ Input configurable as probe or digital input

5.1- Front panel and fixing:



Wiring diagram [page 8](#)

6- 3 relay controllers

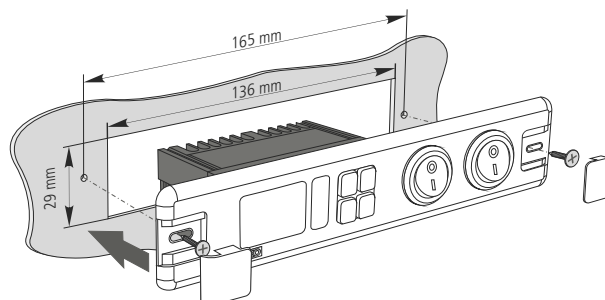
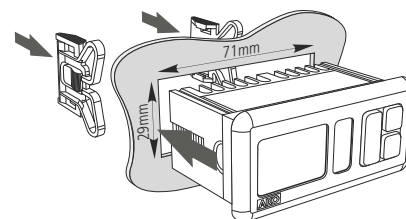
- Ideal for negative or positive service, ventilated refrigerated units with positive or negative temperature.
- Auxiliary relay configurable for fans, defrost, alarm or light.
- Wizard to simplify startup with the 8 most common applications (soft drinks, fruit and vegetables, frozen, etc.)
- Defrost by compressor shutdown, air, resistance, and cycle reversal.

- Temperature display in °C or °F with decimal point.
- NTC probe. Allow calibration of probe 1.
- Configurable digital inputs (door, external alarm, severe external alarm, remote defrosting, ECO mode, or rapid cooling).
- Integrated communication (depending on model).
- 1 NTC probe included.

| | AKO-D14312 | AKO-D14323 | AKO-D10323 | AKO-D14323-C |
|---|---|---------------------------|---------------------------|---------------------------|
| Inputs | | | | |
| NTC Probe | 1 | 1 | 1 | 1 |
| NTC Probe or Digital input ¹ | 1 | 1 | 1 | 1 |
| Digital input | 1 | 1 | 1 | 1 |
| Outputs (according to EN60730-1) | | | | |
| 16 A control relay [rest. (induc.)] | Double throw SPDT 12(9) A | Double throw SPDT 12(9) A | Double throw SPDT 12(9) A | Double throw SPDT 12(9) A |
| 6 A fan relay [resist. (induc.)] | Simple SPST 5(4) A | Simple SPST 5(4) A | Simple SPST 5(4) A | Simple SPST 5(4) A |
| 8 A auxiliary relay [resist. (induc.)] | Simple SPST 8(4) A | Simple SPST 8(4) A | Simple SPST 8(4) A | Simple SPST 8(4) A |
| Options | | | | |
| Integrated communications | – | – | – | RS485 Modbus RTU |
| Technical Features | | | | |
| Protection degree | IP65 | IP65 | IP50 | IP65 |
| Panel cutout dimensions | 71 x 29 mm | 71 x 29 mm | 136 x 29 mm | 71 x 29 mm |
| Front panel dimensions | 79 x 38 mm | 79 x 38 mm | 181 x 38 mm | 79 x 38 mm |
| Power supply | 12 V _≈ | 230 V 50/60 Hz | 230 V 50/60 Hz | 90-260 V 50/60 Hz |
| Power consumption | 2 VA | 3.75 VA | 3.75 VA | 7 VA |
| Depth | 61 mm | | | |
| Keys | 4, silicone | | | |
| NTC temperature range | -50,0 °C to +99,9 °C (-58,0 °F to 211 °F) | | | |
| Display | Red, 3 digits, negative sign and status LEDs | | | |
| Resolución | 0,1 °C | | | |
| No. control relays | 100.000 operations according to EN60730-1 | | | |
| Installation | Panel-mounted with anchors | | | |
| Work temperature | -10 to 50 °C, humidity <90 % | | | |
| Storage temperature | -30 to 70 °C, humidity <90 % | | | |
| Connection | Connections via screw terminals. Cables up to 2.5 mm ² | | | |

¹ Input configurable as probe or digital input

6.1- Front panel and fixing:



Wiring diagram [page 9](#)

7- 4 relay controllers

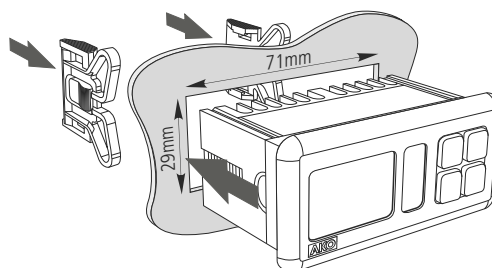
- Ideal for positive or negative service, ventilated refrigerated units with positive or negative temperature.
- Auxiliary relay configurable for fans, defrost, alarm or light.
- Wizard to simplify startup with the 8 most common applications (soft drinks, fruit and vegetables, frozen, etc.)
- Defrost by compressor shutdown, air, resistance, and cycle reversal.

- Temperature display in °C or °F with decimal point
- NTC probe. Allow calibration of probe 1
- Configurable digital inputs (door, external alarm, severe external alarm, remote defrost mode, ECO or rapid cooling)
- Integrated communications (depending on model).
- 1 NTC probe included.

| | AKO-D14412-RC | AKO-D14423-RC |
|---|---|--------------------|
| Inputs | | |
| NTC Probe | | 1 |
| NTC Probe or Digital input ¹ | | 2 |
| Outputs (according to EN60730-1) | | |
| 6 A compressor relay [rest. (induc.)] | | Simple SPST 5(4) A |
| 6 A fan relay [resist. (induc.)] | | Simple SPST 5(4) A |
| 6 A defrost relay [rest. (induc.)] | | Simple SPST 5(4) A |
| 8 A auxiliary relay [resist. (induc.)] | | Simple SPST 5(4) A |
| Options | | |
| Integrated communications | | RS485 Modbus RTU |
| Real Time Clock | | Si |
| Technical Features | | |
| Protection degree | IP65 | IP65 |
| Panel cutout dimensions | 71 x 29 mm | 71 x 29 mm |
| Front panel dimensions | 79 x 38 mm | 79 x 38 mm |
| Power supply | 12 V _~ | 90-260 V 50/60 Hz |
| Power consumption | 2.5 VA | 7 VA |
| Depth | 61 mm | |
| Keys | 4, silicone | |
| NTC temperature range | -50,0 °C to +99,9 °C (-58,0 °F to 211 °F) | |
| Display | Red, 3 digits, negative sign and status LEDs | |
| Resolution | 0,1 °C | |
| No. control relays | 100.000 operations according to EN60730-1 | |
| Installation | Panel-mounted with anchors | |
| Work temperature | -10 to 50 °C, humidity <90 % | |
| Storage temperature | -30 to 70 °C, humidity <90 % | |
| Connection | Connections via screw terminals. Cables up to 2.5 mm ² | |

¹ Input configurable as probe or digital input

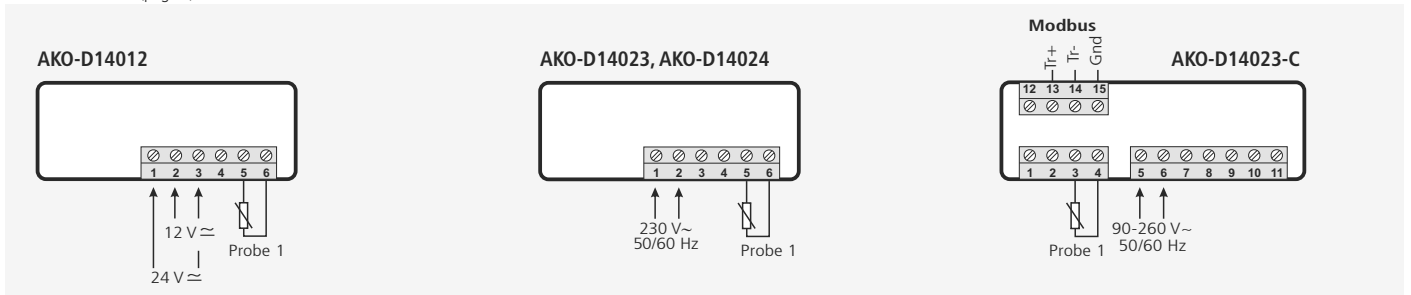
7.1- Front panel and fixing:



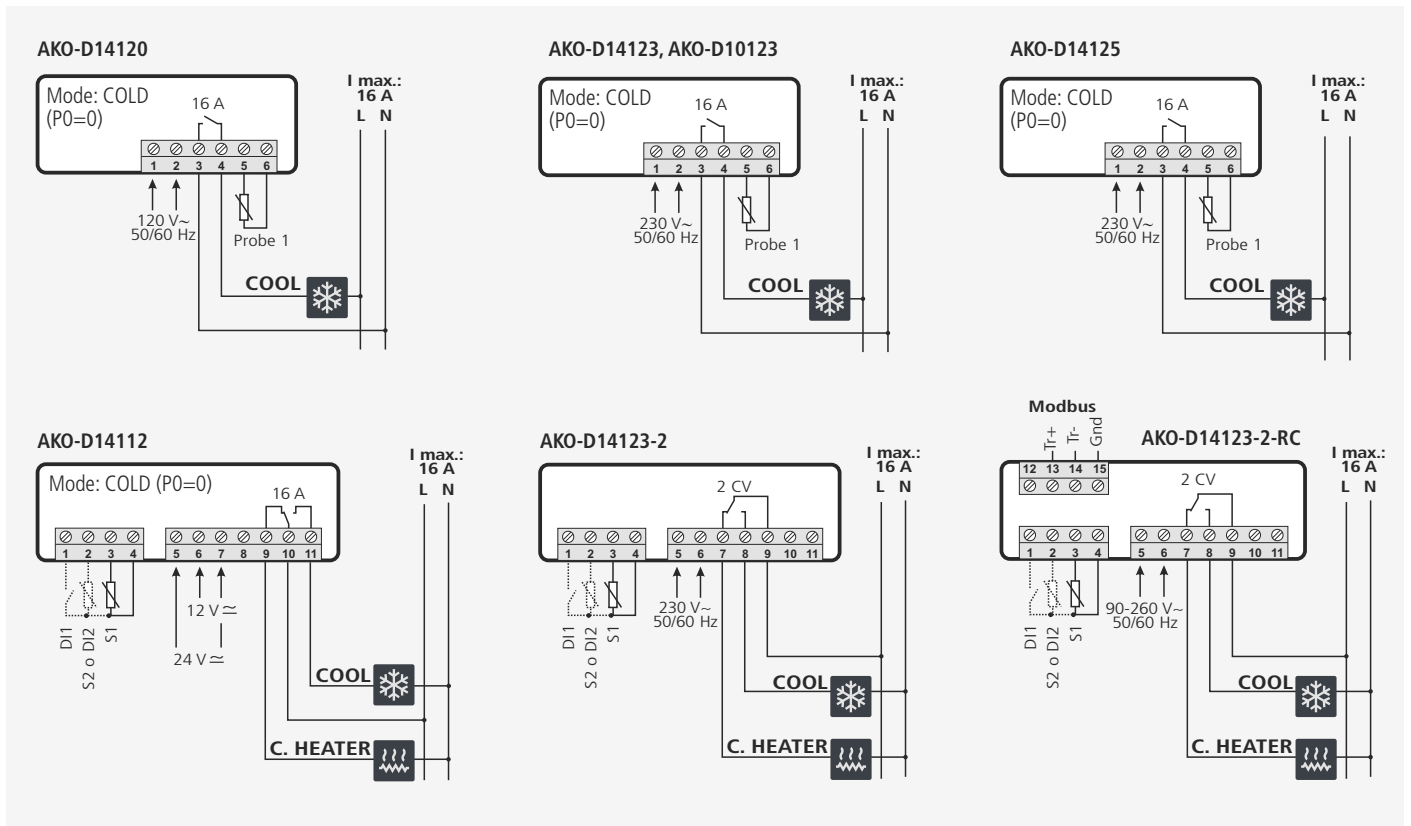
Wiring diagram [page 9](#)

8 - Wiring diagrams

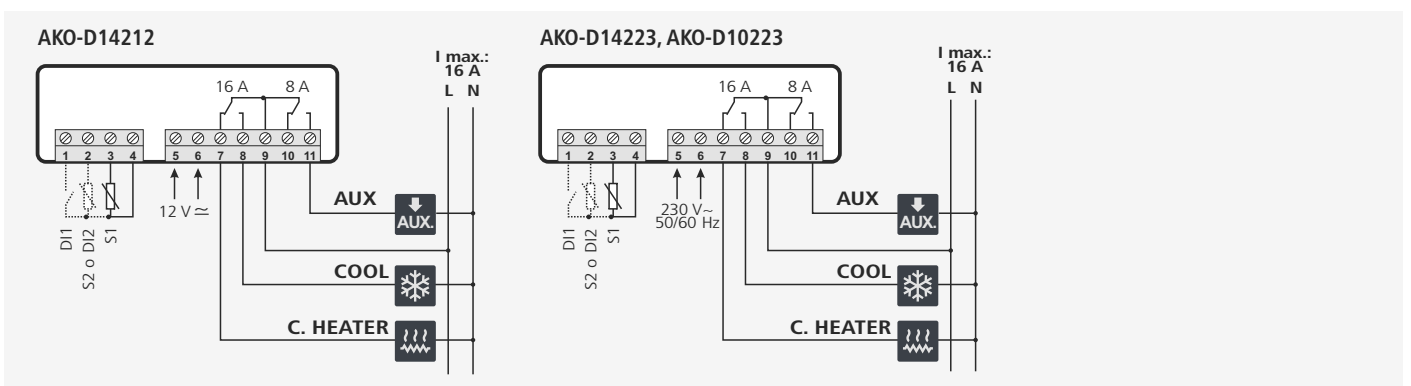
Thermometer (page 3)



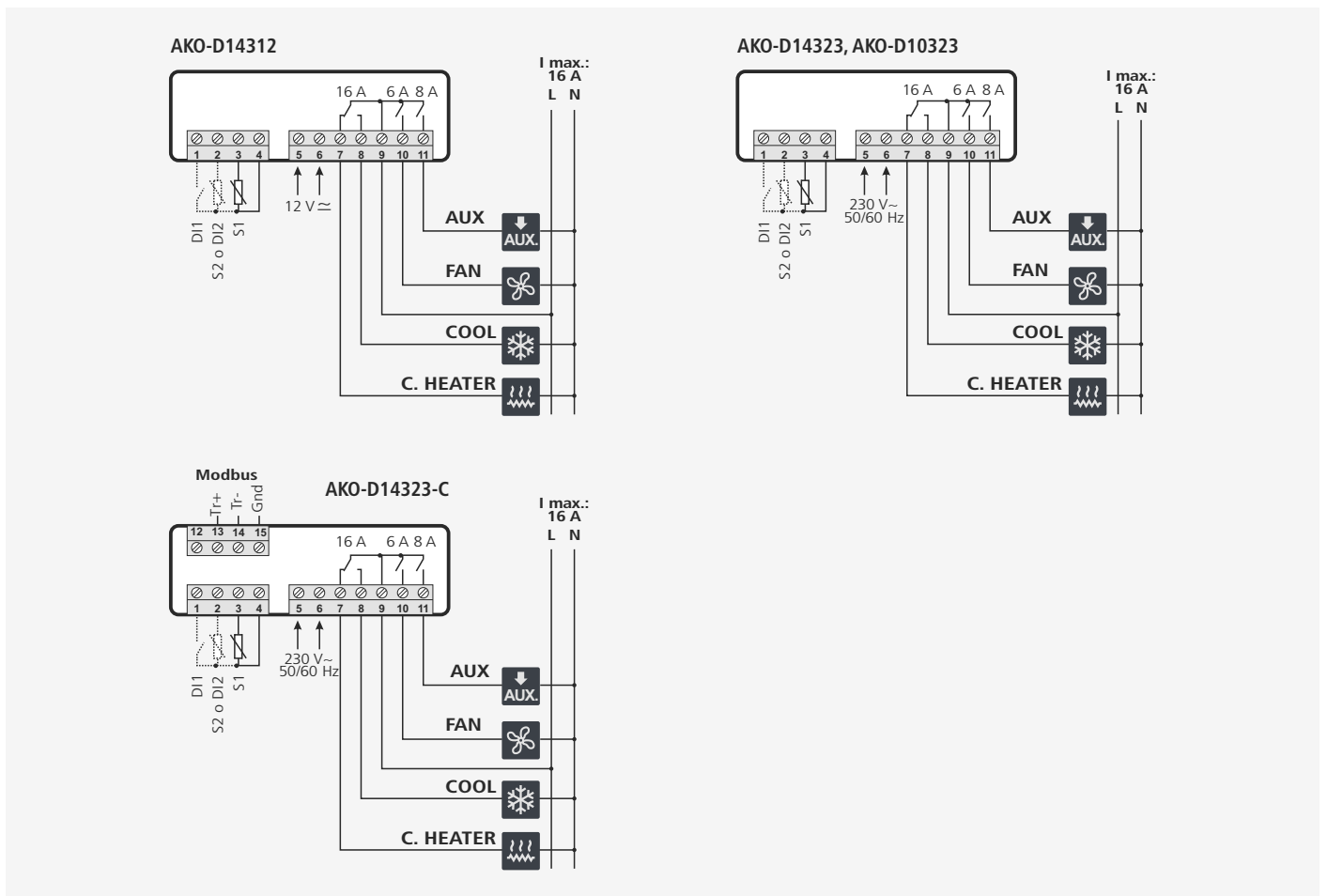
1 relay controller (page 4)



2 relay controllers (page 5)



3 relay controllers (page 6)



4 relay controllers (page 7)

