AKO

CE Registrador de datos **CAMRegis**
CAMRegis data logger
Enregistreur de données **CAMRegis**
CAMRegis-Datenschreiber

Instrucciones de instalación
Installation instructions
Instructions d'installation
Installationsanleitung

AKO-15740   **AKO-15750**   **AKO-15780**
AKO-15742   **AKO-15752**   **AKO-15782**

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Units that incorporate rechargeable electrical accumulators:
This unit has built-in accumulators which must be replaced when the autonomy of the unit is less than the duration shown in the specifications. At the end of the unit's life, the accumulators must be taken to a selective disposal centre or returned to the equipment manufacturer.

ℹ **Periodic checks:**
In accordance with standard **UNE EN 12830**, maintenance must include the checks indicated in the **UNE EN 13486** standard (only with the NTC probes supplied with the unit).

ℹ **IMPORTANT:** Prior to the installation of the equipment, connect the battery cable (1) to the panel connector (2).

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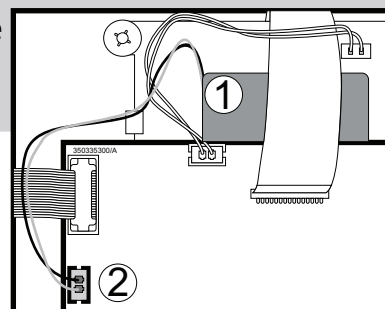
Installation

Wall mounting

(fig. 1)
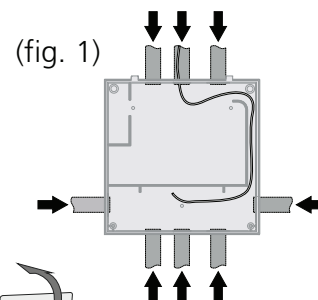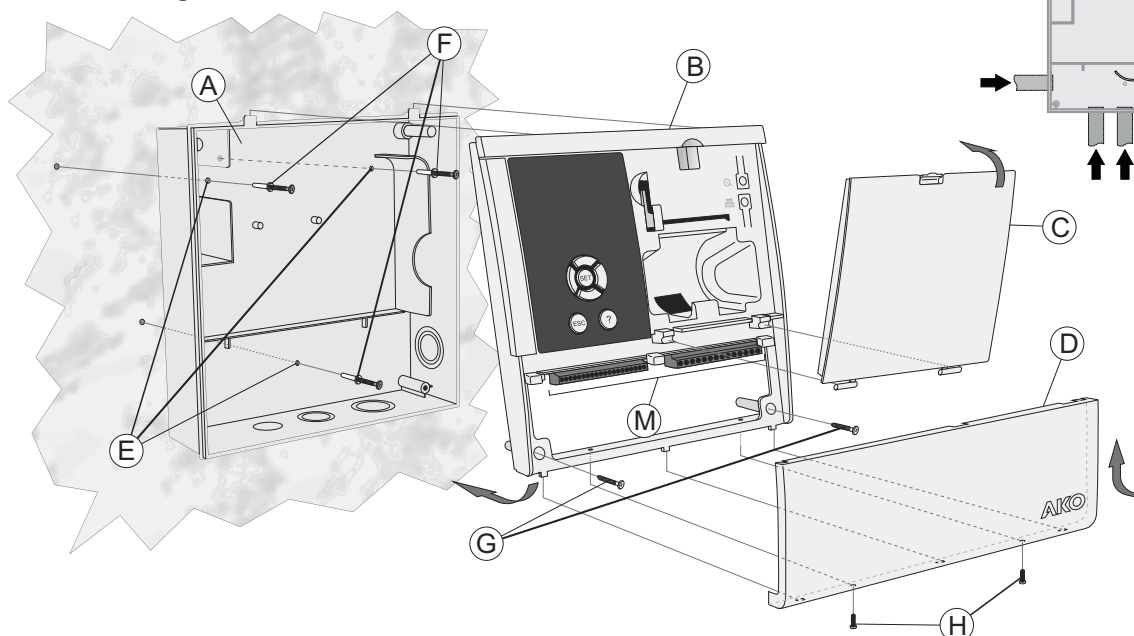
-Remove the connection panel (D).

-Remove the front (B) from the housing (A).

> **Panel mounting only**
>
> -Replace the gasket installed in the front panel with the included panel mounting gasket (K).
>
> -Make a hole of the specified size in the panel (Fig.2).

-Select the most appropriate cable input configuration for the installation (fig. 1).

-Drill the holes for the cable glands using the pre-stamped holes as a guide.

> **Wall mounting only**
>
> -Drill 3 holes in the wall to match the fixing holes on the housing (E).
>
> -Insert and tighten the 3 bolts and wall plugs (F).
>
> **Panel mounting only**
>
> -Finish drilling the top holes (L) with a 4 mm bit.

-Insert the cables through the cable glands. If you choose the upper inlets, guide the cables as shown on figure 1.

-Connect the battery cable to the panel connector (Page 14).

> **Wall mounting only**
>
> -Fit the front of the housing (B).
>
> -Insert and tighten the two screws on the front (G).
>
> **Panel mounting only**
>
> -Attach the front to the housing, through the panel, and affix it with the screws provided (G and J).

-Connect cables following the drawings in page 16.

-Close the connection panel (D), insert and tighten the fixing screws (H).

Panel mounting
(maximum panel thickness: 3 mm)

(fig. 2)

214 mm

PANEL CUTOUT

214 mm

15

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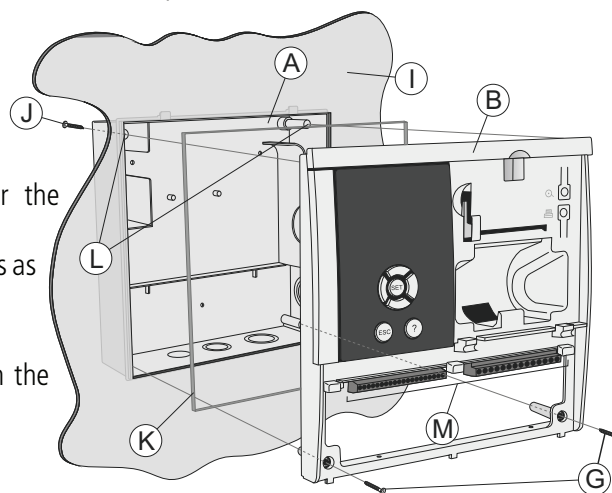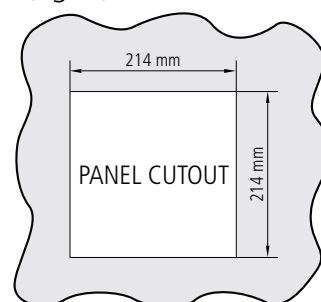
Wiring

Supply and outputs

⚠️ **CAUTION:** The power supply circuit should be equipped with a switch for turning it off, located close to the device.

8 A cos φ = 1 250V

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Tr⁻	Tr⁺	Gnd					NC	NO	C	NC	NO	C		

Tr⁻ Tr⁺ Gnd — Outputs of +15Vc (max. 200mA)

NC NO C — Output MINIMUM ALARM

NC NO C — Output MAXIMUM ALARM

Input 100-240Vac

Probes

AKO-15740/15742

INPUT NO.

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

NTC Pt1000

Example of connection of other probes:

DIGITAL INPUT
n
x x

4-20 mA 3 wires
(1) **n**
x x

4-20 mA 2 passive wires
(1) **n**
x x

4-20 mA 2 active wires
n
x x
+ −
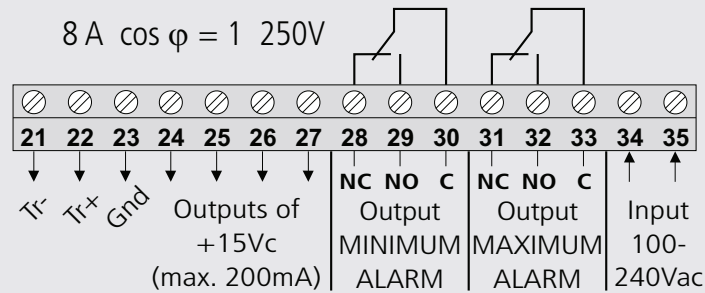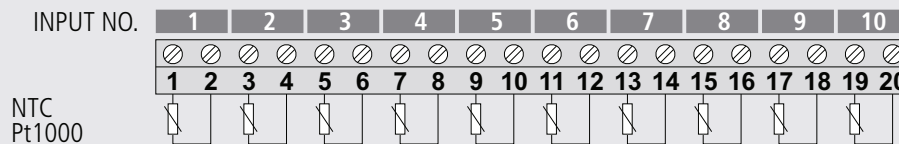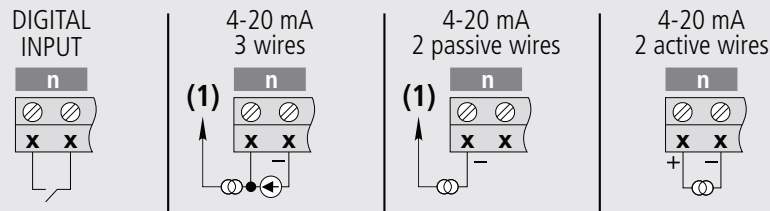
AKO-15750/15752/15780/15782

INPUT NO.

1	2	3	4	5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

NTC Pt1000

Inputs 3 to 5 **AKO-1575x** only

Example of connection of other probes:

Pt100
n
x x x

DIGITAL INPUT
n
x x x

4-20 mA 3 wires
(1) **n**
x x x

4-20 mA 2 passive wires
(1) **n**
x x x

4-20 mA 2 active wires
n
x x x
+ −
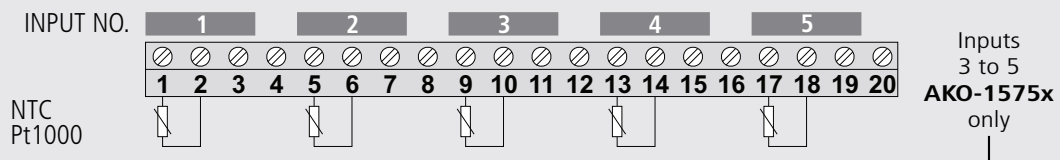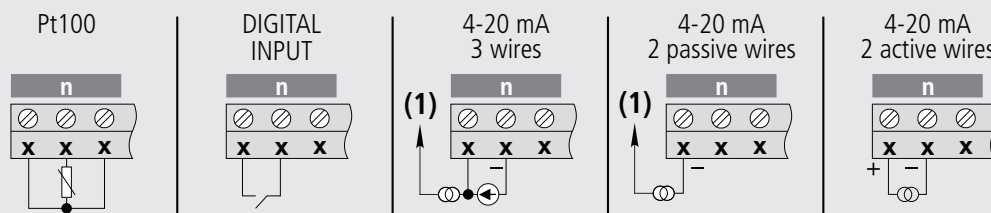
(1) Connect to one of the + 15V output terminals (terminals 24 to 27).
For more information about the connection of humidity probes consult Manual 358004001 on our website:
www.ako.com

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Connectivity

You may set up a local network between various data loggers linked in any of the following arrangements. This will allow you, among other things, to use the device configured as master data logger to print data from any other data logger or upload data from any data logger to a PC.

> ⚠ **IMPORTANT:** Each unit must be assigned a different slave address.

Not connected to a PC:

Maximum 7 data loggers, 1 in master mode and 6 in slave mode.
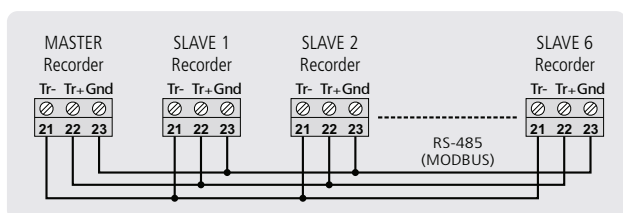
Connected to a PC:

Maximum 127 data loggers in slave mode connected to a PC (master).
Recommended cable: **AKO-15586**
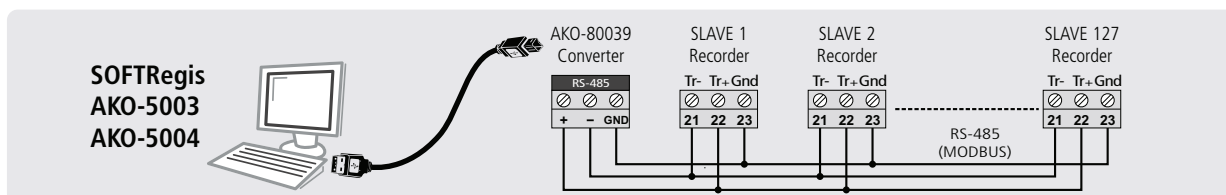
Installing the thermal paper roll

AKO-15742/15752/15782 only

-With the unit connected to the network, open the front cover and push the release lever (1) back.

-Place the paper roll in the position shown on the image.

-Insert the end of the paper roll through the bottom slot in the printer until it begins to feed through. As soon as the paper appears in the top slot, the device will stop feeding.

-Return the release lever to its initial position. The printer is now ready to print.

-Press the ⊙ key to feed the paper through.

-Press the 🖶 key for express printing.

To print data, the data logger has to have at least one entry recorded. The required printing time will depend on the entry interval configuration (default is 15').
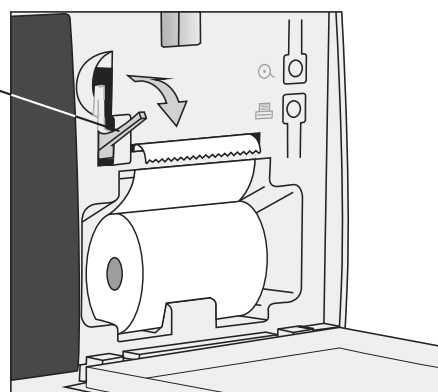
> ⚠ **IMPORTANT:** The printer paper is thermal and can only be printed on one side. Make sure you insert it properly.

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Description

Date
Time

`03/10/09, 13:35:26, Ma` **3.5** `°C`
`ENTRADA 1`

Recording Mode
Battery status
Day of the week
Screen
Search arrows
Escape key
Help key

Indicates the recording interval

Full charge
Charging
Defective or not connected (blinking)

REC 15'/● Recording data
REC 15'/🕐 Recording data, scheduled stop
▶/‖ Data logging programmed
NO REC Data logging stopped

Paper input lever[1]
Paper feed key[1]
Print/ fast print/ stop print key

Printer lid[1]

[1] Only **AKO-15742/15752/15782**
[2] If the recording interval is 15'.

Keypad functions

◀ ▶ Horizontal scrolling. Changes display modes

▲ ▼ Vertical scrolling/Change value. Changes the input to be displayed.

SET Confirms selection. Pressing it for 5 sec. the programming menu is accessed.

ESC Allows you to exit without saving changes (Programming). Returns to the previous menu or exits programming.

? Displays the help text for the parameter or function selected.

NOTE: The alarms are silenced by pressing any of the above keys.

On models with printer.

⊙ On each press, the paper advances approximately 1 cm.

🖨 On standby, prints the graph of the last calendar week logged.[2]
From the logger menu, prints the data or the graph shown on the screen.
From the alarm menu, prints the alarm log.
Stops any printing in progress.

Indicaciones

🔔 Alarm activated   🔊 Alarm signal activated   Alarm signal muted/disabled   T Alarm/event delayed

↑ Maximum alarm / Digital input activation (event)   ↓ Minimum alarm / Digital input deactivation (event)

EEE Probe error (open/crossed/off-scale)   ⚠ Power supply has failed and the battery is dead. Date and time must be checked (blinking date and time)

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Start-up

Connect the power supply of the unit. If the device has not been previously configured, a wizard will be launched to help you configure the major options.

Wizard:

A: Specify the language

```
Idioma:
Español
English
Francais
Deutsch
РУССКИЙ
--------
--------
--------
```

B: Specify the date

```
Date

     DAY  MONTH YEAR
     11/03/09
```

C: Specify the local time

```
Time

     HOUR  MIN.  SEC.
     10:14:25
```

⚠ Make sure you enter the date and time correctly, since once you record your first entry you will be unable to switch to an earlier date.

D: Select a time zone

```
     GMT: +  1

Time zone
Amsterdam, Berlin,
Bern, Brussels, Madrid,
Oslo, Paris, Rome,
Stockholm, Vienna
```

E: Select the type of time change

```
Time settings
Manual
Auto
(Valid for the EU)
    ◁          ▷
Winter       Summer time
```

F: Launch the input wizard?

```
Input wizard
NO
YES
```

Time change

By switching this parameter to "auto" the unit will automatically switch from winter time to summer time and vice versa (valid only in the European Union).

In manual mode, press ◀ or ▶ to select the current time.

Input wizard:

```
Input 1: Type of input
Disabled
NTC
Pt1000
4-20 mA
Digital
                    🌡1
```

The input wizard will guide you through the various configuration options available for each entry.

If you select "Disabled", the wizard will delete the entry and will go on to the next. Deactivating unused items is recommended.

Depending on the type of entry selected, the wizard will request the necessary data for its proper configuration.

Entry description editing

In order to facilitate the interpretation of data, you may customise the names of each field with a description of up to 10 characters.

The lower section of the screen shows the changes carried out during the editing process.

- Use the arrow keys ◀, ▶, ▼ and ▲ to navigate through the various available characters and options and the **SET** key to validate the selection.
- Select ✎ to delete the highlighted text.
- Select ◁ or ▷ to move within the text being edited
- Select 🖫 to save your changes and exit the edit menu

```
Description
/0123456789:;<=>⌐ABCDE
FGHIJKLMNOPQRSTUVWXYZ%*

 ✎  ▷  ◁  🖫

INPUT 1
```

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If you select entries NTC, Pt100, Pt1000 or 4-20 mA, when you conclude the configuration process the wizard will continue configuring the alarms

1- Activate maximum alarm?

```
Maximum alarm ↑
Disabled
Enabled
```

2- Maximum alarm temperature

```
Maximum Alarm

      15  °c
```

3- Maximum alarm delay time

```
Maximum alarm delay

      5  Minutes
```

4- Activate minimum alarm?

```
Minimum alarm
Disabled
Enabled
```

5- Minimum alarm temperature

```
Minimum alarm

      15  °c
```

6- Minimum alarm delay time

```
Minimum alarm delay

      8  Minutes
```

Configuration of input 1 is complete.

The wizard will proceed to the next input, repeating the same steps, until they are all configured.

Upon completion, the logger will automatically begin to record data.

> **ⓘ** **IMPORTANT:** If you select NO, all entries will be left with default settings and the unit will begin to record data. The entries may be re-configured later through the programming menu (see user manual).

Operation

Display modes

There are four possible modes for displaying instantaneous input readings. Press ◀ or ▶ to toggle between the various modes:

Individual input information

Input reading

Description of the input

```
03/10/09 13:35:26 Tu ▥ ●
      3.5
              °c
INPUT 1           △▽
```

Sequential input information

Input reading

Description of the input

```
03/10/09 13:35:26 Tu ▥ ●
      3.5
              °c
INPUT 1   INPUT 1   INPUT 1
```

List of inputs

Description of the input

Input disabled

Input reading

```
03/10/09 13:35:26 Tu ▥ ●
INPUT 1      3.5°C
INPUT 2      2.8°C    ♤•))↑
INPUT 3     -5.3°C
INPUT 4       Off
INPUT 5      -----
INPUT 6      -----
```

Alarm status*

Summary of inputs
(only AKO-15740 and AKO-15742)

Input No.

Probe failure

Input disabled

Input reading

```
03/10/09 13:35:26 Tu ▥ ●
1:   3.5°C    2:   2.8°C
3:  -5.3°C    3:   5.6°C
5:  -----     6:  -----
7:  EEE       8:  -----
9:  -----    10:  -----
```

* Alarm status

♤ Alarm activated	•)) Alarm signal activated	✕ Alarm signal muted/disabled
T Alarm/event delayed	↑ Maximum alarm / Digital input activation (event)	↓ Minimum alarm

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Fast printing (only AKO-15742,15752 and 15782)

When the ⌨ key is pressed the fast printing function is executed. This function prints the graphs of all the active inputs, with the data logged during the last period.

This period cannot contain gaps in continuity and its length is defined by the recording interval, as set out in the following table:

Recording interval	Period to be printed
1 min.	672 min. (11 hours)
5 min.	3.360 min. (56 hours)
15 min.	**Last complete calendar week (From Monday to Sunday)**
30 min.	14 days

A gap in continuity is caused every time recording is stopped, or every time we make any change in the unit's configuration that affects the date/time parameters, description of inputs, measuring units, input type or recording interval.

If it does not have sufficient data saved, the unit will display the message "*Insufficient data to print graphic*" and will print the most recent data logged since the last change in configuration.

> **ℹ️** **NOTE:** If the logging interval is 15', it prints the data from the previous calendar week (from Monday to Sunday). This function is available from the last log, that will occur on Monday at the time when the last change in the configuration was made.

3.3.- User menu

The user menu allows you to access the unit's most frequently used functions. Press the **SET** key for 5 seconds in order to access.

Use the ▲ or ▼ keys to scroll through the various options and press **SET** to access them.

Logger

Allows you to display or print the data logged during the time period selected.

Use the ▲ or ▼ keys to scroll through complete weeks.

Use the ◄ or ► keys to scroll through single days.

To select several consecutive days, press **?** to fix the start and extend the selection with the ► key (maximum 7 days).

Once the selection is defined, press **SET**. Three options appear:

🗁-Displaying data

Displays on the screen the data recorded during the selected period of the first active input.

Input displayed
Date of the recording
Time of the recording

```
INPUT 1
27/08/09  12:15  8.5°C  9
27/08/09  12:00  8.7°C  8
27/08/09  11:45  8.4°C  7
27/08/09  11:30  8.2°C  6
27/08/09  11:15  8.4°C  5
27/08/09  11:00  8.0°C  4
27/08/09  10:45  8.3°C  3
27/08/09  10:30  8.5°C  2
```

Recording value
Recording number

To scroll through logs: ▲ o ▼
To scroll through inputs: ◄ o ►

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⌇-Displaying a graph

Displays on the screen the graph of the first active input with the data logged during the period selected.

Recording cursor

Recording number

Full Scale `10.4` `°C INPUT 1   N= 2`   Input No.

Recording value `09.6`

Scale minimum `08.2`

`05/05/09 16:00`   Date and hour of the recording
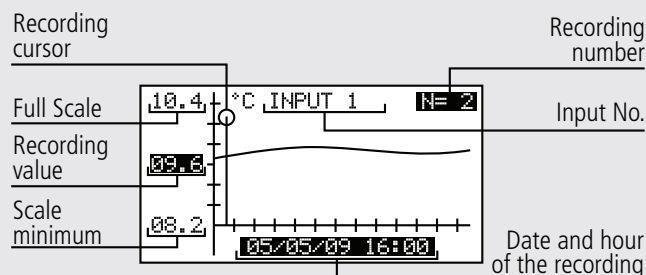
To scroll through records: ◀ or ▶
To scroll through inputs: ▲ or ▼
Printing the graph displayed: 🖶
(only AKO-15742,15752 and 15782).

🖶-Fast printing (only AKO-15742,15752 and 15782).

Prints the graph of all the active inputs with the data recorded during the selected period.

Units

Input description

Initial date/time
Final date/time
Recording interval
Maximum and minimum values logged

Full Scale

Mean value

Scale minimum
Scale of dates and hours
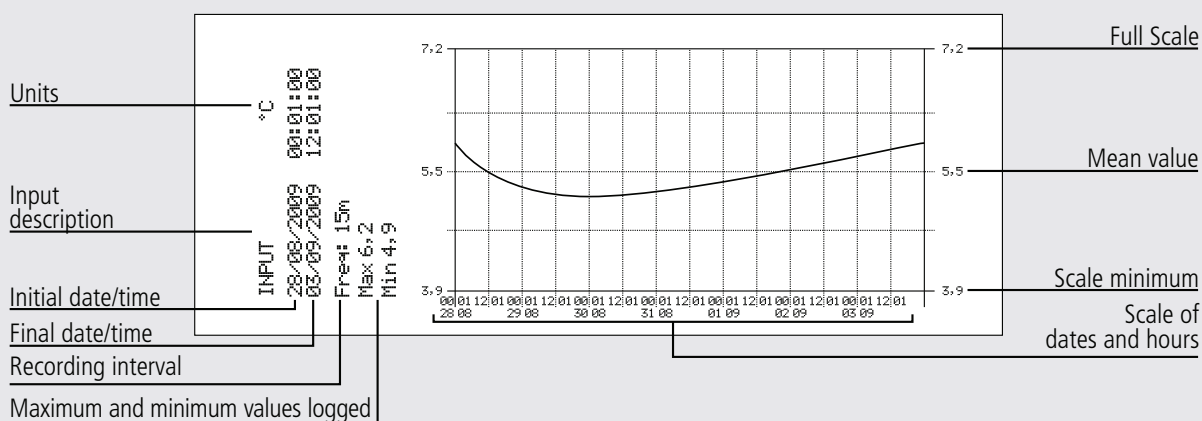
ℹ️ **NOTES:**
-If the period selected does not have sufficient data to display a graph, the unit will display the message "Insufficient data stored".
-You cannot select a date later than the current date or a week later than the current week.

Alarms

Displays a summary of the last 6 alarms logged by the unit.
The first alarm will be displayed in position 0, the second in 1 and so on until the six are completed. Once they are all complete, the new alarms will replace the previous ones following the same order.


```
Alarms:
0-27/08/09 10:16 ↑01
1-29/08/09 02:45 ↓09
2-31/08/09 21:30 ↑05
3-05/10/09 14:55 ↑05
4-18/12/09 23:30 ↓08
5-19/12/09 23:50 ↑03
```

Alarm date
Alarm time

Input No.

Alarm type

Print summary: 🖶
(only AKO-15742, 15752 and 15782)

↑ Maximum alarm
↓ Minimum alarm

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Recording mode

The unit has three operating modes:

Recording stopped (NO REC)

The unit displays the data of the active inputs but does not record them.

Recording started (REC)

The unit is currently recording the data of the active inputs.

▶/‖ **Timed recording**

The recording of data has been timed. The unit will start to record when the programmed start date and time are reached. It is also possible to time set the stopping of recording.

To change from one mode to another, access this option again, select the appropriate option with the ▲ or ▼ keys and press the **SET** key.

If you are in data logging mode when you access this option, the unit will request confirmation to stop the recording. Select the appropriate option and press **SET**.

Case 1: Programmed start	Case 2: Programmed start and stop

To scroll through values: ◄ or ► To change values: ▲ or ▼ To confirm changes: **SET**

Digital Input Rec.

Whenever one of the digital inputs (see page 10) changes state, an event will be generated and logged in the equipment memory.

This function displays a list of logged events. The first event will be shown in position 000, the second at 001 and so on up to the 1000 positions available for each digital input.

When they are all taken up, any new event generated will delete the first set of 256 positions and the event will be logged in the first position of this set.

A list of one or more events can be printed (**AKO-15742**, **15752** and **15782** only). To select events for printing, scroll to the first one using the ▲ or ▼ keys, press **SET** and select more events using the ▲ key; the selected events will be marked with a ◄, press 🖶 to start printing.

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Printer menu (only AKO-15742, 15752 and 15782)

Select the appropriate option with the ▲ or ▼ keys and press the **SET** key.
Fast printing: Performs the same function as the 🖶 key (Page 18).
Print alarms record: Prints a summary of the last 6 alarms recorded by the unit. (Page 22)
Print test page: Prints a test page to check the printer is working correctly.
Print digital input rec: Prints a list of one or more events. To select events for printing, scroll to the first one using the ▲ or ▼ keys, press **SET** and select more events using the ▲ key; the selected events will be marked with a ◀, press 🖶 to start printing.

Table of parameters

Configuration

Description	Units	Min	Def	Max.
Time Zone		-12	-	+12
Winter/Summer Schedule: **Manual** **Auto**		Man.	-	Aut.
Date/Time: **Day** **Month** **Year**				
Recording interval	Min.	01	15	30
Access Password (0=Disabled)		0	0	9999
Clear Data Log (Password required, see user manual)				
Master/Slave Mode : **Master** **Slave**		S.	S.	M.
Network Slave Address		000	001	247

Language

Description	Units	Min	Def	Max.
Language : **Español** **English** **Français** **Deutsch** **русский** **Português**			-	

Input *n* configuration

Description	Units	Min	Def	Max.
Type: **Disabled** NTC **Pt100*** **Pt1000** **4-20mA** **Digital**			NTC	
Display Units: **Degrees Celsius** **Degrees Fahrenheit**		°C	°C	°F
Description			Input n	
Maximum Alarm: **Disabled** **Enabled**		Dis.	Dis.	En.
Minimum Alarm: **Disabled** **Enabled**		Dis.	Dis.	En.
Maximum Alarm (Only if maximum alarm is active)	°C/°F	Min. Al.	105	999
Maximum Alarm Delay (Only if maximum alarm is active)	Min.	0	0	60
Minimum Alarm (Only if minimum alarm is active)	°C/°F	-150	-50	Max. Al.
Minimum Alarm Delay (Only if minimum alarm is active)	Min.	0	0	60

 * AKO-1575x and AKO-1578x Only.

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🔒 Input *n* configuration

Description	Units	Min	Def	Max.
Value for 4 mA (Only if Type= 4-20mA)	°C/°F	-999	000	999
Value for 20 mA (Only if Type= 4-20mA)	°C/°F	-999	000	999
Digital Input Polarity: **Normally Open** (Only if Type= Digital) **Normally Closed**		NO	NO	NC
Activation delay (Only if Type= Digital)	Min.	00	00	60
Deactivation delay (Only if Type= Digital)	Min.	00	00	60
Alarm relay (Only if Type= Digital)		No	Yes	Yes
Buzzer in alarm (Only if Type= Digital)		No	Yes	Yes

Specification

Range varies by type of probe configured:
    NTC (**AKO-149xx**) ....-50 °C to 105 °C (-58.0 °F to 221 °F)
    Pt1000 ....-150 °C to 550 °C (-238 °F to 1022 °F)
    4-20 mA ....-999 to 999
(**AKO-1575x and AKO-1578x** only)
    Pt100 (**AKO-1558xxx / AKO-1559x**)...-150 °C to 590 °C (-238 °F to 1094 °F)
Resolution ....0.1 °C from -999 to 999, elsewhere 1 °C
Thermometric precision
    NTC (-40 °C to 40 °C)..±1 °C
    Pt100 (-40 °C to 40 °C) ....±1 °C
    Pt1000 ....from -100 °C to +100 °C ±2 °C, elsewhere: ±1%
Input tolerance 4-20 mA ....±1% (mA)
Designation with NTC ,Pt100
    EN 12830,S,A,1,-40 °C +40 °C
    EN 13485,S,A,1,-40 °C +40 °C
Maximum power absorbed ....5 VA
Ambient working temperature ....0 °C to 50 °C
Ambient storage temperature ....-30 °C to 70 °C
Double insulation between supply,
secondary circuit and relay output.
Installation category ....II according to EN 61010-1
Pollution classification ....II according to EN 61010-1
Battery ....Li-Polymer
Internal buzzer

ℹ NOTE FOR THE SPANISH MARKET
This device complies with the UNE EN 12830 standard

For additional information, check the user manual at **www.ako.com**