Cronotermostrato Digitale

Athena

User Manual
PROGRAMMABLE DIGITAL THERMOSTAT $C\!\!\in$

≢∃vemer SPA

Index

English

■ Athena is a multizone programmable thermostat for room temperature control.

SAFETY INSTRUCTIONS

When installing and operating the product it is absolutely necessary to observe the following instructions:
1) **The device must be installed by a qualified person.**
2) **Disconnect power supply while installing the device.**
3) **Do not power or connect the product if any part of it is damaged.**
4) **Connect the product considering the diagrams described in the following manual and those on the device itself.**

Code	Model	Description	Color
VN940300	**Athena**	Programmable digital thermostat multizone/wireless	White
VE080800	**Athena Silver**	Programmable digital thermostat multizone/wireless	Silver

TECHNICAL SPECIFICATIONS

- Power supply voltage: 2x1,5V (AAA) alkaline batteries
- Battery autonomy: 12 months approx.
- Standby battery: approx. 2 minutes for battery replacement
- Battery level control, with "dead battery" indicator
- Bistable switchover relay output: maximum capacity 8A / 250V AC (resistive load)
- "summer" and "winter" operation modes
- Simultaneous control of 4 independent zones
- Temperature adjustment type: proportional or ON/OFF, with differential adjustable from 0,1 to 1°C
- 4 control setpoints that can be selected for every time segment
- Clock with time and date reading
- Automatic winter/summer switchover
- Weekly programming with 7 daily programs
- Programming resolution: 30 min
- Measured temperature resolution: 0,1°C
- Accuracy: ±0,5°C
- Temperature measurement updated every 30s
- Temperature measured by the built-in probe: 0°C ÷ 40°C
- Temperature measured by the external probe: -40°C ÷ 60°C
- Temperature control range: 2°C ÷ 35°C
- Operating Temperature: 0°C ÷ 50°C
- Storage Temperature: -10°C ÷ 65°C
- LCD display reading the temperature, time, date and daily program
- Protection degree: IP40

LCD DISPLAY, KEYPAD
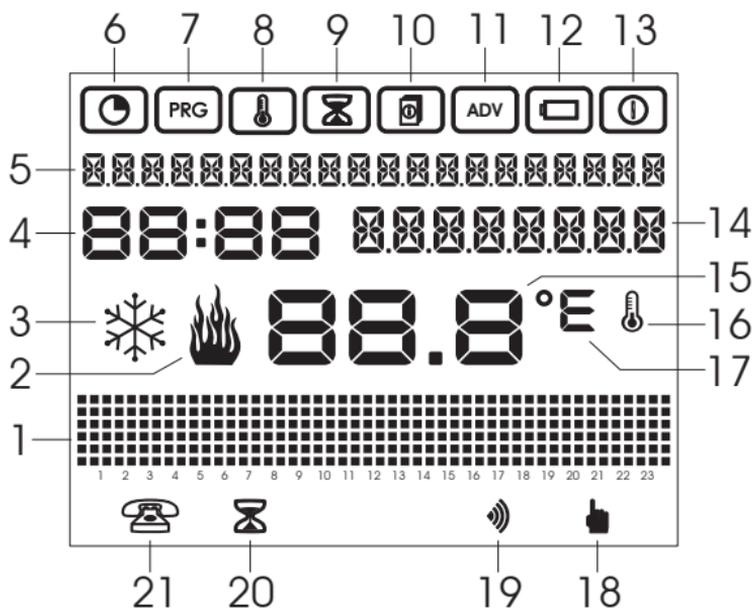

Figure 1

The LCD display reads the following information (Figure 1):

 1 Graph of selected temperatures
 2 Actuator ON in winter operation mode
 3 Actuator ON in summer operation mode
 4 Clock
 5 Reading of day-month-year info, temperature control zone
 6 Time/date configuration menu
 7 Daily programming menu
 8 Temperature programming menu
 9 Timer programming menu
10 Zone-control parameter programming menu
11 Advanced programming menu
12 Battery status menu
13 Temperature control ON-OFF menu
14 Zone name, external temperature, or manual temperature reading

15 Measured temperature
16 Temperature measurement or acquisition in process
17 Unit of measurement °C/F
18 Manual operation
19 Wireless card IN
20 Extension program enabled
21 Telephone dialler status

Keypad (Figure 2):

• 1: ESC button
• 2: joystick; press the centre for **[OK]**
         press the sides for $\triangle$, ∇, $\triangleright$, $\triangleleft$,
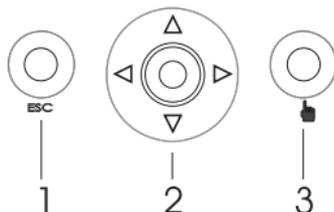• 3: manual operation key

Figure 2

SWITCH ON RESET

• Place batteries and then press the **[R]** reset key (see the "battery placement" diagram on page 45). This does not erase previous programming but only date and time.
• All the segments on the display will flash and the relay will be actuated for approx. 3s.
• The display goes off and then back on with the time reading flashing.
• The clock keeps working regularly, whereas temperature control is inhibited until the time is set.

Note: to restore the device's default conditions, press the [R] key and then the [OK] key.

SETTING THE TIME

• Press the joystick centre **[OK]**, and access the first menu, i.e. the time and date setting menu, which is marked by symbol. The page opposite will be displayed.
• To change the fields displayed press the **[OK]** key again.
• The field to be modified will start to flash. Increase or decrease the value by keys $\triangle$ and ∇ respectively, then confirm and move on to the next field by keys $\triangleright$ and $\triangleleft$.
• The fields that can be modified are:
  ◦ seconds: press $\triangle$ to set them to zero and increase minutes, press ∇ to set them to 0
  ◦ hh:mm
  ◦ GG.MM.AAAA
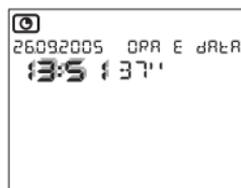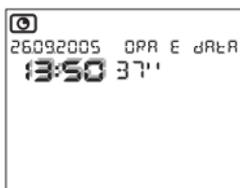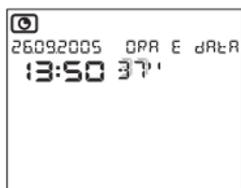
- To end and save the changes press the **[OK]** key.
- Press ESC to exit the time setting page.
- The programmable thermostat will then start to control the temperature automatically according to program P00 for weekdays, from Monday to Friday, and program P01 for Saturdays and Sundays.

OPERATING MODES

The device features the following operation modes:

- Automatic operation
- Manual operation
- Extension program
- Countdown program

AUTOMATIC OPERATION

- After the reset phase, as soon as the date and time are set up, the device switches to automatic operation.
- When in automatic operation, the device periodically measures the temperature in the temperature zones it was programmed to control and performs zone temperature control following the set up programs.
- The display reads the following information:
  ♦ date and time
  ♦ measured temperature (zone 1…4)
  ♦ daily hourly graph (zone 1…4)
  ♦ temperature measured by the external probe
  ♦ temperature measurement unit
  ♦ actuator status (zone 1…4)
  ♦ presence of a wireless card
  ♦ "dead battery" sign
  ♦ temperature zone (Z1…Z4)
  ♦ min. and max. measured temperature
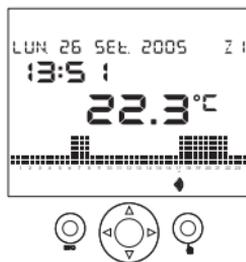
- When on the main page, it is possible to view more details about the current zone using keys $\triangle$ and ∇. If key $\triangle$ is pressed when on field 14 (see Figure 1), the current zone name will appear (if it was entered; otherwise the reading "zona…" will appear).
- To view the temperature measured by the external probe, press again $\triangle$ from field 14 (If the probe exists and was previously configured).
- To view the minimum and maximum temperature measured by the external probe in field 5, press $\triangle$ again. To set these values to zero, hold the **ESC** key down for at least three seconds.
- To return to the main page, press key $\triangle$ again.
- To view the daily programming and the temperature in other zones, use arrow keys $\triangleright$ and $\triangleleft$.

Note: zones that are not correctly configured are not displayed (cfr. "Advanced programming" section).

MANUAL OPERATION

- This function is enabled/disabled by pressing key 👆
- When in manual operation, the display reads the 👆 symbol and the programmable thermostat works as an ordinary thermostat, using the setpoint read on field 14.
- The control setpoint can be changed using keys $\triangle$ and ∇. The setpoint may range from 2,0° to 35,0°. The default setting is 18,0° for winter operation; it is 23,0° for summer operation.

NOTE: the 4 zones can be switched to manual mode with different individual setpoints.

EXTENSION PROGRAM

- The extension program enables the device to switch to manual mode for a certain length of time (up to 96 hours).
- AAs soon as the extension program time expires the programmable thermostat switches back to automatic.
- To enable the extension program, hold key 👆 down for at least 3s. The display will read the symbol 🏃, the word "extension" and the time (flashing).
- Set the time using arrow keys $\triangle$ and ∇ and confirm by pressing the **[OK]** key.
- During the extension program it is possible to change the setpoint just like in manual mode.

NOTE: to cancel the extension program just set the time to 00:00. The extension program cannot be enabled if a countdown program is already enabled.

COUNTDOWN PROGRAM

- By the countdown program it is possible to schedule system switch-on and switch-off on a certain date.
- As for details on configuring the countdown program, refer to the "Timer programming" section on page 36.

NOTE: the countdown program cannot be enabled if the extension program is already enabled.

PROGRAMMING MENU

- All the device's operating parameters can be selected by 8 programming menus.
- To access the programming menu, press the **[OK]** key from normal operation mode. Use arrow keys ▷ and ◁ to scroll the menu.
- The menus are as follows, in the order in which they are listed:

🕐 Date and time setting, Winter/Summer time switching

[PRG] Daily programming

[🌡] Temperature programming

[⧗] Timer programming

[a] Programming of zone control parameters

[ADV] Advanced programming

[▭] Battery status

[⏻] Programming ON/OFF

- Every menu may contain various selectable parameters: use arrow keys △ and ▽ to scroll all parameters, press the **[OK]** to change them.

DATE AND TIME SETTING, WINTER/SUMMER TIME SWITCHING

- To set the date and time, cfr. "Setting the time" section on page 28.
- To set a summer/winter time switch, press △ or ▽ when in the date and time setting page.
- You will thus enter the automatic winter/summer time-change enable/disable menu. This reads the current time status (winter or summer) and the operation status (ON for automatic switching from daylight-saving time to solar time; OFF when this is disabled).

- To change parameter status, press **[OK]**, make your selection using keys △ and ▽ and confirm by the **[OK]** key.
- The time changing date and hour cannot be altered:
  ○ winter → summer change: last Sunday in March, at 02:00
  ○ summer → winter change   last Sunday in October, at 03:00

DAILY PROGRAMMING

- ABy the daily programming menu it is possible to assign a temperature profile to every day of the week, i.e. a   daily program (per control zone). This menu is marked by symbol 〔PRG〕.

- Daily programs are organised by half-hour steps and are only enabled during automatic operation.
- The user can configure 14 daily programs, which will be identified as P00…P13: winter programs from P00 to P06, summer programs from P07 to P13.
- The temperature zone that the programming will affect is the one appearing before entering the menu. The readings 🔥 / ❄ stand for winter and summer programming respectively.
- The reading of daily programming starts from the current day. Use arrow keys △ and ▽ to scroll the days of the week and view the daily programs as configured.
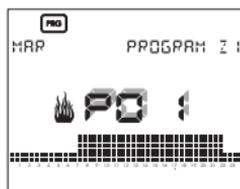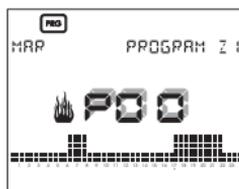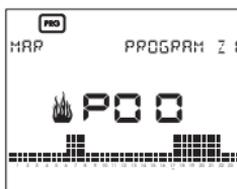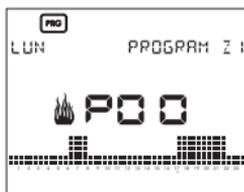
- To change the current program press **[OK]**. The number identifying program number (i.e. P00) will start to flash.
- Change the current program selection using the arrow keys △ and ▽ and choosing among the pre-set programs. To change the current program instead, press the **[OK]** key.
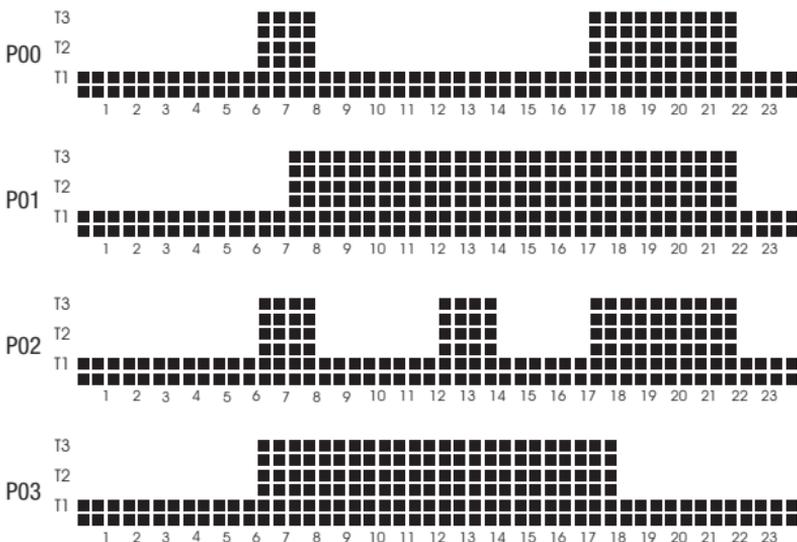
Changing daily program

- After pressing the **[OK]** key, the temperature bar corresponding to the current time will start to flash. The display reads the programming time and the current temperature selection (T0, T1, T2 or T3).
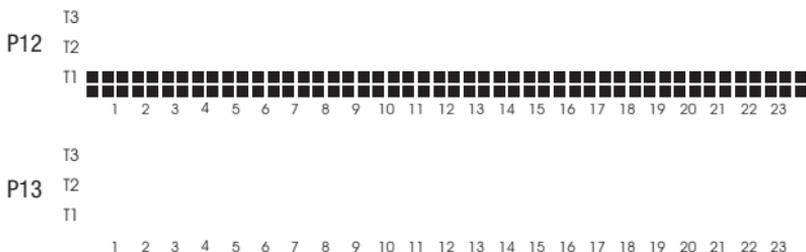
- Use keys $\triangle$ and $\triangledown$ to make the new temperature selection, or either keys $\triangleright$ and $\triangleleft$ to move on to a different time segment.
- To end temperature profile programming press **[OK]**.
- The charts below show the pre-set programs.

PRE-SET WINTER PROGRAMS

P04 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P05 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P06 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

PRE-SET SUMMER PROGRAMS

P07 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P08 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P09 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P10 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P11 T3 T2 T1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P12

T3
T2
T1 ██

    1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P13

T3
T2
T1

    1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

TEMPERATURE PROGRAMMING

- Temperature control uses 4 independent setpoint levels for each control zone and for summer and winter operation modes. Setpoint levels can be selected in this menu.
- When in this menu, which is marked by symbol [🌡], , use arrow keys $\triangle$ and ∇ to select the temperature setpoint (T0, T1, T2 or T3) for the current zone and mode (summer or winter) to be modified.
- Press **[OK]** to enter the temperature change (which will flash) and use arrow keys $\triangle$ and ∇ to change the value.
- Press **[OK]** to apply the change.

NOTE: when in summer operation mode temperature setpoint T0 cannot be used, as it means air-conditioner OFF.

- The admitted temperature intervals are as follows:

Winter operation			
Temperature	minimum [°C]	maximum [°C]	default
T0	2.0	T1	5.0
T1	T0	T2	15.0
T2	T1	T3	18.0
T3	T2	35.0	20.0

Summer operation			
Setpoint	minimum setting [°C]	maximum setting [°C]	default
T0	-	-	**OFF**
T1	10	T1	23.0
T2	T1	T2	24.0
T3	T2	35.0	25.0

TIMER PROGRAMMING

- • In this menu it is possible to determine system switch off/switch on parameters (countdown), and view the system's work hour-count for the current zone ⌛.
- When system switch-on is scheduled, all the zones will be put "off" until the scheduled date; after that date every zone will take on the operation mode it was in before the switch-off. When in this operation mode the display shows symbols ⌛ and Ⓞ.
- When system switch-off is scheduled, all the zones will be put "off" on the scheduled date. When in this operation mode the display reads symbol ⌛.

NOTE: to exit the switch-on or switch-off countdown before the time expires, just set the countdown time to zero.

- The system will be switched on or off when the timer reads 00:00. The **countdown** program affects all control zones simultaneously.
- To set the countdown program, press the **[OK]** when in the timer programming menu.

- Press keys △ and ▽ to select switch-on or switch-off.
- To set the date, use arrow keys ▷ and ◁ to move inside the data field and change the values using arrow keys △ and ▽. If the date field reads [--.--.----] the switch-on/switch-off date is not set. When the date is set, press the **[OK]** key to confirm. Press ESC to return to the main page.

**NOTE: the countdown program cannot be enabled if the extension program is already enabled.**

- To view the system's work hour-count, press key △ or ▽ when in the timer programming menu. The work hours refer to the temperature zone shown before entering the menu.

NOTE: to set the hour count for the current zone to zero, hold the [OK] key down for approximately 3 when in the hour-meter reading menu. The maximum hour-meter value is 65535 hours.

ZONE-CONTROL PARAMETER PROGRAMMING MENU

- In this menu, which is marked by symbol [⚙], it is possible to configure the control parameters for the currently displayed zone:
  - winter/summer operation mode (winter by default);
  - temperature-control type (ON/OFF or proportional) (ON/OFF by default);
  - control differential for ON/OFF temperature control (this value may vary between 0,1° and 1,0°, and it is 0.3°C by default).
- These menus are accessible using arrow keys $\triangle$ and ∇.
- Press **[OK]** to enable parameter change (the field will flash) and use arrow keys $\triangle$ and ∇ to modify the value. Press **[OK]** again to end the change.

- The control differential setting menu is only available if the temperature-control selection is ON/OFF type.
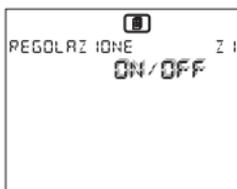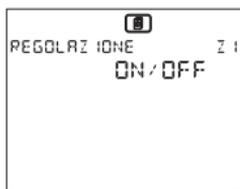
- When in **ON/OFF** operation, if the measured value is below the minimum threshold, the load is always ON.
- When in **proportional** operation, temperature control is time-dependant with 10-minute steps as follows:

$Tmeas \geq Tset + 0.6\ °C\ [1.1\ °F] \Rightarrow$ relay OFF
$Tmeas = Tset + 0.5\ °C\ [0.9\ °F] \Rightarrow$ 1 minutes ON; 9 minutes OFF
$Tmeas = Tset + 0.4\ °C\ [0.7\ °F] \Rightarrow$ 2 minutes ON; 8 minutes OFF
$Tmeas = Tset + 0.3\ °C\ [0.5\ °F] \Rightarrow$ 3 minutes ON; 7 minutes OFF
$Tmeas = Tset + 0.2\ °C\ [0.4\ °F] \Rightarrow$ 4 minutes ON; 6 minutes OFF
$Tmeas = Tset + 0.1\ °C\ [0.2\ °F] \Rightarrow$ 5 minutes ON; 5 minutes OFF
$Tmeas = Tset \Rightarrow$ 6 minutes ON; 4 minutes OFF
$Tmeas = Tset - 0.1\ °C\ [0.2\ °F] \Rightarrow$ 7 minutes ON; 3 minutes OFF
$Tmeas = Tset - 0.2\ °C\ [0.4\ °F] \Rightarrow$ 8 minutes ON; 2 minutes OFF
$Tmeas = Tset - 0.3\ °C\ [0.5\ °F] \Rightarrow$ 9 minutes ON; 1 minute OFF
$Tmeas \leq Tset - 0.4\ °C\ [0.7\ °F] \Rightarrow$ relay ON

- If an operation setting is changed, temperature control will be ON-OFF type until Tset is reached for the first time; this will help reaching the selected conditions more quickly.

IMPORTANT: PROPORTIONAL mode selection has no effect on summer operation. Temperature control is always ON/OFF type in summer operation mode.

ADVANCED PROGRAMMING

- This menu, which is marked by symbol [ADV], sets operation parameters that are common to all control zones:
  - configuration of individual control zones;
  - existence of an external probe;
  - unit of measurement °C/°F ;
  - bus address of device.

### Configuration of individual control zones

- Once in the menu, the page shows the configuration of the first zone, i.e. Z1.
- To scroll the other zones in a sequence, use key $\triangle$.
- The configuration parameters to be set up for every zone are:

  - the temperature probe associated to the zone, which can be:
    - ♦ built-in (INT)
    - ♦ external (EXT)
    - ♦ remote via bus (BUS)
  - the actuator associated to the zone, which can be:
    - ♦ relay (REL)
    - ♦ wireless (RF)
    - ♦ remote via bus (BUS)
  - a description identifying the zone.
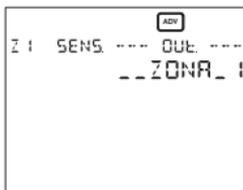
NOTE: to remote-program via bus, the Tx.Athena **radio module must be installed and the** Athena **programmable thermostat must be placed on the wall-mounted base.**

- If the probe selected for temperature control is an **Athena.Temp** probe, this is when the probe is configured.
- If the actuator selected for the control zone is a remote actuator **RX4-8A** or **RX1-8A**, this is when the actuator is configured (either wireless or bus).

- Press **[OK]** to enter the parameter changing page. The parameter that can be changed is the intermittent one.
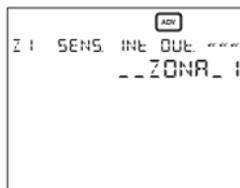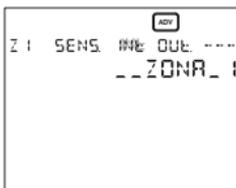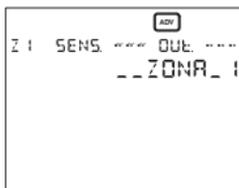
- Select the parameter to be changed using arrows $\triangleright$ and $\triangleleft$; modify the parameter using arrows $\triangle$ and $\triangledown$. Press **[OK]**] to end the change and configure the associated devices.
- After configuring:
  - if configuration was successful the reading "OK" will appear
  - if there are configuration errors, the word "ERROR" and the field where the error is will flash simultaneously (probe or actuator).

NOTE: before pressing the [OK] key to enforce the configuration, the relevant remote actuator/probe needs to be switched to configuration mode. For further instructions to this respect, reference is made to the remote actuator/probe specifications.

NOTE: when in zone configuration mode it is also possible to ensure that bus peripherals are correctly connected: press [OK] to enter the parameter changing page and again [OK] to test the connection.

WARNING: to erase a programmed zone just set the probe and actuator field to [---] and press [OK]. This step is necessary before re-configuring a previously programmed zone.

Standard zone configuration:

| zone n°	description	probe	actuator
1	ZONE 1	built-in	relay
2	ZONE 2	-	-
3	ZONE 3	-	-
4	ZONE 4	-	-

External probe

- From the configuration menu for zone 4, press key $\triangle$ to view the external probe menu.
- This is used to configure an external temperature probe (optional). The default setting for this parameter is "no". Press **[OK]** to change the setting, use arrow keys $\triangle$ and ∇ to select it and again the **[OK]** key to confirm.

```
       ADV
SENSORE ESTERNO


        YES
```

Unit of measurement °C/°F

- To enter the page in which the temperature reading unit is selected, press the key $\triangle$ again.
- It is °C by default. Press **[OK]** to change the setting, use arrow keys $\triangle$ and ∇ to select it and again the **[OK]** key to confirm.
- When this parameter setting is modified, all temperature readings are automatically converted accordingly.

```
       ADV
UNITA' di MISURA


        °C
```
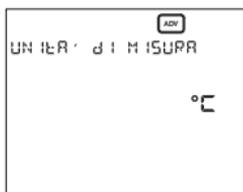
Bus address of device

- Press the $\triangle$ key again to enter the device address menu.
- Every device connected to the network is univocally identified by an address.
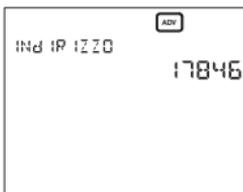
WARNING: to generate a new address, hold down the [OK] key for at least three seconds; after changing the address all bus and wireless peripherals will have to be re-configured.

```
       ADV
INdIRIZZO
          17846
```

BATTERY STATUS

- This menu, marked by the ▭ symbol, reads the battery level (in percentage).
- When the batteries are running down, the ▭ symbol appears on the main page too. The device keeps on performing all functions, although displaying the reminder that batteries need to be replaced shortly.


WARNING: operation on low batteries does not guarantee relay switching, wireless transmission or bus communication.

- When the batteries are removed, the display goes off to curb consumption and enable battery replacement. All functions except for the clock are discontinued. The device will keep operating without batteries for approximately 2 minutes.
- As soon as the new batteries are in place, the programmable thermostat will resume operation with all the previous settings, current time included. Should this not happen, reset the device as described in the "switch-on reset".

PROGRAMMING ON/OFF

- In this menu, which is marked by the ⏻ symbol, it is possible to enable and disable temperature control for every separate configured zone. All zones are "ON" by default.
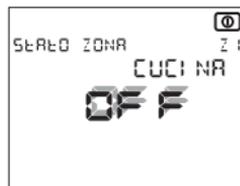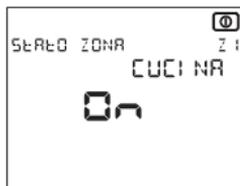
- Select the desired zone using arrow keys △ and ▽, then press **[OK]** to change the setting. Use arrow keys △ and ▽ to select either "OFF" or "ON" status and press **[OK]** to confirm.

NOTE: when switching from OFF to → ON, the device will take on the operation mode selected prior to the OFF status.

TELEPHONE CONTROL

- The programmable thermostat can be controlled by a disenergised contact in a telephone dialler (resistance value <100Ω).
- Two operating modes are possible:
  - contact open ⇒ normal operation;
  - contact closed ⇒ zones are switched "OFF" until the contact is opened again. When the contact opens again they take on the status they were in before contact closing.
- When the symbol ☎ appears on the main page, this means that the telephone contact is closed ("OFF").

NETWORK CONFIGURATION

- Athena programmable thermostats have only zone 1 configured by default, with the built-in probe as temperature sensor and the device relay selected as actuator.
- To use wireless or bus remote actuators it is necessary to configure the network.
- To this purpose, select the remote probe and/or remote actuator for the desired zone in the "configuration of individual control zones" menu. Then, before applying the configuration procedure by pressing the **[OK]** key, switch the probe and/or remote actuator to configuration mode (cfr. specific instructions) .
- After the **[OK]** key was pressed, if configuration is correct the device will read "OK".

ERROR MESSAGES

- During normal operation problems may prevent correct device functioning.
- For instance, if a probe (built-in, external or remote) is broken, the temperature field for the zone in which the sensor belongs will read [--.-]. Temperature control in this zone will then be inhibited and the corresponding actuator will be force-switched "OFF".
- When communication errors with bus peripherals occur, the display reads: "ERRORI PERIFERICHE BUS Z…"
- To identify the problem it will be necessary to zone-test the device (cfr. note to the paragraph "configuration of individual control zones").

REFERENCE STANDARDS

Conformity to the EU directives:
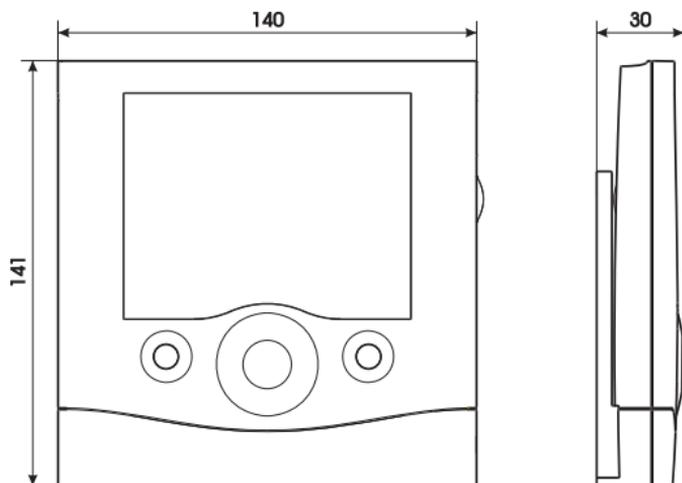73/23/EEC modified by 93/68/EEC (Low Voltage)
89/336/EEC modified by 92/31/EEC and 93/68/EEC (EMC)
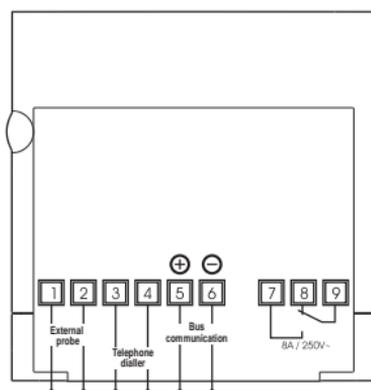is declared with reference to the following harmonised standards:
Safety: EN 60730-2-7 and EN 60730-2-9
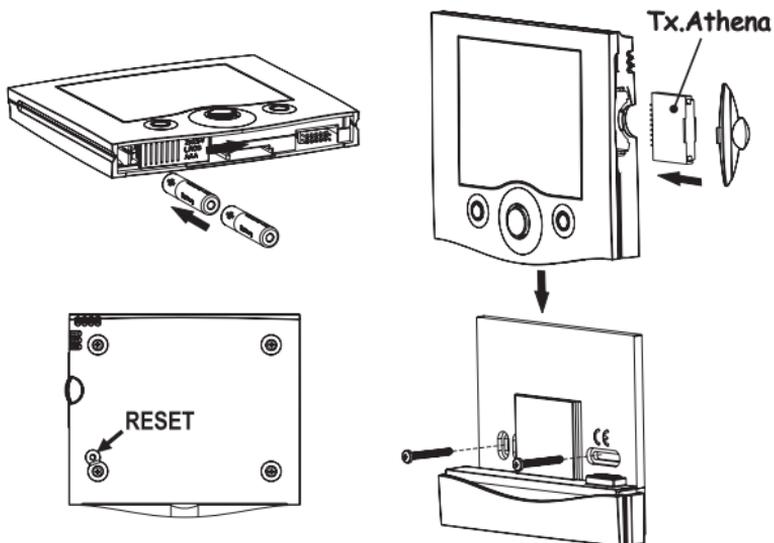**Electromagnetic compatibility:** EN 61000-6-1 and EN 61000-6-3

DIMENSIONS

140

30

141

WIRING DIAGRAM

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

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External
probe

Telephone
dialler

Bus
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8A / 250V~

Tx.Athena

RESET