



# **REMKO ATR-3**

**Clock Thermostat with  
2 Sensor Operation**

**Edition GB - P06**

**Operation  
Technology**

**Original  
REMKO**

**REMKO - powerful like a bear**

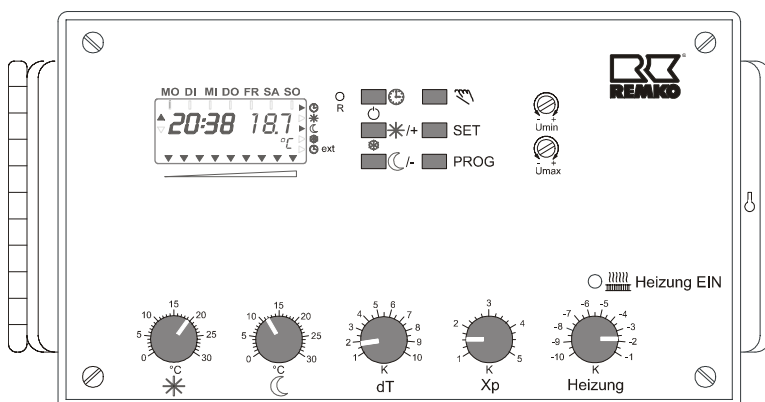


# Operating Instructions

Read these instructions carefully before setting up/operating the unit!  
Our guarantee becomes null and void if the unit is used improperly or if modifications are made to the supplied unit.



## Electronic Clock Thermostat REMKO ATR-3



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**Note:** Always keep these operating instructions near or on the unit.

## Functionality

### Differential temperature control 2 sensor operation

The ATR-3 electronic clock thermostat gradually controls the speed of REMKO DVL ceiling fans between 1 and a maximum of 14 and controls a warm air heater.

The unit works with two sensors: a room temperature sensor at operating height and a ceiling temperature sensor. Unused warm air that rises to the ceiling in high rooms is measured by the ceiling temperature sensor.

If the room temperature falls below the set target temperature (adjustment knobs **A** and **B**) and, at the same time, the ceiling temperature is above the room temperature by a set differential value (adjustment knob **C**), the REMKO DVL ceiling fans start running and transport the warm air down. The warm energy from the ceiling area is can be used again in the work area.

If the difference in temperature increases, the fan speed also increases up to the maximum speed. The minimum and maximum fan speeds are adjustable (adjustment knobs **F** and **G**). The fan performance is displayed by indicators (**M**) on the display of the weekly clock timer (**K**).

If the room temperature falls by a specific, adjustable value (adjustable knob **E**) below the target value, the heat also switches on. The operating mode is displayed by a LED (**N**)

A digital weekly clock timer with power reserve makes it possible to program heating and cooling off periods.

### Proportional control 1 sensor operation

To meet special requirements, the unit can also be used for pure proportional control. In this case, the "Heating" and "Cooling" operating modes may be selected.

In the 1 sensor mode, only the room temperature is measured. If the target value of the room temperature goes above or falls below the value set on the control mechanism Xp (**D**), the ceiling fans start running.

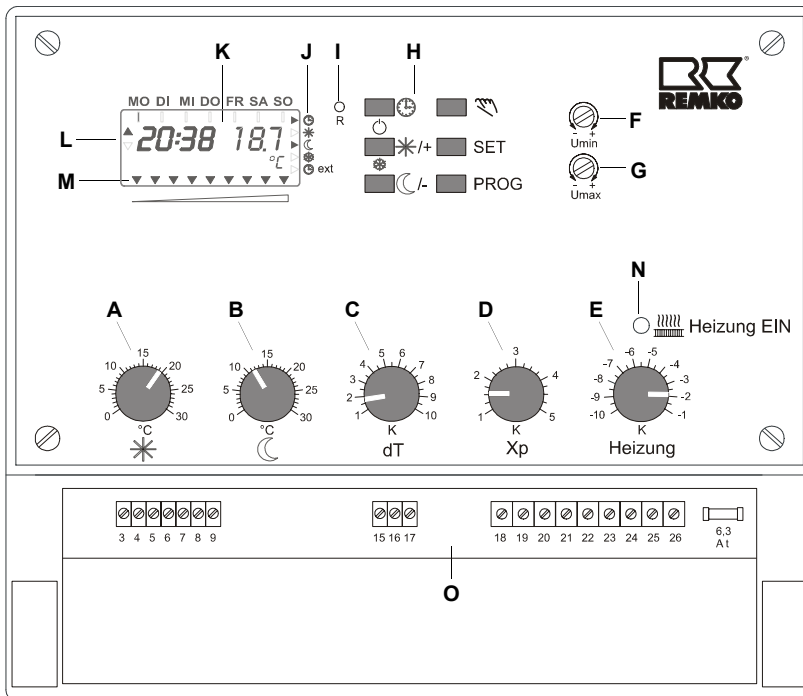
If, during "Heating" mode, the room temperature falls by a specific, adjustable value below the target temperature, the heat also switches on.

If the heating relay is not regulated during "Cooling" mode, the air is only circulated.

In the "**Setting the Functions**" menu, the operator can switch from differential temperature control to proportional control and from heating to cooling is performed (see page 9).

The second sensor does not have a function. It can be used as a place to perform measurements (display for 3 seconds after pressing the **SET** program button).

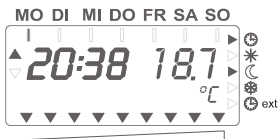
## Operating Controls



- A** Adjustment knob for the day temperature (target temperature)
- B** Adjustment knob for the night temperature (target temperature)
- C** Adjustment knob for the differential temperature (room to ceiling)
- D** Adjustment knob for the proportional temperature control
- E** Adjustment knob for the activation point of heating requirement
- F** Adjustment knob for the minimum speed of the ceiling fans
- G** Adjustment knob for the maximum speed of the ceiling fans
- H** Program buttons (progr. the clock, selecting the operating mode)
- I** Reset button (indented)
- J** Operating mode indicators
- K** Weekly clock timer display
- L** Heating/Cooling indicators (only for proportional control 1 sensor)
- M** Fan speed indicators
- N** LED display heating ON
- O** Terminal strip with fuse (6,3 A)

The values set in the figure above are only reference values and can vary from actual values.

## LCD Display of the Clock Timer



The timer, day of the week and current temperature of the temperature sensor are shown on the LCD display. By pressing the **SET** program button, the temperature of the 2nd temperature sensor can be displayed for approx. 3 seconds.


## Day and Night Temperature

The target values for day and night temperature can be set independently of one another and are standard for the control depending on the operating mode (day or night operation). The minimum target values can be limited to 5°C by an internal setting.


## Frost Protection Temperature

The frost protection temperature is fixed at 5 °C. By pressing the two program buttons + and – at the same time, the frost protection temperature can be selected.

## Hand Button

The  button makes it possible to change the current temperature operation (comfort temperature / cooling temperature) in automatic mode. The selected temperature mode is displayed by indicators on the right-hand side of the display. This function is deleted the next time the program is opened.

## Off

By pressing the two program buttons  and + at the same time, the control is switched off. The operating mode is no longer displayed on the right-hand side of the display. The unit continues to record the current temperature but all control functions are completely switched off.

## Reset

There are two different reset options:

### 1. Start up reset:

The **RESET** button makes impossible to restart the unit after operation has been to interrupted due to a malfunction. The clock must be reset but the program and parameter settings are retained.

### 2. Global reset:

To force the unit to restart with the factory settings, the buttons **RESET**, + and – must be pressed at the same time. After the **RESET** button is released, the buttons + and – must be held down until the version number (r 10...) appears on the display. The clock must be reset, Any previously entered individual timer program and any parameter settings are lost.

## Setting the Clock



The clock can be set once the ☀ program button has been held down for 3 seconds or after the unit restarts following a reset. If the clock has not yet been reset, it blinks on the display.

When you press the **SET** program button, you are taken to the desired setting option (*Hours* -> *Minutes* -> *Day of the week*). The selected option blinks on the display.

By pressing one of the program buttons + or -, the value of the selected option can be changed and the selection confirmed by pressing the **SET** button. After confirming the day of the week, the clock starts accurate to the second. The unit returns to the operating mode from which the “Set Clock” menu was accessed. If no button is pressed within 1 minute, the current time automatically appears again.

**Programming example:** Monday, set 10:16

	Display	Button	Explanation
1.		☀	Change time setting
2.	20:30	+/-	Hours blinking; change setting with [-]
3.	10:00	SET	Confirm entry
4.	10:00	+/-	Minutes blinking; change setting with [+]
5.	10:16	SET	Confirm entry
6.	*	+/-	Day of the week blinking; change setting with [+/-]
7.	*	SET	Confirm entry and transmit programming

## Selecting the Operating Mode



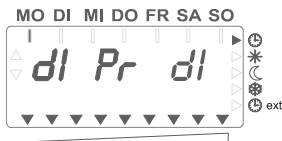
The main operating modes are selected by pressing one of the three program buttons on the left. You can select from the following modes: *Automatic* ☀, *Comfort* \* (continuous) and *Cooling* ☁ (continuous).

The *Off* ☹ and *Frost protection* ❄ modes can be set by pressing the top and middle or bottom and middle program buttons on the left at the same time.

The selected operating mode is displayed by indicators on the right-hand side of the display. In the *Automatic* operating mode, one of the two indicators also shows the currently valid temperature control (Comfort or Cooling). No indicator is displayed in the *Off* operating mode.



## Setting the Functions



If you press the **PROG** program button for 6 seconds, you are taken to a menu where various basic functions can be set. The functions are shown on the left-hand side of the display and the corresponding value or status on the right.

When you press the **SET** program button, you are taken to the desired setting option. The setting option blinks on the display.

By pressing the **+** or **-** program buttons, the value of the selected setting options can be changed and your selection confirmed by pressing the **SET** button.

After confirming the last function, the unit returns to the operating mode from which the “*Setting the Functions*” menu was accessed.

Make the following settings to use the unit with REMKO ceiling fans:

### Programming: differential temperature control, 2 sensor operations

Display	Button	Explanation
1.	PROG	Press for 6 seconds = Setting the functions
2. SE nS 0.0	+/-	Sensor comparison temperature ( <b>Setting: 0.0</b> )
3. SE nS 0.0	SET	Confirm entry
4. I E I	+/-	Internal/external clock ( <b>Setting: internal</b> )
5. I E I	SET	Confirm entry
6. di Pr di	+/-	Differential/proportional control ( <b>Setting: differential control</b> )
7. di Pr di	SET	Confirm entry
8. Sunt 0	+/-	Temp. limit below 5°C ( <b>Setting: 0</b> )
9. Sunt 0	SET	Confirm entry
10. 0-10 0-1	+/-	Rotational direction analog output ( <b>Setting: 0-1</b> )
11. 0-10 0-1	SET	Confirm entry and end program

### Programming: proportional control, 1 sensor operation

6. di Pr Pr	+/-	Differential/proportional control ( <b>Setting: proportional control</b> )
7. di Pr Pr	SET	Confirm entry
8. H C Co	+/-	Heating / Cooling ( <b>Setting: cooling</b> )
9. H C Co	SET	Confirm entry



- When installing the unit, make sure that the electrical lines, for example, power supply and relay connection lines, cannot come into contact with low-current supply lines, such as sensor lines (minimum distance 4 mm for basic isolated line conductors).
- Make sure that there is adequate protection to prevent connection conductors from becoming loose that meets the requirements of EN 60730 Part 1. This can be achieved, for example, by securing the lines with cable bindings.
- Compliance with VDE 0100, EN 60730, Part 1, as well as all regulations of the local EVU must be assured.
- Use the sensor lines in accordance with the requirements. Observe the maximum line length and required minimum cross-sections!

Max. line length	Line cross-section (Cu)
30 m	0.50 mm <sup>2</sup>
45 m	0.75 mm <sup>2</sup>
60 m	1.00 mm <sup>2</sup>
90 m	1.50 mm <sup>2</sup>



**Caution:** The unit can be damaged if it is connected improperly! We are not liable for damages that are the result of incorrect connection and/or improper use!



**Note:** If the unit does not function as expected, first check the power supply and that the unit has been properly connected.

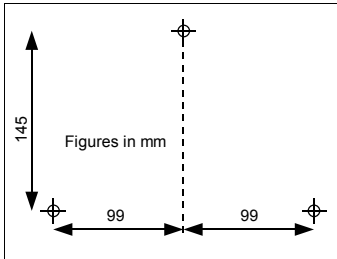


**Note:** When the indicators in the lower area of the weekly clock timer display are blinking, this indicates that the ceiling fans have been separated from the control unit as a result of a defect.

**Operation/handling which does not comply with these instructions is prohibited! In cases of non-compliance, we assume no liability and the guarantee becomes null and void.** For the guarantee to be valid, the purchaser or his customer must completely fill out the "**guarantee certificate**" enclosed with all units and send it back to REMKO GmbH & Co. KG.

## Mounting the Control Unit

The temperature control must be mounted outside of heavily trafficked areas in a place that is easily accessible for making settings. If it is generally accessible, it must be protected against unauthorised use.

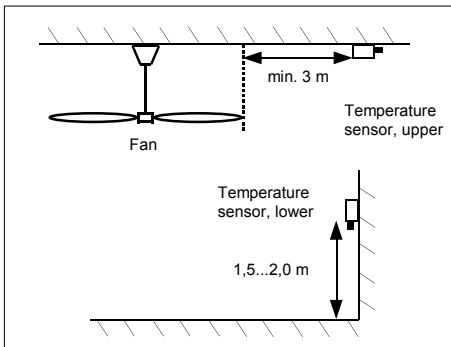


The supplied drilling stencil makes the temperature control easier to install. The attachment points can also be found in the drawing to the left. Mounting materials must be supplied by the customer.

After the unit has been mounted, the installed lines are inserted from below into the housing through the supplied screw attachments once the lead-throughs have been removed.

## Mounting the Sensors

2 KTY temperature sensors are required to measure the differential temperature.



The upper temperature sensor is installed in the ceiling area and should have a minimum distance of 3 m to the ceiling fan. Do not mount the sensor close to air intake and outlet ducts.

The lower temperature sensor is attached at a height of approx. 1.5 m and should not be in the direct vicinity of the air current from the ceiling fan.

If the temperature sensor is mounted on a cold, outside wall, an insulation panel must be installed between the wall and the sensor by the customer.

The temperature sensors are connected to the temperature control with 2-wire lines. The connections are polarised. Make sure that the terminals are assigned correctly: "LOWER" temperature sensor terminals 5 + 6; "UPPER" temperature sensor terminals 6 + 7.

Specifications for checking proper operation of the KTY temperature sensor:

⇒ at 20°C: resistance value approx. 1879 Ω

⇒ at 30°C: resistance value approx. 2035 Ω

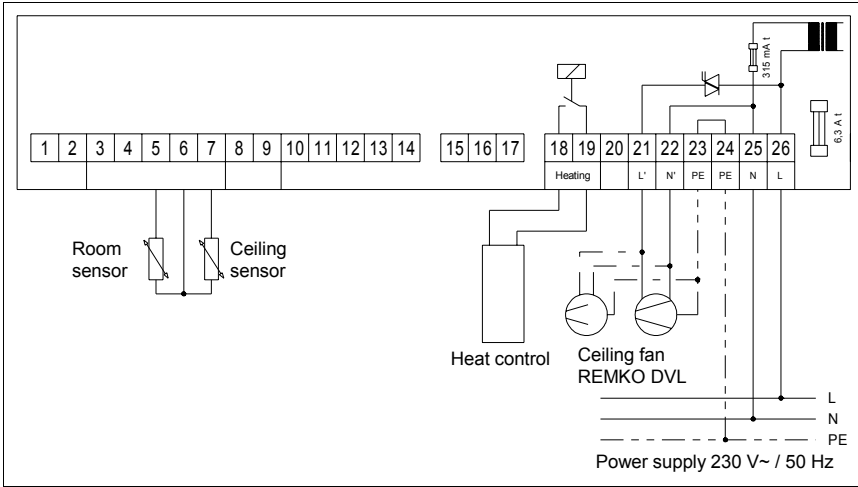
## Settings for REMKO ceiling fans

Name	Symbol	Adjustment range	Recommended factory setting	Customer setting
Switch differential heating	diFH	$\pm 0.1K.\pm 3.0K$	$\pm 02K$	
Target value minimum	Sunt	0°C/5°C	0°C	
Adjustment knob for target temperature day	*	0°C to 30°C	Desired temperature	
Adjustment knob for target temperature night	☾	0°C to 30°C	Desired temperature	
Adjustment knob for temperature difference	dT	1K to 10K	Desired differential temperature	
Adjustment knob for proportional temperature control	Xp	1K to 5K	5K	
Adjustment knob for heating ON	Heating	-10K to -1K	-3K	
Adjustment knob for minimum speed	Umin	- ..... +	Fan speed very low	
Adjustment knob for maximum speed	Umax	- ..... +	Maximum fan speed	

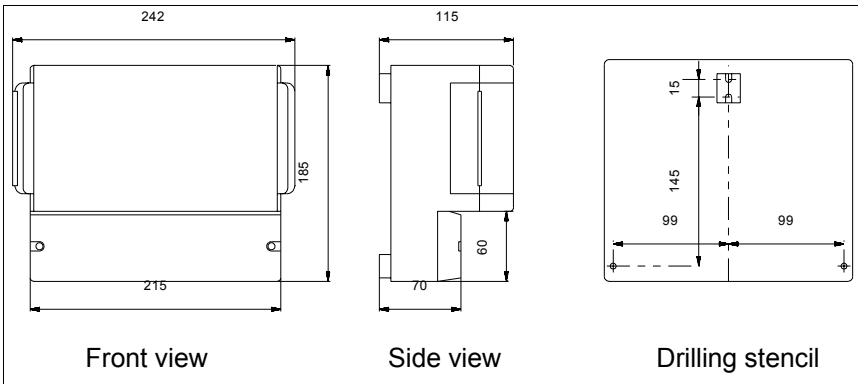
The recommended factory settings help in programming and setting the unit for most applications.

Different setting values can be adjusted to customer needs based on structural givens and/or application-specific areas of use.

# Wiring Diagram In connection with REMKO DVL



## Dimensions



We reserve the right to make changes to dimensions and design in the interest of technical progress.

## Technical Data

Temperature range (Day and night temperature)		0 to 30°C, adjustable; to 5 to 30°C can be limited by an internal setting
Temperature difference dT		1 to 10K, adjustable
Proportional control Xp		1 to 5K, adjustable
Heating		-1 to -10K, distance from target value adjustable
Clock timer		Electronic weekly clock timer, power reserve clock approx. 10 minutes, program is permanently saved
Sensor		KTY semi-conductor sensors (polarised)
Operating current		230V AC, +10%, -15%
Internal consumption		approx. 5 VA
Outputs:	Fan output	approx. 80 to 230 V gradually increasing current (phase control) for the fan
	Heating relay	isolated contact (shutter)
	Additional relay	isolated contact (two-way contact) (switches on/off with phase control)
	Analog output	0-10V, parallel to the phase control (Xp)
Max. line load currents		6,3A, 230V AC fan on the phase control 10 (4)A, 250V AC heating relay 2 (2)A, 250V AC additional relay 1 mA max. on the analog output (0...10 V)
Housing	Dimensions	242 x 185 x 115 mm (W x H x D)
	Attachment	wall-mounted
	Protection type	IP 54 (protected from spraying water)
	Protection class	II in accordance with DIN EN 60335-1
	Weight	approx. 1500 g

**REMKO GmbH & Co. KG**

Klima- und Wärmetechnik

D-32791 Lage · Im Seelenkamp 12

D-32777 Lage · PO Box 1827

Phone +49 (5232) 606 - 0

Fax +49 (5232) 606260

E-Mail: [info@remko.de](mailto:info@remko.de)

Internet: [www.remko.de](http://www.remko.de)