

# User Guide

## Universal Controller HRT 6150



### 1. Description of the functions

The HRT 6150 is a universal temperature controller with timer function. It permits the specification of one or two warm phases per day, e.g. between 6 a.m. and 10 p.m. in the living room or from 6 to 9 a.m. and 5 to 9 p.m. for a bathroom. The temperature is lowered between the specified times. The amount by which the controller lowers the target room temperature is programmed once.

The unit can be used as a

#### Room temperature controller

The unit controls the room temperature to achieve the desired target temperature in the range between 5° and 30°C. The **current** room temperature is displayed.

#### Floor temperature controller

The unit controls the floor temperature to achieve the desired target temperature in the range between 10° and 40°C. The **current** room temperature is displayed.

#### Room temperature controller with monitoring function

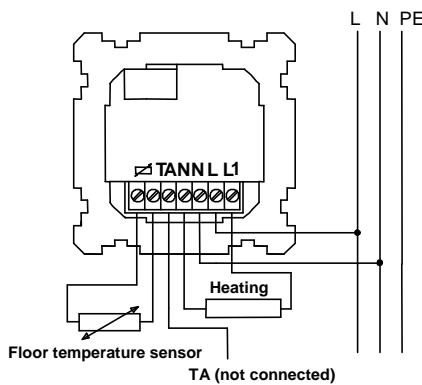
The unit controls the room temperature to achieve the desired target temperature in the range between 5° and 30°C. The **current** room temperature is displayed. In addition, the floor temperature is monitored. The maximum floor temperature is programmed once.

This operating mode can be selected in the setup menu.

The unit is factory-set as a floor temperature controller.

### 2. Connection / commissioning

**ATTENTION:** Work on the 230V mains must only be performed by authorised electricians. When the controller is connected to the mains, the relevant safety regulations of the VDE and the local utility companies are to be observed.



**Installation:** The temperature controller is to be mounted into a standard flush-type box Ø 55 mm (acc. to DIN 49073, Part 1). If additional intermediate terminals are used, we recommend use of a deep switch box. The connections are to be made in accordance with the wiring diagram (see above). The connecting cables must be straight with approx. 5 mm insulation removed; mounting height approx. 1.5 m above the floor.

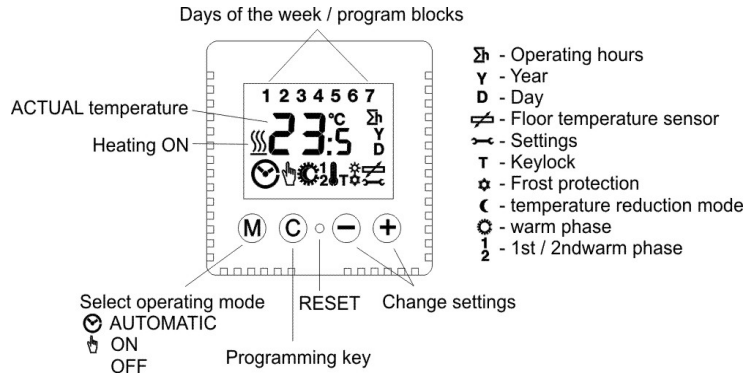
**Attention:** Align the mounting ring on the wallpaper and mount the controller on the switch box using self-tapping screws for flush-type boxes. Then fit the frame onto the mounted box.

**Attention:** Before pressing on the cover, make sure that the internal sensor (bottom left) points downwards at an angle. The sensor should not be in contact with the controller housing.

The floor temperature sensor is to be placed in a protective tube lying centrally between the heating pads and in the same plane as the pads. The sensor cable must be routed in a separate protective tube (never together with mains-voltage cables).

**Attention:** In case of error, the sensor cable may carry mains voltage!

### 3. Overview of the display



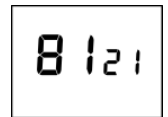
#### Turning on the unit for the first time:

When the controller is turned on for the first time, all elements of the display are visible briefly.



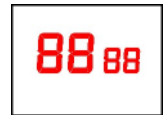
After 5 seconds

The current software version of the controller is displayed.



After 5 seconds

The figures "88:88" are displayed, since time of the day, date and day of the week are not yet programmed. Basic programming (Point 6) must be performed for the unit. The frost-protection function is active.



### 4. Standard display

Use the **M** key to select the operating mode.

#### AUTOMATIC mode

The controller is active during the specified warm phases ☀, outside the warm phases ☾, the temperature is reduced by the specified amount.



#### MANUAL mode

The controller regulates constantly to the specified target temperature.



#### OFF

The controller regulates constantly to the specified frost protection temperature.



### 5. Setting the setpoint

Press the **+** or **-** key briefly to display the specified setpoint.



(Room temperature controller)

(Floor temperature controller)

The desired temperature can then be set by pressing the **+** and **-** keys.

The setpoint setting is quit either by pressing the **M** key or if no key is pressed **5 seconds**. The specified value is accepted automatically.

## 6. Basic programming

Pressing the **C** key briefly opens the controller settings. To switch between the individual items, use the **C** key; to make changes, use the + and – keys.

The programming can be quit at any time by pressing the **M** key, but is also quit automatically if no key is pressed for 10 seconds. The changed values are accepted automatically.

*Press the C key briefly once.*

### Setting the time

A clock symbol is displayed; use the +/- keys to set the time.



*Press the C key briefly once.*

### - with automatic setting of daylight saving time

#### Set the calendar year

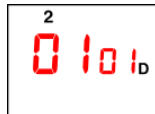
A "Y" is displayed; use the +/- keys to set the calendar year.



*Press the C key briefly once.*

#### Set the month / day

A "D" is displayed; use the +/- keys to set the date.  
Large digits: Month / small digits: Day



### - without automatic setting of daylight saving time

#### Set the day of the week

A number for the day of the week is displayed; use the +/- keys to set the day.

1 = Monday.... 7 = Sunday



*Press the C key briefly once.*

*Automatic daylight saving can be turned on / off in the display menu.*

### Setting the temperature reduction

A moon ☾ and a thermometer ℹ symbol are displayed; use the +/- keys to set the temperature by which the temperature is to be reduced between the warm phases.



Setting range: 3° - 15° C  
Factory setting: 3°

*Press the C key briefly once.*

### Setting the monitor temperature

(only in the "Room controller with monitoring" mode)

A detector symbol 🚫 is displayed; use the +/- keys to set the maximum floor temperature.



Setting range: 20° ... 40° C  
Factory setting: 28°

*Press the C key briefly once.*

### Programming the warm phases

The controller can be operated in either the block or single-day mode. If block mode is programmed, the same timer program is executed on each of the working days 1 to 5 (1 = Monday, 2 = Tuesday, etc., see digits in the top line of the display) and thus only needs to be entered only once. A different timer program can be entered for the weekends - days 6 and 7 (Saturday and Sunday). The possibility to use simply two blocks saves a great deal of programming work.

Factory setting:  
1st warm phase: 6 a.m. - 10 p.m.  
2nd warm phase: Not programmed

*The individual programming modes are switched in the display menu.*

## Programming example for the block mode

### Start of the 1st warm phase on weekdays:

The days 1 - 5 are shown on the display together with a sun symbol ☀ with index 1.



*Press the C key briefly once.*

### End of the 1st warm phase on weekdays:

The days 1 - 5 are shown on the display together with a moon symbol ☾ with index 1.



*Press the C key briefly once.*

### Start of the 2nd warm phase on weekdays:

The days 1 - 5 are shown on the display together with a sun symbol ☀ with index 2.



*Press the C key briefly once.*

### End of the 2nd warm phase on weekdays:

The days 1 - 5 are shown on the display together with a moon symbol ☾ with index 2.



*Press the C key briefly once.*

### Start of the 1st warm phase on weekends:

The days 6 and 7 are shown on the display together with a sun symbol ☀ with index 1.



*Press the C key briefly once.*

### End of the 1st warm phase on weekends:

The days 6 and 7 are shown on the display together with a moon symbol ☾ with index 1.



*Press the C key briefly once.*

### Start of the 2nd warm phase on weekends:

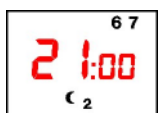
The days 6 and 7 are shown on the display together with a sun symbol ☀ with index 2.



*Press the C key briefly once.*

### End of the 2nd warm phase on weekends:

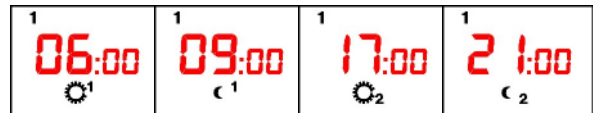
The days 6 and 7 are shown on the display together with a moon symbol ☾ with index 2.



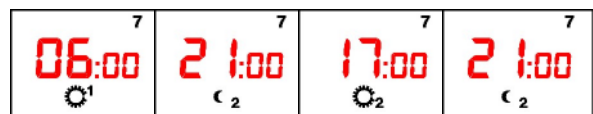
## Programming example for the single-day mode

Single-day programming is performed in the same way as block programming. The individual weekdays are shown as numerals in the top line of the display.

(1 = Monday, 2 = Tuesday, etc.)



⋮  
⋮  
⋮  
⋮



## End of basic programming

## 7. Display menu

Pressing the **C** key for **10 seconds** opens the display menu. This menu can be used to display operating states or to change the display options.

To switch between the individual items, use the C key; to make changes where necessary, use the + and – keys.



The display menu can be quit at any time by pressing the M key, but is also quit automatically if no key is pressed for 10 seconds. The changed values are accepted automatically.

- Display of the floor sensor temperature;
- Display of the operating hours;
- Display of the software version;
- Setting of the programming mode;
- Setting of the display;
- Setting of daylight saving time option.

Press the C key for 10 seconds.

### Display of the floor sensor temperature



(only in the case of floor temperature controller and room temperature controller with monitoring function)

In addition to the setting symbol , the sensor symbol  is displayed; furthermore, the current floor temperature is displayed.

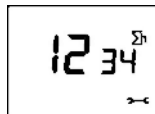
Press the C key briefly once.



### Display of the operating hours

In addition to the setting symbol , the operating hours symbol  is displayed and the total number of hours during which the heating was turned on.

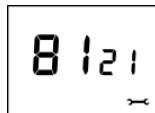
Press the C key briefly once.



### Display of the software version

The current software version of the controller is displayed.

Press the C key briefly once.



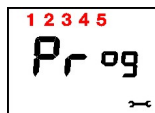
### Block or single-day programming

"Prog" is displayed. If block programming is set, the number groups 1 - 5 and 6/7 flash alternately. If single-day programming is set, all days flash one after the other.

To change the settings, press the + or – key.

Factory setting: Block programming

Press the C key briefly once.



### Display of clock or temperature

"Anz." is displayed. There are 3 different display variants. To change the settings, press the + or – key.

Display of the room temperature



Display of the current time





The display changes between temperature and time every 5 seconds (factory setting).



Press the C key briefly once.

### Automatic daylight saving time

Daylight saving time is applicable in the EU from the last Sunday in March (2.00 a.m.) to the last Sunday in October (3.00 a.m.). The controller adjusts its time automatically at these times.

In addition to the setting symbol , the symbol for summer/wintertime  is displayed.

To change the settings, press the + or – key.



Activated (factory setting)



Deactivated

Press the C key once to return to the 1st menu item.

End of the display menu

## 8. Setup menu

Pressing the **M** key for **10 seconds** opens the setup menu. **Attention:** The settings in this menu should only be changed by qualified experts, as they may influence the safety and functioning of the heating system.

To switch between the individual items, use the C key; to make changes where necessary, use the + and – keys. The setup menu can be quit at any time by pressing the M key, but is also quit automatically if no key is pressed for 10 seconds. The changed values are accepted automatically.

- Setting of the controller type
- Setting of the sensor type
- Setting of the frost protection temperature
- Temperature calibration
- Setting of the switching cycle
- Setting of the cooling controller
- Setting of the valve protection
- Setting of the teach-in function

Press the M key for 10 seconds.

### Entering the safety code

To be able to change settings in the setup menu, a 4-digit safety code must be entered. The code is **9997**. If the correct code is not entered, the controller switches back to the standard display.



Press the C key once for confirmation.

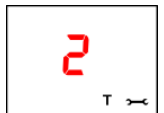
### Setting the controller type

When "T" is displayed, you can set the controller type.

- 1 = Room temperature controller
- 2 = Floor temperature controller
- 3 = Room temperature controller with floor temperature monitoring

Factory setting: 2 Floor temperature controller

Press the C key once for confirmation.



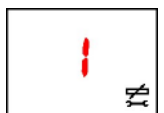
### Setting the sensor type

When sensor symbol  is displayed, you can set the sensor type.


- 1 = 2KΩ Standard HRT sensor
- 2 = 10KΩ e.g. Busch-Jaeger
- 3 = 12KΩ e.g. OJ
- 4 = 15KΩ e.g. DEVI
- 5 = 33KΩ e.g. Eberle

Factory setting: 1 = (2kΩ Standard HRT sensor)

Press the C key once for confirmation.



### Setting the frost protection temperature

When the frost symbol  is displayed, you can set the frost protection temperature.


Setting range: 3° ... 15° C

Factory setting: 5°C

Press the C key once for confirmation.



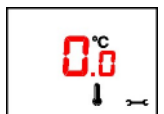
### Temperature calibration

When the thermometer symbol  is displayed, you can correct the room temperature measurement.



Setting range: -3.0° ... +3.0° C

Factory setting: 0.0°

Press the C key once for confirmation.



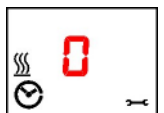
### Setting the minimum switching cycle

When the clock symbol  and the heating symbol  are displayed, you can set the minimum required interval time between two switching actions.


Setting range: 0 ... 10 minutes

Factory setting: 0 minutes

Press the C key once for confirmation.



### Setting cooling controller / actuator open when deenergised



When a star symbol  is displayed, you can switch the switching output of the controller such that a cooling unit or an actuator which is open when not energised can be connected to the controller.

Factory setting: OFF

Press the C key once for confirmation.



### Setting the valve protection



When the heating symbol  and the hand symbol  are displayed, you can turn on / off the valve protection. When this function is activated, the output is activated daily at 10.00 a.m. for 1 minute.

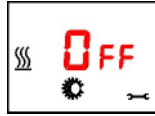


Factory setting: OFF

Press the C key once for confirmation.

### Setting the teach-in function


When the heating symbol  and the warm-phase symbols  are displayed, you can turn on / off the teach-in function. If the function is turned on, the controller automatically calculates the preheating time required to reach the selected temperature for the specified warm phase.



Factory setting: OFF

Press the C key briefly once to return to setting of the controller type.

### Setting the 2nd temperature reduction

When the moon symbol  and the number 2 are displayed, you can turn on / off the 2nd temperature reduction function. When this function is activated, you can set different temperature reductions between the warm phases.



Factory setting: OFF

Press the C key briefly once to return to setting of the controller type.

### End of the setup menu

## 9. Child safety lock

Press the + and – keys simultaneously for at least **10 seconds**. The controller no longer reacts to any normal key presses. The lock mode can be identified by the fact that **T** is displayed.



To cancel the child safety lock, press the + and – keys simultaneously for at least **10 seconds**. The "T" disappears from the display, and all keys respond once more.

## 10. Reset

This function is normally not required, except possibly after serious mains faults.

A reset is initiated by briefly pressing the recessed key. The programmed values are maintained, but time of day and date or day of the week must be set anew.

## 11. Factory settings

Simultaneously pressing the **M** and **C** keys for at least **5 seconds** resets the controller to the initial state and restores the factory settings.

The controller is delivered with the following factory settings:

|                                 |                                  |
|---------------------------------|----------------------------------|
| Controller type:                | 2 (floor temperature controller) |
| Sensor type:                    | 1 (HRT standard sensor)          |
| Temperature reduction:          | 3°                               |
| Monitor temperature:            | 28°                              |
| Frost protection temperature:   | 5°                               |
| 1st warm phase:                 | 6 a.m. - 10 p.m.                 |
| 2nd warm phase:                 | Not programmed                   |
| Programming type:               | Block programming                |
| Display:                        | Clock + temperature              |
| Automatic daylight saving time: | ON                               |
| Temperature calibration:        | 0.0°                             |
| Switching cycle:                | 0 minutes                        |
| Cooling controller function:    | OFF                              |
| Valve protection function:      | OFF                              |
| Teach-in function:              | OFF                              |
| 2nd temperature reduction       | OFF                              |

## 12. Mains power failure

Up to eight hours of mains power failure are compensated. If the power failure lasts longer, only the clock and date must be set anew; the remaining settings are maintained.

Any deliberately initiated daily shutdowns (e.g. off-periods of the utility company) can cause damage to the memory. This is not considered use according to the intended purpose and results in exclusion of the warranty.

## 13. Special function

The controller can be used as a pilot controller (upon request). To this end, it connects 230V to terminal "TA" (max. load capacity: 0.2A) when in temperature reduction mode. It is possible to connect satellite controllers without timer (including bimetal controllers) to the TA terminal; they then operate simultaneously with the pilot controller in temperature reduction mode.

## 14. Troubleshooting

### Diagnosis

Heating does not work

### Possible cause / remedy

- Connect / check mains voltage

### Display:

- No display

Mains power failure

- Er 0

Incorrect input

- Er 1

Room sensor defective

- Er 2

Floor sensor defective or not connected

- 0.0°C

Room temperature 0°C or less

- Switches too early / late


Check program settings

- Controller does not react when

temperature changes

Check temperature reduction mode

(only in the case of room temperature controllers with monitoring function)

-  (sensor symbol)

Monitor temperature reached, heating mode is turned off

## 15. Guarantee / warranty

We assume warranty within the framework of the statutory regulations.

**Exclusion:** The liability for defects does not cover natural wear or transport damage; likewise not damage due to non-observance of the installation instructions, inappropriate installation and use not according to the intended purpose. We assume no liability for the consequences of improperly performed modifications or repairs. This also pertains to the provision of single or spare parts.

HRT assumes no liability arising other than directly from the supplied product, in particular not for indirect, consequential or financial losses.

## 16. Disposal

At the end of its service life, provide for disposal of the complete controller, including its cover, in accordance with the applicable environmental regulations.



## 17. Technical specifications

### Setting range:

Room temperature controller

5° ... 30° C

Floor temperature controller

10° ... 40° C

Floor temperature monitoring

20° ... 40° C

### Mains voltage:

230 V ~ ± 10% , 50 Hz

Switching current (max.), approx.:

12 (4) A

Switching capacity:

2.7 kW

Switching temperature difference:

0.7 K

Temperature sensor:

NTC to DIN 44574

4 m long

Permissible ambient temperature:

-10° ... +40° C

Connecting cables:

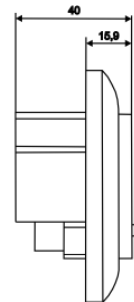
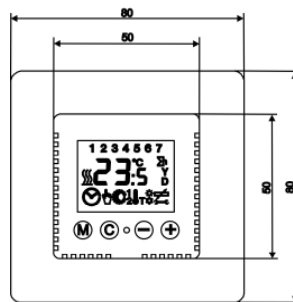
2.5 mm<sup>2</sup>

Degree of protection:

IP30

Energy class:

VII = 3.5%



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