INTELLIGENT THERMOSTAT
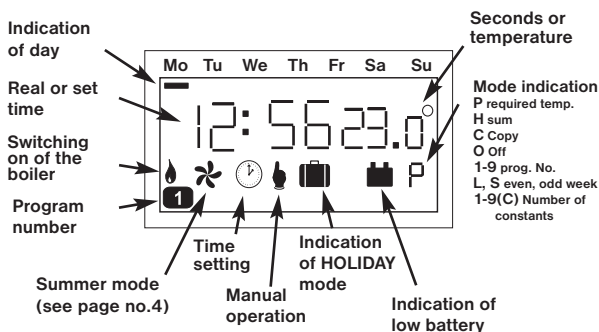
PT 30

Control system for heating that is suitable for everyone.

Display description: (LCD)

Indication of day

Real or set time

Switching on of the boiler

Program number

Mo Tu We Th Fr Sa Su

12:56 23.0

Seconds or temperature

Mode indication
P required temp.
H sum
C Copy
O Off
1-9 prog. No.
L, S even, odd week
1-9(C) Number of constants

Summer mode (see page no.4)

Time setting

Manual operation

Indication of HOLIDAY mode

Indication of low battery

Description of controls:

Next step, information on required temperature

Regulation of temperature, or +/- minutes

Function switch

AUT/MAN/HOD/PROG

Switching off of the boiler, reset of boiler operating hours

°C / min.

Off   TEST   K   Suma   Kopi   🧳   Den   - Hod +

Boiler testing

Setting of programs and constants

Sum of boiler operating hours

Copying of programs

Holiday function or change of even and odd week

Change of the day

Setting the time

ELEKTROBOCK CZ
MADE IN CZECH REPUBLIC

OPERATING INSTRUCTIONS

Switch functions: (from left side)

Program No. 1 to 9, selected by "K" button

1. AUT : the thermostat works according to program as set in advance. Program is selected be pressing the " **K** " button.

If the mode of even and odd weeks is selected, this option is disabled. Programs No.1-2 are programmable and No.3-9 are fixed from factory (can be changed too).
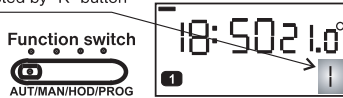
2. MAN : serves for manual setting of temperature. Symbol " ⬩ " is showed on the display.

It is possible to set two temperatures (we can select temperatures by pressing the " **K** " button and "**+/-°C**" button).
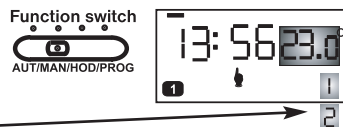
3. HOD : setting of present time and date

Time is displayed on LCD and indication of clock is blinking. By means of "**+/-**" buttons set required data, confirm by the pressing of " **i** " (register). Use the same procedure for setting the minutes, seconds and day. After setting the time, the date displays in following format: day, month, year (only two last number of year are displayed 07=2007). Proceed in the same way as during setting the time. Day in week is selected automatically.
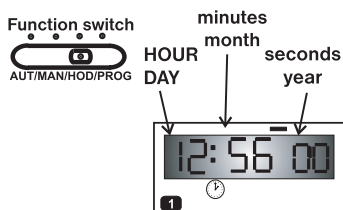
4. PROG : Programming of thermostat and setting the constants

Thermostat enables to set six intervals and temperatures for each day and two week programs. By pressing the "**K**" (constants button) we can select
- the programming of the programs1, 2
- viewing of fixed programs (3 to 9, page no.11)
- setting the constants **Fce** (see page no.3).

Selection of program 1-2

Selection of program 3-9

Setting of constants
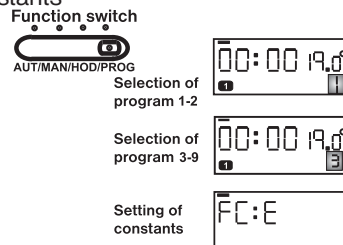
Programming procedure:

1, Change position of function switch to **PROG**.

Selection of program No.1

2, By pressing the " **K** " we select the program (2, 3 to 9) .
(Note: programs 3 to 9 are fixed - but is possible change too!)
3, By pressing "**+/-Hod.**" set time of switch on and by "**+/-°C**" temperature of first intervals. (**Note: we setting the start to change of temperature!**)
4, By pressing of " **i** " button you pass on the setting time and temp. of the second intervals for same day. (Note: the symbol ❶ to ❻ is gradually showed on bottom part of LCD)
5, Use the same procedure for setting further temperatures within given day.

After setting the last temp. for one day, PT30 passes automatically to the setting of next day. If we do not need to use all 6 settings for one day, we can pass to next day by successive pressing of " **i** " (register) button.

2

6, After completion of the program for whole week, recheck the program again. By pressing " **i** " button we can successively verify whether the program complies with our requirements and we register it in the table contained in Operating instructions (for the case of program deletion from memory).

7, After switching the function switch to **AUT** position, PT30 starts to work according to defined program.

Note: If the program for subsequent day is identical with previous day, you can use " **Kopi** " button. After setting the **6** interval, we do not press " **i** ", but " **Kopi** ". Present day is automatically copied into next day. The programs 1 and 2 we can determine which program should be active in even(odd) week (see below).

Longer pushing of all buttons speeds up their functions.

Blinking of **6** indicates a free part of the program.

Selection of even and odd week

If the programs 1 and 2 are programmed, you can determine which program should be active in even (odd) week. Function switch move to **PROG**.
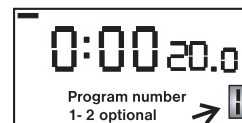By pressing " **K** " button select program 1 on the LCD. By pressing 🔲 determine which week it is dealing with (**L**-odd, **U**-even, **1**-not defined). The second program is assigned automatically (**U, L, 2**).

If even and odd weeks are selected, the thermostat works in **AUT** program always according to the selection. If even/odd is not selected, active program is selected by pressing " **K** " button. Here you can select the program 1 - 9.

Function switch
AUT/MAN/HOD/PROG

0:00 20.0
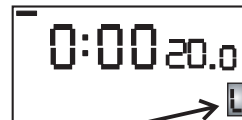
Even or odd week
L Even   **U** Odd   **I** not defined

Function switch
AUT/MAN/HOD/PROG

0:00 20.0

Program number
1- 2 optional
3- 9 fixed

Setting the constants:

Some constants 1-8(U,C) have to be set for correct function of the thermostat .
Change position of function switch to **PROG**.
By pressing " **K** " (constants) button select the mode for setting the constants **FCE**, press " **i** ", and we can setting constants (constants **1-8(U,C)** are indicated in right lower corner of LCD).
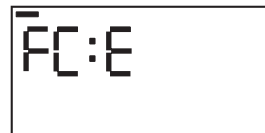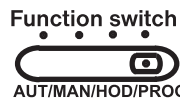
For saving of changes constants press " i ", for return to program press " K " .

Function switch
AUT/MAN/HOD/PROG

FC:E

Minimal or maximal regulated temperature

Function 1
enables to set minimal regulated temperature. By means of "**+/-**" buttons set required data, confirm by pressing " **i** "(register).
It can be selected in the range from **2 to 10°**C.

5.0°

1
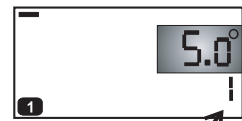
the constant to be set 1

Function 2
enables to set maximal regulated temperature in the range from **15 to 39°C**. By means of "**+/-**" buttons set required data, confirm by pressing " **i** "(register).

2

3

Premature switching-on of the heating system
(PZT function)

Function 3

0 - PZT is switched off
1 - PZT is active
2 - summer mode (✳)
set by **+/-** buttons and confirm by
pressing " **i** " button.

the constant to be set
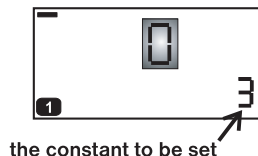
Normal mode (choice 0)

Common operation of heating system without PZT.

Premature switching-on of the heating system (choice 1)

This function guarantees required temperature at required time.
You must not guess when to switch the heating on in order to have an adequate temperature in the morning when getting up without unnecessarily long heating in advance. So, program only the time of required temperature. In two days of operation, PT30 establishes thermal constants of the room and then it switches the heating on at required time in advance. The period of premature switching-on is automatically limited to 2 hours.

Summer mode (choice 2)

Is not allowed switching-on of the central heating system in this mode. Seasonable when is not necessary switch the heating. Symbol " ✳ " is showed on the display. Function HOLIDAY is impossible to set in this summer mode !
Note: anti-freeze protection (3°C) is always functional.

Minimal period switching-on heating in the case of hysteresis

Function 4

Setting of minimal period in minutes for boiler activation in the case of hysteresis.
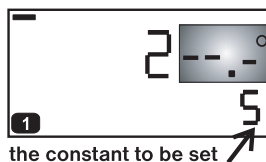Set by pressing of "**+/-**" buttons and confirm by " **i** " button.

Type of heating	Minimal period of boiler activation
electrical heating	1
gas boiler	2
oil boiler	4
heat pump	5

the constant to be set
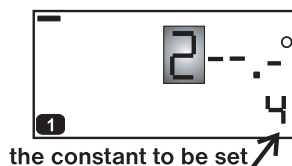
Choice of PI regulation or hysteresis

Function 5

By pressing **+/-** buttons it is possible to change data on selected spot of LCD. When **three horizontal dashes** are displayed, **PI regulation** is active.
When a number in the range from **0.1 to 1.5** is displayed, the PI regulation is deactivated and the thermostat works with selected hysteresis, as displayed by the value in Celsius degree.

display description:

the constant to be set

4

Time interval of PI regulation

Function 6

It is selected in the range from **5 to 20** minutes. Its value depends on thermal lag of the room.

Optimal setting is usually **10 to 15** minutes.

the constant to be set
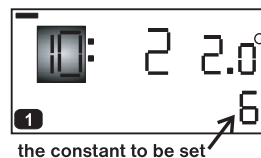
Minimal period switching-on heating in the case of PI regulation

Function 7

It is selected in the range from **1 to 5 minutes.** The setting depends on the type of heating medium.

Type of heating	Minimal period of boiler activation
electrical heating	1
gas boiler	2
oil boiler	4
heat pump	5

the constant to be set
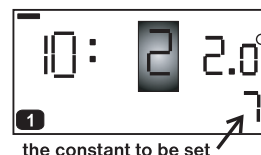
We recommend to set it according to following table.

Proportionality zone for PI regulation

Function 8

This reading defines the commencement of PI regulation. For example, required temperature is 22.0°C and proportionality zone amounts to 1.5°C. Up to 20.5°C the source will heat at a full output. As soon as this value is achieved, PI regulation starts to function.

Proportionality zone can be set in the range from **1.5 to 3.0°C**.

the constant to be set
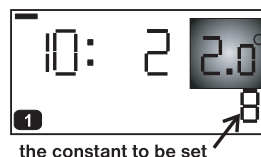
Indication of boiler maintenance

day   month   year

Function U

Set the date (day, month, year) for the notification on prescribed boiler maintenance. Symbol " **Udr** " should appear on LCD at defined moment. (**change date for canceled flashes Udr!**)

the constant to be set
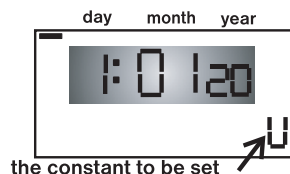
Maximal temperatur of external-floor sensor

Function C

Set this constant if external sensor is connected (page no.8).

By means of "**+/-**" buttons set required data, confirm by pressing " **i** "

It can be selected in the range from **15 to 99,5°C**. On LCD is displayed symbol **Cl:d2** if is correct connection of ext.sensor.

the constant to be set
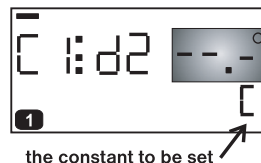
External-floor sensor keeps maximal temperature of floor. If floor-temperature will be maximal setting value, then heating is switch-off, even if temperature in room did not reach desire temperature.

If temperature of floor sensor droped below 0,5°C then heating is switch-on again.

Sing **STOP** is showed on the display.

5

Program version:
Last information in **Fce** mode is number of program version,e.g. **10.02**
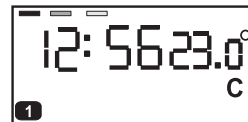
Function of " Kopi " button:
This function facilitates the programming of the thermostat.
Program from one day can be copied by simple pressing of
" **Kopi** " button to next day.

PROCEDURE
1. Day indicator has to mark the day that has to be copied to next day.
2. Press " **Kopi** " button and whole program copies itself to next day and day indicator
    moves.

Function " 💼 "(holiday) :
This function is very useful in the course of holidays, when the house is empty and it is not
necessary to change room temperature.

1. Select **AUT** or **MAN** by function switch.
2. By pressing " 💼 " button switch to holiday mode.
3. By pressing "**+/-Hod**" buttons set the date when we return from holiday and confirm " **i** "
4. By pressing "**+/-Hod**" buttons set the time of return.
5. Finally, set the temperature with using of " **+/- °C** " buttons according to season, for
    example 18°C in the summer.
6. After 30 seconds PT30 automatically change to holiday mode!
By pressing 💼 button is possible to cancel this mode.
This mode is **impossible** to set in **SUMMER MODE** (Fce 3,page no.4)!

Function of " Suma " button:
This is an informational button that displays the number of boiler
operating hours. Symbol " **H** " is shown on the display. Data
display on LCD represents 9906 hours and 73 minutes.
These hours can be reset by pressing " **Off** " button when the
Suma function is active.
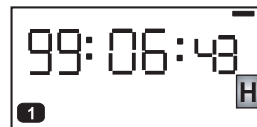
Function of " Off " button:
By pressing of this button the boiler is switched off(" **O** "). This
condition is indicated on the display by **OF:F** symbol and can
be cancelled by the same button or by changing the switch
position. In **AUT** mode, **Off** function is cancelled by next
program temperature change.
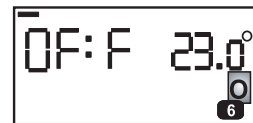
Short-term change of temperature in AUT mode (PARTY):
By simple pressing of "**+/-°C**" button in **AUT** mode, it is possible to make a short-term
change of required temperature. Symbol " **P** " is displayed. The thermostat will maintain
this temperature up to next temperature change as defined in the program.
When the " **i** " button is pressed in **AUT** mode, required program temperature is displayed
for a while (indicated by " **P** " on the display).

6

Function of "Test" button:
This button serves for the testing of correct connection of thermostat and boiler.
Pressing "**Test**" button causes several **switching on/off** of the boiler.

Replacement of batteries:
Use only alkali pencil batteries **2x1,5V of AA/R6 type**. Low battery is indicated on the display by " ■■ " symbol.

RESET button:
On the rear side of the microprocessor part, there is a button that should be used in the case of indeterminable conditions - all saved changes will be preserved. If it is necessary to cancel all parameters and programs set, use following procedure (factory setting). Press simultaneously **RESET + Off** buttons. Release **RESET** button and subsequently **Off** button.
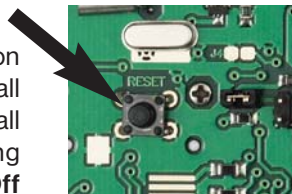
EXTRA FUNCTION OF PT30

Is possible select following functions of PT30:

- **regulation by temperature measured with internal sensor of thermostat**

- **regulation by temperature measured with external sensor of thermostat**

- **regulation by temperature measured with internal sensor of thermostat**

  with correction the maximal temperature of external-floor sensor

1, Function - internal sensor
The internal sensor is active after connecting the thermostat to heating system.
Fce C do not set this constant

2, Function - external sensor

After connecting external sensor (see pict.1 page no.8), press RESET button.
Correct connecting we can verify by:
Fce C must be symbol **Cl:d2** (see page no.5)
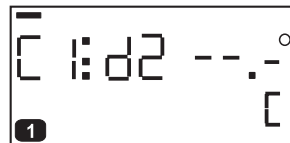
At **Fce 2** (page no.3) is possible to set maximal temperature in the range from 15 to 99,5°C. Temperature is measured by external sensor. Big advantage is measuring of temperature in others rooms (floor regulation, regulation of technological process etc.)
Note: after disconnected externalsensor is necessary press RESET button, interna sensor will be connected automatically.

7

3, Function - internal and external sensor

PT30 keeps maximal floor temperature and simultaneously control temperature in the room. Thermostat control (for PI regulation) temperature in the room by internal sensor (common function of thermostat).

- connecting external sensor (see pict.1), for floor-temperature
- press RESET button, at **Fce C** showed symbol **Ci:d2** (correct connection).
- at **Fce C** set maximal floor-temperature, then heating is switch-off

If floor-temperature will be maximal setting value, then heating is switch-off, even if temperature in room did not reach desire temperature.
If temperature of floor sensor droped below 0,5°C then heating is switch-on again.

Is necessary set max. temperature of external sensor (see Function C, page no.5)
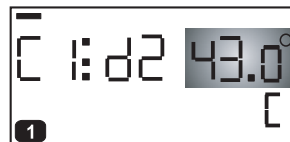
The actual temperature of internal and external sensor is showed when press "**-/+ hod**" , **C1** (fro internal sensor) or **C2** (for external sensor).
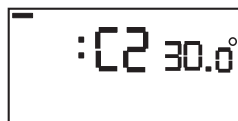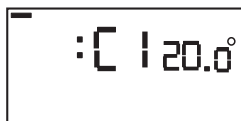
WIRES TOWARDS SENSOR MUST NOT BE LEAD NEAR THE POWER WIRING! Is necessary make small openning to the plastic part for wires of external sensor!

Types of sensor:
CT01 C 10kΩ wire CYXY 2*0,5mm, lenght 1.5 m, metal case, max.70°C.
CT01 S 10kΩ wire silicone, lenght 1.5 m, metal case, max.99°C.
CT01 P 10kΩ wire CYXY 2*0,5mm lenght 1.5 m, PVC case, suitable for sink to liquid max.70°C.

Pict.1 Connecting external sensor

STAPLES FOR EXTERNAL SENSOR

Installation:

Pic.1 **Pic.1a** **voltageless contacts** **Pic.2**

battery compartment

BOILER

Boiler connection

Terminals 1 and 2 are interconnected when the thermostat is switched on

Terminals 2 and 3 are interconnected when the thermostat is not switched on

openings for mounting screws

use only alkali battery 2x1.5 V type AA/R6

Install the thermostat on a suitable place, where its operation would not be influenced by direct flow of hot air from the heater, by solar radiation and other disturbing influences. Also avoid the installation on outer wall.

Procedure:

PT30 thermostat consists of two parts: the front one - the microprocessor one (Pic.1) and rear one - the switching one. In this way very easy and quick installation of the thermostat into installation box of KU/KP68 type is achieved and very comfortable programming directly from your armchair.

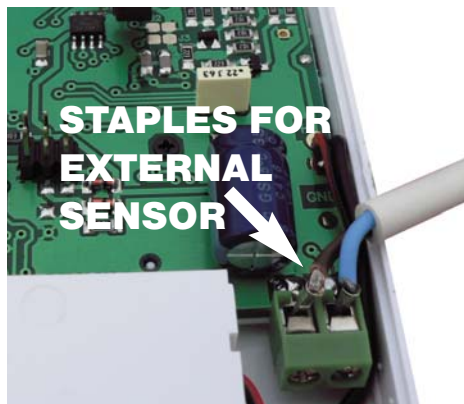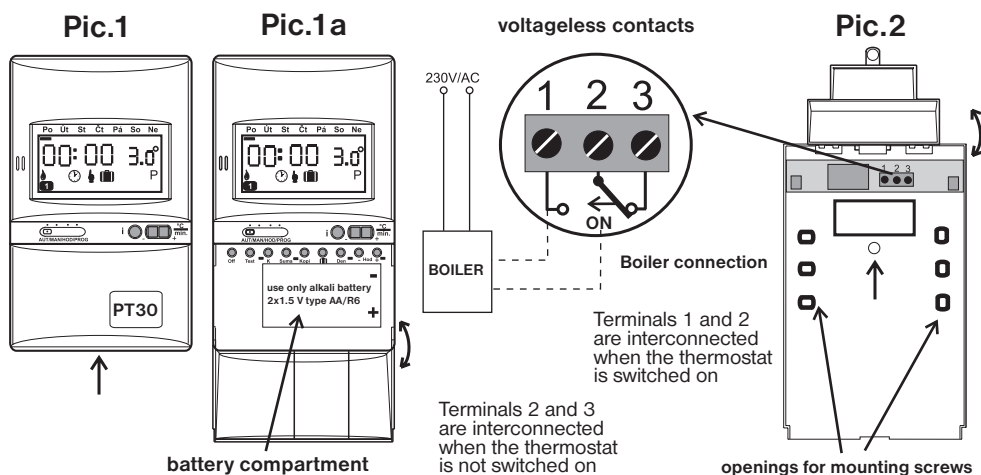**1.** Open the case of PT30 in the place indicated by arrow on **Pic.1** and so divide the thermostat to two parts.

2. Grasp the rear (switching) part and fasten it into installation box (see **Pic.2**) at the height of minimally 1.5 m.

3. Unscrew the screw as indicated by arrow (**Pic.2**) and lift of the cover. Under this cover, there is the relay and terminal strip, to which the cables from boiler should be connected (**Pic.2**).

4. Grasp the front part of PT30, slide of the cover (**Pic.1a**), insert two pencil alkali batteries 2x 1.5 V and program the thermostat according to operating instructions.

5. Afterwards, snap the front part from above to the lower part of PT30 and the thermostat is ready for operation.

As soon as the rear and front parts of the thermostat are connected, we recommend to use TEST button(see page no.7). It performs four activations of the relay and its testing.

The installation of PT30 may be performed only by a person with appropriate qualification in electrical engineering.

Table for registration of your programs

Program No.1 optional	1	2	3	4	5	6
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

Program No.2 optional	1	2	3	4	5	6
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

abel of fixed programs
(is possible change too)

program 3	1	2	3	4	5	6
Monday	05/21	06/18	12/20	16/21	18/22	21/18
Tuesday	05/21	06/18	12/20	16/21	18/22	21/18
Wednesday	05/21	06/18	12/20	16/21	18/22	21/18
Thursday	05/21	06/18	12/20	16/21	18/22	21/18
Friday	05/21	06/18	12/20	16/21	18/22	21/18
Saturday	07/21	21/18				
Sunday	07/21	21/18				

program 4	1	2	3	4	5	6
Monday	06/21	07/18	15/21	18/22	22/18	
Tuesday	06/21	07/18	15/21	18/22	22/18	
Wednesday	06/21	07/18	15/21	18/22	22/18	
Thursday	06/21	07/18	15/21	18/22	22/18	
Friday	06/21	07/18	15/21	18/22	22/18	
Saturday	07/21	18/22	22/18			
Sunday	07/22	18/23	22/19			

program 5	1	2	3	4	5	6
Monday	08/21	09/18	15/21	18/22	23/18	
Tuesday	08/21	09/18	15/21	18/22	23/18	
Wednesday	08/21	09/18	15/21	18/22	23/18	
Thursday	08/21	09/18	15/21	18/22	23/18	
Friday	08/21	09/18	15/21	18/22	23/18	
Saturday	08/21	18/22	22/18			
Sunday	08/21	18/22	22/18			

program 6	1	2	3	4	5	6
Monday	07/21	09/18	15/22	18/23	22/18	
Tuesday	07/21	09/18	15/22	18/23	22/18	
Wednesday	07/21	09/18	15/22	18/23	22/18	
Thursday	07/21	09/18	15/22	18/23	22/18	
Friday	07/21	09/18	15/22	18/23	22/18	
Saturday	07/21	18/23	22/18			
Sunday	07/21	18/23	22/18			

program 7	1	2	3	4	5	6
Monday	07/22	09/18	15/23	18/24	22/18	
Tuesday	07/22	09/18	15/23	18/24	22/18	
Wednesday	07/22	09/18	15/23	18/24	22/18	
Thursday	07/22	09/18	15/23	18/24	22/18	
Friday	07/22	09/18	15/23	18/24	22/18	
Saturday	08/22	18/24	22/18			
Sunday	08/22	18/24	22/18			

program 8	1	2	3	4	5	6
Monday	06/20	08/18	14/21	17/22	22/17	
Tuesday	06/20	08/18	14/21	17/22	22/17	
Wednesday	06/20	08/18	14/21	17/22	22/17	
Thursday	06/20	08/18	14/21	17/22	22/17	
Friday	06/20	08/18	14/21	17/22	22/17	
Saturday	07/21	17/23	22/19			
Sunday	07/21	17/23	22/19			

e.g.: 8/23 is setting temperature 23°C at 8 o'clock.

program 9	1	2	3	4	5	6
Monday	08/23	21/18				
Tuesday	08/23	21/18				
Wednesday	08/23	21/18				
Thursday	08/23	21/18				
Friday	08/23	21/18				
Saturday	08/23	21/18				
Sunday	08/23	21/18				

Explanation of function PZT(Func. 3)

This function guarantees required temperature at required time.

PT30 find out heat constants of room during 2 days and after switched-on heating with desired advance automatically. The period of premature switching-on is automatically limited to 2 hours.

Function of premature switching-on of the heating system

■ unnecessary consumption
■ feeling of cold

Switching on of common timer 2 hours before required temperature

Switching on of common timer 1 hour before required temperature

Intelligent timer
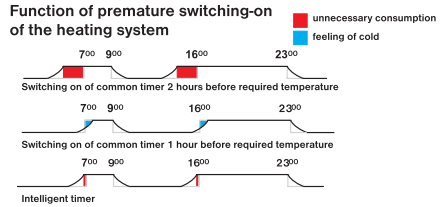
Explanation of HYSTERESIS (Func. 5)

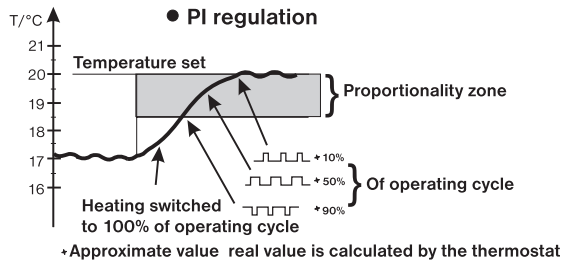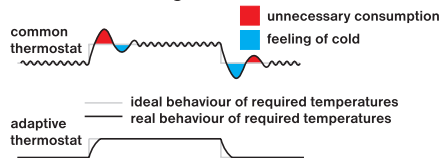### Difference between desired and actual temperature.

It is selected in the range from 0,1 to 1,5°C. If is hysteresis 1°C, desired temperature 20°C, thermostat switch-off by 20°C and switch-on by 19°C again (see diagram).

Hysteresis 1°C
ON
OFF
19   20   t/°C
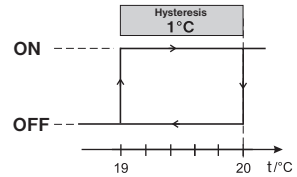
Explanation of PI REGULATION (Func. 6)

Choice Func. 6: for setting time interval is necessary follows of heat inertia in room. Optimal setting is usually **10 to 15** minutes. There are the repeated temperature divergence in the room,we recommend set shorter time interval. Proportionality zones is determine from which value is PI regulation active (Func. 8).

Function of PI regulation

common thermostat

■ unnecessary consumption
■ feeling of cold

adaptive thermostat

ideal behaviour of required temperatures
real behaviour of required temperatures

● PI regulation

T/°C
21
20   Temperature set
19   Proportionality zone
18
17   +10%
16   +50%   Of operating cycle
                    +90%
Heating switched
to 100% of operating cycle
+Approximate value real value is calculated by the thermostat

INTELLIGENT ROOM THERMOSTAT PT30

PT30 thermostat is designed for the control of heating or cooling systems in family houses, flats, offices and similar. It can be used for the control of gas or oil boilers, circulation pumps, thermo-electric drives, direct heating electrical bodies or for the control of air handling equipment.

PT30 ensures ideal thermal conditions in regulated system with optimization of energy costs.

Advantages of PT30:

- Anticipating system (intelligent timer) guarantees set temperature in required time. Adaptive regulator evaluates temp.gradient of the room and is able to determine time period necessary for the achieving of required temperature.
- The system of PI regulation guarantees temperature increase and its subsequent maintaining with optimal energy consumption.
- E-EPROM memory is able to store all data for unlimited time in the case of power failure.
- The possibility to select PI regulation or hysteresis **(0,1 to 1,5°C).**
- The possibility to use external sensor for floor heating.
- Six time intervals and temperatures for each day in week.
- Four independent programs, five fixed programs.
- Possibility to select even and odd week.
- Automatic transition to WINTER and SUMMER time.
- Calendar up to the year 2027.
- Short-term change of temperature **(function PARTY).**
- Automatic indication of boiler maintenance**.**
- Indication of boiler operating hours **(function SUMA).**
- **Function HOLIDAY.**
- **Function Copi.**
- **Function SUMMER MODE.**

Specifications	
Power supply	alkal. bateries 2x1,5V type AA/R6
Number of setting temp.	6 per day
Hysteresis	0,1;0,2;0,3;0,4;0,5;1,0; 1,5°C
Minimal. program.time	10 minutes
Temperature range	2 to 39°C
Setting temperature	by 0,5°C
Minim. indicative leap	0,1°C
Measuring accuracy	0,5°C
Output	relay, max. 5A/250V AC

CE

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