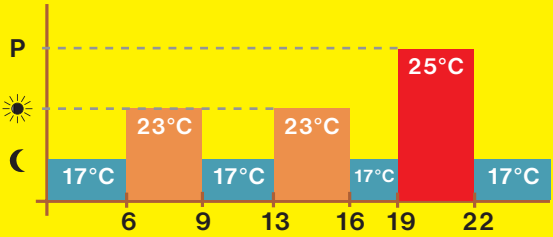
DIGITAL RADIATOR CONTROLLER HD20

- Easy installation to valve of radiator
- Continuous regulation of room temperature
- 6 temperature changes per day
- Energy savings up to 30%



Fce = selection of functions (AUTO, MANU, CL:O, PROG, PA:r, OF:F)

☀ ☾ P = selection of temperatures (komfort, economy, party)

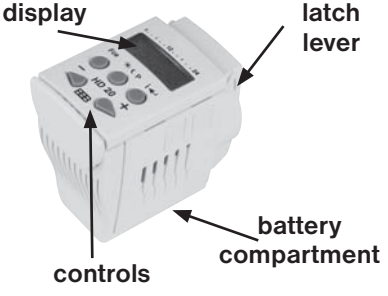
i ↵ = confirmation (ENTER), information on required temperature (PO:t), present time/temperature (CL:O/tE:P), valve opening per cent (Pr:OC) and day (dE:n)

– / + = setting of temperature, time, functions

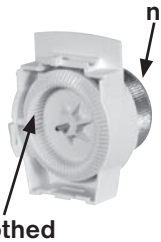
ELEKTROBOCK CZ
MADE IN CZECH REPUBLIC

HD20 DESCRIPTION

CONTROLLER BODY INCLUDING BATTERIES



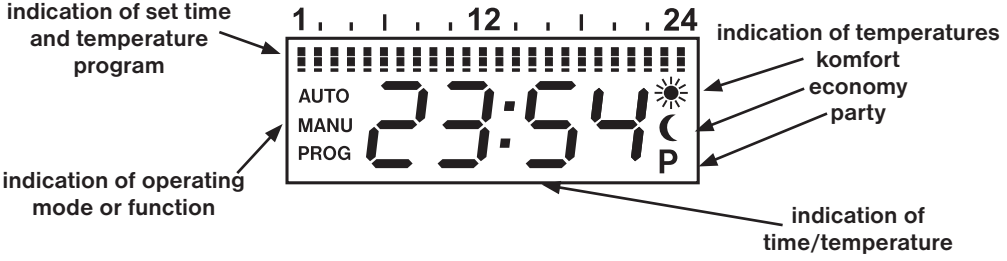
TRANSMISSION PART



CONNECTOR FOR EXTERNAL SENSOR

connector RJ11/4 for CT03-10k (see page 8)

DISPLAY DESCRIPTION



OPERATING INSTRUCTIONS

HD20 is a Czech product that serves for the regulation of room temperature. After simple installation on thermostatic valve on your radiator and setting of week program, you can save up to 30% energy for heating in your household, weekend cottage, etc. Thanks to its rich programming features (6 time intervals and 3 temperatures for each day), you can define program suiting to your needs.

1. LOCATION OF BATTERIES AND THEIR REPLACEMENT

- grasp controller body and turn in upside down (with display downwards)
- open the cover of battery compartment and remove protective paper, now HD20 is functional
- low battery is indicated by blinking symbol " **Batt** " on the display
- use solely alkali pencil batteries 2x1,5V AA type

<u>Note</u>: after each battery change is to adapt (see page 7).

! Dispose old batteries in compliance with the regulations related to the handling of dangerous waste!

2. PRINCIPAL FUNCTIONS AND THEIR SETTING

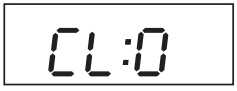
After pushing the Fce button you can select following functions by pushing −/+ :

AUTO : HD20 works according to program as set.
MANU : serves for manual setting of temperature (the selection by ☀☾P or by buttons −/+) the temperature should be constant up to the next change of mode.
CLO : setting of present day and time.
PROG : programming mode.
PAr : setting of parameters (constants).
OFF : this mode, HD20 is permanently switched-off (anti-freeze mode 3°C is active).

Note: If you do not push any button in 2 minutes, HD20 returns to its basic mode. Longer pushing of −/+ sbuttons speeds up their functions.

FUNCTION " CL:O " setting of current day and time

Press the Fce button, by pressing −/+ select **CL:O** *(CLOCK)* function and confirm by i↵ . Indication of hours blinks on the display, use −/+ buttons to set required data and confirm by i↵ button. Use the same method for minutes and day (d:1 represents Monday, d:2 Tuesday and d:7 Sunday). After the completion of setting, press Fce button to return.

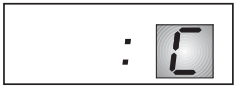


FUNCTION " PA:r " setting of parameters (constants)

Parameters used for setting the display data on LCD, definition of temperature and other functions.

PA:r1 display options

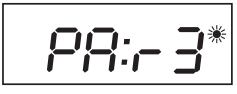
- press Fce, by means of pressing −/+ select **PAr** *(PARAMETERS)* function and confirm by pressing i↵
- **PA:r1** is showed on the display
- confirm by pressing i↵ and by means of −/+ buttons it is possible to select an option for display content in basic mode:
  - **t** displaying of current room temperature
  - **C** displaying of current time
- the selection is again confirmed by pressing i↵ .



PA:r2 economy temperature (factory setting 17°C) ☾

- **PA:r2** is showed on the display
- confirm by i↵ and by pressing −/+ buttons set economy temperature, again confirm by pressing i↵ .

PA:r3 comfort temperature (factory setting 23°C) ☀



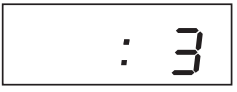
- **PA:r3** is showed on the display
- confirm by i↵ and by pressing −/+ buttons set comfort temperature, again confirm by pressing i↵ .

PA:r4 party temperature (factory setting 25°C) P

- **PA:r4** is showed on the display
- confirm by i↵ and by pressing −/+ buttons set party temperature, again confirm by pressing i↵ .

PA:r6 correction of reference point (factory setting 3)

- **PA:r6** is showed on the display, confirm by i↵
- by pressing −/+ buttons set value from 1 to 5 and confirm by i↵ .



CORRECTION OF REFERENCE POINT:
used to accurately set the reference point during adaptation HD20 on the valve. It moves in steps 1-5, and the factory default is set to a value of 3. This value cannot majority needed to change. Change this parameter if the head is unable to adapt to the valve and reports ERROR or HD20 flows the water even if valve is closed. Correction is also needed in older valves squeezed sealing rings or valves, which place greater mechanical resistance. The larger number, the greater the power of HD20 during tighten the valve.

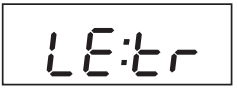
Examples:
1. HD20 flows water even if is closed on 0 percent – increase this parameter at 4 or 5.
2. HD20 begins to leak water to over 50% - decrease the value constant to 2 or 1.

PA:r7 summer mode

- **PA:r7** is showed on the display, confirm by i↵
- by pressing −/+ buttons set this mode and confirm by i↵ .

We choose in the summer, when not heated, HD20 is released at 100%. **Used to extend valve life!**

The display alternately shows the symbol **LE : tr** and the temperature/ time.



PA:r9 number of firmware version/ reset of factory settings

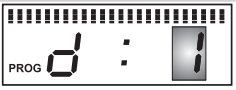
- **PA:r9** is showed on the display
- this parameter is only of informative charcter a shows the number of firmware version
- press i↵ or Fce to return to function selection.

Erasing of programs, RESET:

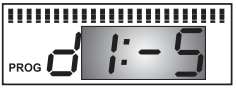
- press the Fce button, by pressing −/+ select function **PA:r** and confrim by i↵ button
- by pressing −/+ buttons set **PA:r9**, confirm by i↵ button
- simultaneously press ☀☾P and − buttons, it will restore the factory settings!

Note: Use only when necessary, all saved changes will be deleted and it will start new adaptation of the head!

PROG FUNCTION program defining

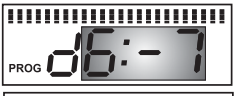


- press Fce and by −/+ button select **PROG** function *(PROGRAMMING)* confirm by pressing i↵



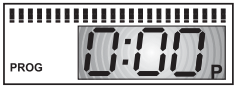
- by pressing −/+ select the day, which should be programmed according to following table:

d:1 Monday	**d:5 Friday**	**d1:5 Monday to Friday**
d:2 Tuesday	**d:6 Saturday**	**d6:7 Saturday to Sunday**
d:3 Wednesday	**d:7 neděle**	**d1:7 whole week**
d:4 Thursday	**TABLE: SELECTION OF DAY TO BE PROGRAMMED**	



- when the day is selected, press i↵ and symbol **1:U1** is displayed, so that you can set the first time interval

- by pressing −/+ set the time of the first change (min. step: 10min.)
- by repeated pressing of ☀☾P assign required temperature to this time



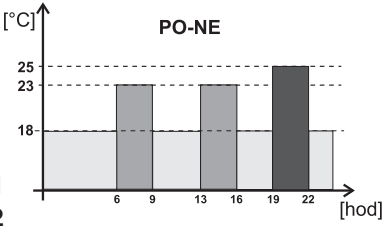
- again confirm by pressing i↵ and the display automatically shows symbol **1:U2** for the second time interval in the first day.
- tthis procedure should be repeated until all time intervals (max.6) are set and afterwards leave the programming mode by pressing Fce.
- make mount HD20 on valve of radiator (see page 7).
- select **AUTO** function and HD20 starts to function according to defined program.

Indication of HD20 condition:

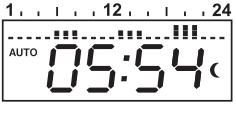
state of valve	description
OPENED	symbol AUTO or MANU on the display IS ALIGHT
CLOSED	symbol AUTO or MANU on the display FLASHES

EXAMPLE definition of weekly program

1) Set ☾ for 18°C (PA:r2)
2) Set ☀ for 23°C (PA:r3)
3) Set **P** for 25°C (PA:r4)
4) Select programming of whole week **d1:7** (Prog)
5) Assign the time of **6:00** and ☀ temperature to **17:U1**
6) Assign the time of **9:00** and ☾ temperature to **17:U2**
7) Assign the time of **13:00** and ☀ temperature to **17:U3**
8) Assign the time of **16:00** and ☾ temperature to **17:U4**
9) Assign the time of **19:00** and **P** temperature to **17:U5**
10) Assign the time of **22:00** and ☾ temperature to **17:U6**
11) Leave the programming mode by pressing Fce and select **AUTO.**



representation of program course on LCD



3. FURTHER FUNCTIONS OF HD20

Short-term change of temperature in AUTO mode

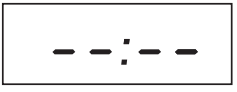
By pressing −/+ buttons in **AUT** mode, it is possible to make a short-term change of required temperature. HD20 will maintain this temperature up to next temperature change as defined in the program.

OFF FUNCTION permanently switched-off (close the valve)

Press the Fce button, by pressing −/+ buttons select **OF:F** function and confirm by i↵. In this way, HD20 is permanently switched off. In this mode, symbol **OF:F** and data on current temperature/time are showed alternatively on the display. To cancel this function, press Fce button and select different mode with using of −/+ buttons.

" OPEN WINDOW" FUNCTION

If the temperature in room changes suddenly (for example because of window opening, change of 1.2 °C within 2 minutes), HD20 closes the valve and so saves energy. This condition is indicated by symbol - - : - - and temperature or time is blinking on the display. The mode is terminated when the temperature rises or till 30 minutes. To further the mode „open window" may be possible after 10 minutes and after temperature decrease of 1.2 °C. It is possible to cancel this function, e.g. to open the valve, by pressing the Fce button.



Indication of function "open window" on LCD!

Protection against scale deposition

HD20 opens and closes the valve each Saturday at 12 o'clock in order to prevent valve blocking by scale. Message **Ad:AP** is showed on the display in the course of this activity.

Child lock

It serves for keyboard blocking, as a protection against unauthorized handling.

Press Fce button, then simultaneously press ☀☾P and − now the keyboard is blocked *(the buttons are inoperative)*. Message **LOC** *(LOCK)* is shortly displayed on the display. The function can be cancelled, e.g. the keyboard unblocked by simultaneous pressing of ☀☾P and + buttons *(the buttons are again operative)*.

Freeze protection

If the room temperature drops below 3°C, HD20 opens the valve automatically and shortens the regulation interval to 2 minutes. As soon as the temperature increases, it returns gradually to the mode as set.

EXTERNAL SENSOR

External sensor CT03-10k (see page 8) is used to better control if the temperature sensor inside HD20 is extremely influenced by the heat source or if HD20 is improperly positioned behind the curtain (the sill) and thus prevent the free flow of air.

Installation and proper location of the external sensor:

- remove the cover of connector for sensor by use flat object.
- external sensor plug into the connector of HD20 (see page 2).
- install the external sensor where will not be affected by temperature from radiator, direct sunlight and will be away from the door. Avoid placing the sensor on the external heat an uninsulated wall (which is usually colder).
- HD20 starts regulate under the external sensor within 5 minute connection from the sensor. HD20 automatically displaying the current temperature of the external sensor. Correct connection of external sensor can be verified for example by heating it in hand - increased temperature must be on the display within 5 minutes to the.

4. INSTALLATION OF THE BODY ON THE VALVE

- remove the original head from the valve by simple unscrewing (without draining the water from the heating system).
- using a suitable screwdriver to turn the latch lever of HD20 up and slide out the transmission part from the body of the head.
- grasp the transmission part of HD20.
- unscrew the toothed wheel counterclockwise up to its end position.
- fasten the transmission part with nut onto valve.
- tighten the nut on the valve by hand. DO NOT USE ANY INSTRUMENTS!
- grasp controller body with display upwards.
- check whether the latch lever towards up, too.
- snap the body from above downwards to the valve with transmission part.
- secure the controller body by turning the lever towards the valve.

After installation of the controller to the valve, message " **Ad:AP** " appears on the display and the controller automatically adapts itself to respective valve. This adaptation lasts approximately 1 minute and afterwards, HD 20 returns to normal mode.

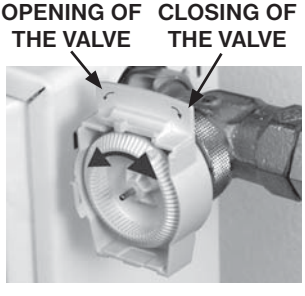
Emergency manual control of the valve:

- remove the body from the transmission part
- adjust the valve manually by turning the toothed wheel.

Error messages:

Err0 - error of temperature sensor.

Take the batteries out for about 2 minutes and re-insert. If the error reappears on the LCD, contact the manufacturer.



Err1 to Err4 - error of mechanism.

Separate the body from the transmission part and re-attach the body, then will adapt. On re-view some of errors, set a higher value in parameter Par6 (correction of reference point). In the case of repeated error messages, we recommend contacting the manufacturer.

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DIGITAL RADIATOR CONTROLLER HD20

Digital radiator controller HD20 serves for automatic regulation of heating systems in family houses, flats, offices. It is possible to set up to six time intervals with three temperature levels for each day.

Further advantages:

- different temperature program for each day
- **possible connection of external sensor**
- the possibility to set three temperatures (☀ , ☾ , P)
- automatic adaptation after connection to valve
- information on current temperature program
- indication of valve opening in %
- automatic protection of valve against scale
- automatic closing of valve during sudden decrease of temperature in the room (opening of a window)
- freeze protection
- possibility to make a short-term change in program temperature
- indication of low battery
- possibility to block the keyboard
- temp. regulation at steps of 0,5°C

CT03-10k C order No. 0014
*10kΩ, CYXY 2*0.5 mm, length 1.5 m, plastic case, for measurement to 70 °C*

Technical parameters	
Power supply	2 x 1,5 V alkal. batteries AA type
Number of temp. changes	6 changes of temp. for each day
Minimal programmable time	10 minutes
Range of possible temp.	3 to 40 °C
Temperature setting	step of 0,5°C
Minimal step of indication	0,1°C
Measurement accuracy	± 0,5 °C
Lifetime of battery	heating season
Protection	IP40
Operating temperature	0 to 40 °C

COMPARATIVE TABLE OF VALVE

HD20 without adapter (thread M30x1,5)	HD20 with adapter
HONEYWELL	HERZ (thread M28x1,5)
HEIMEIER	DANFOSS (thread M28x1,5)
VAC	UNIVA (accord with HERZ) (thread M28x1,5)
JUNKERS	COTERM (threadM28x1,5)
KORADO	MYJAVA (thread M28x1,5)
PURMO (accord with HEIMEIER, KORADO valves)	DANFOSS RTD (thread M30x1,5)
SIEMENS	For new types of OVENTROP and ENBRA (M30x1,5) valves is not necessary adapter.
KERMI	
DIANORM	
RADSON	
DELONGHI	

Send HD20 for guarantee and after-guarantee service to manufacturer's address

These adapters can be ordered at www.elbock.cz

WARRANTY CERTIFICATE

(a 2-year warranty is granted for the product)

Product number:	Date of sale:
	Shop stamp:
Checked by:	

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