HEAT PUMP
AIR / WATER

WITH REGULATION
ACOND® THERM
OPERATING MANUAL

Software version 140.1 and 140.2

In short:

To turn the heat pump on / off:

- **If the symbol ⏻ is on the display and the room temperature is not displayed, the heat pump is switched off.**
- Press and hold the rotary button on the room unit for about 7s. The heat pump is switched on, the display shows the room temperature.
- When the heat pump is switched on, pressing and holding the rotary button (7s) switches the heat pump off.

To set the room temperature:

- Press the rotary button.
- The desired indoor temperature flashes on the display.
- Turn the button to the right to increase the desired room temperature by 0.5 °C, turn the button to the left to decrease it.
- Press the rotary button again and the display will display the room temperature again.
- For more information, see chapter 3.1.5 on page 15.

To determine the outdoor temperature:

- Turn the button **to the right** and the outdoor temperature will be displayed for 5s.

To determine the temperature of service water (TUV):

- Turn the button **to the left** and the water temperature (if fitted) will be displayed for 5s.

1. Explanation of symbols, Documentation validity

1.1 Used symbols

Important information not including either hazards posed to persons or material valuables are indicated in white text and highlighted in blue. They are separated from text by commas above and below it.

Warning remarks in the text are indicated by a red warning triangle with a white exclamation point and enclosed by a frame.

1.2 Documentation validity

The instructions specified herein are valid for **ACOND PRO®** air/water heat pumps with **ACOND® THERM** regulation with SW versions 140.1x a 140.2x.

If these instructions are not followed during installation, operation and maintenance, then the obligations of **ACOND a.s.** stemming from the terms of the warranty shall cease to apply.

ACOND a.s. hereby reserves the right to make changes to any parts of the documentation and specifications without prior notice.

2. Important information

If the system is not used in winter or cannot be started due to operational reasons (e.g. due to a serious malfunction) and is not filled with antifreeze, water must be drained from the heating system, otherwise there is a risk of frost damage to the system.

!! Do not disconnect the heat pump from the power supply for a longer period (several days)!!
Back-up battery may be discharged, control software may be deleted and data may be lost. Any trip of the technician will be charged according to the current price list of Acond a.s.

The equipment must not be operated by persons with reduced mental abilities or lack of experience and knowledge (including children) unless under the supervision of instructed persons responsible for their safety.

2.1 Safety

- Operation of the equipment is safe when properly used.
- The design and set-up of the equipment complies with the relevant DIN/VDE regulations.
- Every person working on the machine must read, understand and follow the relevant instructions before starting work.
- Any person performing work on the equipment must comply with locally applicable occupational safety and other safety regulations. This applies in particular to the use of personal protective clothing.

2.1.1 Personal protective equipment

Every person performing maintenance, repair and recuperation must wear protective gloves and eye protection.

2.1.2 Fire safety equipment

The equipment is safe under normal conditions. In the event of unforeseeable circumstances and improper operation of the equipment, its damage and fire may occur. In order to extinguish a fire, it is necessary to use extinguishers suitable for extinguishing electrical equipment, i.e.

- Powder extinguisher
- Foam extinguisher
- Gas extinguisher

Attention, unit contains flammable coolant!
In case of coolant leakage, disconnect the device from the power supply and contact service!

Attention, unit contains flammable coolant!
In case of fire, disconnect the device from the power source and call 112!

Handling open flame near the outdoor unit is prohibited!

2.1.3 Device treatment

Do not use chlorine on stainless steel surfaces and avoid abrasive materials and wires!

Stainless steel surfaces can be treated:

- Special preparations for stainless materials that polish and protect the surface
- Detergent can be used for degreasing

Due to the risk of damage to the heat pump casing, do not use any spray types in its vicinity. This applies in particular for:

- Solvents
- Chlorine cleaning products
- Paints
- Adhesives

2.1.4 Installation and maintenance

- Follow applicable local regulations.
- Install the heat pump only in the outdoor environment or in machine rooms that comply with ČSN EN 378-3!
- Do not install heat pumps in ventilation systems!
- Do not narrow or stop the directing air sides of the heat pump!
- Never start the heat pump if the fan cover is removed!
- Installation, maintenance and repairs must only be carried out by authorised technicians (see chapter 8 Links)

2.1.5 Risk of death by electric shock

- Disconnect the mains voltage completely and take precautions against accidental switching on before opening the heat pump or before working on electrical parts.
- Only instruct a professional electrician to carry out work electrical connections and work on electrical parts.
- Follow the relevant EN, VDE or locally applicable safety regulations when installing and performing electrical work.

2.1.6 Danger of injury due to icing

At the air outlet of the heat pump, the air temperature is within the approximate range of 5° C below the surrounding temperature, and therefore the surrounding area may be icy and slippery. Therefore, install the heat pump in a manner that does not allow the out flowing air to interfere with pedestrian paths.

2.2 Service inspections and maintenance

The operator is responsible for the safety and environmental flawlessness of the heat pump. If the refrigerant leaks from a leaking place, it may cause personal injury or damage to the environment.

If you detect a leak that leaks refrigerant, disconnect the heat pump from the mains and secure it against accidental switching on (e.g. written warnings at the circuit breaker). Inform customer service.

RISK OF INJURY! Only authorised refrigeration technicians may work on the refrigerant circuit, see chapter 8 Links

2.2.1 System modifications

> Before you change the settings of the control computer, first find out what these changes mean!
> Do not make design changes that could affect the safe operation of the heat pump!

Only authorised technicians may make modifications to the following components:

- Heat pump unit
- Refrigerant and water piping, power supply

2.3 Damage protection

> **Never insert foreign objects into the external unit of the heat pump! The heat pump operates in intermittent automatic operation, the fan operates at high speed and may be pose risk of injury.**

2.3.1 Water quality and volume

All water (including domestic hot water) must meet the parameters for drinking water according to ČSN 252/2004 Coll., however, in addition, the maximum total hardness must be less than 1.25 mmol/l, the chloride content below 85 mg/l and the pH in the range of 6.8 to 8.0.

Model	PRO-N	PRO-R
Volume of water in the heat pump [l]	1.45	2.7

Table 1 Volume of water in the equipment

2.3.2 Stainless steel water tanks

The Acond heating system can be fitted with a stainless steel container designed for accumulation of domestic hot water or a stainless steel hot water storage tank (hereinafter referred to as the containers). Although these are stainless steel containers, they are not maintenance-free! Instructions for installation and maintenance of the vessels are given in the

documentation **of the accumulation vessel, service water storage tanks**, which is part of the supply of the vessels.

The tanks are designed for accumulation of domestic hot water and as drinking water storage tanks. For water requirements, see 2.3.1 Water quality and volume.

The container shall not be put into service and operated without a fully functioning **safety valve**. The maximum possible operating pressure of the vessel is 0.6 MPa.

Occasional leakage of water from the safety valve during hot water heating is a normal phenomenon caused by thermal expansion of water. Permanent leakage of water indicates a defective safety valve and causes large energy losses.

If the system is equipped with full service water heating and the service water tank is not filled with water, it is necessary to disconnect the service water circulation pump from the power supply, otherwise it may be damaged!!

2.4 Technical specifications

The following specifications and performance parameters are for the average climate and for the unit with clean heat exchangers!

Model	PRO-N	PRO-R
Feeding voltage code; circuit-breaker*) **)	3~N/PE/400V/50Hz; B16A	3~N/PE/400V/50Hz; B20A
Outdoor unit's voltage code; circuit-breaker*) **)	1~N/PE/230V/50Hz; B16A	3~N/PE/400V/50Hz; B16A
Maximum current of outdoor unit [A]	13	12
Starting current [A]	5	5
Protection class	IP44	IP44
Dimensions (HxWxD) [mm]	730x1127x498	1070X1426x557
Pump weight [kg]	115	195
Coolant	R290	R290
Coolant weight [kg]	1.35	2.75
Maximum allowable pressure- high pressure side [bar]	26	26
Maximum allowable pressure- low pressure side [bar]	26	26
Acoustic power at A7/W55 [dB (A)]	48,4±1,5	49.3 1.5
Air temperature limit range [°C]	-22 to 35	-22 to 35
Water temperature limit range [°C]	20 to 70	20 to 70
Minimum water flow [m^3/h]	0.5	0.5
Maximum water flow [m^3/h]	3	3

Table 2 Technical specifications

*) Comply with local regulations.
**) This may vary depending on bivalent resources.

Model	PRO-N	PRO-R
Heating capacity A7/W35 [kW]	3.28	6.77
COP A7/W35 [1]	4.9	5.22
Heating capacity A2/W35 [kW]	2.74	5.7
COP A2/W35 [1]	4.31	4.49

Heating capacity A7/W55 [kW]	3.87	7.41
COP A7/W55 [1]	3.28	3.29

Table 3 Performance parameters of nominal conditions EN 14 511

Model	PRO-N	PRO-R
Heating capacity A12/W27 [kW]	1.81	4.05
COP A12/W27 [1]	6.27	7.11
Heating capacity A7/W27 [kW]	1.63	3.81
COP A7/W27 [1]	5.55	6.33
Heating capacity A2/W30 [kW]	2.54	5.46
COP A2/W30 [1]	4.94	5.03
Heating capacity A-7/W34 [kW]	4.17	9.23
COP A-7/W34 [1]	3.14	3.24
Heating capacity A12/W34,8 [kW]	1.76	3.88
COP A12/W34,8 [1]	5.36	5.92
Heating capacity A7/W36 [kW]	1.60	3.52
COP A7/W36 [1]	4.41	4.97
Heating capacity A2/W42 [kW]	2.48	5.53
COP A2/W42 [1]	3.74	3.87
Heating capacity A-7/W52 [kW]	4.08	9
COP A-7/W52 [1]	2.38	2.5
SCOP W35 [1]	4.74	5.05
SCOP W55 [1]	3.68	3.93

Table 4 Performance parameters, equithermal regulation

Model		PRO-N	PRO-R
A7/W35	Fan speed [1/min]	320	337
	Water flow [m^3/h]	0.58	1.19
	Pressure difference [kPa]	-2.93	-3.83
A2/W35	Fan speed [1/min]	320	337
	Water flow [m^3/h]	0.48	0.99
	Pressure difference [kPa]	-2.07	-2.7
A7/W55	Fan speed [1/min]	320	337

Water flow [m^3/h]	0.42	0.81
Pressure difference [kPa]	-1.32	-1.73

Table 5 Flows for nominal conditions according to EN 14 511

2.4.1 Operating conditions of the ACOND heat pump

For the heat pump to function correctly, the conditions set out in this paragraph shall be met. If they are not met, auxiliary heating bars will be attached, or the heat pump will be completely shut down and heating will only be done with heating bars.

- The temperature of water returning from the system must be min. 20°C. At a lower temperature of the reverse (e.g. when the heat pump first approaches or after a longer shutdown and start-up in a cold object), auxiliary heating bars will be started at the same time as the heat pump.
- The minimum room temperature set is related to the minimum reverse temperature condition. For systems without a storage tank, the minimum adjustable value is 15°C, for systems with a storage tank, the desired temperature of the heated object may be lower (anitfreeze – at least 10°C).
- The control maintains the set temperature in the room with a tolerance of +/- 0.5°C. The regulation will stabilize after a significant intervention within 24 hours for underfloor heating, or within 12 hours for a system equipped with radiators. Significant interference with the regulation is considered to be a change in the desired temperature in the room by more than 1.5°C, switching on the system, failure of one of the temperature sensors, change in the type of regulation, etc.
- At lower outdoor temperatures, the auxiliary heating rod will be attached, or the heat pump will be switched off and all installed heating rods will be switched on if the heat pump power is insufficient.
- In the summer, at high outdoor temperatures (>28°C), a fault A01 - high pressure may occur during service water heating. In this case, we recommend lowering the desired service water temperature.
- For the proper function of the AcondTherm control, the heating system in the room with the spatial thermostat must not be equipped with thermostatic heads or other superior regulation. If this is not observed, we recommend using the Equitherm or Standard regulation (see chap. 3.2.6 on page 25).

2.5 Description of heat pump operation

2.5.1 Heating

ACOND® is a heat pump that generates heat energy for the house according to current needs. Hot water is heated continuously, or according to the service water heating schedule. In the event of an increase in the average outdoor temperature (average over 3 days, temperature measured in the morning, noon and evening) above the value of “End of heating”, the heating of the house will be stopped.

When a very cold object is heated, the auxiliary heating bar (so-called bivalent heater) is switched on. When the reverse temperature rises from the system above 21°C, the heat pump runs according to the set type of regulation (*see chap. 3.2.7 on page 25*).

2.5.2 Defrosting

During operation, the air heat exchanger (evaporator) is cooled by a pre-cooled cooling medium and covered with frost due to the humidity of the outside air. Therefore, an automatic function for defrosting the air heat exchanger is activated when the ACOND® heat pump is running.

The defrost sequence starts when the evaporator temperature of the outdoor unit falls below the set value. The four-way valve in the refrigerant circuit switches the refrigerant flow direction and the fan stops. The warm coolant does not heat the condenser (plate/tubular exchanger), but on the contrary warms up the frost on the air heat exchanger. This process ends when the evaporator temperature reaches the set temperature. The four-way valve switches back the coolant flow direction and the heat pump recreates the heat energy for the heating system.

During defrosting, the coolant flow direction changes, the air heat exchanger becomes a condenser and the condenser for heating the heating system becomes an evaporator. For a short time there is a change in the sound of the heat pump, which is caused by switching the direction of coolant flow and changing the pressure conditions in the coolant circuit.

When defrosting the evaporator, heat energy is drawn from the heated heating system of the house. A storage tank is used to compensate for temperatures.

For proper defrosting of the outdoor unit, the minimum return water temperature and the minimum temperature in the accumulation tank are set at 20°C

2.5.3 Adverse climatic conditions

With very long lasting high air humidity and temperatures just below zero, the grid and surroundings in the fan can be frozen. It's not a malfunction, it's a physical phenomenon. It may be necessary to temporarily stop the heat pump with the main circuit breaker and remove the frost very carefully mechanically.

2.5.4 Summer/winter switching

In summer, the heat pump switches on when the system is equipped with:

- service water heating and the service water temperature drops below the set value
- an accumulation vessel enabling service water preheating, and the variant of preheating in summer is selected - then the temperature in the accumulation vessel is maintained at 45 °C.

The summer/winter mode is switched according to the set average outdoor temperature. The average outdoor temperature is calculated as the average of the morning, noon and evening outdoor air temperatures over the past 3 days.

3. Heat pump control

Control of the heat pump is possible:

1. using an internet browser via www.acond.cz in the case of connection of the heat pump control to the Internet – chapter *17*
2. via direct connection at the installation site in the local network - chapter *3.2.2.3*
3. through the indoor unit in the reference room - chapter *13*

3.1 Heat pump control via indoor control unit

3.1.1 RCM2-1 indoor control unit

The RCM2-1 indoor control unit is used to display and set the room temperature, to display the status of the heat pump and the outdoor temperature.

Warning! The indoor control unit must be placed on the wall in such a way that it is freely accessible – i.e. it must not be covered by furniture, curtains, blinds etc. In case of obstruction, there is a risk of deterioration of the temperature control in the room and the associated higher heating costs.

3.1.2 Meaning of individual symbols of the RCM2-1 control unit panel

RCM2 - 1	Symbol	Description
	1	Automatic mode
	2	Heat pump mode
	3	Bivalent heater mode
	4	Cooling mode (if installed)
	⏻	If the room temperature is not displayed, it indicates off mode. If the symbol flashes, the system switches on or off. If the displayed temperature in the place and the symbol is lit, the more expensive electricity tariff is valid
	☼	Outdoor temperature reached heating end parameter - summer operation
	8	If there is a fault on the device, the error number flashes on the display instead of the temperature in the room and in the right corner A – alarm, or P – temperature sensor failure. If there is no error, displays regulation type - A (= AcondTherm)/E (= Equitherm)/S (= Standard)

RCM2 - 1	Symbol	Description
		Active when entering indoor temperature
	H	**The letter H in the upper right corner - control unit in fault, restart the system. If persistent, call service**
		Holiday Scheme by Schedule
		Outdoor temp displayed
		The desired room temperature is currently governed by the schedule
	SETTING	Flashes when the desired room temperature or one of the parameters can be changed
	°C	degrees Celsius
		Circulation pump
		Outdoor unit shutdown
		domestic hot water;
		Bivalent heater on
		Entering parameters – service water temperature, regulation type, operation mode.
	M	Manual regime
		Circulating pump plate heat exchanger
		Outdoor unit fan
		Outdoor unit compressor

3.1.3 Basic view

The display shows **the current room temperature,** the SYMBOL **°C** and one of the other symbols, the meaning of which is described in chapter 3.1.2).

3.1.4 To turn the heat pump on / off:

If the symbol ⏻ is on the display and the room temperature is not displayed, the heat pump is switched off.
After briefly pressing the rotary button, the room temperature is displayed for 5s.

Press and hold the rotary button on the room unit for about 7s. The heat pump is switched on, the display shows the room temperature.

When the heat pump is switched on, pressing and holding the rotary button (7s) switches the heat pump off.

3.1.5 How to set the desired room temperature

Press the rotary button to set the desired room temperature. The display shows the desired indoor temperature, flashes the symbol and symbol SETTING . Turn the button to the right to increase the desired room temperature by 0.5 °C, turn the button to the left to decrease it. When the rotary button is pressed again, the display returns to the basic display.

Note: The display automatically returns to the basic display after 1 minute of inactivity.

The regulation normally maintains the set temperature in the room with tolerance +/- 0.5°C. This tolerance is exceeded only in exceptional cases (e.g. after restarting the system, after changing the desired temperature, after ventilation, etc.).

3.1.6 How to Determine Outdoor Temperature

In the basic view, turn the button to the right. A value is displayed for 5 seconds indicating the outside temperature and the thermometer symbol flashing. After 5 seconds, the display returns to the basic display. The temperature is displayed even when the heat pump is switched off.

3.1.7 How to Detect and Change service water Temperature

In the basic view, turn the button to the left. A value indicating the service water temperature and a flashing tap symbol are displayed for 5 seconds. After 5 seconds, the display returns to the basic display. The temperature is displayed even when the heat pump is switched off.

If you want to change the desired service water temperature, turn the button to the left in the basic view. After displaying the current service water temperature, press the rotary button – the desired service water temperature will appear and by rotating right/left you can change its value. Press again or after 1 minute of inactivity to save the new value and return the spatial thermostat to the basic view.

3.1.8 How to set the end of heating temperature

In the basic view, turn the button to the right. After displaying the outdoor temperature, press the rotary button – the temperature reading “End of heating“ will appear, which you can use the

rotary button to the right/change to the left. Press again or after 1 minute of inactivity to save the new value and return the spatial thermostat to the basic view.

If the average outdoor temperature (average 3 days) exceeds the value “End of heating“, the heat pump switches to summer mode and heats only service water (if fitted). If the average outdoor temperature is lower than the "End of Heating“, winter operation will be set and the heat pump will maintain the specified room temperature (see chap. 3.2.4.1 on page 23).

3.1.9 Display, Fault Confirmation

If a malfunction occurs on the heat pump, the display will show in the upper right corner the symbol **ERROR** and the character for the malfunction (**P** – malfunction of temperature sensors, **A** – errors (alarms) of the system). Instead of room temperature, the two-digit number indicating the fault index flashes. The fault must be confirmed by a short press of the rotary button.

Notes: For more information on faults, see chap.4 Alarms, faults and troubleshooting

3.1.10 Entering heat pump parameters

Press the rotary wheel 7 times in a row to enter the heat pump parameters. The parameter input mode is indicated by a permanently lit symbol on the display.

After entering the parameter input mode, the code of the entered parameter appears on the display or a blinking symbol displaying a specific parameter (see Table 6). Rotating the wheel in any direction changes both the parameter code and the precision symbol.

Code in menu	Flashing symbol	Description
0 1		Entry of service water temperature
0 2	**1, 2, 3 or 4**	Heat pump operation mode (aut/TČ/biv/chl, see *chap. 25 on page 25*)
0 3	***8***	Type of regulation (AcondTherm, Equitherm, Standard, description of regulation types see *chap. 3.2.6 on page 25)*

Code in menu	Flashing symbol	Description
0 4		Domestic hot water temperature when controlling Standard (manual input)

Table 6 Heat pump parameters to be entered by the spatial unit

After pressing the rotary wheel, the parameter value is displayed, the symbol SETTING and the corresponding symbol marking the active parameter flash. By turning the wheel it is possible to change the parameter value, short press to save the changed value, the symbol SETTING stops flashing and the system returns to the parameter selection. Long press will end parameter entry, the Basic view will be restored (see 3.1.3 Basic view).

3.2 Control via web interface

3.2.1 Heat pump internet connection

The connection of the heat pump to the Internet will be made by a service technician during the installation of the heat pump or later via the Acond service telephone line (+420 601 373 073). Users access a web server with a heat pump database when logging in. Connection speed varies depending on the number of simultaneously logged in users.

The heat pump is assigned a fixed IP address during installation at the customer's premises, therefore, when replacing the router or modem in the home network, make sure to maintain the original address space. Any service call due to reconfiguration of the IP address of the heat pump will be charged according to the valid Acond price list.

3.2.2 Login to the system

3.2.2.1 Via website www.acond.cz:

Enter the address in the address bar of your web browser (Google Chrome, Firefox, Internet Explorer, etc.):
www.acond.cz

Confirm with ENTER to display the Acond website (*see* Figure 1).

Figure 1 Website of Acond a.s. with login to the heat pump (longitudinal tile at the bottom)

Click the ACONDTHERM LOGIN tile in the lower-right corner and the login table page appears, *see* Figure 2.

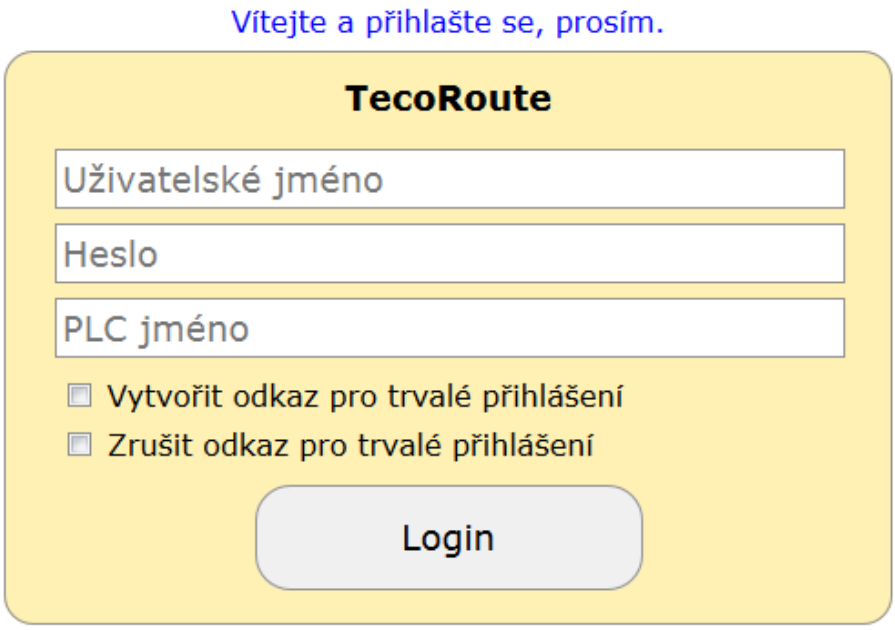

Figure 2 TecoRoute Login Page

Type your login name in **the Username** field.

Type your password in **the Password** field.

Leave the PLC name field **blank**.

Login details (Login name and password) will be provided by the installer when handing over the heat pump.

After entering, press Enter or Login button. The heat pump menu screen appears (*see* Figure 3), to you have access (the list opens by clicking the arrow in the right edge of the strip with the heat pump name). Select the appropriate heat pump and click Select or press Enter.

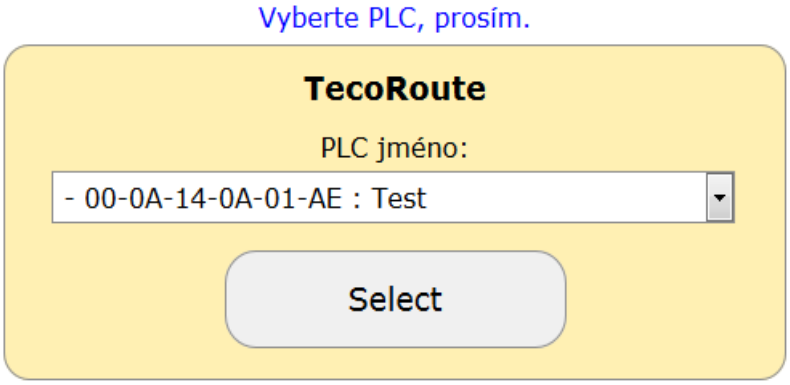

Figure 3 Heat pump selection

The heat pump login page appears (*see* Figure 4).

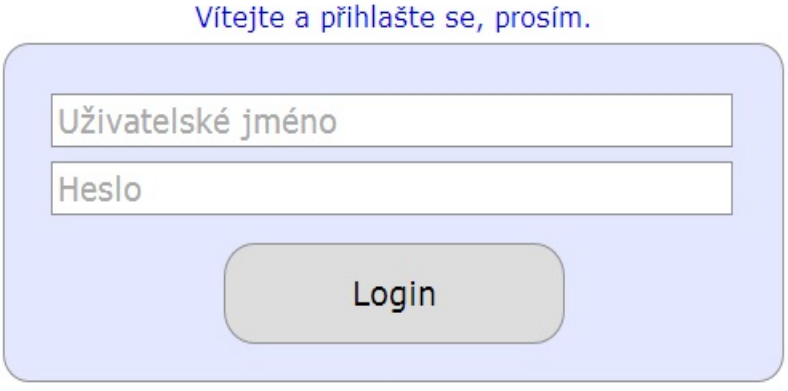

Figure 4 Login to heat pump

In the field **USER NAME AND PASSWORD** enter acond (preset from factory production – the user name and password can be changed on the info page, *see 3.2.12 on page 31*).

Confirm the name and password by clicking the Login button or Enter key and the main page will be displayed – *see* Figure 5 Web browser home page.

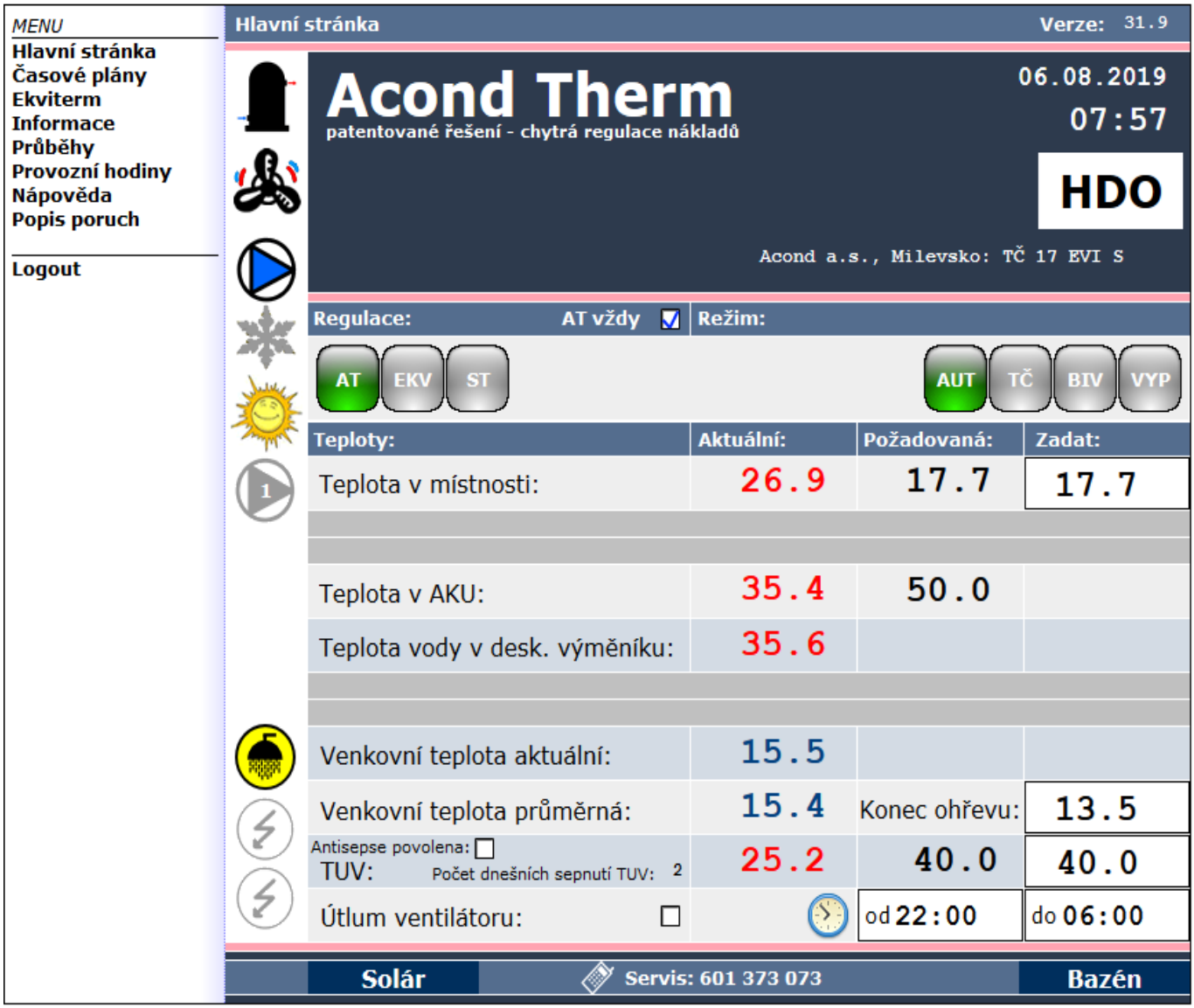

Figure 5 Web browser home page

3.2.2.2 Create a permanent connection to TecoRoute via

After entering the name and password and displaying the login page on the TecoRoute server (see Figure 2 TecoRoute Login Page), it is possible to check the box “Create a permanent login link“ to facilitate the next login. The web page with the table appears, see Figure 6. It is advisable to save this page to bookmarks, or to the browser desktop or bar. After pressing the login, the pump login page appears (*see* Figure 4) and proceeds as described above.

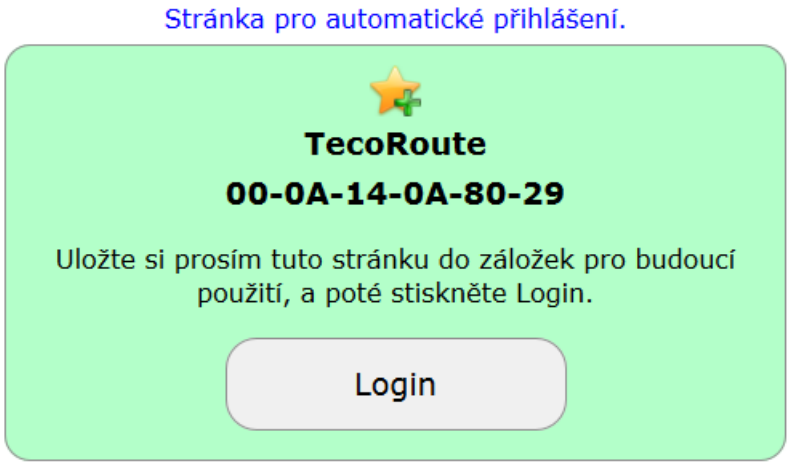

Figure 6 Creating a permanent link to log in to the heat pump website

3.2.2.3 In the local area network:

Enter the IP address of the heat pump (to be supplied by the installer) in the address bar of the Internet browser (Google Chrome, FireFox, Internet Explorer, etc.). The login web page appears – see Figure 4.

In the field **USER NAME AND PASSWORD** enter acond (preset from factory production – the user name and password can be changed on the info page, *see Chapter 3.2.12 on page 31*).

Confirm entering the name and password by clicking the Login button or the Enter key on the keyboard and the main page will be displayed – *see* Figure 6.

3.2.3 Start page

In the left part of the website there is a menu for selecting individual subpages with heat pump parameters.

1. **The main page** (Figure 6) is displayed after logging into the system and at any time after clicking on the 1st menu line.
2. **Schedules** (Figure 11) allow you to set the value of the automatic change of the desired room temperature (eventually the temperature in the accumulation tank during ST regulation) according to the time in each day. Here it is possible to implement, for example, a night temperature drop.
3. **Equitherm** makes it possible to change the parameters of equithermic regulation
4. **Information** - list of service information - user data, installed software version, heat pump type, HDO settings, etc.
5. **Progress** – display of reverse temperature, room temperature and service water temperature over the last 24 hours
6. **Operating hours** displaying the total running time of individual components of the ACOND system

7. **Help** – quick help page with heat pump control
8. **Fault description** - error codes display with short description

3.2.4 Meaning of pictograms (symbols)

In the white column between the menu and the temperature display there are pictograms showing the status of the heat pump system components. The following table describes the significance of individual pictograms.

pictogram	status	pictogram	status	description
	Inactive		Active	Heat pump compressor
	Inactive		Active	Heat pump fan
	Inactive		Active	Circulating pump of heating pump
	Inactive		Active	Heat pump defrosting
				Winter and summer operation
	Heating		Cooling	Heating / cooling mode display (if fitted)
	Inactive		Active	Heating system circulation pump (only with accumulation tank and pump installed in the heating system)
	Inactive		Active	Circulation pump of heating system 2nd circuit (only if 2nd heating circuit is installed)
	Inactive		Active	Heating of service water by means of a heat pump (hydrobox) or heating bar (preheating, electric boiler)

pictogram	status	pictogram	status	description
	Inactive		Active	Bivalent heater - switching on the auxiliary electric heating rod
	Inactive		Active	Brine circulation pump (in case of earth/water heat pump or Genius!)
		HDO	Active	Symbol indicating a higher electricity tariff (high tariff)
			Active	Dead back-up battery. Do not turn off the heat pump power, there is a risk of deleting the program!

Table 7 The meaning of the pictograms used on the main page of the heat pump

3.2.4.1 Summer/winter operation

The snowman symbol indicates the winter period when residential heating and service water heating are active. The sun symbol indicates the summer when the heat pump only heats hot water (hydrobox) or maintains 45°C in the accumulation tank for service water preheating (the option is located in the middle of the main page). For more information, *see chapter 12 on page* 12.

The end of the winter period occurs after the average outdoor temperature rises above the End of Heating value shown on the main website. Clicking on the snowman/sun symbol will flip the system into summer/winter operation.

3.2.5 Setting Values

The first line of the main page below the control button belt (Figure 8) displays the actual and desired room temperature.

The clock symbol  **for the desired room temperature indicates that the desired room temperature is governed by the value entered in the room temperature schedule** (*Chap*. 3.2.11 *on page 28*)**.** If the symbol is not

displayed, the desired value is given by the value entered in the white input field on the main page.

The required temperature in the room is entered into the white field of the **Submit** column. In the case of **ST** selection (*Chap. 3.2.6 on page **Chyba! Záložka není definována.***) it is possible to enter the water temperature in the tank. If the tank is not fitted, the temperature of the water returning from the heating system (reverse) is entered. In the case of the Equitherm or AcondTherm control selected, this value is calculated from the outside temperature, or from the room temperature, and cannot be changed manually.

After entering the value, the change must be confirmed by pressing the **ENTER** key or by clicking the arrow in the right part of the white input field.

Acond Therm® control normally maintains the set temperature in the room with a tolerance of +/- 0.5°C. This tolerance is exceeded only in exceptional cases (e.g. after restarting the system, after changing the desired temperature, after ventilation, etc.).

When selecting **service water preheating**, the temperature of 45°C used to heat service water is maintained in the tank in the summer.

When Antisepsis **is enabled**, the boiler is disinfected once a week by heating to 60°C. Antisepsis can also be triggered once by clicking **on the "Antisepsis start"** sign.

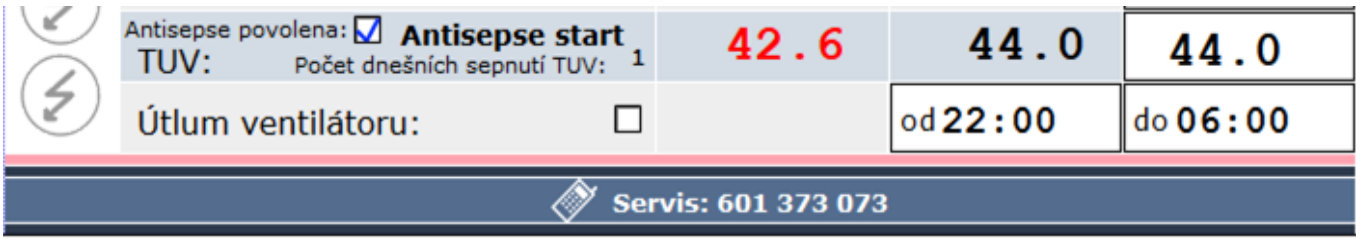

Figure 7 Service water - Antisepsis

When selecting **Fan attenuation**, it is possible to specify the time when the fan speed will be reduced due to the noise of the heat pump. In the summer, when the outdoor temperature exceeds 17°C, the speed is automatically reduced.

3.2.6 Opting

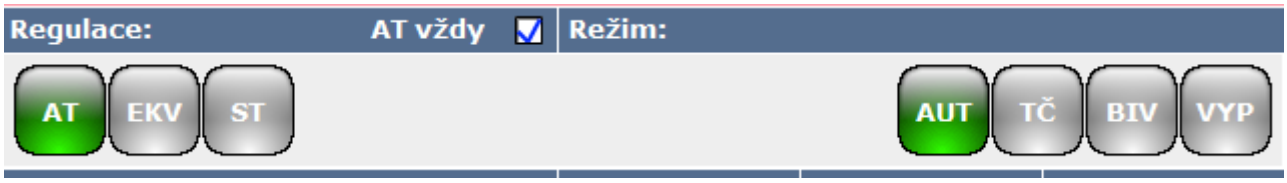

Figure 8 Control buttons

The type of control can be set in the control button belt (Figure 8).

3.2.6.1 Acond Therm® - AT button

The most economical and comfortable regulation system. The pump calculates the lowest necessary temperature of the domestic hot water according to the needs of the building. This system is the most economical option for regulation and saves 15 to 35% of energy compared to other systems. The „**AT always**“ check box ensures that after each restart after a power failure, the system switches to AcondTherm® control.

For the proper function of the AcondTherm control, the heating system in the room with the spatial thermostat must not be equipped with thermostatic heads or other superior regulation. If this is not respected, we recommend using the Equitherm or Standard control.

3.2.6.2 Equipment - EQUIV BUTTON

The temperature of the water in the heating system is determined by the outdoor temperature. The disadvantage of this regulation is that the curve of the required return water temperatures must be set in such a way that even in the worst outdoor conditions (wind, rain, snow) it ensures the desired air temperature in the building. This is usually unnecessarily high, causing an increase in electricity consumption.

3.2.6.3 Manual input – ST button

Constant domestic hot water temperature set in the heating system – this option is mainly intended for service purposes or for installing temperature control in rooms by the superior system.

3.2.7 Control mode selection

In addition to the control type, the control mode can be set in the control button line (Figure 8).

3.2.7.1 Auto Select - AUT button

The automatic selection of the system favours the operation of the heat pump. If necessary, a bivalent source of thermal energy - electric heating rods - is attached.

3.2.7.2 heat pump - TČ button

With this option only the start of the heat pump is possible. The bivalent power supply (heating rods) is blocked and is activated only in the event of a serious failure of the device.

3.2.7.3 Bivalent heater - BIV button

Only the operation of a bivalent source - heating rods - is allowed for heating.

3.2.7.4 Cooling - CHL button

In summer mode it is possible to start the cooling mode (if fitted). After pressing, a window appears next to the value "Water temperature in the plate exchanger“ for the possibility of entering the desired water temperature for cooling.

3.2.7.5 Off - OFF button

The whole system shuts down, including circulators. Sometimes, due to the set coastdown, circulation pumps can still run max. 2 minutes after the heat pump is switched off.

3.2.8 Solar panel

To operate the solar panels, use the Solar window, which is activated by clicking the Solar button located in the bottom bar of the main screen (Figure 9*)*.

The solar circulation pump is running if the temperature of the solar panel exceeds the temperature in the accumulation tank by at least 8°C. Stop if the temperature of the solar cell exceeds the temperature in the accumulation vessel by only 3 °C or less, or if the temperature in the accumulation vessel exceeds 80 °C.

If the heating system is not equipped with solar panels, the button Solar is not displayed in the bottom bar.

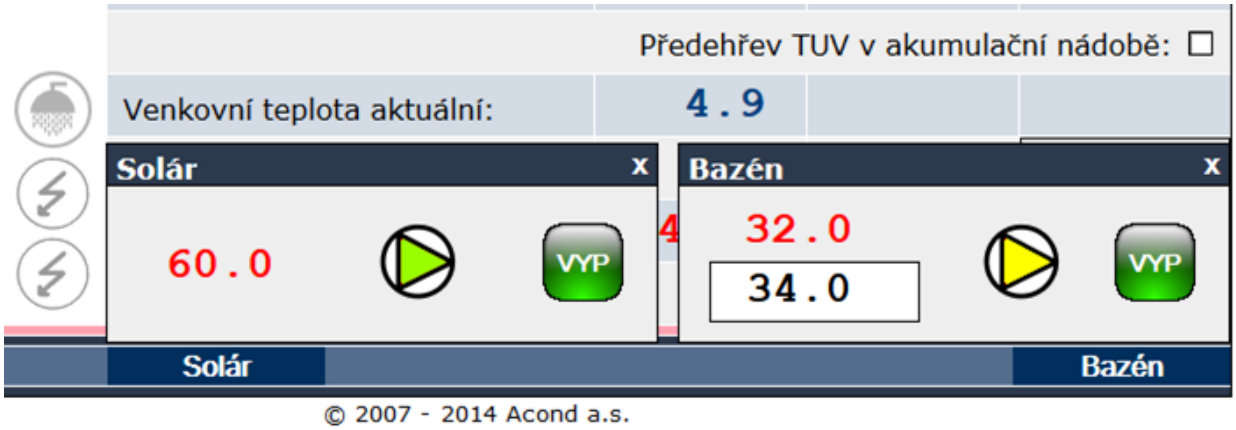

Figure 9 Sun and pool windows

3.2.9 Swimming pool

The Swimming Pool panel is operated by pressing the Swimming Pool button on the bottom bar of the main screen (Figure 9).

When the pool heating is switched on, the reverse temperature (accumulation container) is set to
45 °C. Heating of the pool occurs only when the living rooms are flooded.

3.2.10 Fault display

Figure 10 From the fault display on the web page

In the event of a malfunction, a red bar appears on the dark blue bar at the top of the page with the malfunction code and description and the Confirmation button to confirm the malfunction after removal (Figure 10).

3.2.11 Time plans

Clicking **time plans** link in the website menu displays tables in which it is possible to enter the time periods and temperatures applicable in these time periods in the rooms, domestic hot water temperature and service water temperature.

Below the dark blue bar there is a grey bar with switching individual schedules. The active plan is coloured with a darker grey stripe. Click the mouse to switch to the selected schedule – schedule for heating circuits (**Circuit1, Circuit2**), schedule for domestic hot water temperature, which is the temperature of the water returning from the system, or the temperature at the bottom of the accumulation tank (**Domestic hot water**) or schedule for hot water temperature (**service water**).

3.2.11.1 Circuit 1, Circuit 2, Domestic hot water

For each day it is possible to enter 2 time periods in which the room temperature (domestic hot water temperature at ST) will be controlled to the value entered in this table. At the top of the table it is possible to choose whether the heat pump will follow the schedule. If unchecked, the device ignores the set times and independently of the time heats the object to the set temperature value entered on the main page. Holiday date overrides this option, it is always valid.

At the bottom of the page it is possible to enter the vacation date and temperature to be maintained in the room during the vacation. It is also possible to enter the service water temperature in the same period. The current vacation will be displayed at the top of the main page. If the heating system consists of several independent heating circuits with separate adjustment, each circuit follows its own schedule. Switching between plans is possible by mouse clicking on the texts Circuit1/Circuit2 at the top of the schedule table.

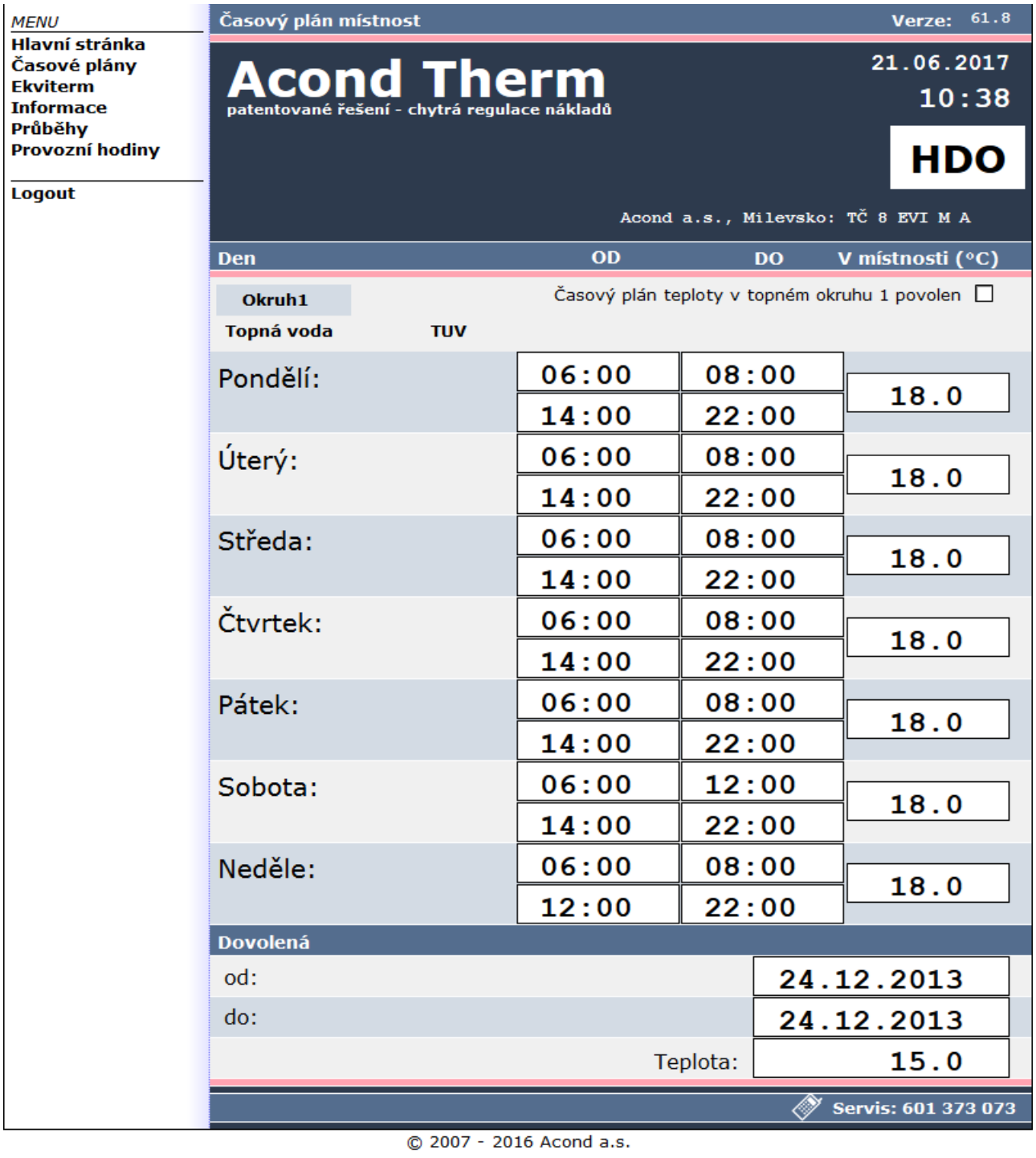

Figure 11 Weekly room temperature schedule

3.2.11.2 service water Schedule

After clicking on the service water schedule link in the website menu, a table appears (*see* Figure 12) to enter 2 time periods in which service water heating will be enabled. At the top of the table there is a choice whether the heat pump should follow the displayed schedule. If the check box remains unchecked, the device ignores the set times and the service water heating takes place independently of the time, if necessary.

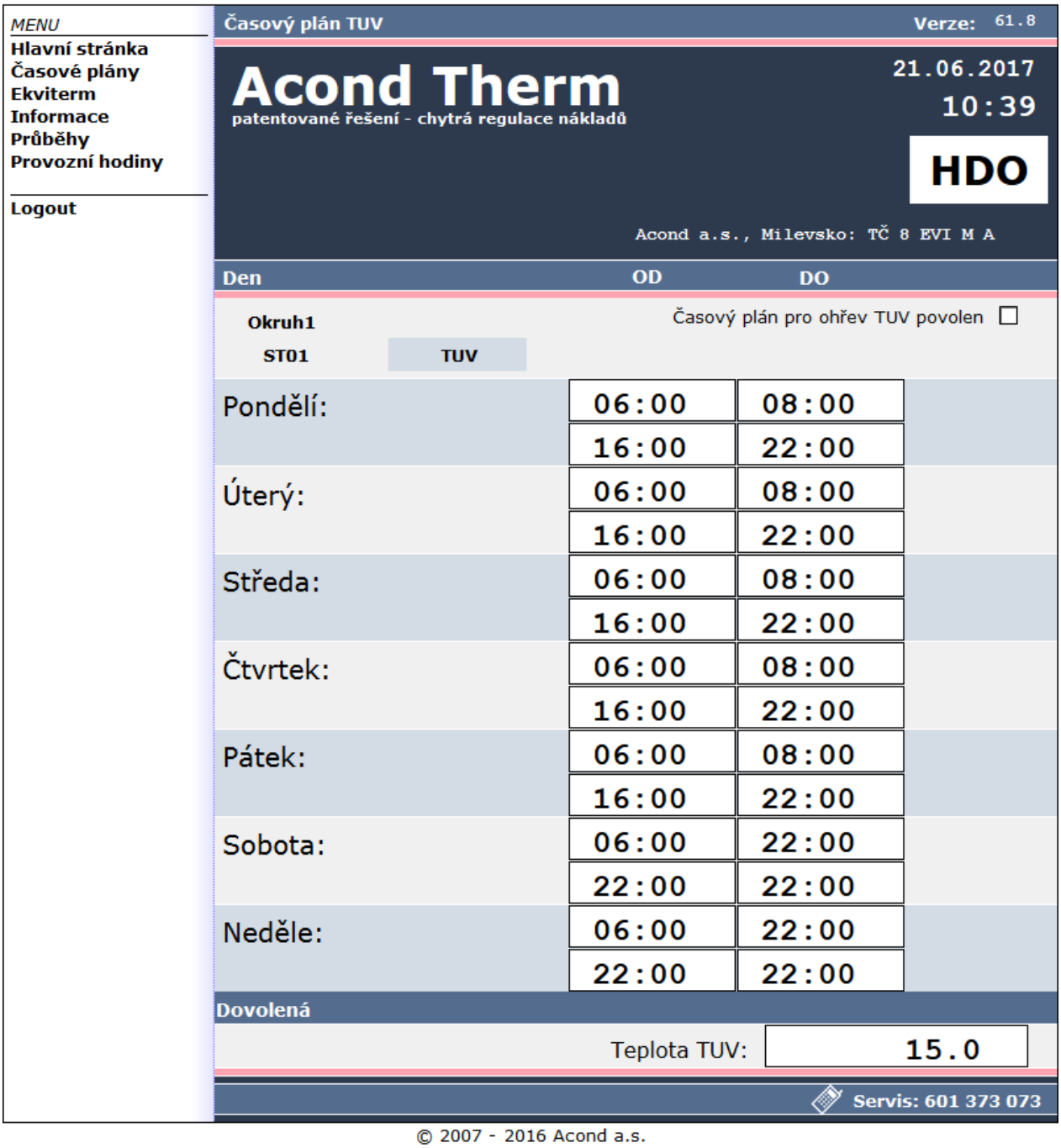

Figure 12 Weekly service water heating schedule

The bottom row of the table allows you to enter the service water temperature during the holiday even if the heating schedule is not allowed.

Attention, if the heating times are set so that the heating does not occur at all or only for a short period of time (on time = off time), and the service water container is placed in an unheated room, the container may freeze in winter!

Attention, the day begins at 00:00 and ends at 23:59, i.e. when requesting a time period ending at midnight, it is necessary to enter 23:59, not 0:00.

3.2.12 Information, HDO selection

The Information page contains basic information about the heat pump and its user, the place of installation and other information entered during installation by the technician. At the bottom of the page it is possible to change the name and password to access the website of the heat pump and the system time. Login name and password must contain max. 10 characters, do not use diacritical marks (hooks, accents).
Clicking on the HDO option text on the right side of the page (see Figure 13 on page 31) opens a menu that allows you to control the HDO signal (=Bulk Remote Control, switching the inexpensive electricity tariff). If you check the box “HDO turns off service water heating“, service water will not be heated at the time of the more expensive tariff. Similarly, after checking the box “HDO switches off the pump for heating” at the time of the more expensive tariff, the heat pump does not start due to the low temperature in the room and after checking the last box “HDO switches off biv for heating“ at the time of the more expensive tariff, bivalent heater does not run. If the windows are empty, the heat pump and bivalent heat source will run regardless of the HDO signal. At the time of the more expensive tariff, a white rectangle with a black HDO inscription appears in the dark blue bar on the website. This inscription only shows the current el. tariff. and does not indicate whether the heat pump can run or not (be careful, change from older versions!).

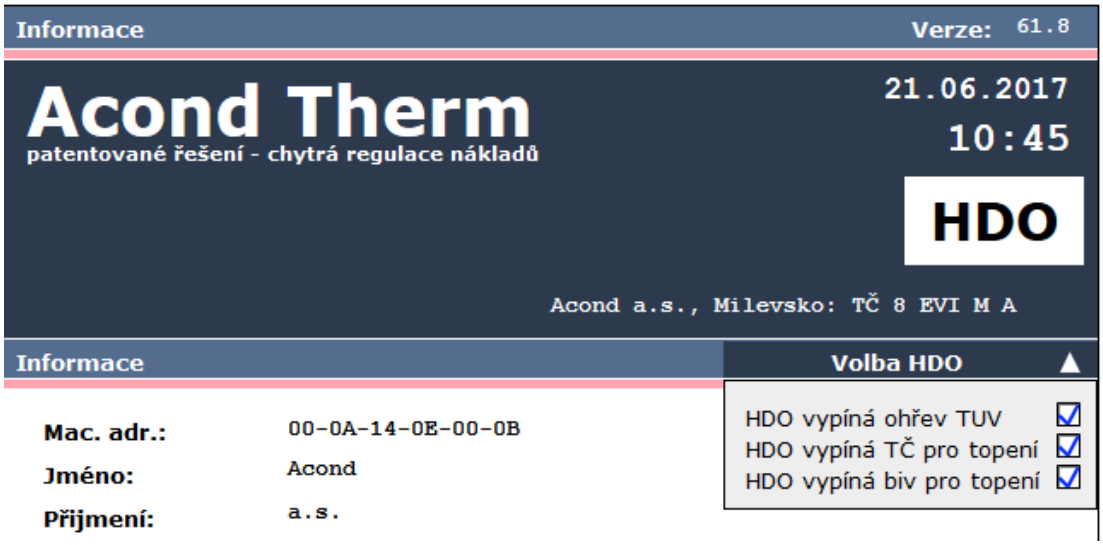

Figure 13 Information, HDO selection

3.2.13 Equipment

Clicking on the link in the Equipment menu displays a table with the equithermic control settings (see Figure 14).

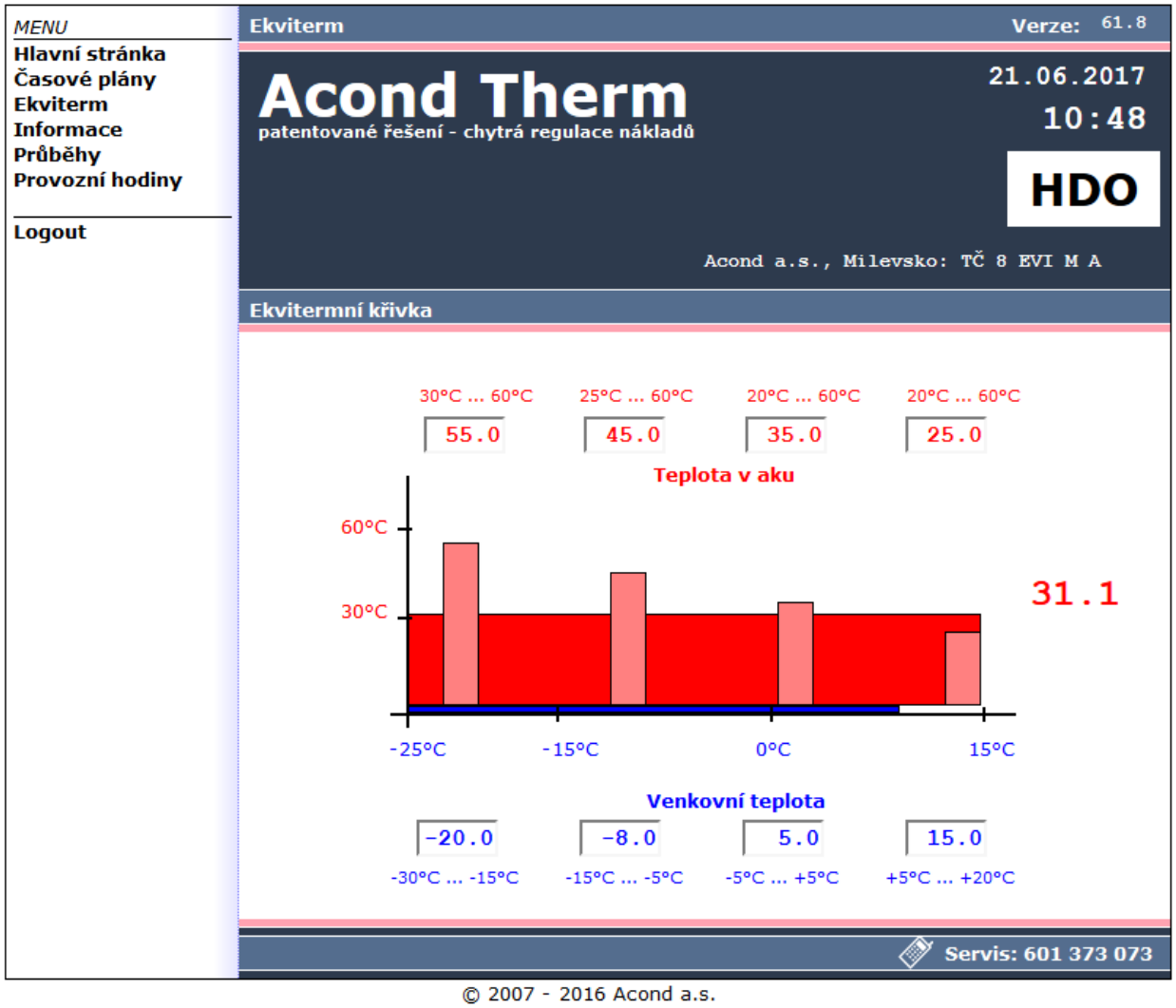

Figure 14 Equithermic regulation settings

The blue numbers below the temperature graph indicate the outside temperature of the faults (points) of the equithermic curve, and the red numbers above the graph indicate the temperature of the domestic hot water corresponding to these faults (points). The large red number in the right part of the graph corresponds to the temperature of the domestic hot water calculated according to the specified equithermic curve depending on the current outdoor temperature.

3.2.14 Periods

The page displays temperature trends over the past 24 hours. Below the curve graph there is a legend with the colours of the curves of individual waveforms with checkboxes that allow to

enable/disable the display of waveforms. The "Data Reset" button at the bottom right resets the data for the last 24 hours and starts saving the data again. Data is stored in a circular buffer where new data plays back the oldest values, so it is not possible to find older waveforms.

3.2.15 Hours of operation

The operating hours page displays the total running time of the system components since the installation of the heat pump, or since the replacement of the component.

3.3 Earth / water heat pump, GENIUS! (Z and ZG models)

When installing the ACOND heat pump with an earth collector, the control from the web and the indoor control unit are identical to the control of the ACOND heat pump with an air evaporator, only the main page displays the brine temperature and the symbol of the brine circulation pump replaces the fan symbol. In the case of the ACOND GENIUS! heat pump, information about the current system used (earth or air) is displayed in the top row next to the information about the installation location and pump type.

4. Alarms, faults and troubleshooting

Each alarm is signalled simultaneously via the web interface and on the indoor unit.

If a fault occurs on the heat pump, a red bar with an alarm code and description will appear on the start page in a blue bar marked Acond Therm (see Figure 10 *on* page *28*). The room temperature value disappears on the indoor unit and the fault code flashes on the display. In the place of the symbol 8 in the upper right corner of the unit, there is the symbol **P =** temperature sensor errors, or **A =** heat pump system errors.

4.1 Fault acknowledgement

Confirmation of the defect is possible from the website of the heat pump by pressing the Qualifying button in the red stripe describing the defect, or from the spatial unit by briefly pressing the rotary wheel.

Code	ALARM	Cause	Deletion
P01	**REVERSE SENSOR FROM THE SYSTEM**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*

Code	ALARM	Cause	Deletion
P02	**TEMPERATURE SENSOR NA OUTPUT Z DESK. EXCHANGER**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P03	**TEMPERATURE SENSOR ON EVAPORATOR**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P04	**Outdoor Temperature Sensor**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P05	**SENSOR INSIDE. Temperature**	Other electrical problem	*Call Service*
P06	**Sensor**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P07	**EVAPORATOR TEMPERATURE SENSOR - GENIUS**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P08	**SOLAR SENSOR FAULT**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P09	**IT'S AN INTERNAL MALFUNCTION. Temperature stage 2 ROUTE:**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P10	**POOL SENSOR FAULT**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P11	**MIXER SENSOR FAULT – FLOOR**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
P12	**INDOOR TEMPERATURE SENSOR FAULT**	Probe missing, faulty, faulty cable, probe resistance exceeds limit values	*Call Service*
PNT	**LOW PRESSURE SENSOR FAULT**	Probe missing, defective, cable defective, limit values exceeded	*Call Service*
PVT	**HIGH PRESSURE SENSOR FAULT**	Probe missing, defective, cable defective, limit values exceeded	*Call Service*

Code	ALARM	Cause	Deletion
P99	**BLOCKED**	Payment confirmation code has expired	*Enter the code confirming payment on the main page*
A01	**HIGH PRESSURE**	Activation of the pressure switch on the cooling circuit Low or no water flow through plate heat exchanger Clogged water filter Closed tap on water circuit	*Clean the water filter* *Increase the water flow through the plate heat exchanger and thus reduce the outlet water temperature* *Check the permeability of the heating circuit*
A02	**LOW PRESSURE**	Activation of the pressure switch on the cooling circuit Misaligned defrosting Outdoor temperature too low for heat pump operation Refrigerant leakage	*Call Service*
A03	**COMPRESSOR RUNNING, PHASE SEQUENCE**	Compressor not running - electrical fault, balancing problems of the power grid (undervoltage at some stage)	*Check that the compressor is rotating. If not, call service.*
A04	**LOW EARTH COLLECTOR TEMPERATURE**	Low temperature	*Call Service*
A05	**HIGH TEMP OF EVAPORATOR**	Evaporator temperature during defrosting or even after defrosting has finished exceeded the set value of parameter AL11	*Call Service*
A06	**LOW TEMP OF EVAPORATOR**	Evaporator temperature has dropped below parameter AL14	*Call Service*
A07	**ANTI-FREEZE PROTECTION**	Too low water temperature in plate exchanger	*Call Service*
A08	**service water heating**	Maximum service water heating time expired	*Check service water circuit venting*
A12	**Defrost**	Unit did not freeze sufficiently	*Check the frost on the outdoor unit.*
A13	**LARGE NUMBER OF DEFREEZES**	Defrost switches too often	*Check that the fan propeller rotates* *Contact service*

Code	ALARM	Cause	Deletion
A14	**BLOCKED SENSORS**	electrical problem	*Restart heat pump If the fault occurs again, call service*
A16	**LOW FLOW THROUGH PLATE EXCHANGER**	Clogged water filter Aired water circuit Insufficient performance, circulator failure	*Clean the water filter* *Ventilate the water circuit*
A17	**LOW FLOW THROUGH SOLUTION EXCHANGER**	Solution aerated circuit Insufficient performance, solution circulation pump failure	*Ventilate solution circuit*
W00	**HIGH TEMP OF PLATE HEAT EXCHANGER**	Overheated by solar heating, bivalent source (e.g. solid fuel boiler)	*Only notice, will self-resolve*
W01	**LOW TEMPERATURE IN ROOM**	On arrival	*Only notice, will self-resolve*
W02	**LOW TEMPERATURE IN ACCU.**	On arrival, when using another heat source (e.g. boiler), at higher outdoor temperature	*Warning only, starts the heat pump, disappears on its own*
W03	**LOW TEMPERATURE IN ROOM 2**	On arrival	*Only notice, will self-resolve*
W04	**HIGH TEMPERATURE IN ACCU.**	Overheated by solar heating, bivalent source (e.g. solid fuel boiler)	*Only notice, will self-resolve*
W05	**LOW TEMPERATURE OF EVAPORATOR**	Low outdoor temperature, high humidity	*Warning only, triggers defrost, extinguishes itself*
W07	**LOW TEMPERATURE OF PANEL**	On arrival	*Only notice, will self-resolve*
W08	**SERVICE WATER FAULT**	Insufficient service water plate heat exchanger flow, insufficient service water circulation pump power, three-way service water valve failure	*Check primary circuit throughput*
W09	**UNALLOCATED IP**	Internet connection problem	*If it lasts longer than 1 day, contact the service – see Chapter 0*

Code	ALARM	Cause	Deletion
W10	**COMPRESSOR RUNNING**	Compressor not running - electrical fault, balancing problems of the power grid (undervoltage at some stage)	*Check that the compressor is rotating. If not, call service.*
W11	**LONG LEGIONELA**	Heating of service water to a higher temperature (antisepsis) was not achieved within the set time	*Check the heating bar circuit breaker, check the safety settings. boiler thermostat*
MDB	**MODBUS FAULT**	Compressor communication fault	*Call Service*
ER1	**ERRORCODE 1**	Problem with compressor-driver	*Call Service*
ER2	**ERRORCODE 2**	Problem with compressor-driver	*Call Service*

5. Regular checks

5.1 Inspection of intake and exhaust grilles and openings

Check the front grille of the fan and evaporator at regular intervals for contamination with leaves, papers or other rubbish. If necessary, clean with the heat pump off.

Never insert foreign objects into the external unit of the heat pump! The heat pump operates in intermittent automatic operation, the fan operates at high speed and may be pose risk of injury.

5.2 Checking the cooling circuit

Attention, unit contains flammable coolant!
In case of coolant leakage, disconnect the device from the power supply and contact service!

The cooling circuit is hermetically sealed and maintenance-free. Its regular revisions are not necessary and there is no need to keep a logbook.

5.3 Operation control

During the operation of the heat pump, a regular check of the alarm indicator is necessary in order to quickly eliminate any possible error and minimize the operation of auxiliary heaters (bivalent heater), as at most alarms these heat sources will be triggered in case of low room temperature.

5.4 Pressure control in the heating system

At least once a month it is necessary to check the pressure in the piping of the installation. The external pressure gauge shall show a value between 1 and 1.5 bar. If the value is less than 0.8 bar, top up the water in the heating system.

Common tap water can be used to refill the heating system. In exceptional cases, tap water is unsuitable for refilling the heating system - e.g. very hard water with too much mineral content. If you are not sure, refer to the installation technician, see chap. 8 Links.

Do not add any additives to the water in the heating systems

In a closed expansion vessel there is a pouch filled with air, which compensates for the variations in the volume of water in the heating system. This pouch must not be drained under any circumstances!

The system is fitted with a safety valve. Each safety valve shall be periodically checked for functionality at least once every six months (by manual draining of water) and replaced in the event of a malfunction. Caution - hot water may leak from the valve. The container supplier shall not be liable for defects caused by the malfunction of the safety valve.

5.4.1 System and expansion vessel pressure control procedure

When draining water from the expansion tank, keep a large enough container at hand, more water may leak (depending on the size of the expansion tank).

For pressure control:

- turn off the heat pump
- close ball valve **1** above expansion vessel (see Figure 15)
- release the drain valve cover **2,** open the drain valve - be careful, up to several litres of water may leak from the drain valve tube, have a large enough container ready
- use a pressure gauge (e.g. to measure tyre air pressure) to measure the air pressure in the expansion tank air bag
- if the air pressure does not match the data on the expansion tank label, refill the bag with air
- close drain valve **2**, screw valve cover
- open ball valve **1** above expansion vessel
- check the water pressure in the system on the pressure gauge **3**
- if the pressure on the pressure gauge **3** does not match the information on the expansion tank label, refill the water in the system
- turn on the heat pump

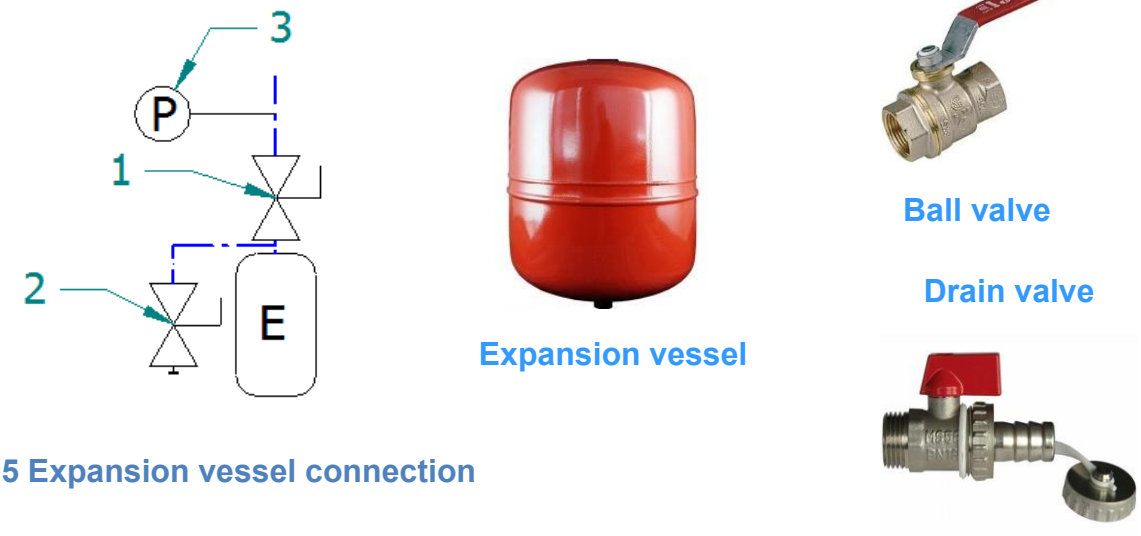

Figure 15 Expansion vessel connection

5.5 Cleaning filters in the heating system

Turn off the heat pump before cleaning the filters in the heating circuit!

After installation, filters in the heating system must be cleaned twice a year. If it is apparent that cleaning twice a year is not necessary, this interval may be extended.

5.5.1 Filter cleaning process

When opening the filter cover, keep a cloth handy, usually with less water flowing out.

For cleaning filter:

- disconnect the heat pump from the power supply
- turn the shut-off valves before and after the filter to the closed position
- unscrew and remove the filter cover – keep a cloth at hand, less water will leak out.
- remove filter
- rinse the filter
- remount the filter
- check for damage to the sealing ring on the filter cover
- screw the cover back into place, tighten with a wrench
- turn the shut-off valves before and after the filter to the open position
- turn on the heat pump

Filter

5.6 Ventilating the system

Air in the heating system reduces heat transfer and can therefore significantly reduce heating efficiency. Therefore, when designing the heating system, sufficient ventilation possibilities are taken into account. It is necessary to regularly check the system's aeration and continuously ventilate it.

Ventilation Valve

5.7 Magnesium anode check

If the system is equipped with hot water heating and the installation contains a service water container (e.g. Dražice boiler, Hydrobox), it is necessary to check the magnesium anode placed in the container. The first inspection is carried out no later than 6 months after commissioning, according to which the interval for further inspection will be determined. The period between inspections shall not exceed two years.

In case of more than 50% decrease in magnesium anode (original diameter approx. 20 mm), it is necessary to replace it. Replacement shall be carried out either by a complete replacement, including a brass nut, or only by fitting the new anode rod into the original brass nut (turning with M8 screw).

5.7.1 Anode Check (Replace) Procedure

- turn off the heat pump
- stop the supply of cold water to the D.H.W. tank, or close the vent valve at the hot water outlet (may not be fitted)
- drain the water pressure with a hot water tap, close the tap
- unscrew the anode (the location is marked with the inscription)
- in case of more than 50% decrease of magnesium anode (original diameter approx. 20 mm) replace
- screw in the anode
- open the cold water supply to the D.H.W. tank, enable the vent valve at the hot water outlet (may not be fitted)
- activate heat pump

5.8 Safety valve

The Acond heating system can be fitted with a container designed for accumulation of domestic hot water or a hot water storage tank (hereinafter referred to as the containers). Each safety valve shall be periodically checked for functionality at least once every six months (by manual draining of water) and replaced in the event of a malfunction. Caution - hot water may leak from the valve. **The container supplier shall not be liable for defects caused by the malfunction of the safety valve.**

Occasional leakage of water from the safety valve during hot water heating is a normal phenomenon caused by thermal expansion of water. Permanent leakage of water indicates a defective safety valve and causes large energy losses.

6. Liquidation

During decommissioning, it is necessary to comply with local laws, guidelines and standards for regeneration, reuse and disposal of the fillings and parts of the heat pump.

> RISK OF INJURY! Only authorised refrigeration technicians may work on the refrigerant circuit, see chapter 8 Links.

7. Technical information in accordance with Commission Regulation (EU) No 813/2013

(1) For heaters for heating interior spaces with a heat pump and combined heaters with a heat pump, the nominal thermal output Prated is equal to the proposed heat strain Pdesignh, and the nominal heat output of the added warmer Psup is equal to the supplementary heat output sup(Tj).

([2]) If the coefficient of loss of energy Cdh is not determined by measurement, it has an implicit value of 0.9.

Model(s)				PRO-R			
Heat pump air / water: (yes/no)				yes			
Heat pump solution-water: (yes/no)				no			
Heat pump water-water (yes/no)				no			
Low-temperature heat pump (yes/no)				no			
Equipped with a supplementary heater (yes/no)				no			
Combined heater with heat pump: (yes/no)				no			
Application: (low temperature/medium temperature)				medium-temperature			
Climatic conditions: (colder/average/warmer)				Average			
Item	**Label**	**Value**	**Unit**	**Item**	**Label**	**Value**	**Unit**
Rated heat output (1)	Prated	10	kW	Seasonal energy efficiency of heating	η_S	155	%
Declared heat output for partial load at indoor temperature 20 °C and outdoor temperature Tj				Declared heat factor or coefficient of primary energy ratio for partial load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7°C	Pdh	9	kW	Tj = -7°C	COPd	2.5	-
Tj = +2°C	Pdh	5.5	kW	Tj = +2°C	COPd	3.9	-
Tj = +7°C	Pdh	3.5	kW	Tj = +7°C	COPd	5	-
Tj = +12°C	Pdh	3.9	kW	Tj = +12°C	COPd	6.1	
Tj = bivalent temperature	Pdh	10.2	kW	Tj = bivalent temperature	COPd	2.1	-
Tj = operation limit temperature	Pdh	10.2	kW	Tj = operation limit temperature	COPd	2.1	-
For air-to-water heat pumps Tj = -15°C (if TOL < -20°C)	Pdh	-	kW	For air-to-water heat pumps Tj = +15°C (if TOL < -20°C)	COPd	-	-
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval capacity for heating	COPcyc	-	-
Energy loss coefficient (2)	Cdh	0.9	-	Domestic hot water operating limit temperature	WTOL	70	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0.016	kW	Rated heat output (1)	Psup	0	kW
Thermostat-off mode	P_{TO}	0.016	kW	Type of energy input	Electrical		
Standby mode	P_{SB}	0.016	kW				
Compressor cabinet heating mode	P_{CK}	0	kW				
Additional items							
Performance regulation	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	3400	m^3/h
Sound power level, indoors/outdoors	L_{WA}	-/49,3	dB	For water-/brine-to-water heat pumps: Nominal brine or water flow rate	-	-	m^3/h
Emissions of nitrogen oxides	NO_x	-	mg/kWh				
For heat pump combination heater:							
Declared load profile	-			Water heating energy efficiency	η_{wh}		%
Electricity consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}		kWh
Contact information	Acond a.s., Štěrboholská 1434/102a, 102 00 Praha 10 – Hostivař, Czech Republic						

Model(s)				PRO-N			
Heat pump air / water: (yes/no)				yes			
Heat pump solution-water: (yes/no)				no			
Heat pump water-water (yes/no)				no			
Low-temperature heat pump (yes/no)				no			
Equipped with a supplementary heater (yes/no)				no			
Combined heater with heat pump: (yes/no)				no			
Application: (low temperature/medium temperature)				medium-temperature			
Climatic conditions: (colder/average/warmer)				Average			
Item	**Label**	**Value**	**Unit**	**Item**	**Label**	**Value**	**Unit**
Rated heat output ([1])	Prated	5	kW	Seasonal energy efficiency of heating	η_S	144	%
Declared heating output for partial load at indoor temperature 20 °C and outdoor temperature Tj				Declared heat factor or coefficient of primary energy ratio for partial load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7°C	Pdh	4.1	kW	Tj = -7°C	COPd	2.4	-
Tj = +2°C	Pdh	2.5	kW	Tj = +2°C	COPd	3.7	-
Tj = +7°C	Pdh	1.6	kW	Tj = +7°C	COPd	4.4	-
Tj = +12°C	Pdh	1.8	kW	Tj = +12°C	COPd	5.4	
Tj = bivalent temperature	Pdh	4.6	kW	Tj = bivalent temperature	COPd	2.1	-
Tj = operation limit temperature	Pdh	4.6	kW	Tj = operation limit temperature	COPd	2.1	-
For air-to-water heat pumps Tj = -15°C (if TOL< -20°C)	Pdh	-	kW	For air-to-water heat pumps Tj = +15°C (if TOL < -20°C)	COPd	-	-
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval capacity for heating	COPcyc	-	-
Energy loss coefficient (2)	Cdh	0.9	-	Domestic hot water operating limit temperature	WTOL	70	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0.016	kW	Rated heat output ([1])	Psup	0	kW
Thermostat-off mode	P_{TO}	0.016	kW	Type of energy input	Electrical		
Standby mode	P_{SB}	0.016	kW				
Compressor cabinet heating mode	P_{CK}	0	kW				
Additional items							
Performance regulation	Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	1600	m^3/h
Sound power level, indoors/outdoors	L_{WA}	-/48,4	dB	For water-/brine-to-water heat pumps: Nominal brine or water flow rate	-	-	m^3/h
Emissions of nitrogen oxides	NO_x	-	mg/kWh				
For heat pump combination heater:							
Declared load profile	-			Water heating energy efficiency	η_{wh}		%
Electricity consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}		kWh
Contact information	Acond a.s., Štěrboholská 1434/102a, 102 00 Prague 10 – Hostivař, Czech Republic						

8. Links

In case of problems with internet connection, please contact service – visit the website of ACOND a.s. https://tepelna-cerpadla-acond.cz/kontakt/ and click on the remote support icon.