

**HEAT PUMP
AIR / WATER**



**WITH REGULATION
ACOND® THERM
Documentation purchasers**

Software version 140.1 and 140.2

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1. Explanation of symbols, Documentation validity

1.1 Used symbols



Important information not including either hazards posed to persons or material values are highlighted in blue with the symbol *i*. 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.

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2. Technical specifications

Table 1: Technical specifications

Model	PRO-N	PRO-R
Compressor	Copeland Scroll YHV	Copeland Scroll YHV
Voltage code; securing*) **)	3~N/PE/400V/50Hz; B16A	3~N/PE/400V/50Hz; B20A
Maximum current [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 part [bar]	26	26
Maximum allowable pressure- low pressure part [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

*) Comply with local regulations.

**) This may vary depending on bivalent resources.

Table 2: Performance parameters

Model	PRO-N	PRO-R
Nominal output [kW]*)**)	5	10
Seasonal energy efficiency [%]*)**)	144	155
Heating capacity A7/W35 EN 14 511 [kW]	3.28	6.77
COP A7/W35 EN 14 511 [1]	4.9	5,22
Heating output ranges at A7/W35 [kW]	1.5 – 8.6	3.1 - 18.2
Heating output A2/W35 EN 14 511 [kW]	2.74	5.7
COP A2/W35 EN 14 511 [1]	4.31	4.49

Heating output ranges at A2/W35 [kW]	1.3 - 8, 2	2.7 - 17.7
Heating output A7/W55 EN 14 511 [kW]	3.87	7.41
COP A7/W55 EN 14 511 [1]	3.28	3.29
Heating output ranges at A7/W35 [kW]	2 - 8	4.2 - 16.4
SCOP W35 [1]**)	4.74	5.05
SCOP W55 [1]**)	3.68	3.93
Energy class - heating 35°C**)	A+++	A+++
Energy class - heating 55°C**)	A++	A+++
Cooling	Yes	Yes

*) Medium temperature application (55°C water temperature) according to 14 511

**) Equivalent regulation

3. Manipulation



Multiple persons must work during handling of the equipment. It is necessary to take into account the weight of the device, see Table 1.

The equipment must be transported to the installation site packed and fixed on a wooden pallet. For mounting on the pallet and handling the pump, screwed profiles (see Figure 1: Handling profile) are designed from the bottom, which are unscrewed when mounted at the installation site.

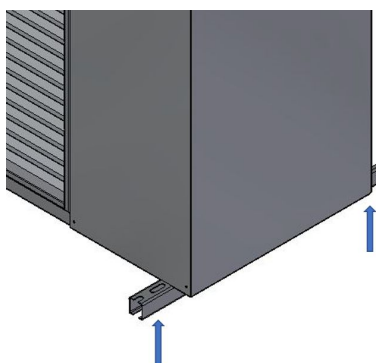


Figure 1: Handling profile



During transport, the device must be sufficiently secured to prevent movement.

4. Cooling circuit

Use the filling valves for connection to the cooling circuit. Their location in the refrigerant circuit is indicated in figure 2.

If it is necessary to replace the refrigerant, proceed according to 12 Disassembly.



RISK OF INJURY! Only authorised refrigeration technicians may work on the refrigerant circuit, see chapter 13 Links.



Mixing different kinds of refrigerants is not allowed under any circumstances!

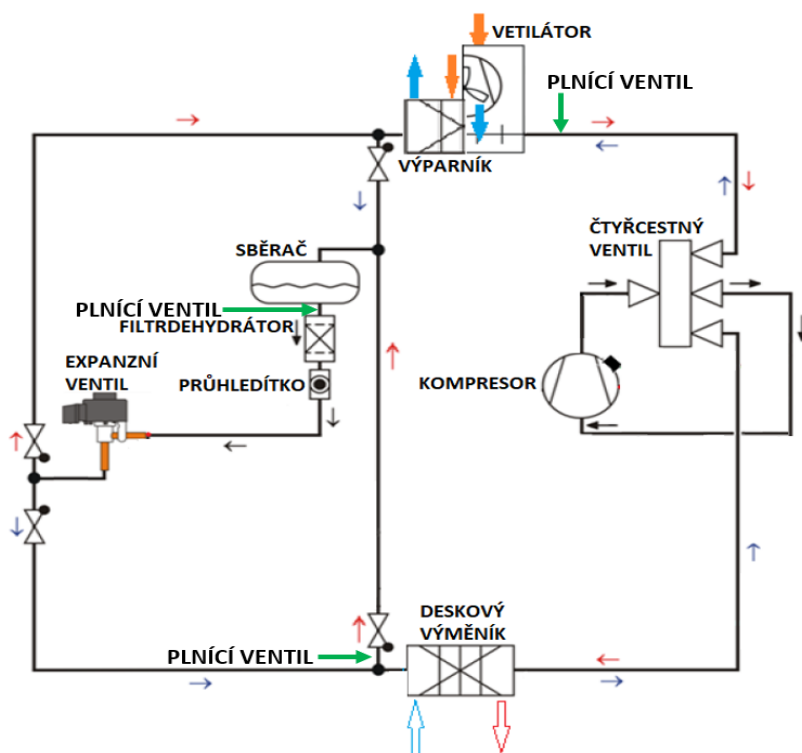


Figure 2: Cooling circuit

4.1 Compressor oil

The oil filling of the compressor is designed for the entire life of the device. It can only be changed in case of compressor or cooling circuit failures.

Table 3: Compressor oil

Model	PRO-N	PRO-R
Oil	Hatcol 4467	Hatcol 4467
Oil volume [l]	0.7	1.2



Oil changing must only be proposed and performed by authorized cooling equipment technicians, see chapter 13 Links.

5. Dimensional sketch of heat pump

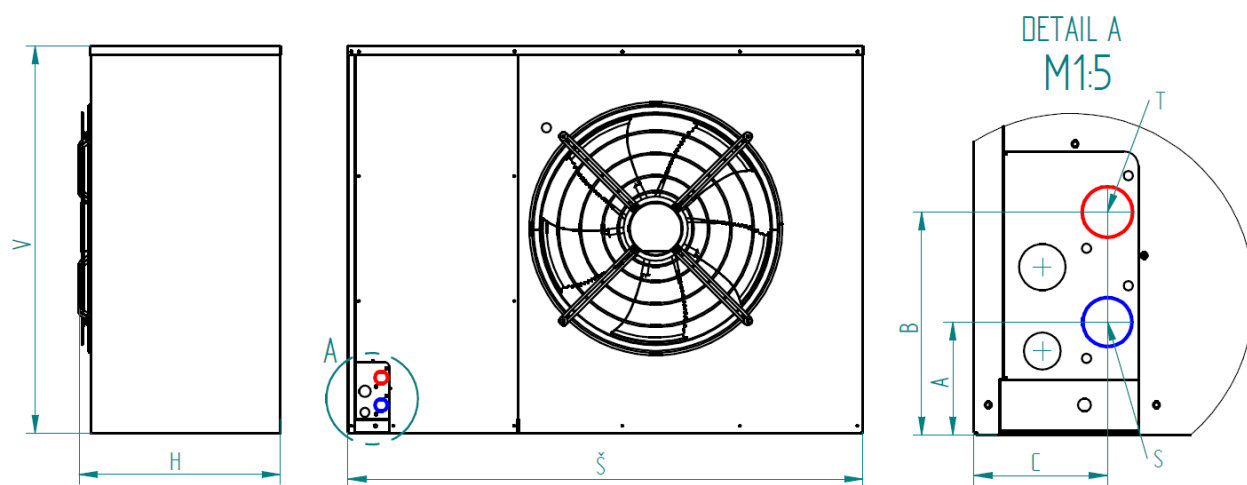


Figure 3: Dimensional sketch of heat pump

Table 4: heat pump dimensions

Type	PRO-N	PRO-R
V [mm]	730	1070
Š [mm]	1127	1426
H [mm]	498	557
A [mm]	107	78

B [mm]	183	154
C [mm]	82	92
T - hot water	G1" DIN ISO 228	G1" DIN ISO 228
S - cold water	G1" DIN ISO 228	G1" DIN ISO 228

6. Hydraulic connection

The hydraulic connection can vary according to the optional equipment purchased.

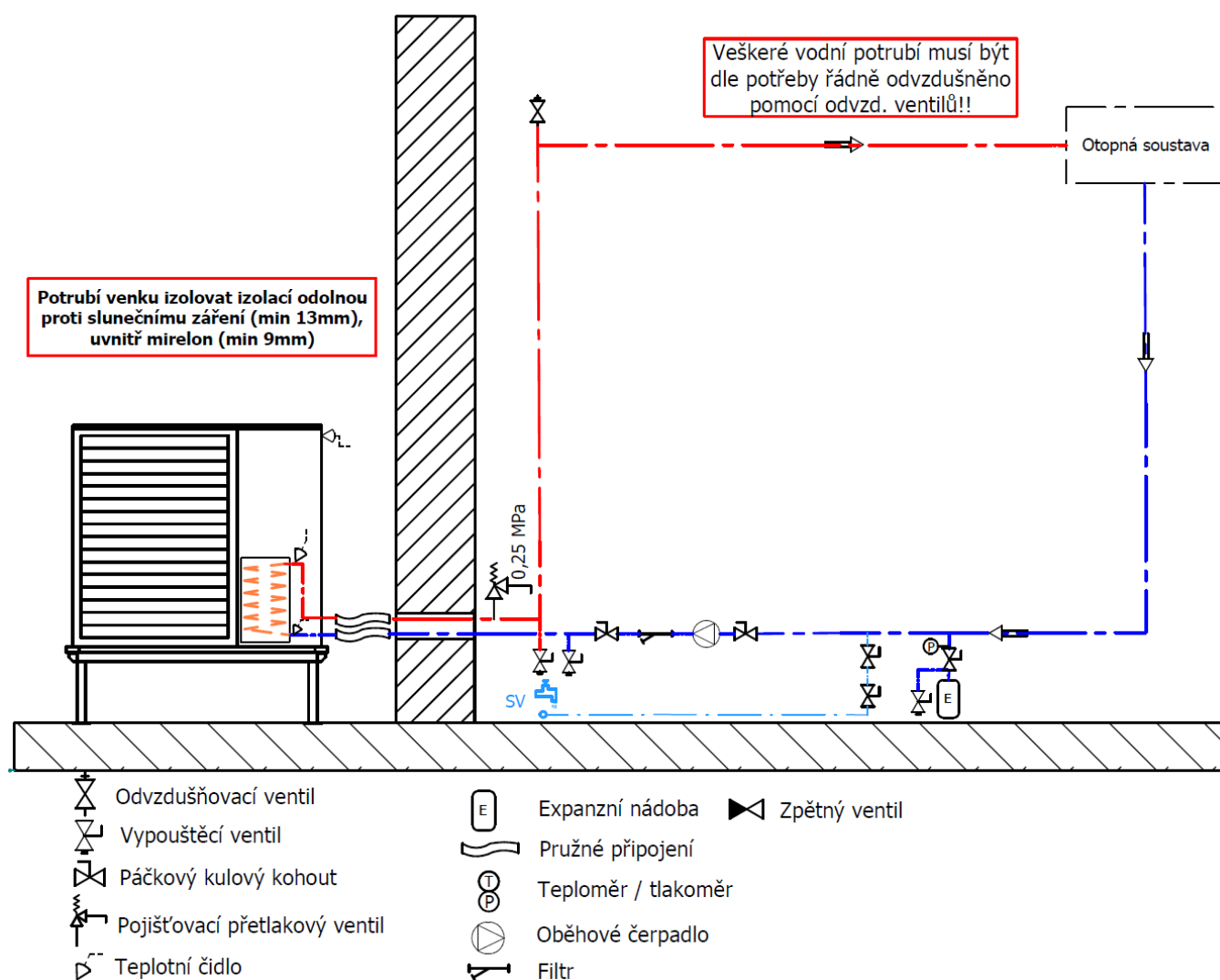


Figure 4: Hydraulic connection

7. Protective measures

The installer shall propose instructions for emergency procedures relevant to the cooling equipment to be followed in the event of malfunctions and accidents of other types.

8. Location of installation of exterior unit

The following rules apply for all performed work tasks:

- It is necessary to adhere on site to rules for injury prevention, legislation, regulations and directives.
- Respect the noise data, ref. figure 5

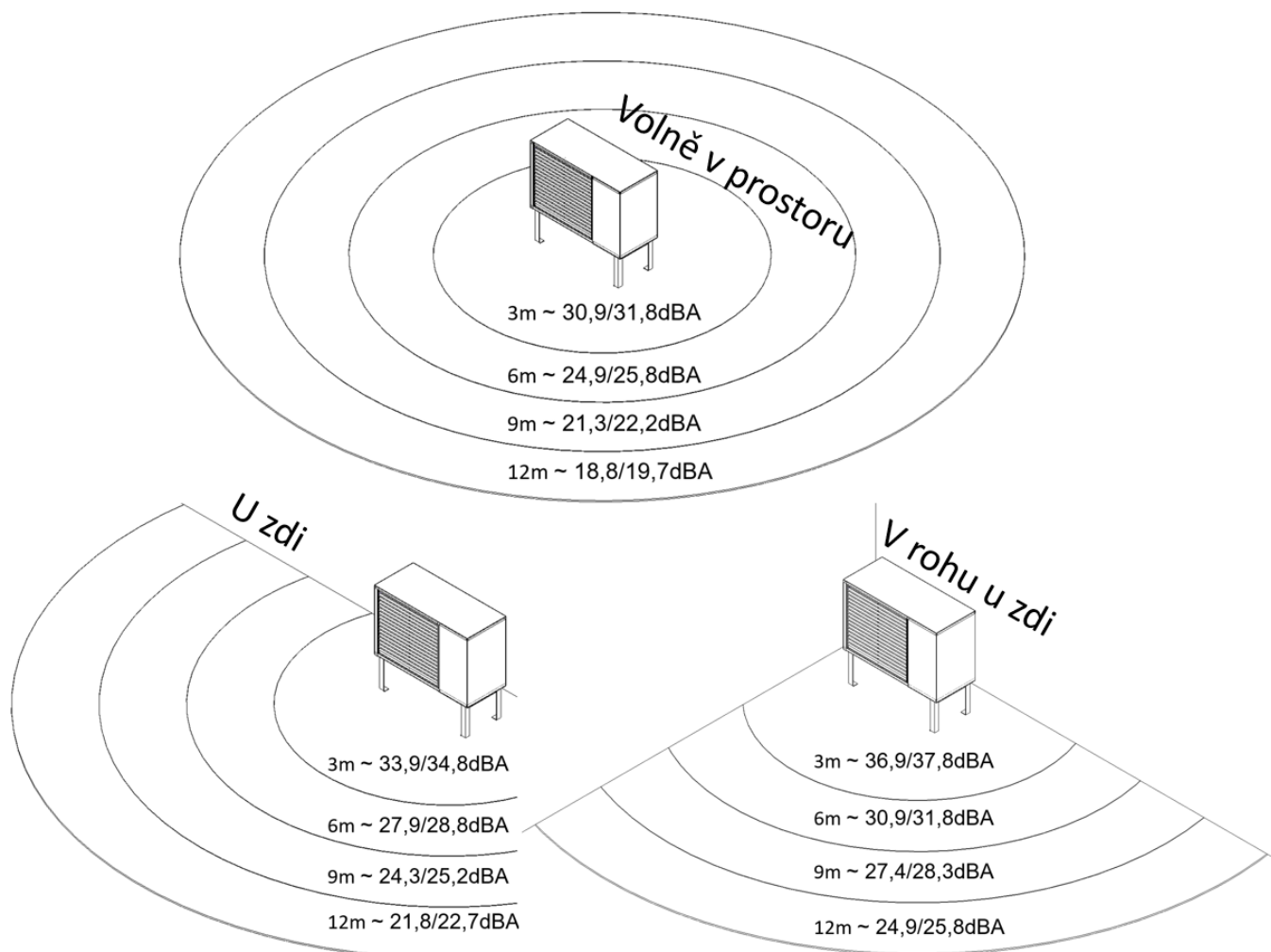


Figure 5: Acoustic pressure

The acoustic pressure values are recorded in this sequence – PRO-N/PRO-R.

The cooling equipment located on open space must be arranged in a manner that prevents leakage of coolant into the building or into locations where persons or property could be put at risk. Coolant must not be able to seep into any opening for fresh air during ventilation, nor through any door entrance, descending doors or similar openings in the event of a leak. Wherever coverings are implemented for cooling equipment components located on open space, there must be natural or forced ventilation.

8.1 On-site information

The installer must provide sufficiently protected documentation, which must be located close to the operating point of the refrigeration equipment and be clearly legible. This information at the place of operation shall include at least the following details:

- Phone numbers of firefighters, police, hospitals and burn centres
- Detailed information about flammability

8.2 Foundation below heat pump

In the exterior spaces near the building, **a supporting, firm and waterproof foundation must be installed** (see figure 6 and figure 7). A small table will be installed on the foundation (it is part of the supplied heat pump), to which the exterior unit of the heat pump will be attached.

The bottom edge of the exterior unit must be located at the height of average snow level in the particular location, at least 200 mm above ground. It is not recommended to locate the heat pump near any locations with a requirement for low noise levels, such as bedrooms. Ensure that the exterior unit will not disturb neighbours. Outflow of condensate is resolved via a HT40 pipe.

Table 5: Foundation below heat pump

Type	PRO-N	PRO-R
A	750	1,050
B	170	160
C	435	560
D – anchor dimensions	950	1240

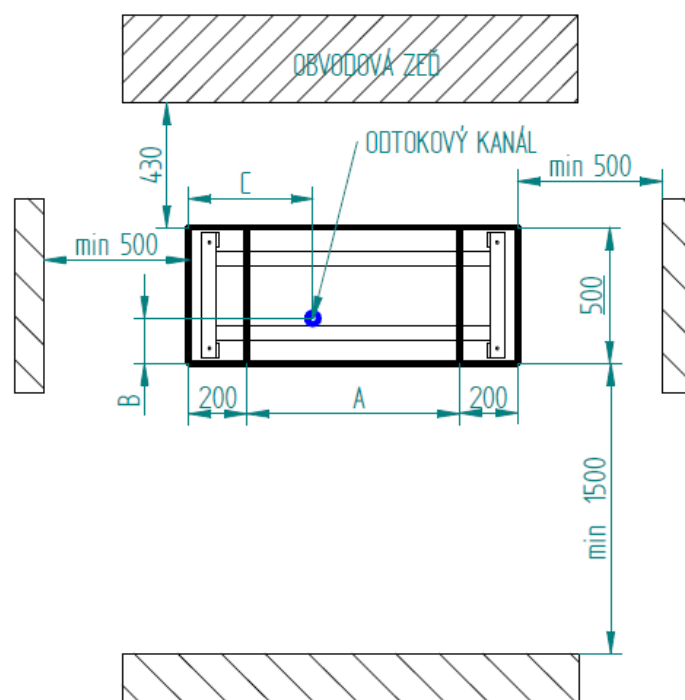


Figure 6: View from above

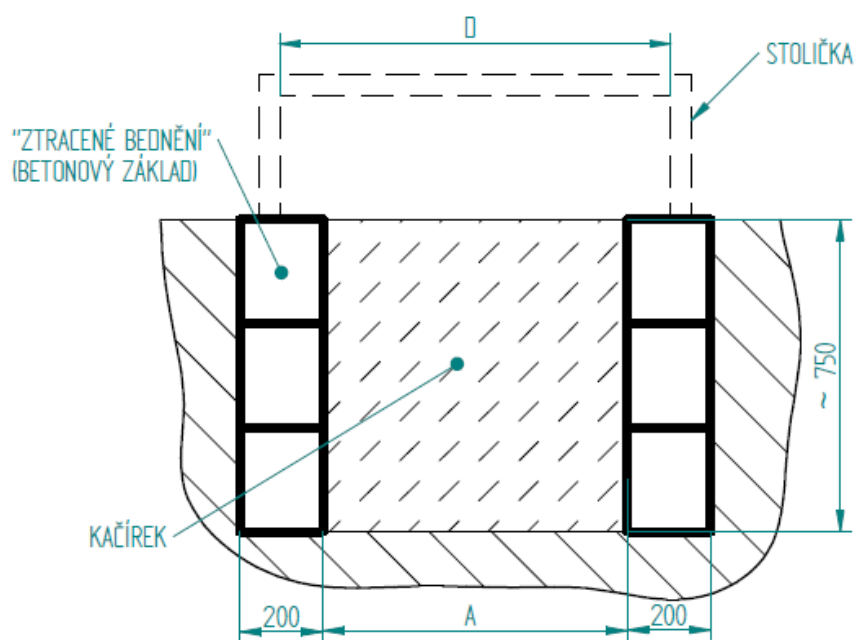


Figure 7: Formwork cross section



Do not place the unit in the path of wind, where it would be subjected to strong wind gusts. Such placement reduces the effectiveness of ventilators, which worsens the effectiveness of the heat pump and prolongs the period required for defrosting of evaporate. When installing in a wind prone location, it is necessary to take steps to prevent wind from affecting the ventilator zone.

Ensure that there is at least 200-300 mm of space above the exterior unit. The console below the pump is 350 mm high.



If the exterior part of the heat pump is located below a diagonal roof, then a small roof must be installed above the heat pump to prevent mechanical damage to equipment caused by falling snow, icicles, and constant gushes of water, etc.



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.



- The suction and exhaust sides must be kept free.
- Air should not flow onto walkways, terraces or walls.
- Installation in deep spaces is not recommended, due to worsening of air exchange within the surroundings of the heat pump.
- In order to minimise the reverberation of noise caused by the heat pump and in order to improve the flow of air in the surroundings of the evaporator, it is not suitable to install the heat pump into niches, corners of walls or between walls.
- The foundation for the heat pump must be waterproof.

8.3 Drainage of condensate

If the recommended installation design for the foundation below the exterior unit of the heat pump is followed, then this will ensure the drainage of condensate that has formed on the evaporator into the floor area and will minimise freezing in the surroundings of the heat pump (see figure 8). In the event of drainage of condensate into the sewer system, it will be necessary to equip the entire drainage path with a heat cable.



Figure 8: Illustration of the design of the foundation for the heat pump

9. Permeations to exterior Unit



Wrap the flow-through passages with mineral wrap or otherwise reinforce the flow-through passages (e.g. with foam). Do not use mounting foam, which after hardening transfers vibrations from the exterior unit!

For connection of the exterior unit to the part of the equipment located inside the heating object, it is necessary to get through a passage with a diameter of **120 mm**.

10. Technical room

The technical room where the interior part of the heat pump will be located must have sufficient space and be sufficiently dry. The air temperature must range from 10° C to 35° C, and the relative air humidity should not exceed 70% at any time. The cables and hydraulic connections

run downward, and therefore it is necessary to have additional free space below the control box and, if applicable, the hydro module.

11. Preparation of electrical connection

Prior to installing the ACOND® heat pump, the client shall secure the JYTY-O 2x1 cable line from the control box or interior unit to the room unit RCM2-1 in the reference location.

The client shall also secure the UTP 5E Ethernet cable for connecting the switchboard or interior unit of the heat pump to a PC connected to the internet. The connection will serve for monitoring the running of the heat pump and for enabling changes to the heating parameters.

The client shall also run a CYKY J 3x1.5 cable to the interior unit (see attached schematic), and the zero conductor (N, blue) will be switched with a HDO signal.

11.1 Power connections

The client shall secure the main input cable for the heat pump, and the installation firm shall recommend its securing in a way that will depend on the performance variant of the heat pump.

The corresponding schematic based on the selected performance variant will be sent to you.

All accumulation units and service water storage tanks must have electrical connections with the grounding conductor (PE).

12. Disassembly

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 13 Links.



Risk of death by electric shock! Disconnect the pump from the power supply before disassembling.



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



Handling open flame near the outdoor unit is prohibited!

12.1 Liquidation

The technician responsible for disassembly from the system must be familiar with all detailed requirements for the disposal of the equipment. We recommend draining the refrigerant from the circuit. For further use of the refrigerant, the refrigerant used must be free of dirt, oil residues, etc.

The following steps must be followed:

- Become familiar with the unit and its functionality.
- Disconnect the unit from the electrical current.
- Before draining the refrigerant, make sure that the following are true:
 - All refrigerant draining tools are available;
 - Use work and protective equipment;
 - The drainage of refrigerant is checked by an authorised person;
- Make sure the coolant tank is placed on the scale.
- Turn on the suction and follow the suction device manufacturer's instructions. The suction device must also be usable for flammable refrigerants.
- When suctioning, do not exceed 80% of the tank content and do not exceed the maximum allowable pressure.
- When the coolant extraction is complete, close all valves in the cooling circuit and remove the tank.
- Label the unit in a visible place with a label that clearly indicates that the unit has been removed from the system and does not contain refrigerant. The label shall bear the date and signature of the authorised person.

12.2 Recycling

Ensure that refrigerant suction is done safely. If bottles are used for suction, then bottles intended for this purpose must be used. Make sure you have a sufficient volume of the suction

bottles in advance. Bottles must be appropriately labelled (e.g. special recycling cylinders for recovery and recycling of refrigerant). Empty bottles must be vacuumed. The suction device must be accompanied by step-by-step instructions. The suction hoses must be equipped with leak-free couplings. The suctioned refrigerant must be delivered back to the manufacturer in the prescribed bottles. If you remove a compressor or compressor oil, it must be vacuumed so that it does not contain any combustible components. Before returning the compressor to the manufacturer, the compressor must be vacuumed.

13. Links

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

 **VZDÁLENÁ PODPORA**

14. Line diagrams

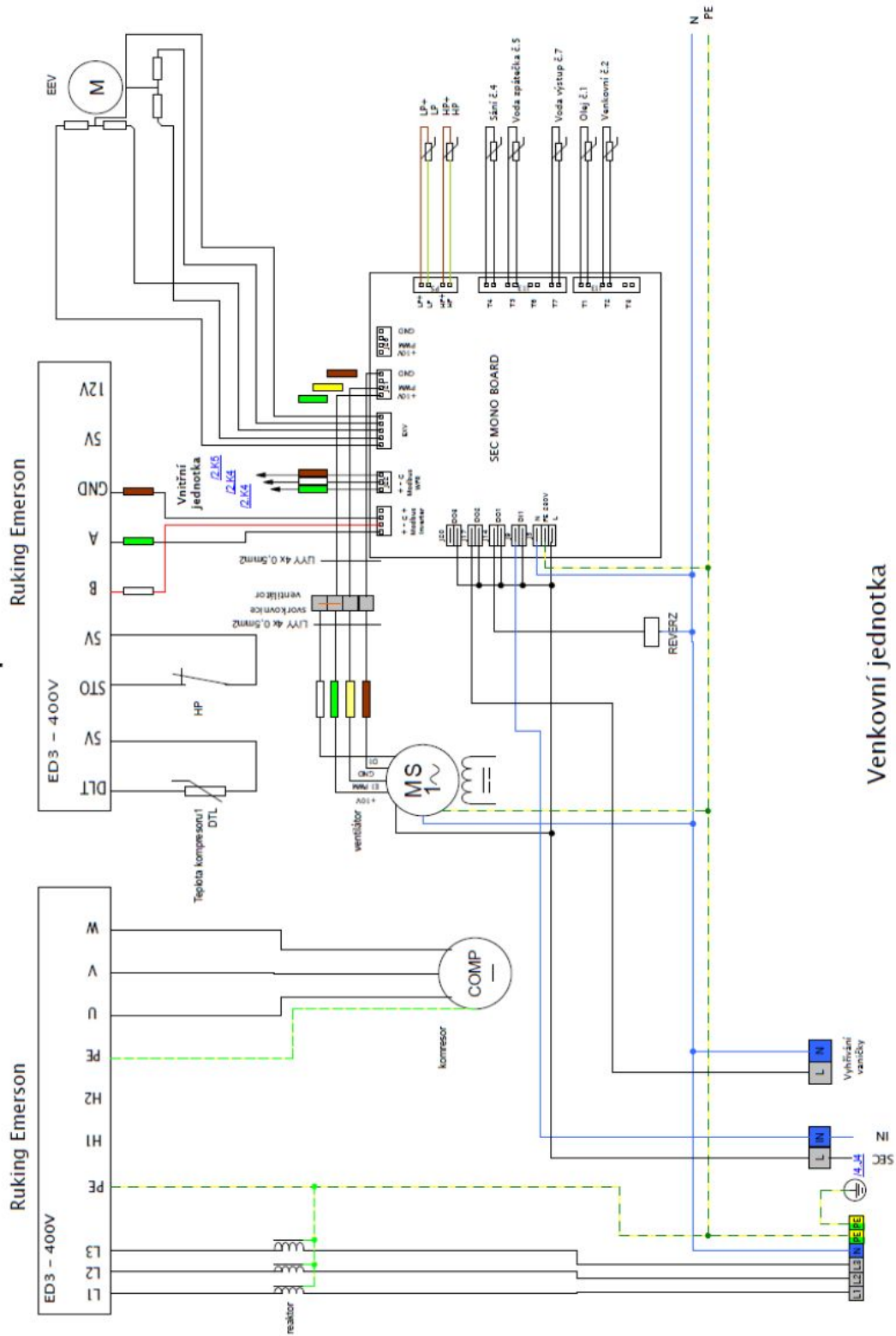


Figure 9: Outdoor PRO- R unit

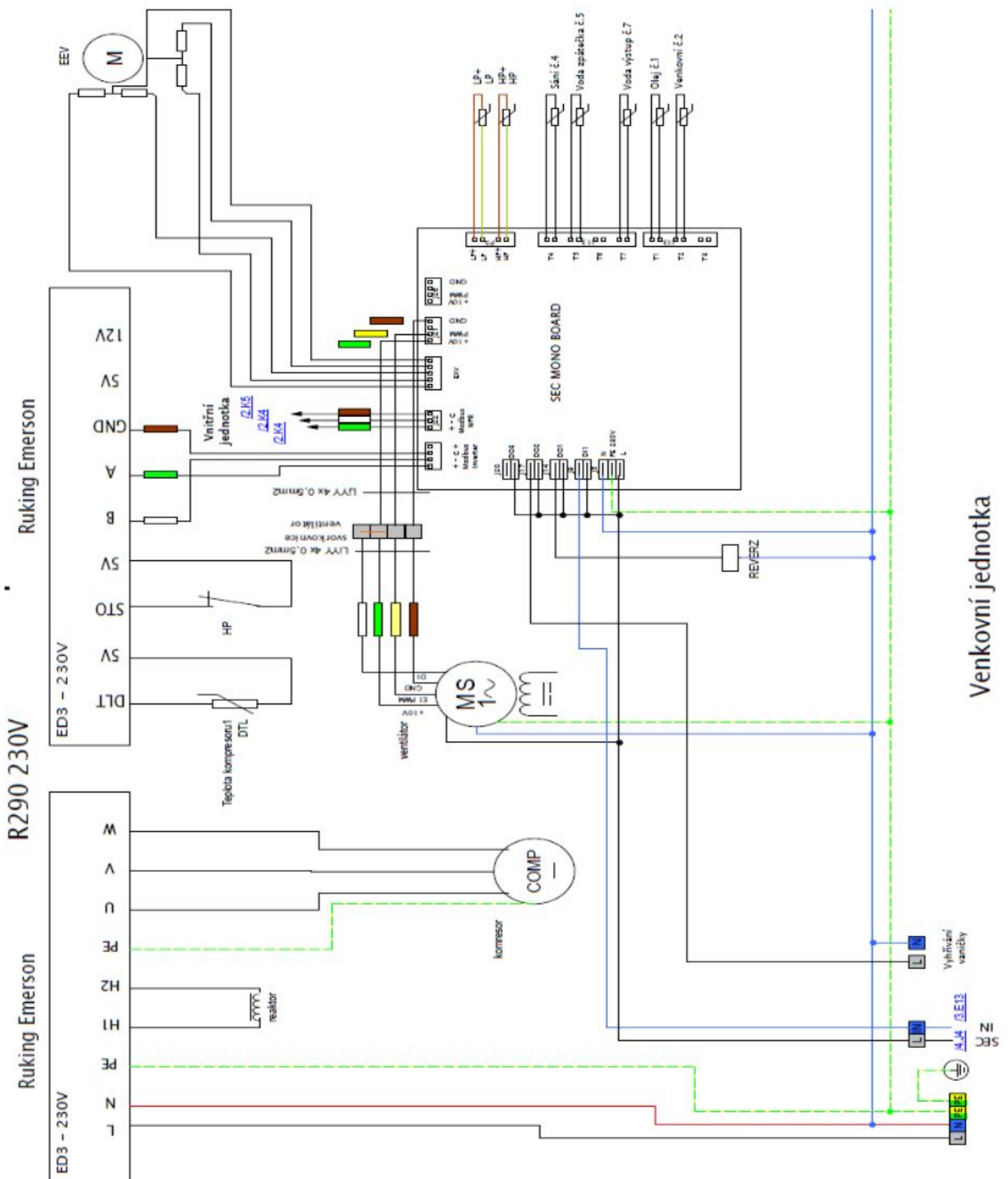


Figure 10: Outdoor PRO-N unit

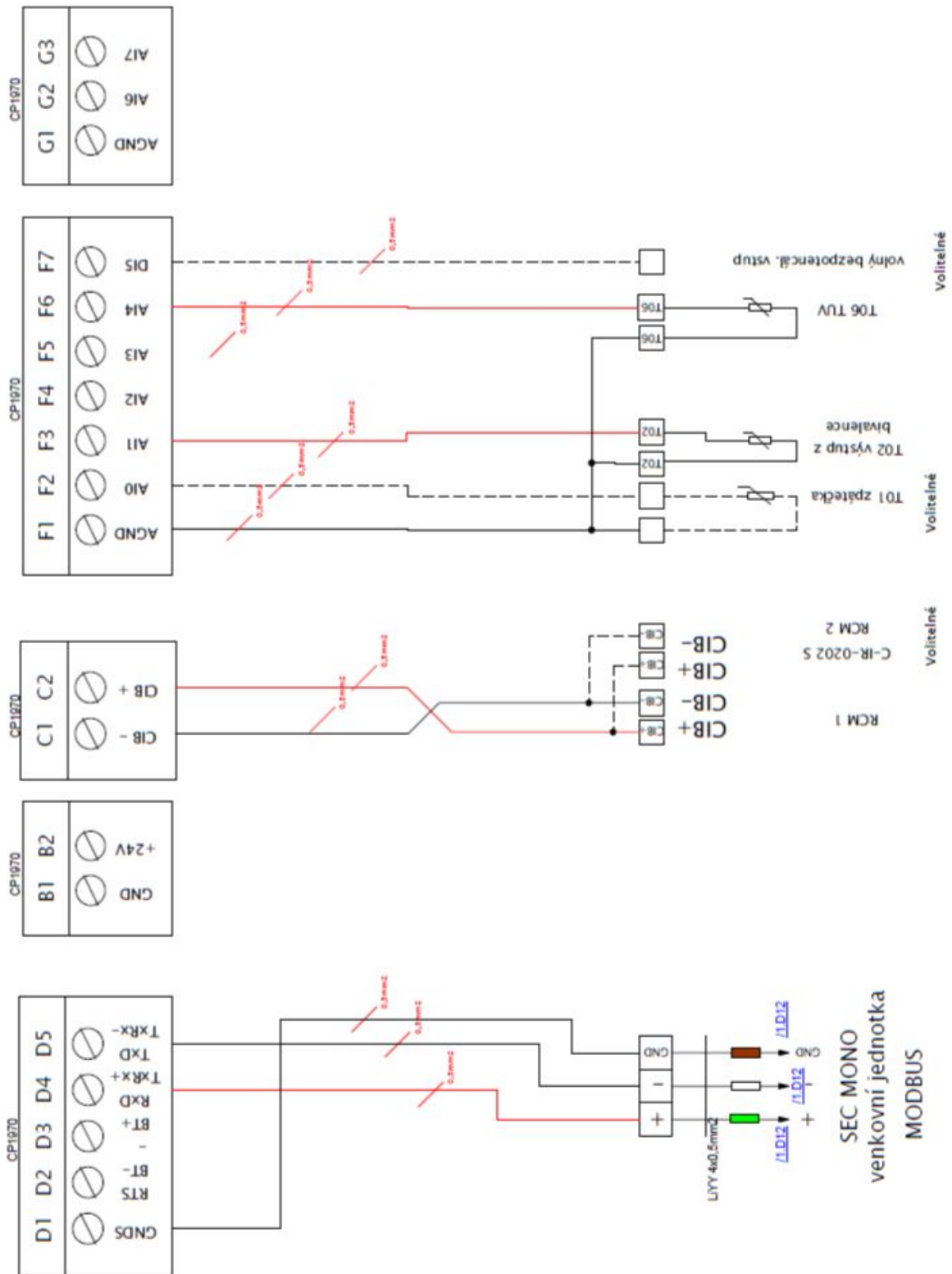


Figure 11: Outdoor PRO-N and PRO-R units

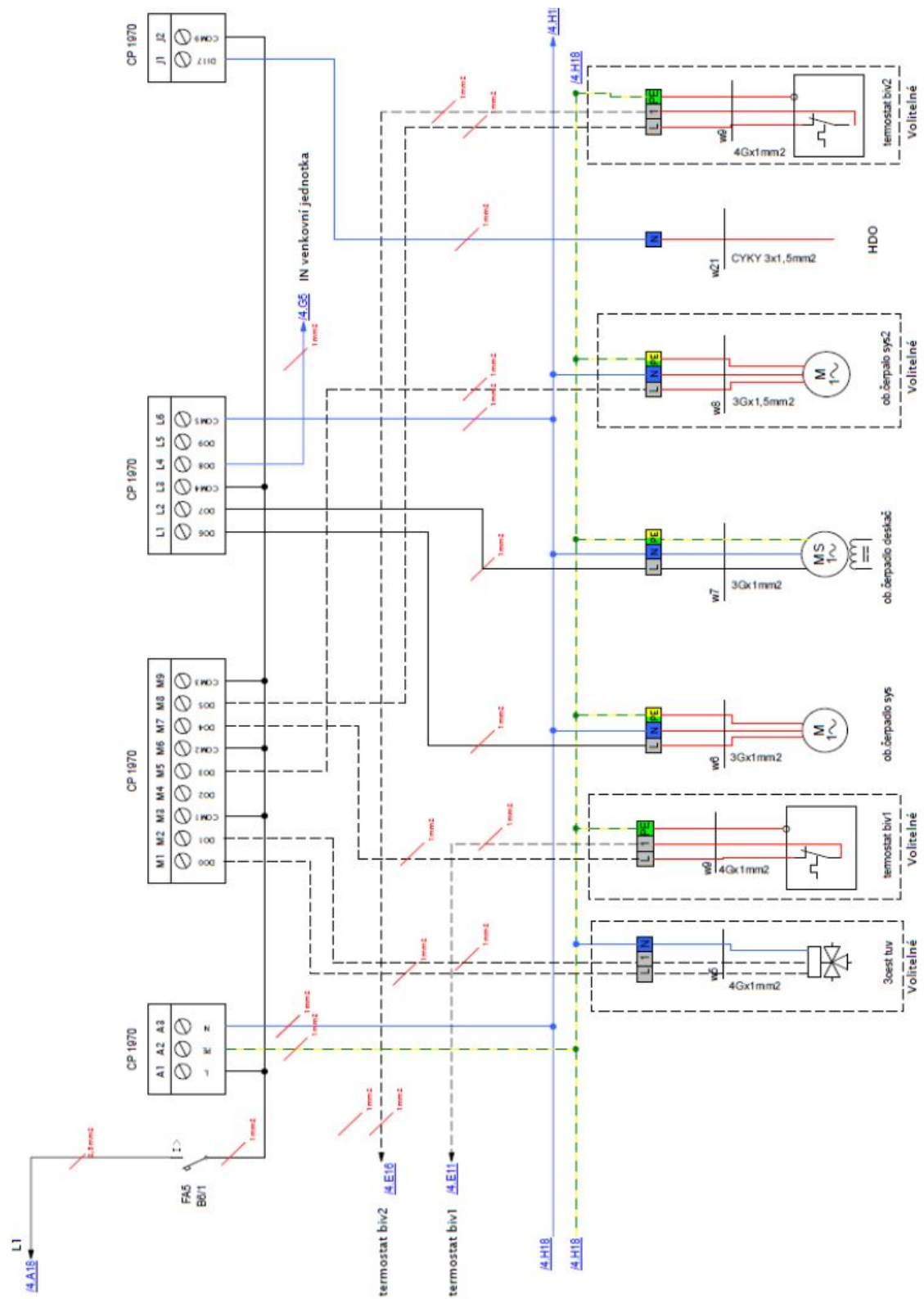


Figure 12: Indoor PRO- R unit

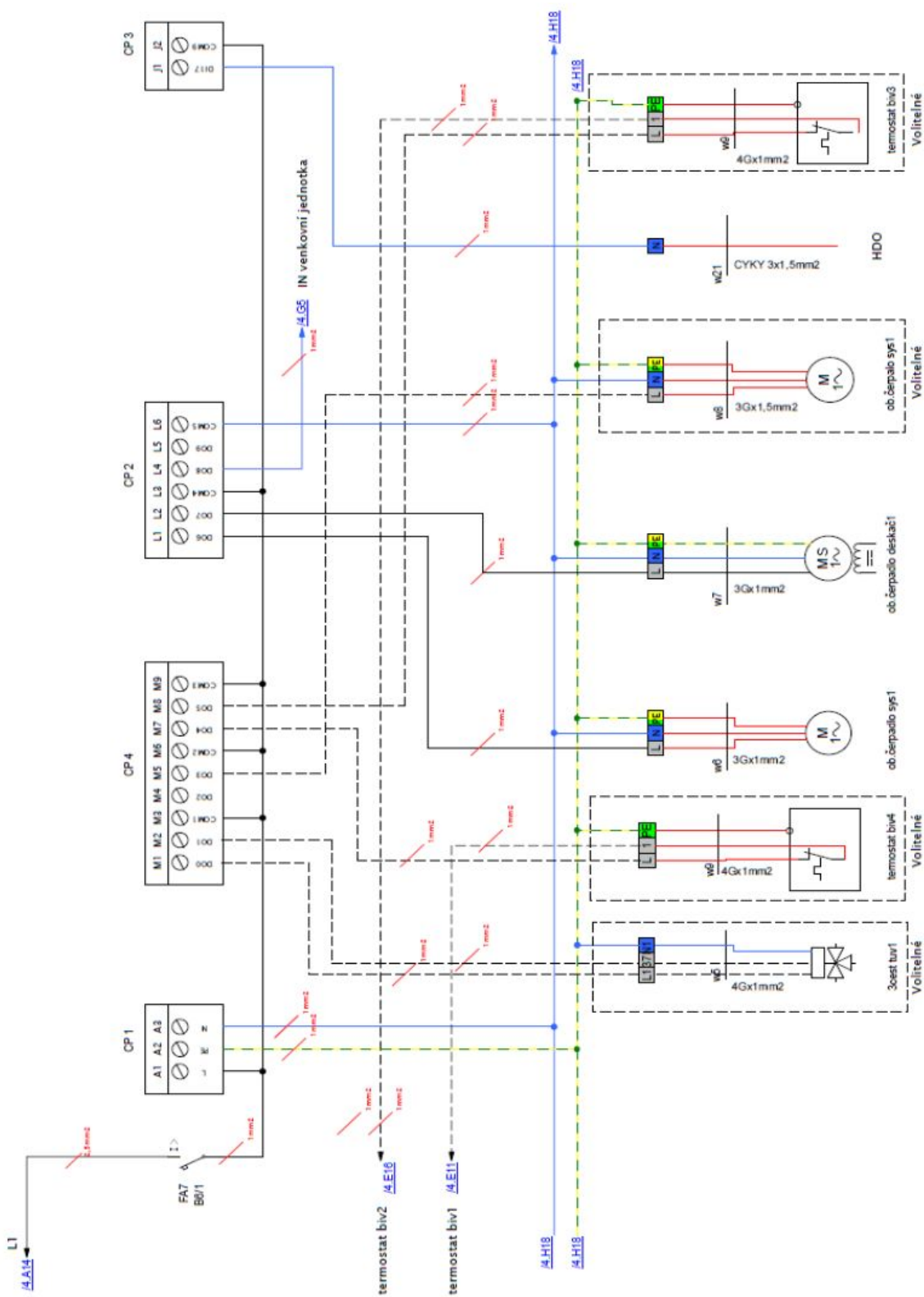


Figure 13: Indoor PRO-N unit