



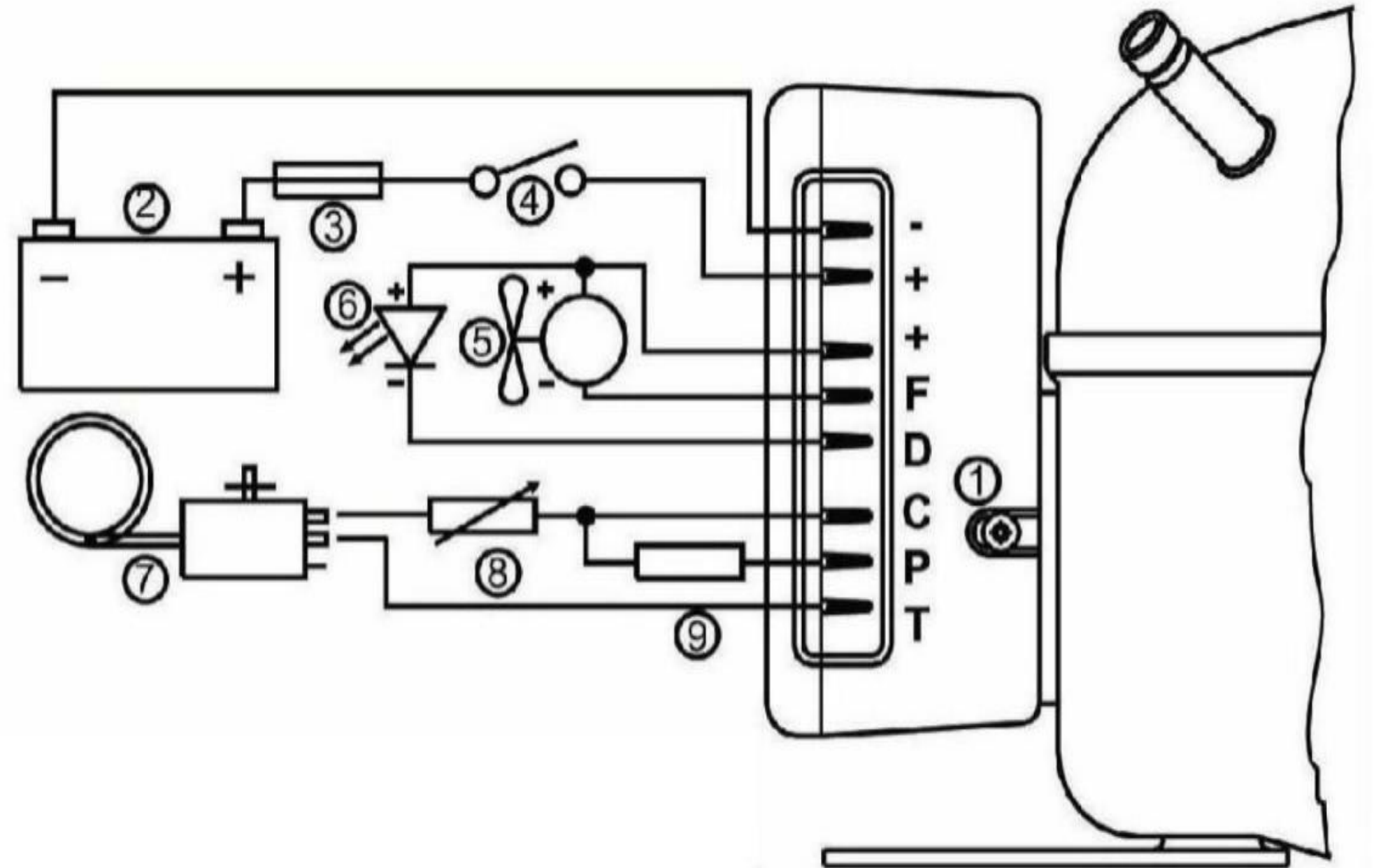
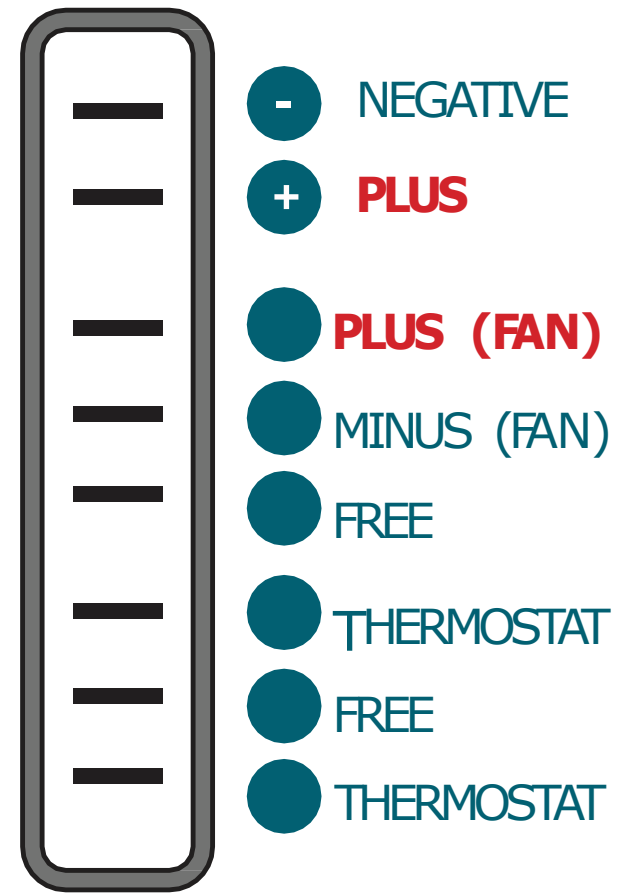
Trouble Shooting Guide

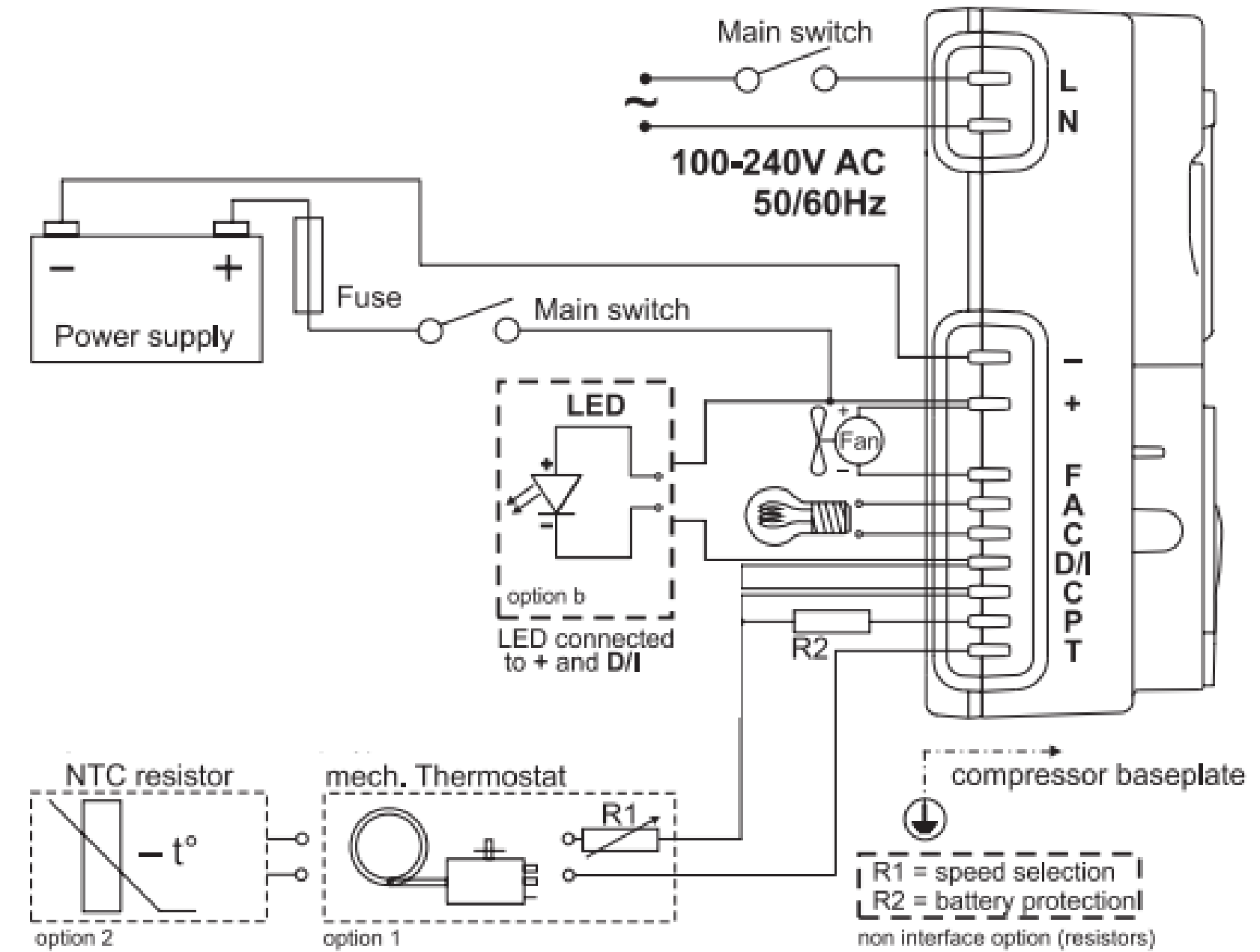
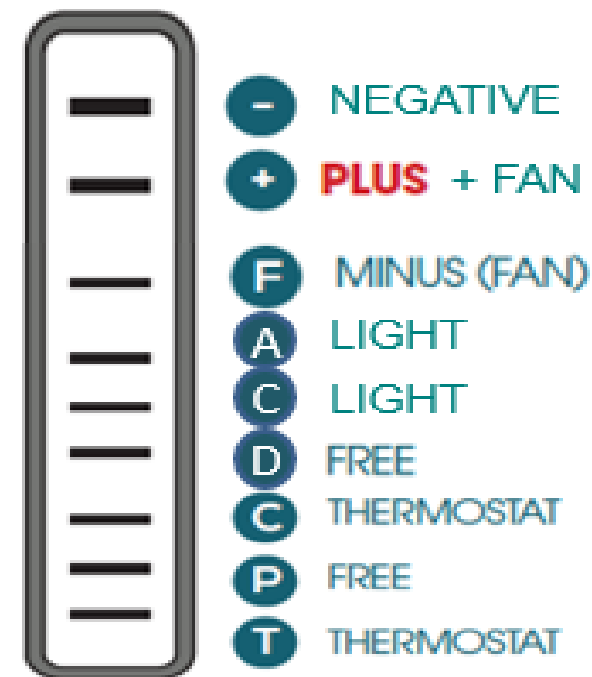
For AC/DC and DC Control Board Models

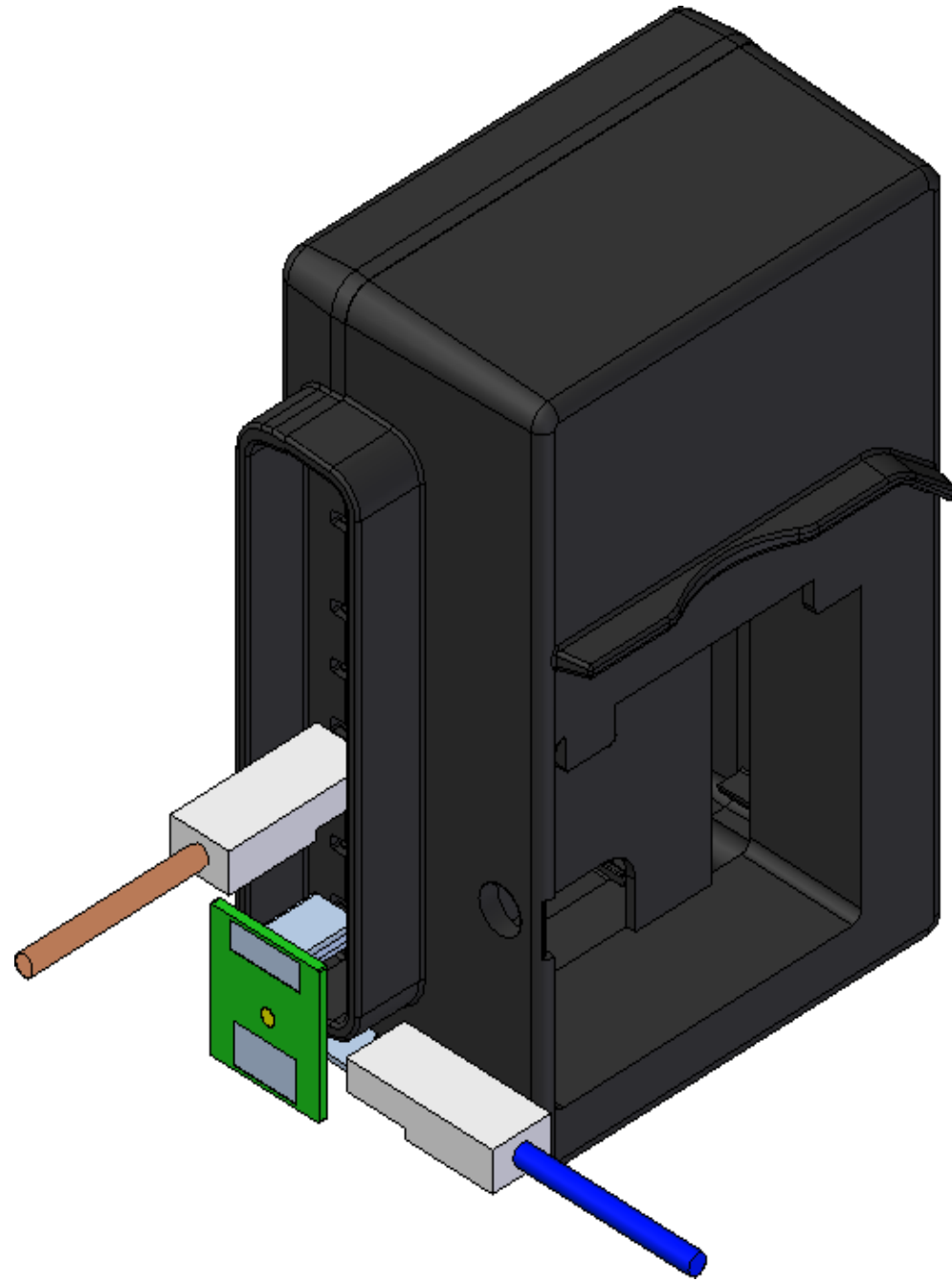
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Please note :

without the speed variator card the compressor runs at standard speed (2000 RPM).

The Speed Variator card is connected to the terminal T for the thermostat.



TEST 1

CONNECTIONS



Power Supply and Cables requirements to start troubleshooting

The fridge will require to start at least 12,3V in the plus and minus.
 the fridge runs at 11,7v, but after some time, the relative pressure inside rises and it needs at least 12v.

If the fridge is running but the thermostat is not working to cut off the compressor.
 It means that the power dropped to 10.4V(or lower) and that the power is not enough to restart the cooling process.

Wire dimensions

Cross section mm ²	Max length* m 12V operation	Max length* m 24V operation
2.5	2.5	5
4	4	8
6	6	12
10	10	20

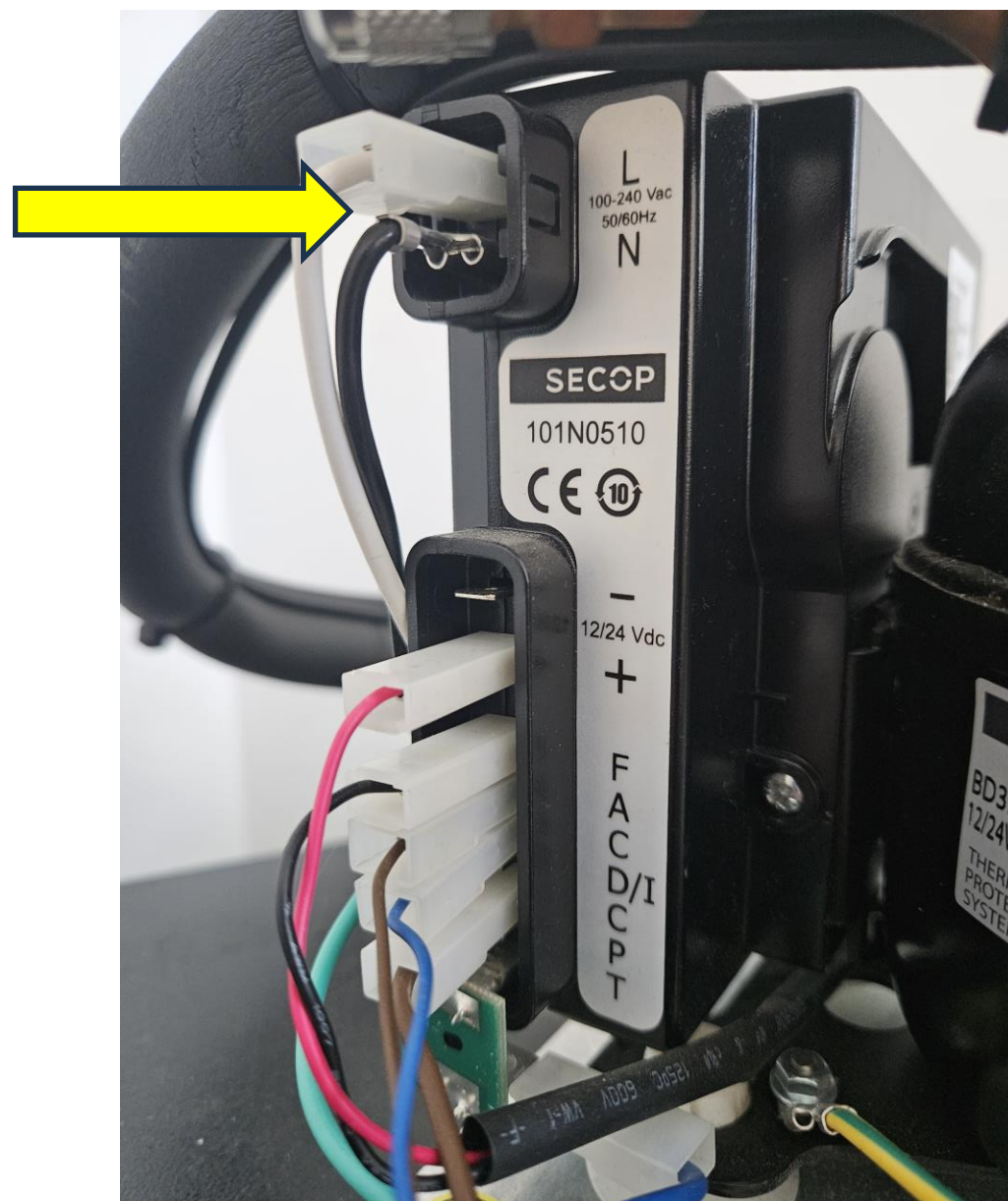
Lenght between battery and electronic unit

Standard battery protection setting

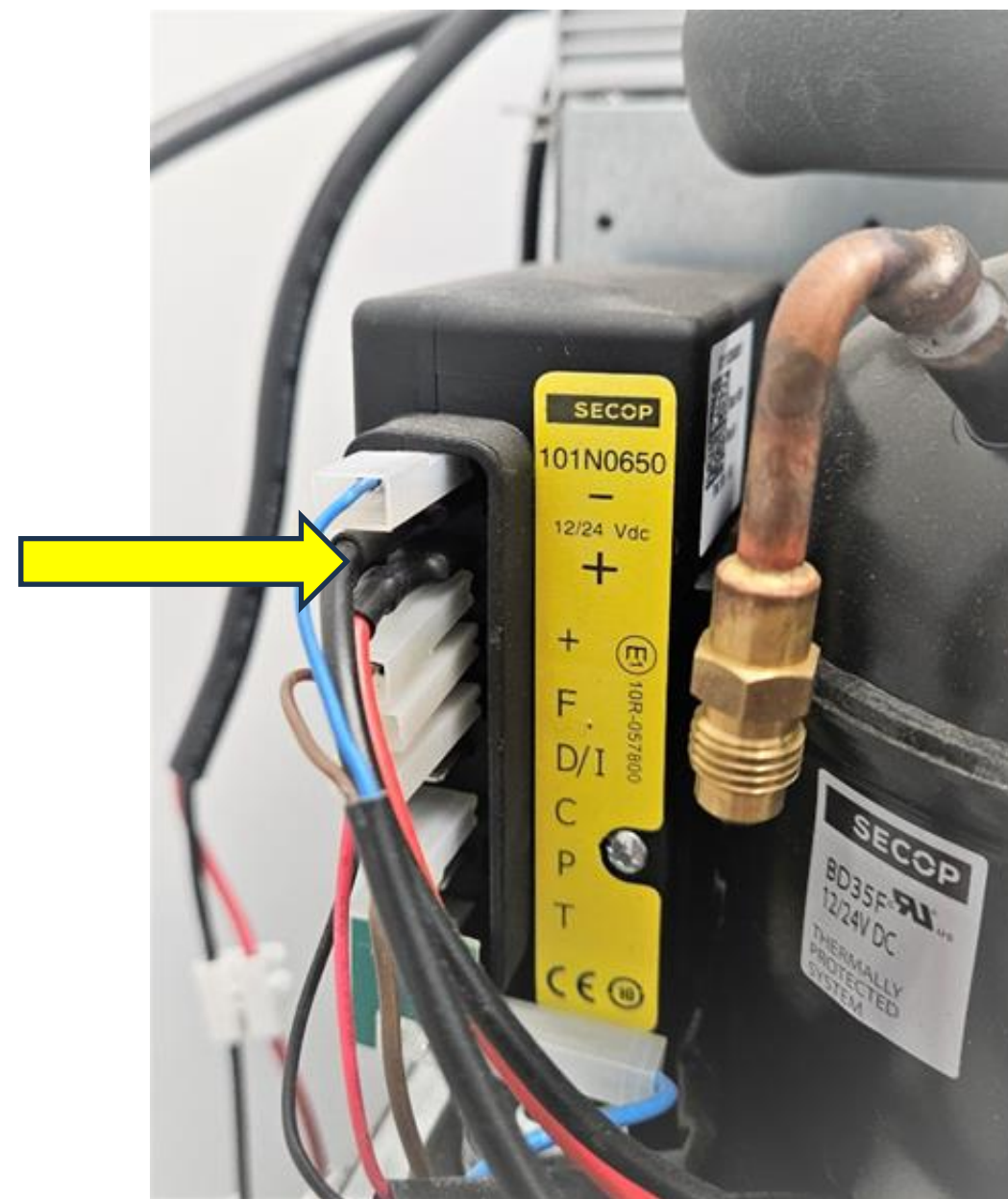
12V cut- out V	12V cut-in V	24V cut-out V	24V cut-in V
10.4	11.7	22.8	24.2

Connections and Voltage check to start troubleshooting

Check power here (AC/DC units)



Check power here DC- units)



Turn the unit to max to start the diagnosis



Please Make sure all connections on the Module are in place and all cables are connected

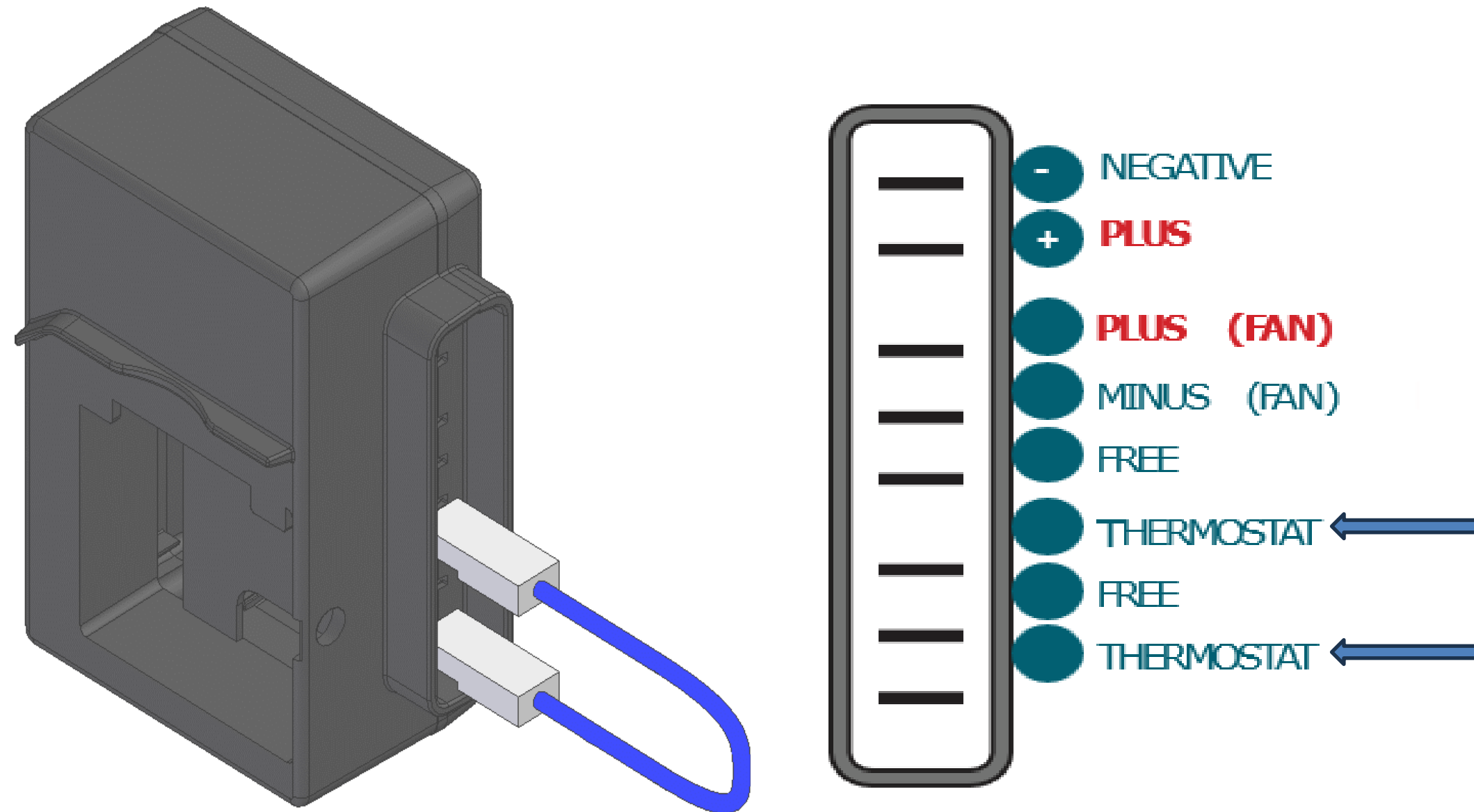


TEST 2

THERMOSTAT

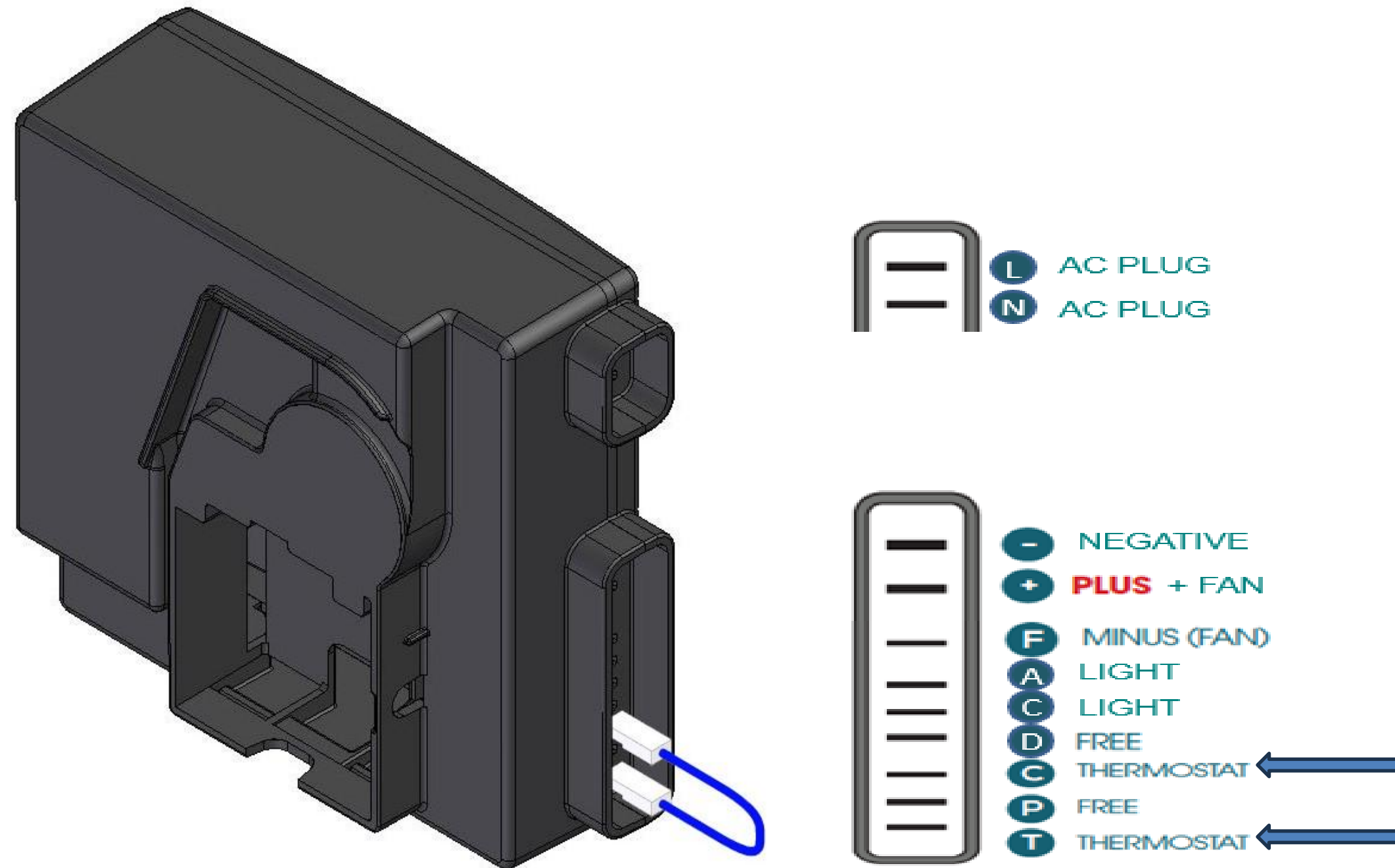


By making a Bridge between the terminal T and the terminal C (bypassing the thermostat) it can be determine if the thermostat is the issue or if the issue comes from the Control board or module. With the bridge ON the unit should run non-stop at the coldest setting



Please Note: all other connection must remain connected to complete the test

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TEST 3

SPEED VARIATOR

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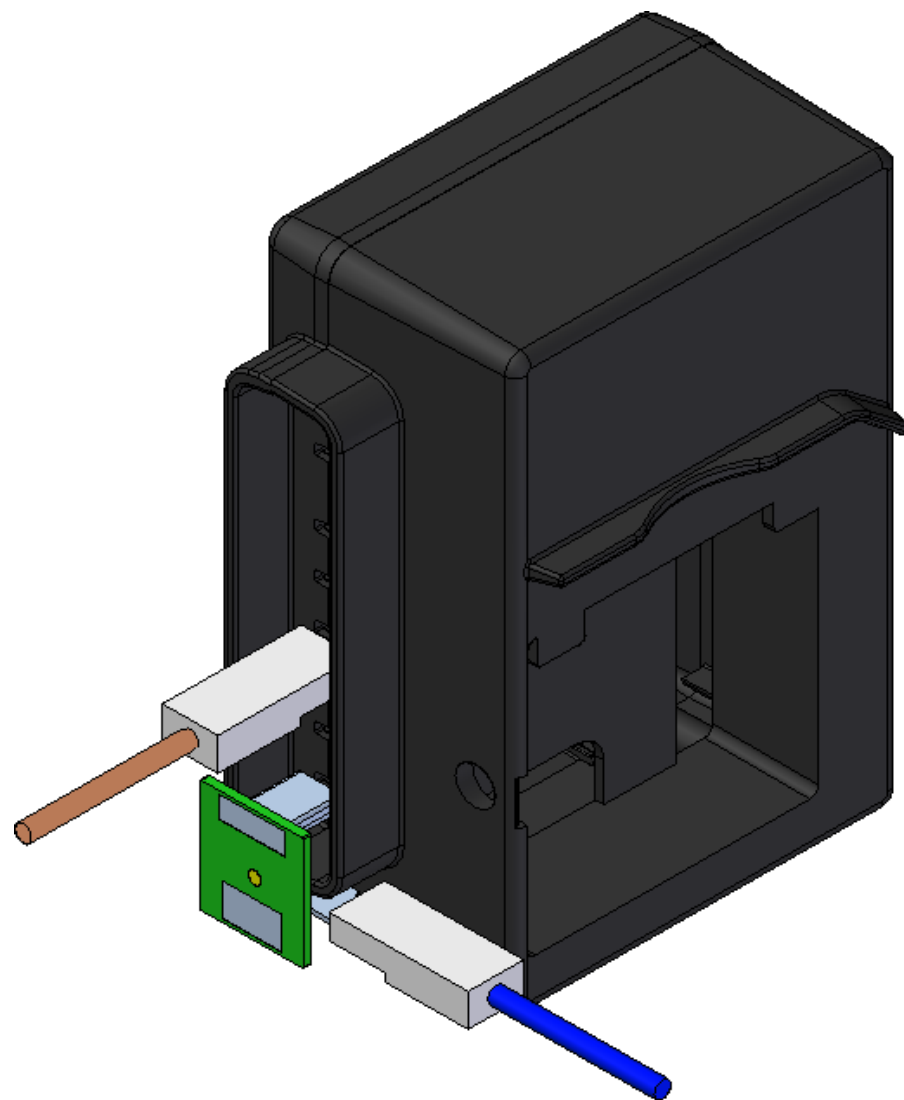
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If the compressor doesn't start, the speed variators must be checked.

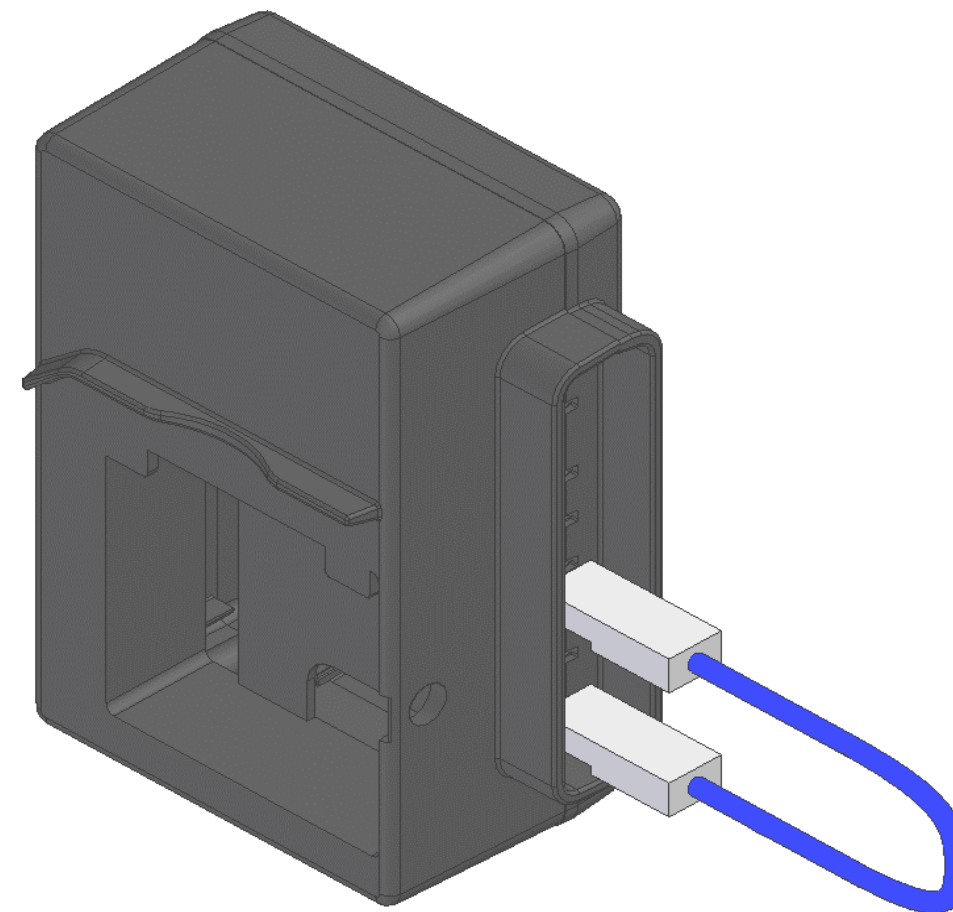
Perform thermostat test with the speed card and without the speed card to identify if the issue is coming from the card.

The unit should run with and without the speed variator connection, but without the compressor runs at 2000 rpm.

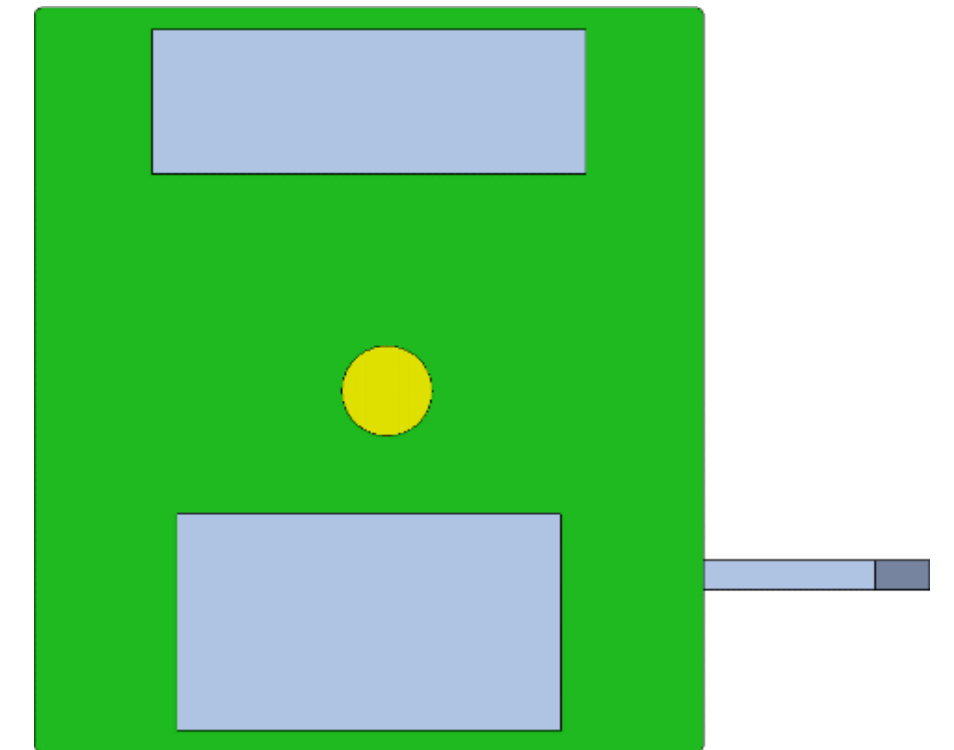
With the speed card



Without the speed card



Check speed card for signs of rust or burns



Please Note: all other connection must remain connected to complete the test

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TEST 4

LED

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- A 10 mA LIGHT EMITTING DIODE (LED), CAN BE CONNECTED BETWEEN THERMINALS +AND D.
- IF THE ELECTRONIC UNIT RECORDS AN OPERATIONAL ERROR, THE DIODE WILL FLASH A NUMBER OF TIMES.
- THE NUMBER OF FLASHES DEPENDS ON WHAT KIND OF OPERATIONAL ERROR WAS RECORDED.
- EACH FLASH WILL LAST ¼ SECOND.
- AFTER THE ACTUAL NUMBER OF FLASHES THERE WILL BE A DELAY WITH NO FLASHES, SO THAT THE SEQUENCE FOR EACH ERROR RECORDING IS REPEATED EVERY 4 SECONDS.

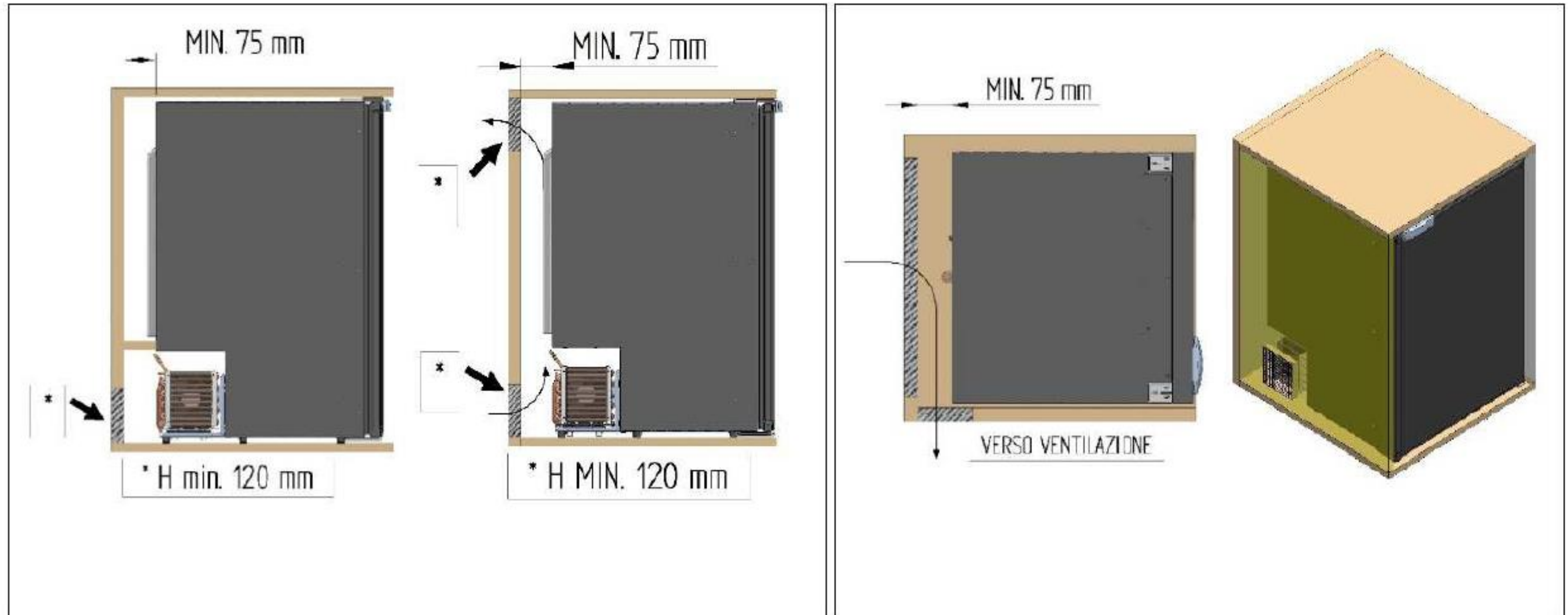
NO. OF FLASH	ERROR TYPE	DESCRIPTION
5	THERMAL CUT OUT OF THE ELECTRONIC	if the refrigerant system has been to heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot.
4	MINIMUM MOTOR SPEED	if the refrigerant system has been to heavily loaded, the motor cannot maintain minimum speed.
3	MOTOR START ERROR	if the refrigerant system has been to heavily loaded, the motor cannot maintain minimum speed.
2	FAN OVERLOAD	the fan load electronic unit with more than 1a.
1	BATTERY PROTECTION CUT OUT	the voltage is outside the cut-out setting.



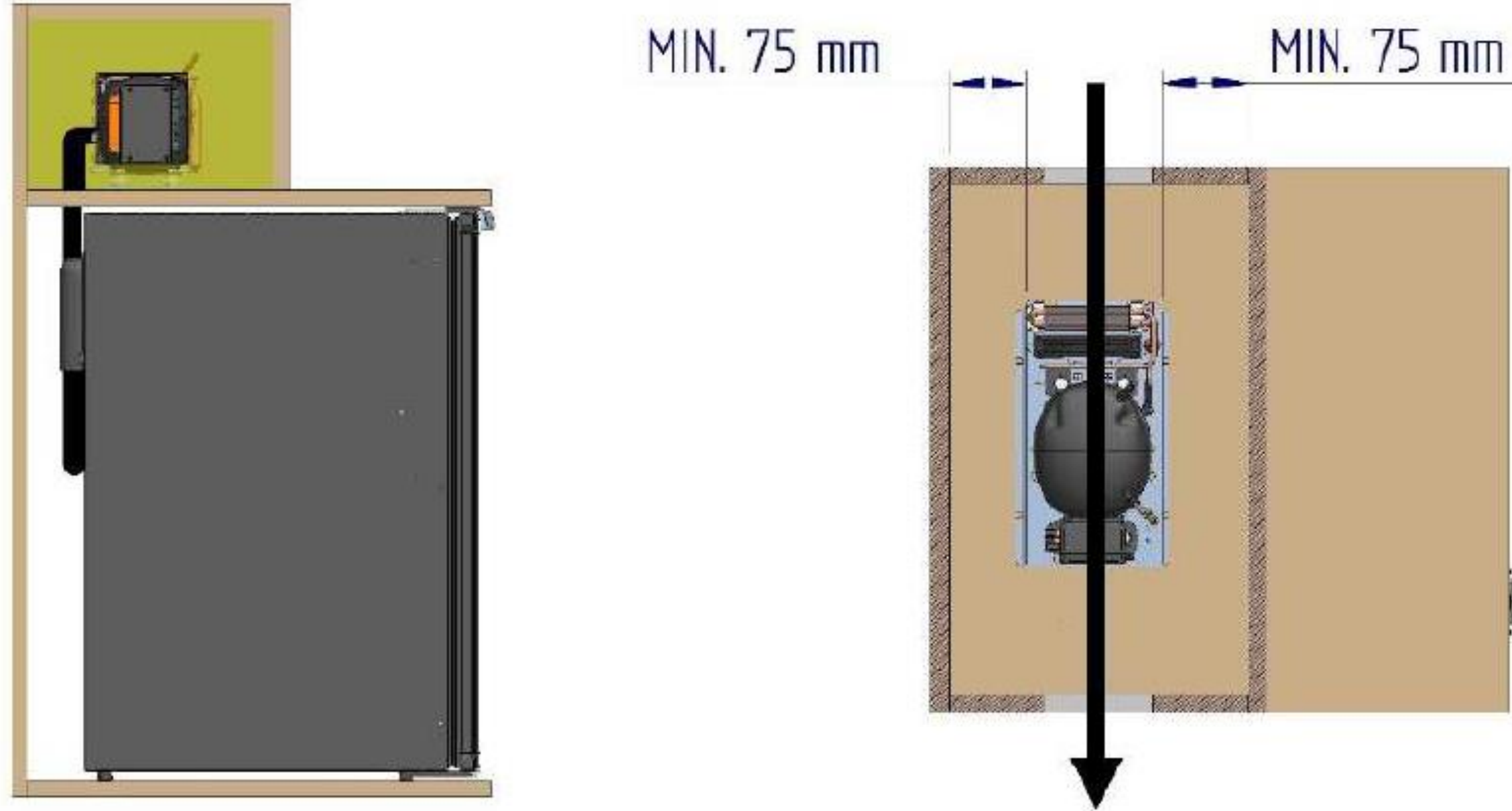
Ventilation Requirements



Before reinstalling the unit, please check the compartment for proper ventilation area around the unit. It should have 75mm of space around all sides, including the back of the unit.



Ventilation for the quick coupling models





Questionnaire



- Is the unit receiving the required voltage(12.3V for start up)? (See page 6)
If Yes, the Control Board needs to be replaced.
If voltage is less than the required, the technician must check connections on the vehicle and batteries to make sure there isn't an external power issue.
- Did the temperature change (unit got colder) when the test thermostat test was done?
If the temperature on the unit improves while running on the thermostat test, this means that the T-stat could be the problem and the thermostat must be changed.
- Is the fan running ?
If No, Fan must be replaced.
- Are the lights working ?
If No, check the connections and power to the unit, the power from the control board to the lights should be 12V.
If power is not an issue the light LED needs to be replaced.
- If the compressor runs without cold inside probably the system has a leak of gas(refrigerant), check for oil residues to confirm if the Compressor or evaporator needs to be replaced.

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