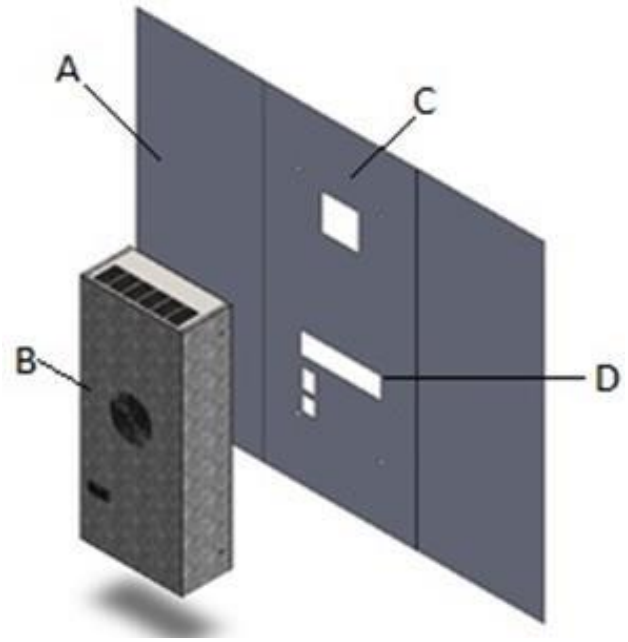
CABINET AIR CONDITIONER

ASSEMBLY AND USERS GUIDE

As the usage increases, the internal temperature value of the cabinets increases significantly depending on the ambient temperature. As a result, production is disrupted. The solution is through the application of Sabaj System cabinet air conditioner. Sabaj System cabinet air conditioners are fixed cooling units that serve industrial use and meet the cooling load in the target place.

1. MOUNTING



A: Installation surface

B: Cabinet air conditioner

C: Surface to be opened for air intake from inside the cabinet

D: Section that opens for the entry of cold air into the cabinet

1.1 Assembly Procedures

- Stick the mounting template included in the air conditioner package to the appropriate place of the panel. (At this stage, make sure that the template is placed correctly, if the template is positioned upside down, the sections on the air conditioner and cabinet will not match.)
- Cut the sections shown on the template.
- Drill the holes shown in the template to fix it to the panel.
- Mount the air conditioner to the cabinet with the mounting screws sent in the mounting kit located at the blowing port of the air conditioner. Never use screws longer than the original.
- After installing the first two mounting screws on the top of the device and tightening it by hand 15 mm, lift the air conditioner and place it on the panel and fix it with the help of washer and nut. During this process, one person should hold the air conditioner steadily while the other person should perform the installation.

- After the device is placed on the cabinet, the other mounting screws are tightened from the inside. After all the screws are tightened by hand, the washer and nut are placed and the assembly is completed by tightening them with the help of a wrench.
- Make sure that there is nothing blocking the rotation of the fans on the unit and that they rotate freely.
- Make sure that the drain pipe is completely open. And give a drainage outlet to the desired place by connecting a hose with this pipe diameter.

Positioning the air conditioners vertically is important for the operating cycle of the system. If you are in doubt that the air conditioner is in an inverted or horizontal position, put the air conditioner in an upright position and wait for at least 4 hours without operating it.

2. COMMISSIONING

- Make sure that electrical connections are made only by carefully selected specialist personnel. Otherwise, life-threatening problems may occur.
- Make the connection to the energy input on the device, taking into account the electrical diagram specified on the socket.
- Before energizing the device, make sure that the current type and voltage of the energy source comply with the indications on the product nameplate and the electrical diagram on the socket.
- The device must be independently powered by a fuse selected according to the amperage value specified on the product label.
- Make sure that the device power cable is selected according to IEC or local standards. Pay attention to the ambient temperature when making the selection.
- Make sure that the grounding connection of the device is made.
- Energize the device via the electrical network.
- The device will start to operate at 35 °C set at the factory, first the evaporator fan will be activated, then the condenser fan and compressor will be activated depending on the thermostat values.
- The device should not be interfered with without considering the electrical diagram on the socket.
- Please note , that the fan is set to a constant work , as soon as power is connected. This is to provide better airflow inside the cabinet . The cooling unit will turn on only on the set temperature.

2.1 Control After Commissioning

- Check that the drainage water is properly drained from the system.
- Check the sound level and shaking of the device.
- Check the tightness.

WARNING

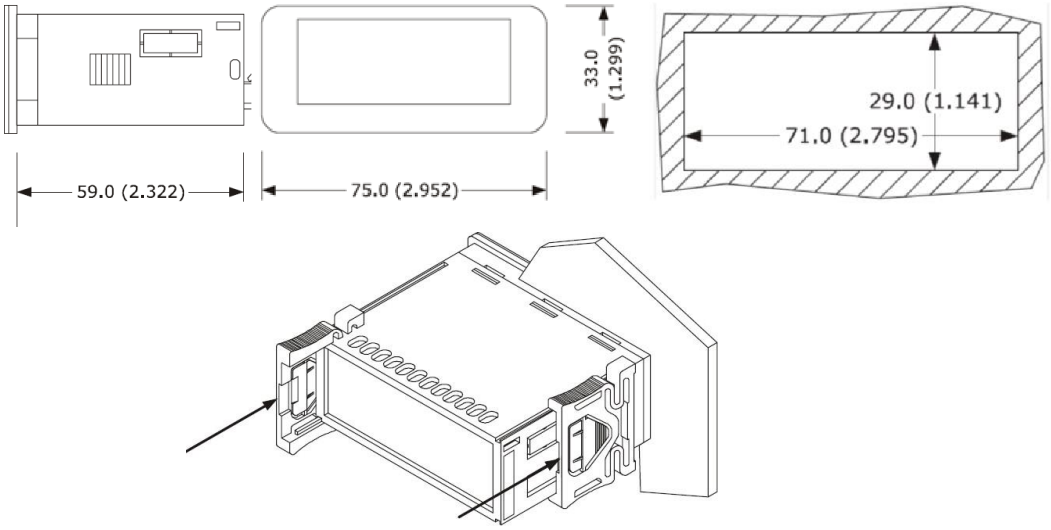
Keep the cabinet covers closed for the efficient operation of the air conditioner. Keeping the doors open reduces the system efficiency.

WARNING

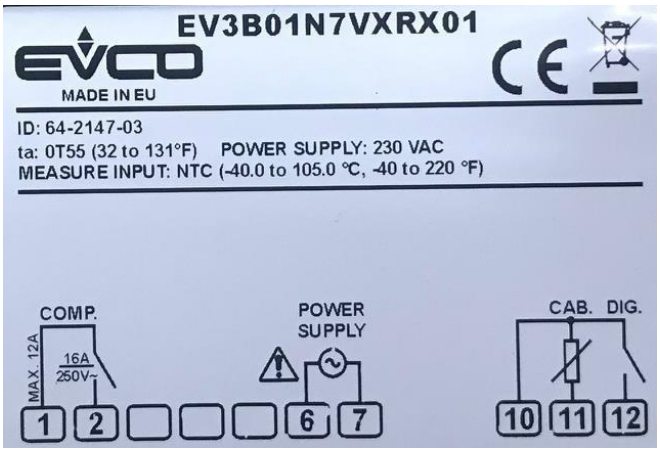
Using the units outside the application area may cause serious accidents. Cabinet air conditioners should only be used in stationary operation. In addition, the employer should only allow authorized, qualified and trained persons who know the occupational safety and accident instructions to work in the devices to which the cabinet air conditioners are connected.

3. CONTROL MODULE EVCO EV3B01

3.1 Dimensions



3.2 Electric Connection



3.2.1 Warnings For the Electric Connection

- Do not use electric or pneumatic screwdrivers on the device terminal board
- If the device has been taken from a cold to hot place, humidity could condense inside; wait about 1 hour before powering it
- Check that the power supply voltage, mains frequency and electric power fall within the set limits;
- Disconnect the device power supply before proceeding with any type of maintenance
- Position the power cables as far away as possible from the signal cables
- For repairs and information regarding the device, contact the EVCO sales network.

3.3 Settings

3.3.1 Setting the Working Setpoint

- Make sure that the keyboard is not locked and that no procedure is in progress.
- Touch the set key: the led will flash.
- Touch the up or down key within 15 s; see also r1 and r2 parameters.
- Touch the set key or do not operate for 15 s: the led will switch off after which, the device will exit the procedure. To exit the procedure before the operation is complete:
- Touch the on off key (any changes will not be saved). The working setpoint can also be set via SP parameter.

3.3.2 Setting the Configuration Parameters

To access the procedure:

- Make sure no procedure is in progress.
- Touch the set key for 4 s: the display will show “PA”.
- Touch the set key.
- Touch the up or down key within 15 s to set the value determined with the “PAS” parameter (the parameter is set at “-19” by default).
- Touch the set or do not operate for 15 s: the display will show “SP”.

To select a parameter:

- Touch the up or down key.

To set a parameter:

- Touch the set key.
- Touch the up or down key within 15 s.
- Touch the set key or do not operate for 15 s. To exit the procedure:
- Touch the set key for 4 s or do not operate for 60 s (any changes will be saved). After setting the parameters, suspend power supply flow to the device.

3.3.3 Manufacturer's Settings

To access the procedure:

- Make sure no procedure is in progress.
- Touch the set key for 4 s: the display will show "PA".
- Touch the set key.

To restore the manufacturer's settings:

- Touch the up or down key within 15 s to set "149".
- Touch the set key or do not operate for 15 s: the display will show "dEF".
- Touch the set key
- Touch the up or down key within 15 s to set "4".
- Touch the set key or do not operate for 15 s: the display will show a flashing "- - -" for 4 s, after which the device will exit the procedure.
- Cut the device power supply off.

To store customized settings as manufacturer's:

- Set the configuration parameters
- From step 4. touch the up or down key within 15 s to set "161".
- Touch the set key or do not operate for 15 s: the display will show "MAP".
- Repeat steps 6. 7. 8. and 9.

To exit the procedure in advance:

- Touch the set key for 4s during the procedure

3.4 Warning Lights and Directions

3.4.1 Signals

LED	Meaning
❄	Compressor LED If the LED is on, the compressor is on If the LED is flashing: - the working setpoint is in the process of being set (via the procedure described in paragraph 4.1) - a compressor protection will be in progress
❄	Defrost LED If the LED is on, defrost is in progress If the LED is flashing, dripping will be in progress
	Energy saving LED If the LED is on and the display is switched on, the "energy saving" function is in progress If the LED is on and the display is switched off, the "low consumption" function is in progress; touch a key to restore normal display
°C	Celsius degrees LED If the LED is on, the unit of measurement for temperature is Celsius degrees
°F	Fahrenheit degrees LED If the LED is on, the unit of measurement for temperature is Fahrenheit degrees
⏻	LED on/stand-by If the LED is on, the device is switched off

Code	Meaning
Loc	the keyboard is blocked; see paragraph 3.6
- - -	the operation requested is not available

3.4.2 Alarms

Code	Meaning
AL	Minimum temperature alarm Solutions: - check the room temperature; see A1 parameter Main consequences: - the device will continue to operate normally
AH	Maximum temperature alarm Solutions: - check the room temperature; see A4 parameter Main consequences: - the device will continue to operate normally
id	Door switch input alarm Solutions: - check the causes of the activation of the input; see I0 and I1 parameters Main consequences: - the effect established with the I0 parameter
iA	Multifunction input alarm or pressure switch alarm Solutions: - check the causes of the activation of the input; see I0 and I1 parameters Main consequences: - the effect established with the I0 parameter
COH	Condenser overheated alarm Solutions: - check the condenser temperature; see C6 parameter Main consequences: - the device will continue to operate normally
CSd	Compressor shut down alarm Solutions: - check the condenser temperature; see C7 parameter - switch the device off and back on again: if when the device is switched back on, the temperature of the condenser is still higher than that established in C7 parameter, disconnect the power supply and clean the condenser Main consequences: - the compressor will be switched off
dFd	Defrost alarm switched off because maximum time has been reached Solutions: - check the integrity of the evaporator probe; see d2, d3 and d11 parameters - touch a key to restore normal display Main consequences: - the device will continue to operate normally

When the cause of the alarm disappears, the device restores normal operation, except for the following alarms:

- Compressor shut down alarm (code “CSd”) which requires the switching off of the device or the temporary suspension of the power supply.

- Defrost alarm switched off because maximum time has been reached (code “dFd”) which requires the touching of a key.

3.4.3 Errors

Code	Meaning
Pr1	Room temperature probe error Solutions: - check that the probe is the PTC or NTC type; see P0 parameter - check the device-probe connection - check room temperature Main consequences: - compressor activity will depend on C4 and C5 parameters - the defrost will not be activated
Pr2	Evaporator probe or condenser probe error Solutions: - the same as in the previous example, but with regard to the evaporator probe or the condenser probe Main consequences: - if P4 parameter is set at 1, the defrost interval will last for the amount of time set with d3 parameter - if P4 parameter is set at 1 and d8 parameter is set at 2 or to 3, the device will operate as if d8 parameter were set at 0 - if P4 parameter is set at 2, the condenser overheated alarm (code "**COH**") will never be activated - if P4 parameter is set at 2, the compressor shut down alarm (code "**CSd**") will never be activated

When the cause of the error disappears, the device restores normal operation. For detailed information, access the user manual on the internet. Do not change parameters without asking your manufacturer.

4. OPERATION MAINTENANCE AND REPAIR

In the models with opening covers, the condenser coils of the device should be maintained monthly and the evaporator coils should be maintained in 3 months. Depending on the pollution of the environment, it is recommended to reduce these periods for efficient operation of the device.

In our other models, maintenance and repair processes must be carried out by authorized persons and institutions appointed by Sabaj System. During the maintenance process, it should be ensured that the energy of the device is cut off.

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4.1 Important Points in General Maintenance Instructions

Exposed connecting cables can cause electric shock and serious accident.

- Work on electrical connections should only be carried out by trained, qualified electrical personnel and under the supervision of an authorized service centre.
- Before working on the unit, de-energize all lines and put the necessary warning sign.
- Check before working on the unit to make sure there is no voltage on the unit.

5. TROUBLESHOOTING

The items to be checked in case of malfunction are listed below.

- Energy input should be controlled.
- Check the energy supply voltage. It should be observed that the voltages between the two phases match on the type plate of the product. If the voltage does not match the desired value, the device should not be operated.

If the device components are working properly, the fan directions are correct and the system performance is still not good, the refrigerant should be checked by authorized personnel.

Fault	Probable Causes	Corrective Measures
The device does not work	1. There is a damaged or loose cable 2. Undervoltage and/or phase sequence error	1. Replace cable or tighten connection 2. If the voltage is above or below the voltage indicated on the type plate, contact your electrical distributor. Make sure that the phase sequence is connected correctly
The device does not cool even though it is running	1. Temperature setting too high 2. Wrong wiring 3. Compressor problem 4. Problem in the refrigerant line	1. Check the temperature setting by reading the device controller section 2. First, check that there is no loose connection. If the loose connection is fixed, check the entire cable line by referring to the electrical project. 3. Check the compressor cable connections. If it still doesn't work, replace it. If the compressor is running and not cooling enough, the suction line pressure may be high and the discharge line pressure may be low. Check and bring the pressures to the desired level. 4. Check the cleanliness of the dryer. Replace the dryer if moisture, unwanted substance, or obstruction is observed in the refrigerant line. Vacuum and re-gas

The device is not cooling efficiently	1. Operating limits exceeded	1. Check the ambient temperature and cooling load
	2. Reduced refrigerant	2. Request support from authorized qualified personnel
	3. Contamination of batteries	3. Clean the batteries
	4. Inefficient operation of evaporator and condenser fans	4. Request support for the replacement and repair of fans from authorized qualified personnel.
	5. Disorganized air circulation in the cabin	5.1 Check the airway in the cabin. Eliminate conditions on the road that could prevent flow or affect your regime 5.2 Make sure the connections in the electrical distribution box of the device are correct
	6. Evaporator air velocity too low	6. Check motor speed and duct sizing. Generally, dirty filters reduce the air speed, check and clean the filters on a weekly basis.
Excessive condensation	1. Temperature settings too low	1. Check the temperature settings
	2. The cooled cabinet is not completely closed	2. Check that the cooled cabinet is completely closed
Insufficient condensed drainage	Drain line clogged	Remove contamination from the drain line

Icing is observed on the evaporator	1. Missing refrigerant 2. Air velocity too low	1. The fluid charge amount in the system is incorrect, there may be a gas leak. Make a leak test and add fluid according to the value on the device label. 2. There may be a blockage in the line, check. Fan blades may be bent, check.
Evaporator fan motor does not work	Current control	Does the motor fan spin manually? If it doesn't turn, replace the motor. Check the current by reading the current value from the motor type plate. If it draws too much current, replace the motor.
The system is noisy	1. Due to the compressor 2. Due to evaporator fan motor 3.General vibrations and noises	1. Check the chock connections of the compressor. Tighten if loose. Make sure that the compressor pipeline does not touch other equipment. 2. Manually check the evaporator fan shaft. Is there a jam? Are there any bending or twisting of the fan blades? Replace the fan if the shaft is jammed or the fan blades are damaged. 3. Missing screws, loose connections can cause vibration and noise in the system.

Compressor is not running	1. The PTC in the compressor broke the circuit	1. In this case, the thermic inside the compressor is very hot. Wait for the compressor to cool down. If the compressor has cooled down and the PTC is still not reset, the PTC may be faulty. Repair the compressor.
	2. Compressor windings make noise but do not turn	2. The rotor may be locked. Repair the engine.
	3. High pressure cuts the circuit	3. The unit may go into high pressure from an excess gas charge or condenser blockage.

6. SCOPE OF DELIVERY

The shipment consists of the following contents:

- Cabinet Air Conditioner
- Installation and commissioning instructions for the panel air conditioner
- Accessory kit: fixing material suitable for specific unit type, power plug connector
- Special accessories, if any

7. WARRANTY TERMS

The devices are delivered with a minimum 1 year warranty. One of the wrong product choices and installations, Sabaj System cannot be held responsible.

NOTICE

Warranty and liability issues for personal or property damage lose their validity when one or more of the following reasons occur.

- In case the cabinet air conditioner is not installed in accordance with the instruction
- When wrong product selection is made. (Capacity and Feature)
- When maintenance and repair of the cabinet air conditioner is not carried out in accordance with the instructions other than the authorized service supervision.
- When the warnings regarding transportation, storage and commissioning, use and maintenance specified in the user manual are not taken into account
- When changes are made to the cabinet air conditioners without the manufacturer's information
- In case of malfunctions and negativities caused by unrelated persons
- In voltage fluctuations caused by the company

Sabaj System general terms and conditions do not apply. Our company cannot be heldresponsible**.**

Connection diagram :