

AED  **Climate BOX**
Advanced cabinets for AED



Installation Manual

MODELS:

ACB-2-EHV, ACB-2-EHV-GSM

V. 1.1

1. Introduction

The AED Climate Box[®] is an innovative device specifically designed to protect and maintain AED defibrillators in optimal conditions, ensuring they are ready for use 24 hours a day. Due to the crucial role defibrillators play in saving lives, their functionality and availability under all conditions are absolutely critical. Unfortunately, improper storage conditions, such as extreme temperatures, can seriously damage the devices or even completely immobilize them, often only discovered at the moment when their use is most needed.

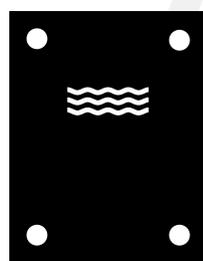
The AED Climate BOX ACB-(X)-EHV models effectively address these challenges by providing advanced security features, including:

- **Wi-Fi:** Enables remote monitoring and real-time communication via AED Connect[®].
- **UV Glass:** Protects against harmful UV radiation and minimizes internal heating from sunlight, ensuring optimal AED storage conditions.
- **Gravity Ventilation:** Maintains continuous airflow, preventing moisture buildup and overheating.
- **AED Presence Sensor:** Monitors AED placement inside the cabinet, confirming readiness for immediate emergency use.
- **Acoustic Alarm:** Immediately notifies users when the cabinet is opened or in case of other significant events.
- **Internal LED Lighting:** Clearly illuminates the interior, facilitating quick access to the AED.
- **Accelerometer:** Detects unauthorized movements or impacts, alerting users to potential tampering.
- **Emergency Power Supply:** Provides backup battery power for essential alarm functions and maintains communication with the AED Connect[®] online application during power outages.

For all cabinet features, please see technical data

2. Package Contents

- AED Climate Box Device
- Power Supply
- Drilling Template
- User Manual



Drilling Template



AED Climate Box Device

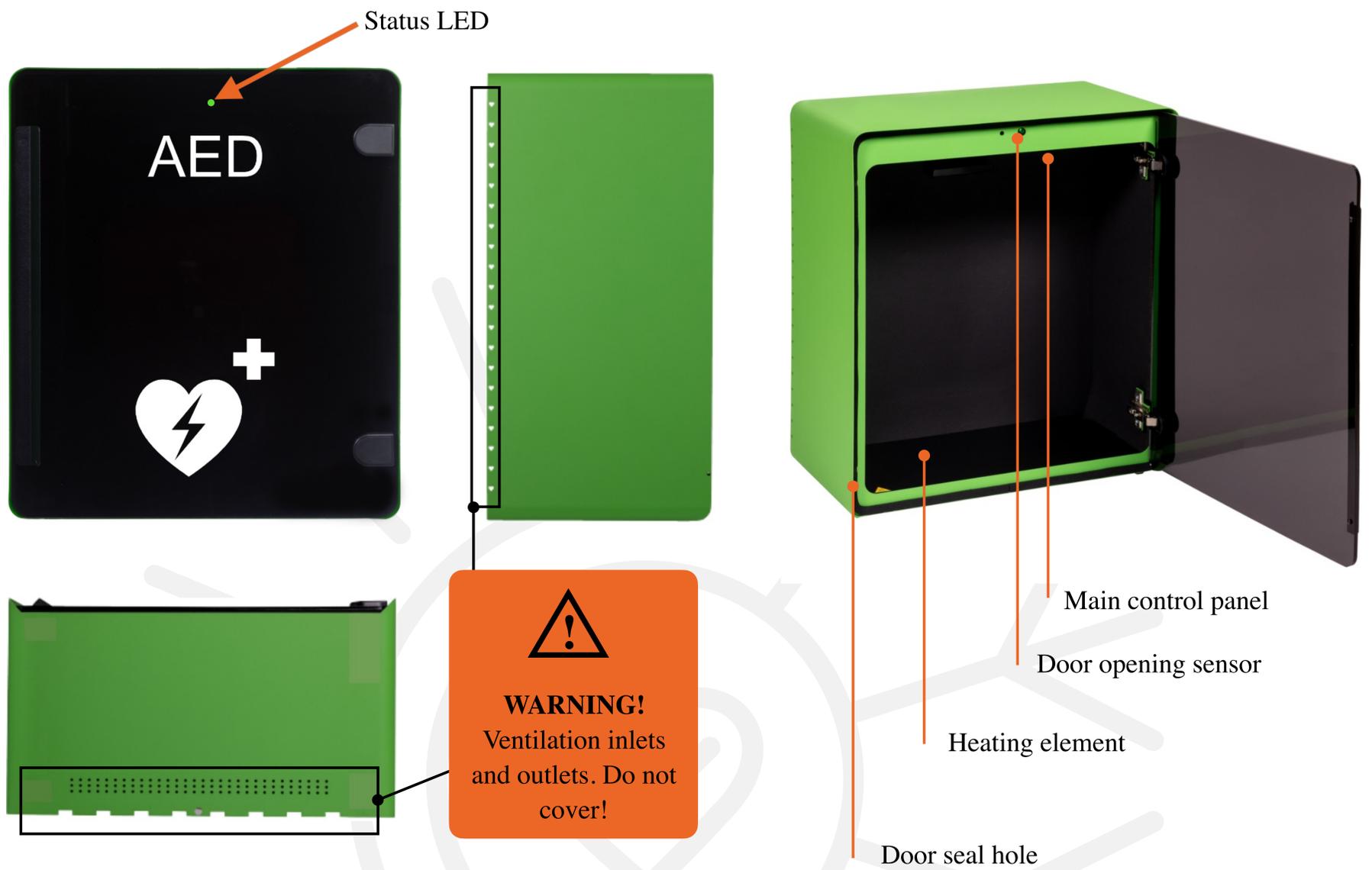


Transformer unit 24V
with 3 meters cable



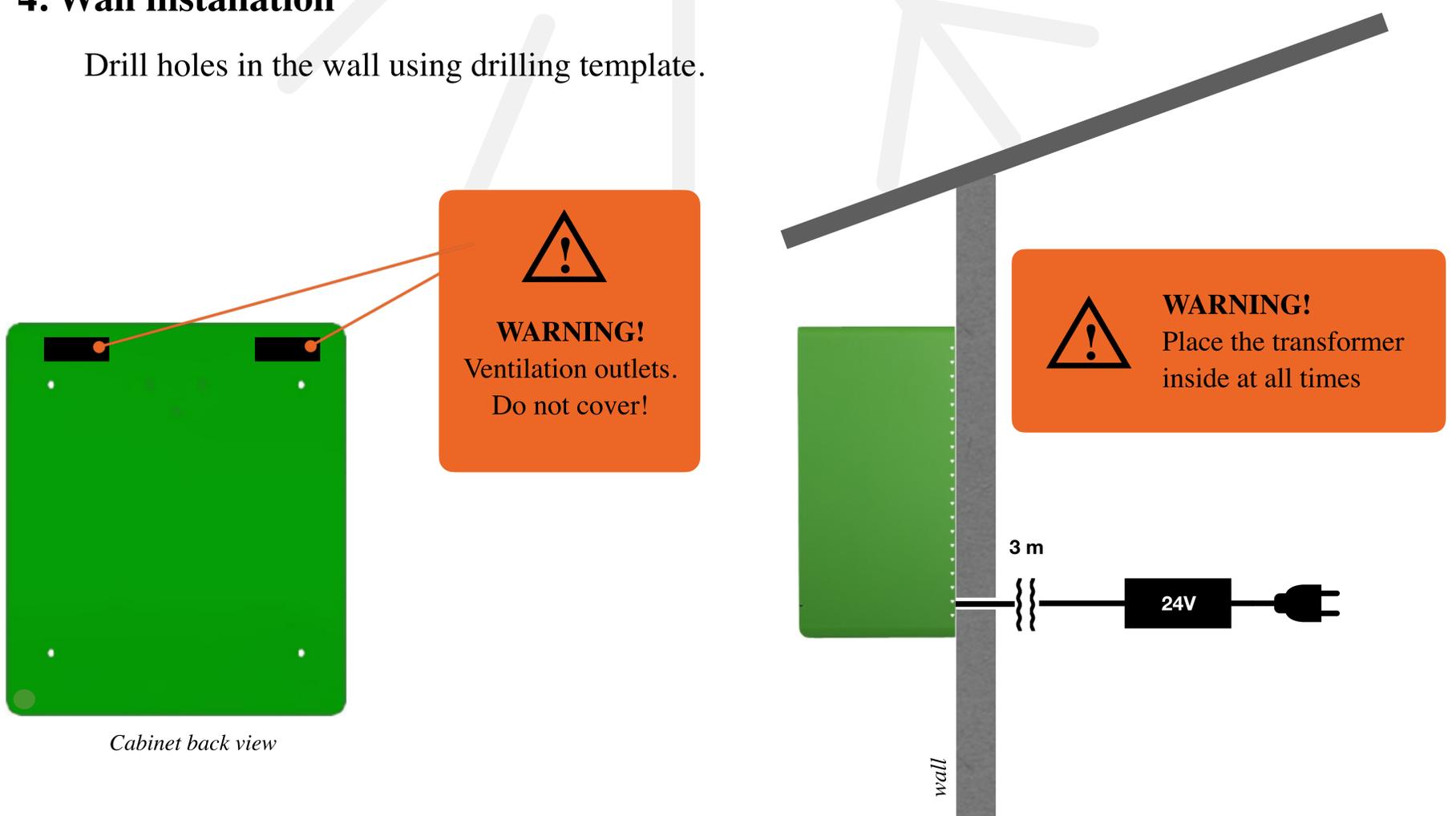
Quick start
user manual

3. ACB-2-EHV body construction

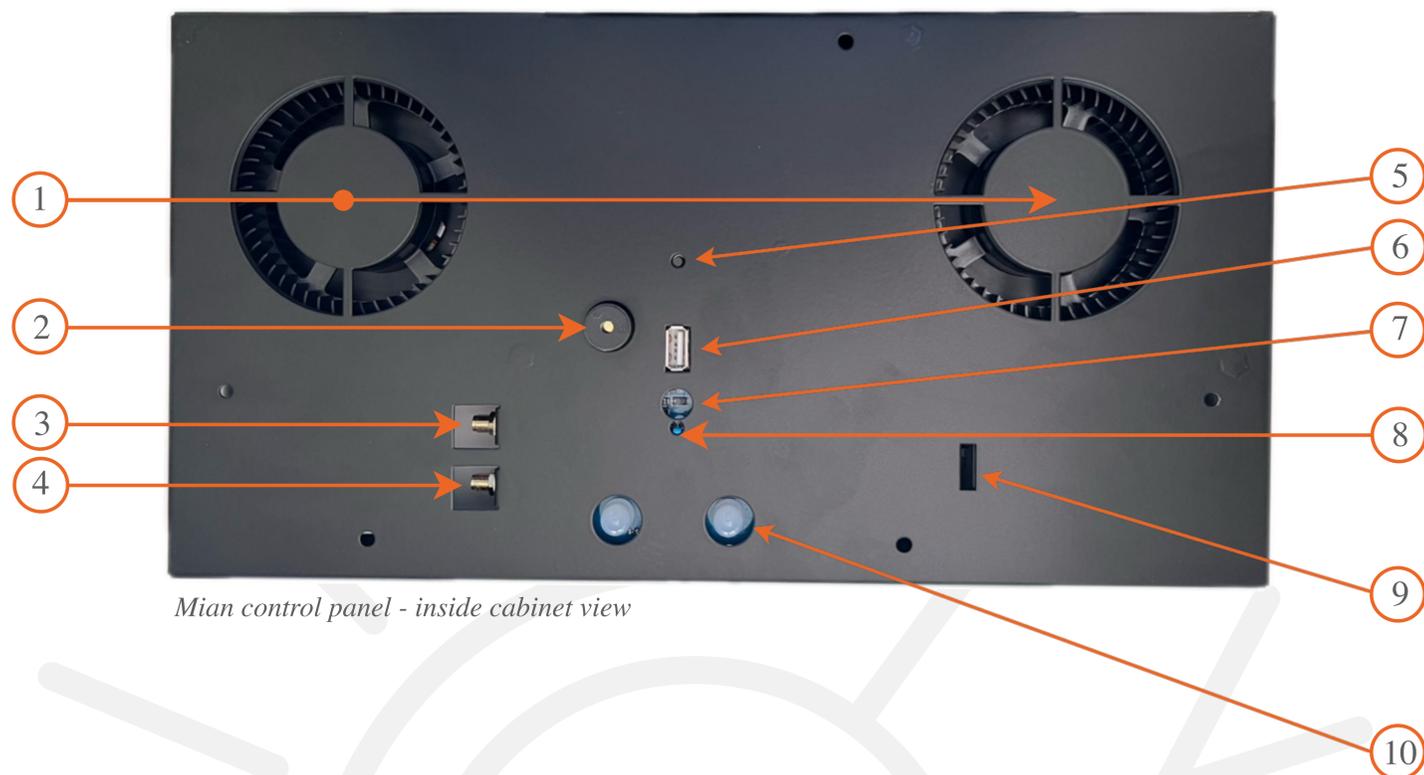


4. Wall installation

Drill holes in the wall using drilling template.



5. Main control panel



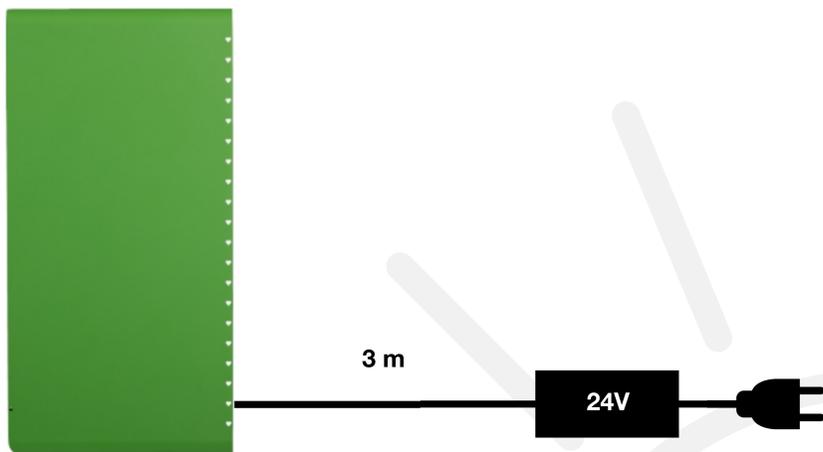
Main control panel - inside cabinet view

1. **Fans** - two integrated, high-efficiency mechanical fans providing optimal airflow (up to 60 m³/h), automatically activated to maintain suitable internal temperature and prevent overheating.
2. **Buzzer** - built-in acoustic alarm providing immediate audio alerts for critical events, such as door opening, AED removal, or detected malfunctions.
3. **GSM antenna connector** - dedicated connector for attaching an external GSM antenna, ensuring reliable mobile network connectivity for remote monitoring and notifications by IoT technology.
4. **WiFi antenna connector** - integrated WiFi antenna connector ensuring stable wireless communication and reliable data transmission between the AED Climate BOX and the AED Connect cloud platform.
5. **Reset button** - Integrated reset button for quickly restoring device settings to factory defaults, simplifying troubleshooting and reconfiguration.
6. **USB-A power Outlet** - convenient built-in USB-A power socket enabling easy connection and power supply for accessories or additional communication modules inside the AED Climate BOX.
7. **AED presence sensor** - integrated sensor continuously detects the presence of the AED inside the cabinet, accurately reporting device status and preventing false alarms.
8. **Temperature and humidity sensor** - integrated sensor continuously monitors internal temperature and humidity, ensuring optimal environmental conditions and protecting your AED from damage caused by moisture and extreme temperatures.
9. **Emergency battery power switch** - manual switch enabling quick activation or deactivation of the cabinet's emergency backup power, ensuring continuous alarm and monitoring functionality during power outages.
10. **Interior LED light** - integrated energy-efficient LED lighting clearly illuminates the cabinet interior, ensuring visibility and easy AED access, especially in low-light or emergency conditions.

6. Power supply

The transformer is not waterproof; always keep it indoors or in a hermetic outdoor enclosure.

Plug the transformer into a 230V power socket.



A power adapter is included with the device and must be installed by a qualified electrician. The power cable may be extended if necessary; however, any modifications or extensions to the electrical installation must only be performed by a certified electrician. The power adapter should be placed either inside a separate weather-resistant electrical enclosure or within a building to ensure safety and reliability.

7. Emergency battery power activation

To activate or deactivate the cabinet's emergency backup power, locate the hidden switch on the main control panel and gently slide it using a flat-head screwdriver.



Important: *If the emergency battery power is not activated and the cabinet is operating on mains power only, the cabinet status LED will blink green, accompanied by a short acoustic alarm every 30 seconds.*

8. Initial setup

8a. Initial startup mode

- a) After connecting the power supply, the device will automatically start in initial setup mode. In this mode, standard monitoring functions (such as temperature, humidity, or AED presence detection) are inactive, and an open Wi-Fi network is enabled, allowing easy initial device configuration.
- b) The initial startup mode is indicated by a brief activation of the acoustic alarm, pulsating internal LED lighting, and alternating red, green, and blue pulses of the status LED.

8b. Cabinet Wi-Fi setup

To configure cabinet settings (such as heating and ventilation temperature, AED presence sensor, shock detector, etc.), you must first connect the cabinet via Wi-Fi to any device equipped with a web browser.

- a) To configure the device, connect your smartphone, tablet, or computer to the Wi-Fi network broadcasted by the cabinet (e.g., AED_Climate_Box_E0E664).
- b) Open any web browser (Chrome recommended), enter the IP address **192.168.4.1** in the address bar, and press Enter. If the page does not load, ensure your browser is not automatically attempting to use a secure (encrypted) connection: **https://192.168.4.1**. To successfully load the configuration page, **replace "https" with "http"** in your browser's address bar, then press Enter to reload.
- c) After loading the configuration page, you will see screen as on *figure 1*.
- d) Now create your own Wi-Fi network: in the provided fields, type your chosen network name (SSID, up to 32 characters) and your desired password (PASSWORD, 8–32 characters). When is done, please click „confirm” button.
- e) At this point, the device will go through the sensor initialization stage and start operating.

Important: *in case of a mistake, press and hold the reset button located on the board for 10 seconds. Then, reconnect to the Wi-Fi network broadcasted by the cabinet and start the configuration process again.*

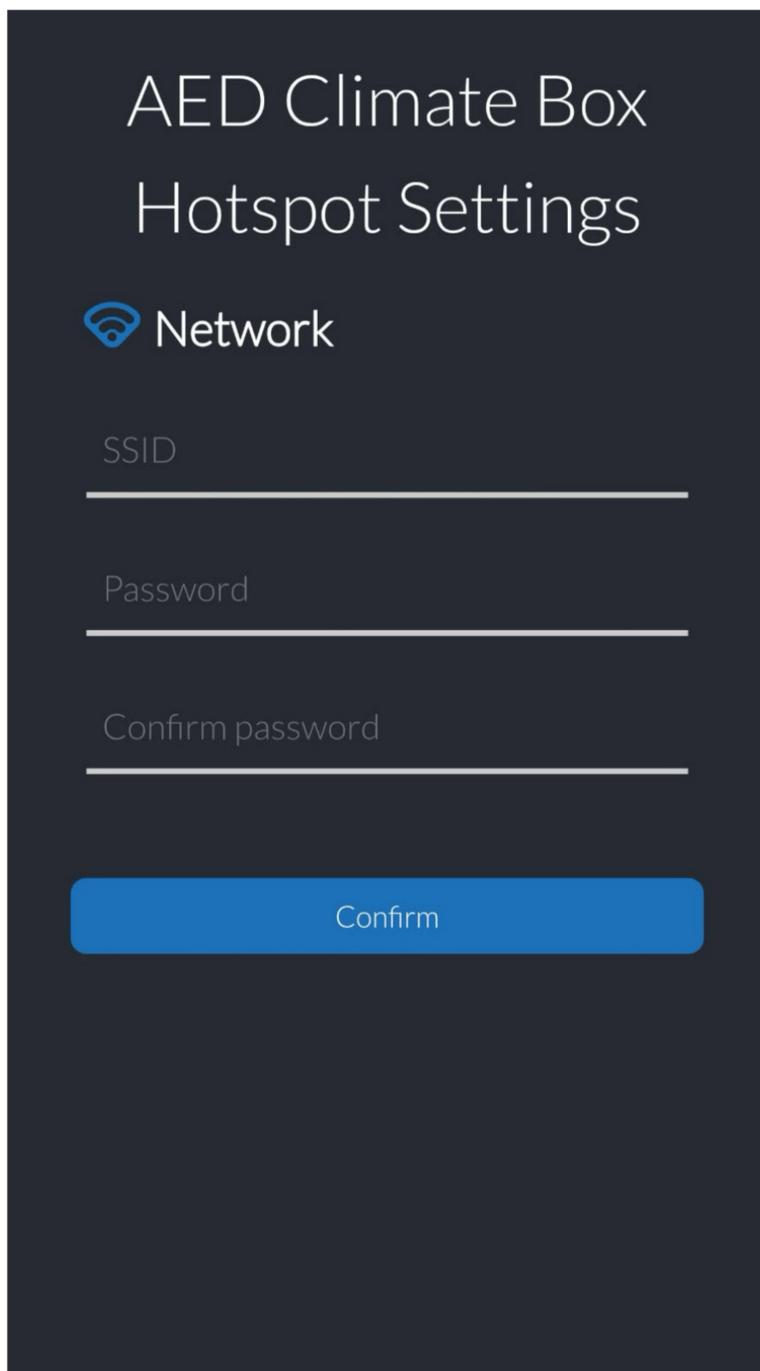


Fig. 1

8c. Sensor initialization

The sensor initialization process is fully automatic and occurs each time the cabinet is restarted. During this stage, the following steps take place:

Activation of Sensors: Temperature/humidity sensor, accelerometer, and AED presence (distance) sensor are activated and checked.

Wi-Fi Communication: The cabinet establishes communication with the Wi-Fi microcontroller to retrieve saved settings and transmit current device status.

Heater Functionality Check: The heater's operational status is verified by comparing a reference voltage measurement (heater off) with an operational voltage measurement (heater briefly activated for 10 ms). A voltage difference exceeding 50 mV confirms the heater is functioning properly.

GSM Module Initialization: For models equipped with GSM modules, the modem initializes and sends a startup report.

9. Operating mode

The device enters operating mode automatically after startup, successful initialization, and loading of the required settings. The status LED indicates the operating mode—its state is steady or pulsating, depending on the current condition (as detailed in the status table). With a fully successful connection, the LED remains steadily green.

In operating mode, the following essential functions are continuously performed:

- **Monitoring temperature and humidity sensors.**
- **Maintaining internal temperature** according to user-defined settings.
- **Controlling fans and heating elements** based on configurable PD-controller parameters, including detection and reporting of any malfunctions.
- **Monitoring and managing digital and analog inputs/outputs** connected to external devices.
- **Activating acoustic and visual alarms** according to predefined scenarios.
- **Managing the USB socket**, including hardware-level protection against excessive current draw.
- **Controlling internal LED lighting**, external lighting (if connected), and status LED.
- **Listening for audible status signals emitted by the AED**, interpreting them, and reporting results to AED Connect.
- **Communicating via Wi-Fi and GSM modules** to continuously update AED Connect on cabinet status. Under normal conditions, status updates are sent every 15 minutes via GSM and every minute via Wi-Fi. Critical alarms (such as door openings or AED removal) are reported immediately.

10. AED Climate BOX configuration

After the device enters operating mode, you can access the configuration page via Wi-Fi, (using the network name previously set by the user). Connect your device to this Wi-Fi network, then open a web browser and type the IP address **192.168.4.1** into the address bar to load the AED Climate BOX settings page (*See Fig.2*).



Fig. 2

After accessing the configuration page, the **STATUS** tab will be displayed by default. To view or modify device settings, use the **CONFIGURATION** tab.

A. STATUS Tab description:

a) MODE Section

Displays the current operating mode of the cabinet:

- **NORMAL MODE:** Cabinet operating normally, all messages sent to AED Connect.
- **SERVICE MODE:** Cabinet in service or maintenance mode; notifications and alarms temporarily suspended.

b) STATUS Section

Shows the current status of the cabinet and its components according to Table 1 (status codes and descriptions).

- **HEATING** - Heater active; internal temperature is being increased
- **VENTILATING** - Mechanical ventilation active
- **DOOR OPENED** - Cabinet door has been opened
- **AED MISSING** - Defibrillator has been removed from cabinet
- **IDLE** - Cabinet operating within normal parameters
- **DOOR OPENED** - Cabinet door detected open
- **AED MISSING** - AED not detected inside cabinet
- **HEATER NOT OPERATIONAL** - Heating element malfunction detected
- **FAN NOT OPERATIONAL** - Ventilation fan malfunction detected
- **NO GSM NETWORK CONNECTION** - GSM network connection unavailable
- **Wi-Fi NETWORK UNAVAILABLE** - Wi-Fi network unavailable

***Important!** The status field is not exclusive; multiple statuses can be displayed simultaneously (e.g., IDLE, BATTERY LOW, HEATING).*

Additionally, status is visually communicated via the cabinet's integrated RGB LED indicator, enabling quick on-site identification of current operational conditions.

c) TEMPERATURE Section: displays the current internal cabinet temperature (in °C).

d) HUMIDITY Section: displays the current internal humidity level (in %).

e) PERIPHERALS STATUS Section shows the status of cabinet peripherals:

Door status:

- OFF: Door closed
- ON: Door open

AED Presence status:

- OK: AED defibrillator detected inside cabinet
- OFF: No AED defibrillator detected

f) **CONNECTIVITY STATUS Section indicates the current connection to AED Connect:**

- **CLOUD CONNECTION OK:** Successfully connected to AED Connect supervising cloud app.
- **NO CLOUD CONNECTION:** No connection to AED Connect supervising cloud app.

Depending on cabinet configuration, additional details on the connection type (Wi-Fi or GSM) and network parameters, including RSSI signal strength, are displayed.

g) **DEVICE INFO Section:**

Provides key identification information:

- **Serial Number,**
- **MAC Address,**
- **Software Version.**

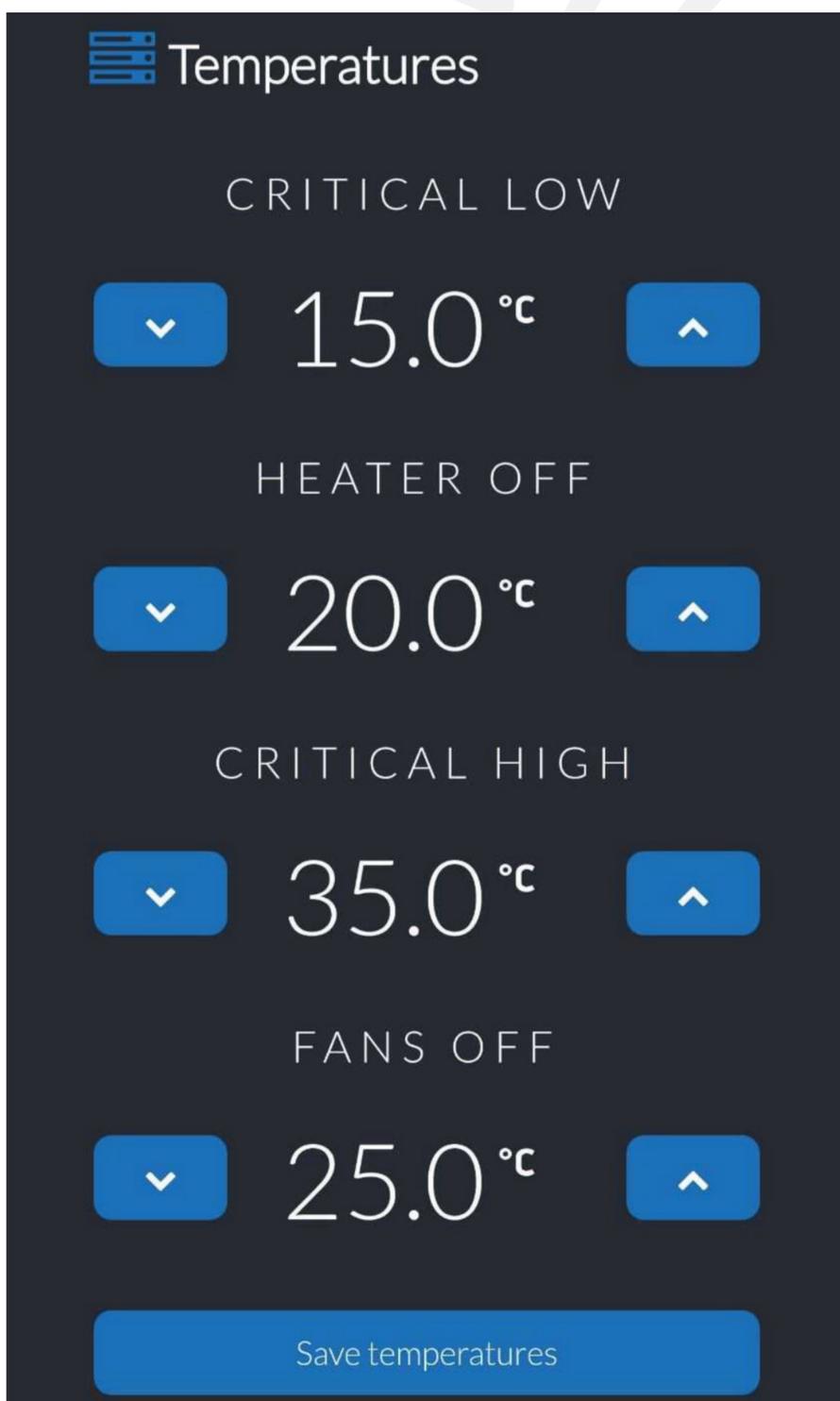


Fig. 3

B. CONFIG Tab description

The CONFIG tab provides access to all configurable AED Climate BOX settings. For clarity and ease of use, the configuration interface is divided into several sections, each illustrated separately in the images below.

a) Heating and Ventilation Settings

The Temperatures section (see Figure 3) allows configuration of the thresholds for activating and deactivating the heater and ventilation fans:

Critical low – Temperature threshold at which the heater automatically activates (heating starts below this temperature).

Heater off – Temperature threshold at which the heater automatically deactivates (heating stops once this temperature is reached).

Vents off – Temperature threshold at which fans automatically deactivate (ventilation stops below this temperature).

Critical high – Temperature threshold at which fans automatically activate (ventilation starts above this temperature).

Correct threshold settings must follow this logical sequence:

critical low < heater off < vents off < critical high

After entering the desired values, confirm the changes by clicking the Save temperature button.

Note: Ensure temperature thresholds match the recommended operating temperature range for your specific AED model. Adjusting these settings directly impacts the cabinet's energy consumption and device performance.

b) Cloud Reporting Settings

The **Cloud Reporting** section (see Figure 4) allows you to configure how frequently the AED Climate BOX sends status updates to the AED Connect supervising cloud. You can adjust reporting intervals according to your needs, balancing between detailed monitoring and optimal data usage.

Important: AED Connect is a cloud-based supervision application available with an additional subscription. For more information about this service, please visit: www.aedcb.com.

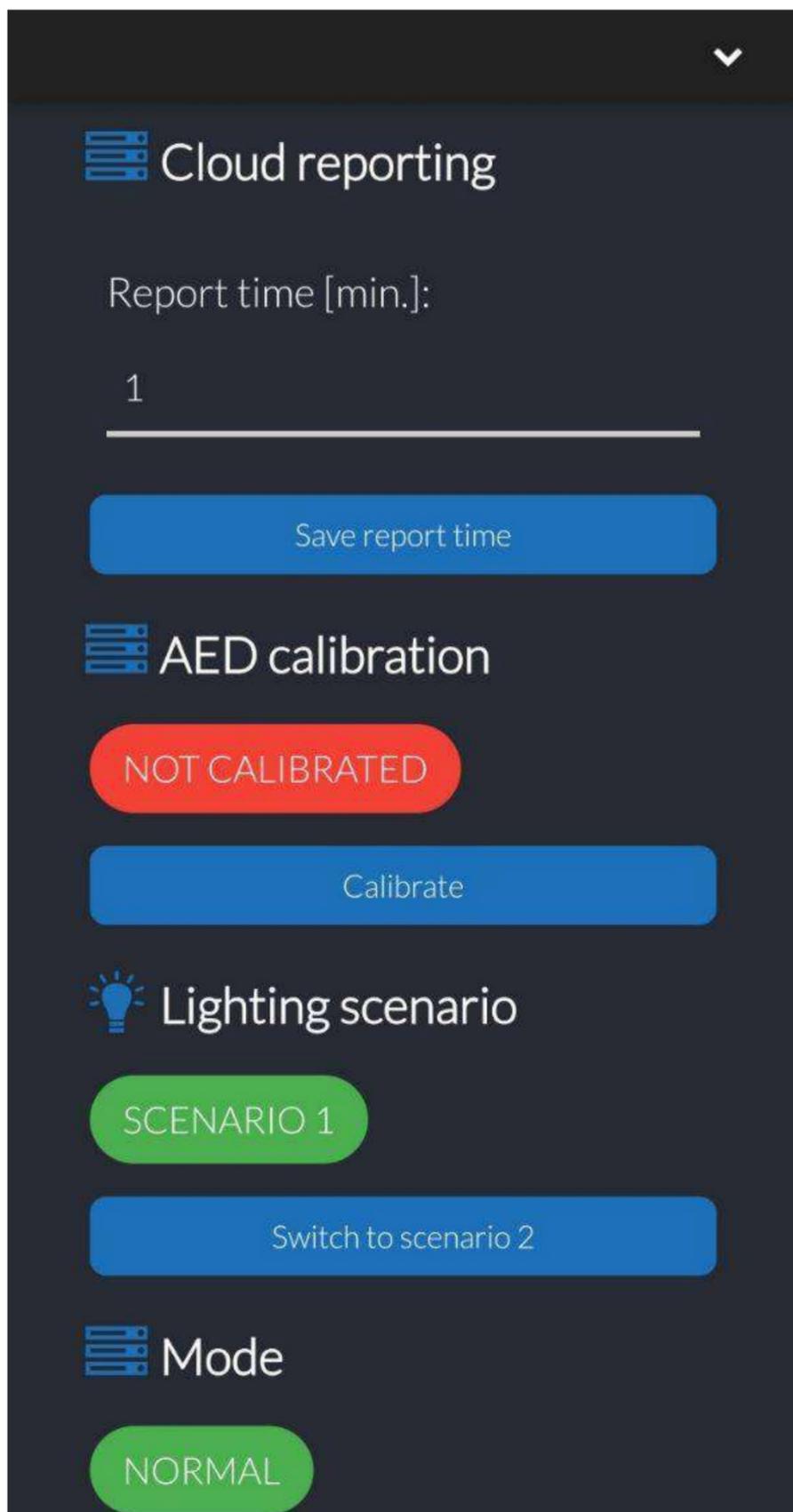


Fig. 4

c) AED Presence Sensor Calibration

The AED Calibration section allows you to calibrate the AED defibrillator presence sensor (see Figure 4). Calibration is necessary for accurate detection and reporting (via acoustic alarms and AED Connect notifications) whenever the defibrillator is removed from the cabinet.

Calibration Status indicates the current state of sensor calibration:

- **Not calibrated:** The sensor has not yet been calibrated to detect the AED's proper height.
- **Calibrated:** The sensor is correctly calibrated for AED detection.

Please carefully read the following instructions before proceeding with the calibration.

Calibration Procedure:

1. Ensure that there are no objects within the AED presence sensor's detection area (space between the top and bottom of the cabinet interior).
2. Click the **Calibrate** button. This action initiates calibration mode, clears previous calibration data, and temporarily disables active alarms.
3. Open the cabinet door, and within 10 seconds, place the AED securely on its designated mounting hook.

Important: Do not place the AED on the bottom of the cabinet, as the heating element may damage it.

4. During calibration, the cabinet will emit a periodic acoustic signal for 10 seconds, indicating the ongoing calibration procedure and providing time to position the AED and close the cabinet door. The sensor will not trigger alarms related to AED presence during this time.
5. The cessation of the intermittent acoustic signal confirms that calibration is complete.

Upon successful calibration, the **Calibration Status** will automatically update from **not calibrated** to **calibrated**.

d) Lighting Scenario

The Lighting Scenario section allows you to select and manage external lighting scenarios according to predefined operational modes. The Active Scenario field displays the currently selected scenario. To switch scenarios, click the Change to scenario X button. By default, only one scenario is available, unless additional lighting scenarios can be customized by request.

e) Service Mode

The Mode section (see Figure 4) enables switching between **Normal (Operating)** and **Service** modes:

- **Normal Mode:** All alarms and notifications are transmitted to AED Connect.
- **Service Mode:** Device alarms and notifications are temporarily disabled, preventing transmission to AED Connect during maintenance or servicing.

Click the **Switch to service mode** button to activate Service mode. To revert to standard operation, click the **Switch to normal mode** button.

f) GSM Modem Settings (see Figure 5)

If the AED Climate BOX is intended to connect to AED Connect via a GSM network, please configure the GSM connection according to the instructions provided below.

The **GSM settings** section allows configuration of the GSM modem for cellular connectivity. The following fields are available:

- **SIM PIN:** Enter the SIM card PIN if required. The currently configured PIN is shown in the **Current PIN** field ("---" indicates no PIN).
- **APN (Access Point Name):** Enter the APN provided by your network operator for GSM connection. The configured APN is displayed in the **Current APN** field.
- **Connectivity Technology:** Select the technology used by the GSM modem to connect to the network. Available options include GSM, CAT-M, and AUTO. For optimal performance, setting to **AUTO** is recommended.
- **Wi-Fi Hotspot (Sharing Internet Connection):** The AED Climate BOX can act as a Wi-Fi hotspot, sharing GSM internet access. The **Active Status** ("enabled" or "disabled") is indicated in the **Current Status** field.

After configuring these settings, confirm your changes by clicking the **Save Modem Settings** button.

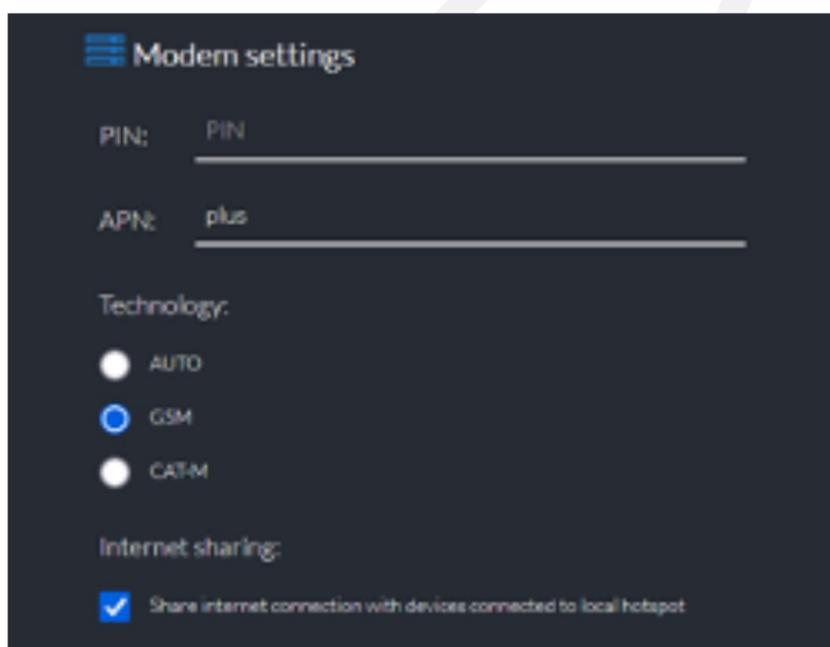


Fig. 5

Important: GSM modem settings are available only for AED Climate BOX cabinets equipped with an integrated GSM module. In other cases, please use Wi-Fi connection.

g) Wi-Fi Modem Settings (see Figure 6)

If the AED Climate BOX is intended to connect to AED Connect via a Wi-Fi network, please configure the Wi-Fi connection according to the instructions provided below.

The SSID field allows you to enter the name of the Wi-Fi network (access point) to which the AED Climate BOX will connect. The Password field is used to enter the network password. The same restrictions apply as during the initial configuration: SSID – maximum 32 characters; Password – between 8 and 32 characters. In this section, however, the Password field may remain empty if the network is open (no password).

The currently configured network details are displayed in the Current SSID and Current Password fields (an empty or unused field is indicated by "---").

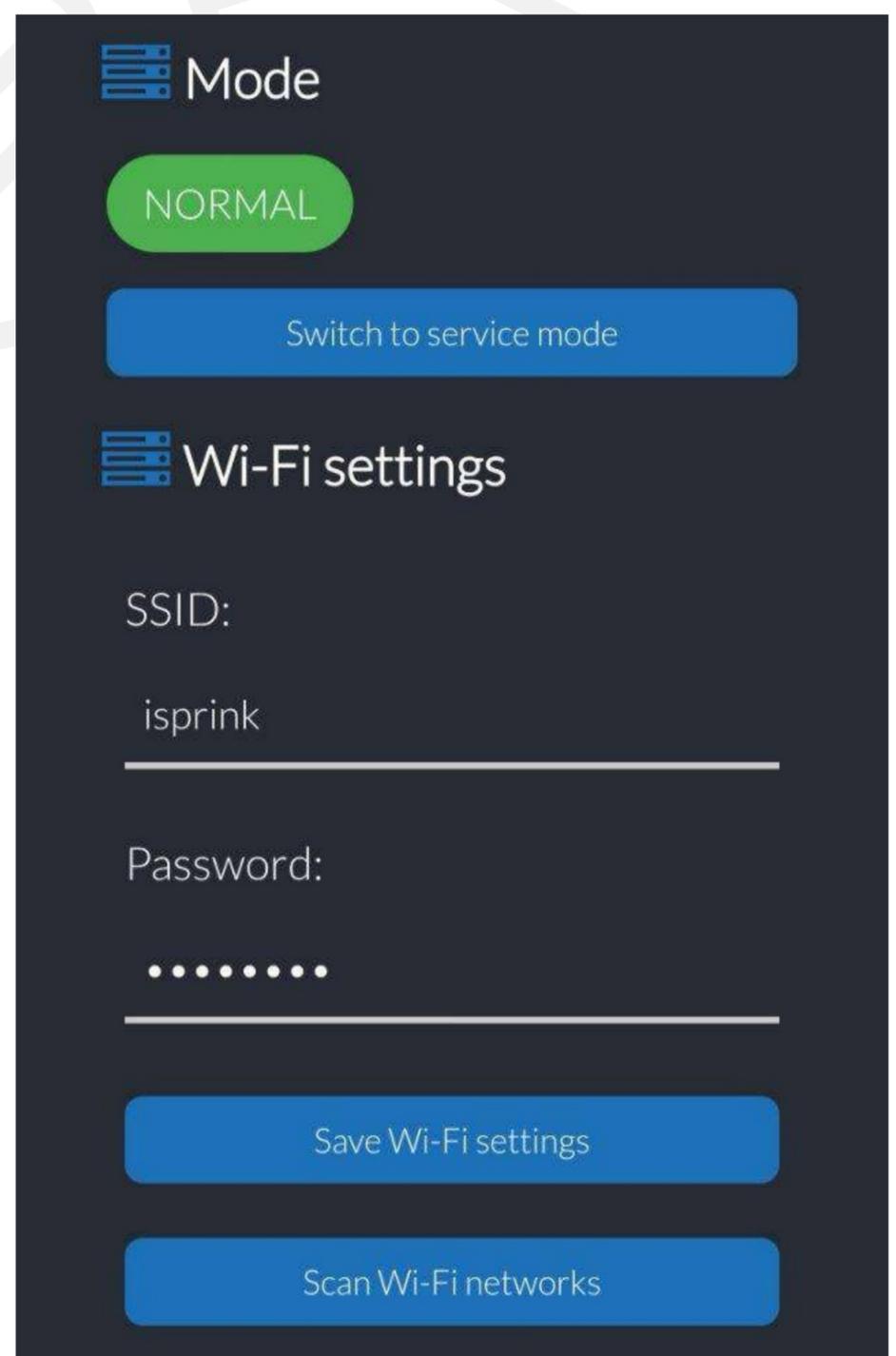


Fig. 6

Optionally, you can use the "Scan Wi-Fi networks" feature to easily locate and select your preferred Wi-Fi network for connecting the AED Climate BOX.

Important: Ensure your Wi-Fi network provides a stable and secure internet connection with 24-hour uninterrupted access. An unstable Wi-Fi connection may disrupt AED Connect notifications.

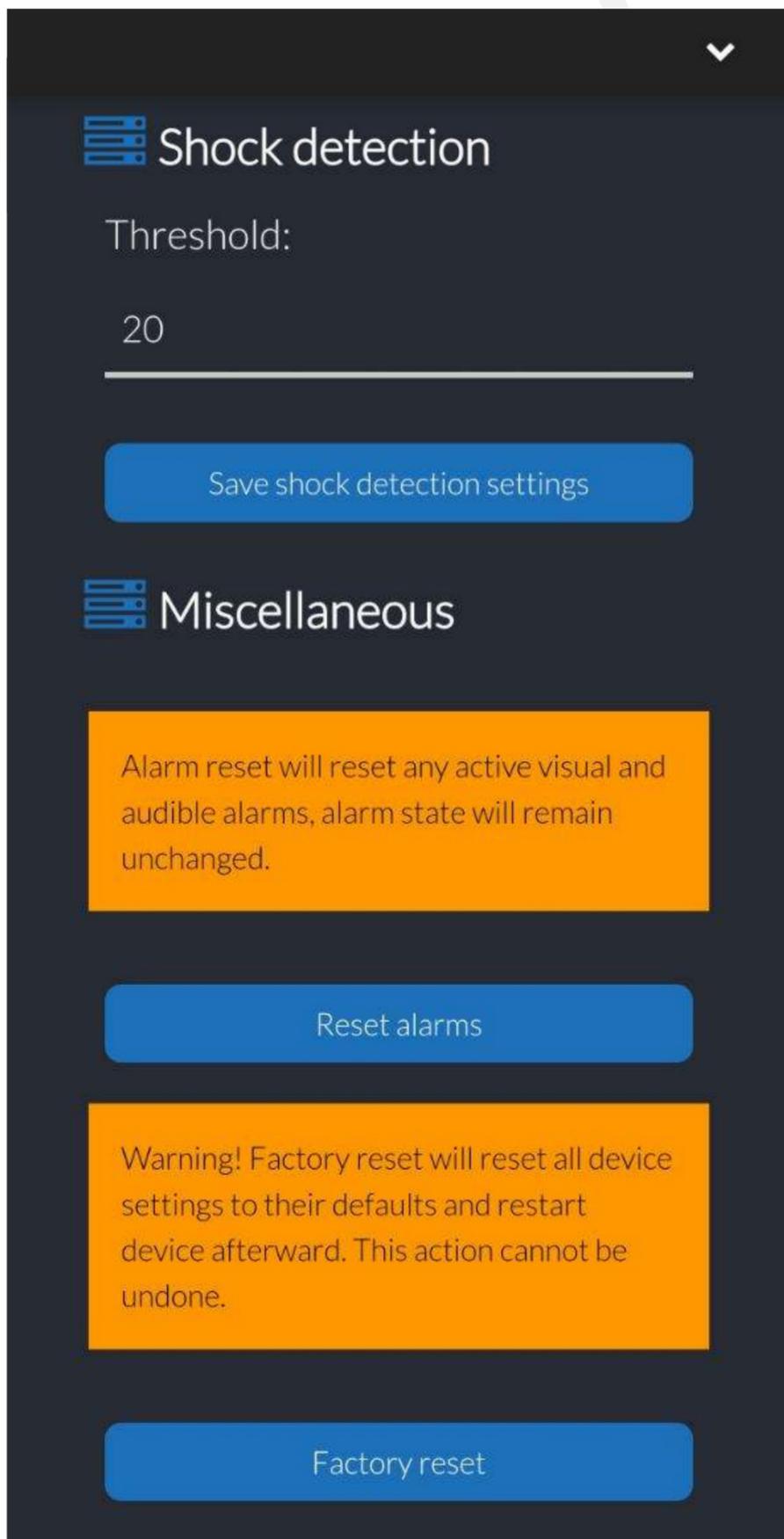


Fig. 7

h) Accelerometer Settings (Shock Detection)

The **Shock Detection** section (see Figure 7) allows you to configure sensitivity settings related to shock detection (protection against vandalism).

The **Threshold** field accepts values from 10 to 30, where **10** represents high sensitivity (more sensitive detection) and **30** represents low sensitivity (less sensitive detection).

After adjusting the threshold, confirm your changes by clicking the **Save settings** button.

i) Alarm Reset

The **Miscellaneous** section (see Figure 7) enables manual resetting of triggered alarms. Pressing the **Reset alarm** button disables acoustic and visual notifications, although the alarm information will continue to appear in the status field until fully resolved.

j) Factory Reset

The **Factory Reset** section (see Figure 7) provides the option to restore the device to factory default settings. Clicking the **FACTORY RESET** button permanently erases all current configurations and returns the device to initial startup mode.

11. Emergency Battery Operation

The AED Climate BOX is designed to operate temporarily on emergency battery power. In case of a main power supply failure, a 3-second timer is activated, after which the cabinet checks again for the presence of main power.

If power remains unavailable, the device automatically enters partial sleep mode. In this mode, Wi-Fi and modem modules are disabled to conserve energy, and only critical alarms (such as AED removal or door opening) are sent to AED Connect. Periodic (cyclic) status reports are suspended.

When main power is restored, a similar 3-second timer initiates, after which the device rechecks the power status. If power is stable, the device exits partial sleep mode, reactivating Wi-Fi and modem modules, and resumes normal operation.

Note: The following components are inactive when operating on emergency battery power: heater, ventilation fans, internal and external lighting, battery chargers, and USB power outlet.

12. Data Retention

If the AED Climate BOX becomes disconnected from AED Connect, it automatically activates data retention mode. In this mode, the device logs the current local timestamp and internal cabinet temperature at 15-minute intervals. The internal memory can store up to 16,384 data records. Once the connection to AED Connect is restored, the device transmits all stored historical temperature data for comprehensive analysis.

13. Device Status Table

In operating mode, the device indicates its current status via the status LED and acoustic signals, according to the following table 1.

14. Alarm States

The AED Climate BOX features three distinct alarm triggers:

- **Door Opening** (activates after 2-second delay)
- **Defibrillator Removal**
- **Shock Detection**

Each alarm type has its unique behavior, with certain alarms interdependent (door opening and defibrillator removal). Alarm signals follow priority rules; for instance, if a door opening occurs during an ongoing shock alarm, the continuous shock alarm remains active without switching to the door-opening alarm pattern.

Factory-configured Alarm Scenarios:

- **Door Opening and Defibrillator Removal:**
 - Acoustic alarm: fast intermittent after door opening, then continuous for 60 seconds after AED removal,
 - Internal lighting: strobe mode
 - Alarm reset after 60 seconds; door alarm reactivates when the door is closed
- **Door Opening, Defibrillator Removal, Door Closed After 30 Seconds:**
 - Acoustic alarm: fast intermittent after door opening, continuous for 60 seconds after AED removal
 - Internal lighting: strobe mode after opening, constant lighting after door closure
 - Alarm reset after 60 seconds

Device State	LED Operation Mode	LED Color	Sound Signal Operation Mode
Full power supply	Continuous	Green	None
Low battery	Intermittent fast	Green	Short beep every 15 seconds
Battery power	Intermittent fast	Green	Short beep every 15 seconds
Heating	Continuous	Orange	None
Ventilating	Continuous	Blue	None
No GSM connection	Intermittent fast	Blue	Short beep every 15 seconds
No Wi-Fi connection	Intermittent fast	Blue	Short beep every 15 seconds
Open door	Continuous	Green	Fast intermittent alarm
No AED	Continuous	Red	None
Heater malfunction	Intermittent fast	Red	None
Fan malfunction	Intermittent fast	Purple	None

Table.1

- **Door Opening:**
 - Acoustic alarm: intermittent
 - Internal lighting: strobe mode
- **Door Opening, Defibrillator Removal, Door Closed After 100 Seconds:**
 - Acoustic alarm: fast intermittent after door opening, continuous for 60 seconds after AED removal
 - Internal lighting: strobe mode after opening, constant lighting after alarm duration
 - Alarm reset after 60 seconds.
- **Door Opening, Shock Detection, Door Closing:**
 - Acoustic alarm: intermittent after door opening, continuous for 60 seconds after shock detection
 - Internal lighting: strobe mode after opening, constant after door closure
 - Alarm reset after 60 seconds
- **Shock Detection, Door Opening:**
 - Acoustic alarm: continuous for 60 seconds, then intermittent
 - Internal lighting: strobe mode after door opening
 - Alarm reset after 60 seconds

15. Pairing AED Climate BOX with AED Connect

Pairing AED Climate BOX with AED Connect:

To pair your AED Climate BOX with AED Connect, first ensure the cabinet is connected to a Wi-Fi or GSM network with internet access.

Each cabinet has a unique QR code located inside the cabinet (Fig. 8). Scan this QR code with your smartphone or tablet camera to be directed automatically to the AED Connect login page. Log into AED Connect **using the credentials provided by your distributor**. Once logged in, the QR code automatically fills the device's serial number and pairing code into the appropriate fields. Verify the information, then click the "Register" button.

Upon successful pairing, the AED Climate BOX will automatically report its status, alarms, and notifications directly to AED Connect, enabling convenient remote monitoring and management.



Fig. 8

16. Troubleshooting

Problem	Possible Cause	Action
The configuration page does not load	The web browser attempts to connect using encryption (HTTPS)	Change "https" to "http" and try again
AED Climate BOX reports no internet access and reconnects to another network	Devices automatically prioritize networks providing internet access	Select "connect anyway" or "use network without internet" option when prompted by your device.
Unable to connect to the Wi-Fi network broadcasted by AED Climate BOX	Another device is already connected to the AED Climate BOX Wi-Fi network	Disconnect other devices previously connected to the AED Climate BOX Wi-Fi. Only one external device can connect at a time (both during initial setup and normal operation).

17. Technical Specifications

Model	ACB-2-EHV		ACB-2-EHV-GSM	
<i>Notifications</i>				
	Status LED	AED Connect	Status LED	AED Connect
Access to AED Connect	-	•	-	•
Main power failure notification	•	•	•	•
Low battery notification	•	•	•	•
Door opening acoustic alarm	•	•	•	•
Missing AED / DAE acoustic alarm	•	•	•	•
Shock alarm notification	•	•	•	•
Heating turned ON notification	•	•	•	•
Heater failure notification	•	•	•	•
Ventilation turned ON notification	•	•	•	•
Ventilation failure notification	•	•	•	•
Internal temperature information	-	•	-	•
Interior humidity information	-	•	-	•
GSM connection lost notification	-	-	•	•
Wi-Fi connection lost notification	•	•	•	•
Heating/ventilation temp. online adjustment	-	•	-	•
AED Connect online reports	-	•	-	•

Model	ACB-2-EHV	ACB-2-EHV-GSM
<i>Equipment/feature</i>		
Outdoor installation in full sun light	•	•
Outdoor installation in the shade	•	•
Wi-Fi module	•	•
GSM module	-	•
Hot Spot by GSM availability	-	•
External antenna	-	•
Mechanical ventilation	•	•
Heating element	•	•
Insulated cabinet body	•	•
USB power socket	•	•
Interior LED lighting	•	•
Possibility to connect external lighting	•	•
Digital outputs (2 pcs)	•	•
Accelerometer	•	•
AED missing sensor	•	•
Gravitational ventilation	•	•
Door glass with a UV filter	•	•
AED monitoring microphone sensor	•*	•*

Model	ACB-2-EHV
Electrical properties	
Power supply (included)	24VDC/6,5A
Power supply cable	3 meters
Emergency Battery type	2 x LiFePO4 3,5V
Electrical consumption (without heating and ventilation)	20 W
Heather electrical consumption	100W/24V
Ventilation electrical consumption	0,7A/24V
Alarm sound level (distance 1m)	72dB
Mechanical properties	
Material*	Stainless steel 1,0 mm
Standard color**	Green RAL 6018
Operating temperatures	-25°C / 50°C
Insulation	λ_0 [W / (m · K)] \leq 0.033
Frost protection	-
IP class	44
USB-A max. power output	5W
Overall dimensions	440x380x215 mm
Space for AED / DAE	330x320x170 mm
Weight	8 kg
Compliance	
EN 12944 level of corrosion	C3
EN 55035	•

* or dark green RAL6032 (colors availability acc. depends from the market)



AED Climate BOX

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