

Briza Line

Digital Display Unit (Room Thermostat)

Model BLC 13-RS – Wall Mounting Cat. № 1099482

Model BLC 33-RS – Semi Flush Mounting Cat. № 1099483

Operation and Applications Manual

MADE IN ISRAEL

DEAR CUSTOMER!

Thank you for choosing the electronic control and monitoring system made by "Alfa Smart Energy Management". We do our utmost to provide our clients a quality – professional purchasing experience.

IMPORTANT:

- **Do not allow children's approach the system components.**
- **This product is designed for indoor installation only.**
- **Good performance of the thermostat unit depends on proper installation of the A/C unit.**
- **Upon device installation –strictly follow the installation and safety instructions.**
- **Avoid installation of the device in damp locations.**
- **Cleaning of the thermostat, to be done by a dry – soft rag.**
- **Do not use any chemicals for cleaning.**

Customers' Service and Technical Assistance:

**AlfaSmart Energy Management
Yatam Industrial Park P.O.B. 233
Hakidma St.-7, Yokneam 20692, Israel**

Phone: +972-4-9118000

Fax: +972-4-9118001

E-mail: info@alfa-smart.com

Validity of this document is on models: BLC13-RS (cat. №1099482) & BLC33-RS (cat. №1099483)

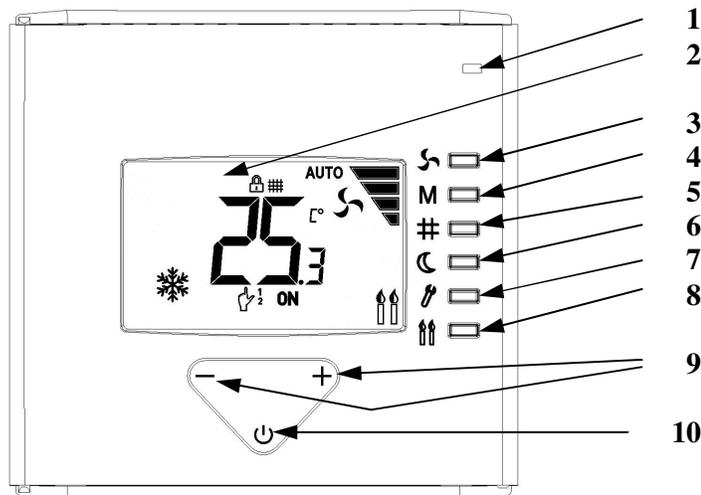
1. General

BLC 13-RS (wall mounting), BLC 33-RS (semi flush mounting) are models from the thermostats line "Briza Digital" for A/C systems of the type "**Water Source**". This line is designed to offer a full and advanced solution within the A/C range. The thermostat displays all the information on the LCD display and allows the customer comfort and flexibility, allows maximum energy saving by optimal operation of the A/C systems.

The unit has special features such as "Sleep mode", Filter Cleaning" and "Technician" status. The thermostat is an integral part together with the power unit **ALFA-123RS** and is connected to it by 6-wires phone cable at communication in low voltage. The unit includes a built-in (internal) temperature sensor. The thermostat can be controlled manually or by Remote Control model **ATRC-A** from "Alfa Smart".

2. Display Unit Components (Opened & Decorative Front Panel- see Figure 1)

Fig.1

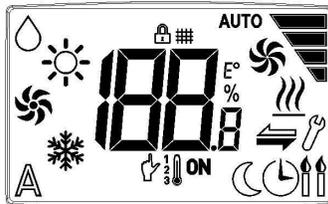


1. IR receiver window.
2. Display LCD with backlight (white color).
3. Selection push button **Fan Speeds**: Low, Mid., High & Automat.
4. Push button **Mode** for operation programs selection: Heat, Ventilation, Cool and Automat.
5. Push button: "**Clean Filter**" and activating "**Keys lock**".
6. Push button for "**Sleep**" mode.
7. Push button for "**Technician menu**", failures monitoring and factory settings (back to DEFAULT presets).
8. Not available function.
9. Push buttons for **change of desired temperature- SET POINT**, reading sensors' temperature and last failures monitoring.
10. Push button for **ON / OFF** operation.

3. LCD Display

3.1 Restart of display after power failure. At each thermostat restart after power failure the display will show all icons simultaneously (see Figure 2) for 5 seconds and following it, the latest operation setting icons that were saved in memory before the failure, will show.

Fig. 2



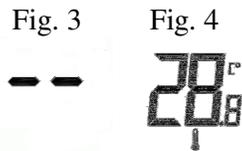
3.2 List of icons displayed at the thermostat unit – see Table 1.

Table.1

№	Description	Icon
1	A/C Status: "HEAT"	
2	A/C Status: "VENTILATION"	
3	A/C Status: "COOL"	
4	A/C Status: "AUTOMAT (CHANGE OVER MODE: COOL/HEAT)"	
5	Display of desired temp. "SET POINT"	
6	Display of real Room or Return Air Sensors temp. value (thermometer)	
7	Display of Heat Elements stages at "HEAT" status	
8	Compressor / Heat Elements "ON"	
9	Status "Sleep" mode-active	
10	Status "Timer Active" for "Start" or "Stop" operation	
11	"Technician" -ON Status	
12	Status "Key locked" - active	
13	Temperature value in Celsius – (°C)	
14	Status "Evaporator Fan - ON / OFF"	
15	Display of Evaporator Fan speeds. Fan Automat-active.	
16	Space for temperature display (desired or real value)	
17	Warning: "Clean Air Filter"	
18	Compressor OFF – status "Pre Failure"	
19	Return Air Sensor -active	

3.3 Display on screen of specifications and operation statuses of room thermostat.

1. Display of desired temp. Desired temp displayed on screen when indicated by fixed or flashing the "Hand"  icon according to operation status.
2. Display of real temp. The thermostat sensor or return air sensor: displayed on screen when indicated by fixed or flashing the "thermometer" icon  according to operation status.
3. Display of status "OFF". At "OFF" - 2 large digits and a small one display real temp. with icon "thermometer" alternating, with 2 mid lines (- -) (see Figure 3 & 4).



4. Display of Evaporator Fan speed status. Active status displayed by icon  at right side of the display. At "active fan" – the icon rotates. The requested speed displayed by icon  that determines 4 fan operation statuses (see Table 2).

Table 2

Fan Automat	High speed	Medium speed	Low speed
			

AUTOMAT status. Upon speed change, the segments' status indicating the real Fan speeds as well.

Note: Thermostat configured as one speed only will not carry the fan speeds icons in the display and fan status will show only by icon .

5. Display of system's functioning statuses at left side of display:
Heat/Ventilation/Cool/Automat (see Table 3).

Table 3

Cooling-Automat	Heating-Automat	Cooling	Ventilation	Heating
				

6. Indication of Cool/Heat Outlets statuses: presented by **ON** icon that shows at system Cooling or Heating.
7. "Sleep" status displayed by icon .
8. "Technician" status displayed by icon  flashing.
9. "Key lock" status displayed by icon  "On" fix or "Flashing" when keys are locked.

10. Indication of "Clean Air Filter". Every 250 work hours of Evaporator Fan icon  switch On "Clean Air Filter".
11. Display of Heat Elements stages. At operation of Heat elements the figures ¹/₂ appear under the temperature display.
12. Indication of "Pre Failure" status. Upon compressor shut off due to "Pre Failure" the icon  will show flashing. This is not a failure but a warning only of activating protection at the A/C system.
13. At Timer active status (possible to start by remote control only) for shut-off or for start, the icon  will show. At power failure the timer should be restarted by user!
14. Display of real temp. of the Return Air Sensor. Upon real temp. read from the Return Air Sensor the icon  will show at the LCD display. This sign shows upon display of real temperature only!

3.4 Failures indication & special notices at display (see Table 4).

Table 4

Nº	Failure description	Indic.	Problem solving solution
1	Communication failures between Display unit & Power unit	ER1	Refer to service
2	Failures "short circuit or disconnect" at Room temp. Sensor	ER2	Button ON/OFF or shut-off & ON main switch
3	Failures "short circuit or disconnect" at evaporator coil sensor S.IN	ER3	Button ON/OFF or shut-off & ON main switch
4	Failures "short circuit or disconnect" at water sensor S.OUT	ER4	Button ON/OFF or shut-off & ON main switch
5	Failure in pressostat "Low Pressure" - L.P	ER5	Button ON/OFF or shut-off & ON main switch
6	Failure in pressostat "High Pressure" - H.P	ER6	Button ON/OFF or shut-off & ON main switch
7	Failure in Heat Elements protection mechanism	ER7	Button ON/OFF or shut-off & ON main switch
8	Failure – "Water too cold" (below 4°C)	ER8	Button ON/OFF or shut-off & ON main switch
9	Failure "short circuit or disconnect" at return-air sensor S.AIR	ER9	Button ON/OFF or shut-off & ON main switch
10	Room temp. Sensor- temp. below 0°C	Lo	Indication only
11	Room temp. Sensor- temp. above 40°C	Hi	Indication only
12	Compressor shut-off due to "Pre-Failure"		Indication only
13	Display of real temp. by Return Air Sensor		Indication only
14	"System Stop" by external devices such as: presence detector, remote control (BMS), etc	STp	Indication only

Note: To reset failures by push button ON/OFF you have to push button (switch system to OFF) and wait few seconds to clear ER sign. Upon failures of kinds ER2 to ER9 repeat often, refer to service.

4. **Push Buttons:**

Any time that Back Light is OFF, first push on any button will activate backlight only.

Any push at "active" status of the unit will result short buzz for response on the push.

4.1 ON and OFF status. Changing from ON to OFF and back by using button "10"  (see Figure 1)

4.2. Changes of desired temp. Desired temperature is changed by using buttons "9": "+" and "-" (see Figure 1) within the determined temperature limits.

Notes:

- Default at temperature display – desired temperature (Set Point).
- Short push 1 second on 2 buttons "+" & "-" simultaneously will display real temperature for 6 flashes and vice versa, when the display at status of real temperature.
- As long as the room thermostat sensor active (sensor integrated in display unit) – icon  will show.
- As long as return air sensor active – icon  will show.
 - Switch from desired temperature fix to real temperature allowed by long push of 5 seconds on two buttons "+" & "-" simultaneously. Confirm of status change will result a short buzz from buzzer.

4.3 **Operation modes:**

Upon unit at "Active" status, optional to change operation statuses of the system by push on button "4" **M**-Mode (see Figure 1) at following sequence:

Heat → Ventilation → Cool → Automat → Heat. On first push the present mode icon flashing and on next push occurs the change to the desired operation status.

4.4 **Evaporator Fan Speeds:**

Optional to change the speed by button "3"  (see Figure. 1) at following sequence:
Low speed → Medium → High → Automat → Low.

Note: As long as the thermostat defined as of one fan speed only – button "3" not active.

4.5 **"Sleep" program:**

Start of "Sleep" program available by button "6"  (see Figure. 1) at Heat or Cool modes only. The display shows start sign of "Sleep" program. Stop of this program by additional push on button  or by operation status changes from control button of display unit. If no canceling command received, the program will be stopped automatically after 12 work hours. Fan speed changes will not cancel "Sleep" program. Changes in display unit or remote control desired temperature will cancel the program.

- "Sleep" program at COOL mode:
At start of this program, a timer is activated that after every 30 min. will rise the desired temperature by 0.5°C, so that after 2 hours from program start, desired temperature is higher by 2°C and remains so till next 10 hours from program start.
- "Sleep" program at HEAT mode:
Similar to the above but in reverse i.e. 2 hours after program start temp of activating HEAT is lower by 2°C from original program desired temperature.

Note: After 12 hours from start, "Sleep" program will be stopped and canceled automatically.

4.6 “Keys Lock” of thermostat:

Optional to lock thermostat's keys operation by long push of 5 seconds on button "5"  (see Figure 1). Indication of lock status – icon  shows at top of display (see Figure 1).

Lock Cancel – additional push 5 seconds on same button. Upon keys lock the thermostat doesn't respond to buttons' commands. Push on any button will switch ON display backlight and will indicate keys status locked by icon  in 3 flashes at each push.

4.7 Cancel of Air Filter alert:

Cancel of Air Filter alert performed by short push on button "5"  (see Figure 1).

Icon  will disappear from display and evaporator Fan start re count for next 250 hours.

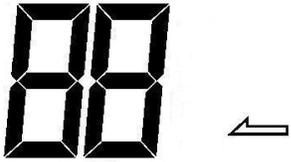
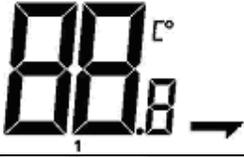
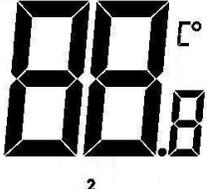
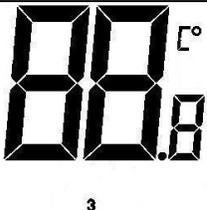
4.8 "Pre-failure" detailed indication and status of temperature sensors' reading.

3 seconds simultaneous push on buttons "3"  (Fan) and "4" **M** (Mode) will indicate "pre-failure" number if there is, or sensors' temp at flashing status. Each push on buttons "+" or "-" will indicate the next or former status conformingly, as per Table 5.

Besides, at bottom of display will show an icon indicating type of sensor:

- 4.8.1 "Pre-failure" screen – while there isn't a pre-failure the display will indicate 2 mid horizontal lines (--).
- 4.8.2 "Room temperature" sensor mounted in display unit (in screen below temperature sensor an icon will appear "thermometer"()).
- 4.8.3 "Return-air temperature sensor **SNS. AIR**" installed in power unit –Alfa123RS or Alfa-Com-3MB- (in screen below temperature sensor value icon "1" appear). At specifications reading status from this sensor press on button "10"  will turn it into active sensor instead of room temperature sensor and real temperature will read from it with sign  at right side of the screen. Another press on button "10"  will return room air temperature sensor of the display unit to function and icon  gone.
- 4.8.3 "Evaporator coil's temperature sensor **SNS. IN**" (in screen below temperature sensor value will show icon "2").
- 4.8.4 "Water temperature sensor **SNS. OUT** or protection bimetallic thermostat for the Heating Elements connected to **SNS. OUT** terminals" (In screen below temperature sensor value will show icon "3").

Table 5: Details of the "Pre-failure" indication and browsing / reading sensors.

Symbol on the screen	Characteristic Icon	Parameter	№
		"Pre failure" (Icon displayed before client on main screen)	1
	№ of "Pre failure": -- - NO Pre-failure 05 - L.P. 06 - H.P. 10 - Protection of evaporator coil at Cool mode 11 - At Heat mode with Heat-Pump, sensor temp. above 30°C 12 - Compressor shut-off due to temp. limit at Cool or Heat modes	№ of "Pre failure" (displayed in 2 large digits) instead of temp.	
		Air sensor installed in display unit	2
	Icon "1" below temp. display	Return air sensor "SNS AIR" at power unit (Alfa 123UN)	3
	Icon "2" below temp. display	Evaporator coil temp. sensor "SNS .IN"	4
	Icon "3" below temp. display	Water temp sensor "SNS. OUT" or protection bimetallic thermostat for Heat elements	5

Notes:

- Once any sensor is missing, the display shows 2 middle horizontal lines (--).
- Exit from this status by additional simultaneous 3-seconds push on buttons "3"  (Fan) and "4" **M** (Mode) or after 2 minutes of no touch on buttons.
- Real failure is more dominant than "Pre failure" status. If while browsing a real failure occurs, ER + № of failure is displayed. In such case the icon  of "Pre failure" is displayed.

4.9 Reading of failures history.

Short push on button "7"  "Technician menu" at "OFF" System status, shows in display the last failure "ER...". Optional to display by buttons (-) or (+) the former failures. Below the failure display a digit will appear that presents the failures order:

1-Last failure, **2**- former failure, **3** - The "oldest" failure.

Allows seeing the last 3 failures. If no failures – display shows **ER0**. To zeroing failures push 2 seconds button "OFF". Zeroing confirmed by "Beep" from buzzer.

Exiting from failures reading by additional push on button "7"  "Technician menu" or one minute after push on last button.

4.10 Technician menu to change parameters of the system:

Button "7"  (see Figure 1) designed for use by authorized persons only, to handle the A/C unit, for reading and for change of important operation settings.

IMPORTANT:

This mode is designed to be applied by authorized-certified persons only, for handling the A/C unit. "Reading" and change of ranges are essential. Un-skilled applying may cause disturbances at the A/C unit.

4.10.1 Operating "Technician menu" done by pushing button "7"  4 seconds after thermostat is at "OFF" status only.

4.10.2 After activating "Technician menu", first screen as shown in Figure 5 appears.

Sign  flashing each second as long as status "Technician menu" is active.

Fig. 5



4.10.3 Navigating through menus of thermostat definitions shown in Table 6 (from **A0** to **C6**) possible by buttons "9" (-) or (+) - (see Figure 1).

4.10.4 Pressing on Button "10"  (see Figure 1) opens possibility to monitor or to change parameters (from **A0** to **C6**) value.

4.10.5 Changing parameter value by buttons "9" (-) or (+) - (see Figure 1) according to **Table 6** details.

4.10.6 Confirm of change by button "10" . After confirmed, the thermostat preserves the new specifications in internal memory and will exit from status of setting parameters list.

4.10.7 Exit from setting status to ranges list without change possible by button "7" .

Exit from "Technician menu" possible by re-press button "7"  or exit automatically done after full one minute with no button pressed.

4.10.8 "RESET" operation: Press 8 seconds on button "7"  (at any thermostat unit status) will cause the factory settings recovery (Default-Factory-Set)- see Table 7.

4.10.9 Display light "ON" all time as long as "Technician menu" mode active. The display is "OFF" upon operation definition of light termed as stopped-fix (see parameter **A4** at Table 6).

Table 6. Parameters menu of the system at "Technician mode" status.

No.	List Of Parameters	Top Limit	Bottom Limit	Mark /display
1	Compensation Temp measure for display sensor (Offset)	5.0°C	(-)5.0°C	A0
2	Temperature Display Units (read only)	0 - °C		A2
3	Operation Modes of Back Light	1 - "ON" Fix Status 2 - "OFF" Fix Status	3 - Smart Display Status 4 - Normal Status	A4
4	Desired Temperature Limit – "High"	30°C	Desired Temp Limit – Low "A6"	A5
5	Desired Temperature Limit – "Low"	Desired Temp Limit - High "A5"	16°C	A6
6	Fan operating status at thermostat stop in Cool Mode	1- Not active	0- Active	A9
7	Fan operating status at thermostat stop in Heat Mode	1- Not active	0- Active	b0
8	Reading Room temperature sensor value	1- From thermostat sensor	0- From SNS. AIR (Return Air Sensor)	b1
9	Operation Modes definition	1- Cool/Heat	0- Cool only	b3
10	Fan Speeds definition	1- 3 speeds (FH, FM, FL)	0- 1 speed -High only (FH)	b4
11	Presenting of thermostat software version	Software version: Number		b7
12	Reducing temperature of "compressor shut-off at Cool mode"	21°C	16°C	C5
13	Raising temperature of "compressor shut-off at Heat mode"	30°C	27°C	C6

Table 7. List of Parameters Default values.

No.	Parameter	Default
1	Status & Speed of evaporator Fan	Manual ,Low speed (FL)
2	Desired Temperature (Set-Point)	21°C
3	Operation Mode	Cool
4	Keys Lock	Not Locked
5	Compensation temperature measure for display sensor (Offset)	0°C
6	Operation Modes of Back Light	"Smart Display status" (3)
7	Fan operating status at thermostat stop in Cool Mode	Fan Active
8	Fan operating status at thermostat stop in Heat Mode	Fan Not Active
9	Reading Room temperature sensor value	From Built-in thermostat
10	Operation modes definition (Cool/Heat or Cool only)	Cool/Heat
11	Fan Speeds definition (3 or 1 speeds)	3 speeds (FH, FM, FL)
12	Reducing temperature of "compressor shut-off at Cool mode"	19°C
13	Raising temperature of "compressor shut-off at Heat mode"	27°C

5. **Technical Specifications:**

- Operation Voltage: 12VDC (from power unit)
- Power consumption from power unit: 15mA maximum
- Temp. sensor: Integrated / Modular, type 10K NTC Thermistor
- Operative temperature range: 16°C to 30°C
- Operation differential: 1.0°C
- Dead Zone in change at Automat mode 2°C-FIX
- Temp. measurement resolution: 0.1°C
- Temp. measurement precision: ±0.5°C
- Display: LCD (size 35 X 60 mm.)
- Back Light: White Color
- Buttons push – indication: Buzzer
- Technician Status: Flexible change of 11 parameters on site by skilled personnel
- Operation Temp: From -10°C to +50°C
- Storage Temp: From -20°C to +80°C
- Humidity conditions: From 10% to 90% (No condensation)
- Enclosure: Plastic self extinguish, UV protected
- Installation Method: Semi-flush (model: BLC 33-RS),
Wall mount (model: BLC 13-RS)
- Communication Cable: Phone flat cable, 6 wires of Copper
- Length – communication cable: 30 meters maximum (standard length – 6 meters)
- Connection to Power unit: Communication cable (quick connect- RJ-11)
- Max. Dimensions unit BLC 33-RS: 112 x 106 x 51 mm. (Front panel status closed)
- Max. Dimensions unit BLC 13-RS: 112 x 106 x 27 mm. (Front panel status closed)
- Unit weight without comm. Cable: 140 gr. Maximum

6. Installation Instructions:

Dear installer!

The device in your possession is of especially high technical performance!

A proper and skilful installation will allow maximum efficiency of its performance and optimal energy usage control on the A/C system.

Display unit BLC33-RS is fitted to be installed at "Semi Flush Mounting" (base for box "3 locations" of "Gewiss" manufacturing etc or electric box 55mm.) with connection of communication cable inside the wall.

Display unit BLC13-RS is fitted to be installed at "Wall Mounting" with connection of communication cable inside the wall or on wall surface by PVC "channel".

Following list contain rules and important points for the device installation:

1. Digital display units of types BLC33-RS / BLC13-RS are designated for indoor installation only.
2. Make sure to lead the communication cable as far as possible from high voltage cables and any other source of electromagnetic disturbances.
3. Avoid passing communication cable through electric cabinets.
4. Before connect and disconnect units BLC33-RS / BLCF13-RS make sure to disconnect A/C units from main power.
5. Communication cable layout: The order of wires in this cable is important. If an extension is needed for the original cable, watch that the connecting clamps in the phone-type cable will be at the same order and direction of the original one provided by Alfa Smart. In order to avoid failures on site due to non-standard cables we recommend the use of original cables certified by Alfa Smart.
6. The unit to be mounted about 1.5 m high in a well ventilated area. Avoid direct radiation of sun light or any other hot/cold source.
7. Release screw fixation at the top of the unit.
8. Remove gently the top part with the electronic circuit including front panel by pulling slantwise downward.
9. Mark on the wall 2 dots with the "base"- the bottom part of the unit (use base existing holes).
10. At wall mounting, drill 2 holes 5mm diameter in the markings and stick 2 encores (provided in the kit).
11. Pass communication cable through opening in unit base. Make sure that the cable is not tight or pressed.
12. Fix the display unit base on the drilled holes and tighten by 2 screws from kit.
13. Connect gently the cable clamp to the socket RJ11 on the electronic circuit.
14. Return the top part with the electronic circuit including the front panel to its place.

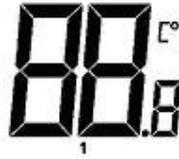
Note!!: The serrated side (with teeth) must be downward. Tighten the screw at top part of the display unit.

Switching of temperature control from thermostat sensor to Return Air Sensor.

Occasionally it's needed to change the control to the **Return Air Sensor** instead of **Local Room Sensor** integrated in the thermostat. Several steps are required to do it:

1. Push 2 buttons  "FAN" and **M** "MODE" simultaneously for 3 seconds – the display switched to "service" status.
2. Push twice button "+" of temperature (leafing through service screens) till reached screen 3 – reading return air temperature – once it's below flashing temperature specification of sensor, icon "1" will show. (see Figure 6):

Fig.6



3. Push once button  "ON/OFF" to turn ON icon (arrow black) at right side (see Figure 7) indicating that Return Air Sensor turned "active" instead of Local Room Sensor of the thermostat unit.

Fig.7



4. Push again 2 buttons FAN & MODE simultaneously for 3 seconds to return system to normal status.
5. To return "active" status to integrated thermostat unit sensor you have to follow the steps in same order and by button ON/OFF (short push) void the icon (arrow black).

NOTICES
