Installation Manual
(Translation of original instructions)

EN

innova

N420927A - Rev.02 - 01/24

AirLeaf

EEB749 - EGB749 - EEA649 - EEB649
EFA649 - EFB649 - E4T643 - E2T543

ECA644 - ECA647 - EWF644 - EWF647
B3V137 - B4V642 - B3V151 - B10642

First of all, we would like to thank you for having chosen a device of our production.

We are sure you will be happy with it because it represents the state of the art in the technology of home air conditioning.

By following the suggestions contained in this manual, the product you have purchased will operate without problems giving you optimum room temperatures with minimum energy costs.

INNOVA S.r.l.

Conformity

Refer to the Installation Manual of the paired unit.

Markings

TABLE OF CONTENTS

1 Coding . . . . . p. 7
1.1 Coding accessories . . . . . p. 7

2 General information . . . . . p. 10
2.1 About the manual . . . . . p. 10
2.1.1 Editorial pictograms . . . . . p. 10
2.1.2 Pictograms on the product. . . . . p. 10
2.1.3 Recipients . . . . . p. 10
2.1.4 Manual organisation . . . . . p. 10
2.2 General warnings . . . . . p. 11
2.3 Basic rules of security . . . . . p. 11
2.4 Disposal. . . . . . p. 12

3 Installation . . . . . p. 13
3.1 Installation . . . . . p. 13
3.1.1 Preliminary warnings . . . . . p. 13
3.1.2 Preparation . . . . . p. 13
3.1.3 Installation of electrical connection box . . . . . p. 14
3.1.4 Connection of MOTOR connector . . . . . p. 14
3.1.5 Connection of water probe connector . . . . . p. 14
3.1.6 Set-up of auxiliary dip-switch functions . . . . . p. 15
3.1.7 Completed assembly . . . . . p. 15
3.1.8 Version configurations . . . . . p. 15
3.1.9 Models with right-hand hydraulic connections . . . . . p. 15

4 M7 series control Code EEB749 . . . . . p. 16
4.1 Interface . . . . . p. 16
4.2 Installation . . . . . p. 16
4.2.1 Description . . . . . p. 16
4.2.2 Mounting . . . . . p. 16
4.3 Table of combinability between control and PCB. . . . . . p. 17
4.4 Single connection diagram . . . . . p. 18
4.5 Multiple connection diagram . . . . . p. 19
4.6 Connections . . . . . p. 20
4.6.1 Preliminary warnings . . . . . p. 20
4.6.2 Control Panel . . . . . p. 20
4.6.3 Presence contact CP . . . . . p. 20
4.6.4 RS485 Serial Connection. . . . . p. 21
4.7 Functions . . . . . p. 21
4.7.1 Basic menu . . . . . p. 21
4.7.2 Advanced Menu . . . . . p. 22
4.7.3 Pairing of control and unit . . . . . p. 22
4.7.4 Error signals . . . . . p. 24

4.7.5 Alarm display on wall control panel . . . p. 24

5 M7 series control Code EGB749 . . . p. 25
5.1 Interface . . . p. 25
5.2 Installation . . . p. 25
5.2.1 Description . . . p. 25
5.2.2 Mounting . . . p. 25
5.3 Table of combinability between control and PCB . . . p. 26
5.4 Single connection diagram . . . p. 27
5.5 Multiple connection diagram . . . p. 28
5.6 Connections . . . p. 29
5.6.1 Preliminary warnings . . . p. 29
5.6.2 Control Panel . . . p. 29
5.6.3 Presence contact CP . . . p. 29
5.6.4 Bluetooth connection . . . p. 30
5.7 Functions . . . p. 30
5.7.1 Basic menu . . . p. 30
5.7.2 Advanced Menu . . . p. 31
5.7.3 Pairing of control and unit . . . p. 31
5.7.4 Error signals . . . p. 32
5.7.5 Visualization of alarms on display . . . p. 33

6 Remote control EEA649 - EEB649 / EFA649 - EFB649 . . . p. 34
6.1 Interface . . . p. 34
6.2 Installation . . . p. 34
6.2.1 Description . . . p. 34
6.2.2 Mounting . . . p. 34
6.2.3 Set-up of auxiliary dip-switch functions . . . p. 35
6.3 Table of combinability between control and PCB . . . p. 35
6.4 Single connection diagram . . . p. 36
6.5 Multiple connection diagram . . . p. 37
6.6 Connections . . . p. 38
6.6.1 Preliminary warnings . . . p. 38
6.6.2 Control Panel . . . p. 38
6.6.3 Presence contact CP . . . p. 38
6.6.4 RS485 Serial Connection . . . p. 38
6.7 Functions . . . p. 39
6.7.1 Advanced Menu . . . p. 39
6.7.2 Long period shut-down . . . p. 40
6.7.3 LED signals . . . p. 40
6.7.4 Error signals . . . p. 40

7 On-board control Code ECA644 - ECA647 - EWF644 - EWF647 . . . p. 41
7.1 Interface . . . p. 41
7.2 Installation . . . p. 41
7.2.1 Description . . . p. 41
7.2.2 Installation of on-board control . . . p. 42
7.2.3 CP presence contact input connection . . . p. 42
7.2.4 Installation of air temperature probe . . . p. 42

7.2.5 Setting automatic cooling and heating mode . . . p. 42
7.2.6 Set-up of auxiliary dip-switch functions . . . p. 43
7.3 Connection diagram . . . p. 44
7.4 Functions . . . p. 45
7.4.1 Advanced Menu . . . p. 45
7.4.2 Long period shut-down . . . p. 46
7.4.3 Error signals . . . p. 46

8 On-board control Code E4T643 . . . p. 47
8.1 Interface . . . p. 47
8.2 Installation . . . p. 47
8.2.1 Description . . . p. 47
8.2.2 Installation of on-board control . . . p. 48
8.2.3 Installation of air temperature probe . . . p. 48
8.3 Connection diagram . . . p. 49
8.4 Functions . . . p. 50
8.4.1 Advanced Menu . . . p. 50
8.4.2 Long period shut-down . . . p. 50
8.4.3 Error signals . . . p. 51

9 On-board control Code E2T543 . . . p. 52
9.1 Interface . . . p. 52
9.2 Installation . . . p. 52
9.2.1 Description . . . p. 52
9.2.2 Installation of on-board control . . . p. 53
9.2.3 Installation of air temperature probe . . . p. 53
9.3 Connection diagram . . . p. 54
9.4 Water probe management . . . p. 55

10 Speed selector Code B3V137 . . . p. 56
10.1 Interface . . . p. 56
10.2 Installation . . . p. 56
10.2.1 Description . . . p. 56
10.2.2 Installation of on-board control . . . p. 56
10.3 Connection diagram . . . p. 57
10.4 LED signal . . . p. 57

11 On-board electronic board B4V642 + wall control B3V151 . . . p. 58
11.1 On-board electronic board Code B4V642 . . . p. 58
11.1.1 Description . . . p. 58
11.1.2 Connection diagram . . . p. 58
11.2 On-board electronic board Code B4V642 + wall control Code B3V151 . . . p. 59
11.2.1 Interface . . . p. 59
11.2.2 Description . . . p. 59
11.2.3 Connection diagram . . . p. 60
11.2.4 Connection diagram with seasonal switching . . . p. 61
11.3 Connections . . . p. 62
11.3.1 Connection with 3 speed thermostats . . . p. 62
11.3.2 Water probe management . . . p. 62

11.4 Error signals . . . . . *p. 62*

12 Connection 0-10 V Code B10642 . . . . . *p. 63*
12.1 Installation . . . . . *p. 63*
12.1.1 Description . . . . . *p. 63*
12.2 Connections with 0-10 V thermostats . . . . . *p. 63*
12.3 Connection diagram . . . . . *p. 64*
12.4 LED signal . . . . . *p. 64*

CODING

⚠ **The present manual refers to the products:**

- AirLeaf SL
- AirLeaf SLS
- AirLeaf RS
- AirLeaf SLI
- AirLeaf SLSI
- AirLeaf RSI

1.1 Coding accessories

This instruction manual refers to the following accessory codes.

	Accessory description	Combinable products	Code
Controls on the appliance			
Control panels			
	On-board electronic control with 4 fixed speeds and thermostat	SLS SL	E2T543II (1)
	SMART TOUCH on-board electronic control with 4 fixed speeds and thermostat	RS SLS SL	E4T643II (1)
	SMART TOUCH on-board electronic control with continuously modulating thermostat	RS SLS SL	ECA644II (1)
	SMART TOUCH on-board electronic control with continuously modulating thermostat	SL 4 pipes	ECA647II (1)
	SMART TOUCH on-board electronic control with continuously modulating thermostat. Integrated WiFi module	RS SLS SL	EWF644II (1)
	SMART TOUCH on-board electronic control with continuously modulating thermostat. Integrated WiFi module	SL 4 pipes	EWF647II (1)
Speed selector			
	On-board speed selector. For connection with standard single-contact wall thermostats	SLS SL	B3V137II (1)
Wall-mounted control panels M7 series			
Printed circuit board M7			
4 PIPES	Electronic board on board unit with continuous modulation. For connection to M7 wall control with Bluetooth	SLI 4-pipe SL 4 pipes	ESE741II
2 PIPES	Electronic board on board unit with continuous modulation. For connection to M7 wall control units	SL SLI SLS RSI RS SLSI	ESE745II
	Electronic board on board unit with continuous modulation. For connection to M7 wall control with Bluetooth	SL SLI SLS RSI RS SLSI	ESE746II
4 PIPES	Electronic board on board unit with continuous modulation. For connection to M7 wall control units	SLI 4-pipe SL 4 pipes	ESE748II

1. Accessories can be installed and tested at the factory
2. The control panel is connected to the device via cable. The WiFi antenna allows remote management via app.

	Accessory description	Combinable products	Code
Control panels			
	LED electronic control panel with touch interface, wall-mounted complete with thermostat and room temperature and relative humidity probe. Cable connection. Colour white	All	EEB749II
	LED electronic control panel with touch interface, wall-mounted complete with thermostat and room temperature and relative humidity probe with integrated WiFi module, InnovAPP. Cable connection. Colour white	All	EFB749II
	LED electronic control panel with touch interface, wall-mounted complete with thermostat and room temperature and relative humidity probe. Bluetooth connection. Colour white	All	EGB749II
Wall mounted controls smart touch series			
PCB			
2 PIPES	Electronic board on board unit with continuous modulation. For connection to wall control.	SL SLS RS SLI RSI SLSI	ESE645II (1)
4 PIPES	Electronic board on board unit with continuous modulation. For connection to wall control.	SLI 4-pipe SL 4 pipes	ESE648II (1)
Control panels			
	SMART TOUCH wall mounted control panel with thermostat and room temperature and relative humidity probe. Colour black	All	EEA649II
	SMART TOUCH wall mounted control panel with thermostat and room temperature and relative humidity probe. Colour white	All	EEB649II
	SMART TOUCH wall mounted control panel with thermostat and room temperature and relative humidity probe with integrated WiFi module, InnovAPP. Colour black	All	EFA649II (2)
	SMART TOUCH wall mounted control panel with thermostat and room temperature and relative humidity probe with integrated WiFi module, InnovAPP. Colour white	All	EFB649II (2)
WALL MOUNTED STANDARD FANCOIL CONTROLS			
PCB			
	On-board electronic printed circuit board for control from systems with 0-10 V analogue output.	SL SLS RS SLI RSI SLSI	B10642II (1)
PIPES	On-board electronic printed circuit board for connection to 3-speed wall-mounted electromechanical thermostats.	SL SL 4 pipes SLS SLI 4-pipe SLI SLSI	B4V642II (1)
Control panels			
	Wall mounted control with thermostat, summer/winter and speed selectors	All	B3V151II
Reversal attacks			

1. Accessories can be installed and tested at the factory
2. The control panel is connected to the device via cable. The WiFi antenna allows remote management via app.

	Accessory description	Combinable products	Code
(motor connection cable for LEFT hydraulic connections			
	Hydraulic connection reversal kit	All	BB0646II (1)

1. Accessories can be installed and tested at the factory
2. The control panel is connected to the device via cable. The WiFi antenna allows remote management via app.

GENERAL INFORMATION

2.1 About the manual

This manual was written to provide all the explanations for the correct management of the appliance.

⚠ This instruction manual forms an integral part of the device and therefore must be carefully preserved and must ALWAYS travel with it, even if you transfer the device to another owner or relocate it to other premises. If the manual gets damaged or lost, download a copy from the website.

⚠ Read this manual carefully before proceeding with any operation and follow the instructions in the individual chapters.

⚠ The manufacturer is not responsible for damages to persons or property caused by failure to follow the instructions in this manual.

⚠ This document is restricted in use to the terms of the law and may not be copied or transferred to third parties without the express authorization of the manufacturer.

2.1.1 Editorial pictograms

The pictograms in the next chapter provide the necessary information for correct, safe use of the machine in a rapid, unmistakable way.

Related to security

⚠ **High risk warning (bold text)**
- The operation described above presents a risk of serious physical injury, fatality, major damage to the appliance and/or to the environment if not carried out in compliance with safety regulations.

⚠ Low risk warning (plain text)
- The operation described above presents a risk of minor physical injury or minor damage to the appliance and/or to the environment if not carried out in compliance with safety regulations.

⛔ Prohibition (plain text)
- Refers to prohibited actions.

ⓘ **Important information (bold text)**
- This indicates important information that must be taken into account during the operations.

In the texts

– procedures
- lists

In the control panels

- actions required
  Expected responses following an action.

In the figures

1 The numbers indicate the individual components.
A The capital letters indicate component assemblies.
❶ The white numbers in black marks indicate a series of actions to be carried out in sequence.
Ⓐ The black letter in white identifies an image when there are several images in the same figure.

2.1.2 Pictograms on the product

Symbols are used in some parts of the appliance:

Related to security

⚠ **Caution: electrical danger**
- The concerned personnel is informed to the presence of electricity and the risk of suffering an electric shock.

2.1.3 Recipients

User
Non-expert person capable of operating the product in safe conditions for people, for the product itself and the environment, interpreting an elementary diagnostic of faults and abnormal operating conditions, carrying out simple adjustment, checking and maintenance operations.

Installer
Expert person qualified to position and connect (hydraulically, electrically, etc.) the unit to the plant; this person is responsible for handling and correct installation according to the instructions provided in this manual and the national standards currently in force.

Technical Service Centre
Expert and qualified person authorised directly by the manufacturer to carry out all routine and supplementary maintenance operations, as well as every adjustment, check, repair and replacement of parts necessary during the life of the unit itself.

2.1.4 Manual organisation

The manual is divided into sections each dedicated to one or more target groups.

Coding
It addresses all recipients.
It contains the list of products and/or accessories referred to in the manual.

General information
It addresses all recipients.
It contains general information and important warnings that should be known before installing and using the appliance.

Installation

It is addressed exclusively to the installer.
It contains specific warnings and all the information necessary for positioning, mounting and connecting the appliance.

Control panels

It is addressed only and exclusively to the Installer and the Technical Assistance Centre.
These are sections dedicated to the different types of controls and electronic boards combined with the range with specific information for that combination.

2.2 General warnings

⚠ Specific warnings are given in each chapter of the document and must be read before starting operations.

⚠ All personnel involved must be aware of the operations and dangers that may arise when beginning all unit installation operations.

⚠ Installation performed outside the warnings provided in this manual and use of the appliance outside the prescribed temperature limits will invalidate the warranty.

⚠ The installation and maintenance of climate control equipment could be dangerous because there is live electrical components inside the appliances. The installation, initial start-up and subsequent maintenance phases must be carried out exclusively by authorised and qualified personnel (see first start-up request form enclosed with the appliance).

⚠ Any contractual or extra-contractual liability for damage caused to persons, animals or property, due to installation, adjustment and maintenance errors or improper use is excluded. All uses not expressly indicated in this manual are not permitted.

⚠ Only qualified installer companies are authorised to install the device. After having completed installation, the installer will issue a declaration of conformity to the plant manager, as required by the applicable standards and the guidelines provided by contractor's instruction manual supplied with the device.

⚠ First start-up and repair or maintenance operations must be carried out by the Technical Assistance Centre or by qualified personnel following the provisions of this manual.

⚠ Do not modify or tamper with the appliance as this can lead to dangerous situations.

⚠ Use suitable accident-prevention clothing and equipment during installation and/or maintenance operations. The manufacturer is not liable for the non-observance of the current safety and accident prevention regulations.

⚠ In the event of liquid or oil leaks, set the master switch of the plant to "off" and close the water taps. Call the authorised Technical Assistance Centre or professionally qualified personnel as soon as possible and do not work on the appliance yourself.

⚠ In case of replacement of parts, use only original parts.

⚠ The manufacturer reserves the right to make changes to its models at any time to improve its product, without prejudice to the essential characteristics described in this manual. The manufacturer is not obliged to add such modifications to machines previously manufactured, already delivered or under construction.

⚠ The unit can be used by children over the age of 8, and by people with reduced physical, sensory or mental capabilities, or with no experience or necessary knowledge, as long as they are monitored or after they have received instructions on the safe use of the unit and have understood the dangers involved. Children must not play with the appliance. The cleaning and maintenance that must be performed by the user should not be carried out by children without supervision.

2.3 Basic rules of security

Please keep in mind that the use of products powered by electricity and water call for operators to comply with certain essential safety rules:

⛔ The use of the appliance to children and unassisted disabled persons is prohibited.

⛔ It is forbidden to touch the device with wet or damp body parts.

⛔ It is forbidden to carry out any operation before disconnecting the appliance from the power supply by setting the plant master switch to "off".

⛔ It is forbidden to modify the safety or adjustment devices or adjust without authorization and indications of the manufacturer.

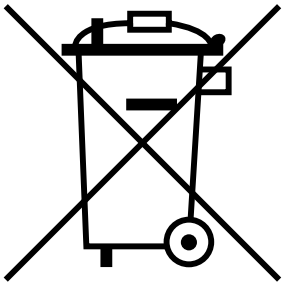
⛔ It is forbidden to pull, unplug or twist the device's electric cables, even if it is disconnected from the mains.

⛔ It is forbidden to introduce objects and substances through the air inlet and outlet grilles.

⛔ It is forbidden to open the access doors of the device's internal parts without first having set main switch of the system to" off".

⛔ It is forbidden to dispose of, or leave in the reach of children, the packaging materials which could become a source of danger.

2.4 Disposal



The symbol on the product or its packaging indicates that the product must not be treated as normal household waste, but must be taken to the appropriate collection point for the recycling of electrical and electronic equipment.
Proper disposal of this product avoids harm to humans and the environment and promotes the reuse of valuable raw materials.
For more detailed information about the recycling of this product, contact your local city office, your household waste disposal service or the shop where you purchased the product.
Illegal disposal of the product by the user involves the application of the administrative sanctions provided for by the regulations in force.
This provision is only valid in the EU Member States.

INSTALLATION

3.1 Installation

3.1.1 Preliminary warnings

⚠ Before doing any work, make sure that the supply power is disconnect.

⚠ All operations of an electrical nature must be carried out by qualified personnel having the necessary legal requirements, trained and informed about the risks related to such operations.

⚠ All connections must be made following the regulations in force in the country of installation.

⚠ The unit must only be powered after work has been completed.

⚠ Disconnect the main breaker before making any electrical connections and performing any type of operation.

⚠ Access to the electrical panel is only permitted to qualified personnel.

⚠ Refer to the respective section of the control used to make the electrical connections.

3.1.2 Preparation

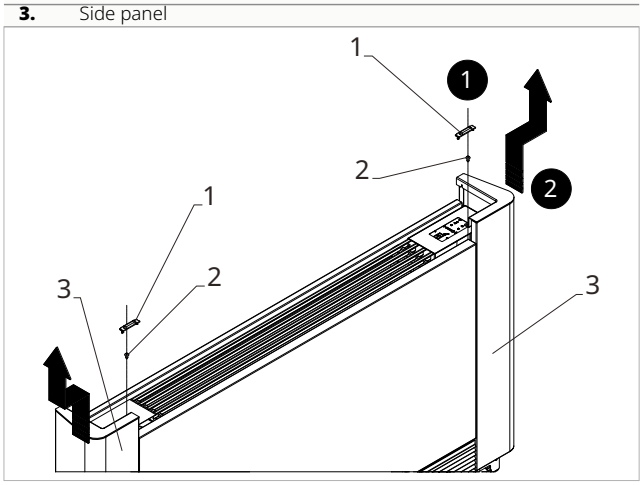
For models with visible cabinet

⚠ Before installation, if fitted, remove the sides of the unit
- lift the screw covers on the top of the unit
- unscrew the sidewall fixing screws
- move the side slightly outwards
- lift the side

⛔ Don't remove the front panel.

⚠ Removing the front panel may result in accidental damage and/or displacement of the upper coil insulation.

1.	Screw covers
2.	Screw
3.	Side panel



3.1.3 Installation of electrical connection box

To install the electrical connection box

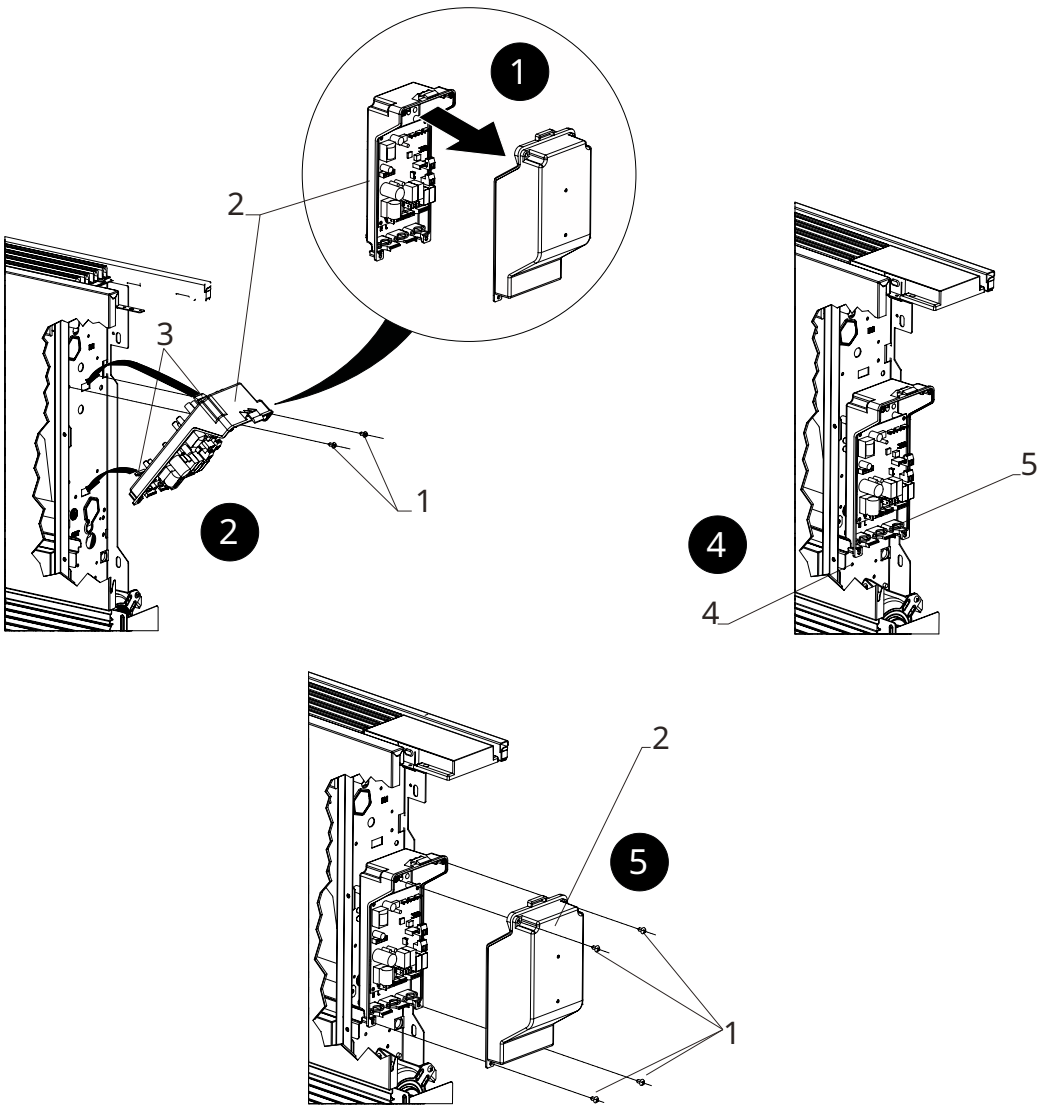
- separate the base of the electrical box from the cover
- place the base of the electrical box on the side of the appliance
- hook the notches of the electrical box into the appropriate holes
- fix with the screws provided
- secure the ground cable to the structure of the appliance with the screw provided

⚠ The minimum force that must be exerted to tighten the screws must be approximately 2N.

- connect the electrics
- tidy up the cables
- fix the cables with the cable strain relief clamp supplied

⚠ Please refer to the sections of the respective controls for indications of electrical connections.

1.	Screws
2.	Electrical box
3.	Notches
4.	Fixing of ground cable
5.	Cable strain relief clamp



3.1.4 Connection of MOTOR connector

To connect the MOTOR connector

- connect the motor quick connector (MOTOR) to the connector on the printed circuit board

3.1.5 Connection of water probe connector

To connect the water probe connector

- connect the water probe located in the unit's coil to the H2 connector on the device

⚠ Valid for the E2T543 and B4V642 controls.

- connect the water probe located in the unit's coil to the T2 connector on the device

⚠ Valid for ECA644, ECA647, EWF644, EWF647, E4T643, (B10642 for RS versions only).

The water temperature probe monitors the temperature inside the coils and determines fan start-up according to preset parameters.

⚠ Check that the probe is correctly positioned in the compartment on the coil.

⚠ The printed circuit board provides for operation without a water probe. In this case, the fan stop thresholds are ignored.

⚠ The B3V137 controls do not have a probe connector.

3.1.6 Set-up of auxiliary dip-switch functions

⚠ There are two dip-switches on the control circuit board for configuring the operation of the device as required.

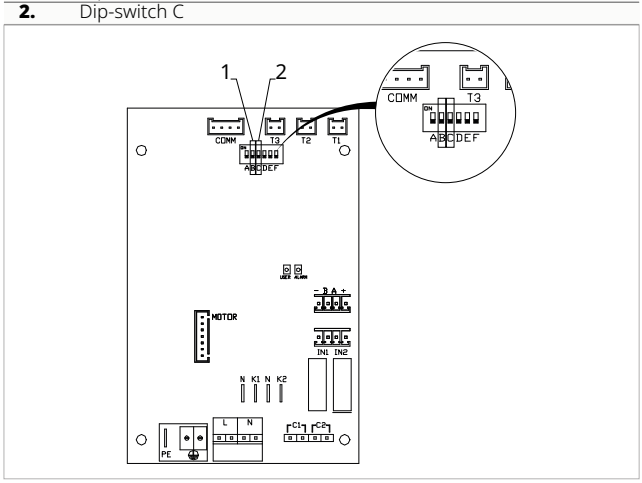
Dip-switch B

- changes ventilation in cooling mode
- in the ON position, continuous ventilation at minimum speed is enabled even after the setpoint has been reached to allow more regular operation of the temperature probe and avoid air stratification
- in OFF position, ventilation takes place cyclically, 4 min ON - 10 min OFF

Dip-switch C

- changes the logic of night-time operation in heating mode
- in the ON position, ventilation is inhibited, allowing the appliance to heat rooms by radiation and natural convection as in traditional radiators
- in OFF position the fan operates normally

1. Dip-switch B
2. Dip-switch C



3.1.7 Completed assembly

Completed assembly

– close the electrical box
– fix with screws
– reassemble the aesthetic side panel of the appliance
– tighten the upper screw on the control panel
– place the screw covers

3.1.8 Version configurations

RS versions

In RS versions to control the radiant effect of the front panel make the connections.

To make the connections

– connect the appropriate connector to the expansion board and the output of the Y1 solenoid valve

⚠ Refer to the "Electrical Connections" sections of the specific printed circuit boards for connections.

3.1.9 Models with right-hand hydraulic connections

The fancoils in the AirLeaf range are designed with:

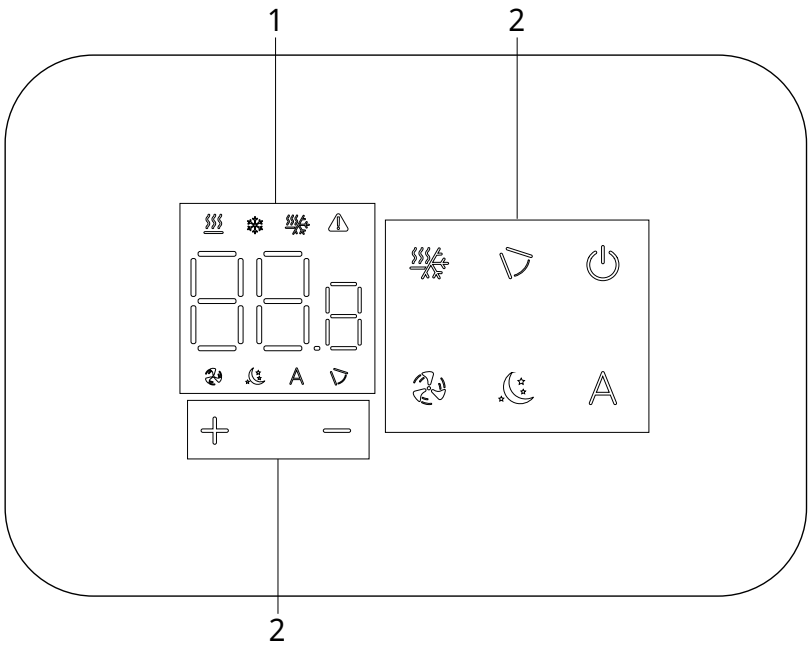
- hydraulic coil connections on the left side of the unit
- electrical connections on the right side of the unit

⚠ Should it be necessary to invert the position of the coil's hydraulic connections from the left (default) side to the right side, the hydraulic Hydraulic connection reversal kit must be used to make the electrical connections to the fan motor and the grid safety microswitch.

M7 SERIES CONTROL CODE EEB749

4.1 Interface

1. Display area
2. Keys area



4.2 Installation

4.2.1 Description

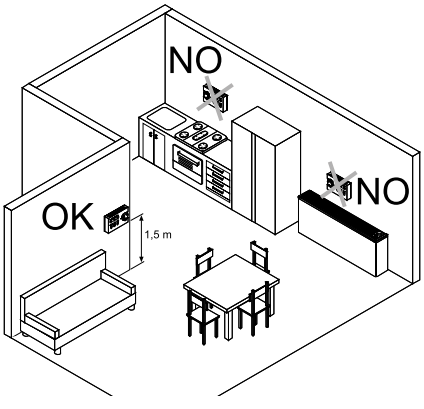
the wall-mounted remote control is an electronic LED thermostat with a touch interface, with the possibility of control over multiple appliances equipped with the same electronic board. It is equipped with a temperature and humidity probe.

⚠ The control can control up to a maximum of 16 units.

4.2.2 Mounting

⚠ The control panel for wall control is to be installed inside a 503 electrical box.

⚠ A wall must be prepared to accommodate the 503 electrical box before installing the wall control.

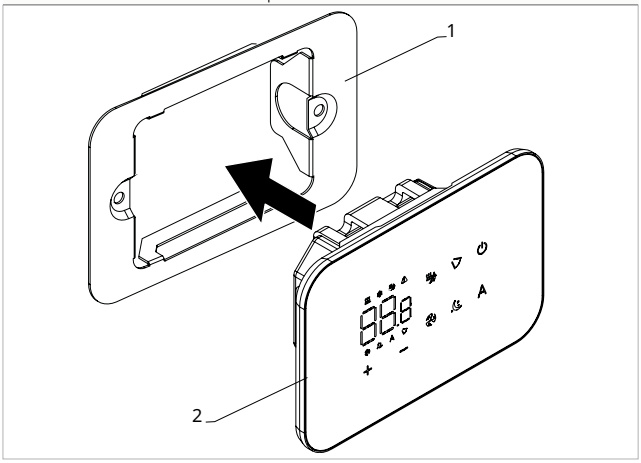


The wall-mounted remote control must be installed:

- on internal walls
- at a height of about 1,5 m from the floor
- away from doors or windows
- away from heat sources (heaters, convectors, stoves, direct sunlight)

⚠ The wall control is provided inside the package already assembled.

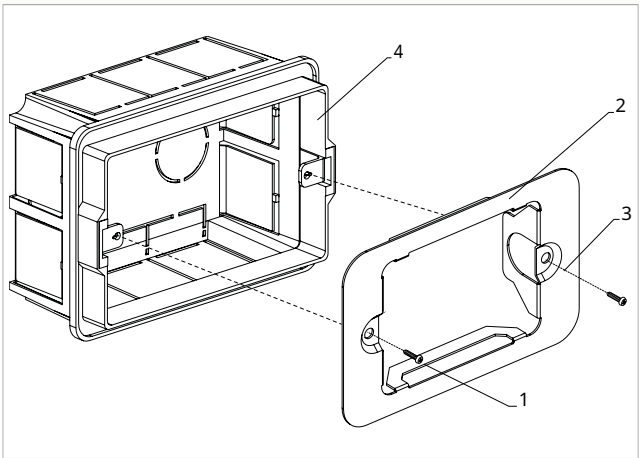
1.	Base of control
2.	Wall-mounted control panel



Before wall installation:

– separate the control base from the control panel

1.	Fixing screws
2.	Base of control
3.	Holes for fixing to electrical box
4.	Electric box 503



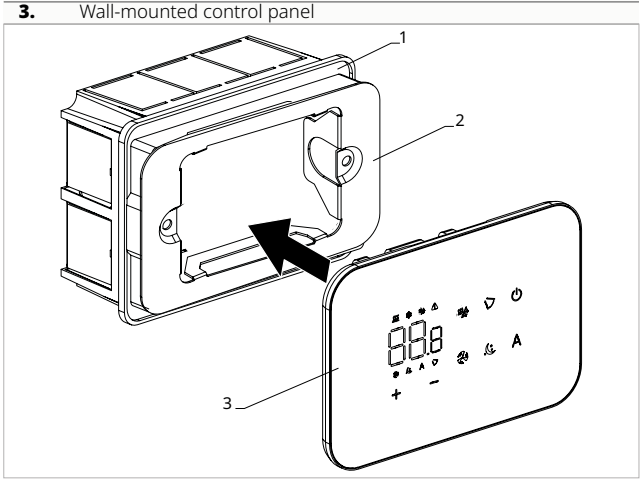
For wall mounting of the control panel:

– fix the control base to the electrical box 503 with screws

– connect the electrics

⚠ Before making the connections, please verify that the control terminal block is on the right-hand side.

1.	Electric box 503
2.	Base of control
3.	Wall-mounted control panel



– Close the control panel

⚠ Pay attention not to crush the conductors when you close the control.

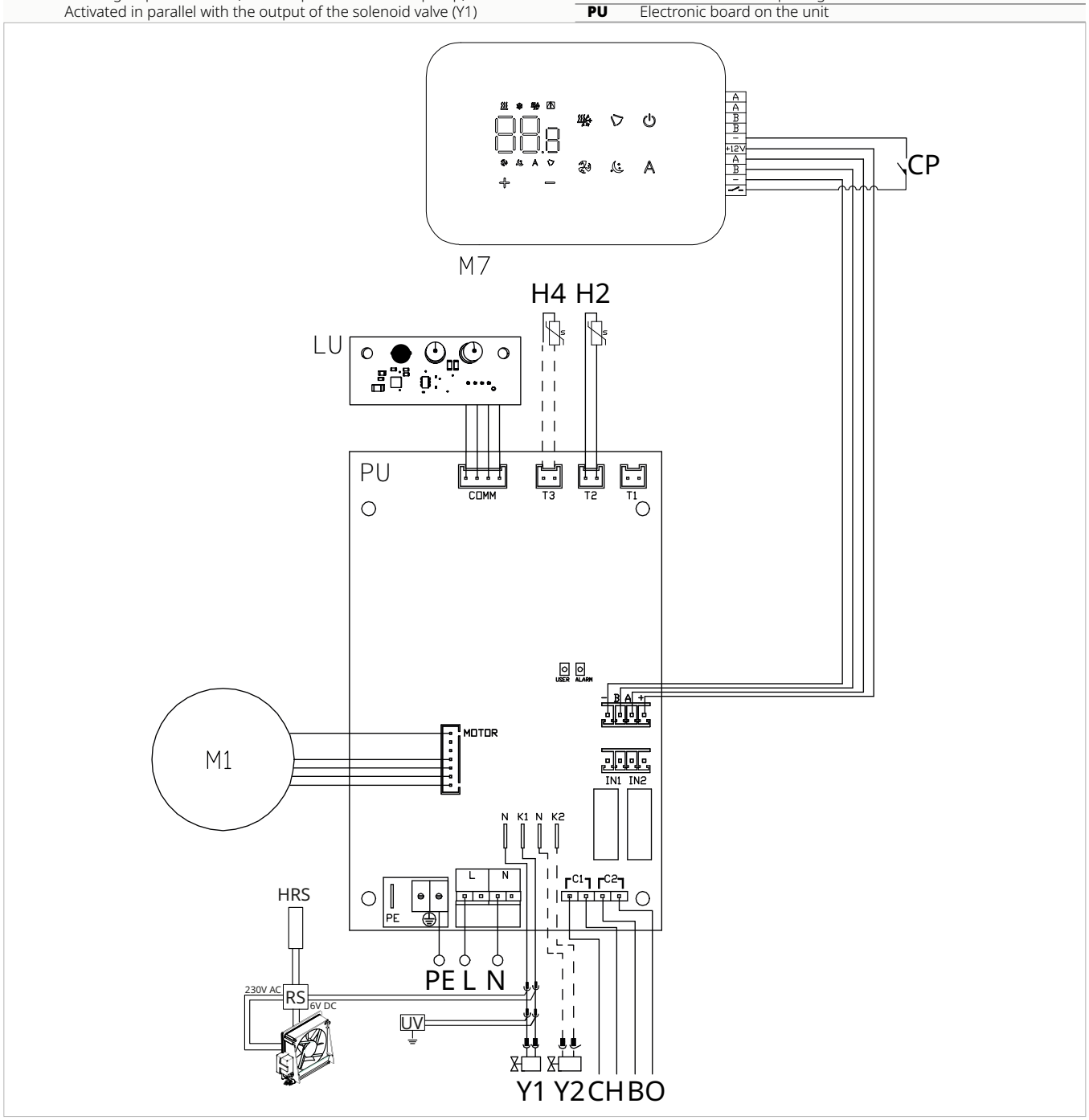
4.3 Table of combinability between control and PCB

⚠ Check the correct matching PCB/control with the following table.

Control	PCB	Description
EEB749II	ESE745II	2 pipes
	ESE748II	4 pipes

4.4 Single connection diagram

M1	Fan motor DC Inverter
PE	Earth connection
L-N	Power supply connection 230 V / 50 Hz / 1 A
Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
Y2	Water electrovalve 4 pipes (230V / 50 Hz / 1 A voltage output) (solo ESE748II)
CH/C1	Cooling request contact (for exemple chiller or reversible heat pump). Activated in parallel with the solenoid valve output (Y1) with 1 minute delay when the fancoil is in cooling mode and is on call (potential-free contact max. 1 A).
BO/C2	Heating request contact (for example boiler or heat pump). Activated in parallel with the output of the solenoid valve (Y1) with 1 minute delay when the fancoil is in heating mode and is on call (potential-free contact max. 1 A).
CP	Presence contact (normally open)
-BA+	Serial connection for wall-mounted remote control (respect polarisation AB)
IN1	Potential-free input 1(not active)
H2/T2	2-pipe water temperature probe
H4/T3	4-pipe water temperature probe (ESE748II only)
RS	RS version wiring
HRS	water probe RS version (10 kΩ)
LU	Electronic board for pairing control and device
PU	Electronic board on the unit



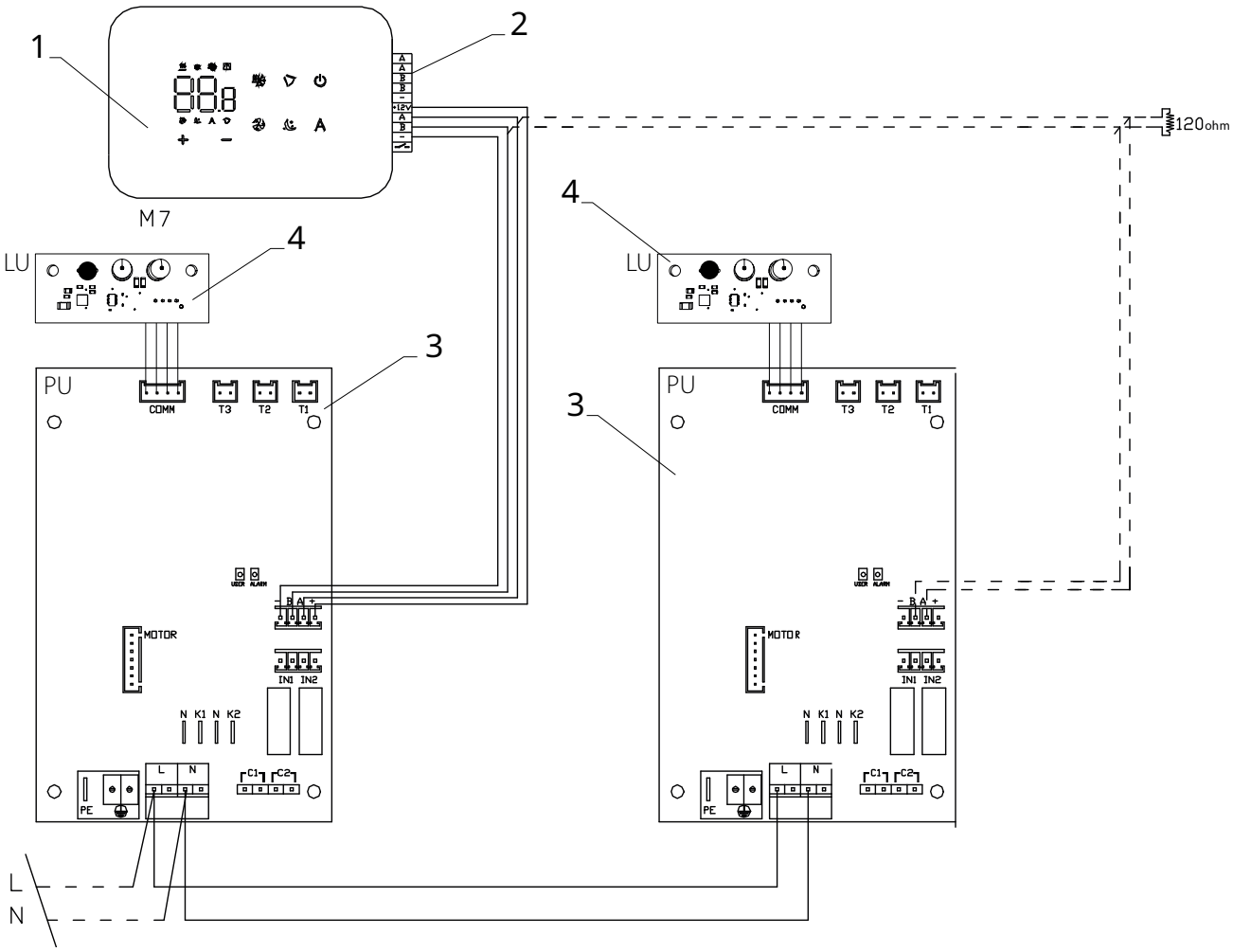
⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" ***p. 15*** to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" ***p. 15*** section to make the connections.

⚠ Check the correct matching PCB/control with the combinability table.

4.5 Multiple connection diagram

1.	M7 series wall control panel	**3.**	PCB
2.	Terminal block for device connection	**4.**	Board for pairing control and device

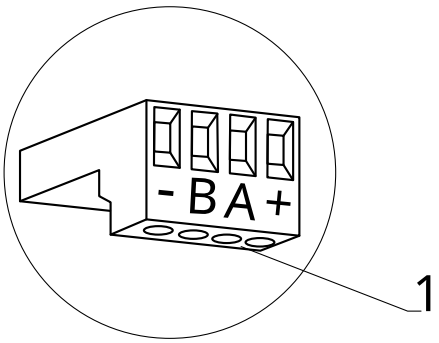


4.6 Connections

4.6.1 Preliminary warnings

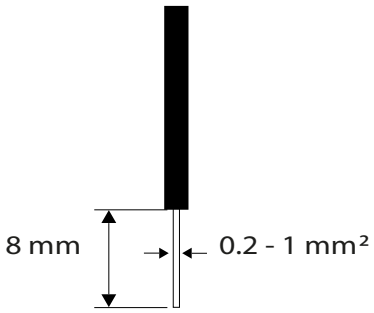
⚠ The terminals for connecting the control panel and the presence contact CP are placed in a plastic bag and positioned inside the cover of the electrical box.

1. Terminal blocks



The terminals accept:

- rigid or flexible wires with a 0.2 to 1 mm² cross-section
- rigid or flexible wires with 0,5 mm² cross-section if two wires are connected to the same terminal block
- rigid or flexible wires with 0,75 mm² cross-section If the wires have wire end ferrules with a plastic collar



To connect the cables:

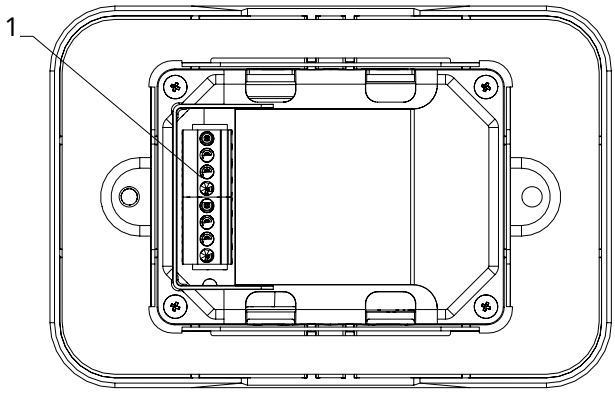
– strip 8 mm of the wire
– if the wire is rigid, you can insert it easily whereas
– if it is flexible, use appropriate crimp terminals
– push the wire completely in
– check the right fixing by pulling it gently

4.6.2 Control Panel

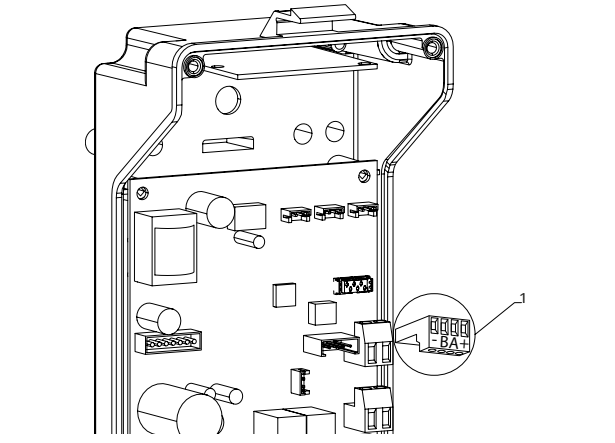
⚠ The control panel for wall control must be ordered separately.

Terminal block position:

1. Terminal block (Back view panel)



1. Terminal blocks



To connect the wall control panel to the board:

– connect the power supply cables to the + - terminals
– connect the ModBus serial connection cables to terminals A and B

4.6.3 Presence contact CP

Trough this contact it is possible connect an external device that inhibits the operation of the device, for example:

- opening window contact
- remote on/off
- infrared presence sensor
- enabling badge
- remote change of season

Function

The contact is normally open.

- when closing the CP contact, connected to a potential-free contact, the device switches to stand-by mode
  CP appears on the display.
- At the touch of a button on the display the symbol ⚠ flashes.

⛔ It is forbidden connect in parallel the CP input to one of another electronic board. Use separate contacts.

The CP presence contact can be configured for heating and cooling operation via the "To select digital input" *p. 22* settings menu item (digital input).

4.6.4 RS485 Serial Connection

The wall-mounted remote control can be connected through a RS485 serial line to one or more device, for a maximum of 16.
The devices must be equipped with an electronic board suitable for remote control.
For the connection:

– follow the indication on the connection diagram

– connect respecting the indication A and B

⚠ Use a bipolar shielded cable suitable for the RS485 serial connection with a minimum section of 0,35 mm².

⚠ Keeping the bipolar cable separate from power supply cables.

⚠ Chase out the wall in order to minimize the length of the leads.

⚠ Complete the line with the 120 Ω resistance.

⛔ It is forbidden make star connections.

4.7 Functions

4.7.1 Basic menu

To access the basic menu
- with the display off, hold down ⏻ for 10 seconds
  The device turns on and appears
- keep pressed until the indication appears
- release the ⏻ key
  The symbol appears

To navigate in the menu
- use the icons + −

To select a menu item and to confirm the changes made
- press the icon ⏻
  Confirming the change takes you to the next item.

To exit the menu
- press the icon ⏻ for 10 seconds
- or wait 30 seconds the automatic shutdown

⚠ After 30 seconds from the last action the control goes out and the settings is memorized.

Menu items

ot: AIR probe offset (air probe setting)

ur: Value read by the R.H. sensor

ut: Probe Offset PT4

uS: Humidity setpoint

ui: Humidity hysteresis

CF: Scale

ub: Buzzer volume

Set AIR probe offset

To set the air probe regulation
- select
- press ⏻ to change settings
- increase or decrease the value with the icons + −
- press ⏻ to confirm
  By default it is set to 0.
  The setting range is from a minimum of -12.0 °C to a maximum of 12.0 °C.

Set probe offset RH

⚠ Modify only after real deviations from an actual measurement with professional instrumentation have been established.

To set the RH probe regulation
- select
- press ⏻ to change settings
- increase or decrease the value with the icons + −
- press ⏻ to confirm

Set the humidity setpoint

To set the humidity setpoint
- select
- press ⏻ to change settings
- increase or decrease the value with the icons + −
- press ⏻ to confirm
  The setting range is from 20.0% to 90.0%.

Setting the humidity hysteresis

To set the humidity hysteresis
- select
- press ⏻ to change settings
- increase or decrease the value with the icons + −
- press ⏻ to confirm
  The setting range is from 1 (min) to 30 (max).

Scale

To change the temperature unit of measure
- select
- press ⏻ to change settings
- select °C o °F
- press ⏻ to confirm
  By default the temperature unit of measure is ° C.

Adjusting the volume

To change the volume
- select
- press to change settings
- increase or decrease the value with the icons
- press to confirm
  The volume setting range is from 00 (min) to 03 (max).

⚠ The volume changes after confirm the modification.

4.7.2 Advanced Menu

⚠ **To access the advanced menu, it is first necessary to access the basic menu. See section "Basic menu"** *p. 21***.**

Through the control panel, it is possible to access the advanced menu.

To access the advanced menu
- from the basic menu press
  Appears
- press the key once
  Appears
- press to confirm and log in
  The advanced menu is accessed.

To navigate in the menu
- use the icons

To select a menu item and to confirm the changes made
- press for 2 seconds
  Confirming the change takes you to the next item.

To exit the menu
- press for about 10 seconds
  Appears
- press for about 10 seconds
  The display turns off.
- or wait 30 seconds after the last action
  The display is switched off automatically.

⚠ After a period of 30 seconds from the last action, the display turns off.

Menu items

Ad: Not used

Pr: Not used

of: Options for digital output

rH: Radiant heating options with R20

rC: Radiant cooling options with R20

UC: Not used

Ac: Not used

Ah: Not used

Fr: Not used

To select digital input

To change the digital input
- select
- press to change settings
- select CP for contact presence (default)
- select CO to cooling open
- select CC to cooling close
- press to confirm
  By default digital input is set to CP.

⚠ For return to the default settings, set the digital input to "CP".

⚠ By selecting one of the other inputs (CO,CC) the seasonality is locked. It is not possible to modify it through the key of the control.

Set radiant options in heating with R20

⚠ To change the rH function, it is necessary to have the accessory MZS - Single zone module for radiant system, code EG1028II.

⚠ To change the settings, please refer to the Instruction Sheet of the accessory MZS - Single zone module for radiant system, code EG1028II.

Set radiant options to cooling with R20

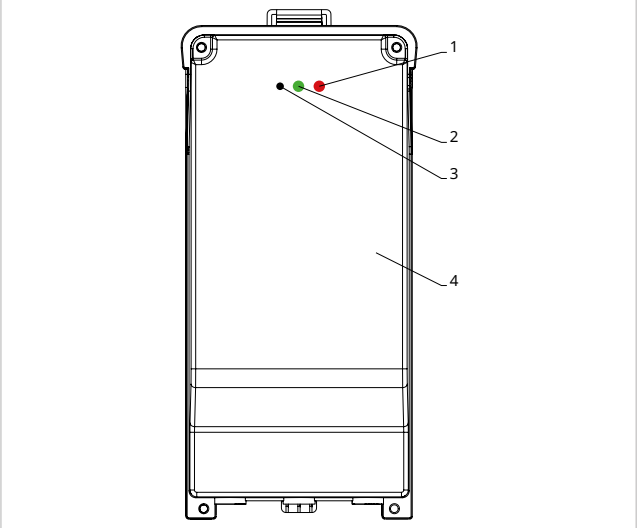
⚠ To change the rC function, it is necessary to have the accessory MZS - Single zone module for radiant system, code EG1028II.

⚠ To change the settings, please refer to the Instruction Sheet of the accessory MZS - Single zone module for radiant system, code EG1028II.

4.7.3 Pairing of control and unit

To pair the control with the unit
- with control switched on, at the same time press and for about 10 seconds
  In the display area, where the setpoint is indicated, appears the number of connected devices.
  The displayed value flashes.

1.	Red LED
2.	Green LED
3.	Black button
4.	Electrical box



On the electrical box on the unit
- press the black button for 3 seconds
  The green LED flashes.
  The red LED is on.
- wait for the procedure to complete
  The green LED stops flashing.

On the wall mounted control panel
Appear the number assigned to the fancoil.
Then appears the number of connected devices.
- press ⏻ to exit the menu

Reset pairing

⚠ **To reset the pairing settings, it is first necessary to access the "Basic menu" *p. 21*.**

To reset pairing settings
- access the basic menu
- press A
- press +
  All the way to the 02 menu.
- press ⏻

To reset a single fancoil
Appears Ad
- press +
  Appears rd
- press ⏻ to access the menu
- use the + − icons to move inside the menu
  The assignment numbers assigned to the fancoils appear.
- select the fancoil to be reset
- press ⏻ to confirm
  _ _ appears, with an acoustic signal.
  The device is removed.

To exit the rd setting
- press ⏻ for 5 seconds
  Exit the rd setting.
  Back to menu 02.

To reset all fancoils
Appears Ad
- press + until rS appears
  Appears rS
- press ⏻ to access the menu
- use the + − icons to move inside the menu
- select No to maintain all fancoils
- select Yes to reset the fancoils
- press ⏻ to confirm

LED interface operation on the electrical box

If the device is being paired
The green LED flashes.

If the device is paired and functioning
The green LED is on.

If the device has not been paired and is not functional
The green LED is off.
The red LED is on.

If the device is in alarm status
The red LED flashes.

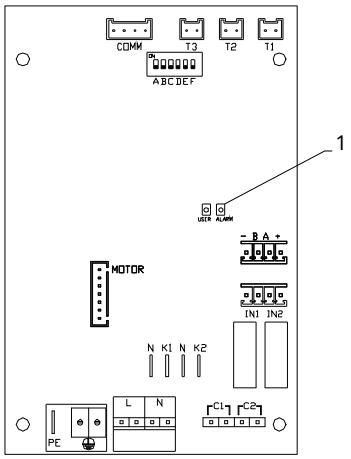
⚠ The red LED flashes according to the type of alarm. To check the alarm type, please refer to the following "Error signals" *p. 24* section.

If communication with the remote control is missing
The green and red LEDs will flash once every second.

4.7.4 Error signals

The PCB has a status LED.

1. LED



⚠ The LED on the cover of the electrical box performs the same functions as the LED on the machine board.

⚠ The flashing LED indicates errors.

⚠ With the LED on, it is indicated that there aren't errors.

LED signals

- Led flashing
  Errors to be shown on the display.
- LED off
  Comando a muro spento
- LED continuous flashing with pause between flashes
  Unsuitable water temperature alarm.
- LED on
  Wall control on and no alarm present.
- LED 2 flashes / pause
  Internal fan motor alarm faulty or disconnected.
- LED 3 flashes / pause
  Alarm for water temperature probe H2/T2 disconnected or faulty.
- LED 6 flashes / pause
  Communication error alarm with wall control panel.

4.7.5 Alarm display on wall control panel

⚠ In the event of an alarm, the device still maintains active functions.

⚠ The symbol ⚠ is displayed on the wall control panel to indicate alarms.

⚠ **To access the Setup menu, it is necessary to access the Basic menu. See section "Basic menu"** *p. 21***.**

To visualise errors on the wall control panel

- access the basic menu
- press A
  Appears AL.
- press +
  Appears Ar.
- press ⏻ to access the menu
  Then the number assigned to the fancoil appears and then the error is displayed.

Displayed alarms

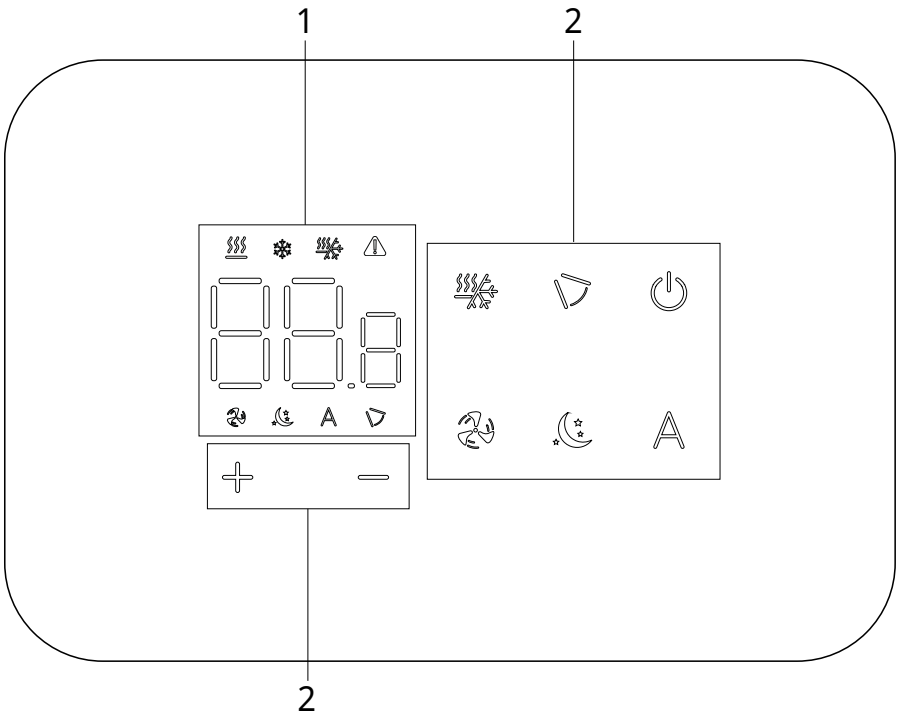
- E2 Faulty internal fan motor or disconnected
  None of the modes can be activated.
- E3 Water temperature probe H2/T2 disconnected or failure
  None of the modes can be activated.
- E5 H4/T3 heating water probe disconnected or faulty
  None of the modes can be activated.
- E6 Incorrect water temperature with automatic season function setting
  The fancoil is performing heating and cooling functions incorrectly. None of the unit's functions can be activated.
- E8 Communication error
  Communication error between the wall control panel and the fancoil.
- h2o Incorrect water temperature
  In heating mode, the water temperature is below 30 °C.
  In cooling mode, the water temperature is above 20 °C.

⚠ Error E8 is displayed without the error display procedure on the wall control panel.

M7 SERIES CONTROL CODE EGB749

5.1 Interface

1. Display area
2. Keys area



5.2 Installation

5.2.1 Description

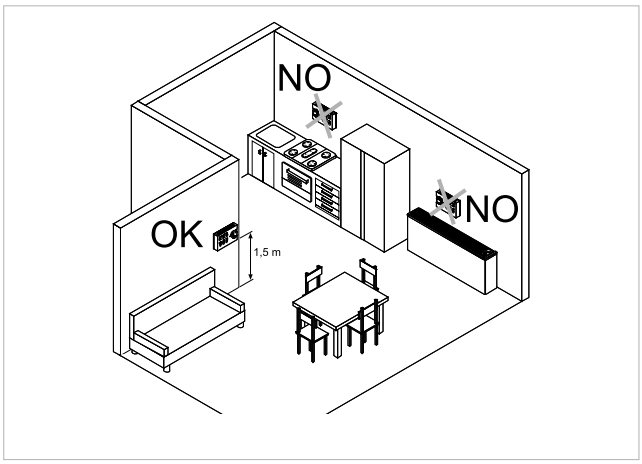
the wall-mounted remote control is an electronic LED thermostat with a touch interface, with the possibility of control over multiple appliances equipped with the same electronic board. It is equipped with a temperature and humidity probe.

⚠ The control can control up to a maximum of 16 units.

5.2.2 Mounting

⚠ The control panel for wall control is to be installed inside a 503 electrical box.

⚠ A wall must be prepared to accommodate the 503 electrical box before installing the wall control.

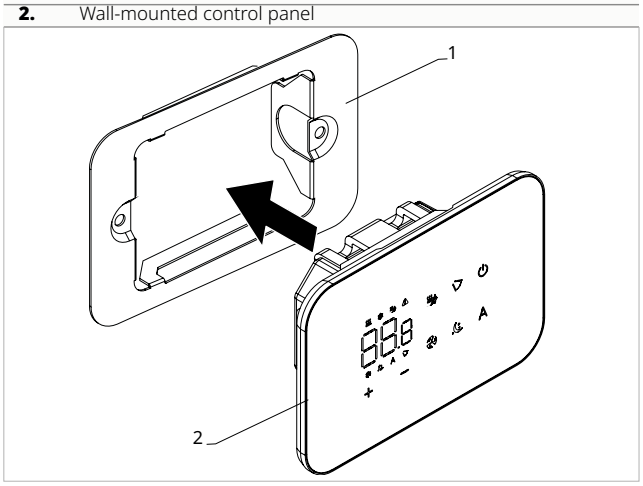


The wall-mounted remote control must be installed:

- on internal walls
- at a height of about 1,5 m from the floor
- away from doors or windows
- away from heat sources (heaters, convectors, stoves, direct sunlight)

⚠ The wall control is provided inside the package already assembled.

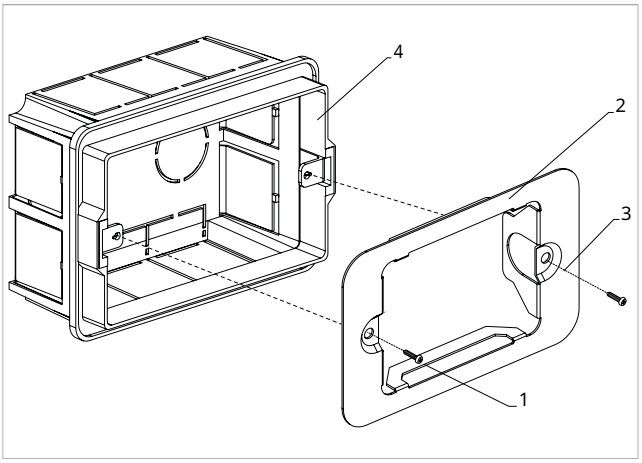
1.	Base of control
2.	Wall-mounted control panel



Before wall installation:

– separate the base of the control consisting of a plate from the control panel

1.	Fixing screws
2.	Base of control
3.	Holes for fixing to electrical box
4.	Electric box 503



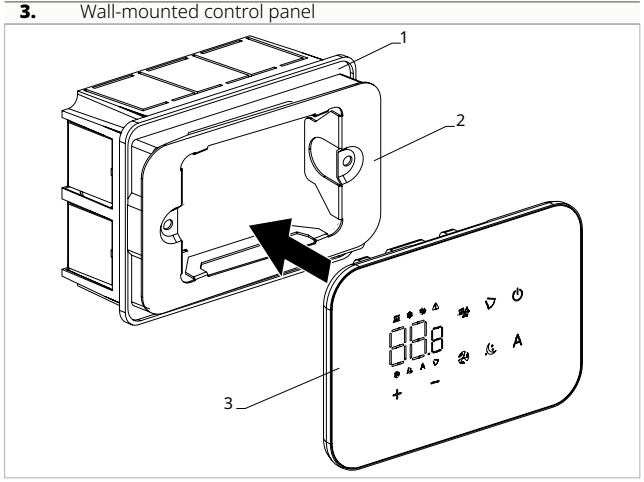
For wall mounting of the control panel:

– fix the control base to the electrical box 503 with screws

– connect the electrics

⚠ Before making the connections, please verify that the control terminal block is on the right-hand side.

1.	Electric box 503
2.	Base of control
3.	Wall-mounted control panel



– Close the control panel

⚠ Pay attention not to crush the conductors when you close the control.

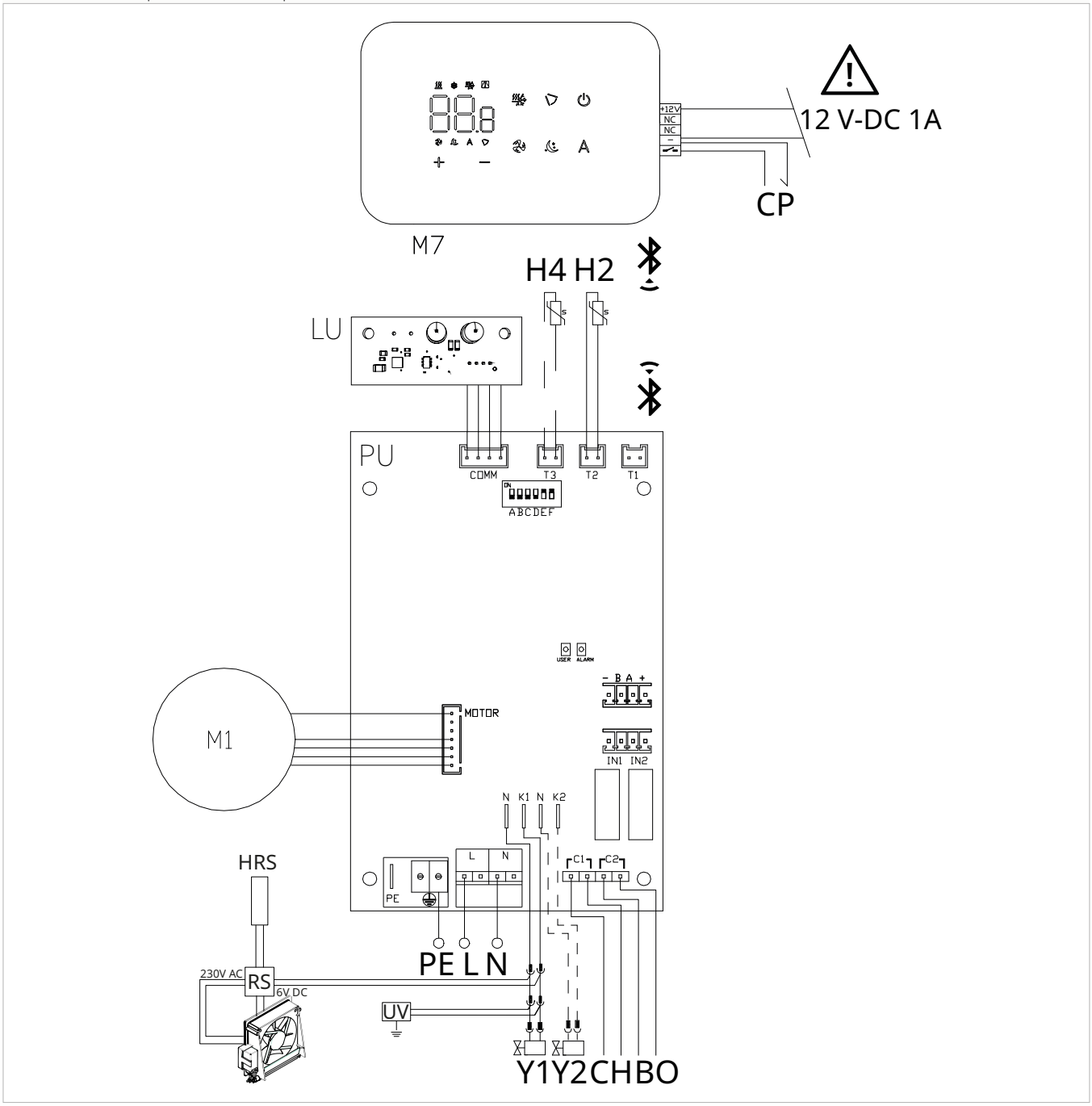
5.3 Table of combinability between control and PCB

⚠ Check the correct matching PCB/control with the following table.

Control	PCB	Description
EGB749II	ESE746II	2 pipes
	ESE741II	4 pipes

5.4 Single connection diagram

M1	Fan motor DC Inverter
PE	Earth connection
L-N	Power supply connection 230 V / 50 Hz / 1 A
Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
Y2	Water electrovalve 4 pipes (230V / 50 Hz / 1 A voltage output) (solo ESE748II)
CH/C1	Cooling request contact (for exemple chiller or reversible heat pump). Activated in parallel with the solenoid valve output (Y1) with 1 minute delay when the fancoil is in cooling mode and is on call (potential-free contact max. 1 A).
BO/C2	Heating request contact (for example boiler or heat pump). Activated in parallel with the output of the solenoid valve (Y1) with 1 minute delay when the fancoil is in heating mode and is on call (potential-free contact max. 1 A).
CP	Presence contact (normally open)
IN1	Potential-free input 1(not active)
H2/T2	2-pipe water temperature probe
H4/T3	4-pipe water temperature probe (ESE748II only)
RS	RS version wiring
HRS	water probe RS version (10 kΩ)
PU	Electronic board on the unit
LU	Electronic board for pairing control and device



⚠ **It is possible to power the control unit either via a separate 12 V-DC 1A power supply (not supplied) or by connection to the - + contacts on the board.**

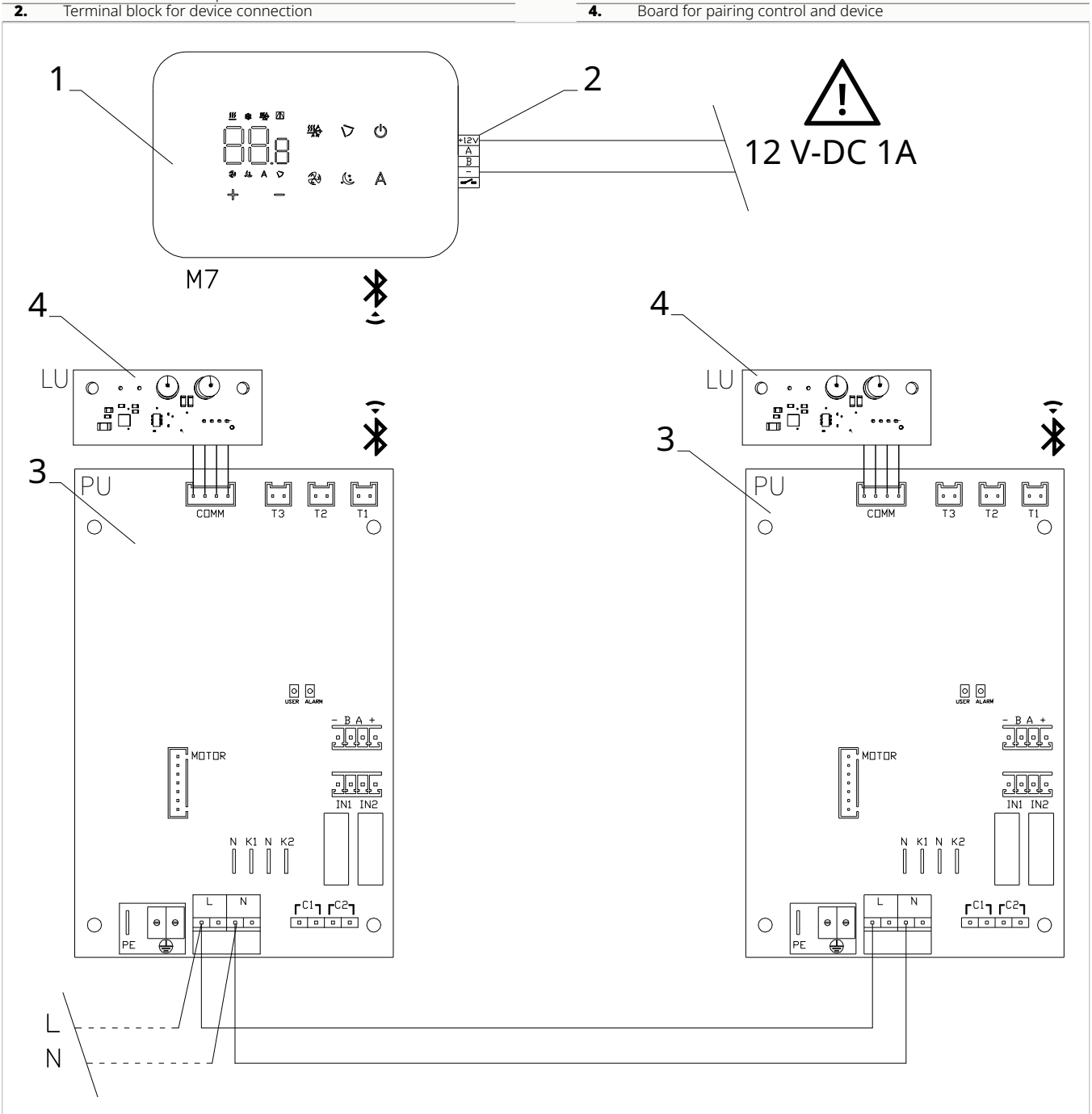
⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" *p. 15* to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" *p. 15* section to make the connections.

⚠ Check the correct matching PCB/control with the combinability table.

5.5 Multiple connection diagram

1.	M7 series wall control panel	**3.**	PCB
2.	Terminal block for device connection	**4.**	Board for pairing control and device



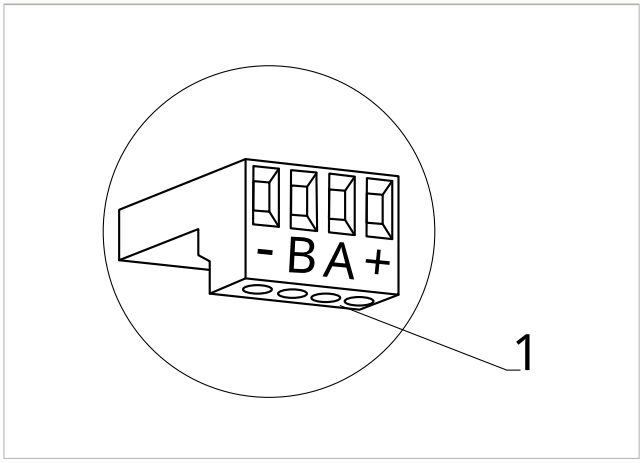
⚠ It is possible to power the control unit either via a separate 12 V-DC power supply (not supplied) or by connection to the - + contacts on the PU board.

5.6 Connections

5.6.1 Preliminary warnings

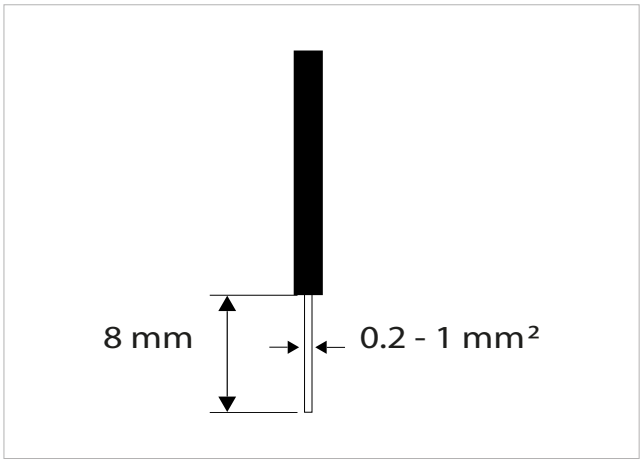
⚠ The terminals for connecting the control panel and the presence contact CP are placed in a plastic bag and positioned inside the cover of the electrical box.

1. Terminal blocks



The terminals accept:

- rigid or flexible wires with a 0.2 to 1 mm² cross-section
- rigid or flexible wires with 0,5 mm² cross-section if two wires are connected to the same terminal block
- rigid or flexible wires with 0,75 mm² cross-section If the wires have wire end ferrules with a plastic collar



To connect the cables:

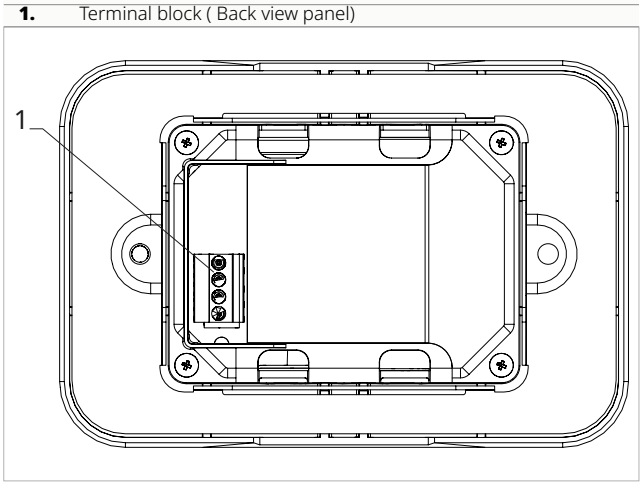
– strip the wire
– if the wire is rigid, you can insert it easily whereas
– if it is flexible, use appropriate crimp terminals
– push the wire completely in
– check the right fixing by pulling it gently

5.6.2 Control Panel

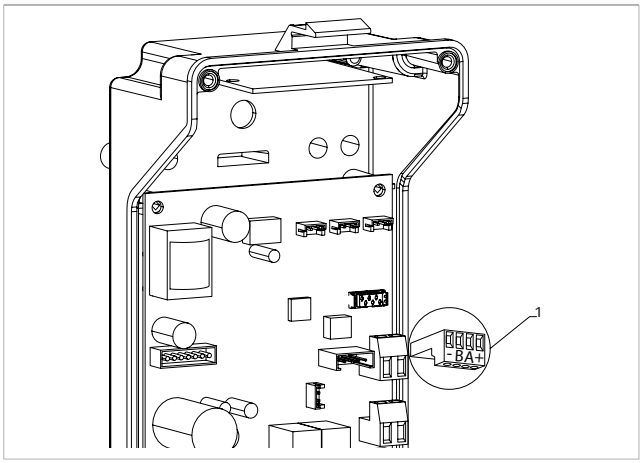
⚠ The control panel for wall control must be ordered separately.

Terminal block position:

1. Terminal block (Back view panel)



1. Terminal blocks



To connect the wall control panel to the board:

– connect the power supply cables to a 12 V-dc power supply

5.6.3 Presence contact CP

Trough this contact it is possible connect an external device that inhibits the operation of the device, for example:

- opening window contact
- remote on/off
- infrared presence sensor
- enabling badge
- remote change of season

Function

The contact is normally open.

- when closing the CP contact, connected to a potential-free contact, the device switches to stand-by mode
  CP appears on the display.
- At the touch of a button on the display the symbol ⚠ flashes.

⛔ It is forbidden connect in parallel the CP input to one of another electronic board. Use separate contacts.

The CP presence contact can be configured for heating and cooling operation via the "To select digital input" *p. 22* settings menu item (digital input).

5.6.4 Bluetooth connection

The wall-mounted remote control can be connected via Bluetooth to one or more devices, for a maximum of 16.

The devices must be equipped with an electronic board suitable for remote control.

5.7 Functions

5.7.1 Basic menu

To access the basic menu

- with the display off, hold down ⏻ for 10 seconds
  The device turns on and appears
- keep pressed until the indication appears
- release the ⏻ key
  The symbol appears

To navigate in the menu

- use the icons

To select a menu item and to confirm the changes made

- press the icon ⏻
  Confirming the change takes you to the next item.

To exit the menu

- press the icon ⏻ for 10 seconds
- or wait 30 seconds the automatic shutdown

⚠ After 30 seconds from the last action the control goes out and the settings is memorized.

Menu items

ot: AIR probe offset (air probe setting)

ur: Value read by the R.H. sensor

ut: Probe Offset PT4

uS: Humidity setpoint

ui: Humidity hysteresis

CF: Scale

ub: Buzzer volume

Set AIR probe offset

To set the air probe regulation

- select
- press ⏻ to change settings
- increase or decrease the value with the icons
- press ⏻ to confirm
  By default it is set to 0.
  The setting range is from a minimum of -12.0 °C to a maximum of 12.0 °C.

Set probe offset RH

⚠ Modify only after real deviations from an actual measurement with professional instrumentation have been established.

To set the RH probe regulation

- select
- press ⏻ to change settings
- increase or decrease the value with the icons
- press ⏻ to confirm

Set the humidity setpoint

To set the humidity setpoint

- select
- press ⏻ to change settings
- increase or decrease the value with the icons
- press ⏻ to confirm
  The setting range is from 20.0% to 90.0%.

Setting the humidity hysteresis

To set the humidity hysteresis

- select
- press ⏻ to change settings
- increase or decrease the value with the icons
- press ⏻ to confirm
  The setting range is from 1 (min) to 30 (max).

Scale

To change the temperature unit of measure

- select
- press ⏻ to change settings
- select °C o °F
- press ⏻ to confirm
  By default the temperature unit of measure is ° C.

Adjusting buzzer volume

To change the volume

- select
- press ⏻ to change settings
- increase or decrease the value with the icons
- press ⏻ to confirm
  The volume setting range is from 00 (min) to 03 (max).

⚠ The volume changes after confirm the modification.

5.7.2 Advanced Menu

⚠ **To access the advanced menu, it is first necessary to access the basic menu. See section "Basic menu" *p. 21*.**

Through the control panel, it is possible to access the advanced menu.

To access the advanced menu
- from the basic menu press A
  Appears 00.
- press the + key once
  Appears 01.
- press ⏻ to confirm and log in
  The advanced menu is accessed.

To navigate in the menu
- use the icons + −

To select a menu item and to confirm the changes made
- press ⏻ for 2 seconds
  Confirming the change takes you to the next item.

To exit the menu
- press ⏻ for about 10 seconds
  Appears oL.
- press ⏻ for about 10 seconds
  The display turns off.
- or wait 30 seconds after the last action
  The display is switched off automatically.

⚠ After a period of 30 seconds from the last action, the display turns off.

Menu items

Ad: Not used

Pr: Not used

of: Options for digital output

rH: Radiant heating options with R20

rC: Radiant cooling options with R20

UC: Not used

Ac: Not used

Ah: Not used

Fr: Not used

To select digital input

To change the digital input
- select di
- press ⏻ to change settings
- select CP for contact presence (default)
- select CO to cooling open
- select CC to cooling close
- press ⏻ to confirm
  By default digital input is set to CP.

⚠ For return to the default settings, set the digital input to "CP".

⚠ By selecting one of the other inputs (CO,CC) the seasonality is locked. It is not possible to modify it through the key ❄ of the control.

Set radiant options in heating with R20

⚠ To change the rH function, it is necessary to have the accessory MZS - Single zone module for radiant system, code EG1028II.

⚠ To change the settings, please refer to the Instruction Sheet of the accessory MZS - Single zone module for radiant system, code EG1028II.

Set radiant options to cooling with R20

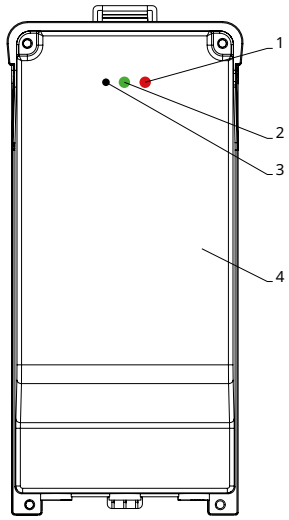
⚠ To change the rC function, it is necessary to have the accessory MZS - Single zone module for radiant system, code EG1028II.

⚠ To change the settings, please refer to the Instruction Sheet of the accessory MZS - Single zone module for radiant system, code EG1028II.

5.7.3 Pairing of control and unit

To pair the control with the unit
- with control switched on, at the same time press 📶 and A for about 10 seconds
  In the display area, where the setpoint is indicated, appears the number of connected devices.
  The displayed value flashes.

1.	Red LED
2.	Green LED
3.	Black button
4.	Electrical box



On the electrical box on the unit
- press the black button for 3 seconds
  The green LED flashes.
  The red LED is on.
- wait for the procedure to complete
  The green LED stops flashing.

On the wall mounted control panel
Appear the number assigned to the fancoil.
Then appears the number of connected devices.
- press ⏻ to exit the menu

Reset pairing

⚠ **To reset the pairing settings, it is first necessary to access the "Basic menu" <u>p. 21</u>.**

To reset pairing settings
- access the basic menu
- press A
- press +
  All the way to the 02 menu.
- press ⏻

To reset a single fancoil
Appears Ad
- press +
  Appears rd
- press ⏻ to access the menu
- use the + − icons to move inside the menu
  The assignment numbers assigned to the fancoils appear.
- select the fancoil to be reset
- press ⏻ to confirm
  -- appears, with an acoustic signal.
  The device is removed.

To exit the rd setting
- press ⏻ for 5 seconds
  Exit the rd setting.
  Back to menu 02.

To reset all fancoils
Appears Ad
- press + until rS appears
  Appears rS
- press ⏻ to access the menu
- use the + − icons to move inside the menu
- select No to maintain all fancoils
- select Yes to reset the fancoils
- press ⏻ to confirm

LED interface operation on the electrical box

If the device is in provisioning
The green LED flashes.

f the device is provided and functioning
The green LED is on.

If the device has not been provisioned and is not functional
The green LED is off.
The red LED is on.

If the device is in alarm status
The red LED flashes.

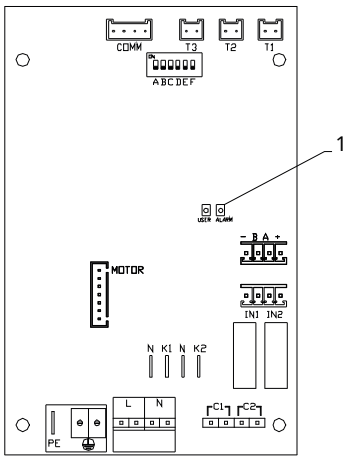
⚠ The red LED flashes according to the type of alarm. To check the alarm type, please refer to the following "Error signals" <u>*p. 32*</u> section.

If communication with the remote control is missing
The green and red LEDs will flash once every second.

5.7.4 Error signals

The PCB has a status LED.

1.	LED



⚠ Once the pairing has been completed, the red LED on the cover of the electrical box performs the same functions as the LED on the board on the unit.

⚠ The flashing LED indicates errors.

⚠ With the LED on, it is indicated that there aren't errors.

LED signals

- Led flashing
  Errors to be shown on the display.
- LED off
  Remote control switched off.
- LED continuous flashing with pause between flashes
  Unsuitable water temperature alarm.
- LED on
  Wall control panel on and no alarm.
- LED 2 flashes / pause
  Internal fan motor alarm faulty or disconnected.
- LED 3 flashes / pause
  Alarm for water temperature probe H2/T2 disconnected or faulty.
- LED 6 flashes / pause
  Communication error alarm with wall control panel.

5.7.5 Visualization of alarms on display

⚠ In the event of an alarm, the device still maintains active functions.

⚠ The symbol ⚠ is displayed to indicate alarms on the wall control panel.

⚠ **To access the Setup menu, it is necessary to access the Basic menu. See section "Basic menu"** *p. 30***.**

To visualise errors on the wall control panel

- access the basic menu
- press A
  Appears 00.
- press +
  Appears Ar.
- press ⏻ to access the menu
  Then the number assigned to the fancoil appears and then the error is displayed.

Displayed alarms

- E2 Faulty internal fan motor or disconnected
  None of the modes can be activated.
- E3 Water temperature probe H2/T2 disconnected or failure
  None of the modes can be activated.
- E5 H4/T3 heating water probe disconnected or faulty
  None of the modes can be activated.
- E6 Incorrect water temperature with automatic season function setting
  The fancoil is performing heating and cooling functions incorrectly. None of the unit's functions can be activated.
- E7 Module Communication Alarm
  Bluetooth communication not functioning.
- E8 Communication error
  Communication error between the wall control panel and the fancoil.
- h2o Incorrect water temperature
  In heating mode, the water temperature is below 30 °C.
  In cooling mode, the water temperature is above 20 °C.

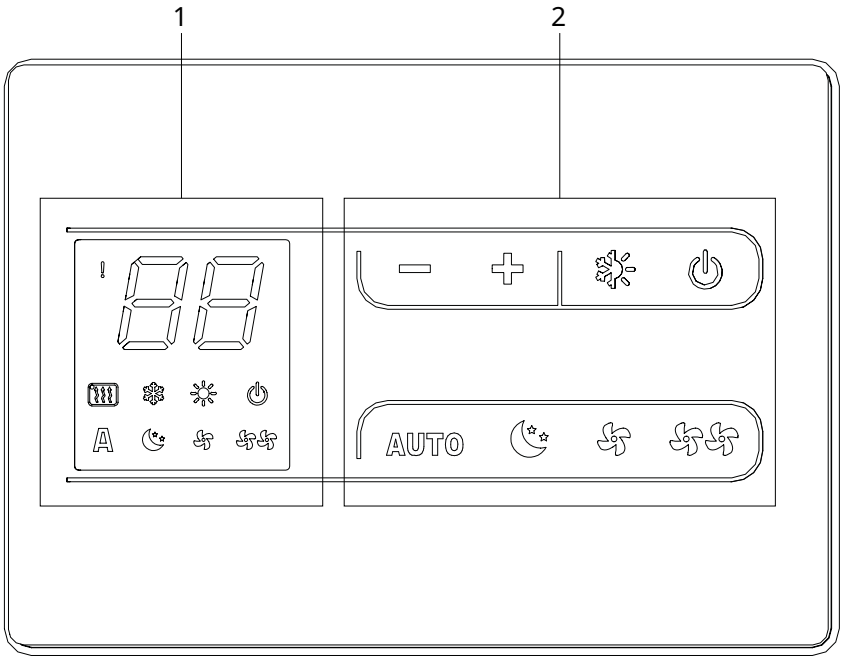
⚠ Errors E7 and E8 are displayed without the error display procedure on the wall control panel.

⚠ Alarm E7 is an error that only appears with the control panel for wall control with Bluetooth connection (Code EGB749II).

REMOTE CONTROL EEA649 - EEB649 / EFA649 - EFB649

6.1 Interface

1. Display area
2. Keys area



6.2 Installation

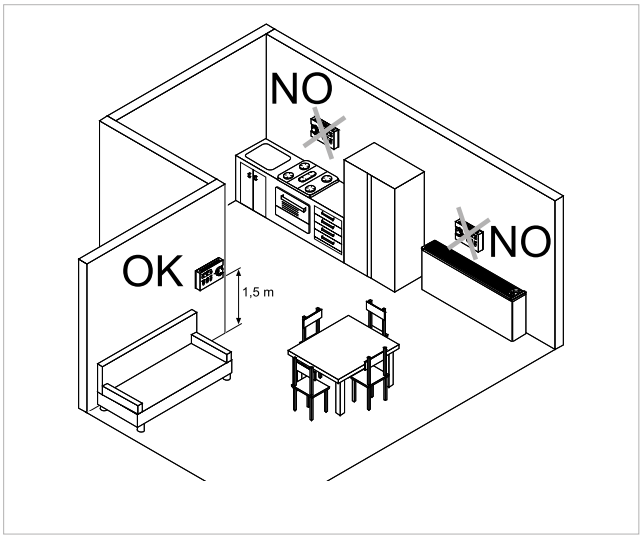
6.2.1 Description

The wall-mounted control panel is a thermostat with possibility of control on several device equipped with electronic control for remotization.

⚠ The control can control up to a maximum of 30 units.

⚠ The temperature probe can be remoted in one of the connected device.

6.2.2 Mounting



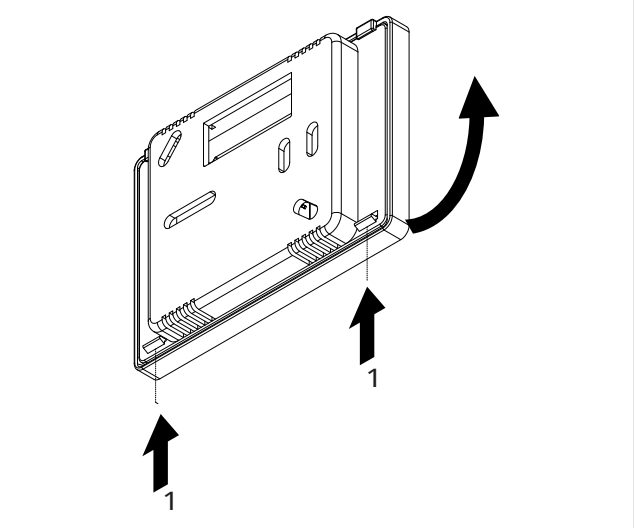
The wall control must be installed:

- on internal walls
- at a height of about 1,5 m from the floor

- away from doors or windows
- away from heat sources (heaters, convectors, stoves, direct sunlight)

⚠ The wall-mounted remote control is provided inside the package already assembled.

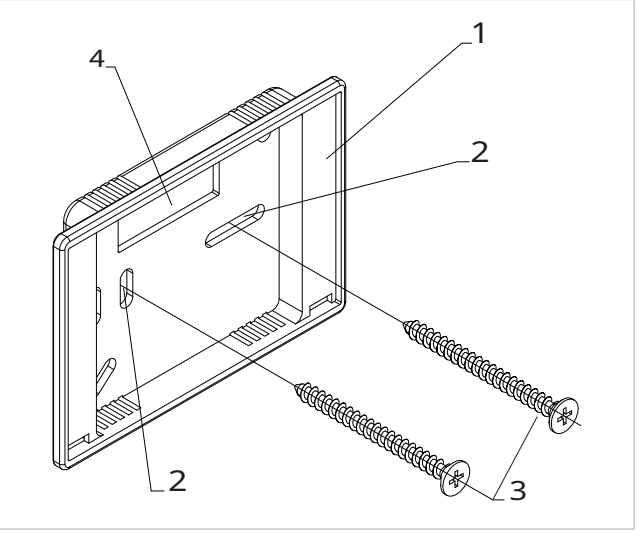
1.	Notches



Before wall installation:

– Unhook the protruding notches on the back side of the control.
– separate the base from the control
– use the base of the control to trace the fixing point on the wall

A	Base of control
B	Holes for the wall mounting
C	Screws
D	Hole for the passage of the electrical connections



For the remote control wall mounting:

– drill holes in the wall
– pull the electric wires through the hole provided
– fix the base of the control to the wall using suitable screw and plugs
– connect the electrics
– close the control

⚠ Pay attention not to crush the conductors when you close the control.

6.2.3 Set-up of auxiliary dip-switch functions

⚠ There are two dip-switches on the control circuit board for configuring the operation of the device as required.

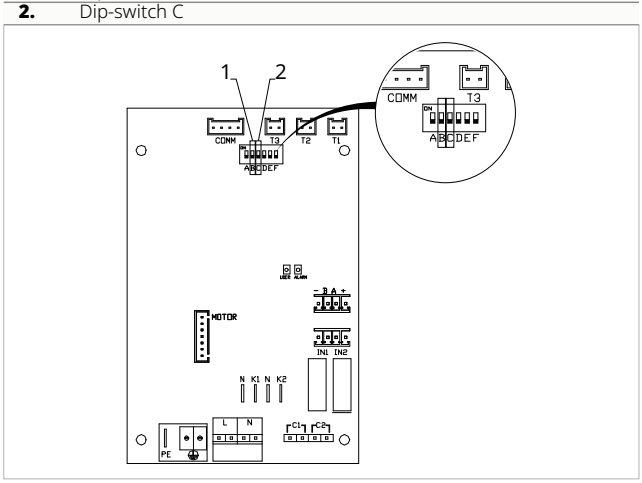
Dip-switch C

- changes the logic of night-time operation in heating mode
- in the ON position, ventilation is inhibited, allowing the appliance to heat rooms by radiation and natural convection as in traditional radiators
- in OFF position the fan operates normally

Dip-switch B

- changes ventilation in cooling mode
- in the ON position, continuous ventilation at minimum speed is enabled even after the setpoint has been reached to allow more regular operation of the temperature probe and avoid air stratification
- in OFF position, ventilation takes place cyclically, 4 min ON - 10 min OFF

1.	Dip-switch B
2.	Dip-switch C



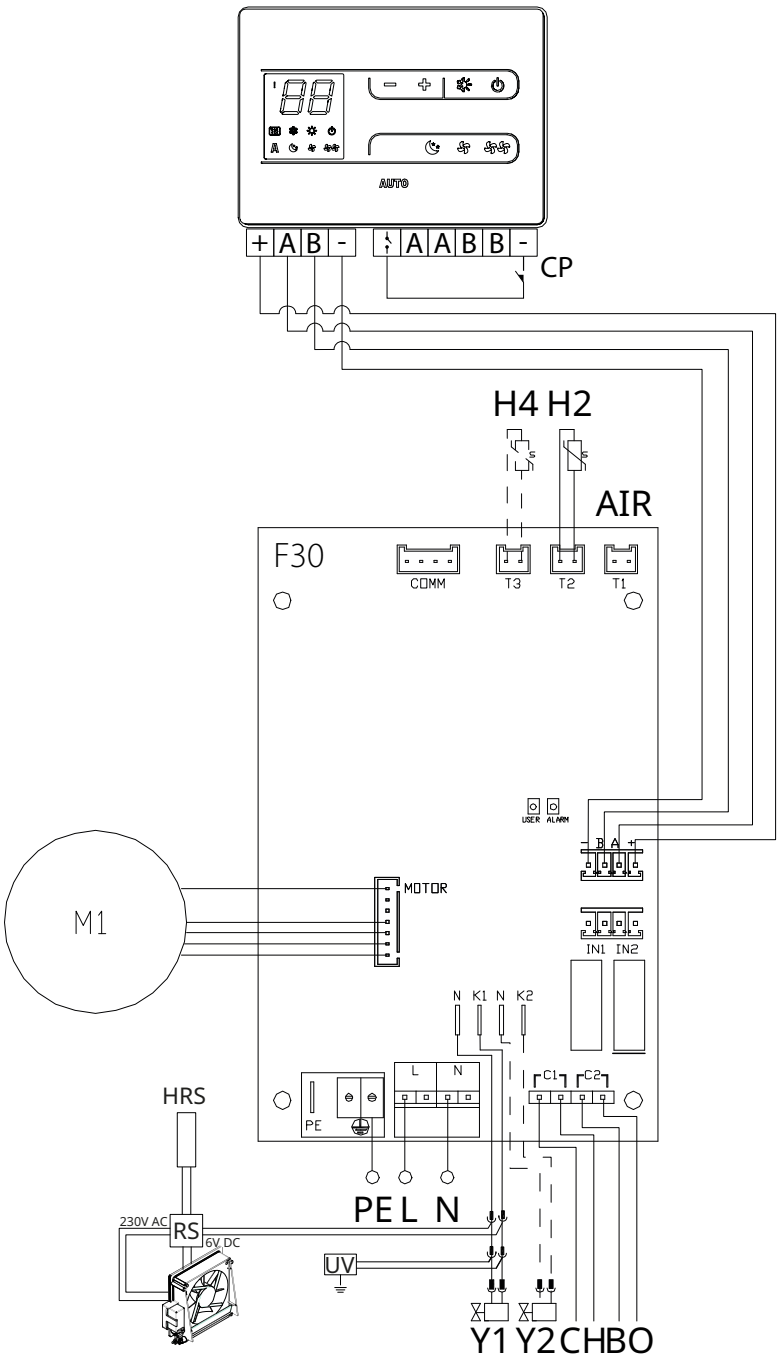
6.3 Table of combinability between control and PCB

⚠ Check the correct matching PCB/control with the following table.

Control	PCB	Description
EEA649II - EFA649II	ESE645II	2 pipes
EEB649II - EFB649II	ESE648II	4 pipes

6.4 Single connection diagram

M1	Fan motor DC Inverter
PE	Earth connection
L-N	Power supply connection 230 V / 50 Hz / 1 A
Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
Y2	Water electrovalve 4 pipes (230V / 50 Hz / 1 A voltage output) (solo ESE648II)
CH/C1	Cooling request contact (for exemple chiller or reversible heat pump). Activated in parallel with the solenoid valve output (Y1) with 1 minute delay when the fancoil is in cooling mode and is on call (potential-free contact max. 1 A).
BO/C2	Heating request contact (for example boiler or heat pump). Activated in parallel with the output of the solenoid valve (Y1) with 1 minute delay when the fancoil is in heating mode and is on call (potential-free contact max. 1 A).
CP	Presence contact (normally open)
-BA+	Serial connection for wall-mounted remote control
H2/T2	2-pipe water temperature probe
H4/T3	4-pipe water temperature probe (ESE648II only)
RS	RS version wiring
HRS	water probe RS version (10 kΩ)



⚠ In the case of a single generator for heating and cooling (for example heat pump), simply connect the two contacts C1 and C2 in parallel and lead 2 wires to the generator.

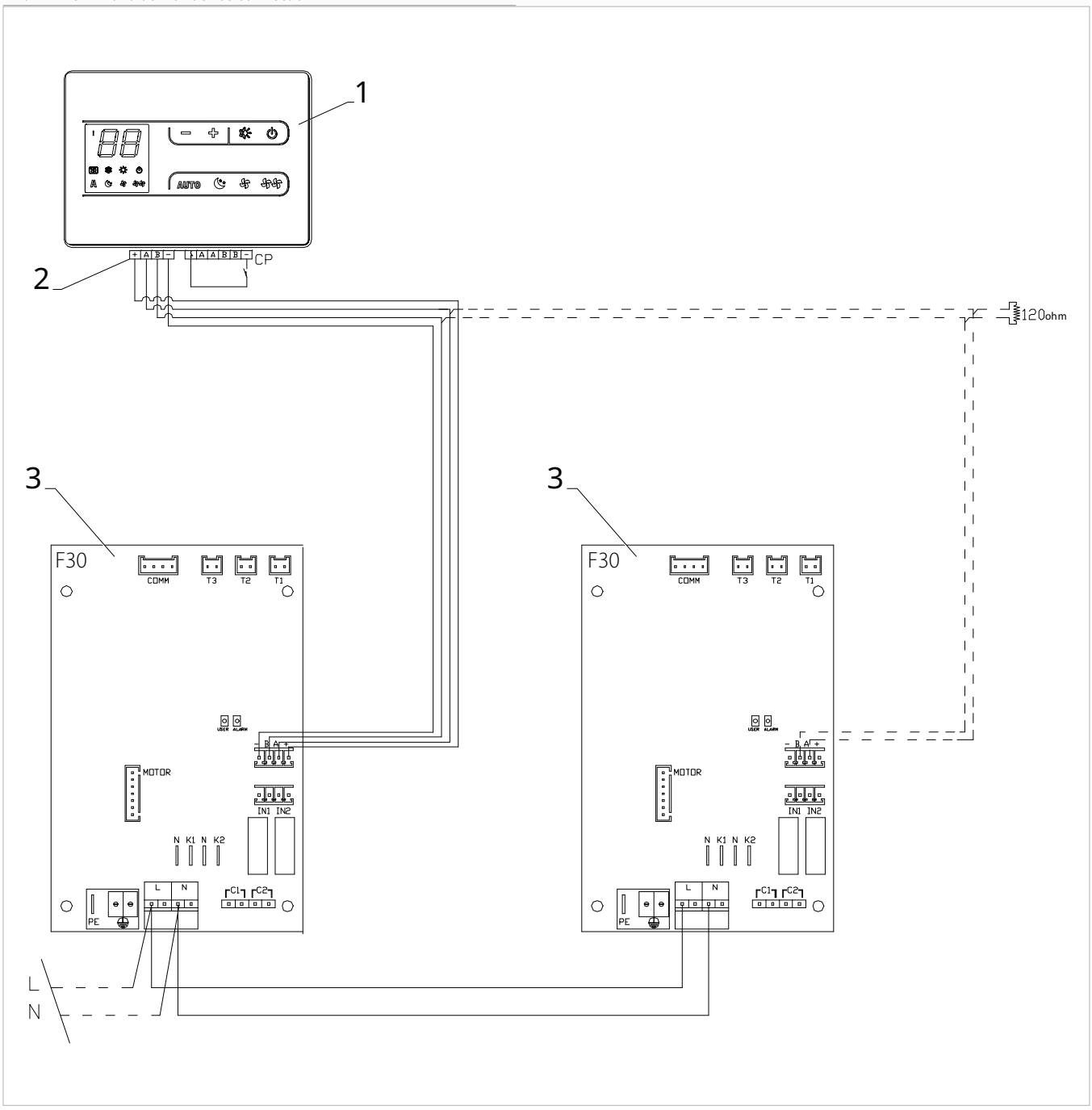
⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" *p. 15* to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" *p. 15* section to make the connections.

⚠ Check the correct matching PCB/control with the combinability table.

6.5 Multiple connection diagram

1.	M7 series wall control panel	**3.**	PCB
2.	Terminal block for device connection		

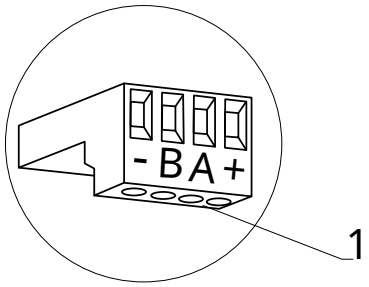


6.6 Connections

6.6.1 Preliminary warnings

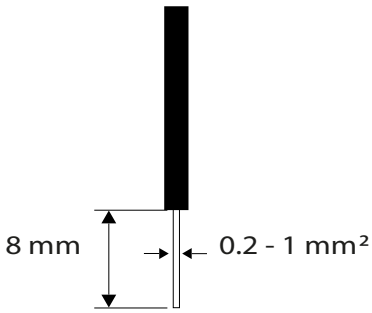
⚠ The terminals for connecting the control panel and the presence contact CP are placed in a plastic bag and positioned inside the cover of the electrical box.

1. Terminal blocks



The terminals accept:

- rigid or flexible wires with a 0.2 to 1 mm² cross-section
- rigid or flexible wires with 0,5 mm² cross-section if two wires are connected to the same terminal block
- rigid or flexible wires with 0,75 mm² cross-section If the wires have wire end ferrules with a plastic collar



To connect the cables:

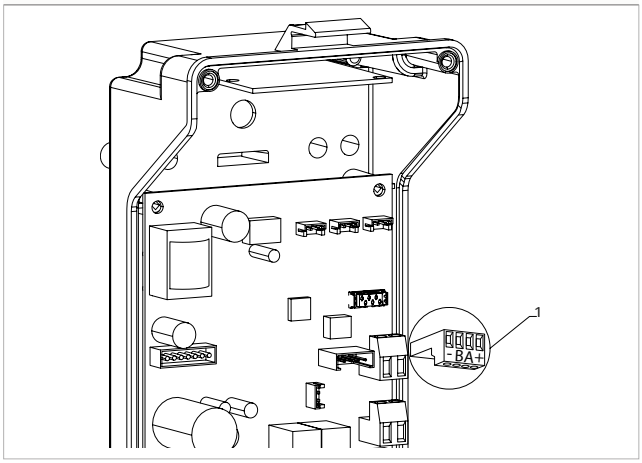
– strip 8 mm of the wire
– if the wire is rigid, you can insert it easily whereas
– if it is flexible, use appropriate crimp terminals
– push the wire completely in
– check the right fixing by pulling it gently

6.6.2 Control Panel

⚠ The control panel for wall control must be ordered separately.

Terminal block position:

1. Terminal blocks



To connect the wall control panel to the board:

– connect the power supply cables to the + - terminals
– connect the ModBus serial connection cables to terminals A and B

6.6.3 Presence contact CP

Trough this contact it is possible connect an external device that inhibits the operation of the device, for example:

- opening window contact
- remote on/off
- infrared presence sensor
- enabling badge
- remote change of season

Function

The contact is normally open.
- when closing the CP contact, connected to a potential-free contact, the device switches to stand-by mode
  CP appears on the display.
- At the touch of a button on the display the symbol ⚠ flashes.

⛔ It is forbidden connect in parallel the CP input to one of another electronic board. Use separate contacts.

The CP presence contact can be configured for heating and cooling operation via the "Select Digital Input" *p. 39* settings menu item (digital input).

6.6.4 RS485 Serial Connection

The wall-mounted remote control can be connected through a RS485 serial line to one or more device, for a maximum of 30.
The devices must be equipped with an electronic board suitable for remote control.

For the connection:

– follow the indication on the connection diagram
– connect respecting the indication "A" and "B"

⚠ Use a bipolar shielded cable suitable for the RS485 serial connection with a minimum section of 0,35 mm².

⚠ Keeping the bipolar cable separate from power supply cables.

⚠ Chase out the wall in order to minimize the length of the leads.

⚠ Complete the line with the 120 Ω resistance.

⛔ It is forbidden make star connections.

6.7 Functions

6.7.1 Advanced Menu

⚠ Through the control, it is possible to access the advanced menu.

To access the advanced menu
- with the display off, hold down ⏻ for 10 seconds
  The device turns on and the temperature appears.
- keep pressed until the indication Ad appears

To navigate in the menu
- use the icons − +

To select a menu item and to confirm the changes made
- press the key ⏻ for about 2 seconds
  During the modification the symbol flashes to remind you that you are in the setup menu.
  Confirming the change takes you to the next item.

To exit the menu
- press the icon ⏻ for 10 seconds
- or wait 30 seconds the automatic shutdown

⚠ After a period of 30 seconds from the last action, the display turns off.

Menu items

Ad: Modbus address

uu: Wifi

Ub: Adjust buzzer volume

br: Adjust the brightness

di: Digital input

UC: UV lamp options

rH: Not used

rC: Not used

hb: Not used

Ab: Not used

rb: Reset Modbus

Fr: Factory reset

ot: Offset probe T

oh: Not used

Sc: Scale

rE: Not used

Set the modbus address

To set the modbus address
- select Ad
- increase or decrease the value with the icons − +
  The setting range is from 01 (min) to 99 (max).

Enable or disable Wifi

To enable or disable Wifi
- select uu
- select "YS" to enable wifi
- select "rs" to reset the settings
- select "no" to disable wifi
  By default wifi is enabled.

⚠ This function can only be used for controls with integrated WiFi (EFA649 - EFB649).

Adjusting buzzer volume

To change the volume
- select Ub
- increase or decrease the value with the icons − +
  The volume setting range is from 00 (min) to 03 (max).

⚠ The volume changes after confirm the modification.

Adjust the brightness

To adjust the brightness
- select br
- increase or decrease the value with the icons − +
  The brightness setting range is from 00 to 01.

⚠ The display brightness changes after confirm the modification.

⚠ You can also reduce the brightness of the display through the keys of the control. With the display off, hold down + for about 20 seconds, the message "01" will appear. Press − to decrease the brightness to "00". Wait 30 seconds for the correct setting to be checked.

Select Digital Input

To change digital input
- select di
- select CP for potential-free contact (default)
- select CO to cooling open
- select CC to cooling close
  By default digital input is set to CP.

⚠ For return to the default settings, set the digital input to "CP".

⚠ By selecting one of the other inputs (CO,CC) the seasonality is locked. It is not possible to modify it through the key ☼ of the control.

UV lamp options

To enable UV lamp option
- select uC
- use the + − icons to move inside the menu
- select No to disable the UV lamp option
- select RE to enable the UV lamp option with residential operation (only with an active fan)
- select SA to enable the UV lamp option (in sanitary operation always on)
- press ⏻ to confirm
  By default the UV lamp option is set to No.

Reset Modbus

- select rb
- select "no" to keep the current settings
- select "YS" to reset the settings

Factory reset

To reset the control to factory settings
- select Fr
- select "YS" to reset the settings
- select "no" to keep the current settings

Probe T regulation offset (room temperature probe)

To adjust the probe T
- select ot
- increase or decrease the value with the icons − +
  The setting range is from -9 to 12.

⚠ Use this adjustment carefully.

⚠ This adjustment must be carried out only after having found actual deviations from the room temperature using a reliable tool.

⚠ Adjust the value within a range of -9 °C to +12 °C, in steps of 0,1 °C.

⚠ After 30 seconds from the last action the control goes out and the settings is memorized.

Scale

To change the temperature unit of measure
- select Sc
- select °C o °F
  By default the temperature unit of measure is ° C.

6.7.2 Long period shut-down

For seasonal shutdowns or for long periods:
– disable the device
– set the main system switch to Off

⚠ The antifreeze function is not on.

6.7.3 LED signals

The PCB has a status LED.

LED signals
- LED off
  Device switched off or without power supply.
- LED on
  Normal operating of the device
- LED 1 flash / pause
  Water request detected by temperature probe H2/T2 not fulfilled (above 20 °C in cooling and below 30 °C in heating). It causes the fan to stop until the temperature reaches a value suitable to satisfy the request. (*)
- LED 2 flashes / pause
  Motor alarm (for example jamming due to foreign bodies or fault in the rotation sensor).
- LED 3 flashes / pause
  H2/T2 water temperature probe disconnected or faulty. Check that the probe installed is 10 kΩ.
- LED 4 flashes / pause
  Water request detected by temperature probe H3/T3 not fulfilled (above 20 °C in cooling). It causes the fan to stop until the temperature reaches a value suitable to satisfy the request.
- LED 5 flashes / pause
  T3/H4 probe for cooling water temperature faulty or disconnected.
- LED 6 flashes / pause
  Communication error caused by lack of continuous information exchange on the serial line. If the exchange of information lasts for more than 5 minutes, the error is displayed.

1. * In case of a operation without water probe H2/T2, the fan stop thresholds will be ignored.

6.7.4 Error signals

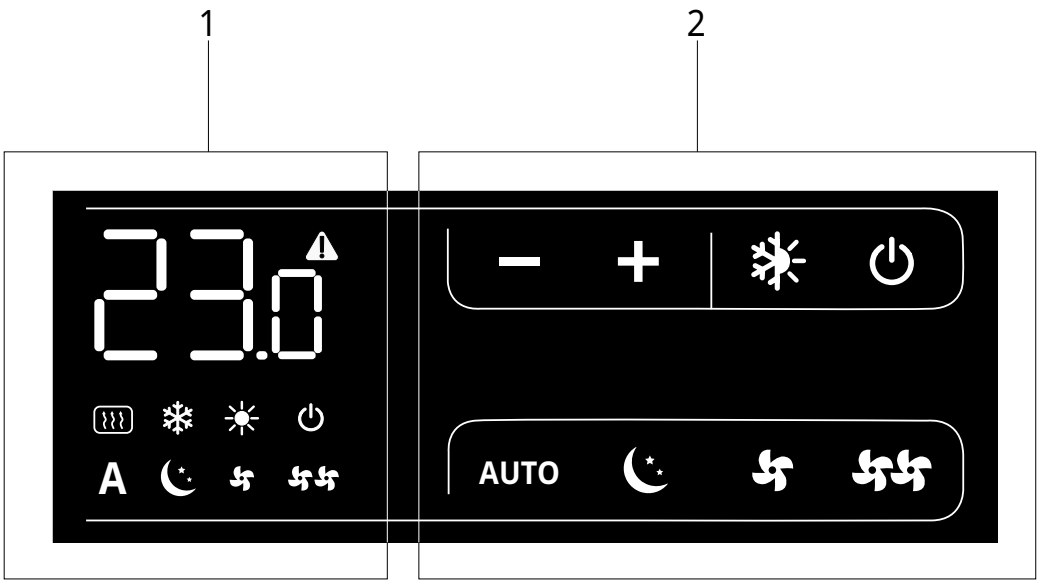
⚠ The symbol ⚠ is displayed to indicate alarms on the wall control panel.

Displayed alarms
- E1 Room temperature probe disconnected or faulty
  None of the modes can be activated.
- E2 Fault or connection of a remote double room sensor on one of the fan coil units
  None of the modes can be activated.
- E3 Humidity probe disconnected or faulty
  None of the modes can be activated.
- E4 Air quality probe disconnected or faulty
  None of the modes can be activated.

ON-BOARD CONTROL CODE ECA644 - ECA647 - EWF644 - EWF647

7.1 Interface

1. Display area **2.** Keys area



7.2 Installation

7.2.1 Description

Electronic control on-board the unit

⚠ The control can control up to a maximum of 30 units.

The electronic controls on-board on the unit with a continuously modulating thermostat ECA644 - EWF644 - ECA647 - EWF647 have two independent voltage-free contacts arranged for:

- the control of a fan coil unit or boiler
- input presence contact

⚠ To check the products on which the ECA644 - EWF644 - ECA647 - EWF647 controls can be installed, please refer to the "Coding accessories" *p. 7* section.

The 2-pipe versions have a 230 V output for the control of the summer and winter solenoid valve.

The 4-pipe versions have two independent 230 V outputs for the control of the summer solenoid valve and the winter solenoid valve.

Through the water temperature probe (10 kΩ) located in the thermowell on the unit's coil, the temperature set-points for fan stop are controlled:

- minimum temperature in heating mode (30 °C)
- maximum temperature in cooling mode (20 °C)

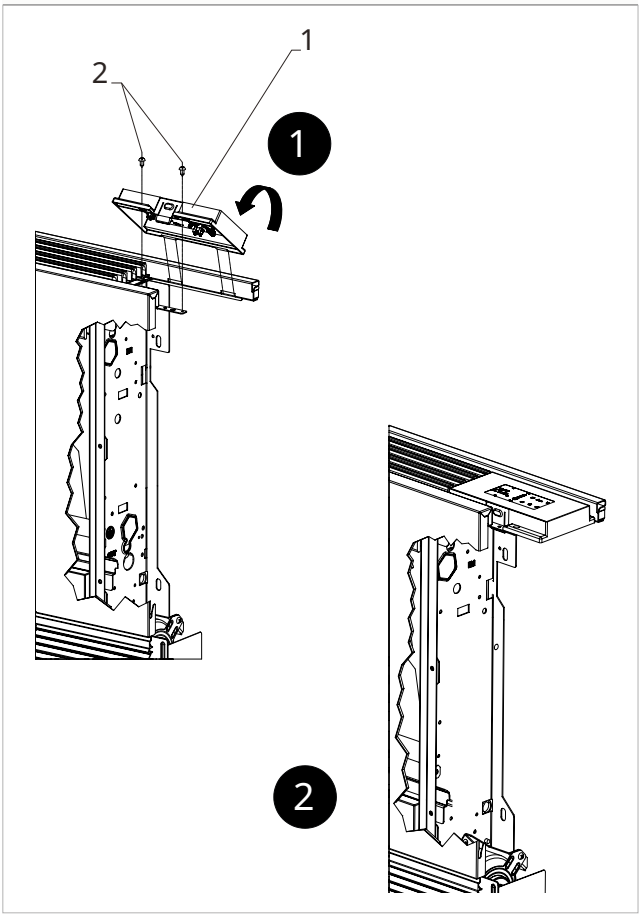
⚠ The printed circuit board provides for operation without a water probe. In this case, the fan stop thresholds are ignored.

7.2.2 Installation of on-board control

To install the on-board control

– place the on-board control at the top of the unit
– fix with the screws provided

1.	On board display
2.	Screws



7.2.3 CP presence contact input connection

The presence contact (CP) input connection is to be made with:

- open contact the unit is active
- closed contact the unit is switched off

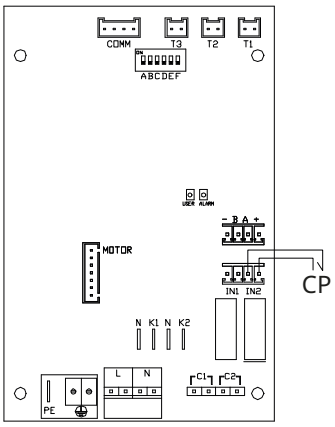
Press any button on the display and the ⚠ symbol flashes.

When the contact connected to input CP is closed, the control is put on stand-by.

⚠ It is not possible to connect the input in parallel with other electronic printed circuit boards.

⚠ Use separate contacts.

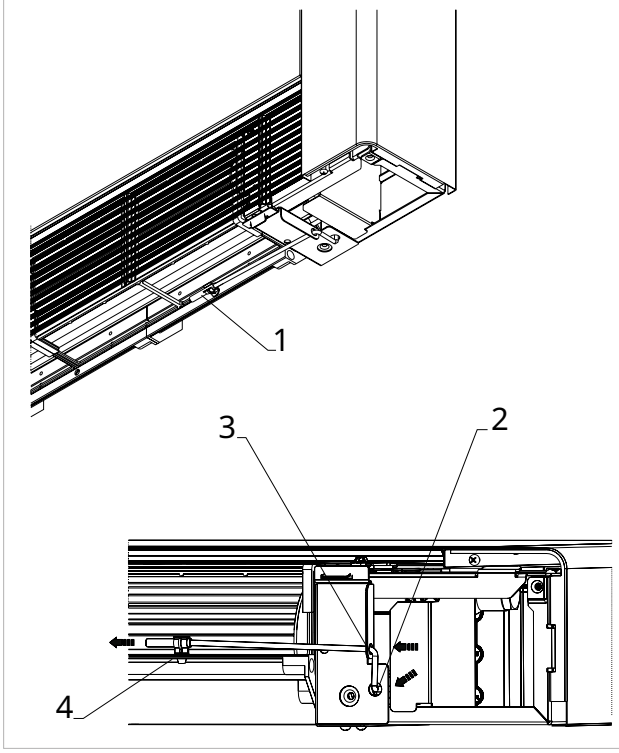
CP	Presence contact



7.2.4 Installation of air temperature probe

– position the temperature probe
– pass the probe through the hole in the shoulder of the appliance
– pass the probe through the lower hole
– fix the temperature probe to the relevant hook

1.	Air temperature probe
2.	Prepared hole in the shoulder of the appliance
3.	Lower hole
4.	Hook for temperature probe



7.2.5 Setting automatic cooling and heating mode

⚠ **Setting only available for 4-pipe units.**

⚠ This control system may only be activated by a qualified and authorised installation technician.

⚠ This type of regulation allows the electronic control to automatically switch between Cooling and Heating operation.

To activate automatic Heating and Cooling switching

- press the key for 10 seconds
  The symbols and light up at the same time.

To return to manual switching

- press the key for 10 seconds
  Both symbols and are switched off.
- press the key again to select the desired function
  One of the two symbols lights up.
- press the key to change operation

Check:

- operation of the heating symbol (on with setpoint higher than room temperature, off with lower setpoint)
- operation of the cooling symbol (on with setpoint lower than room temperature, off with higher setpoint)

⚠ This selection is saved even if the power is switched off.

Set-up of auxiliary dip-switch functions

⚠ There are two dip-switches on the control circuit board for configuring the operation of the device as required.

Dip-switch B

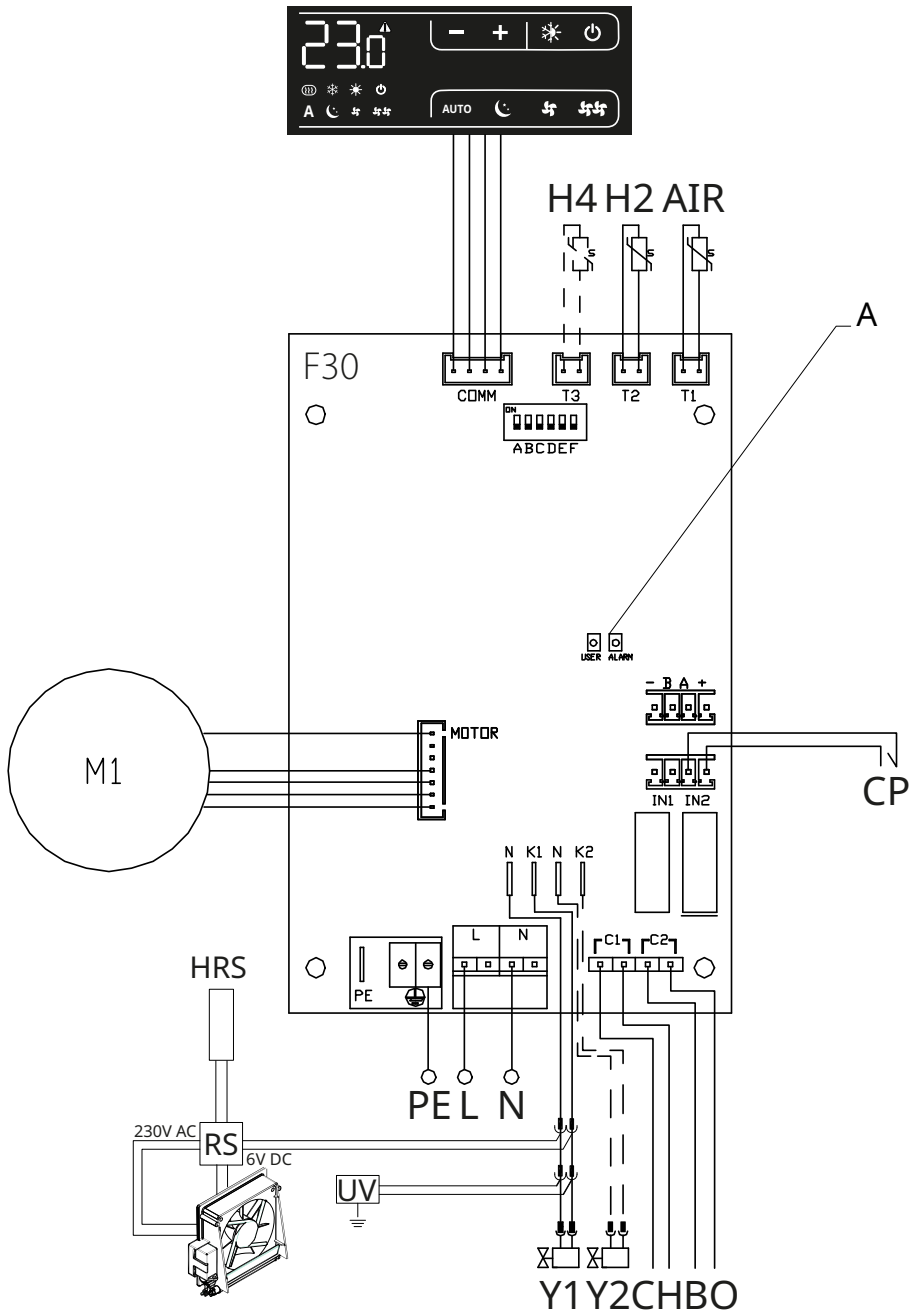
- changes ventilation in cooling mode
- in the ON position, continuous ventilation at minimum speed is enabled even after the setpoint has been reached to allow more regular operation of the temperature probe and avoid air stratification
- in OFF position, ventilation takes place cyclically, 4 min ON - 10 min OFF

Dip-switch C

- changes the logic of night-time operation in heating mode
- in the ON position, ventilation is inhibited, allowing the appliance to heat rooms by radiation and natural convection as in traditional radiators
- in OFF position the fan operates normally

7.3 Connection diagram

M1	Fan motor DC Inverter
HRS	Water temperature probe 10 kΩ for RS models (only for ECA644 - EWF644)
RS	Wiring for RS models (only for ECA644 - EWF644)
UV	UV lamp connection (optional)
Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
Y2	Water solenoid valve, for 4 pipes (only for ECA647 - EWF647). Or mobile flap connection (only for ECA644 - EWF644). Voltage output 230 V/50 Hz/1 A
PE	Earth connection
L-N	Power supply connection 230 V / 50 Hz / 1 A
BO/C2	Heating request contact (for example boiler or heat pump). Activated in parallel with the output of the solenoid valve (Y1) with 1 minute delay when the fancoil is in heating mode and is on call (potential-free contact max. 1 A).
CH/C1	Cooling request contact (for exemple chiller or reversible heat pump). Activated in parallel with the solenoid valve output (Y1) with 1 minute delay when the fancoil is in cooling mode and is on call (potential-free contact max. 1 A).
CP	Presence contact (normally open)
AIR/T1	Water temperature probe
H2/T2	2-pipe water temperature probe (only for ECA644 - EWF644 controls)
H4/T3	4 pipe water temperature probe (only for ECA647 - EWF647 controls)
RS	RS version wiring
HRS	water probe RS version (10 kΩ)
COMM	Connection for on-board control display
A	Led



⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" *p. 15* to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" *p. 15* section to make the connections (only for ECA644 - EWF644 controls).

7.4 Functions

7.4.1 Advanced Menu

⚠ Through the control, it is possible to access the advanced menu.

To access the advanced menu
- with the display off, hold down ⏻ for 10 seconds
  The device turns on and the temperature appears.
- keep pressed until the indication Ad appears

To navigate in the menu
- use the icons − +

To select a menu item and to confirm the changes made
- press the key ⏻ for about 2 seconds
  During the modification the symbol flashes to remind you that you are in the setup menu.
  Confirming the change takes you to the next item.

To exit the menu
- press the icon ⏻ for 10 seconds
- or wait 30 seconds the automatic shutdown

⚠ After a period of 30 seconds from the last action, the display turns off.

Menu items

Ad: Modbus address

uu: Not used

br: Adjust the brightness

di: Digital input

UC: UV lamp options

rH: Not used

rC: Not used

hb: Not used

Ab: Not used

rb: Reset Modbus

Fr: Factory reset

ot: Offset probe T

oh: Not used

Sc: Scale

rE: Not used

Set the ModBus address

To set the Modbus address
- select Ad
- increase or decrease the value with the icons − +
  The setting range is from 01 (min) to 99 (max).

Adjust the brightness

To adjust the brightness
- select br
- increase or decrease the value with the icons − +
  The brightness setting range is from 00 to 01.

⚠ The display brightness changes after confirm the modification.

⚠ You can also reduce the brightness of the display through the keys of the control.

To reduce the lightness of the display via the control keys
- from the display off, press + for about 20 seconds
  01 will appear.
- press −
  00 will appear.
  Wait 30 seconds and check the correct setting.

Select Digital Input

To change digital input
- select di
- select CP for potential-free contact (default)
- select CO to cooling open
- select CC to cooling close
  By default digital input is set to CP.

⚠ For return to the default settings, set the digital input to "CP".

⚠ By selecting one of the other inputs (CO,CC) the seasonality is locked. It is not possible to modify it through the key ❄ of the control.

UV lamp options

To enable UV lamp option
- select UC
- use the + − icons to move inside the menu
- select No to disable the UV lamp option
- select RE to enable the UV lamp option with residential operation (only with an active fan)
- select SA to enable the UV lamp option (in sanitary operation always on)
- press ⏻ to confirm
  By default the UV lamp option is set to No.

Reset Modbus

- select rb
- select "no" to keep the current settings
- select "YS" to reset the settings

Factory reset

To reset the control to factory settings
- select Fr
- select "YS" to reset the settings
- select "no" to keep the current settings

Probe T regulation offset (room temperature probe)

To adjust the probe T
- select oC
- increase or decrease the value with the icons − +
  The setting range is from -9 to 12.

⚠ Use this adjustment carefully.

⚠ This adjustment must be carried out only after having found actual deviations from the room temperature using a reliable tool.

⚠ Adjust the value within a range of -9 °C to +12 °C, in steps of 0,1 °C.

⚠ After 30 seconds from the last action the control goes out and the settings is memorized.

Scale

To change the temperature unit of measure
- select Sc
- select °C o °F
  By default the temperature unit of measure is ° C.

7.4.2 Long period shut-down

For seasonal shutdowns or for long periods:
– disable the device
– set the main system switch to Off

⚠ The antifreeze function is not on.

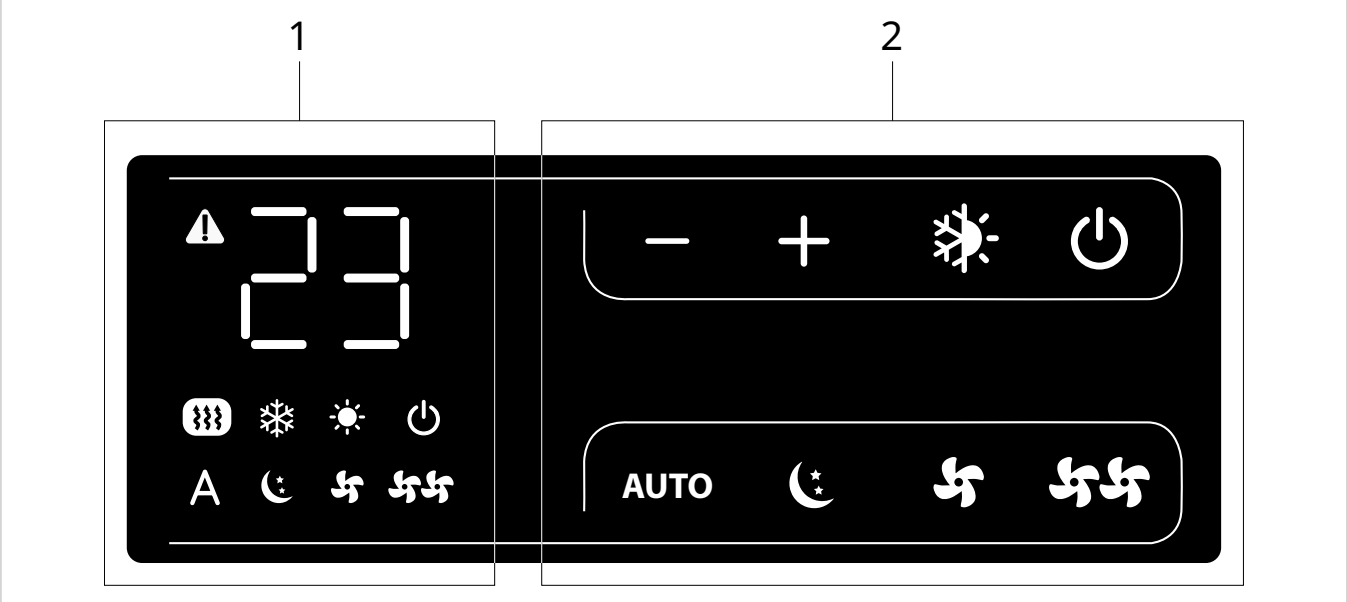
7.4.3 Error signals

Displayed alarms
- E1 Room temperature probe failure
  None of the modes can be activated.
- E2 Faulty fan motor
  Caused by jamming due to foreign bodies or a failure of the rotary sensor.
- E3 Probe T2 water temperature unsuitable
  Ventilation is temporarily stopped until the set setpoint is reached.
- E5 Probe T3 water temperature unsuitable
  Ventilation is temporarily stopped until the set setpoint is reached. (Only for ECA647 - EWF647 controls).
- ☀ ❄ Incorrect setpoint
  The symbol of the function activated flashes and ventilation is stopped until the set setpoint is reached.

ON-BOARD CONTROL CODE E4T643

8.1 Interface

1. Display area
2. Keys area



8.2 Installation

8.2.1 Description

The Smart Touch E4T643on-board electronic control 4-speed fixed speed and thermostat consists of a panel with eight capacitive keys and an amber display.

The control is fitted with:

- AUTO function (step ventilation adjustment)
- temperature adjustment from 5 °C to 40 °C
- summer/winter selector
- water temperature probe (10 Ω) positioned in the coil compartment of the appliance

The Smart Touch electronic on-board control is suitable for installation on the unit and has a 230 V output for controlling a solenoid valve.
Thanks to an additional relay installed on board, it is possible to control a resistor output or the full-flat actuator for mobile grilles in the 4-pipe versions.

Through the water temperature probe (10 kΩ) positioned in the compartment on the unit's coil, the functions can be regulated:

- minimum temperature in heating mode (30 °C)
- maximum temperature in cooling mode (20 °C)

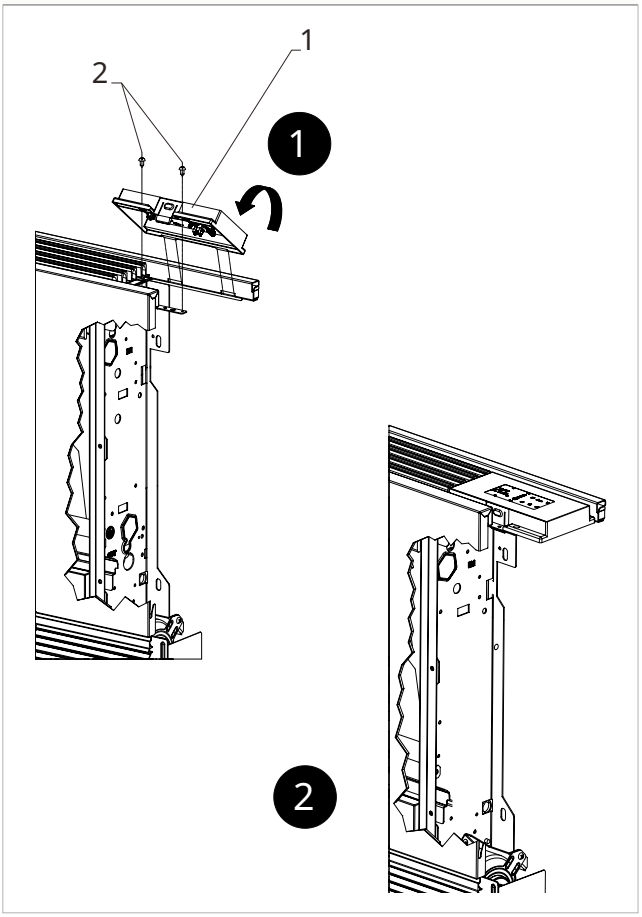
⚠ The printed circuit board provides for operation without a water probe. In this case, the fan stop thresholds are ignored.

8.2.2 Installation of on-board control

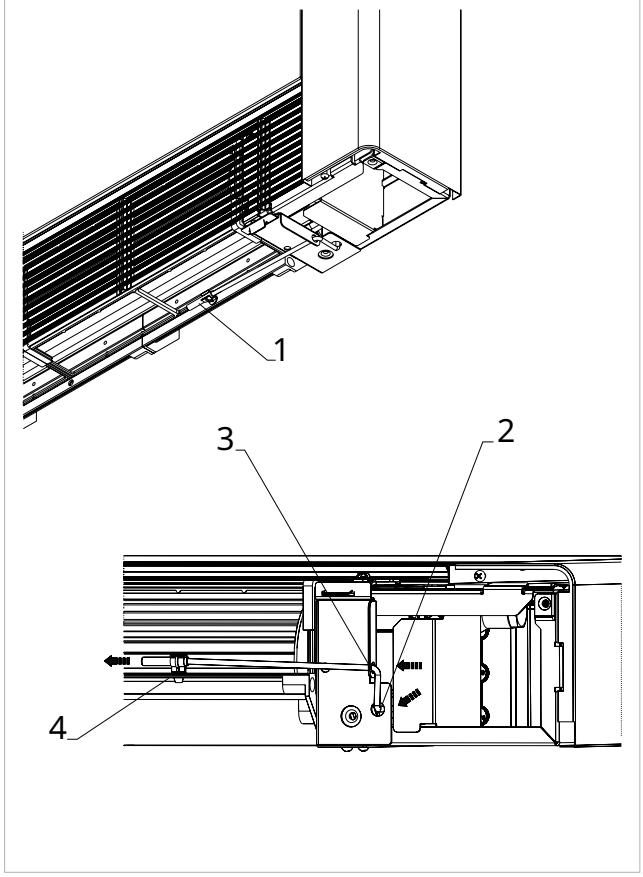
To install the on-board control

– place the on-board control at the top of the unit
– fix with the screws provided

1.	On board display
2.	Screws



1.	Air temperature probe
2.	Prepared hole in the shoulder of the appliance
3.	Lower hole
4.	Hook for temperature probe



8.2.3 Installation of air temperature probe

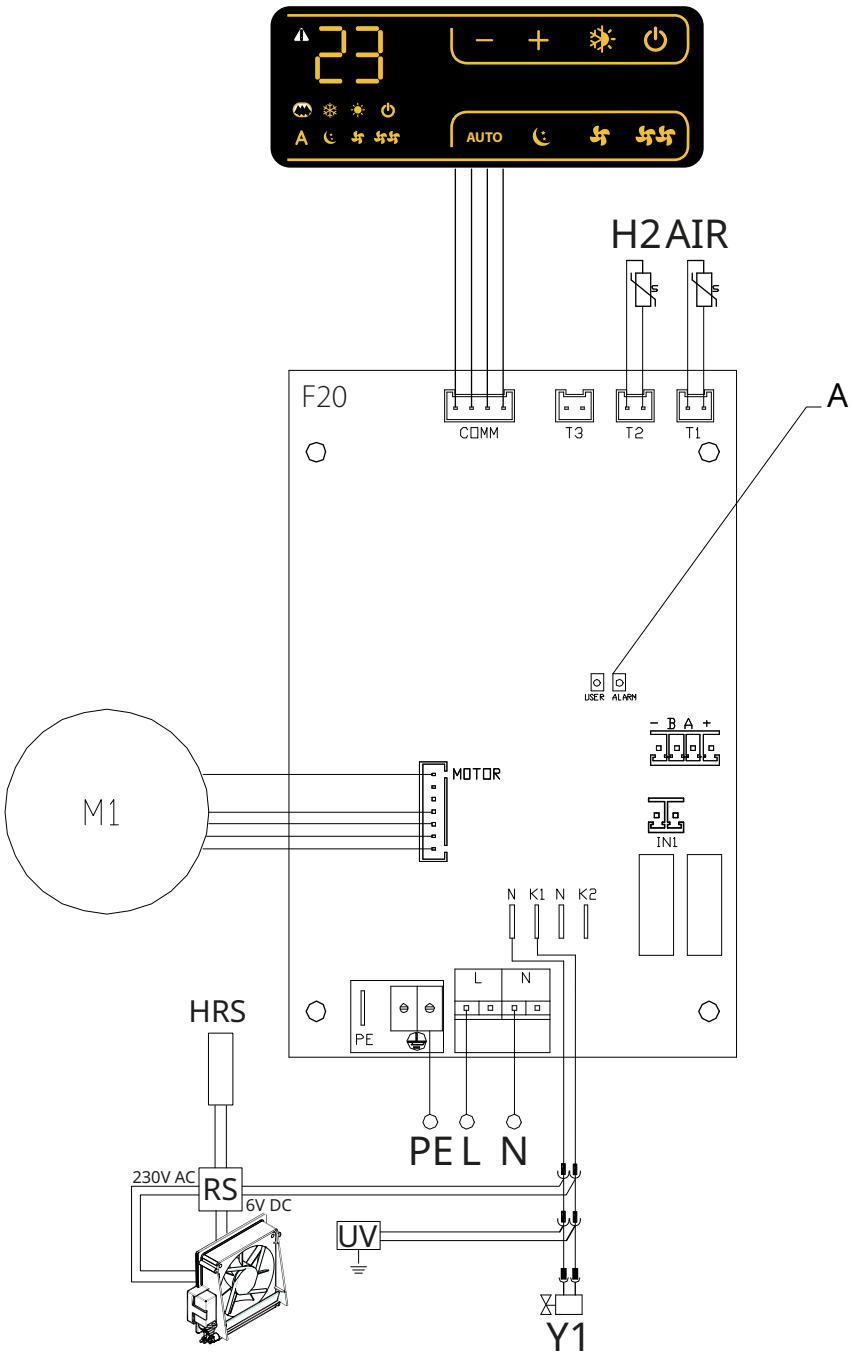
To install the air temperature probe

– position the temperature probe
– pass the probe through the hole in the shoulder of the appliance
– pass the probe through the lower hole
– fix the temperature probe to the relevant hook

8.3 Connection diagram

M1	Fan motor DC Inverter
HRS	Water temperature sensor 10 kΩ for RS models
RS	Wiring for RS models
UV	UV lamp connection
Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
PE	Earth connection
L-N	Power supply connection 230 V / 50 Hz / 1 A

AIR/T1	Water temperature probe
H2/T2	2-pipe water temperature probe
RS	RS version wiring
HRS	water probe RS version (10 kΩ)
COMM	Connection for on-board control display
A	LED



⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" *p. 15* to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" *p. 15* section to make the connections.

8.4 Functions

8.4.1 Advanced Menu

⚠ Through the control, it is possible to access the advanced menu.

To access the advanced menu
- with the display off, hold down ⏻ for 10 seconds
  The device turns on and the temperature appears.
- keep pressed until the indication Ad appears.

To navigate in the menu
- use the icons − +

To select a menu item and to confirm the changes made
- press the key ⏻ for about 2 seconds
  During the modification the symbol flashes to remind you that you are in the setup menu.
  Confirming the change takes you to the next item.

To exit the menu
- press the icon ⏻ for 10 seconds
- or wait 30 seconds the automatic shutdown

⚠ After a period of 30 seconds from the last action, the display turns off.

Menu items

uu: Not used

br: Adjust the brightness

UC: UV lamp options

rH: Not used

rC: Not used

hb: Not used

Ab: Not used

Fr: Factory reset

ot: Offset probe T

oh: Not used

Sc: Scale

rE: Not used

Adjust the brightness

To adjust the brightness
- select br
- increase or decrease the value with the icons − +
  The brightness setting range is from 00 to 01.

⚠ The display brightness changes after confirm the modification.

⚠ You can also reduce the brightness of the display through the keys of the control.

To reduce the lightness of the display via the control keys
- from the display off, press + for about 20 seconds
  01 will appear.
- press −
  00 will appear.
  Wait 30 seconds and check the correct setting.

UV lamp options

To enable UV lamp option
- select UC
- use the + − icons to move inside the menu
- select No to disable the UV lamp option
- select RE to enable the UV lamp option with residential operation (only with an active fan)
- select SA to enable the UV lamp option (in sanitary operation always on)
- press ⏻ to confirm
  By default the UV lamp option is set to No.

Factory reset

To reset the control to factory settings
- select Fr
- select "YS" to reset the settings
- select "no" to keep the current settings

Probe T regulation offset (room temperature probe)

To adjust the probe T
- select ot
- increase or decrease the value with the icons − +
  The setting range is from -9 to 12.

⚠ Use this adjustment carefully.

⚠ This adjustment must be carried out only after having found actual deviations from the room temperature using a reliable tool.

⚠ Adjust the value within a range of -9 °C to +12 °C, in steps of 0,1 °C.

⚠ After 30 seconds from the last action the control goes out and the settings is memorized.

Scale

To change the temperature unit of measure
- select Sc
- select °C o °F
  By default the temperature unit of measure is ° C.

8.4.2 Long period shut-down

For seasonal shutdowns or for long periods
– disable the device
– set the main system switch to Off

⚠ The antifreeze function is not on.

8.4.3 Error signals

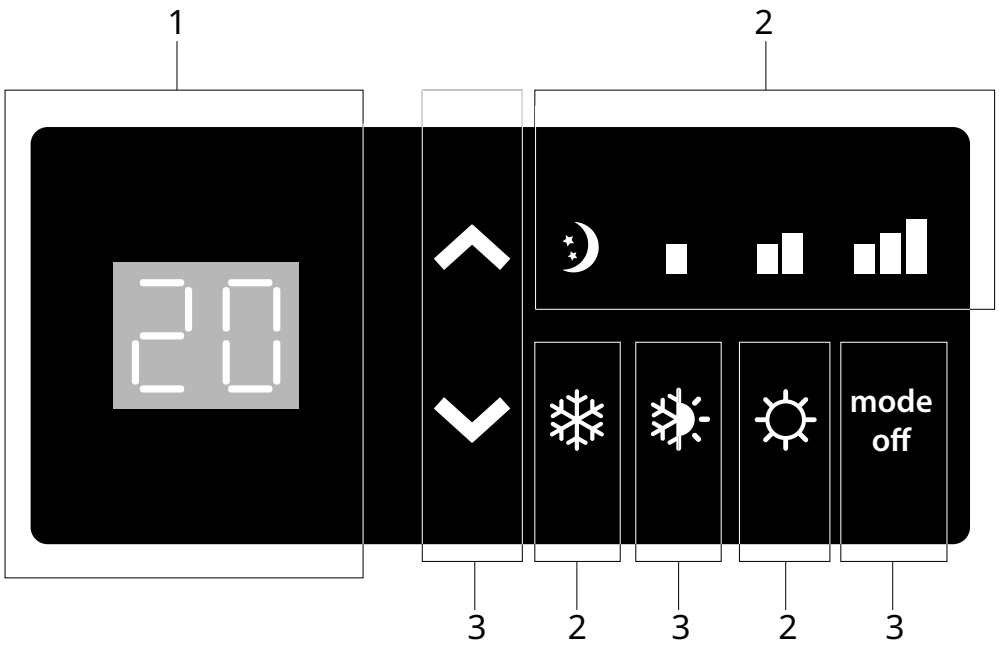
Displayed alarms

- E1 Room temperature probe failure
  None of the modes can be activated.
- E2 Faulty fan motor
  Caused by jamming due to foreign bodies or a failure of the rotary sensor.
- E3 Probe T2 water temperature unsuitable
  Ventilation is temporarily stopped until the set setpoint is reached.
- ☀❄ Incorrect setpoint
  The symbol of the function activated flashes and ventilation is stopped until the set setpoint is reached.

ON-BOARD CONTROL CODE E2T543

9.1 Interface

1. Display area
2. Led area
3. Keys area



9.2 Installation

9.2.1 Description

On-board control with:

- speed selector
- ON/OFF key
- room thermostat adjustable from 5 °C to 40 °C
- summer/winter selector
- winter minimum temperature function 30 °C and summer maximum temperature function 20 °C

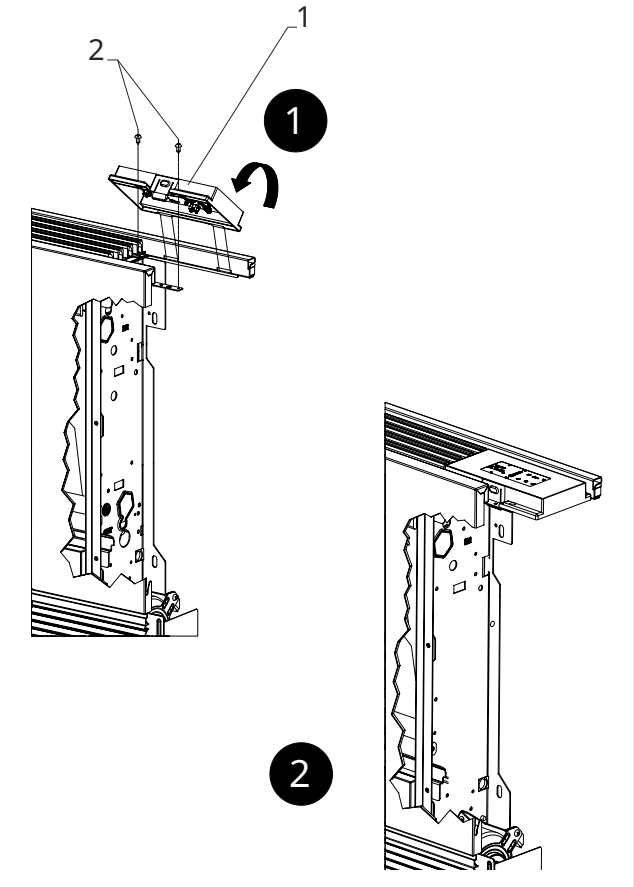
⚠ The on-board control with thermostat is suitable for installation on board the unit and has a 230 V output for the control of a solenoid valve.

9.2.2 Installation of on-board control

To install the on-board control

– place the on-board control at the top of the unit
– fix with the screws provided

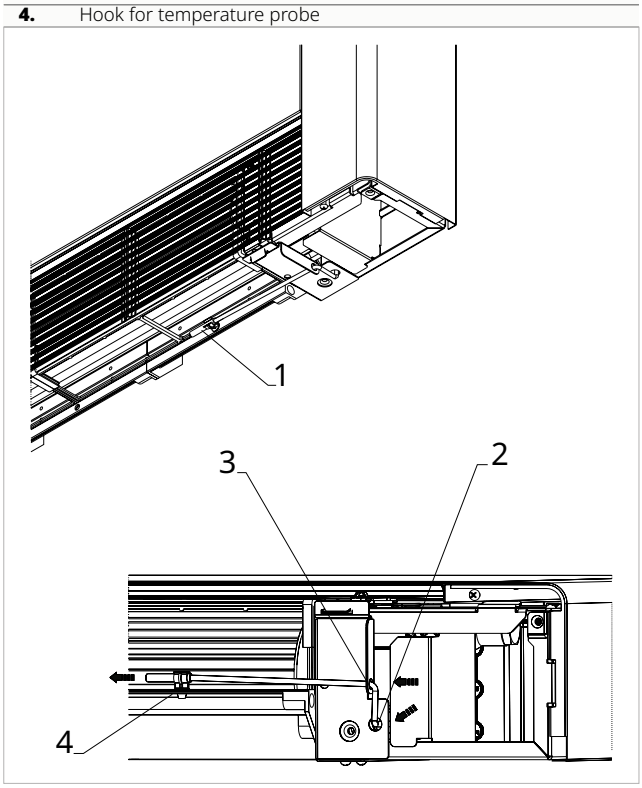
1.	On board display
2.	Screws



9.2.3 Installation of air temperature probe

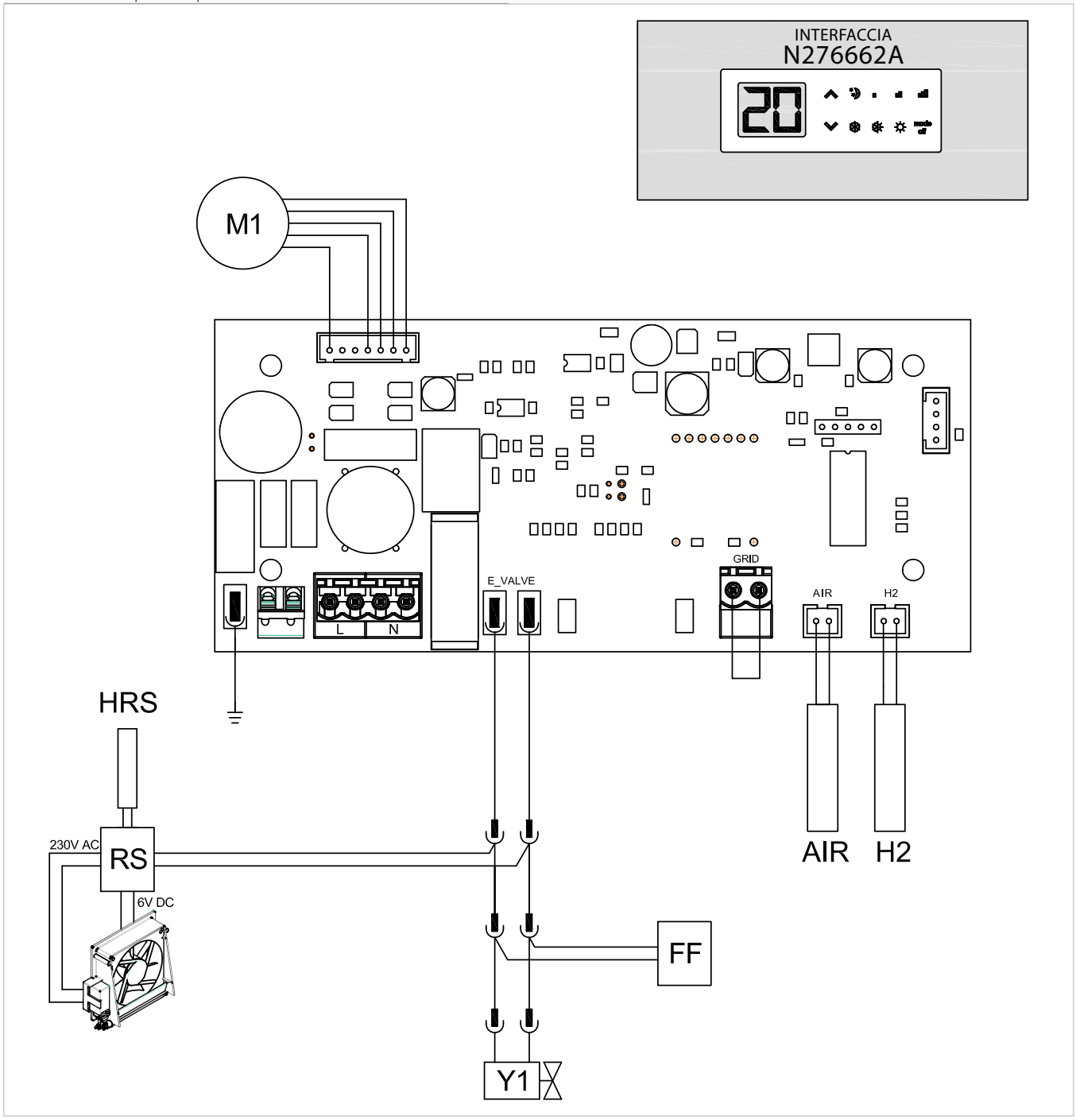
– position the temperature probe
– pass the probe through the hole in the shoulder of the appliance
– pass the probe through the lower hole
– fix the temperature probe to the relevant hook

1.	Air temperature probe
2.	Prepared hole in the shoulder of the appliance
3.	Lower hole
4.	Hook for temperature probe



9.3 Connection diagram

H2	Hot water temperature probe 10 kΩ
M1	Fan motor DC Inverter
Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
L-N	230 V/50 Hz electrical power supply connection
HRS	Water temperature probe 10 kΩ for RS models
RS	Wiring for RS model
AIR	Air temperature probe
FF	Output for mobile suction panel servomotors (power output at 230 V/50 Hz 1 A)



⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" *p. 15* to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" *p. 15* section to make the connections.

9.4 Water probe management

Through the water temperature probe (10 kΩ) positioned in the compartment on the unit's coil, the functions can be regulated:

- minimum temperature in heating mode (30 °C)
- maximum temperature in cooling mode (20 °C)

If the printed circuit board detects the water temperature probe correctly, start-up takes place under normal conditions.

If the water temperature probe is not correctly identified, the absence is indicated with:

- il lampeggio contemporaneo dei tasti ❄ e ☀
- the stopping of operation

⚠ The printed circuit board provides for operation without a water probe. In this case, the fan stop thresholds are ignored.

To confirm operation without probe

- press the ☀ key for 5 seconds
  Operation without a probe is activated.
  This function will be saved for all subsequent start-ups.

⚠ If the probe is connected later, normal operation with the temperature thresholds is automatically restored.

If the unit is working with the probe connected and the water temperature is not suitable for operation

- minimum temperature in heating mode (30 °C)
- maximum temperature in cooling mode (20 °C)

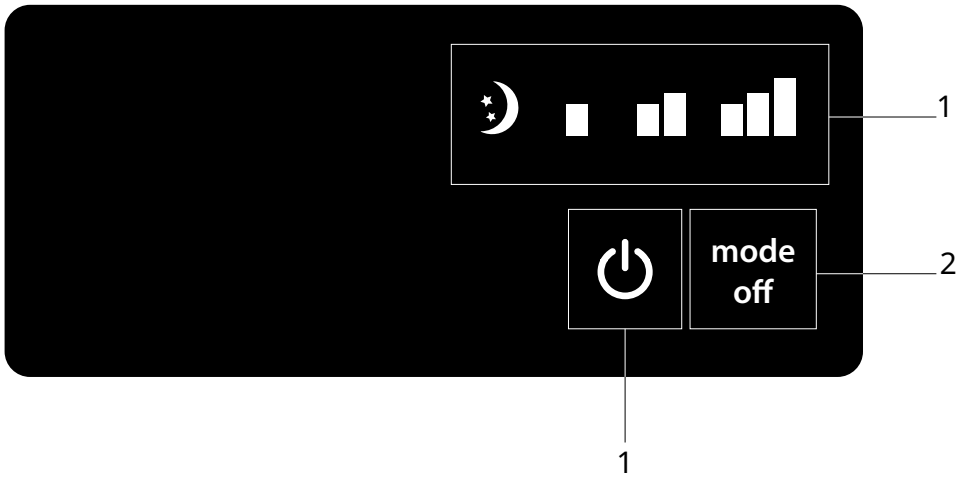
Ventilation will be stopped.
The anomaly signalled on the display by the flashing of the LED corresponding to the active function

- Cooling function ❄
- Heating function ☀

SPEED SELECTOR CODE B3V137

10.1 Interface

1. Led area
2. Keys area



10.2 Installation

10.2.1 Description

On-board speed selector B3V137 for connection to standard single-contact wall-mounted thermostats.

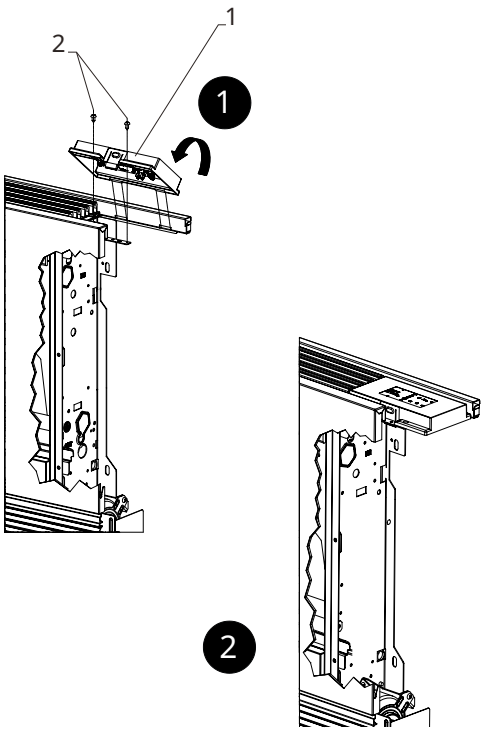
On-board control with:
- speed selector
- ON/OFF key
- TERM room thermostat contact

Suitable for installation on board the unit.
It has a 230 V output for controlling a solenoid valve.

10.2.2 Installation of on-board control

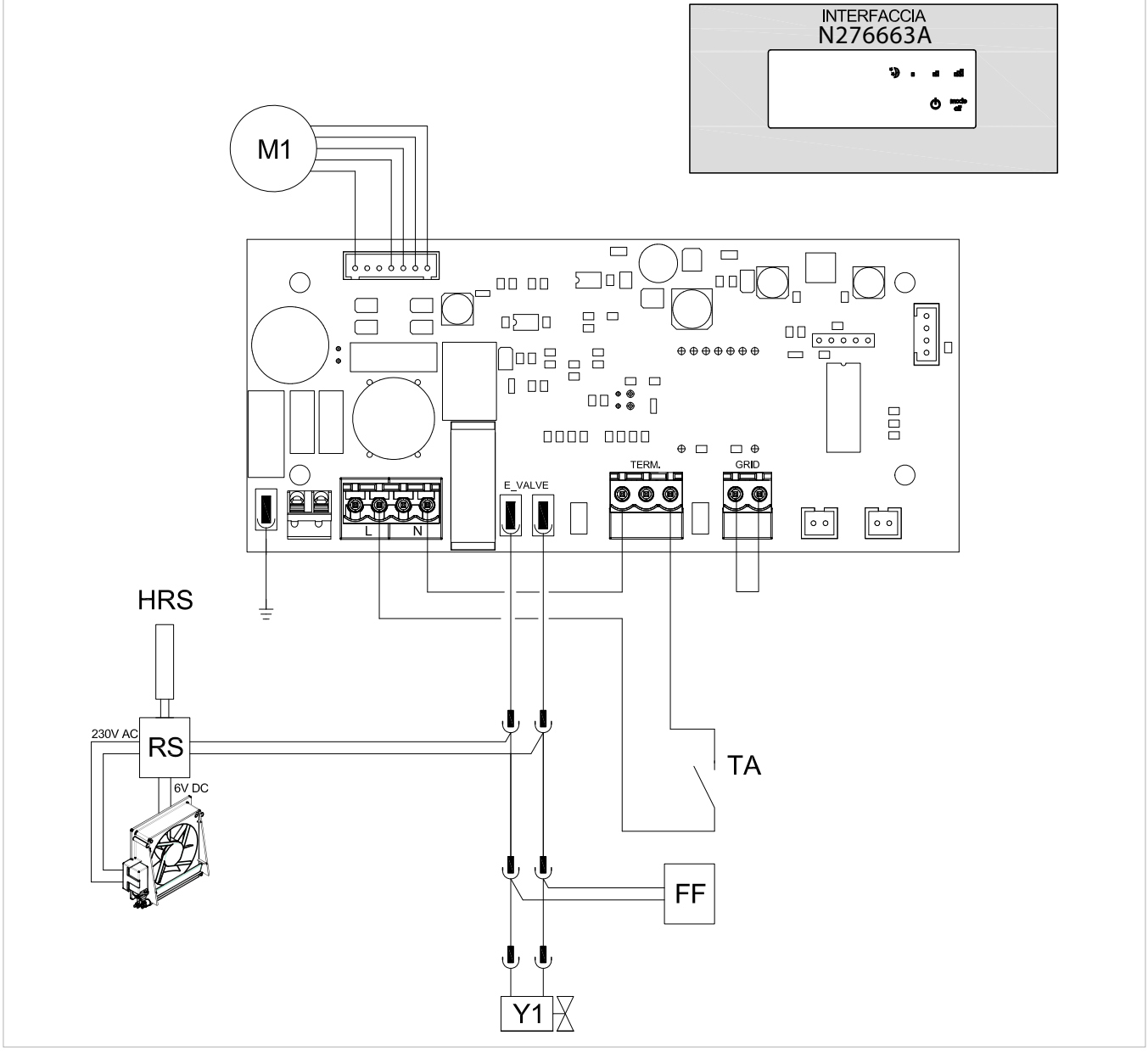
To install the on-board control
– place the on-board control at the top of the unit
– fix with the screws provided

1. On board display
2. Screws



10.3 Connection diagram

TA	230 V connection consent from room thermostat
M1	Fan motor DC Inverter
Y1	Water solenoid valve (230 V/50 Hz 1 A power output)
L-N	230 V/50 Hz electrical power supply connection
RS	Wiring for RS model
HRS	Water temperature probe 10 kΩ for RS models
FF	Output for mobile suction panel servomotors (power output at 230 V/50 Hz 1 A)



⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" ***p. 15*** to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" ***p. 15*** section to make the connections.

10.4 LED signal

The printed circuit board provides diagnostics in the event of anomalies which can be identified by means of LED combinations.

- Led ⏻ flashing
  TA contact open.
- LED ⏻ on
  TA contact closed.
- LED ☾ on
  Active supersilent speed (400 rpm).
- 4 flashing LEDs
  GRID contact open.
- LED ▂ on
  Active minimum speed (680 rpm).
- LED ▂▄ on
  Active medium speed (1100 rpm).
- LED ▂▄▆ on
  Active maximum speed (1500 rpm).

ON-BOARD ELECTRONIC BOARD B4V642 + WALL CONTROL B3V151

On-board electronic board Code B4V642

11.1.1 Description

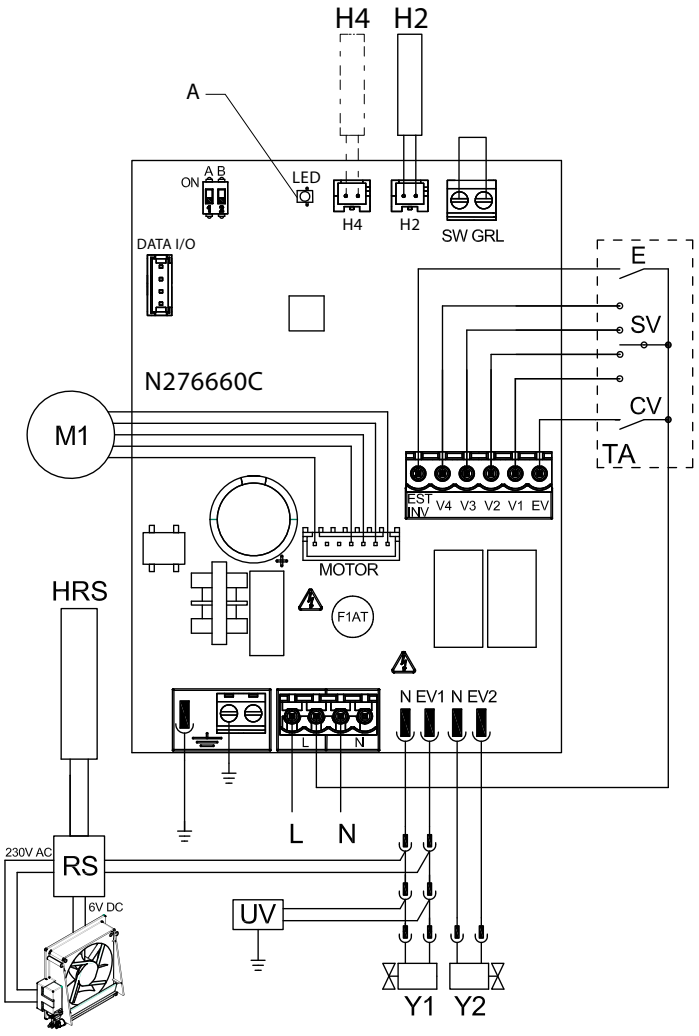
On-board electronic printed circuit board for connection to 3-speed wall-mounted electromechanical thermostats.

Installed on the unit, it allows the motor to function at fixed speeds.
It has a 230 V output for controlling a solenoid valve.

11.1.2 Connection diagram

L-N	230 V/50 Hz electrical power supply connection
EV	Solenoid valve permission input
V1	Maximum fan speed
V2	Medium fan speed
V3	Minimum fan speed
V4	Supersilent speed
E	Input selection heating/cooling
EV	4-pipe water solenoid valve (230 V/50 Hz 1 A power output)
Y1	Water solenoid valve (230 V / 50 Hz / 1 A power output)
UV	UV lamp accessory connection

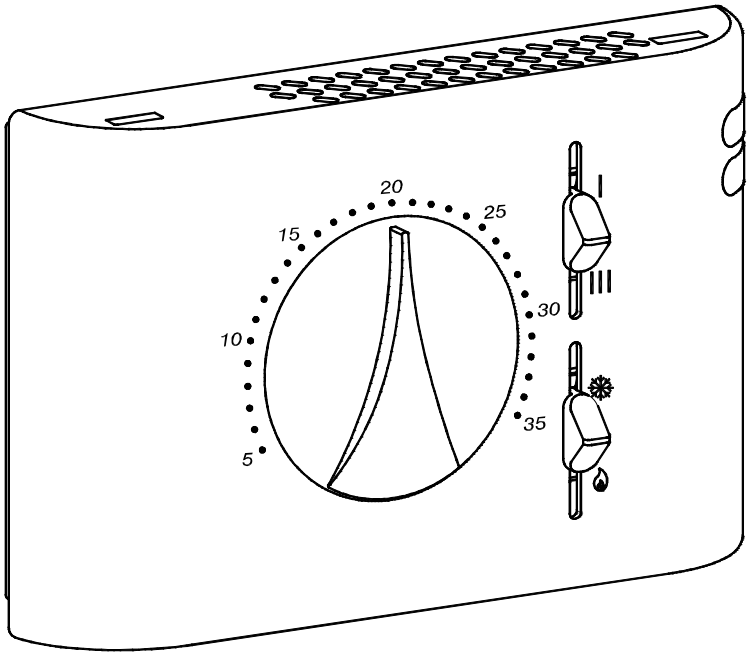
HRS	Water temperature probe 10 kΩ for RS models
RS	Wiring for RS model
M1	Fan motor DC Inverter
TA	3 speed room thermostat (to buy, install and connect by the installer)
CV	Thermostat consent
SV	Speed selector
H2	Hot water temperature probe 10 kΩ
H4	Water temperature probe 10 kΩ, for 4 pipes
A	Led



11.2 On-board electronic board Code B4V642 + wall control Code B3V151

11.2.1 Interface

Wall mounted control with thermostat, summer/winter and speed selectors.



11.2.2 Description

Wall mounted control with thermostat, summer/winter and speed selectors, in connection with B4V642II.

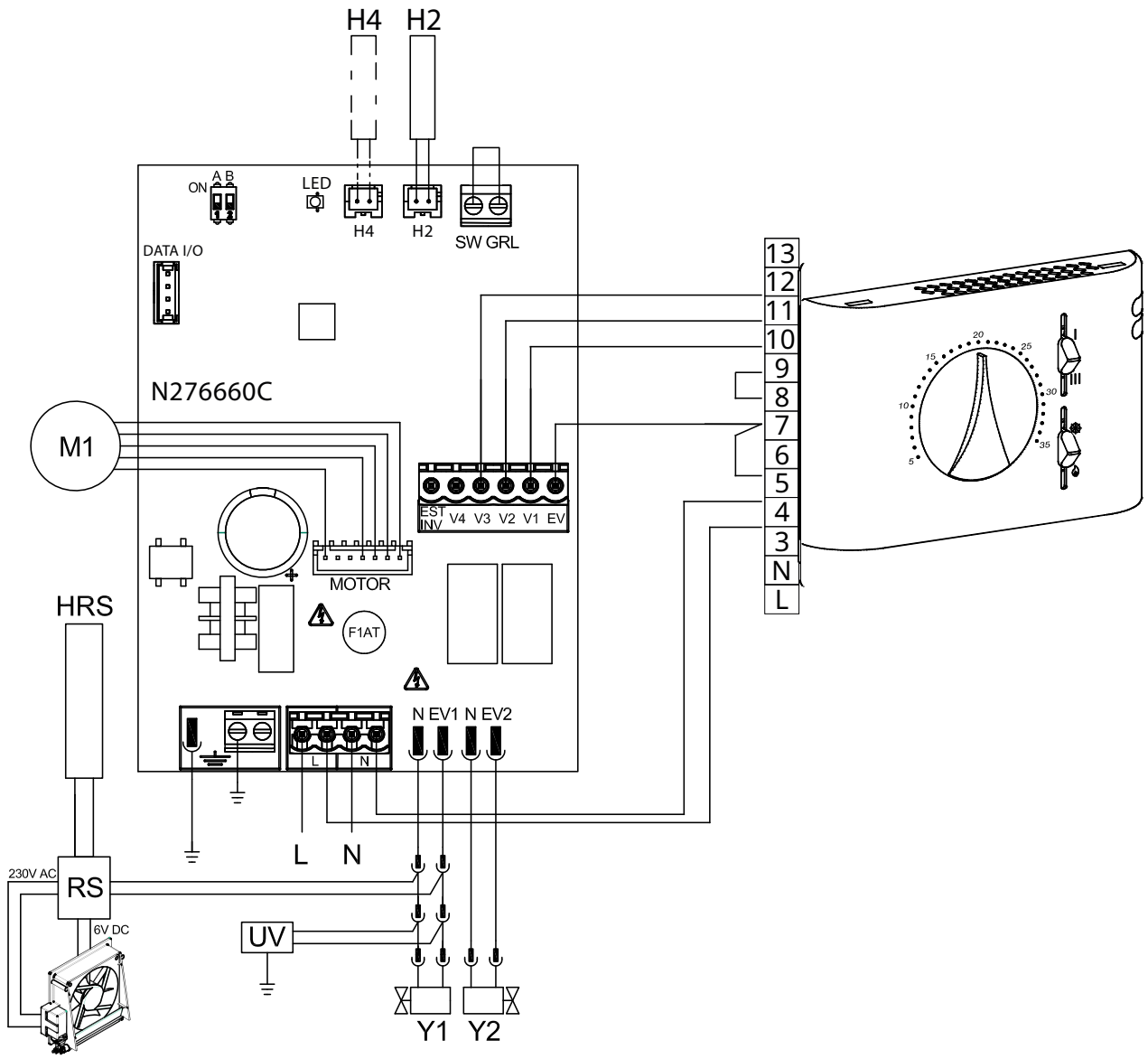
⚠ **For 2 pipe units**

⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" *p. 15* to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" *p. 15* section to make the connections.

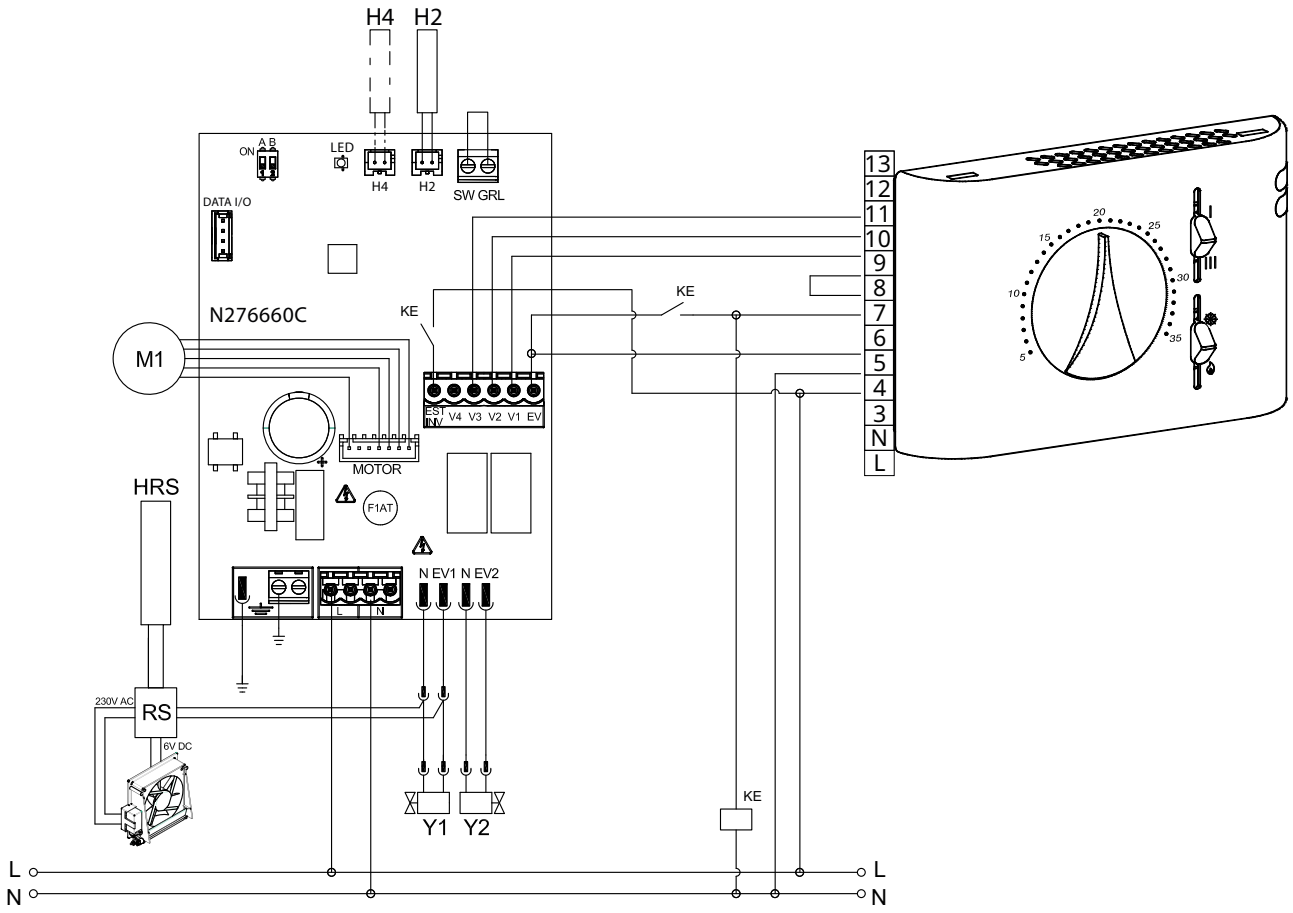
11.2.3 Connection diagram

L-N	230 V/50 Hz electrical power supply connection
EV	Solenoid valve permission input
V1	Maximum fan speed
V2	Medium fan speed
V3	Velocità minima ventilatore
V4	Supersilent speed
EV	4-pipe water solenoid valve (230 V/50 Hz 1 A power output)
Y1	Water solenoid valve (230 V / 50 Hz / 1 A power output)
HRS	Water temperature probe 10 kΩ for RS models
RS	Wiring for RS model
M1	Fan motor DC Inverter
H2	Hot water temperature probe 10 kΩ
H4	Water temperature probe 10 kΩ, for 4 pipes



11.2.4 Connection diagram with seasonal switching

L-N	230 V/50 Hz electrical power supply connection
EV	Solenoid valve permission input
V1	Maximum fan speed
V2	Medium fan speed
V3	Velocità minima ventilatore
V4	Supersilent speed
EV	4-pipe water solenoid valve (230 V/50 Hz 1 A power output)
Y1	Water solenoid valve (230 V / 50 Hz / 1 A power output)
HRS	Water temperature probe 10 kΩ for RS models
RS	Wiring for RS model
M1	Fan motor DC Inverter
KE	Auxiliary relay (not included in supply)
H2	Hot water temperature probe 10 kΩ
H4	Water temperature probe 10 kΩ, for 4 pipes



11.3 Connections

11.3.1 Connection with 3 speed thermostats

CV input

The CV input is the ON/OFF of the board.

- in case of open input, the circuit board goes into stand-by mode
- in case of closed input, the circuit board is in operation

⚠ Please refer to the sections of the electrical diagrams for connection indications.

To activate solenoid valve Y1

– Connect the CV input to the terminal L of the 230 V power supply

Speed inputs V1, V2, V3, V4

Inputs V1, V2, V3, V4 regulate the ventilation speed.
The printed circuit board has 4 speed inputs:

- V1 maximum speed (1500 rpm)
- V2 - medium speed (1100 rpm)
- V3 - minimum speed (680 rpm)
- V4 supersilent speed (550 rpm)

⚠ Connect the 3 speeds of the thermostat to three of the four available inputs based on the characteristics and use of the location.

Examples:

- to residential application where maximum silence is required, connect V2, V3 e V4
- for a residential application where heating capacity is a priority, connect V1, V2, V3

In the event of simultaneous closure of several inputs, the motor will run at a number of revolutions equal to that set by the connection with the highest speed.

⚠ You can connect several boards in parallel to a single thermostat, even using different speed.

11.3.2 Water probe management

Through the water temperature probe (10 kΩ) positioned in the compartment on the unit's coil, the functions can be regulated:

- minimum temperature in heating mode (30 °C)
- maximum temperature in cooling mode (20 °C)

Water probe connection to the control

In case of combination with electromechanical thermostats, or other commercial controls

– the H2 water probe must not be connected to the circuit board on the appliance

The printed circuit board works in:

- minimum water temperature for heating function (<30 °C)
- maximum water temperature for cooling function (>20 °C)

⚠ If the printed circuit board detects the water temperature probe correctly, start-up takes place under normal conditions.

In case of temperature not suitable for active operation:

- the ventilation stops
- error is indicated by the flashing of the LED on the PCB

Operating mode Heating/cooling

The Heating/Cooling operation mode is activated through the EST-INV input on the printed circuit board:

- when the connection is open, heating operation is activated
- when the connection is closed, Cooling operation is activated

⚠ It is possible to use the device without the water probe activated. In this case the error is signaled on led.

⚠ Please refer to "Error signals" *p. 62* for LED indications.

To confirm operation without probe

- disconnect and connect the board power
  This condition will be saved by the board for all subsequent starts.
- reconnect the probe to resume normal operation

11.4 Error signals

LED signals

- LED off
  The CV contact is open, stand-by condition.
- LED on
  The CV contact is closed, normal operation.
- LED 1 flash / pause
  Water temperature probe H2 alarm not suitable, temporary stop of the ventilation until the temperature reaches an appropriate value.
- LED 2 flashes / pause
  Motor alarm (for example jamming due to foreign bodies or fault in the rotation sensor).
- LED 3 flashes / pause
  Water probe alarm disconnected or faulty.

CONNECTION 0-10 V CODE B10642

12.1 Installation

12.1.1 Description

On-board electronic printed circuit board for control from systems with 0-10 V DC analogue output.
Mounted on the unit, it allows the motor to be managed with modulating speed.

Motor regulation can be made through a 0-10 V analogue input with an input impedance of 25 kΩ.

⚠ Consider the impedance value, especially when controlling several units in parallel.

It has a 230 V output for controlling a solenoid valve.

12.2 Connections with 0-10 V thermostats

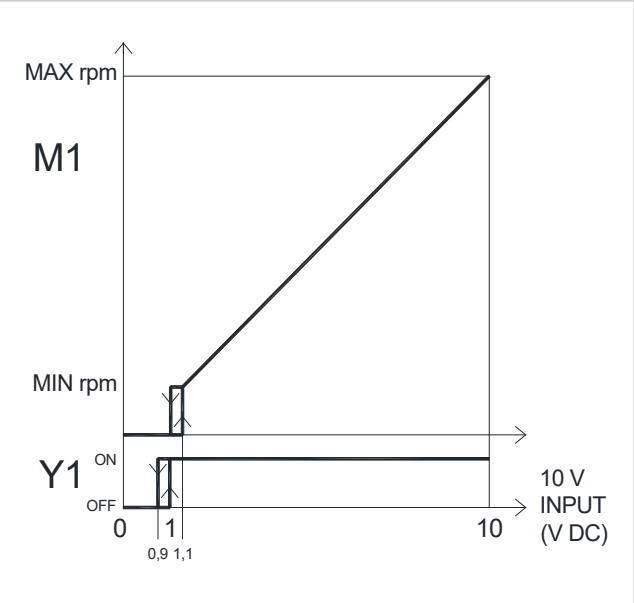
With the GRID input closed, the 10 V input

- activates solenoid valve Y1
- regulates the fan speed

Linear speed regulation is possible, from a minimum value (400 rpm) to a maximum value (1500 rpm) for voltage values ≥ 1.1 V to 10 V DC.

⚠ The motor is switched off for values below 1 V.

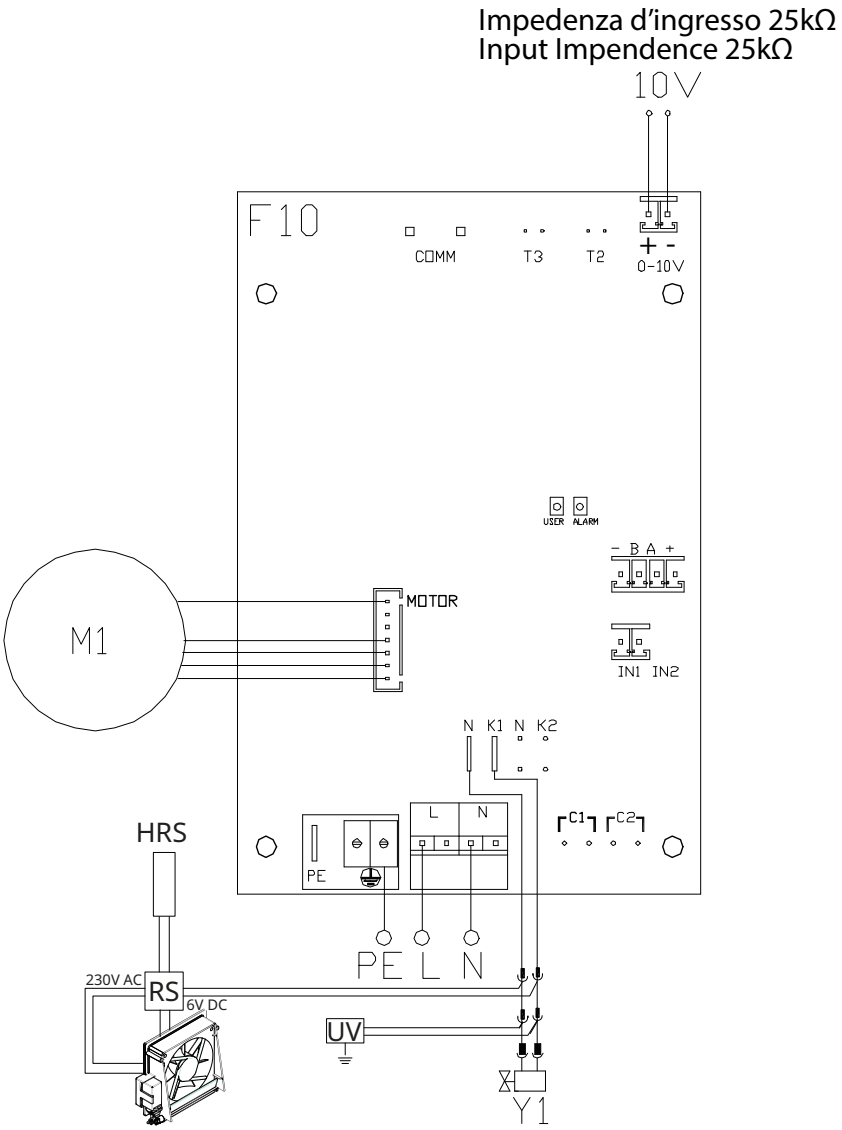
⚠ The Y1 solenoid valve is switched on for voltage values greater than 1 V. The Y1 solenoid valve is switched off at values below 0.9 V.



12.3 Connection diagram

M1	Fan motor DC Inverter
PE	Earth connection
L-N	Power supply connection 230 V / 50 Hz / 1 A

Y1	Water electrovalve (voltage output 230 V / 50 Hz / 1 A)
10V	Input 0-10 V
F10	Electronic board on the machine



⚠ For models with hydraulic connections on the right hand side, please refer to "Models with right-hand hydraulic connections" ***p. 15*** to make the connections.

⚠ For radiant panel (RS) versions, please refer to the "Version configurations" ***p. 15*** section to make the connections.

12.4 LED signal

The PCB has a status LED.

LED signals

- LED off
  Input signal below 0.9 V. Device switched off or without power supply.
- LED on
  Input signal more than 1 V. Normal operation of the device.
- LED frequent flashing
  Activation of grille safety microswitch S1, dovuto all'operazione di pulizia filtri.
- LED 2 flashes / pause
  Motor alarm (for example jamming due to foreign bodies or fault in the rotation sensor).

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