



INSTALLATION
INSTRUCTIONS

EN

MANUALE
D'INSTALLAZIONE

IT

NOTICE
D'INSTALLATION

FR

INSTALLATIONS-
ANLEITUNGEN

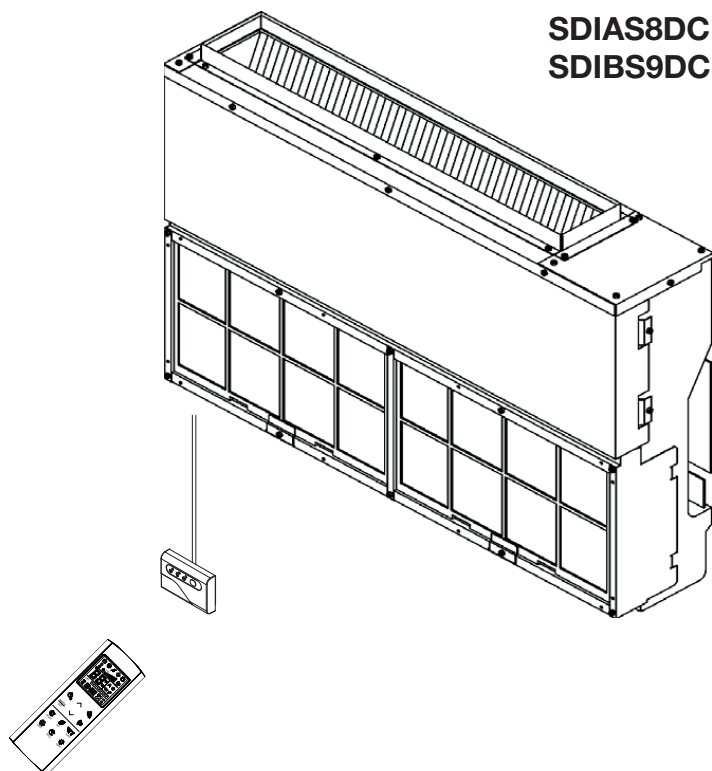
DE

INSTRUCCIONES
DE INSTALACIÓN

ES

INSTRUÇÕES DE
INSTALAÇÃO

PT



Split air conditioner system

Condizionatore d'aria split system

Climatiseurs split

Zweirohrsystem-Klimaanlage

Acondicionador de aire Split System

Sistema de ar condicionado de Unidades Separadas

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IMPORTANT!
Please read before installation

This air conditioning system meets strict safety and operating standards.
 For the installer or service person, it is important to install or service the system so that it operates safely and efficiently.

operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.
- The unit must be supplied with a dedicated electrical line.



WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

Recommendations

- The personnel responsible for receiving the unit must conduct a visual inspection in order to identify all damage to which the unit may have been subjected during transport: refrigerating circuit, electrical cabinet, chassis and cabinet.

If necessary, get help

These instructions are all you need for most installation sites and maintenance conditions.
 If you require help for a special problem, contact our sale/service outlet or your certified dealer for additional instructions.

In case of improper installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

- During installation, connect before the refrigerant system and then the wiring one; proceed in the reverse order when removing the units.

**WARNING****When wiring**

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIANS SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked, to ensure the grounding.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring.
Improper connections and inadequate grounding can cause **accidental injury and death**.
- **Ground the unit** following local electrical codes.
- The Yellow/Green wire cannot be used for any connection different from the ground connection.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Do not allow wiring to touch the refrigerant tubing or any moving parts of the fan
- Do not use multi-core cable when wiring the power supply and control lines. Use separate cables for each type of line.

When transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminium fins on the air conditioner can cut your fingers.

When installing...**... on the floor, at the wall, under the ceiling**

Make sure they are strong enough to hold the unit-weight. It may be necessary to build a strong wooden or metal frame to provide added support.

... In a room

Properly insulate any tubing run inside a room to prevent “sweating”, which can cause dripping and water damage to walls and floors.

When connecting refrigerant tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them; screw by hand and then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

NOTE:

Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion, the refrigerant tubing for your particular model is specified as narrow tube for liquid, wide tube for gas.

When servicing

- Turn the power OFF at the main power board before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after the work, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.
- Ventilate the room during the installation or testing the refrigeration system; make sure that, after the installation, no gas leaks are present, because this could produce toxic gas and dangerous if in contact with flames or heat-sources.

Model Combinations:

SEE CATALOGUE

Power Supply:

220 - 240 V ~ 50 Hz

1 - INSTALLATION SITE SELECTION

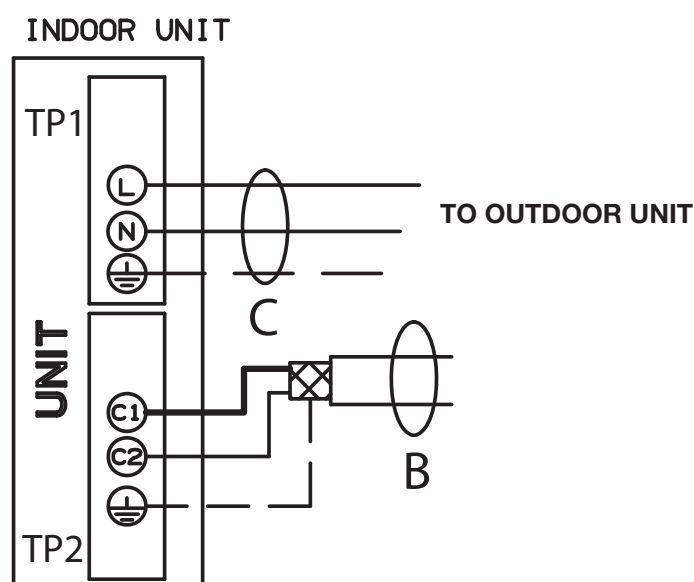
AVOID

- Direct sunlight.
- Nearby heat sources that may affect unit performance.
- Areas where leakage of flammable gas may be expected.
- Locations where large amounts of oil mist may occur (such as in kitchen or near factory equipment) because oil contamination can cause operation problems and may deform plastic surfaces and parts of the unit.
- Unsteady locations that will cause noise or possible water leakage.
- Locations where the indoor unit and the remote control unit will be splashed with water or affected by dampness or humidity.
- To make holes in areas where electrical wiring or conduits are located

DO

- Select an appropriate position from which every corner of the room can be uniformly cooled.
- Select a sufficiently strong location to support the weight of the unit.
- Select a location where tubing and drain hose have the shortest run to the outside.
- Allow access for operation and maintenance as well as unrestricted air flow around the unit.

2 - SYSTEM WIRING DIAGRAM



3 - WIRES' LENGTH, SIZE AND DELAYED FUSE

SEE INSTALLATION INSTRUCTIONS OF OUTDOOR UNIT

Connecting wire B (SHIELDED):

Bipolar electric shielded wire; size and length of the suggested electric wire are showed on table "electrical data" (Outdoor unit). The wires have not to be lighter than Mod. H05VVC4V5-K (according to CEI 20-20 CENELEC HD21).

Connecting wire C (with ground conductor):

Multipolar electric wire; size and length of the suggested electric wire are showed on table "electrical data" (Outdoor unit). The wires have not to be lighter than Mod. H07RN-F (according to CEI 20-19 CENELEC HD22). Make sure the length of the conductors between the fixing point and the terminals allows the straining of the conductors L, N before that of the grounding.

4 - ADDITIONAL MATERIAL REQUIRED FOR INSTALLATION (NOT SUPPLIED)

- Deoxidized annealed copper tube for refrigerant tubing connecting the units of the system; it has to be insulated with foamed polyethylene (min. thickness 8mm). For tubing dimensions, tubing length and elevation difference limits, see installation manual of outdoor unit.

MODEL	NARROW TUBE		LARGE TUBE	
	OUTER DIAMETER	MIN. THICKNESS	OUTER DIAMETER	MIN. THICKNESS
SDIA	6,35 mm	0,8 mm	9,52 mm	0,8 mm
SDIB	6,35 mm	0,8 mm	12,7 mm	0,8 mm

- PVC pipe for condensate drain pipe (ø int.18mm) in length suitable to let the condensate flow into the outside drainage.
- Anti-freeze oil for flare connections (about 30g.).
- Electric wire: use insulated copper wires of size and length as shown in the paragraph "WIRING DIAGRAMS" (Outdoor unit).

5 - OPERATING LIMITS

<ul style="list-style-type: none"> ■ Cooling Maximum conditions Outdoor temperature : 43°C D.B. Room temperature : 32°C D.B. / 23°C W.B. 	<ul style="list-style-type: none"> ■ Heating Maximum conditions Outdoor temperature : 24°C D.B. / 18°C W.B. Room temperature : 27°C D.B.
<ul style="list-style-type: none"> ■ Cooling Minimum conditions Outdoor temperature : -15°C D.B. Room temperature : 10°C D.B. / 6°C W.B. 	<ul style="list-style-type: none"> ■ Heating Minimum conditions Outdoor temperature : -15°C D.B. Room temperature : 5°C D.B.

6 - ACCESSORIES SUPPLIED WITH THE UNIT

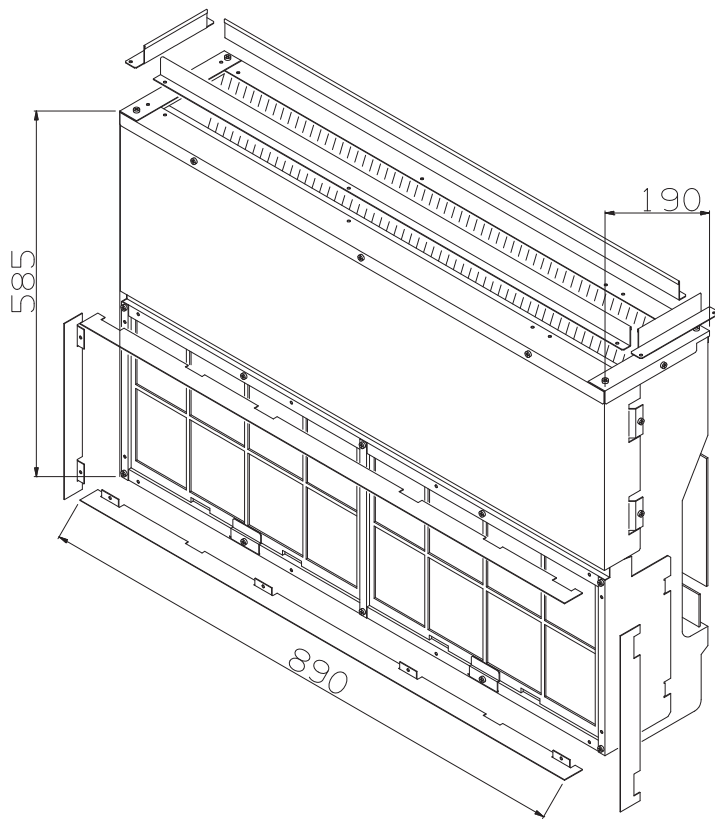
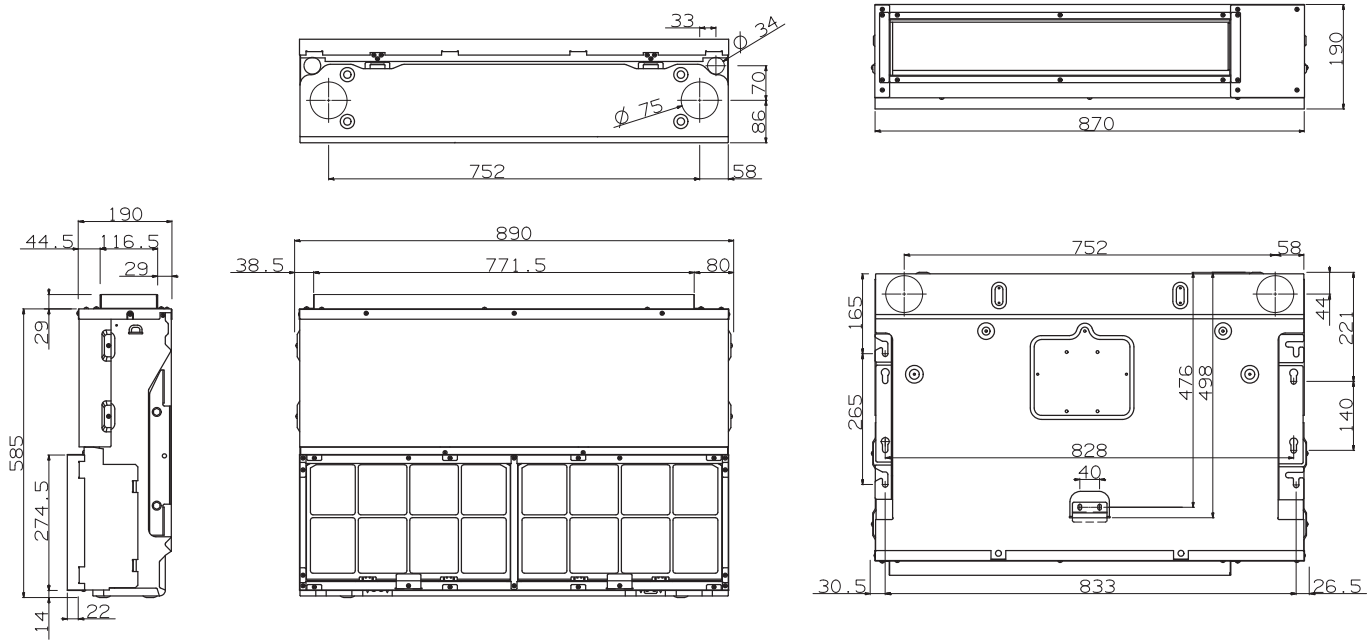
The following accessories are supplied with the unit:

- Remote control unit and accessories.
- Batteries for remote control unit.
- Receiver assembly.

7 - TOOLS REQUIRED FOR INSTALLATION (NOT SUPPLIED)

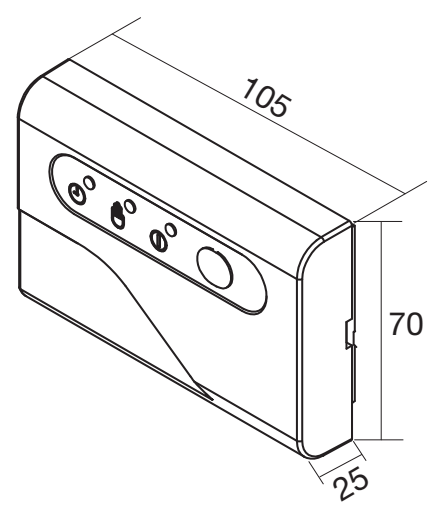
1.Standard screwdriver	7.Hacksaw	12.Tube flaring tool
2.Phillips head screwdriver	8.Core bits ø 8	13.Torque wrench
3.Knife or wire stripper	9.Hammer	14.Adjustable wrench
4.Tape measure	10.Drill	15.Reamer (for reburrring)
5.Level	11.Tube cutter	16.Hex. key
6.Sabre saw or key hole saw		

EN 8 - DIMENSIONS (mm) AND WEIGHT



WEIGHT (kg): 25

RECEIVER

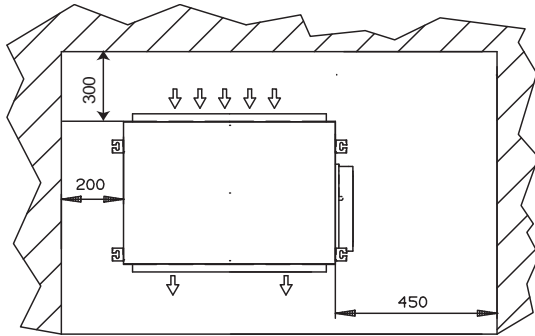


WIRE LENGTH: 5 m

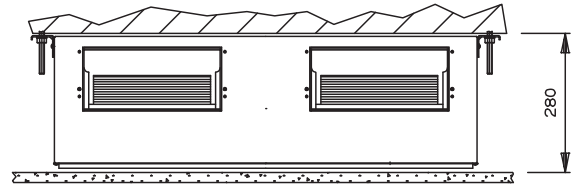
9 - INSTALLATION PROCEDURE

EN

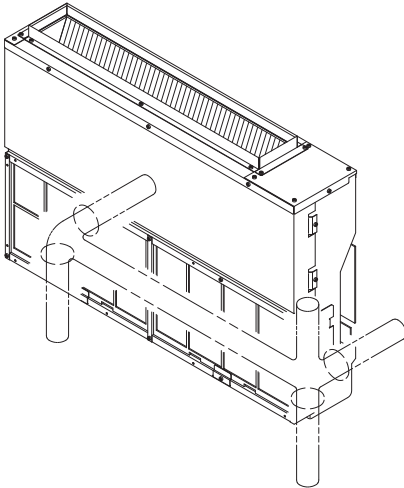
- A** Minimum operation and maintenance area.



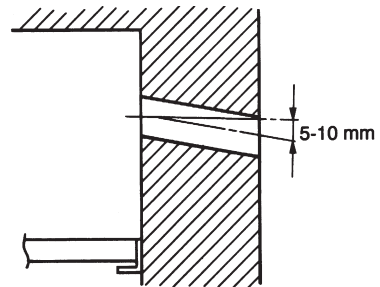
CEILING INSTALLATION



- B** Find the place for the installation. The unit can be connected in four different positions: at the right-back side, at the left-back side, at the bottom on the right or on the left.

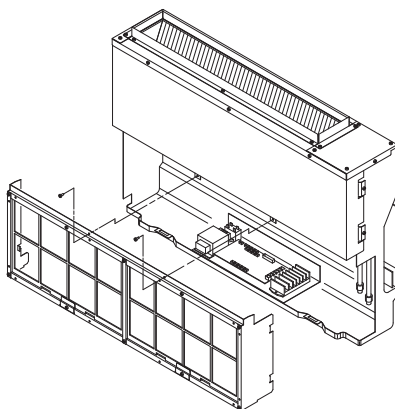


- C** Drill a hole (see table), for the passage of refrigeration pipework, condensate pipework and electrical cable. Insert a PVC pipe in the wall.

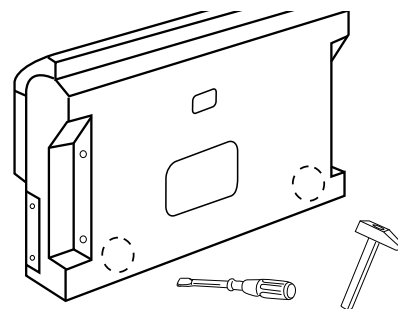


Model	Ø Hole (mm)
SDIAS8	65
SDIBS9	80

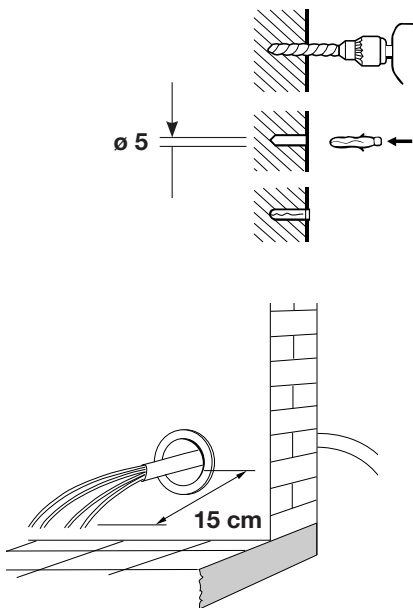
- D** Remove the return air grille.



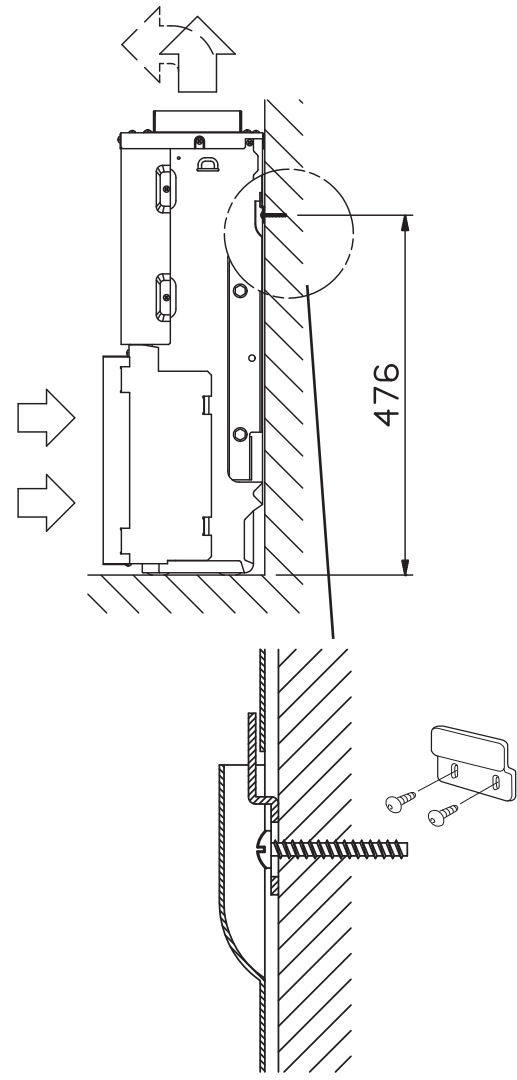
- E** Open a pre-punched hole for the pipe passage (work from outside).



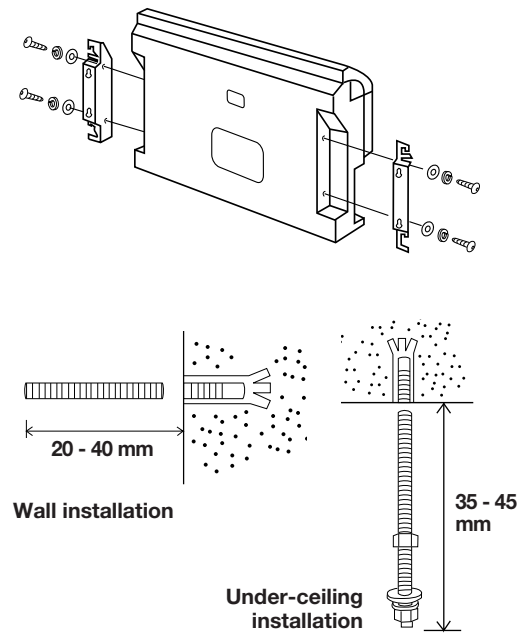
F Predispose the fixing of the bracket. Running power electric cable (with a ground wire) between the two units (see the table of wire section). Check if the quantity and the rawl plugs type supplied are the proper ones for fixing the unit on the wall.



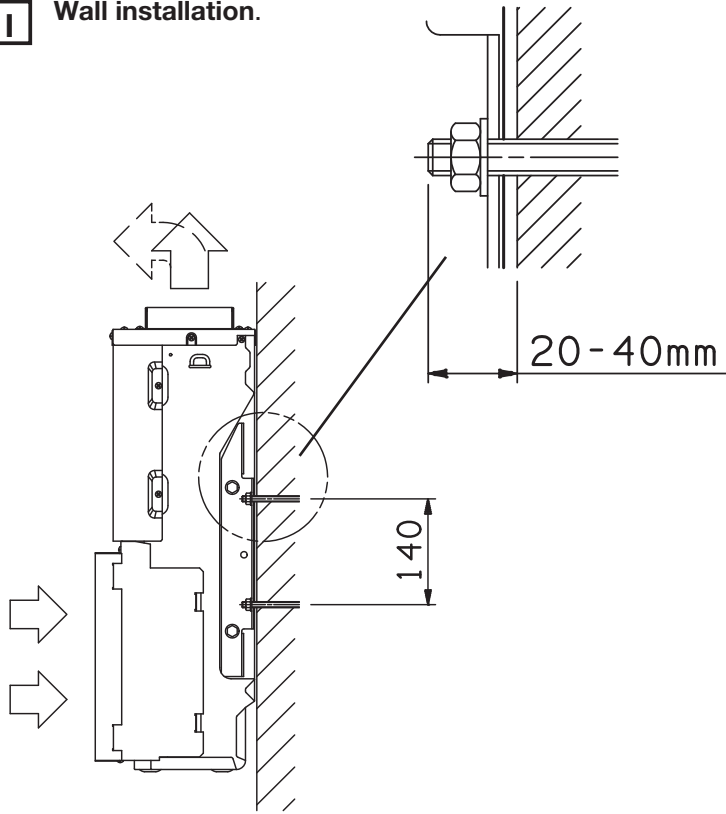
G Floor installation. Attach the bracket to the wall with the screws, but do not tighten the screws all the way, so that you can move the bracket for final adjustment. Adjust the bracket as shown in the figure, then finish tightening the screws. Hang the unit on the bracket as shown in the figure.



H KIT FOR UNDER-CEILING OR WALL INSTALLATION (ALREADY INSTALLED)
 Fix the brackets on the back side of the unit using the bolts supplied in the kit.
 Use rawl plugs suitable to the wall consistence and four threaded bars of suitable length. (not supplied).

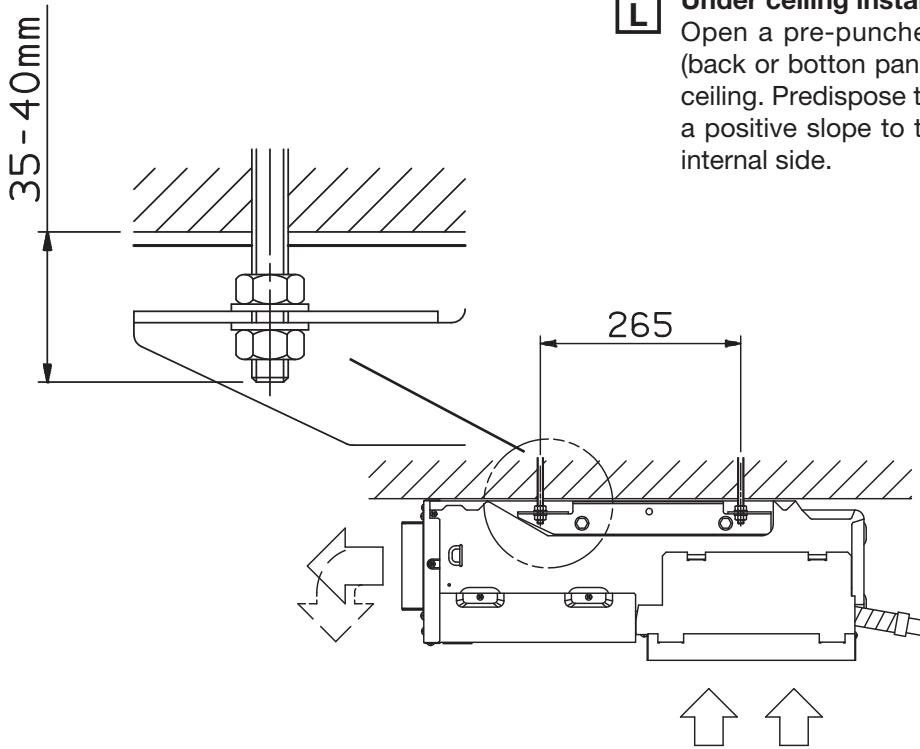


I Wall installation.

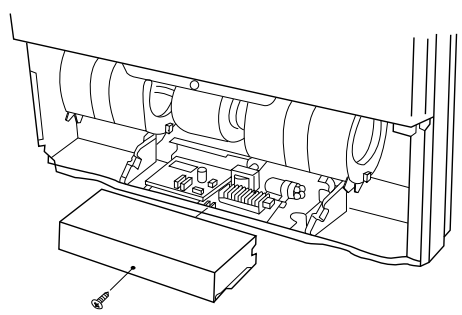


L Under ceiling installation.

Open a pre-punched hole for the pipe passage (back or bottom panel) hole. Fix the unit under the ceiling. Predispose the condensate drain pipe with a positive slope to the outside, as marked on the internal side.



M Remove the electrical box cover to operate on the terminal strip.

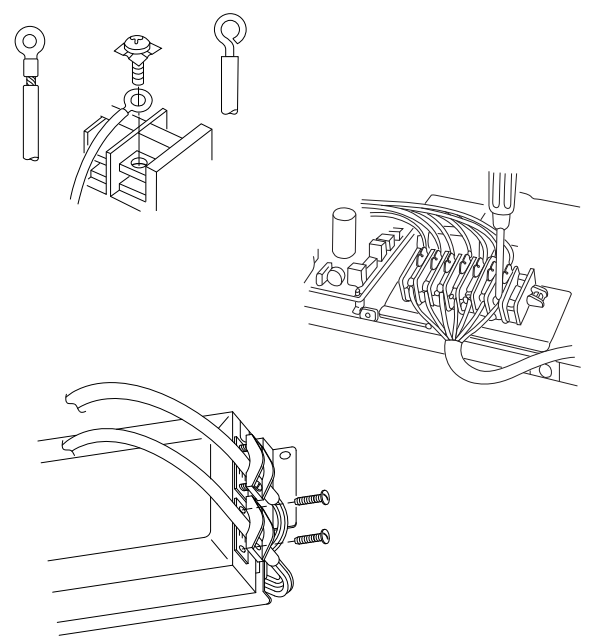


N Predispose the terminals of the wire to connect to the terminal strip and connect them. (See electric wiring to connect).
Secure inter-unit wire using the supplied clamp.

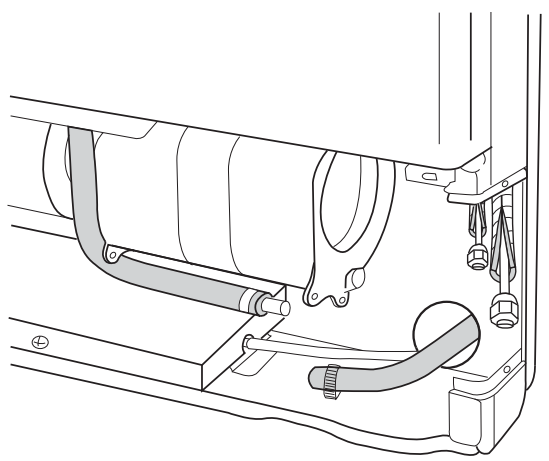


WARNING

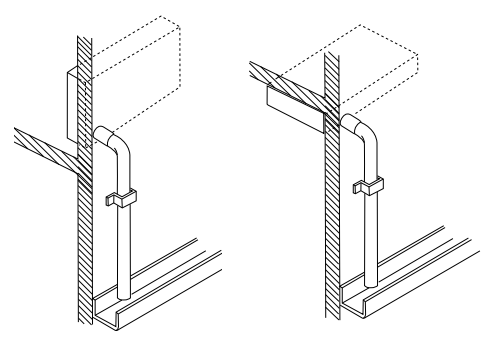
Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, be sure all wiring is tightly connected. When closing the electrical component box, take care not to leave part of the wires out or let them get caught between the lid and the unit. Check to see that the tab is aligned, then tighten the screw.



O Predispose the condensate drain pipe and attach it to the fan housing if necessary.



P Install the condensate drain to the outside with a positive slope.

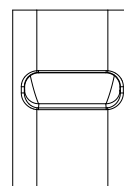


10 - REMOTE CONTROL UNIT INSTALLATION

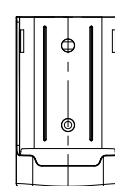
To ensure that the air conditioner operates correctly, DO NOT install the remote control unit in the following places:

- In direct sunlight.
- Behind a curtain or other places where it is covered.
- More than 8 m. away from the air conditioner.
- In the path of the air conditioner airstream.
- Where it may become extremely hot or cold.
- Where it may be subject to electrical or magnetic noise.
- Where there is an obstacle between the remote control unit and air conditioner.

TABLE STAND



WALL SUPPORT



WALL-MOUNTED POSITION

- Momentarily place the remote control unit in the desired mounting position.
- Verify that the remote control signals are received by the unit from the selected position.
- Fix the support at the wall with two screws and hang the remote control unit.

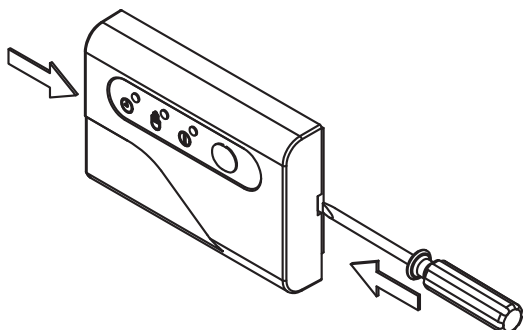
TABLE STAND

Place the support on a flat surface making sure that the remote control signals are received by the unit from the selected position.

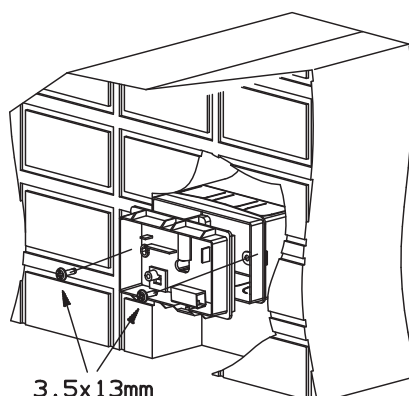
11 - INFRARED RECEIVER INSTALLATION

A Slot a screwdriver by the 2 slits on the cover sides, and separate the cover from the base.

Do not lay the receiver cable near any power lines, and do not put it into any raceways or metal tubes together with other power lines. Install the receiver far from electromagnetic interferences. Always provide for an earth connection near the receiver location, where possible.



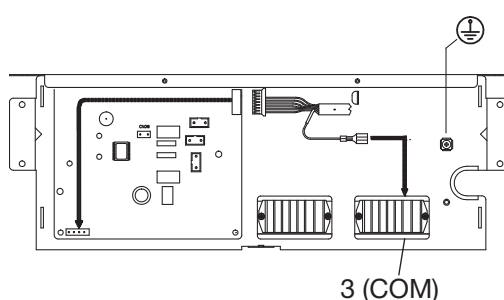
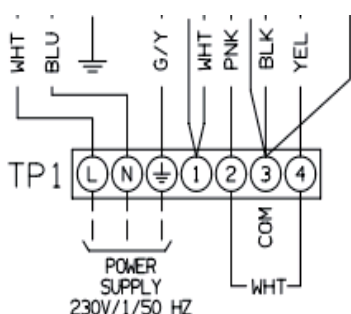
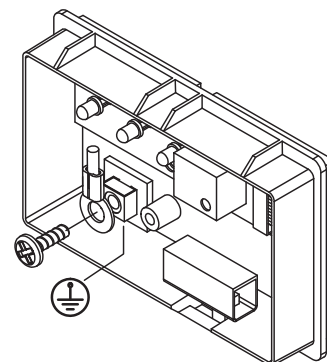
B If allowed by the local electric-power standards, standard electric-component boxes can be used for assembling the receiver.



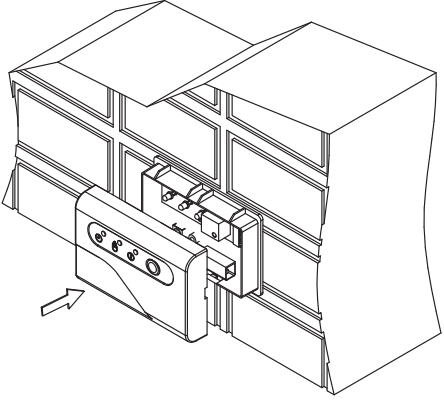
C Perform the earth connection with the terminal on the base, as provided. Complete earth connection and fasten the other end of the cable to the terminal 3 (COM) TP1 in the electric panel.

Connect the connector of the receiver cable to the pcb as shown below and in the wiring diagram.

Do not power the system up, and do not start the unit before having completed the refrigerant piping and the electric installation.

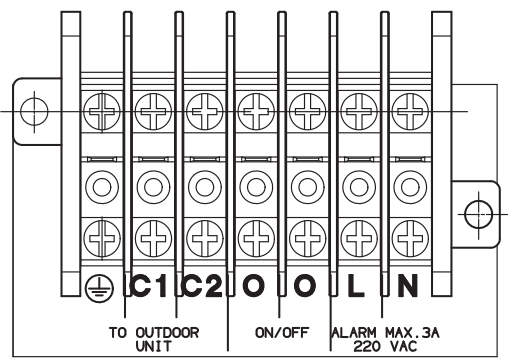


D End of installation.



12 - HOME AUTOMATION WIRING

It is possible to connect the unit to a Home Automation system, according to the following instructions:



ON/OFF (Terminals O O) - DEFAULT FACTORY STATE: CLOSED

Contact open: the unit does not operate (always OFF) - inputs from the remote control unit are not processed.

Contact closed: the unit operates in the normal way, according to the inputs coming from the remote control unit.

ALARM (Terminals L N) :

These terminals are connected to the contact (normally open) of a power relay that is activated every time any alarm occurs on the unit.

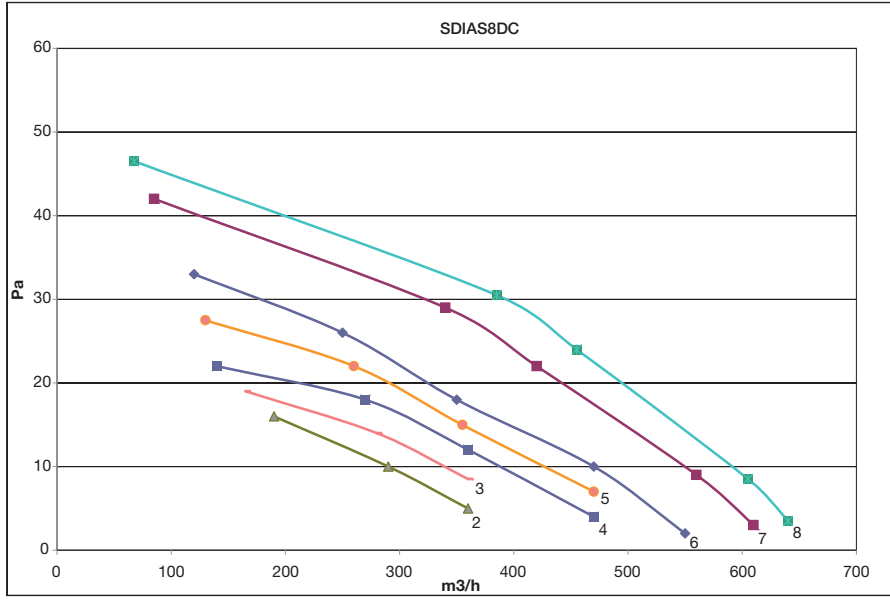
When an alarm occurs, the poles of the terminal block will have a voltage of 220-240V ~ 50Hz Max. electric load: 3A

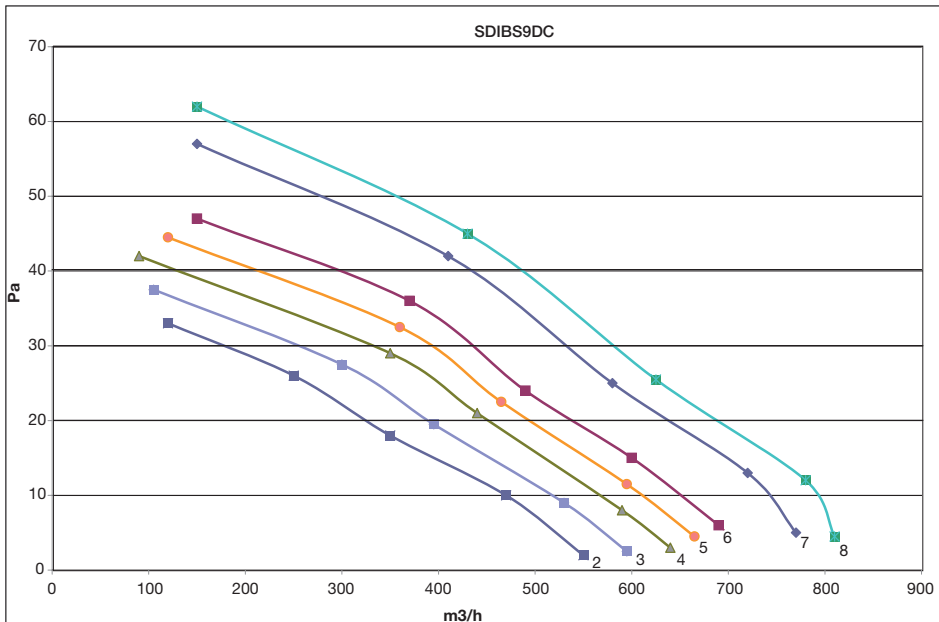
13 - PUMP DOWN (See Installation Instruction of Outdoor Unit)

Pump down means collecting all refrigerant gas in the system back into the outdoor unit without losing gas. Pump down is used when the unit is to be moved or before servicing the refrigerant circuit.

14 - TEST OF THE SYSTEM AND CONTROL OF THE AIR VOLUME TO THE OUTLET GRILLES

Below you can find the head curves (static pressure) available at the unit outlet according to the air flow and the speed selected on the remote control:





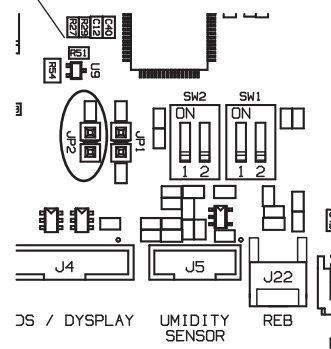
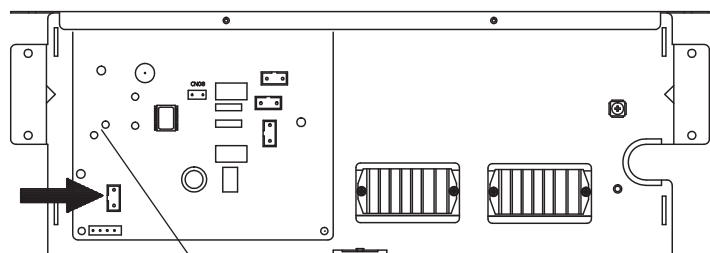
If the resistances in the air distribution system are too high, the air flow to the outlet grilles can be excessively reduced. In this case it is possible to increase the air flow corresponding to each selected speed by removing the jumper on JP2 of the board as follows.

Below is the association between the fan speeds and the curves shown in the diagrams:

Fan speed	Curve with JP2	Curve without JP2
L	2	3
ML	3	4
M	4	5
MH	5	6
H	6	7
VH	7	8

To remove JP2 from the card proceed as follows:

- Disconnect the unit from the power supply and remove the electrical panel cover.
- Remove JP2.



15 - OUTDOOR/INDOOR UNIT REFRIGERANT CIRCUIT ADDRESS

Indoor units that are part of a multisplit system must be properly configured to be able to communicate with the outdoor unit over different channels (Indoor A, Indoor B, etc...) of the communication bus.

Each indoor unit address must correspond to the physical connection of the indoor unit to the outdoor unit refrigerant circuit, i.e.:

Refrigerant Circuit A <--> Indoor Unit Address A

Refrigerant Circuit B <--> Indoor Unit Address B

...

There are three methods to set the address of an indoor unit:

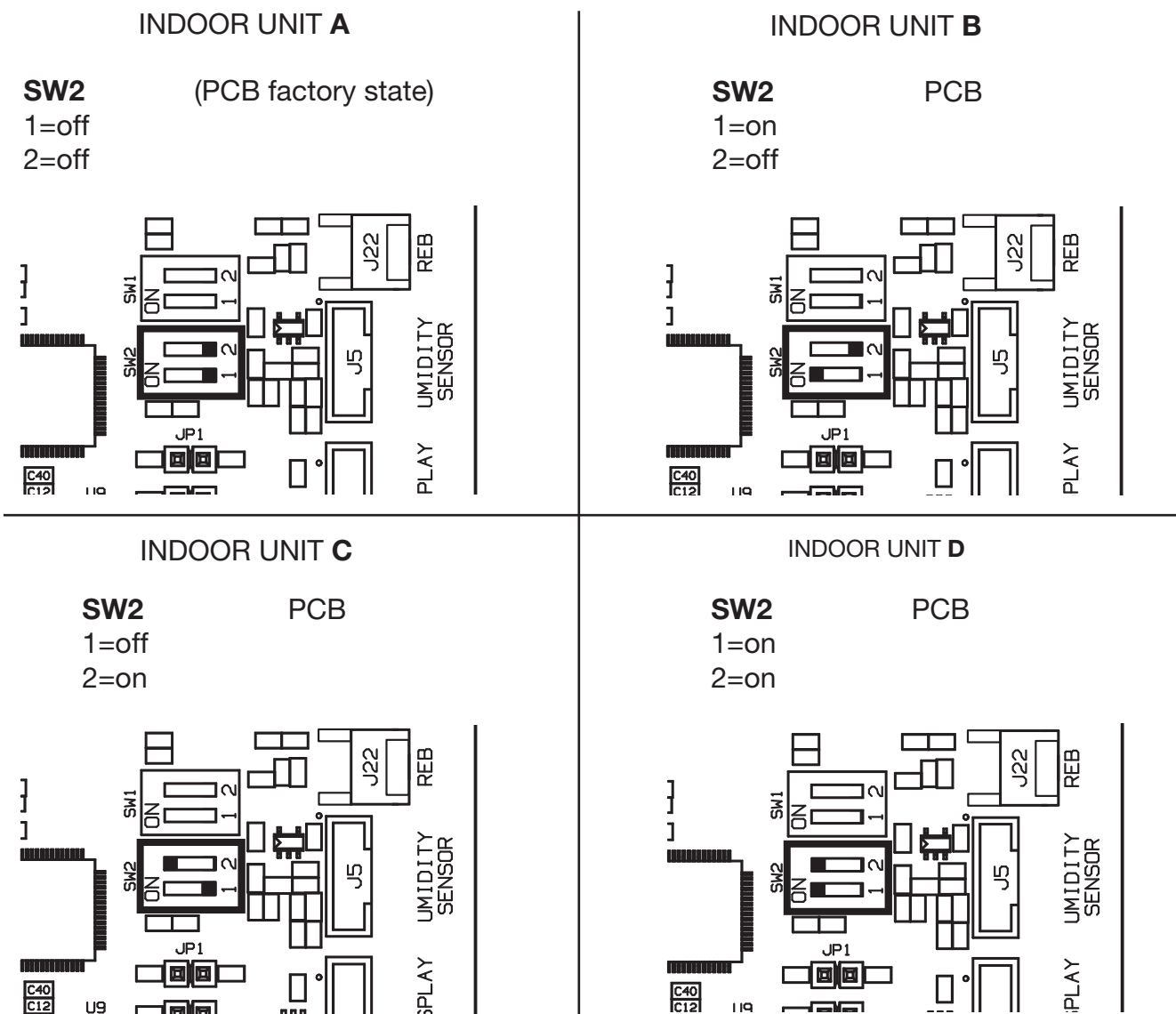
- (1) **Dip-switch setting:** the address is set by mean of a dip-switch located on the indoor unit pcb.
- (2) **Remote controller procedure:** the address is set with the remote control via parameter P08.
- (3) **Automatic addressing procedure:** the address is automatically set on every indoor unit of the system starting the automatic addressing procedure via parameter P30.

(1) ADDRESS SETTING THROUGH DIP-SWITCHES (UP TO 4 INDOOR UNITS)



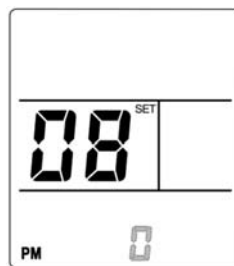
Disconnect the power

Check that the setting of switch SW2 (PCB) corresponds to the figure:



(2) ADDRESS SETTING THROUGH REMOTE CONTROLLER WITH PARAMETER P08 (UP TO 8 INDOOR UNITS)

- Press the button $\frac{\text{MODE}}{\text{SET}}$ for a few seconds.
- Press the arrow \blacktriangleright until you visualize 08.
- Press the button $\frac{\text{MODE}}{\text{SET}}$ again for a few seconds: the number 0 (factory setting) at the bottom starts flashing.
- Press the arrow \blacktriangle to set the unit's number.
- Confirm with the button $\frac{\text{MODE}}{\text{SET}}$.
- Press ⏻ to exit the menu.



1	UNIT A	5	UNIT E
2	UNIT B	6	UNIT F
3	UNIT C	7	UNIT G
4	UNIT D	8	UNIT H

If the signal is received, the indoor unit will emit 5 consecutive beeps. Make sure that the signal is received only by the indoor unit you want to set

NOTES

- Address setting via remote control cancels and replaces any addresses set with the indoor unit microswitches.
- If you set P08=0, the addresses set with the microswitches of the indoor unit are valid again.
- For electrical connections, refrigerant circuit connection and check, consult the Installation Instruction of outdoor unit.

(3) AUTOMATIC ADDRESSING PROCEDURE

System requirements:

Outdoor unit must have a recent firmware version that supports the automatic addressing procedure.

Indoor units must have a recent firmware version that supports the automatic addressing procedure

Dip-switch for communication address setting on the indoor unit (SW2) must be left to the factory default state, i.e. to the OFF position.

Activation of automatic addressing procedure with the parameter P30=1

Power on the whole system.

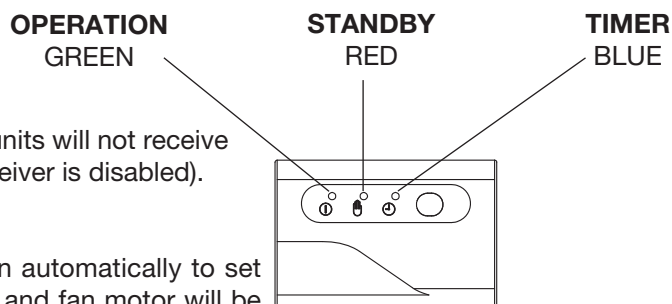
Verify that there is no error on the indoor units, but the "E0" error (address not set - see Auto-diagnosis table).

Switch on the remote controller of any of the indoor units of the system and set the parameter P30=1

- Press the button $\frac{\text{MODE}}{\text{SET}}$ for a few seconds.
- Press the arrow \blacktriangle until you visualize 30.
- Press the button $\frac{\text{MODE}}{\text{SET}}$ again for a few seconds: the number 0 (factory setting) at the bottom starts flashing.
- Press the arrow \blacktriangle to set the number 1.
- Confirm with the button $\frac{\text{MODE}}{\text{SET}}$.
- Press ⏻ to exit the menu.

If the signal is received, the indoor unit will emit 5 consecutive beeps.

After some seconds, every indoor unit will show the following LED combination to confirm that the automatic addressing procedure has been activated.



From this moment until the end of the procedure the indoor units will not receive anymore the signals from the remote controllers (infrared receiver is disabled).

Execution of automatic addressing procedure

Once the procedure has been activated, the system will run automatically to set the address of every indoor unit. In this period, compressor and fan motor will be activated.

Once activated, the procedure takes about 4-5 minutes per outdoor unit circuit to be completed. This time doesn't depend on the number of indoor units actually connected to the outdoor unit, but on the number of refrigerant circuits of the outdoor unit.

End of automatic addressing procedure

When all the circuits have been tested and the address of every indoor unit has been set, the outdoor unit will stop and every indoor unit will switch off (standby mode).

In any case (procedure successful or failed) the infrared receiver of every indoor unit will be re-activated.

If there is no error on the indoor units, the system is ready to be used.

If there is the error "E0" (Address not set - see Auto-diagnosis table) on any indoor unit, re-run the automatic addressing procedure or manually set the address on that indoor unit with the dip-switch or with the remote controller.

16 - MATCH BETWEEN REMOTE CONTROLLER AND INDOOR UNIT (TRANSMISSION CHANNEL)

The remote control can be addressed to use up to 4 different units installed in the same room.

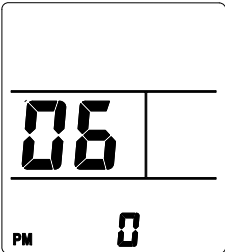
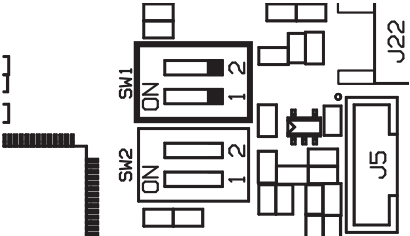
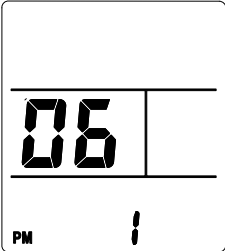
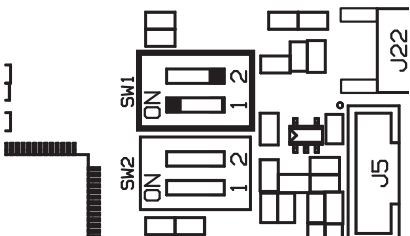
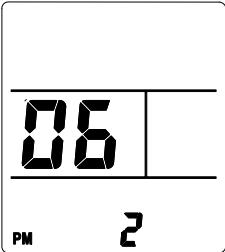
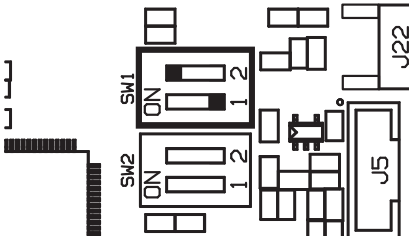
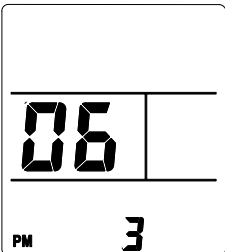
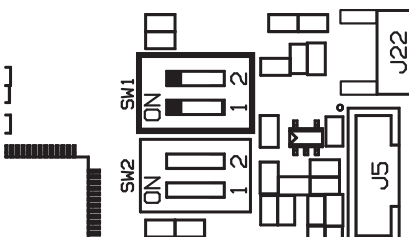
You can get unified control by using a single remote control for all units or each remote control can be addressed to its own unit, in order to control separately temperature, timer and all other functions.

PCB SETTING

- Disconnect the unit power supply and wait at least 60 seconds, making sure that all the lamps go off.
- Remove the front panel to access the pcb.
- Set SW1 as shown in the table.
- Close the front panel.
- Reconnect the unit power supply.

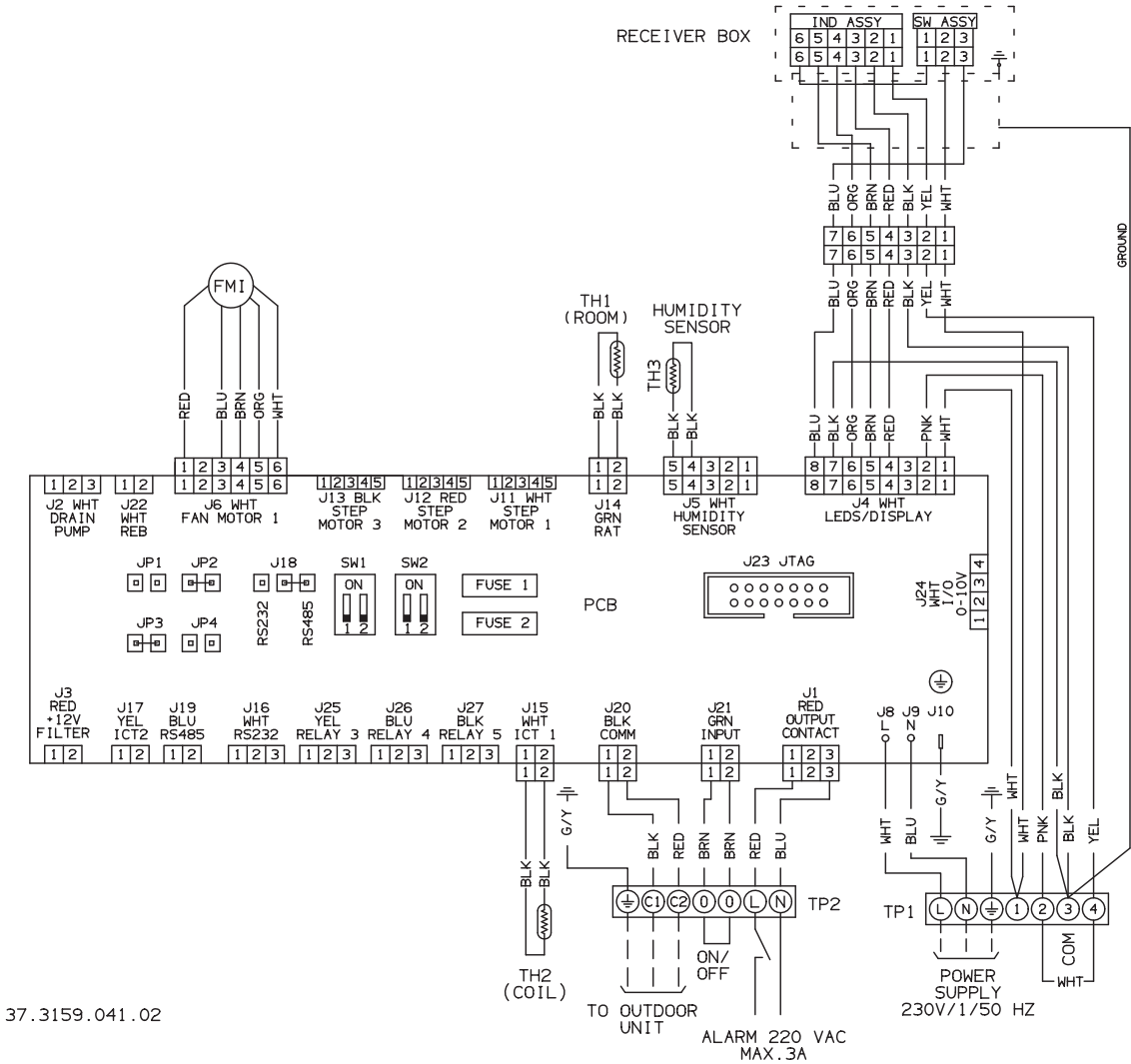
REMOTE CONTROLLER SETTING

- Press the button $\frac{\text{MODE}}{\text{SET}}$ for a few seconds.
- Press the arrow \wedge until you visualize 08.
- Press the button $\frac{\text{MODE}}{\text{SET}}$ again for a few seconds: the number 0 (factory setting) at the bottom starts flashing.
- Press the arrow \wedge to set 0, 1, 2 or 3.
- Confirm with the button $\frac{\text{MODE}}{\text{SET}}$.
- Press ON to exit the menu.

CHANNEL	REMOTE CONTROL UNIT	UNIT PCB
0 FACTORY STATE		 SW1: 1=OFF 2=OFF
1		 SW1: 1=ON 2=OFF
2		 SW1: 1=OFF 2=ON
3		 SW1: 1=ON 2=ON

Par.	Parameter name	Min	Default	Max	Values
P00	Factory default reset	0	0	3	0 = No action 1 = Reset all remote control parameters to factory default value 2 = Reset all unit parameters to factory default value
P01	Software version	0	-	7	Software version of the remote controller
P03	Carrier frequency infrared signal	0	0	1	0 = 33 kHz 1 = 38 kHz
P05	Temperature scale	0	0	1	0 = °C (Celsius) 1 = °F (Fahrenheit)
P06	Transmission channel	0	0	3	0 = Channel #0 1 = Channel #1 2 = Channel #2 3 = Channel #3
P08	Communication address/ refrigerant circuit	0	0	8	See installation manual. Do not modify during operation.
P12	ECO mode power input limit	30	75	99	When ECO mode is selected, max electrical power input of the unit is limited to P12: 30 = 30% of Max Power Input 31 = 31% of Max Power Input ... 99 = 99% of Max Power Input
P13	Room Air Temperature heating shift	0	3	10	0 = 0°C 1 = 1°C ... 10 = 10°C This parameter can be modified according to the stratification of the air during heating operation

19 - ELECTRICAL WIRING DIAGRAM - SCHEMA ELETTRICO - SCHÉMA ÉLECTRIQUE - ELEKTRISCHER SCHALTPLAN - ESQUEMA ELÉCTRICO - DIAGRAMA ELÉTRICO



37.3159.041.02

Wires color legend

Legenda colori fili elettrici

Légende des couleurs des fils électriques

Beschriftung der Leitungs-Farben

Leyenda de los colores de los cable electricos

Legenda das côres dos fios elétricos

	EG	I	F	D	E	P
BLK	BLACK	NERO	NOIR	SCHWARZ	NEGRO	PRETO
BLU	BLUE	BLU	BLEU	BLAU	AZUL	AZUL
BRN	BROWN	MARRONE	MARRON	BRAUN	MARRÓN	CASTANHO
G/Y	GREEN / YELLOW	VERDE / GIALLO	VERT / JAUNE	GRÜN / GELB	VERDE / AMARILLO	VERDE / AMARELO
GRY	GREY	GRIGIO	GRIS	GRAU	GRIS	CINZENTO
ORG	ORANGE	ARANCIONE	ORANGE	ORANGE	NARANJA	COR-DE-LARANJA
PNK	PINK	ROSA	ROSE	ROSA	ROSA	COR-DE-ROSA
RED	RED	ROSSO	ROUGE	ROT	ROJO	ENCARNADO
VLT	VIOLET	VIOLA	VIOLET	VIOLETT	VIOLETA	VIOLETA
WHT	WHITE	BIANCO	BLANC	WEISS	BLANCO	BRANCO
YEL	YELLOW	GIALLO	JAUNE	GELB	AMARILLO	AMARELO

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