1. WIRING: All of the system components are wired to the control centre. It is recommended you locate it close to the inner unit of the air conditioning equipment.

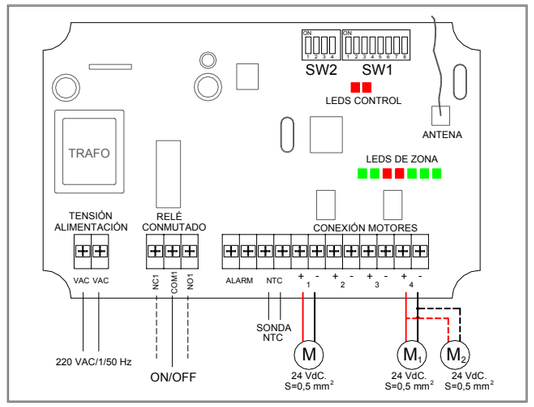
IMPORTANT

The control centre must preferably be located in a raised place away from metal masses and conductive elements.

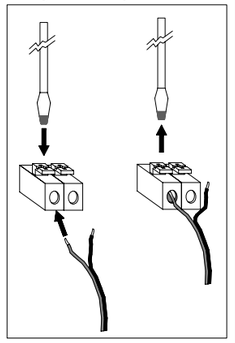
Where this is not the case, the scope between the thermostats and said centre may be reduced.

Connect the entire system without power

Protect the system using the normal devices.



Regletas de fijación rápida



1.1. Power : Supply the centre with 230 VAC, 50/60 Hz, wires S > 1 mm2. Consumption 10 VA.

1.2. Antenna: Position the antenna in order to favour the radio transmission.

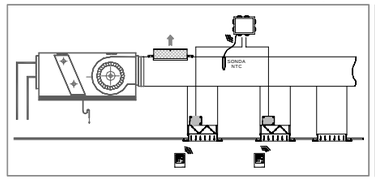
1.3. Motorised regulations: Connect the motors for each regulation to terminal blocks 1 to 4 on the board. Use a wire (red (+) / black (-)) S > 0.5 mm2. In the event of two regulations per zone (maximum), connect the parallel as indicated in the figure. The regulation installed in the area where the MASTER is fitted must be connected to terminal block 1.

1.4. Air conditioning equipment: The control panel can be connected or not at the production equipment depending on the type of installation:

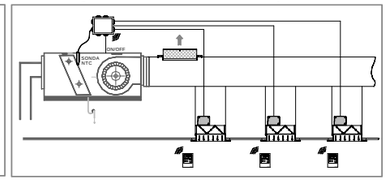
1.4.1. **KSS-SUB (Sub-zone installation):** The system is not connected at the production equipment because they remain some zones without regulation. The changeover (heating/cooling) is automatically made by the sound temperature which is installed in the supply duct. *NEVER install a regulation damper and a zone thermostat in the room where is installed the machine thermostat, in that case the system will not function properly.*

1.4.2. **KSS (Zoning installation):** The control panel is connected to the AHU following the wiring diagram supplied by MADEL (ask with the brand and model of the equipment used). The machine thermostat cannot be replaced and must always be connected to prevent the air conditioning equipment from stopping. Thus, select the max. order temperature in summer and the min. order temperature in winter. Heating/Cooling changeover must be made on the machine thermostat and on the master thermostat

KSS-SUB: Sub-Zone installation: Sound in the supply duct



KSS: Zoning installation. Sound in the battery



Always connect the air conditioning equipment after configuring the control board and the thermostats.

1.5. NTC Sound: Even using the system as a Sub-zone or as a Zoning System its necessary to install the sound temperature.

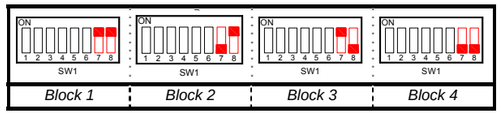
KSS-SUB (Sub-zone installation): The NTC sound temperature should be installed in the supply duct to measure the air temperature and position the system whether is working in heating or cooling mode. It should be installed in the main duct assuring that the air always passes through the sound.

KSS (Zoning installation): In that case, the sound measures the battery temperatura and not the temperature that passes through. Should be installed in contact with the battery but never in the return or the supply duct. The sound works as a safety sensor and stops the AHU when the sound temperature is less than -4ºC or higher than 55ºC.

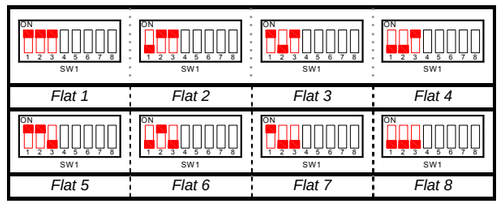
1.6. Alarm (optional): For installations with a fire and/or gas detection centre, etc. In the event of alarm, the regulations close and the equipment switches off. It works as a normally open, voltage-free contact.

2. The control board must be configured (switches SW1 and SW2) to tune the thermostats with said centre and also to configure different machine parameters according to the air conditioning equipment installed.

2.1. Block (SW1): This indicates the block of flats where the system is installed. It allows for up to 4 separate blocks to be distinguished.

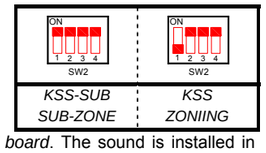


2.2. Flat (SW1): This indicates the flat where the equipment is installed. It allows for up to 8 separate flats to be distinguished.



2.3. Zone (SW2): This indicates the number of zones that control the board (from 1 to 4).

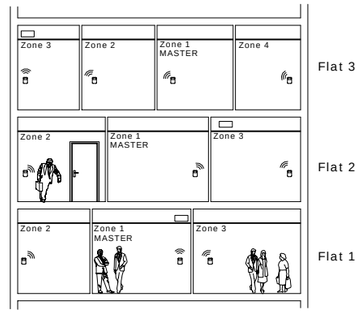
2.4. Machine configuration (SW2): This allows to configure the control board to decide if it works as a Sub-zone system or as a Zoning System.

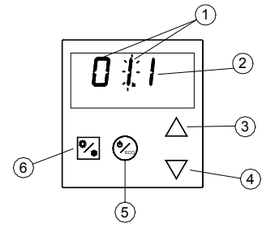


- **KSS-SUB (Sub-Zone installation):** *Without wiring de AHU to the control board*. The sound temperature its installed in the supply duct and automatically detects the working mode of the AHU (heating/cooling). (Parag. 1.4.1).
- **KSS (Instalación Zonificación)**: *Wiring de AHU to the control board*. The sound is installed in contact withe the battery of the inner unit and works as a safety sensor. The changeover between heating and cooling must be made even in the MASTER thermostat of the Zoning System and in the AHU thermostat. (Parag. 1.4.2).

IMPORTANT: Any other configuration of SW2 can cause a malfunction in the system

3. THERMOSTAT CONFIGURATION





1. Value selection digits (block, flat, zone)
2. Programming level indicator digit (1 = block, 2 = flat, 3 = zone)
3. Value selection key. SETUP input key..
4. Digit change key (tens, units). SETUP input key
5. Required value assignment and change of programming level key.
6. SETUP input key.

3.1. Verification of collisions: Before inserting the batteries in the thermostats to programme them, check to make sure that there is no other ZONING SYSTEM R/C configured in the same manner.

- Power the control centre at 230 VAC. The centre will implement an opening cycle and will light up a row of 6 red LEDS (Closed) that progressively change to green (open). If the grilles have not opened, check their polarity.
- The control LED on the left must not give a communication signal. After 5 minutes, all motor LEDs (red/green) must have come on. This indicates that there is no installation with the same configuration as ours.

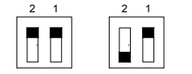
3.2. Position thermostats: Insert the batteries and distribute the thermostats in a significant place in one of the zones to be air conditioned. Place them at a height of approximately 1.5 m., avoiding direct sources of heat (sun, electrical appliances, etc.) and undesired draughts. Avoid placing them close to metal items.

3.3. Programme thermostats: Each thermostat must be allocated the motorised regulation of the zone it controls and the flat and block where it is installed. To do so, following the steps below:

STEP	DISPLAY	FUNCTION	DESCRIPTION
1	0:1	**Enter in SETUP mode**	Press all three buttons indicated *for 3 sec.* at the same time. The central digit begins to flash.
2	0:1	**Choose the block Nº**	Choose a value from 1 to 4. *Only programme in the event of adjacent installations that may produce interference. **By default, leave block 1**. All thermostats from the same installation must have the same block no. assigned.*
3	0 1.1	**Assign the value and change the level**	Assign the block no. and access the next programming level. This block number must be same as that selected in the SW1 of the control board. Sect. 2.1
4	0:2	**Choose the flat Nº**	Choose a value from 1 to 8. *Only programme in the event of adjacent installations that may produce interference. By default, leave flat 1. All thermostats from the same installation must have the same flat no. assigned.*
5	0 1.2	**Assign the value and change the level**	Assign the flat no. and access the next programming level. This flat number must be same as that selected in the SW1 of the control board. Sect. 2.2
6	033	**Choose the zone Nº**	Value from 1 to 4. *Both the zones and the motorised regulations connected to outlets 1 to 6 of the control board must be assigned. Do not take parallel connections into account. The number of zones assigned must match that selected in **switch 2** of the control board.*
7	033	**Assign the Zone Nº**	The motorised regulation controlled must be assigned to each thermostat. It must be the same number as the motorised regulation connection (that controls the thermostat) on the control plate (1 to 8). Sect. 2.3
8	-	**Repeat the operation**	Repeat this same operation for all thermostats in the installation.

VERY IMPORTANT

If, due to interference problems, the board reception frequency is changed (remove jumper SW3), the Switch (2) located at the rear of all the system thermostats must also be changed.



433.92 MHz 434.33 MHz

4. START-UP

4.1. KSS-SUB (Sub-Zone installation):

4.2. Power the control centre at 230 VAC. The centre will implement the opening cycle. At this moment, the grilles must be opening.

Do not continue if the grilles have not opened → change the motor polarity.

Cooling mode:

4.2.1. Select an order temperature of 15ºC using the keys △▽

4.2.2. Connect the machine thermostat, select cooling mode and the minimum temperature to make the machine switch on.

4.2.3. Verify that the machine is supplying cool air and all the dampers are open. Select 35ºC in all zone thermostats and verify that all the dampers are closing.

Heating mode (Only heat pump models):

4.2.4. Select an order temperature of 35ºC using the keys.

4.2.5. Connect the machine thermostat, select heating mode and the maximum temperature to make the machine switch on.

4.2.6. Verify that the machine is supplying warm air and all the dampers are open. Select 15ºC in all zone thermostats and verify that all the dampers are closing.

4.3. KSS (Zoning Installation):

4.3.1. Connect the air conditioning equipment using the diagram supplied.

4.3.2. Power the control centre at 230 VAC. (Parag. 4.1.1.)

Cooling mode:

4.3.3. Connect the MASTER thermostat and position in cooling mode.

4.3.4. Select an order temperature of 15ºC using the keys △▽

4.3.5. Connect all of the thermostats and also select 15ºC.

4.3.6. Wait 5 mins. for the air conditioning equipment to start up, check that it is producing cold and that all of the grilles are open. Select 35ºC on all thermostats and check that the grilles close and the air conditioning equipment stops.

Heating mode (Only heat pump models):

4.3.7. Connect the MASTER thermostat and position in heat mode.

4.3.8. Select an order temperature of 35ºC using the keys.

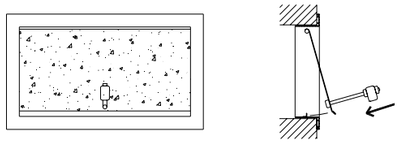
4.3.9. Connect all of the thermostats and also select 35ºC.

4.3.10. Wait 5 mins. for the air conditioning equipment to start up, check that all of the grilles are open. Select order temperature 15ºC and check that all the zones close and the air conditioning equipment stops.

4.4. ***Adjusting the excess pressure:*** In zoning installations is necessary to install the by-pass damper. In the case of sub-zone installations, it should only be installed if the air flow of the regulated zones its greater than the 25% of the total air flow of the machine.

4.4.1. Progressively close all zones except for that with the least flow of discharged air.

4.4.2. Position the counterweight on the farthest end from the flap or on the shaft. Move the weight inwards or towards the shaft until the flap opens and the air speed inside the diffusion element is equal to or below 4 m/s or, if no air-flow meter is available, until the passing of air does not produce noise on said element.



The closer the counterweight is to the flap, the greater the by-pass flow and the further away it is the lesser the by-pass air flow.

5. MOST FREQUENT ERRORS

	ERROR	INDICATOR	CAUSE	SOLUTION
1	When the centre is powered by 230 VAC, no LED lights up.	CONTROL	**Lack of voltage**	1. Check that voltage reaches the centre (230 VAC + 10%)
2	When 230 VAC is supplied, the right-hand LED flashes quickly	CONTROL	**No sensor connection**	1. Check the 2k2Ω sensor connection or the 2k2Ω resistor connection 2. Check the temperature of the inner unit battery. **(Zoning Installation).**
3	5 min. after switching the control board on, the red and green LEDs in all zones light up.	Zones 1 2 3 4	**Bad configuration**	1. Check thermostat configuration. Incorrect block or flat. 2. Check board configuration. Incorrect block or flat. 3. Antenna not receiving. Modify position.
4	The two motor leds (red/green) light up in 1 zone or more.	Zones 1 2 3 4	**Bad communication** *(zones 2 and 3)*	1. The zone is badly configured in the thermostat SETUP. 2. Interference in the communication. Modify the location of the thermostat. 3. Different frequency between the thermostat and the board. Check the thermostat switch.
5	When the grille should open → closes (and vice versa	OPEN CLOSE	**Motors badly connected**	Check the motor connection. Polarity (black -, red +)
6	One of the flow regulations does not work	OUT	**Zone damper connection**	1. Check motor connection. Polarity (black -, red +) 2. Check that the regulator is not obstructed.
7	The equipment switches on and off with the MASTER at a standstill or some zones close or open without any signal from the thermostat	MOTORS	**Interference with neighbouring installations**	1. Check that there are no two thermostats with the same configuration. 2. Check whether there is some other Zoning System installed in the neighbouring households. 3. Change the block or flat no. (on the board and the thermostats). 4.Change the board and thermostats to the second working frequency.
Zoning Installation				
8	All of the flow regulations work properly but the air conditioning equipment does not work.	OUT	**Air conditioning equipment badly connected**	1. Check that the board SW are configured correctly, according to the type of machine (A, B or C) 2. Revise the equipment connection to the board.

RADIO TRANSMISSION

Radio transmission does not take place on an exclusive frequency and, therefore, the possibility of interference cannot be excluded. Radio appliances working in a permanent emission mode (wireless headphones and speakers, etc.) and that work on the same frequency band (433 MHz) may disrupt the normal working order of the ZONING SYSTEM.
The system is prepared for work on two different frequencies (433.92 and 434.33 MHz) to minimise this type of problem.

ZONING SYSTEM

K S S
K S S – S U B
Installation manual
(EN)

MADEL air technical difusión, s.a.
Technical assistance service
Tel. (+0034) 902 550 290
http://www.madel.com

CE

CHARACTERÍSTICS

Control board (receiver)

- Power: 230 VAC, 50/60 Hz
- Consumption: 10 VA
- Average scope: 50 m in free field. 20 m in the habitat.
- Inner antenna
- Securing outside of the control casing using screws.
- Size (mm): 160 x 120 x 65
- Carrier frequency: (ISM Band, acc. I-ETS 300-220 standard) 433.92 MHz
  - Optional 434.33 MHz
- Protection level: IP 54
- Protection against electric shock insulation: CATII 300 VAC.
- Compatibility regulations applied: 61000-4-2,3,4 and 55022-B.
- Operating temperature: -10 ºC to 50ºC. 95 % humidity without condensation.
- Storage temperature: -30 ºC to 85 ºC.
- This appliance complies with directives CC 89/336 (Electro-magnetic compatibility),EEC 73/23 (Low voltage) and 1999/5/CE y EN 300 220-1

Thermostats (transmitter)

- Power:2 x 1.5 V LR06 AA batteries (alkaline). Minimum autonomy 1 year (or more). The batteries are supplied with the equipment.
- Battery wear indicator.
- Carrier frequency: (ISM Band, acc. I-ETS 300-220 standard) 433.92 MHz
  - Optional 434.33 MHz
- Average scope: 50 m in free field. 20 m in the habitat.
- Size (mm): 103 x 74 x 20
- Operating temperature: 10 ºC to 40ºC.
- Storage temperature: -10 ºC to 40 ºC.
- Attachment: Wall, using screws (supplied)
- Protection level: IP 30
- Economy Mode (Ordered temp. variation of ± 5ºC)

V 11.05