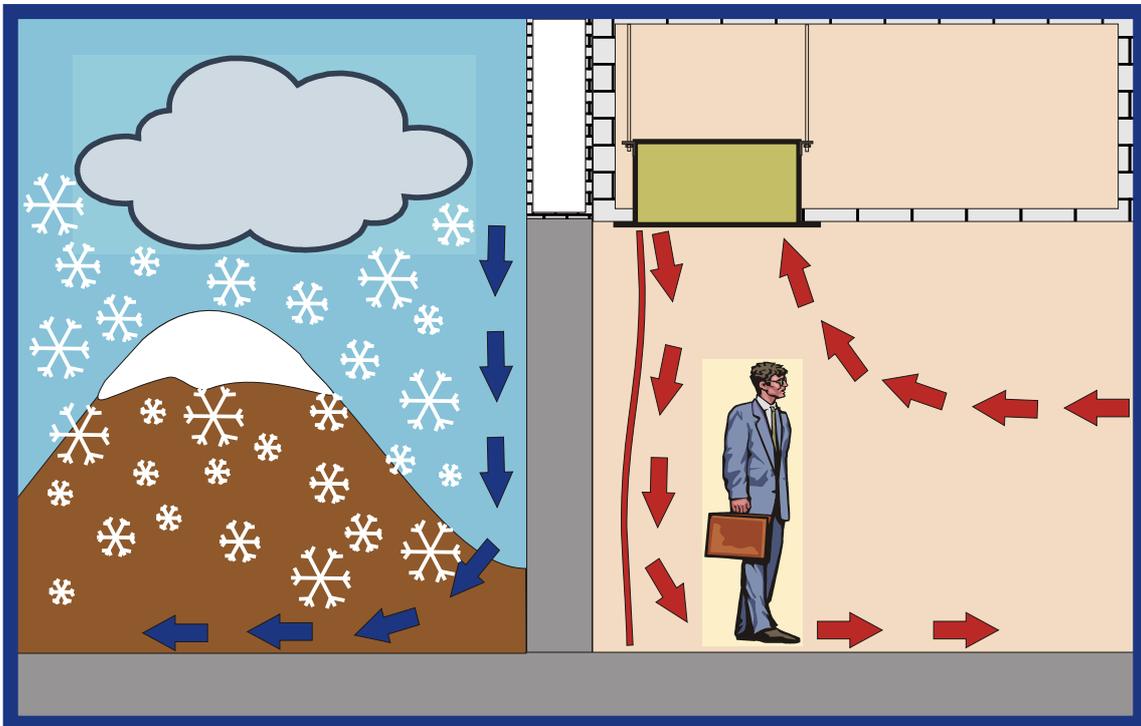
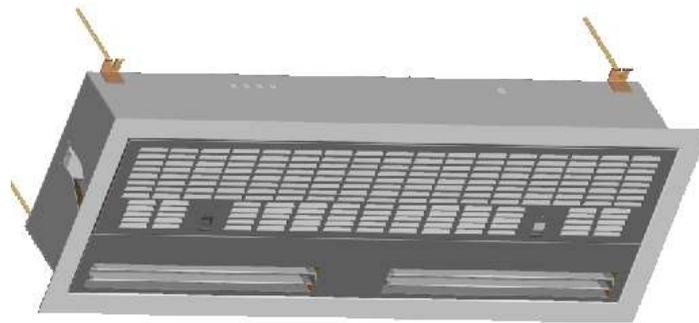




# MANUAL



## RECESSED AIR CURTAINS

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# 1. GENERAL GUIDLINES

Air Curtain is an electrical device producing a directional air flow. When mounted above the doorways it separates the indoor space from the outdoor ambience functioning as if a closed door. Meanwhile the door remains open and provides free entrance and contact. By producing a homogeneous air flow the Air Curtain prevents the heat losses and protects the indoor space from the adverse weather conditions. This allows creating an agreeable microclimate indoors, thus reducing energy consumption by heaters and air-conditioners by saving up to 60-80%. Functionally Air Curtains represent the energy saving class of equipment and are used together with other types of climatic equipment.

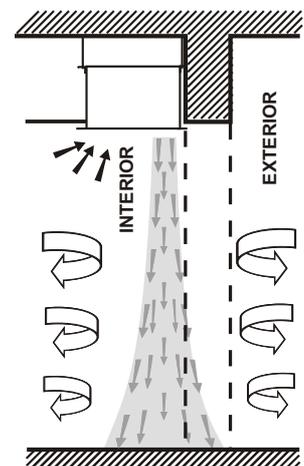
**“OLEFINI S.A.” Air Curtains are manufactured in strict compliance with the following quality standards:**

**International Organization for Standards ISO 9001:2000 , European Standard - CE, Russian Standard - PCT**



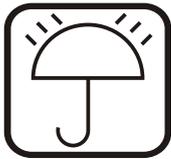
**Low Voltage Directive**  
**EN 60335 - 1 LVD 73/23/EEC**  
**EN 60335 - 2 - 30 93/68/EEC**

**Electromagnetic Compatibility**  
**EN 61000 - 6 - 1 EMC 89/336**  
**EN 61000 - 6 - 3 91/263/EEC**  
**92/31/EEC**  
**92/31/EEC**  
**93/68/EEC**  
**93/97/EEC**



# 1.1 LABELING & SYMBOLISM

90% of all faults are caused by negligence in transportation of the Air Curtains and loading operations, pay attention to the special labeling on the outer surface of the package and strictly follow the instructions marked by the specific symbols.



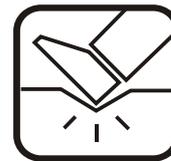
Protect from moisture



Don't try to put more than 6 units in a stack



Don't drop



Don't step on the package

Each Air Curtain has a special labeling about the model designation and its technical characteristics for its full identification. Company "OLEFINI S.A" provides 100 % quality control of each produced Air Curtain which is fixed by a serial number - S/N.

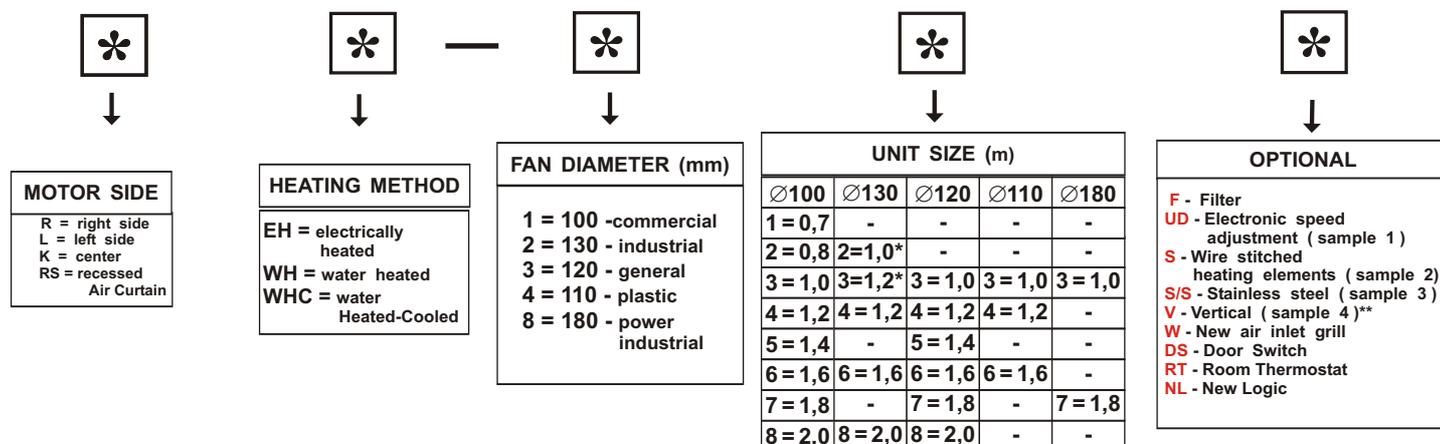
Symbols - CE, QC - stand for a guarantee of reliability of the device according to the European standards and a continues quality checks .

Besides , each Heated Air Curtain has an additional precautionary labeling for the safety precautions . maintenance.





# AIR CURTAINS SYMBOLISM

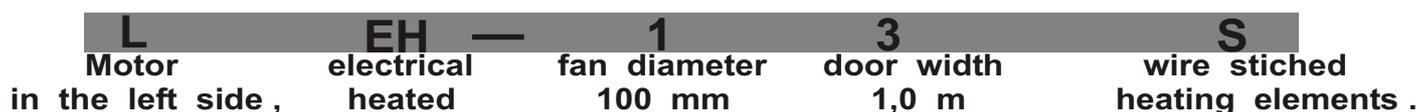


## SAMPLE SYMBOLISM

### Sample 1



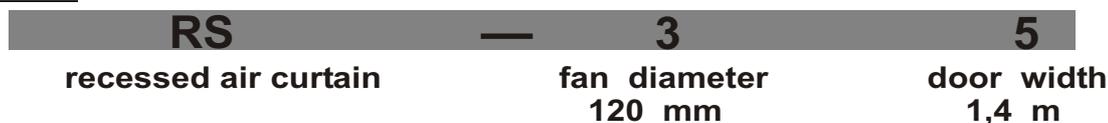
### Sample 2



### Sample 3



### Sample 4



## 1.2 INSTALLATION INSTRUCTIONS

Generally, efficiency of an Air Curtain depends on the temperature differences, difference of air density inside and outside of the protected premises, building openings, as well as the height of the Air Curtain installation, on the wind loading and other less important factors.

To choose an Air Curtain successfully, an engineer or assembler should study attentively the premises where the equipment is to be mounted and to consider the above factors.

It is recommended to mount "OLEFINI S.A" Air Curtains in such a way so that air outlet is as close to the edge of the protected doorway as possible. It is desirable that the nozzles of the Air Curtains completely block the doorway. "OLEFINI S.A" Air Curtains can be mounted separately or in a cascade connection, providing in this way protection of doorways of any width or height.

Bellow is the description of a simplified way of selecting Air Curtains with only height of mounting and type of the protected premises taken into consideration.

### AIR CURTAIN SELECTION

	Fan diameter (mm)	Door height (m)	Air speed (m/sec)	Usage
<b>COMMERCIAL</b>	100	2.3-2.5	8.0-9.0	Shops, doorways offices
<b>GENERAL</b>	110	2.5-3.0	8.5-10.0	Shops, offices, hotels hospitals, airports, doorways, banks
	120	3.5-4.0	9.5-11.5	
<b>INDUSTRIAL</b>	130	5.0-6.0	11.5-12.5	Warehouse, factories cooling chambers
<b>POWER INDUSTRIAL</b>	180	6.0->	16.0-20.0	Industrial doorways hangars

#### ATTENTION

\*Air Curtains are mounted so that there are no hindrances for the free air inflow and outflow when the device is switched on. It is strictly forbidden to close the air inlet diffuser.

\*It is necessary to disconnect power supplies before mounting or repositioning the Air Curtain.

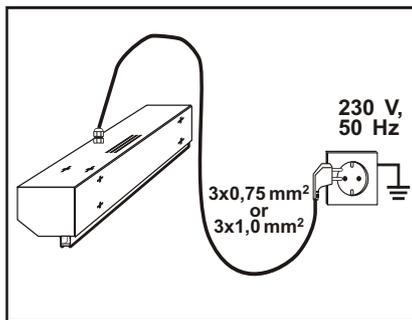
\*It is forbidden to mount an Air Curtains above electric sockets and wires under tension.

\*It is forbidden to mount an Air Curtains below 1,8 m height.

\*Mounting of Air Curtains with the water heat exchanger requires special attention to the connection of the Air Curtain to the hydraulic system of the premises.

## 1.3 POWER SUPPLY CONNECTIONS

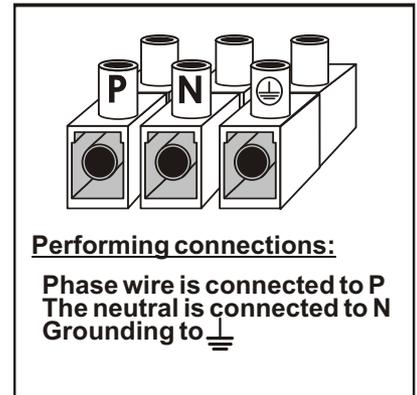
All "OLEFINI" Air Curtains without Heaters (simple) and Heated Air Curtains (with water heating), except models with a rotor diameter of 180 mm, work with a single-phase alternating-current mains 230 (+ 10 %) V, 50 Hz with grounding.



These models are delivered with the Euro plug and should be used with a socket of the same type with grounding.

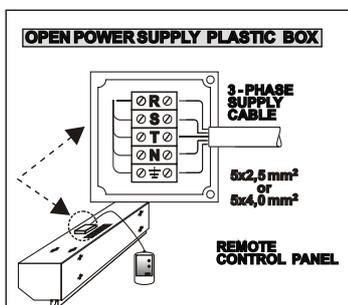
The standard power cable should have profile 3x0,75 sq. mm. In case of using a longer cable than the standard one, it is recommended to apply a cable with 3x1,5 sq. mm profile.

All the simple and water Air Curtains connections except a model line with the rotor diameter of 180 mm, should be performed only through the unipolar 6 Amperes automatic safety device switch, where the gap between the contacts to be at least 3 mm.



All the Heated Air Curtains with electric heating and also those with water heating with the rotor diameter of 180 mm work with a three-phase alternating-current mains 400 (+ 10 %) V, 50 Hz with Neutral and Grounding. The cable is connected to the terminals in a special plastic box which is located on the top of the unit.

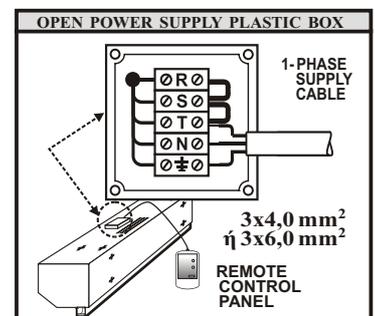
Small capacity models can work with a single-phase alternating-current mains. It is necessary to connect terminals R, S, T for this purpose (in this case one should to pay attention to the profile of the power cable).



### ATTENTION

\* Read the instruction attentively before connecting the Air Curtain to the alternating-current mains, and also check the labeling on the top part of the Curtain and on the plastic supply box. Check up the system grounding once again before the final connection.

\* Only qualified electrician is allowed to connect the Air Curtain to the alternating-current mains, after having studied the electric schemes and the circuit network features.



## 1.4 MAINTENANCE AND SERVICE

All "OLEFINI S.A" Air Curtains are designed and produced for a long-term operation under condition of observance of the following rules of maintenance and servicing:

### AIR CURTAINS WITHOUT HEATING

1. Clean the air filters on the regular basis (each 7-15 days) by water or by air stream (by means of a vacuum cleaner).
2. See to it that extraneous subjects do not get into the Air Curtain (screw-drivers, pencils etc.). They can damage the fan.
3. Unusual noise or vibration of the Air Curtain can be a malfunction sign. It is necessary to apply to the service centre.

### AIR CURTAINS WITH HEATING

1. Regular clearing of the filters of a thermal air curtain will help you to avoid many problems. It is necessary to clean the air filters every other 15 days. If the air is highly polluted, clean the filters every 7 - 10 days.
2. It is recommended to carry out the following test on the regular basis to provide the maximum efficiency of the thermal air curtain with electric heating (except the air curtains with a strip heater).  
Press the button OFF while the device is on. If the Air Curtain works normally, heating elements will be disconnected at once, but the fan will continue to work until the system temperature falls to +35° C (thermostat TN1 set temperature). After that the fan will be switched off. If something goes wrong, apply to the service centre.
3. When the Air Curtain with electric heating is not in use, clean the electric heaters carefully. Extraneous subjects on the heater can provoke inflammation. The best way to clean the thermal elements is to use a vacuum cleaner or a soft brush.
4. For all the air curtains with water heating, see to it that the water inside the device is fresh and pure. It is recommended to have a water filter for treating the water from dirt.
5. When the Air Curtain with water heating is not in use for a long time empty the water out from heat exchangers to avoid breakage.

### ATTENTION:

Always see to it that the Air Curtain working in a Heating Mode is never switched off by an electric knife switch. Switch the Air Curtains off only by the wired or the infrared remote control !!



## 1.5 WARRANTY

Company "OLEFINI S.A." gives a (3) three years guarantee for the Air Curtains from the date of sale and under the condition that the buyer will follow the given instruction.

The guarantee means replacement of any faulty or defective part of the Air Curtains, in case the fault is not caused by its negligent use, its drop or wrong mount. The guarantee does not mean replacement of the whole Air Curtain .

### ATTENTION:

Any intervention in the mechanical or electric parts of the Air Curtain by the buyer or by unauthorized personel cancels the right of the buyer to use the guarantee.

Tel : (+3022960)-27624 , 22960-23377

Fax : (+3022960)-23361

www.olefini.gr, e-mail: sales@olefini.gr

**GENERAL STATEMENTS**

«OLEFINI S.A.» Air Curtains vary in more than 100 different types depending on unit length, way of mounting, way of heating etc. The cascade connection option gives customers the ability to cover most installation cases. Air Curtains are provided either without heating (Simple), Heated: with water or electric heating (strip and tubular heaters), also Air Curtains can be supplied with the dust-collecting filter and an infrared remote control unit.

The following section contains the technical characteristics of Recessed Air Curtains produced by OLEFINI and mounting instructions. In spite of the fact that mounting and adjustment of a unit to be installed is not so sophisticated, «OLEFINI S.A.» recommends that it should be done by qualified personnel.

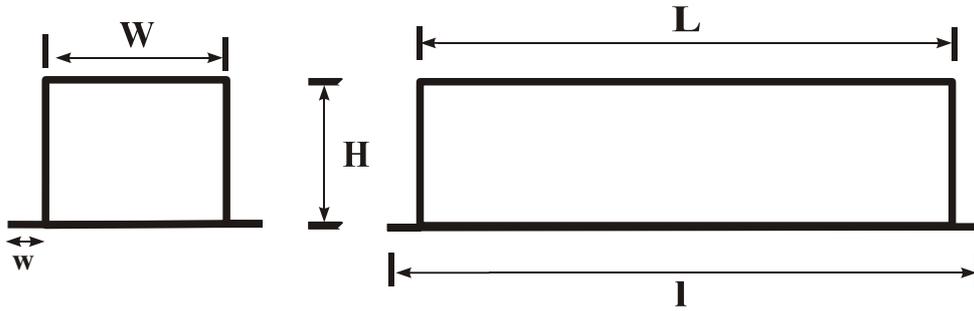
**ATTENTION**

- \*All the given characteristics of air velocity and air volume are given without taking into account of the dust-collecting filters and protective air diffusers (in case of vertical installation).
- \*«OLEFINI S.A.» reserves the right to improve the design and technical characteristics of the manufactured items.
- \*Heat exchangers in the Air Curtains with water heating are designed so that only hot water ( $t^{\circ} < 95^{\circ}\text{C}$ ) should be used, not for steam. Working pressure is up to 10 bar.

# GENERAL TYPE RECESSED

## AIR CURTAINS SIMPLE

### WITH PLASTIC CROSS FLOW FAN



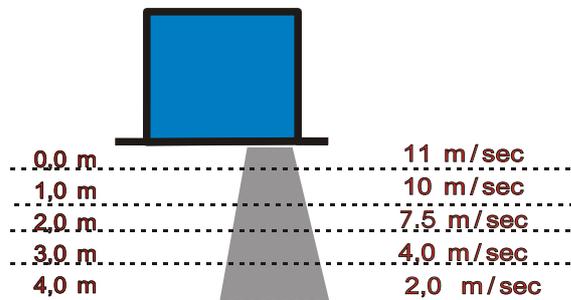
FAN DIAMETER 120 mm



	RS-34	RS-35	RS-36	RS-37	RS-38
Max door width (m)	1,2	1,4	1,6	1,8	2,0
Max door height (m)	4,0	4,0	4,0	4,0	4,0
Outlet velocity (m/sec)	11,0*	11,0*	11,0*	11,0*	11,0*
Air volume (m³/h)	2600	3110	3620	4130	4632
Motor power (W)	660	660	660	660	660
	12	12	12	12	12
Noise level in 1 m (dB(A))	66/64	66/64	66/64	67/64	67/64
L: Total length (mm)	1255	1455	1655	1855	2055
W: Total width (mm)	403	403	403	403	403
H: Height (mm)	233	233	233	233	233
l: Outlet length (mm)	1355	1555	1755	1955	2155
w: Frame width (mm)	50	50	50	50	50
Weight (Kgr)	34	36	38	41,5	45
Power supply (V/Hz/N~)	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
Motor speed (rpm)	1370/1050	1370/1050	1370/1050	1370/1050	1370/1050
	-	-	-	-	-
Ingress Protection	IP20	IP20	IP20	IP20	IP20
Motor side	middle	middle	middle	middle	middle
Remote control panel	+	+	+	+	+
Infrared control panel	+	+	+	+	+

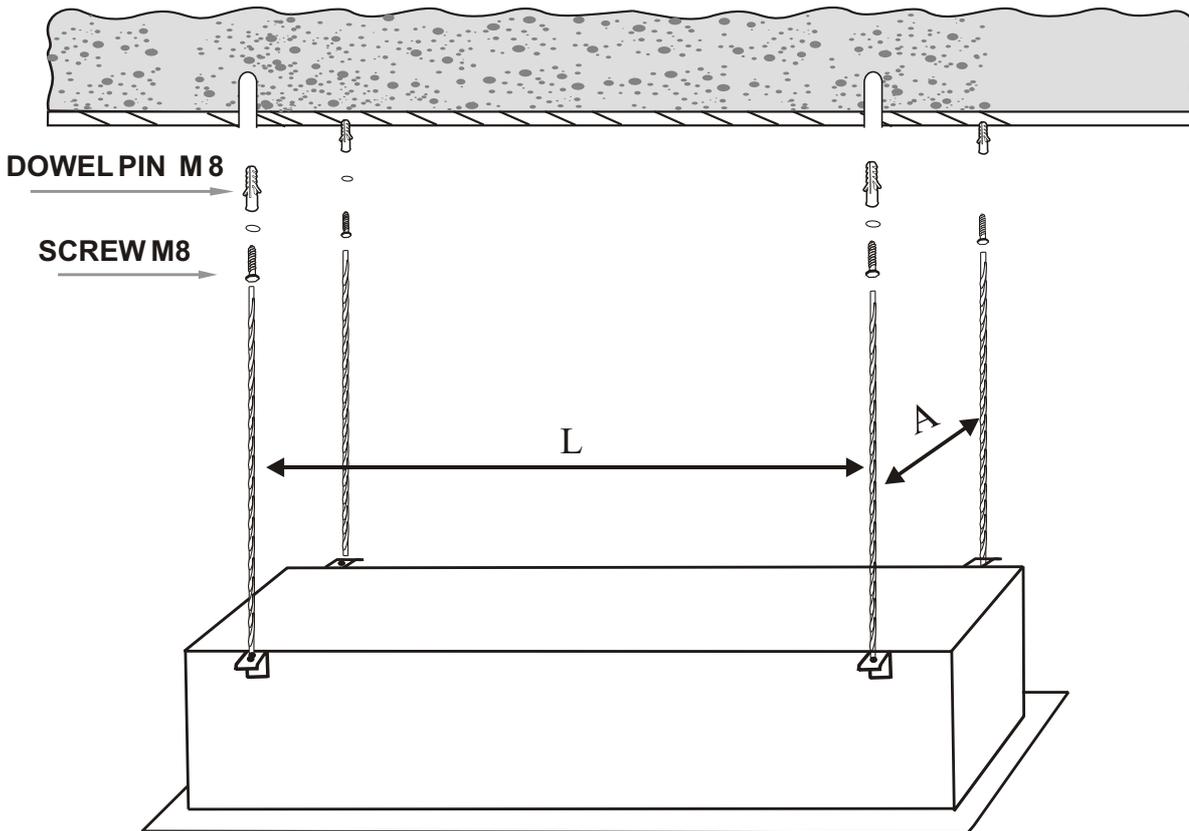
### HIGH SPEED CHARACTERISTICS FOR RECESSED AIR CURTAINS

\* 15 SPEED RANGE



## 2.1 MOUNTING

### CEILING MOUNT OF RECESSED AIR CURTAINS



TYPE	A $\pm$ 1mm	L $\pm$ 1mm
RS-34	444	1155
RS-35	444	1355
RS-36	444	1555
RS-37	444	1755
RS-38	444	1955

## 2.2 ELECTRICAL CONNECTION DIAGRAMS

### GENERAL STATEMENTS

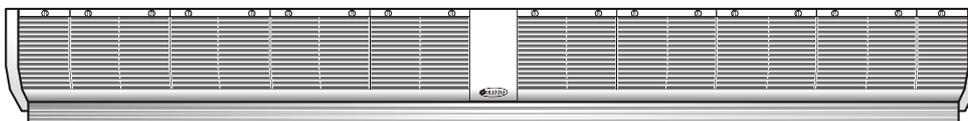
“OLEFINI S.A.” designs and manufactures most of the electronic parts inside its Units in order to provide reliable and effective operation of the equipment.

The Test Centres of “OLEFINI S.A.” performs full check of all the equipment produced. Air Curtains are tested by more than 20 parameters, such as an overload of the motor and tubular electric heaters, rotor balancing and the Air Curtain as a whole device, noise and vibrations level, reliability of electric components and many other things according to CE standards.

Also company follows ISO 9001:2000 Guidelines.

The present section contains all Electrical Connection Diagrams for all OLEFINI Air-Curtains.

It is necessary to use bimetallic thermostats when connecting room thermostats to the Air Curtains.



### ATTENTION

- \*Use only wired remote control unit to operate Heated Air Curtains.
- \*It is strictly forbidden to switch off the Air Curtain through the knife electric switch.
- \*Only special cables can be used in cascade Air Curtains.
- \*Extraneous subjects (dust, dirt etc.) on the heating elements of the Air Curtains with electric heating can provoke inflammation, therefore it is necessary to carefully observe all the maintenance and service recommendations (see p. 15).
- \*In case of non-standard length of the power cables it is necessary to consult the service centre of the seller firm.

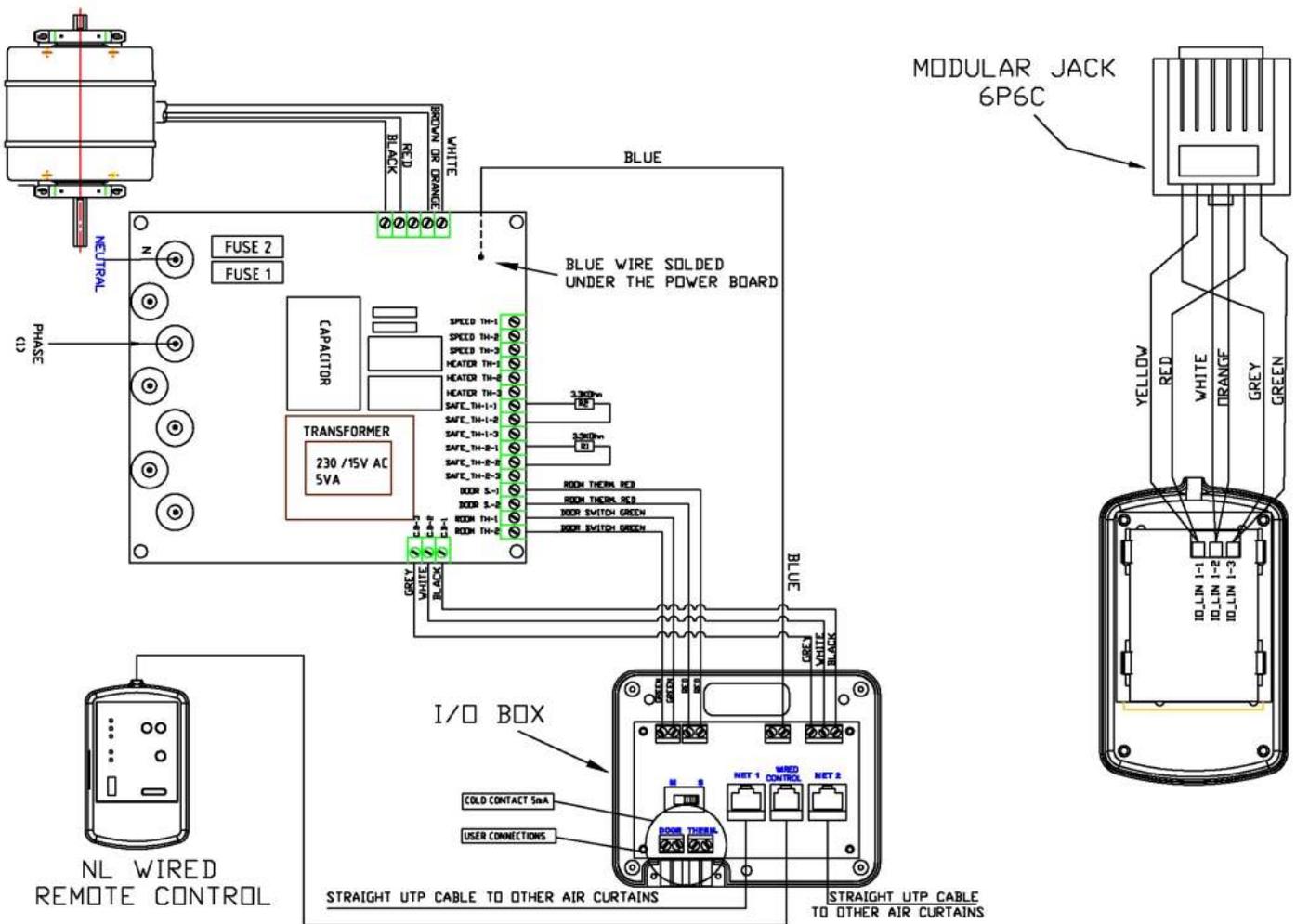


# AIR CURTAINS GENERAL TYPE RS-XX

FAN DIAMETER  
120 mm

P, N	SUPPLY LINE 230V, 1N, 50Hz
F1, F2	FUSE (F1 : 0,5A, F2 : 6,0A)
NC	WITHOUT CONTACT
CW ROT	CW ROTATION
LSC	LOW SPEED CONTROL

MOTOR TYPE	
OLEFINI 33-014-C	
230 V	50 Hz
2,7 A	1/2 HP
CAP 12 $\mu$ F, 400 V	
R.P.M. 1380 / 1150	



ELECTRICAL CONNECTION DIAGRAM  
FOR MODELS RS 34,35,36,37,38  
(ELECTRONIC CONTROL)

## NEW LOGIC AIR CURTAINS

### INTRODUCTION

On its continuous effort in providing products that will satisfy all customer needs and will be able to cover most of the applications that the final customer will encounter, OLEFINI S.A. proceeded in the production of a new line of Air Curtains with "NEW LOGIC" operation mentality.

These units incorporate OLEFINI's latest technology electronics that give the ability to the end user to satisfy most of the emerged environmental demands, such as :

- Operation of multiple Units via a common Door Switch
- Operation of multiple Units via a common Room Thermostat
- Operation of multiple Units via a common Door Switch + Room Thermostat
- Multiple Steps Unit Speed Regulation ( 15 Different Speeds )
- Master - Slave Configuration ( One Units takes control and leads all other )
- Computer guided Air Curtain Network

Bellow we can find more detailed the Basic operating Principals of our NEW LOGIC Air Curtains .

### QUICK START

Before operating the Air Curtain (A.C.) first make sure that it is securely installed and that it is connected to the Mains Power.

Once the A.C. is turned ON, the 'speed' LED blinks according to the selected fan speed.

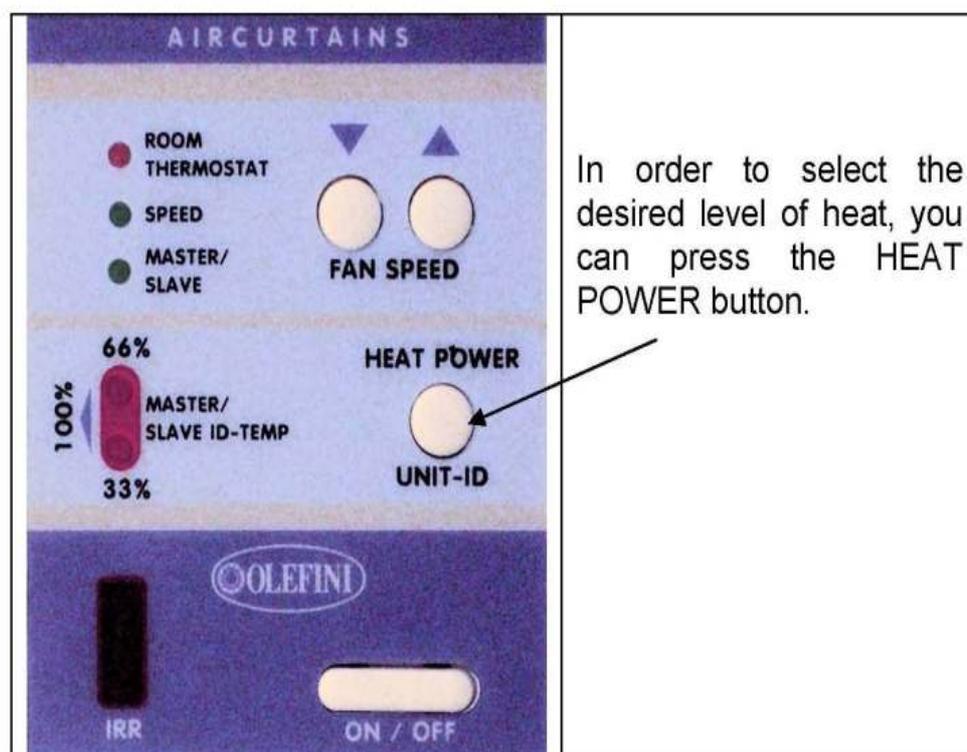
The proper connection to the power is indicated by the MASTER / SLAVE green led being turned on (as long as the Unit has been set as a Master unit) .



Once the A.C. is turned ON, you can adjust the fan speed in single steps by pressing one or more times (for more steps) the FAN SPEED Up or Down buttons .

The A.C. can be turned ON/OFF by quickly pressing the large white button on the bottom of the panel, indicated as ON/OFF

It is possible to operate the A.C. with or without Heater function .



In order to select the desired level of heat, you can press the HEAT POWER button.

By pressing this button once you step to the next level of heat . Once 100% heater power has been achieved, one more press will switch to Non Heaters mode.

The cycle of heater control is illustrated below:

Press                  Press                  Press                  Press

All heaters OFF → 33% Heat → 66% Heat → 100% Heat → All heaters OFF

In order to switch OFF the A.C. you can press the ON/OFF button once.

If the A.C. is working with all heaters OFF , the shutdown operation will occur almost at once. If a level of heat is selected ( or was selected previously before Unit shutdown ) , the A.C. will operate for 2 more minutes for the heaters to cool down before completely shutting OFF. While this de-heating phase takes place, all three LEDs on the panel will blink at a fast rate to indicate the Delay shutting down process. Once the A.C. is completely shut down, only the MASTER / SLAVE LED will remain lit to indicate the power availability.

All the actions mentioned above can be performed from the optional IR remote control as well .

## CONFIGURATION

Each A.C. can operate as a stand alone unit or it can be connected to a network of units. When two or more units are connected together, a Master-Slave network of A.C.s is formed. The physical connection occurs with an ordinary 'straight' UTP 'CAT5' network cable used by the computer industry, connected between each unit's IO/BOX found at the top of the A.C. near the electrical connection box.

For an A.C. network to function properly, one unit must be configured as the 'MASTER' and the rest of the units as the 'SLAVES'.

**Note: A NETWORK MUST HAVE ONLY ONE MASTER UNIT .**

To configure the role ( MASTER-SLAVE ) of a unit, you have to change the Switch position in the IO-Box from M ( MASTER ) to S ( SLAVE ) on the back of the Unit ( Fig.1 ).

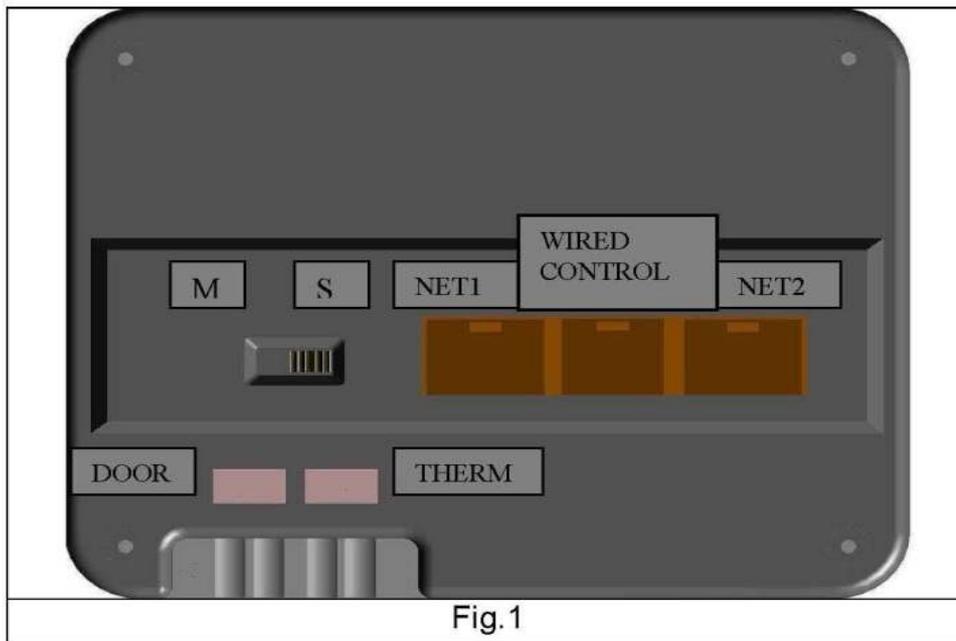


Fig.1

MARKING	DESCRIPTION
M	MASTER SETTING ( ID = 1 ALWAYS )
S	SLAVE SETTING
DOOR	DOOR SWITCH CONNECTION
THERM	ROOM THERMOSTAT CONNECTION
NET 1	CONNECTION TO ANOTHER AIR-CURTAIN
NET 2	CONNECTION TO ANOTHER AIR-CURTAIN
WIRED CONTROL	WIRED REMOTE CONTROL

Once the physical connections and role configuration of each unit has been set, it is time to configure the identity 'ID' of each unit by operating its main panel.

The different identities are used to enable or disable special characteristic on each unit .

The use of identities makes the configuration very easy to understand. Please consult the table show below for the meaning of each unit ID (Table.1).

**Table.1**

Identification number (ID)	Role - Behavior
1	<b>Master Unit</b> . Gives commands to all other slaves
2	Slave unit that listens to it's own ROOM THERMOSTAT but relies on the Master's DOOR SWITCH
3	Slave unit that listens to it's own DOOR SWITCH but relies on the Master's ROOM THERMOSTAT
11	Slave unit that completely follows the master.

- It is very important to note that when a unit is physically configured as a Master it's ID must be configured to be equal to 1.

- A Master unit can be unidentified by the constantly lit green LED , designated as MASTER/SLAVE on the front panel .( if the units is SET as SLAVE the LED will lit in small intervals ) .

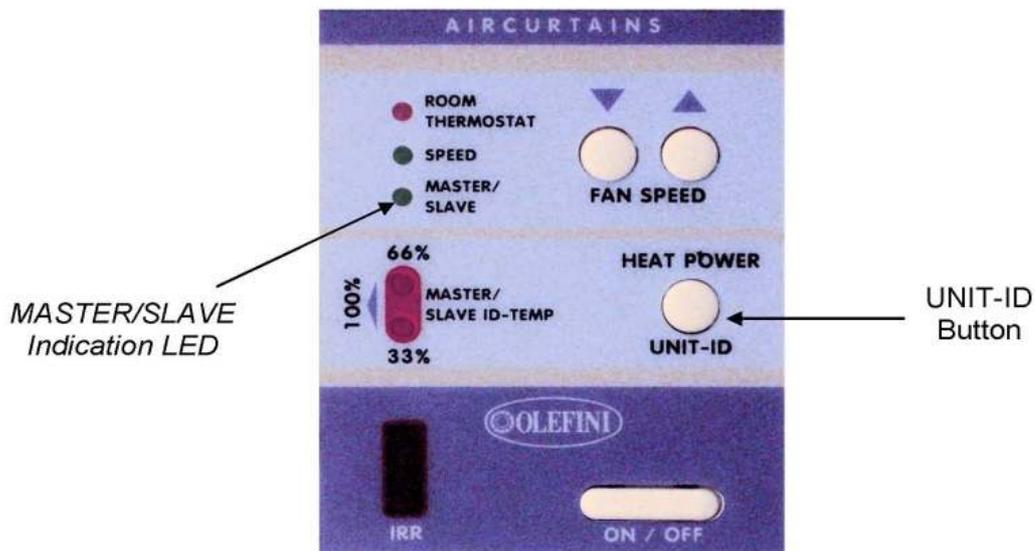


Fig 2

To change the ID of a unit, it is necessary to first TURN OFF the unit and wait until it is completely off (the fan is turned off and depending on the current ID, the MASTER/SLAVE LED is on or off. All other LEDs are off).



The user must quickly press 10 times the UNIT-ID ( Fig 2 ) button to enter the ID configuration mode. Once the mode is entered the MASTER/SLAVE green LED blinks at a fast rate to show that the ID can be changed.

**Warning: One more press of the UNIT-ID button and the user will see the ROOM THERMOSTAT (orange LED) blink instead . This is a room thermostat set-point mode and it will be available in later Versions . If the user enters this mode accidentally (by pressing 11 times the button, one more press [ 12<sup>th</sup> ] will switch to the ID changing mode .**

If during ID configuration we press 11 times the UNIT-ID button and ENTER the Thermostat Configuration Mode :

- In a Heated unit we will see the Orange Led lit , marked as Room Thermostat , and the Red Leds blink in order to SET the Desired temperature ( in Future Versions )

- In a Simple unit we see no LED lit on the upper side , but if we take EXTRA notice we'll see the Orange Led lit under the Panel Sticker and again the Red Leds blink temperature setting .

In BOTH cases we have to press ONE more time the UNIT-ID button to enter again in unit ID configuration Mode .

The user can check the current ID by looking at the two red LEDs ( during normal operation they are used for heater level indication ) . Note that the MASTER/SLAVE green led blinks all the time to indicate that we are into the ID changing mode.

The upper red LED indicates 'units' and the lower red LED indicates 'tens'.

Once every three seconds, the LEDs blink and the sum of blinks corresponds to the A.C.'s ID. For example, an ID equal to 1 will make the upper red LED blink once every three seconds. An ID equal to 2 will make the upper led blink twice every three seconds. An ID of 11 will make both the upper and lower red LEDs to blink once every three seconds (  $1 + 10 = 11$  ).

The user can change the ID by pressing the speed UP/DOWN buttons. The selected ID can be checked by looking at the LEDs at any time during the configuration.

Once the user is happy with the new ID, he can save the new setting by pressing the ON/OFF button to exit the configuration mode and return to OFF.

If the desired ID is equal to 1 (MASTER unit with jumper ON) the air curtain will lit the MASTER/SLAVE led. Otherwise, this LED will be OFF for all other SLAVE IDs. This feature is helpful to double check if a unit is master or slave (could be any slave ID), without entering the configuration mode.

**NOTE :** During operation User can at any time STOP a Slave Unit in a Network by pressing the ON-OFF button of this specific Unit . But then in order to Activate the Unit again he has to close the Master Air-Curtain and re-Open it in order to give command to the Slave also .

## Operation instructions

### Simple Air Curtain (Without Heaters)

Non heated A.C.s do not have any heater elements and this makes their functionality very simple. The A.C. can be operated from it's main panel ( Fig.3 a ) or by using an optional IR remote control ( Fig.3 b ).

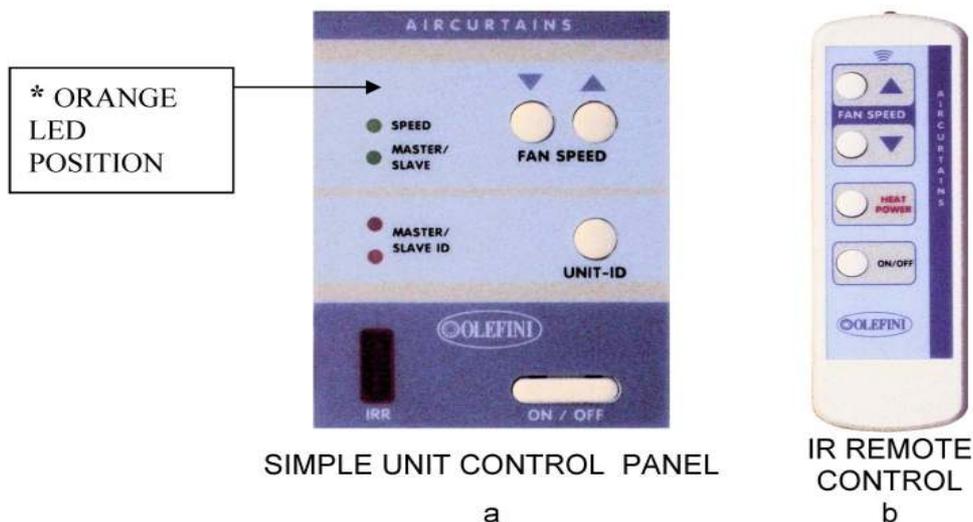


Fig.3

As it is shown in Fig.3 a , the main panel has 3 buttons and 3 LEDs. The buttons are used to turn ON or OFF the A.C. and the LEDs indicate the mode of operation and other useful information.

As long as the A.C. is connected to the mains power and turned off, the green MASTER/SLAVE LED is constantly lit . This indicates that the A.C. is properly powered and that this unit is configured as 'MASTER A.C.' ( **If this LED is not lit or the ROOM THERMOSTAT orange LED is lit [ \* ORANGE LED is under the sticker in SIMPLE units ] , please read the Configuration Chapter** ).

The A.C. can be turned on with a single press of the ON/OFF button. The key press is indicated by a short high pitch sound (beep). Once turned on, the SPEED LED blinks at a rate which indicates the speed of the internal fan. The faster the blink rate, the faster the speed of the air that the A.C. produces.

The fan speed can be adjusted in 15 steps by the user to suit his/her needs. The speed can be increased or decreased by one step each time via the FAN SPEED UP or DOWN button.

The user has a visual feedback of the selected speed by looking at the SPEED LED blinking very slow for the 1<sup>st</sup> speed and very fast for the last 15<sup>th</sup> speed . Each key press is indicated by a 'beep'. Pressing the buttons to select a speed beyond the limits has no effect in the fan speed. Please note that the 'beep' will continue to indicate the key presses even beyond the available speed range. The reason for this sound is to make sure that the buttons are functional at any time.

**NOTE :** Fan Speed level in each air-curtain ( MASTER / SLAVES ) can be different for every unit .



### **The role of the door switch**

The A.C. provides a stream of air that begins from the upper part of a door, and reaches the floor of the room. If the given door is capable of opening and closing at any time during the day, it is possible to fit a door switch and connect it to the New Logic A.C ( in the I/O/BOX on the back of the unit ) .

The door switch contacts should be configured as show below :

Contact closed = Door Closed ( Conductive )  
Contact open = Door Open ( Interruptive )

The A.C. can maintain two different modes of operation. One for Open door and one for Closed door.

The user can select the desired fan speed and heat level if applicable, while the door is open, and different settings for when the door is closed . The A.C. will remember each setting and switch between them, when the door switch toggles ( even if we have a Power Failure the Unit has Memory of the last position ) .

Door Switch contact should be of 'cold contact' type, meaning that a very small signal current passes through those contacts.

### **Never connect a power source to these terminals**

The door contact should work as explained below:

- 1) When door is open, the contact should be open (same as having nothing connected on the door terminals on the I/O box)
- 2) When door is closed, the contact should be closed (connecting the two door terminals on I/O box together)

### **Heated Air-Curtain models and reason for De-Heat**

OLEFINI Air-Curtain units can be equipped with either electrical heating elements or water heating elements , and can be operated either as Air-Curtains providing a Cold or a Warm air stream, or as Smart Heaters acting a significant role in Energy Saving of the controlled space .

This can be achieved by setting Unit to work with a Door Switch and a Room Thermostat as well and :

- For Open Door : Set Unit at desired speed and Heat Level ( Suggested : 100 % Speed / 100 % Heat Load )
- For Close Door : Set Unit at desired speed and Heat Level ( Suggested : Lower Speed / 33 % Heat Load )



In this way we manage to have , for as long as Door is Close , Unit to work in Low Thermal Power thus Saving eventually a lot of Energy .

In order now to select the desired level of heat , you can press the HEAT POWER button. By pressing this button once you step to the next level of heat. Once 100% heater power has been achieved, one more press will switch to No Heat mode.

The cycle of Heating Control is illustrated below :

- For Electrical Heated Units :

Press                  Press                  Press                  Press

All heaters OFF → 33% Heat → 66% Heat → 100% Heat → All heaters OFF  
 ( All LEDS OFF )    ( 1 LED ON )    ( 1 LED ON )    ( BOTH LEDS ON )    ( All LEDS OFF )



NOTE : In order to prevent unit internal overheating , when working in HEAT mode with electrical heaters , we have ADJUSTED a connection between unit Fan Speed and Heat Level Stage ie :

FAN STAGE	FAN SPEED LEVEL	HEAT LEVEL
LOW	1 ÷ 5	33 %
MEDIUM	6 ÷ 10	66 %
HIGH	11 ÷ 15	100 %

Unit configuration works as follow :

- When operating between the 1<sup>st</sup> and the 5<sup>th</sup> Fan speed Unit allows you to have only up to 33 % of the total Heat effect .
- When operating between the 6<sup>th</sup> and the 10<sup>th</sup> Fan speed Unit allows you to have only up to 66 % of the total Heat effect .
- When operating between the 11<sup>th</sup> and the 15<sup>th</sup> Fan speed Unit allows you to have 100 % of the Heat effect .



**NOTE :** The unit remembers the level of Heat at any Fan Stage ,if for example if we where operating at MEDIUM Fan stage with 66 % Heat power and suddenly we change to LOW Fan stage with 33 % effect ,when we advance to the MEDIUM Fan stage again the Unit will remember and automatically will advance Heat effect to 66 % again .

- For Water Heated Units :

Press                      Press  
Valve Closed → Valve Open → Valve Closed  
( LED OFF )      ( LED ON )      ( LED OFF )



In order to switch off the A.C. you can press the ON/OFF button once. If the A.C. is working with all heaters off, the shutdown operation will occur almost at once. If a level of heat is selected ( or was selected previously before Unit shutdown ) , the A.C. will operate for 2 more minutes for the heaters to cool down before completely shutting OFF . The de-heat phase is necessary to ensure that the fan is properly cooled down before shutting the unit off. While this de-heating phase takes place, all three LEDs on the panel will blink at a fast rate to indicate the shutting down process.

Once the A.C. is completely shut down, only the MASTER/SLAVE LED will remain lit to indicate the power availability.

**NOTE :** Fan Speed level / Heat power level & Water Valve ON-OFF state in each air-curtain ( MASTER / SLAVES ) can be different for every unit .



### Using a Room Thermostat

Occasionally User may need to operate a Unit or a Group of Units as Room Heaters . In order to do that you have :

- 1). Enable Room Thermostat operation in the Control Panel on every Unit in the Network .
- 2). Connect a Room Thermostat in the IO/BOX ( if it's a Master-Slave Network this is done only in the Master Unit ) on the Back of the Master unit .

In order to enable Room Thermostat we have in EACH Unit ( when it's in OFF state ) to PRESS 10 times the SPEED UP Button [ by continues use of the Button the room thermostat is enabled or disabled ( the 11<sup>th</sup> time ) ] .

The thermostat orange LED must be lit at all times , for the A.C. to take the thermostat into account. Alternatively, one thermostat can be connected on the Master unit , and the Slave units can then take this common thermostat into account ( please refer to Configuration chapter for more information ) .

While in operation Heaters / Solenoid Valve follow the commands of the Room thermostat depending on the environmental needs . As long as the room does not need HEAT , Power Unit will perform a Small Delay operation ( all 3 LEDs will work continuously for this period ) and then Unit will fall in a Stand By Mode waiting for the Thermostat to give command for HEAT . During this Stand By Mode the Thermostat Orange LED will blink occasionally in all Units .

Room Thermostat contact is also of cold type, and should be a simple contact with no power source.

#### **Never connect a power source to these terminals .**

The thermostat must be external and any type of thermostat can be used as long as it works according to the details given below.

The thermostat contact should work as explained below :

- 1) When the thermostat 'calls' for heat, the contact should be closed. (connecting the thermostat terminals on I/O Box)
- 2) When the thermostat reaches the given set-point and does not call for heat, the contact should be open.

#### **NOTE :**

- 1). If unit is also connected with a Door Switch , while Door is OPEN the Air-Curtains WILL NOT FOLLOW Room Thermostat's commands and will work according to pre-set configuration by the User for Open Door operation .
- 2). If a Network Unit has not Enabled the Room Thermostat operation , it will not follow Room Thermostat's commands and will work according to User's settings .



## Additional Features

Depending on customer needs-applications in some occasions someone might need only to start and stop unit from distance .

For doing that we need simply to short-circuit the Door Switch contact on the I/O Box , in Every Unit , and connect the Signal source [ Relay contact ] for the Unit Start - Stop to the Room Thermostat position of the I/O Box .

## Advanced Shortcuts

Once the user is confident with the operation of the different modes and configurations, he/she may use button shortcuts to speed up the configuration of many units. Table 2 shown below, lists the available shortcuts :

**Table.2**

<b>Action</b>	<b>Result</b>
Pressing 10 times the Speed down button	The unit's ID is changed to Master (ID=1) without the need to enter the configuration mode .
Pressing 10 times the Speed down button	Room Thermostat is Enabled or Disabled