

07/2018

Mod: CSL1507-VTB

Production code: HPL/1504-P



Diamond
catering equipment



Your professional partner



MANUAL

HPL

INDEX

CHAPTER	DESCRIPTION	PAGE
	General rules	04
1.	Technical data	05
1.1	Hoods HPL 1004 - 1504 - 2004 - 2504	05
1.2	Characteristics	05
2.	Fans DDM 7/7 - DDM 8/9	06
2.1	General information	06
2.2	Description and technical features	06
2.2.1	Description	06
2.2.2	Technical features and intended use	06
2.3	Security measure	06
2.4	Installation manual	07
2.5	Use and operation	07
2.6	CE- declaration of incorporation mod. DDM 7/7	08
2.7	CE- declaration of incorporation mod. DDM 8/9	09
2.8	Data plate	10
2.9	Wiring diagram	10
3	Digital speed control	11
3.1	General information	11
3.2	Basic operation characteristics	12
3.3	Main features	12
3.4	Procedure for controlling the engine speed	12
3.5	Installation of the controller	13
4	Placement of filters and divider	14
4.1	Installation of the filters	14



GENERAL RULES

- Attentively read the following instructions , because they contain important information of security, use and maintenance of the appliance.
- Save these “instructions for use”, so several users of the appliance can consult them at any time.
- Make sure the appliance is complete after the unpacking.
- In case of doubt, don't use the appliance and consult qualified personnel
- The appliance can only be used by qualified personnel.
- Before cleaning or maintenance of the appliance, or in case of breakdown or bad functioning, always close the gas and water supply.
- In case of repair , always ask technical qualified assistance and ask to use original spare parts.
- The non-respect of this instructions can endanger the security of the appliance.
- The appliance has to be in accordance with the norms and realised according to the instructions of the constructor.
- Do not clean the appliance with high-pressure cleaning machines.
- Do not close openings for gas and air supply, or emitting of heat.
- To avoid risks of rust or chemical aggression, good cleaning of the surfaces in stainless steel is advised.
- To bring the appliance in state of security, when not used



IF THE INSTRUCTIONS IN THIS MANUAL ARE NOT RESPECTED, NEITHER BY THE USER, NEITHER BY THE INSTALLER, THE COMPANY WILL ABANDON EVERY RESPONSIBILITY AND ANY ACCIDENT OR DEFECT CAUSED BY IGNORANCE OF THE FOLLOWING CANNOT BE ATTRIBUTED TO THE CONSTRUCTOR.

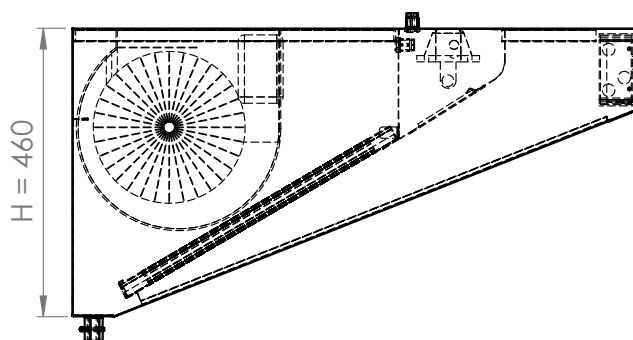
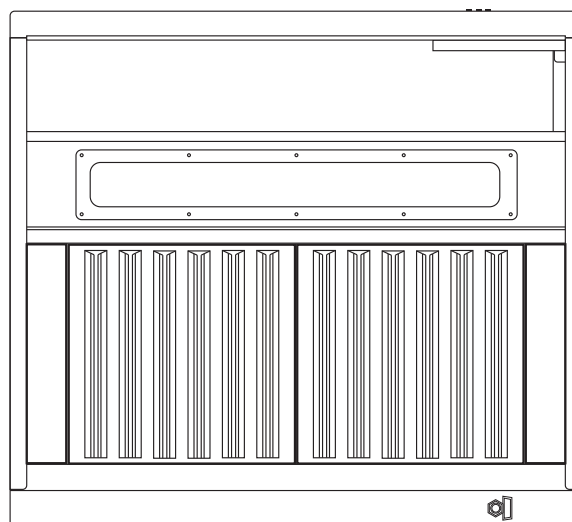
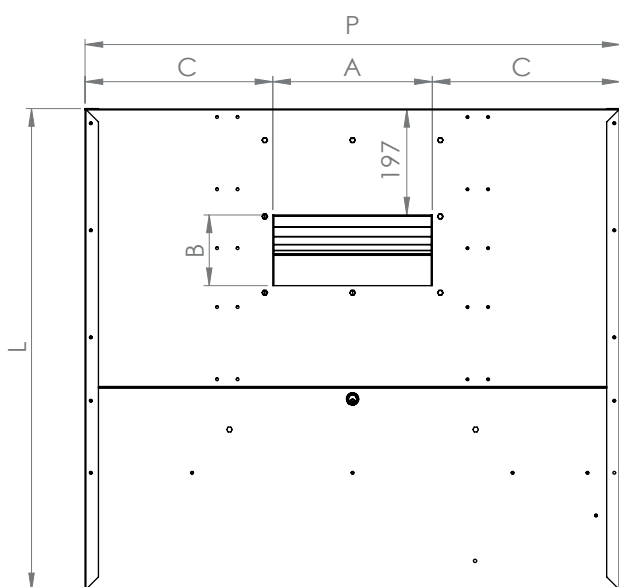
THE CONSTRUCTOR WILL ABANDON EVERY RESPONSIBILITY ACCORDING TO POSSIBLE INCORRECTNESS IN THIS MANUAL, DUE TO TRANSCRIPTION OR PRINTING.

THE MORE, HE MAINTAINS THE RIGHT TO MAKE NECESSARY AND USUAL MODIFICATIONS TO THE PRODUCT AND THIS WITHOUT DENIAL OF THE ESSENTIAL CHARACTERISTICS.

— 1. TECHNICAL DATA —

1.1 Hoods HPL 1004 - 1504 - 2004 - 2504

	HPL/1004	HPL/1504	HPL/2004	HPL/2504
Dimensions in mm (P X L x H)	1000 X 900 X 460	1500 X 900 X 460	2000 X 900 X 460	2500 X 900 X 460
Air suction holes - n° - dimensions in mm A X B	n°1 - 232 X 132	n°1 - 232 X 132	n°1 - 298 X 132	n°1 - 298 X 132
Labyrinth filters 400 X 500	2	2	2	2
Labyrinth filters 500 X 500		1	2	3
Dividers	2	2	2	2
Indicator lamp - n° - W	n°1 - 18W	n°1 - 36W	n°1 - 58W	n°1 - 58W
Vacuum DDM 7/7 (230/1/50 - 1,6A - 147W - 1400 Rpm)	1	1		
Vacuum DDM 8/9 (230/1/50 - 3,15A - 420W - 1400 Rpm)			1	1
Airflow in m³/h	1500	1500	2500	2500
Digital speed indicator with solenoid valve and light switch	4,5A - 230V	4,5A - 230V	4,5A - 230V	4,5A - 230V
Injection holes A1 x B1	NO	NO	NO	NO
Recessed lighting (with plexi cover)	YES	YES	YES	YES
Welded gutter to collect grease	NO	NO	NO	NO
Fully welded	NO	NO	NO	NO
Volume without packaging	1,03	1,03	1,36	1,69
Weight without packaging	40	45	55	65



1.2 Caractéristiques

- Monobloc hood made of stainless steel with brushed and polished finish.
- Hood assembled by electronic point welding.
- Labyrinth filters in stainless steel network.
- Special anti-drip chute for grease collection.
- Tap drainage for grease.

Where provided :

- IP65 lamp with or without built-in lighting.
- Built-in vacuum 230/1/50 IP55, ERP 2015.
- Speed regulator 4,5A IPSS.
- Welded gutter to collect grease on hoods with recessed lighting.

2.1 General information

This manual is directed to manufacturers, installers and service agents of ventilation equipment specialized in the application, installation and adjustment of industrial fans.

2.1.1 Purpose and limits of the use of the manual :

This manual is intended for specialized and adequately trained personnel in the realization of machines or equipment using centrifugal electric fans, preventing preventive errors from the use and installation of such devices. However, the present recommendations are not the only methods, procedures or other devices for obtaining security in the represented situations. Always be rigorously careful when moving around moving parts or parts under tension. Safety depends only on skill, experience and reasonable attention in the actions performed on the machine.



**Displacement, installation and maintenance must always be carried out by trained and trained technicians.
Any installation by unskilled people is therefore prohibited**

In addition to these recommendations, before performing any activities related to the use of this machine, you must be informed of the required security applications based on the laws, rules and standards applicable to the installation site

2.2 Description and technical characteristics

2.2.1 Description :

For a description of the fans, refer to the manual.

2.2.2 Technical features and expected use :

The current electric fan is adapted to transfer non-toxic, non-flammable, non-corrosive air without liquid or solid or abrasive particles and the temperature does not exceed 40 ° C (UNI EN ISO 13349).

Different temperature and humidity limits are indicated on the fan label. The electric fan must only be operated with the electrical power supplied by the indication on the label.



Attention: The current electrical fan is built to be mounted in a machine and therefore cannot be used autonomously.

2.3 Security measure

To operate safely on the electronic fan during installation and maintenance, use individual protective equipment (eg. gloves) as provided for in Directive 89/686 / EEC (and its successive amendments).



Attention: the present electric fan must be protected against the risks of mechanical type, the risks due to the projection, the risks due to the electric energy and the risks due to the extreme temperatures (the engine can reach surface temperatures above 70 °C) in all cases the electric fan must be installed on the machine taking into account all necessary safety measures, in order to avoid any danger arising from its application, in accordance with the requirements of Machine Directive 2006/42 / EC (and its successive amendments). As an indication, we advise you to apply the content of technical standards UNI EN ISO 12100, UNI EN ISO 13857, CEI EN 60204, UNI EN ISO 12499.



Note: the sound power level emitted by the machine is indicated on the label when it exceeds $Leq = 85\text{db}$ (A). The weight of the fan is indicated on the label when it exceeds 30kg. These indications must be taken into account to provide the appropriate protection for the machine.

2.4 Installation operations

The correct installation of the electric fan ensures the solution of many problems that could arise during its use.



Attention: the displacement of the electric fan could be difficult given its shape and the uneven distribution of the weights.

Installation phases:

- a) check if parts are damaged or missing;
- b) check that the wheel rotates freely and that there is no sign of excessive imbalance or play on the motor shaft
- c) Insert the fan into the machine by securing it with the anchor holes on the fan housing or through the holes on the flange, if fitted, or holes of the brackets that are part of the supply. The electro ventilator must have a space between the suction gates and the walls of the machine to not punish the aeroulic and sound characteristics, this distance must at least be the diameter of the wheel. The diameter of the wheel can be found in the description on the label, which is expressed in pulses (if it is three digits, it is expressed in millimetres);



Attention: Turn off the power of the machine before you start the installation process.

Attention: the electric fan must be installed with the motor shaft placed horizontally with respect to the ground

- d) connect the electric fan according to the attached connection diagram and also present on the electric fan, also verifies that the supply voltage for the test does not exceed the ones indicated on the label of the electric fan;
- e) during the test phases of the machine, check that the direction of rotation coincides with that indicated by the orientation arrow on the electric fan and that the current absorption does not exceed the one indicated on the label;
- f) Check the protections specified by the project so that the machine complies with the requirements of the 89/392 / EEC directive in the protection of the electric fan, and that these are adequately installed.

2.5 Use and operation

The fan must be used only for the purpose for which it was designed (par.2.2.2) and introduced into the machine with all the protections to prevent any risk to persons and things.



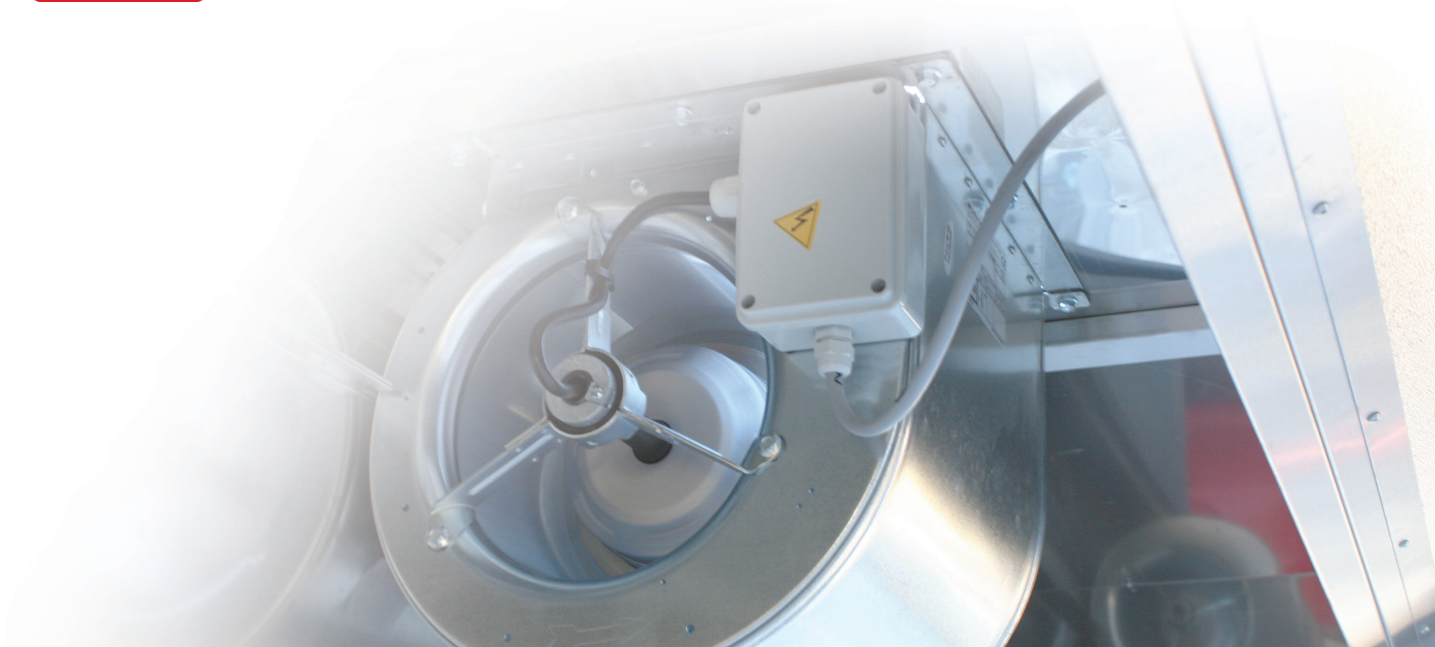
Caution: before operating the electric fan control that the voltage of the power supply corresponds to that shown on the label

Attention: the electric fan must operate only within the limits of operation (power supply, temperature, etc.) indicated on the label.

Use out of predetermined limits can lead to dangerous situations not considered and independent of the responsibility of the manufacturer.



CAUTION: do not remove the safety protections provided; do not intervene on the electric fan without first turning off the voltage and wait until the wheel has stopped

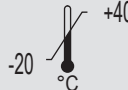


2.6 EC-declaration of incorporation mod. DDM 7/7

NICOTRA | Gebhardt MADE IN ITALY
Nicotra Gebhardt S.p.a. Via Montenapoleone, 9 20121 Milano
Stabilimento: Via Modena, 18 24040 Ciserano Loc. Zingonia (BG) - IT

mod. DDM 7/7 E5G3301 1F 4P +FL+SCT
code FN022T / 00 **BATCH 831595**

1~	50/60 Hz	230 V	IP 55	Cl.Is.Mot. F	C5 µF
1.6/1.55 A.max		147 W	1200 RPM		Th Y
ETA 38,8 %		Total	INST. B	N 49	ErP 2015



069-2016 INSTRUCTION 985707

The manufacturer :

Nicotra Gebhardt S.p.A.
Via Modena 18,
24040 Ciserano, Italy

Herewith declares, that the **direct-driven fan**, manufactured in the Nicotra Gebhardt plant in Ciserano (Zingonia), Italy, and individually identified, according to its name-plate, by **Product designation, Part number / Revision Batch n°**, qualifies as a partly-completed machine, according to Article 2 clause (g), and does comply to the following basic requirement of the Machine Directive (2006/42/EC): Annex I, Article 1.1.2, 1.3.7, 1.5.1.

The relevant technical documentation is compiled by Nicotra Gebhardt S.p.A., and stored at the same address above, and the manufacturer accepts to transmit such documentation, on the partly completed machinery, on paper or in electronic format, in response to a reasoned request by the national authorities.

This partly-completed machine must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machine Directive (2006/42/EC).

The following harmonized standards have been applied (1):

- | | |
|---------------------|---|
| EN ISO 12100 | Safety of machinery - General principles for design - Risk assessment and risk reduction |
| EN ISO 13857 | Safety of machinery - Safety distance to prevent hazard zones being reached by upper and lower limbs (this particular standard applies to any inlet or outlet guard which may be included in the design of each particular fan) |
| EN 60204-1 | Safety of machines - Electrical equipment of machines
Part 1: General requirements |

Applied National Technical Standards and Specifications (2):

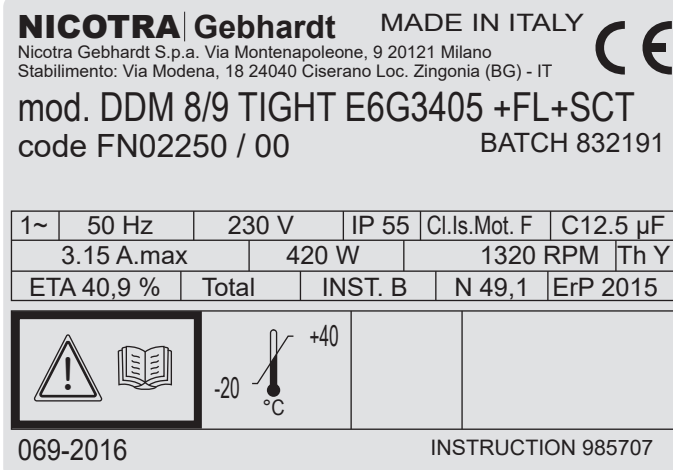
- | | |
|-------------------|----------------------------|
| VDMA 24167 | Fans - Safety requirements |
|-------------------|----------------------------|

Place / Date
Ciserano, 21.04.2015


Andrea Cigada
Senior Vice President Operations
EMEA


Fabio Breviario
Chief engineer and Design Authority
R&D Manager

1) For a complete listing of applied standards and technical specifications see manufacturer's documentation
2) as far as harmonized standards are not existing



The manufacturer :

Nicotra Gebhardt S.p.A.
 Via Modena 18,
 24040 Ciserano, Italy

Herewith declares, that the **direct-driven fan**, manufactured in the Nicotra Gebhardt plant in Ciserano (Zingonia), Italy, and individually identified, according to its name-plate, by **Product designation, Part number / Revision Batch n°**, qualifies as a partly-completed machine, according to Article 2 clause (g), and does comply to the following basic requirement of the Machine Directive (2006/42/EC): Annex I, Article 1.1.2, 1.3.7, 1.5.1.

The relevant technical documentation is compiled by Nicotra Gebhardt S.p.A., and stored at the same address above, and the manufacturer accepts to transmit such documentation, on the partly completed machinery, on paper or in electronic format, in response to a reasoned request by the national authorities.

This partly-completed machine must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machine Directive (2006/42/EC).

Les normes harmonisées suivantes on été appliquées (1):

- | | |
|---------------------|---|
| EN ISO 12100 | Safety of machinery - General principles for design - Risk assessment and risk reduction |
| EN ISO 13857 | Safety of machinery - Safety distance to prevent hazard zones being reached by upper and lower limbs (this particular standard applies to any inlet or outlet guard which may be included in the design of each particular fan) |
| EN 60204-1 | Safety of machines - Electrical equipment of machines
Part 1: General requirements |

Applied National Technical Standards and Specifications (2):

- | | |
|-------------------|----------------------------|
| VDMA 24167 | Fans - Safety requirements |
|-------------------|----------------------------|

Place / Date
 Ciserano, 21.04.2015

Andrea Cigada
 Senior Vice President Operations
 EMEA

Fabio Breviaro
 Chief engineer and Design Authority
 R&D Manager

1) For a complete listing of applied standards and technical specifications see manufacturer's documentation
 2) as far as harmonized standards are not existing

2.8 Information data plate

NICOTRA Gebhardt

Nicotra Gebhardt S.p.a. Via Montenapoleone, 9 20121 Milano - Italy
Stabilimento: Via Modena, 18 24040 Ciserano Loc. Zingonia (BG) - IT

mod.

COD. / BATCH

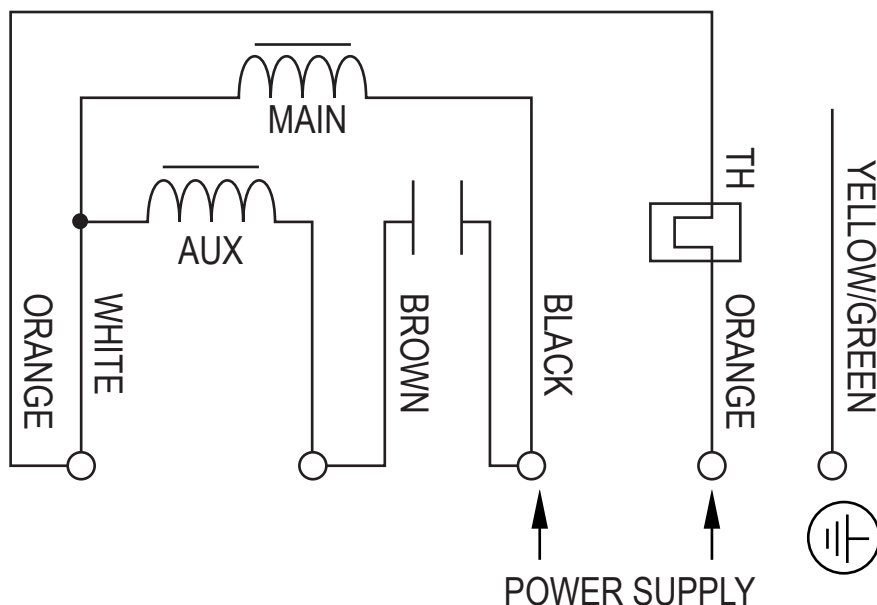
5	6	Hz.	7	V.	IP	8	Cl. ls.	9	10	μF
11	A.max		12	W		13	RPM	Th	14	
ETA	19	%	20		21	N	22	23		

		15			16	Kg	SWL >		17	
			°C							

INSTR. COD. 18

1. description model
2. Nicotra code
3. Level of modification
4. Production lot number
5. Number of phases and current voltage
6. power supply frequency
7. power supply voltage
8. Protection index engine housing
9. Class of motor insulation
10. Convector value (if any)
11. Maximum current absorption
12. Rated engine power
13. Nominal number of revolutions
14. Presence of thermal protector (Y = yes / N = no)
15. Reach operating temperature
16. Machines exceeding 30kg (if any)
17. Machines that exceed the sound power level of 85 dB (A) (if present)
18. User's Guide instruction code
19. Total revenue
20. Revenue category (static or total)
21. category of measure used to determine energy efficiency
22. level of performance at the optimum point of energy efficiency
23. Erp conformity

2.9 Connection diagram



BLACK
BLUE
RED
YELLOW
BROWN
GREEN
WHITE
YELLOW/GREEN
ORANGE
GREY
VIOLET
SPEED 1,2,3,4
PHASE
NEUTRAL

3.1 General information

FE230 regulator is an advanced control system using a microprocessor for manual or automatic speed adjustment of an induction single-phase motor (typically used for air intake systems), for lighting system management and for a possible optional load (such as, for example an external gas solenoid valve for chimney or gas outlet). The precision and its use ease are guaranteed by using a latest generation microprocessor and by digital controls situated on the front panel: picture 2 and the following instructions illustrate the functions managed by FE230 control unit, these functions turn the control unit into an ideal solution for many indoor and professional air intake systems (odours, smokes and fumes extractors fan, indoor, professional and industrial range hoods, purification and air treatment devices, etc...).



Fig.1

Special attention in designing FE230 control system has been dedicated to achieve an innovative electronic control system, characterized in stand-by condition by lower power consumption currently available for these kind of product. This feature, particularly appreciated today, and the possibility to automate air intake system by optional sensors, allow to install a sophisticated and efficient air-treatment system control in every kind of settings. The possibility of using wireless remote control (IR/RADIO code FE1004) or RS-485 serial channel turn FE230 system into a “clever” system control that is able to set up new features that can be implemented according to custom requirements.

WARNINGS:

- Before installing and plugging the device into the mains, check that the specifications indicated on the data plate and the technical characteristics explained on this manual correspond to those of the electrical mains system, of motor, of lighting system and of eventual gas solenoid valve.
- Use always high quality and suitable section electric cables wire to connect the regulator to the mains and to loads.
- We recommend that you keep within the device the lengths cable short to avoid their contact with particular components that could reach high temperatures.
- Install the regulator in ventilated places and away from sources of heat, especially if the current load absorption are close to the maximum declared.
- Be sure to connect the ground wire of the motors (or the chassis of the motors) to the main board and the latter one to the grounding system of the network.
- To avoid danger of fire, electric shock or malfunctions, do not expose the device to rain, humidity, favouring the installation in a dry place. It is recommended to not install the regulator in areas with moisture, fumes or gas, avoid direct sunlight or heat sources that could damage the device dissipation capacity.
- The regulator must be installed and used only in compliance with the instructions provided: the manufacturer won't be responsible for the improper use of the device (if it is used for applications different than those for which it was designed) or for failure to

The manufacturer declares that this product is free from manufacturing defects. The guarantee lasts 12 months if the product is correctly used.

The manufacturer reserves the right to make changes, also without notice, on the device or on the documentation in order to improve its performances.

3.2 Technical characteristics

Single-phase power supply: 85-265 Vac 50Hz.

Fuse of general protection: 10AT 5 X 20 mm.

Stand-by power consumption (loads off) 0.35 W.

Phase control with triac: speed motor setting and switch with relay.

Motor: single-phase induction.

Maximum load MOTOR: 4,5A (@ 230 Vac).

Maximum load LIGHTS: 2A (@ 230 Vac).

Features for gas solenoid valve : 230 Vac 50Hz MAX. 1A

Possibility of receiving wireless remote controls by Radio remote control (optional).

Possibility of connecting optional sensors (temperature sensors, air-quality sensors, odour and gas sensors, relative humidity sensor, CO2 sensors, anemometers, etc..)

Bidirectional serial communication channel RS-485 (optional).

Digital controls setting through 5 frontal keys, 1 led and 1 seven-segments display.

IP protection : IP55.

Size: 158x118x77 mm.

Weight: 0.37 kg.

References standards: EN 55014-1, EN 55014-2, EN 60204-1, EN 60335-1, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-4, EN 61000-4-5.

3.3 Main features

In relation to the features described below, refer to fig.2.

At motor switch on, a seven-segments display indicates numerical values between 1 and 8 representing speed motor setting. In the transition from one speed to another one, as well as switching on and switching off, the motor always follow a proper ramp.

Key **SW1** :

Pressing SW1 key, motor starts running and speed 1 is automatically setted: at every start, it is however foreseen that the motor runs, for 3 seconds, at a different speed (start speed). After 20 seconds, gas solenoid valve is turned on and led DL lights on.

Key **SW2**:

Pressing SW2 key, gas solenoid valve is immediately disabled and led DL switches off: Maximum speed motor is setted (speed 8) for 20 seconds, then it stops.

Key **SW3**:

Each press of SW3 key increases speed motor according to the scheme:

V1 → V2 → ... → V7 → V8.

Key **SW4**:

Each press of SW4 decreases speed motor according to the scheme: V8 → V7 → ... → V2 → V1.

Key **SW5**:

With motor off or motor running, pressing SW5 turns on or off light.

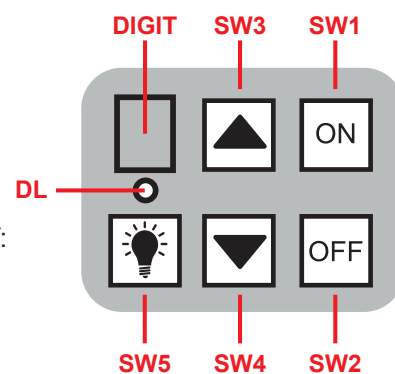


Fig.2

3.4 Procedure for controlling the engine speed

When loads are off, it is possible to do the calibration procedure of the motor speed, by which the user can customize the value of the minimum, maximum and start speed. After completing the calibration procedure, intermediate speeds (the speed 2 to 7) are defined by software based on the minimum and maximum setting.

If the user does not perform the calibration procedure for setting the minimum and maximum motor speed, these parameters have default values.

Press and hold simultaneously for 3 seconds the keys **SW3** and **SW4** to access the calibration procedure of the motor speed:

the display shows «0», indicating that it is enabled the start speed, and is automatically selected minimum speed that can be associated to that parameter (it should be noted that this speed, depending on the type of load applied, it may not be sufficient to start the motor:

in this case press the button **SW3** to increment until the motor starts).

Push the **SW3** and / or **SW4** to increase and / or decrease the speed until you get the desired value for the start speed.

Press **SW1** to confirm and proceed with the setting of the minimum speed: the display shows «1» while the motor continues to run at the start speed previously selected.

Push the **SW3** and / or **SW4** to increase and / or decrease the speed until you get the desired value for the minimum speed, whereas it is not possible to select a value greater than the one chosen by the start speed.

Press **SW1** to confirm and proceed with the setting of the maximum speed: the display shows «8» and the motor starts running at maximum speed setting

3.5 Regulator installation

After removing the cover, do on the box the necessary holes for the passage of cables.

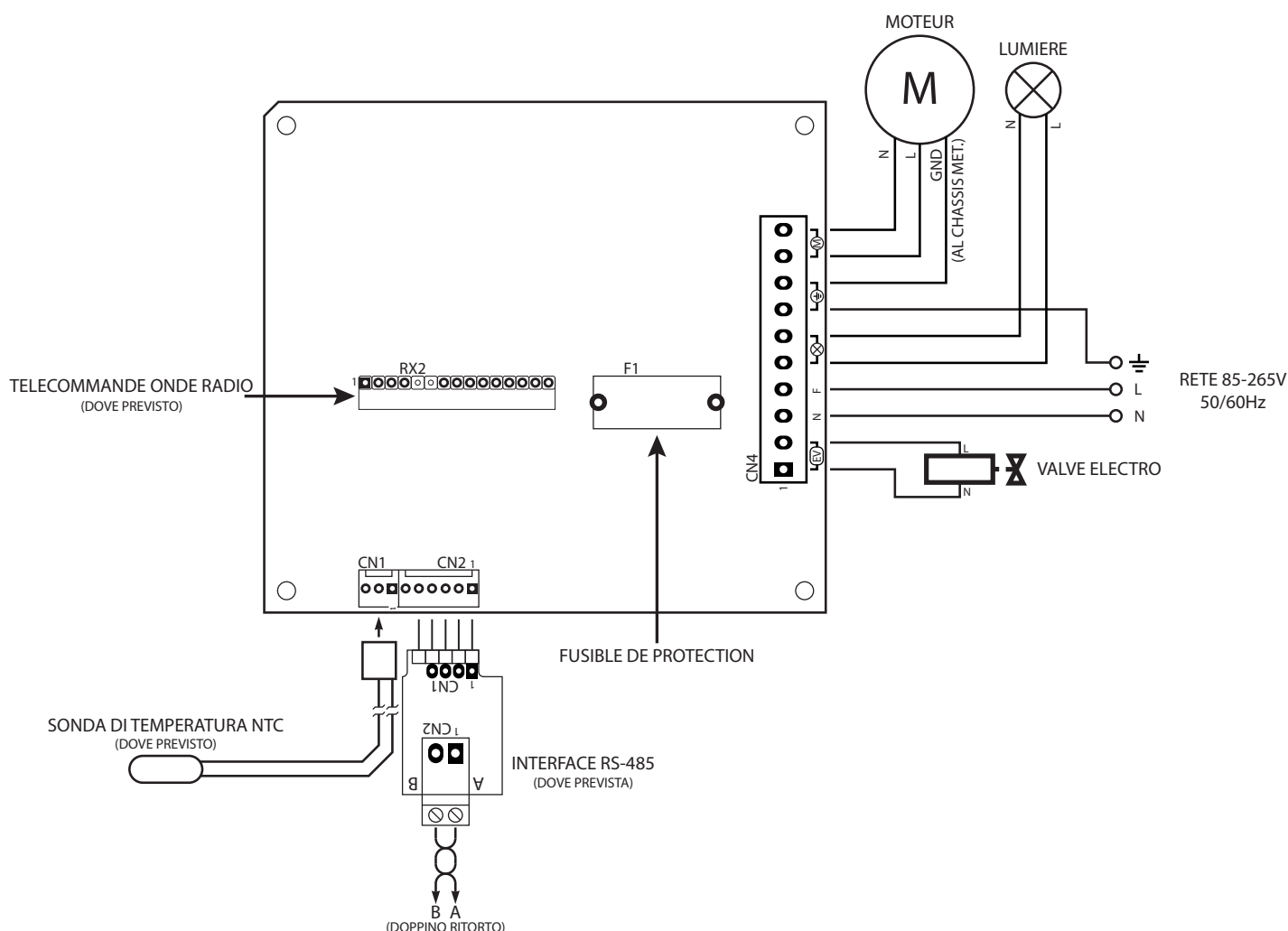
Then attach the box to the desired support and make connections to the terminal block on the board according to the connexion diagram shown in Fig. 3 (Note: If the motor used in the installation has a metal chassis, it is recommended to connect it to one of the two ground terminals on the board. The second terminal must be connected to the earth of the mains).

When all connections have been done, power on to the regulator.

This will remain in low power mode (stand-by) until loads are activated or you will access the Configuration Menu.

Verify the correct operation mode of loads using dedicated keys on the front panel.

Then close the casing cover using the screws: the device is ready for use

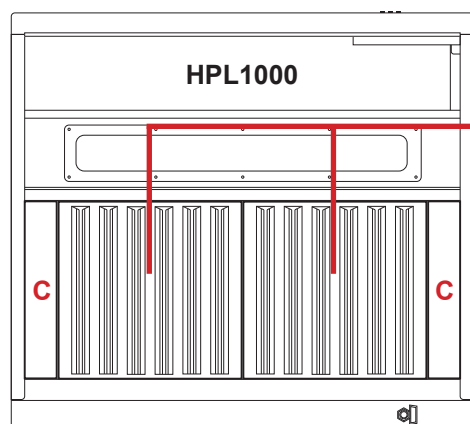


— 4. PLACEMENT OF FILTERS AND DIVIDERS —

The filters with our HPL, are stainless steel labyrinth grease filters AISI EN 1.4509 441

For the HLP1000, only 400x500 filters are used, but for HPL 1500,2000 and 2500 there are two dimensions provided, the 400x500 and the 500x500.

4.1 Installation of the filters



DESCRIPTION	
A	FILTRE 400X500
B	FILTRE 500X500
C	DIVIDER

