



# USER MANUAL

Lion Series

650 - 2000 VA

Line Interactive UPS



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## **About The Manual**

This manual is prepared for the users of Lion Series 650-2000 VA.

## **Companion Manuals**

For further information about this device and its options, please visit [www.makelsan.com.tr](http://www.makelsan.com.tr)

## **Updates**

Please visit [www.makelsan.com.tr](http://www.makelsan.com.tr) for updates. Always use the latest manuals.

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# 1 Package Contents

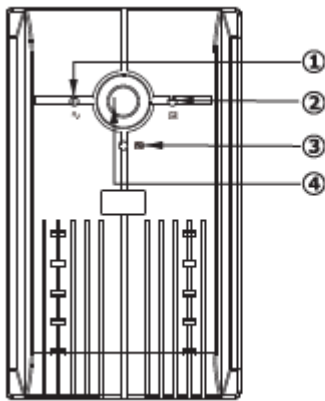
You should have received following items inside of package:

- UPS unit
- user manual
- 2 fuse tubes
- communication cable (only for the model with USB/RS232 port)

# 2 Product Overview

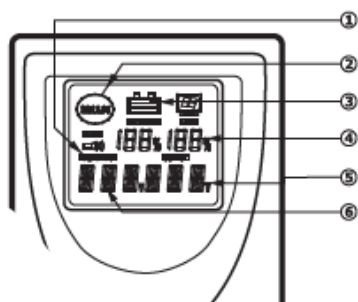
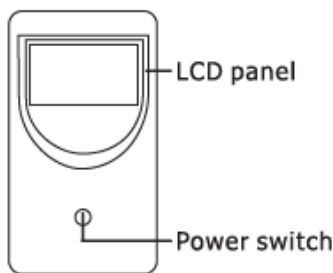
**Front View:**

**LED type:**

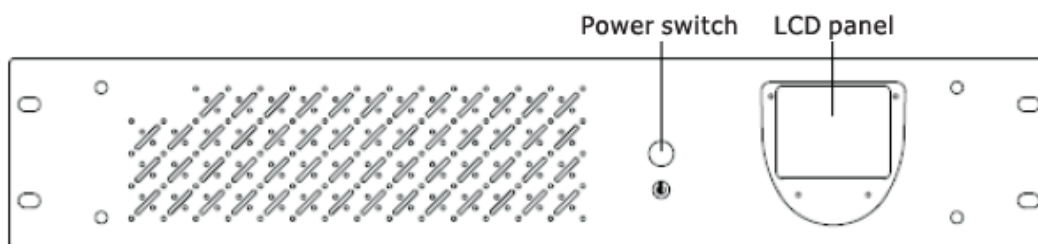


- 1.AC normal indicator (green)
- 2.Battery charging indicator (amber)
- 3.Back-up indicator (red)
- 4.On/Off button

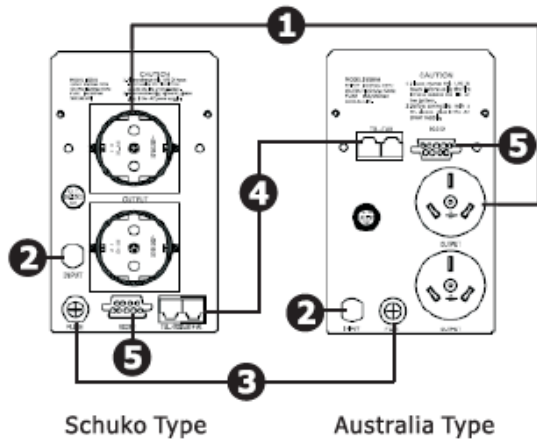
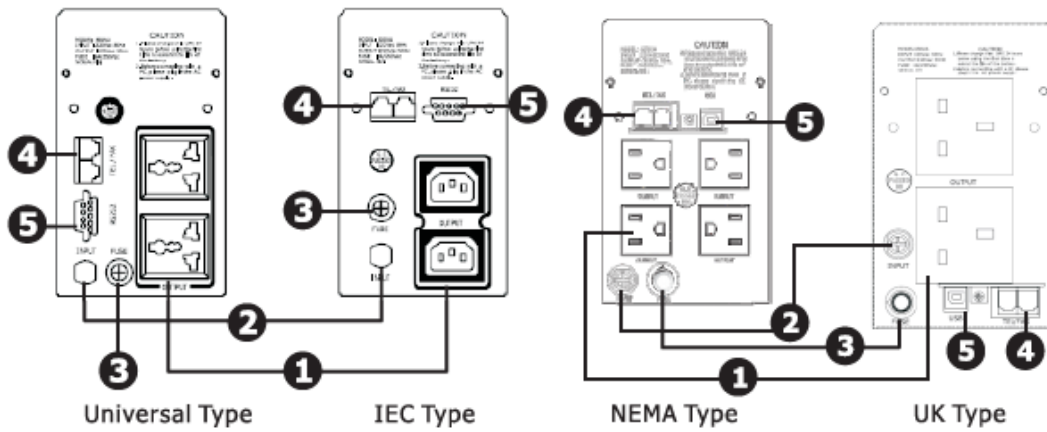
**LCD type:**



- 1.Alarm
- 2.Hello
- 3.Battery capacity
- 4.Load percentage
- 5.Output voltage
- 6.Input voltage/frequency

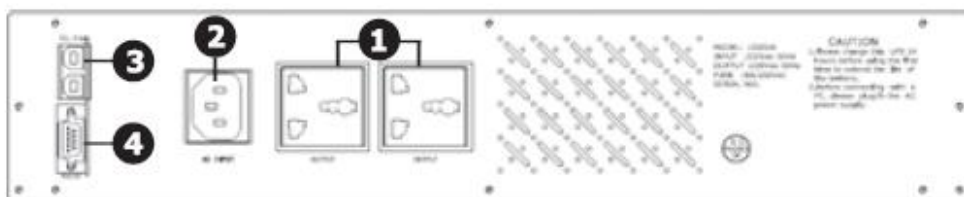


**Tower type back view:**

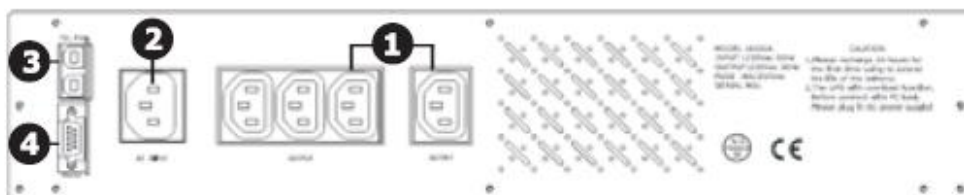


- 1. Output receptacles
- 2. AC Input
- 3. AC Fuse
- 4. RJ-11/RJ-45 surge protection
- 5. RS232/USB communication port

**Rack Mount Type Back View:**



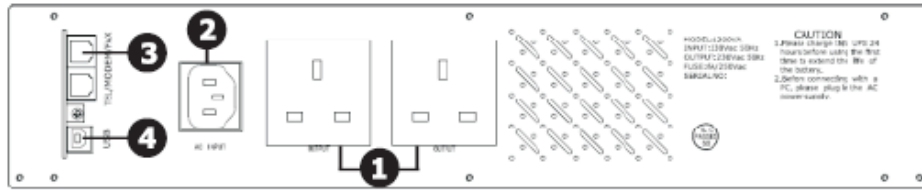
Universal Type



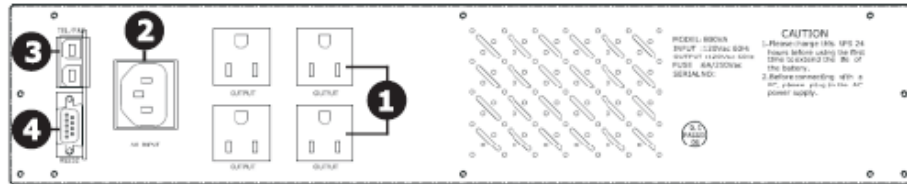
IEC Type



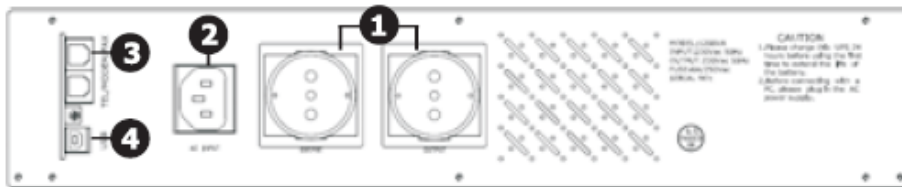
LION SERIES 650-2000VA



UK Type



NEMA Type



Schuko Type

1. Output receptacles

3. RJ-11/RJ-45 surge protection

2. AC Input

4. RS232/USB communication port

## 3 Installation & Initial Startup

### NOTE:

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged.

### Placement & Storage Conditions

Install the UPS in a protected area that is free of excessive dust and has adequate air flow. Please place the UPS away from other units at least 20 cm to avoid interference. DO NOT operate the UPS where the temperature and humidity is outside the specific limits. (Please check the specs for the limitations)



### Connect to utility and charging

Plug in the AC input cord to the wall outlet. For the best results, suggest to charge the battery at least 8 hours before initial use. The unit charges its battery while connecting to the utility.



### Connect to the load

Plug in the loads to output receptacles on the rear panel of the UPS. Simply turn on the power switch of UPS unit, and then devices connected to the UPS will be protected by UPS unit.

**CAUTION: NEVER** connect a laser printer or scanner to the UPS unit. This may cause the damage of the unit.



### Connect TEL/Modem/Fax for surge protection (Only for the model with RJ-45)

Connect a single modem/phone line into surge-protected "IN" outlet on the back panel of the UPS unit. Connect from "OUT" outlet to the computer with another phone line cable.

### Connect Communication Cable (Only for the model with USB/RS232 port)

To allow for unattended UPS shut down/start-up and status monitoring, connect the communication cable one end to the UPS/RS232 port and the other to the communication port of your PC. With the monitoring software installed, you can schedule UPS shutdown/start-up and monitor UPS status through PC.

### Turn on/off the unit

Turn on the ups unit by pressing the power switch. Turn off the LED UPS unit by pressing again the power switch.

### Cold start Function

When the UPS is off and there is no power utility, it's still possible to cold start the ups unit to power the loads

### **Alarm Function**

When AC fails, and the battery supplies power, UPS will alarm once every 6 seconds and the beep stops about 40 seconds later.

When battery is nearly used up, the UPS will alarm automatically and the beep frequency is once 2 seconds.

When battery is really used up, the UPS will alarm for a very longtime and turn off automatically.

### **Protection**

Battery over discharge protection: when the battery discharges and the UPS is in inverter mode, the battery will check and monitor the working status of the battery; when the battery voltage drops to the limited lowest voltage, the inverter will turn off automatically and protect the battery; when AC comes back, UPS will turn on automatically.

Battery over charge protection: when in AC mode, UPS automatically enter the charge mode, battery testing system will automatically detect the battery state of charge, when battery full completely, the charge will be automatically closed system to ensure that the service life of batteries, energy conservation.

Short circuit protection: When UPS in battery mode and there is shock or short-circuit, UPS will output limited currency, protecting the UPS. (When in mains mode, the UPS will be protected by input fuse firstly and then transfers to the battery mode.)

### **Lock phase**

In AC mode, the UPS system automatically tracks AC phase and ensures that the output wave form of the inverter is the same with AC voltage wave form, in this way, it reduces the peak pulse and surge voltage and minimizes the interference and damage to the equipment.

### **Detective input frequency**

When it is connected to AC, the frequency is automatically set to 50Hz or 60Hz in accordance with AC.

## 4 Important Safety Warning

(Save these instructions)

### **CAUTION!**

To prevent the risk of fire or electric shock, install in a temperature and humidity controlled indoor area free of conductive contaminants. (See the specifications for the acceptable temperature and humidity range.)

### **CAUTION!**

To reduce the risk of overheating the UPS, do not cover the UPS' cooling vents and avoid exposing the unit to direct sunlight or installing the unit near heat emitting appliances such as space heaters or furnaces.

### **CAUTION!**

Do not attach non-computer-related items, such as medical equipment, life-support equipment, microwave ovens, or vacuum cleaners to UPS.

### **CAUTION!**

Do not plug the UPS input into its own output.

### **CAUTION!**

Do not allow liquids or any foreign object to enter the UPS. Do not place beverages or any other liquid-containing vessels on or near the unit.

### **CAUTION!**

In the event of an emergency, press the OFF button and disconnect the power cord from the AC power supply to properly disable the UPS.

### **CAUTION!**

Do not attach a power strip or surge suppressor to the UPS.

### **CAUTION!**

If the UPS is with metal chassis, for safety purpose, grounding is a must during UPS installation in order to reduce leakage current below 3.5mA.

**Attention** hazardous through electric shock. Also with disconnection of this unit from the mains, hazardous voltage still may be accessible through supply from battery. The battery supply should be therefore disconnected in the plus and minus pole at the quick connectors of the battery when maintenance or service work inside the UPS is necessary.

### **CAUTION!**

Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

**CAUTION!**

When replacing the batteries, use the same number and type of batteries.

**CAUTION!**

Internal battery voltage is 12V dc. Sealed, Lead-acid, 6-cell battery.

**CAUTION!**

Do not dispose of batteries in a fire. The battery may explode. Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes.

**CAUTION!** Unplug the UPS prior to cleaning and do not use liquid or spray detergent.

**CAUTION!**

A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed before replacing batteries:

1. Remove watches, rings, or other metal objects.
2. Use tools with insulated handles.
3. Wear rubber gloves and boots.
4. Do not lay tools or metal parts on top of batteries.
5. Disconnect charging source prior to connecting or disconnecting batteries terminal.

## 5 Software Installation & Monitoring

**(Only for the model with communication port)**

**Please follow steps below to install the software and monitor the UPS:**

1. Insert CD disk into computer, select installation icon and Follow the on-screen instructions to install the software.
2. Connect the UPS and computer with communication cable.
3. Open the software, select proper port to monitor the UPS.

## 6 Maintenance

### Preventative Maintenance

**Preventative Maintenance ensures the longer service life of UPS.**

Please check the following things every month:

1. make sure the airway not blocked;
2. make sure that the UPS surface is not covered by dust;
3. Check whether the input, output and battery connecting lines are firm or not and the insulation is effective or not;
4. Make sure that the UPS is not affected with damp;
5. Let the UPS work in battery mode for about 5 minutes and in this period, if there is no other alarm from the UPS, then the UPS is normal; if there is other alarm message, please contact the local dealer for help.

### Battery maintenance

The UPS contains sealed lead-acid maintenance-free battery. The bad environment, high discharging frequency, high temperature etc will dramatically reduce the service life of battery. The service life of battery will also reduce even it is not used. It is suggested to discharge the battery once every 3 months when AC is normal. When battery is near the end of its life, the battery will end in bad performance.

## 7 Trouble Shooting

Use the table below to solve minor problems.

| Phenomenon   | Probably cause   | Solution   |
|--|--|--|
| The mains is normal, but the UPS is in battery mode. | AC input fuse is broken  | The fuse is placed on the UPS back panel. After disconnecting the AC plug, put out the fuse and replace it with a new one. |
| When AC fails, the computer doesn't work.            | Battery low voltage.   | Please turn on the UPS and charge the battery for at least 10 hours, when AC is normal and then turn on the UPS.           |
| When power fails, backup time is shorten.            | The UPS is overload  | Remove some critical load.   |
|  | Battery voltage is too low   | Charge UPS at least 8 hours.   |
|  | Battery defect. It might due to high temperature operation environment or improper operation to battery. | Replace the battery with the same type.  |

## 8 Specifications

| CAPACITY             |                   | 650VA  | 850VA        | 1000VA       | 1500VA        | 2000VA |
|----------------------|-------------------|--|--------------|--------------|---------------|--------|
| <b>INPUT</b>         |                   |  |              |              |               |        |
| Voltage              |                   | 110V/120V/ or 220V/230V/240V                                     |              |              |               |        |
| Voltage Range        |                   | ±25%(-35% optional)  |              |              |               |        |
| Frequency Range      |                   | 50/60Hz±10%  |              |              |               |        |
| <b>OUTPUT</b>        |                   |  |              |              |               |        |
| Power Factor         |                   | 0.6  |              |              |               |        |
| Voltage Regulation   |                   | ±1%  |              |              |               |        |
| Transfer Time        |                   | ≤10ms  |              |              |               |        |
| Waveform             |                   | Simulated sine way   |              |              |               |        |
| <b>BATTERY</b>       |                   |  |              |              |               |        |
| DC Voltage           |                   | 12V  |              | 24V          |               |        |
| Configuration        |                   | 1x 12V/7.0Ah   | 1x 12V/9.0Ah | 2x 12V/7.0Ah | 2x 12V/9.0Ah  |        |
| Charging Time        |                   | 8 hours recover to 90% capacity                                  |              |              |               |        |
| <b>PHYSICAL</b>      |                   |  |              |              |               |        |
| Tower                | Dimension (D*W*H) | 95*340*165mm   |              |              | 125*400*220mm |        |
|                      | Net Weight        | 5.8kg  | 6.8kg        | 10.3kg       | 13.5kg        | 15.5kg |
| Rack Mount           | Dimension (D*W*H) | 480*350*88mm   |              |              | 480*350*150mm |        |
|                      | Net Weight        | 7.9kg  | 9.0kg        | 12.6kg       | 15.8kg        | 17.8kg |
| <b>ENVIRONMENT</b>   |                   |  |              |              |               |        |
| Humidity             |                   | 20~90% RH @ 0~40°C(non-condensing)                               |              |              |               |        |
| Noise Level          |                   | Less than 45dB   |              |              |               |        |
| <b>MANAGEMENT</b>    |                   |  |              |              |               |        |
| USB/RS-232(Optional) |                   | Supports Windows 98/2000/2003/XP/Vista/2008/ Windows 7/Windows 8 |              |              |               |        |

## 9 GUARANTEE

### 9.1 Terms of Guarantee

- Our products are under a two-year guarantee starting from the date of delivery against malfunctions resulting from production, material and workmanship faults. Malfunctions due to such type of faults will be removed without claiming any price of workmanship or spare parts to be replaced.
- Whether aforementioned malfunctions originate from usage faults or not are determined with a report to be issued by service stations, if there exists no service stations, by one of seller, dealer, agency, representative, importer or manufacturer or producer of those products respectively.
- Repair time of defective products is twenty business days at most. This period starts from the date when products are delivered to one of seller, dealer, agency, representative, importer or one of manufacturer or producer. Provided that products break down within the period of guarantee, the time passing during the repair process is added to the guarantee time. Provided that faults of products cannot be removed within ten business days, manufacturer-producer or importer is obliged to assign another product having similar features for the use of consumers until the faulty product has been repaired.
- Even though consumers exercise their repair rights, they can claim free replacement of products, refund or price discount at the rate of fault in the events;
  - That, besides, the product, as of the date when the product is delivered to the consumer, breaks down four times a year or six times within the guarantee period to be determined by the manufacturer-producer and/or importer at least, on the condition of being in guarantee period, such malfunctions perpetuate passing over;
  - That maximum time required for the repair of products is exceeded;
  - That repair of the malfunction is determined as impossible through a report to be issued by service station, if there exists no service station, one of seller, dealer, agency, representative, importer or manufacturer or producer of the company respectively.
- The consumer is, on demand, obliged to submit guarantee certificate in terms of repairs or replacements within the scope of guarantee.
- It is essential that you definitely perform damage control over external packaging before receiving the products to be sent through freight. In the event of any damage, delivery person must be made to prepare a “damage determination record”. (For example; during the delivery process, the product has been checked and seen that is damaged.)
- After the damage determination record has been issued, we request you to inform the MAKELSAN head office of the case. Products to be received from freight by signature means that products have been received completely and without no damage.



- Repairs of plug-and-play products in the places where no service point is around are performed in the factory of MAKELSAN or the nearest service point according to the direction to be made by the MAKELSAN head office. Defective product is delivered by hand to the nearest service point or to the contracted freight company in its original packaging to be sent to the factory of MAKELSAN according to the direction to be made by the MAKELSAN head office. For malfunctions in the scope of guarantee, shipment fees are under the responsibility of MAKELSAN on the condition that products are delivered to the contracted freight company.
- The device must be sent as packed in its original packaging as long as it is not desired by the service. Original packaging of devices should be preserved in order to use them for shipment of devices in terms of repairs to occur. Otherwise, no responsibility is assumed with regards to any troubles to be experienced.
- All defective products to be delivered by hand or through freight are to meet the necessary shipment requirements. (Anti-static protective, bubble wrap or box etc.) It is essential that legible barcode serial number belonging to the product be on the product. Otherwise, it is not covered in the scope of the guarantee.
- It is essential that products to be sent through freight definitely be together with delivery note, and that serial/model/malfunction details be written on delivery note to be sent (for example, breakdown report form), and that packaging content match with the products specified in the delivery note. Otherwise, freight is not accepted.
- The use of the Guarantee Certificate, submitted together with products with MAKELSAN trademark, is permitted by the T.R. Ministry of Industry and Commerce and General Directorate of Protection of Competition with no..... in accordance with the law, with no. 4077, and the notification, with no. TRKGM-95/116-117, issued basing the aforementioned law. MAKELSAN acknowledges and undertakes to obey the liabilities determined by the laws and legislations.

## **9.2 Cases Not Covered by the Guarantee**

- Breakdowns resulting from the use of products contrary to the issues or the environment conditions (temperature, humidity etc.) specified in the user manual are not covered in the scope of guarantee.
- Damages and breakdowns resulting from the use of software, hardware, interface, accessories or consumables apart from those used together with products or recommended ones; changing place, wrong and insufficient maintenance, calibration or use; its operation contrary to environment specifications published for products; insufficiency of air installation; use of products in ambient having excessive humid or temperature; its operation in environment harmful for electrical circuits and abrasive; and accidents, impacts, electric, shipment, natural disasters, not limited to the ones listed above, are not covered in the scope of product guarantee.

- In the general examination performed during the breakdown acceptance process, certain troubles causing products not to be covered in the scope of guarantee might not be understood. Provided that such faults come up in the detailed examination to be performed via technical service equipment, products are returned to customers.
- Products not covered in the scope of guarantee can, on demand of customer, be treated in a fee-paying way within the bounds of possibilities of the authorized service. Products out of the scope of guarantee, repairs of which are not possible are returned to customers.
- Damages and breakdowns resulting from treatments, internally or externally tampering, efforts to repair and spare part replacement of products, without approval of MAKELSAN, and those resulting from treatment of unauthorized service/dealer/person/establishment, are not covered in the scope of guarantee. Breakdown, cracks, scratches and wear, corrosion and dust to occur in time and by use in the outer surfaces of products (cabinet, cover, and front panel) are not covered in the scope of guarantee.
- In the event that original serial numbers, guarantee labels and stamps on products are removed or distorted, products are not covered in the scope of guarantee. No guarantee is issued against the use of products for any other purpose, apart from those specified in introduction or manual of products.
- Shelf lives of VRLA batteries are 6 months under the ambient temperature of 15 °C and 3 months under the ambient temperature of 25 °C.
- It is compulsory that systems to be purchased be commissioned within 3 months.



## CERTIFICATE OF GUARANTEE

MANUFACTURER COMPANY

Certificate Approval Date : --/--/----  
Certificate No :

TITLE : MAKELSAN MAKİNE KİMYA ELEKTRİK SAN. TİC. A.Ş.

## CERTIFICATE OF GUARANTEE

- 1 – Guarantee period starts from the delivery date of the product and lasts.....years.
- 2 – The whole product, including all its parts are under the guarantee of our company.
- 3 – Provided that the product breaks down within the period of guarantee, the time passing during the repair process is added to the guarantee time. Repair time of the product is ..... business days at most. This period starts from the date when the malfunction related to the product is informed to the service station, if there exists no service station, to one of seller, dealer, agency, representative, importer or one of manufacturer. Provided that the fault of industrial product cannot be removed within 10 business days, manufacturer or importer is obliged to assign another industrial product having similar features for the use of the consumer until the faulty product has been repaired.
- 4 – Provided that the product breaks down due to materials and workmanship or assembly faults within the period of guarantee, the product is repaired without claiming any charge for workmanship, any price for spare part replacement or any fee under any name.
- 5 – The product will be replaced without any charge in the events;
  - That passing over the product perpetuates due to the fact that the product repeats the same malfunction more than twice or different malfunctions occur more than four times in a year starting from the delivery date, on the condition of being in guarantee period;
  - That maximum time required for the repairment of the product is exceeded;
  - That, if there exists no service station, the repair of the malfunction is determined as impossible through a report to be issued one of seller, dealer, agency, representative, importer or manufacturer of the product respectively.
- 6 - Malfunctions resulting from the use of the product contrary to the issues specified in the user manual of the product are not covered in the scope of guarantee.
- 7 –For any trouble that may come up in terms of the Certificate of Guarantee, the Ministry of Industry and Commerce, General Directorate of Protection of Consumer and Competition can be applied.

### NOTICE

- 8 – Under no circumstances shall the customer treat the product with the aim of repair, apart from MAKELSAN authorized service personnel.
- 9 – Damages and results originating from the violation of the 8<sup>th</sup> Article shall be invoiced to the customer.

The use of herein the certificate is permitted by the T.R. Ministry of Industry and Commerce and General Directorate of Protection of Consumers and Competition in accordance with the Law on the Protection of Consumers, with no. 4077, and the Notification Concerning the Application Principles of Guarantee Certificate, issued basing the aforementioned law.

## 10 CONTACT INFORMATION



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