

## 1 OPERATION CONTROL

### START UP

The generator has been tested at the factory by *Me.Ro. srl*.

It can be started up immediately as no special control procedures are required.

Before starting up the generator, please read the following instructions for operator terminal operation.

### 1.1 OPERATOR TERMINAL STRUCTURE



it consists of:

1. **ON\MEMORIZE** pushbutton:
  - switches on the generator;
  - memorises generator operating conditions (for the alarm device);
2. **OFF\RESET** pushbutton:
  - switches off the generator;
  - resets the generator after an overload;
  - resets the acoustic and visual (red light) alarm signals.
3. **PLC** for controlling the generator.

## 1.2 PLC

Generator operating values and alarm signals are shown on the



display.

The **(DEL) MAN\AUT** key changes the generator operating mode from manual, **MANUAL.MODE**, to automatic, **AUTOMATIC MODE**, and vice-versa.

The **(ALT) SELECT** key is used to access set parameters.

## 1.3 SET PARAMETERS

*Before switching on the treatment, certain operating parameters must be set on the Operator Terminal from the following page.*


The **(ALT) SELECT** key is used to access set parameters.



### PARAMETER VARIATION


1° Press **(ALT) SELECT** and then **(OK)**.





2° Using , move the flashing cursor to the required value.

3° Press **(OK)**.



4° The flashing value can be changed by using .

5° Use   to change the other values.

6° Press (OK) to confirm.

7° To exit from SET PARAMETERS, press (ESC) twice.

**Electrode length (cm)**

Length of discharge electrodes in cm

**PWR VARIAT.**

Percentage variation of generator permitted output power beyond which an alarm signal will be activated.

**MIN.SPEED (m\min)**

Sets minimum speed in metres/minute below which the generator will go to OFF.

**Maximum speed (m/min)**

Maximum line speed in metres/minute to adjust the power in automatic mode to the speed (**SPEED**).

This setting is used to obtain maximum generator output power (with PL=100) at the desired line speed.

Press  to display the other settings.



### **SPEED ADJ**

The number for correcting the line **SPEED** indication.

Make this adjustment with the line operating at high speed.

Measure line speed and adjust the number until the **SPEED** indication shown on the display is the same.

### **0=AUT.SPEED**

Automatic operation at line speed.

### **1=AUT.Wmin/mq**

Automatic operation with specific power.


Press   to select **0** or **1**.

## 1.4 MANUAL MODE



In the manual operating mode, **MANUAL MODE**, the following are displayed: the output power **PWR in W**, the set power level **PL (from 0 to 100)**, the line speed (**SPEED**) in metres/minute, and any information or alarm signals.



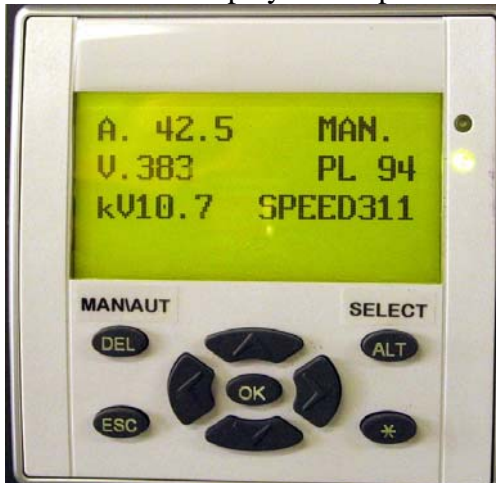
Set **PL** by pressing (**OK**) twice and change the value by using . Press (**ESC**) to exit.

**PL=0** minimum output power.

**PL=100** maximum output power.



Press  to display all the parameters.



**A** = operating current absorbed by the inverter (Amp)

**V** = voltage applied to the inverter (Volt)

**Kv**= voltage applied to the discharge electrodes (kVolt)


**PL** = power level (%)

**SPEED** = line speed in m/min.

## 1.5 AUTOMATIC MODE (SPEED)



In the automatic operating mode, (**SPEED**), the following are displayed: the output power **PWR in W**, the set power level **PL (from 0 to 100)**, the line speed in metres/minute, and any information or alarm signals.

Set **PL** by pressing (**OK**) twice and change the value by using . Press (ESC) to exit.

**PL=0** minimum output power.

**PL=100** maximum output power at the line speed set under **MAX.SPEED** in set parameters.

In automatic mode, the output power **PWR** increases in proportion to line speed up to the PL value set.

Example for MR\B 4K-OP2 generator with an output power of 4000Watt

**SET PARAMETERS**

**MIN.SPEED= 10m**

**MAX.SPEED=200m**

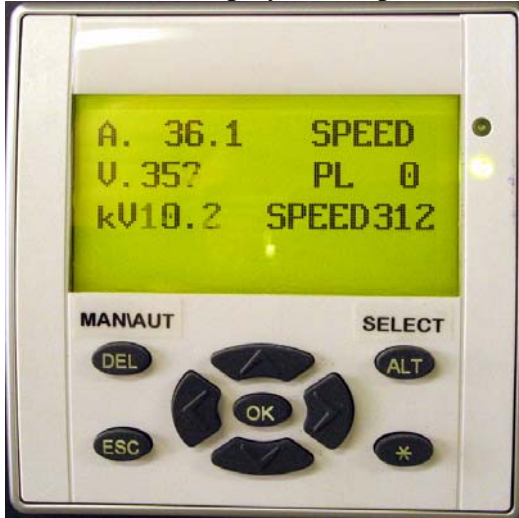
**PL=50            SPEED= 100m/min**

The generator is ON when the line speed exceeds 10 metres/minute and it is OFF when the speed is less than 10 metres/minute.

With PL set at 50, at 200m/min generator maximum power will be half (2000W), therefore at 100m/min, the output power PWR will be 1000W.

In these SET PARAMETERS and PL conditions, the generator power PWR varies linearly from minimum at 10m/min to a maximum of 2000W and 200 m/min.

Press  to display all the parameters.



## 1.6 AUTOMATIC WITH SPECIFIC POWER



In the automatic operating mode with specific power (**AUT. SPEC. POWER**), the effective specific power (**ACT**) applied to the film and the value set at **PL** are displayed.

**PL** is the specific power to be applied to the film in **Wmin/m<sup>2</sup>** and it is the set point for the power supplied by the generator.

The PLC CPU calculates the specific power supplied by the generator, compares it with the set point and, by means of a regulating algorithm, keeps it constant (equal to the value set).

This adjustment system takes into consideration the production speed and any variations in load resistance (variations mainly due to the temperature of the electrodes, the dielectric coating on the roller and the airgap).

**Once the specific power to be used to obtain the required treatment has been set, by using this operating mode the film is certain to be treated uniformly.**

Any conditions that cannot be controlled by the regulating algorithm will be indicated by a **POWER ALARM** message.

If the specific power set is too high, in order to maintain the specific power requested, the generator must produce more power than the maximum allowed and therefore the **POWER ALARM** will be displayed.

## 1.7 ALARM SIGNALS

With the exception of **PWR ALARM**, these signals will not allow the generator to be switched on or, if it is already on, it will be switched off automatically.

Example of **PWR ALARM**

Press the **ON-MEMORIZE** pushbutton to memorise the new operating conditions and to reset the alarm.

### Alarm messages

**Station open**

**Thermal Switch**

**Overload**

**PWR ALARM (alarm signal)**

**Low speed**

**Generator Fault**

**Suction Fault**

#### **Station open**

The discharge station is open.

#### **Thermal Switch**

The temperature is too high at the power generator component radiators.

#### **Overload**

There is an overload.

**Causes:**

- High-voltage discharge to ground.
- Perforation of the dielectric coating of the discharge roller, or perforations in the ceramic bars.
- Loss of insulation on insulators supporting the electrodes.
- Generator fault.

To restart the generator, press **OFF\RESET** and then **ON**.

### **PWR ALARM**

There is a variation in the percentage limit set for output power.

### **Low speed**

Low line speed (lower than setting).

### **Generator Fault**

The generator does not supply power.

#### **Causes:**

- No direct current is reaching the generator (probable breakage of fuse F1).
- Fault in power devices (Igbt, Diods, H.V. Transformer).
- Fault in control circuits.

### **Suction fault**

The ozone suction device does not operate

#### **Causes:**

- Intervention of thermal protection on suction device. Check that the setting is correct in accordance the current indicated on the motor plate.
- Intervention of vacuostat. Check correct operation and setting.
- The direction of rotation has been reversed.