

SHEET INSTRUCTIONS USE AND MAINTENANCE



DIGITAL
SERIES

CONTROLLER RF4 PWM

THIS OPERATING INSTRUCTION APPLY:

Type	Box	Colour	Dimensions	Code
RF4PWM	Metallic	RAL 7035	133 x 133 x 91	PV RF4PW Z2 SM1
RF4PWM	Circuit DIN35		120 x 126 x 90	PV RF4PW D2 STD

DECLARATION OF CONFORMITY



This equipment conforms with ecc directive 2014/30/UE
(EMC- Electromagnetic Compatibility)
and directive 2014/35/UE (LVD - Low Voltage Directive)

GUARANTEE

- 1) The controller is guaranteed for a period of 1 year from the date shown on the inside.
- 2) The guarantee covers the free replacement or repair of components parts that are defective at origin for manufacturing errors.
- 3) The guarantee is not valid for damage caused accidentally due to improper use or negligence and in case of alterations or repair carried out by unauthorized persons.
Design and specifications could be subjected to change without notice.

SAFETY INSTRUCTIONS

DANGER

Indicates an immediate threatening danger.



Non-compliance with this information can result in death or serious personal injuries (invalidity).

WARNING

Indicates a possibly dangerous situation.



Non-compliance with this information can result in death or serious personal injuries (invalidity).

CAUTION

Indicates a possibly dangerous situation.



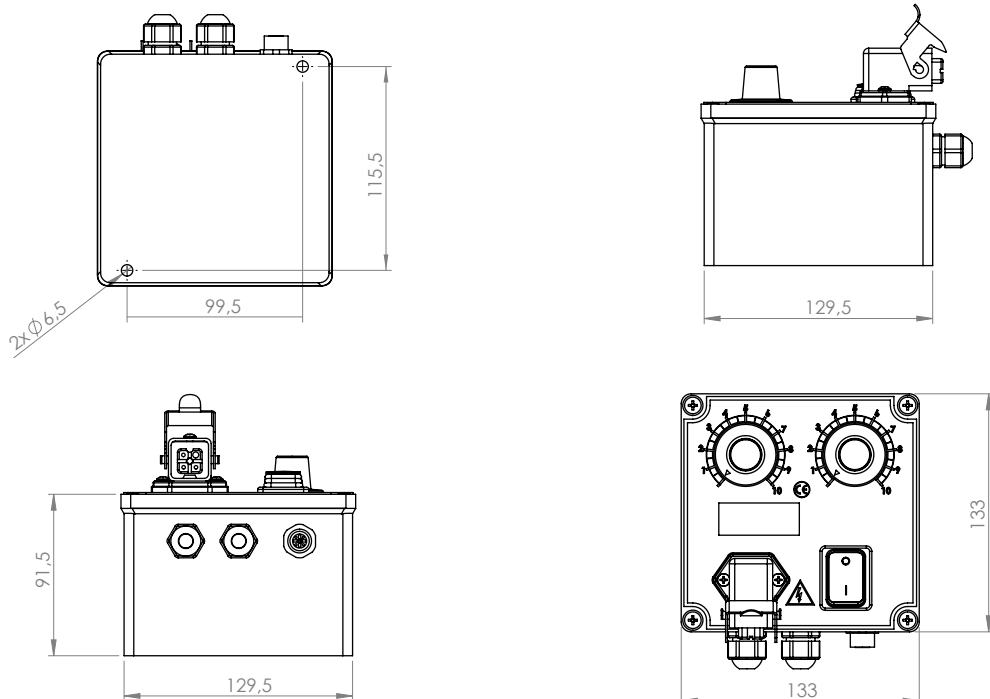
Non-compliance with this information can result in damage to property or light to medium personal injuries.

NOTE

Indicates general notes, useful operator tips and operating recommendations which don't affect safety and health of the personnel.




DIMENSIONS



GENERAL INSTRUCTIONS

DANGER Before connect the equipment to the mains socket, make sure that the nameplate data match those of the mains power supply.

 Only use this equipment in accordance with the porpouse for which it is designed; i.e. for regulation of the amplitude of an *electromagnetic vibrator feeder*. Any other use is to considered improper, therefore hazardous.

The Manufacturer cannot be held liable for any improper, incorrect or unreasonable use of the equipment, switch it off and **do not tamper with it**. If repair is needed, please contact the Manufacturer's Technical.

Service Centre **only**, as they use original spare parts.

Failure to observe the above the recommendations could impair the **safety** of the equipment.

All operations regarding adjustement, measurement and testing when required, must **only** be carried out by **authorized and qualified** personnel.

The Manufacturer shall accept no liability for damage to persons, animals or objects caused by work on the equipment carried out by unauthorized and unqualifield personnel.

Before switching on the equipment, connect the mains voltage, conforming to the current regulation, and the vibratory feeder.

WARNING **Verifying that the installation has an appropriate ground wiring system.**

 **TURN OFF THE POWER BEFORE OPENING.**

NOTE Before using the appliance it is necessary to read attentively the instructions included in this technical sheet which provides you information about safety installation, use and maintenance. keep this sheet safely for further information.

NOTE **NOTE : Don't use the apparatus in proximity of subject zones to vibrations, or in acid and humid working environment**

To memorize last setting, wait for 5 second before switch off the controller.

DIAGNOSTIC- TROUBLESHOOTING

WARNING



If vibratory feeder works bad or doesn't work:

- Check electric wires.
- Switch OFF voltage and to check the fuses and, in this case, to check current MAX (ampere) in the vibrator.
- Check regulations min/max.
- With input voltage Led Green is ON- with Led Green is OFF check the fuses F1/F2/F3.

TECHNICAL CHARACTERISTICS

TENSION OF FEEDING: 230V (115V on request) +/- 5% 50/60Hz

CONSUMPTION: 1.5W max

CURRENT MAX VIB.: 4/5A RMS fuses 4/5A F 250V 5x20 H 1500A

LOAD MIN.: 50mA RMS

REG. MIN/MAX.: 0/100% - Display 0 ÷ 255

FREQ. OF REG.: 30÷80Hz - 80÷130Hz (DP1)

AUTOMATIC INPUT: 0/10V - 4/20 mA

INPUT SENSOR: NPN/PNP (DELAY 0/10 SEC)

DEGREE OF PROTECTION: IP65 IN BOX (VERSION DIN35 IP20)

DEGREE OF POLLUTION: 2

TEMPERATURE OF STORAGE: -10 °C / + 80 °C

TEMPERATURE OF OPERATION: 0 °C / + 45 °C

RANGE OF RELATIVE HUMIDITY: 80% TILL TO 31°C

INSTALLATION CLASS: II

OUTPUT CONNECTOR VIBRATOR: 1-2 vibr.

GUARANTEE: 1 YEAR

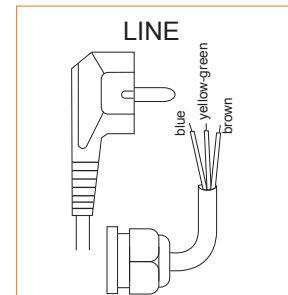
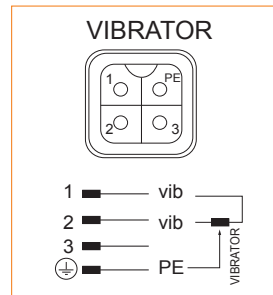
OPERATION AND USE

CAUTION



CONNECTIONS box version

Before switching On the unit, connect the plug to the power supply socket, (**verifying that the installation has an appropriate ground wiring system**) and the socket to the vibratory feeder plug. Before to move pot. Amplitude, you must search the max amplitude with pot. Frequency. To **adjust** Amplitude and Frequency of vibration of the vibratory feeder, turn the adjustment knobs (potentiometers 10K) on the box. According European Norms EMC the apparatus have a line-filter with leakage current to ground less 1 mA.



CONNECTIONS DIN version

Connect the power supply on **CONN1**, 1-2 (**verifying that the installation has an appropriate ground wiring system**) and the vibratory feeder to the output connector **CONN2**, 2-3, Ground **CONN1**, 3 - **CONN2**, 1).

Before to move pot. Amplitude, you must search the max amplitude with pot. Frequency. To **adjust** Amplitude and Frequency of vibration of the vibratory feeder, turn the adjustment knobs (potentiometers 10K).

According European Norms EMC the apparatus have a line-filter with leakage current to ground less 1 mA.

DESCRIPTION OF OPERATION

The circuit supplies to the vibrator a control signal modulated in impulse width (**PWM**), which can be regulated both in **Amplitude and Frequency**. This signal will be compensated as to variations of the line voltage. The protections by fuses are as follows: **F1-F2** (6.3 A fast or 4A slow) on the input line, **F3** (250 mA) on the ON/OFF input by limiting the current available on the NPN/PNP sensor and/or electro-valve air bolw, **F4** (4A) on the vibrator output.

The green Led **LD2**, when On, shows the presence of voltage in the control circuit. It is light Off if are broken fuses F1 and/or F2 and/or F3. The red Led **LD1**, when On, shows the presence of voltage on the filter capacitors (till 300V with 230V line voltage). **The circuit must never be touched when the red Led is On.** The green Led **LD3** when On shows the ON/OFF relay about ON/OFF vibrator (CONN4). The yellow Led **LD4** when On shows over time absence pieces (output relè absence pieces CONN5).

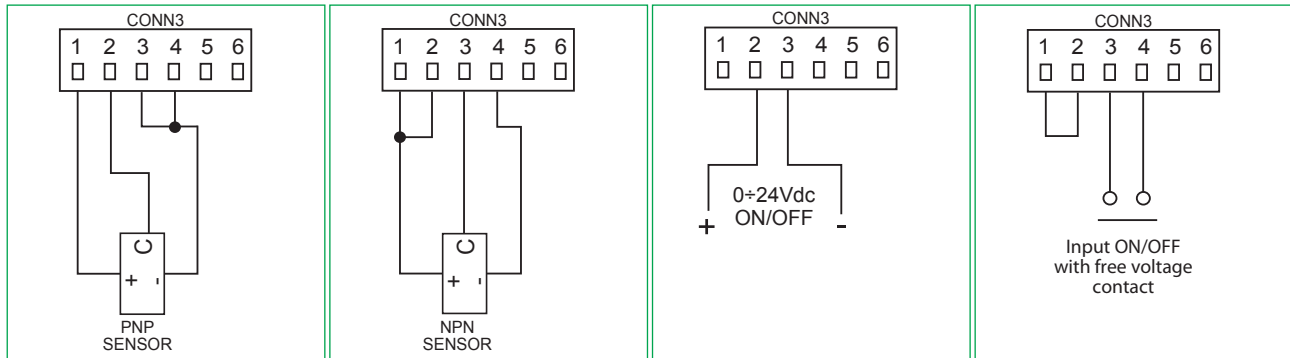
MODE OF USE AND ADJUSTMENTS

The entire control section is galvanically isolated from the power section. When on-switching the circuit. The voltage is supplied to the vibrator, the status relay switches over and the frequency entered will be displayed. If the Amplitude is varied, the display changes automatically and the latter one will be displayed, i.e. from 0/254 by turning the potentiometer. After 2 seconds of standstill during Amplitude regulation, the display shows the Frequency again.

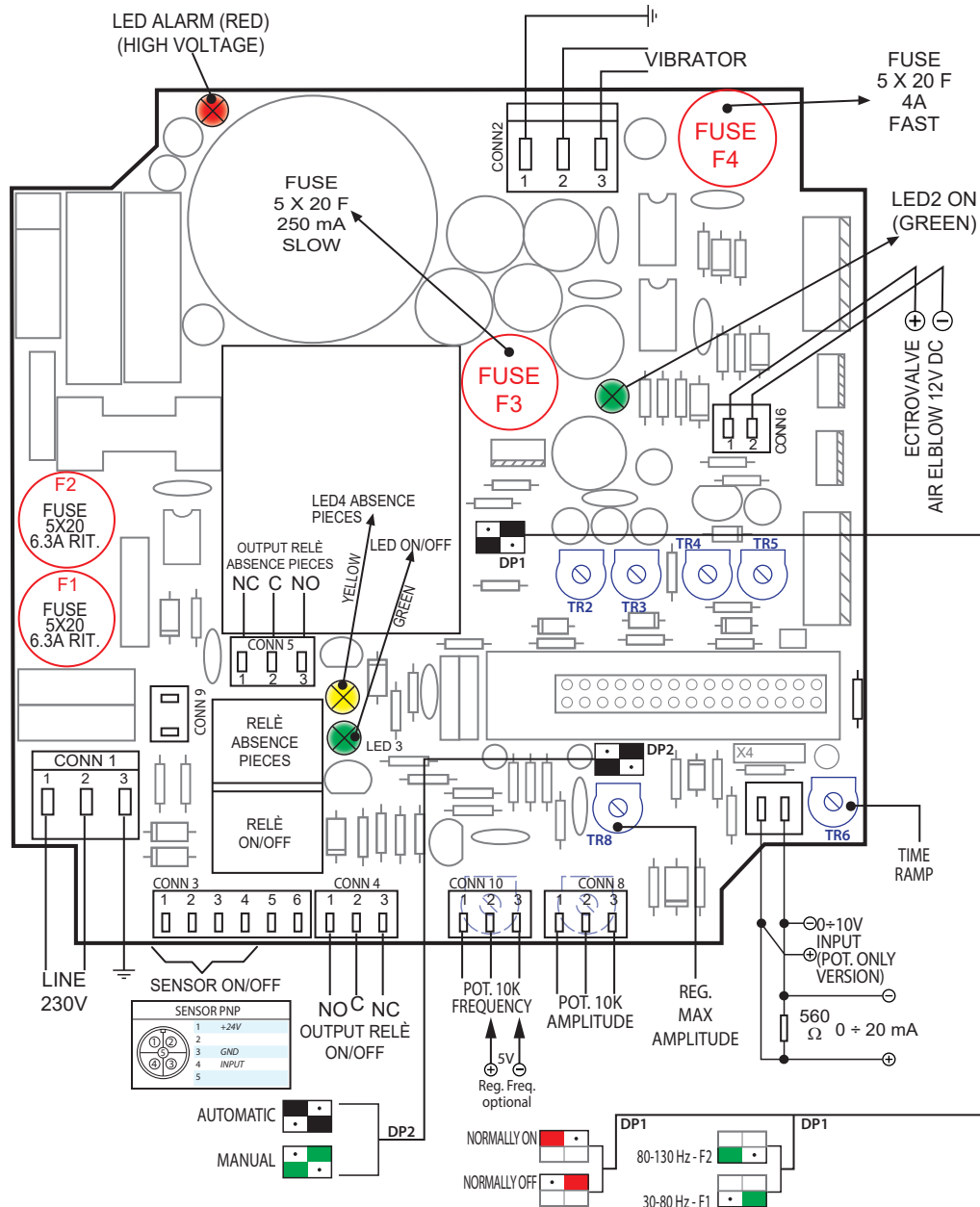
Therefore, the following steps can be carried out:

- Adjust the time ON vibrator with trimmer **TR3** (0/10 sec.) and the time OFF vibrator with trimmer **TR2** (0/10 sec.).
- Lock and restart the vibrator using an external command coming from a **clean contact** and from the **NPN** or **PNP** sensor or from a **0/24V** output by either entering or not the aforesaid lags (see details **CONN3**).
- Adjust time absence pieces by trimmer **TR4** (0/10 sec.).
- Adjust delay OFF electro-valve air blow by **TR5** (after OFF vibrator) 0/3 sec.
- Adjust time ramp by trimmer **TR6** (0/3 sec.).
- Adjust max voltage by trimmer **TR8**.
- Select whether to vary the amplitude using the external signal (CONN7) 0/10 V or 0/20 mA (using R560) by **DP2** - set AUTOMATIC.
- Select **DP1** the Frequency range adjustable using the potentiometer: **F1**= 30 - 80 Hz (3000V/min-3600V/m) **F2**= 80 - 130 Hz (6000V/min-7200V/m).

CONNECTION NPN/PNP SENSOR - ON/OFF INPUT



TECHNICAL DESIGN



NOTE



ON/OFF Relè

A clean contact is available at the relay ON/OFF, (CONN4) which switches in case of failure with output voltage on the vibrator.

This contact is also used for the cascade driving of the various vibrating units in the multiple loading systems.

E.V. Blow Air voltage 12Vdc - PNP/NPN sensor voltage 10/30Vdc.

CROSS REFERENCE RF4 PWM SERIES

	RF4 PWM Box Basic	RF4 PWM Din35 1 pot + no display	RF4 PWM Box	RF4PWM Din35 2 pot + display	RF4PWM Keys Box	RF4PWM BOX 1 pot + display	RF4PWM Din35 1 pot + display
Voltage (50/60 Hz)	115 o 230V	115 o 230	115 o 230	115 o 230	115 o 230V	115 o 230	115 o 230
Amps	4/5	4/5	4/5	4/5	4/5	4/5	4/5
ON/OFF	●	●	●	●	●	●	●
Sensor NPN/PNP	●	●	●	●	●	●	●
0/10V 0/20 mA	●	●	●	●	-	●	●
Amplitude/ Frequency regulation	Pot. Amplitude Trimmer Freq.	Pot. Amplitude Trimmer Freq.	Potentiometer	Potentiometer	Key	Pot. Amplitude Trimmer Freq.	Pot. Amplitude Trimmer Freq.
Output Freq. Hz	30/80 - 80/130 50-100 +/-12	30/80 - 80/130 50-100 +/-12	30/80 - 80/130 50-100 +/-12	30/80 - 80/130 50-100 +/-12	30-130	30/80 - 80/130 50-100 +/-12	30/80 - 80/130 50-100 +/-12
Relay ON	●	●	●	●	●	●	●
Status Relay	●	●	●	●	●	●	●
EMC - CE	●	●	●	●	●	●	●
Amplitude Display	-	-	●	●	●	●	●
Display Hz	-	-	●	●	●	●	●
IP	IP65	IP20	IP65	IP20	IP65	IP65	IP20
Dimensions Box	133x133x91	120x126x90	133x133x91	120x126x90	133x133x91	133x133x91	120x126x90
Photo	1	5	3	6	4	2	6

All stabilized models

Digital regulation Amplitude/Frequency of linear and bowl feeder till 6 Amps

Other voltage on request

Input voltage at 60Hz with- vibrator at 50Hz or viceversa.



1



2



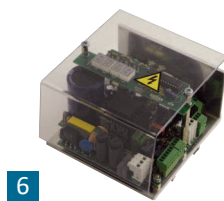
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4



5



6



7

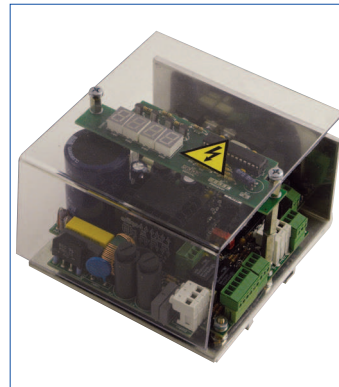


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VERSIONS



METALLIC BOX
RF4 PWM
 PV RF4PW Z2 STD
 130x130x90



CIRCUIT DIN35
 PV RF4PW D2 STD
 (2 Pot.+Display)

AVAILABLE VERSIONS



METALLIC BOX
RF4 PWM
 PV RF4PW Z2 SMK
 130x130x90



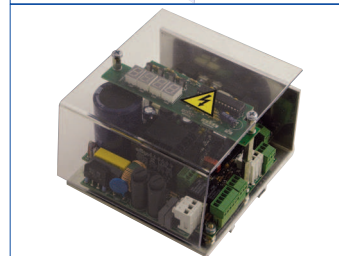
METALLIC BOX
RF4 PWM
 PV RF4PW Z2 SMB
 130x130x90



CIRCUIT DIN35
 PV RF4PW D2 SMB
 (1 Pot.NO Display)



METALLIC BOX
RF4 PWM
 PV RF4P1 Z2 SBD
 130x130x90



CIRCUIT DIN35
 PV RF4P1 D2 SBD
 (1 Pot.+Display)

REPLACEMENT POLICY

Please fill out a form for Technical Assistance in "Service" section www.mpelettronica.com