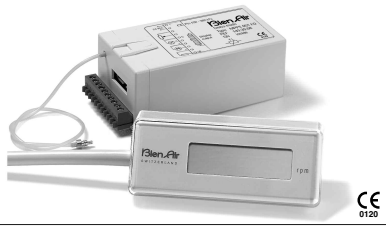
PLMP 021 FO



Instruction

REF 2100016-0001/ENG

English

Medical devices entirely made in Switzerland by Bien-Air Dental SA.

Type
Electronic digital board for all Bien-Air Dental micromotors (with or without light). The electronic allows selection of the maximum permissible current and of the adjustment corresponding to the type of motor used. It may be driven electrically or with air. This electronic board does not heat up. It does not need any external cooling system.

Installation
Before using for the first time, check that the switches **see the technical data and page 2** correspond to the type of micromotor used.

Note!
In order to conform to the CEI 60601-1-2 standards, take into account the different routes of the wires through the unit (bend, fold, section etc...) and use a transformer with double insulation and separate coils. This device must be installed with the greatest care, with all the necessary insulation and by a person with the necessary, adequate knowledge of electricity.

Connecting the motor PCB
The connector is plugged onto the plate; the external connections housing are made by means of 10 tightened terminals.

Comments
If the motor is blocked for more than 3 seconds, the electronics automatically reduce the maximum permissible current to 1 A, in order to prevent destruction of the motor.

Planned use

Product intended for professional use only. Use in dentistry for prophylaxis, general dentistry and endodontics work.

Technical data and assembly

Classification
Class IIa in accordance with European Directive 93/42/EEC concerning medical devices.

Attention
The inputs/outputs are not compatible with the following types of electronic unit: PL 970, PL 970FO, PLPE 970 and PLPE0 970.

Please re-establish your wire connections on the main panel **fig. 1.**

❶ and ❷	24 Vac
❸, ❹ and ❺	Potentiometer
❺	Mass
❺ and ❻	Bulb
❼	Motor+
❽	Motor-
❾	Electrovalve+
❿	Electrovalve-

The electronic control is adapted with 2 metres of cooling tube corresponding to the standard tubing lenght of 1.7 m.

Without housing mounting
With the connector or the mounting feet.

Mounting with housing
With the Velcro supplied.

Without housing dimensions 110 x 54 x 38 mm
With housing dimensions 115 x 60 x 45 mm

Without housing weight 130 g
With housing weight 200 g

Potentiometer 10 kΩ
When a logarithmic potentiometer is employed, the control cannot be used.

No load electronic consumption 2.3 mW.
Voltage 24 to 28 Vac / 50 or 60 Hz.

Output voltage for the motor
From 0 to 24 Vdc.

Bulb's current and voltage
0.74 A and 3.5 Vdc
The bulb's voltage is adjustable from 3 to 4.2 Vdc with the trimmer located on the side of the electronic board **fig. 2.**

Air drive pressure (if the electronic board is pneumatically controlled)
from 100 to 300 kPa, from 1 to 3 bar, from 14.5 to 43.5 psi.

Default setting page 2
MC3 motor with pneumatic control and with 10 sec. delayed bulb supply.

Compatibles motors
MC2 IR and Isolite, MC2 GTAV, MC3 IR and MC3 LK

Torque of the motor
MC2 IR and Isolite 2.1 Ncm / MC2 GTAV 2.4 Ncm
MC3 IR and MC3 LK 2.5 Ncm

Current limitation
MC2 IR and Isolite 3.5 A / MC2 GTAV 4.5 A
MC3 IR and MC3 LK 4.8 A

Minimal transformer's power
MC2 IR and Isolite: 80 VA (guiding value)
MC2 GTAV and MC3: 120 VA (guiding value)

Minimum motor speed 60 rpm
Maximum motor speed 40,000 rpm

Short circuit protection of motor PCB
Protected against direct short circuit between motor output leads for 10 seconds.

Short circuit protection of light PCB
Protected against direct short circuit between light output leads for 10 seconds.

Connector for motor
Plug-in type, 10-pole tightened terminal plate, 5 mm pitch.

Exhaust air fig. 7(A)
REF 249.39.11, required for pneumatic type controls only if the foot control has no exhaust function in the raised position, or if the valve controlled by the foot control is not fitted with an exhaust system. Place the exhaust air away from the electronic board in such a way that waste like oil, water, etc. brought by the air does not disrupt the electronic. Air coming from the foot control or the pneumatic block **fig. 7 (B)**.

Output RS232
The display connector has a RS232 interface in order to connect another display or to command the speed in a digital way.

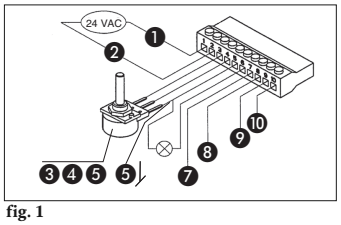


fig. 1

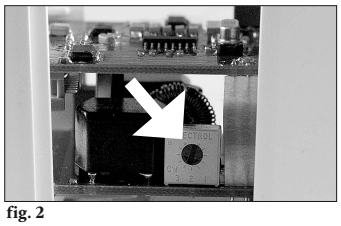


fig. 2

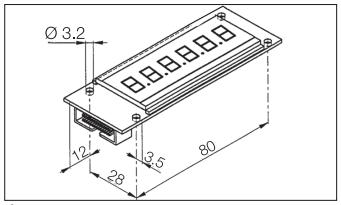


fig. 3


fig. 6

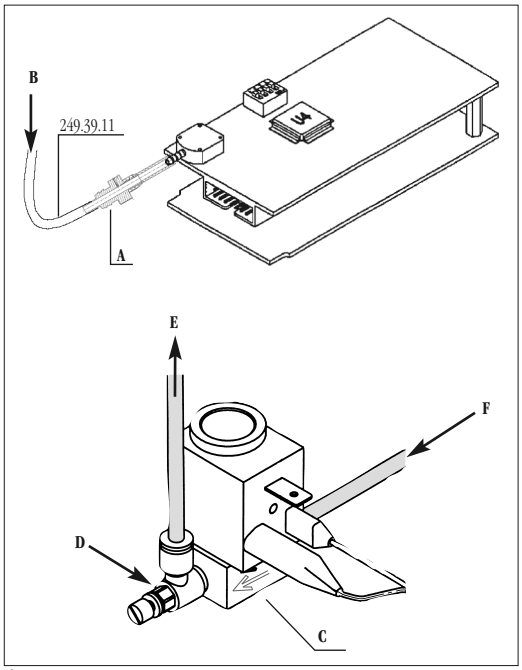


fig. 7

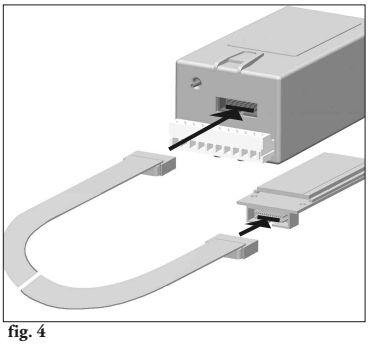


fig. 4


fig. 5

Environment
Temperature between -40°C (-40°F) and 70°C (158°F), relative humidity between 10% and 100%, atmospheric pressure 50 kPa to 106 kPa (7.3 to 15.3 psi).

Standards
This electronic control system meets the electromagnetic compatibility standards in accordance with CEI 60601-1-2 standard.

Option

Speed indicator fig. 4
6-digit display. The speed indicator is stabilised in order to prevent continual fluctuations of the last display digits. The value indicated on the display corresponds to the required speed. A slight difference from the actual speed of the motor is possible. For assembly digital display see instruction REF 2100049.

Cable
Flat cable, 14-pole, 2 m long for speed indicator.

Installation
Connect the flat cable to the electronic drive and to the speed indicator **fig. 4**.

Overall dimensions of display
97 x 35 x 14 mm

Overall dimensions of visual indicator
62 x 17 mm

Distance between axes for fixing of the display
28 x 80 mm

Electrovalve kit fig. 5
This kit avoid heating up the micromotor at low speed in pneumatical mode. The solenoid valve is mandatory for intensive work at low speed.

Installations in pneumatical mode fig. 7
Connect tubings and couplings to the electrovalve. The direction of air flow is shown on the solenoid valve block **fig. 7(C)**.
To adjust the flow of air through the valve **fig. 7(D)**, check the airflow on the motor using the flowmeter fitted to the mounting with values indicated on the motor used for this purpose.

Cooling motor **fig. 7(E)**.
Min. 3.5 - max. 6 bar **fig. 7(F)**.

Maintenance

Overhaul
Never disassemble the device. For any modification and repair, we recommend that you contact your regular supplier or Bien-Air Dental directly. Bien-Air Dental asks the user to have its dynamic instruments checked or inspected at least once a year.

Information
The technical specifications, illustrations and dimensions contained in these instructions are given only as a guide. They may not be the subject of any claim. The manufacturer reserves the right to make technical improvements to its equipment, without amending these instructions. For all additional information, please contact Bien-Air Dental SA at the address indicated on the back cover.

General information

The device must be used by a qualified person in accordance with the current legal provisions concerning industrial safety, health and accident prevention measures, and these working instructions. In accordance with these requirements, the operators:

- must only use operating devices that are in perfect working order; in the event of irregular functioning, excessive vibration, abnormal heating or other signs indicating malfunction of the device, the work must be stopped immediately; in this case, contact a repair centre that is approved by Bien-Air Dental;
- must ensure that the device is used only for the purpose for which it is intended, must protect themselves, their patients and third parties from any danger, and must avoid contamination through the use of the product.

The device is intended for medical treatment only; any use other than that for which this product is intended is unauthorised and may be dangerous. The medical device meets all the current legal requirements.

The device is not authorised for use in an explosive atmosphere (anaesthetic gas).
Avoid any contact with liquids.

Only use maintenance products and components from Bien-Air Dental. The use of other products and components can void the guarantee.

This device must to be recycled. Electrical and electronic equipment may contain dangerous substances which constitute health and environmental hazards. The user must return the device to its dealer or establish direct contact with an approved body for treatment and recovery of this type of equipment (European Directive 2002/96/EC).

Guarantee

Terms of guarantee
Bien-Air Dental grants the operator a guarantee covering all functional defects, material or production faults. The device is covered by this guarantee for 12 months from the date of invoicing.
Bien-Air Dental offers a 24-month guarantee for the glass-bar light conductors.

In the event of justified claim, Bien-Air Dental or its authorised representative will fulfil the company's obligations under this guarantee by repairing or replacing the product free of charge. Any other claims, of whatever nature, in particular in the form of a claim for damages and interest, are excluded.

Bien-Air Dental shall not be held responsible for damage or injury and the consequences thereof, resulting from:

- excessive wear and tear
- improper use
- non-observance of the instructions for installation, operation and maintenance
- unusual chemical, electrical or electrolytic influences
- poor connections, whether of the air, water or electricity supply.

The guarantee does not cover flexible "fibre optic" type conductors, or any parts made of synthetic materials.

The guarantee shall become null and void if the damage and its consequences are due to improper manipulation of the product, or modifications to the product carried out by persons not authorised by Bien-Air Dental.

Claims under the terms of the guarantee will be considered only on presentation, together with the product, of the invoice or the consignment note, on which the date of purchase, the product reference and the Serial No. should be clearly indicated.

REF	Legend
1600350-001	PLMP 021 FO without display
1600393-001	PLMP 021 FO-D with display
1600351-001	Kit PLMP 021 FO with accessories
1600394-001	Kit PLMP 021 FO-D with display and accessories
249.39.03-001	Digital display
249.39.05-001	Flat cable 2 m
1600307-001	Fow-meter for MC2 and MC3 micromotors

List of Bien-Air Dental SA registered trade mark products ®:

Aquilon®	Gyro®	Lubrimed®
Bora®	Gyrolina®	MX®
Boralina®	Isolite®	Prestilina®
Eolia®	Lubrifluid®	Spraynet®

In these instructions, "Device" corresponds to the product described in the heading "Type". For example, turbine, contra-angle, handpiece, micromotor, tube, electronics, connectors, station etc.

Symbols

Manufacturer.

Recyclable electrical and electronic material.

CE Marking with number of the notified body.

Move in the direction indicated.

Move fully to the stop, in the direction indicated.

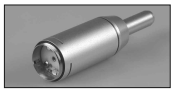
Switches controls
When changing switch positions, cut off the electronic circuit supply

Motor MC3	(1)	(1)			
Motor MC2 IR & Isolite	(0)	(0)			
Motor MC2 GTAV	(1)	(0)			
Without pneumatic control			(0)		
With pneumatic control			(1)		
Without light temporizing				(0)	
With light temporizing (10")				(1)	
Logarithmic potentiometer					(0)
Linear potentiometer					(1)
Default setting	(1)	(1)	(1)	(1)	(1)


Motor Isolite


Motor MC3


Motor MC2


Motor MC2 GTAV

This product may be covered by one or more of the following patents:
EP Europe: 745358 / 688539 / 948294 / 1145688 / 1563800 / 1563801 / 1675523 / 1753360 **DE Germany**: 29616023.7
DK Denmark: 9600315 **FR France**: 2722972 **CH Switzerland**: 693922 **CN China**: 100528099 / 100522100 / 100522099 / 100553584 **JP Japan**: 3892485 / 4298933 / 7000419 **US United-States**: 5453008 / 6033220 / 6319003 / 7214060 / 7448870
RU Russia: 2361540 / 2361541 / 2372046

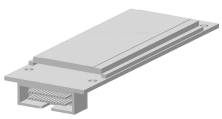
REF 1600350-001 BOARD MPPE021 FO / REF 1600351-001 SET MPPE021 FO /
REF 1600393-001 BOARD MPPE021 FO DISPLAY / REF 1600394-001 SET MPPE021 FO DISPLAY

Set supplied



PLMP 021 FO	REF 1600350-001	X	–	–
PLMP 021D FO	REF 1600393-001	X	X	–
PLMP 021 FO	REF 1600351-001	X	–	X
PLMP 021D FO	REF 1600394-001	X	X	X

Optional accessories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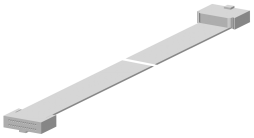
REF 249.39.05-001


REF 1600307-001

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