mini API

Instrument User's Manual

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General warnings

⚠ *DANGER !* *All biological fluids should be considered as potentially infectious.*

Protective gloves must be worn when manipulating blood, products derived from blood or objects contaminated with blood.

Qualified laboratory personnel should use acceptable procedures for biohazardous material.

IMPORTANT! *The user is advised to read and understand all instructions in this manual to be able to derive the best performance from the mini API®.*

The accuracy of results obtained with this instrument depends, in particular, on the maintenance operations described in this manual.

The user should be aware that if the maintenance operations are not performed, are only partially performed, or are not performed as described in this manual, bioMérieux® SA is in no case liable for any false test results obtained.

The configuration that you have purchased is adapted to the legislation and standards of the different countries it will be sent to. For this reason, it may differ from the one presented in this document. However it will not prevent mini API® from operating correctly.

WARNING! *This product is an in vitro diagnostic medical device. It complies with the directives and standards mentioned in the certificate supplied with it.*

However, this instrument may cause harmful interference if not installed in accordance with the instruction manual.

bioMérieux® SA recommends that you observe the different warnings inscribed on the instrument itself and indicated in the documentation supplied.

WARNING! *Changes to the equipment not expressly approved by bioMérieux® SA could void conformity and thus the user's authority to operate the equipment. The user will be required to repair damage at his own expense.*

bioMérieux® SA is in no case liable for any damage that may arise from failure to comply with technical specifications in this manual, from the handling of biological fluids or any operation conducted on the equipment not in compliance with these mandatory standards.

Revisions

The list of revision below summarizes replacements or additional pages in your *mini API*® Instrument User's Manual.

Manual	Reason	Page(s)
V.B 04/2001	New format (7x9)	All
V.C 10/2003	CE marking	Cover page Chapter 1 Chapter 6

Table of contents

Table of contents

List of figures

1   How to use this manual

Introduction

The *mini API*® Instrument Manual deals solely with the instrument and consumables. It includes the information you need for the installation, set-up and maintenance of *mini API*®.

The software and the procedures for use are described in the *mini API*® Procedures Manual.

CAUTION!   ***The user is advised to read and understand all instructions in this manual to be able to derive the best performance from mini API®.***

Finding topics and procedures

The information in the manual is organized in 12 chapters. The first 7 contain the topics and procedures.

– Chapter 8 describes the *DENSIMAT* densitometer.
– Chapter 9 describes the electronic Pipette.
– Chapter 10 includes the Appendices.
– Chapter 11 is the glossary.
– Chapter 12 is the Index.

Table of contents

The main table of contents of the manual is located on pages V-1 to V-2. It lists each chapter and the procedures and/or topics contained in the manual.

List of figures

Page VI-1 contains the list of figures found in this manual.

Graphic symbols

The standard symbols used for our instruments and their meanings can be found in this list (Page 1-4 to 1-6).

Page headers and page footers

Apart from the first page of every chapter, each page of the manual includes a page header and a footer.
Each page header includes the chapter title and the title of a procedure or its corresponding description.
These titles are located on the outside of the page so that you can thumb through the pages to quickly locate a chapter or a procedure.
The footers contain the title of the manual, the name of the product and the page number.

Glossary

The glossary is located in chapter 11 at the back of the manual. It gives the definition of the main technical terms used in the manual.

Index

The index is located in chapter 12 at the back of the manual. It is used to locate a particular description or procedure.

Typographic conventions

1

Following are the terms and visual cues used in this manual to aid in your understanding of the procedures.

●   The bullet point is used to denote an action to be performed.

<Return>   Can also be **< ↵ >** or **<Enter>** depending on the type of keyboard.

<Ctrl>   This key is always associated with another key.

                             Both keys should be pressed simultaneously.

            E.g.:   Press **<Ctrl> U.**

<Esc>   This key is sometimes used to quit the menu.

<NumLock>   This key must be activated (light on) before you can use the numeric keyboard.

<↑>, <↓>, <←> and <→>   These keys enable you to move the cursor in different directions on the screen.

                             The **<↑>** key is also called **<Cursor up>** in the software.

A B C 1 2 3   This typography is used for messages that appear on the screen.

            E.g.:   C : \ >

A B C 1 2 3   This typography is used to represent a text to be typed through the computer keyboard.

            E.g.:   ●   Type: **A P I C O N F**

Graphic symbols

V.A 09/2003

The standard symbols used for our systems and their meanings can be found below:

Symbol	Meaning
	Direct current
	Alternating current
	Both direct and alternating current
3 ∼	Three-phase alternating current
	Earth (ground) TERMINAL
	PROTECTIVE CONDUCTOR TERMINAL
	Frame or chassis TERMINAL
	Equipotentiality
	ON (power supply)
	OFF (power supply)

1

⊙ ON" (only for a component of the system equipment)
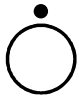
○ "OFF" (only for a component of the system equipment)

▣ Equipment protected throughout by DOUBLE INSULATION or
REINFORCED INSULATION (equivalent to Class II of IEC 536)

⚡ Caution !: risk of electric shock
(background color: yellow, symbol and outline: black)

⚠ Caution !: see accompanying documents
(background color: yellow, symbol and outline: black)

🌡 Caution !: high temperature

Caution !: potential pinch point

Caution !: potential biohazard

ℹ Consult instructions for use

LOT Batch code

REF Catalogue number
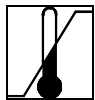
Temperature limitation

EC | REP Authorised representative

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mini API® Instrument User's Manual   **1-5**

☔	Keep dry
🏭	Manufactured by
〜	Date of manufacture
IVD	In vitro diagnostic medical device
SN	Serial number
⌀	Keep away from magnetic field

2   Functional description of *mini API*®

Introduction

This manual deals with the *mini API*® instruments and consumables.

The software is described in the *mini API*® Procedures Manual.

Description / aim

mini API® is designed for the automatic identification and susceptibility testing of *ID 32*, *rapid ID 32*, *ATB*® and *rapid ATB*® strips.

It also enables computer assisted interpretation of **API**® strips read visually.

① -*mini API*®
② -Keyboard
③ -Electronic pipette
④ -*DENSIMAT* densitometer
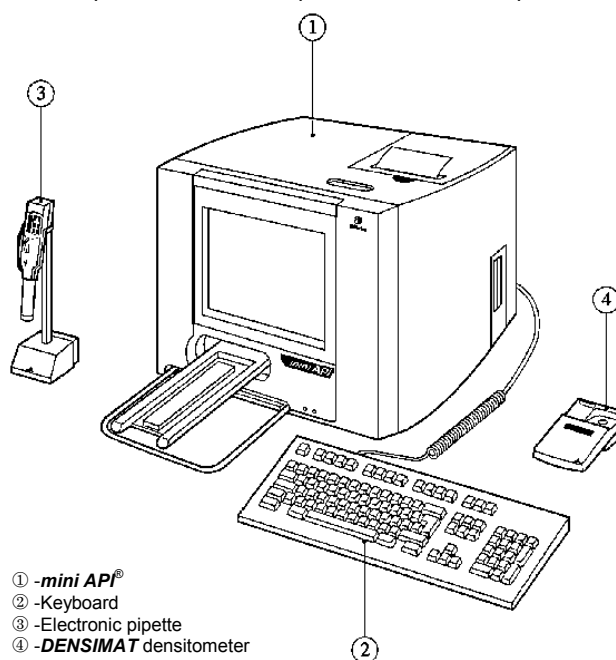
Fig. 2-1 : Configuration components

Configuration components

mini API® is an automated instrument for identification and susceptibility testing. It consists of:

- the hardware,
- the software,
- the consumables.

Hardware

The package includes:

- *mini API*®, a self-contained analytical module enabling:

  . reading of test strips,

  . management of results and data,

  . printing of results obtained,

- **a *DENSIMAT* densitometer** to standardize the turbidimetry of the bacterial suspension (please refer to the manual supplied with the densitomer).

- **an electronic Pipette** to dispense the required amount of bacterial suspension into each cupule of the identification and susceptibility test strips (55 µl or 135 µl) (please refer to the manual supplied with the pipette).

Software

The *mini API* software enables:

- interpretation of data,
- interpretation of strip results (identification or susceptibility tests),
- expert analysis of susceptibility tests,
- storage of results on the hard disk,
- printing of results,
- extraction of data,
- connection with a central computer.

Consumables

The *mini API*® consumables include:

- strips with associated media and reagents (see package inserts),
- ribbons and paper for the printer,
- pipette tips.
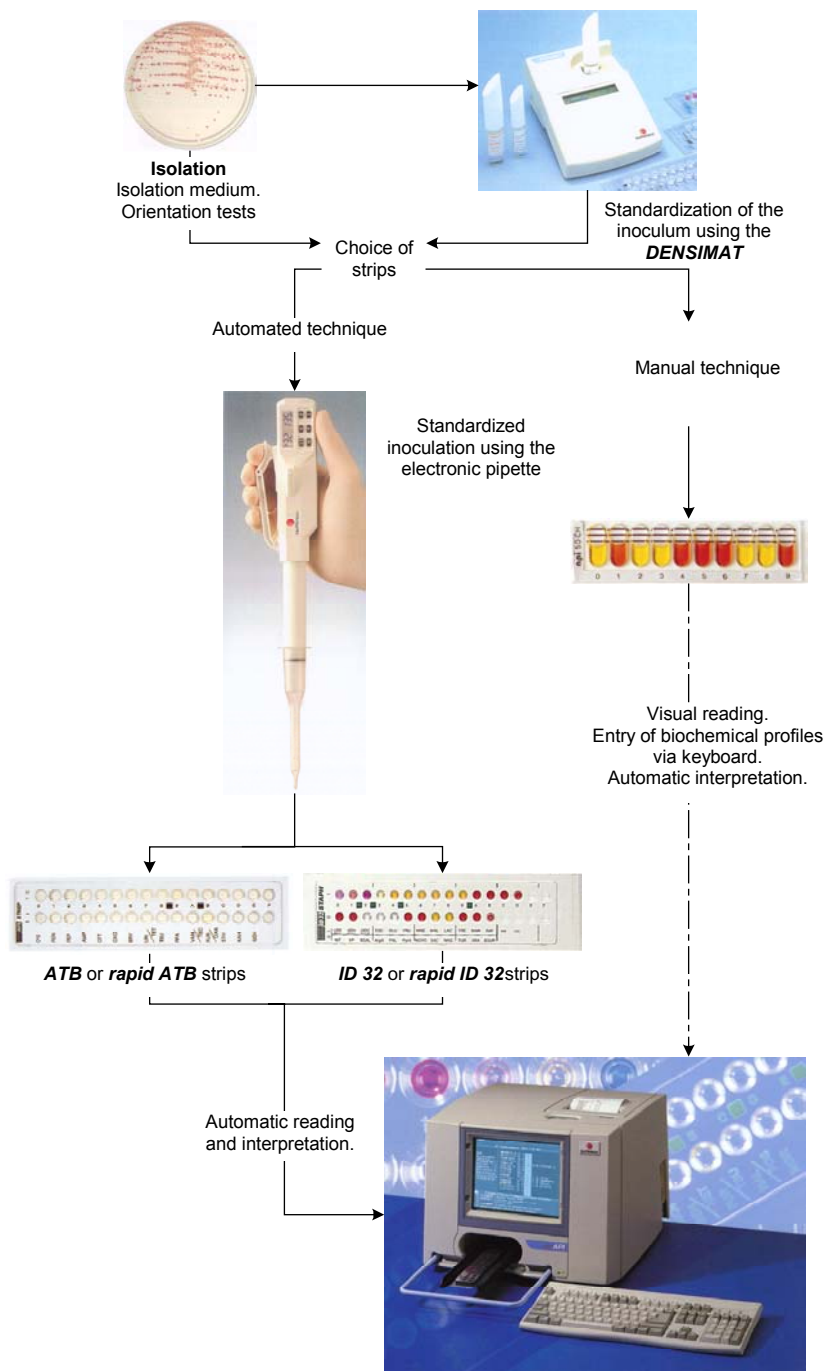
2

Fig. 2-2 : Using *mini API*®

General features and technical specifications of the analyzer

Environmental conditions

- Operating Temperature: + 15° C to + 30° C (59° F to 86° F)

- Transport and storage temperature: -10°C to +50°C

- Relative humidity: 10 to 70 %, without condensation

- Type of installation: indoor, residential, commercial, and light industry.

- Maximum altitude for installation: 2000 m

- Installation category (voltage overload category): II
  (in accordance with standard IEC 61010.1)

- Pollution degree: No. 2
  (in accordance with standard IEC 61010.1)

Physical features

Dimensions	Instrument packed	Instrument alone
Height:	50 cm (19.7 inches)	34.5 cm (13.6 inches)
Width:	60 cm (23.6 inches)	43 cm (17 inches)
Depth:	65 cm (25.6 inches)	Protection rail in 46 cm (18.1 inches)
		Protection rail out 63 cm (24.8 inches)

Mass	Instrument packed	Instrument alone
Mass:	32 kg (70.41 lb)	25 kg (55.11 lbs)

Electrical characteristics

Class I Equipment	
Power supply	100 - 240 VAC The power supply is self-switching.
Consumption	maximum 2 A from 90 to 120 VAC maximum 1.1 A from 220 to 240 VAC
Frequency	50 - 60 Hz
Power	maximum 240 VA
Safety fuse	External (power input block) 3.15 AT - 250 VAC

Characteristics of optical components

– Light source: Halogen 12 V 20 W

– Central photosensor: BP W21

– Side photosensor: SD 5421

– Strip decoding: BP W34

2
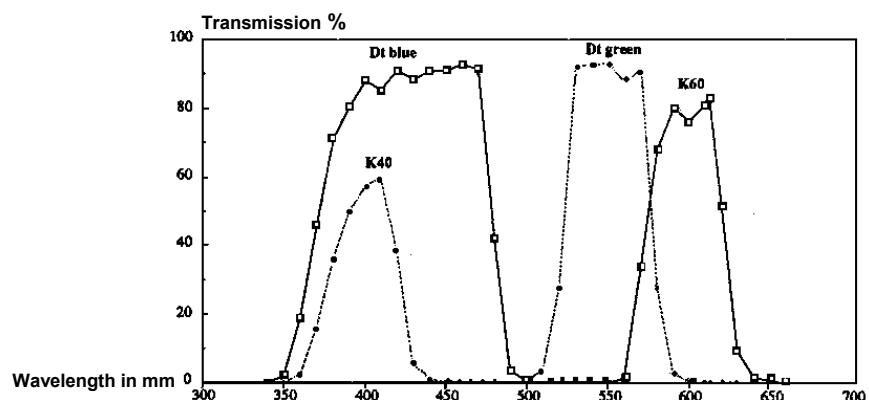
Fig. 2-3: Description of the spectral zone
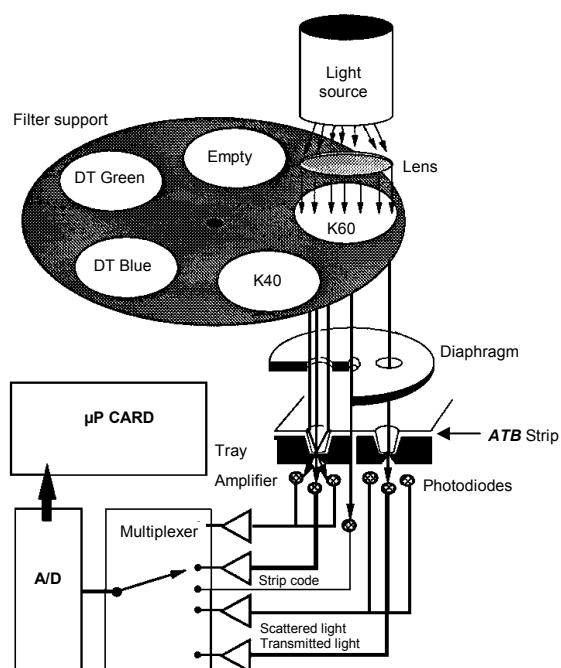
Fig. 2-4: Reading principle of the test strip reader

Principle of operation

mini API® performs two types of readings:

Turbinephelometric reading

Turbinephelometric reading is used for test strips containing assimilation tests

Example: - *ID 32 GN*
            - *ID 32 C*
            - *ATB® UR*

mini API® performs two types of measurements:

−   **Turbidimetry**: measurement of the intensity of transmitted light (T) which is inversely proportional to the amount of bacterial growth.

−   **Nephelometry**: measurement of the intensity of light scattered (S) at 30° directly proportional to the amount of bacterial growth.

These two measurements allow the estimation of the density of bacterial growth.

A turbinephelometric reading cycle occurs in two stages:

1st stage
−   Entry of the strip carriage.

−   Detection of the strip code.

2nd stage
−   Measurement without a filter.

−   Exit of the strip carriage.

−   At the end of the cycle, the result is processed by the software.

2

Colorimetric reading

Colorimetric reading is used for strips containing chromogenic substrates.

Example: - *ID 32 STAPH*
- *rapid ID 32 E*
- *rapid ID 32 A*
- *rapid ID 32 STREP*

mini API® measures the transmission of light for each cupule in four regions of the visible spectrum.

A colorimetric reading cycle occurs in 4 stages:

1st stage   1st entry of the strip carriage:

– Detection of the strip code,

– Measurement under a K60 filter.

2nd stage   1st exit of the strip carriage:

– Measurement under a K40 filter.

3rd stage   2nd entry of the strip carriage:

– Measurement under a DT blue filter.

4th stage   2nd exit of the strip carriage:

– Measurement under a DT green filter.

At the end of the reading cycle, the result is transmitted to the computer.

3 Preliminary instructions

Introduction

This chapter covers the very first steps you need to take before you can use *mini API*®.

Recommendations for installation and use

In order to facilitate the assembly of *mini API*®, it is recommended to unpack the components and carefully read the instructions below before starting.

CAUTION! **Before unpacking the instruments, it is advisable to have previously planned where they will be placed.**
Avoid exposing the equipment to direct sunlight, excessive heat, humidity or dust.
Only power cords and accessories supplied by bioMérieux® SA should be used to connect the instruments.
All connections should be performed with the power turned off.
Do not use sockets controlled by wall-mounted switches or power programmers. Power cuts can destroy data in the memories of the computer and analyzer.

The electrical power supply must be :
- direct,
- individual,
- calibrated,
- protected,
- compatible with the technical specifications of the product or configuration.
No electrical equipment likely to cause interference (particularly equipment not bearing the mark), should be connected to the same electric line or operated in the vicinity of the mini API®.
Extension leads and serially-connected adapters should not be used.
If the power supply is not sufficient to guarantee proper functioning of the instrument, an independent protective device, adapted to the instrument's technical characteristics should be used.
Do not use power sockets controlled by wall-mounted switches or timers.
The safety connection (grounding) should not be interrupted by an extension lead without a protective conductor.

Unpacking *mini API*®

Before opening the boxes:

− Make sure that no damage has been caused during transportation.

   If damage has occurred, make a claim to the transport company and notify bioMérieux® or your local distributor.

When opening the boxes:

− Make sure that all the items in the packing list have been delivered.

If possible keep packaging materials in case the *mini API*® instruments have to be moved in the future.

CAUTION!   *Any damage directly or indirectly resulting from the transport of the instrument without adequate containers will not be covered by the warranty or maintenance contract.*

Assembly and installation

This manual contains information and warnings which have to be respected by the purchaser or the leasor to ensure safe operation and to maintain the instruments in good condition.

> ⚠ *DANGER* *Any break in the grounding protective conductor inside or outside the equipment or disconnection of the protective ground terminal may render the equipment dangerous. Deliberate interruption of such conductors is forbidden*
>
> *Opening covers or removing components, except those manœuverable by hand, may give access to parts that can be dangerous if touched*
>
> *Prior to any adjustment, replacement, servicing or repair, disconnect the instrument if it has to be opened.*
>
> *After opening, if it is imperative to switch the instrument on, any adjustment, servicing or repair must be performed by a qualified technician, well aware of the possible risks.*
>
> *The electrical plugs to which the mini API® and accessories are connected, must be equipped with a ground terminal and plastic shutters preventing a one-pin plug being used.*
>
> *Using repaired fuses or short-circuiting fuses is prohibited.*
>
> *bioMérieux® SA declines all responsibility in the event of intervention on the equipment by unauthorized personnel and reserves the right to void the warranty.*
>
> *An improperly installed plug or poor wiring of the electrical outlet can cause the exposed metal parts of the instrument to become dangerously live. For your own safety, the plug of your instrument must be connected to a power socket that is correctly wired and grounded. The user is responsible for installing this power socket.*
>
> *Before connecting or disconnecting the connecting cables, check that the power supply leads are disconnected.*
>
> *Whenever possible, use only one hand to connect or disconnect signaling cables so as to avoid the risk of electric shock from contact with two surfaces at different electrical potentials.*

3

CAUTION!   *Never download into the computer, programs or floppy disks other than those provided by bioMérieux® SA. If these instructions are not complied with, the computer could become infected with computer viruses. Any intervention directly or indirectly resulting from the presence of such a virus cannot be covered by the warranty or the maintenance contract.*

Choosing a location

CAUTION!   *Avoid exposing the equipment to direct sunlight, excessive heat, humidity or dust.*

mini API® is equipped with adjustable feet. If you wish to adjust the height of your mini API®, please contact the Technical Dept. at bioMérieux® or your local distributor.

To lift the instrument, place your hands under either side of the unit. Do not use the protection rail for this manoeuvre.

- Place the equipment on a flat stable surface allowing:
    - access to the ON/OFF switch,
    - access to the disk drive,
    - use of the protection rail,
    - opening of the printer cover,
    - circulation of air.

Setting up the strip carriage

- Place the strip carriage between rollers 1 and 3 and gently push it inside the reader (Fig. 3-1).

3

① - Left-hand roller
② - Optical switch for detection of the strip carriage
③ - Right-hand roller
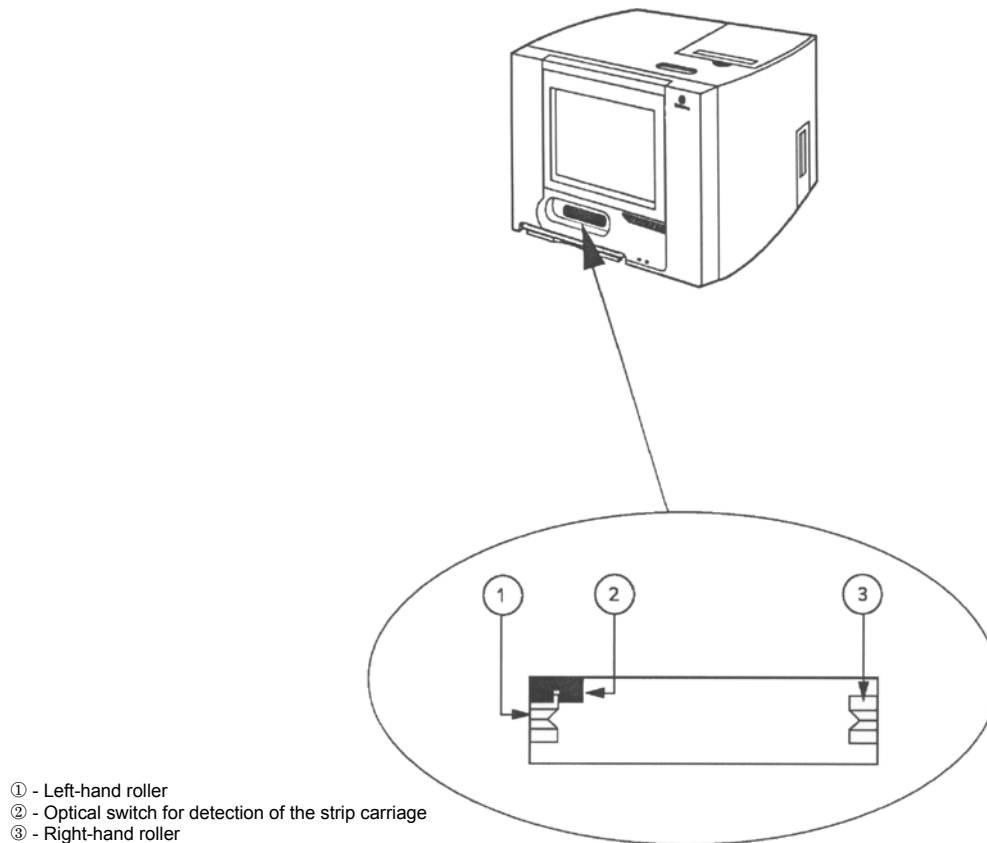
Fig. 3-1: Setting up the strip carriage

IMPORTANT!   *To avoid pinching your fingers, do not touch the roller while the strip carriage is inserting.*

Connections

- Connect the power cord to the male outlet on the instrument.

- Connect the keyboard cable (Fig. 3-2).

① -Keyboard cable connection
② -Serial port for bi-directional interface
③ -Power cord connection
④ -Printer connection box
⑤ -Printer "Reset" button
⑥ -Printer
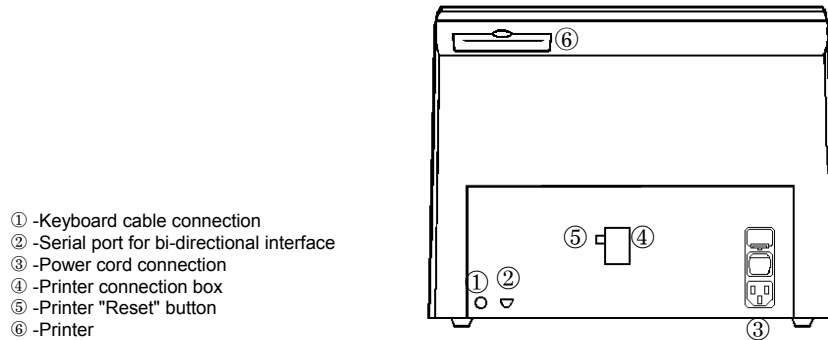
Fig. 3-2: Connections

Preparing for operation

Prior to switching on *mini API*®, make sure that:

− The AC plug is connected to a grounded outlet.

− Spare fuses with appropriate rating and of specified type are available.

IMPORTANT !   *Using repaired fuses and short-circuiting fuses is prohibited.*

CAUTION!   *In case of intervention by unauthorized personnel, the Supplier rejects any responsibility and reserves the right to cancel the warranty.*

4   Set-Up

Starting *mini API*®

After you have assembled and installed the different **mini API**® components, taking into account the safety recommendations in the "Preliminary Instructions" chapter, proceed as follows:

- Switch on **mini API**®: ON/OFF switch at the back of the instrument (Fig. 4-1).

  - When **mini API**® is switched on, the internal system configuration is tested (identification of the microprocessor, size of the memory).

  - The instrument beeps twice: **mini API**® has successfully carried out the internal tests.

  - The **mini API**® software presentation page is briefly displayed on the screen before the main menu appears.
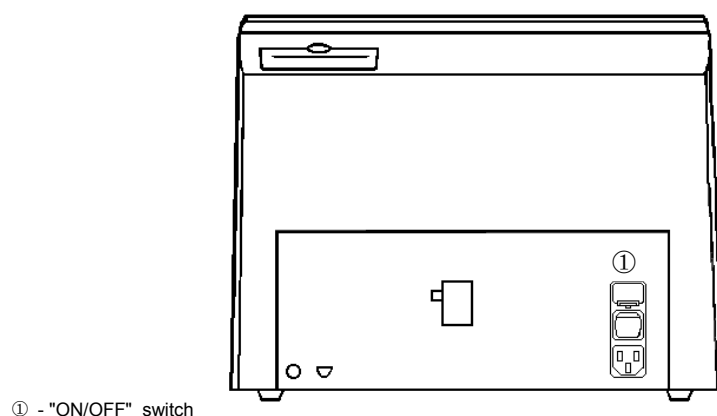
① - "ON/OFF" switch

Fig. 4-1: Back panel of *mini API*®

Adjusting the contrast and brightness of the screen

You can adjust the contrast and the brightness of the screen to suit you (Fig. 4-2).
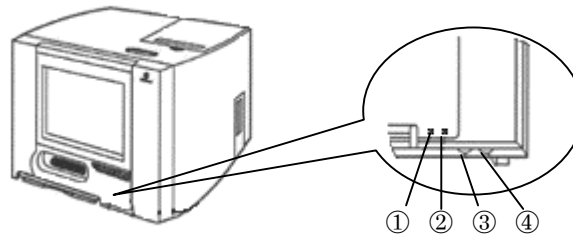
① -Hard disk access light (orange)
② -Power indicator light (green)
③ -Contrast adjustment
④ -Brightness adjustment

Fig. 4-2: Adjusting the contrast and brightness of the screen

Printer operation

The printer is used to print results.

The control panel (Fig. 4-3) consists of:

- 1 **<FEED>** button,
- 1 **<ON LINE>** button,
- 1 green ON LINE indicator light,
- 1 red ALARM indicator light.

Green **ON LINE** indicator light ⟶

Red **ALARM** indicator light ⟶

ON LINE

FEED

ALARM
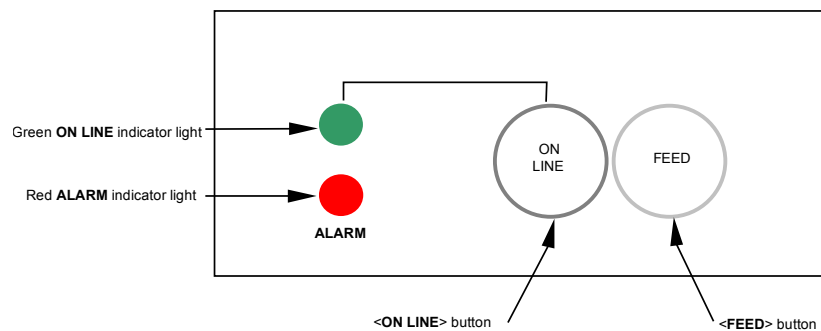
<ON LINE> button

<FEED> button

Fig. 4-3: Printer control panel

4

Functions

The **<ON LINE>** button enables you to put the printer:

− ON LINE (the printer is waiting to print).

When the printer is ON LINE the green indicator light is on.

− OFF LINE (the printer is not available).

When the printer is OFF LINE, the green ON LINE indicator light is off.

If you press the **<FEED>** button once, the paper will advance by one line.

If you hold down the **<FEED>** button, the paper will continue advancing.

The green ON LINE indicator light automatically comes on a few seconds after *mini API*® is switched on.

− ON:

It indicates that the printer is waiting to print.

− OFF:

It indicates that the printer is not available.

Nota :   *If the red indicator light is on, the green indicator light is off.*

The red ALARM indicator light:

− ON:

There is no paper in the printer and/or the printer is down.

− OFF:

Everything is functioning properly.

Checking the operation of the printer (self-test)

This test can be performed when *mini API*® is switched on.

Step 1
- Hold down the **<FEED>** key.

Step 2
- Switch on *mini API*®.

Step 3
When the printer starts printing, release the **<FEED>** button. Printing will stop automatically.

You should obtain the following print-out:

Fig. 4-4: Print-out during the self-test

Stopping *mini API*®

When the main *mini API*® menu is displayed, to quit the application:

- Press **<Del>**.

- Switch off the instrument.

- Push in the protection rail.

5 Using *mini API*®

This chapter describes the preparation before using *mini API*®.

For further information, please refer to the Procedures Manual.

Procedure for use

Before reading the strips:

Step 1
- Switch on *mini API*® using the ON/OFF switch at the back of the instrument.

- Wait 15 minutes before starting to read the strips (preheating).

Step 2   Preparing the strips for reading:

- Remove the strip lids.

- Add the reagents required for the development of certain tests (please refer to the package inserts for the strips).

Step 3
- Pull out the protection rail.

CAUTION!   **You must pull out the protection rail completely to allow the strip carriage to come out.**
The protection rail delimits the area required for the strip carriage to move freely. It should not be used as a handle to lift the instrument.
Do not place anything on the protection rail when it has been pulled out.

The *mini API*® software automatically sends out the strip carriage at the time of automatic strip reading.

IMPORTANT !   **Do not touch the strip carriage while it is moving.**

Step 4   • Place the strip on the strip carriage.

Step 5   Reading the strips:

• Strip reading is initiated by the *mini API* software.

• Processing of strips is automatic.

• The strip code is read and the results are interpreted. This generates the type of reading corresponding to the strip: turbinephelometric or colorimetric:

Note: *For a turbinephelometric reading, the strip carriage enters and exits once*

For a colorimetric reading, the strip carriage enters and exits twice.

At the end of the reading cycle the strip carriage stays out. It automatically goes in when you quit the result entry module of the mini API® software.

If you forget to remove a strip from the strip carriage, please refer to Chapter 7 "Troubleshooting" in the mini API® Procedures Manual.

The instrument is equipped with a fan which allows it to remain switched on when it is not being used.

mini API open

① - Strip carriage
② - Protection rail
③ - Disk drive
④ - Printer

mini API closed
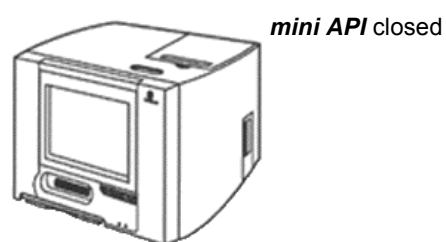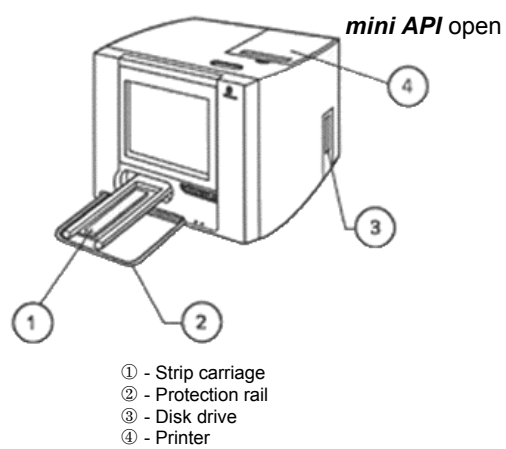
Fig. 5-1: Position of the strip carriage and the protection rail

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6 Maintenance

> ⚠ **DANGER!** *Any maintenance not described in this chapter must be performed by a bioMérieux® technician or your local distributor.*
>
> *Besides the maintenance operations described in this manual, the instrument must undergo periodical preventive maintenance in order to check, among other things, the accuracy of its results.*
>
> *Preventive maintenance should only be performed by bioMerieux® SA technicians or a qualified person trained by bioMerieux® SA.*
>
> *The list of maintenance operations and their frequency is available from bioMerieux® SA.*
>
> *Opening covers or removing components, other than those manoeuverable by hand, may give access to parts that can be dangerous if touched.*
>
> *Disconnect the instruments prior to any adjustment, replacement, servicing or repair requiring them to be opened.*

IMPORTANT! *If the instrument has to be switched on again after opening, any adjustment, servicing or repair should be carried out by a qualified technician who is well aware of the possible risk.*

Testing *mini API*®

mini API® must be tested:

– when there is any doubt as to the precision of the instrument,

– when visual interpretation differs from automatic reading.

CAUTION!   ***The tests should be performed by a bioMérieux*® *technician.***

Maintenance

Cleaning *mini API*®

6

CAUTION! **Do not use corrosive products to clean the surface of mini API® and the screen, as they could damage the components.**

* **To remove dust from the surface of the machine:**

- Wipe gently with a soft, dry cloth. If this is not sufficient, use a special plastic casing cleaner on a soft cloth.

* **To clean the disc drive:**

- Use the 3.5" disc cleaning kit (available from bioMérieux® SA, part no. 4550122A).

* **To clean the printer:**

- Use a soft-bristled brush, taking care to remove all dust or dirt.

The printer should be cleaned several times a year to ensure proper functioning (we recommend cleaning once a month).

CAUTION! **Do not use alcohol or solvents to clean the printer, as they could damage components.**

Do not allow water to run into the printing mechanism or on the electronic components.

Do not use hard-bristle brushes or abrasive materials.

Do not spray lubricants inside the printer.

Do not use compressed air to clean inside the printer.

IMPORTANT! **The preventive maintenance described in this chapter should be performed every year.**

During the warranty period, and then as part of the maintenance contract, or when requested, you can obtain the intervention of a bioMérieux® technician or your local distributor.

Note: *It is the responsability of the user to perform maintenance operations as described in this manual.*
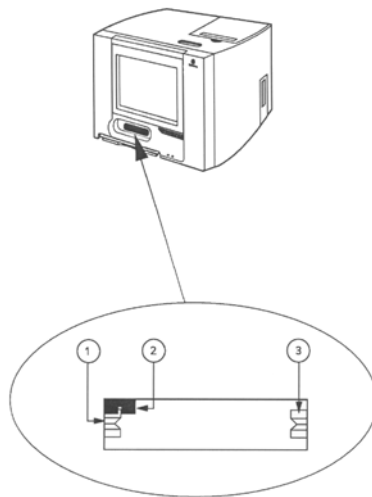
① – Left-hand roller.
② – Strip carriage optical switch.
③ – right-hand roller.

① - Notch
② - Hole (reading of strip test)
③ - Hole (reading of strip code)

Fig. 6-1: Strip carriage assembly.   **Fig. 6-2: Strip carriage**

IMPORTANT!   *To avoid pinching your fingers, do not touch the roller while the strip carriage is inserting.*

> ⚠ **DANGER** *Prior to any decontamination procedures, the power switch must be moved to the OFF position. Power cords must be disconnected from the power supply.*
>
> *Disposable powderless gloves should be worn. Do not allow any disinfectant solution to spill into the instrument.*

6

* **To clean the strip carriage:**

- Remove the carriage.
- Use the **<←>** and **<→>** keys to position the cursor on "`api/ATB`".
- Press **<Return>**.
- Press **<F2> = Identify an organism**, so that the strip carriage sides out.
- Press **<Return>** to perform a reading without a strip.

When the "`Not recognised`" message appears:

- Remove the carriage completely from the machine.
- Press **<ESC>** twice.
- Press **<Del>** to quit the software.
- Switch off *mini API*®.
- Clean the strip carriage with soap and water (do not use detergents).
- Rinse in clean water.
- Leave to dry or dry using compressed air (RCII type or equivalent - neutral dry gas) or use a hairdryer.
- Put the strip carriage back into place between rollers 1 and 3 and push it gently back into the reader (Fig. 6-1).

Maintenance should be carried out at regular intervals to ensure optimum reading performance and correct decoding of the strip code.

IMPORTANT! *All media should be considered as potentially infectious and be manipulated appropriately.*

* **To decontaminate the strip carriage:**

IMPORTANT! *This operation should be performed by qualified laboratory personnel only, who should take the usual precautions necessary for infectious agents (disposable gloves etc...).*

Should the contents of a strip accidentally spill onto the strip carriage, decontaminate the carriage as follows:

- Remove the strip carriage and place it in a disinfectant solution (e.g. Bioblock BACTINYL 5M).

- Clean the strip carriage as described above.

IMPORTANT! **Do not place the strip carriage in a bleach solution (risk of corrosion).**

⚠ *DANGER!* **All biological fluids should be considered as potentially infectious. Qualified laboratory personnel should use acceptable procedures for biohazardous material.**
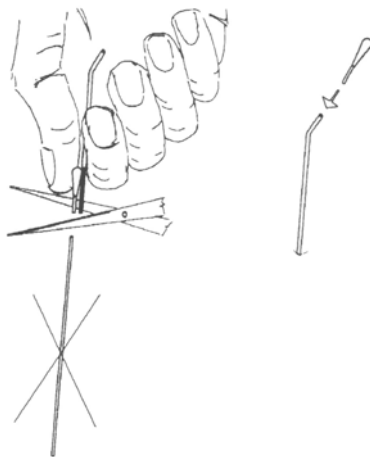
① -Cut the cotton swab to the required length.
② -Insert the cotton swab into the special tool.

Fig. 6-3: Preparing the photodiode cleaning tool
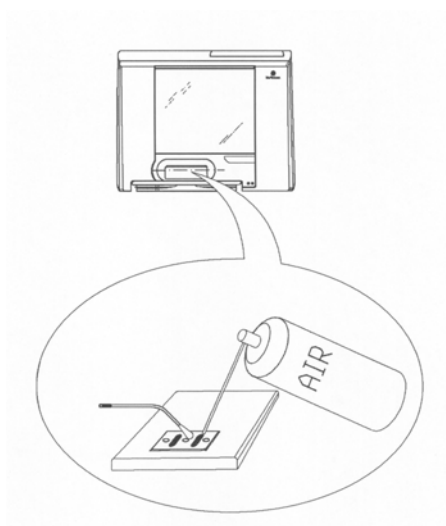
Fig. 6-4: Cleaning the photodiodes

       * **To clean the photodiodes:**

- Remove the strip carriage (see page 6-5).

- Prepare the cleaning tool (Fig. 6-3).

- Dampen it with 90° alcohol.

- Clean the diodes on the lower part between the two rollers (Fig. 6-4).

- Leave to dry or dry using compressed air (RCII type or equivalent - neutral dry gas).

- Put the strip carriage back into place (see Fig. 6-1 page 6-4).

Note: *The photodiode cleaning tool is available from bioMérieux® SA under spare part no. 4550409 A.*

Changing the ribbon

> ⚠ *DANGER!* ***Do not touch the printing head immediately after printing as it may be very hot.***

Remove paper from the printer before changing the ribbon.

Step 1
- Open the printer cover.
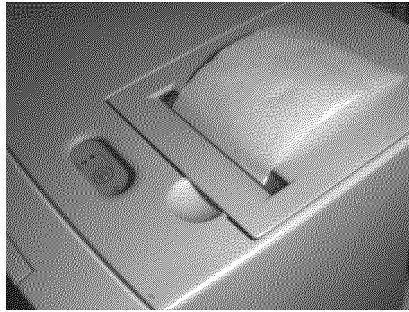
Fig. 6-5: Printer cover

Step 2
- Lift the paper cutter.

Note: *The ribbon is wound around two plastic spools.*
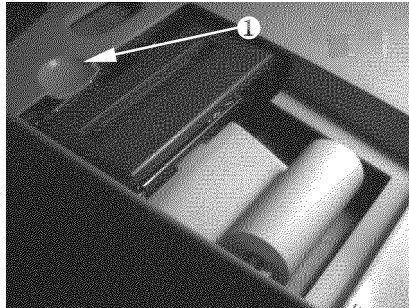
❶ - Paper cutter

Fig. 6-6: Paper cutter

Step 3   ∗   To remove the old ribbon,

- Release the detection lever ② on the left-hand spool and pull the spool upwards.

- Repeat the operation for the right-hand spool.

① Spools   ③ Fixing pin   ⑤ Ribbon guide   ⑦ Drive pins
② Detection lever   ④ Platen   ⑥ Printing head
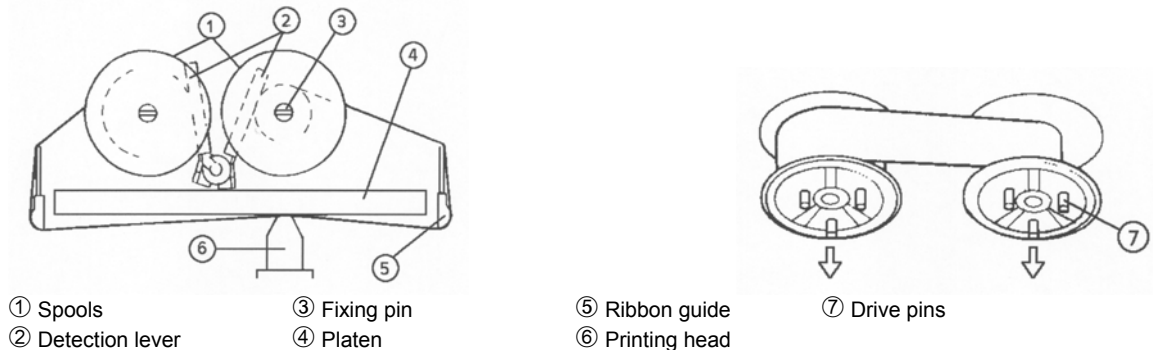
Fig. 6-7: Changing the ribbon

Step 4   ∗   To insert a new ribbon,

- Unwind a few centimeters of ribbon (the drive pins ⑦ should be facing downwards).

- Release the detection lever ② and insert the left-hand spool.

- Position the ribbon correctly before inserting the right-hand spool.

- Release the detection lever ② and insert the right-hand spool.

- Retighten the ribbon by turning the left-hand spool clockwise until the right-hand spool begins to turn.

Step 5   - Put the paper into place.

Note: *The life span of a ribbon is approximately 800,000 characters.*

Changing the roll of paper

Switch off *mini API*® before changing the roll of paper.

Step 1
- Open the printer cover.

Step 2
- Lift the paper cutter.

- Remove the rest of the old roll of paper and take out the holder.

Step 3
- Prepare the new roll.
  The edge of the paper should be cut cleanly .
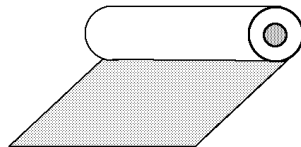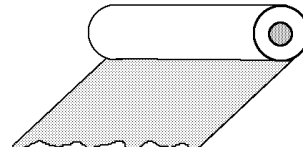
Correct   Incorrect

Step 4
- Insert the holder inside the roll of paper.

Roll of paper

Holder
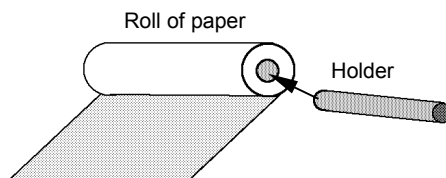
Step 5
- Position them inside the printer.

Make sure that the paper unrolls correctly, from underneath.
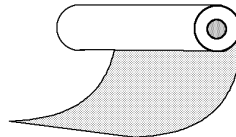
Step 6 • Slide the paper into the printer, holding the leading edge down flat.

① Ink ribbon
② Paper feed
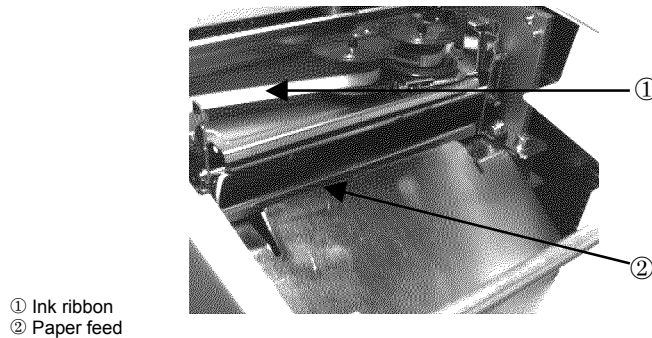
Fig. 6-8: Loading paper

Step 7 ∗ At the same time,

• Press **<FEED>**.

The paper will be fed through by the printer.

Green **ON LINE** light

Red **ALARM** light

ON LINE

FEED

<**ON LINE**> key

<**FEED**> key
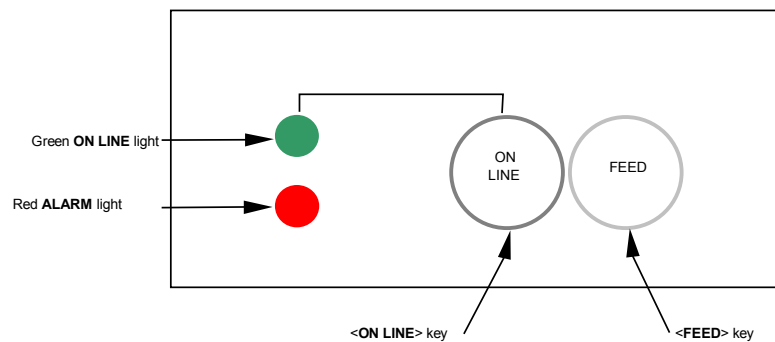
Step 8 • Feed out approximately ten centimeters of paper.

Step 9 • Pass the paper through the paper cutter.

Step 10 • Lower the paper cutter and the printer cover.

Changing the fuse

- Switch off *mini API*®.

- Disconnect the power plug.

- Open the fuse holder located above the `"On/Off"` switch (insert a screwdriver into the space provided above the power switch).

- Replace the faulty fuses with new ones.
  (3.15 AT - 250 V).

⚠ *DANGER!* ***Disconnect the instruments prior to any adjustment, replacement, servicing or repair during which the instrument has to be opened.***

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① Fuse holder
② Space for screwdriver
③ "On/Off" switch
④ Male power plug
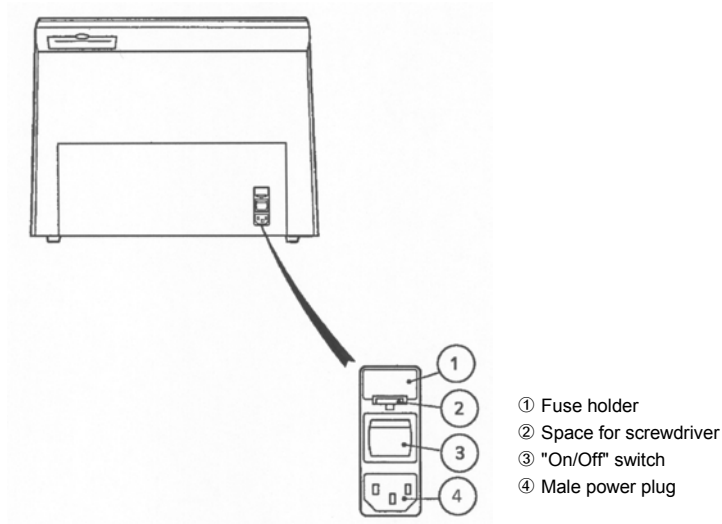
Fig. 6-9: Back panel of *mini API*®

⚠ *DANGER!* ***For continuous protection against fire hazard, replace used fuses with fuses of the same type and rating, as recommended by bioMérieux*® *SA.***

Fuses   3.15 AT- 250V

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7   Troubleshooting

Please refer to chapter 7 "Troubleshooting" in the *mini API*® Procedures Manual.

8 *DENSIMAT* densitometer

Please refer to the manual supplied with the *DENSIMAT* densitometer (Product no. 99535).

9 Electronic Pipette

Please refer to the manual supplied with the electronic Pipette (Product no. 93201).

10 Appendices

Appendix A: Installing MS DOS 6.22 or later versions

CAUTION! *The installation of MS DOS 6.22 or later versions requires the intervention of a qualified technician.*

Appendix B: Installing the *mini API*® CONFIGURATION floppy disk

This floppy disk contains all the files required for the configuration of your *mini API*® for automated use of the *mini API*® software.

Initialize the computer. When the: C:\> prompt appears on the screen:

- Insert the *mini API*® CONFIGURATION floppy disk in drive A.

- Type:

  A:

- Press **<Return>**.

When the A:\> prompt appears on the screen:

- Type:

  APICONF

- Press **<Return>**.

When all the files have been installed A:\> appears on the screen

- Press **<Ctrl>**, **<Alt>**, **<Del>** simultaneously to restart the computer.

Appendix C: Protecting data on floppy disks through write inhibit

It is possible to accidentally format or write data on a disk.

Important data may be lost (for instance Thesauri on the backup disk).

When disks are write-inhibited, they can be read but no information can be written on them.

3.5" Floppy disks

To locate the write-inhibit shutter,

- Turn the disk over, with the label to the bottom.

To avoid writing on a disk,

- Move the shutter downwards.

To allow writing on a disk,

- Move the shutter upwards.
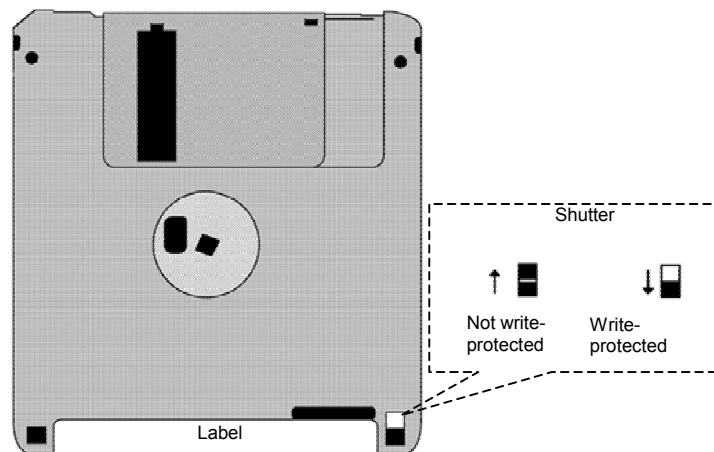
11 Glossary

AZERTY KEYBOARD
Keyboard with keys corresponding to French characters.

COLORIMETRIC READING
Measurement of light transmitted in four regions of the visible spectrum for each cupule of a colorimetric test strip.

DISK DRIVE
Mechanical and electronic module for reading information on a floppy disk.

HARD DISK
Rigid magnetic support to back up data and programs.

NEPHELOMETRY
Measurement of the intensity of light scattered (S) at 30°, directly proportional to the bacterial growth.

PHOTOSENSOR
Sensor enabling a light source received to be transformed into a source of electrical current.

QWERTY KEYBOARD
Keyboard with keys corresponding to English characters.

SCREEN
Used to display information from the *mini API*® software.

STRIP
Set of standardized miniaturized tests on a plastic support.

TURBIDIMETRY
Measurement of the intensity of transmitted light (T) which is inversely proportional to the bacterial growth.

TURBINEPHELOMETRIC READING
Reading which combines turbidimetry and nephelometry to evaluate the bacterial density.

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Notes

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BIOMÉRIEUX