User's Manual

ATP-TL Portable Luminescent ATP Detector

Notices and Restrictive covenants

Note: The design and manufacture of products are safe and reliable, if use it properly(according to the text as shown below) and comply with the following note fully, then it will not cause harm to humans.

Note: This manual's user must be clear of this apparatus and its possible harm attachment.

All operators should be familiar with this chapter's safety instructions and cautions before operating this equipment.

If the operation of equipment not provided in detail in accordance with the manufacturers instructions, then there is the possible damage to equipment protection devices.

Legend:

Description: CAUTION / WARNING

Relate to the notes in the transporting, the using of various types of solid power electronic equipment and the

using of swab Ultra snap required complying with.

Attentions are as follows:

————————Operating environment and electricity notes

 Warning: Do not use equipment in the place having or may having flammable and explosive gas.

 Note: Do not place the equipment in extreme temperatures, minimize the power load

————————Equipment operation

 Note: Do not damage equipment, pick-and-place carefully

————————*Battery*

 Warning: Please use non-rechargeable alkaline battery

 Warning: The voltage of each battery should be

below 1.65V; Otherwise, it will cause lasting damage to the quipment

 Note: Please discard used batteries comply with local regulations

————————*Using and inserting Ultrasnap swab*

 Note: Before using the swab,please refer to the details of the Ultrasnap's data and insert procedures.At the same time, national and local environmental laws and regulations should be followed.

 Note: Do not insert Ultrasnap swab extrusion. In addition to Ultrasnap swab, do not insert anything else.

 Note: Prior to the insertion equipment,Ultrasnap swab should be clean and dry .

————————*Keyboard button*

 Note:Do not press the keyboard button on the equipment's surface continuously.

————————*RS232 interface*

 Warning: The computer equipment connected to

RS232 interface on the top of the equipment must meet standards BSEN60950/IEC950.

————————*Apparatus components:*

 Warning: The instrument does not have spare parts, Demolition equipment components are not allowed.

Use Constraints

Equipment's design meets the requirements of popularity, safety and EMC as following::

Popularity

- ▶ Low Voltage target 73/23/EEC
- ▶ EMC target 89/336/EEC

Safety

- ▶ BS EN 61010-1: 200, IEC 61010-1: 2001
- ▶ UL 61010B-1
- ▶ CAN/CSA C22.2 1010.1-92

EMS

- ▶ EN 55022: 1998
- ▶ EN 61000-4-2: 1995
- ▶ EN 61000-4-3: 1995
- ▶ FCC Class A-Sub Part J

Statement

DESIGN OF THE EQUIPMENT CONFORM AND COMPLY WITH THE REQUIREMENTS OF LOW VOLTAGE TARGET 73/23/EEC SECTION 11, AND IN LINE WITH THE REGULATION THAT THE DESIGN OF ELECTRONIC PRODUCTS NEED TO WORK UNDER THE SPECIFIED VOLTAGE AS WELL AS THE BASIC REQUIREMENTS OF BS EN 61010-1:2001.

CONTENTS

1 Introduction

The ATP-TL portable luminescent ATP detector is applied in Sanitation Supervision, in order to measure up the HACCP and GMP. The device consists of two main parts. They are the Ultrasnap swab and the portable examiner.

This manual introduces the use of the ATP-TL, and the maintenance and trouble-shooting of the device.

For detailed introduction of Ultrasnap swabs, please refer to the Ultralsnap user manual. If encountered with any technical problem, please contact the manufacturer.

1.1 Features

The main specifications of this portable luminescent ATP detector:

- Quantitative result: detecting limit $4*10^{-15}$ mol ATP(2000 bacteria)
- Real-time detection: 1000 sampling hits/s,15 s for an assay
- Small size: weight 210g
- Ultra-low power:>200h working with 2 dry cells(1.5V)
- Automatic: friendly user interface
- Intelligent and network control: data transmitted to PC for intelligent analysis and judgement
- General use: fit for different ATP reagents

1.2 Performance

- Testing time 15s
- Detecting range 1-9999 RLUs
- Detecting limit $4*10^{-15}$ mol ATP(2000 bacteria)
- Repeatability $\leqslant$15
- Correlation coefficient: $\geqslant$0.995
- Detecting error $\pm$5% or $\pm$5 RLUs

- Group limit 100 groups
- Memory 1000 items
- Operating temperature 5℃-40℃
- Operating relative humidity 20%-80%
- Preserving temperature -10℃-40℃
- Preserving relative humidity 20%-95%

1.3 Appendices and Supplies

Please contact the local distributor about appendices and supplies.

1.4 Operating principles

The Ultrasnap swab utilizes the biochemiluminescence technology. By using this technology, the invisible ATP concentration (represent ATP content in the testing swab) could be transferred into optical output which is visible, see Fig.1.1.

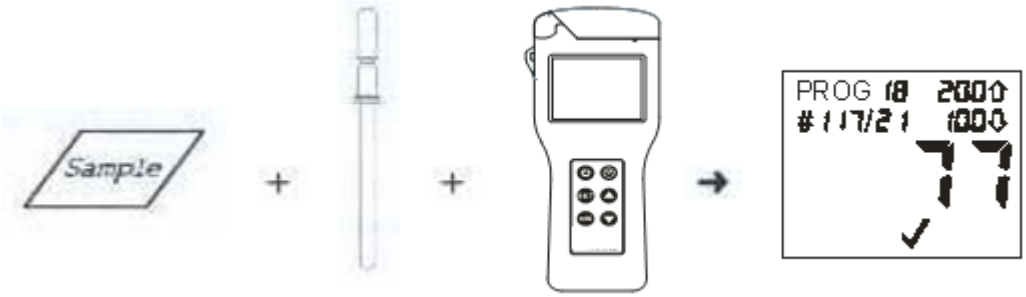


Fig.1.1

The device could examine very low optical output, and display the quantitative and qualitative results.

The quantitative result is an integer between 1-9999, in Relative Light Units(RLUs). RUL is not a real optical unit (ex. lux), but it provides a way to examine the total amount of optic outputs through ATP biochemiluminescence detection. 1RUL stands for 1fmol ATP.

The quantitative results could provide qualitative results by comparison

with user input program, as Pass✓, Alert ! and Reject✗.

The device is of high sensitivity, so please use it with caution.

2 Preparation

NOTE: Do please read the NOTICES at the very beginning of this manual.

2.1 Structure

The elevation of the ATP-TL is shown in Fig.2.1.

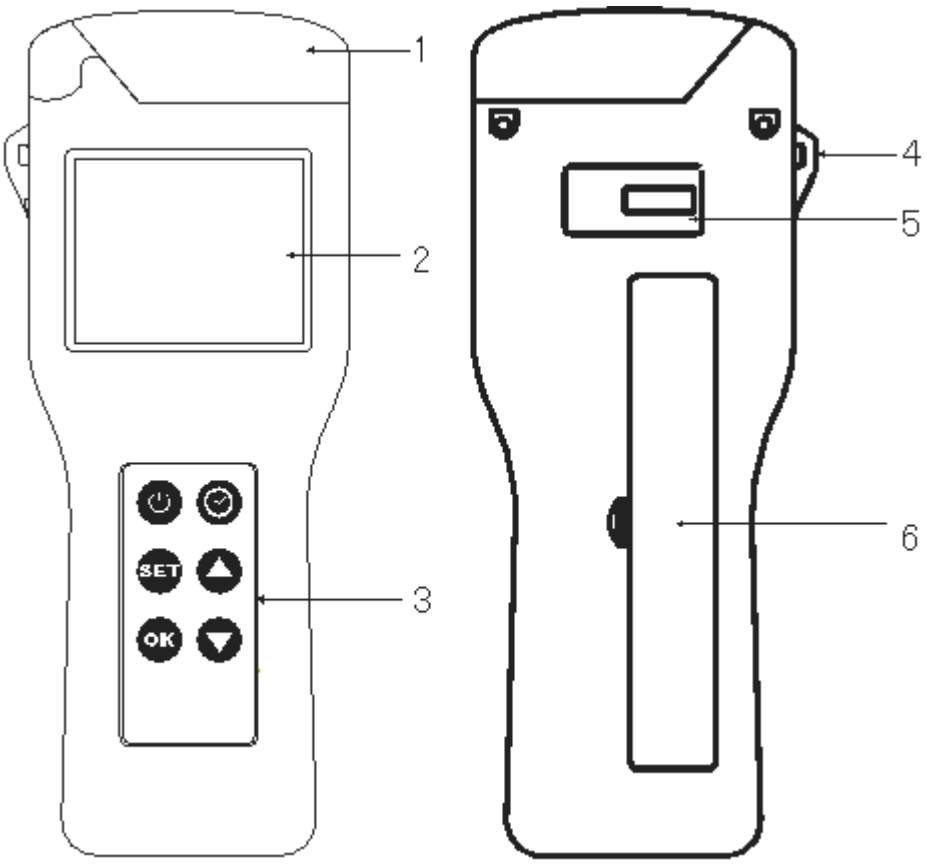


Fig.2.1

①Cover ②LED Screen ③Keyboard

④ Buckle ⑤Label ⑥Battery Box

⑦RS232 Socket ⑧Sample Socket

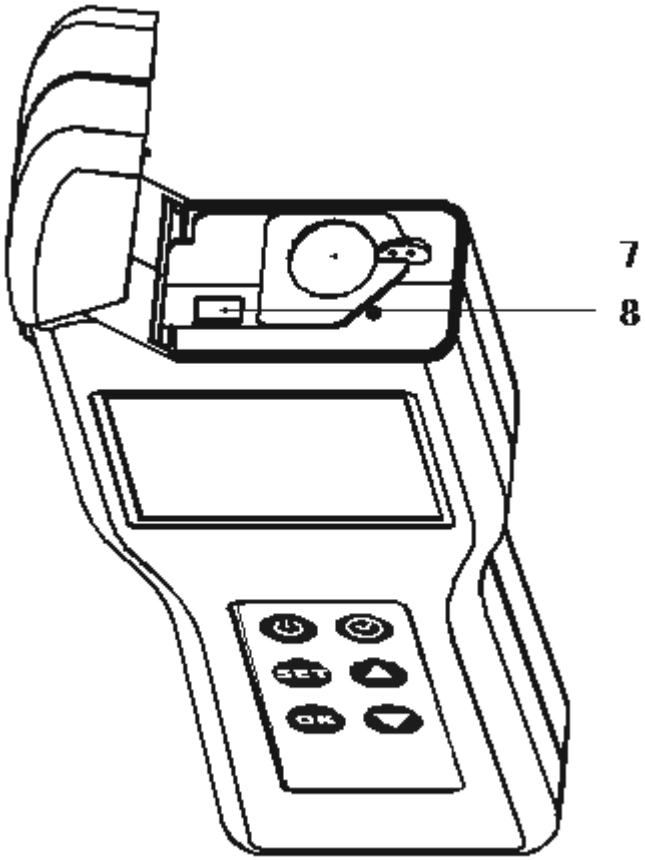
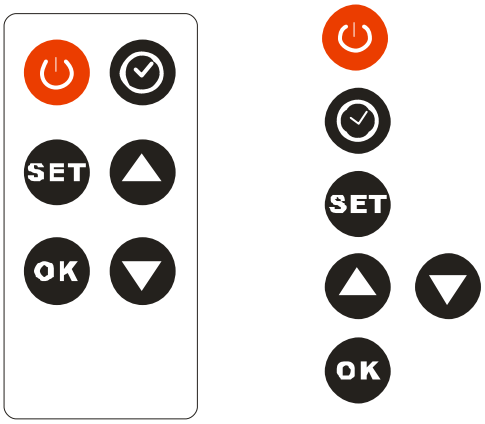


Fig.2.2

2.2 Keyboard Functions



POWER

TIME

SETUP

UP、DOWN

Enter

The function of every single key will be described in later chapters.

2.3 Displaying Markers

PROG	Serial No. of inspecting spot
⇧	Examining the upper limit
⇩	Examining the lower limit
#	Result No.
/	List seperator
	Working mark
	Memory mark, its flicker figures memories beyond 90%
	Cover mark, its flicker figures cover open
	Insert arrow
	Exsert arrow
✓	Pass
!	Alert
✗	Reject
	Low battery
	Exsert the testing swab if it flickers
	Insert the testing swab if it flickers

2.4 Battery insertion

The ATP-TL works with 2 non-rechargeable alkaline batteries(1.5V).

WARNING: DO NOT use batteries of different kinds. DO NOT use rechargeable alkaline batteries.

Open the battery box cover at the back of the device, and insert 2 dry cells, with anode up.

NOTE:

DO NOT put the batteries upside down, or it will destroy the electronic system of the device. Insert the batteries correctly and the ATP-TL will boot automatically and enter the clock configuration.

Tips:

Please change the batteries when it prompts low power to assure sufficient power supply.

3 Basic Operation

3.1 Boot-strap

Press the switch button , a beep. If it is the first boot or the first boot after replacing the battery , it shows time and date set interface in Figure 3-1, the user set the time and date, then enter the power-on self test interface in Figure 3-2, apparatus implement self – test procedures. If not, go directly to the self-test interface.

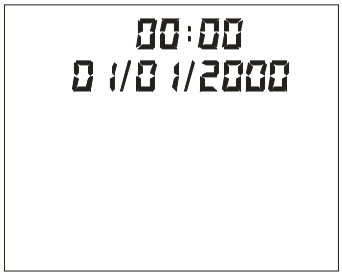


Fig.3.1 time set

Fig.3.2 self-test

Tips:

If the battery power is low, it can not boot or the battery logo flashes after boot, at this time we recommend that users replace the battery in time.

3.2 Self-test

After boot-strap, the apparatus implements self-test of 30-second, showing the number of the countdown from 30 to 0 and ending Self Test, as shown in Fig. 3.3.

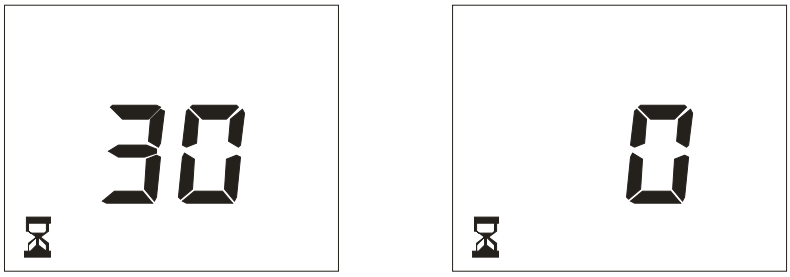


Fig.3.3 Self-test countdown

Ending the self-test, apparatus enter the ready status after a beep, show

the main interface.

Tip:

During the self-test, please do not insert Ultrasnap swab and ensure the hatch tightly. If the taking logo flashes, then remove the Ultrasnap swab; If the hatch logo linkes, close the hatch.

When the equipment keeps free more than 1 minutes, the equipment will start the self-test procedures.

3.3 Ready

After the Self-test finished, the equipments enter the Ready condition, which is the main interface (Fig.3.6).

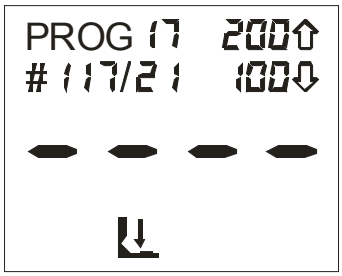


Fig.3.6 Ready condition（Main Interface）

At this point, it needs keyboard operation, set up POWER, UP, DOWN, OK, SET, TIME, a total of six keys, the following sections will introduce each key's function in details:

key	function
	Turn on/off
	Show time, to confirm settings
SET	Start Detecting point numbering settings, group settings and time settings;
	See the results; set the detection point number,

group number and time

OK Start testing; confirm detection, group number and time

3.4 Turn off

Press turn on/off key , turn off after a beef.

Tip:

In order to avoid Shut down accidents, during the process of sample testing, all the keyboard keys will be locked in the status, when this measurement ends, the lock status will be removed.

3.5 Low-power Mode

If the equipment is switched on, apparatus permit a maximum standby time of 10 minutes, when the standby time is more than 10 minutes, apparatus will automatically enter the energy-saving status with a beep.

Please press on / off button to restore.

3.6 Tips for low-power mode

Battery logo indicates battery status:

Battery logo	→	Battery status
not visible	→	Full
Visible	→	Charging
Flashing	→	Low battery, replace it immediately
Visible with “√”		Fully charged

When the battery is low, the battery logo flickers, we recommend that

users charge the battery right away.

Tip:

If out of battery, the apparatus will not boot.

Because of high temperature can reduce the battery life, please place the apparatus in the condition cool and dry.

4 Clock Configuratioin

At the first run or after replacing the batteries, it will demand you to configure time and date. The time-data configuration interface is shown in Fig.4.1.

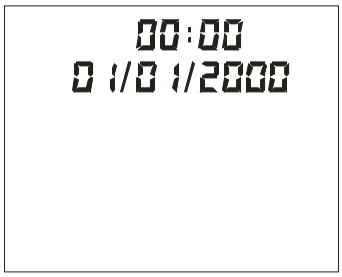


Fig.4.1

The time&date configuration goes in a repeating order of Hour, Minute, Month, Date and Year. Respectively, press ▲▼ to modify the flashing number and press OK to enter.

Tip:

If neither the OK nor ◷ is pressed, pressing SET will cancel the previous configuration. The default parameters will be displayed on the screen.

After the time&data configuration, it enters self-testing.

When finished part of the configuration, pressing SET will save your time and data configuration. The time and data setup ends with several defaulted.

5 Set PROG Num, Group Num, and Threshold

When the ATP-TL is ready for detection, press SET and you may set program number (figure 5.1). Press ▲ and ▼ to change the value of program number. Press OK and continue to set upper threshold, lower threshold and group number.

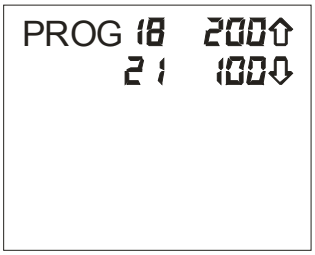


figure 5.1 set PROG num

The setting procedure is showed in following figure (figure 5.2).

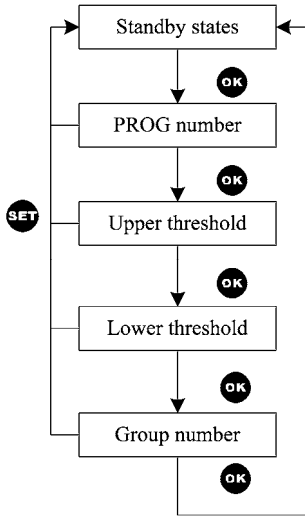


Figure 5.2 setting procedure

6 Detection and Result

Tips: Before detection, read the user's manual of Ultrasnap.

6.1 Detection

After self-detection, the ATP-TL is ready to work. The LCD displays as follows (figure 6.1).

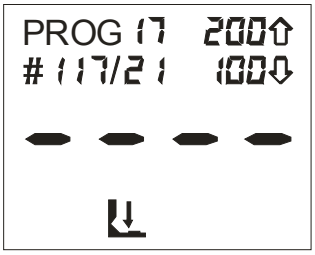


Figure 6.1 standby

It shows the PROG number, negative and positive threshold, and serial number of the result.

Note: The memory of instrument could stores 1000 results. When over more 900 results are restored, the mark of is shining.

Operation steps are as follows(figure 6.2).

Prepare the Ultrasnap swap.

Make sure the exterior surface of Ultrasnap clean and dry.

Open the lid, put the Ultrasnap into the instrument and close the lid.

Press OK , and it begins to countdown 15 seconds.

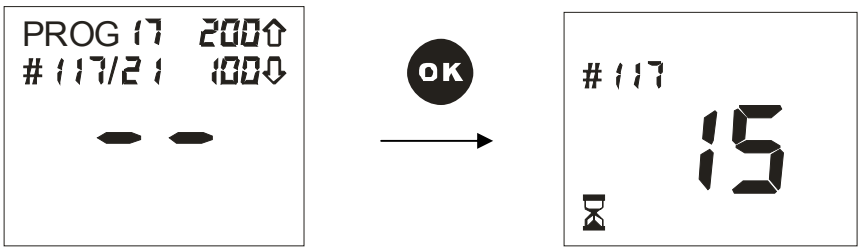


Figure 6.2 detection countdow

Tips: *Keep the instrument vertical and stable when it is working.*

Result is displaying after countdown (figure 6.3).

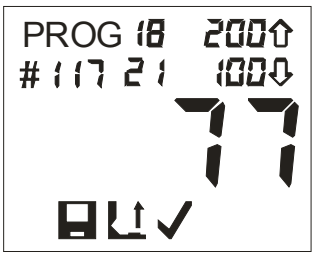


Figure 6.3 detection result

Warning: Make sure the exterior surface of ultrasnap is clean and dry before detection. Do not insert any other things except the ultrasnap.

6.2 View the results

Press ▲ and ▼, you may view the detection results stored in the instrument (figure 6.4).

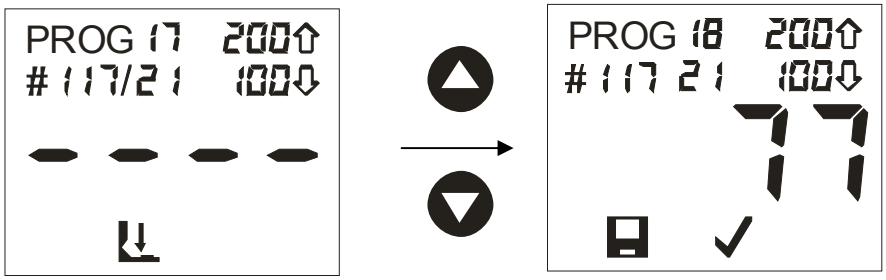


Figure 6.4 view the results

6.3 Delete the result

After viewing the result, you can delete all the results stored in the instrument. The operation steps are showed in following figures (figure 6.5).

Tips: When pressed SET *, the* 🖫 *and* ✗ *appear on the LCD. Press* OK *, and delete all the records. Otherwise press* SET *and quit.*

Warning: Data on the ATP-TL *can not be recovery once it was deleted.*

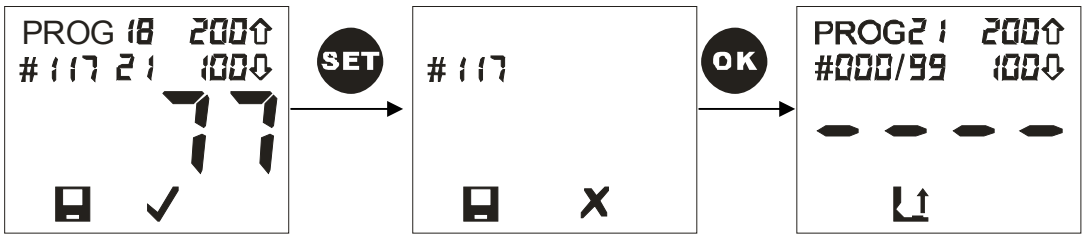
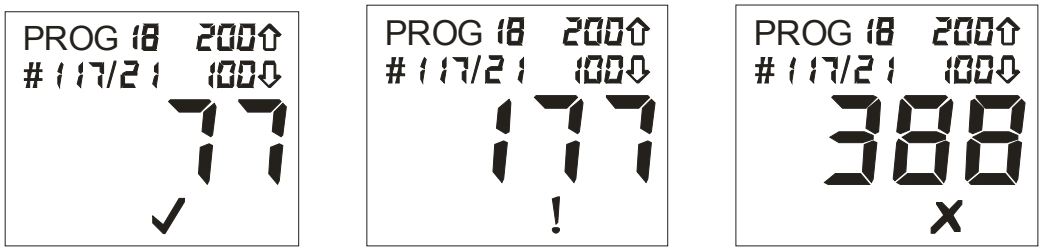


Figure 6.5 delete the results

7 Result judgment

The ATP-TL has 100 programs (PROG 0~99), and each program has a couple of upper and lower thresholds. The ATP-TL comprises the detection results with the couple of thresholds automatically and draws a conclusion whether the result is pass, warning or error (figure 7.1).



pass **warning** **error**

Figure 7.1 result judgment

The judgment basis are showed in following chart.

Detection result	Judgment
result ≤ lower threshold	✓ pass
lower threshold < result≤upper threshold	! warning
result > upper threshold	✗ error

8 Software of the PC

8.1 Software installation

Put the CD into CD-combo, run the installation file and install the software according to the installation prompt.

Tips : This software is working based on '.NET Framework'. You could download the newest version of '.NET Framework' from Microsoft official website and install, or you could install the '.NET Framework 2.0' embed in this software (figure 8.1).

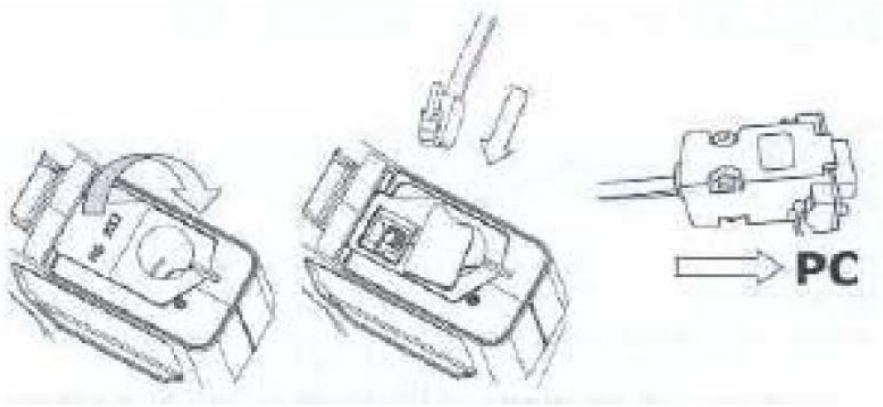
Without the '.NET Framework', our software does not work.

Figure 8.1 install the '.NET Framework 2.0'

Finishing the installation, you can run the ATP Import program.

Data Transmission

Connect the ATP-TL and PC with the communication line provided by the company (figure 8.3).



RS232 interface one end of communication line connect with ATP-TL, the other end connect with COM port of PC.

Figure 8.3 connection

Run ATP Import, select the correct port and file path. Press , startup the ATP-TL. It will display PC if connection is successful (figure 8.4).

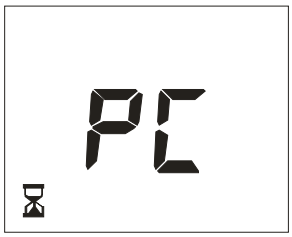


Figure 8.4

Press Import, data transmission ready.

Choose Y, start transmission. Choose N, stop transmission

If you want to terminate the transmission, press cancel

After transmission, software will show you a suggestion. Choose Y to delete the data on ATP, choose N to finish the transmission

When finishing the transmission, press ‘close com’, you can connect PC with another ATP-TL and continue to transmit data on other ATP-TL.

Finally, press ‘exit’ and terminate all data transmissions.
Warning: Data on the ATP-TL *can not be recovery once it was deleted. Make sure you have the records before you delete.*

8.2 ***Data file***

Data of detection results are saved as excel files in PC.
eg:

SERIAL-NR	TEST-NR	RESULT	RLU	DOWN	UP	GROUP	PROG	TIME	DAY	DATE
827	0	error	230	100	200	0	0	1:0:3	Monday	2000.1.1
827	1	error	222	100	200	0	0	1:0:34	Monday	2000.1.1
827	2	error	214	100	200	0	0	1:0:64	Monday	2000.1.1
827	3	warning	197	100	200	0	0	1:1:23	Monday	2000.1.1
827	4	warning	168	100	200	0	0	1:3:72	Monday	2000.1.1
827	5	warning	153	100	200	0	0	1:5:0	Monday	2000.1.1
827	6	warning	135	100	200	0	0	1:6:18	Monday	2000.1.1
827	7	warning	117	100	200	0	0	1:7:67	Monday	2000.1.1
827	8	pass	92	100	200	0	0	1:9:18	Monday	2000.1.1
827	9	pass	88	100	200	0	0	1:9:48	Monday	2000.1.1
827	10	pass	88	100	200	0	0	1:9:71	Monday	2000.1.1
827	11	pass	80	100	200	0	0	1:16:8	Monday	2000.1.1

9 Warranty

- The ATP-TL is warranted for a period of one year, from date of shipment from the company, to be free from defects in material and workmanship.
- The above warranty is not applicable to defective devices with incorrect use, abnormal operation conditions, improper application, and unauthorized maintenance or alteration.

- After-sell services please call 1-416-558-1088.

10 Maintenance

Clean the instrument with dry cloth.

Warning: Do not wipe the instrument with wet cloth. Do not wash the instrument with water.
Tips: Do not clean the instrument with solvent or cleaning agent, otherwise, the plastics shell may be destroyed.

Replace the battery

Replace the battery for better results when the mark appears.
Tips: The waste batteries should be treated according to local laws.
New batteries and old batteries can not be used in series.

11 Trouble Shooting

Check the visible cracks if there appears any problem. Do not disassemble the instrument without the permission of the company.
The following aspects are possible reasons for the problems.

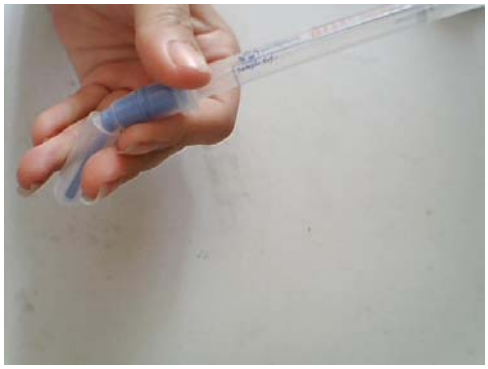
Problems	Possible Reasons
It does not startup when you press 	Electric power of battery is not enough. Wrong placement of the battery. Instrument or keyboard is damaged.
It does not shutdown when you press 	Instrument is working now. System halted: replace the battery after 10 sec. Instrument or keyboard is damaged.
Extra-ordinary shutdown	Electric power of battery is not enough. Loosing of the battery. Instrument is damaged or intensively shocked. It dose not work for 10 minutes.
LCD does not display any thing	Electric power of battery is not enough. Instrument or LCD is damaged.
Abnormal display of LCD	Instrument works in an unsuitable environment, such as too hot and too cold. The display window is broken or depressed. Instrument or LCD is damaged.
Keyboard does not work	Instrument is detecting the fluorescence. Some keys are available when specific programs are chose.
The mark is shining	Instrument or keyboard is damaged. It needs self-detecting: take out the swab and close the lid.
Results are always 0 or error.	Swaps used error. Swaps are overdue. Instrument is damaged.
RS232 does not work	Connection between the instrument and PC is error. Use wrong software. PC software is wrongly installed. Connecting wire or interface is broken. Instrument is damaged.

12 Appendix: ultrasnap operation

Ultrasnap ATP swab is an integrated device using a unique liquid-stable reagent and Snap-Valve technology to deliver unbeatable accuracy and reproducibility. Simply swab an area, snap, squeeze and read the results with the ATP-TL in just 15 seconds. Ultrasnap swab and the ATP-TL puts the most accurate, reliable and affordable ATP-monitoring system in the palm of your hand.

1

2



3

4

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6

7

1. Swab sample point. 10cm x 10cm square.

2. Place swab back in swab tube.
3. Holding the swab tube firmly, use the thumb and forefinger to break the Snap Valve by bending the bulb forward and backwards.
4. Squeeze Snap Bulb twice, expelling all liquid down swab shaft. Bathe swab bud for 5 seconds.
5. Place Ultrasnap swab in ATP-TL.
6. Close lid of ATP-TL.
7. Initiate 15 second reading by pressing 'OK'. Reading will be displayed with threshold levels and sign indicating Pass, warning or error.