

# Cell

Portable MS System

User Manual





## Thank you for purchasing the CELL Portable MS System.

CELL is a high-precision analysis instrument. For safety reasons and to ensure the normal operations of the instrument, please read this manual carefully and thoroughly before use.

To improve the product's quality and operability, minor changes may be made to the appearance, structure and software. If there is any inconsistency between the figures in this manual and the actual product, please refer to the actual product.

When the instrument cannot operate properly, please refer to the "Troubleshooting" section for solution. Please do not disassemble the instrument for maintenance. PURSPEC shall not be liable for any property loss or personal injury caused by failure to operate in accordance with this manual.

This manual is essential for the installation, usage, maintenance and troubleshooting of the instrument. Keep this instruction manual in a safe, accessible location.



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## Safety and Compliances

(This is a high-precision instrument, please follow the instructions below)

The environment of the instrument usage should conform to the following:

- Temperature 15-35° C, humidity less than 75%.
- Stable power supply with voltage 100 ~ 240VAC, 50 / 60Hz.
- Away from strong electric or magnetic fields.

The environment of long-term instrument storage should conform to the following:

- Dry and cool place where the temperature is -10 ~ 50 °C .

The usage of the instrument should conform to the following:

- Proper disposal of samples that contain poisonous, harmful and corrosive chemicals to avoid health risks toward people and the environment.
- No finger or hand insertion into the instrument to avoid personal injury.

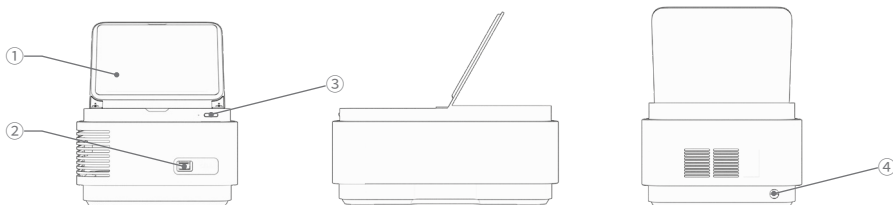
## Accessories

(In addition to the instrument, the package includes the following accessories)

- |                        |   |                             |   |
|------------------------|---|-----------------------------|---|
| • dust-proof cartridge | 1 | • manual                    | 1 |
| • power adapter        | 1 | • certificate of conformity | 1 |

# 1. Introduction

## 1.1 Schematic



① Touchscreen

③ Power switch

② Inlet

④ Power connection

## 1.2 Specification

Power Supply:	100~240VAC, 50/60 Hz	Mass Filter:	Linear ion trap (LIT)
Size:	35 x 25 x 15 cm	Mass Range:	m/z 50~1000 Da
Weight:	10kg	Resolution:	≤ 1 Da
Battery:	Bult-in rechargeable batertery	Vacuum System:	1 turbomolecular pump with 1 scroll pump
Ion Source:	Ambient ionization cartidge	Scan Rate:	20000 Da/s
Polarity:	Positvie mode and Negative mode	Operation Mode:	One click mode
Interface:	Discontinuous atmos-phere interface (DAPI)	Dynamic Range:	10 <sup>6</sup>

## 2. Installation

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This product is a high-precision analysis instrument, so violent vibrations and collisions should be avoided during installation.



The installation instructions shall be strictly followed. Do not plug in the power cord before the completion of instrument installation.

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### 2.1 Unpacking

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1. Remove the Instrument from its shipping box.
2. Check the items in the shipping box and unpack the accessories.
3. Place the instrument on a firm horizontal table.
4. Plug the power cord (provided in the accessories) into the connector.

### 2.2 Installation

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1. Go through the whole manual to have a general understanding of the product.
2. Make sure the instrument is placed on a firm horizontal table and ensure that the back and side of the instrument is at least 30cm away from the wall.
3. Plug the power cord into the socket that meets the voltage requirements mentioned before.
4. For now, the installation of the instrument has been completed. After the installation, follow the instructions below in the “3.Operation” chapter to turn on, calibrate and test the instrument.

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When removing or installing the built-in battery, keep the device in standby or off.



If in standby mode, please make sure the device is connected to mains power.

Never remove and install the built-in battery during equipment testing, calibration, or other operating conditions.

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## 3. Operation

Most functions of the instrument can be implemented via the touch screen

### 3.1 Power On

1. Make sure that the instrument is installed correctly, and the power cord is already supplied with operating voltage.
2. Turn on the instrument with the power switch on the screen board.
3. After turning on the switch, the screen would show a progress bar, as shown in Figure 3.1.

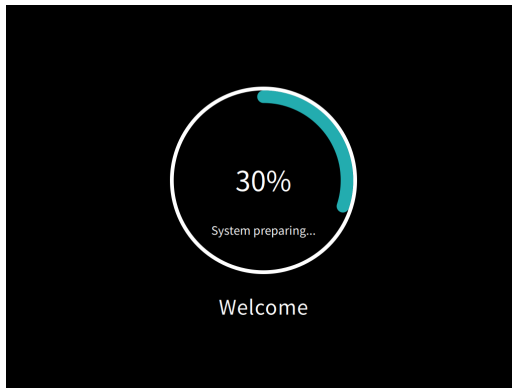


Figure 3.1 Startup View



4. After the power-on process is completed, remove the dust proof cartridge. At this time, the software will display the Main screen (as shown in Figure 3.2), and the system status is displayed as [√] (upper right corner in Figure 3.2 ④).

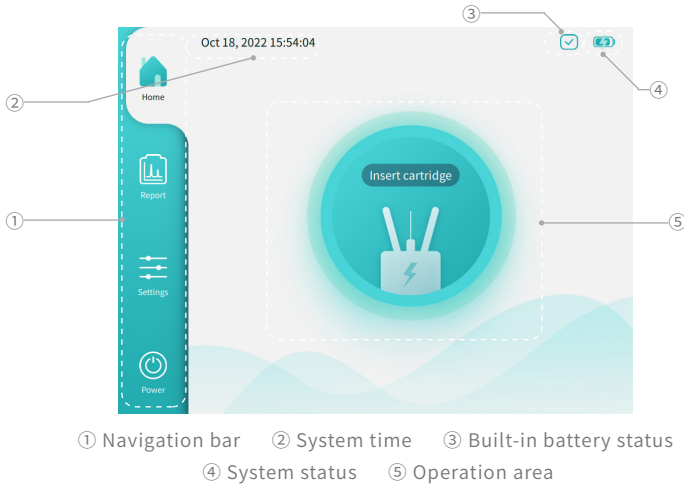


Figure 3.2 Main Screen

Normally, the instrument is ready to use after being powered on for 5-10 minutes. It is recommended to wait for another 20 minutes to warm up the instrument if possible, so that the system can be fully stabilized.



The system status may need more time to reach the working requirements when it was started up for the first time after bumpy transportation, where the system status would be displayed as [×].

## 3.2 Calibration

Please calibrate the instrument after startup, and then perform sample analysis after calibration. It is recommended to let the instrument preheat for 30min before calibration and analysis, which provides stabler results.

1. Use the calibration cartridge, as shown in Figure 3.3. Add 4-5 drops (about 150 $\mu$  L) of calibration reagent/solution to the solvent window, and insert the cartridge into the MS inlet in the front of the instrument.

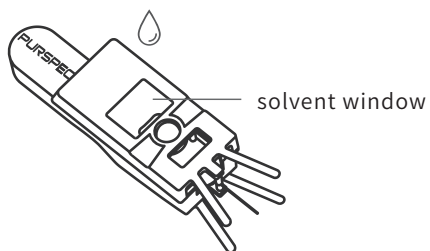


Figure 3.3 Calibration Cartridge

2. After recognizing the cartridge, the instrument would display [Calibrate now] in the operation area (Figure 3.4).

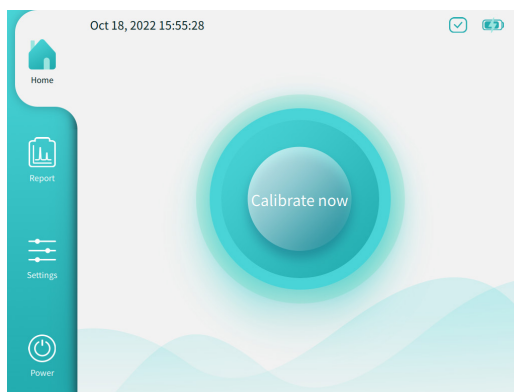


Figure 3.4 Calibration

3. Click [Calibrate now] to start the automatic calibration process.

4. After calibration, the calibration result will be shown on the pop-up calibration report.

5. Click [Save] to save the report and return to the home page.



If the calibration passed, the subsequent sample analysis may be carried out.

If the calibration failed, the instrument needs to be recalibrated.

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### 3.3 Sample Analysis

1. Select the cartridge type that is suitable for the physical properties of the target sample. Transfer an appropriate amount of sample into the cartridge with the accompanied liquid sampler and add 4-5 drops (about 150 $\mu$ L) of special solvent. For specific instructions, please refer to the manual of the cartridge.
2. Insert the cartridge into the MS inlet in the front of the instrument.
3. After the system automatically identifies the cartridge, the operation area is displayed as [Start analysis] (Figure 3.5).

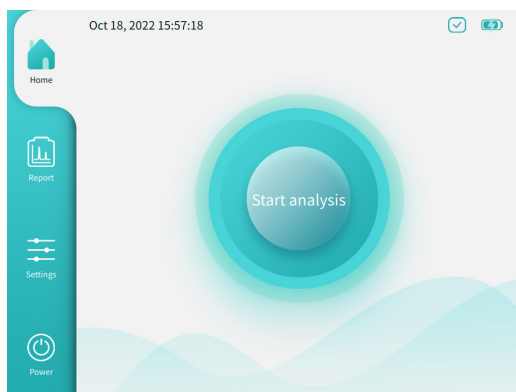


Figure 3.5 Sample analysis

4. Click [Start analysis], and the system will automatically carry out sample analysis and data analysis.
5. After the analysis is completed, the software will automatically pop up the test

report. Fill in the sample information if necessary and click [save].

6. Return to the home page to test the next sample.



To prevent cross contamination, calibration cartridges / analysis cartridges are disposable consumables and should not be reused.

Used cartridges should be treated as "hazardous waste" after use!

## 3.4 Report and History

1. In the instrument operation interface, click [report] on the left navigation bar to view the history of sample analysis and calibration (Figure 3.6).

2. Choose a history record to view the report details.

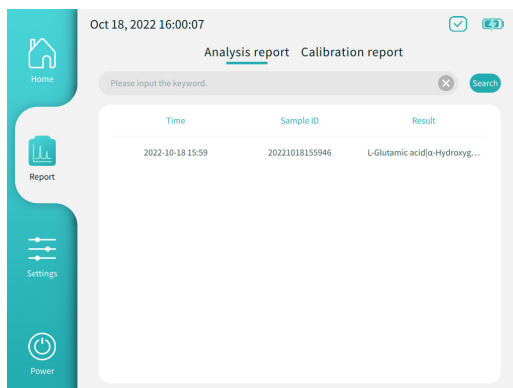


Figure 3.6 Report and History

## 3.5 Settings

On the main screen, click [Settings] on the left navigation bar to view and set related items (Figure 3.7).

1. Click [Analysis Settings] to set the institution and detection criteria.
2. Click [Date & Time] to set the system date and time.
3. Click [Wi-Fi hotspot] to set the WIFI password of the instrument.
4. Click [Languages] to select the language.
5. Click [Themes] to set the system theme.
6. Click [Storage] to view the system storage status.
7. Click [About] to view the relevant information of the instrument.

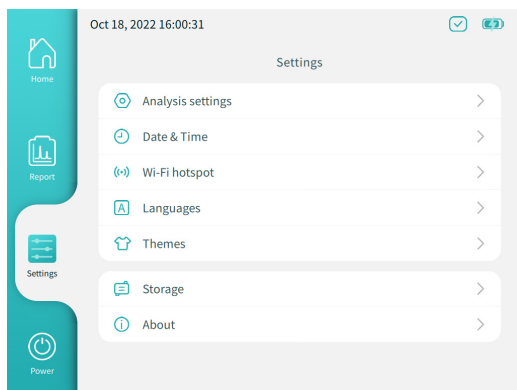


Figure 3.7 Settings

## 3.6 Shutdown and Reboot

On the main screen, click [Power] on the left navigation bar (Figure 3.8).

1. Click [Power Off] to shut down the instrument and vent the vacuum system. Wait for a few minutes to complete the shutdown operation.
2. Click [Reboot] to restart the software without venting the vacuum system.



Figure 3.8 Shutdown and Reboot

## 4. Troubleshooting

### 4.1 Common problems

Problem	Suggested Solution
After the power switch is turned on, the screen does not light up, or there is no sound from the built-in vacuum pump.	Check if the power cord is connected correctly to the appropriate voltage.
After the power switch is on for 5-10min, the system status is displayed as [X], and "communication status: fault" is displayed when the status icon is clicked.	Enter the power icon and click reboot.
After the main power switch is on for 5-10min, the system status is displayed as [X], and "vacuum state: fault" is displayed when the status icon is clicked.	Wait at least 10 min before use. It is recommended to wait at least 30 minutes after transportation.
After the main power switch is on for 5-10min, the system status is displayed as [X], and "storage state: insufficient space" is displayed when the status icon is clicked.	If the memory space is less than 500MB, please contact the service engineers to export the data.
During normal operation, the system status is displayed as [X].	Wait for 10 minutes. If the system status remains as [X], reboot the instrument.
The cartridge is not recognized by the instrument.	Make sure the current screen is [Home], and try to move the cartridge slightly. Ensure that the QR code is not scratched or folded. If there is no white light flashing at the MS inlet, enter the power interface and click [reboot].
The system displays "Invalid QR code" .	Consult service engineers to confirm whether the corresponding database have been purchased.

Problem	Suggested Solution
Calibration failed	<p>Check whether proper amount of calibration solution was added to the calibration cartridge.</p> <p>Check that the capillary of the calibration cartridge stays in place.</p> <p>Check that the calibration cartridge is not expired.</p> <p>Replace the calibration cartridge to calibrate again.</p>
The system displays "injection failed, please try again"	<p>Check whether appropriate amount of special solvent was added to the cartridge.</p> <p>Check that the capillary of the cartridge stays in place.</p> <p>Replace the cartridge and test again.</p>
When the main screen stays in the calibration / analysis state, there is no periodic "click" sound (DAPI switch sound) for a long time.	<p>Wait for 2 minutes. If the result report is not displayed, please click [stop calibration] / [stop detection] to return to the home page and perform calibration / detection again.</p> <p>If this situation occurs again, click [stop calibration] / [stop detection], and reboot the instrument.</p>
The Main Screen is black, or it is stuck and unable to be operated.	<p>When the screen is black, please touch the screen to confirm that the system is not in sleep state.</p> <p>Press and hold the instrument switch to force the instrument to be turned off, and then turn it back on again. MS inlet, enter the power interface and click [reboot].</p>

## 4.2 Other Problems

If the problem observed is not within the faults listed above, or the operation problem cannot be solved using the suggested solution, please contact the service engineers in time. Do not attempt to disassemble or repair the instrument by yourself.



## 5. Maintenance

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This product is a high precision instrument. Although the instrument has been optimized to reduce the routine maintenance, you still need to pay attention to the following notes:

### 5.1 Cleaning

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1. After the sample analysis, please wipe the MS inlet to prevent corrosion.
2. When the instrument is not in use, please insert the dust-proof cartridge into the MS inlet.
3. Service engineers shall maintain the injection interface (DAPI) under warranty.

### 5.2 Calibration Frequency

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1. It is recommended to calibrate the instrument at least once a week if the instrument is kept on for a long time.
2. After turning on the instrument, it is recommended to wait at least 30 min before calibration and analysis.
3. It is recommended to calibrate the instrument every 30min after instrument moving according to the status of the instrument.

### 5.3 Storage

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1. When the instrument is not in use for one week: If there is no special requirement, please keep the instrument on and there is no need to turn it off. Make sure the surroundings are without dust or violent vibrations.

2. When the instrument is not in use for more than a week: Please shut down the instrument according to the shutdown procedure in the manual, and cover the instrument to prevent dust.

3. When the instrument is not in use for more than a month: It is recommended to pack and store the instrument according to the requirements of storage environment.before calibration and analysis.

Do not put your fingers into the MS inlet in the front of the instrument, otherwise instrument damage or personal injury may occur.



# Warranty

Please read the following terms carefully before using this product

## **(1) Warranty period**

The warranty has a duration of 12 months from the date that the instrument arrives at the customer specified address. If there is other stipulation of warranty period in the contract, the warranty duration specified in the contract shall prevail. The warranty covers the repairment and maintenance, but not the transportation expenses.

## **(2) Warranty coverage**

1. The appearance of the product is damaged when the package is first opened.
2. Under normal operation or storage conditions, the product fails without disassembly or repairment, and is verified to be damaged by non-human causes through the inspection by the company' s authorized personnel.

## **(3) Warranty exclusions**

1. Man-made damage.
2. Damage caused by inappropriate storage.

**(4) We provide paid maintenance services under the following circumstances:**

1. Product damage caused by nonstandard operation or some irresistible factors.
2. Contamination and deformation of instrument caused by inappropriate storage.
3. Damage due to unauthorized attempts to repair.
4. Damage that occurs outside the warranty period.

**(5) We refuse to provide maintenance services under the following circumstances:**

1. It is not a genuine product of PURSPEC, and there is no purchase certificate or the contents stated in the purchase certificate is inconsistent with the product;
2. Product accessories and other auxiliary functional objects (such as supporting frame, front panel film, etc.).Other warranty exclusions stated in the contract.

# Certification

## FCC Certification

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **Important:**

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user' s authority to operate the equipment.

### **NOTE:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **IC Certification**

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

*Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

## **EMF Certification**

To maintain compliance with the RF exposure requirement, a separation distance of 20 cm between the device and the human should be maintained.

*Déclaration d'exposition Attention: Cet émetteur doit être installé pour fournir une distance de séparation d'au moins 20 cm de toute personne.*



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