Temtop

PMD 371

Particle Counter
User Manual

Notices about this User Manual

© Copyright 2020 Elitech Technology, Inc. All Rights Reserved in the United States and other countries. It is prohibited to use, arrange, duplicate, transmit, translate, store as a part or whole of this User Manual without the written or any form of permission of Elitech Technology, Inc.

Technical Support

If you require support, please advise this User Manual to resolve your problem. If you are still experiencing difficulty or have further questions, you may contact a customer service representative during business hours Monday to Friday, 8:30 a.m. to 5:00 p.m. (Pacific Standard Time).

USA:
Tel: (+1) 408-898-2866
Sales: sales@temtopus.com

China:
Tel: (+86) 400-996-0916
Email: sales@temtopus.com.cn

United Kingdom:
Tel: (+44)208-858-1888
Support: service@elitech.uk.com

Brazil:
Tel: (+55)51-3939-8634
Sales: brasil@e-elitech.com

⚠ CAUTION!

Please read this manual carefully! Use of controls or adjustments or operation other than those specified in this manual, may cause danger or damage to the monitor.

⚠ WARNING!

- The monitor features an internal laser transmitter. Do not open the monitor housing.
- The monitor shall be maintained by the professional from the manufacturer.
- Unauthorized maintenance may cause hazardous radiation exposure of the operator to laser radiation.
- Elitech Technology, Inc. accepts no responsibility for any malfunction that are caused by improper handling of this product, and such malfunction will deem as falling outside the conditions of Warranty and Services outlined in this User Manual.

⚠ IMPORTANT!

- PMD 371 has been charged and can be used after unpacking.
- Do not use this monitor to detect heavy smoke, high-concentration oil mist, or high-pressure gas to avoid laser tip damage or air pump block.

After opening the monitor case, make sure that the parts in the case are complete according to the following table. If anything is missing, please contact our company.

Standard Accessories



PMD 371
&
PU Protective Case



Battery Charger



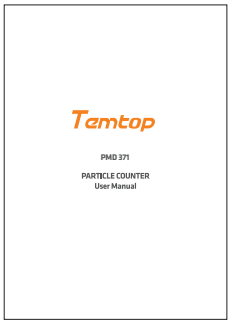
RS-232 Serial
Converter Cable



AC Power Cord



Filter Tube



User Manual



Carrying Case



USB Flash Drive

Optional Accessories



Flow Meter



Filter Element

Table of Contents

1. Introduction 4

2. Product Overview 4

3. Operations 5

3.1 Power ON 5

3.2 Settings Menu 7

3.2.1 System Setting 7

3.2.2 System Calibration 10

3.2.3 Data History 11

3.2.4 System Information 14

3.3 Power OFF 14

4. Protocols 15

4.1 RS-232 Serial Communication 15

4.1.1 Register List 15

4.1.2 Function Code Description 17

4.1.3 Serial Setting 17

4.1.4 Application Example 17

4.2 USB Communication 19

5. Maintenance 20

5.1 Maintenance Schedule 20

5.2 Zero Calibration 20

5.3 Flow Calibration 21

5.4 Filter Element Replacement 21

5.5 Annual Maintenance 22

6. Troubleshooting 22

7. Specifications 23

8. Warranty & Services 24

1. Introduction

PMD 371 is a small, light, and battery-powered particle counter with seven channels for outputs the number of 0.3μm, 0.5μm, 0.7μm, 1.0μm, 2.5μm, 5.0μm, 10.0μm particles, while simultaneously detecting the concentration of five different particles, including PM1, PM2.5, PM4, PM10, and TSP.

With a large display screen and seven buttons for operation, the monitor is simple and efficient, suitable for fast detection in multiple scenarios. The internal high-performance lithium battery allows the monitor to run continuously for 8 hours. PMD 371 also has a built-in 8GB large-capacity storage and supports two communication modes: USB and RS-232. The detected data can be viewed directly on the screen or exported through the USB port for analysis.

2. Product Overview



Fig. 1

① Intake Duct	② Display Screen	③ Buttons	④ PU Protective Case
⑤ USB Port	⑥ 8.4V Power Port	⑦ RS-232 Serial Port	

Button Functions

POWER	Hold for 2 seconds to turn on/off the instrument.
MENU/OK	When the instrument is on, press to enter MENU interface; From the MENU screen, press to enter the selection.
SHIFT	Press to switch the main screen. Press to switch options.
	Press to back to the previous status.
START/STOP	Press to start/stop sampling.
	Scroll up the options in the Menu interface; Increase parameter value.
	Scroll down the options in the Menu interface; Decrease parameter value.

3. Operations

3.1 Power ON

Press and hold POWER for 2 seconds to power on the instrument, and it will display an initialization screen (Fig 2).

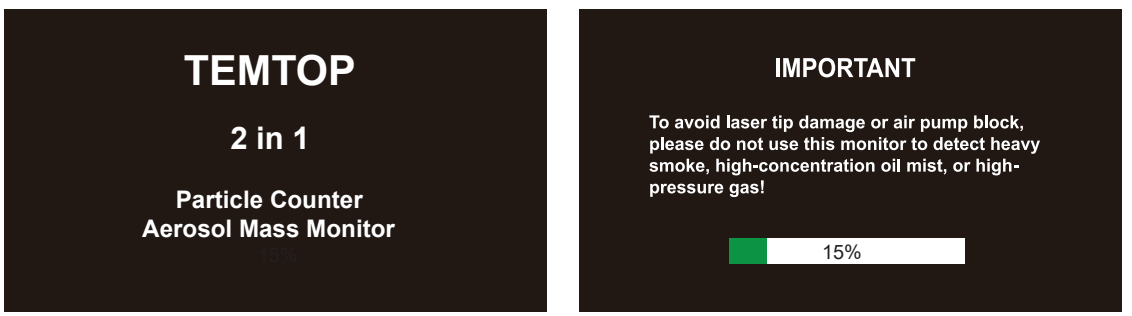


Fig. 2

After initialisation, the instrument enters the main particle count interface, press SHIFT to switch to the main mass concentration interface, and by default no measurement is initiated to save power (Fig. 3)or maintains the state when the instrument was last switched off.

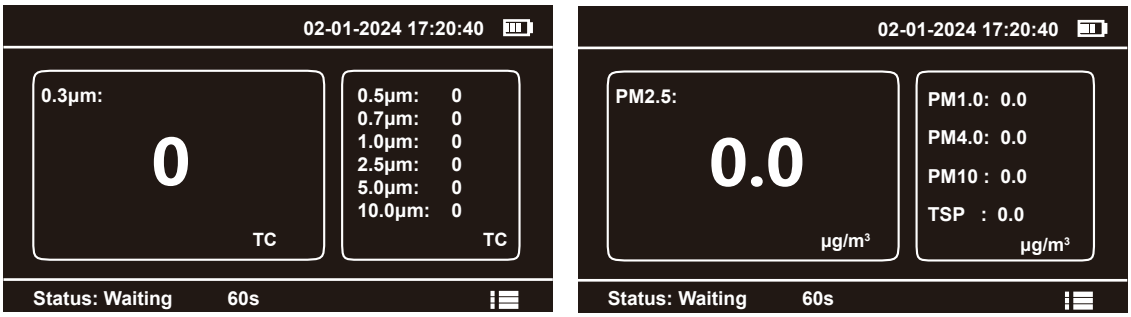


Fig. 3

Press START/STOP key to start detection, the interface real-time display of the number of particles of different sizes or mass concentration, press ▲ or ▼ key to switch the main view box display of the measurement items, the bottom status bar shows the sampling countdown. The instrument defaults to continuous sampling. During the sampling process, you can press START/STOP key to pause the sampling (Fig. 4).

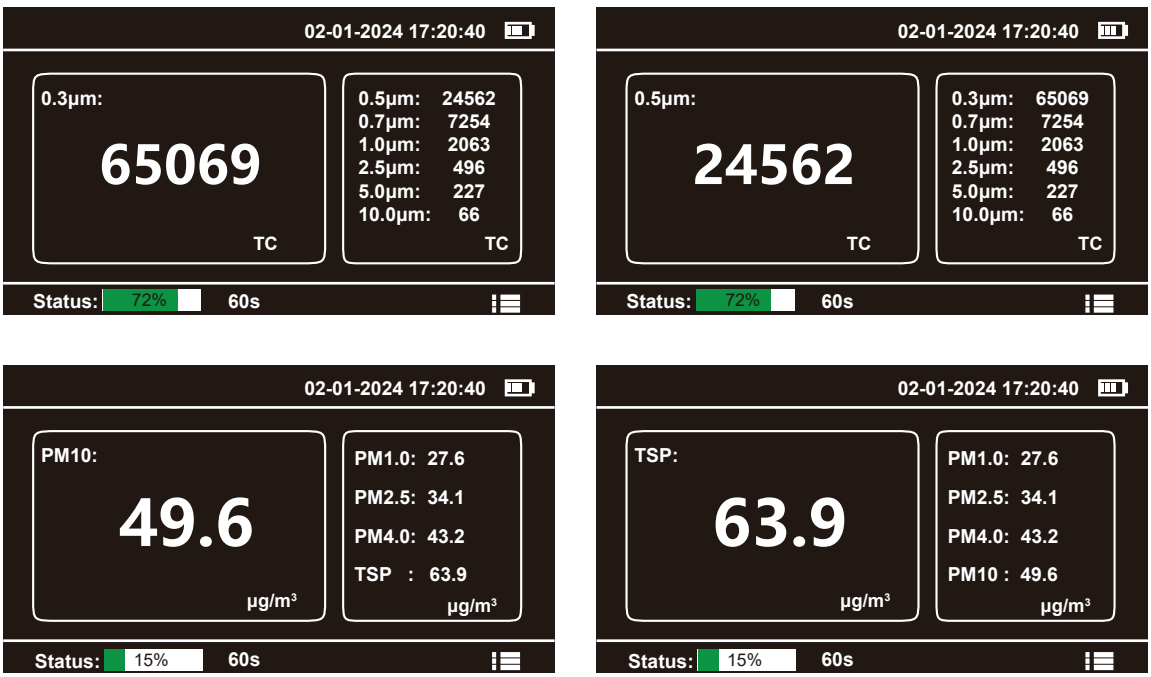


Fig. 4

3.2 Settings Menu

Press MENU/OK to enter the MENU interface, then press ▲ or ▼ to switch between the options. Press MENU/OK to enter your preferred option to view or change settings (Fig. 5).

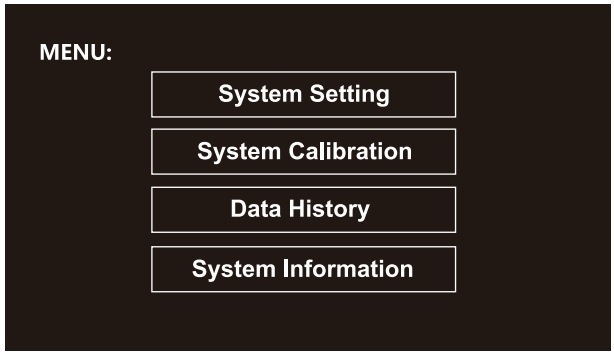


Fig. 5

MENU options are as follows:

Menu	Display as...	Description
System Setting	Setting	Set system time, sample, COM, language, backlight and auto off
System Calibration	Calibration	Calibrate zero,k-Factor and flow
Data History	History	Query, download and delete the data
System Information	Information	Display system information

3.2.1 System Setting

In the system setting interface MENU->Setting, you can set time, sample, COM, language, Backlight Adjustment and Auto off. Press ▲ or ▼ to switch the options (Fig.6) and press MENU/OK to enter.

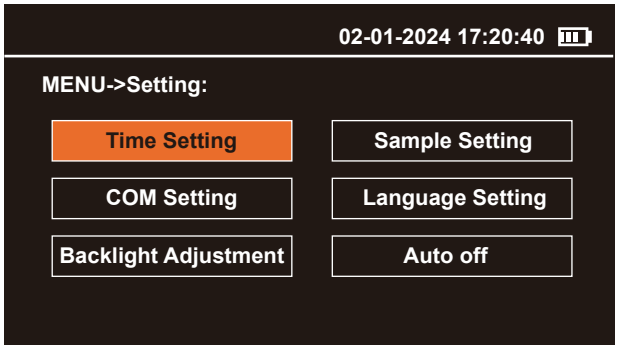


Fig.6

• Time Setting

Press the MENU/OK key to enter the time setting interface, press the SHIFT key to switch the option, press the ▲ or ▼ key to increase or decrease the value, switch to the **Save** option when the setting is completed, press the MENU/OK key to save the setting (Fig. 7).

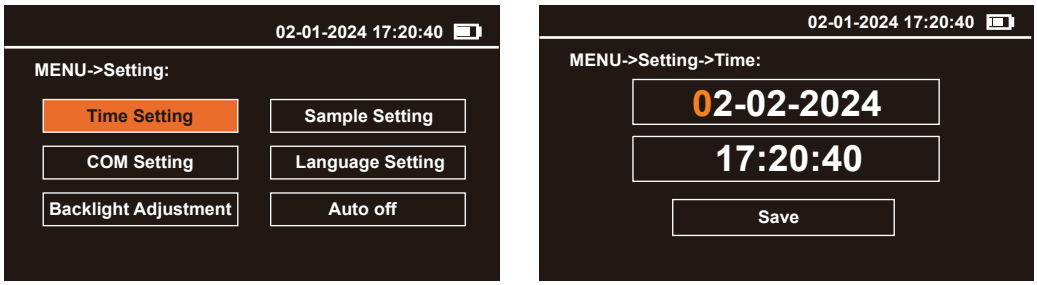


Fig. 7

• Sample Setting

In the system setting interface MENU->Setting, press ▲ or ▼ to switch to the **Sample Setting** option (Fig 8), and then press MENU/OK to enter the sample setting interface. In the sample setting interface you can set the sample unit, sample mode, sample time, hold time.

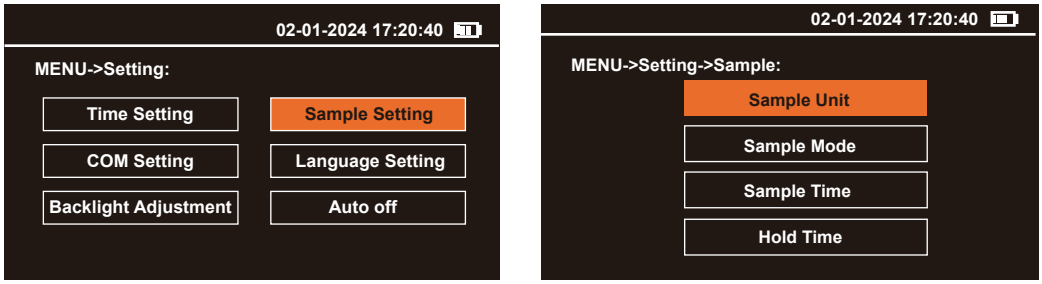


Fig. 8

• Sample Unit

Press the MENU/OK key to enter the sampling unit setting interface, the mass concentration is kept as μg/m³, the particle counter can select 4 units: pcs/L, TC, CF, m³. Press ▲ or ▼ key to switch the unit, when the setting is finished, press SHIFT key to switch to **Save**, press MENU/OK to save the setting (Fig. 9).

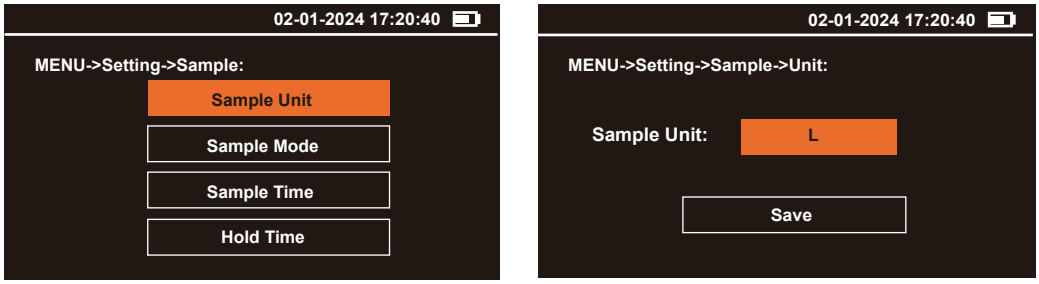


Fig. 9

• Sample Mode

Press MENU/OK key to enter the sampling mode setting interface, press ▲ or ▼ key to switch to manual mode or continuous mode, press SHIFT key to switch to **Save** after setting is completed, press MENU/OK key to save the setting (Fig. 10).

Manual Mode: After the sampling time reaches the set sampling time, the product status changes to wait and stops the sampling work.
Continuous Mode: Continuous operation according to the set sampling time and hold time.

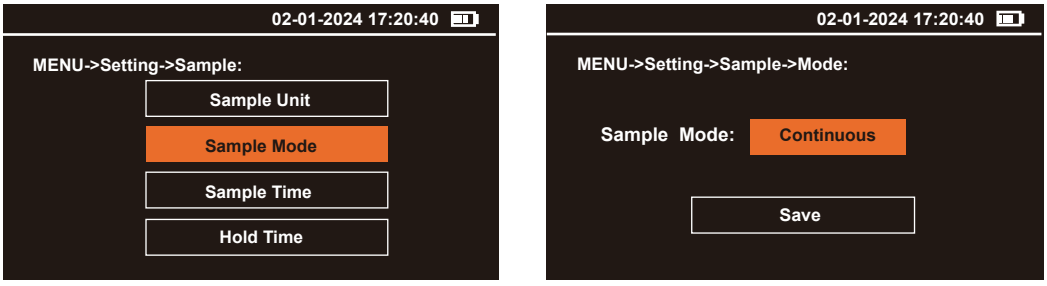


Fig. 10

• Sample Time

Press MENU/OK key to enter sampling time setting interface, sampling time 1min, 2min, 5min, 10min, 15min, 30min, 60min is optional. Press ▲ or ▼ key to switch the sampling time, press SHIFT key to switch to **Save** after setting is completed, press MENU/OK key to save the setting (Fig. 11).

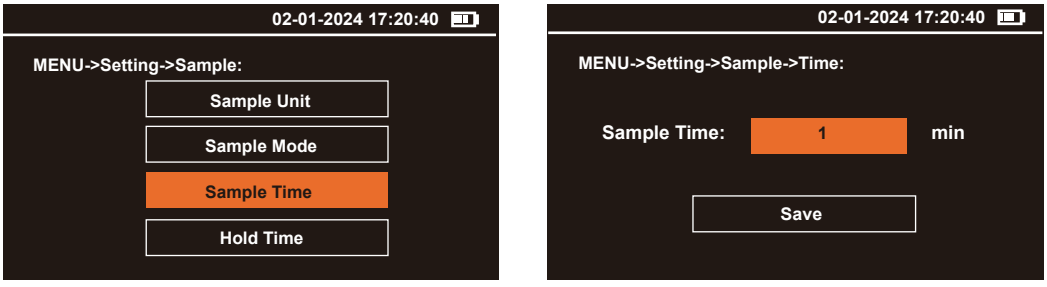


Fig. 11

• Hold Time

Press MENU/OK key to enter the hold time setting interface, in continuous sampling mode, you can select the setting from 0-9999s. Press ▲ or ▼ key to increase or decrease the value, press SHIFT key to switch to **Save** after setting is completed, press MENU/OK to save the setting (Fig. 12).

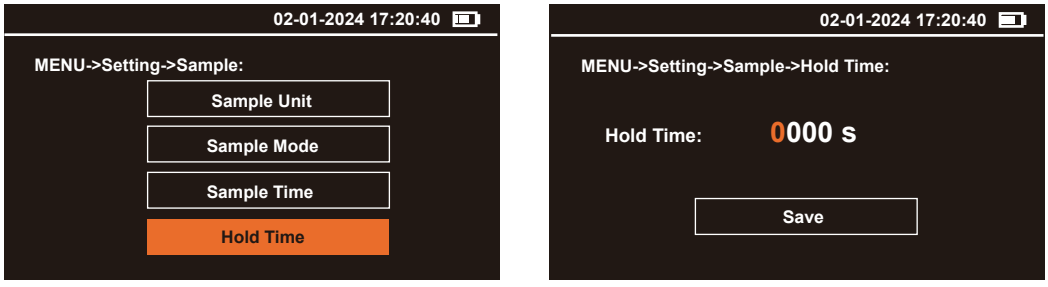


Fig. 12

• COM Setting

In the system setting interface MENU->Setting, press ▲ or ▼ to switch to the COM Setting option, and then press MENU/OK to enter the COM Setting interface. In the COM Setting interface you can Press ▲ or ▼ to select the baud rates among three options: 9600, 19200, and 115200. Then press SHIFT to switch to **Set COM** and press MENU/OK to save the setting (Fig.13).

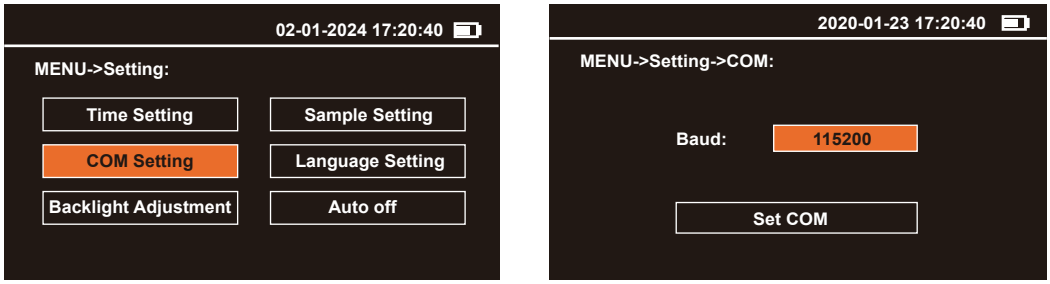


Fig. 13

• Language Setting

In the system setting interface MENU->Setting, press ▲ or ▼ to switch to the Language Setting option, and then press MENU/OK to enter the Language Setting interface. In the Language Setting interface you can Press ▲ or ▼ to switch to English or Chinese. Then press SHIFT to switch to **Save** and press MENU/OK to save the setting (Fig.14).

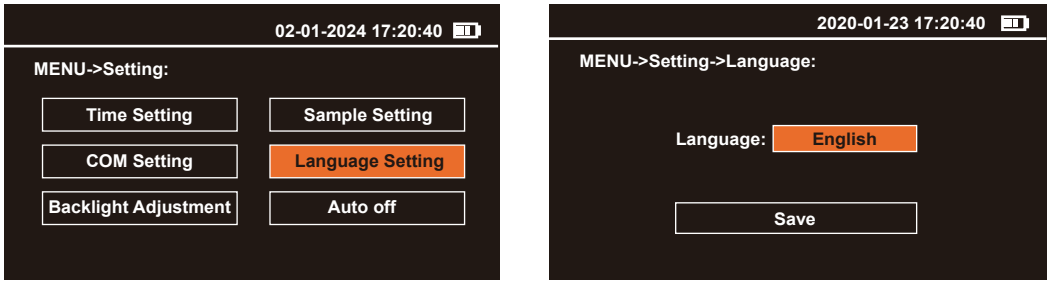


Fig. 14

• Backlight Adjustment

In system setting interface MENU->Setting, press ▲ or ▼ key to switch to Backlight Adjustment option, then press MENU/OK key to enter Backlight Adjustment interface. In Backlight Adjustment, you can press ▲ or ▼ key to switch 1, 2, 3 total 3 levels of brightness. Then press SHIFT to switch to **Save** and press MENU/OK to save the setting (Fig.15).

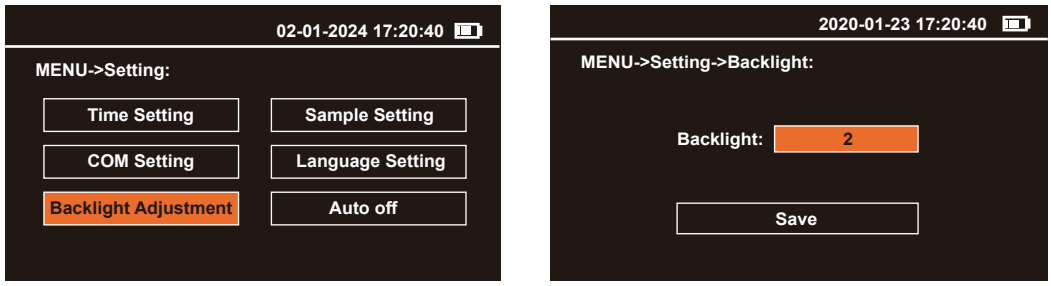


Fig. 15

- **Auto off**

IIn system setting interface MENU->Setting, press ▲ or ▼ key to switch to Auto off option, then press MENU/OK key to enter Auto off interface. In Auto off, you can press ▲ or ▼ key to switch Enable and Disable. Then press SHIFT to switch to **Save** and press MENU/OK to save the setting (Fig. 16).

Enable: The product does not switch off during continuous operation in measurement mode.
Disable: If there is no operation for more than 10 minutes in the disabled mode and wait state, the product will automatically shut down.

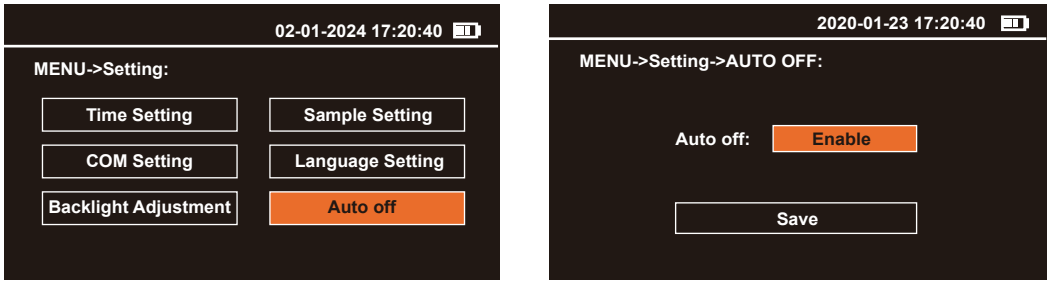


Fig. 16

3.2.2 System Calibration

Press MENU/OK to enter the MENU interface, then press ▲ or ▼ to switch to System Calibration. Press MENU/OK to enter the System Calibration interface.
In the system setting interface MENU->Calibration, you can operate Zero Calibration, Flow Calibration and K-Factor Calibration. Press ▲ or ▼ to switch the option and press MENU/OK to enter (Fig.17).



Fig. 17

- **Zero Calibration**

Before start, please install the filter and the air inlet according to the prompt reminder on the display. Please see **5.2 Zero Calibration** for more installation details.
Press MENU/OK to start the calibration. It takes about 180 seconds countdown. After the countdown finishes, the display prompts reminder to confirm the calibration finishes successfully and will returns to the MENU-Calibration interface automatically (Fig. 18).



Fig. 18

- **Flow Calibration**

Before start, please install the flow meter to the air inlet as prompt on the display. Please see **5.3 Flow Calibration** for full installation operation.
Under Flow Calibration interface, press MENU/OK to start calibrating. Then press ▲ or ▼ to increase or decrease the value until the flow meter reading reaches 2.83 L/min. After the setting finishes, press MENU/OK to save the setting and exit (Fig. 19).

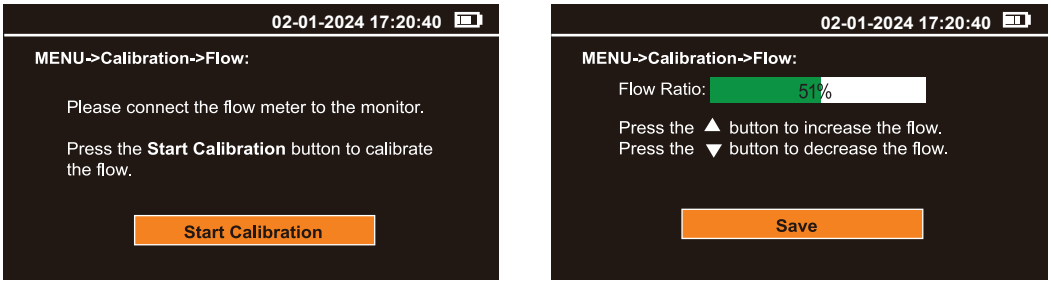


Fig. 19

- **K-Factor Calibration**

Press MENU/OK to enter the K-factor calibration interface for mass concentration. Press SHIFT to switch the cursor, press ▲ or ▼ to increase or decrease the value, press SHIFT key to switch to Save after setting is completed, press MENU/OK key to save the setting . (Fig. 20).

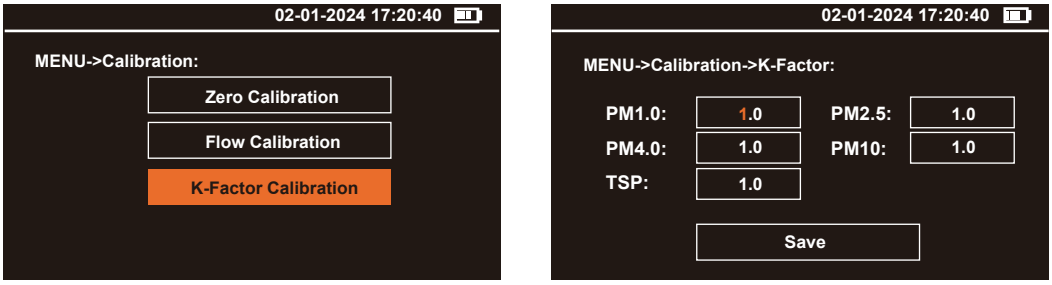


Fig. 20

3.2.3 Data History

Press MENU/OK to enter the MENU interface, then press ▲ or ▼ to switch to Data History.
Press MENU/OK to enter the Data History interface.
In the Data History interface MENU->History, you can operate Data Query, History Download and History Deletion. Press ▲ or ▼ to switch the option and press MENU/OK to enter (Fig.21).



Fig. 21

• Data Query

Under the query screen, you can query the data of particle number or mass concentration by month. Press ▲ or ▼ to select particle number or mass concentration, press SHIFT to switch the **Enter** option, press MENU/OK to enter the month selection interface, by default, the system will automatically recommend the current month. If you need data for other months, press SHIFT to switch to the Year and Month option, and then press ▲ or ▼ to increase or decrease the value. When finished, press SHIFT to switch to the **Query** and press MENU/OK to enter (Fig. 22).



Fig. 22

The displayed data is sorted in descending time where the latest data is on the last page. Press ▲ or ▼ to turn the page (Fig. 23).

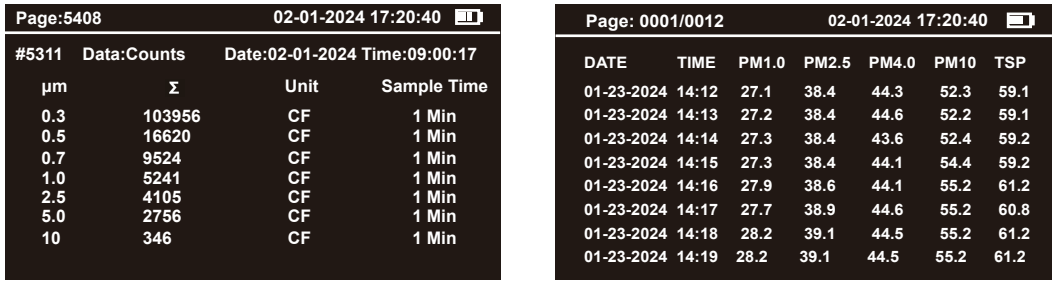


Fig. 23

• History Download

In the History Download interface, insert a USB device such as a USB flash drive or card reader into the USB port of the monitor, If the USB device is successfully connected, press MENU/OK to download the data (Fig. 24).



Fig. 24

After the data downloaded, unplug the USB device and insert it into the computer to find a folder named **TEMTOP**. You can view and analyze the data now.

If the USB device fails to connect or there is no USB device connected, the display will prompt a reminder. Please reconnect it or try again later (Fig. 25).

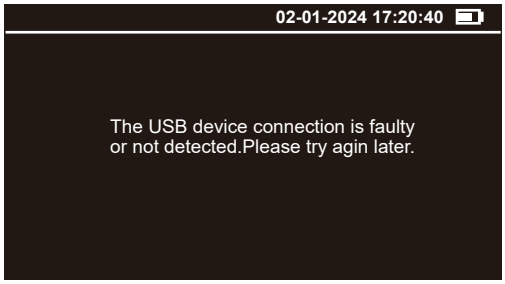


Fig. 25

- **History Deletion**

In the History Deletion interface, data can be deleted by month or all. Press ▲ or ▼ to switch options and press MENU/OK to enter (Fig. 26).

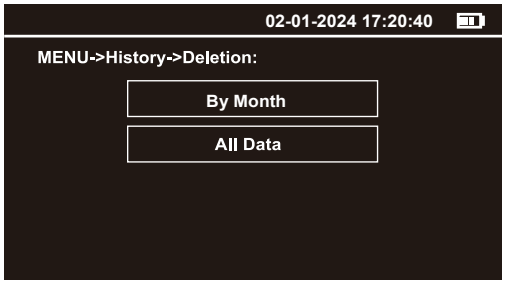


Fig. 26

For the Monthly Data interface, the current month will auto display by default. If you need to delete other months, please press SHIFT switching to the year and month options, then press ▲ or ▼ to increase or decrease the value. After complete, press SHIFT to switch to **Delete** and press MENU/OK to complete the delete(Fig. 27).

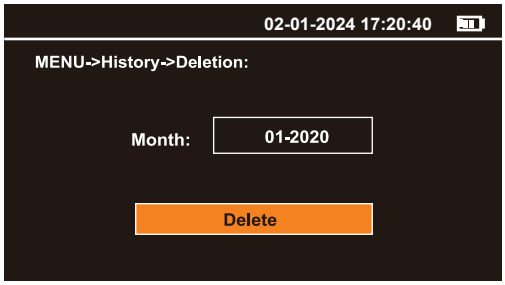


Fig. 27

For the Monthly Data and All Data interface, the display will prompt a confirmation reminder, press MENU/OK to confirm it (Fig. 28).
Wait until the delete completed, if data delete successfully, then the display will prompt a reminder and will return to the MENU-History interface automatically.



Fig. 28

3.2.4 System Information

The System Infomation interface shows the following information (Fig. 29)

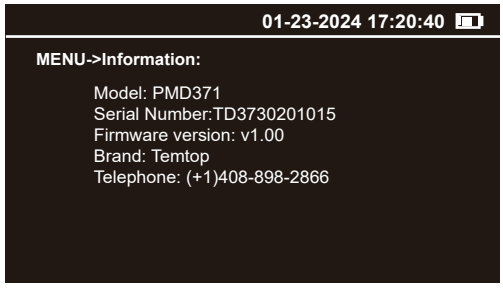
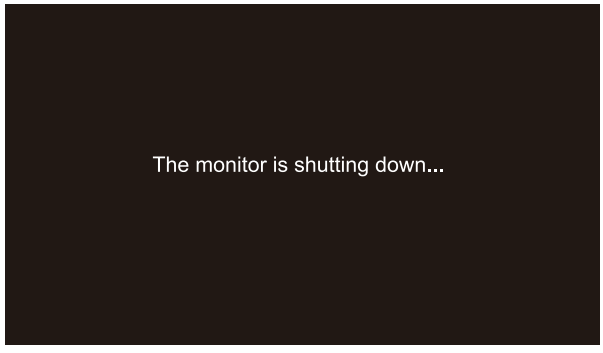


Fig. 29

3.3 Power OFF

Press and hold POWER for 2 seconds to tum off the monitor (Fig, 30).



Fig, 30

4. Protocols

PMD 371 supports two communication modes: RS-232 and USB.
RS-232 serial communication is used for real-time interaction.
USB communication is used to export data history.

4.1 RS-232 Serial Communication

The PMD 371 is based on the Modbus RTU protocol.

Description

1) Master-Slave:

Only the master can initiate communication, as the PMD 371 is a slave and will not initiate communication.

2) Packet identification:

Any message(packet) starts with a silent interval of 3.5 characters. Another silent interval of 3.5 characters marks message end.Silence interval between characters in the message needs to be kept less than 1.5 characters.
Both intervals are from the end of Stop-bit of previous byte to the beginning of the Start-bit of the next byte.

3) Packet Length:

PMD 371 supports a maximum data packet (serial line PDU, including address byte and 2 bytes CRC) of 33 bytes.

4) Modbus Data Model:

PMD 371 has 4 main data tables (addressable registers) that can be overwritten:
- Discrete input (read-only bit)
- Coil (read / write bit)
- Input register (read-only16-bit word, interpretation depends on application)
- Holding register (read / write 16-bit word)

Note: The sensor does not support bit-wise access to registers.

4.1.1 Register List

Restrictions:

1.Input registers and holding registers are not allowed to overlap;
2.Bit-addressable items (i.e., coils and discrete inputs) are not supported;
3.The total number of registers is limited: The input register range is 0x03~0x10, and the holding register range is 0x04~0x07, 0x64~0x69.

The register map (all registers are 16-bit words) is summarized in the table below.

Input Register List		
No.	**Meaning**	**Description**
0x00	N/A	Reserved
0x01	N/A	Reserved
0x02	N/A	Reserved
0x03	0.3μm Hi 16	Particles
0x04	0.3μm Lo 16	Particles
0x05	0.5μm Hi 16	Particles
0x06	0.5μm Lo 16	Particles
0x07	0.7μm Hi 16	Particles
0x08	0.7μm Lo 16	Particles
0x09	1.0μm Hi 16	Particles
0x0A	1.0μm Lo 16	Particles
0x0B	2.5μm Hi 16	Particles
0x0C	2.5μm Lo 16	Particles
0x0D	5.0μm Hi 16	Particles
0x0E	5.0μm Lo 16	Particles
0x0F	10μm Hi 16	Particles
0x10	10μm Lo 16	Particles

Holding Register List		
No.	**Meaning**	**Description**
0x00	N/A	Reserved
0x01	N/A	Reserved
0x02	N/A	Reserved
0x03	N/A	Reserved
0x04	Sample Unit Setting	0x00:TC 0x01:CF 0x02:L 0x03:M^3
0x05	Sample Time Setting	Sample Time
0x06	Start detection; Start detection	0x00:Stop detection 0x01:Start detection
0x07	Modbus Address	1~247
0x64	Year	Year
0x65	Month	Month
0x66	Day	Day
0x67	Hour	Hour
0x68	Minute	Minute
0x69	Second	Second

4.1.2 Function Code Description

PMD 371 supports the following function codes:

0x03: Read holding register 0x06: Write a single holding register

0x04: Read input register 0x10: Write multiple holding register

The remaining Modbus function codes are not supported for the time being.

4.1.3 Serial Setting

Baud rate: 9600, 19200, 115200 (see **3.2.1 System Setting-COM Setting**)

Data bits: 8

Stop bit: 1

Check bit: N/A

4.1.4 Application Example

- **Read Detected Data**

The sensor address is 0xFE or Modbus Address.

The following use "0xFE" as an example.

Use 0x04 (read input register) in Modbus to obtain detected data.

The detected data put in a register with a starting address of 0x03, the number of registers is 0x0E, and the CRC check is 0x95C1.

The master sends:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Quantity Hi	Quantity Lo	CRC16 Hi	CRC16 Lo
0xFE	0x04	0x00	0x03	0x00	0x0E	0x95	0xC1

The slave responds:

Slave Address	Function Code	Quantity	0.3μm Hi 16 Hi	0.3μm Hi 16 Lo	0.3μm Lo 16 Hi	0.3μm Lo 16 Lo	0.5μm Hi 16 Hi	0.5μm Hi 16 Lo
0xFE	0x04	0x1C	0x00	0x02	0x34	0x24	0x00	0x02

0.5μm Lo 16 Hi	0.5μm Lo 16 Lo	0.7μm Hi 16 Hi	0.7μm Hi 16 Lo	0.7μm Lo 16 Hi	0.7μm Lo 16Lo	1.0μm Hi 16 Hi	1.0μm Hi 16 Lo	1.0μm Lo 16 Hi
0x34	0x24	0x00	0x02	0x34	0x24	0x00	0x02	0x34

1.0μm Lo 16 Lo	2.5μm Hi 16 Hi	2.5μm Hi 16 Lo	2.5μm Lo 16 Hi	2.5μm Lo 16 Lo	5.0μmHi 16 Hi	5.0μm Hi 16 Lo	5.0μm Lo 16 Hi	5.0μm Lo 16 Lo
0x24	0x00	0x02	0x34	0x24	0x00	0x00	0x08	0xE8

10.0μm Hi 16 Hi	10.0μm Hi 16 Lo	10.0μm Lo 16 Hi	10.0μm Lo 16 Lo	CRC16 Hi	CRC16 Lo
0x00	0x00	0x08	0xE8	0xD3	0xF5

- **Start Detection**

The sensor address is 0xFE.

Use 0x06 (write a single holding register) in Modbus to start the detection.

Write 0x01 to register 0x06 to start detection. The starting address is 0x06, and the registered value is 0x01. CRC calculated as 0xBC04, first sent in low byte.

The master sends:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x06	0x00	0x06	0x00	0x01	0xBC	0x04

The slave responds:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x06	0x00	0x06	0x00	0x01	0xBC	0x04

- **Stop Detection**

The sensor address is 0xFE.

Use 0x06 (write a single holding register) in Modbus to stop the detection.

Write 0x01 to register 0x06 to start detection. The starting address is 0x06, and the registered value is 0x00. CRC calculated as 0x7DC4, first sent in low byte.

The master sends:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x06	0x00	0x06	0x00	0x00	0x7D	0xC4

The slave responds:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x06	0x00	0x06	0x00	0x00	0x7D	0xC4

- **Set Modbus Address**

The sensor address is 0xFE.

Use 0x06(write a single holding register) in Modbus to set Modbus address.

Write 0x01 to register 0x07 to set Modbus address. The starting address is 0x07, and the registered value is 0x01. CRC calculated as 0XEDC4, first sent in low byte.

The master sends:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x06	0x00	0x07	0x00	0x01	0xED	0xC4

The slave responds:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x06	0x00	0x07	0x00	00x1	0xED	0xC4

- **Set Time**

The sensor address is 0xFE.
Use 0x10 (write multiple holding registers) in Modbus to set the time.
In the register with start address 0x64, the number of registers is 0x06, and the number of bytes is 0x0C, which respectively correspond to the year, month, day, hour, minute, and second.
Year is 0x07E4 (actual value is 2020),
Month is 0x0005 (actual value is May),
Day is 0x001D (actual value is 29th),
Hour is 0x000D (actual value is 13),
Minute is 0x0018 (actual value is 24 minutes),
Second is 0x0000 (actual value is 0 seconds),
The CRC check is 0xEC93.

The master sends:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	Byte Count	Year Hi
0xFE	0x10	0x00	0x64	0x00	0x06	0x0C	0x07

Year Lo	Month Hi	Month Lo	Day Hi	Day Lo	Hour Hi	Hour Lo	Minute Hi
0xE4	0x00	0x05	0x00	0x1D	0x00	0x0D	0x00

Minute Lo	Second Hi	Second Lo	CRC16 Hi	CRC16 Lo
0x18	0x00	0x00	0xEC	0x93

The slave responds:

Slave Address	Function Code	Starting Address Hi	Starting Address Lo	Value Hi	Value Lo	CRC16 Hi	CRC16 Lo
0xFE	0x10	0x00	0x64	0x00	0x06	0x15	0xDB

4.2 USB Communication

Please see **3.2.3 Data History - History Download** for detail USB operations.

5. Maintenance

5.1 Maintenance Schedule

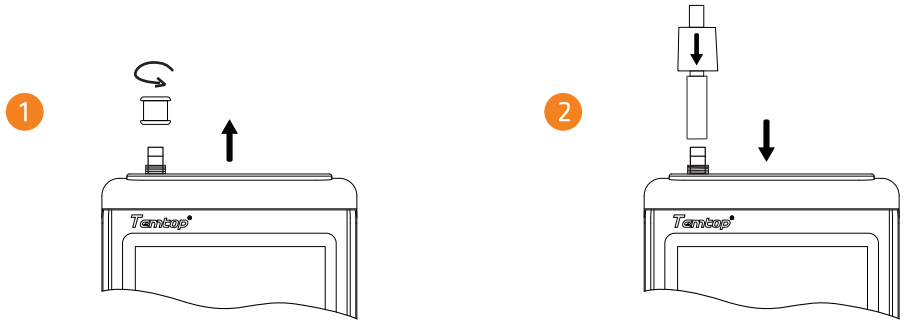
To make better use of PMD 371, regular maintenance is required in addition to correct operation. Temtop recommends the following maintenance plan:

Service Items	Frequency	By
Zero calibration	Every week/User-defined	User/Manufacturer
Flow calibration	Every month	User/ Manufacturer
Air pump, pipeline, optical detector inspection and cleaning	Every year	Manufacturer only
Battery pack inspection	Every year	Manufacturer only

5.2 Zero Calibration

After the instrument has been used for a long time or the operating environment has been changed, the instrument should be zero-calibrated. Regular calibration is required, and the matching filter should be used for calibration by the following steps (Fig. 30):

1.Unscrew intake duct by turning it anti clockwise.	2. Insert the filter on the air inlet of the monitor. Please note that the direction of the arrow indicates the air intake direction.



Note: The filter is connected to the pagoda at the upper end. Do not touch the thread, otherwise the zero calibration will be affected.

Fig. 30

After the filter installed, open the Zero Calibration interface and refer to **3.2.2 System Calibration-Zero Calibration** for operation. After the calibration completed, remove the filter and screw the filter cover back.

5.3 Flow Calibration

PMD 371 sets the default flow rate to 2.83 L/min. The flow rate may change subtly due to continuous use and ambient temperature changes, thus reducing detection accuracy.
Temtop offers flow calibration accessories for testing and adjusting flow.

1.Unscrew intake duct by turning it anti clockwise.

2.Insert the flow meter on the air inlet of the monitor. Please note that it should be connected downstream of the flow meter.

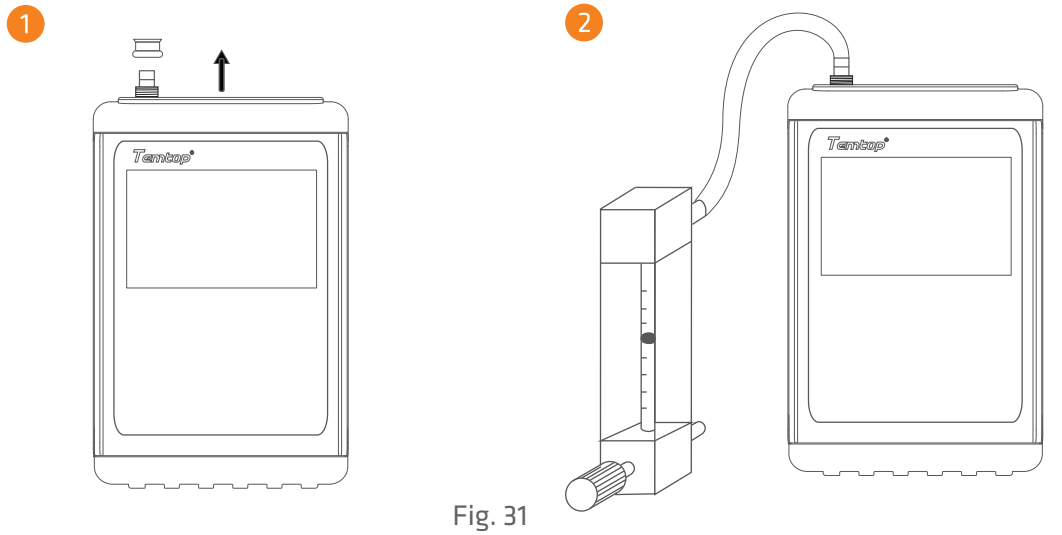


Fig. 31

After the flow meter installed, turn the adjustment knob to the maximum, and then open the Flow Calibration interface and refer to **3.2.2 System Calibration-Flow Calibration** for operation. After the calibration completed, remove the flow meter, and screw the intake duct cover back.

5.4 Filter Element Replacement

After the instrument runs for a long time or runs under high pollution conditions for a long time, the filter element will become dirty, affecting the filtering performance, and then affecting the measurement accuracy. The filter element should be replaced regularly. Temtop offers filter element accessories that can be replaced.

The replacement operation is as follows:
1. Shut down the monitor.
2. Use a coin or U-shaped screwdriver to remove the filter cover on the back of the instrument.
3. Remove the old filter element from the filter tank. If necessary, flush the filter tank with compressed air.
4. Place the new filter element in the filter tank and close the filter cover.

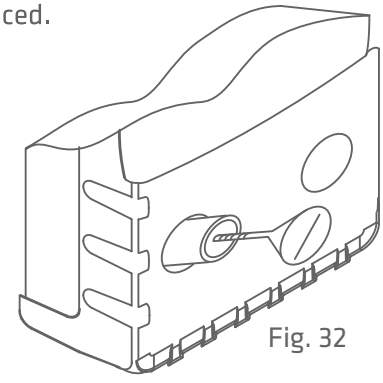


Fig. 32

5.5 Annual Maintenance

It is recommended to return PMD 371 to the manufacturer for annual calibration by specialized maintenance personnel in addition to weekly or monthly calibration by users.

Annual return-to-factory maintenance also includes the following preventative items to reduce accidental failures:

- Check and clean the optical detector;
- Check air pumps and pipes;
- Cycle and test the battery.

6. Troubleshooting

Failure	Possible Causes	Solution
Noise	The flow is excessive	Flow calibration
	The pump is faulty	Send to the service center
Cannot be turned on, no display	Battery discharged	Charge the battery for 3-5 h
	The battery is faulty	Send to the service center
Display is on, but pump does not run	Low battery level	Charge the battery for 3-5 h
	The pump is faulty	Send to the service center
Detected value is not reliable	Flow deviation	Flow calibration
	Inlet screen clogged	Check the inlet screen
	Contamination inside the monitor	Replace the filter element
		Send to the service center
Unable to charge the battery	The battery is faulty	Send to the service center
	Charger failure	Contact the service center

7. Specifications

Item	Parameter	Remark
Particle Diameter	0.3μm, 0.5μm, 0.7μm, 1.0μm, 2.5μm, 5.0μm, 10μm, PM1.0, PM2.5, PM4.0, PM10, TSP	Both detection and display
Particle count	Range: 0-3000000CF Accuracy: ±10%	
PM1.0, PM2.5, PM4.0, PM10, TSP	Range: 0~9999.9 μg/m^3 Resolution: 0.1 μg/m^3	
Principle	Light scattering technique	
Light Source	50mW, 780nm	
Sampling Time	1min, 2min, 5min, 10min, 15min, 30min, 60min	Settable
Flow	2.83 L/min	Error ±5%
Display	4.0" TFT LCD screen	
Communication	USB/RS-232	
Memory	2,000,000 readings	
Battery	Rechargeable lithium battery	
Charging Time	3.5h	Under normal conditions
Operating Time	8h	Continuous operation
Operating Temperature	0~50 °C	
Storage Temperature	-20~60 °C	
Monitor Dimensions	170 x 110 x 48 mm	Not include intake duct and protective case
Weight	850g	

8. Warranty & Services

Warranty: Any defective monitors can be replaced or repaired during the warranty period. However, the warranty does not cover the monitors that have been altered or modified as a result of misuse, negligence, accident, natural behavior, or the ones that are not modified by Elitech Technology, Inc.

Calibration: During the warranty period, Elitech Technology, Inc. provides free calibration services with shipping charges at the customer's expense. The monitor to be calibrated must not be contaminated by pollutants such as chemicals, biological substances, or radioactive materials. If the pollutants mentioned above have contaminated the monitor, the customer shall pay the processing fee.

Temtop warrants the included item for 5 years from the date of the original purchase.

Item	Warranty Period
Monitor	5 years included
Accessories	N/A

Note: A sincere effort was made to ensure that all information in this manual was current at the time of publication. However, final products may vary from the manual, and the specifications, features, and displays are subject to change. Please check with your Temtop representative for the latest information.

Temtop

Elitech Technology, Inc.
2528 Qume Dr, Ste 2
San Jose, CA 95131 USA
Tel: (+1) 408-898-2866
Sales: sales@temtopus.com
Website: www.temtopus.com

Elitech (UK) Limited
Unit 13 Greenwich Business Park,
53 Norman Road,London, SE10 9QF
Tel: (+44)208-858-1888
Sales:sales@elitecheu.com
Website: www.temtop.co.uk

Elitech Brazil Ltda
R.Dona Rosalina,90-Lgara, Canoas-RS
92410-695,Brazil
Tel: (+55)51-3939-8634
Sales: brasil@e-elitech.com
Website: www.elitechbrasil.com.br

Temtop (Shanghai) Technology Co., Ltd.
Room 555 Pudong Avenue,
Pudong New Area, Shanghai,China
Tel: (+86) 400-996-0916
Email: sales@temtopus.com.cn
Website: www.temtopus.com

V1.0
Made in China