



Portable Photometer a-AP50MM

Instruction Manual



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1. Overview

This instruction manual provides the installation, operation, and maintenance instructions for the Ohaus® AquaSearcher™ AP50MM Portable Photometer. Please read this instruction manual carefully before installation and operation.

AquaSearcher™ AP50MM multi-function portable Photometer is designed intuitively to provide fast, reliable colorimetric and turbidity measurements. Its rugged single-handed design makes it perfect for field applications and the carrying case holds all test accessories. The AP50MM allows user to pre-program testing parameters to increase efficiency. It has the following features:

- Fast and reliable tests - AP50MM is equipped with a real-time dynamic display for each measurement, to provide fast, reliable results. It can record up to 30,000 datapoints with time and date stamp.

- Intuitive operation- built-in calibration curves provide automatic selection of appropriate wavelengths from the long-lasting LED light source. Store commonly used tests for efficient field use.

- User-Friendly – large, backlit display makes it easier to read real-time results.

Comes with a hard-shell carrying case with all accessories needed to perform tests in the field.

1.1. Safety Protection Measures

Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. Ignoring the safety notes may lead to personal injury, damage to the meter, malfunctions, and false results.

WARNING For a hazardous situation with medium risk, possibly resulting in injuries or death if not avoided.

CAUTION For a hazardous situation with low risk, possibly resulting in damage to the device or the property, or in loss of data, minor injuries or medium injuries if not avoided.

ATTENTION For important information about the product. Equipment damage may occur.

NOTE For useful information about the product.

Warning Symbols



General
Hazard



Explosion
Hazard



Electrical
Shock Hazard

Safety Protection Measures



CAUTION: Read all safety warnings before installing, connecting, or servicing this equipment. Failure to comply with these warnings could result in personal injury and/or property damage. Retain all instructions for future reference.

- Do not operate the device in a damp, dangerous, or unstable environment.
- Please follow the instructions provided by the chemical manufacturer and general laboratory safety procedures when using chemicals and solvents.
- Do not allow liquid to enter the device.
- Use only approved accessories and peripherals.
- Repair service can only be performed by authorized personnel.
- Special reminder: Keep chemical reagents away from minors
- Warning label: Please pay special attention to the label attached to the instrument. If you do not pay attention, it may cause damage to the operator or the instrument.



WARNING: Please follow the instructions provided by the chemical manufacturer and general laboratory safety procedures when using chemicals and solvents.



WARNING: Do not operate the device in an environment with explosion hazards! The meter housing is not airtight. (Explosion hazard caused by spark formation, and corrosion caused by gas ingress)



WARNING: There is an electrical shock hazard within the housing. Only authorized and qualified personnel can open the housing. Please disconnect all power connections to the device before opening.

1.2. Intended Use

This meter is applicable to laboratories, pharmacies, schools, enterprises, and light industry. This meter is only used for measuring the parameters described in this instruction manual. Any other type of use and operation beyond the limits of the technical specifications is considered as an unintended use without the written consent of Ohaus. This meter complies with current industry standards and recognized safety regulations; danger may occur during use. If this meter is not used in accordance with this instruction manual, the expected protections provided by the meter may be impaired.

2. Installation and Startup

The AP50MM is a multi-wavelength colorimeter. It provides colorimetric measurements at 7 LED wavelengths and nephelometric turbidity measurement using white LED and infrared LED as the excitation sources. The AP50MM is pre-calibrated for colorimetric measurements of analyses common in industrial water treatment and other water testing in the laboratory or in the field, such as chlorine, phosphate, iron, and copper. Main features include:

- The AP50MM is pre-calibrated for measuring turbidity in the range of 0 to 200 NTU.
- Automatically select the primary wavelength according to the method selected and switches to the secondary wavelength to extend the primary measurement range.
- Display a concentration-time profile curve during the last time in a colorimetric measurement. The user can terminate the timing process and take a reading if the displayed concentration reaches a plateau before completing the predefined time period.
- The user can update the calibration parameter of any pre-calibrated colorimetric method by testing a standard solution first and then following a setup procedure to update the calibration parameters.
- More wavelengths including near UV 365 nm are available than other colorimeters.

2.1. Standard Accessories

Table 1 Standard accessories in the kits

Item description	a-AP50MM-F Photometer
Item number	30853393
24 mm replacement vials, 10mL	2 pcs
24 mm replacement vials, 25mL	2 pcs
16mm Adapter a-AP50MM for COD	1 pc
AA alkaline battery	4 pcs
Quick start guide	1 pc
Briefcase AQUASEARHER	1 pc

2.2. Optional Accessories

Table 2 Optional accessories in the kits

Item number	Item description
30853486	24 mm replacement vials, 10mL, pk/6
30853487	24 mm replacement vials, 25mL, pk/6
30853488	COD Adapter a-AP50MM

30727772	Cleaning brush pk/5
30727773	Cloth pk/4
30727774	Screwdriver pk/2
30727775	Micro USB cable pk/2 a-AP30
30727776	Cylinder 5mL pk/2
30744416	Briefcase AQUASEARHER

2.3. Battery Installation

The AP50MM is powered by four AA-size alkaline batteries. Do not use rechargeable nickel cadmium (NiCad) batteries or any AA-size lithium batteries. A set of batteries typically lasts for three months. When the batteries capacity is low, the AP50MM will prompt a LOW BATTERY warning. Replace all four batteries to resume operation of the AP50MM after the battery warning.

The AP50MM battery compartment, shown in Figure 1, is on the back side of the instrument. Insert a small pad underneath the screen area to make the back-surface level when the instrument is turned upside down. Install batteries as follows:

1. Remove the battery compartment cover by loosening four screws.
2. Insert four batteries into the battery holder as shown in Figure 1. Make sure the positive battery polarity marker (+) is aligned with the positive marker (+) on the battery holder.
3. Replace the battery compartment cover, making sure that the sealing O-ring is lying flat on the battery holder and tighten the four screws.

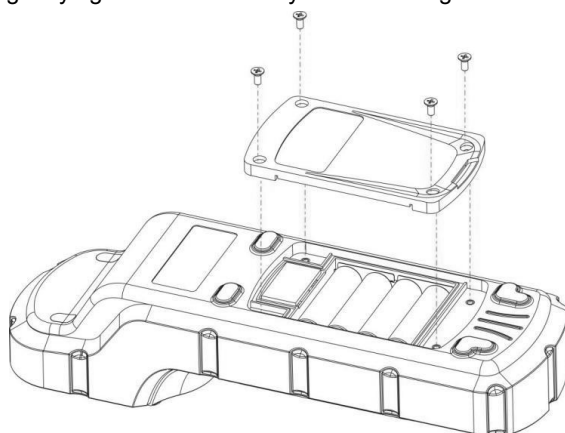


Figure 1 Replace Batteries

2.4. Navigational Control Pad



Figure 2 Control Pad

The AP50MM navigational control pad consists of five keys as shown in Figure 2.

- The left, right, up, and down keys are navigational keys that are used to select an icon, a button, or other items in various pages.
- The center key is the OK key. Press the OK key on a selected item to launch the action associated with the selected item. The OK key is also used to accept the current selection, like the return key in a computer keyboard.

2.5. Turning on the AP50MM

After new batteries installation, the AP50MM not automatically turned on. To turn on AP50MM, press the OK key, and release the OK key when the LCD is lit. You can navigate the main page menu and launch an operation by pressing on an icon. If battery voltage is too low for the instrument to work properly, the AP50MM will show a low battery warning message when it turned on. If this happens, replace all four batteries.

2.6. Turning off the AP50MM

Turn the AP50MM off by navigating to Power icon and press the OK key. Alternatively, you can turn off the AP50MM by pressing OK key for 5 seconds in any menu.

2.7. The AP50MM Auto Power off

The AP50MM automatically turns itself off with no-key activity for a given period, except for during a measurement. The auto power-off time can be set in **SYS->System Set**. Pressing OK key will wake up the instrument, and the AP50MM will return to the original page if it has any measurement data.

2.8. Auto LCD Power Saving

During a colorimetric method measurement, The AP50MM automatically turns LCD backlight off with no-key activity and continues the measurement with the LCD backlight off. The auto LCD power-off time can be set in **SYS->System Set**. Pressing any key will turn on the LCD backlight. Under normal ambient lighting condition, icons and other contents shown on the LCD screen are readable without backlight being on.

3. Instrument operation

3.1. Main Page

The AP50MM provides intuitive icon driven user operations. On the main page, four major feature groups illustrated as below:

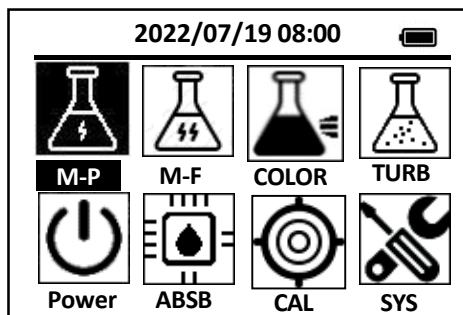


Figure 3. Main Menu

Detailed operation instructions can be found in the following chapters.

Table 3 Feature Groups on Main Menu

Title	Description
COLOR	Colorimetric measurement methods
Power	Turn off AP50MM
ABSB	Absorbance measurements
SYS	System information

3.2. Sample Vial Compartment

The sample vial compartment (shown in Figure 4) comes along with a 10-ml sample vial. When inserting the sample vial into the compartment, the triangular mark on the vial should be aligned with the 6 o'clock position of the compartment.

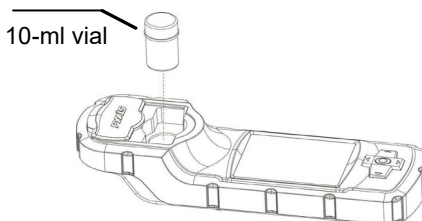


Figure 4. 10-ml vial

The 16 mm tube adapter used for colorimetric methods using the 16 mm sample tube. The instruction to use the adapter is provided in section 6.

The sample vial compartment can take in a 25 ml sample vial. The light shield cover is not required to be closed if the 25 ml sample vial is used.

The sample vial compartment should be kept clean. A small amount of foreign material could significantly affect turbidity measurement results. Use a soft cloth or lint free paper tissue to clean the sample vial compartment periodically. Remove debris, scale, and deposit promptly.

3.3. Light Shield Cover

The light shield cover shown in Figure 5. The light shield cover conveniently slid between the open and closed positions. The light shield cover is held firmly at the rest positions by permanent magnets.

The light shield cover should be in the closed position during storage, transportation, and measurements, especially during the turbidity. When turned on, the AP50MM carries out self-diagnosis including checking the performance of a variety of optical devices. The light shield door shall be at the closed position to shield interference from ambient light during self-diagnosis.

Care should be taken to avoid water or debris being trapped in the track of the light shield door.

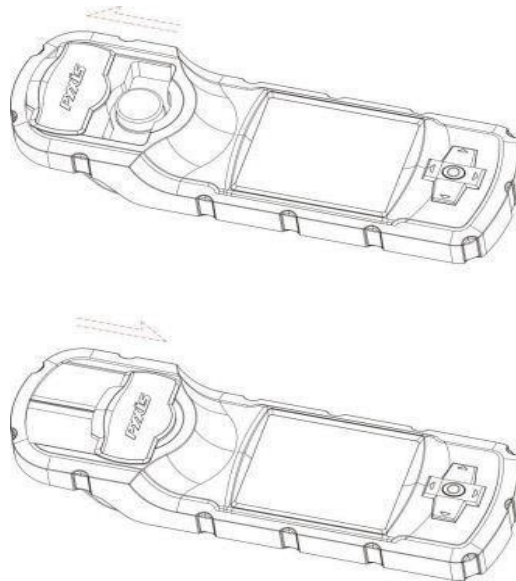


Figure 5 Open and Close the Light Shield Cover

Warning

Magnetic sensitive devices, including but not limited to, credit cards, watches, hard disks, should keep at a distance of at least 2 inches / 5 cm from the Light Shield Door to avoid possible damage and/or loss of information recorded.

4. Turbidity Measurement

4.1. Operation

Follow the following steps to measure turbidity:

1. Fill the 10 ml sample vial to above the 10 ml mark.
2. Insert the sample vial to the sample vial compartment.
3. Slide the light shield cover to the closed position.
4. Press the **TURB** on the main page, then press the **OK** key, The AP50MM will start to measure the turbidity in the sample.

4.2. Turbidity Calibration

1. Fill the 10 ml sample vial to above 10 ml mark with the deionized water.
2. Insert the sample vial to the sample vial compartment.
3. Slide the light shield cover to the closed position.
4. Press the **CAL** on the main page, then choose the Turbidity calibration and press the **OK** button to launch the Turbidity calibration page. (Figure 6)

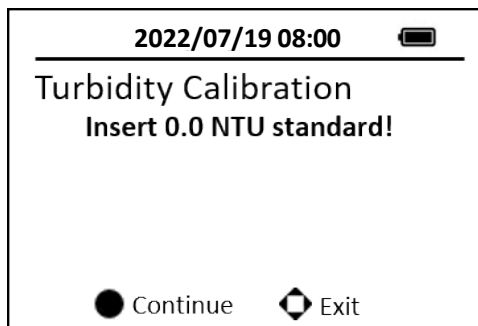


Figure 6 Turbidity calibration page

5. Press the **OK** key to measure the deionized water (with 0.2um fitter)
6. Fill the 10 ml sample vial to above 10 ml mark with the 50 NTU standard. Insert the sample vial to the sample vial compartment.
7. Press the **OK** key to measure the 50 NTU standard. Low range turbidity calibration is successful.

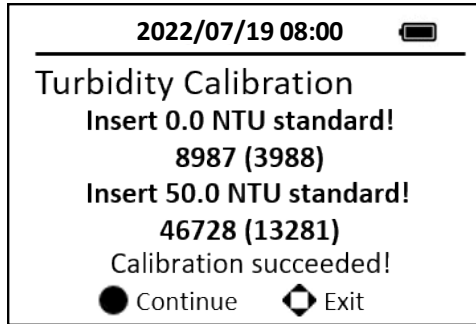


Figure 7 Turbidity calibration for low range

8. Press the **Continue** key to continue high range turbidity calibration. If high range turbidity calibration not required, press any keys to exit. (Figure 7)
9. Fill the 10 ml sample vial to above 10 ml mark with the 100 or 200 NTU standard. Insert the sample vial to the sample vial compartment.
10. Follow the message prompts, use the upper or down key to switch the standard between 100 NTU and 200 NTU.
11. Press the **Continue** key to measure the selected standard. High range turbidity calibration is successful. (Figure 8)

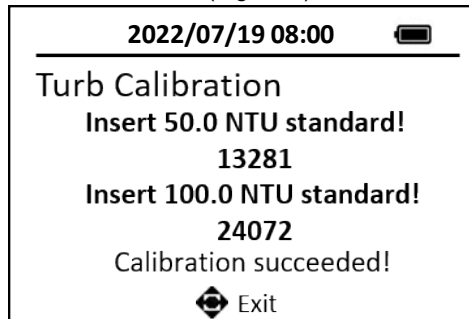


Figure 8 Turbidity calibration for high range

12. Press any keys to exit.

5. Colorimetric Measurement

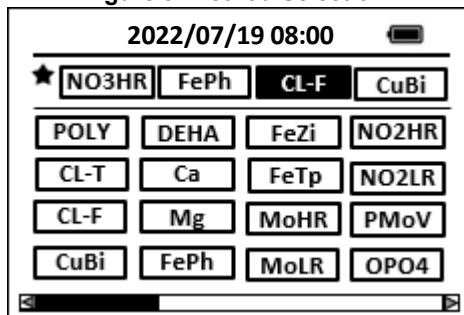
5.1. Supported Methods

A wide range of colorimetric methods is supported by the AP50MM analyzer and the number of them keeps increasing with continuous development of Ohaus. See corresponding Hach® methods in Appendix A.

5.2. Select a Method

Move the icon focus to the method icon **COLOR** using the navigational (left, right, up, or down) keys. Press OK on the icon to launch the first method selection page. The methods shown on the top row of the page are the most frequently selected methods.

Figure 9. Method Selection



The followings are the operations associated with this page:

1. Use the navigational keys and the OK key to select and launch a method.
2. Long press the OK key to return to the main page. Press the arrow icon at the lower right corner of the page to display the second method selection page if the device is loaded with more than 23 methods.

Note: Methods shown in the method selection pages include Hach® equivalent methods and Ohaus specific advanced methods. The table in Appendix A provides a brief description of Ohaus method names and their corresponding Hach® program number. Hach® reagents for 10 ml sample can be used for the test.

5.3. Single Timing Step Method

Most of colorimetric methods have only one timing step. As an example, in the DPD free chlorine method, it takes one minute for the DPD powder reagent to completely react with chlorine in the water sample. The DPD free chlorine method has a single one-minute timing step. Figure 11 shows the main page of a method with a single timing step.

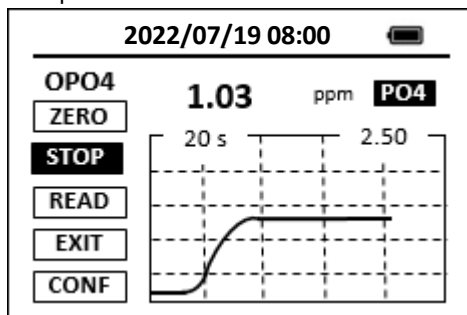


Figure 10. Concentration as a Function of Time

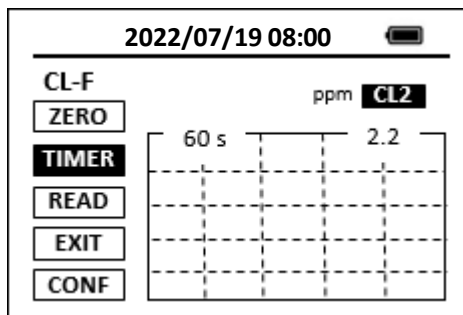


Figure 11. Single Timer Method

5.4. Single-Vial Procedure

1. Place the sample vial filled with the water sample in the AP50MM sample vial compartment and press the **ZERO** button. The AP50MM will display the page shown in Figure 11.
2. Take the sample vial out and add the reagent to the sample vial.
3. Place sample vial back into the sample vial compartment and press the timer button **TMR1**. The AP50MM will start to monitor the reaction between the reagent and the species you want to measure in the water sample. The concentration is shown in the chart as a function of time (Figure 10).
4. When the timer reaches the preset time and the reaction is complete, the value of concentration will be shown on the top right corner of the page.
5. The rate of the reaction is often faster than the standard pre-set time, which will become apparent from the concentration-time plot. You can press the **STOP** button to stop the timer and terminate the timing step. The last read concentration value will be displayed on the top right corner of the page after you terminate the timing step.

5.5. Two-Vial Methods

Some colorimetric methods require using two vials. The water sample is added to two identical vials. One vial is being used to zero the colorimeter, referred as to the prepared blank. A reagent is added to the other vial, referred as to the prepared sample. The absorbance value is determined from the prepared sample.

If the method requires two or more reagents, the prepared blank could be the resulting solution after one or more reagents have been added to the sample.

The following procedure is typical for two-vial methods:

1. Place the prepared blank into the AP50MM sample vial compartment and press the **ZERO** button to zero the instrument.
2. Place the prepared sample into the AP50MM sample vial compartment and press the **TMR1** button to start the method timer.
3. When the timing step completed, the measured concentration will be displayed on the top of the page. The timing step could be terminated earlier by pressing **STOP** button.
4. Optionally, the AP50MM can re-zeroed using the prepared blank after the timing step completed or terminated. The blank reading will subtract from the measured concentration value, and the displayed concentration value on the top-right corner will updated. This step is optional. It is only necessary if the prepared blank changes its color during the timing period.
5. Optionally, the prepared sample vial can be put back and read again by pressing the **READ** button if the blank is re-zeroed after the timing step is completed or terminated. A new concentration value based on the last absorbance value measured will calculated and displayed.

5.6. Multiple Timing Steps Method

Some colorimetric methods have two or three timing steps. The AP50MM shows a count-down timer for the timing steps before the last timing step (Figure 12). During these timing steps, one or more reagents are added to the sample, or operations such as swirling the vial to mix the reagent and the sample are being performed. These methods usually use one vial for the prepared blank and the other for the prepared sample.

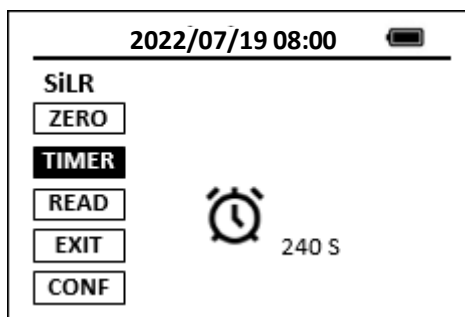


Figure 12. Multiple Timer Method

In order to show the concentration-time curve as shown in Figure 12 during the last timing step, The AP50MM must be zeroed using the prepared blank before the last timing step. Thus, the last timer button will not be selectable until the AP50MM has been zeroed using the prepared blank. Multi-timing step Hach® methods require zeroing the colorimeter using the prepared blank after the last timing step is completed. The SP- 800 can optionally be re-zeroed using the prepared blank after the last timing step. The blank value measured will be subtracted from the concentration value measured at the end of the last timing step. Optionally, the **READ** button could be pressed to read the prepare sample again.

The following procedure is typical for methods having two-timing steps:

1. Press the **TMR1** button to start the first timer. Complete the necessary operations to prepare the blank and the sample.
2. Place the prepared blank into the AP50MM sample vial compartment and press the **ZERO** button.
3. Place the prepared sample into the AP50MM sample vial compartment and press the **TMR2** button to start the second timer. The AP50MM will display the measured concentration as a function of time as shown in Figure 12.
4. When the timing step is completed, the measured concentration will be displayed on the top right of the screen. The timing step could be terminated earlier by pressing **STOP** button.

5. Optionally, The AP50MM can be re-zeroed using the prepared blank after the timing step is completed or terminated. The blank reading will be subtracted from the measured concentration value, and the displayed concentration value on the top-right corner will be updated. This step is optional. It is only necessary if the prepared blank changes its color during the timing period.

5.7. Advanced Methods

The AP50MM provides 7 LED wavelengths and can measure absorbance values at multiple LED wavelengths. Consequently, the AP50MM can provide many predefined advanced methods that traditionally require complex and often expensive lab testing procedures.

5.7.1. Low range, direct reading chlorine dioxide, 0 to 35.0 ppm

The maximum absorption bank of aqueous chlorine dioxide is around 360nm. The AP50MM has a 365nm UV LED and can be used to directly measure chlorine dioxide. It offers a much lower detection limit (0.2 ppm) than direct methods available from other portable colorimeters having only light sources in the visible range.

Select **CIO2D** in the method selection page and carry out the following steps to measure chlorine dioxide:

1. Place a vial filled with deionized water into the vial compartment and press the **ZERO** button to zero the AP50MM.
2. Discard the deionized water and fill the same vial with the sample. Place the vial into the vial compartment and press **READ** button to read. The measured chlorine dioxide concentration will be displayed in the top of the method page.

5.7.2. Turbidimetric Anionic Polymer Method

1. Add polymer reagent 1 to 10 ml sample and inverse the sample vial 5 times to mix the reagent with the sample. Place the sample via to the sample vial compartment.
2. Press on **ZERO**.
3. Add polymer reagent 2 and press on **TMR1** to start the five minutes timer.
4. Gently inverse the sample via for 10 times and place the sample vial to the sample vial compartment.
5. Polymer concentration will be measured and displayed when the five-minute timer is reached. The polymer concentration is shown as ppm PAA (polyacrylic acid) equivalent.

5.7.3. Direct Reading Bleach Percent Method, 0 to 15%

The AP50MM has a 365nm UV LED and other deep blue LEDs that can be used to

directly measure bleach concentration in the range of 0 to 15%. No reagent is required for the method and the displayed result is the sodium hypochlorite concentration in percentage.

Select **BLCH** in the method selection page and carry out the following steps:

1. Place a vial filled with deionized water into the vial compartment and press the **ZERO** button to zero the AP50MM.
2. Discard the deionized water and fill the same vial with the bleach sample. Place the vial into the vial compartment and press **READ** button to read. The measured bleach concentration will be displayed in the top of the method page.

5.8. Method Setup and Calibration

Press the **SETUP** button in the method result page to launch the method setup and calibration page.

5.8.1. Set up the method parameters

Press the **FORM** button to select a concentration form from the list of forms that are available for this specific method (Figure 13).

Press the **UNIT** button to select a concentration unit among the list of ppb, ppm, mg/L, ug/L and No Unit (Figure 14).

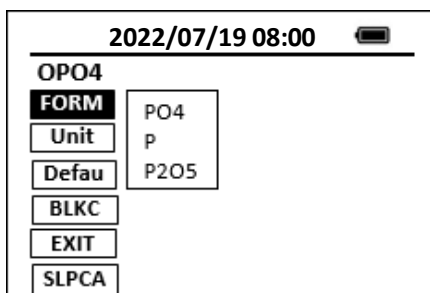


Figure 13. Method from Selection

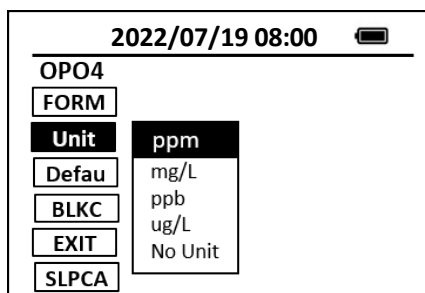


Figure 14. Method Unit Selection

5.8.2. Slope Calibration

If the method has been calibrated prior to shipping, there is no need to calibrate unless a calibration check indicates that the method needs a calibration. The following steps are used to calibrate a method:

1. Use a calibration standard of known concentration. Follow the steps required by the method and note the value reported by the AP50MM.
2. If the measured value differs from the known standard value, Press the

- CONFIG** button to launch the method configuration page.
3. Press the slope calibration button **SlpCal**. A numeric keyboard will be displayed.
 4. Enter the concentration value and press the OK key on the enter key in the numeric keyboard to return to the configuration page.
 5. Press the **EXIT** button. Press the OK key to accept the calibration or other key to cancel the calibration.

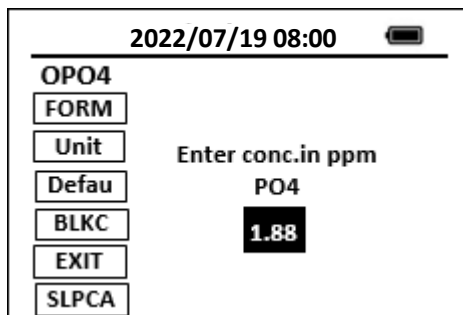


Figure 15. Slope Calibration

For best results, the concentration of the standard solution should be less than the maximum concentration for the method (table 2) and greater than the half of the maximum concentration. For example, to calibrate total chlorine, the chlorine concentration in the standard solution should be between 1.1 and 2.2 ppm.

The corresponding calibration parameters will be updated and saved in the memory as the working calibration parameter set. Note that this set of calibration parameters are not the same as the default set. You can use **Default** button to copy the default calibration parameters to the working set.

5.8.3. Reagent Blank Calibration

Some methods have a non-zero intercept value in the calibration equation. For these methods, a proper non-zero intercept value is pre-loaded in the AP50MM prior to shipping. The following steps are used to carry out a reagent blank calibration:

1. Follow the normal steps to carry out a measurement on a deionized water sample.
2. Press the **CONFIG** button to launch the method configuration page.
3. Press the reagent blank calibration button **BLKC**
4. Press the OK key to save when exiting from the configuration page or press other keys to cancel.

5.8.4. Resume to Default Calibration Parameters

Pressing the **Default** button will copy the default calibration intercept and slope to the working intercept and slope, respectively. If the default calibration parameters were created prior to shipping, this button action is to restore the working calibration parameters to the original factory loaded calibration parameters.

6. Absorbance Measurement

The following steps are used to measure the absorbance values of a sample:

1. Press the **ABS** to launch the absorbance measurement page.
2. Place a vial filled with the blank sample in the sample vial compartment. Press the **ZERO** button to zero the method.
3. Place a vial filled with the sample in the sample vial compartment. Press the **READ** button to read absorbance. The absorbance values of first 6 wavelengths (Table 3) will be shown. Press the **READ** button again to show the absorbance values of the last three wavelengths.


2022/07/19 08:00 	
Absorbance	
ZERO	1. 0.000, 54627
READ	2. 0.000, 46865
	3. 0.000, 52811
EXIT	4. 0.000, 52830
	5. 0.000, 43789
	6. 0.000, 56783

Figure 16. Absorbance Measurement

Press **EXIT** to return to the main page. Timing function for absorbance measurement may not be available for some models.

Table 4 Wavelength of each channel

Channel	Wavelength (nm)
1	560
2	570
3	Not used
4	Not used
5	455
6	525
7	365
8	630
9	420

Note that the absorbance values measured with the AP50MM is generally smaller than those measured with a spectrophotometer equipped with a monochromatic light source or detector. The AP50MM absorbance values should, however, linearly correlate with the absorbance values measured with the spectrophotometer. Thus, for any colorimetric system, The AP50MM absorbance follows Lambert-Beer law.

6.1. 16 mm Tube Adapter

Press and hold the white release keys on the release keys to insert the 16 mm tube adapter to the sample vial compartment for the methods that use the 16 mm sample tube such as COD, as shown in figure 16.

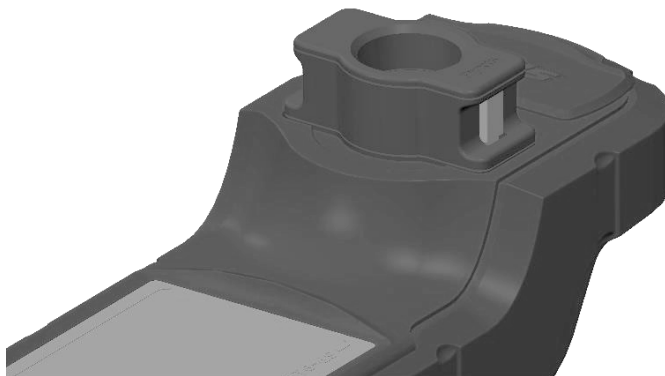


Figure 16. Insert 16 mm tube adapter

Press and hold the release key to pull the adapter up to remove it from the sample compartment.

7. Maintenance

Do not unscrew and remove the housing!

7.1. Cleaning

NOTE: Any liquid residue should be wiped off immediately.

- Except for wiping the surface with a wet cloth and replacing the battery from time to time when exhausted, the meter requires no maintenance.
- Use a soft cloth or lint free paper tissue to clean the sample vial compartment periodically. Remove debris, scale, and deposit promptly.
- Although The AP50MM is protected from water damage, it is a good practice to avoid water entering the sample vial compartment and becoming trapping underneath the navigational control pad. Deposits left behind when the water is evaporated could affect Ohaus performance.



- Attention: Do not use solvents, harsh chemicals, ammonia or abrasive cleaning agents.

- The housing may be cleaned with a cloth dampened with a mild detergent if necessary.

7.2. Storage

The AP50MM should be stored in the temperature range of 0 to 140°F (-18 to 60°C) and relative humidity less than 85% at 106 °F (41 °C). Do not leave the AP50MM in a parked vehicle. The temperature inside a parked vehicle can reach above 150 °F in summer and -20 °F in winter. Exposing the AP50MM to extreme temperature or humidity will cause a gradual decay in performance of colorimetric measurements and require more frequent calibrations.

- During storage and transportation, do not leave a sample vial in the sample vial compartment. Close the lid of the sample vial compartment during storage and transportation.
- Replace batteries when the AP50MM displays a warning message indicating LOW BATTERY voltage. Remove batteries from the AP50MM battery compartment if the AP50MM is going to be placed in storage for a long period time.
- When the AP50MM is shipped, a desiccant pack is included in the desiccant compartment underneath the cover of the battery compartment. It is recommended that a new desiccant pack is replaced each time the batteries are replaced.

7.3. Customer Service

The AP50MM will prompt a warning message if it detects an abnormal condition or operation. On screen prompts direct the user to take appropriate corrective actions in most cases.

If an unspecific error occurs or the AP50MM cannot be turned on, reboot the instrument by taking a battery out of the battery holder and re-install the battery.

If the AP50MM has been idle for more than two months and cannot be turned on, replace all four batteries with four new AA alkaline batteries.

A diagnostics page can be launched by press the **SYS** icon in the main page. The software version and its associated hash code can be found in the diagnosis page. Contact Ohaus professionals at pH@Ohaus.com and provide with following information to ensure high quality technical support.

Table 5 Contact Information

Items	Note
Contact Name	
Phone	
Email	
Customer Name	
Product Number (P/N)	Can be found on the product label on back of product
Serial Number (S/N)	Can be found on the product label on back of product
Firmware version	Can be found in diagnosis page
Problem Description	Capture warning message if applicable

If the troubleshooting fails to solve your problem, please contact the technical service experts of Ohaus, who will provide assistance for you.

- If you need help in the United States, please call toll-free 1-800-526-0659 between 8:00 am and 5:00 pm (USA Eastern Standard Time).
- If you need help outside the United States, please visit the Ohaus website www.ohaus.com to find the nearest Ohaus office.

Visit www.ohaus.com to inquire about more products and download product materials, user guides and manuals, software updates and other application and technical resources.

8. Technical Data

8.1. Specifications

Table 6 Meter Specifications

Photometer	a-AP50MM
Source Lamp	Light Emitting Diode (LED)
Fixed Wavelength	365nm,420nm,455nm,525nm,560nm,570nm,630nm
Wavelength Accuracy	± 1 nm
Wavelength Selection	Automatic
Photometric Accuracy	± 0.005 Abs @0~1.0 Abs Nominal
Photometric Measuring Range	0 ~ 1.0 Abs
Turbidity Excitation Wavelength	White and IR LED
Turbidity Optical System	Nephelometric (90° scattered light)
Turbidity Measuring Range	0 ~ 200 NTU
Turbidity Reproducibility	1 NTU
Turbidity Detection Limit	1 NTU
Sample Cell Compatibility	Round Ø24mm; Round Ø16 mm with adapter
Data Storage	30,000 Group with Date, Time
Display	Backlit Graphical LCD, 160×240 pixels
Power	4 AA (LR6) Batteries (Included)
Battery Life	6 months (typical) @25 readings a week
Working Environment {metric}	4 ~ 41 °C, 85%RH, non-condensing
Working Environment {imp.}	40–106 °F, 85%RH, non-condensing
Storage Temperature	-18 ~ 60 °C (0 ~ 140°F)
Dimensions	(L x W x H) 265 × 88 × 69mm
Net Weight {imp.}	1.32 lbs (Basic unit)
Net Weight {metric}	600g (Basic unit)
Altitude:	2000m
Pollution degree:	2

Note:1. Specifications are subject to change without notice with Ohaus' continuous development.

9. Appendix

9.1. Ohaus Method and Hach® Method Number (PRMP) Cross Reference

Abbreviated Method Name	Method Name	Corresponding Hach © method	Hach Method Number
CL-F	F-Chlorine	Chlorine, Free, DPD, PRMP 9	8021
CL-T	T-Chlorine	Chlorine, Total, DPD, PRMP 9	8167
Cl2H	Cl2High	High Range DPD Chlorine, No sample change needed	10070
CuBi	Cu_Bicinch	Copper, Bicinchoninate, PRMP 20	8506
DEHA	DEHA	DEHA, Iron Reduction Method for Oxygen Scavengers, PRMP 25	8140
Ca	Ca	Calcium: Calmagite Colorimetric Method, PRMP 29	8030
Mg	Mg	Magnesium: Calmagite Colorimetric Method, PRMP 30	8030
FePh	Fe_phenanth	Iron, 1,10 phenanthroline, PRMP 33	8008
FeZi	FeZine	Iron, FerroZine, PRMP 37	8147
FeTp	FeTptz	Iron, TPTZ, PRMP 39	8112
MoHR	Mo_HighRange	Molybdenum, High Range, Mercaptoacetic Acid, PRMP 44	8036
MoLR	Mo_LowRange	Molybdenum, Low Range, Ternary Complex, PRMP 47	8169
NO2H	NO2H	Nitrite, High Range, Ferrous Sulfate, PRMP 59	8153
NO2L	NO2L	Nitrite, Low Range, Diazotization, PRMP 60	8507
PMoV	OPO4-MoV	Phosphorus, Reactive, Molybdovanadate, GRMP 77	8114
OPO4	OPO4	Phosphorus, Reactive, Orthophosphate Ascorbic Acid, GRMP 79	8048
OrgP	Phosphonate	Phosphonates, Persulfate UV Oxidation, PRMP 80	8007
PAmi	OPO4-Amino	Phosphorus, Reactive, Amino Acid, GRMP 85	8178
ClO2	ClO2-DPD	Chlorine Dioxide, DPD, PRMP 112	10126
ClO2D	ClO2Direct	Chlorine Dioxide, Direct Reading, PRMP 7	8345
SiHR	SiHR	Silica, High Range, Silicomolybdate, PRGM 89	8185
SiLR	SiLR	Silica, Low Range, Heteropoly Blue, PRMP 90	8186
AZOL	Azole	Benzotriazole, UV Photolysis, PRMP 3	8079
SO4	SO4	Sulfate. PRMP 91	8051

POLY	Polymer	Turbidimetric method for anionic polymers	N/A
FeMo	FeMo	Iron, for cooling water with molybdenum-based treatment, PRMP 38	8365
Cr6	Cr6	Hexavalent chromium, 1,5-Diphenylcarbohydraide Method, PRMP 13	8023
CrT	CrTot	Chromium total Alkaline Hypobromite Oxidation Method, PRMP15	8024
NH3S	NH3Sal	Ammonia Salicylate Method, PRMP 64	8155
NH2C	NH2Cl	Indophenol Method for MonoChloramine, PRMP 110	10171
N2H4	N2H4	P-Dimethylaminobenzaldehyde Method for Hydrazine, PRMP 31	8141
MnL	MnLow	Low Range Manganese PAN Method, PRMP 43	8149
MnH	MnHigh	High Range Manganese, Periodate Oxidation Method, PRMP 41	8034
BLCH	Bleach	Direct Method measuring sodium hypochlorite concentration	N/A
Al	Alumi	Aluminon Method for Aluminum, PRMP 1	8012
F	Floride	SPADNS 2 Method for Fluoride, PRMP 27	8029
CuL	CuPorp	Porphyrin Method for Copper, PRMP 22	8143
Zn	Zinc	Zincon Method for Zinc, PRMP 97	8009
S2-	Sulfide	Methylene Blue Method for Sulfide, PRMP 93	8131
CN	Cyanide	Pyridine-Pyrazalone Method for Cyanide, PRMP 23	8027
NO3M	NO3M	Middle range nitrate, PRMP54	8171
NO3H	NO3H	High range nitrate, PRMP51	8039
Ni	Ni	PAN method for nickel, PRMP48	8150
CYAN	CYAN	Turbidimetric method for cyanuric acid, PRMP 24	8139
pH	pH	Phenol red method for pH, PRMP 75	10076

Trademarks and Patents

Hach[®] is a registered trademark of the Hach Company, Loveland, CO USA

10. COMPLIANCE

Compliance to the following standards is indicated by the corresponding mark on the product.

Mark	Standard
	This product complies with the applicable harmonized standards of EU Directives 2011/65/EU (RoHS), 2014/30/EU (EMC). The EU Declaration of Conformity is available online at www.ohaus.com/ce .
	This product complies with the EU Directive 2012/19/EU (WEEE). Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. For disposal instructions in Europe, refer to www.ohaus.com/weee .
	EN 61326-1

ISED Canada Compliance Statement:

CAN ICES-003(A) / NMB-003(A)

ISO 9001 Registration

The management system governing the production of this product is ISO 9001 certified.

FCC Supplier Declaration of Conformity

Unintentional Radiator per 47CFR Part B

Trade Name: OHAUS CORPORATION

Model: a-AP50MM

Party issuing Supplier's Declaration of Conformity:

Ohaus Instruments (Changzhou) Co., Ltd.

Building C, No. 6 Zhengqiang Road, Xuejia Town, Xinbei District, Changzhou

Jiangsu 213022,

China

Phone: +86 519 85287270

Responsible Party – U.S. Contact Information:

Ohaus Corporation

8 Campus Drive, Suite 105

Parsippany, NJ 07054

United States

Phone: +1 973 377 9000

Web: www.ohaus.com

FCC Compliance Statement:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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



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