



Remote Care
Partners

Wireless Spirometer

Model # ADF-MSA1000



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Model # ADF-MSA1000
INSTRUCTION MANUAL

INTRODUCTION

This Wireless Spirometer is provided to you by Remote Care Partners (RCP), for use exclusively with the health monitoring program from your provider.

Please read this manual carefully and keep it handy for future reference

NOTES ON SAFETY

Please read this section carefully to familiarize yourself with features and operations before using the unit.

Self-measurement is not medical treatment. If there are unusual values, please consult your doctor.

Handling batteries properly:

As soon as old batteries run out, replace them with new batteries.

- Do not use old and new batteries together.
- Align the polarities of batteries correctly.
- When the unit will not be used for more than 3 months, remove the batteries. Otherwise, batteries may leak and cause damage to the unit.

INTENDED USE

This device is intended for pediatric to adult patients. The device is used to monitor lung conditions such as asthma or chronic obstructive pulmonary disease (COPD). The user should be under the care of a licensed healthcare provider. A licensed healthcare provider is required to understand the meaning and importance of the measurements as well as the appropriate treatment plan.

Contraindications:

Users who have one of the following diagnoses should not use this device: Hemoptysis (blood in phlegm), emphysema, unstable cardiovascular status or recent heart attack, pulmonary embolus (blood clot), thoracic, abdominal, or cerebral aneurysms, recent eye surgery, nausea/vomiting, or recent chest or abdominal surgery.

Do not allow other people to use your spirometer. The spirometer is specifically assigned to you and you only. Allowing other people to use your spirometer can mislead your provider.

QUICK START

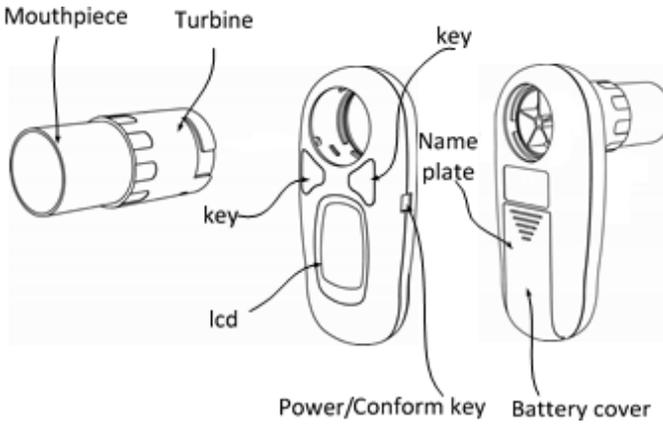
Avoid smoking, eating, or exercising for 30 minutes before taking measurements

1. When the device is powered on, the last result is shown. It then indicates “READY” for measurement by two short beeps.
2. Inhale completely and hold your breath for a moment.
3. Cover the mouthpiece tightly with your lips. Blow into the turbine as hard and as fast as you can.



4. A long beep confirms that the test is complete
5. When you hear two short beeps, the device has reset and is ready for another measurement.
6. Your provider may want you to perform multiple measurements in a row. Check with your provider.

PRODUCT OVERVIEW



Features

- Auto-off Power Saving Feature
- Operated by 2 AAA batteries

Display



	<p>Four rows digit display, indicating individually date, time, measurement value, and record number</p>
<p>Day</p>	<p>Current Day or Day of Measurement</p>

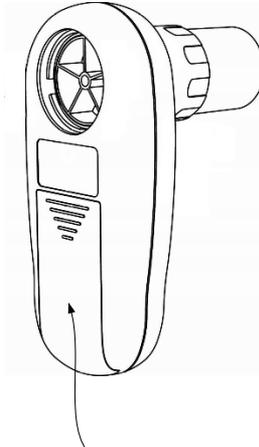
Month	Current Month or Month of Measurement
T	Current Time or Time of Measurement
Y	Current Year or Year of Measurement
PEF	Indicates that PEF Value is showing on screen
FEV1	Indicates that FEV1 Value is showing on screen
Replace Battery Symbol	
L/min	Unit of PEF value
L	Unit of FEV1 value.
MR	Records number or ID.
▶	Points to color indicator after each test: Green = Good Result Yellow = Marginal Result. Change in treatment may be in order Red = Poor Result. Consult your provider.
	Memory is full, the oldest records will be erased automatically
	Bluetooth state

PREPARATION BEFORE USE

Insert the batteries

New batteries were installed in your device before shipping. Unless instructed by a support person, skip this section

1. Slide the cover down
2. Insert two AAA batteries in the shell following symbol inside
3. Close the cover.

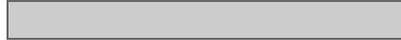


Battery Cover

TIPS

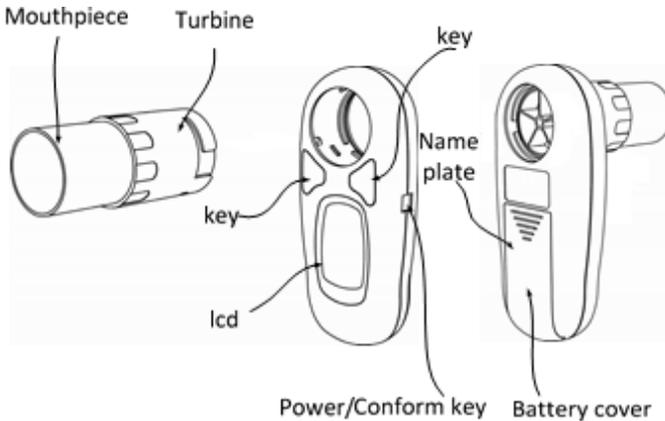
Replace the battery when the battery indicator shows low voltage





Assemble the device

First, insert the mouthpiece into the turbine sensor. Second, place the assembled mouthpiece and turbine into the main unit and turn clockwise until it locks into place and can be turned no further.



TURNING ON THE DEVICE

When looking at the LED screen, the power/confirm button on the right side of the device. Press the power/confirm key once; the meter will power on and beep twice.

TURNING OFF THE DEVICE

Press and hold the power/confirm key until the device beeps twice. Release the key, the meter will power off.

After one minute of inactivity, the device will automatically shut off.

SETTING THE TIME/DATE

It is not necessary to set the time/date on the device. The time and date of each measurement are recorded by your RCP Hub. If you want the local date and time on the device to be correct, follow these instructions.

To set/reset the time and date, remove the batteries, wait 10 seconds, and then reinstall the batteries. Please refer to the “Insert the batteries” section of this manual for those instructions.



Once you insert the batteries the device will automatically enter the set-up mode. The YEAR will be flashing on the LCD Screen.

Press left key or right key to change year. If you press the left key once, the year will decrease by 1. If you press the right key once, the year will increase by 1. Once you have the correct year in the display, press the power button (on the right side of the device) to

lock in the date.

Once you set the year, the MONTH begins flashing



Use the left and right key to adjust the MONTH in the same way you did the YEAR. Press the power button to lock in the MONTH.

You can now set DAY, HOUR, and MINUTE the same way. Once you set the MINUTE, the device will beep twice to indicate that it is ready for use. You can now take a measure or press and hold the power button to shut off the device.

Do not allow other people to use your spirometer. The spirometer is specifically assigned to you and you only. Allowing other people to use your spirometer can mislead your provider.

TAKING A MEASUREMENT

Before every measurement, clean the mouthpiece.

1. When the device is powered on, the last result is shown. It then indicates “READY” for measurement by two short beeps.
2. Inhale completely and hold your breath for a moment.
3. Cover the mouthpiece tightly with your lips. Blow into the turbine as hard and as fast as you can.



4. A long beep confirms that the test is complete
5. When you hear two short beeps, the device has reset and is ready for another measurement.
6. You should perform three measurements sequentially. The device will record the best result of the three tests.

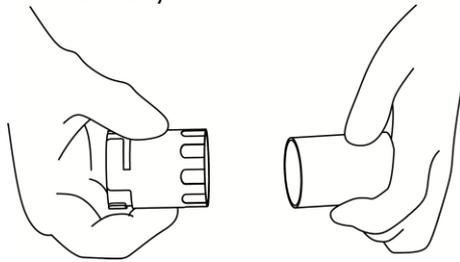
UNDERSTANDING THE RESULTS

Your age, gender, height, and race are all used to determine your target ranges for this test. Please consult with your provider for your target ranges.

CLEANING

Don't use high-pressure water or running water to rinse the turbine. This may damage the turbine and result in inaccurate readings.

The meter should be cleaned within 30 minutes after each use. Separate mouthpiece and turbine from the main body. Disconnect mouthpiece and turbine. Immerse the mouthpiece and turbine in a prepared soap solution. Thoroughly rinse the mouthpiece with water (distilled water is recommended). Allow the device to air dry.



Clean the main body of the device by using a clean, damp cloth. Do not put the device into water



MEMORY FUNCTIONS

View Past Readings

When the device is powered on and indicates that it is "READY" to take a measurement, press the left or right key, to view past readings.

If you keep pressing the button you can browse through all the records. The records contain measurement date, time, PEF value, FEV1 value, and position in memory. Press the power/confirm key once or just wait a moment and the device will return to the "READY" to take a measurement state.

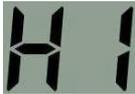


Delete Past Readings

When the device is powered on and indicates that it is "READY" to take a measurement, press the left and right key simultaneously for five seconds. All records will be deleted, and the screen will show the "dEL" message.



TROUBLESHOOTING

Message	Cause	Remedy
	The PEF result is higher than 900L/min, or FEV1 result is higher than 9.99L	This is a very good result
	Records address exceeds the limit, or record date and time is in error, or software has failed	Restart system
	Records do not exist	No records
	Memory is full	New record will not be stored until older records are deleted
	Battery insufficient	Change the batteries
NO display on screen	Battery is low, or the battery pole is reversed.	Insert new batteries, and note pole direction
Measuring value error		Check if the turbine is turning freely or if the turbine is dirty. Consult with your provider on your readings.

If you cannot solve your issue using the table above, please contact your provider or Remote Care Partners. Do not disassemble the unit.

STORAGE AND MAINTENANCE

- Keep the unit away from direct sunlight, extreme temperature, humidity, or moisture.
- Use a dry, soft cloth to clean the unit, or if desired, use a cloth lightly dampened with water.
- Do not use alcohol, benzene, thinner, or other volatile liquids to clean the unit.
- Remove the batteries from the unit when it will not be used for more than three months.

NOTE: Please recycle or dispose of batteries per local regulations.

WARNING: Batteries may pose a choking hazard. As with all small items, do not let children handle batteries. If swallowed, seek medical attention immediately.

PRECAUTION:

Do not dispose of batteries in fire. Batteries may explode or leak.

SPECIFICATIONS

ADF-MSA100 Wireless spirometer is a handheld pulmonary function measuring medical device that measures your maximum possible exhalation which is called peak expiratory flow (PEF) and forced expiratory volume in 1 second (FEV1). The parameters are displayed on the LCD screen. ADF-MSA100 supports Bluetooth connection.

General

Sensor type	Turbine
Measurement parameters	FEV1, PEF
Memory size	250
BTPS	PEF and FEV1 results displayed at BTPS conditions

Accuracy

Meet ATS 2005 Revision accuracy requirement

Volume range	0.01L~9.99L	Air flow range	50 L/min ~900L/min
Volume accuracy	±0.050L or ±3%	Airflow accuracy	±10% or ±20L/min

Resolution

Volume resolution	0.01L	Air flow resolution	1 L/min
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Resistance to flow

Back pressure @ 660L/min	< 0.11 KPa/sec
Back pressure @ 900L/min	< 0.15 KPa/sec

Repeatability

PEF	$\pm 5\%$ or $\pm 10\text{L}/\text{min}$
FEV1	$\pm 3\%$ or $\pm 0.05\text{L}$

Wireless

Wireless technology	Bluetooth Low Energy
Output Watts	0.0003
Operating Range	0 m~ 6m
Frequency Range (MHz)	2402.0 – 2480.0
Modulation	GFSK

Display Screen

Size	1.8 inches
Type	LCD

Control

Standard	Power/confirm key, left/right key
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Environment specification

Power source	AAA1.5×2 batteries
Design	Interval, ordinary device
Battery work time	Maximum one year
Connection	Where available, Bluetooth for phone connection.
Operation Temperature Humidity Atmosphere	10°C~40°C 25%~85% 860hPa~1060hPa
Storage Temperature Humidity Atmosphere	-10°C~55°C 15%~93% 500hPa~1060hPa

Zoning

Green/Yellow threshold	80% of reference
Yellow /Red threshold	50% of reference

Physical specification

Height	12.6 centimeter
Wide	5.4 centimeter
Thickness	2.8 centimeter
Weight	120g (with batteries and mouthpiece)

CONTACT INFORMATION AND NOTICES

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FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may cause harmful interference.
2. This device accepts any interference received, including interference that may cause undesired operation.

FCC WARNING

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. If not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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 the receiver.
- Connect the equipment into an outlet different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.