



Lumen® V2
P/N MF-V2
Instructions for Use

For technical assistance or customer support, contact:
Lumen Customer Services: support@lumen.me

Metaflow Ltd. (Lumen®)
Model: MF-V2-01 rev C
Input: 5V $\overline{=}$ 1A



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Electromagnetic Compatibility (EMC)

Lumen carries the FCC certification mark which certifies that electromagnetic interference from the device is under limits approved by the Federal Communications Commission.

NOTE For full details, see *FCC Compliance* on page 5.

Environmental Standards

Lumen is designed for operation indoors. The manufacturer's environmental recommendations for operation, storage and transport are shown in Table 1.

Table 1: Recommended Environmental Conditions

Condition	Ambient Temperature	Relative Humidity
Operation	15° C to 40° C 59° F to 104° F	<=90% (non-condensing)
Storage/Transport	-30° C to +70° C -22° F to 158° F	<=90% (non-condensing)

Dimensions and Weight

Table 2: Dimensions and Weight

		Details	
Lumen	Overall Height	~10.2 cm	~4.0 ins
	Weight	~75 g	~2.7 oz
Docking Station	Weight	~118 g	~4.2 oz
USB Cable	Length	~80 cm	~31.5 ins
Travel case	Height	~13 cm	~5.1 ins
	Width	~6 cm	~2.36 ins

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Safety Warnings and Cautions

Health Warnings

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of about 6 inches (or 16 cm) to be maintained between a mobile phone or wireless device and a pacemaker to avoid potential interference with the pacemaker.

WARNING Always ensure Lumen does not interfere with the functionality of personal medical devices.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device and/ or your physician to determine if it is adequately shielded from interference caused by external RF energy. Your physician may be able to assist you in obtaining this information.

RF Signals

Certain electronic equipment may not be shielded against the RF signals emanating from your wireless equipment.

Health Considerations When Using Lumen

CAUTION Lumen is designed for personal use. For health considerations, avoid passing the device from one person to another.

Moreover, the device is calibrated for only one user's personalized data.

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Copyright Notice

This document contains proprietary information of Metaflow Ltd. The information is supplied for the purpose of assisting users of the Lumen® V2.

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Illustrations in this document are for the purposes of explanation and reference only. The specifications on which they are based are subject to change without notice.

Trademarks

Lumen® is a registered trademark of Metaflow Ltd.

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Intended Use

The Lumen® V2 device (hereafter, Lumen) is intended for use as an indoor wellness device for the purpose of measuring, monitoring and improving the metabolism of healthy adults.

The device is used in conjunction with the Lumen software application (the Lumen® App) operating on a smartphone - either Android or iOS.

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Regulatory

FCC Regulations US

Manufactured by:
Metaflow Ltd.
6 David Elazar St., Tel Aviv, 6107402, Israel.

This equipment has been tested and found to comply with the limits for a Class B digital device, with part 15 of the FCC rules, and its 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.

The limits are designed to provide reasonable protection against harmful interference in a residential installation.

The 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.

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

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CAUTION

When performing a breath measurement, insert only the tip of the Lumen mouthpiece into your mouth. Do not attempt to insert the mouthpiece into any other bodily orifice.

CAUTION

Do not use the Lumen device for inhalation of any type of substance - narcotic, or otherwise.

General Safety Warnings and Cautions

WARNING

Do not disassemble the Lumen! Attempting to do so causes the risk of electrical shock and will void the device warranty.

WARNING

When handling Lumen, take care not to drop it! Dropping the device may result in total malfunction or cause a deterioration in performance.

WARNING

Do not immerse Lumen in water or spray liquid directly onto the device! Do not wash the device or use any cleaning materials. For cleaning instructions, refer to *Cleaning the Lumen* on page 18.

WARNING

Always ensure use of the mouthpiece cap is in accordance with the intended use. Whenever the cap is removed, make sure it is placed in an area safe from the reach of children and/or pets to avoid the risk of choking or swallowing.

CAUTION

Take care not to spill liquids (water, hot or cold beverages, etc.) on Lumen.

CAUTION

Avoid leaving Lumen exposed to direct sunlight. Do not place near a radiator or heating unit. Do not leave Lumen in a parked car for prolonged periods.

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Designed to optimize a user's daily nutrition, Lumen is intended to help users improve their metabolic flexibility and fitness performance and promote healthy weight loss.

Lumen is not a medical device. Moreover, the information presented in this document should in no way supersede established medical protocol concerning nutrition and metabolism.

CAUTION

Lumen is not intended for use by persons with an existing medical condition (diabetes, metabolic disorder, lung disease, etc...) For full details, refer to the information provided in Terms of Use.

CAUTION

Lumen assumes a minimal lung volume. The device is not intended for use by persons younger than 16 years of age.

Responsibility of the Manufacturer

The manufacturer considers itself responsible for the effects on safety, reliability, and performance of the equipment only if:

- The equipment is used in accordance with instructions for use.
- Service, maintenance procedures and repairs of the Lumen are carried out by Metaflow Ltd. personnel, or anyone authorized by Metaflow Ltd.

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CE declaration of conformity

Metaflow Ltd declares that the product named Lumen V2 is in conformity with the essential requirements of the following EU Directive or other normative documents. This declaration is based on the full compliance of the products with the following European standards:

CE-marking Directives	Regulations Standard detail and/or measurement reference
Low Voltage Directive (LVD), (2014/35/EU)	IEC 62368-1:2014
Low Voltage Directive (LVD), (2014/35/EU)	EN 62479:2010
Electromagnetic Compatibility Directive (EMC), (2014/30/EU)	EN 301 489-1 V2.1.1 EN 301 489-17 V3.1.1
Electromagnetic Compatibility Directive (EMC), (2014/30/EU)	EN 55032:2015/A11:2020 (freq range: 1GHz - 6 GHz)
Radio Equipment Directive (2014/53/EU)	EN 300 328 V2.1.1
Restriction of the use of certain hazardous substances (RoHS) Directive (2015/863)	IEC62321

Metaflow Ltd. cannot be held responsible for modifications made by the user and the consequences thereof, which may alter the conformity of the product with the CE marking.

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Important

Users should always adhere to the precautions below.

- Refrain from modifying the Lumen hardware or software in any way. Doing so could void the user's authority to operate the device.
- In the event of device malfunction, always report to Lumen (Metaflow Ltd.) authorized support representatives only.

Abbreviations and Acronyms

Abbreviation or Acronym	Definition
BLE	Bluetooth Low Energy - a wireless personal area network technology.
CO2	Carbon dioxide.
DFU	Dynamic Firmware Update.
FCC	Federal Communications Commission.
QR code	Quick Response code (a two-dimensional barcode).

Specifications and Technical Data

Device Classification

In accordance with Part 15 of FCC rules, Lumen is classified as a Class B digital device.

NOTE For full details, see *FCC Compliance* on page 5.

IP Rating

Lumen has an IP20 rating, meaning it will not operate in the event that liquids are introduced into the device and it will not permit the ingress of objects > 5mm.

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Device Symbols

The device label is located on the base of the docking station. In addition to providing details of the manufacturer, FCC ID No, device Part No, CE, and Serial No, symbols are used as explained in Table 3.

Table 3: Device Label - Symbols

Symbol	Description
Input: 5V $\overline{=}$ 1A	Indicates electrical input (5V, 1 Amp)
	Waste Electrical and Electronic Equipment (WEEE) Disposal.
	Regulatory Compliance Mark (RCM) for electrical safety (Australia and New Zealand)
	FCC (Federal Communications Commission) mark of compliance. For details, see <i>FCC Compliance</i> on page 5.
	Declaration of conformity (european market)

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Introduction to Lumen

What's in the Box?

The Lumen MF-V2 Kit includes the items illustrated in *Figure 2*

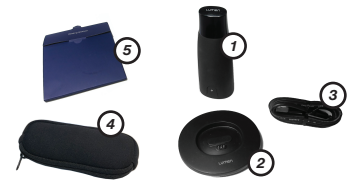


Fig 2. Lumen MF-V2 Kit Contents

Legend	Description
1	Lumen device
2	Docking Station
3	USB-C cable
4	Travel pouch
5	Lumen® App Getting Started Guide

NOTE The Lumen® V2 Instructions for Use (this document) is also supplied - not shown in above illustration.

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Battery Safety

Battery Charging Options

CAUTION To charge the battery, use only the Docking Station supplied with Lumen by Metaflow Ltd.

The USB-C cable, supplied in the Lumen kit, (see *Figure 2* on page 11) is used for recharging the battery.

The cable is fitted with a USB-C connector at one end; the other has a standard USB-A connector.

After connection to the docking station, the USB-C cable may be connected to one of the following:

- Standard USB port on a computer
- Wall-mounted charger (AC/DC adaptor) This should preferably be UL-certified. See note below.
- Charger supplied with the user's smartphone not exceeding 5V of output.

NOTE The wall-mounted charger is not supplied by Metaflow Ltd. Requirements are listed in *Table 5*.

Table 5: Wall-Mounted Charger Requirements

Input	Output
100 - 240 VAC, 50/60 Hz.	5VDC, 1A.

Battery Status Indicators

The charged state (capacity) of the Lumen battery is indicated on the device itself by colored illumination of the LED indicator. See *Table 4* for explanations.

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CAUTION Do not use any cleaning materials or solutions containing abrasive powder or strong chemicals, such as acid or alkaline.

General Maintenance

- While not in use you can leave the Lumen on the charging dock.
- Keep the Lumen mouthpiece capped - except when using the device.

Battery Care

The Lumen battery is not replaceable.

In the event that after a period of time a significant loss of run time is detected, it is recommended to contact Metaflow Ltd. for replacement of the Lumen.

NOTE The above is conditional on the warranty being still valid and use of the device having been as intended (in accordance with the information provided in this Instructions for Use document).

Dynamic Firmware Update (DFU)

The device firmware can be upgraded wirelessly.

The Lumen App will provide step-by-step instructions to guide the user through the process.

Important Throughout the firmware update process, it is necessary for the device to be docked in the Docking Station. Lumen LED illumination is explained in *Table 4* on page 14.

Troubleshooting

General troubleshooting guidance and a help guide is available to the user on-line at:
www.lumen.me/support

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Device Description

The hand-held Lumen - containing a pressure sensor and a CO2 sensor - is used to determine the CO2 concentration in a single breath.

The acquired data is analyzed by a proprietary Lumen algorithm to determine the source of the user's body fuel (carbs or fats). This information is transmitted via Bluetooth® to the Lumen App - where the patent-pending Lumen technology provides personalized nutrition recommendations and daily guidance.

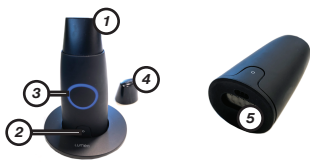


Fig 3. Lumen Device

The ergonomically-shaped device has a mouthpiece at one end (1 in *Figure 3*) - and is equipped with an On/Off power button (2) and LED indicator (3).

NOTE For an explanation of the Lumen LED indicators, refer to *Table 4*.

A magnetically-attached cap (4) covers the mouthpiece when the device is not in use.

Located on the base of Lumen is an exhaust vent (5). This enables air to move freely in both directions; a mesh cover prevents large objects entering the device.

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Moreover, after successful pairing, a battery status icon is displayed on the Lumen App. This is shown as a colored bar in the lower half of the main screen - see example below:

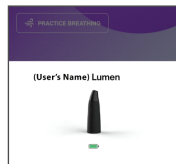
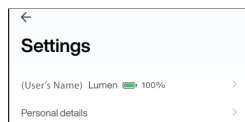


Table 6: Lumen App - Battery Status Indicator

Color	Battery Status
Green	Battery is fully-charged.
Red	Charging is required. Refer to the instructions for <i>Charging the Battery</i> on page 17.

Additionally, on successful pairing, battery status will also be visible under Settings, as shown in this example:



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Warranty, Return, and Refund Policy

For all information in regards to warranty and return policy please visit our website.

Warranty

<https://lumen.me/terms-of-use#warranty>



Return Policy

<https://lumen.me/terms-of-use#refund>



Lumen® V2 designed by:

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Made in China

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The Lumen contains a rechargeable 2Cell 500mAh Poly Ion battery; the battery can be recharged when placing the device into the supplied Docking Station. Refer to the following, as applicable:

- *Battery Safety* on page 15
- *Charging the Battery* on page 17
- *Battery Care* on page 19

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Getting Started

Charging the Battery

Important Before first-time use of Lumen, it is recommended to charge the battery for a couple of hours.

Typically, the frequency with which battery charging is required will depend on the frequency of use, as follows:

- Battery should last for ~2 hours of continuous Lumen use.
- When using Lumen once a day, the battery should last for ~10 days.

To Charge the Battery

1. Connect one end of the USB-C cable to the port at the rear of the Docking Station.
2. Connect the other end, as required. Refer to the options shown in *Battery Charging Options* on page 15.
3. Dock Lumen on the Docking Station. While charging is in progress, LED illumination will be purple - slow gradual blinking. When fully-charged, the LED shows steady green.

NOTE The Lumen may now remain in the Docking Station, ready for use - or if traveling, be placed in the travel pouch.

Sign-Up Procedure

The Lumen App will guide you through the Sign-Up process.

Turning On the Lumen Device

To Turn On Power

1. Remove the Lumen from the Docking Station and hold in your hand.

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Understanding the Lumen LED Indicators

Illumination of the LED indicator on the front of the Lumen provides a visual indication of the current operating status. See *Table 4* for explanations.

Table 4: Lumen LED Indicator Status

Device Position	LED Color	LED Illumination	Status Indicated	Comments
In Hand	White	Constant	Power is On.	If device not in active use, power will shut Off automatically after 15 secs.
	Red	Constant	Battery charging is required.	See instructions for <i>Charging the Battery</i> .
	Purple	Constant	Active connection via BLE.	Broadcasting established with user's smartphone.
In Docking Station	Purple	Rotating purple light	Battery charging in progress.	
	Green	Constant	Battery is fully-charged.	

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2. Press the On/Off power button (short press). Constant illumination of the LED (white circle) indicates power is On.

NOTE If after 15 secs the device is not in use, power will switch Off automatically to reserve the battery. Similarly, if there is no Bluetooth connection.

NOTE If required, power can be turned Off manually. Press and hold the On/Off button for ~ 2 secs.

NOTE HARD RESET: Long press the Power button for 10 seconds will force a hard reset, yet there will be no visual indication at this stage. When turning the device back on, a brief flashing green circle that turns to steady white will indicate the device is ready for use.

Bluetooth Pairing (Broadcasting)

Once the smartphone is turned on, Bluetooth and GPS location are On, and the smartphone is paired with the device, while the Lumen application is open, the device broadcasts data to the Lumen application, then to the cloud.

Performing a Breath Measurement

The Lumen App shows the user when to breathe, how to breathe, intensity of the breath, etc.

CAUTION When performing a breath measurement, do not cover the exhaust vent at the base of the Lumen with your hand.

Cleaning and General Care

Cleaning the Lumen

The manufacturer recommends routine cleaning of the Lumen, as follows: Using an Alcohol pad (70% Isopropyl Alcohol), wipe the mouthpiece, cap, and main body.

WARNING Do not wash the device. Do not immerse Lumen in water or spray liquid directly onto the device!

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Download the Lumen App now

