



# RMA ANALYZER GUIDE

# CONTENTS

■ Table of contents	Page 2
■ Hardware required	Page 3
■ Software required	Page 4
■ Getting to know the RMA Analyzer dongle	Page 5
■ Connect RMA Analyzer dongle to computer	Page 6
■ Connect RMA Analyzer dongle to battery	Page 7
■ Fully connected	Page 8
■ Open RMA Analyzer folder	Page 9
■ Launch RMA Analyzer application	Page 10
■ Make connection with RMA Analyzer and battery	Page 11
■ Software version check	Page 12
■ Confirm connection	Page 13
■ Start analyze process	Page 14-17
■ RMA Analyzer layout	Page 18-19
■ Analyzed results - fault(s)	Page 20-21
■ Fault(s) troubleshooting steps	Page 22-23
■ Standard connection process summary	Page 24
■ Warranty guidelines	Page 25

# HARWARE REQUIRED

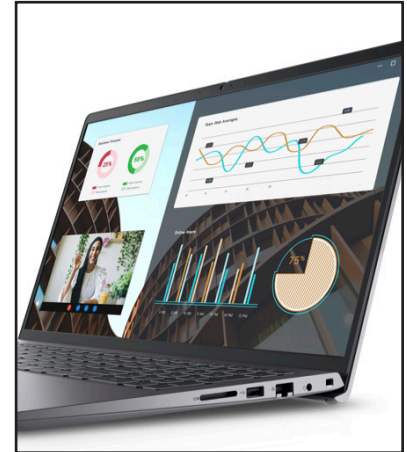
RMA Analyzer dongle



USB-C to USB or USB-C cable



Compatible PC computer



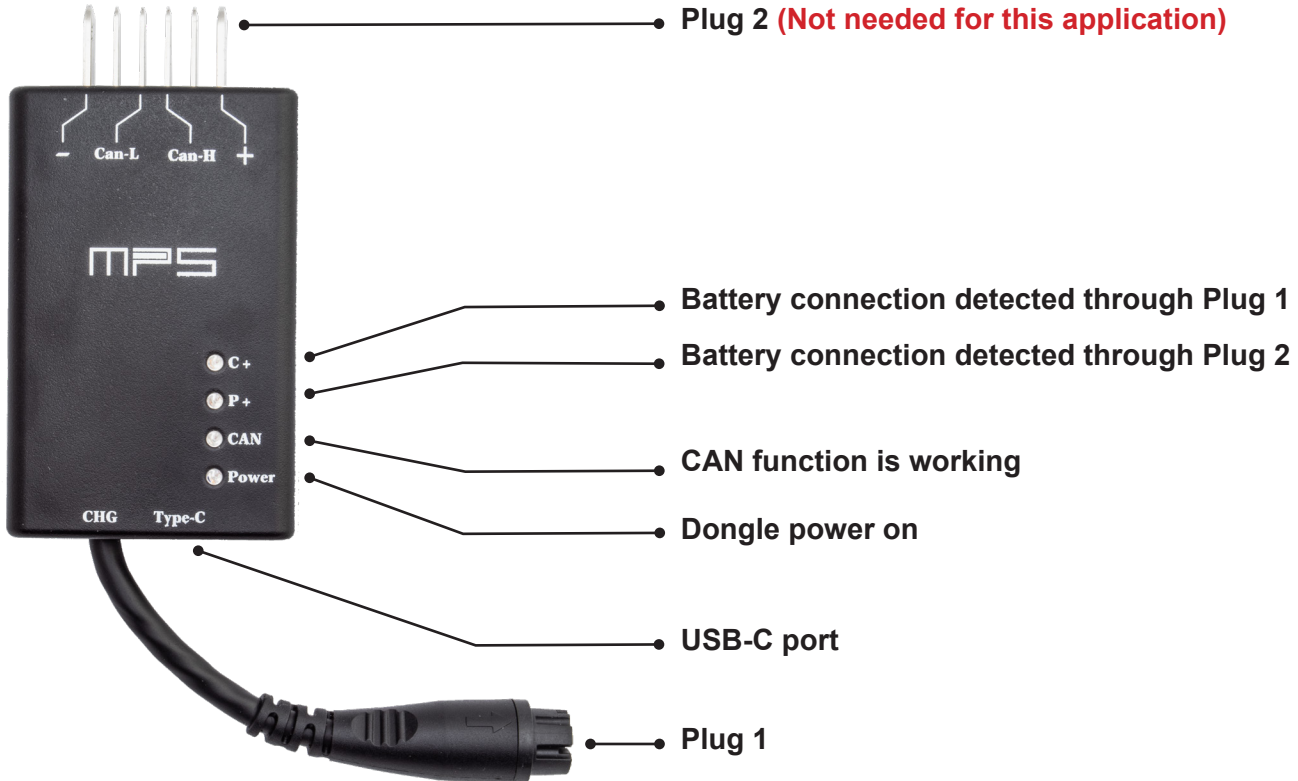
# SOFTWARE REQUIRED

- **RMA Analyzer**

- Download RMA Analyzer.zip Available at [https://www.jbi.bike/site/files/rma\\_analyzer.zip](https://www.jbi.bike/site/files/rma_analyzer.zip)
- Unzip the file and place on your desktop or other location on your hard drive where you can easily access when needed



# GETTING TO KNOW THE RMA ANALYZER DONGLE



# CONNECT RMA ANALYZER DONGLE TO COMPUTER



# CONNECT RMA ANALYZER DONGLE TO BATTERY



# FULLY CONNECTED





# OPEN RMA ANALYZER FOLDER

OPEN  
FOLDER



RMA  
Analyzer

# LAUNCH RMA\_ANALYZER APPLICATION


The screenshot shows a Windows File Explorer window titled "RMA Analyzer". The address bar shows the path "RMA Analyzer". The left sidebar shows "Quick access" with links to Desktop, Downloads, Documents, Pictures, Dzone, and Network. The main pane displays a list of files and folders:

Name	Date modified	Type	Size
APUpgrade	1/13/2022 9:28 AM	Application	10 KB
APUpgrade.pdb	1/13/2022 9:28 AM	PDB File	22 KB
AWSSDK.Core.dll	1/13/2022 9:28 AM	Application exten...	848 KB
AWSSDK.S3.dll	1/13/2022 9:28 AM	Application exten...	618 KB
CircularProgressBar.dll	1/13/2022 9:28 AM	Application exten...	17 KB
DotNetZip.dll	1/13/2022 9:28 AM	Application exten...	448 KB
latest_version	10/6/2021 5:20 PM	Text Document	1 KB
RMA_analyzer	1/13/2022 9:28 AM	Application	197 KB
RMA_analyzer.exenadb1jev.utk.Pending...	8/1/2019 2:27 AM	PENDINGOVERWR...	197 KB
RMA_analyzer.pdb	1/13/2022 9:28 AM	PDB File	112 KB
WinFormAnimation.dll	1/13/2022 9:28 AM	Application exten...	38 KB

A yellow callout box with a red border and a red arrow points to the "RMA\_analyzer" file. The text inside the callout box is "OPEN APPLICATION".

# MAKE CONNECTION WITH RMA ANALYZER & BATTERY

le Bin
MPS\_RmaAnalyzer\_v1.0.2.0
— □ ×




Cycles: ---

SOH: ---

Cell Temp.: ---


FET Temp.: ---




Firmware: ---

Parameter: ---

CLICK CONNECT





Connect





--- %


--- mAh

 Pack Time: ---

 Serial Number: ---

 Last Warning: ---

 Charge Record: ---  
to ---




--- Days

Remaining Warranty


0%


cell damage & no charging > 95 days	cycle over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

Analyze



Restart





# SOFTWARE VERION CHECK

The screenshot shows a software interface with a dark theme. On the left, there is a sidebar with icons for 'Connect', 'Analyze', and 'Restart'. The main area displays various battery-related metrics: 'Cycles: ---', 'SOH: ---', 'Cell Temp.: ---', 'FET Temp.: ---', 'Pack Time: ---', 'Serial Number: ---', and 'Last Warning: ---'. A central donut chart shows a percentage of --%. A 'TOOL VERSION CHECK' dialog box is overlaid on the screen, containing the text 'The latest version tool was available, upgrade it?' and two buttons: 'Yes' and 'No'. A red arrow points from a yellow box with the text 'CLICK NO' to the 'No' button. The background interface also includes a 'Remaining Warranty' section with a progress bar at 0% and a table of battery health indicators.

MOSFET fail	cell damage	...
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

# CONFIRM CONNECTION

te Bin

MPS\_RmaAnalyzer\_v1.0.2.0

MPS

**PLUG IS NOW CONNECTED** → Disconnect

Analyze

Restart

Cycles: ---

SOH: ---

Cell Temp.: ---

FET Temp.: ---

--- mAh

--- %

Firmware: ---

Parameter: ---

Pack Time: ---

Serial Number: ---

Last Warning: ---

Charge Record: --- to ---

cell damage & no charging > 95 days

cycle over warranty

fuse blown

MOSFET fail

cell damage

system error

over charging current / charging overtime

over charging voltage

over discharging voltage

abnormal temperature

over discharging current

battery good

--- Days

Remaining Warranty

0%

# START ANALYZE PROCESS

Bin MPS\_RmaAnalyzer\_v1.0.2.0

MPS

Connect

**CLICK ANALYZE** → Analyze

Restart

Cycles: ---  
SOH: ---  
Cell Temp.: ---  
FET Temp.: ---

--- mAh

--- %

Firmware: ---  
Parameter: ---

Pack Time: ---  
Serial Number: ---  
Last Warning: ---  
Charge Record: --- to ---

Remaining Warranty

--- Days

0%

cell damage & no charging > 95 days	cycle over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

# CONFIRM START ANALYZE PROCESS

MPS\_RmaAnalyzer\_v1.0.2.0

**MPS**

Disconnect

Progress

Restart

Cycles: 1  
SOH: 100%  
Cell Temp.: 24 °C  
FET Temp.: 24 °C

9995

18 Days

Remaining Warranty

0%

Firmware: 21.0727.91  
Parameter: B6v3

Pack Time: 2023/11/15 11:52:14  
Serial Number: ULR01TP068219001EE0N00  
Last Warning: N/A

Notification

LOG dump will take 1 minutes at most, please don't pull out the plug or shut down battery.

CLICK OK

OK

cell damage	system error	
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

# ANALYZE IN PROCESS

MPS\_RmaAnalyzer\_v1.0.2.0

Bin

MPS

Disconnect

Progress

Restart

Cycles: 1

SOH: 100%

Cell Temp.: 24 °C

FET Temp.: 25 °C

9995 mAh

98%

Firmware: 21.0727.91

Parameter: B6v3

Pack Time: 2023/11/15 11:54:58

Serial Number: ULR01TP068219001EE0N00

Last Warning: N/A

Charge Record: 2023/11/13 12:07:54 to 2023/11/13 13:49:07

18 Days

Remaining Warranty

14%

cell damage & no charging >95 days	cycle over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

**WAIT FOR PROGRESS BAR TO REACH 100%**



# ANALYZE PROCESS COMPLETE

MPS\_RmaAnalyzer\_v1.0.2.0

MPS



Disconnect

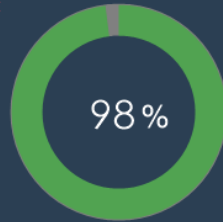


Progress



Restart

Cycles: 1  
SOH: 100%  
Cell Temp.: 24 °C  
FET Temp.: 24 °C



9995 mAh



Remaining Warranty



Firmware: 21.0727.91  
Parameter: B6v3



⌚ Pack Time: 2023/11/15 11:52:14

📄 Serial Number: ULR01TP068219001EE0N00

🔌 Last Warning: N/A

🔋 Charge Record: 2023/11/13 12:07:54  
to 2023/11/13 13:49:07

cell damage &  
no charging > 95 days

cycle over warranty

fuse blown

MOSFET fail

cell damage

system error

over charging current  
/ charging overtime

over charging voltage

over discharging  
voltage

abnormal  
temperature

over discharging  
current

battery good



**IF BATTERY  
IS NORMAL  
BOX WILL  
TURN GREEN**

# LAYOUT


Bin MPS\_RmaAnalyzer\_v1.0.2.0

**MPS**

Disconnect

Progress


Restart

Cycles: 1 ←Life cycles 


SOH: 100% ←State of health

Cell Temp.: 24 °C ←Temperature on Cell

FET Temp.: 24 °C ←& FET position

State of Charge →  98%

9995 mAh

Firmware: 21.0727.91 ←BMS FW version 

Parameter: B6v3 ←BMS parameter version

Pack Time: 2023/11/15 11:52:14 ←BMS time

Serial Number: ULR01TP068219001EE0N00 ←Serial Number

Last Warning: N/A ←Last warning state

Charge Record: 2023/11/13 12:07:54 ←Last charge  
to 2023/11/13 13:49:07


Number of days remaining in warranty

18 Days

Remaining Warranty

100% Analyzed progress bar

cell damage & no charging >95 days	cell over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good



# LAYOUT CONTINUED

MPS\_RmaAnalyzer\_v1.0.2.0

MPS

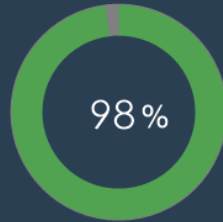
Cycles: 1  
SOH: 100%  
Cell Temp.: 24 °C  
FET Temp.: 24 °C



Firmware: 21.0727.91  
Parameter: B6v3



Disconnect



9995 mAh

Pack Time: 2023/11/15 11:52:14

Serial Number: ULR01TP068219001EE0N00

Last Warning: N/A

Charge Record: 2023/11/13 12:07:54  
to 2023/11/13 13:49:07

Progress



Remaining Warranty



Restart

cell damage & no charging >95 days	cycle over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

Analyzed Result

Next check action will display here if any faults are detected

Next Action

# ANALYZED RESULTS - FAULT(S)

cell damage & no charging >95 days	cycle over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

- **Contact the bike / trike brand to discuss replacment options. Make sure to have the following details ready.**
  - Date of purchase by the original retail buyer
  - Bike / Trike Serial Number
  - Battery Serial Number
  - Photos of battery installed on bike / trike
  - Photos of battery from all sides showing current condition

## ■ cell damage & no charging >95:

- One cell voltage is under 1.4V and and the battery has not been charged in at least 95 days.
- Battery must be replaced
- **NOT COVERED BY WARRANTY**

## ■ cycle over warranty:

- Battery life cycle is over warranty, default 500 times.
- Battery should be replaced
- **NOT COVER BY WARRANTY**

## ■ fuse blown:

- Hardware fuse is blown.
- Battery must be replaced

## ■ MOSFET fail:

- MOSFET is broken.
- Battery must be replaced

## ■ cell damage:

- One cell voltage is under 1.4V and battery has no charging less than 95 days.
- Battery must be replaced

## ■ System error:

- MCU peripheral is broken.
- Battery must be replaced

# ANALYZED RESULTS - FAULT(S) CONTINUED

cell damage & no charging > 95 days	cycle over warranty	fuse blown
MOSFET fail	cell damage	system error
over charging current / charging overtime	over charging voltage	over discharging voltage
abnormal temperature	over discharging current	battery good

- **over charging current / charging overtime:**
  - Battery has detected an overcharging current or a long charge time
  - BMS can disable the battery and or charging
- **over charging voltage:**
  - A high voltage has been detected in one or more cells
  - BMS can disable the battery and or charging
- **over discharging voltage:**
  - A low voltage has been detected in one or more cells
  - BMS can disable the battery and or charging
- **abnormal temperature:**
  - An abnormally high or low charging or discharging temperature has been detected
  - BMS can disable the battery and or charging
- **over discharging current:**
  - A Short circuit or high discharging current has been detected
  - BMS can disable the battery and or charging
- **battery good:**
  - No abnormal condition is detected.

- **Refer to Fault(s)** Troubleshooting steps on page 22 & 23

# FAULT(S) TROUBLESHOOTING STEPS

## Step 1 - Release BMS protection

over charging current / charging overtime:

over discharging current:

Keep battery powered-on, and **LONG PRESS** the power button to shut down battery, then power on the battery again.

Check the battery error LED indicator not flash anymore and go to step 2.

over charging voltage:

Discharge battery (e.g. Install on eBike and ride) for several minutes. Check the battery error LED indicator not flash anymore and go to step 2.

abnormal temperature:

Insert charger and check battery error LED indicator is flashing. Put battery in room temperature several hours. Check the battery error LED indicator not flash anymore and go to step 2..

over discharging voltage:

battery good:

Go to step 2.

# FAULT(S) TROUBLESHOOTING STEPS CONTINUED

## **Step 2 - Charging test**

### **Insert charger and if**

- a.) battery LED indicator show in charging state. Keep charging to SOC above two LED bright (means above 30% capacity(2)), then Go to step 3.
- b.) battery LED indicator does NOT show in charging state and not because SOC is full. Go to step 4.

## **Step 3 - Integration**

Install the battery on eBike and riding.

- a.) If battery can provide power to eBike normally, return this battery to customer.
- b.) If battery can NOT provide power to eBike, please check the VCU and motor on eBike is working, then go to step 4.

## **Step 4 - Repair service**

Take the photos on all sides of battery with above 500 megapixel camera. Check the serial number label in photo can be read. Note down customer's description. MPS will repair these RMA batteries periodically.

(1) If charging jack is type 1 and battery can't power on, please insert plug\_1 directly to analyze.  
If charging jack is type 2 and battery can't power on, please follow next check action step\_4.

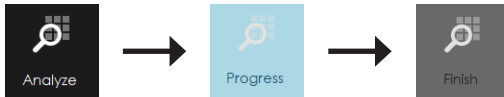
(2) Also could measure the battery output by multimeter, 30% capacity is about 36V for 36V system or 24V for 24V system.

# STANDARD CONNECTION PROCESS SUMMARY

1. Power up battery, then connect the RMA dongle to battery and PC.  
(Don't use two dongles on PC at the same time)
2. Confirm the PC has access to Internet.
3. Open "RMA\_analyzer.exe"
4. Click Connect icon and wait state change to Disconnect.



5. Click Analyze icon to begin and wait state change to Finish.



6. After the RMA Analyzer has finished, remove the plug from battery.
7. Follow the troubleshooting step(s) according to the analyzed result(s).



# WARRANTY GUIDELINES

- **The following actions will void the MPS battery warranty**
  - Tampering with or removing the VOID WARRANTY IF SEAL IS BROKEN sticker
  - Removing the serial number sticker
  - Damage to the battery by external force, including but not limited to cracks, punctures, and water ingress through cracks and punctures
  - Battery life cycle count over 500 cycles
  - Failure to charge the battery regularly according to the product instructions
  - Failure to follow all product instructions

**Thank you**