

BESST Tool Section

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BESST Tool

BESST BOX



First version

Support UART system

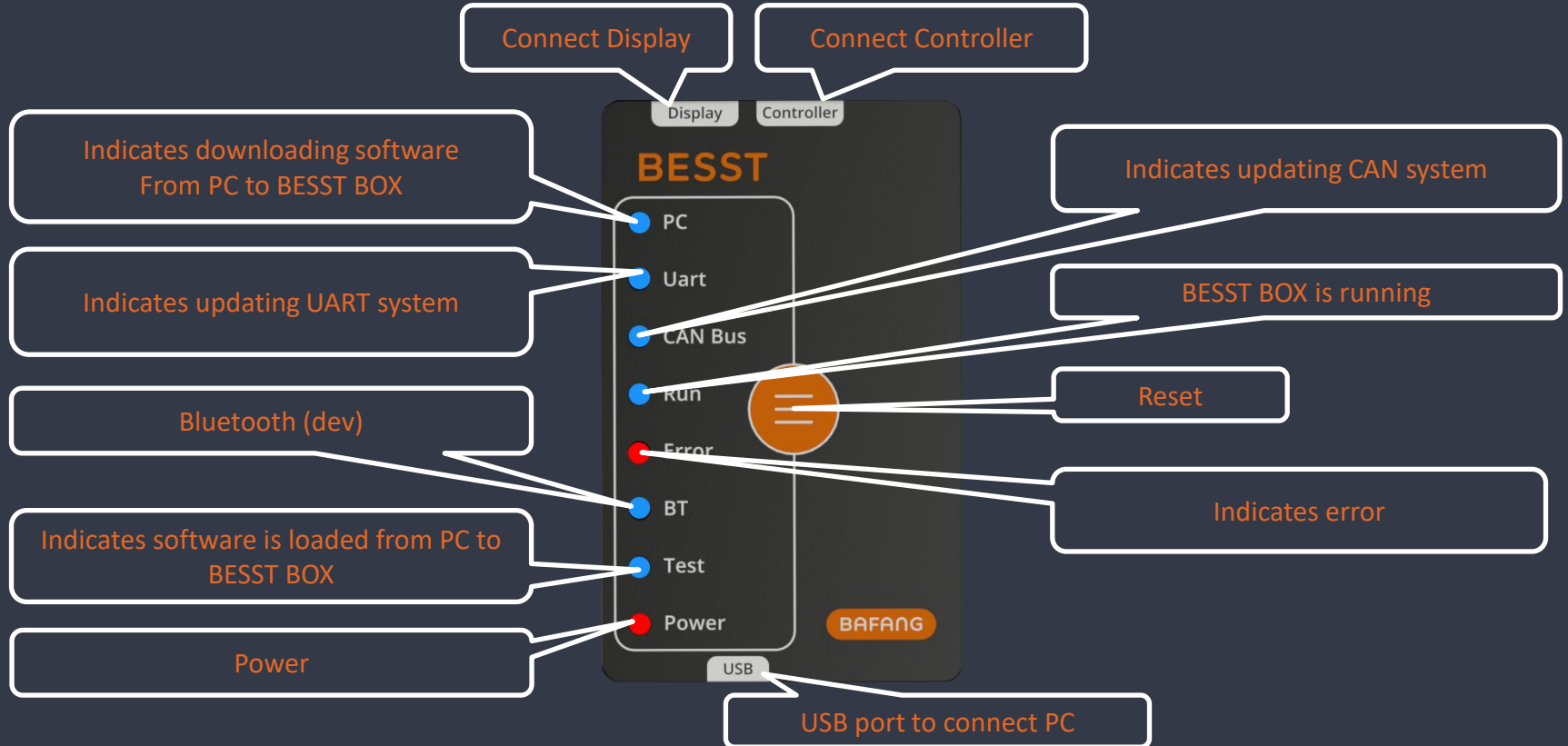


Third version

Support UART and CAN system

CAN system has high priority

Explain the light and button of BESST BOX



Tool Section to use BESST box to build the connection between components and PC.

	First version	Second version	Third version
Connect Method	Through COM port of computer	Through COM port of computer	Through USB port of computer
Connection	Connect manually	Connect manually	Connect automatically
Reset function	Clear status at every time	Clear status at every time	Clear status when read data. Disable when update.
Disconnection	Disconnect from PC	Disconnect from PC	Disconnect when plug HMI to read. Reset when read.
Update	Special Software	Through BESST	Through BESST
UART Light	Always turn on	Always turn on	Turn on when update UART system
Speaker	No	Yes	Yes

HMI Information and configuration

1. Update HMI configuration

1.1 You need connect BESST box to computer and plug the HMI. Connect and read data.

Use USB Connection - UART

The screenshot shows the BAFANG HMI configuration interface. It is divided into two main sections. The left section contains fields for reading data: SN, Model, Software Ver., Hardware Ver., and Total Mileage (with a 'Km' unit indicator). The right section contains fields for writing data: Wheel Size, Speed Limit (with a 'Km/h' unit indicator), and Total Level. Below these fields are 'Read', 'Reset', and 'Test' buttons. At the top right of the right section, there is a 'Connect' button and a status indicator (a green dot). At the bottom of the left section, there are 'Write' and 'Clear' buttons. The 'Remove Maintenance Warning' field also has a 'Km' unit indicator.

Please read first then write Wheel Size and Speed Limit. If the read value of speed Limit is 25km/h, then the maximum speed limit is 25km/h.

If the read value of speed limit is above 25km/h, the maximum is what read from HMI.

Use USB Connection - CAN

The screenshot displays the BAFANG HMI interface with a dark theme. At the top left, there is a yellow circle with a gear icon and the text 'HMI'. At the top right, there is a question mark icon. The interface is divided into two main columns of data fields. The left column contains: SN, Model, Software Ver., Hardware Ver., Total Mileage (with a 'Km' unit indicator), Single Mileage (with a 'Km' unit indicator), Clear Single mileage, Max. Speed (with a 'Km/h' unit indicator), Average Speed (with a 'Km/h' unit indicator), and Remove Maintenance Warning (with a 'Km' unit indicator). The right column contains: USB HID (with a green dot and a 'Connect' button), Total Level, Current level, Mode, BOOST mode, Shutdown time, Head Light, and '+-' key status. Below the 'Remove Maintenance Warning' field, there is a 'Clear' button. At the top of the right column, there are 'Read' and 'Reset' buttons. The 'Remove Maintenance Warning' field has a wrench icon on the right side.

More Information to show.
You could do some test like
“Head Light”

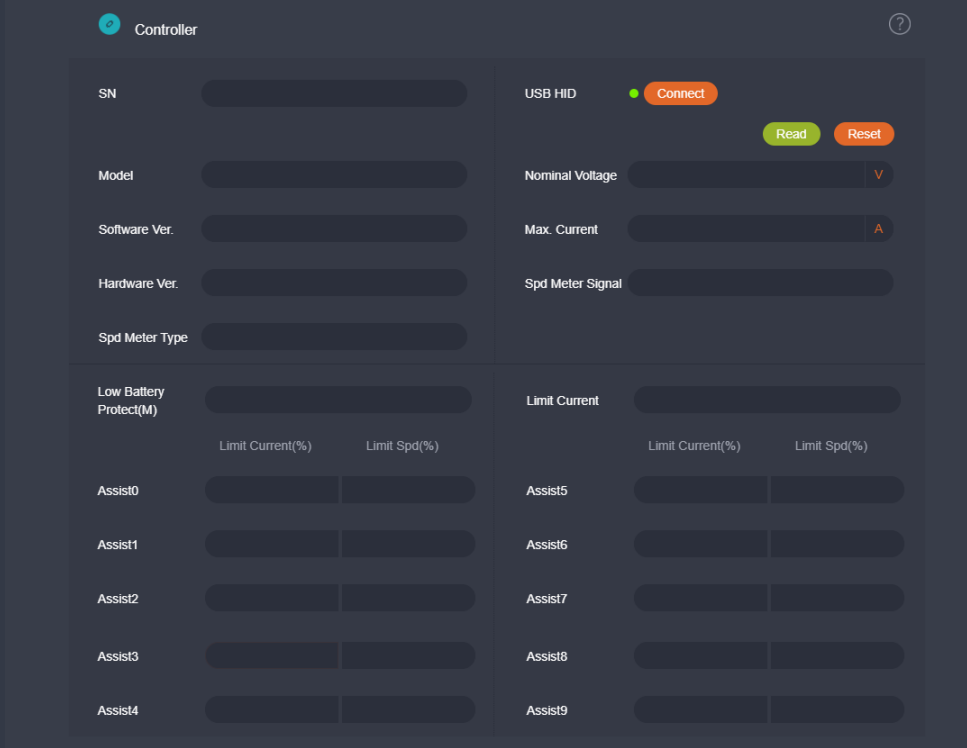
Remove Maintenance
Warning is available when
the value is above 5000km.
There is an wrench icon on
display screen.

Controller Information and configuration

2. Update Controller configuration

2.1 You need connect BESST box to computer and plug the Controller. Click connect and read data.

Use USB Connection - UART



The screenshot displays the 'Controller' configuration page. It features a top navigation bar with a 'Controller' tab and a help icon. The main content is organized into several sections:

- General Information:** Fields for SN, Model, Software Ver., Hardware Ver., and Spd Meter Type.
- USB HID:** A 'Connect' button, a 'Read' button, and a 'Reset' button.
- Electrical Settings:** Sliders for Nominal Voltage (V) and Max. Current (A).
- Spd Meter Signal:** A field for the speedometer signal.
- Low Battery Protect(M):** A table with columns for 'Limit Current(%)' and 'Limit Spd(%)' and rows for Assist0 through Assist4.
- Limit Current:** A table with columns for 'Limit Current(%)' and 'Limit Spd(%)' and rows for Assist5 through Assist9.

More detail of assist level.

Use USB Connection - CAN

The screenshot shows a software interface for configuring a BAFANG controller via USB. It is divided into two main sections: 'Controller' and 'USB HID'.

Controller Section:

- SN: [Input field]
- Model: [Input field]
- Software Ver.: [Input field]
- Hardware Ver.: [Input field]
- Speed Limit: [Input field] **Km/h**
- Wheel Size: [Input field]
- Circumference: [Input field] **mm**
- Speed: [Input field] **Km/h**
- Current: [Input field] **mA**
- Voltage: [Input field] **mV**

USB HID Section:

- USB HID: **Connect** (button)
- Read (button) | Reset (button)
- Remaining capacity: [Input field] **%**
- Single trip mileage: [Input field] **Km**
- Remaining mileage: [Input field] **Km**
- Cadence: [Input field] **RPM**
- Torque output voltage: [Input field] **mV**
- Calories: [Input field] **Kcal**
- Walk-assist status: [Input field]
- Controller temperature: [Input field] **°C**
- Motor temperature: [Input field] **°C**

Configuration Section (Bottom):

- Speed Limit: [Dropdown menu] **20**
- Wheel Size: [Dropdown menu] **Select**
- Circumference: [Dropdown menu] **Select**
- Write** (button)

Please read first then write Wheel Size, Circumference and Speed Limit. If the read speed Limit is 25km/h, then the maximum speed limit is 25km/h. If the read speed limit is above 25km/h, the maximum is what read from HMI.

The support wheel size and circumference value range

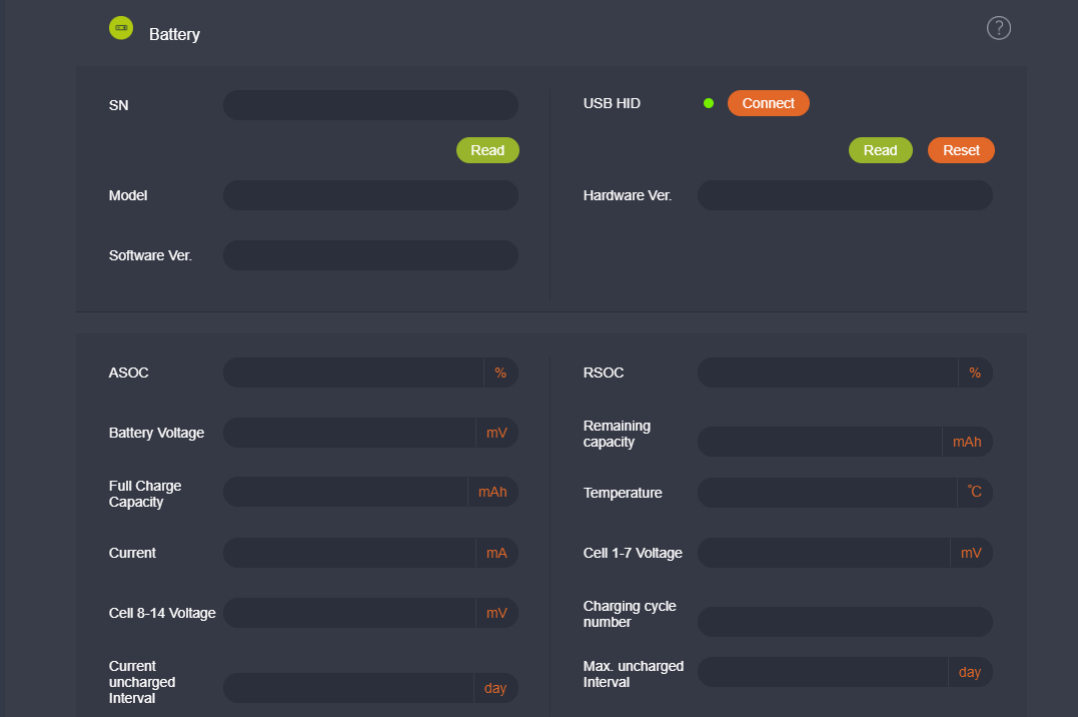
Wheel Size	Max Circumference (mm)	Min Circumference(mm)
7 - 10	590	520
12-14	1300	910
16-18	1600	1208
20-23	1880	1290
24	2200	1290
25	2200	1880
26-29	2510	1880
32	2652	2200
27.5	2510	1880
400	1600	1208
450	1600	1208
600	2200	1600
650	2200	1600
700	2510	1880

Battery Information

3. Update Battery configuration

3.1 You need connect BESST box to computer and plug the Battery. Connect and read data.

Use USB Connection – UART/ CAN



Battery

SN

Model

Software Ver.

USB HID

Hardware Ver.

ASOC %

Battery Voltage mV

Full Charge Capacity mAh

Current mA

Cell 8-14 Voltage mV

Current uncharged Interval day

RSOC %

Remaining capacity mAh

Temperature °C

Cell 1-7 Voltage mV

Charging cycle number

Max. uncharged Interval day

More real time information

Sensor Information

4. Sensor configuration

4.1 You need connect BESST box to computer and plug the Sensor. Connect and read data.

Use USB Connection –CAN

The screenshot displays a software interface for sensor configuration. At the top left, there is a green circle with 'ES' and a toggle switch for 'Sensor' (which is turned on) and 'Can'. A help icon (?) is located at the top right. The interface is divided into two columns. The left column contains four input fields: 'SN', 'Model', 'Software Ver.', and 'Hardware Ver.'. The right column contains a 'USB HID' section with a green dot and a 'Connect' button, followed by 'Read' and 'Reset' buttons. Below this are two rows of data: 'Torque Value' with a unit of 'mV' and 'Cadence' with a unit of 'RPM'.

SN	<input type="text"/>	USB HID	<input type="button" value="Connect"/>	<input type="button" value="Read"/>	<input type="button" value="Reset"/>
Model	<input type="text"/>	Torque Value	<input type="text"/>	mV	
Software Ver.	<input type="text"/>	Cadence	<input type="text"/>	RPM	
Hardware Ver.	<input type="text"/>				

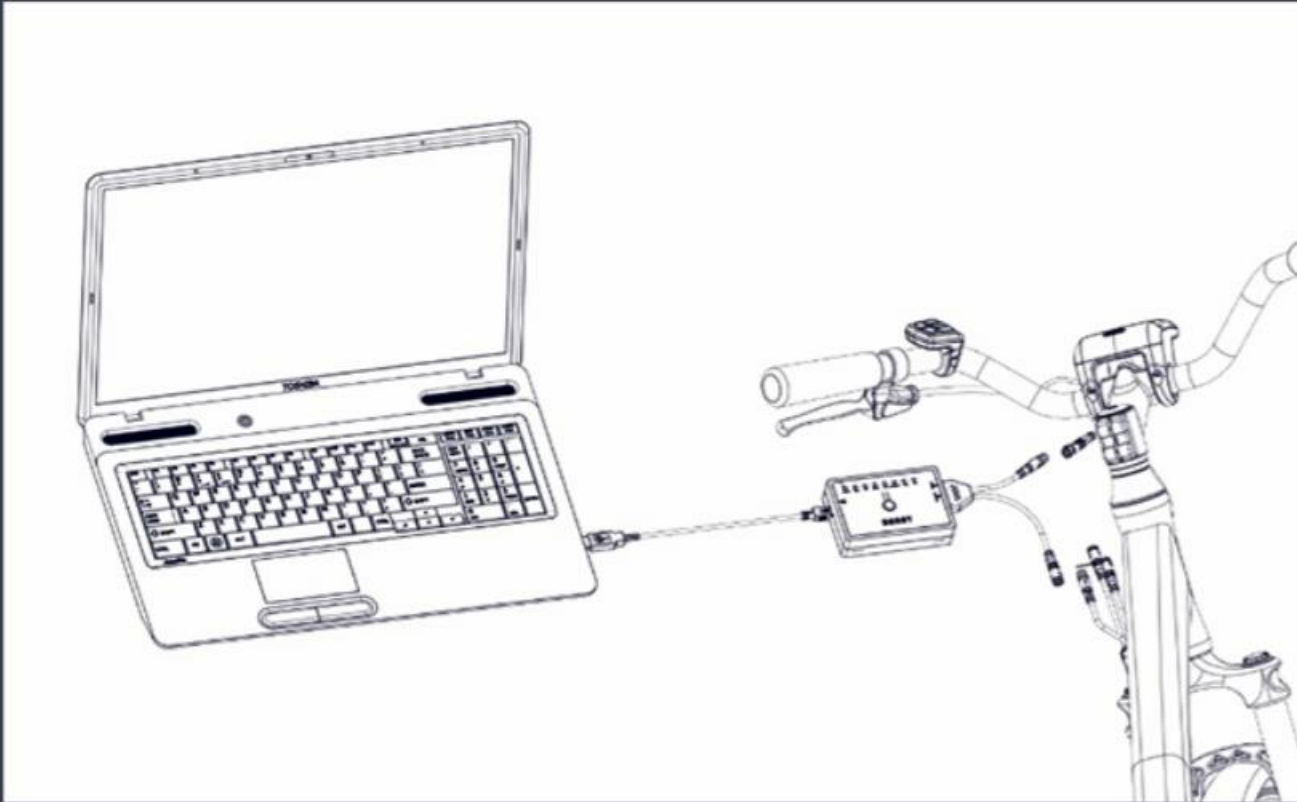
BESST Update Instruction

Two Steps:

1. Download software form BESST on PC to BESST Box
2. BESST BOX updates software to components or BESST Box itself

5. Update HMI Software

5.1 You need connect the BESST Box to the computer. And plug the HMI now.



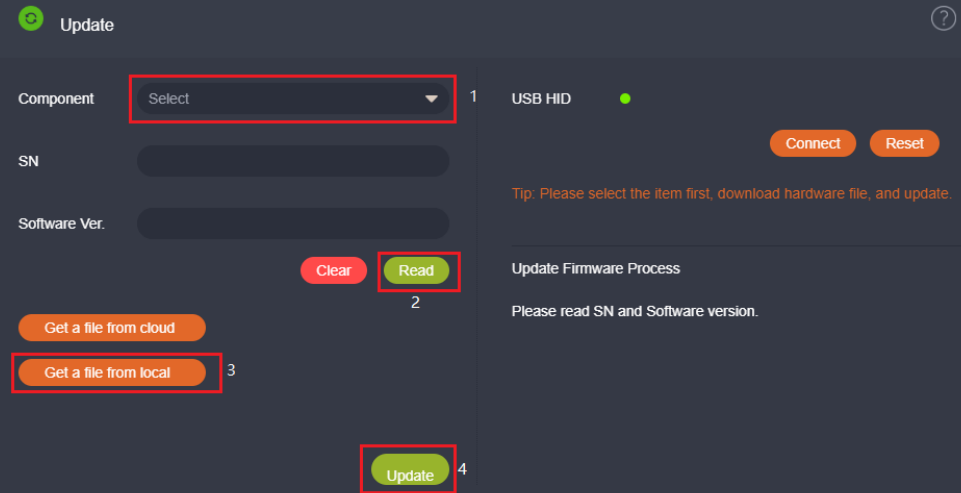
5.2 Go to "Update" section on BESST.

Step 1, Select Component as HMI

Step 2, Turn on display,, then click read to get SN, turn off the display;

Step 3, Select the new software file ended with "bin" from local if no version from cloud;

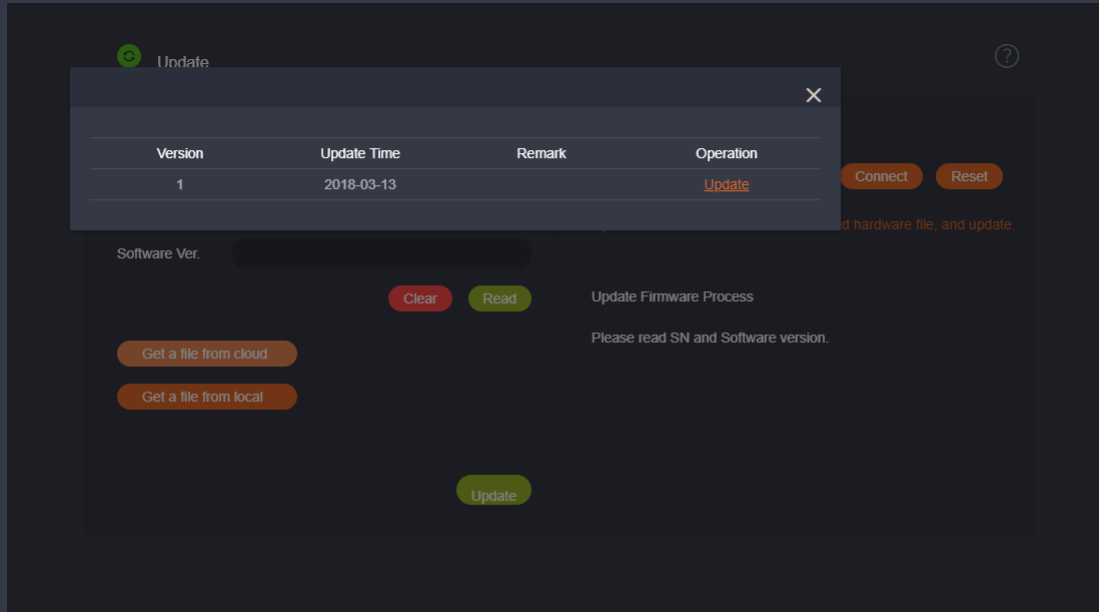
Step 4, Click "Update" button to proceed. Then you will see a progress bar. If success, there is a note about that.



The Update Firmware Process:

1. Please read SN and Software version;
2. Please select bin file from local or get file online;
3. Wait for plugging component;
4. BESST box update HMI; Update is finished.

During Step 2, if there is a history list, click “Update” button to download the software you need. Then you will see progress bar. If success, there is a note about that.



During the process, you will see BESST box "PC" LED blinking. After writing successfully, you will see PC LED turns off. Please wait to do next step until PC LED turns off.



For Third Version, Uart LED would not be on always.

5.3, Turn on the HMI, you will see Uart LED blinks. It means that BESST box are writing software to HMI. After Uart LED stops blinking , HMI has been updated with new Software. And Test LED on BESST box will turn on. The writing state would continue until you click "reset " button or reset on BOX.



For third version BESST box, the reset button on BOX is disabled while you update software.

During this process, LCD HMI and LED HMI have different display behavior.
For LCD HMI, the screen will be on until update success.

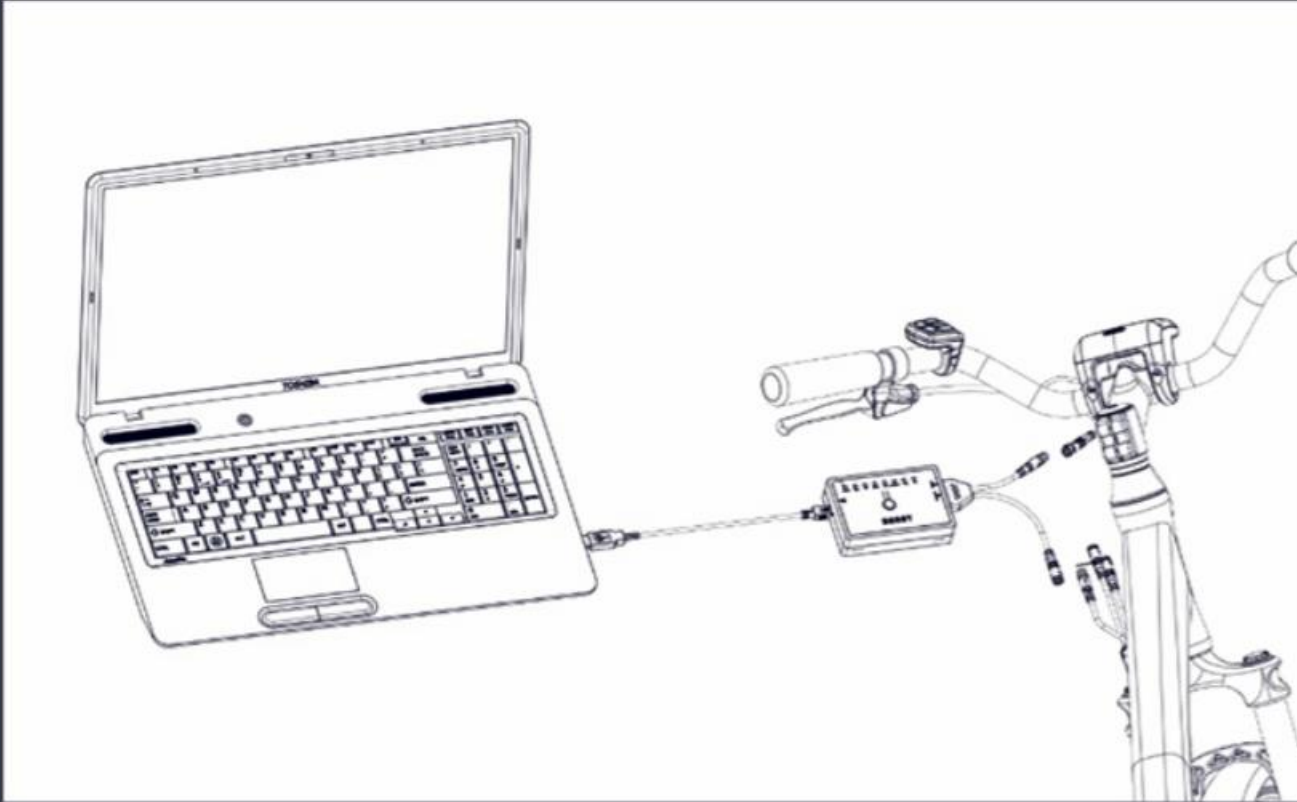


For LED HMI, the first level LED turns on and the second level LED blinks. If update success, these two LEDs would turn off.



6, Update Controller – Battery - Sensor Software

6.1 You need connect the BESST Box to the computer. And plug the controller now.



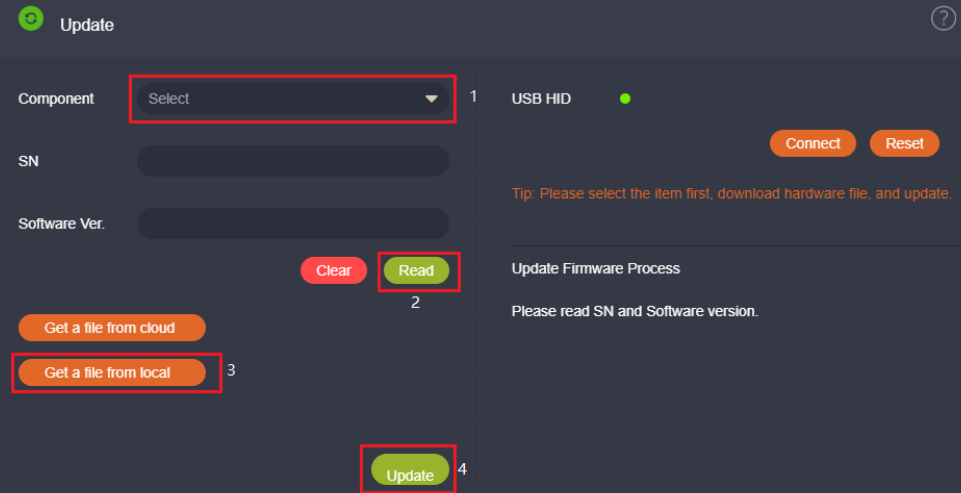
6.2 Go to "Update" section on BESST.

Step 1, Select Component as Controller;

Step 2, Read SN, unplug the controller;

Step 3, Select the new software file ended with "bin" from local if no version from cloud;

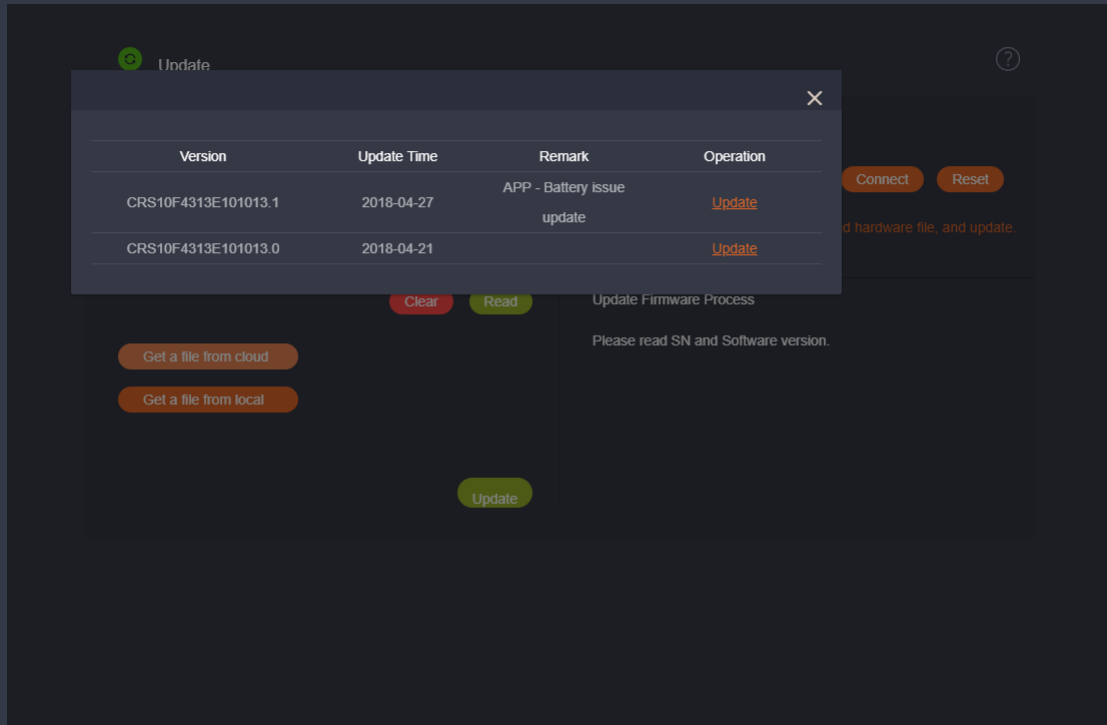
Step 4, Click "Update" button to proceed. Then you will see progress bar. If success, there is a note about that.



The Update Firmware Process:

1. Please read SN and Software version;
2. Please select bin file from local or get file online;
3. Wait for plugging component;
4. BESST box update Controller; Update is finished.

During Step 2, if there is a history list, click "Update" button to download the software you need. Then you will see progress bar. If success, there will be a note about that.



During the process, you will see BESST box "PC" light blinking. After write successfully, you will see PC LED off.



For Third Version, Uart led would not be on always.

6.3 Now you need plug the Controller to BESST box. Then you see Uart LED blinks. It means that BESST box are writing software to Controller. After Uart LED stops blinking , Controller has been updated with new Software. And Test LED on BESST box turns on.

The writing state would continue until you click "reset " button or reset on BOX.



For third version BESST box, the reset button on BOX is disabled while you update software.

7.1 Record

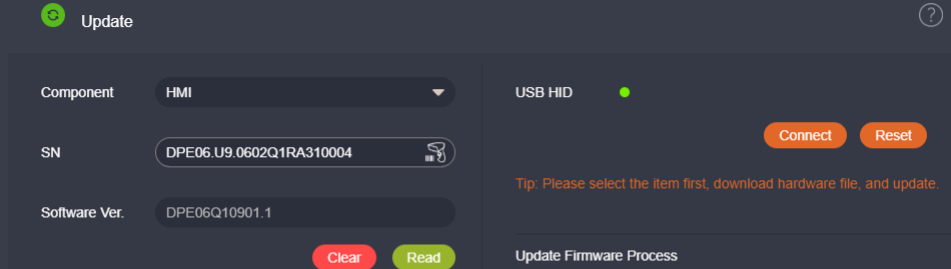
The screenshot displays the BESST interface with a sidebar on the left and a main content area. The sidebar includes navigation items: Service Centers, Tasks, Diagnosis, Report, Tools, HMI, Controller, Battery, Sensor, Update, Record, and FAQ. The main content area shows a table titled 'Component SN Operation Record' for the date 2019-04-22. The table has columns for SN, Vehicle, Operator, Account, Time, Type, and Data. The data rows show multiple 'Update' operations for the same SN and account, occurring at different times on 2018-11-30.

SN	Vehicle	Operator	Account	Time	Type	Data
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 18:16:47	Update	CRS1053615E010011.9_s
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 18:16:08	Update	CRS1053615E010011.9_s
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 18:14:14	Update	CRS1053615E010011.9_s
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 18:13:25	Update	CRS1053615E010011.9_s
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 18:06:10	Update	CRS1053615E010011.9_s
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 17:48:49	Update	CRS1053615E010011.9_s
CRS105.250.SN.U1.0F21E1S9281207		DEALER	dealer1@bafang-e.com	2018-11-30 17:42:13	Update	CRS1053615E010011.9_s

At the bottom of the table, there is a pagination control showing '1 2 >' and 'Total: 11'.

All the component operation is recorded in BESST.

8. New Version Updates.



Update

Component: HMI

SN: DPE06.U9.0602Q1RA310004

Software Ver.: DPE06Q10901.1

USB HID: ●

Connect Reset

Tip: Please select the item first, download hardware file, and update.

Update Firmware Process

Please select bin file from local or get file onl

Clear Read

Get a file from cloud

Get a file from local

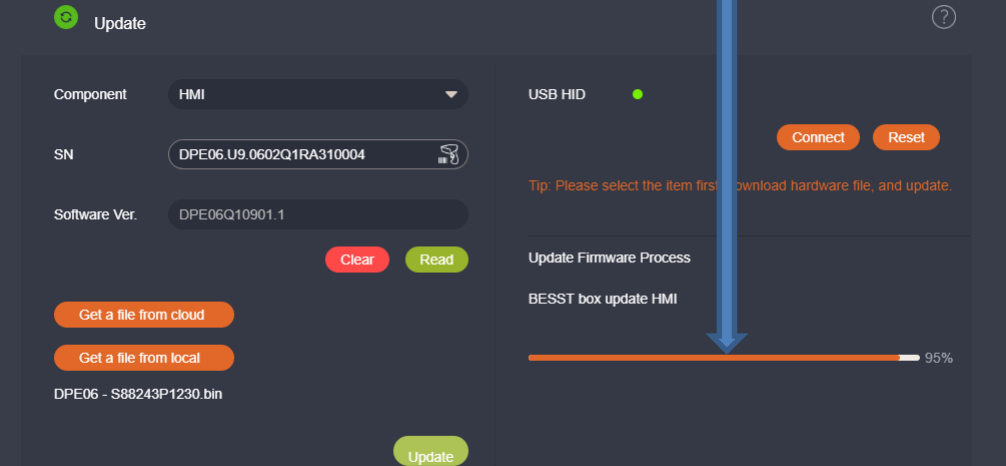
DPE06 - S88243P1230.bin

Update starting...

Update



Tip



Update

Component: HMI

SN: DPE06.U9.0602Q1RA310004

Software Ver.: DPE06Q10901.1

USB HID: ●

Connect Reset

Tip: Please select the item first, download hardware file, and update.

Update Firmware Process

BESST box update HMI

95%

Update

Progress bar indicates the process of Box update components



8.1 CAN Controller notes

After updating the software of controller, please detach the battery to power off the controller and repower again.