BMS-B7
Ver2.00

User Guide

Rev 1.0

IDX Company, Ltd.

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1. About BMS-B7

The BMS-B7 is the software that enables you to display the data of charger and to measure the remaining characteristic of the IDX V-Mount batteries by connecting the charger to PC via USB Cable or Network connection. Please carefully read this document to become familiar with basic usage instructions and other important points before actual use of the product.

- Scope of User's Guide

  This Guide does not explain the basic operations of Windows10.

  For the basic operation of Windows10, please read the user's guide for the applicable Windows operating system.

- The following abbreviations are used throughout this Guide:

BMS	: Battery Management System
PC	: Personal Computer
OS	: Windows10
Software	: BMS-B7 Application Software
Charger	: VL-4Si / VAL-4Si / ESC-4i / ESC-2i

2. System Requirements

1)	PC	Windows10 installed
2)	Chargers	VL-4Si / VAL-4Si / ESC-4i / ESC-2i
3)	IDX Digital Batteries	E-7 / E-10 / ELITE / E-HL9 / IPL-98 / IPL-150
4)	USB Cable	USB cable is required to be connected with VL-4Si / VAL-4Si / ESC-4i and PC.
5)	Ethernet cable	Ethernet cable is required to be connected with ESC-2i and PC.
6)	Adobe Acrobat Reader	Required to display the Online Manual.

3. Software Installation

Do not connect the USB cable until the installation has been completed. Log into PC by a user with administrator authority then start install the software.

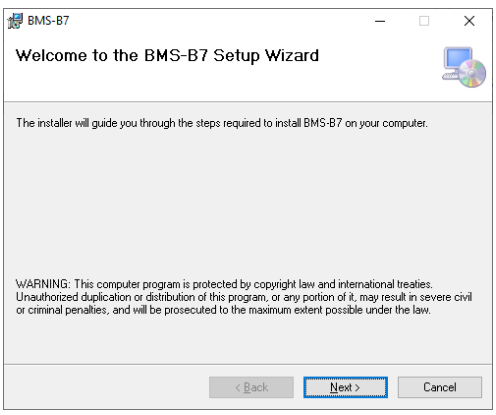
3.1 Before installing the software

1) Click the "extract all" of the downloaded “Setup.zip” files.

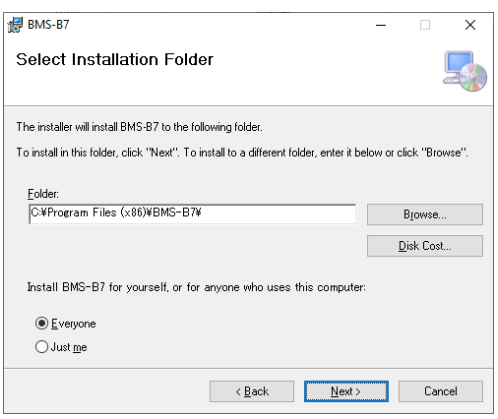
3.2 Installation

1) Double-click the "Setup" icon in the folder which unzipped in Section 3.1.

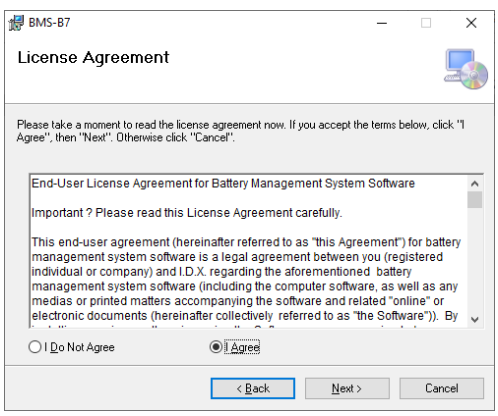
2) "Welcome to the BMS-B7 Setup Wizard" screen is displayed, then click “Next”



3) “Select Installation Folder” screen will be displayed. After completion of necessary changes and click “Next”.

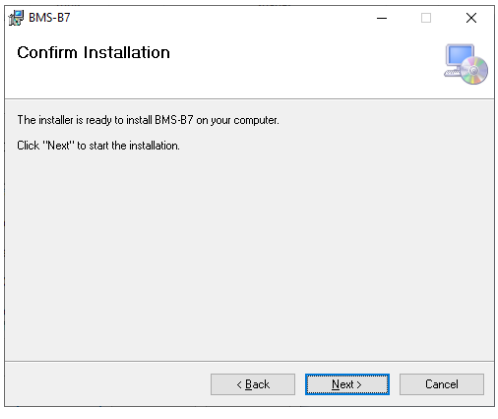


4) “License Agreement” screen will be displayed, then select "I Agree" and click "Next."

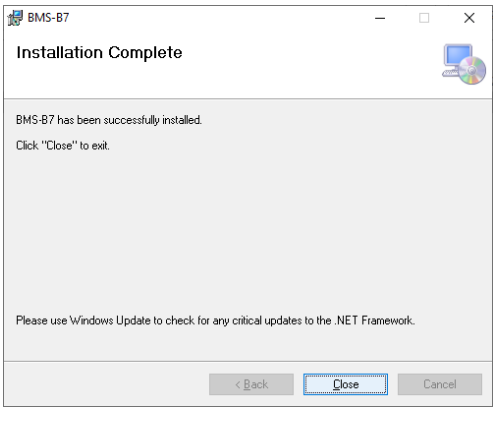


5) “Confirm Installation” screen will be displayed, then click “Next”.

“User Account Control” will be displayed, then Click "Yes"



6) Following screen will be displayed when installation is completed, then click “Close” to finish installation.



4. Driver Installation

Do not connect the USB Cable until the installation has been completed. Log into your PC and begin the installation of the software. Note: You must have administrator authority to install this software.

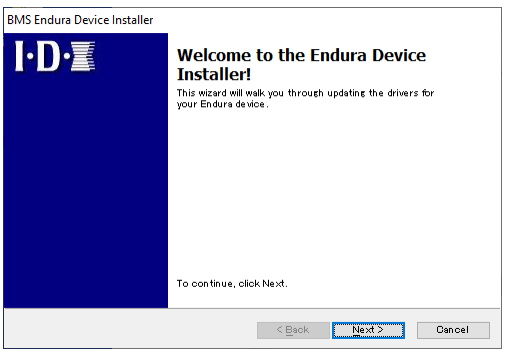
4.1 Before installing the software

1) Click the "extract all" of the downloaded “EnduraDriver.zip” files.

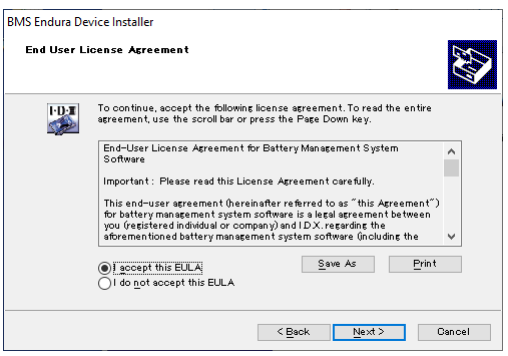
4.2 Installation

1) Double-click on the "EnduraDriverSetup" icon in the folder where you unzipped in Section 4.1.
When “User Account Control” screen is displayed, then click “Allow”.

2) Click “Next” when the "Welcome to Endura Device Installer” screen is displayed.

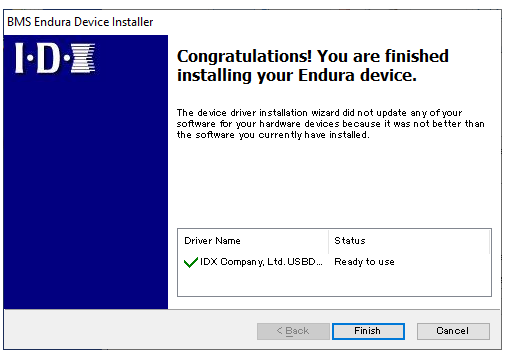


3) “End User License Agreement” screen will be displayed, then select "I Accept this EULA” and click "Next."



4) Click “Install this driver software anyway” when "Windows Security" screen is displayed.

5) Following screen will be displayed when installation is completed, then click “Close” to finish installation.



5. Connecting the Charge

5.1 VL-4Si / VAL-4Si / ESC-4i (Connecting the PC and Charger via USB cable)

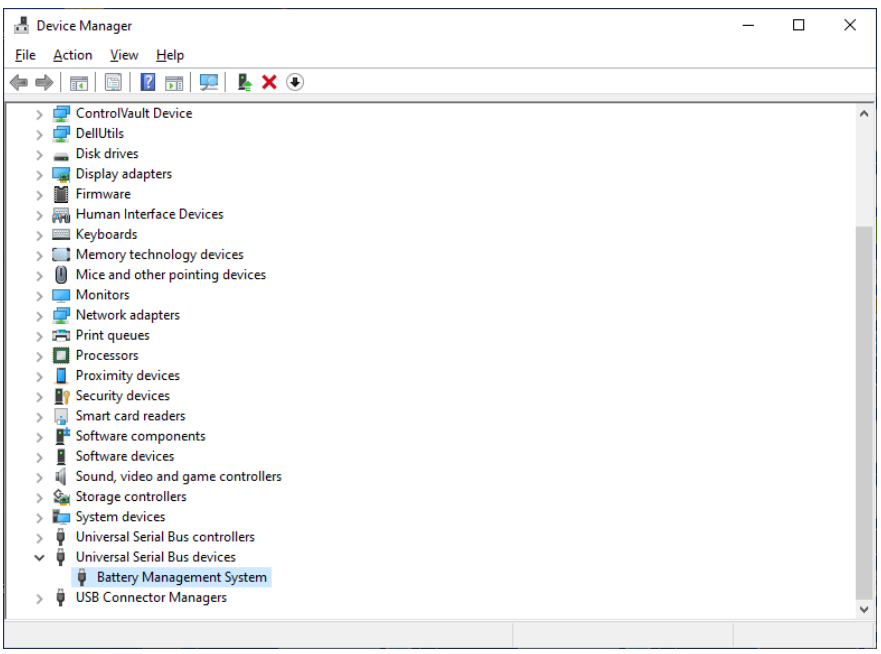
After the Software and Driver installation are completed, install the device by connecting the PC and Charger via USB cable. Log into PC by a user with administrator authority and install the device.

1) "Installing device driver software" will be displayed when connect Charger with PC via a USB cable. Following screen will be displayed when installation is completed.

2) Confirmation of device installation

2.1) Right click “Windows logo” → select “Device Manager” for opening the “Device Manager” screen.
(Windows key + [X] → select “Device Manager” for opening the “Device Manager” screen.)

2.2) Confirm if the "Universal Serial Bus devices” shows in the “Device Manager” by double clicking “Battery Management System”
If “!” or “?” symbol is displayed, un-install the device by right clicking and re-install again.

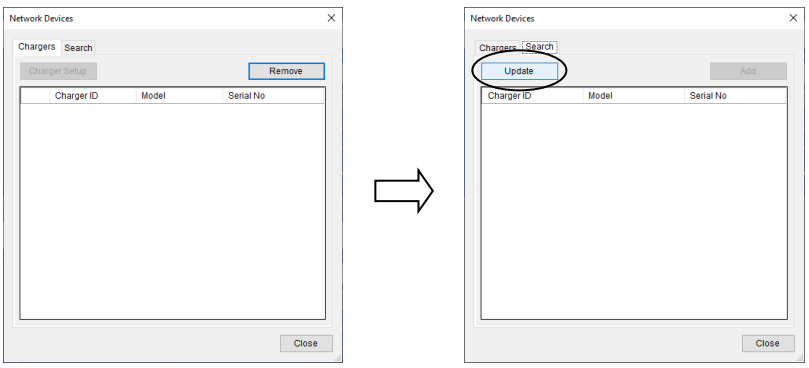


5.2 ESC-2i (Connecting the PC and Charger via network device)

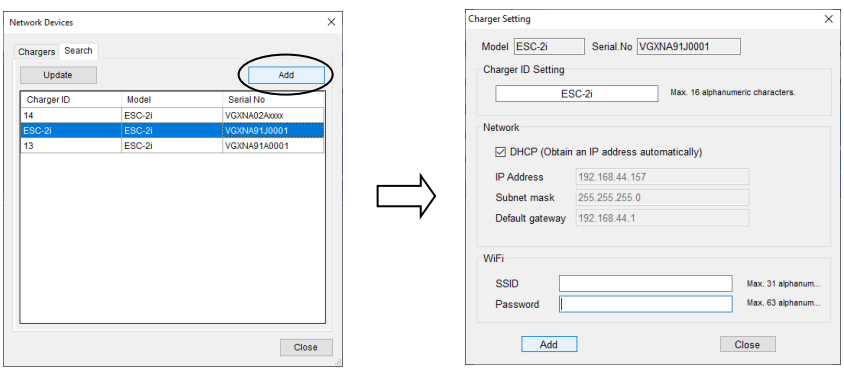
To connect PC and ESC-2i for the first time, use manual set up in the application.

1) Connect ESC-2i to your network, click "Network Devices" button of the main screen.
Even when connecting with Wi-Fi, use Ethernet cable to make initial settings.

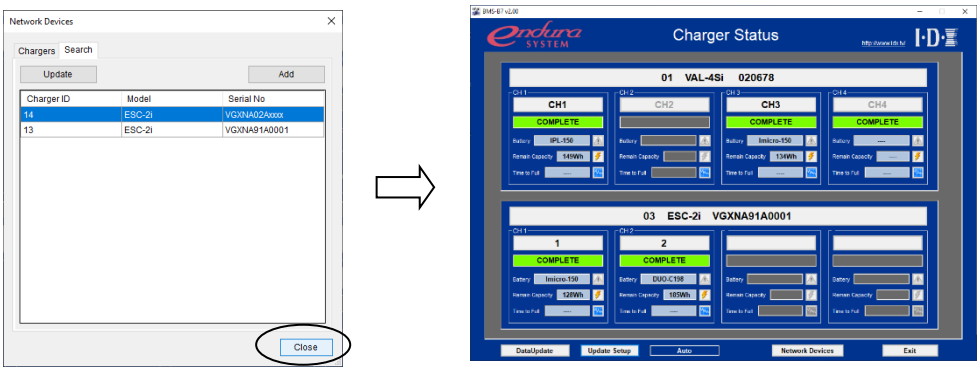
2) If the charger is not registered, then below will be displayed. Click the "Search" tab and click the "Update" button for searching the charger connected to the network.

3) A list of 

chargers connected to your network is displayed. Select the charger to register and click the "Add" button. The screen will change. Set the charger ID and network settings to be registered, and click the "OK" button. To join ESC-2i to the network via Wi-Fi connection, configure Wi-Fi settings on this screen.

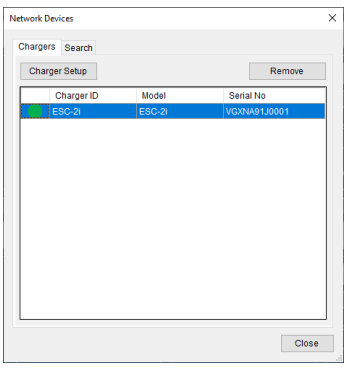


4) It returns to the search tab screen, so click the "Close" button. The main screen is updated and the registered charger is displayed. (If it is not displayed, click the "Data Update" button on the main screen.)

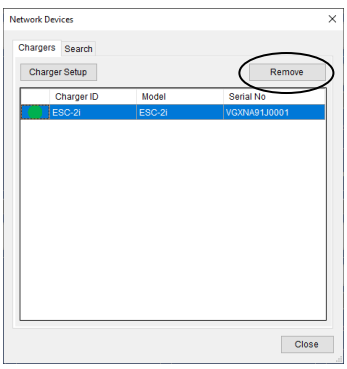


5) To check the connection status of the charger and change the settings, click the "Network devices" button while the charger is registered.

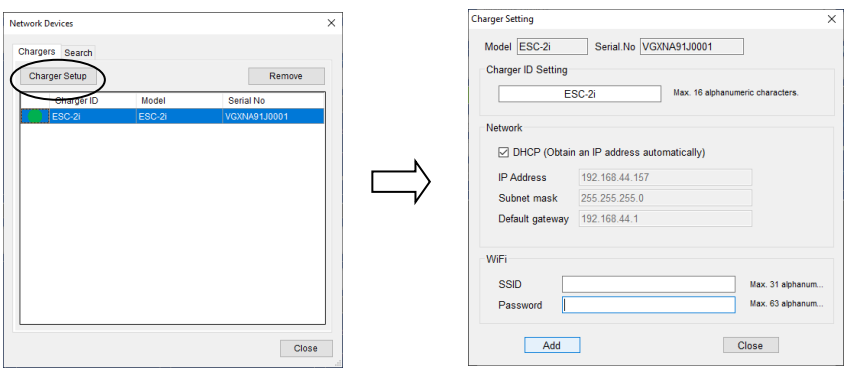
6) The mark is ● green when connected to a charger.If the data of the charger has not been acquired, the Charger ID is blank and the mark is ● gray.



7) To disconnect the charger, select the charger to be disconnected and click the "Remove" button.



8) To change the charger ID and network settings of the registered charger, select the charger and click the "Charger Setup" button.



6. Application program start and close

6.1 Before starting

Before starting the program, connect the PC and Charger via a USB cable.

6.2 Starting the program

There are two methods as shown bellow.

1) Double-click “BMS-B7” icon on the Desktop

2) Click “Start” menu →”BMS-7” → Select ”BMS-B7”

6.3 Closing the program

There are two method as shown bellow.

1) Click “Exit” on the main screen to shut down the application.

2) Click “X” on the main screen to shut down the application.

7. Name and function of screen

BMS-B7 is mainly composed by three screens.

1) Main screen

The Main screen shows up when starts the application.

The main screen displays the list of Chargers connected to the PC.

2) Battery Data screen

Battery Data Screen will be shown by operating the button of the main screen.

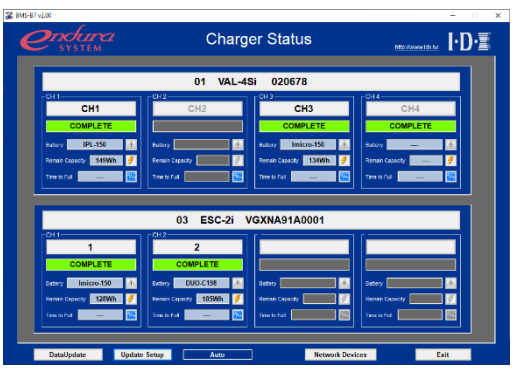
This displays the data of IDX Digital Batteries which connected to Charger.

3) Discharge characteristic curve screen

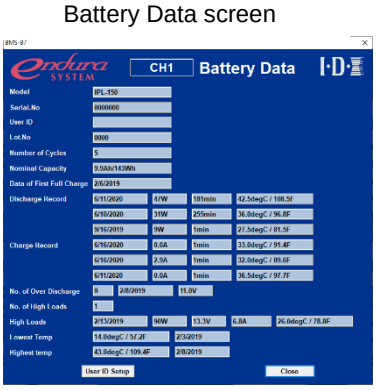
Displays discharge characteristic by clicking the button of the main screen.

This displays the battery discharge curve which captured by charger.

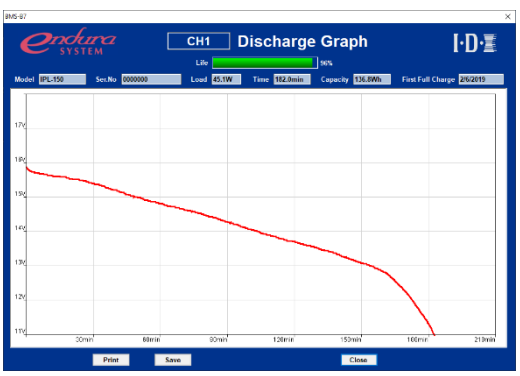
Main screen



Battery Data screen

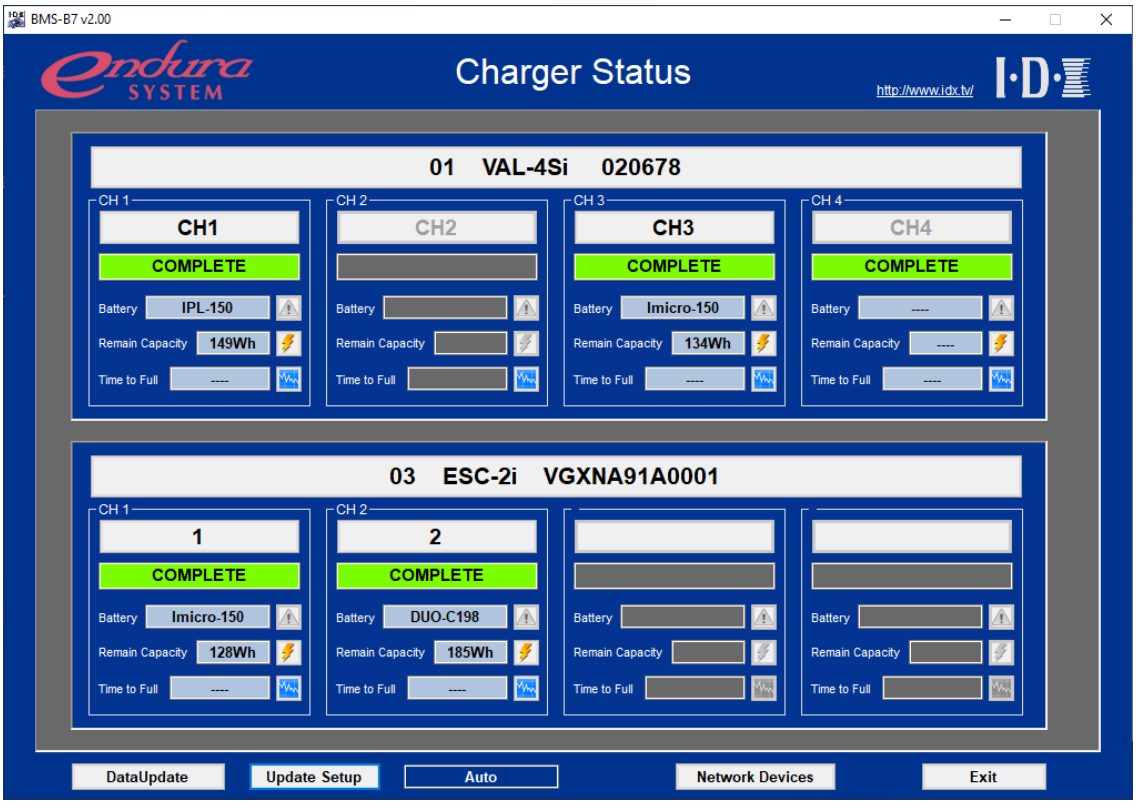


Discharge Graph screen



7.1 Main screen

Display up to four channels of basic data and status of IDX digital batteries which connected to Charger.



7.1.1 Data Update

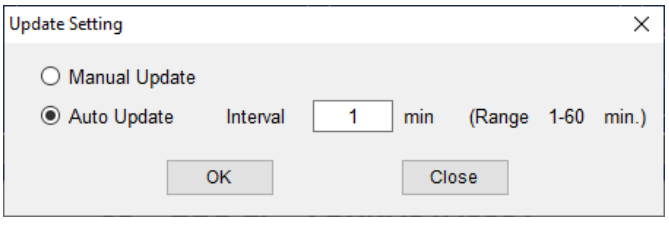
"Data Update" button enables to refresh the data by reading out new data from Charger.

7.1.2 Update Setting

Set the status update for automatic or manual mode. Designated updating interval time is in minute when automatic is chosen.

Click "Update Settings" button then bellow will be displayed.

In case of setting automatic update, select "Auto Update" and enter the update interval time and then click the "OK".



7.1.3 Charger Button

Following information about Charger will be displayed.

- Charger ID
- Model Number
- Serial Number

Charger setting screen shows up by clicking the button.

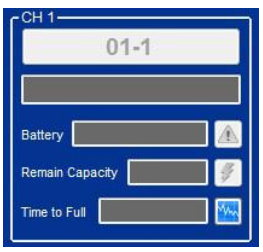
Detail will be described in following.

7.1.4 Channel Information

Display the charge status of CH1～CH4 and the basic data of each batteries.

IDX Digital Battery

non IDX Digital Battery



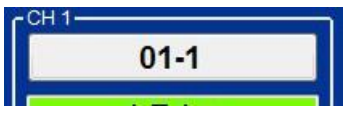
Battery is not mounted.

1) Channel ID Button

Display the channel ID on the button.

Battery Data screen shows up by clicking ID button. Details of screen display will be described in following.

This button will be grayed out and inoperable if the battery is not mounted or non IDX battery is mounted.



IDX Digital Battery

Non IDX Digital Battery

or

Battery is not mounted.

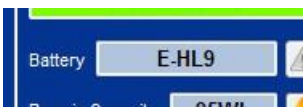
2) Charging Status

Following are the status of battery charging condition.

- WAITING : Waiting for charge/discharge.
- CHARGING : Charging
- DISCHARGING : Discharging
- COMPLETE : Charging has been completed.
- BMS WAITING : Waiting for Measurement of discharge capacity.
- BMS CHARGING : Charging in the Measurement of discharge capacity.
- BMS DISCHARGING : Discharging in the Measurement of discharge capacity.

3) Battery Model

Model number of the battery will be indicated when IDX Digital Battery has been mounted.



4) Remaining Capacity

Remaining capacity will be indicated when IDX Digital Battery has been mounted.

5) Time to Full charge

Remaining charging time will be indicated while in charging state. .

6) Warning Button

Warning button becomes active when detected un-usual cell voltage of the battery.

Warning Dialog will be displayed by clicking this button when it is in active state.

In the normal condition, the button will be grayed out and inoperable.

Warning state

Normal state

7) Discharge Capacity Measurement Button

Measurement of discharge capacity will be performed by clicking start/stop.

This button will be grayed out and inoperable when battery is not mounted or the charger does not support discharge function.

Operable

Inoperable

8) Discharge Graph Button

Discharge Graph screen will be shown by clicking this button.

Details are described in below.

Button will be grayed out and inoperative if discharge data is not recorded by Charger.

Discharge data exists

Discharge data does not exist

7.1.5 Charger Setting

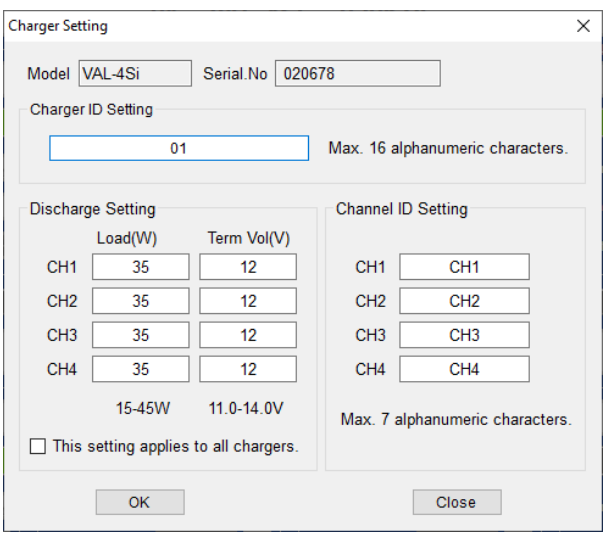
Settings the Charger.

- Discharge load / terminate voltage
- Charger ID / Channel ID

Below screen will be shown by clicking Charger button.

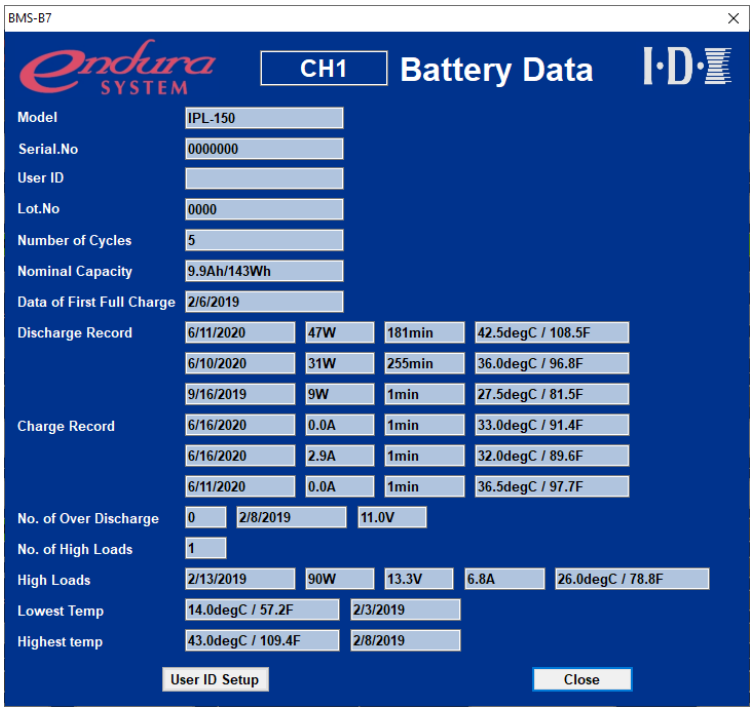
By clicking "Settings" button, entered value will be applied.

Please note that the discharge setting is performed for all Chargers connected to the PC when click “settings” while "This setting applies to all Charger" box is checked.



7.2 Battery Data screen

IDX Digital battery data will be displayed by clicking the Channel ID button while battery is mounted on the charger.



7.2.1 Battery Data

Displays the following information memorized in the IDX Digital Battery.

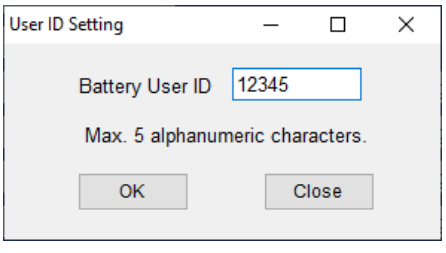
- Model — Displays model number of battery.
- Serial. No — Displays serial number.
- User ID — Displays user ID.
- Lot. No — Displays lot number.
- Number of Cycles — Displays cycle been charged/discharged.
- Nominal Capacity — Displays nominal capacity.
- Date of First Full Charged — Displays first fully charged date.
- Charge Record — Displays the history of most recent 3 time charge..
  (Date, current, time, maximum temperature)
- Discharge Record — Displays the history of most recent 3 times discharge.
  (Date, maximum load, time, maximum temperature)
- No. of Over Discharge — Displays the count of over discharge. (Date, voltage)
- No. of High Loads — Displays the number of high-load operation.
- High Loads — Displays the data of biggest load in the history.
  (Date, load, voltage, current, temperature)
- Lowest Temp — Displays date of use in the lowest temperature in the history
- Highest Temp — Displays date of use in the highest temperature in the history

7.2.2 User ID Setting

Set the User ID for IDX Digital Battery.

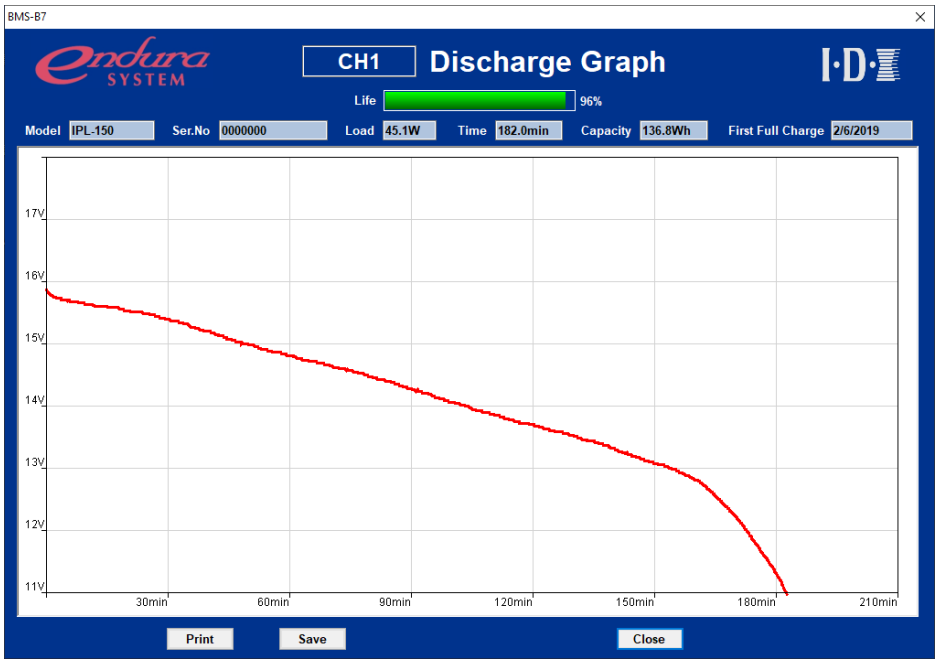
By clicking "User ID Setup" button, following display shows up.

User ID can be entered and memorized in the battery by clicking "Settings" button.



7.3 Discharge Graph screen

Discharge Graph which is memorized in the Charger will be shown by clicking Discharge Graph button in the Main screen.

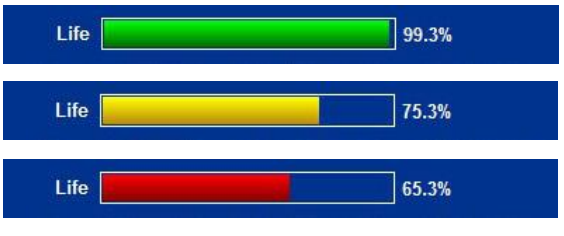


Graph screen of BMS-B7 is read and display the data that has been recorded in the memory of the Charger. For this reason, you may see a graph with a different battery that is mounted on the charger.

7.3.1 Displaying the Discharge Data

Following display will be shown when discharged by IDX Digital Battery.

- Nominal Capacity Ratio — Indicates three different colors depending on the discharge capacity.



Graph data obtained from the Charger is different from the conditions for measurement of the Nominal Capacity and may be even less than 100 percent of the new battery.

- Model — Displays model number of battery.
- Ser.No — Displays serial number.
- Load — Displays average load of the graph data.
- Time — Displays discharge time of the graph data in minutes.
- Capacity — Displays discharged amount
- First Full Charge — Displays first full charge day.

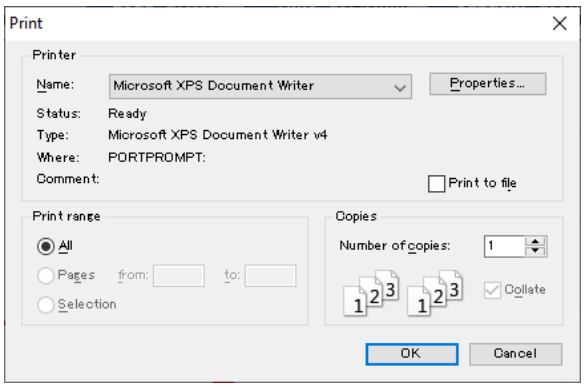
If the battery is not an IDX Digital battery, it is limited to only the Load, Time and Capacity as shown below.

7.3.2 Printing the Discharge Graph

Print out of discharge graph.

Following screen shows up by clicking "Print" button.

Select the printer and click "OK" button then a screen image of a Discharge Graph will be printed out.



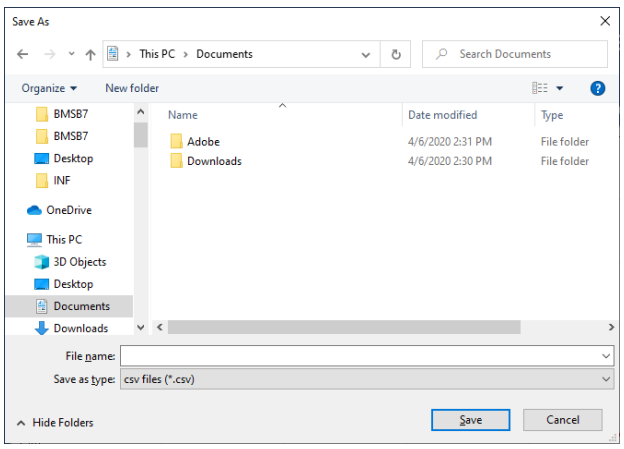
7.3.3 Saving Discharge data file

Can be save each data file by following format.

- Discharge Data CSV format
- Discharge Graph screen image BMP format

Following screen shows up by clicking " Save " button.

After enter file name, click “OK” button for saving the file.



When save the data with CSV format, please select "csv files (*. csv) ".

When save the data with BMP format, please select "image files (*. bmp) ".

User Guide for BMS-B7

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