Make Life Easy :

User Manual

Software

atDisplacement

MWA-BDU1-V1.3-2003US

Thank you for purchasing an Autonics product.
This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

www.autonics.com

Autonics

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Preface

Thank you for purchasing Autonics product.

Please familiarize yourself with the information contained in the **Safety Considerations** section before using this product.

This user manual contains information about the porduct and its proper use, and should be kept in a place where it will be easy to access.

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User Manual Guide

- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- This programming manual is not provided as part of the product package. Please visit our website (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice. Upgrade notice is provided through our homepage.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our website.

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User Manual Symbols

Symbol	Description
Note	Supplementary information for a particular feature.
Warning	Failure to follow instructions can result in serious injury or death.
Caution	Failure to follow instructions can lead to a minor injury or product damage.
Ex.	An example of the concerned feature's use.
※	Annotation mark.

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1 Overview

atDisplacement is a comprehensive management program that can be used with Autonics BD-C Series.

atDisplacement provides GUI control for easy and convenient parameter setting and monitoring data management of multiple devices.

1.1 Features

- **Checking product information**
  - It is possible to check information about connected products by status window.
    BD-C series Communication Converter: model, firmware version
    BD series amplifier unit: each channel model, hardware version, firmware version, connected head unit model, status of connection
- **Monitoring**
  - Live data
    Displays the state and the present value (PV) of amplifier unit numerically.
  - Live Graph
    Displays the present value (PV) graph of the connected amplifier unit in real time.
  - Waveform Graph
    Displays the waveform graph of the connected amplifier unit in real time.
- **Setting**
  - Parameter setting
    Checks and changes the setting value of the connected amplifier units.
  - Bank management
    Manages parameter bank of connected amplifier units by save and load.

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1.2 Quick Start

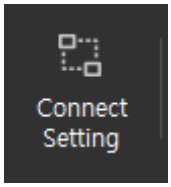
Explains the basic information for first user of atDisplacement in order.

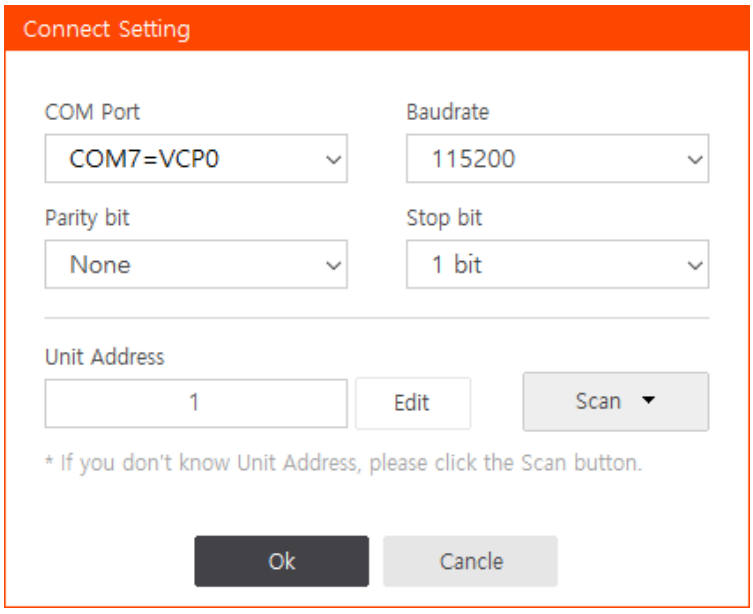
For the details of each function, refer to the chapter in the manual.

1st Install and run atDisplacement program, connect the product to PC.

※ It is possible to download atDisplacement program at Autonics web page (www.autonics.com).

2nd Click the [Connect Setting] button in 'Home' ribbon to open 'Connect Setting' window.





3rd After selecting the communications port you are using, set the baud rate, parity, stop bits.
Unit address can be changed by pushing the [Edit] button next to the item.
If you do not know the exact address unit, push the [Scan] button.

4th Pushing the [Search] button next to 'Unit Address' expands the window as shown below and displays the unit scan item. Push the [Start Scan] button to scan the unit address.

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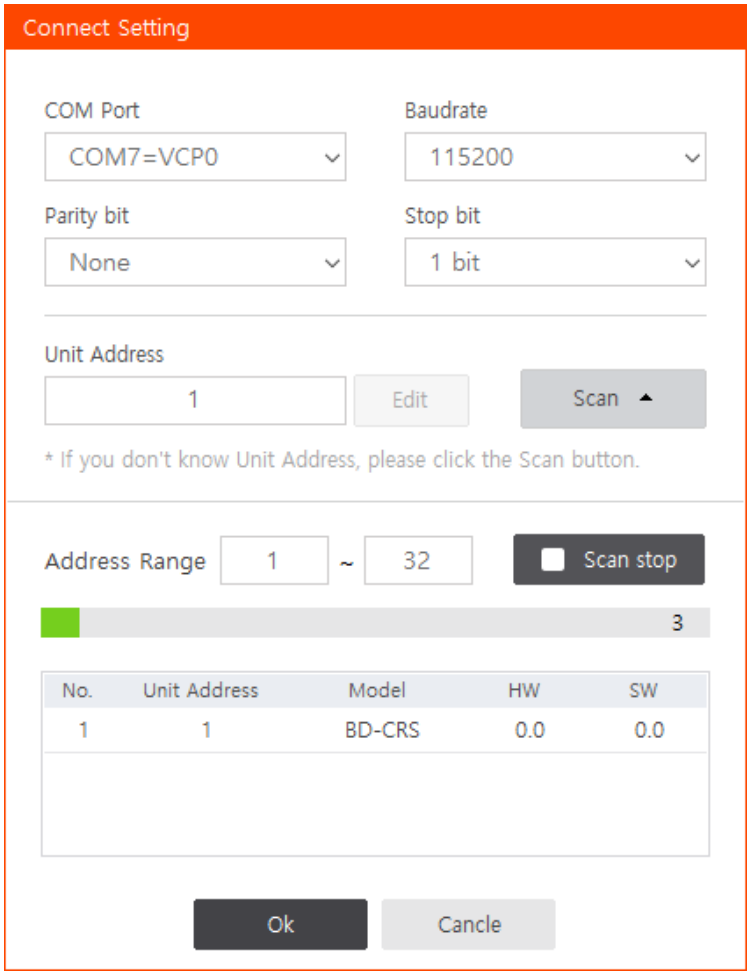
5th Double click on the searched unit or by pushing the [OK] button at the bottom, and then the 'Unit Address' is automatically entered.



※ If the communication converter and master device are properly connected but the scan fails, make sure that the communication settings including 'Communication Settings – Communication Port' are selected correctly.

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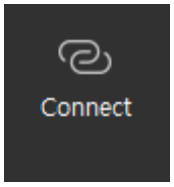
6th After entering the unit address, push the [Connect] button on the 'Home' ribbon to connect to the BD-C series communication converter.



7th When the connection is successfully completed, the status window in the lower left corner is activated and data monitoring and parameter setting is possible.

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2 Preparation

2.1 System Requirements

Item	Minimum specifications
CPU	IBM PC compatible computer with 1GHz + processor
Operations	Windows 98/NT/XP/Vista/7/8/10
Memory	2GB+
Hard disk	1GB+ of available hard disk space
VGA	Resolution: 1280×800 or higher
Others	RS232C serial port (9-pin), USB port

2.2 Installation

1st Download program at Autonics web page(www.autonics.com).

2nd Close all programs before installing program. Double-click the installation file to start installation.

3rd Language selection window appears. Select the language and click [OK] button.

4th If you click [OK] button, the 'Setup Wizard' window appears in the selected language. Click [Next] to proceed or click [Cancel] to stop the installation.

5th If click [Next] button, the 'License agreement procedure' window appears. Read all the details of the 'License agreement'. After considering the information, click [Agree] button to continue the installation.

6th If click [Next] button, 'Install Location' window appears. Default installation path is already set. If you need to change the default path, click [Browse] button and select the desired destination folder. And then click [OK] to continue the installation.

7th If click [OK] button, installation progress is displayed. Wait until the installation is complete.

8th 'Installation Complete' window appears after installation is completed. Click [Finish] button to run program. It is possible not to run the program by unchecking the box of [Run] and click [Finish] button.

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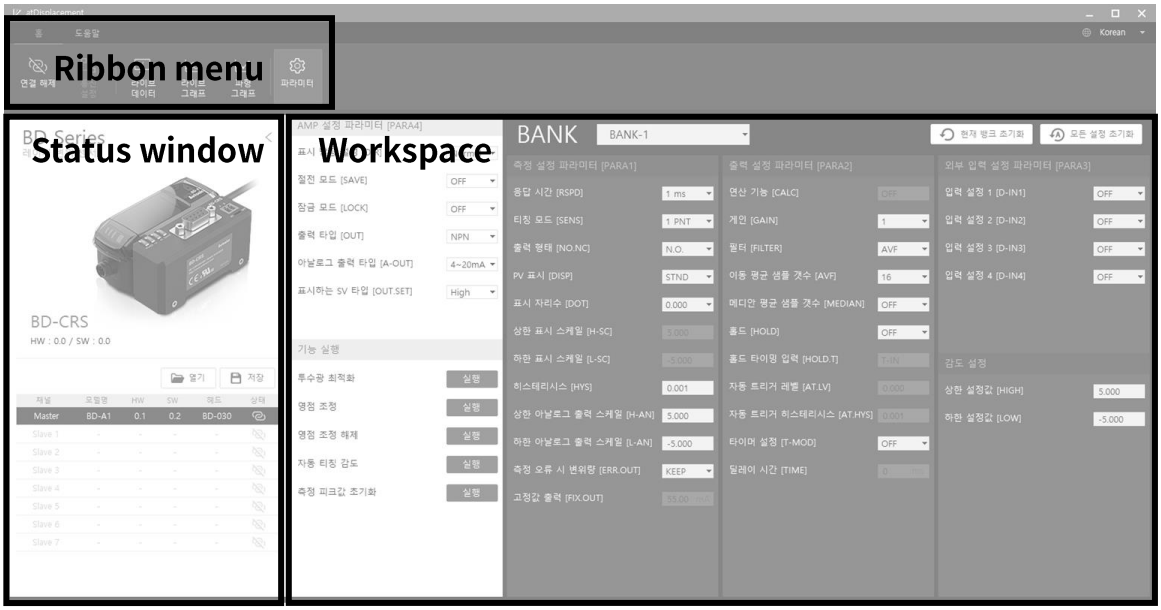
3 Screen Layout

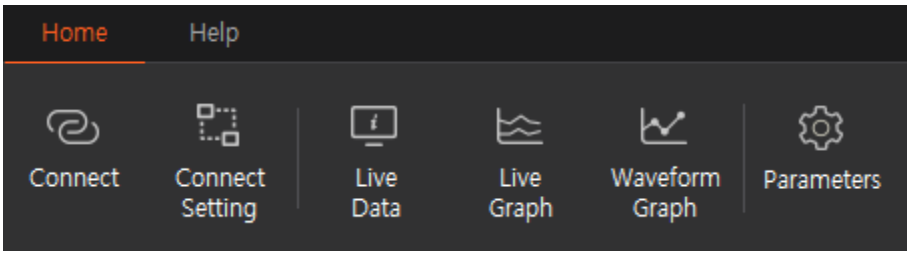
3.1 UI Configuration

UI of atDisplacement consists of a ribbon, status window, workspace.



3.2 Ribbon menu

3.2.1 Home



- **Communication**
  - Connect: Attempts to connect to the BD-C communication converter.
  - Connect Setting: Sets the communication port, baudrate, parity bit, and stop bit.
- **Monitoring**

  Select the monitoring screen to load on the workspace.
  - Live Data: Displays the state and the present value (PV) of amplifier unit numerically.
  - Live Graph: Displays the present value (PV) graph of the connected amplifier unit in real time.
  - Waveform Graph: Displays the waveform graph of the connected amplifier unit in real time.
- **Setting**

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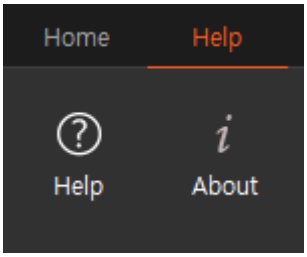
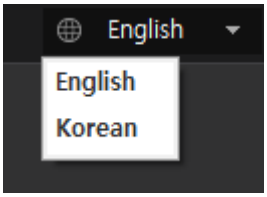
- Parameters: Loads parameter setting window on the workspace.

3.2.2 Help



- **Help**
  - Help: Open the help for atDisplacement.
  - About: Check the version information of atDisplacement.

3.2.3 Language Change



Can select the language of the program using the button at the top right of the ribbon.

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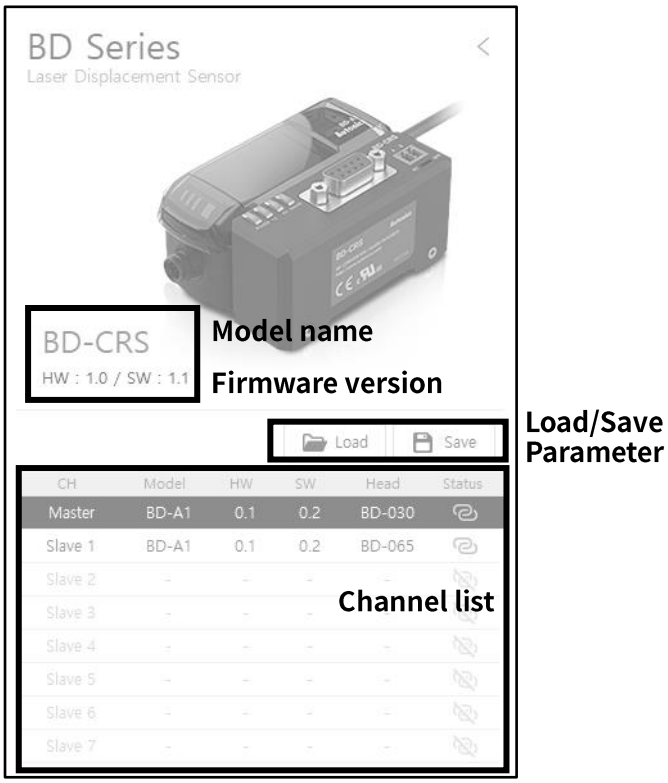
3.3 Status Window

Displays the status of the amplifier unit connected to the BD-C communication converter. Set the parameters in the channel list, or select the amplifier unit to display a waveform graph.



- **Model name**

  Displays the model name of communication converter which is connected to atDisplacement.

- **Firmware version**

  Displays the firmware version of communication converter which is connected to atDisplacement.

- **Load parameter**

  Loads the parameter save file and applies the parameter setting value to the product of current selected channel.

※ The parameter setting values are applied to the product immediately when the parameter file is loaded.

- **Save parameter**

  Saves the parameter setting value of the product of current selected channel to file.

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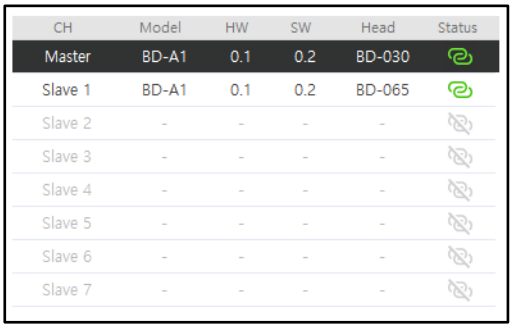
- **Channel list**

  Displays the status of amplifier units per channel which are connected to communication converter.

  It is possible to check parameter setting and waveform graph of the selected amplifier unit in the list.



CH	Model	HW	SW	Head	Status
Master	BD-A1	0.1	0.2	BD-030	
Slave 1	BD-A1	0.1	0.2	BD-065	
Slave 2	-	-	-	-	
Slave 3	-	-	-	-	
Slave 4	-	-	-	-	
Slave 5	-	-	-	-	
Slave 6	-	-	-	-	
Slave 7	-	-	-	-	

  - CH: Displays allocated channel number of amplifier unit.
  - Model: Displays model name of amplifier unit.
  - HW: Displays hardware version of amplifier unit.
  - SW: Displays firmware version of amplifier unit.
  - Head: Displays model name of sensor head which is connected to amplifier unit.
  - Status: Displays the status of communication between communication converter and amplifier unit.

Connected	Disconnected

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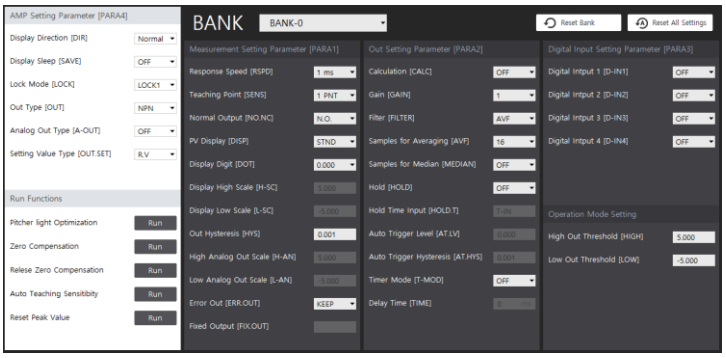
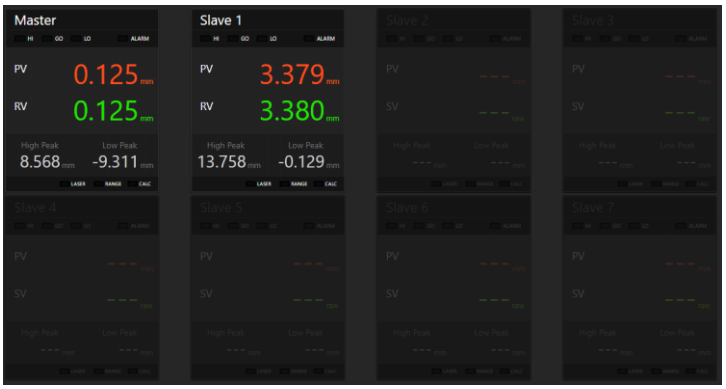
3.4 Workspace

Displays the window for parameter setting or monitoring.

- **Parameter setting**



- **Live data monitoring**



- **Live graph monitoring**

- **Waveform graph monitoring**

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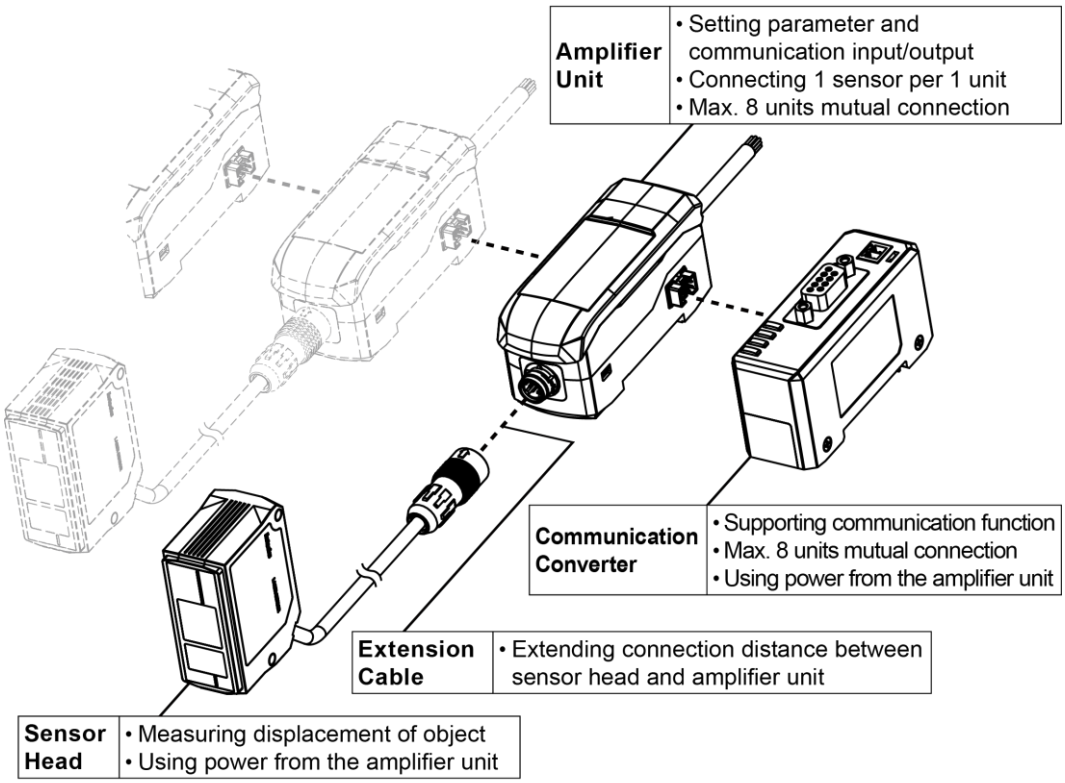
4 Connection

To connect the BD-C series communication converter through atDisplacement, proceed hardware connection and communication setup depending on user environment.

4.1 Hardware

1st Connect sensor head, amplifier unit and communication converter by refering to below image of product composition.



2nd Depending on user enviroment, connect RS485 or RS232C communication terminal to the PC which atDisplacement is installed.

※ Refer to the 'BD series user manual' to check more details about connecting hardware

.

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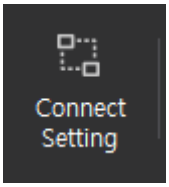
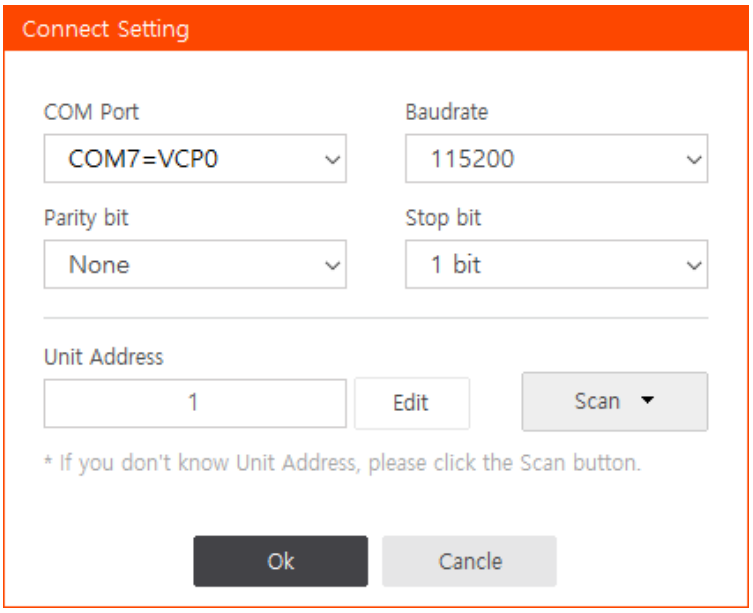
4.2 Connect setting





- **COM port**

  Select the communication port in the list that is being used to connect the BD-C communication converter to the master device.

- **Baudrate**

  Select baudrate to use in the list

  - Setting range: 9600, 19200, 38400, 115200 bps

- **Parity bit**

  Select parity bit to use in the list

  - Setting range: None, Even, Odd

- **Stop bit**

  Select stop bit to use in the list

  - Setting range: 1bit, 2bit

- **Unit Address**

  It is possible to change the allocated unit address of communication converter by pressing [Edit] button.

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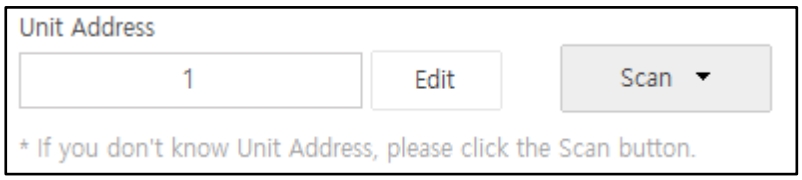
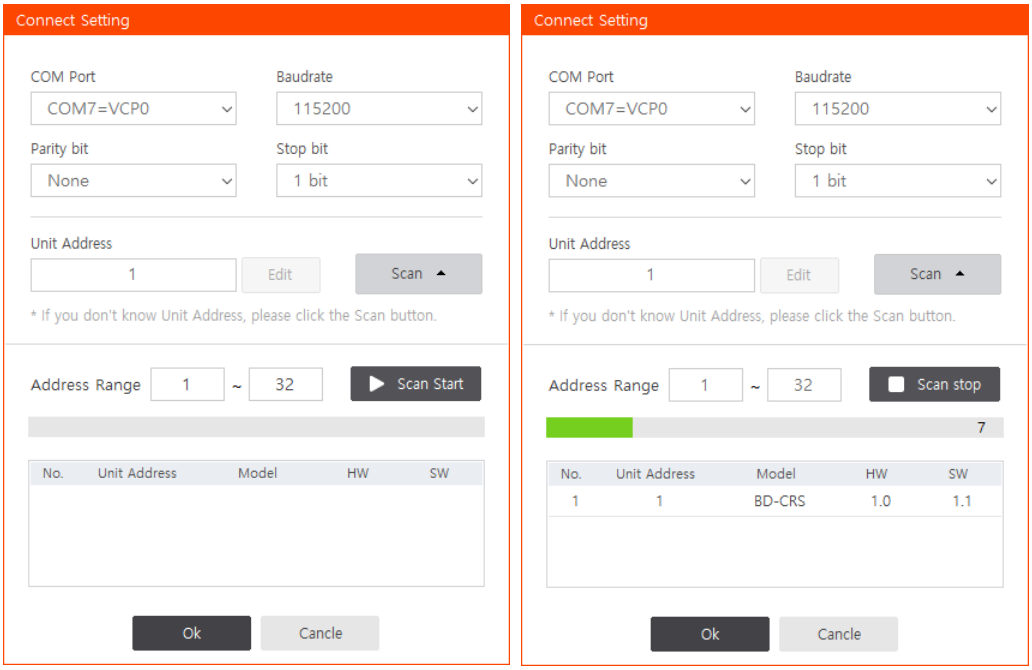
- **Scan**

If you do not know the unit address, press [Scan] button to open the address scan window, press [San Start] to scan the unit address.





If double-click the searched unit or select it and press [Ok] button at the bottom, the 'Unit address' is written automatically.

※ If the communication converter and master device are properly connected but the scan fails, check the communication settings including 'Communication Settings – Communication Port' are selected correctly.

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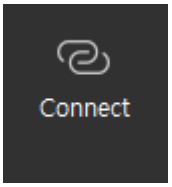
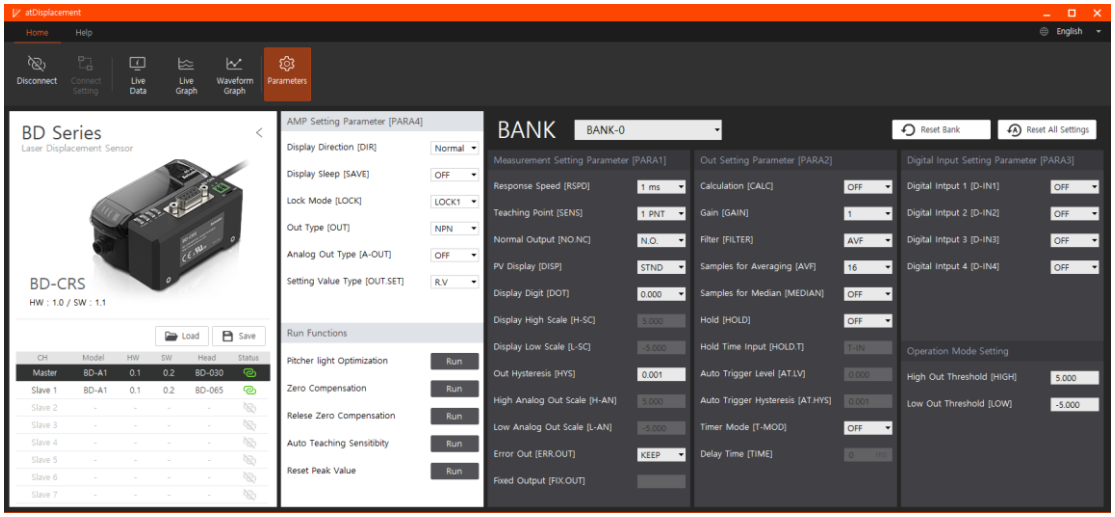
4.3 Connect



When communication setting is finished, it is possible to connect BD-C communication converter to atDisplacement.

1st When pressing [Connect] button, try to connect. Connection window is opened and the progress is displayed.

2nd When connection is completed, 'Status window' is activated and parameter setting value is displayed.



※ If the communication converter and master device are properly connected but the connection fails, perform 'Unit address scan' function and try to connect again.

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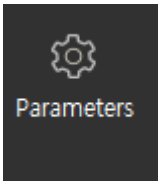
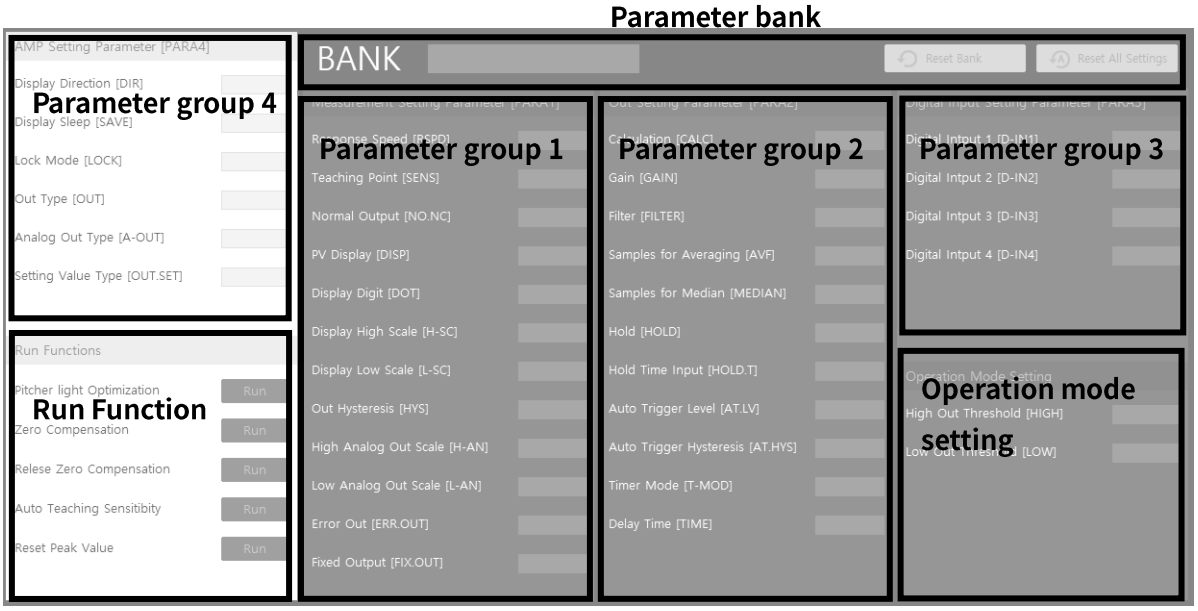
5 Function

5.1 Parameter setting

Click [Parameters] button on the home ribbon menu to load setting window on the workspace. It is possible to set the parameters of the amplifier unit which is selected in the 'Status window'.





5.1.1 Parameter group

- **Parameter group 1:** Settings related to output type, displacement, display and error output.
- **Parameter group 2:** Settings related to present value.
- **Parameter group 3:** Settings related to external input.
- **Parameter group 4:** Settings related to user convenience functions. **(**Parameter group 4 is common, not saved per bank separately.)

※ For the details for each parameter, refer to 'BD series user manual'.

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5.1.2 Parameter Bank

Loads or resets the parameter bank which is already set in the amplifier unit.

- **Load**

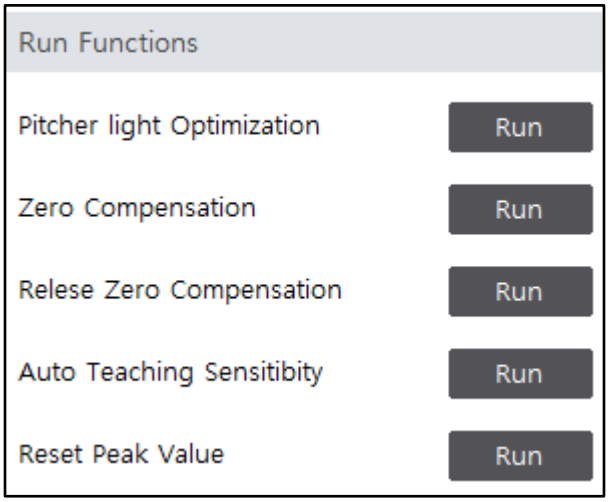
  Select the parameter bank number to load in a drop box.

- **Reset**

  - **Reset Bank:** Reset the current loaded parameter bank to initial status.
  - **Reset All Settings:** Reset all parameter banks and setting value of parameter 4 group to initial status.

5.1.3 Run Functions

Run the functions by pressing the [Run] button next to the name of each function.



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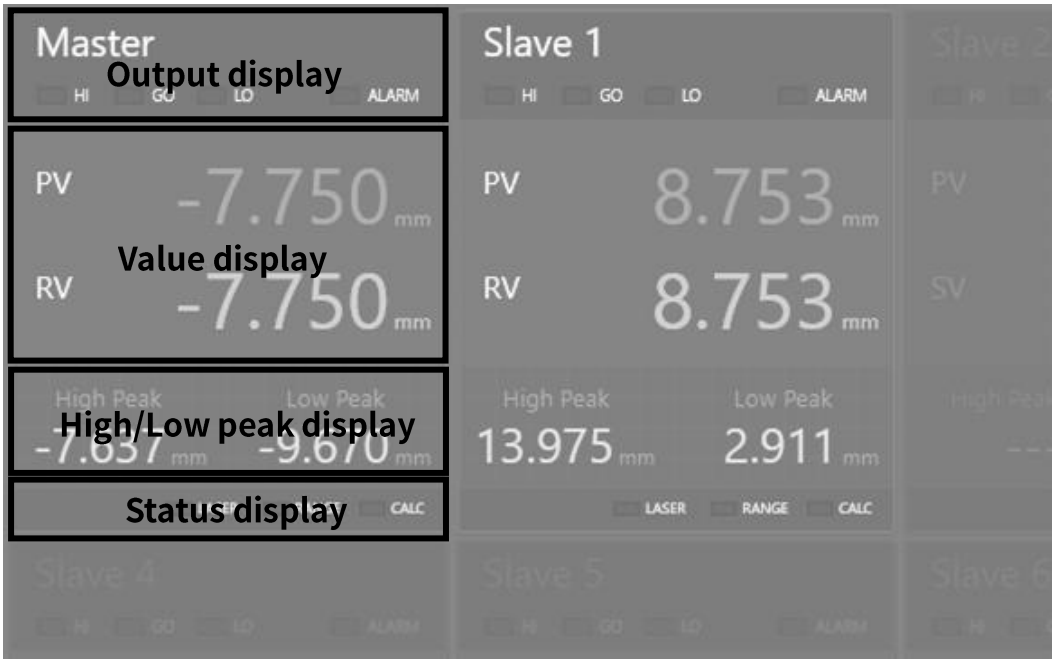
5.2 Monitoring

5.2.1 Live data

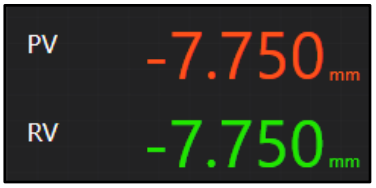
Displays the status of amplifier unit and measured value to number.



- **Output display**

Displays channel number of amplifier unit, judgement (HIGH/GO/LOW) output and alarm output status.

- **Value display**

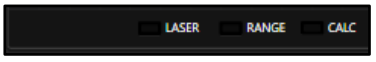


Displays present value (PV), setting value (SV), real distance value(RV).

- **High/Low Peak display**

Displays high peak, low peak value.

- **Status display**



Displays laser emission (LASER), measurement range (RANGE), calculation (CALC) status.

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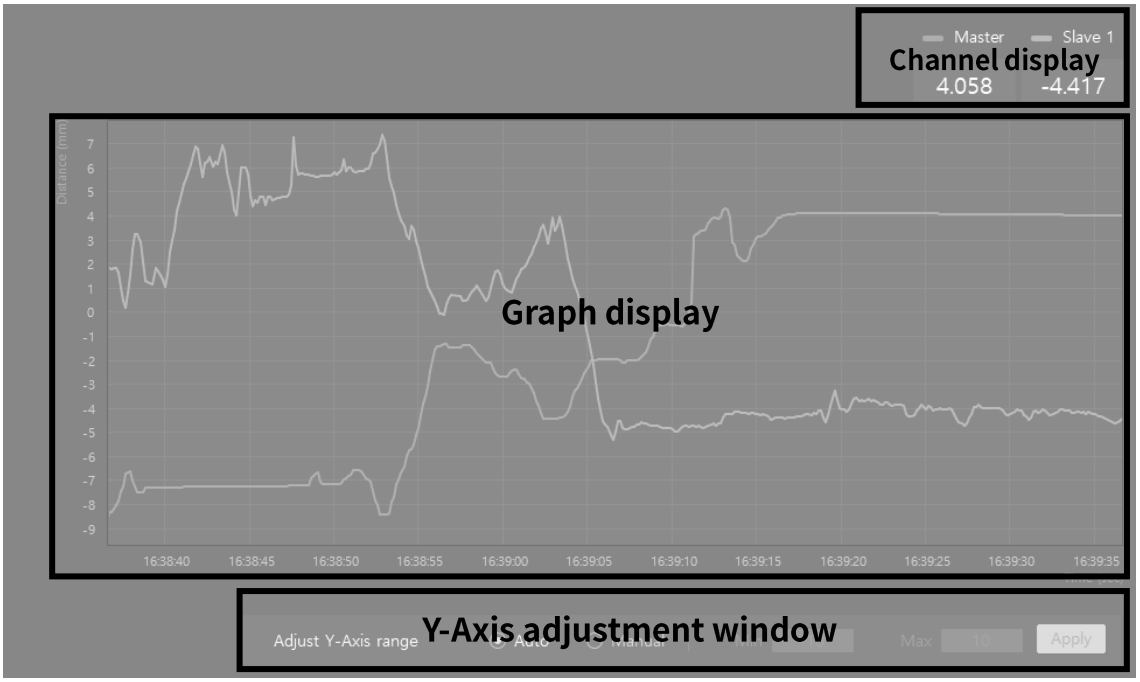
5.2.2 Live graph

Displays present value (PV) as real-time graph.



- **Channel display**

Displays the graph color of amplifier unit per channel and present value (PV).

If an error occurs, displays 'ERROR' instead of present value (PV).

- **Graph display**

Displays the current measurement (PV) of the connected amplifier units separated by channel-specific colors as a graph.

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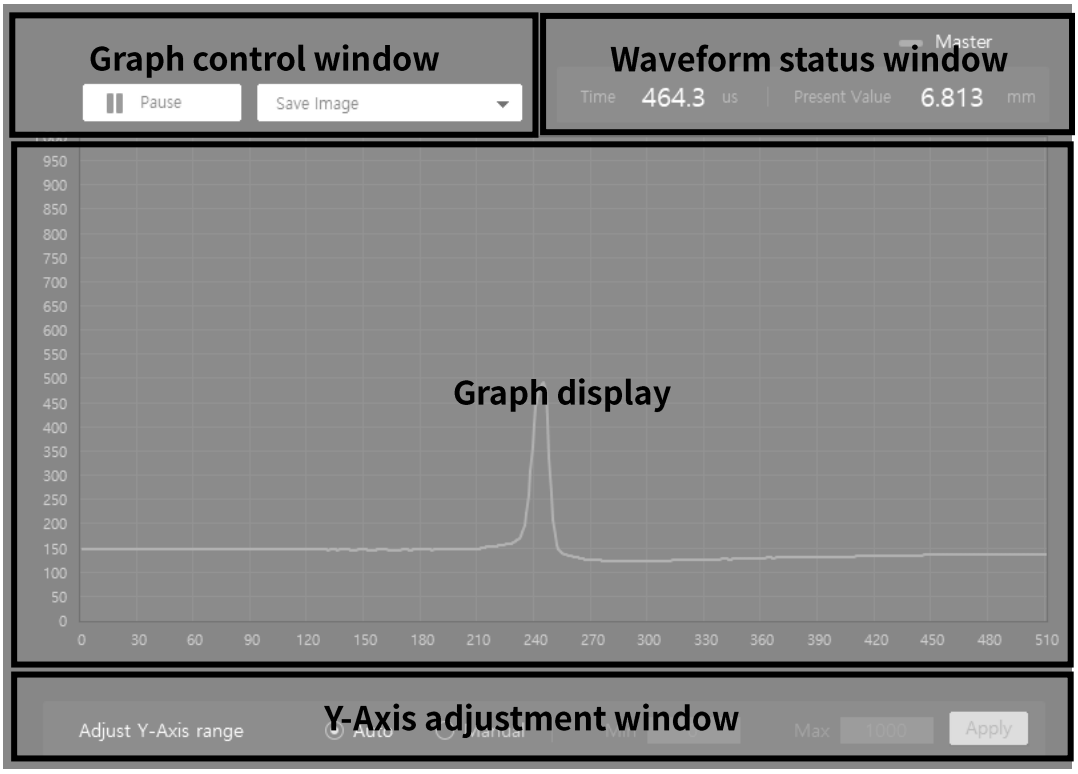
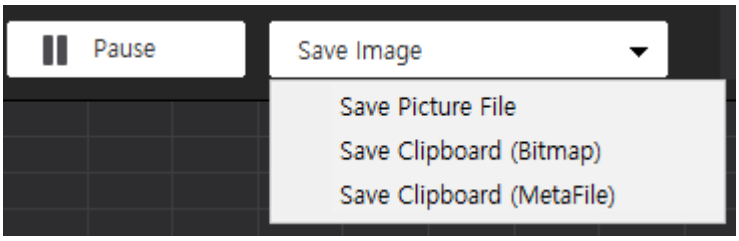
- **Y-Axis adjustment window**
  - Auto: Adjusts Y-Axis automatically and displays a graph.
  - Manual: Adjusts Y-Axis manually. Input maximum/minimum value of Y-axis to set the display range.

5.2.3 Waveform graph

Displays received waveform of selected amplifier unit in 'Status window' in real time.

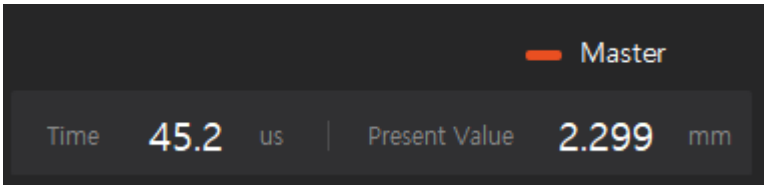


- **Graph control window**



Pauses the graph or saves as image.

- **Waveform status window**



Displays emission/receive time, present value.

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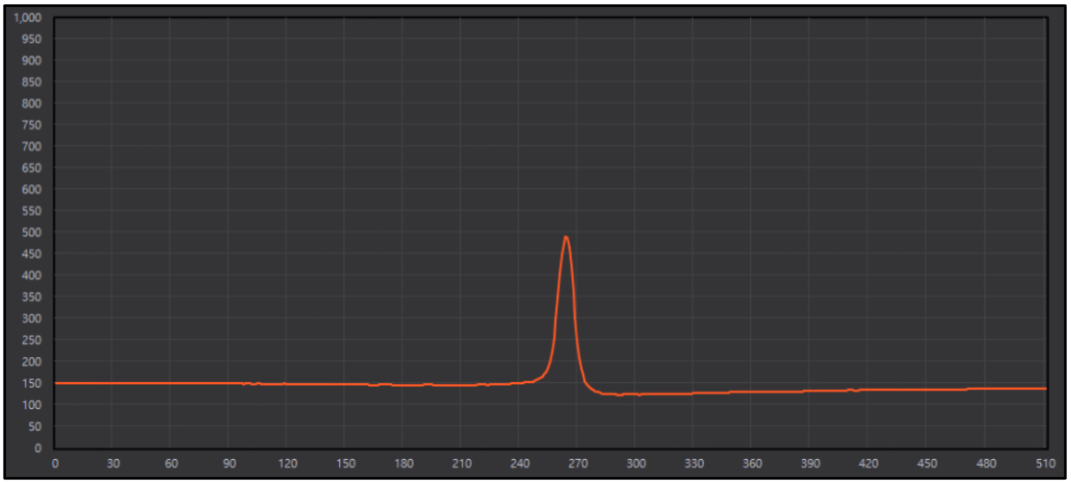
- **Graph display window**



- **Y-Axis adjustment window**
  - Auto: Adjusts Y-Axis automatically and displays a graph.
  - Manual: Adjusts Y-Axis manually. Input maximum/minimum value of Y-axis to set the display range.

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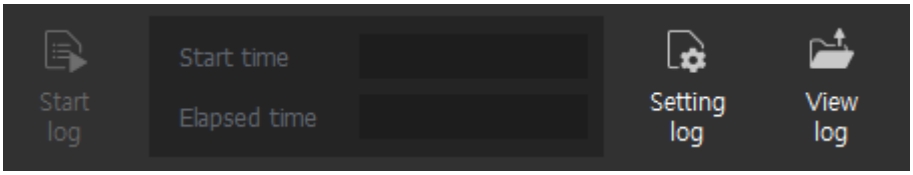
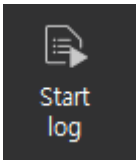
5.3 Log



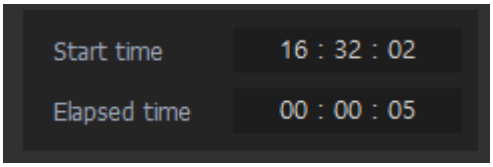
5.3.1 Start / Stop log

Saves present value (PV) to csv file in real time.

- [Start log] button is activated after connecting BD-C communication converter and select ‘Live Data’ / ‘Live Graph’.



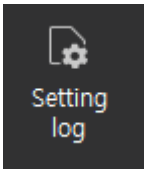
- When clicking [Start log], it shows ‘Start time’ and measuring ‘Elapsed time’ is started.

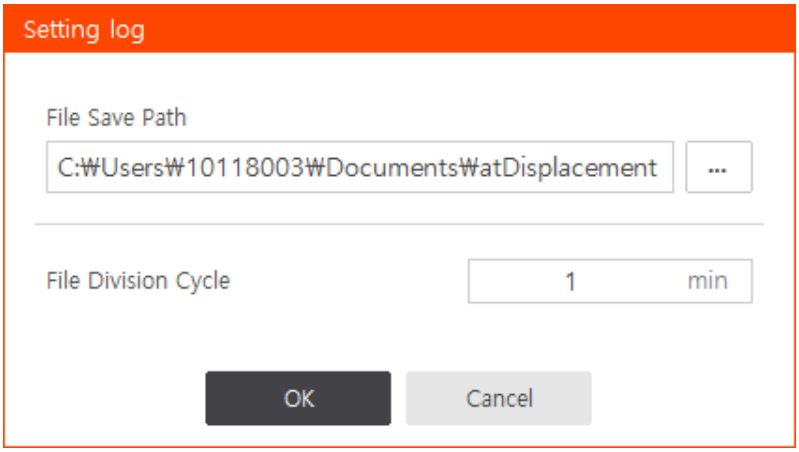


※ When leaving the 'Live Data' / 'Live Graph' tab, the log function is stopped automatically.

5.3.2 Setting log

Opens setting window related to log file.





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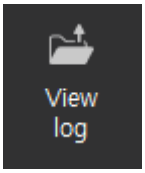
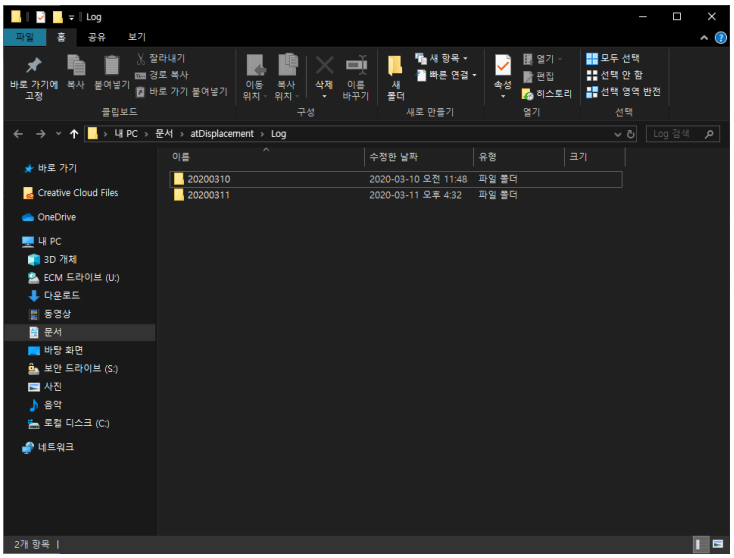
- File Save Path: Sets the path where the log files are saved. Log files are saved in the YYYYMMDD format folder at the time it is saved.
- File Division Cycle: Sets the time of cycle to save the log file separately. The time can be set from 1 minute to 60 minute.

※ [Setting log] button is disabled after connecting BD-C communication converter. Set the value before connecting or after disconnecting the converter.

5.3.3 View log

Opens 'File Save Path' set by 'Setting log' in window explorer.





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* Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.