

Robust Mini Linear Servo Motor —

mightyZAP SERVO MANAGER Software User Manual



INDEX

01 Introduction 3

02 System Requirement 3

03 Installation 4

04 Connection &
Communication Setting 5

05 Screen 7

06 Function Detail 12

1. Introduction

“mightyZAPServo Manager” software can be used when user sets various parameters for mightyZAP linear servo motor using PC. You can set below factors using “mightyZAPServo Manager”.

- Memory Setting
- Parameter Setting - Reading & Writing
- Error Indicator
- System Reset
- Firmware Update

It is highly recommended to use genuine PC interface USB module named IR-USB01 to connect servo motors with your PC.

2. System Requirement

- OS : Windows XP Service Pack 2 or higher / Vista / 7 (32/64bit) / 8 (32/64bit)
- 800MHz(or higher) 32bit(x86), OR 64bit (x64) processor
- 512MB(or bigger) system memory
- More than 500MB hard disk space

3. Installation

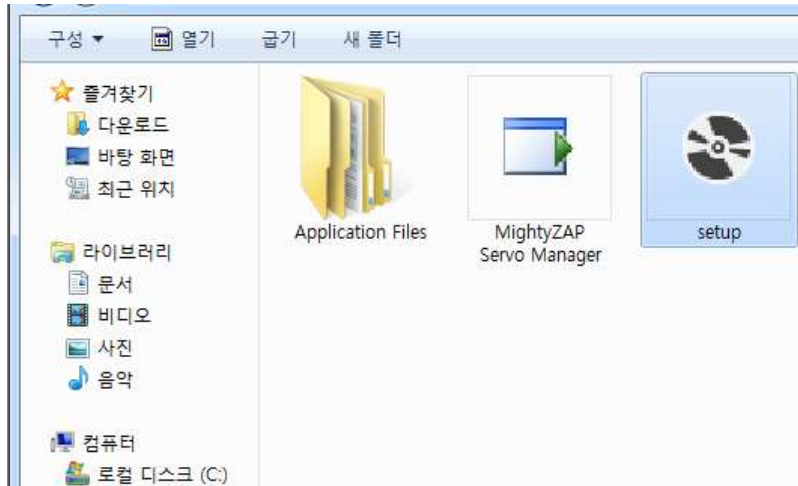
Install mightyZAPServo Manager as below.

(1) **Download**

Download installation file("mightyZAPServo Manager") from "Digital achives" menu at IR Robot web site(www.irrobot.com).

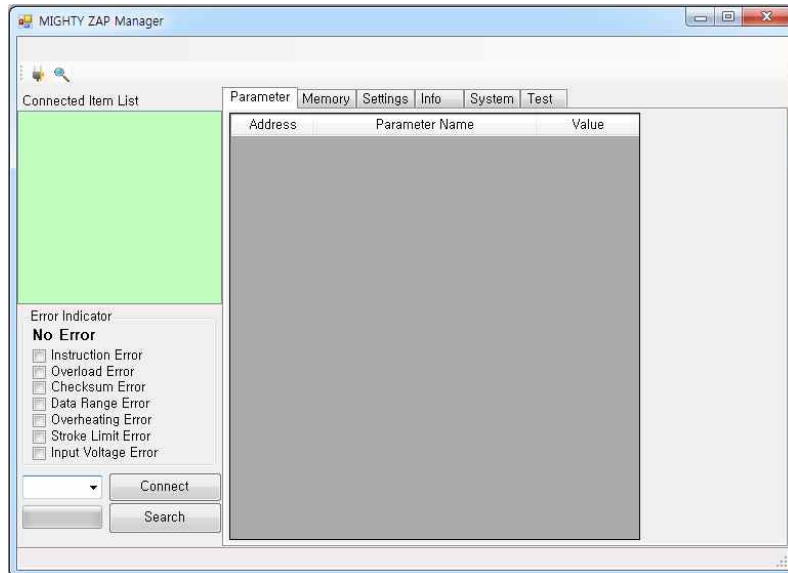
(2) **Installation**

Unzip downloaded file and install software by clicking "setup.exe" as below.



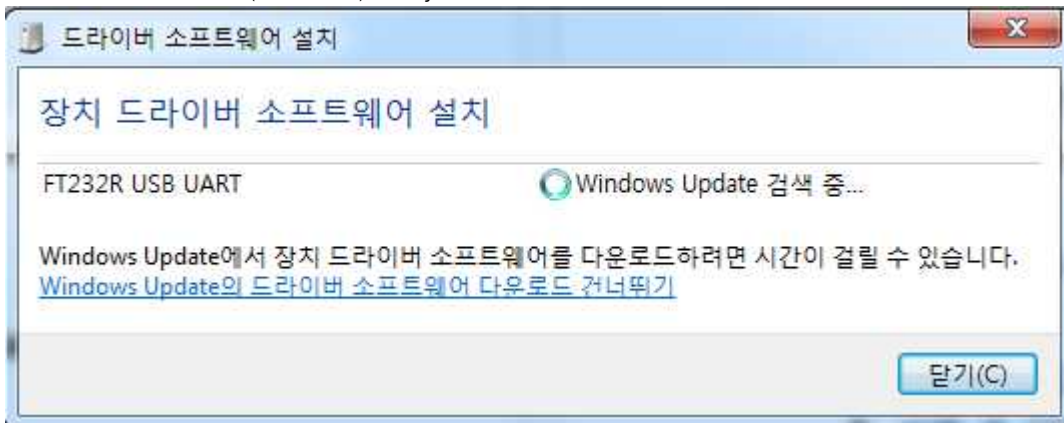
(3) **Initial Screen**

If installation is done properly, you will see below initial screen.

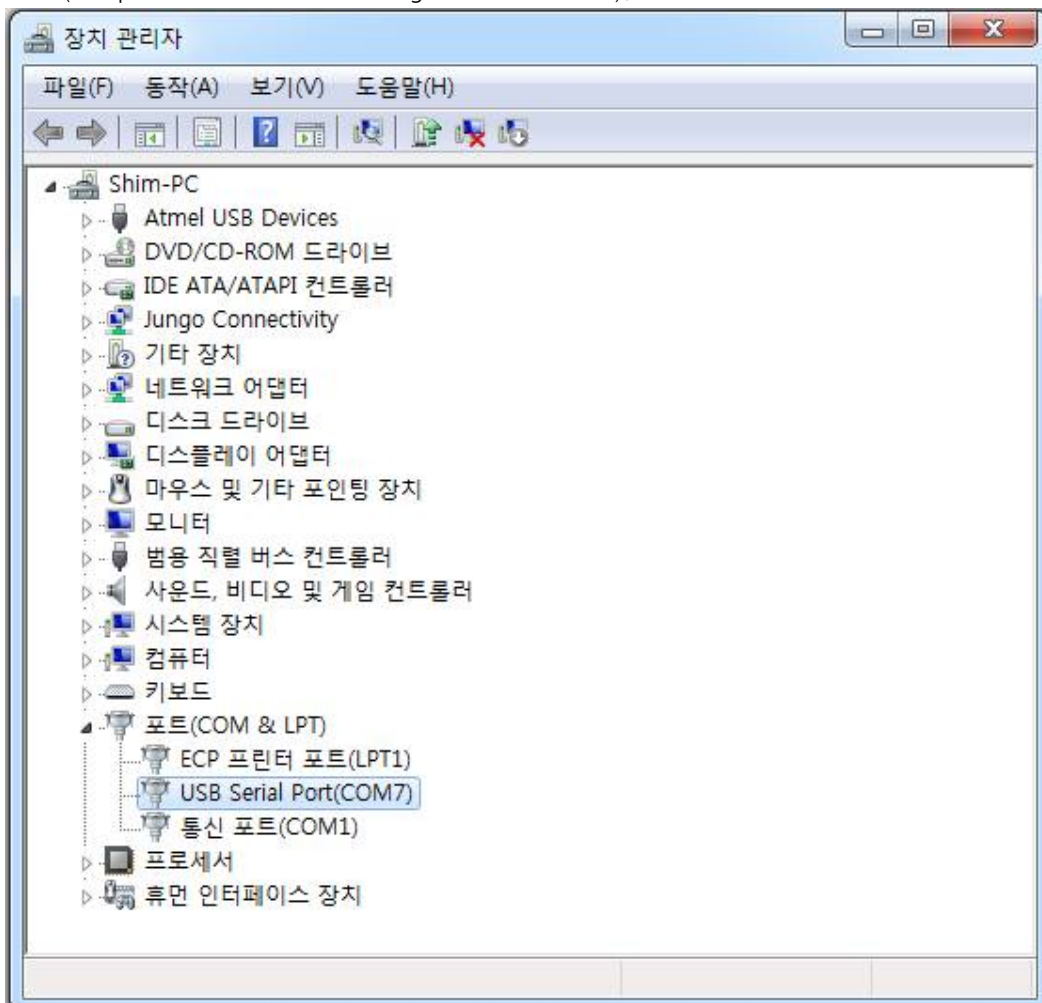


4.Connection & Communication Setting

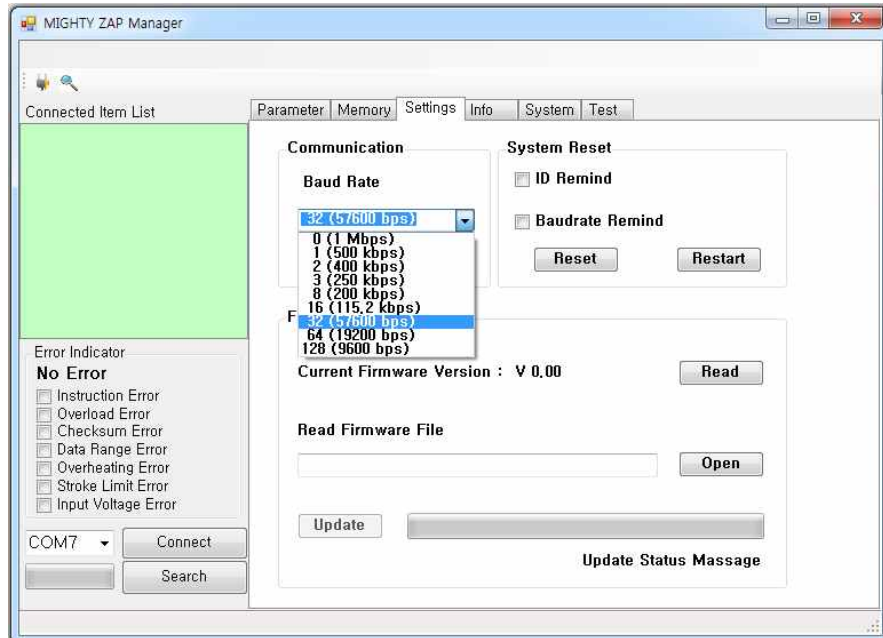
- (1) If your PC is connected with internet, Device driver will be installed automatically when you plug in PC interface module(IR-USB01) into your PC.



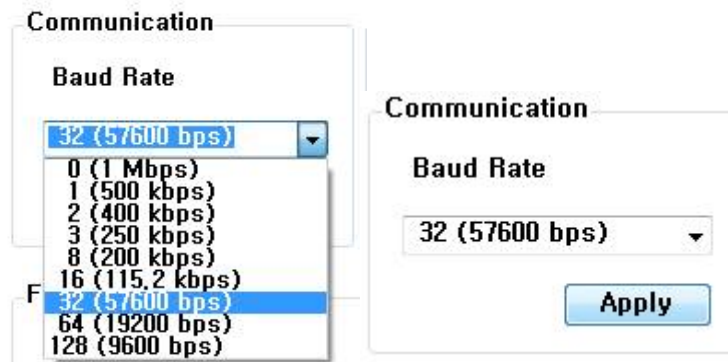
- (2) Check assigned COM port on your device manager window as below.
(The photo shows COM7 is assigned for IR-USB01).




- (3) Activate mightyZAP Servo Manager software and select [Setting] tab to set Baud rate as below. (Default Baud Rate is 57600bps.)



- (4) Select desired Baud Rate and click "Apply" button.



- (5) You will see COM port list when you click  in the left bottom side of screen. Select COM port number which you checked in the device manager earlier. (The picture shows COM7 is assigned.)

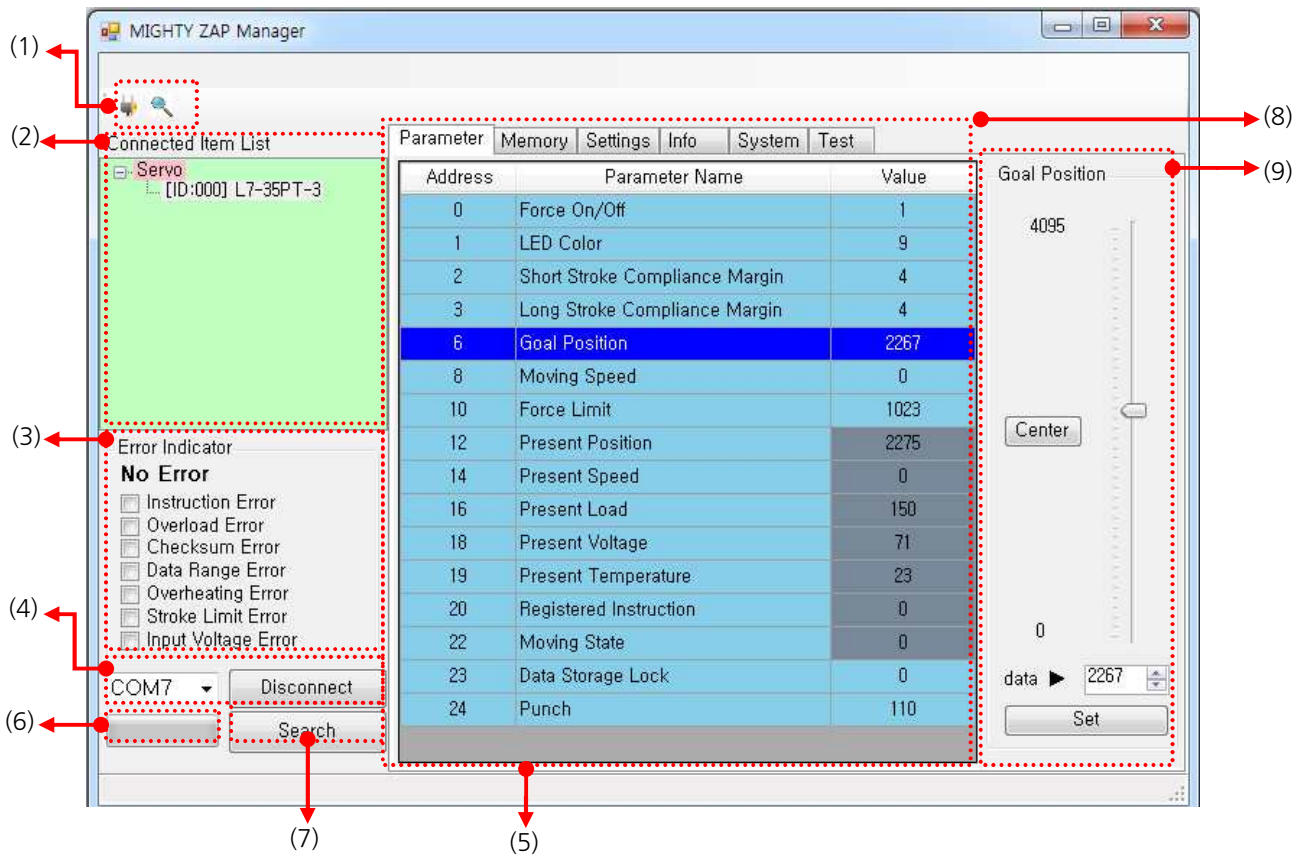


- (6) Click "Connect" button, then button will be changed to "Disconnect" which means connection is done.



5. Screen

In this chapter, you will find descriptions about screen menu.



(1) **Tool Bar**



COM Port connection/disconnection



Auto searching/stop searching for connected items

(2) **Connected Item List**

Connected servos will be shown as a tree structure as below.

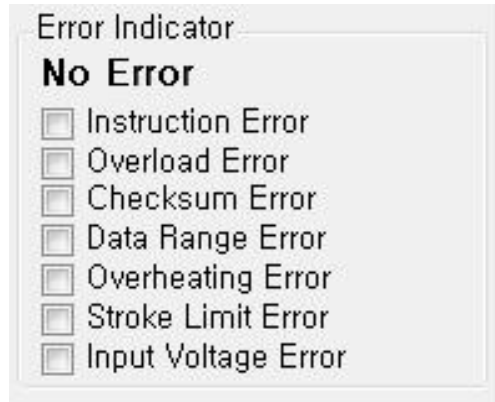
When you click concerned item, product information for concerned item will be loaded.



(Above picture shows 3 different L7-35PT-3 having different IDs have connected.)


(3) Error Indicator

LED will show 7 different colors for 7 different errors according to its priority rule.



(4) COM Port Selection and COM Port List



You will see COM port list when you click  in the left bottom side of screen. Select COM port number which you checked in the device manager earlier.

(5) COM Port Connection / Disconnection

Both buttons will be changed according to connection status.



Click this button to connect selected COM port.



Click this button to disconnect selected COM port.

(6) Auto Searching Graph for Connected Servo

Searching servo ID from ID0 in order and it shows processing rate.

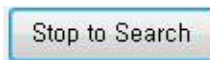


(7) Auto Searching / Searching Stop

Servo IDs will be found automatically from ID0 to ID253 in order and connected servo list will be shown in the window. The higher ID number, the longer searching time.



Click this button to search connected servos.



Click this button to stop searching servos. Searching process will be finished even without clicking this button.

(8) Function Group Tabs

Each function is shown as tabs as below.




- **Parameter** : Operating Parameter Setting
- **Memory** : Storage Memory Setting
- **Settings** : System Setting
- **Info** : Product Information

(9) Control Window

Different type of control windows will be shown according to each selected parameter.

• **List Type**

Click  button and select data for setting. To apply selected data, you must click "Set" button.



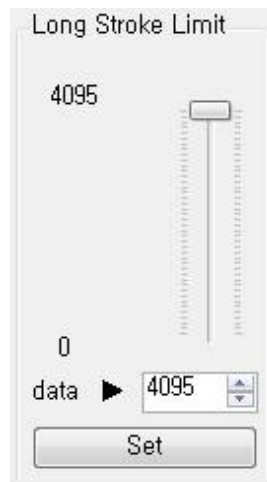
The List type control will be used for Servo ID, Baudrate, Return Delay, Retrurn Level and Resolution Divider setting.

• **Variable Figure Type**

Control by adjusting figures within certain range.

It shows minimum & maximum data range and you can use slide bar, mouse scroll to adjust the figure.

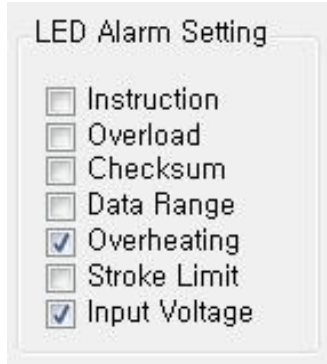
Click "Set" button to apply.



This type of control will be used for Stroke Limit, Temperature Limit, Limit Voltage, Maximum Force, Stroke Pulse Width, Center Difference, Moving Speed, Force Limit and Punch setting.

- **Selecting Type**

Control by selecting among the factors.



This type of control will be used for LED Alarm Setting and ShutDown Alarm setting.

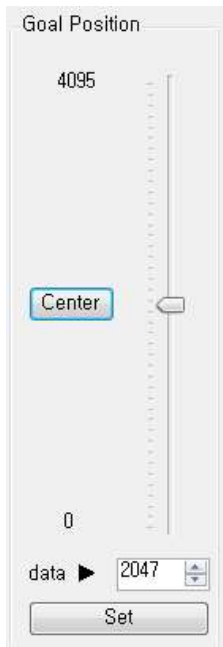
- **Status Selecting Type**

Control by selecting status between two different status.



This type of control will be used for Force On/Off and Data Storage Lock setting.

- **Real-time Control Type**



Control by adjusting figures within certain range.

It shows minimum & maximum data range and you can use slide bar, mouse scroll to adjust the figure.

Click "Set" button to apply.

Scrolling slide button, data will be applied in real-time.

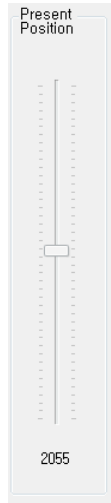
Clicking "Center" button, data will be moved immediately to the center value.

This type of control will be used for Goal Position setting.

- **Real-Time Status Indication Type**

You can just monitor current status by gauge and figures and cannot control it on this indication.

This type of control will be used for Present Position.



- **Value & Direction Indication Type**

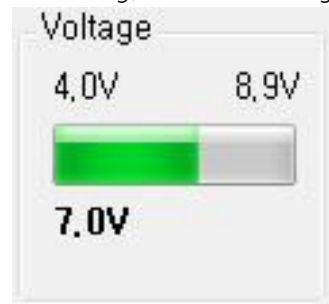
It shows the direction of Rod movement as well as its concerned value.



This type of control will be used for Present Speed & Present Load.

- **Bar Graph Type**

Certain ratio of value will be shown as a graph. This is just monitoring data, not controlling something. It shows setting range and value of data.



This graph type will be used for Present Voltage & Present Temperature.

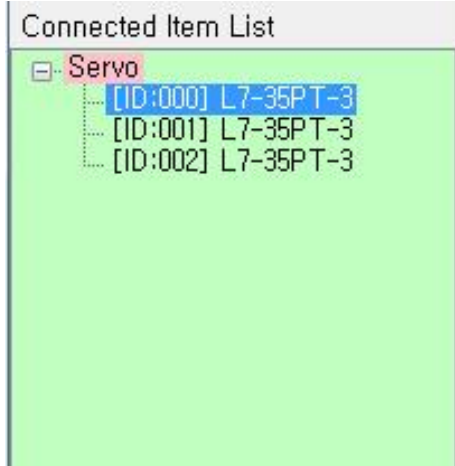
6. Function Details

(1) Connected Servo Searching

Click "Search" button and you will show connected servo list. Searching will be completed automatically or you can click "Stop to Search" button when you want to cease searching during its process. If you cease searching during its process, list will show the servos which has been found until searching is ceased.

(2) Servo Selection

Click desired servo in the list to load its data.



(3) Memory Setting

You can edit data in the memory. This data will not be removed even if robot power is turned off.

Gray marked data means "Read only" data.

You will see Address numbers, Parameter Names, and Values for each data.

For detailed description for each parameter, please refer to the mightZAP user manual.

Address	Parameter Name	Value
0	Model Number	27410
2	Firmware Version	0
3	Servo ID	0
4	Baudrate	32
5	Return Delay	2
6	Short Stroke Limit	0
8	Long Stroke Limit	4095
11	Temperature Limit	85
12	Low Limit Voltage	60
13	High Limit Voltage	89
14	Maximum Force	1023
16	Return Level	1
17	LED Alarm Setting	5
18	ShutDown Alarm Setting	0
22	Resolution Divider	1
24	Calibration Short Stroke	140
26	Calibration Long Stroke	3850
28	Calibration Center Stroke	1995
30	Third-party Program Interface	310
32	Third-party Firmware Version	37
37	D Gain	22
38	I Gain	12
39	P Gain	22
40	Short Stroke Pulse Width	500
42	Long Stroke Pulse Width	2500
44	Middle Stroke Pulse Width	1500
50	Center Difference	2047
52	Punch Initial Value	110

(4) Parameter Setting - Reading & Writing

The parameters in this setting will be reset (to default value) whenever robot power is OFF. Gray marked data is "Read only" data and it shows changing data periodically.

You will see Address numbers, Parameter Names, and Values for each data.

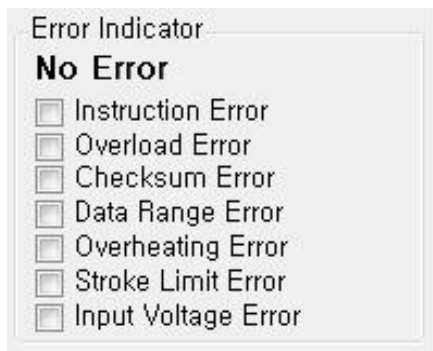
Parameter		
Address	Parameter Name	Value
0	Force On/Off	0
1	LED Color	0
2	Short Stroke Compliance Margin	4
3	Long Stroke Compliance Margin	4
6	Goal Position	0
8	Moving Speed	0
10	Force Limit	1023
12	Present Position	0
14	Present Speed	0
16	Present Load	0
18	Present Voltage	72
19	Present Temperature	22
20	Registered Instruction	0
22	Moving State	0
23	Data Storage Lock	0
24	Punch	110

For detailed description for each parameter, please refer to the mightZAP user manual.

(5) Error Indicator

For 7 kinds of errors, each error will be shown as assigned LED colors according to priority rule. Priority rule has been made as LED cannot show multiple colors for multiple errors and priority is higher for the error located in bottom part of window below.(That is, Input voltage error is the highest priority and instruction error is the lowest when multiple errors occurs at the same time)

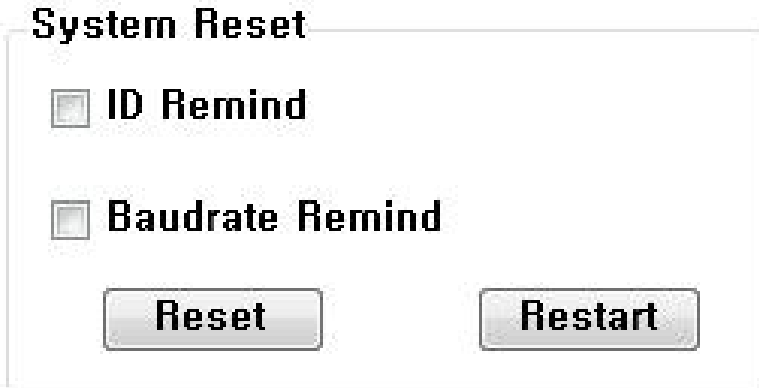
(So, when you experience error indication from LED, please check error status with manager software to see if there are other errors checked.)



Error	Color
Instruction Error	White
Overload Error	Cyan
Checksum Error	Magenta
Range Error	Blue
Overheating Error	Yellow
Stroke Limit Error	Green
Input Voltage Error	Red

(6) System Reset

Use this menu to reset servo system. ID and Baudrate can be kept without reset according to your setting as below.



ID Remind Servo ID will be kept without reset.

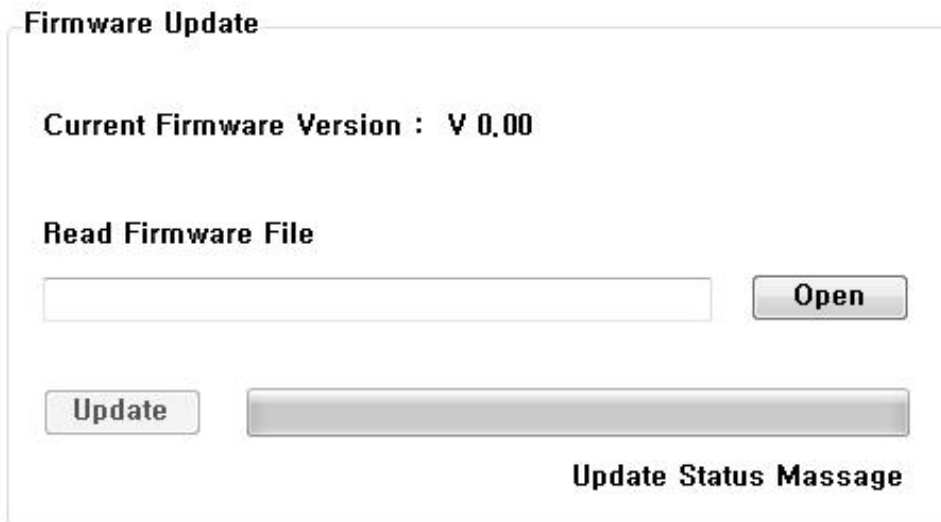
Baudrate Remind Communication speed will be kept without reset to keep current communication speed.

Activate "Reset" for servo system excluding selected "remind" item.

Servo will restart as like power is supplied again.

(7) Firmware Update

You can update the firmware of servo to the latest version. Find updated firmware on the website of IR Robot (www.irrobot.com / Digital Archive).



Current Firmware Version : It shows current firmware version of your servo motor. You can check the latest firmware at www.irrobot.com - digital achieves for download.

Open and select new firmware file which is previously downloaded in your PC.

"Update" button will be activated when you select new firmware file and firmware will be updated when click this button. If update is ceased unexpectedly, please try again. Call your local dealer or IR Robot if update cannot be done even after repeated trials.

(CAUTION : Please do not disconnect power during update process. It may lead servo malfunction or serious damage of product.)