33. EasyDiagnoser

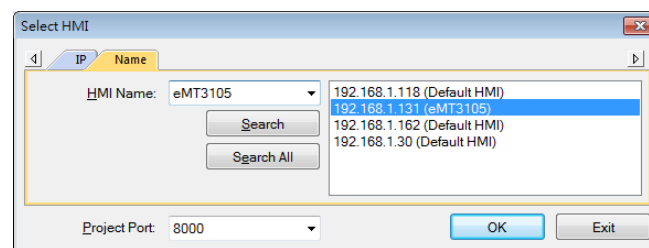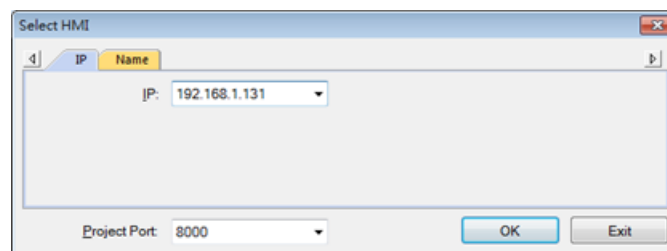This chapter explains how to use EasyDiagnoser.

33.1.   Overview

EasyDiagnoser is a tool for detecting the error in the communication of HMI with PLC.

## 33.2.   Configuration

The following steps explain how to configure EasyDiagnoser.

1. Open Utility Manager and click EasyDiagnoser.
2. Set the HMI IP address. Enter IP address or click [Search All], and then enter [Project Port].

Or, during On-line simulation, right click and select [Run EasyDiagnoser] to open EasyDiagnoser. EasyDiagnoser will monitor the communication between PC and PLC.
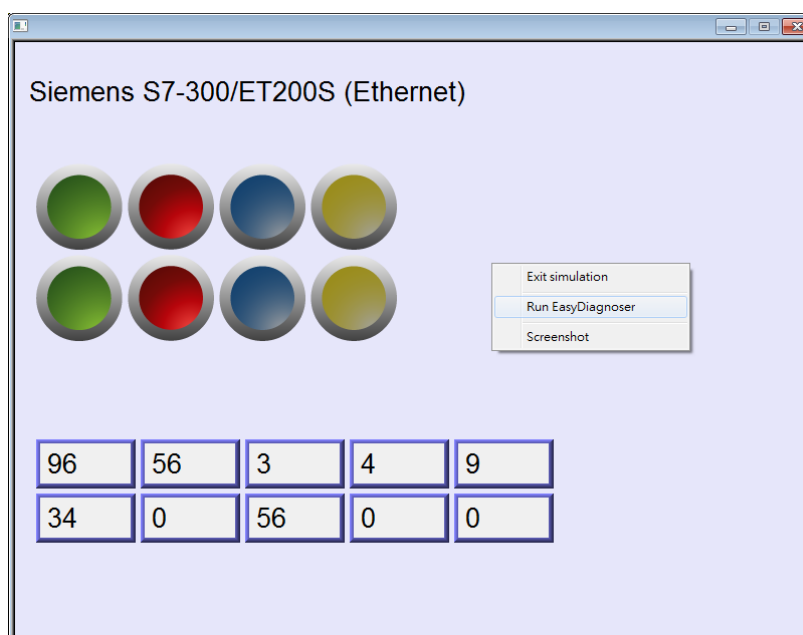
3. When finished, click [OK], EasyDiagnoser dialog box is shown in the following figure.
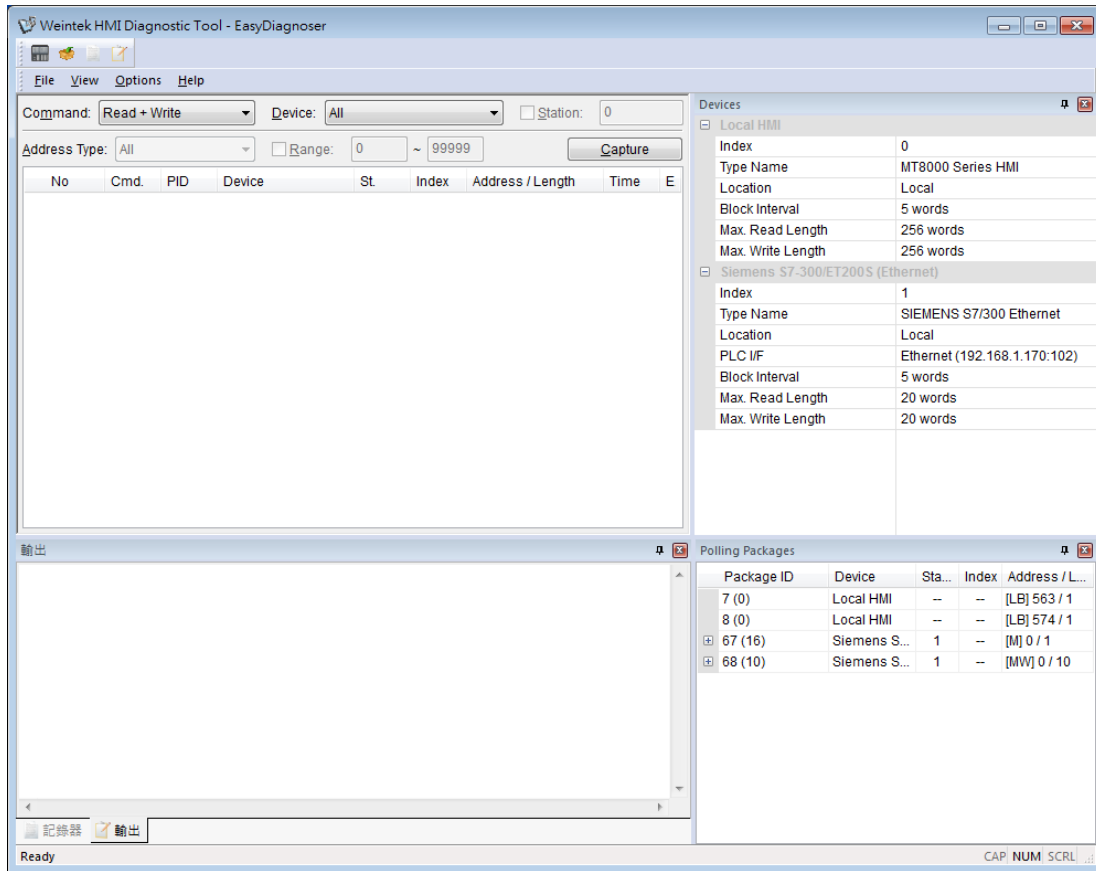
33.3.   EasyDiagnoser Settings

33.3.1.   Main Menu

Item	Description
File	**Save As** The communication data can be saved as .xls file which can be opened by Excel. **Exit** Exits current file.
View	**Device Bar** displays Device window. **Package Bar** displays Package window. **Logger Bar** displays Logger window. **Output Bar** displays Output window.
Options	**Toolbars** displays toolbar icons of Device Bar, Package Bar, Logger Bar, and Output Bar.

Status Bar displays information of CAP, NUM, and SCRL at the bottom of EasyDiagnoser window.

Update Package List displays the Polling Package information of current page.

Show Object ID (HMI) shows the ID of the objects on HMI as shown in the following figure.

Clear Activity List clears all the information recorded during communication.

Help	Displays EasyDiagnoser version information.

33.3.2. Activity Area

In the activity area, users can observe the communication between HMI and PLC.

Item	Description
Command	**Read + Write**
	Displays Read and Write information in activity area.
	Read
	Displays only Read information in activity area.

	Write	
	Displays only Write information in activity area.	
Device	**All**	
	Displays the information of Local HMI and PLC.	
	• If command is set to Read + Write, the Read and Write information of Local HMI and PLC will be displayed in the activity area.	
	• If command is set to Read, the Read information of Local HMI and PLC will be displayed in the activity area.	
	• If command is set to Write, the Write information of Local HMI and PLC will be displayed in the activity area.	
	Local HMI	
	Displays the information of Local HMI.	
	• If command is set to Read + Write, the Read and Write information of Local HMI will be displayed in the activity area.	
	• If command is set to Read, the Read information of Local HMI will be displayed in the activity area.	
	• If command is set to Write, the Write information of Local HMI will be displayed in the activity area.	
	PLC	
	Displays the information of PLC.	
	• If command is set to Read + Write, the Read and Write information of PLC will be displayed in the activity area.	
	• If command is set to Read, the Read information of PLC will be displayed in the activity area.	
	• If command is set to Write, the Write information of PLC will be displayed in the activity area.	
Station	Selects the PLC station number to be displayed. (This function is disabled when selecting [All] in [Device]).	
Address Type	Selects all or a preferred address type to be displayed. (This function is disabled when selecting [All] in [Device]).	
Range	Sets the range of address types. (This function is disabled when selecting [All] in [Device]).	
Capture	Click to start/stop capturing the communication message.	
Error	Please see "33.4 Error Code".	

33.3.3. Polling Packages

Polling Packages				
Package ID	Device	Station	Index	Address / Length
7 (0)	Local HMI	--	--	[LB] 563 / 1
8 (0)	Local HMI	--	--	[LB] 574 / 1
⊞ 67 (16)	Siemens S7-300/ET20...	1	--	[M] 0 / 1
⊞ 68 (10)	Siemens S7-300/ET20...	1	--	[MW] 0 / 10

Item	Description
Package ID	Uses the Package ID to check the error of the object.
Device	Displays HMI and PLC type.
Station	Displays PLC station number.
Index	Displays the index register numbers of the objects.
Address / Length	Displays the device type and the size of the package (in words).

Polling Packages				
Object		Screen	ID	Address
7 (0)	Local HMI	--	--	[LB] 563 / 1
8 (0)	Local HMI	--	--	[LB] 574 / 1
⊟ 67 (16)	Siemens S7-300/ET...	1	--	[M] 0 / 1
▶ Toggle Switch		10	1	[M] 0
Toggle Switch		10	1	[M] 0
Toggle Switch		10	12	[M] 0
Toggle Switch		10	12	[M] 0
Toggle Switch		10	13	[M] 0
Toggle Switch		10	13	[M] 0
Toggle Switch		10	14	[M] 0
Toggle Switch		10	14	[M] 0
Toggle Switch		10	15	[M] 0
Toggle Switch		10	15	[M] 0
Toggle Switch		10	16	[M] 0

| Item	Description
Object	Check the object in the package.
Screen	The window in the project where the object is placed.
ID	The ID number of the object.
Address	The address of the object.

✎Note

■ Click [Package ID], the device station number will be displayed in the 3rd column.

Package ID	Device	Station	Index	Address / Length
7 (0)	Local HMI	--	--	[LB] 563 / 1
8 (0)	Local HMI	--	--	[LB] 574 / 1
⊞ 67 (16)	Siemens S7-300/ET2...	1	--	[M] 0 / 1
⊞ 68 (10)	Siemens S7-300/ET2...	1	--	[MW] 0 / 10

Polling Packages

■ Double click [Package ID] then select [object] to display the position of the object.

For example, select [Numeric Input] and the screen no. displays 10.

This shows that this object is in window no. 10 in the project and will be marked with pink frame on HMI as shown in the following figures

Object		Screen	ID	Address
7 (0)	Local HMI	--	--	[LB] 563 / 1
8 (0)	Local HMI	--	--	[LB] 574 / 1
⊞ 67 (16)	Siemens S7-300/ET20...	1	--	[M] 0 / 1
⊟ 68 (10)	Siemens S7-300/ET20...	1	--	[MW] 0 / 10
▸ Numeric Input		10	2	[MW] 0
Numeric Input		10	3	[MW] 2
Numeric Input		10	4	[MW] 4
Numeric Input		10	5	[MW] 6
Numeric Input		10	6	[MW] 8
Numeric Input		10	7	[MW] 10
Numeric Input		10	8	[MW] 12
Numeric Input		10	9	[MW] 14
Numeric Input		10	10	[MW] 16
Numeric Input		10	11	[MW] 18

Polling Packages

Siemens S7-300/ET200S (Ethernet)
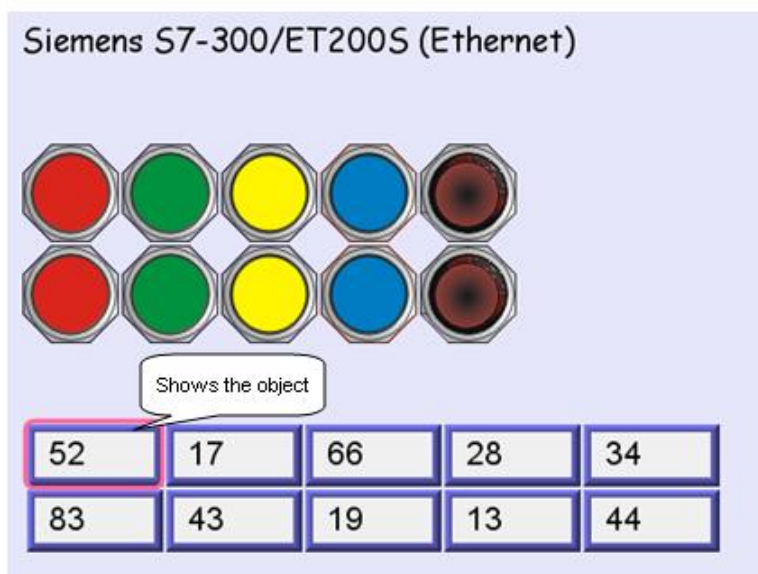
33.3.4.   Devices

Displays the information of HMI and PLC.

Devices	
Local HMI	
Index	0
Type Name	MT8000 Series HMI
Location	Local
Block Interval	5 words
Max. Read Length	256 words
Max. Write Length	256 words
Siemens S7-300/ET200S (Ethernet)	
Index	1
Type Name	SIEMENS S7/300 Ethernet
Location	Local
PLC I/F	Ethernet (192.168.1.170:102)
Block Interval	5 words
Max. Read Length	20 words
Max. Write Length	20 words

33.3.5.   Output (Macro debug)

With Macro Trace function, the executing status of Macro can be seen.

In the illustration below, for [ID 1, Ln 7] and [ID 1, Ln 12]

ID 1 represents Macro name.

Ln 7 and Ln 12 represent that data are in the 7th and 12th line of Macro.

```
Output
[ID 1, Ln 7] LW0 = 1
[ID 1, Ln 12] LW0 = 2
[ID 1, Ln 7] LW0 = 2
[ID 1, Ln 12] LW0 = 3
[ID 1, Ln 7] LW0 = 3
[ID 1, Ln 12] LW0 = 4
```

☞ For more information, see "18 Macro Reference".

33.4.   Error Code

In the activity area, the reason of error can be found through the error codes listed below.

Error Code	Cause of Communication Error
0	Normal
1	The device is busy and not yet ready to process a command.
2	Communication error due to unexpected reason.
3	The device does not exist.
4	The device using the specified station number does not exist.
5	Incorrect address format.
6	Read/Write unsupported address.
7	The driver of the device does not exist.
8	The COM port does not exist.
9	Incorrect IP address or unable to connect the device.
10	Checksum error.
11	Unidentified command.
12	Ignore
20	The USB device is improperly connected.
21	The CAN Bus device is improperly connected.
22	No reply from the device.
23	Insufficient data read from the device before timeout.
24	The Conversion Tag used by the object does not exist or the content is incorrect.
25	HMI is not accepting any commands from a remote HMI.
251	Read/Write exceeding number of words from/to the register of the MODBUS device.
252	MODBUS device replies incorrect data format.
253	MODBUS device checksum error.

When error occurs, the error message will be shaded red as shown in the following figure.
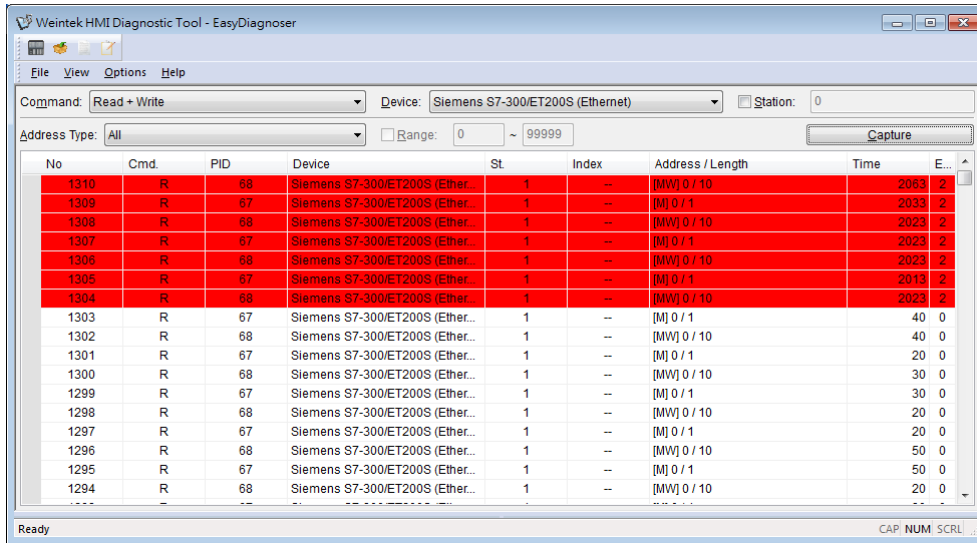
33.5.   Window Adjustment

Users can drag or use the smart docking icons in editing window to place the windows to a desired position.
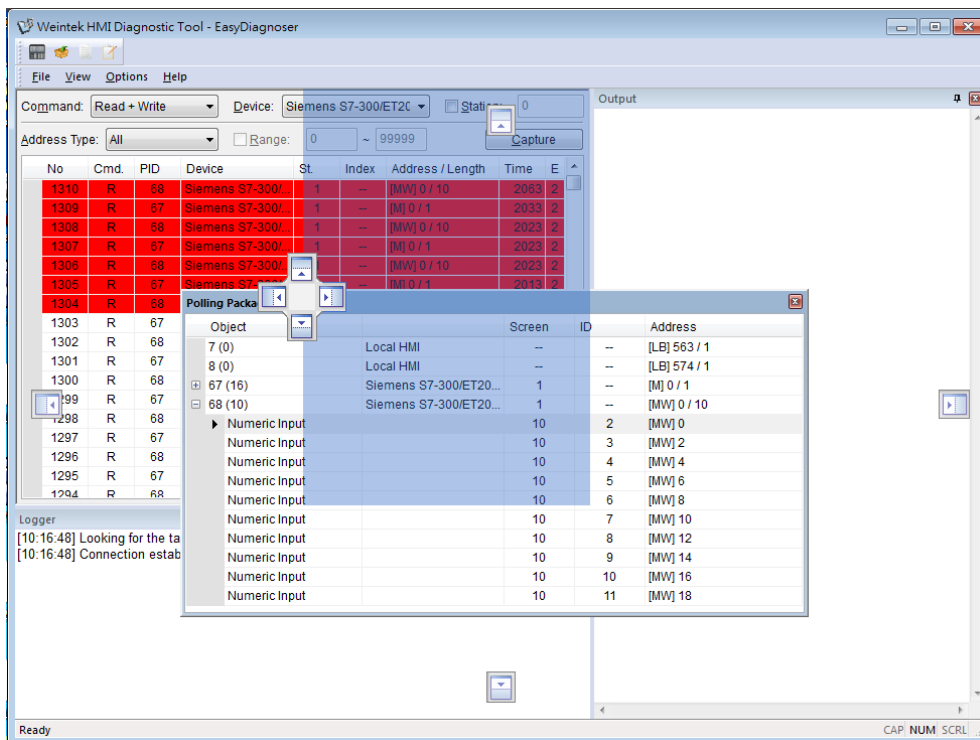
📝**Note**

■   EasyDiagnoser doesn't support Siemens S7/1200 (Ethernet) and Allen-Bradley Ethernet/IP (CompactLogix/ControlLogix) – Free Tag Names since both of the PLCs use tag.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.