

– INSTRUCTION MANUAL –

ECP RESISTANCE VALUE RECORD

SAMPLE SOFTWARE

ETM E-Recorder sample software

Save File:
D:\YUASA-SYSTEM\ETM E-Record
sample software\SaveData.csv

Browse...

	Count	Speed
1	10	30
2	20	30
3	30	30
4	40	30
5	50	30
6	60	30
7	70	30
8	80	30
9	90	30
10	100	30
11	110	30
12	120	30
13	130	30
14	140	30
15	150	30
16	160	30
17	170	30
18	180	30
19	190	30
20	200	30
21	210	30
22	220	30
23	230	30
24	240	30
25	250	30
26	260	30
27	270	30
28	280	30
29	290	30
30	300	30

Endurance Testing Machine

IP Address: 192.168.0.1 ETM name: DMLHP

Time out: 1 sec

Connect/Disconnect

Count

100 times

Speed

30 r/min

Count SP: 10000 Speed SP: 30

Read: 10000 Write: 10000

Reload Write

Manual Automatic

Start/Stop

Digital Multimeter

Port: COM24

Connect/Disconnect

Value

- ☒ CH1
- ☒ CH2
- ☒ CH3
- ☒ CH4
- ☐ CH5
- ☐ CH6
- ☐ CH7
- ☐ CH8

TEST

Safety precaution are classified into five categories

- WARNING** : Death or serious injury may result from misusing the product without following the instructions.
- CAUTION** : Minor injury, as well as damage to the product may result from misusing the product without following the instructions.
- NOTICE** : Bad influence on test result may result from misusing the product without following the instructions.
- NOTE** : General knowledge.
- INTERLOCK** : Effect of the interlock system for safety.

WARNING : Be sure to read precautions of Endurance Testing Machine when use this software.

WARNING : Do not use products beyond its capacity as specified in the specification.

CAUTION : Immediately stop the machine upon any sign of abnormal operation.

NOTICE : Make sure to tighten the screws as described in the manual.

Icons on this manual.

◇Click or tap on the display



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[- NOTICE -]

This software is sample, YUASA makes no guarantee that this software will complete operation.

We make absolutely sure about the contents of this user manual.

However, if you have some questions or find some incorrect, please contact us.

1. OUTLINE

1.1. SPECIFICATIONS

This software monitor and record the resistance value, connect with the Endurance Testing Machine and the Digital Multimeter. (HIOKI E.E. CORPORATION Digital Multimeter: RM3545-02/ multiplexer unit: Z3003)

This software is consists by the following files.

- ETM.exe: Program file
- ETM.exe.config: Setting file
- ProgramData.csv: Automatic operation setting file

1.2. SYSTEM REQUIREMENTS

Operation system	Windows 7 (32bit/64bit) / 10(32bit/64bit)
Resolution	1366 x 768
Processor	Operating clock 1GHz or better
Ram size	512MB
Hard-drive size	30MB
Ports	USB2.0 port /Lan port

For more information about RM3545, please see the HIOKI E.E. CORPORATION homepage.

1.3 CONNECTION DEVICES

1.3.1 THE ENDURANCE TESTING MACHINE

- 1) Confirm the following setting before connected to the Endurance Testing Machine.

For more information about setup, refer to [2.3 THE ENDURANCE TESING MACHINE SETTING] of this instruction manual.

PC

- IP address setting

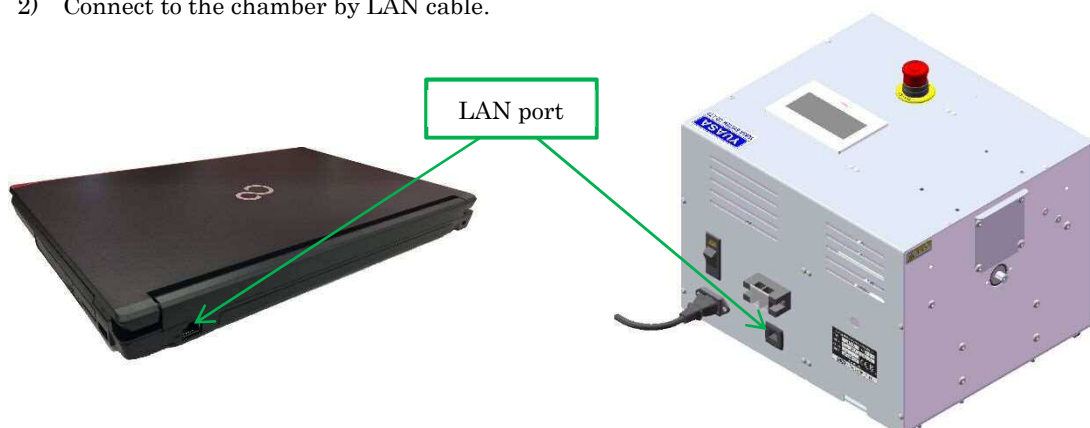
IP address: 192.168.0.5
Subnet mask: 255.255.255.0

Endurance Testing Machine

- IP address setting

IP address: 192.168.0.1
Subnet mask: 255.255.255.0

- 2) Connect to the chamber by LAN cable.



The above image is for illustrative purposes.

1.3.2 THE DIGITAL MULTIMETER

- 1) Confirm the following setting before connected to the chamber. For more information about setup, refer to [2.4 THE DIGITAL MULTIMETER CONNECTION SETTINGS] of this instruction manual.

PC

- Install USB driver
- Check the COM port

Digital Multimeter (RM3545)

- Check multiplexer unit setting

TERMINAL: MUX

WIRE: 4W

SCAN MODE: AUTO

- Check USB interface setting

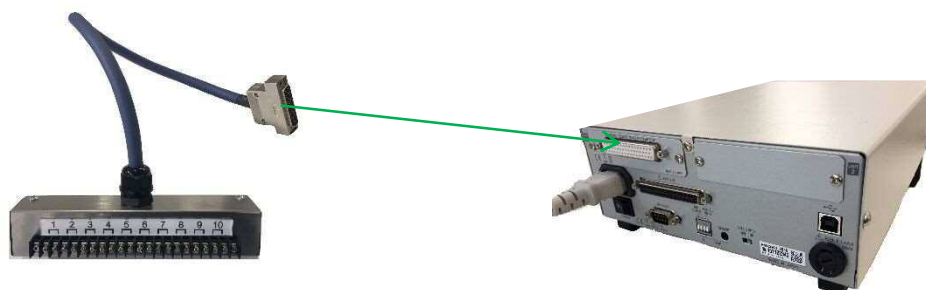
NOTE

Refer to HIOKI E.E. CORPORATION RM3545 INSTRUCTION MANUAL for details of setting.

- 2) Connect to the Digital Multimeter by USB cable.

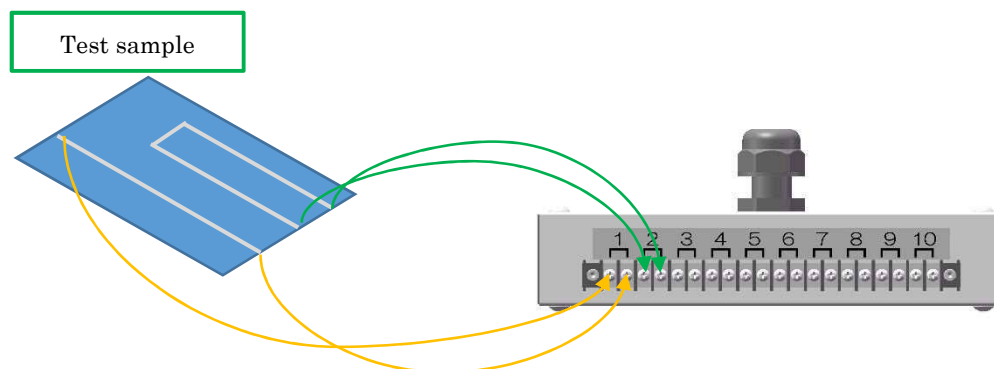


- 3) Connect terminal box to the Digital Multimeter.



1.3.3 TEST SAMPLE's

- 1) Connect test samples each ends to terminal box, then resistance values is measured.
Terminal box number is equal Digital Multimeter channel number.



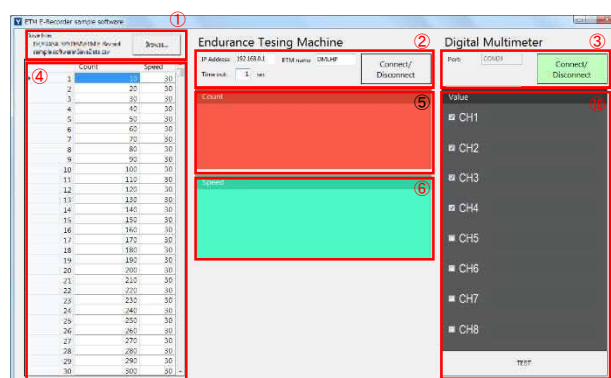
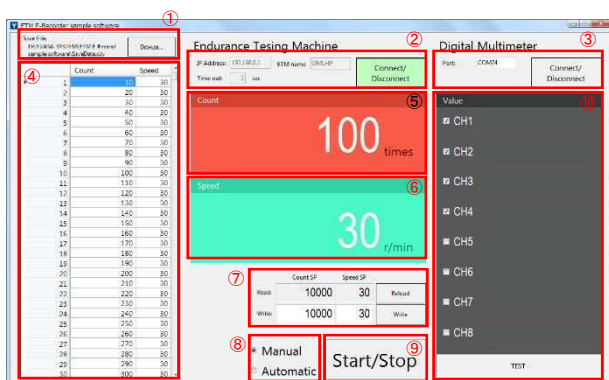
2. GENERAL OPERATION

2.1 SCREEN DESCRIPTION

1) Screen description is shown below.

• Connected to the Endurance Testing Machine

• Connected to the Digital Multimeter



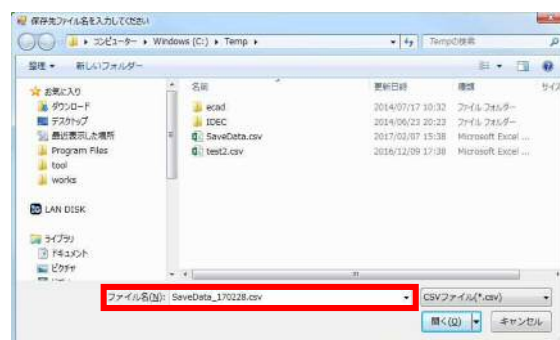
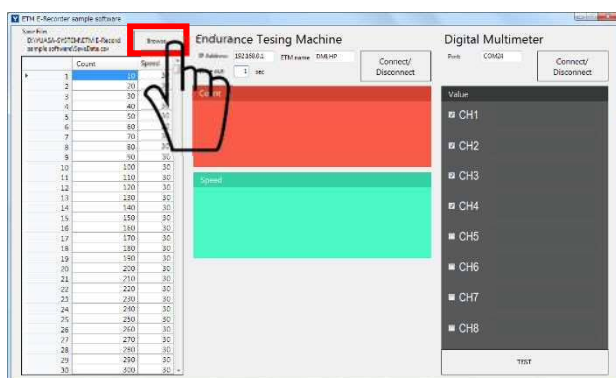
①	Save file	Set save file name and location.
②	The Endurance Testing Machine setting	The connection setting of Endurance Testing Machine.
③	The Digital Multimeter setting	The connection setting of Digital Multimeter.
④	Automatic operation program	The endurance testing is operated according to this program in automatic operation.
⑤	Count	Show the count of the ETM drive unit.
⑥	Speed	Show the speed of the ETM drive unit.
⑦	Manual operation setting	The endurance testing is operated according to this program in manual operation.
⑧	Operation select Manual/Automatic	Select the kind of operation.
⑨	START/STOP	Start or stop operation.
⑩	The Digital Multimeter information	Set parameter or show result of the Digital Multimeter.

2.2. THE SAVE FILE LOCATION SETTING

1) This software output CSV file which measurement result is saved in automatic operation.

Default output location is same as software file location.

Click “Browse...” button and input new file name and location or select an existing file in file dialog, if change the setting.



2.3 THE ENDURANCE TESTING MACHINE CONNECTION SETTING

2.3.1 CONNECTION METHOD

- 1) Turn on the Endurance Testing Machine.

NOTE Refer to 『BOOT UP』 on the instruction manual of the Endurance Testing Machine.

- 2) Connect to the Endurance Testing Machine by LAN cable.
- 3) Set IP address.

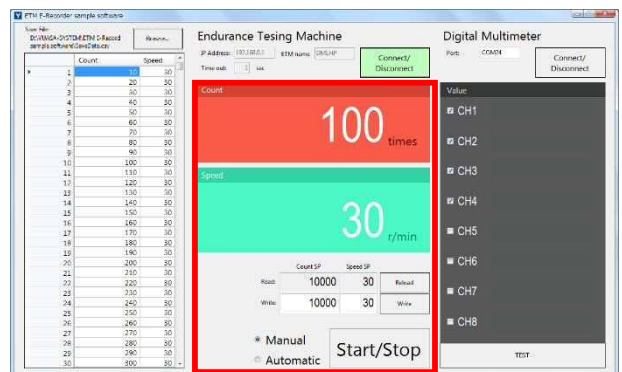
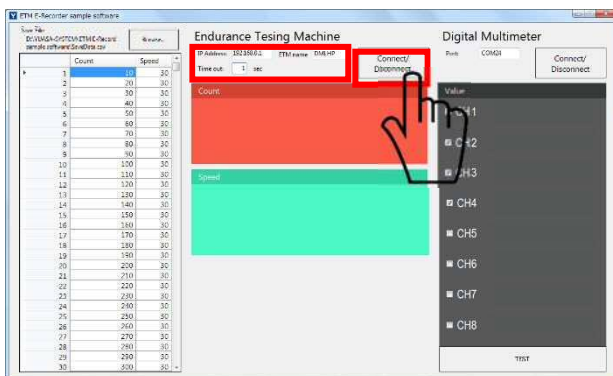
NOTE Refer to 『IP ADDRESS』 on the instruction manual of the Endurance Testing Machine.

2.3.2 PC SETTING

- 1) Set IP address.

NOTE Refer to 『IP ADDRESS』 on this instruction manual.

- 2) Set the Endurance Testing Machine name.
- 2) Show error message when not connected to the Endurance Testing Machine.
- 3) When the “Connect/Disconnect” button is clicked, disconnect to the Endurance Testing Machine during connected.



2.4 THE RESISTANCE METER CONNECTION SETTING

2.4.1 CONNECTION METHOD

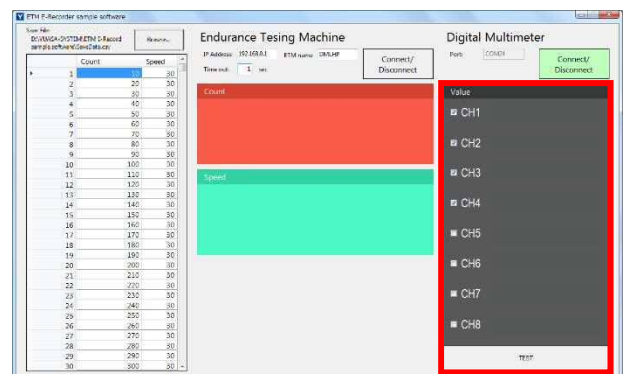
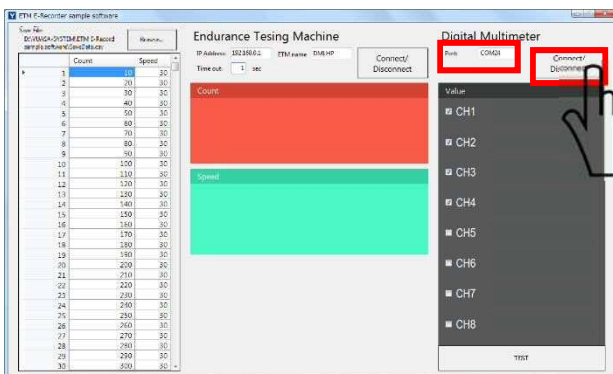
- 1) Turn on the Digital Multimeter.
- 2) Connect to the Digital Multimeter by USB cable.

2.4.2 PC SETTING

- 1) Check the used port number for the Digital Multimeter connection.

NOTE Refer to 『4.2 COM PORT』 on this instruction manual.

- 2) Change the value: Port for the checked port number.
- 3) When the “Connect/Disconnect” is clicked, disconnect to the chamber during connected.



3. MEASUREMENT

3.1 MANUAL OPERATION

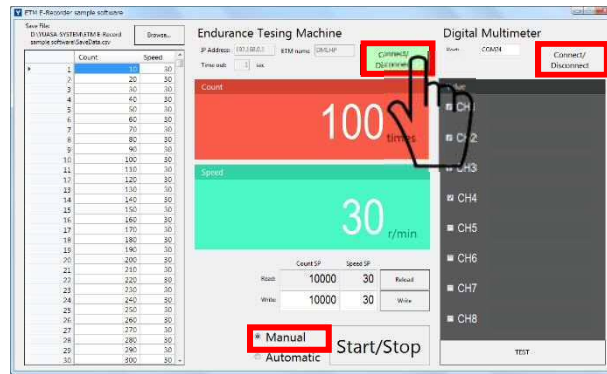
Manual operation mode is measured according to set count and speed in manually. This software logging the data using the chamber function of automatic operation.

1) Connect to the Endurance Testing Machine following as procedure of “2.3”.

Show information of the Endurance Testing Machine.

2) Disconnect to the Digital Multimeter.

3) Select manual operation.



3.1.1 OPERATION SETTING

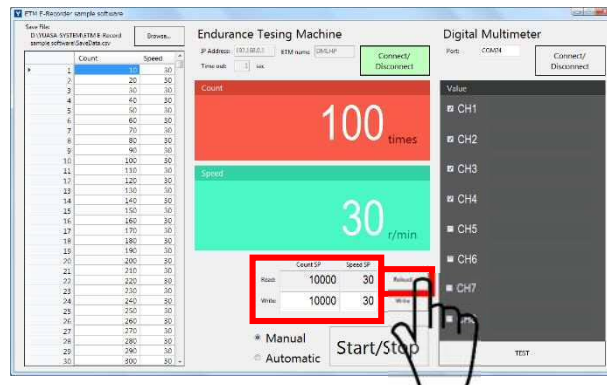
When connect to the Endurance Testing Machine of click “Reload” button, show set value of count and speed.

Count SP(preset count): Manual operation will be stop when active at this count.

Speed SP(operation speed): Manual operation will be move this speed.

NOTE Input “0” if you do not wish to use preset count.

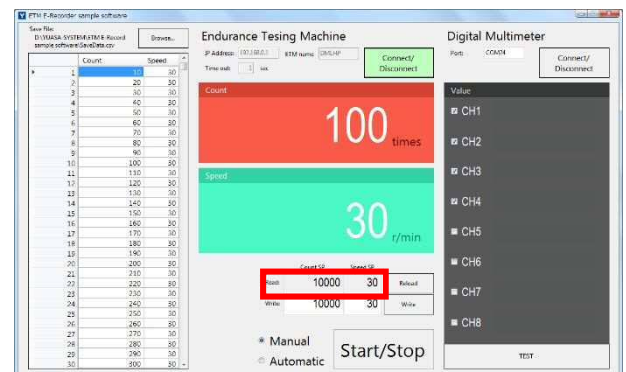
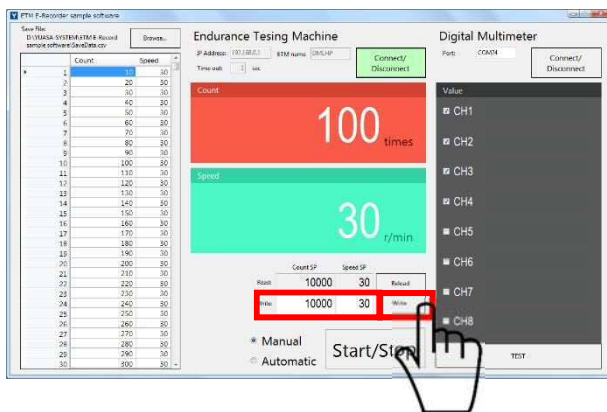
CAUTION Speed range is 10 to 120.



1) Input set value of count and speed.

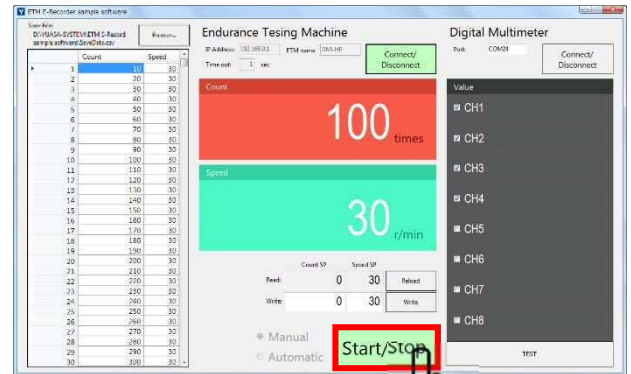
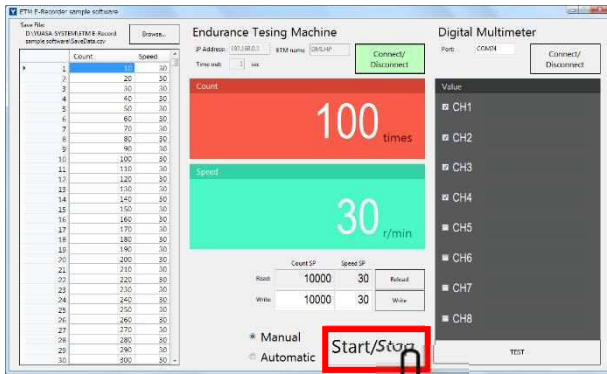
2) Check the correct value is entered, chlick “Write” button.

3) If the reading field has been changed to the input set value, it is completed.



3.1.2 START/STOP

- 1) Click the “Reload” button and check set value.
- 2) Start operation when click the “START/STOP” button.
- 3) Operation will be stop when active at count set value or click the “START/STOP” button during operating.



3.2 AUTOMATIC OPERATION

Automatic operation mode is measured according to set program.

Set count and speed in each steps. Proceed to the next step when active at count set value.

Complete the final step, automatic operation will be finish.

Output CSV file of measured data during automatic operation.

NOTE Touch the “RESET” button on the main unit to count to “0” before automatic operation start.

3.2.1 PROGRAM

This software read the default program when software startup.

You can change the initial value by editing the “ProgramData.csv” file.

3.2.1.1 READ OUT PROGRAM

- 1) Shutdown this software.
- 2) Open the “ProgramData.csv” file.

Input set value in each row. Step number is same as row Number.

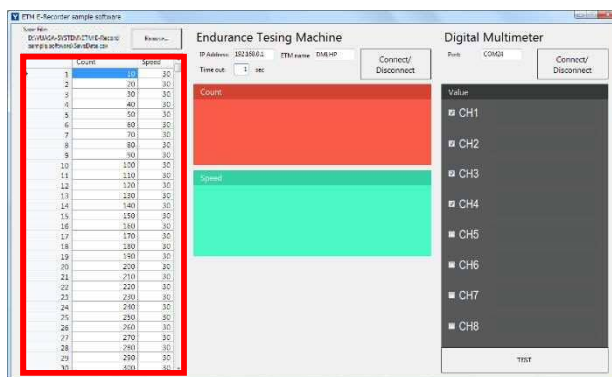
A column is count, B column is speed.

CAUTION Do not set “0” in count set value.

CAUTION Do not set the smaller count value than the previous row.

CAUTION Do not set a value outside the range.

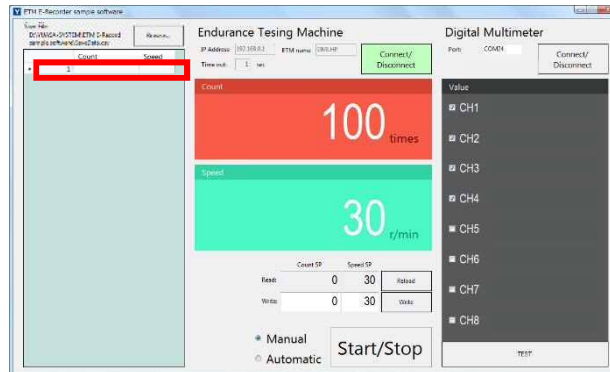
- 3) Startup this software.



	A	B	C	D
1	10	10		
2	20	20		
3	30	30		
4	40	40		
5	50	50		
6	60	60		
7	70	50		
8	80	40		
9	90	30		
10	100	20		
11	110	10		
12	120	10		
13	130	20		
14	140	30		
15	150	40		
16	160	50		
17	170	60		
18	180	50		
19	190	40		
20	200	30		
21	210	20		
22	220	10		
23	230	10		
24	240	20		
25	250	30		
26	260	40		
27	270	50		
28	280	60		
29	290	50		
30	300	40		
31	310	30		
32	320	20		
33	330	10		

3.2.1.2 INPUT PROGRAM

- 1) Program input field is shown during connect to the Endurance Testing Machine.
- 2) Input count and speed in order from first step.
 - CAUTION** Do not set “0” in count set value.
 - CAUTION** Do not set the smaller count value than the previous row.
 - CAUTION** Do not set a value outside the range.

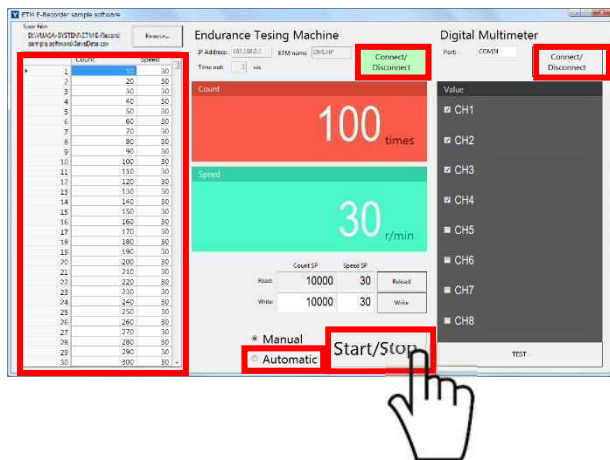


3.2.2 NOT USE THE DIGITAL MULTIMETER

The Endurance Testing Machine is operated no use the Digital Multimeter at the set speed when active at set count in each steps.

The current Step background color is changed during execution.

- 1) The Endurance Testing Machine information is shown during connect.
- 2) Disconnect to the Digital Multimeter.
- 3) Select “Automatic” operation.
- 4) Confirm the program is set.
- 5) Click the “START/STOP” button.



- 6) Automatic operation will be stop when active at final step.
Click the “START/STOP” button, when you want to stop operation.
The current step is reset if change the program during operation is stop.

3.2.3 USE THE DIGITAL MULTIMETER

The Endurance Testing Machine is operated use the Digital Multimeter at the set speed when active at set count in each steps.

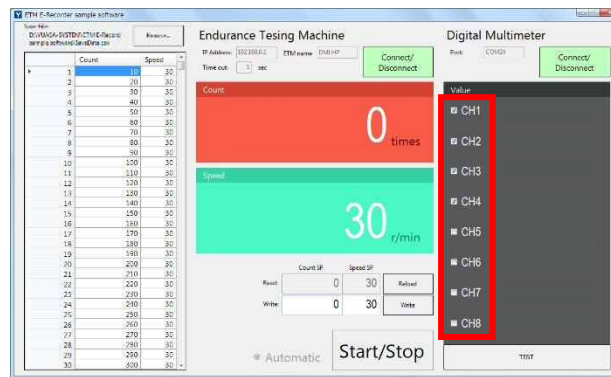
Operation is paused at count set value, then measure the digital Multimeter.

Proceed to the next step when finish resistance measurement.

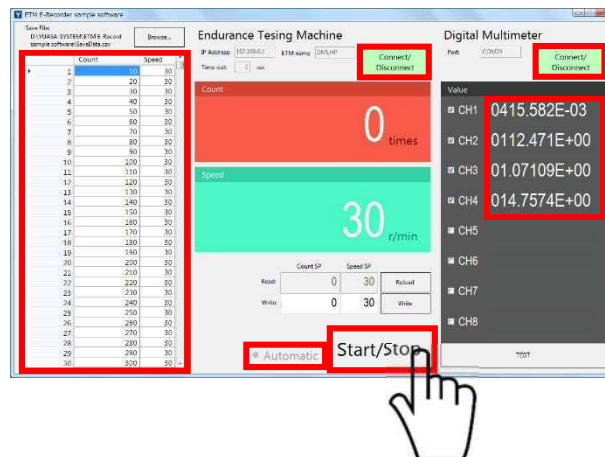
The current Step background color is changed during execution.

NOTE Decelerates the set value one time before, depending on the machine model.

- 1) Connect to the Endurance Testing Machine and the Digital Multimeter.
- 2) These information is shown during connect.
- 3) Select use channel of the Digital Multimeter.



- 4) Select “Automatic” operation.
- 5) Confirm the program is set.
- 6) Click the “START/STOP” button.
- 7) Resistance value is measured active at count set value in each steps.



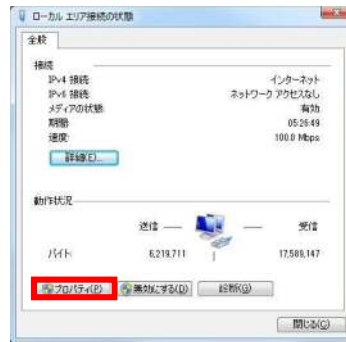
4. PC SETTING

4.1 IP ADDRESS

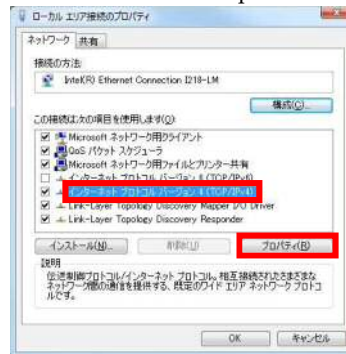
- 1) Connect to the endurance testing machine. Turn on the chamber before connect.
- 2) Open windows start menu.
- 3) Input “Network and Sharing Center” in “Search programs and files”.
Open “Network and Sharing Center”.



- 4) Click “Local Area Connection” displayed in “View your active networks”.
Open “Network and Sharing Center”.



- 5) Click “property” to open “Local Area Connection Properties”.



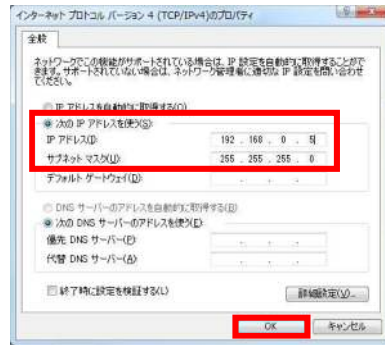
- 6) Select “Internet Protocol Version 4 (TCP/IPv4)” and click “property”.



7) Check “Use the fooling IP address” and input IP address and subnet mask.

IP address: 192.168.0.5

Subnet mask: 255.255.255.0



8) Click “OK” to close “Internet Protocol Version 4 (TCP/IPv4) Properties”.

9) Close “Local Area Connection Properties”.

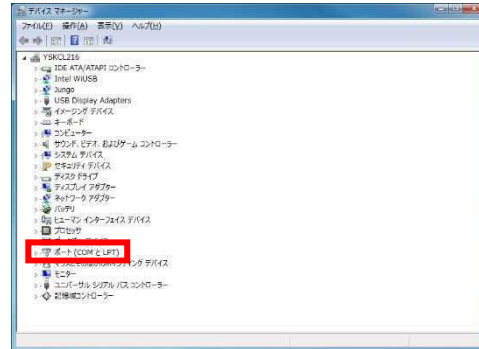
10) Close “Network and Sharing Center”.

4.2 COM PORT

1) Connect to the Digital Multimeter. Turn on the Digital Multimeter before connect.

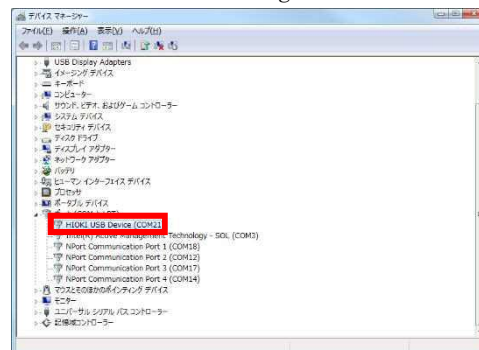
2) Open windows start menu.

3) Input “Device Manager” in “Search programs and files”.



4) Select “Ports (COM & LPT)”. Check “HIOKI USB Device (COM~)” in this list.

Use port number is “COM21” in the reference image.



【MEMO】

【MEMO】

~ Further Improve Reliability



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