O A C I S

Open **A**rchitecture **C**ontrol **I**ntegrated **S**ystem

OACIScom

Version 04.01.04.03

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I. INTRODUCTION

OACIScom is the special software for OACIS users. In this document, OACIS represents multi Axes servo controller itself and OACIScom represents the user interface software. Especially, you can do followings with OACIScom.

- Make and edit program.
- Configure your system.
- Monitor your system in real time.
- Set the system with manual motion control.
- Save test results and graphs.
- Review and analyze the saved data.

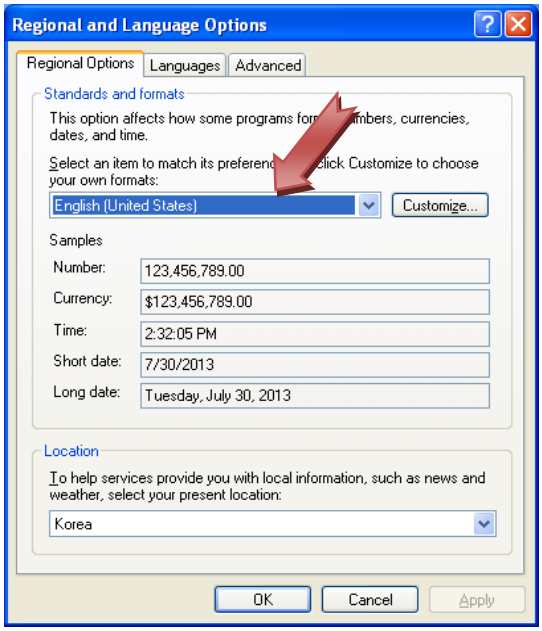
It is our pleasure to introduce OACIScom. We are sure that it is easy and powerful tool for our smart controller, OACIS. If you have any problem with either OACIS or OACIScom, please do not hesitate to contact us (ata@atainc.com)

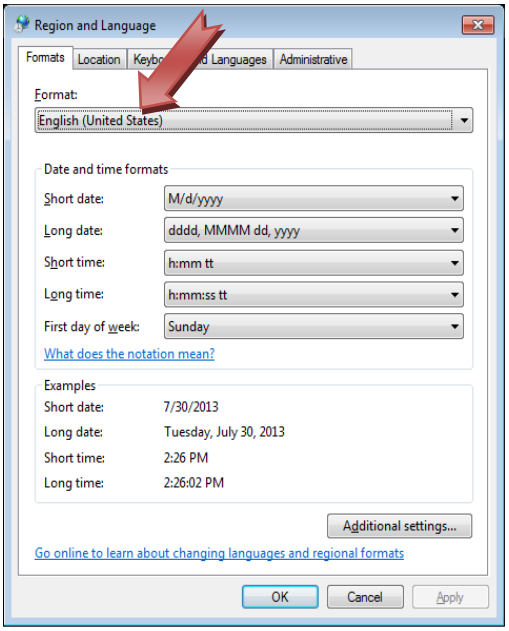
II. HOW TO INSTALL

A. General Requirements

- A computer running Windows XP or later with 32bit or 64bits CPU.
  - ➢ You need to install OACIScom v3.93.4 or later for 64bits OS system.
- Microsoft .Net Framework 2.0 is installed (If not, you can download from MICROSOFT website, it is free). If your OS is windows 7, it may be pre-installed with OS.
- **You'd better select one of English, Chinese or Korean as your standard format of your OS.** (Control Panel -> Regional and Language Options -> Regional Options). You may be able to use other local language. Some of languages make unexpected problems with OACIScom.

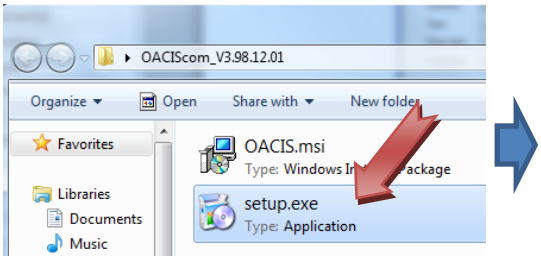
(Windows XP) Control Panel->Regional and Language Options-> Standards and formats
(Windows 7) Control Panel->Change display language->Formats

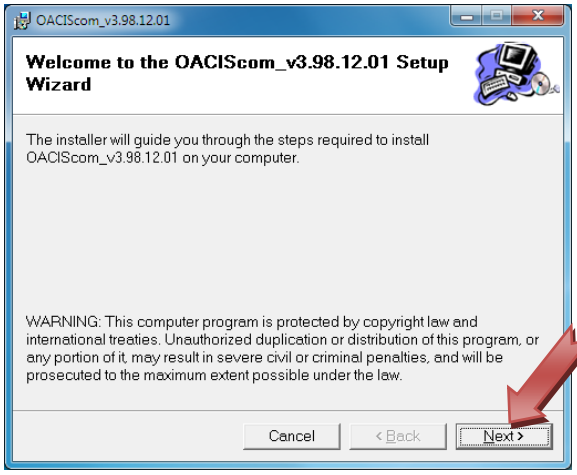




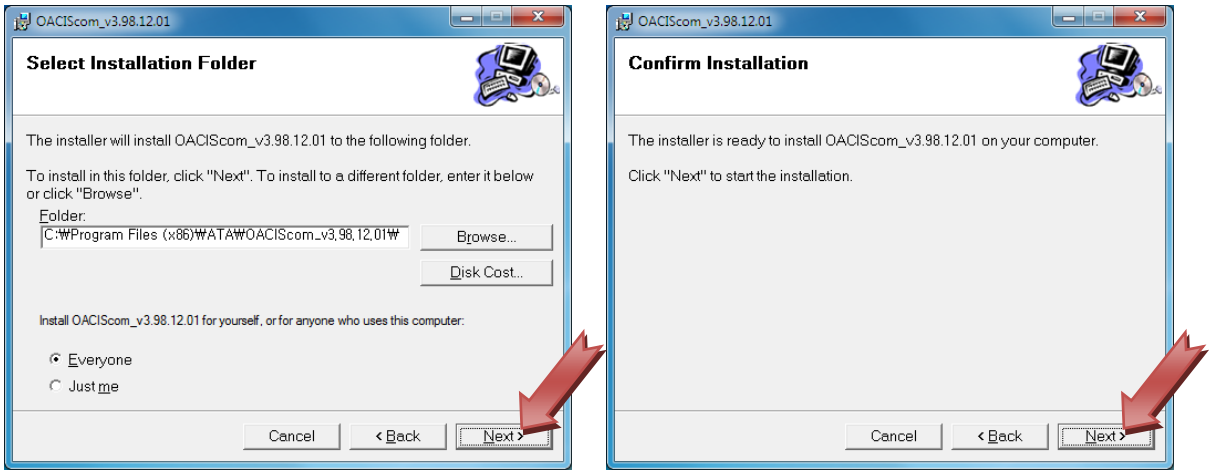
B. Double Click "…\OACIScom_V0.00\setup.exe". Please do not run "OACIS.msi".

- **OACIS-1X/2X :** OACIScom_v3.00.00.00
- **OACIS-1XC/2XC :** OACIScom_v4.00.00.00



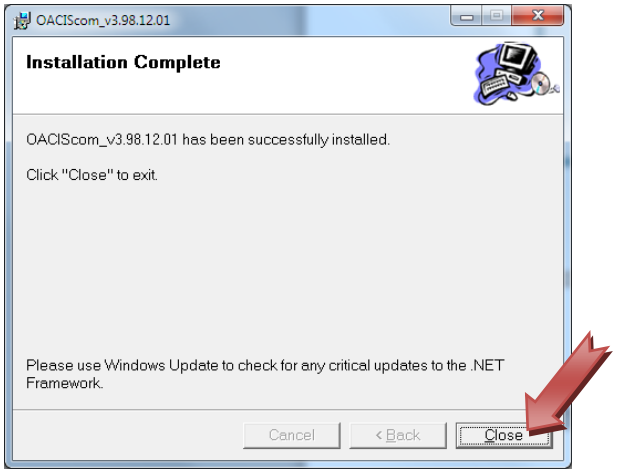


C. Click “Next >”

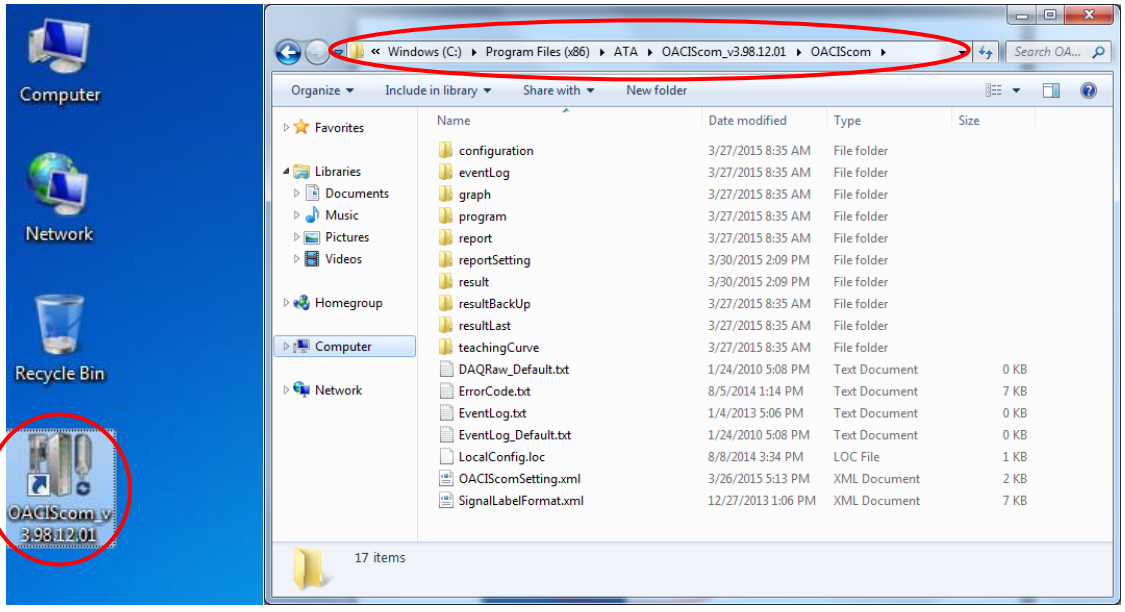


- You can specify the folder in where the OACIScom would be installed.

D. Installation Complete… Click “Close”

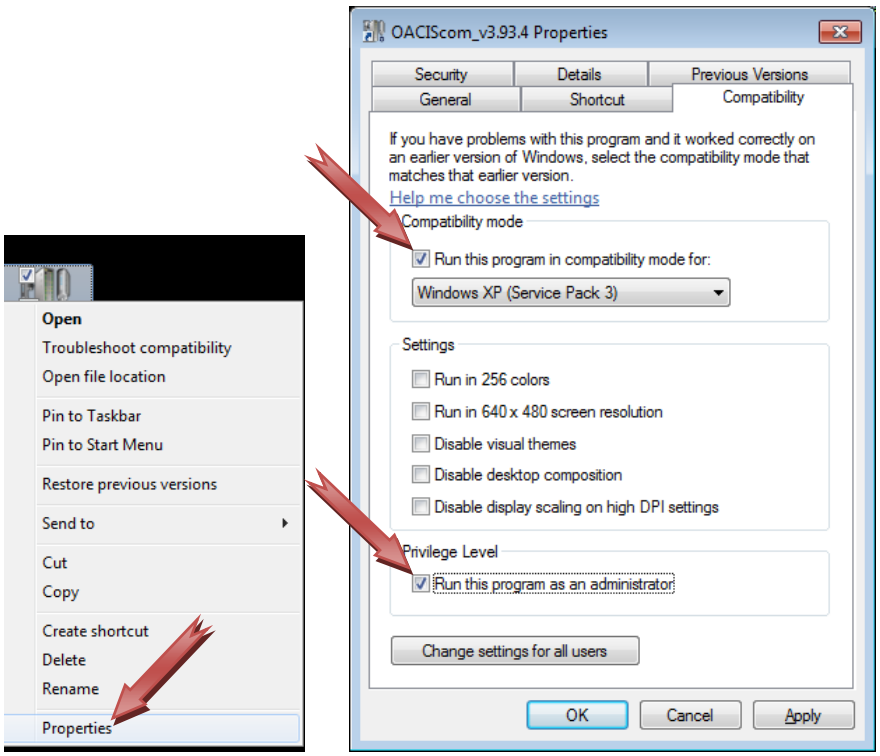


E. You can see “C\Program Files\ATA\OACIScom” created and short cut on the desktop



F. Special Settings for Window 7

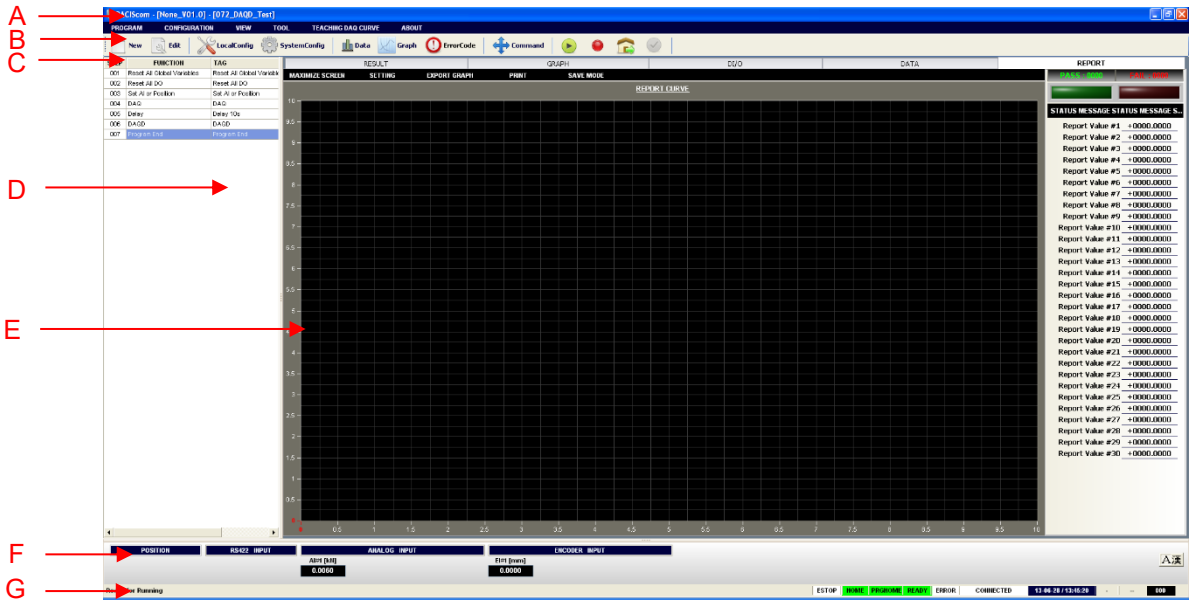
- Desktop->OACIScom Icon-> right click-> Properties->Compatibility mode check-> Privilege Level check



- ➢ Check “Run this program in compatibility mode”
- ➢ Check “Run this program as an administrator”
- ➢ Otherwise, OACIScom can’t save data properly.
- ➢ In case, you have to do same thing for “Change settings for all users”.

III. OVERVIEW

: Now, you are ready to run OACIScom. Please double click the shortcut on your desktop then you can see something like as below.

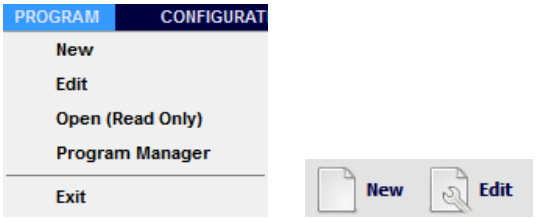


A. Title Bar: It shows System Name – [Configuration Name] – [Program Number and Name]

- In the above picture, you can specify the System Name in “Local Configuration” window.

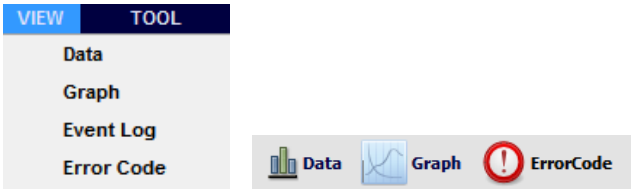
B. Menu Strip

- **PROGRAM:** It has “New”/“Edit”/“Open(Read Only)/Program Manager and “Exit” sub menu.

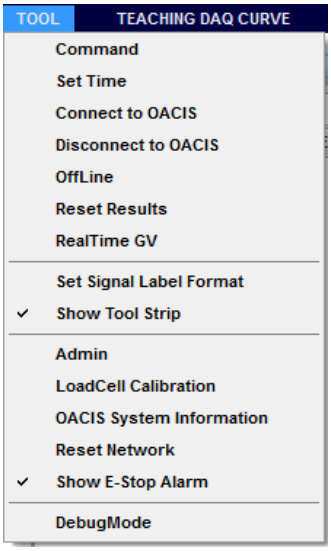


- **CONFIGURATION:** It has sub menu such as “System Configuration”, “Local Configuration”, “Change OACIS IP Address” and “Change OACIS IP Address”.

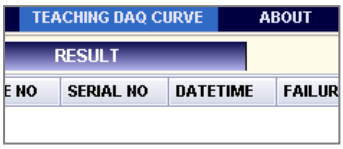
- **VIEW:** It has “Data”, “Graph”, “Event Log” and “Error Code” sub menu.



- **TOOL:** It has “Command”, “Set Time”, “Connect to OACIS”, “Disconnect to OACIS”, “Off Line”, “Reset Results”, ”Real Time GV”, “Set Signal Label Format”, Admin”, “LoadCell Calibration”, “OACIS System Information”, “Reset Network” and “DebugMode” sub menu.

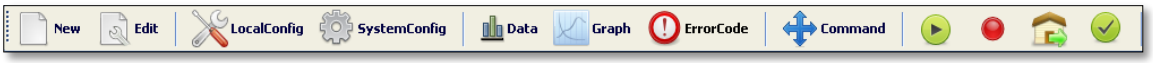


- **TEACHING DAQ CURVE:** OACIS user can gage with teaching curves that have upper and lower limits.



- **ABOUT:** You can see the OACIScom information including Main/Control firmware version.

C. Buttons: You can execute mainly programs with hot buttons.

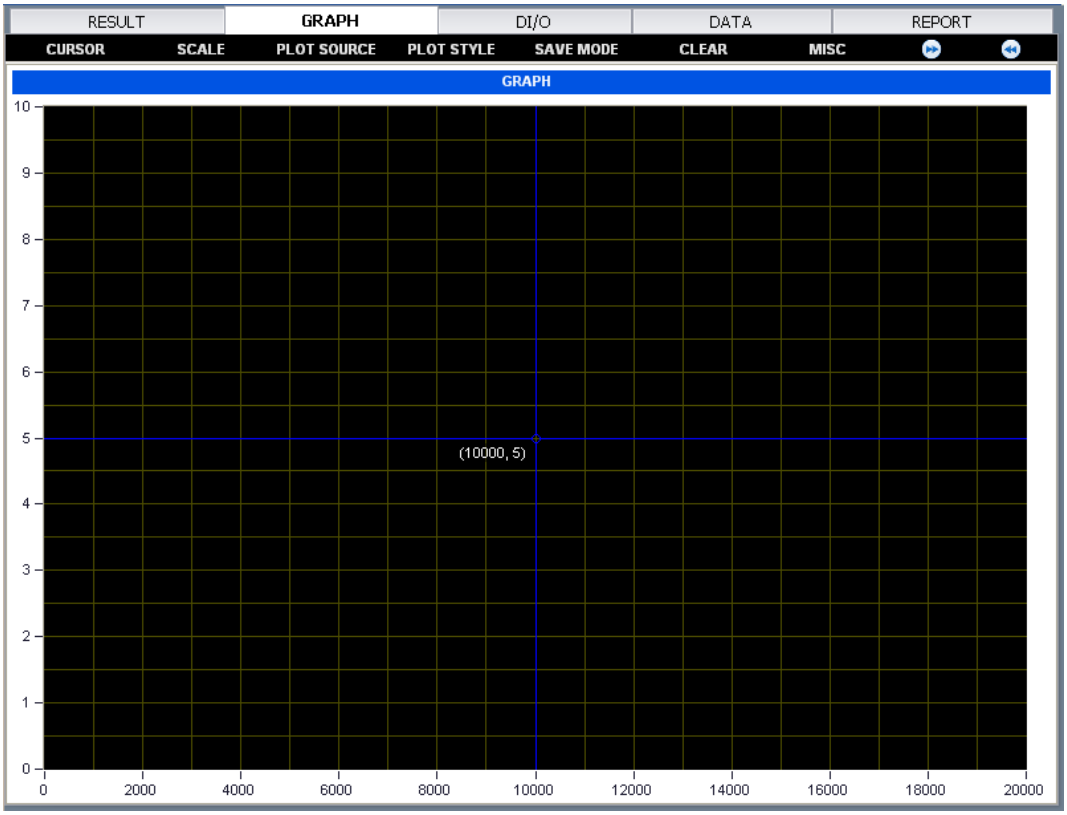


D. Program View: It shows current running program. This grid view has “Step”, “Function” and “Tag” columns.

E. Main View: It has four different views.

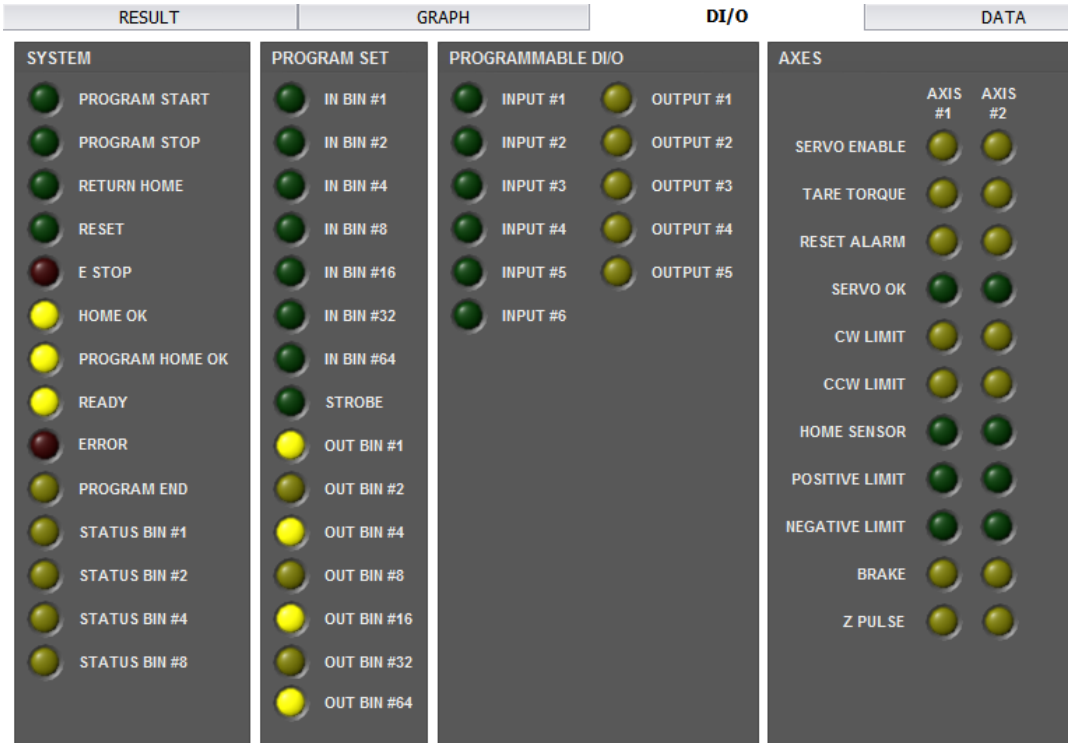
- **RESULT:** This gird view shows results. On completing a cycle, it updates new results. Each result has Cycle No, Serial No (scanned information), Date and Time, Failure Mode and Results (Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20 that checked in “Save” check box on the program configuration)

- **GRAPH:** You can see the DAQ graph on this screen. And also you can see real time graph. It is very useful for machine setup and calibration.



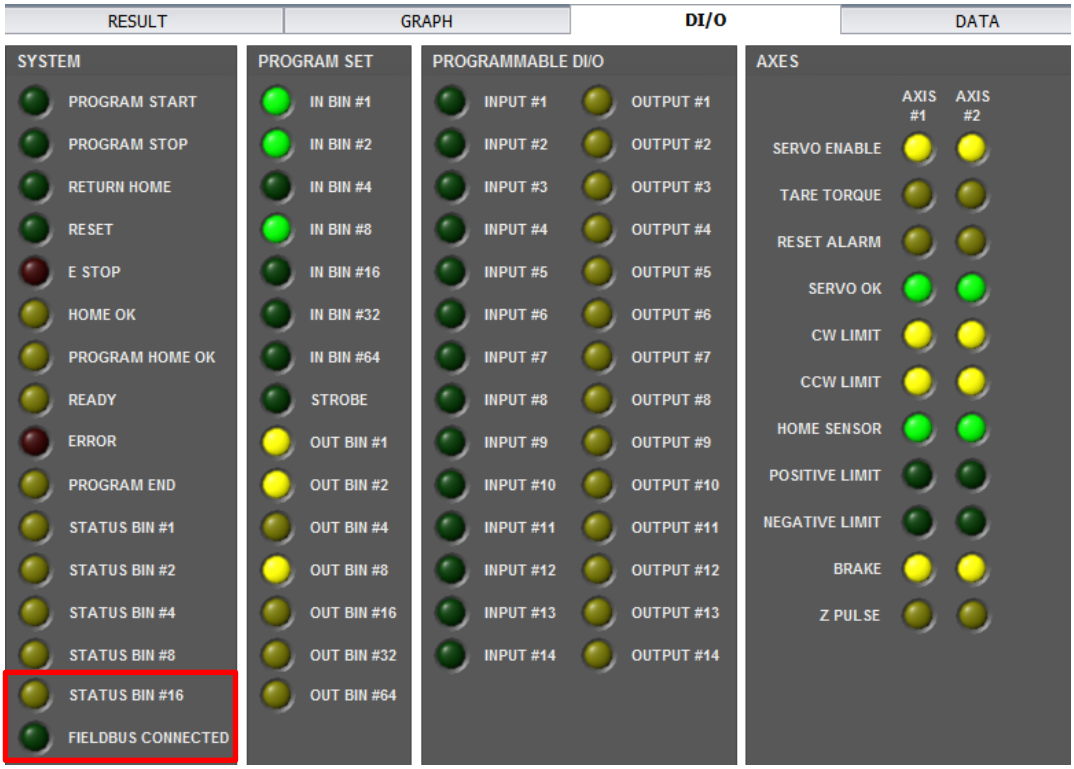
- **DI/O:** It shows the status of all Digital Inputs and Outputs. It differs on OACIS type.

OACIS-1X : Status Bin(4 bit), DI(6 ch), DO(5 ch), Axis(1)

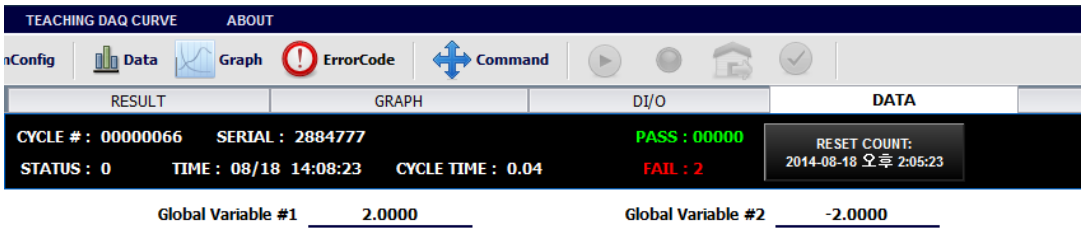


OACIS-2X : Status Bin(4 bit), DI(14 ch), DO(14 ch), Axis(2)

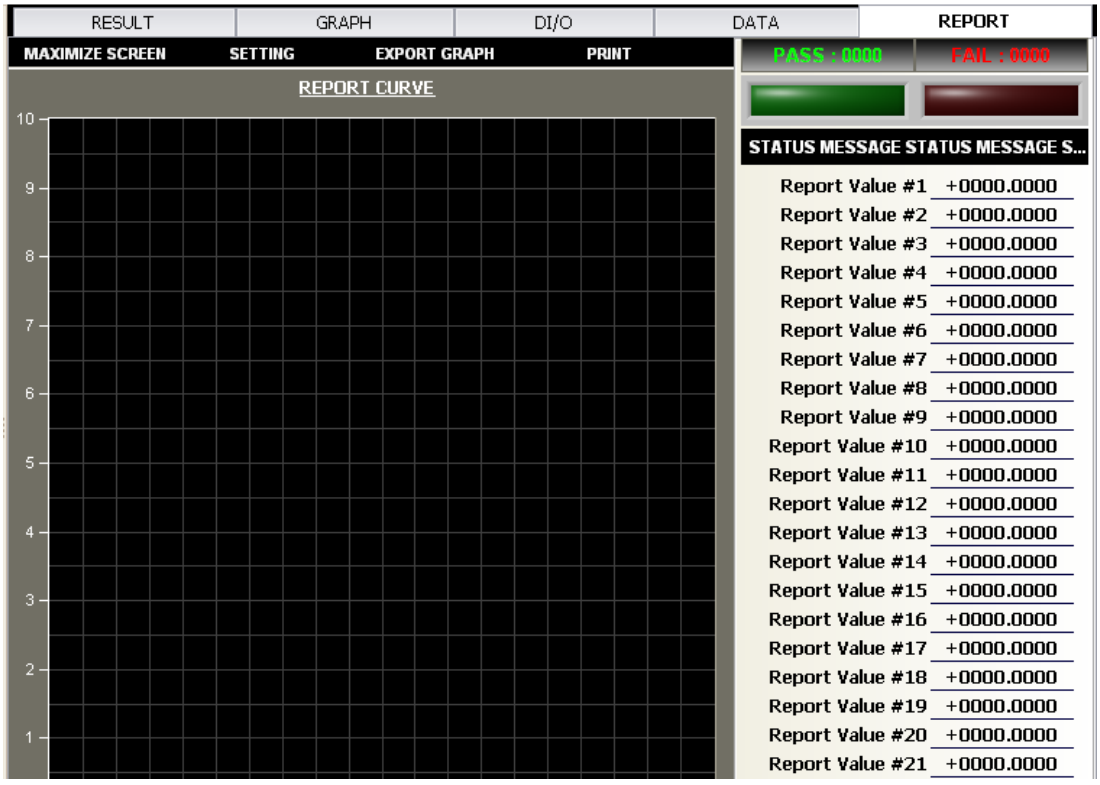
OACIS-1XC/2XC: Status Bin(5 bit), Fieldbus Connected(1 bit), DI(14 ch), DO(14 ch), Axis(2)



- **DATA:** It shows data summary of test result. Users can see the test result with cycle information in the DATA view, after an OACIS program cycle finishes. DATA view does not offer the result GRAPH, but very useful information such as Cycle #, Serial #, Cycle Time, Pass/Fail count as below. Reset Count Initializes Pass/Fail count.



- **REPORT:** User can see at a look elaborate graphs included teaching curves and others as test results and also can check PASS/FAIL with LED on/off.



F. Analog Signal Window: It shows real time analog signals value of 6 Analog Inputs, 4 RS422 Inputs, 4 Axes Positions and 2 Encoder Inputs per System Configuration.

G. Status Strip: It shows message and connection status

IV. CONNECT TO OACIS

: We will connect to OACIS now and change System Name.

A. Run OACIScom by double clicking the shortcut on your desktop.

- You may see no information on the title bar like “OACIScom – [_V00.0] – [000_]”
- And you may see “DISCONNECTED” message on the status strip.

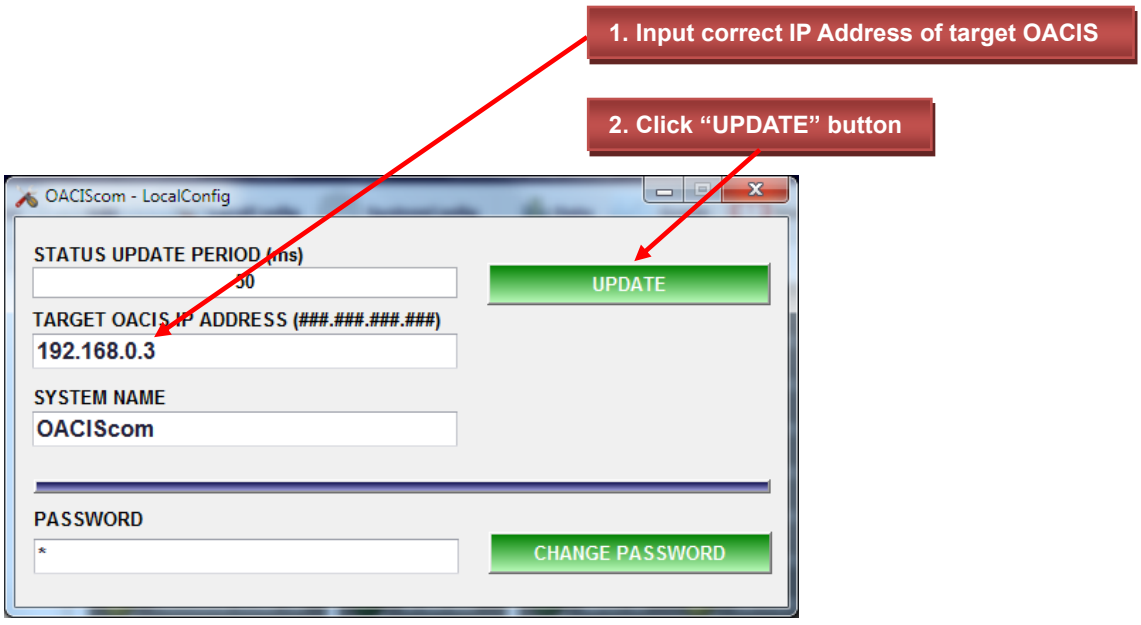
B. Install proper Ethernet cable between OACIS and your PC that is running OACIScom.

C. If the IP address of OACIS and your local configuration is matched, you will see the connected status and OACIScom will update main screen with current configuration and program of OACIS.

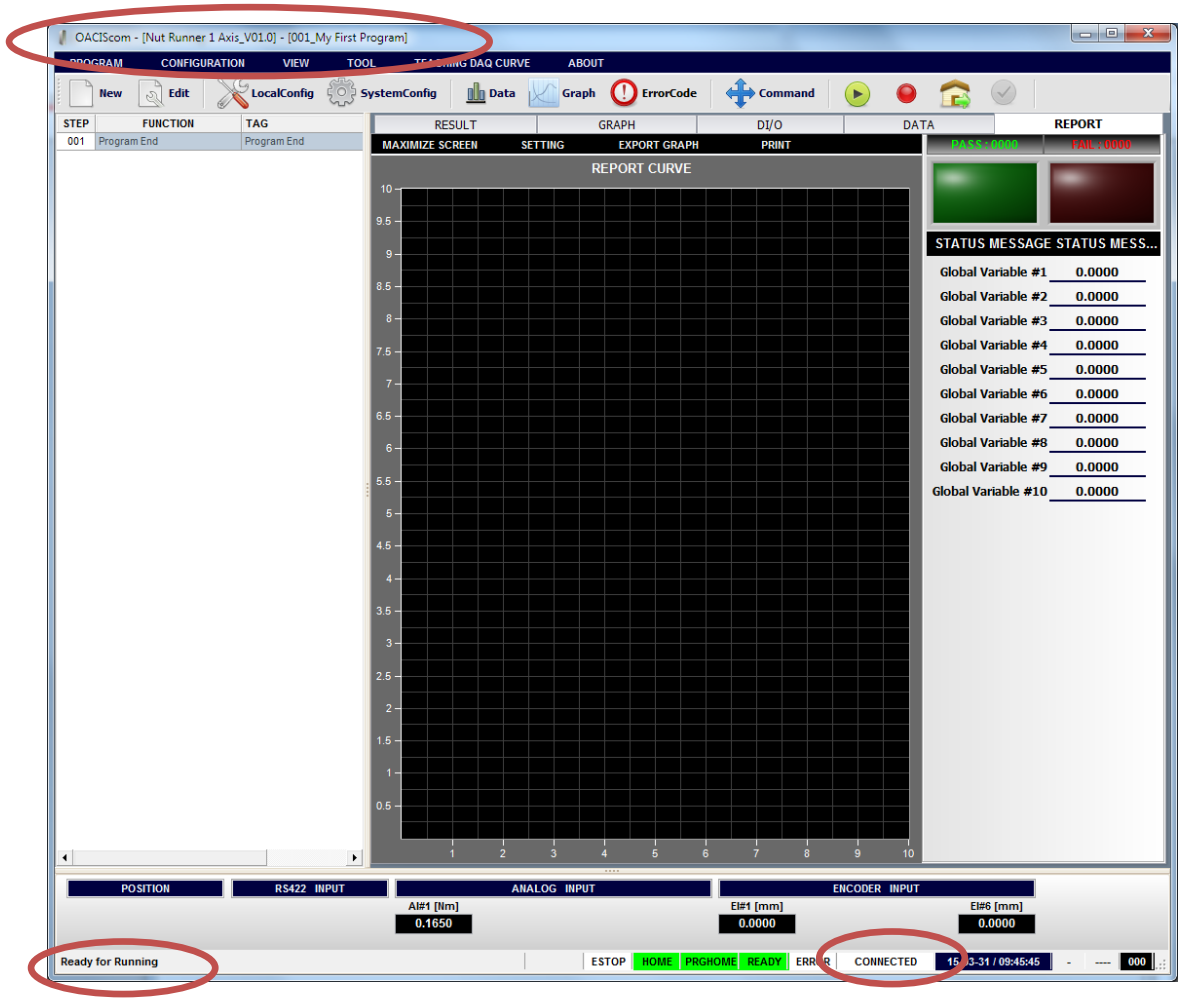
- Connection -> OACIScom reads configuration and program information -> OACIScom updates main screen

D. If the IP address does not match, you need to set proper configuration of OACIScom.

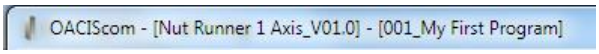
- Default IP address is “192.168.000.003”
- If you try to connect to OACIS. And its IP Address is “192.168.000.003”, open LocalConfig window and change IP Address of OACIScom.



E. Now, you will see the updated screen with connected status as below.

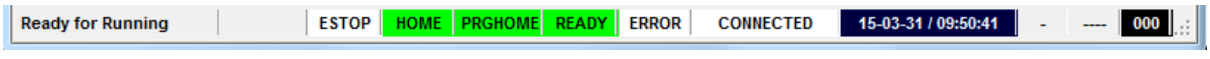


- Title Bar shows: OACIScom – [Nut Runner 1 Axis_V01.0] – [001_My First Program]



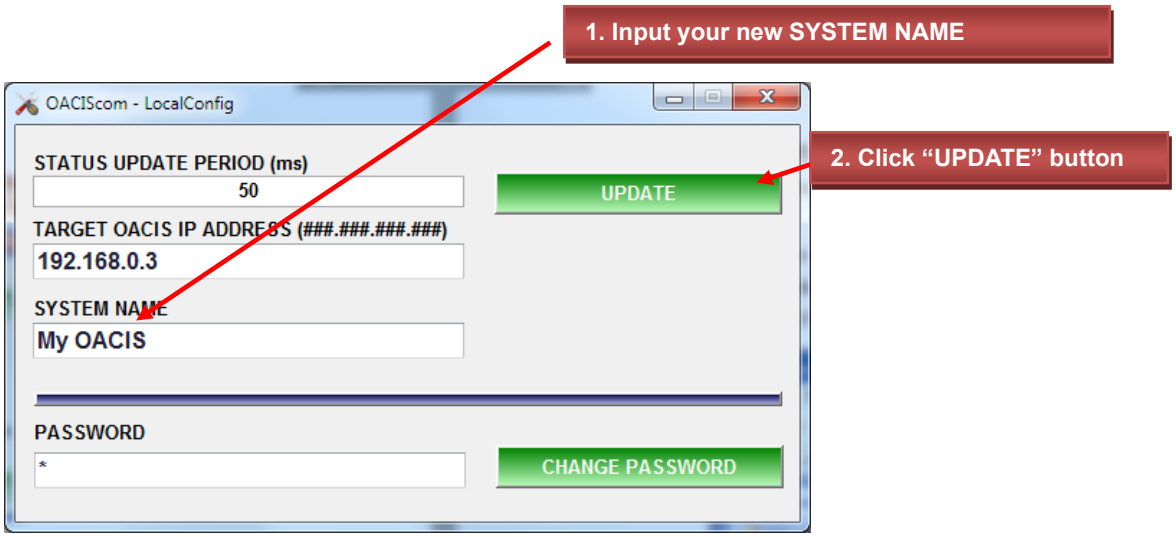
  - OACIScom: System Name
  - Nut Runner 1 Axis: System Configuration Name
  - V01.0: Configuration Version
  - 001: Current Program Number
  - My First Program: Current Program Name

- Status Strip shows

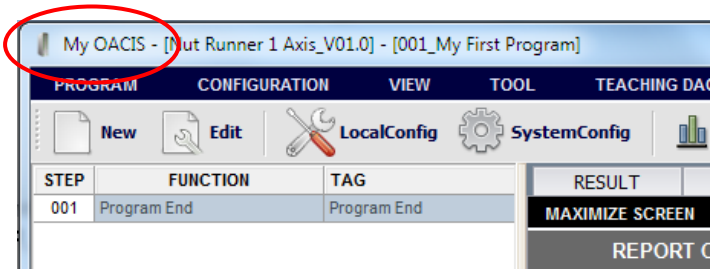


  - Ready for Running: Message from OACIS. It shows status of OACIS and error notice.
  - CONNECTED: It shows connection status between your PC and OACIS.

F. Then, you can change System Name with more meaningful one.



Now, you can see the changed System Name in the Title Bar.

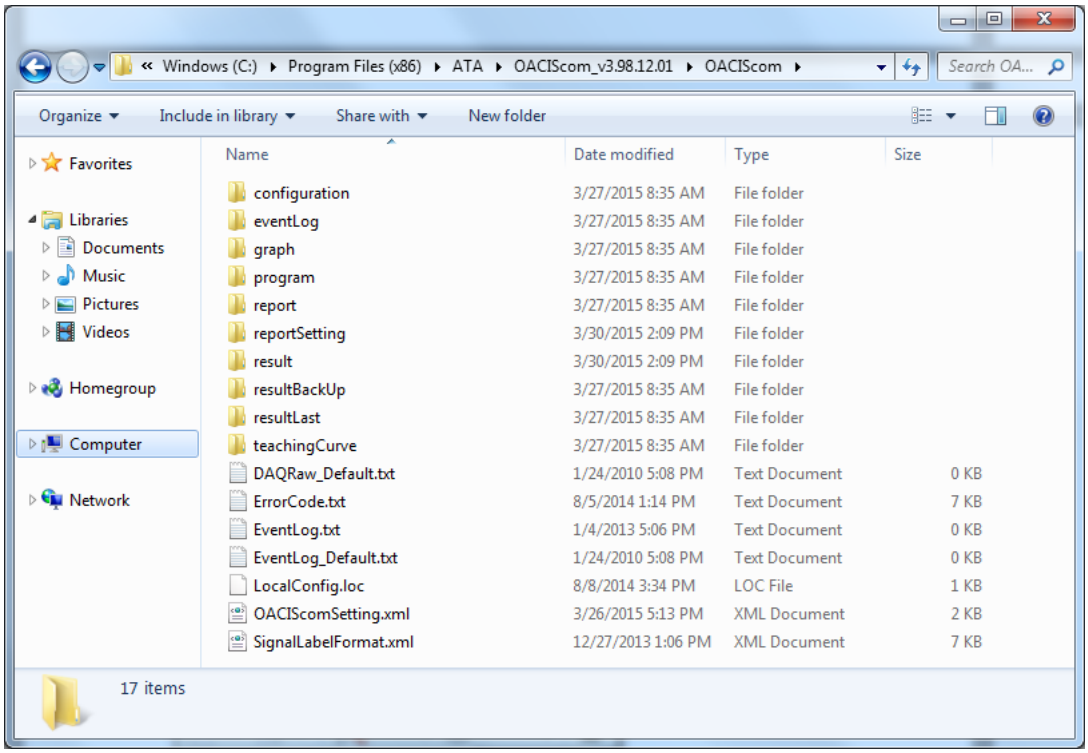


V. SET OACIScom WITH YOUR OWN NAME

: You can customize your OACIScom per your application of OACIS.

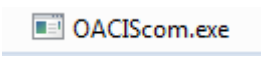
A. You can see some default files and folders.

- If you installed OACIScom successfully, you can find several files and folders at "C:\Program Files\ATA\OACIScom_V0.00.0\OACIScom"



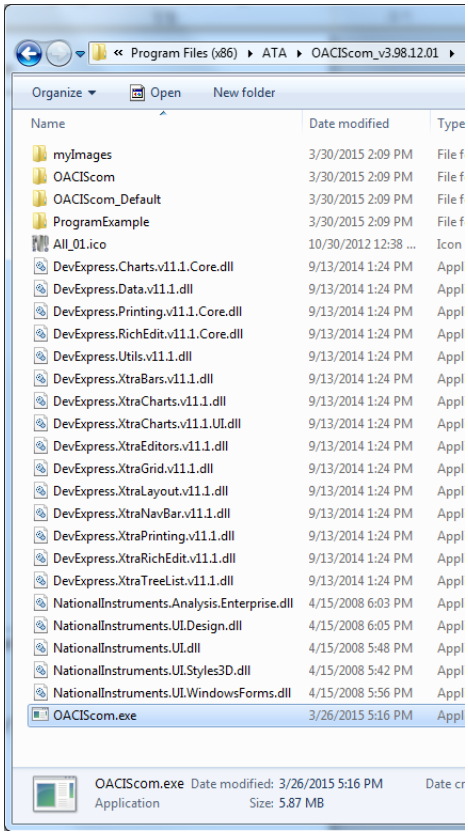
- ➢ **[configuration]** folder: System Configuration will be saved here with "*.oac" extension.
- ➢ **[eventLog]** folder: Event Log files will be saved here as "EventLog_Year 4 digits_Month 2digits.txt"
- ➢ **[graph]** folder: DAQ graph will be saved here with "*.gph" extension or "*.gif" extension depending on saving type.
- ➢ **[program]** folder: Program files will be saved here with "*.prm" extension.
- ➢ **[report]** folder: Report files will be saved here with "*.gif" extension according to the format defined by a user.
- ➢ **[reportSetting]** folder: Report setting files will be saved here.
- ➢ **[result]** folder: Here are DB files for test results as *.mdb
- ➢ **[resultBackUp]** folder: Backup data will be saved here.
- ➢ **[resultLast]** folder: Last cycle data will be saved here with the name of "resultLast.txt".
- ➢ **[teachingCurve]** folder: Teaching Curve files will be saved here with "*.tch" extension.
- ➢ **Note:** You are not allowed to modify or delete anything here. If you want to do something you have to copy a folder or file then you have to use the copied. If you modify or delete any folder or program, you will have severe problem with the OACIScom.

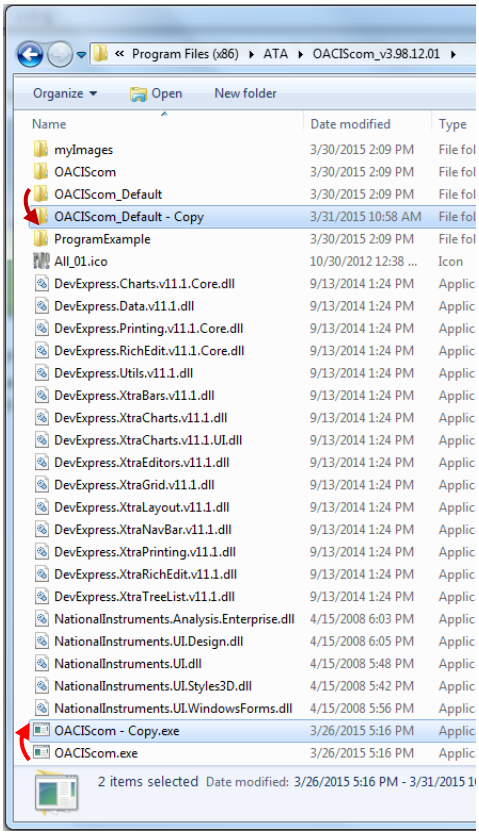
- And you can find "OACIScom.exe" file as well at "C:\Program Files\ATA\OACIScom".



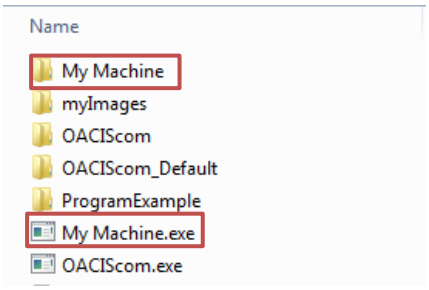
B. Sometimes you may want to set the above things with your own name.

- Copy and paste “OACIScom_Default” folder and “OACIScom.exe” file as below.



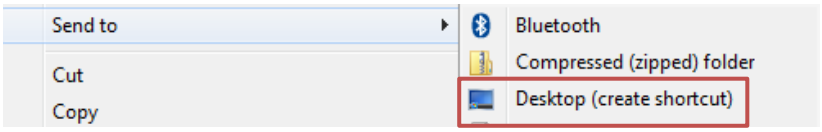


- And specify copied folder “OAISCom_Default – Copy”, file “OACIScom - Copy.exe” to your own name. (here we specified as “My Machine”)

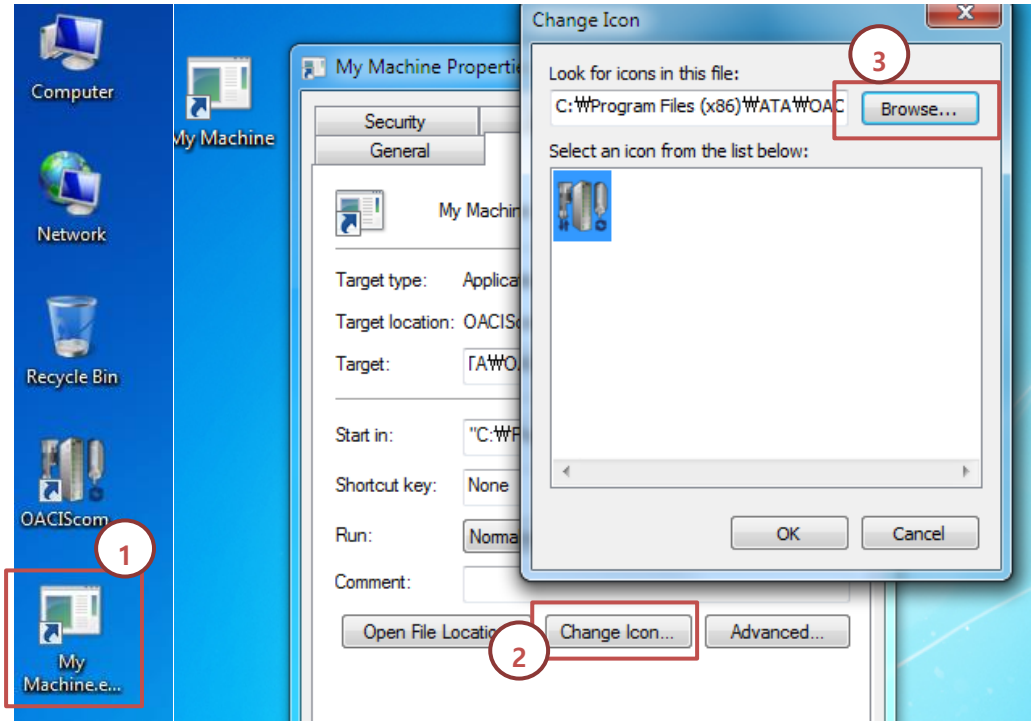


  - Note: Name for the folder and executable file should be same.

- Then, make a shortcut of “My Machine.exe” file on your desktop.
  Do right-click on “My Machine.exe” and select “Desktop (create shortcut)”.



- Please change icon and name with right-click on “My Machine.exe” shortcut.

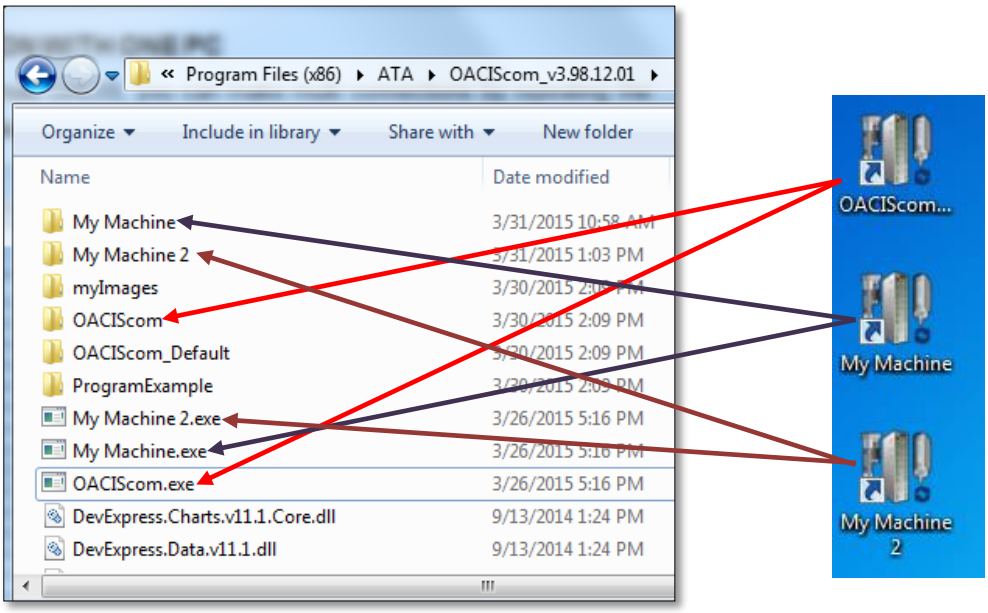


- 1. Do right-click on “My Machine.exe” and select “Properties”.
- 2. Do click “Change Icon …”.
- 3. Select icon file at “C:\Program Files\ATA\OACIScom”.

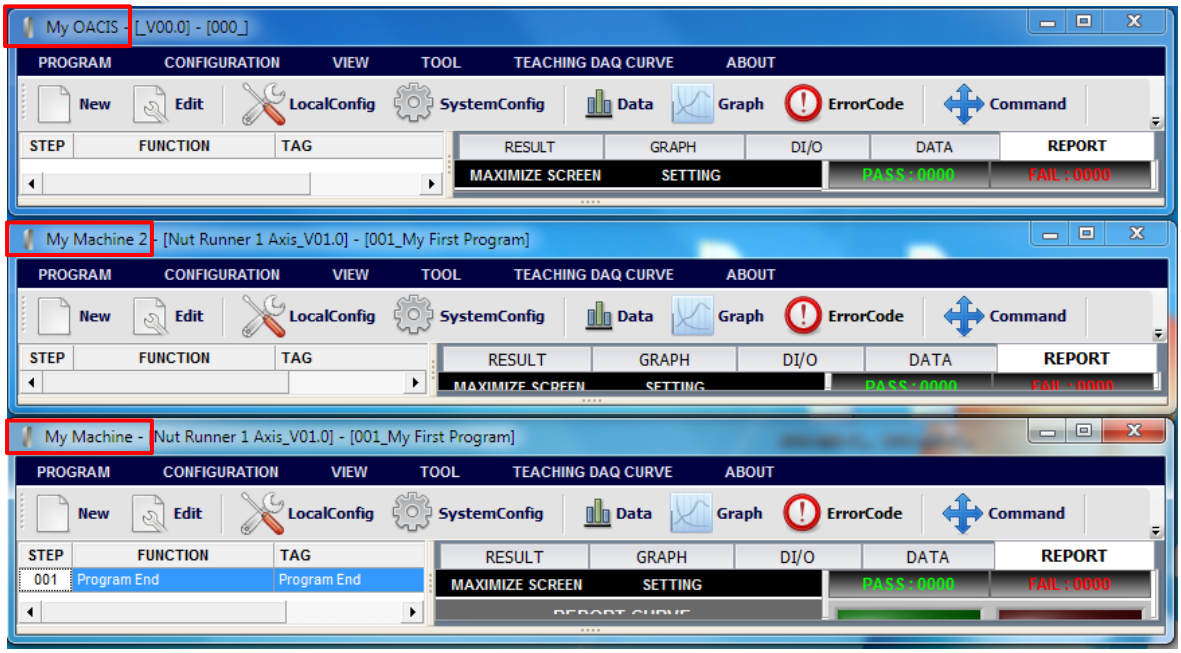
- Please try to run with new shortcut. You can see new OACIScom is running. Surely, all results and files, including configuration and program will be saved in the new folder.
- For sure, you need to configure new IP Address and System Name for new connection.

VI. MAKE MULTI CONNECTION WITH ONE PC

A. If your PC is connected with multi OACIS, you can make multi connections by repeating the procedure of **"V. MAKE OACIScom WITH YOUR OWN NAME".**



B. Now, you can run three different applications and they will be connected with different OACIS as below if IP Address setting is configured correctly.



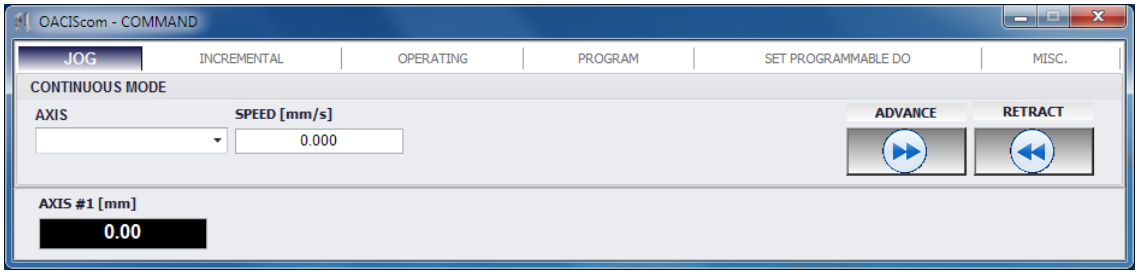
VII. COMMAND

: You can move an axis forward or backward manually by operating COMMAND menu. It comes in quite handy when you build the machine up for the first time or some errors happen with high load.

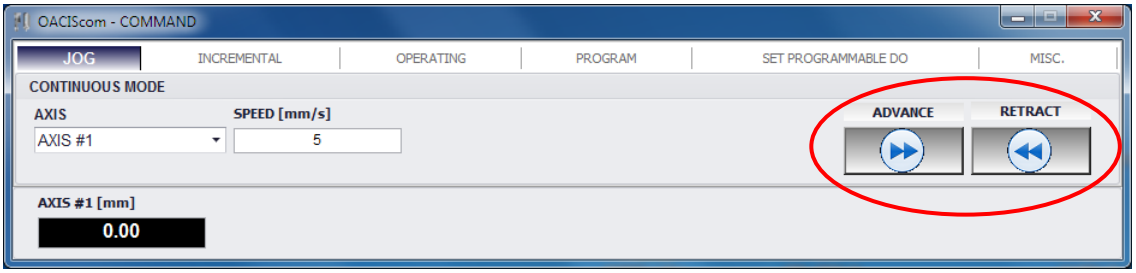
Note: If a shot pin or air lock system is installed due to heavy tooling, you should pay attention to jogging. You can make COMMAND disable by setting PROGRAM STOP signal On when you want to prevent from moving by mistake with locking on.

A. Jog

- You can open "`" window by pressing [TOOL] – [Command] button in the Menu Strip.



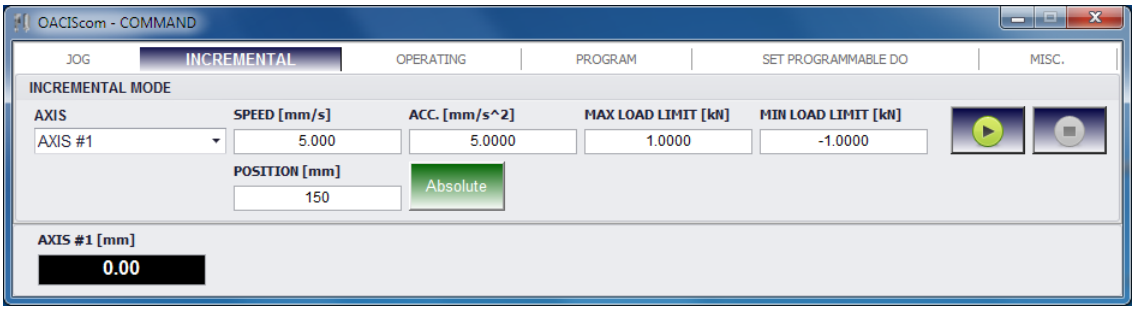
- Select a proper Axis then you can see "ADVANCE" and "RETRACT" buttons are activated in blue



- Now, you can input required speed and move the selected axis with "JOG" mode.

B. Incremental

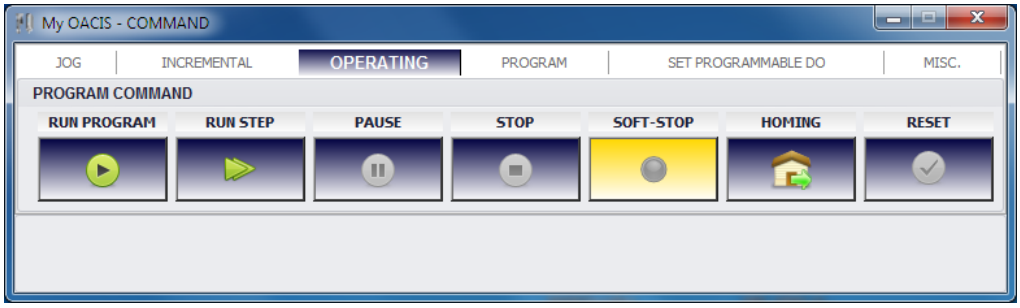
- Select "INCREMENTAL" tab on the Command window.



- You can select the specific Axis and input proper values for the required parameters.
- Then you can see the selected Axis begins to move by pressing the running button ([>]).
- This is same as "Move to Position" function.

C. Operating

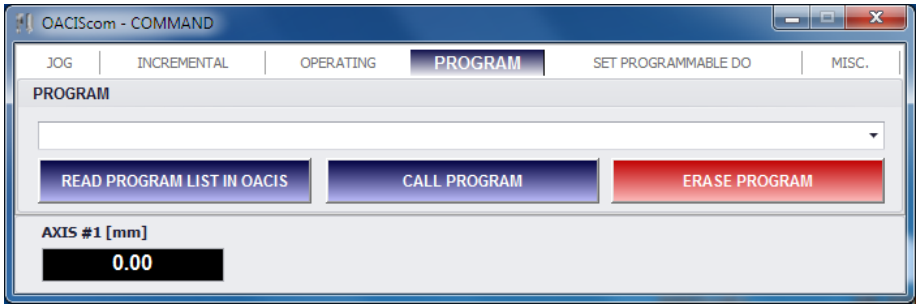
- Select “OPERATING” tab on the Command window.



- **RUN PROGRAM**: You can run the current program.
- **RUN STEP**: You can run the program step by step. It will run current step.
- **PAUSE**: While a program is running, you can pause the running by clicking this button. If you click this button, OACIS will pause on completing current step. And you can resume the program by pressing the “RUN PROGRAM” button again.
- **STOP**: OACIS complete current running step and program ends. And the OACIS will become one of “Homing Required #1”, “Ready for Running” or “Error” status depending on stopping condition.
- **SOFT-STOP**: OACIS stops immediately and it becomes “Error” status.
- **HOMING**: All Axes will get back to Home position.
- **RESET**: You can reset “Error” status. If there is physical error source, you need to eliminate physical error source first otherwise you will see “Error” message again.

D. Program

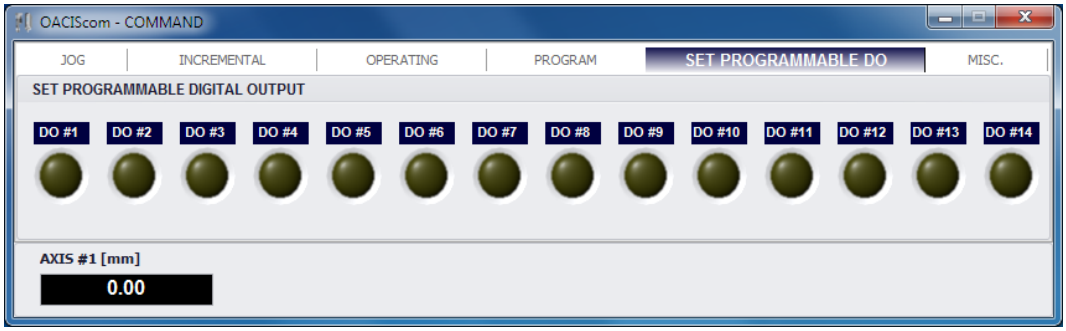
- Select “PROGRAM” tab on the Command window.



- **READ PROGRAM LIST IN OACIS**: It will read all programs list and update in the combo box.
- **CALL PROGRAM**: Select a program in the combo box and click this button. You can call the selected program from OACIS.
- **ERASE PROGRAM**: You can erase the selected program in the OACIS

E. Set Programmable DO

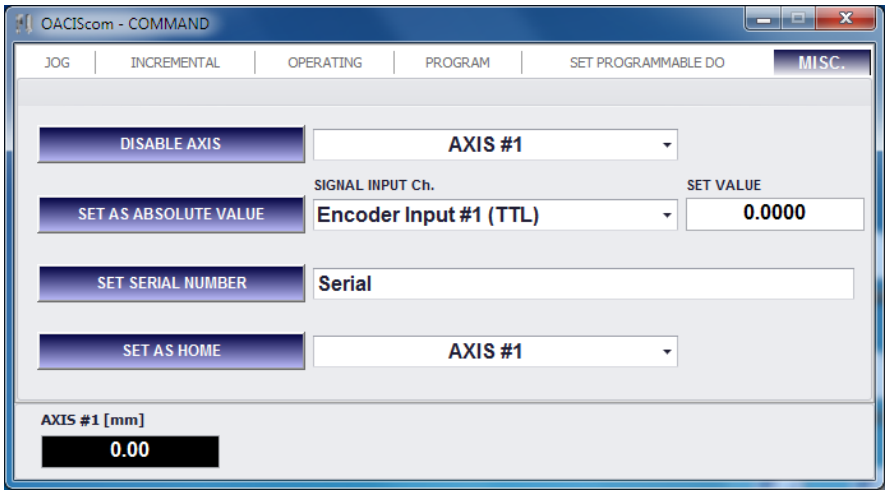
- Select “SET PROGRAMMABLE DO” tab on the Command window



- You can turn on or off Programmable Digital Output by pressing each button.

F. MISC

- Select “MISC.” tab on the Command window



- **DISABLE AXIS**
  - You can temporarily protect AXIS #1 or AXIS #2 from unexpected moving. See “Disable” function in MOVE for more detail.
- **SET AS ABSOLUTE VALUE**
  - You can set the selected Signal Input Channel as the specified set value. The Set Value will become a new absolute value. See “Set As Abs Value” function in SIGNAL for more detail.
- **SET SERIAL NUMBER**
  - Serial Number is normally entered by a Barcode reader. But you can simply put it in by typing-in and pressing this button.
- **SET AS HOME**
  - You can set AXIS #1 or AXIS #2 as Home. Only the Nut Runner without Home and Limits is available.

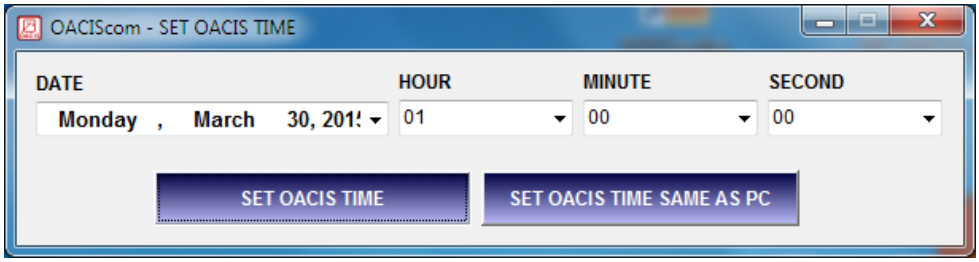
⚠ Do not mix and use PC COMMAND with Remote COMMAND.

- When you need “Return Home” during PC Command operation, you should give the signal by PC Command, not by Remote Command (DI/O).
- For example, if Home OK & Ready On → Jog Moving (PC command) → Return Home (Remote Button), then some errors may occur. You should do homing via PC Command.
- This strategy is set up for safety.

VIII. SET TIME

A. You can set date and time of OACIS. It will be used to save results.

- You can open “SET OACIS TIME” window by pressing [TOOL] – [Set Time] button in the Menu Strip.



- Set new “DATE”, “HOUR”, “MINUTE” and “SECOND”
- **SET OACIS TIME**: Set the OACIS time with new value.
- **SET OACIS TIME SAME AS PC**: It sets the OACIS time same as your local PC.
- Then, you can see current time of OACIS in the status strip on the bottom of main window.

IX. QUICK START – How to program

 # Note: We will make a simple program here. The program is going to work with several Move, DAQ, Analysis and Gage functions. The OACIS program is basically working through Move -> DAQ -> Analysis -> Gage. And if you want to implement different steps depending on interim results, you can use Sequence functions like Jump to Step or Loop Start. And also if you need to communicate with external device like PLC you can use Signal Functions like Set DO and Wait for DI.

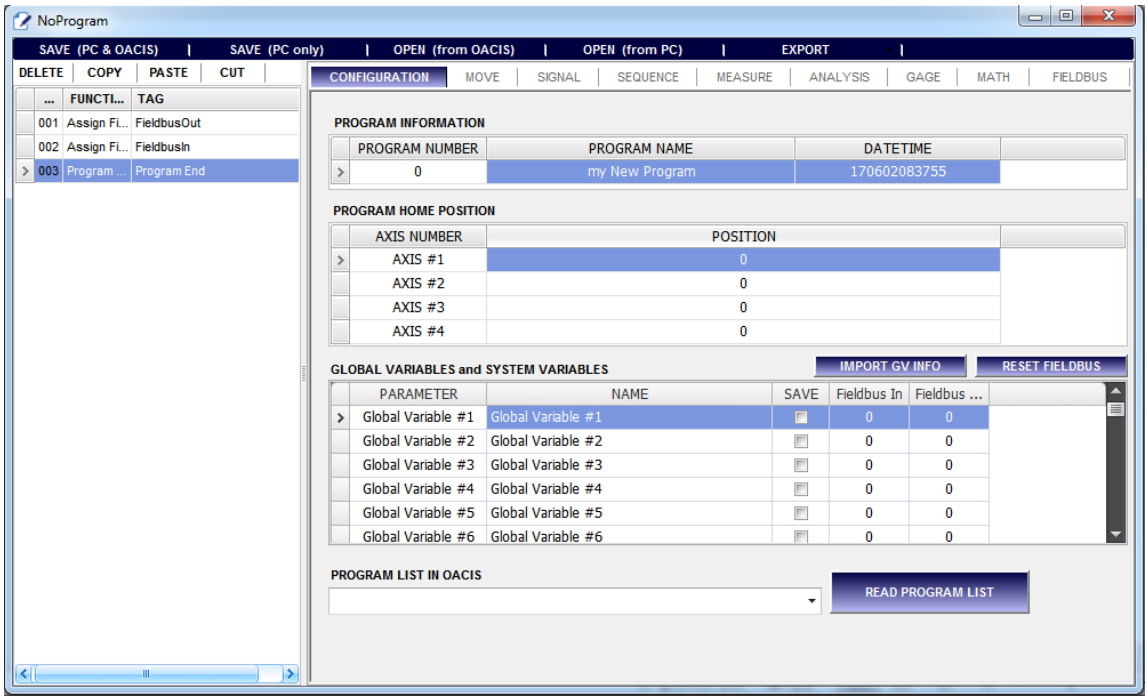
A. We will make a program to press a solid shaft into a hollow shaft. And the program will monitor the curve of press load vs distance. Based on the curve the program is going to decide if the part is good or bad. Finally, the program will notify the result to the PLC by digital signal. Here is brief a functional flow.

- Move to Position -> Move to Load -> DAQ -> Analysis Press -> Gage -> Move to Program Home

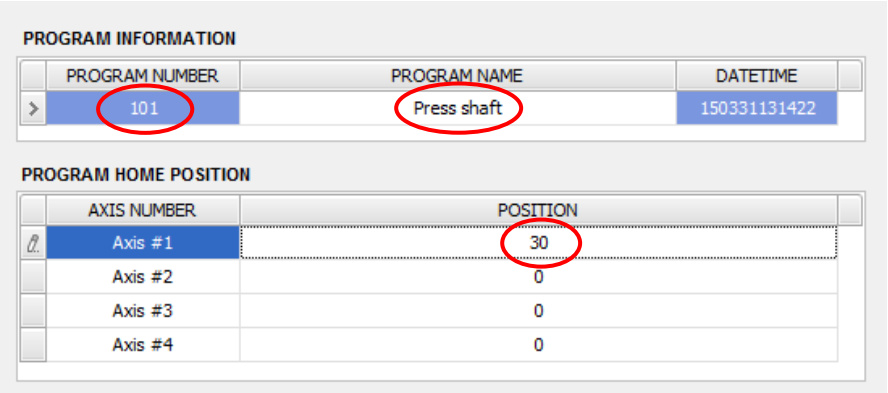
B. Open Program Edit window [PROGRAM] – [New].

Note: It will require you to input password. If you didn't change the password, default is "1".

- You can see the initial screen of program edit window.

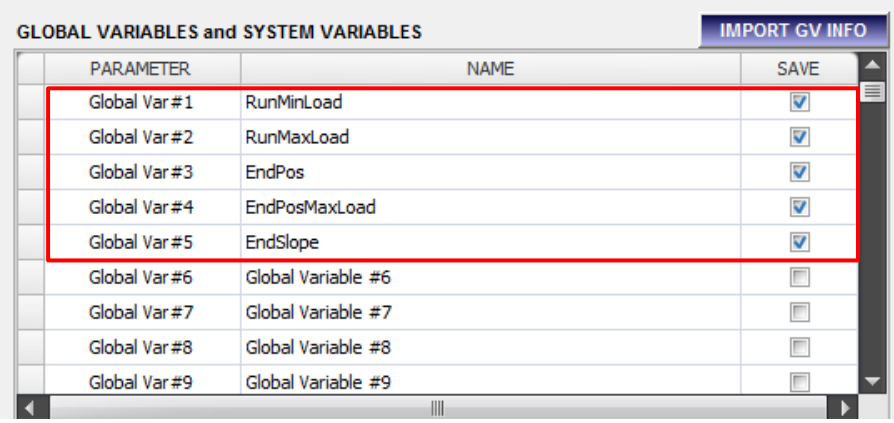


C. Input Program Information and Program Home Position.



- Program Number: **101** (you can input one of 1 ~ 120)
- Program Name: **Press Shaft**
- Program Home Position: **30**

D. Input Global Variables

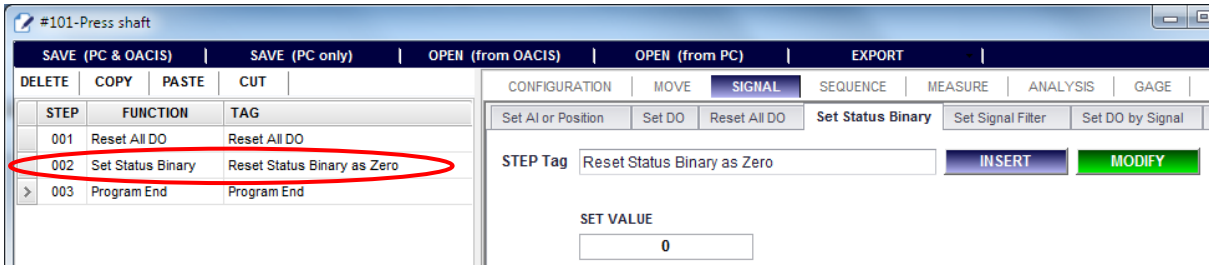


- **IMPORT GV INFO:** You can bring global Variables from the other OACIS program.
- We will use five global variables in this program. Global Variables checked as “SAVE” will be shown at “RESULT” and “REPORT” tab after one cycling. You can also update Global Variables information while you are programming.

E. Insert “Reset All DO”

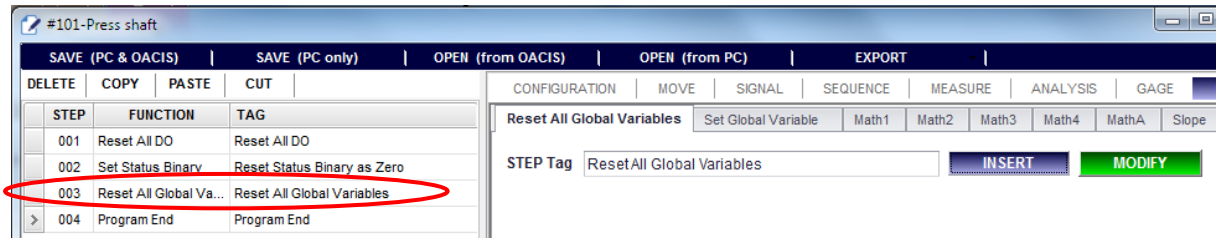
- You can insert a function by pressing “INSERT” button on right top.
- Tag: Reset All DO
  - ➢ Normally, you need to initialize Digital Outputs before you start new cycle.

F. Insert “Set Status Binary”



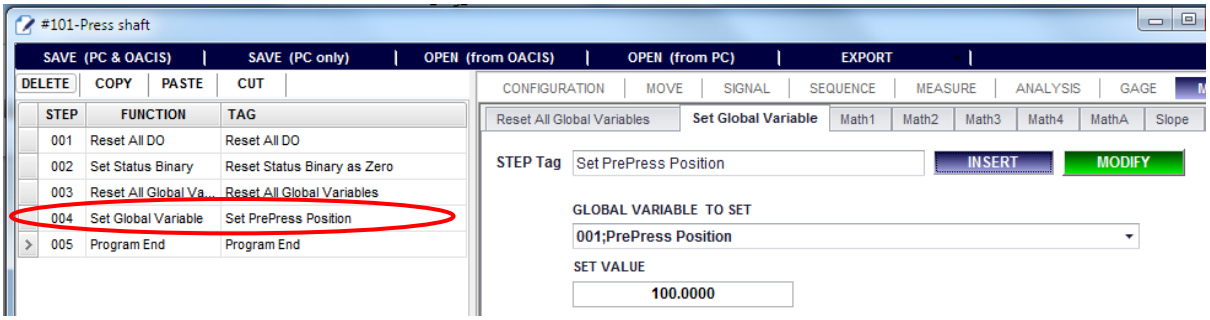
- Tag: Reset Status Binary as Zero
- Set Value: 0
  - ➢ It will set all Status Bin DO as Off

G. Insert "Reset All Global Variables"



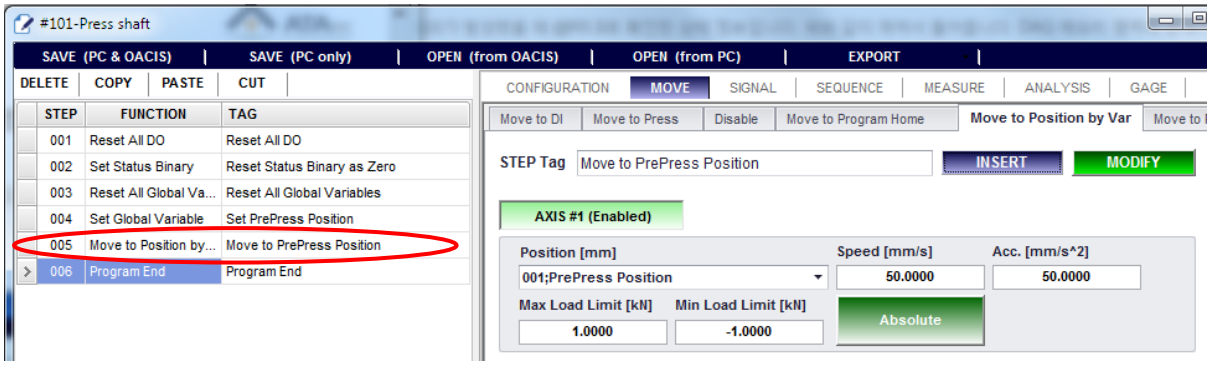
- Tag: Reset All Global Variables
  - ➢ It will set all Global Variables (#1 ~ #100) as zero. (It doesn't change System Variables)

H. Insert "Set Global Variable"



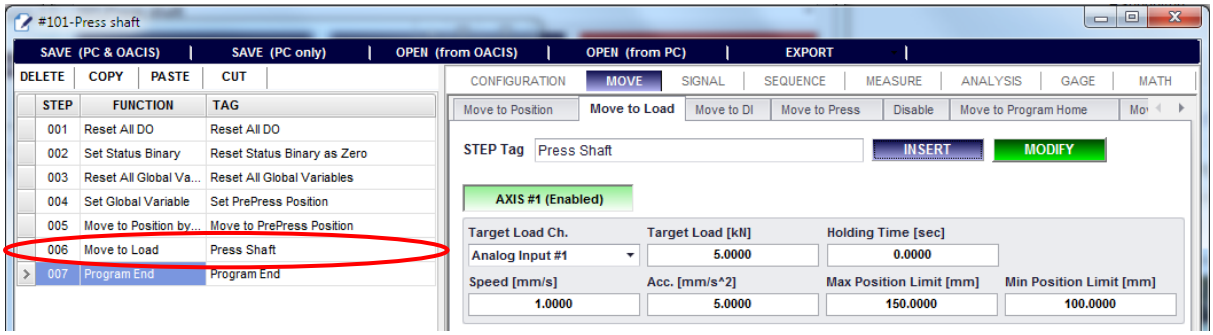
- Select proper global variable (001; PrePress Position)
- Tag: Set PrePress Position
- Set Value: 100
  - ➢ This global variable is to be used at following "Move to Position by Var" function.

I. Insert "Move to Position by Var"



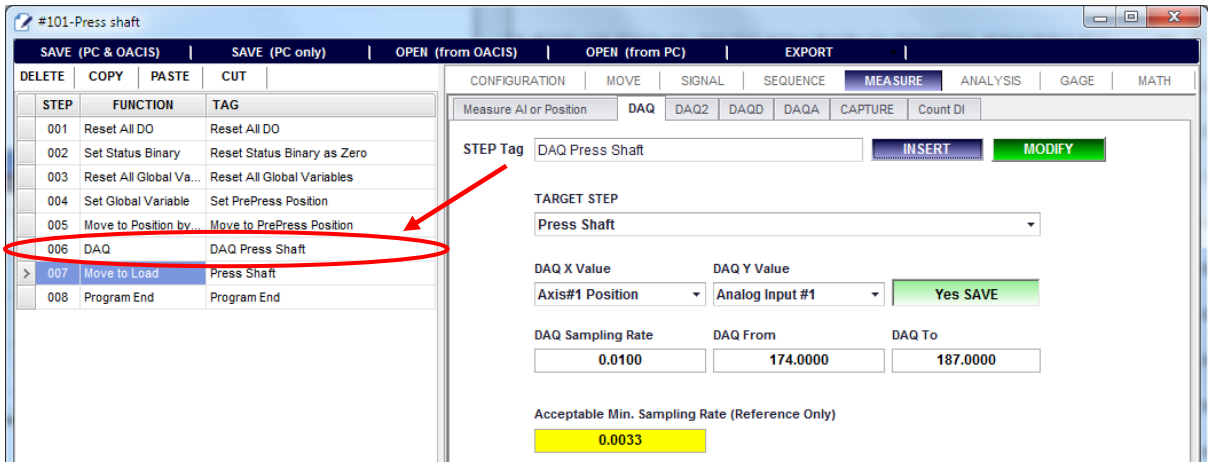
- Tag: Move to PrePress Position
- Axis #1 Enabled
- Position: 001; PrePress Position
- Speed (mm/s): 50
- Acc (mm/s^2): 50
- Max Load Limit (kN): 2
- Min Load Limit (kN): -2
- Absolute

J. Insert "Move to Load"



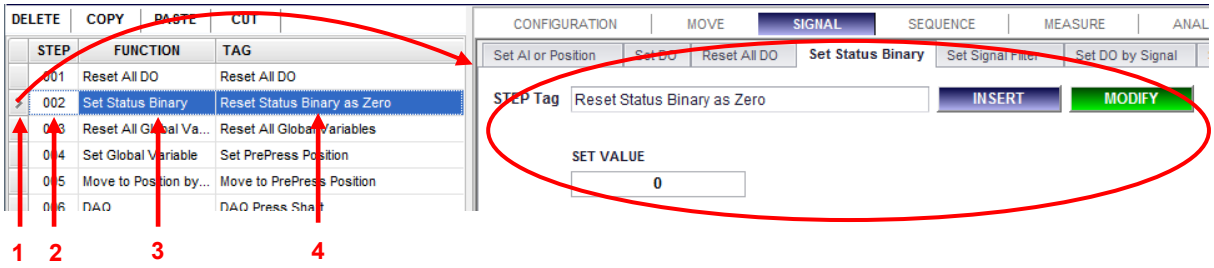
- Tag: Press Shaft
- Axis #1 Enabled
- Target Load Ch.: Analog Input #1
- Target Load [kN]: 5
- Holding Time [sec]: 0
- Speed [mm/s]: 1
- Acc [mm/s^2]: 5
- Max Position Limit [mm]: 150
- Min Position Limit [mm]: 100

K. Insert "DAQ"



- Insert DAQ function before target step.
  - ➢ You need to select a step in the left program grid view where you want to insert new step before.
  - ➢ DAQ function should be located in front of target step. For example, if the target step number is 007, new DAQ step number should be smaller than that (001 ~006).
- Tag: DAQ Press Shaft
- Target Step: Press Shaft
- DAQ X Value: Axis #1 Position
- DAQ Y Value: Analog Input #1
- Yes SAVE
- DAQ Sampling Rate: 0.01
- DAQ From: 174
- DAQ To: 187

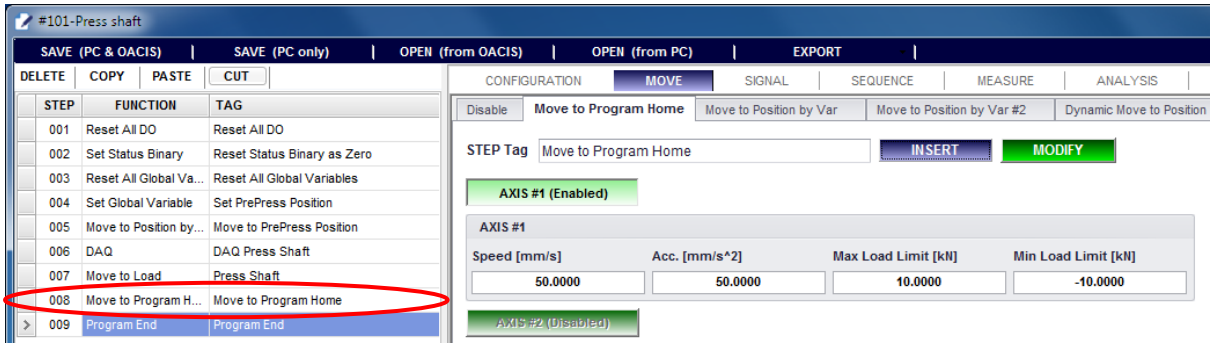
- Acceptable Min. Sampling Rate (Reference Only): auto calculated value for DAQ Sampling Rate. DAQ Sampling Rate should be greater than or equal to this value.



 # Tip: How to select a specific step on the "Program Grid View"

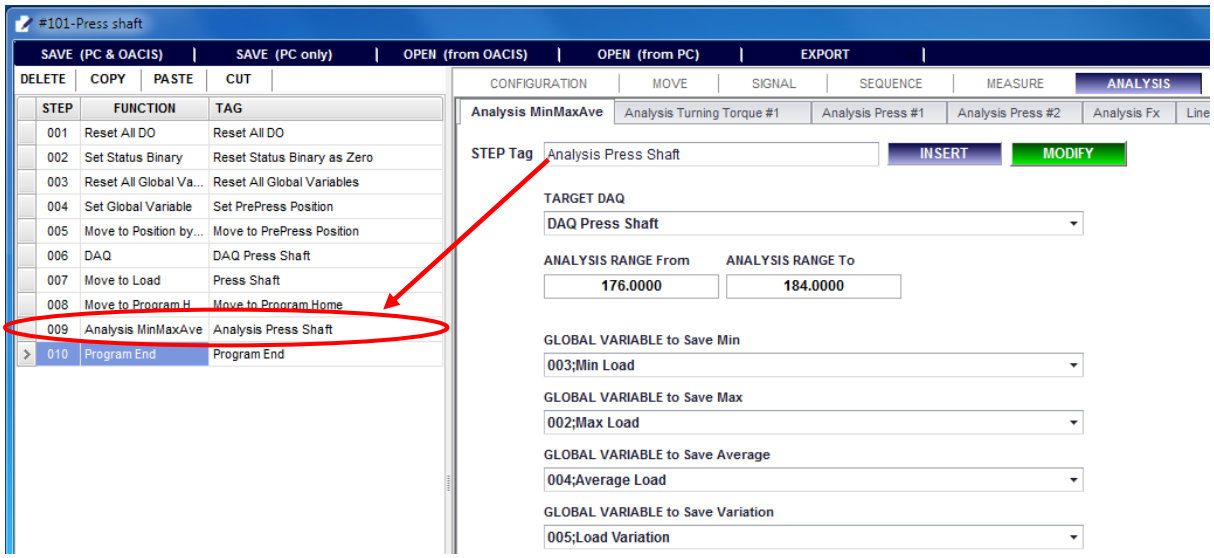
- You can select a specific step by pressing one of program grid view columns (1 ~ 4).
- If you click step head (#1), it will cause to update Function Description Window per the selected step.
- Pressing #2 (Step Number Column), #3 (Step Function Column) and #4 (Step Tag Column) is same. It does nothing to Function Description Window.

L. Insert "Move to Program Home"



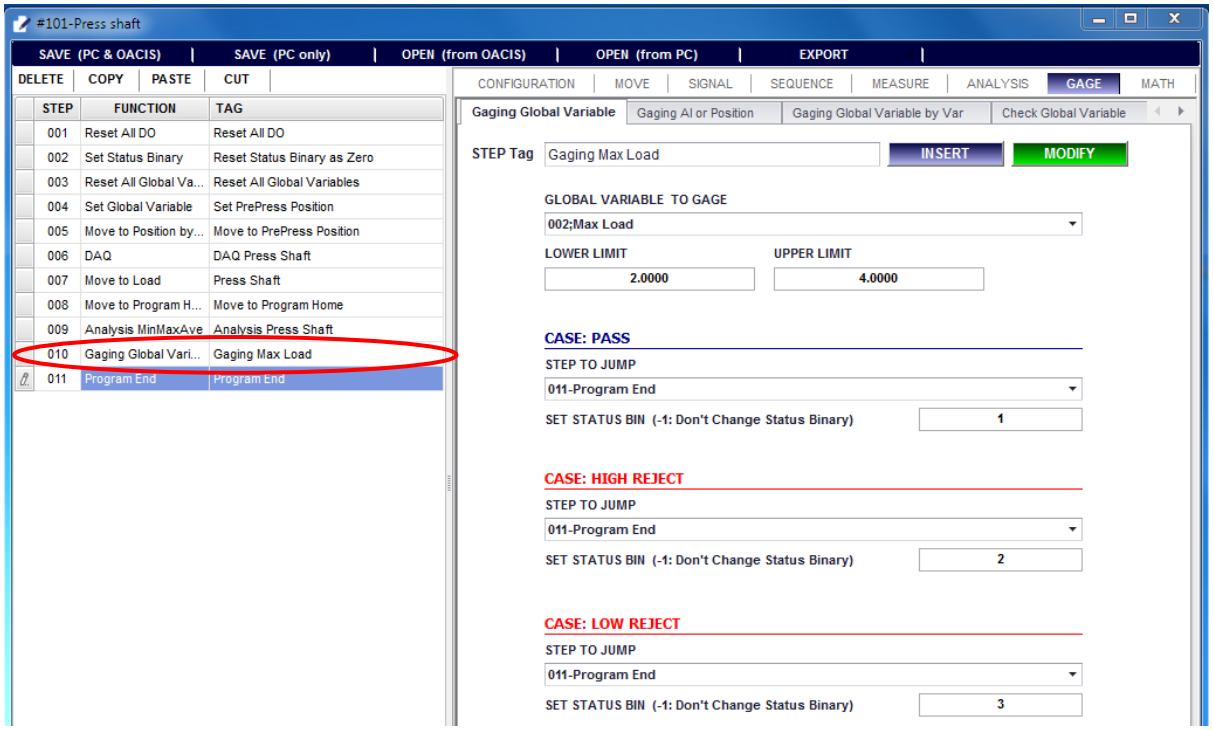
- It is exactly same as "Move to Position" except that the position is specified by program configuration (see the I. Insert "Move to Position by Var")
  - Tag: Move to Program Home
  - Speed [mm/s]: 50
  - Acc [mm/s^2]: 50
  - Max Load Limit [kN]: 10
  - Min Load Limit [kN]: -10

M. Insert "Analysis MinMaxAve"



- Tag: Analysis Press Shaft
- Target DAQ: DAQ Press Shaft.
- Analysis Range From: 176
- Analysis Range To: 184
  - ➢ Target DAQ range is normally to be wider than Analysis Range.
- Global Variable to Save Min: 003; Min Load
- Global Variable to Save Max: 002; Max Load
- Global Variable to Save Average: 004; Average Load
- Global Variable to Save Variation: 005; Load Variation

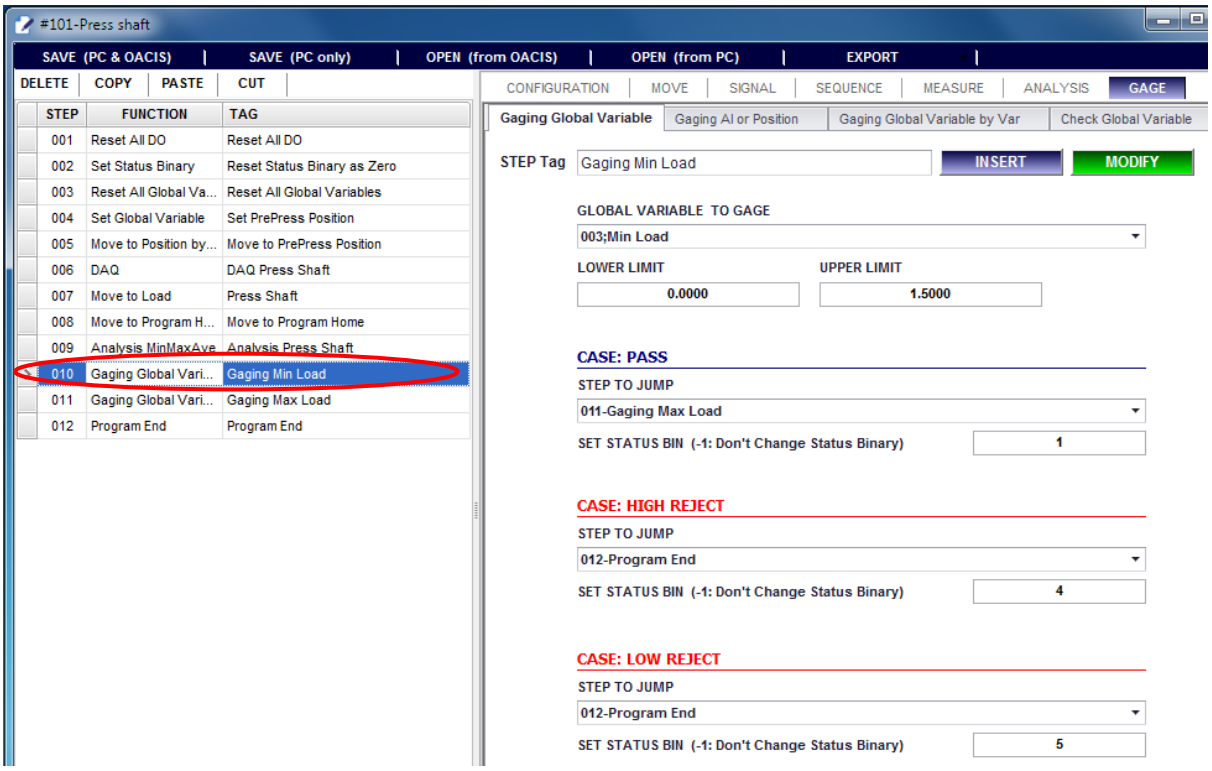
N. Insert "Gaging Global Variable" (Gaging Max Load)



- Tag: Gaging Max Load
- Global Variable to Gage: 002; Max Load

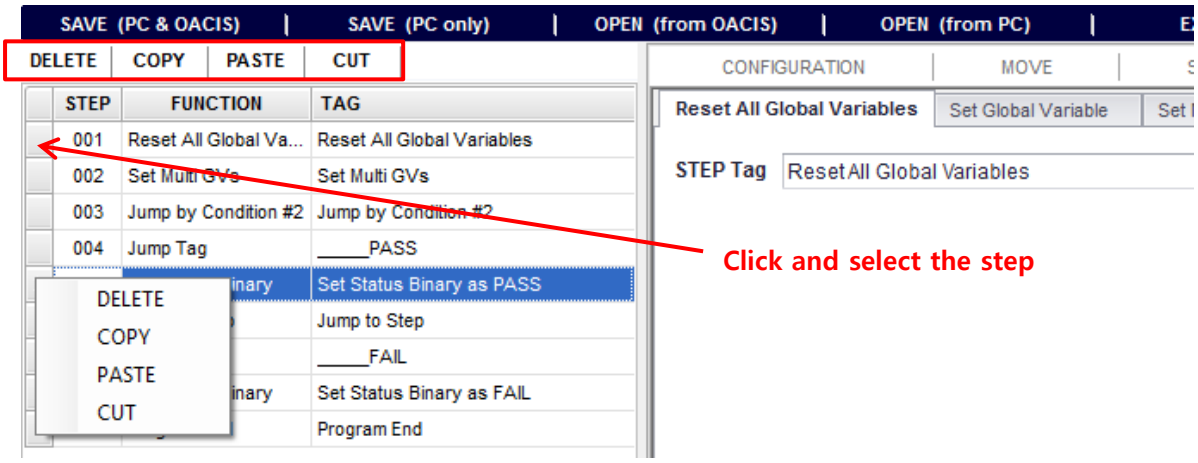
- Lower Limit: 2
- Upper Limit: 4
  - ➢ 2<= Max Load (Global Variable #2) <= 4 then it becomes “Pass Case”.
- Case Pass Step to Jump: 011; Program End
- Case Pass Set Status Bin: 1
- Case High Reject Step to Jump: 011; Program End
- Case High Reject Set Status Bin: 2
- Case Low Reject Step to Jump: 011; Program End
- Case Low Reject Set Status Bin: 3

O. Insert “Gaging Global Variable” (Gaging Min Load)



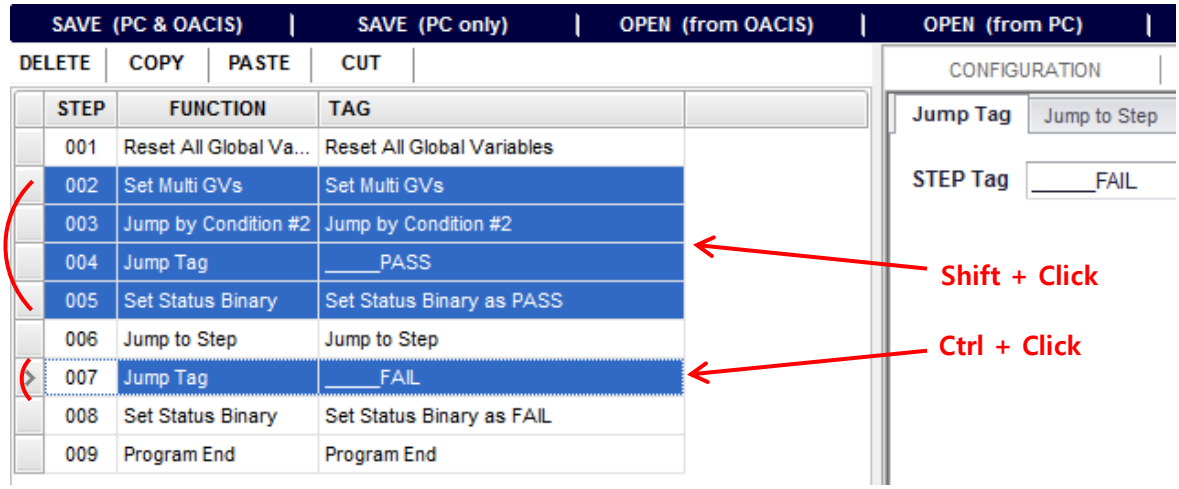
- Tag: Gaging Min Load
- Global Variable to Gage: 003; Min Load
- Lower Limit: 0
- Upper Limit: 1.5
  - ➢ 0<= Min Load (Global Variable #3) <= 1.5 then it becomes “Pass Case”.
- Case Pass Step to Jump: 011; Gaging Max Load
- Case Pass Set Status Bin: 1
- Case High Reject Step to Jump: 012; Program End
- Case High Reject Set Status Bin: 4
- Case Low Reject Step to Jump: 012; Program End
- Case Low Reject Set Status Bin: 5

P. EDIT Program

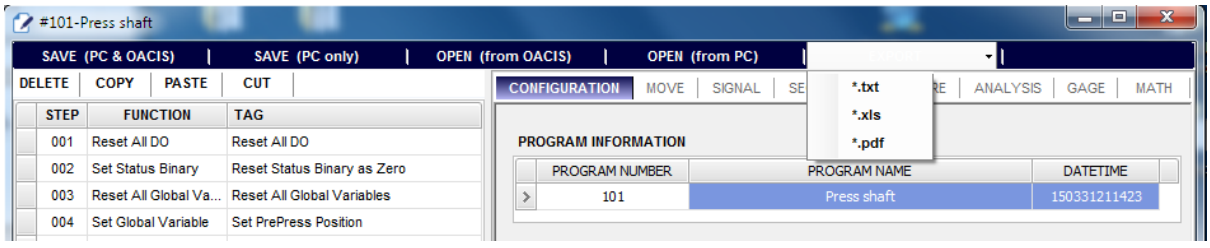


- **DELETE**: If you want to remove step 001, left click the step and press DELETE on the menu.
- **COPY**: If you want to copy the specific step, left click the step and press COPY on the menu.
- **PASTE**: It is common for PASTE to be used with COPY or CUT. If you want to copy step 001 into step 003, copy step 001 and select step 003. And then press PASTE on the menu.
- **CUT**: It is same as “COPY” except that the selected original step is removed when you press CUT.

You can also select one of DELETE, COPY, PASTE and CUT on the pop-up menu by right clicking the step. And it is possible to select multiple steps by using Ctrl or Shift button as well.

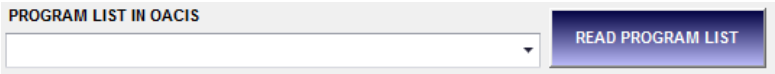


Q. SAVE Program

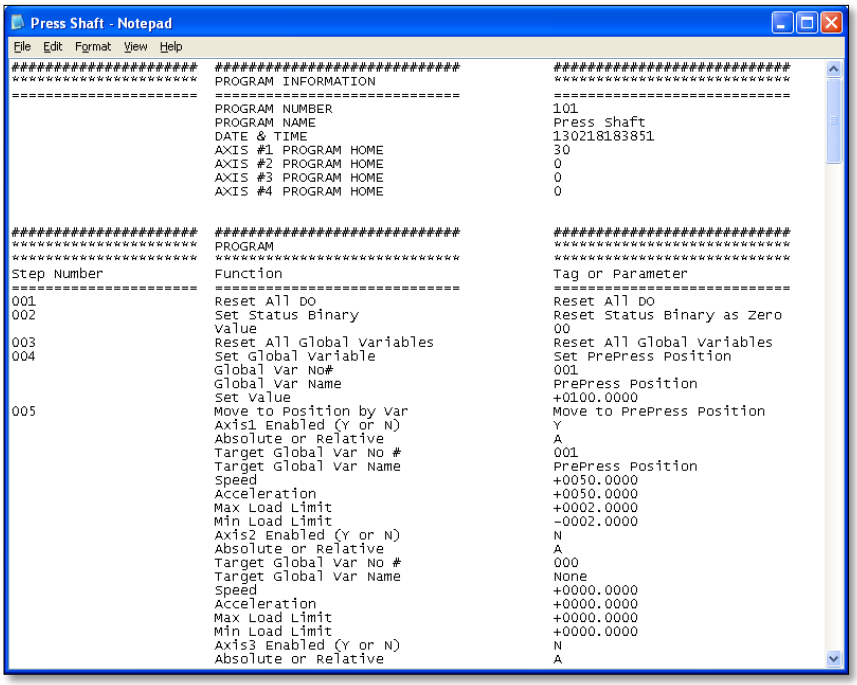


- **SAVE (PC & OACIS)**: Download the program to OACIS and save it at local PC.
  - ➢ Only one program is to be assigned for one program number. So if there is an existing program with same program number, it will overwrite the existing one.
- **SAVE (PC only)**: Save the program at local PC only.
  - ➢ You can save various programs with same program number if the program name is different.

- **OPEN (from OACIS)**: You can open a program from the OACIS

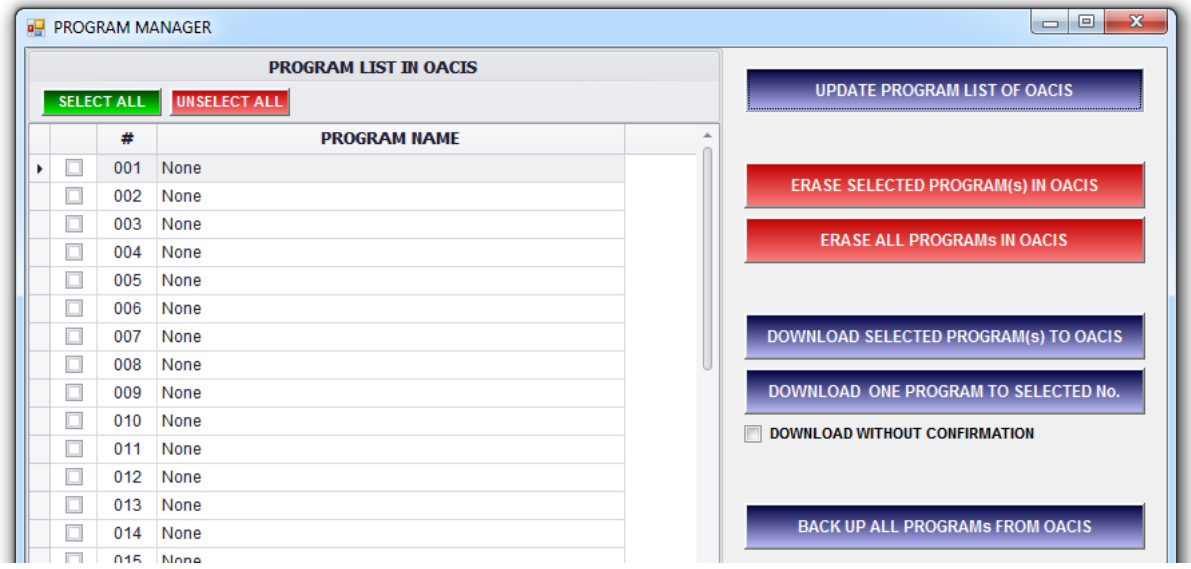


  - ➢ Read program list from OACIS.
  - ➢ Select a program.
  - ➢ OPEN (from OACIS)
- **OPEN (from PC)**: You can open a program from local PC.
- **EXPORT - *.txt:** You can export the program with *.txt format



- **EXPORT - *.xls**: You can export the program with *.xls format
- **EXPORT – *.pdf**: You can export the program with *.pdf format.

R. Program Manager



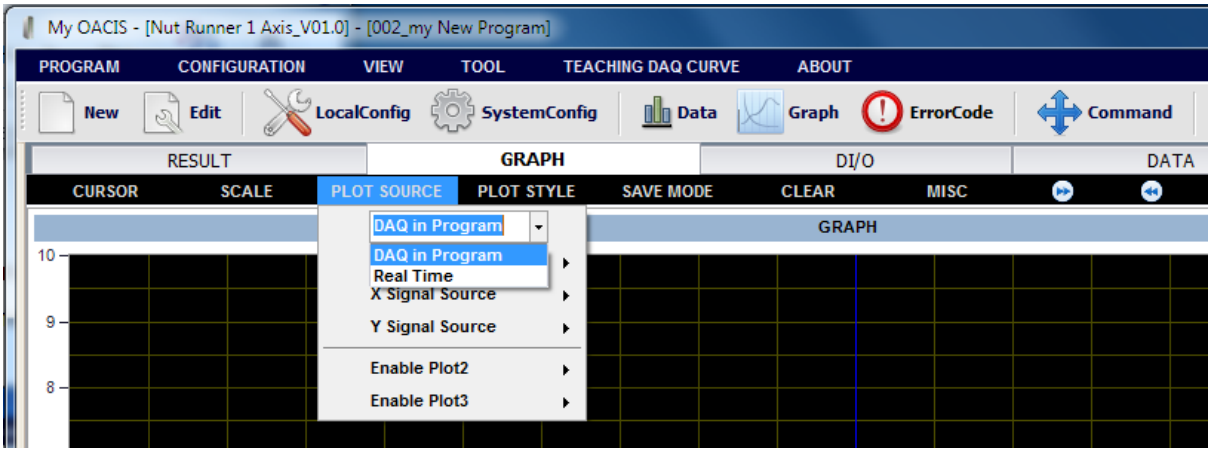
- **Select All**: Select all programs.
- **Unselect All**: Deselect them all.

- **Update Program List of OACIS**: Show all the programs on OACIS.
- Erase Selected Program(s) in OACIS: Remove selected programs from OACIS.
- **Erase All Programs in OACIS:** Remove all the programs on OACIS except for a current loaded program.
- **Download Selected Program(s) to OACIS:** Download from selected programs on a local PC to OACIS at a time.
- **Download One Program to Selected No.:** Download from one program on a local PC to OACIS as many programs as selected on Program List In OACIS.
- **Back Up All Programs From OACIS:** Upload from all the programs on OACIS to a local PC.

S. Now, you are ready to run your own program. Please try…

X. GRAPH VIEW OF MAIN SCREEN

: There are two different modes for this screen. One is “DAQ in Program” the other one is “Real Time” mode. You can see a graph in this screen from DAQ in the program or real time depending on the mode selection.



A. [DAQ in Program] mode

- It will be updated on completing each cycle. Then you can select a DAQ and it will show you the last graph of the selected DAQ.

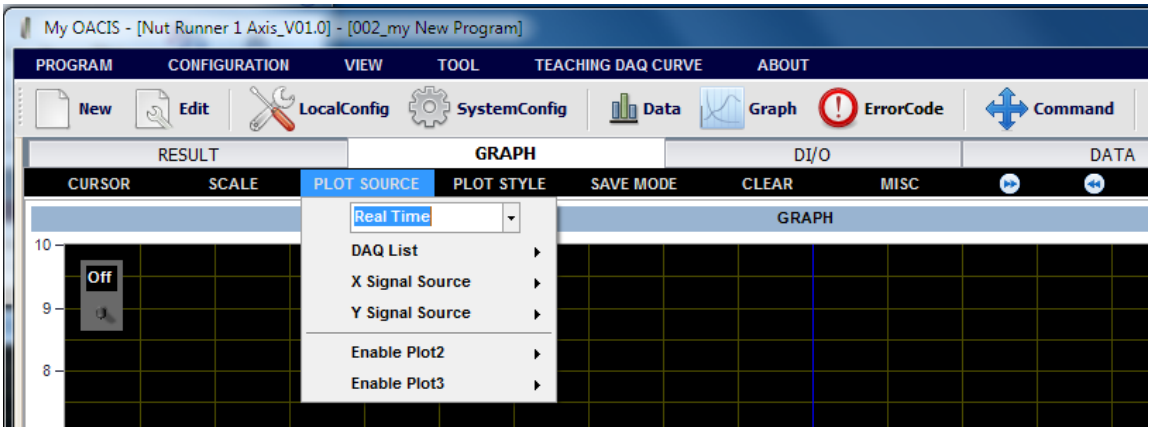
B. [Real Time] mode

- It is useful function to debug machine when you set up new equipment. You can see the graph in real time. And if you need, you can monitor multi plots at the same time as well.

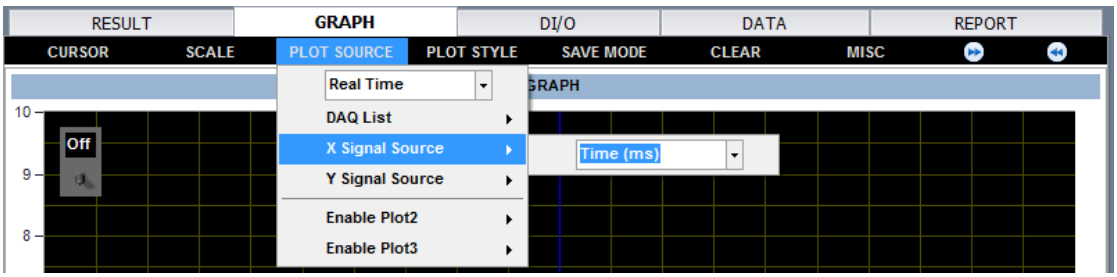
C. How to Set [Real Time] mode.

: Default mode is [DAQ in Program], so you need to set some parameters to see the graph in real time.

- Select “Real Time” mode: [PLOT SOURCE] – [Real Time]

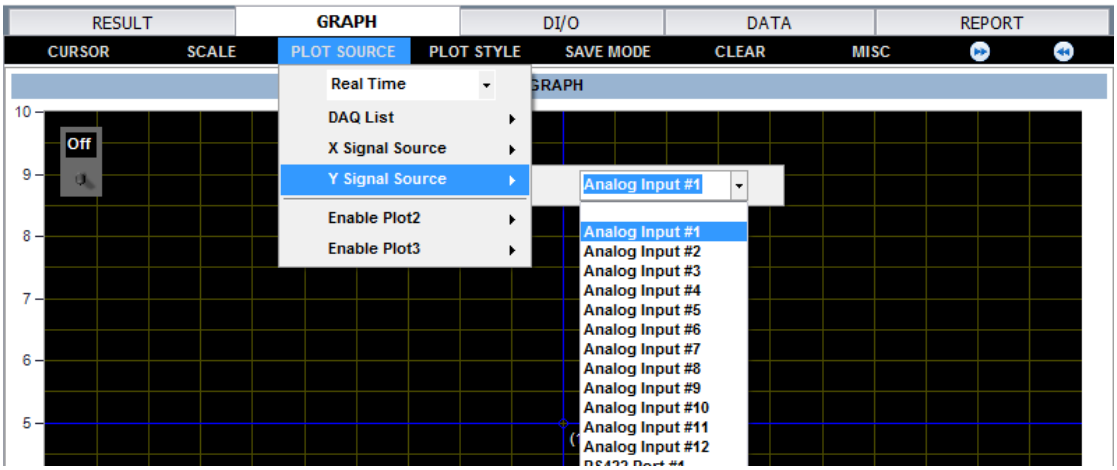


- Select “X” Signal Source



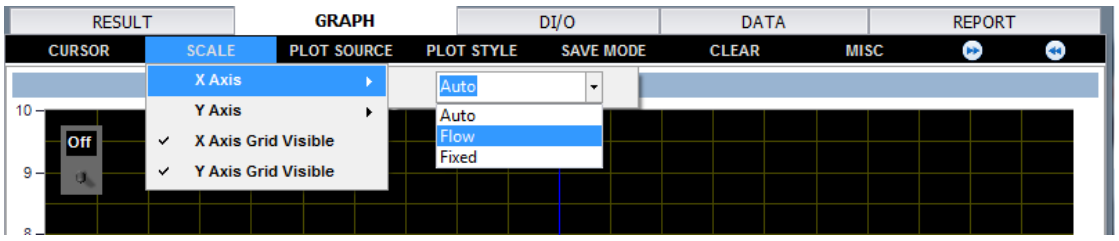
- "Time (ms)" is selected as "X" signal source

- Select "Y" Signal Source



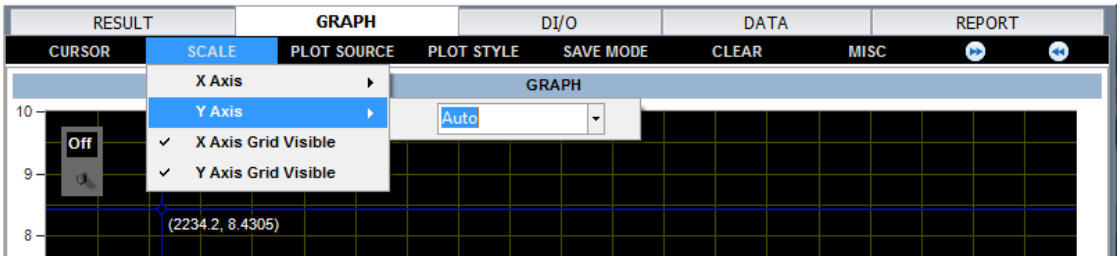
- "Analog Input #1" is selected as "Y" signal source
- And you can select multi signal for "Y" source by pressing "Enable Plot2" and "Enable Plot3".

- Set "X" scale mode: [SCALE] – [X Axis]



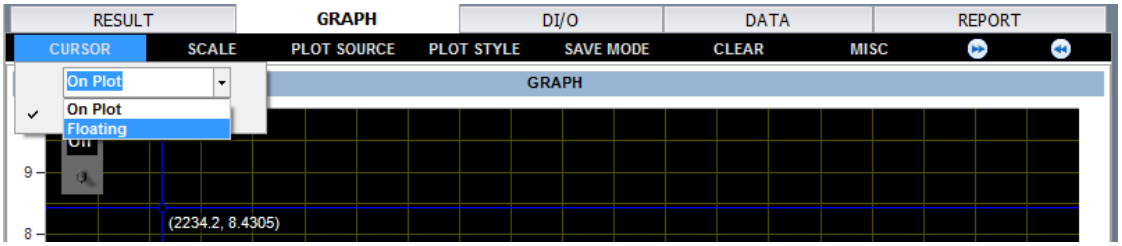
- You can select one of "Auto", "Flow" and "Fixed"
- "Flow" is best option of X scale for the Time signal source in the "Real Time Mode"
- Default: "Auto"

- Set "Y" scale mode: [SCALE] – [Y Axis]



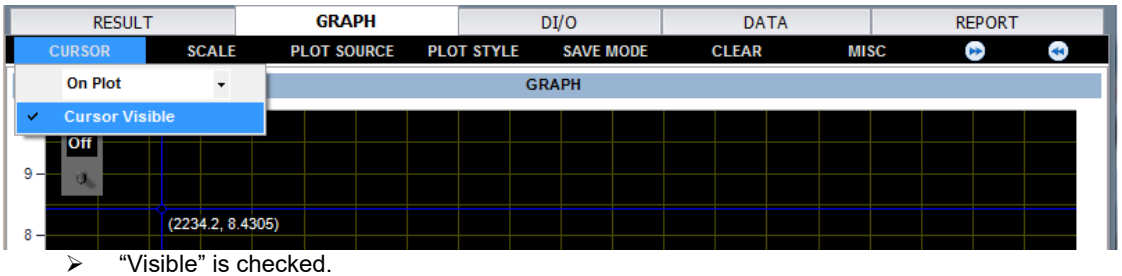
- You can select one of "Auto", "Flow" and "Fixed"
- Default: "Auto"
- "Auto" is selected
- If you want to use "Fixed" scale, you need to set proper scale.

- Set Cursor mode: [CURSOR]



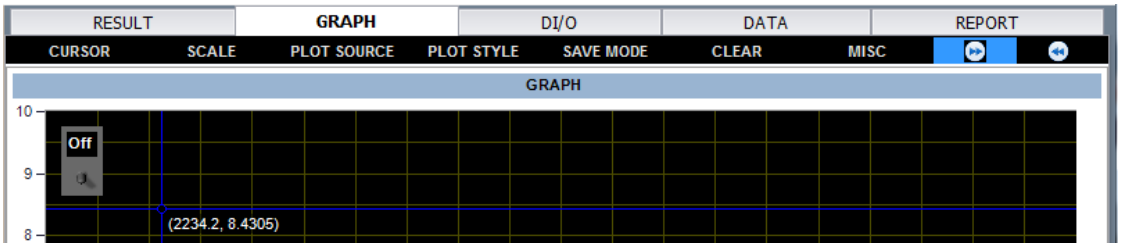
  - ➢ You can select one of “On Plot” and “Floating”
  - ➢ Default: “On Plot”

- Set Cursor Visibility: [CURSOR] – check the “check box”



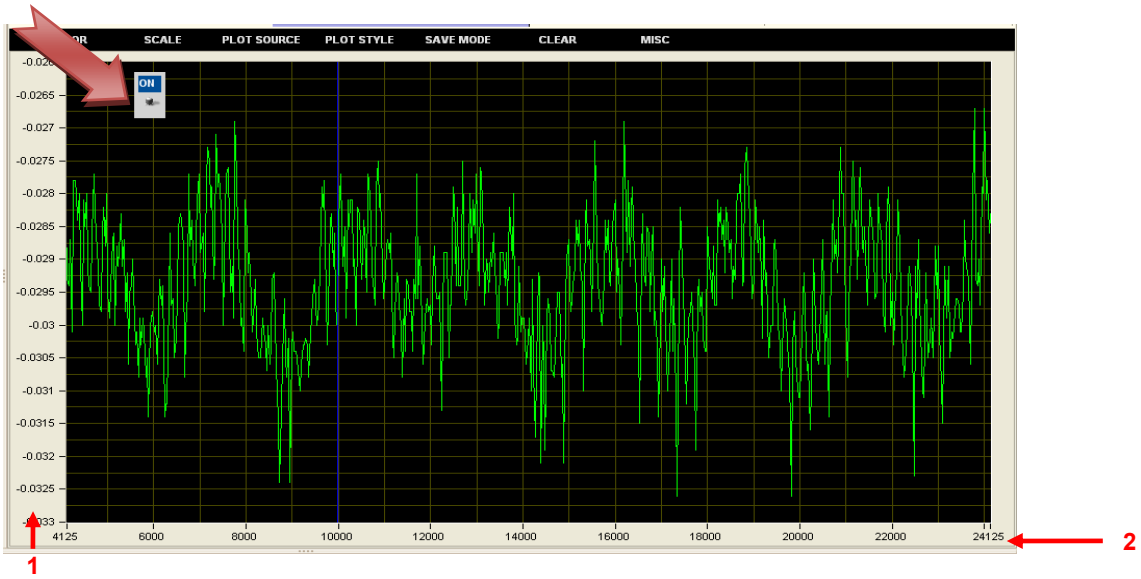
  - ➢ “Visible” is checked.
  - ➢ You can see the blue Cursor on the screen

- DAQ Graph moving :

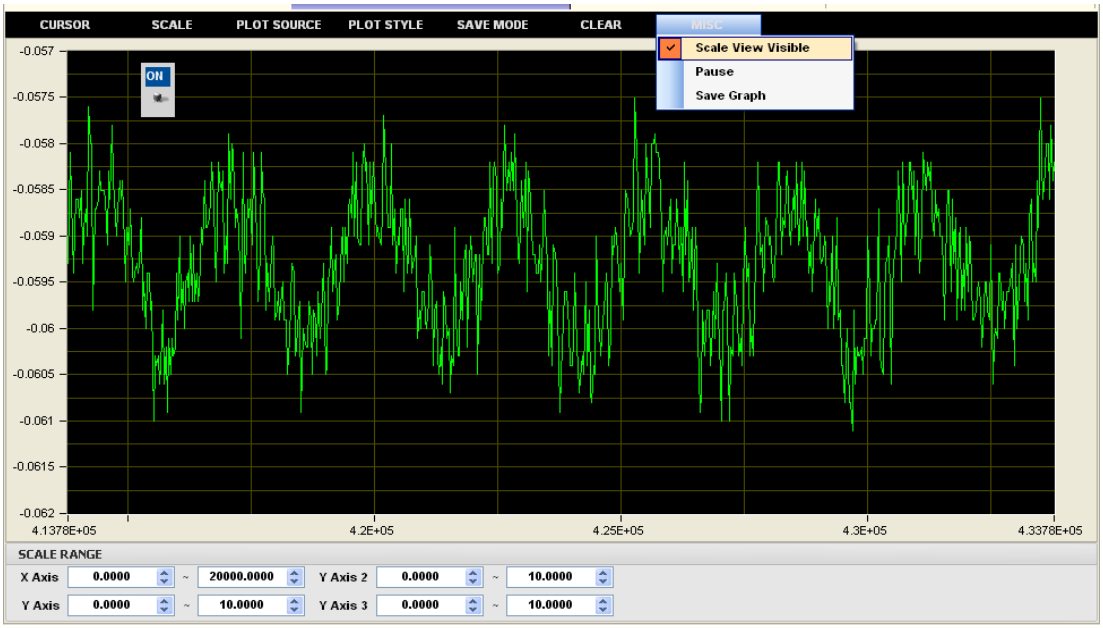


  - ➢ If the number of DAQ graphs is more than two, user can explore a different DAQ graph with arrow keys.

- Now, you are ready to see the graph in real time by pressing the switch on the screen.

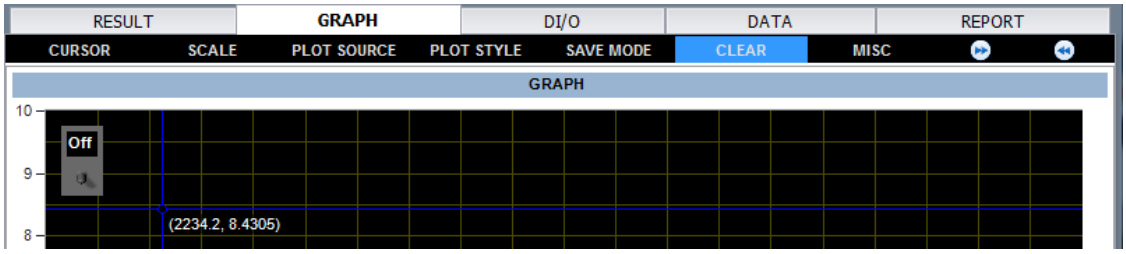


- 1: You can see auto scale on the Y Axis
- 2: You can see flow scale on the X Axis
  - ➢ Scale width is 20,000. It is settable on the scale inputs

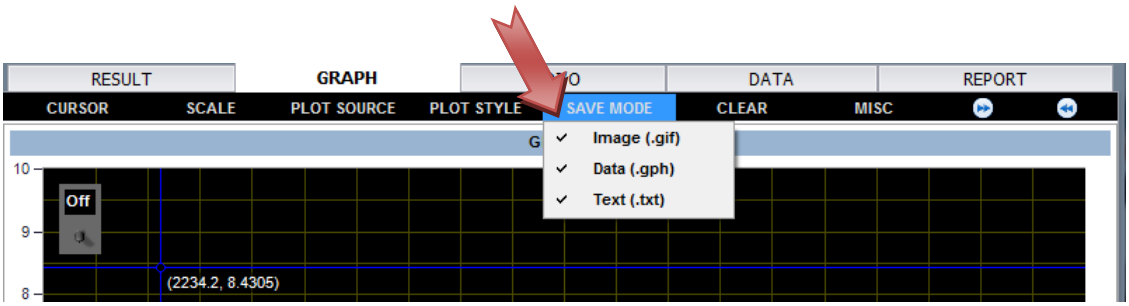


  - ➢ Check “Scale View Visible”
  - ➢ Then, you can see “Scale Range” view at the below of Graph view.
  - ➢ Current set of X Axis is 0 ~ 20,000. So the width is 20,000.
  - ➢ You also can set Y Axis scale.(if you selected “Fixed” mode for Y Scale above “e” step)
  - ➢ Y Axis2 is the range of “Plot2”.
  - ➢ Y Axis3 is the range of “Plot3”.

D. You can clear the screen by pressing [CLEAR] menu button.



E. [SAVE MODE]

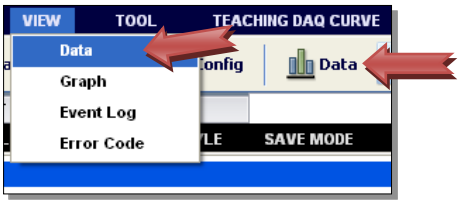


- It is applicable with only “DAQ in Program” mode.
- OACIScom saves checked item on completing each cycle.
- If you are using with default setting, saving location is to be “……\OACIScom\graph.

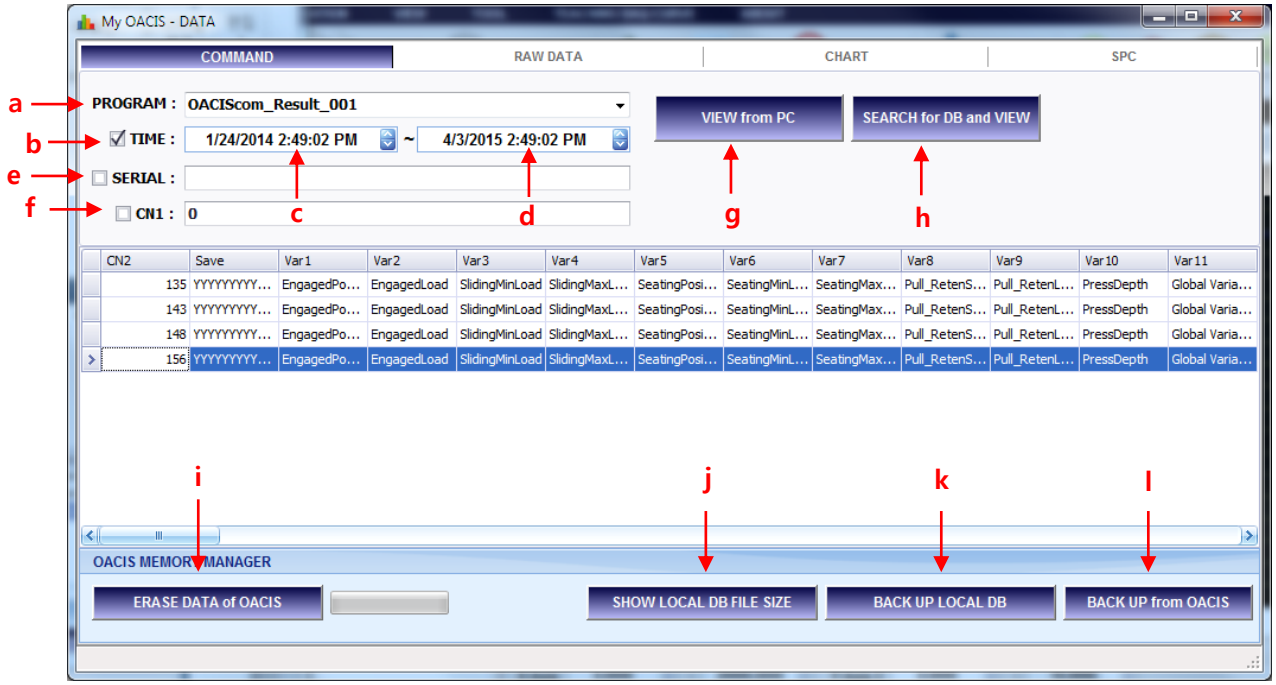
XI. VIEW - DATA

You can see and export test results and graph with specific format (like .xls or .txt) by using [VIEW] menus.

A. DATA - COMMAND



You can open data view by pressing [VIEW] – [Data].

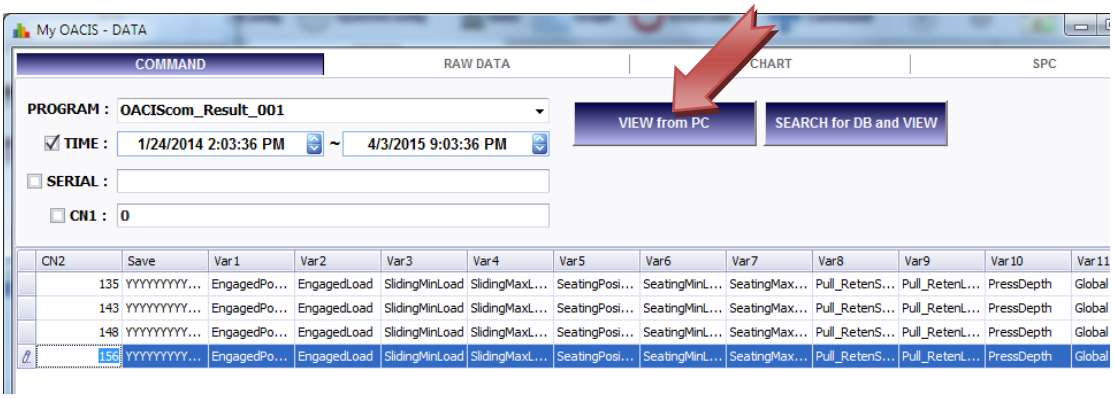


a. **SELECT TARGET PROGRAM:** Firstly you should select a program number to view test results.
b. **TIME:** If you want to view test results with time period, check this item.
c. **FROM TIME:** You can select time period within you want to see the data. It is beginning time selection.
d. **TO TIME:** You can select time period within you want to see the data. It is end time selection.
e. **SERIAL:** If you want to search test results with a serial number, check this item and input the serial number you want.
f. **CN1:** If you want to search test results with a CN1 number, check it and type in the number.
g. **VIEW from PC:** You can read data from the selected target program.
h. **SEARCH for DB and VIEW:** You can select target DB file from not a default location.
   - If you did back-up a DB file in a specific location or in your portable memory device and you want to see the data from the file. In this case, you can use this button.
i. **ERASE DATA of OACIS:** You can delete all data of OACIS in consideration of OACIS's performance improvement. But you should be careful to execute erasing data.
j. **SHOW LOCAL DB FILE SIZE:** You can check Hard Disk Drive (in local computer) usage capacity about OACIScom data.
k. **BACK UP LOCAL DB**: If you want to format the local computer for OACIS, above all you should backup local DB in local computer.

I. **BACK UP from OACIS:** You can read data from your OACIS and save them in your local PC.

➢ If you ran your OACIS without connection with your local PC, you may need this function to see previous data.

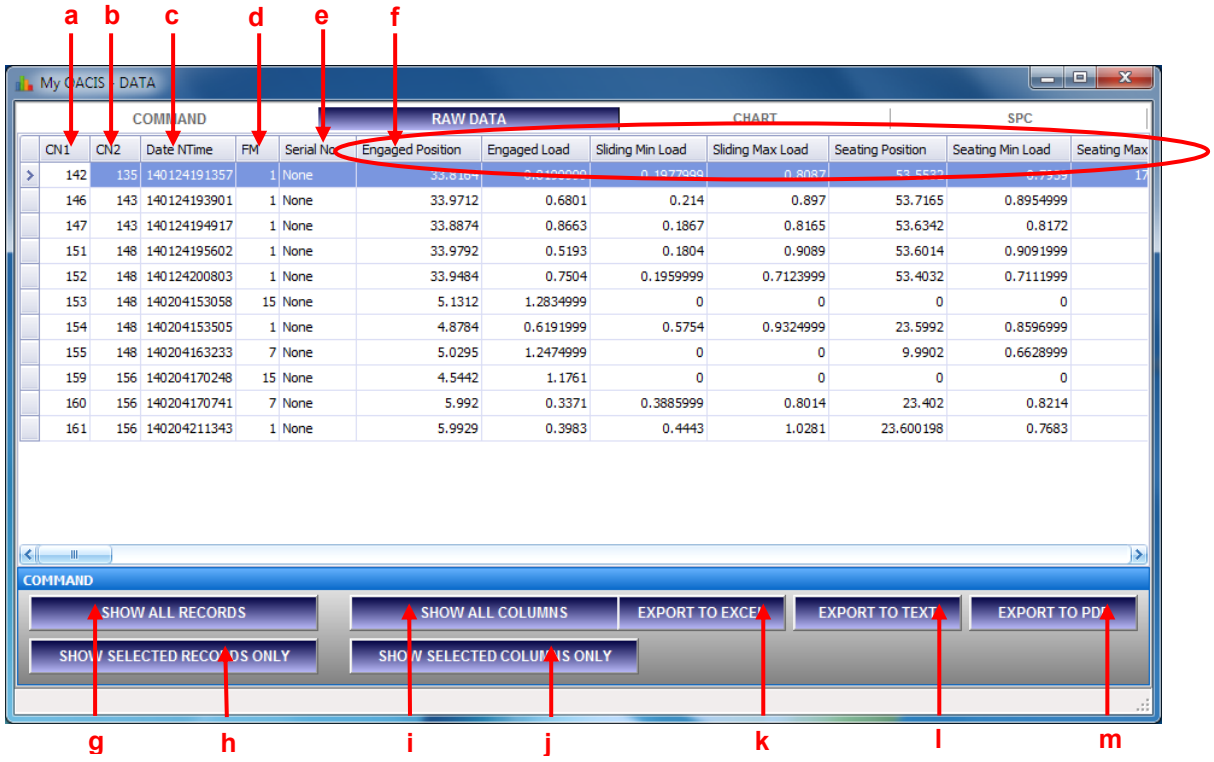
B. VIEW from PC



- Set the time period to see the data as above and select proper Program then click “VIEW from PC” button.
- You will see some update like the above picture.
- The selected program may have three “save” box checked global variables in the program configuration with names, “Angle Difference”, “Angle1” and “Angle2”.
- You may see different results depending on your actual system.

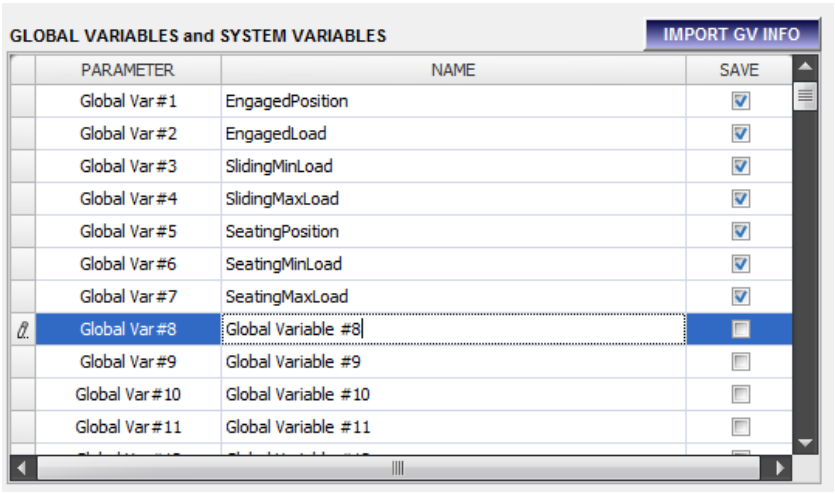
C. DATA – RAW DATA

Please try to click the “RAW DATA” tab. And you will see the raw data view as below.



a. **CN1:** Unique cycle number defined by OACIS automatically.

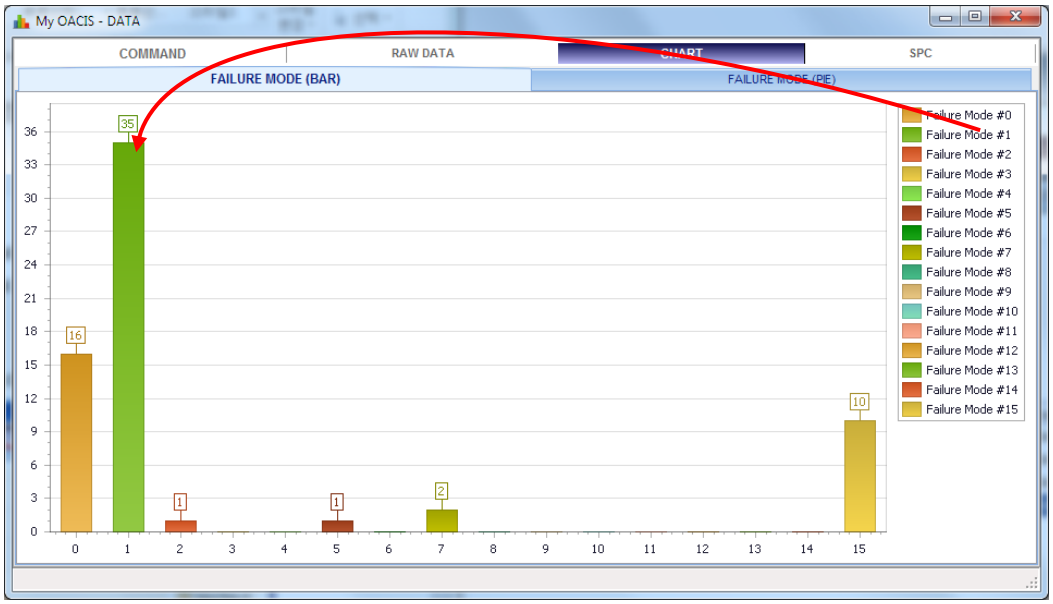
b. **CN2:** Global Variable Information Number to be matched with the unique cycle number.
c. **DateNTime:** Saved date and time information.
d. **FM:** Failure Mode. It is matched with status binary information.
e. **Serial No:** Scanned information is to be saved here. If you don't have connected scanner, you will see "None".
f. You might set the global variables as below.



g. **SHOW ALL RECORDS:** Show all records.
h. **SHOW SELECTED RECORDS ONLY:** Show records per the selected global variable information on the "COMMAND" tab.
i. **SHOW ALL COLUMNS:** Show all columns.
j. **SHOW SELECTED COLUMNS ONLY:** Show only "SAVE" checked global variables.
k. **EXPORT TO EXCEL:** Export the raw data with "*.xls" format.
l. **EXPORT TO TEXT:** Export the raw data with "*.txt" format.
m. **EXPORT TO PDF:** Export the raw data with "*.pdf" format.

D. DATA – CHART – FAILURE MODE (BAR)

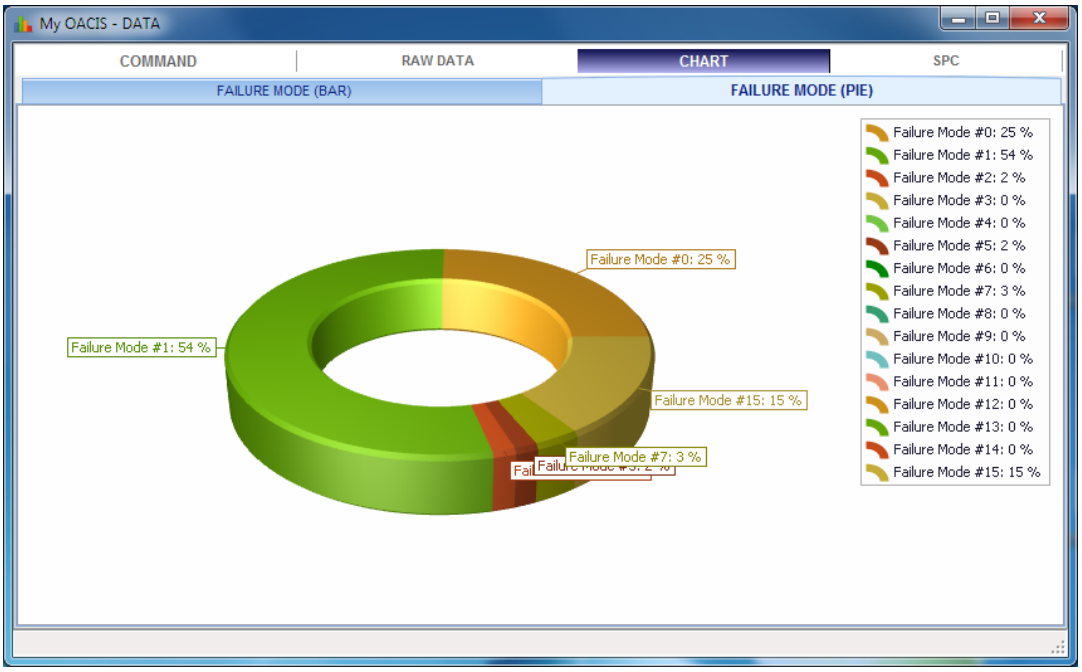
Please try to click the "CHART" tab. And you will see the bar chart as below.



- It shows a bar chart per the raw data. Each bar represents quantity of each failure mode.
- In the above picture, 42 parts out of 62 parts cycled with "Failure Mode #1".

E. DATA – CHART – FAILURE MODE (PIE)

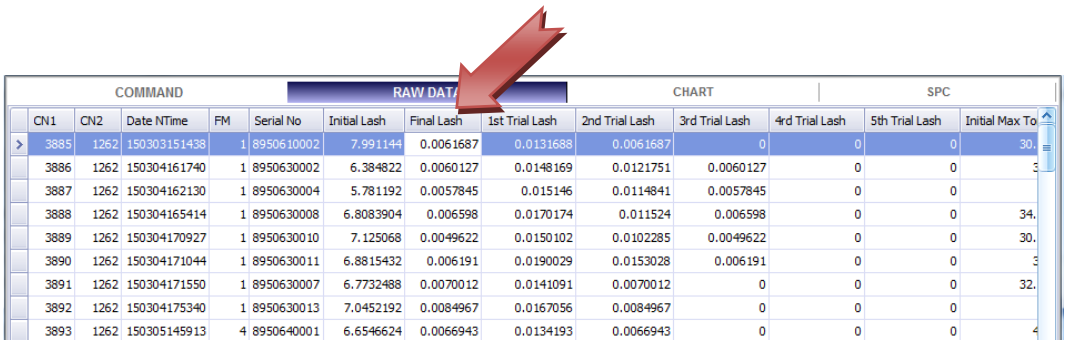
You also can see the pie chart with same data of bar chart.



F. DATA – SPC (Statistical Process Control)

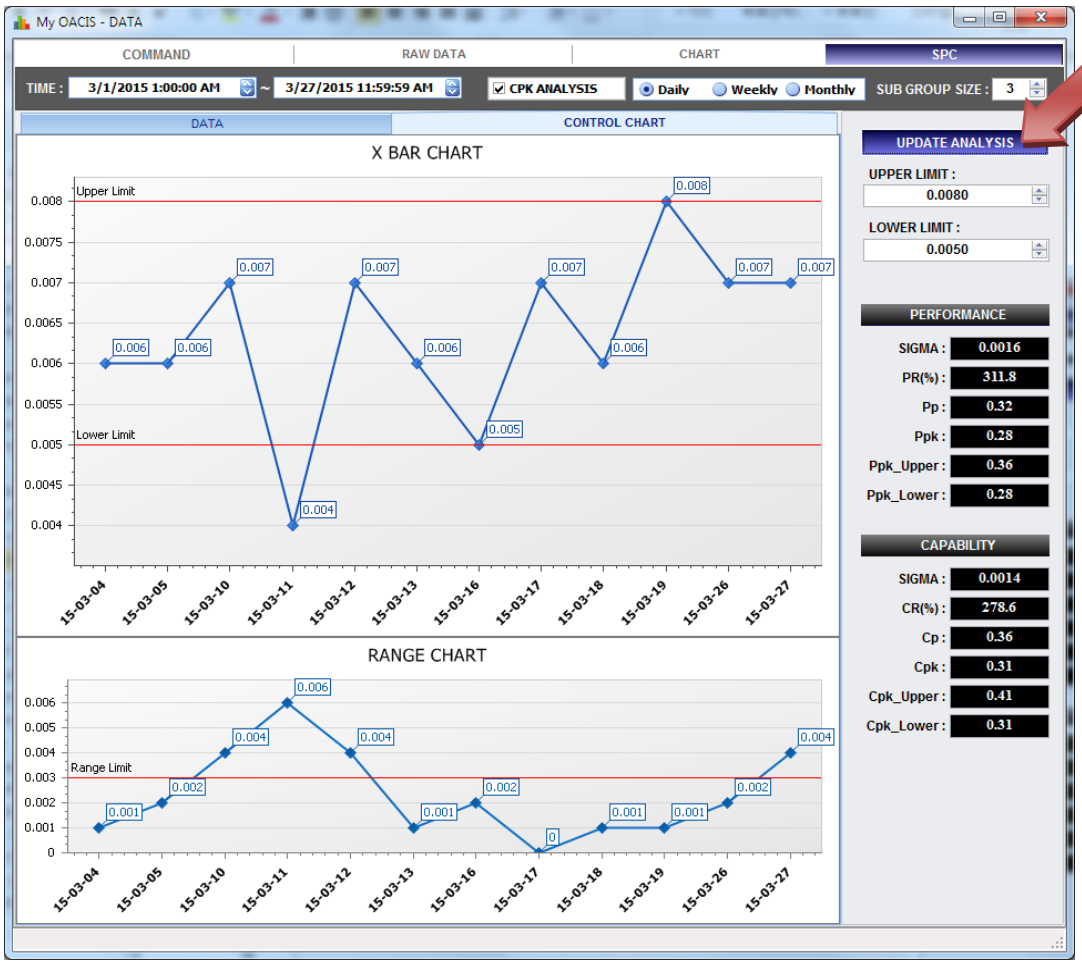
With OAICIS's test result data, user can evaluate sigma, PR(%), Pp, Ppk values for Statistical Process Control and see X BAR chart, RANGE chart of control chart

- Above all, user must select a column in RAW DATA TAB with clicking the column.



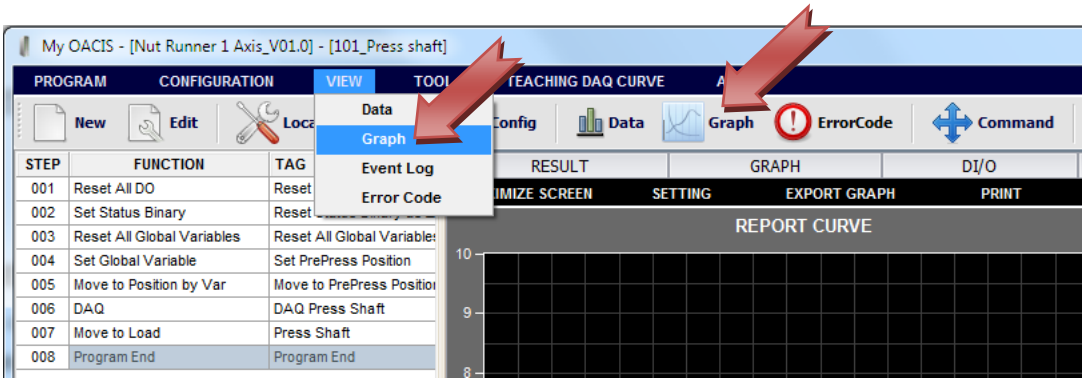
CN1	CN2	Date NTime	FM	Serial No	Initial Lash	Final Lash	1st Trial Lash	2nd Trial Lash	3rd Trial Lash	4rd Trial Lash	5th Trial Lash	Initial Max To
3885	1262	150303151438	1	8950610002	7.991144	0.0061687	0.0131688	0.0061687	0	0	0	30.
3886	1262	150304161740	1	8950630002	6.384822	0.0060127	0.0148169	0.0121751	0.0060127	0	0	3
3887	1262	150304162130	1	8950630004	5.781192	0.0057845	0.015146	0.0114841	0.0057845	0	0	
3888	1262	150304165414	1	8950630008	6.8083904	0.006598	0.0170174	0.011524	0.006598	0	0	34.
3889	1262	150304170927	1	8950630010	7.125068	0.0049622	0.0150102	0.0102285	0.0049622	0	0	30.
3890	1262	150304171044	1	8950630011	6.8815432	0.006191	0.0190029	0.0153028	0.006191	0	0	3
3891	1262	150304171550	1	8950630007	6.7732488	0.0070012	0.0141091	0.0070012	0	0	0	32.
3892	1262	150304175340	1	8950630013	7.0452192	0.0084967	0.0167056	0.0084967	0	0	0	
3893	1262	150305145913	4	8950640001	6.6546624	0.0066943	0.0134193	0.0066943	0	0	0	4

- And user should start in SPC tab.
  1. Set start time, end time.
  2. If you want to use CPK ANALYSIS, check the option.
  3. Set the proper sub group size, upper limit and lower limit
  4. As clicking UPDATE ANALYSIS, you can see the result as sigma, PR(%), Pp. Ppk value.
  5. DATA tab-> X Bar, Range / CONTROL tab-> X BAR CHART, RANGE CHART

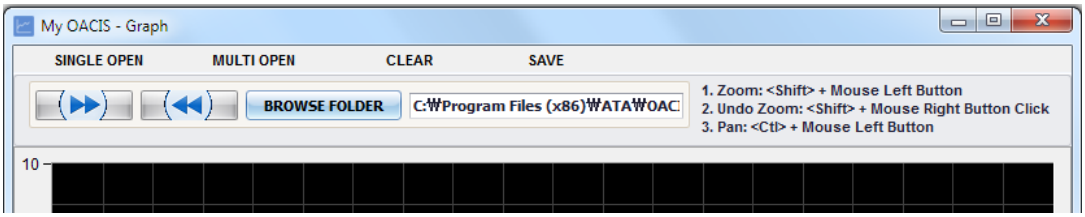

My OACIS - DATA
COMMAND
RAW DATA
CHART
SPC
TIME : 3/1/2015 1:00:00 AM ~ 3/27/2015 11:59:59 AM
CPK ANALYSIS
Daily
Weekly
Monthly
SUB GROUP SIZE : 3
DATA
CONTROL CHART
X BAR CHART
Upper Limit
Lower Limit
RANGE CHART
Range Limit
UPDATE ANALYSIS
UPPER LIMIT : 0.0080
LOWER LIMIT : 0.0050
PERFORMANCE
SIGMA : 0.0016
PR(%) : 311.8
Pp : 0.32
Ppk : 0.28
Ppk_Upper : 0.36
Ppk_Lower : 0.28
CAPABILITY
SIGMA : 0.0014
CR(%) : 278.6
Cp : 0.36
Cpk : 0.31
Cpk_Upper : 0.41
Cpk_Lower : 0.31

XII. VIEW - GRAPH

: You can see a graph that stored in your local PC. And you also export it with several different formats.



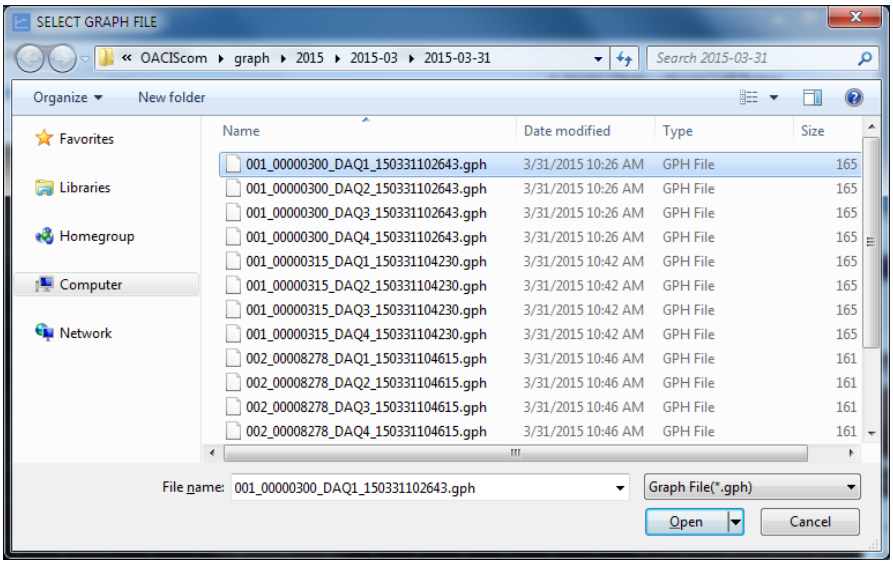
A. [VIEW] – [Graph]



B. [OPEN] – [SINGLE OPEN] / [MULTIN OPEN] / [BROWSE FOLDER]

- **SINGLE OPEN**: You can open a file of graph.
- **MULTI OPEN**: You can open many graph files at the same time.
- **BROWSE FOLDER**: You can select a graph folder and open all the graphs in the folder by pressing the left or right arrow button.

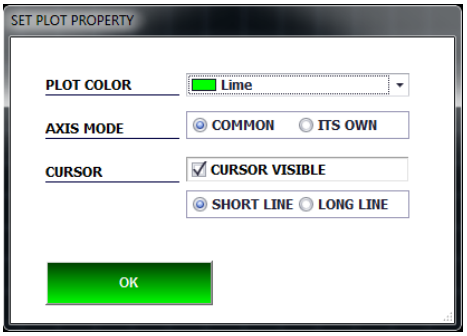
C. Select a graph file (*.gph) and press “Open”.



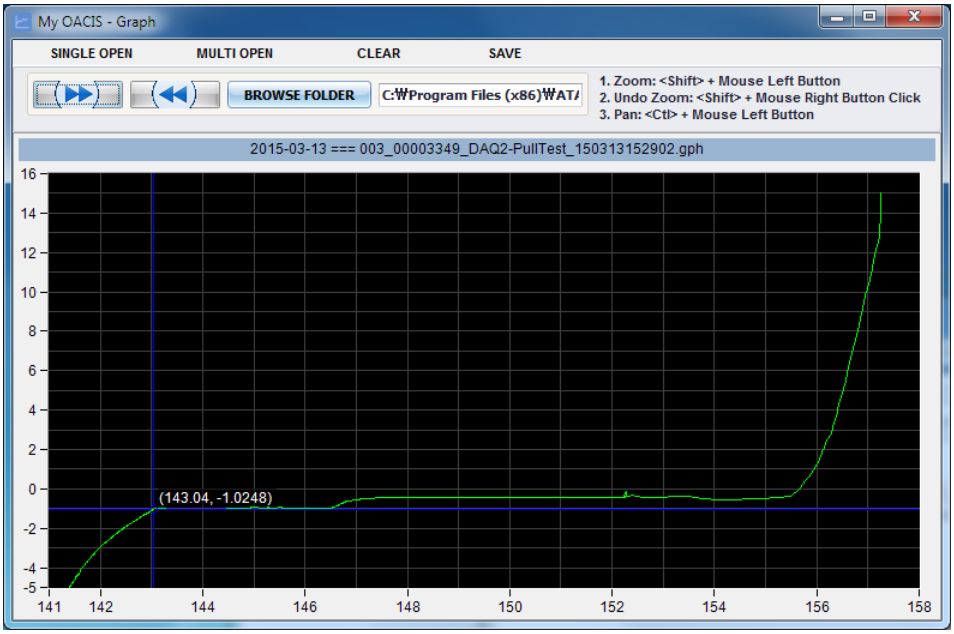
- **001:** Program Number
- **00000300:** Cycle Number
- **DAQ1:** DAQ Tag Name
- **150331102643:** Date and Time, 2015-03-31 10:26:43

D. You can set the property of graphs before plotting on the screen.

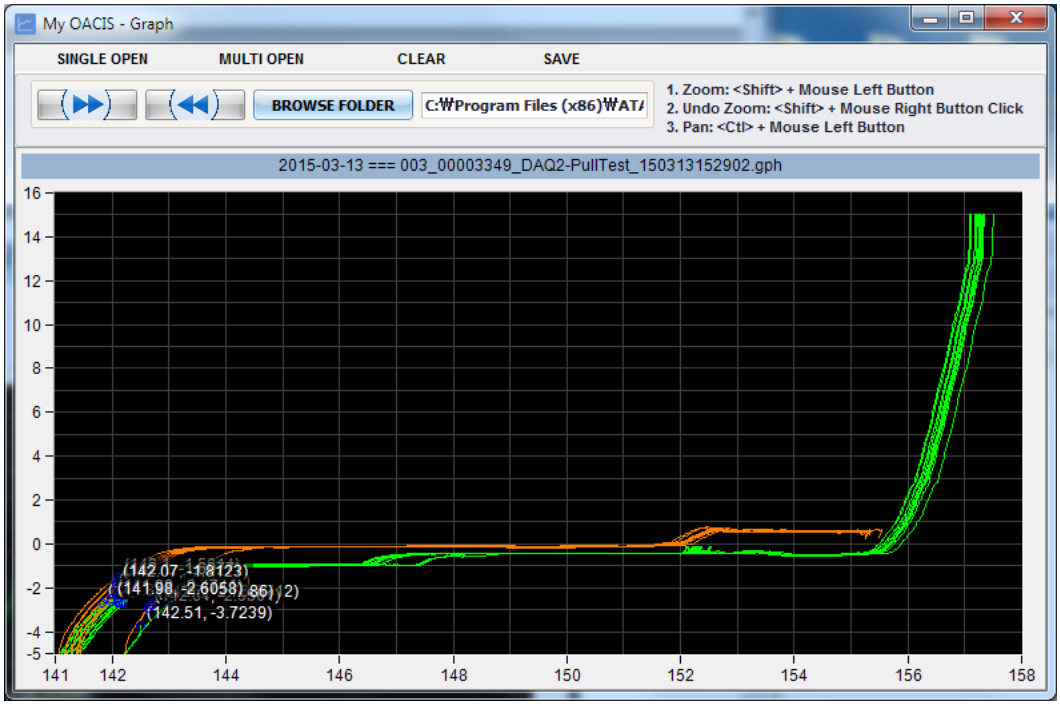
- Each graph can get its own scale if you select “ITS OWN” in SET PLOT PROPERTY.
- When you open the first graph on the screen, we recommend “COMMON” selection for a proper view.



E. You can see the selected graph as below.



F. You can open multiple graphs for comparison.

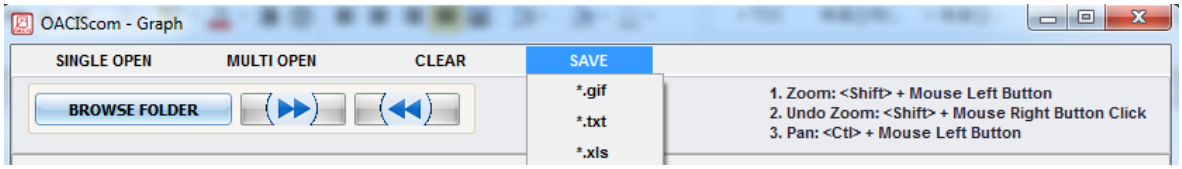


G. You can adjust the graphs on the screen to fit your taste.

- Zoom Window: <Shift> + Mouse Left Button.
- Zoom Scroll: <Shift> + Scroll Key
- Undo Zoom: <Shift> + Mouse Right Button
- Pan: <Ctrl> + Mouse Left Button

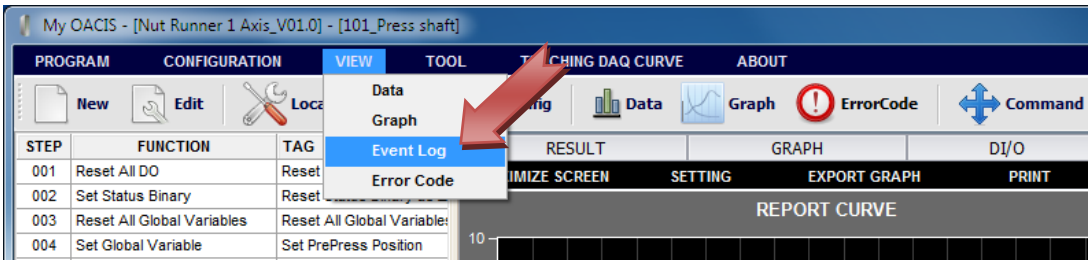
H. You can erase all the graphs shown on the screen by pressing “CLEAR” button.

I. You can save it with several formats.

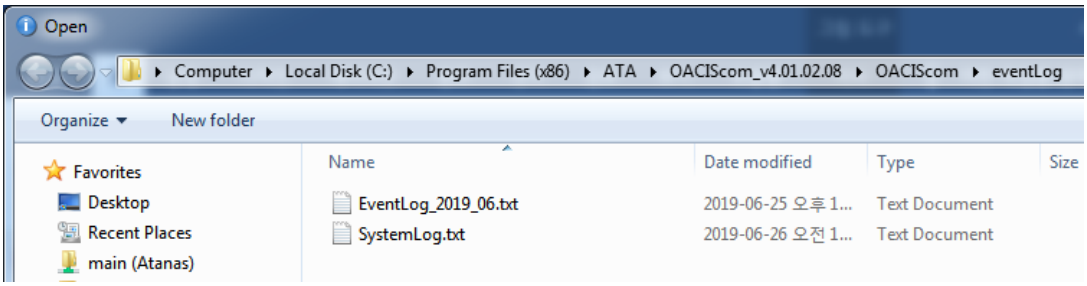


XIII. VIEW – Event Log

A. [VIEW] – [Event Log]

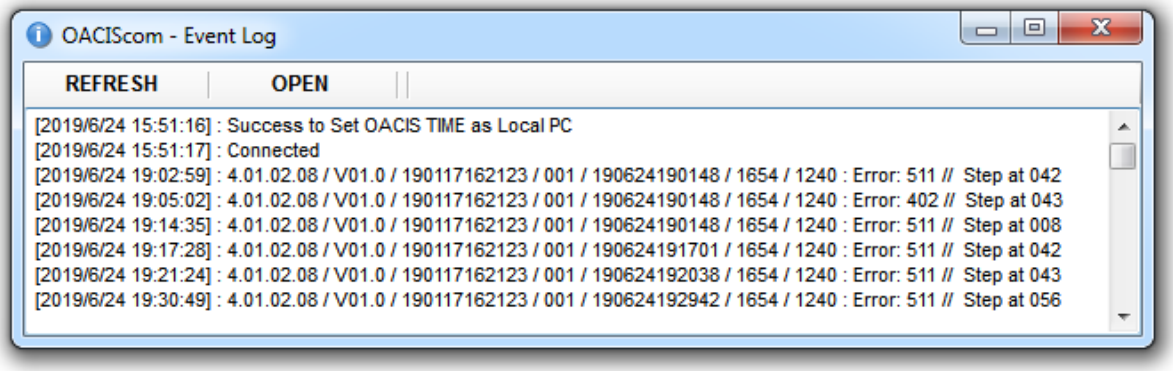


- **EventLog Folder:** There are two txt files in it. One is EventLog and the other is SystemLog.

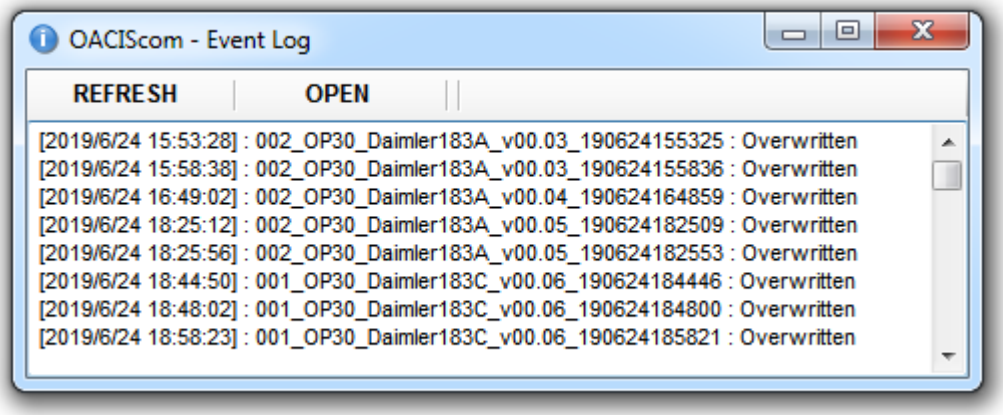


B. Event Log View

- **EventLog File:** Users can go over the error messages when it happened



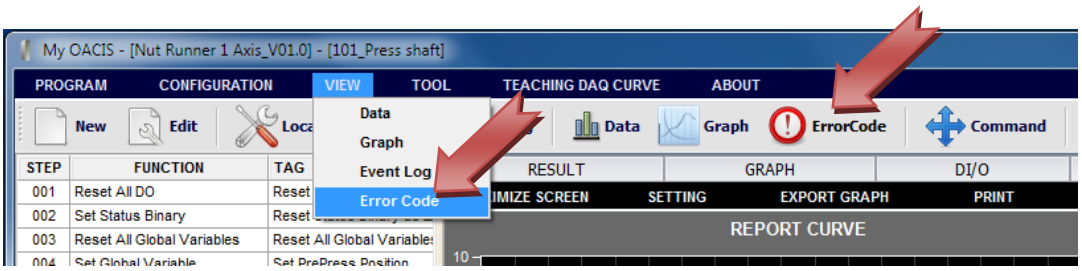
- **SystemLog File:** It records the date, time, program number and name when users modified and saved their program.



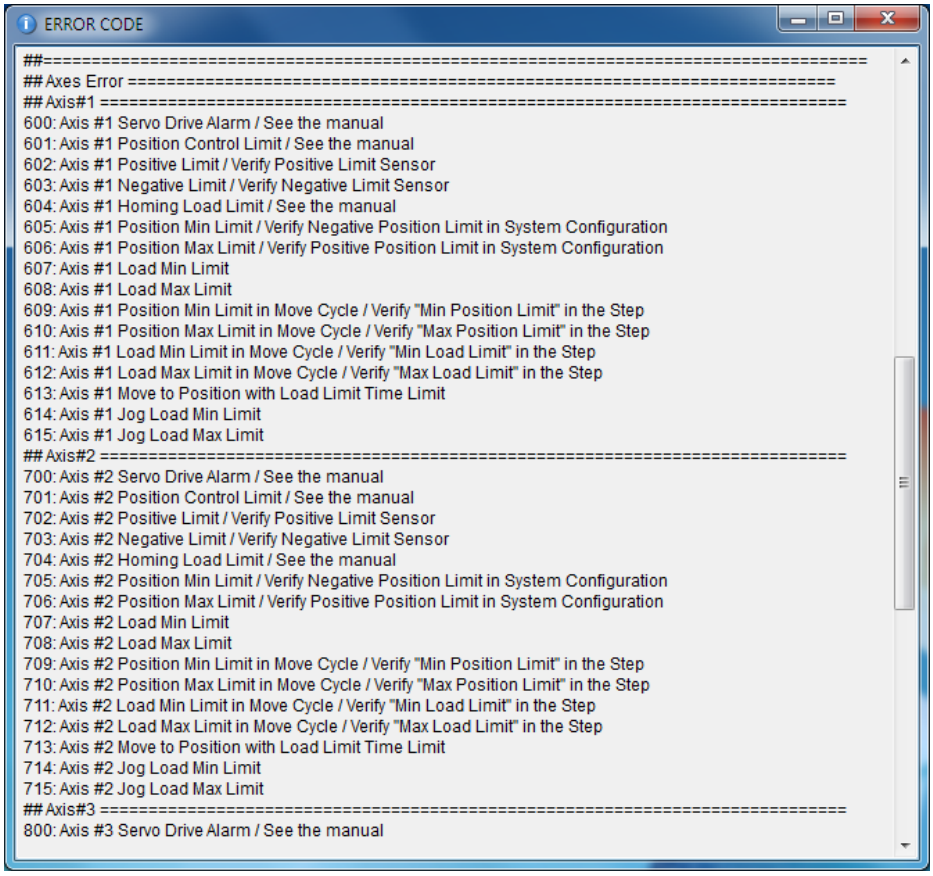
- **REFRESH:** It will refresh updated log file on the screen.
- **OPEN:** You can open the other log file.

XIV.VIEW – Error Code

A. [VIEW] – [Error Code]



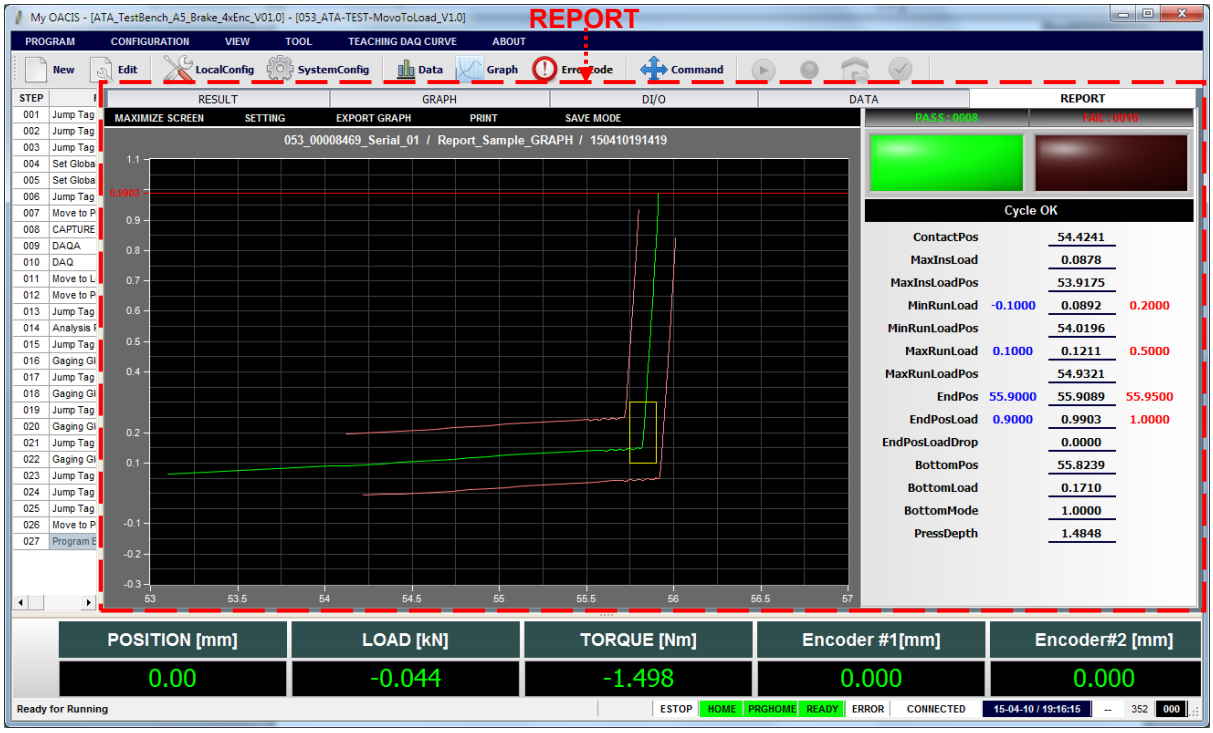
- It shows error code.



XV. REPORT

A. Description

: A skill of OACIScom about REPORT makes progress by OACIS user's demand. User can see at a look elaborate graphs included teaching curves and others as test results and also can check PASS/FAIL with LED on/off. Of course, after an OACIS program cycle finishes, user can confirm result values of a test. REPORT view is based on user's convenience as below.



B. Maximize Screen

: User can hide program column on the left and the lowest signal label to maximize the report screen. To return previous screen, user have only to press "RETURN SCREEN"

C. Export Graph

: User can save current graph in the gif image file format.

D. Print

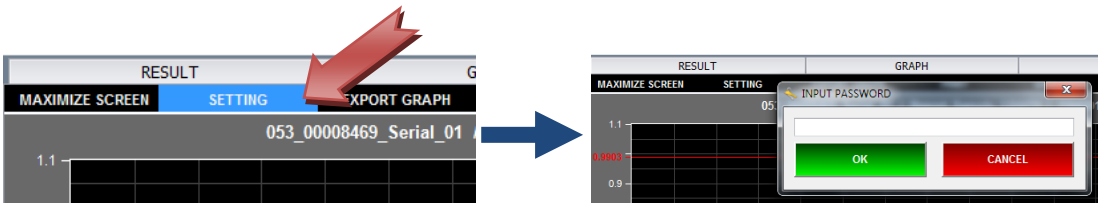
: User can print current graph.

E. Save Mode

: User can selectively auto-save graphs and data displayed in report window as image files(.gif or .pdf).

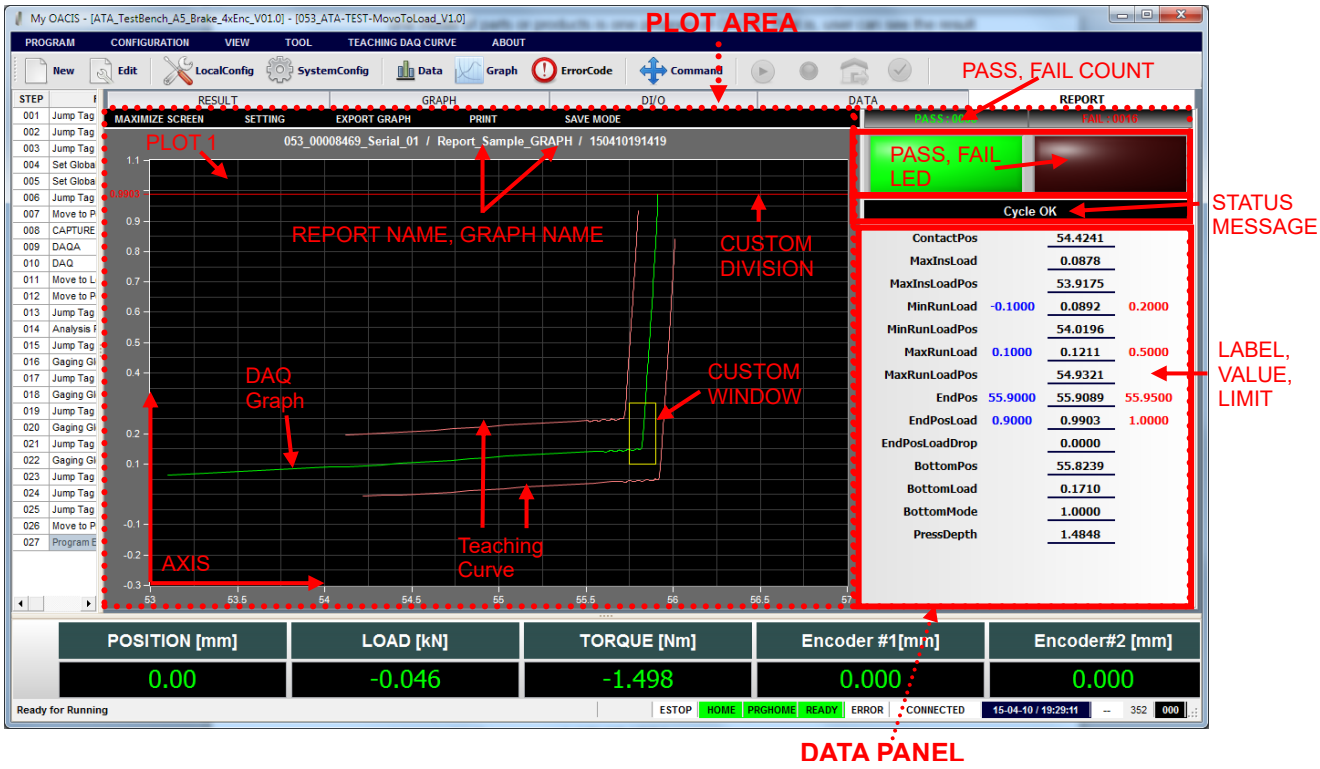
F. Setting

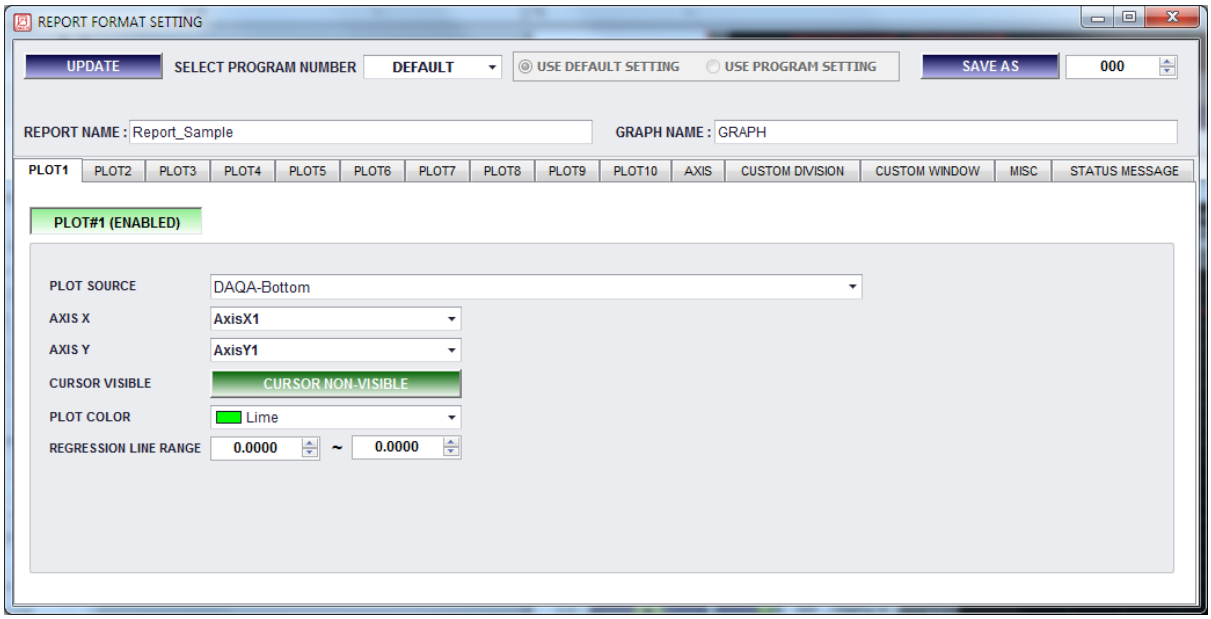
: For Report format setting, you must click "SETTING", and it will require you to input password. If you didn't change the password, default is "1".



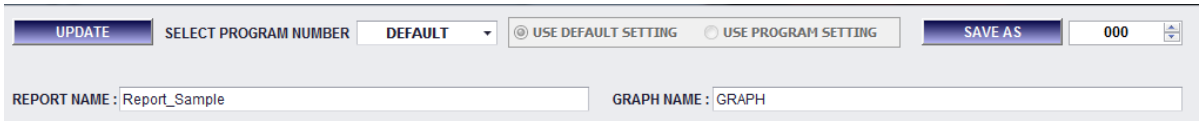
- **REPORT FORMAT SETTING**: User can change DATA PANEL docking position, font size, font color and line color of default PLOT AREA as one want. It means user can see more analytical result at a look. After all setting of OACIS, the end user generally can watch a test with REPORT view.

Note: User can customize the report setting per one program of 120 programs. Usually, one model of parts or products is one program of OACIS. That is, user can see the result DAQ curves by program as report setting.



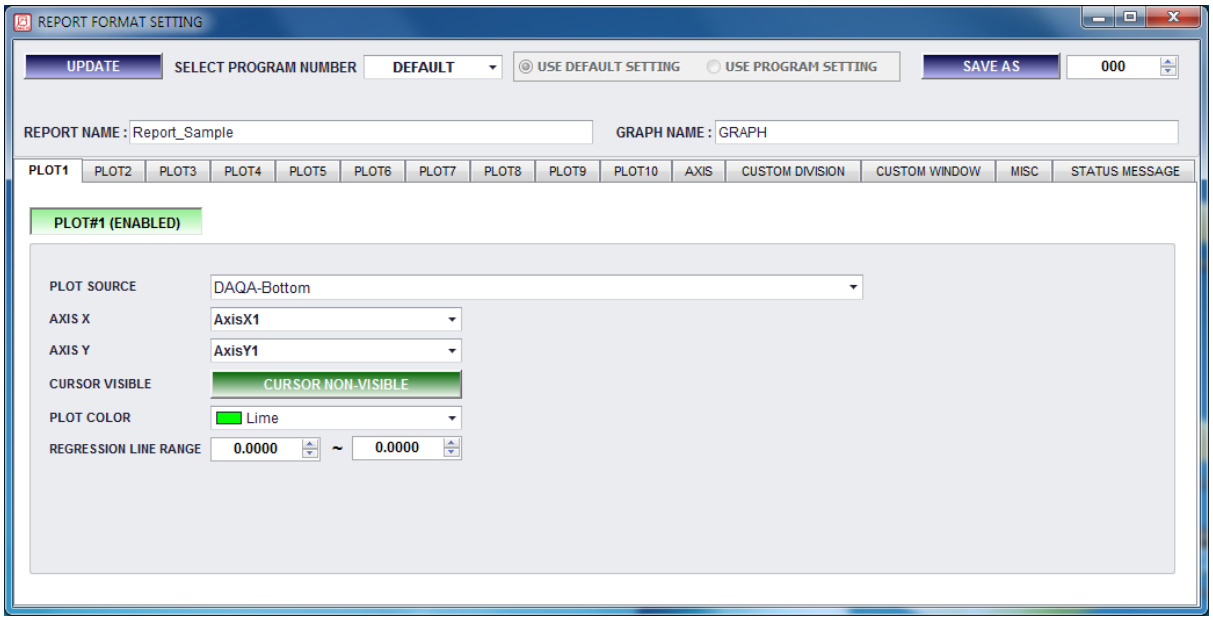


- **UPDATE:** After user finishes report setting, user finally saves the report setting properties to local PC.
- **SELECT PROGRAM NUMBER:** User can save the report setting per one program. If User sets number #1 program as program setting, not default setting, user selects program number and changes “USE DEFAULT SETTING” to “USE PROGRAM SETTING”.



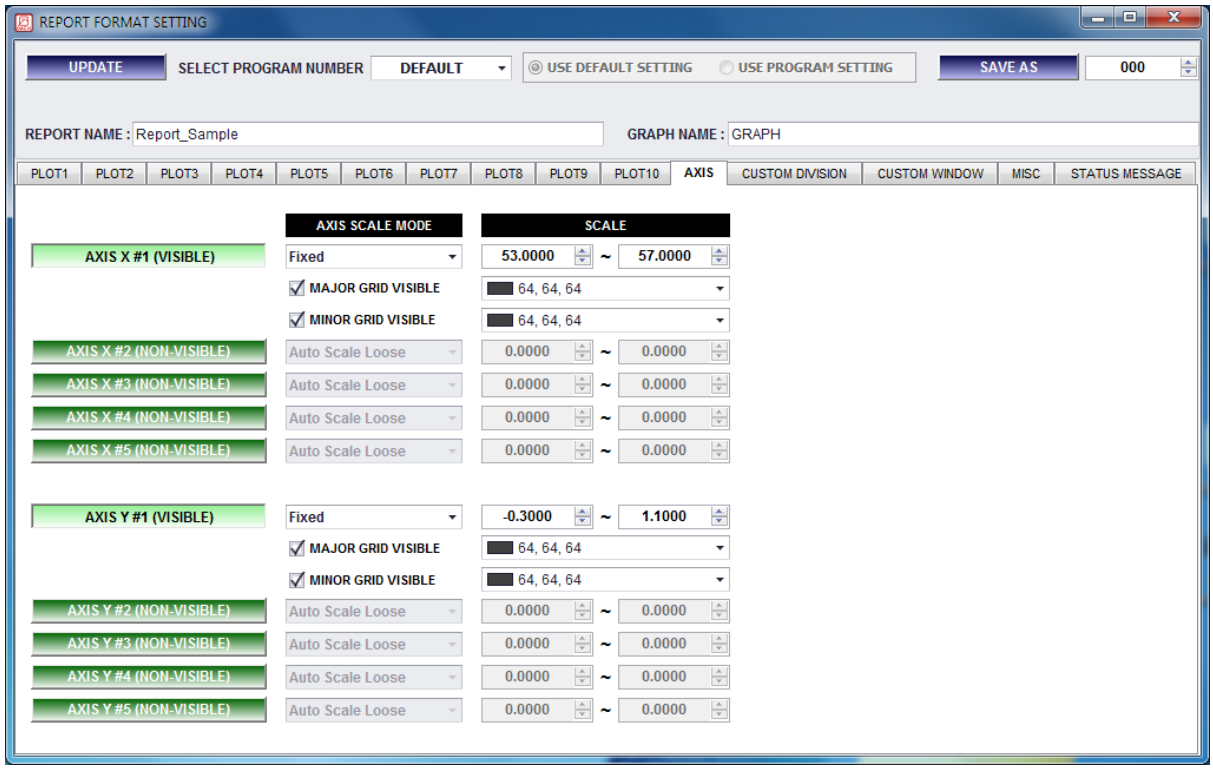
- **SAVE AS:** Current Setting easily can be copied to the other program number. .

- **REPORT NAME & GRAPH NAME:** User can assign report name and graph name expressed in the upper end of PLOT AREA.
  Note: Above items are supposed to be set for saving after report settings below are completely done.
- **PLOT1 ~ PLOT10:** User can see DAQ curves, Teaching Curves and Regression Lines. By setting from PLOT1 to PLOT10, user can compare with in total 10 lines per one program.



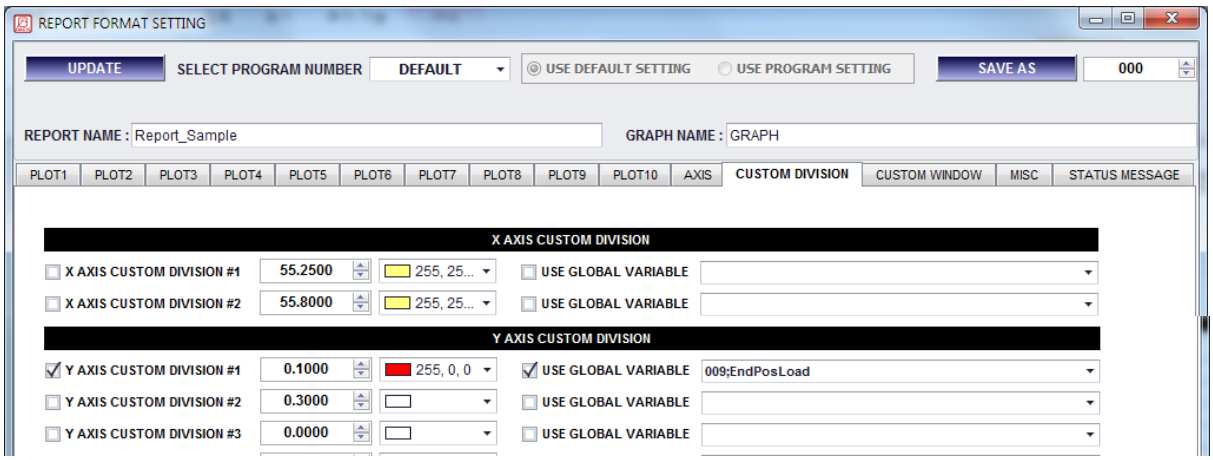
- **PLOT #**1 (ENABLED, DISABLED): Button On -> ENABLED, Button Off -> DISABLED
- **PLOT SOURCE:** One of Teaching Curve, DAQ Curve and Regression Line.
- **AXIS X:** Assigned axis X by AXIS tab menu of REPORT FORMAT SETTING.
- **AXIS Y:** Assigned axis Y by AXIS tab menu of REPORT FORMAT SETTING.
- **CURSOR VISIBLE:** Move between a raw data point and next raw data point.
- **PLOT COLOR:** Curve's Color
- **REGRESSION LINE RANGE:** If PLOT SOURCE is selected Regression Line, user can plot regression lines in range area.

- **AXIS:** According to different measures each axis, user can assign the number of axis X, Y.



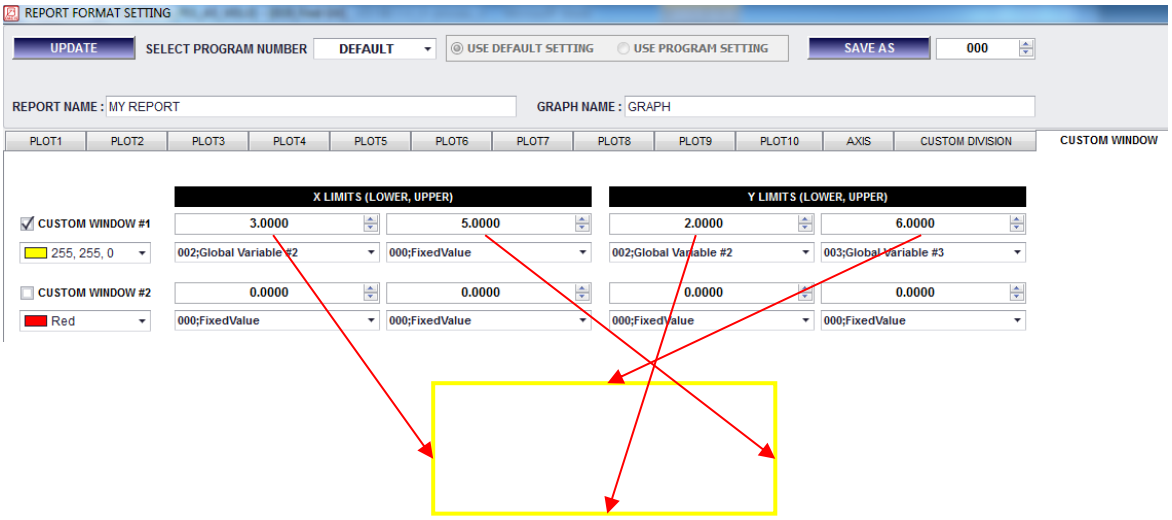
- **AXIS X #1 (VISIBLE, NON-VISIBLE) :** Button On -> VISIBLE, Button Off -> NON-VISIBLE
- **AXIS SCALE MODE (Auto Scale Loose, Fixed):** “Auto Scale Loose” is regardless of ranges beside scale value. X, Y axis ranges are followed by ranges of each PLOT SOURCE. On the other hand, “Fixed” is followed by numerical values of SCALE item.
- **SCALE:** If AXIS SCALE MODE is “Fixed”, this value is fixed as ranges of AXIS.
- **MAJOR GRID VISIBLE (CHECK):** In the PLOT AREA, major scale line of signed value. Visible -> Checked, Invisible -> Unchecked. The line color can be changed.
- **MINOR GRID VISIBLE (CHECK):** In the PLOT AREA, minor scale line between signed values. Visible-> Checked, Invisible -> Unchecked. The line color can be changed.

- **CUSTOM DIVISION:** In PLOT AREA, user can divide sections of plot with interlaced X and Y axis line.

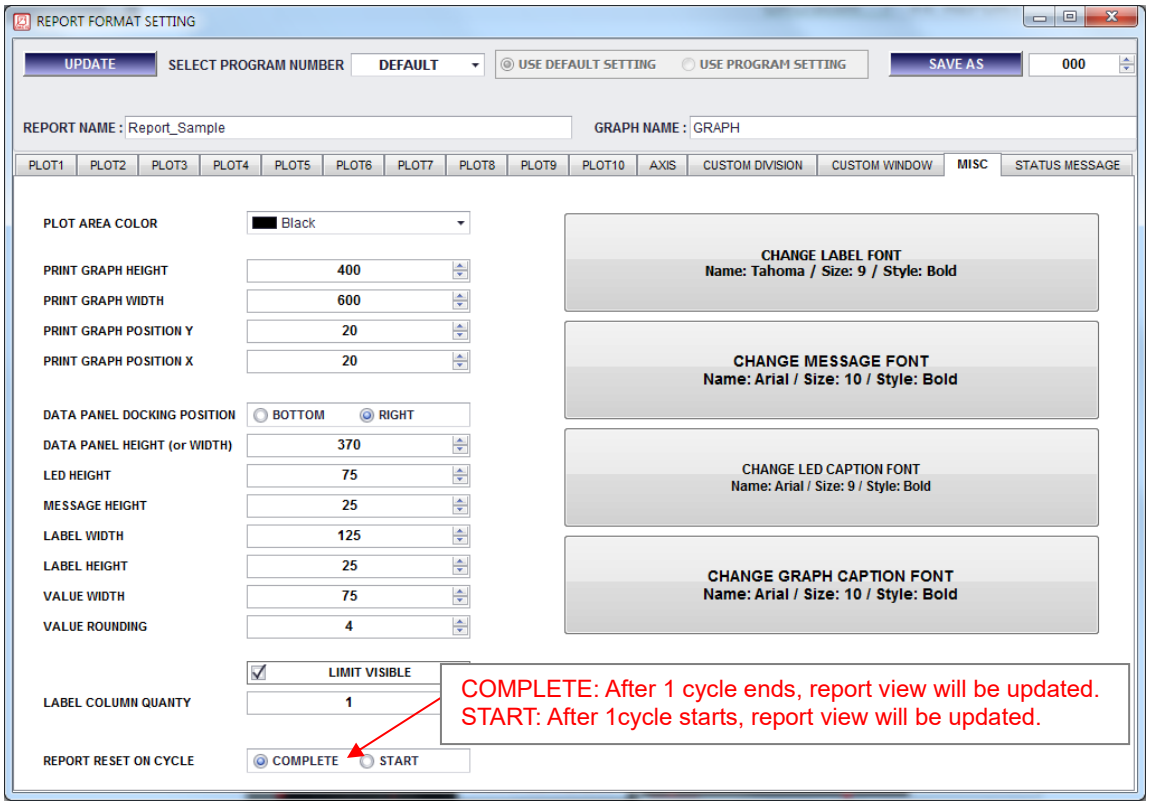


- **X AXIS CUSTOM DIVISION #1:** Check Box Checked -> Visible, position value of division line, list box -> Select line color.
- **The rest like DIVISION #2 ~ #9 is same.**

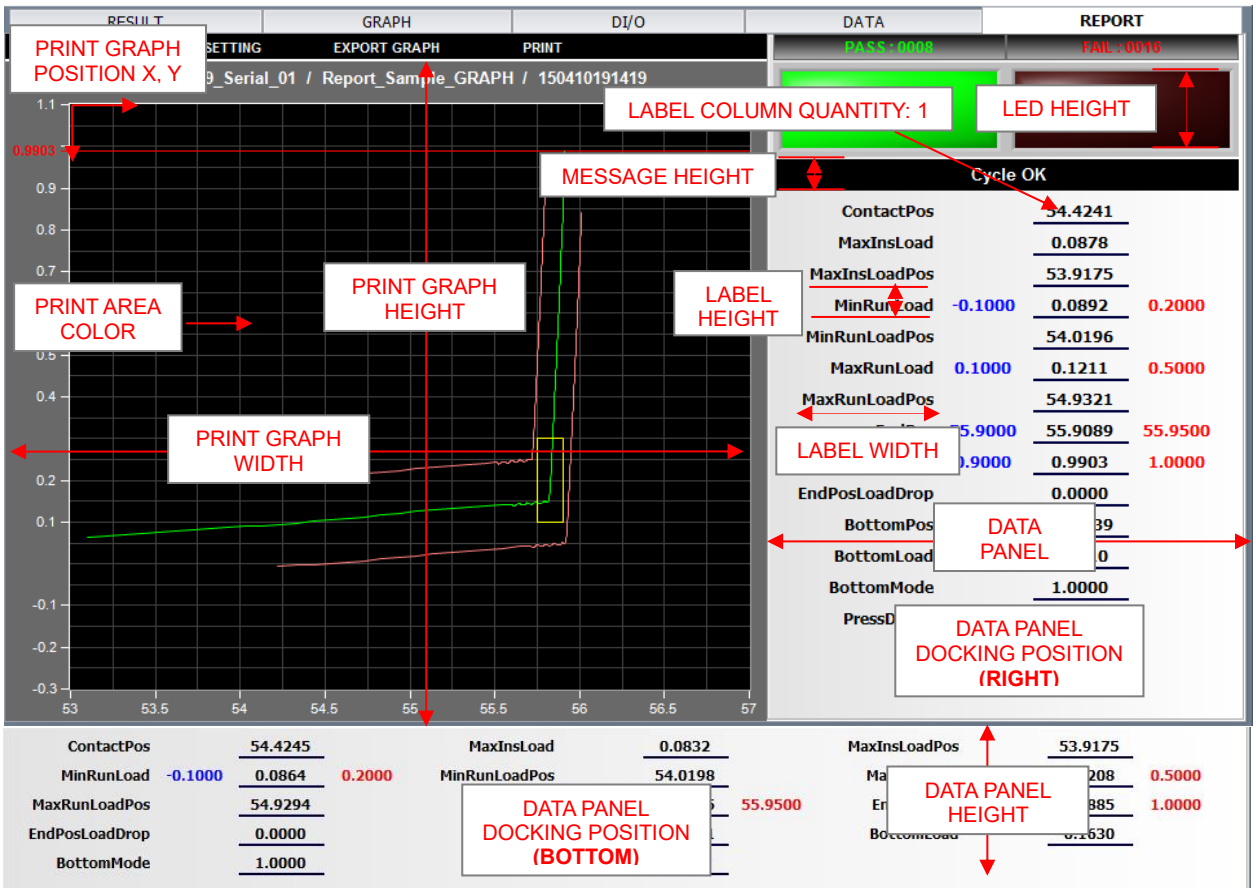
- **CUSTOM WINDOW:** In PLOT AREA, users can draw window lines as square section to emphasize specific analysis. Custom windows are determined by X and Y limits values that can be assigned by numbers or GVs. If you want to type specific numbers in the X or Y limits, you should choose “FixedValue” option in the selection box of GVs.

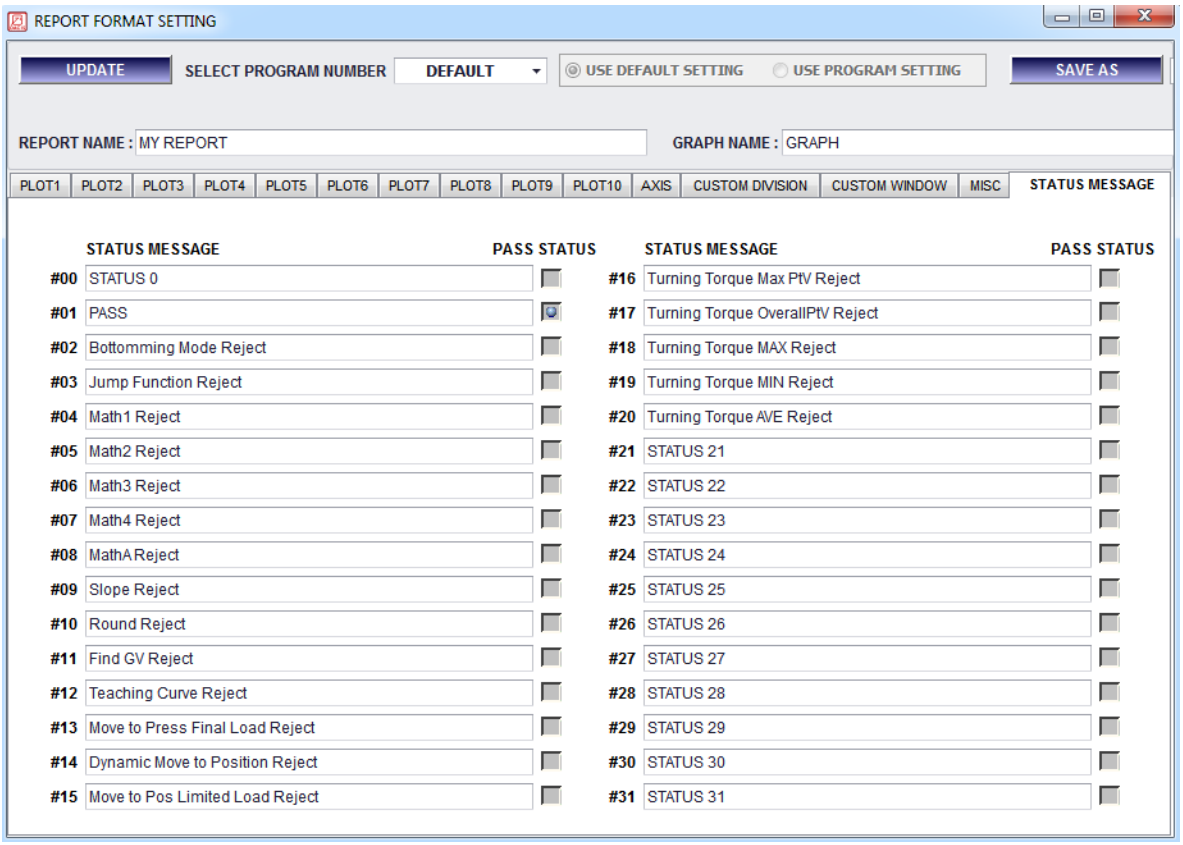


- **MISC:** User can change size, position of graph and label size, font and color of DATA PANEL.

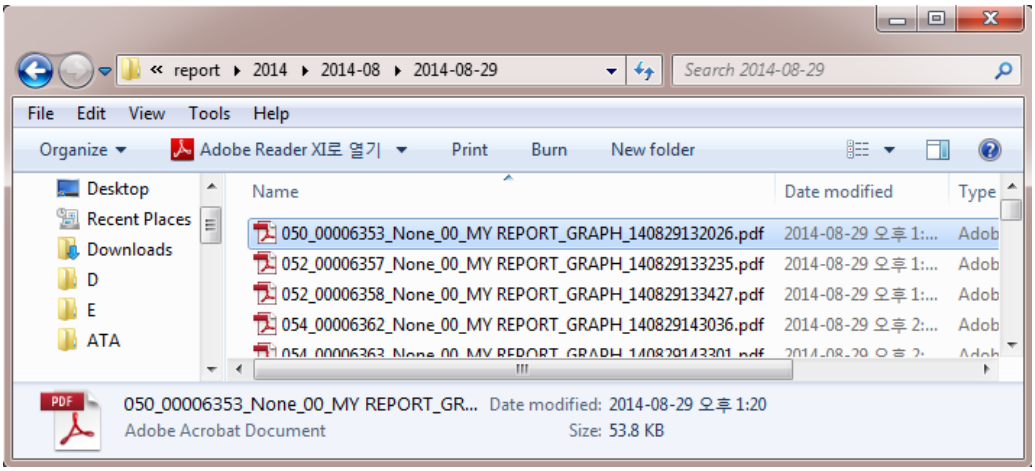


- **STATUS MESSAGE:** In DATA PANEL, you can select and edit the status message as results of test. You can make use of status message Max. #15 for OACIS-1X and 2X and Max. #31 for OACIS-1XC and OACIS-2XC.





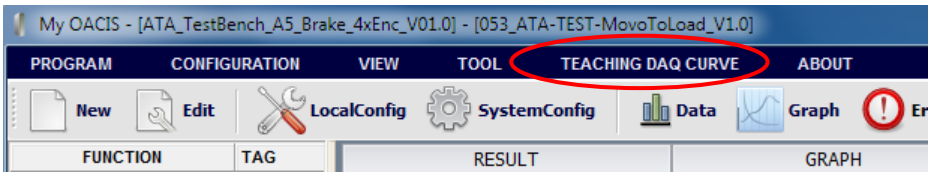
G. View File(.pdf)



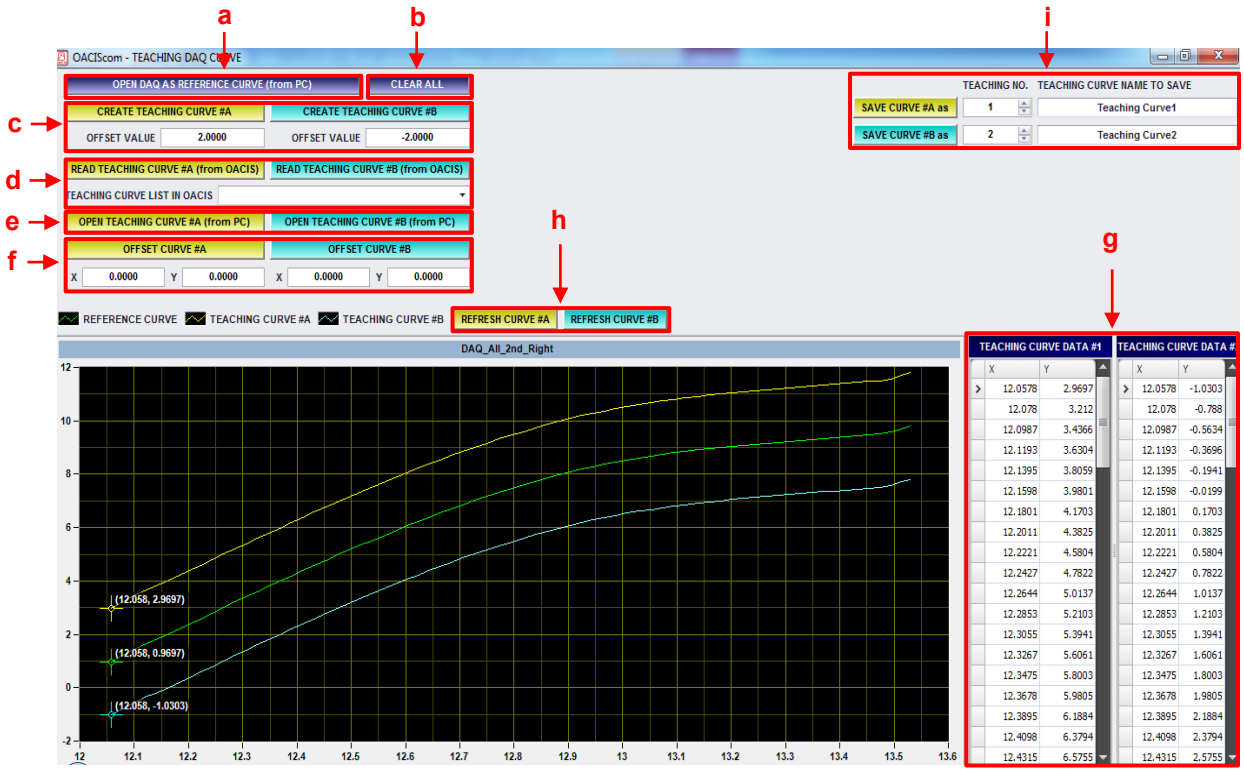
- **050:** Program Number
- **00006353:** Cycle Number
- **None:** Serial Number
- **MY REPROT:** Report Name
- **GRAPH:** Graph Name
- **140829132026:** Date and Time, 2014-08-29 13:20:26

XVI.TEACHING DAQ CURVE

A. OACIS user can gage with teaching curves that have upper and lower limits. TEACHING DAQ CURVE makes upper and lower limit curves with reference curve (*.gph) and then this curves be used for “Gaging DAQ by Teaching” included in GAGE function.



Note: OACIS can save teaching graphs to 40 units as the maximum. In other words, it can teach DAQ curves of 20 units.



a. Above all, users have to make a reference curve with graph files (*.gph) in local PC.

b. Users can erase all of the graphs from the screen.

c. Users can make upper and lower limit curves with offset values compared with a reference curve.

d. If graphs that will be used in upper limit and lower limit is saved in OACIS, users assign teaching curve #A and teaching curve #B in list box, “TEACHING CURVE LIST IN OACIS”, and then can use upper and lower limit curve.

e. Users can assign teaching curve #A and teaching curve #B with graph files (*.gph) saved in local PC.

f. Users can input the values that they want to offset in X and Y, and shift upper and lower limit curves as far as the X and Y values.

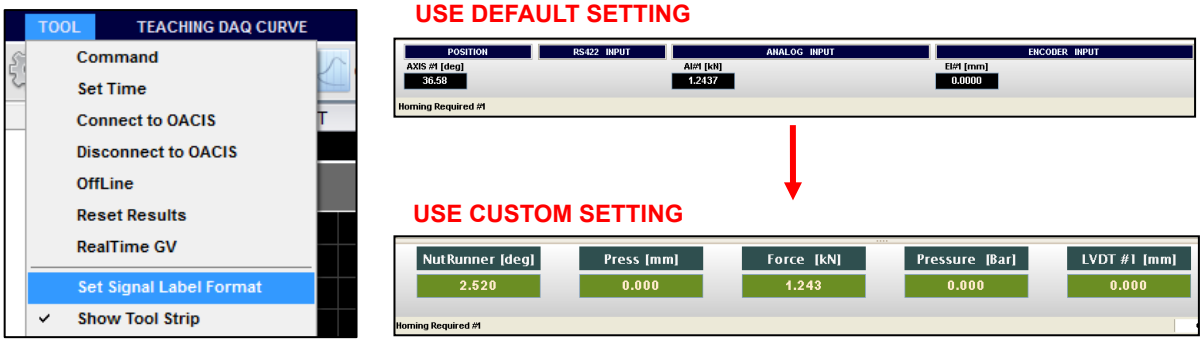
g. Users can adjust point values to form curve. In other words, users can adjust curve #A and #B in coordinate grid. There are two edit tools of “Delete” and “Insert” in use. Users can find them by right-clicking on the data window.

h. After adjusting curve #A and #B, users can see revised curves by pressing Refresh Curve #A and #B buttons. All the X values are arranged in ascending order from the top line. Thus, they are rearranged by pressing refresh buttons if totally sorted in descending order. When some X values in the opposite order are included, they are removed automatically.

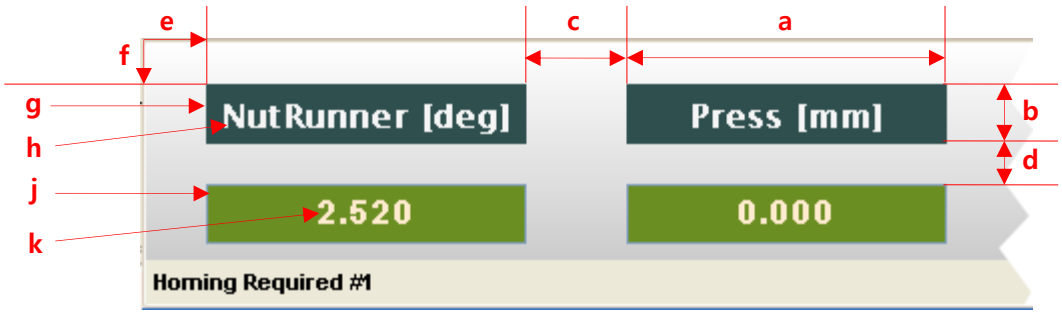
i. Finally, users can save teaching curve #A and #B in OACIS.

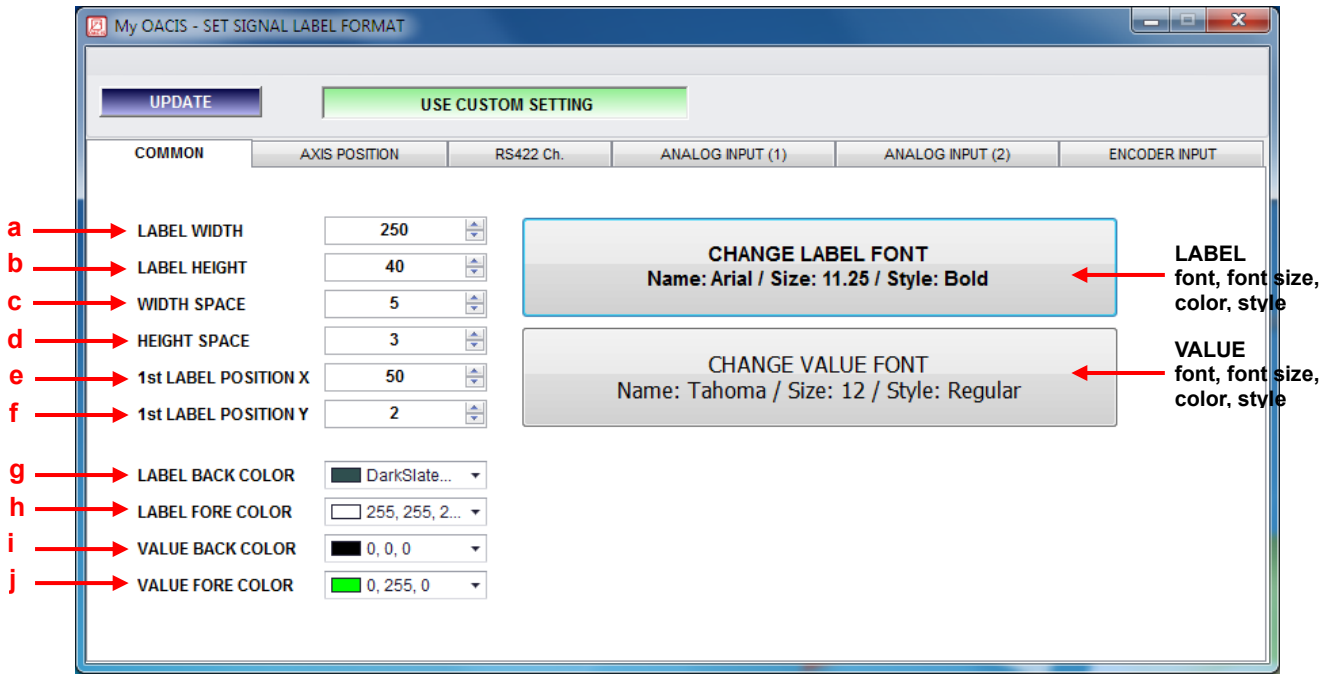
XVII. SET SIGNAL LABEL FORMAT

A. User can customize signal labels (Axis Position, RS 422 Ch., Analog Input (1), (2), Encoder input) in the bottom of OACIScom main window. **"USE DEFAULT SETTING" view is changed to "USE CUSTOM SETTING" view.**



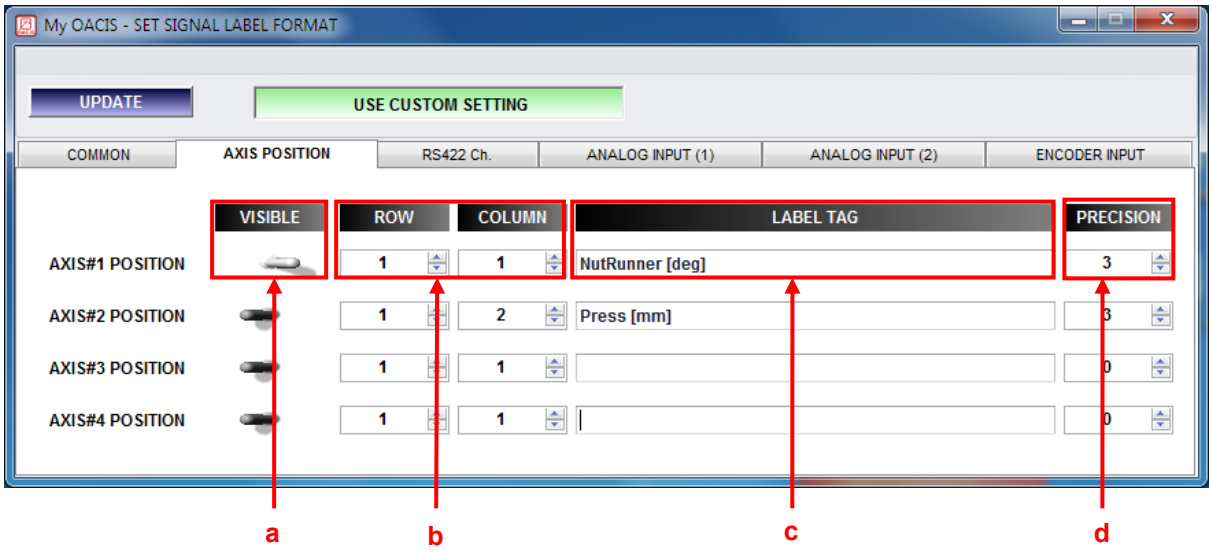
B. With reference to next view, user can configure position, size, setting about font of LABEL and VALUE. And then User has to change "USE DEFAULT SETTING" to "USE CUSTOM SETTING". Finally if "UPDATE" button is pressed, it user's view is completed.





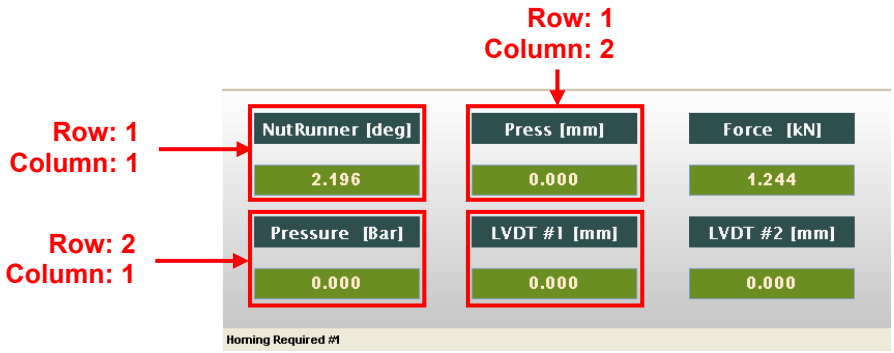
C. Signal labels are able to be placed at row, column matrices with number.

The lower example is only AXIS POSITION, but RS422Ch. ANALOG INPUT (1), ANALOG INPUT (2), ENCODER INPUT is all same.



a. **VISIBLE:** A right switch (white) means visible and a left switch (black) means not visible.

b. **ROW, COLUMN:** Signal labels are able to be placed at row, column matrices with number.



c. **LABEL TAG:** means the name of label.

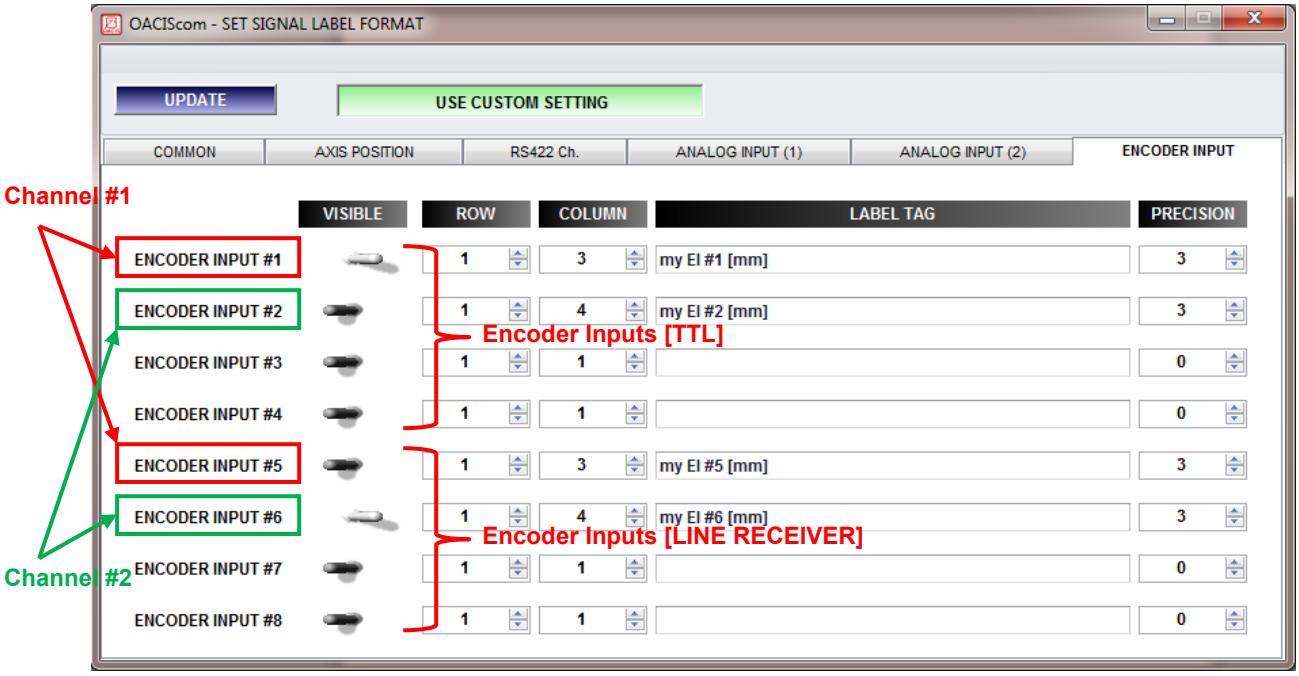
d. **PRECISION:** If you set it “3”, values of AXIS #1 POSITION tagged as NutRunner [deg] show the values with “000.000” format and if set it “5”, it shows with “000.00000”.

D. When you set ENCODER INPUT signal labels, there are several precautions that require attention.

a. **TYPE: TTL**(Encoder Input #1, #2, #3, #4) and **LINE RECEIVER**(Encoder Input #5, #6, #7, #8). See the next picture.

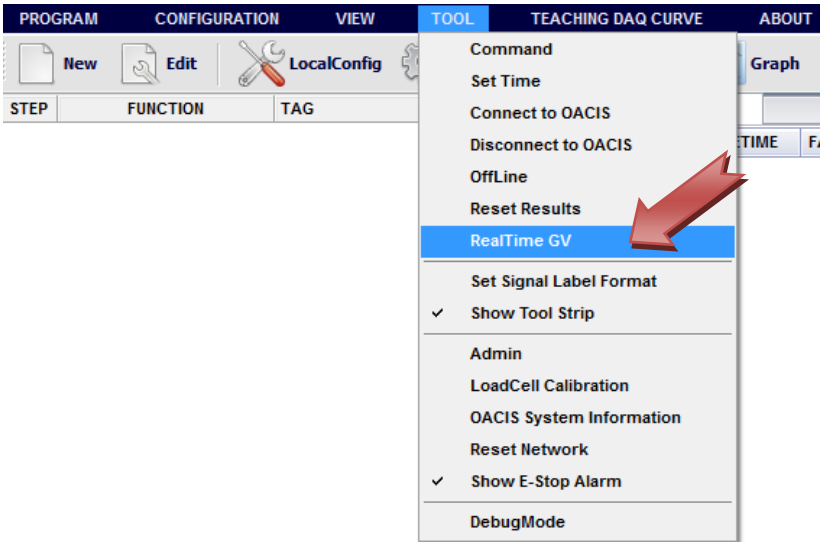
b. **CHANNEL: Channel #1**(Encoder Input #1 or #5) and **Channel #2**(Encoder Input #2 or #6). You have 2 encoder channels to use for OACIS-2x and 1 channel for OACIS-1x. You can choose one from TTL or LINE RECEIVER type encoder input per channel.

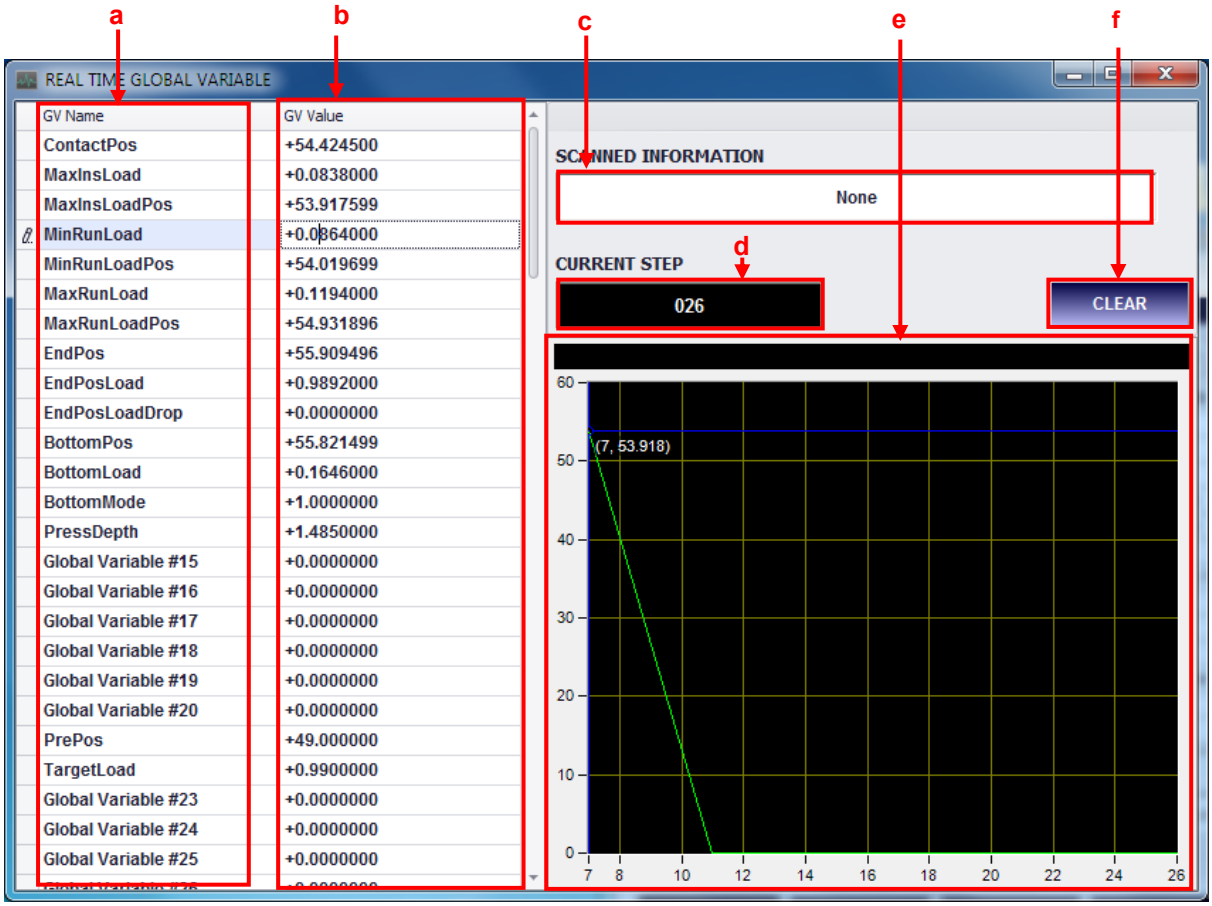
c. **EXAMPLE:** If you want to use a TTL-type encoder at channel #1 and a LINE RECEIVER-type encoder at channel #2, you should select ENDCODER INPUT #1 and #6. If you want to use LINE RECEIVER-type encoders at both channel #1 and #2, you should select ENDCODER INPUT #5 and #6. On the other hand, if you use a TTL type encoder for OACIS-1x, you just choose ENCODER INPUT #1.


OACIScom - SET SIGNAL LABEL FORMAT
UPDATE
USE CUSTOM SETTING
COMMON
AXIS POSITION
RS422 Ch.
ANALOG INPUT (1)
ANALOG INPUT (2)
ENCODER INPUT
Channel #1
VISIBLE
ROW
COLUMN
LABEL TAG
PRECISION
ENCODER INPUT #1
ENCODER INPUT #2
ENCODER INPUT #3
ENCODER INPUT #4
ENCODER INPUT #5
ENCODER INPUT #6
ENCODER INPUT #7
ENCODER INPUT #8
my EI #1 [mm]
my EI #2 [mm]
my EI #5 [mm]
my EI #6 [mm]
Encoder Inputs [TTL]
Encoder Inputs [LINE RECEIVER]
Channel #2

XVIII. REAL TIME GLOBAL VARIABLE

:You can monitor Global Variables and Scanned Information in the real time by using this window. It allows you to debug the operation you programmed with detailed Global Variable values of each step. At the same time, you can see the trend of the selected Global Variable throughout the program by using "GV Trend curve".



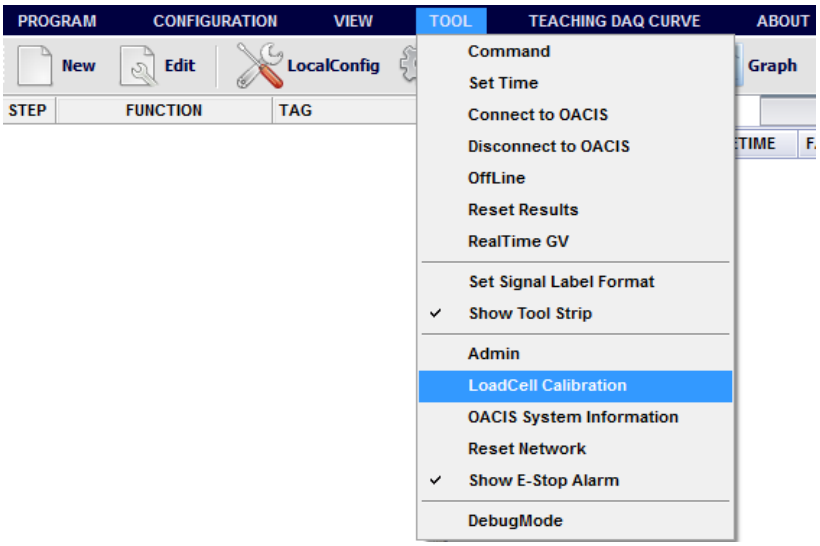


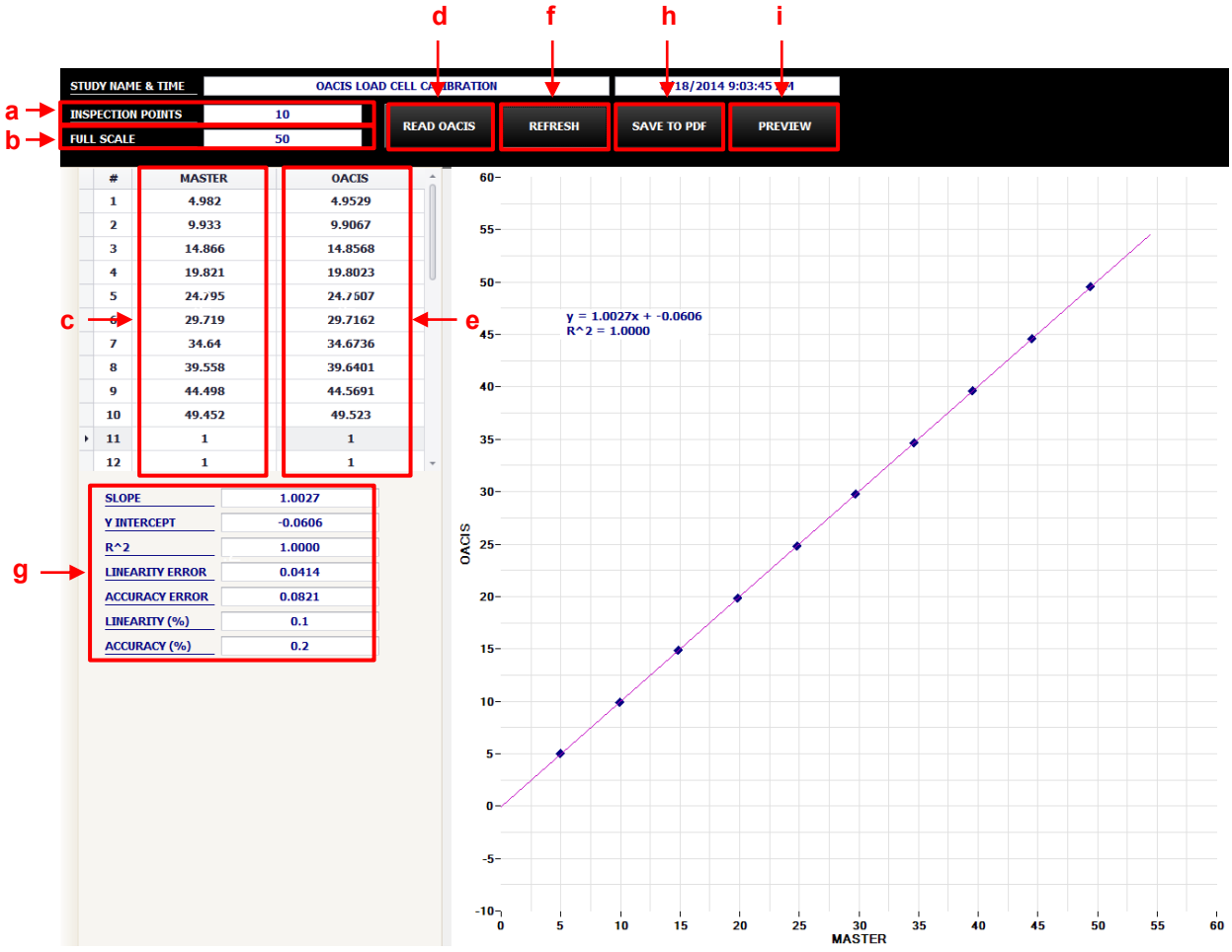
f

a. **GV Name:** Names of Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20.
b. **GV Value:** Real time values of Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20.
c. **SCANNED INFORMATION:** Real time information updated by "Scan In" RS232 port. (see the manual, "how to configure", to learn how to set RS232 port as "Scan In")
d. **CURRENT STEP:** Current running step number. (000: OACIS is not running).
e. **GRAPH:** It shows the trend of selected Global Variable. You can select a specific Global Variable by clicking a cell of the left grid view. And you can see the detailed trend value by moving the cursor on the graph window. X value shows step number and y value shows global variable value at that step.
f. **CLEAR:** User can clear the previous data of graph.

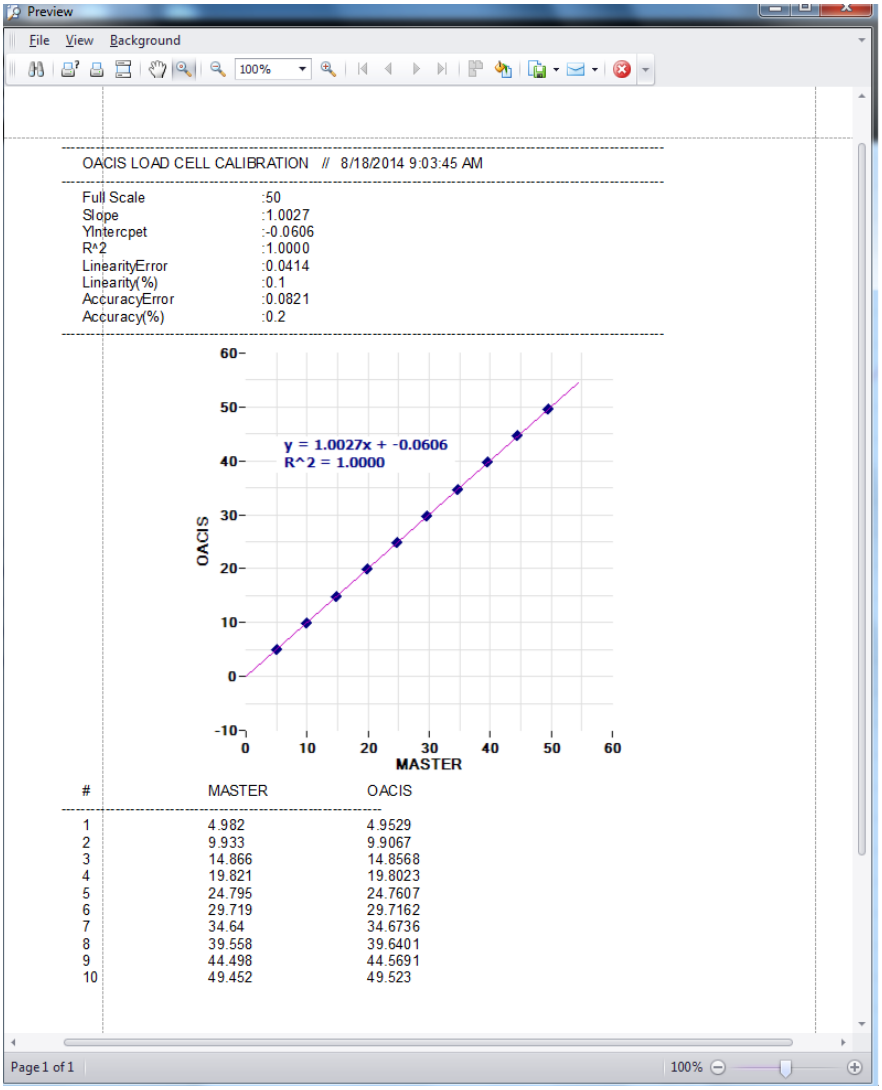
XIX.LOADCELL CALIBRATION

A. You may need to calibrate load cell or torque cell built in your servo press or nut runner. And you calibrate it with Master and an OACIS calibration program. This program will help that you can easily calculate calibration result and make calibration report with this program.



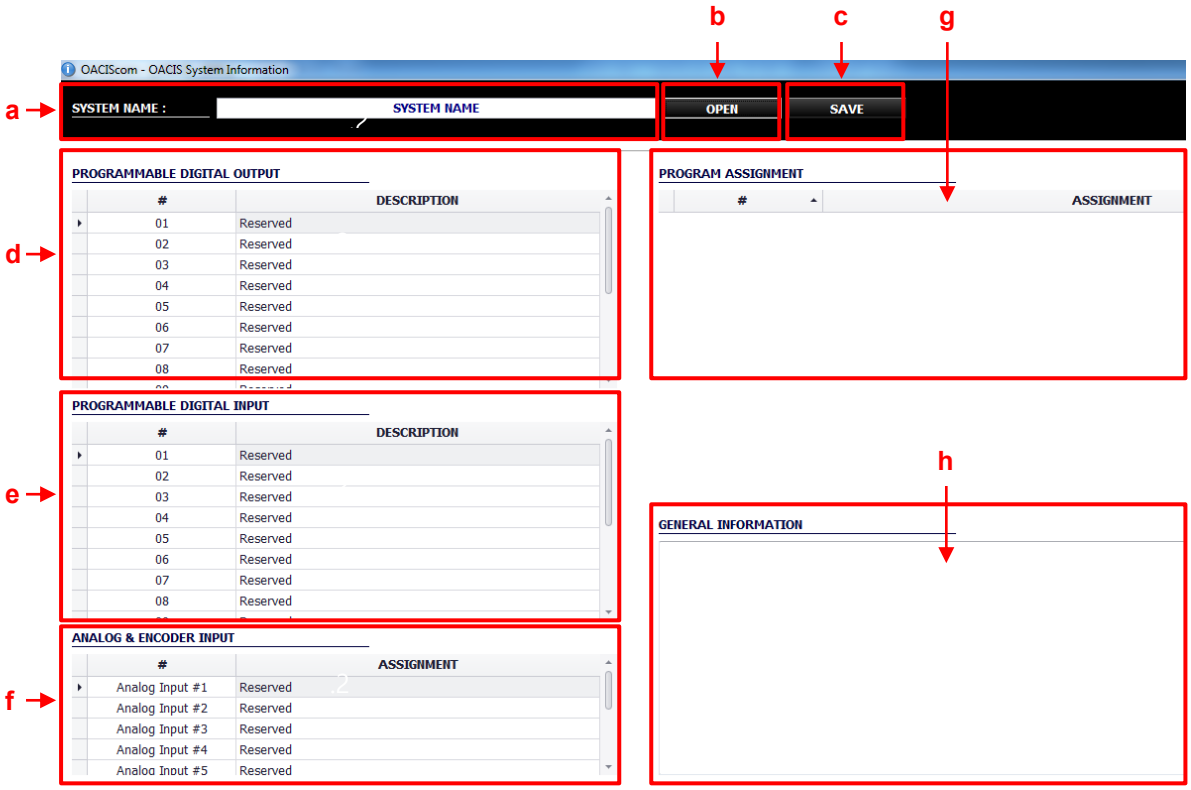


a. **INSPECTION POINTS:** Number of points to check up. You can input from 1 up to 12.
b. **FULL SCALE:** Max Load Value [kN] in the range of calibration.
c. **MASTER:** Users should input the measured values from the Master Loadcell. The loads pressed at every point are determined by INSPECTION POINTS and FULL SCALE.
d. **READ OACIS:** After the measurement for the Master Loadcell is over, you can call the load values of OACIS Loadcell from resultLas.txt in C://Program Files/ATA/OACIScom_v00.00 (latest version)/OACIScom(in use)/resultLast. If you want to use this txt file, all the load values of OACIS should be saved into Global Variables in the Calibration program.
e. **OACIS:** It displays the load values of OACIS from the resultLast.txt.
f. **REFRESH:** After you choose the resultLast.txt, you ought to press this button to upload the data in the OACIS window and calculate the specifications automatically.
g. **SPECIFICATIONS:** A linear regression line is created by the data from Master and OACIS. From the line, OACIS offers some information for calibration, such as Slope, Y Intercept, Coefficient of Determination (R^2), Linearity Error, Accuracy Error, Linearity (%) and Accuracy (%).
h. **SAVE TO PDF:** You can save the result of calibration to PDF file.
i. **PREVIEW:** You can see the result in a pop-up window and save it to PDF or image file.



XX. OACIS SYSTEM INFORMATION

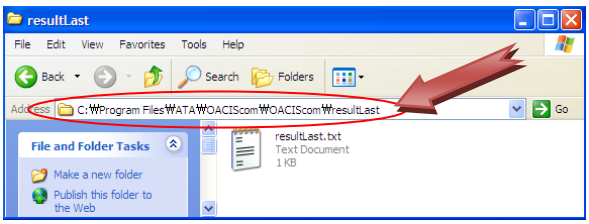
A. You can open OACIS system information window by pressing Tool > OACIS System Information tab. And you can write and see system information like Programmable Digital Output & Input, Analog & Encoder Input, Program Assignment and General Information. The password is “1”.



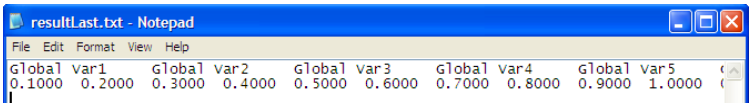
a. **SYSTEM NAME:** You can write a name of OACIS System Information file.
b. **OPEN:** You can open a saved file of OACIS System Information from C:\Program Files\ATA\OACIScom v00.00\OACIScom\configuration.
c. **SAVE:** You can save this information as a text file, after editing system information.
d. **PROGRAMMABLE DIGITAL OUTPUT:** Digital output signals to be used.
e. **PROGRAMMABLE DIGITAL INPUT:** Digital input signals to be used.
f. **ANALOG & ENCODER INPUT:** Analog and Encoder inputs to be installed.
g. **PROGRAM ASSIGNMENT:** Running programs to be loaded in OACIS. Right Click and edit the list.
h. **GENERAL INFORMATION:** You can write and see a variety of information such as Product Specifications, Status Binary, System Hard point, Revision Log and so on.

XXI.LAST RESULT FILE (resultLast.txt)

A. OACIScom exports last result with “resultLast.txt” file name @ “your default folder/resultLast”. If there is the previous file, OACIScom overwrites it. So, you there is always the last cycle result file.



B. The “resultLast.txt” file contains all global variable names and values of the last cycle.



- There are two rows. Frist Row shows all global variable Names. Second Row shows all global variable values. Each row is separated by “CR + LF” and each name (or value) is separated by “tab”.

REVISION

v3.96.03.01: Engineering Released

v3.96.03.02: Document Format Updated

v3.96.03.03: Document Format Updated.

v3.96.03.04:

- **“Open (Ready Only)” Added**
- **“Teaching DAQ Curve” Updated**
- **“MISC” in Command Added**
- **“Loadcell Calibration” in Tool Added**
- **“DATA” View Updated**
- **“Firmware Version” in About Added**
- **“OACIS System Information” Added**
- **“Custom Window” in Report Updated**

v3.96.03.05:

- **“View-Graph” Format Updated**

v3.98.08.05: Version Updated

v3.98.10.04:

- **“Headers & Footers” Format Updated**
- **Version Updated**

v3.98.10.05:

- **Image Size & Resolution Updated**

v3.98.10.06:

- **Version Updated**

v3.98.12.01:

- **“IMPORT GV INFO” in Configuration of Edit Window Added.**
- **“SERIAL” and “CN1” options in Data Viewer Added.**

v3.98.15.03:

- **“EDIT Program” in IX. QUICK START Added.**

v3.98.16.01:

- **Version Updated**

v3.98.16.03:

- **Note in XV.E Revised**

v3.98.16.04:

- **View File in XV.F Added**
- **Encoder Inputs in XVII.E Updated**

v3.98.16.05:

- **Jogging Disable Method in VII Added**

v3.98.16.06:

- **Program Manager in IX Added**
- **All Contents Downsized**

V4.01.01.01:

- **OACIS-2XC Developed**
- **DIO window in III.E Updated**
- **Edit window in IX Updated**
- **STATUS MESSAGE window in XV Updated**

V4.01.02.01:

- **Some Lines Added in II.B**

V4.01.02.02:

- **OACIS-2XC Released**

V4.01.02.03:

- **OACIS-1XC Released**
- **Page format Updated**

V4.01.02.08:

- **SystemLog file in XIII added**

V4.01.02.10:

- **version updated**

V4.01.04.01:

- **version updated**

V4.01.04.03:

- **Save mode in Report window updated**