

OACIS

Open Architecture Control Integrated System

OACIScom

Version 05.00.00.01



www.atainc.com

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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

- Operating System: Windows 7, Windows 10, Windows 11 32bit or 64bits.
- Microsoft .Net Framework 4.8 should be installed (If not, you can download from Microsoft website, it is free).
- Users can select and install either the 32-bit or 64-bit version **depending on the bit architecture of your Windows operating system**
- **How to Check Your Windows Bit Architecture**
 - **Method 1:** Check in Settings (Common for Windows 10/11)
 1. Click the Start button and select the Settings icon, or press the Windows key + I.
 2. Click System on the left menu, then select About (or Information).
 3. Under the Device specifications section, check the System type field for either 64-bit operating system or 32-bit operating system.

Device Name	ATA
Processor	11th Gen Intel(R) Core(TM) i5-1145G7 @ 2.60GHz 1.50 GHz
Installed RAM	16.0 GB (15.7 GB usable)
Graphics Card	Intel(R) Iris(R) Xe Graphics (128 MB)
Storage	238 GB SSD NVMe KBG40ZNS256G NVMe KIOXIA 256GB, 239 GB Realtek PCIe CardReader, 238 GB SSD NVMe KBG40ZNS256G NVMe KIOXIA 256GB
System Type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

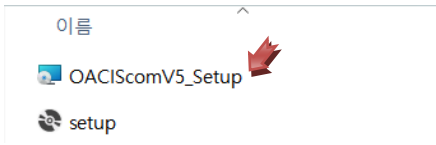
- **Method 2:** Check in System Information
 1. Type "**System Information**" into the Start Menu search and run the application.
 2. In the "**System Summary**" screen, look at the "**System Type**" field. It will display either **x64** (64-bit) or **x86** (32-bit).

Item	Value
OS Name	Microsoft Windows 10 Pro
Version	10.0.19045 Build 19045
Other OS Description	Not Available
OS Manufacturer	Microsoft Corporation
System Name	ATA-DH-PC
System Manufacturer	Dell Inc.
System Model	Latitude 5520
System Type	x64-based PC
System SKU	0A21
Processor	11th Gen Intel(R) Core(TM) i5-1145G7 @ 2.60GHz, 1498 Mh...

B. Installation Procedure

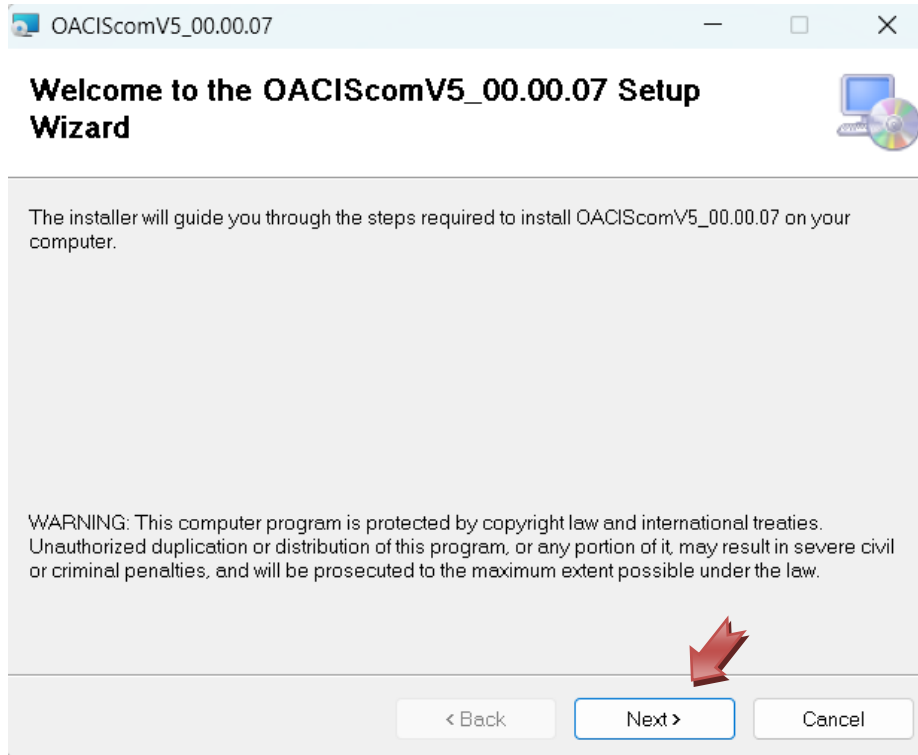
1. Select the Installation File

: Select the setup file



2. Run the Installation File

: To proceed with the installation, click the Next button



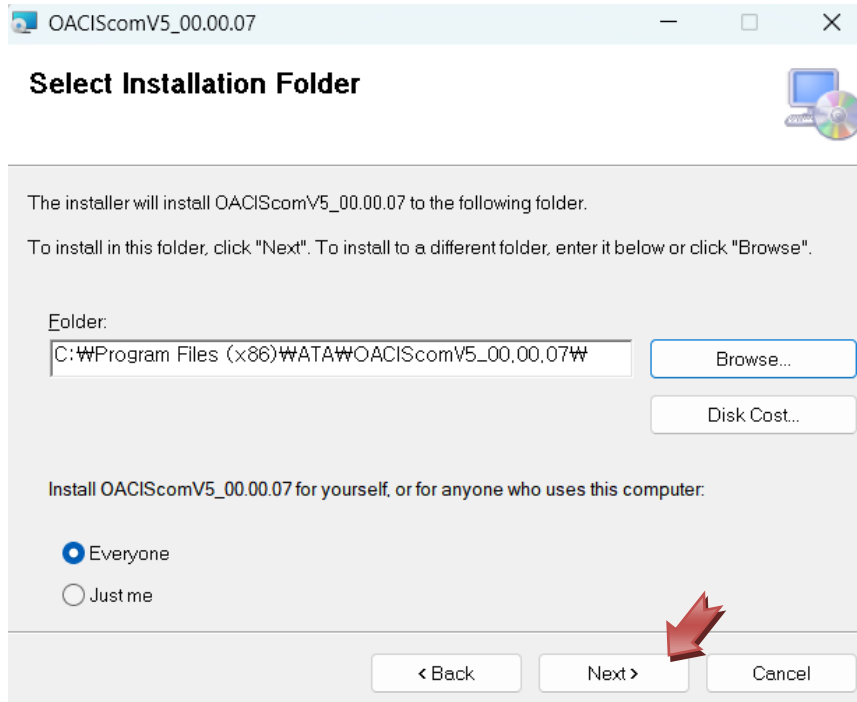
3. Select the Installation Path

: Specify the path for the installation program

Default Folder Path : C:\Program Files (x86)\ATA\OACIScomV5_00.00.07\

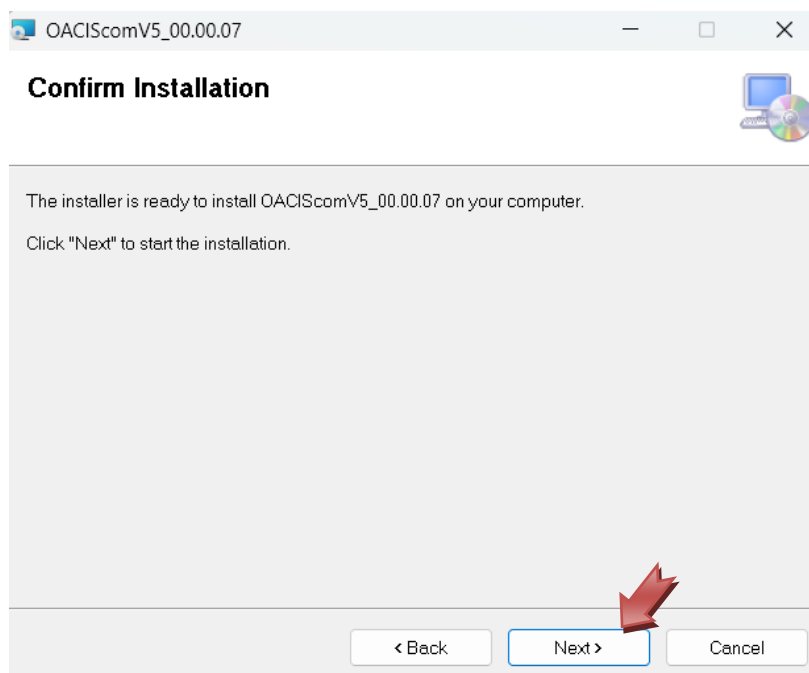
■ Note ■

The folder path where the result data is saved must be configured separately within OACIScom

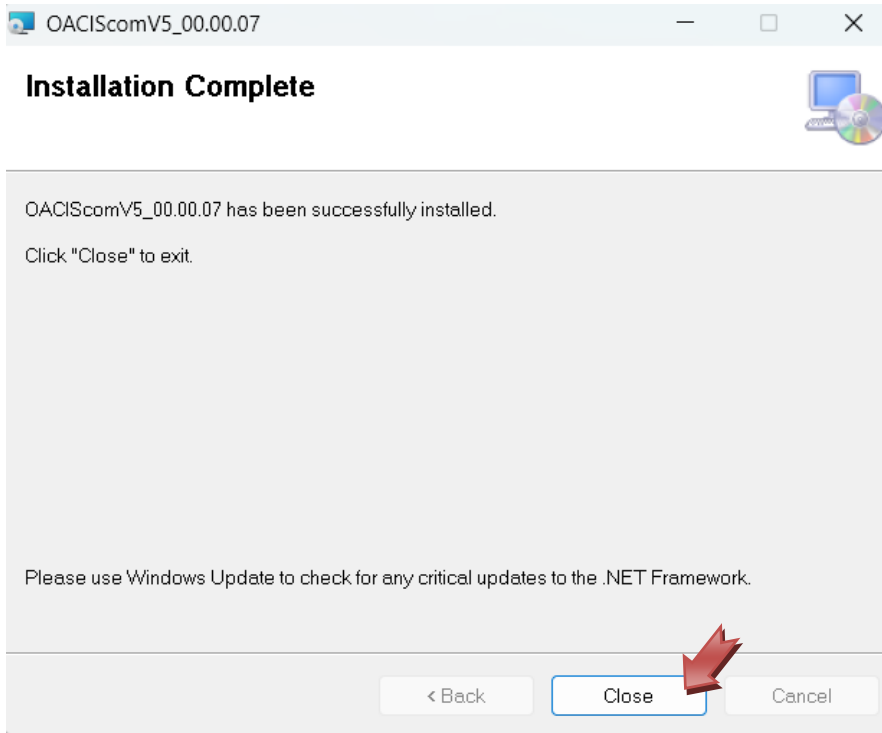


4. Confirm Installation Settings

: This step confirms that the installation is ready. Click the Next button.



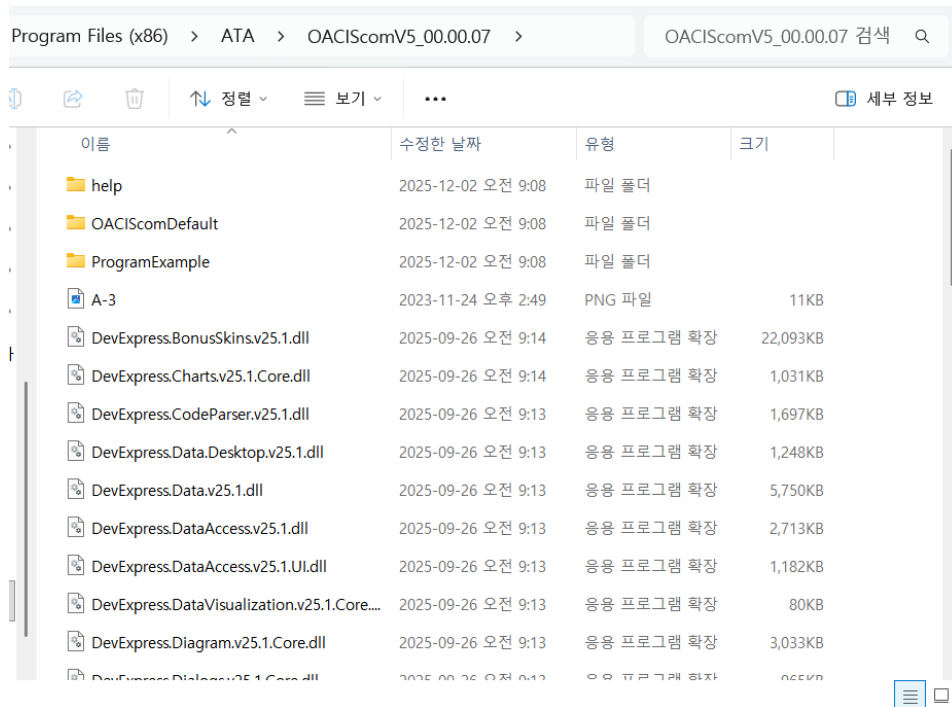
5. Program Installation Complete



III. OACIS CENTER – OACIScom Connection

A. OACIScom V5 Installation Path

: If you set the installation path to the default location (C:\Program Files (x86)\ATA\OACIScomV5_00.00.07), a default folder will be created in that directory.



B. OACIScom Connection

: First of all, the local PC IP address needs to be assigned depending on OACIScom IP.

Settings >> Network & internet >> Ethernet >> IP assignment >> IPv4

ex) IP address: 192.168.0.119 / Subnet Mask: 255.255.255.0

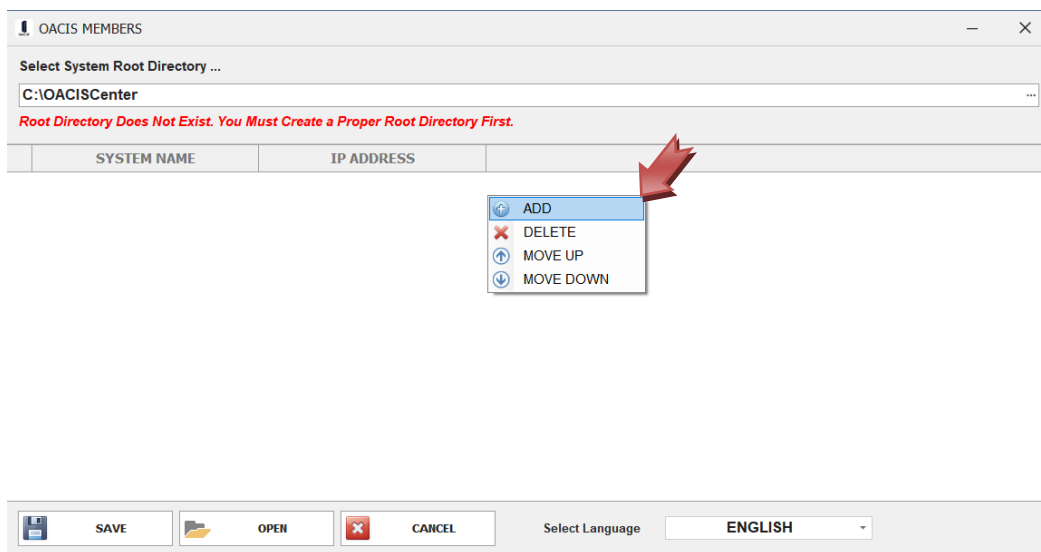
1. The following is the initial screen of the OACIScom V5 program upon execution.



2. Click EDIT

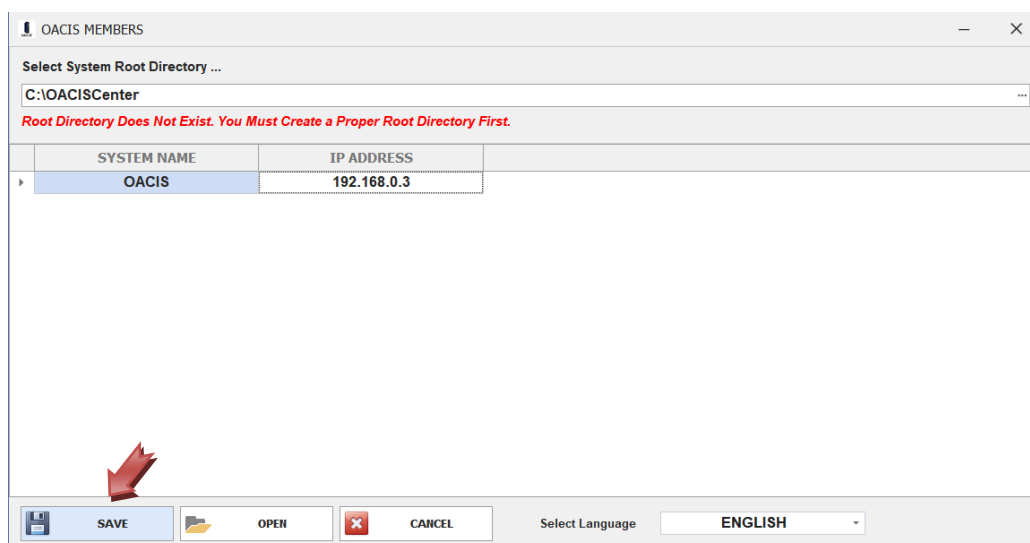


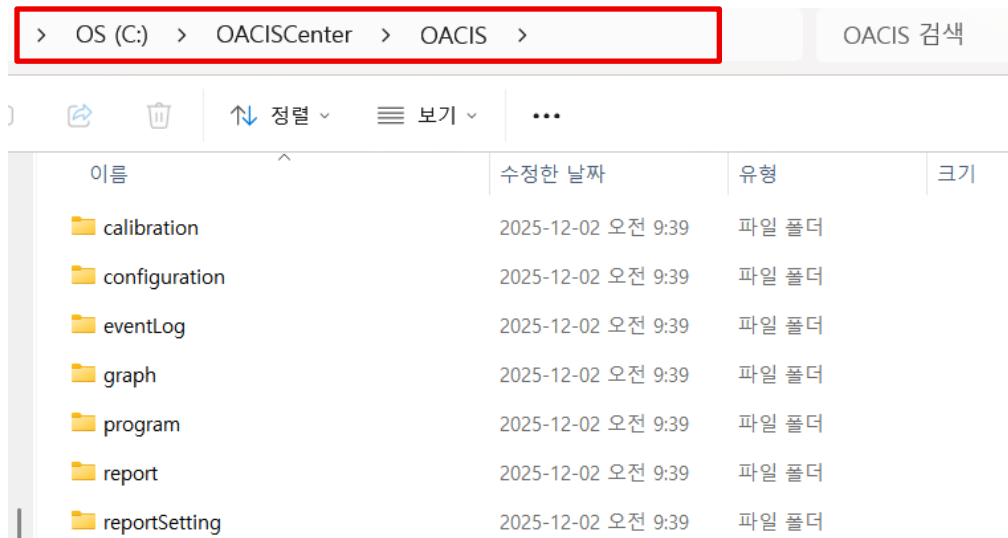
3. Select ADD after Right-Click



4. System Root Directory Setting

: The default system root directory is "C:\OACISCenter". After setting the SYSTEM NAME and the IP ADDRESS, and then clicking SAVE, a folder will be created in the system path. The result data will be saved in this designated system folder. Multiple system paths can be created with unique system names and IP addresses.





- Verify that the system is connected in OACIS Center.



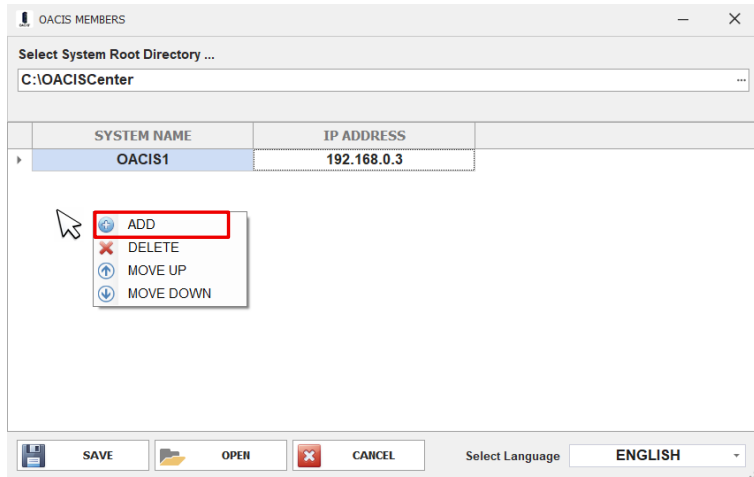
C. Make multi connection with one PC

: Multiple OACIS systems can be connected and operated from a single PC.

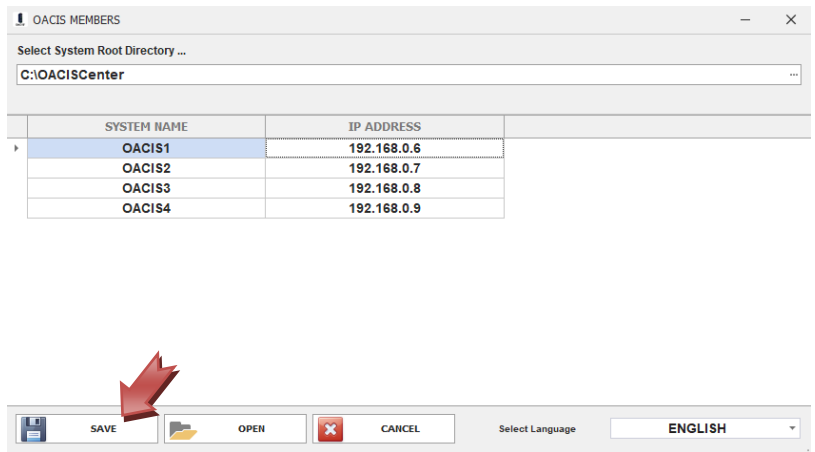
- Click EDIT



2. Select ADD after Right-Click



3. Enter a unique System Name and OACIS IP Address, then click Save to add the system.



4. Verify that multiple systems are connected in OACIS Center.



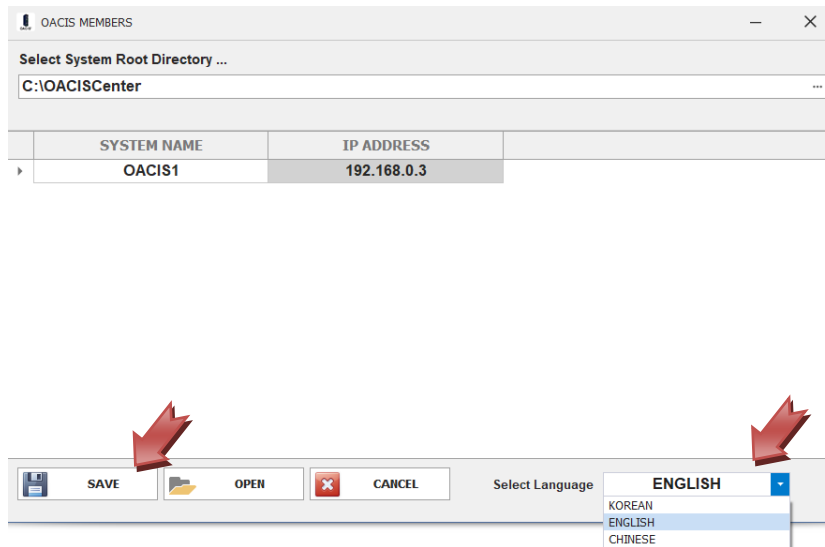
D. Language Selection

: OACIScom supports three languages: Korean, English, and Chinese.

1. Click EDIT

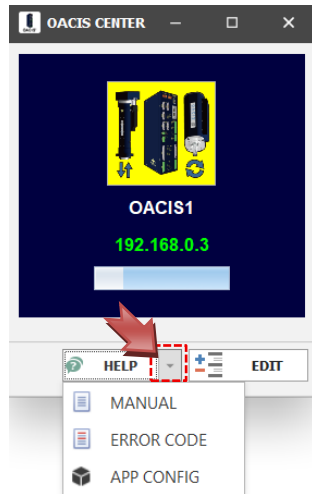


2. Select a language in "Select Language", then click Save.



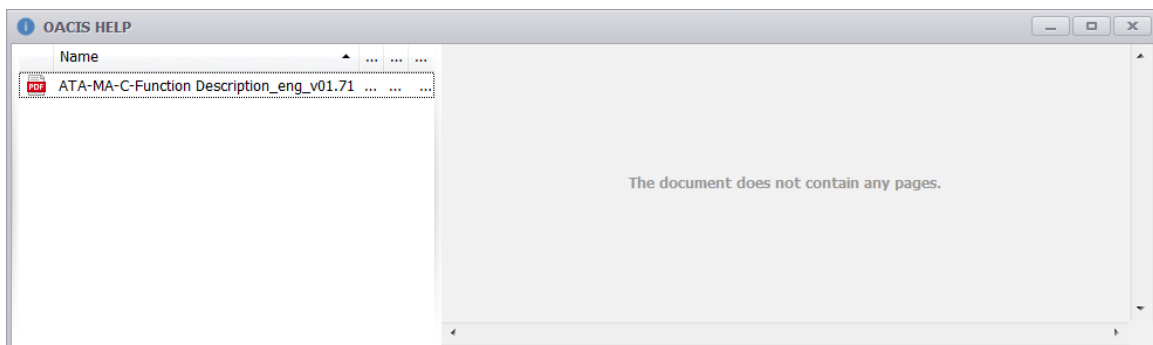
IV. OACIS CENTER – HELP

: In the OACIS CENTER - HELP, OACIS-related manuals, error codes can be viewed and application configurations configured.



A. MANUAL: OACIS CENTER – [HELP] – [MANUAL]

- OACIScom and related manuals can be accessed.



B. OACIS ERROR CODE LIST: OACIS CENTER – [HELP] – [ERROR CODE]

- OACIS error codes can be viewed. When an error occurs, the error code can be used to identify the cause and resolve the issue.

CODE	DESCRIPTION	SOLUTION
000	Fail to initialize OACIS Program	Reset and Download a Program
010	Firmware Version Conflict	Consult ATA
011	Firmware Version Conflict	Consult ATA
012	Firmware Version Conflict	Consult ATA
100	Industrial Network Module is not detected	Consult ATA
300	Flash Memory Full	Erase Data of OACIS
301	Flash Memory Read Error	Erase Data, Consult ATA
302	Flash Memory Write Error	Initialize Controller, Consult ATA
303	Flash Memory Read Error	Redownload the Program, Consult ATA
304	Flash Memory Read Error	Erase Data, Consult ATA
305	Flash Memory Write Error	Initialize Controller, Consult ATA
306	Flash Memory Write Error	Initialize Controller, Consult ATA
307	Flash Memory Error	Consult ATA
310	Flash Memory Error	Consult ATA
311	IP/MAC Address Error	Download IP/MAC Address
320	Function() channel Input DATA Error	Consult ATA
351	Flash Memory Initialization Error	Consult ATA
352	Flash Memory Initialization Error	Consult ATA
353	Flash Memory Initialization Error	Consult ATA
354	Flash Memory Initialization Error	Consult ATA
355	Flash Memory Initialization Error	Consult ATA

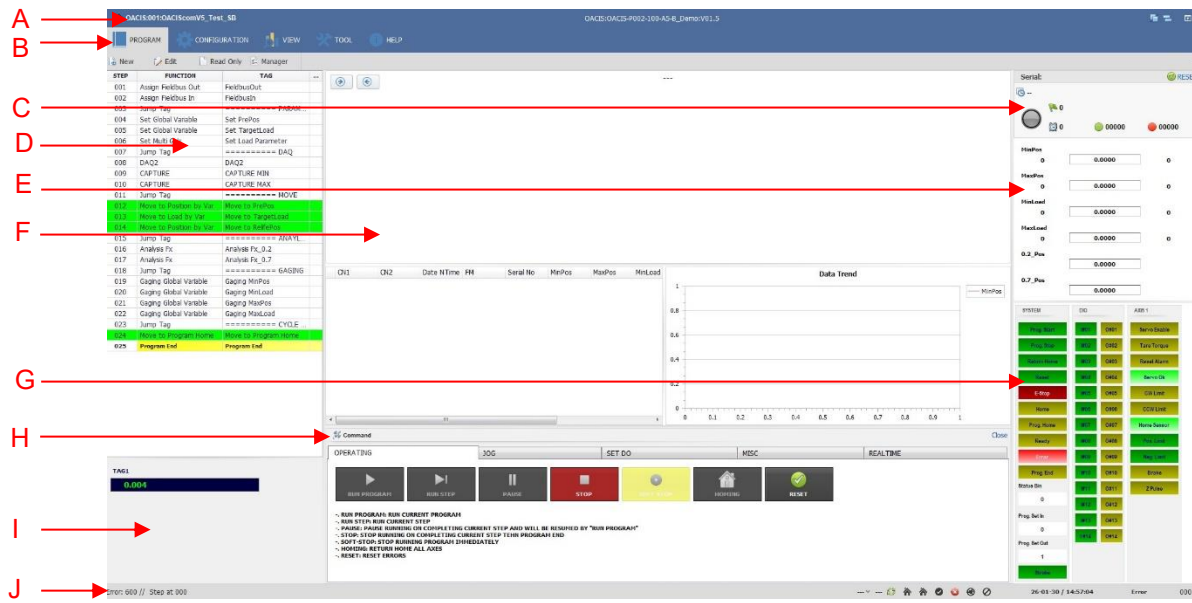
C. APP CONFIGURATION: OACIS CENTER – [HELP] – [APP CONFIG]

- Graph and report files stored on the local PC can be automatically deleted. This function helps efficiently manage disk space on the local PC.
- Data Retention Days (Graph & Report): Enter the value in days. If set to 30, graph and report files older than 30 days are automatically deleted from the local PC when OACIScom software is launched.
- To enable this function, select the “Enable Data Auto Delete” checkbox.



V. OVERVIEW

: Now, OACIScom is ready to run. Double-click the desktop shortcut to launch the program. The screen will appear as shown below.

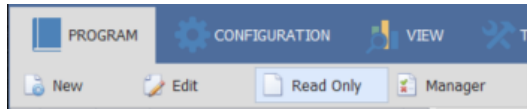


A. Title Bar: It shows System Name – [Configuration Name] – [Program Number and Name]

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

B. Menu Strip

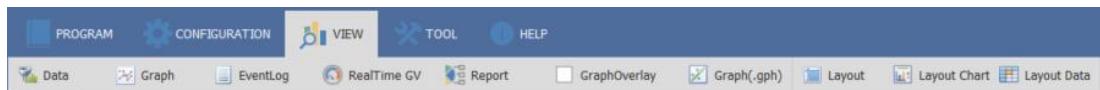
- PROGRAM:** It has “New”, “Edit”, “Read Only” and “Manager” sub menu.



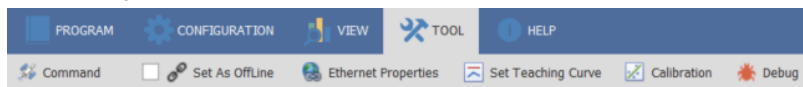
- CONFIGURATION:** It has “System”, “Local”, “User”, “Label” and “Report” sub menu.



- VIEW:** It has “Data”, “Graph”, “Event Log”, “RealTime GV”, “Report”, “Graph Overlay”, “Graph(.gph)”, “Layout”, “Layout Chart” and “Layout Data” sub menu.



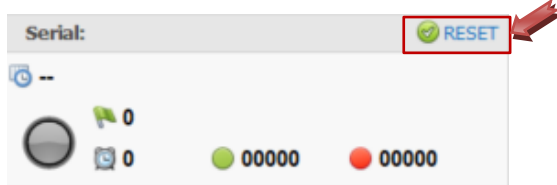
- TOOL:** It has “Command”, “Set As Offline”, “Ethernet Properties”, “Set Teaching Curve”, “Calibration”, and “Debug” sub menu.



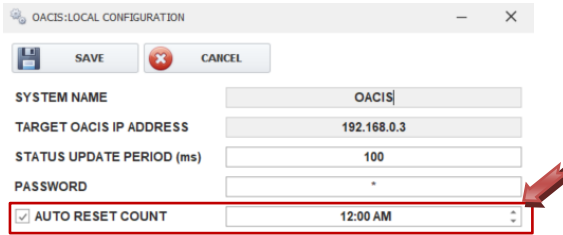
- ABOUT:** You can see the OACIScom information including Main/Control firmware version.

C. **Data:** It provides information Cycle #, Serial #, Cycle Time, and Pass/Fail Count.

- The Pass/Fail count can be reset by pressing the Reset button.
- PASS/FAIL can be checked with LED on/off.



- Auto Count Reset can also be configured. To enable this function, set the Auto Reset Count time in “Configuration” → “Local”. The count will be reset automatically at the specified time.

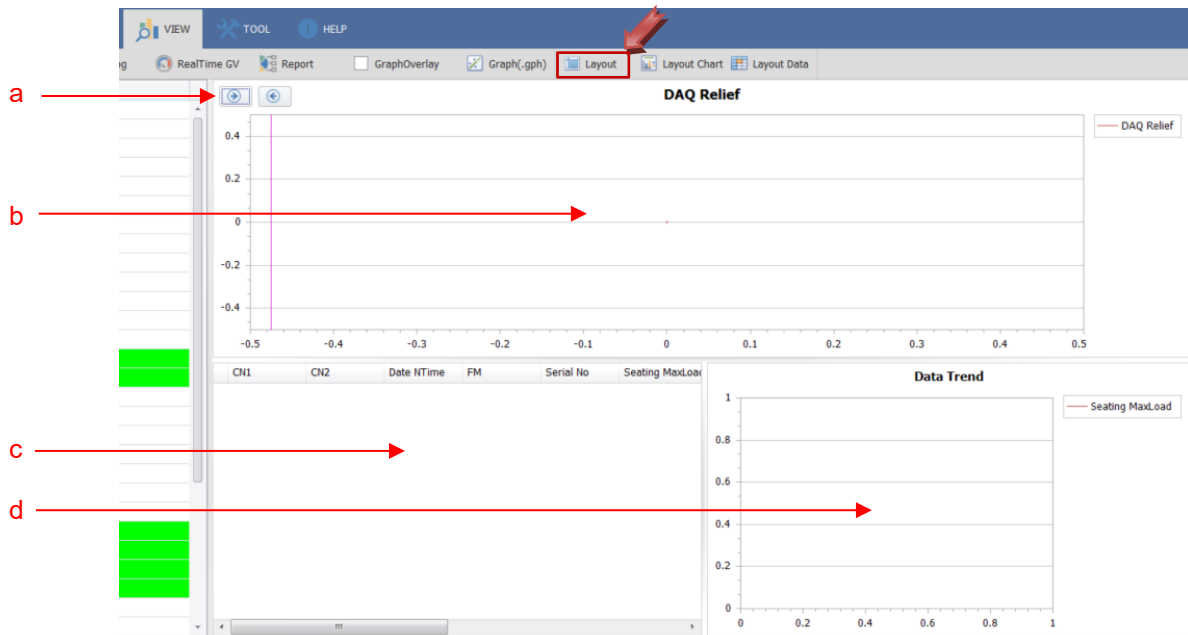


D. **Program View:** It shows current running program. This grid view has “Step”, “Function”, “Tag” and “Comment” columns.

E. **Report Parameter:** The selected parameter data can be viewed after each cycle is completed. Parameters linked to Gaging are displayed with color-coded Pass/Fail results.

F. Main Dashboard: Provides three Layout.

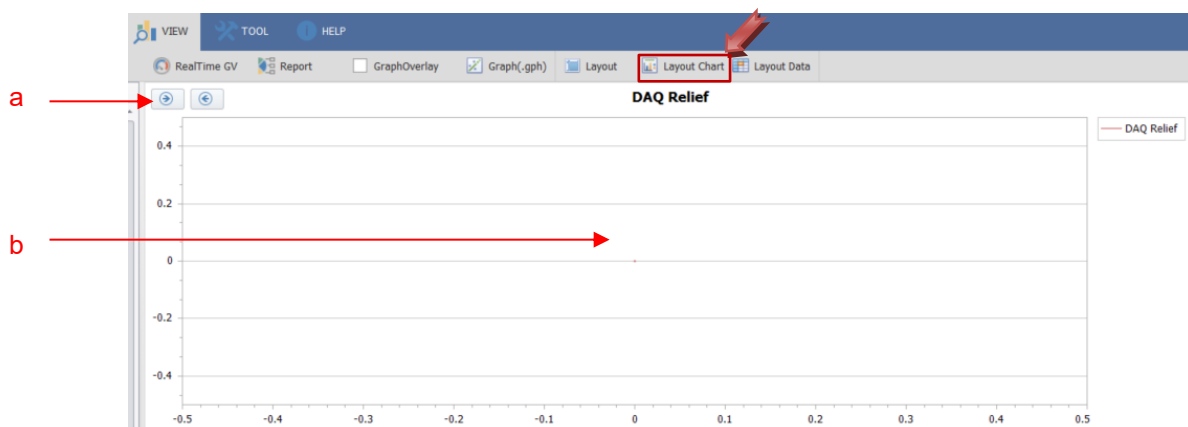
- **Layout Mode:** Displays Report & Graph, Result Data, Data Trend (or Real-Time Data) on a single screen. Data is updated after each completed cycle.
 - To switch to Layout Mode, click “View” → “Layout”.



- a. Navigate through Report and DAQ graph using the Next and Previous buttons.
- b. Displays the Report and individual DAQ graph.
- c. Displays Result Data. Data is updated after each completed cycle. Each result includes Cycle No, Serial No(scanned information), Data and Time, Failure Mode, and Results (Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20 that checked in the “Save” check box under the program configuration)
- d. Displays Data Trend. Monitors trends of selected parameters as cycles accumulate (or displays real-time graphs). To display the real-time graph, select “Command” -> “Real-Time”

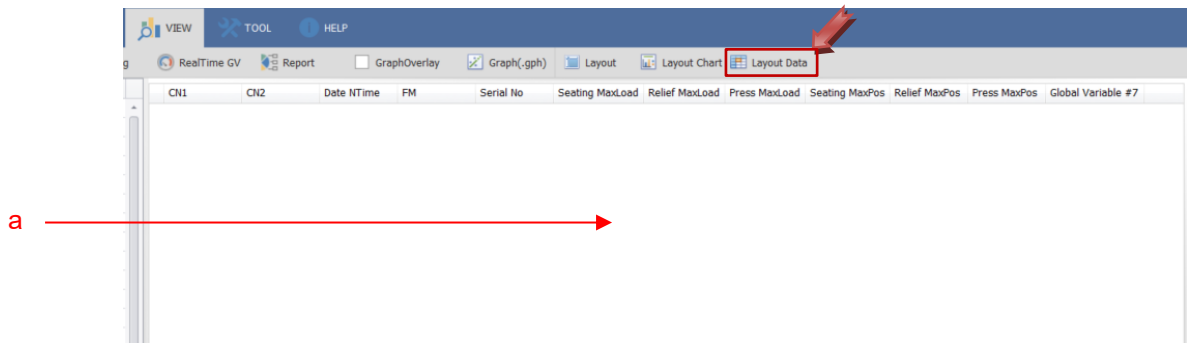
- **Layout Chart Mode:** Displays an enlarged Report & Graph on the main screen.

- To switch to Layout Chart Mode, click “View” → “Layout Chart”.



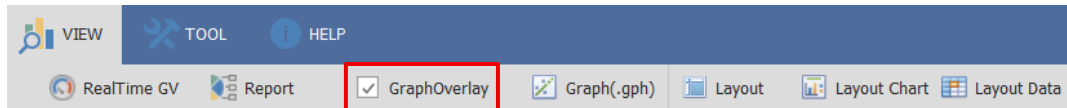
- a. Navigate through Report and DAQ graph using the Next and Previous buttons.
- b. Displays the Report and individual DAQ graph.

- **Layout Data Mode:** Displays Result Data in an enlarged view on the main screen.
 - To switch Layout Data Mode, click "View" -> "Layout Data"



- Displays Result Data. Data is updated after each completed cycle. Each result includes Cycle No, Serial No(scanned information), Data and Time, Failure Mode, and Results (Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20 that checked in the "Save" check box under the program configuration)

- **Graph Overlay:** Displays graphs with cumulative updates for each cycle.

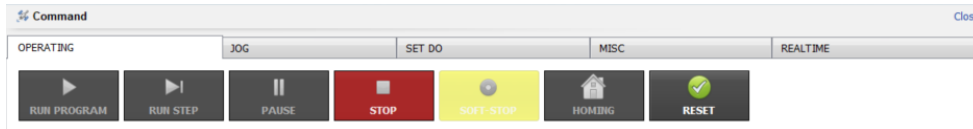


G. DI/O: It shows the status of all Digital Inputs and Outputs. It differs on OACIS type.

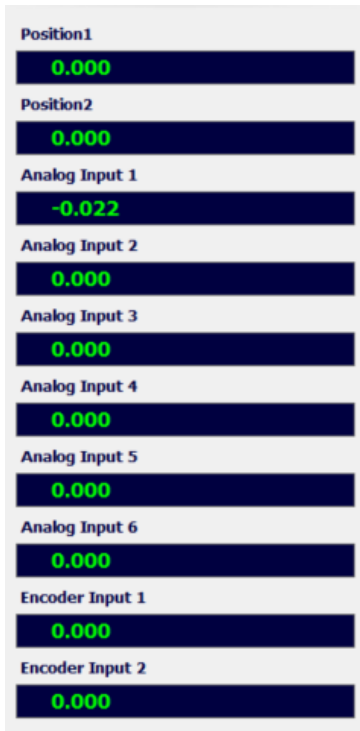
- **OACIS-1X:** Status Bin(4 bit), DI(6 ch), DO(5 ch), Axis(1)
- **OACIS-2X:** Status Bin(4 bit), DI(14 ch), DO(14 ch), Axis(2)
- **OACIS-1XC:** Status Bin(5 bit), DI(14 ch), DO(14 ch), Axis(1)
- **OACIS-2XC:** Status Bin(5 bit), DI(14 ch), DO(14 ch), Axis(2)

SYSTEM	DIO		AXIS 1
Prog Start	I#01	O#01	Servo Enable
Prog Stop	I#02	O#02	Tare Torque
Return Home	I#03	O#03	Reset Alarm
Reset	I#04	O#04	Servo Ok
E-Stop	I#05	O#05	CW Limit
Home	I#06	O#06	CCW Limit
Prog. Home	I#07	O#07	Home Sensor
Ready	I#08	O#08	Pos. Limit
Error	I#09	O#09	Neg. Limit
Prog End	I#10	O#10	Brake
Status Bin	I#11	O#11	Z Pulse
0	I#12	O#12	
Prog. Set In	I#13	O#13	
0			
Prog. Set Out	I#14	O#14	
22			
Stroke			

H. **Command:** You can use this function to manually operate the press or control the program and system.



I. **Real-Time Window:** It shows real time analog signals value of 2 Axes Positions, 6 Analog Inputs and 2 Encoder Inputs per System Configuration.



J. **Status Strip:** It shows message, network connection, system status.



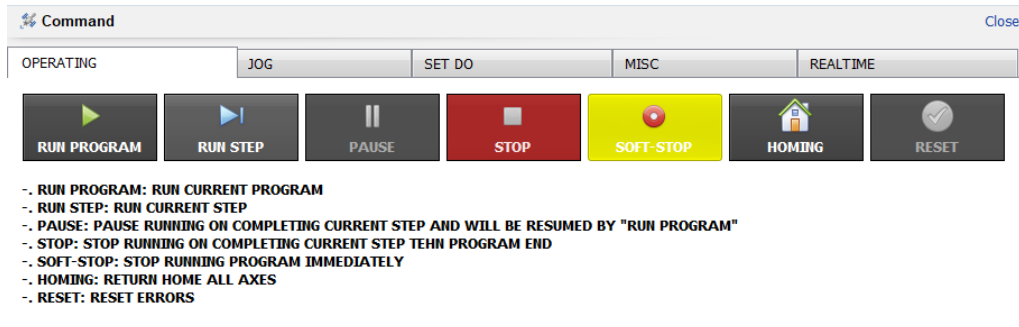
VI. COMMAND

: 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. Operating

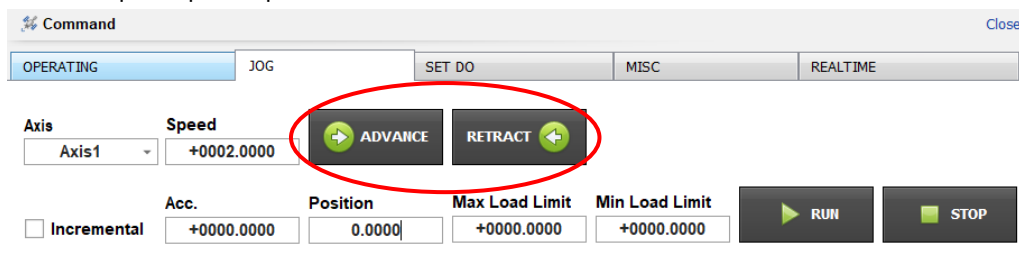
- Select "OPERATING" tab on the Command window.



- **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.

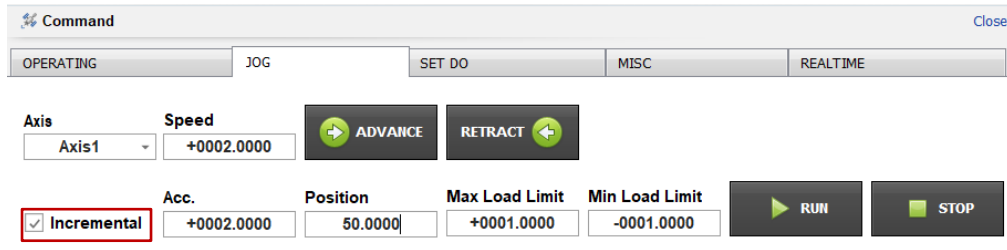
B. Jog

- Select "JOG" tab on the Command window.
- Select a proper Axis then you can see "ADVANCE" and "RETRACT" buttons are activated.
- You can input required speed and move the selected axis with "JOG" mode.



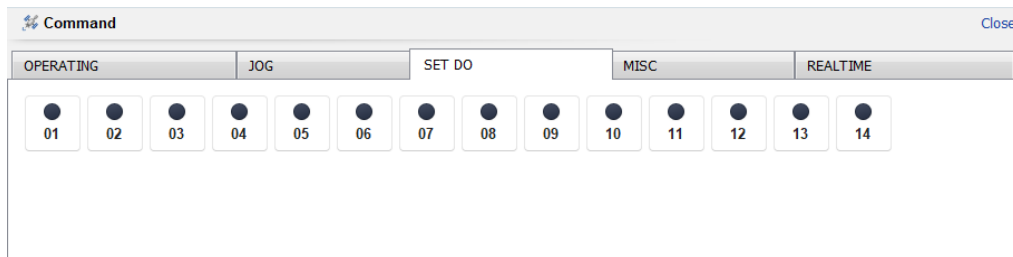
- When Incremental Mode is selected, the press moves precisely to the entered position value.
- Select the desired Axis and enter appropriate values for Speed, Acceleration, and Load Limit.
- Then you can see the selected Axis begins to move by pressing the run button ([>]).

- This is same as “Move to Position” function.



C. Set Programmable DO

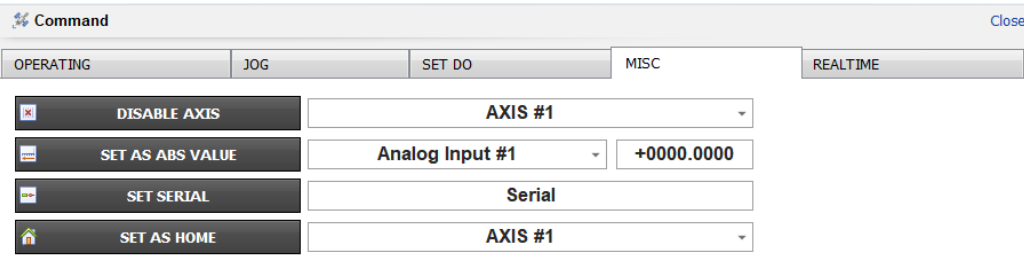
- Select “SET PROGRAMMABLE DO” tab on the Command window



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

D. MISC

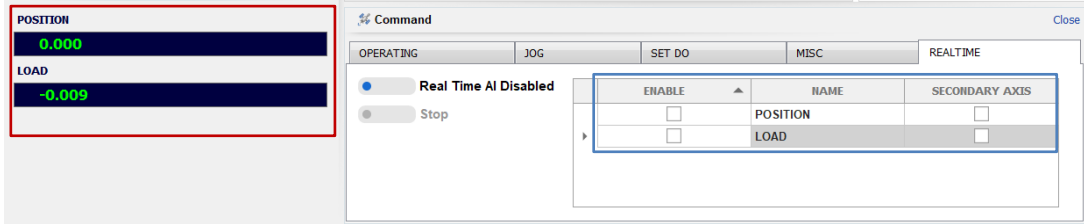
- Select “MISC.” tab on the Command window



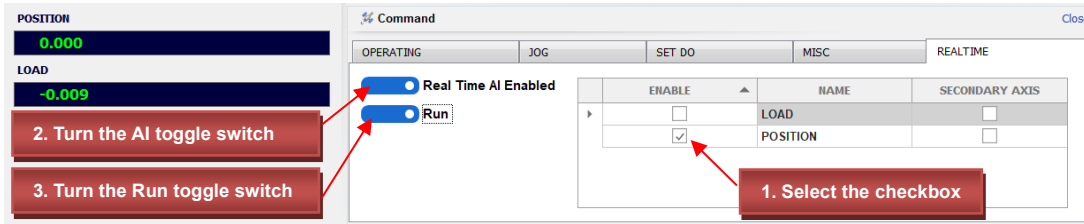
- **DISABLE AXIS**
 - You can temporarily protect AXIS #1 or AXIS #2 from unexpected moving. See “Disable” function in MOVE for more detail.
- **SET AS ABSOLUTE VALUE**
 - You can set the selected Signal Input Channel as the specified set value. The Set Value will become a new absolute value. See “Set As Abs Value” function in SIGNAL for more detail.
- **SET SERIAL**
 - 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.

E. Real Time

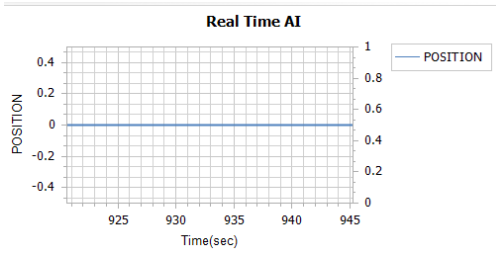
- Select "REAL TIME." tab on the Command window
- The real-time analog signals currently set on the left can be displayed as a real-time graph.



- Select the checkbox for the Analog Signal you want to configure.
- Turn the "Real-Time AI" toggle switch ON.
- Turn the "Run" toggle switch ON.



- The Real-Time Graph of the Analog Signal is displayed.



⚠ 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.

VII. 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.

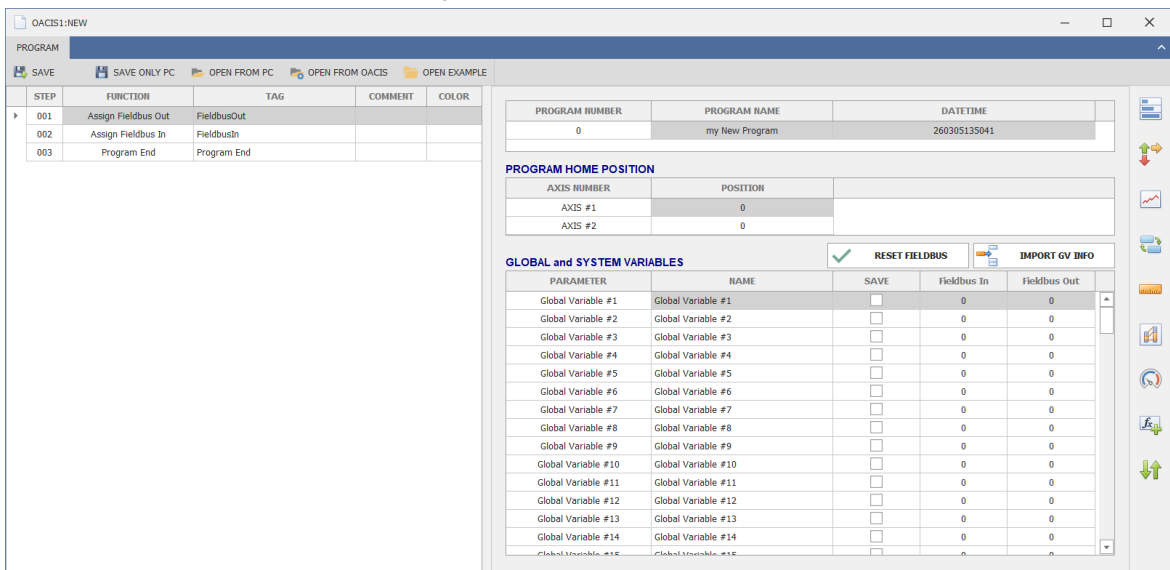
A. We will make a program to press a solid shaft into a hollow shaft. And the program will monitor the curve of press load vs distance. Based on the curve the program is going to decide if the part is good or bad. Finally, the program will notify the result to the PLC by digital signal. Here is brief 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	PROGRAM NAME	DATETIME
101	Press Shaft	260305135041

PROGRAM HOME POSITION	
AXIS NUMBER	POSITION
AXIS #1	30
AXIS #2	0

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

D. Input Global Variables

GLOBAL and SYSTEM VARIABLES				
PARAMETER	NAME	SAVE	Fieldbus In	Fieldbus Out
Global Variable #1	RunMinLoad	<input checked="" type="checkbox"/>	0	0
Global Variable #2	RunMaxLoad	<input checked="" type="checkbox"/>	0	0
Global Variable #3	EndPos	<input checked="" type="checkbox"/>	0	0
Global Variable #4	EndPosMaxLoad	<input checked="" type="checkbox"/>	0	0
Global Variable #5	EndSlope	<input checked="" type="checkbox"/>	0	0
Global Variable #6	Global Variable #6	<input type="checkbox"/>	0	0
Global Variable #7	Global Variable #7	<input type="checkbox"/>	0	0
Global Variable #8	Global Variable #8	<input type="checkbox"/>	0	0
Global Variable #9	Global Variable #9	<input type="checkbox"/>	0	0
Global Variable #10	Global Variable #10	<input type="checkbox"/>	0	0
Global Variable #11	PrePos	<input type="checkbox"/>	0	0
Global Variable #12	Global Variable #12	<input type="checkbox"/>	0	0

- **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”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Program End	Program End

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

F. Insert “Reset All Global Variables”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Program End	Program End

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

G. Insert “Set Status Binary”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Program End	Program End

INSERT MODIFY SET STATUS BINARY

STEP TAG: Set Status Binary as Zero

Set Value: 00

MOVE

SIGNAL

Set AI or Position

Set DO

Reset All DO

Set Status Binary

SetSignalFilter

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

H. Insert “Set Global Variable”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Program End	Program End

INSERT MODIFY SET GLOBAL VARIABLE

STEP TAG: Set PrePos

GV to Set: 011;PrePos

Set Value: +0100.0000

GAGE

MATH

Reset All Global Variables

Set Global Variable

Set Multi GVs

Math1

Math2

- Select proper global variable (011; PrePos)
- Tag: Set PrePos
- 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”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	Program End	Program End

INSERT MODIFY MOVE TO POSITION BY VAR

STEP TAG: Move to PrePos

Enabled

Axis1 IsRelative

Position [mm]: 011;PrePos

Speed [mm/s]: +0050.0000

Acc. [mm/s^2]: +0050.0000

Max Load Limit [kN]: +0001.0000

Min Load Limit [kN]: -0001.0000

Disabled

Axis2 IsRelative

Position [mm]: 001;RunMinLoad

Speed [mm/s]: +0000.0000

Acc. [mm/s^2]: +0000.0000

Max Load Limit [kN]: +0000.0000

Min Load Limit [kN]: +0000.0000

MOVE

Move to Position

Move to Position by Var

Move to Position by Var #2

Move to Load

Move to Load by Var

Move to Load by Var #2

Move to Load by Var #3

Move to Load by Var #4

Move to D1

Move to Press

Disable

Move to Program Home

Dynamic Move to Position

- Tag: Move to PrePos
- Axis #1 Enabled
- IsRelative: no check
- Position: 011; PrePos
- Speed (mm/s): 50
- Acc (mm/s^2): 50
- Max Load Limit (kN): 1
- Min Load Limit (kN): -1

J. Insert “Move to Load”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	Move to Load	Move to TargetLoad
009	Program End	Program End

STEP TAG: **Move to TargetLoad**

Axis1 Enabled

Load Signal Ch. Analog Input #1

Target Load [kN] +0001.0000

Holding Time +0000.0000

Speed [mm/s] +0001.0000

Acc. [mm/s^2] +0005.0000

Max Position Limit [mm] +0150.0000

Min Position Limit [mm] +0090.0000

Axis2 Disabled

Load Signal Ch. Analog Input #1

Target Load [kN] +0000.0000

Holding Time +0000.0000

Speed [mm/s] +0000.0000

Acc. [mm/s^2] +0000.0000

Max Position Limit [mm] +0000.0000

Min Position Limit [mm] +0000.0000

MOVE

- Move to Position
- Move to Position by Var
- Move to Position by Var #2
- Move to Load**
- Move to Load by Var
- Move to Load by Var #2
- Move to Load by Var #3
- Move to Load by Var #4
- Move to DI
- Move to Press
- Disable
- Move to Program Home
- Dynamic Move to Position
- Dynamic Move to Position by Var
- Set As Home
- Move to AI
- Move to Bottom

- Tag: Move to TargetLoad
- 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]: 90

K. Insert “Move to Position”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	DAQ	DAQ Press
009	Move to Load	Move to TargetLoad
010	Move to Position	Move to ReliefPos
011	Program End	Program End

STEP TAG: **Move to ReliefPos**

Axis1 Enabled IsRelative

Position [mm] -0001.0000

Speed [mm/s] +0005.0000

Acc. [mm/s^2] +0005.0000

Max Load Limit [kN] +0010.0000

Min Load Limit [kN] -0005.0000

Axis2 Disabled IsRelative

Position [mm] +0000.0000

Speed [mm/s] +0000.0000

Acc. [mm/s^2] +0000.0000

Max Load Limit [kN] +0000.0000

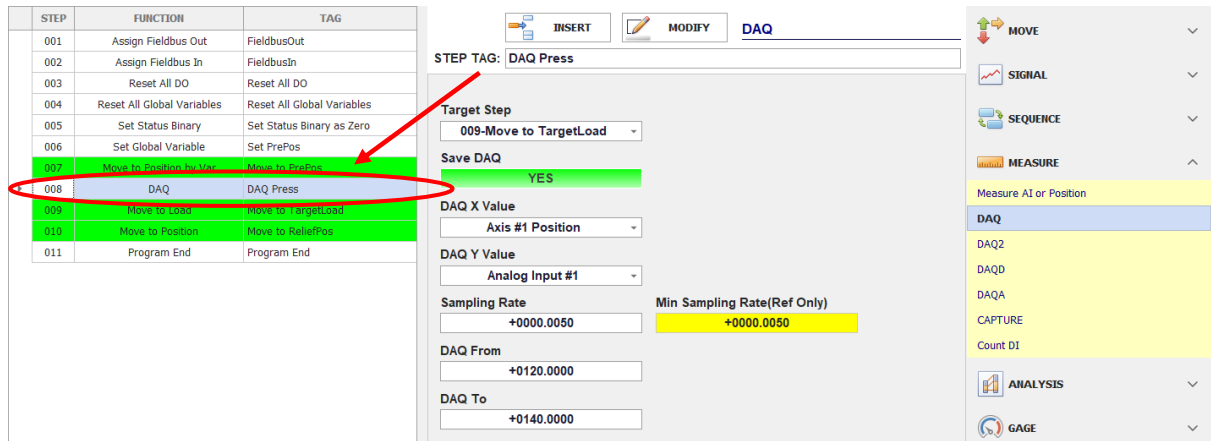
Min Load Limit [kN] +0000.0000

MOVE

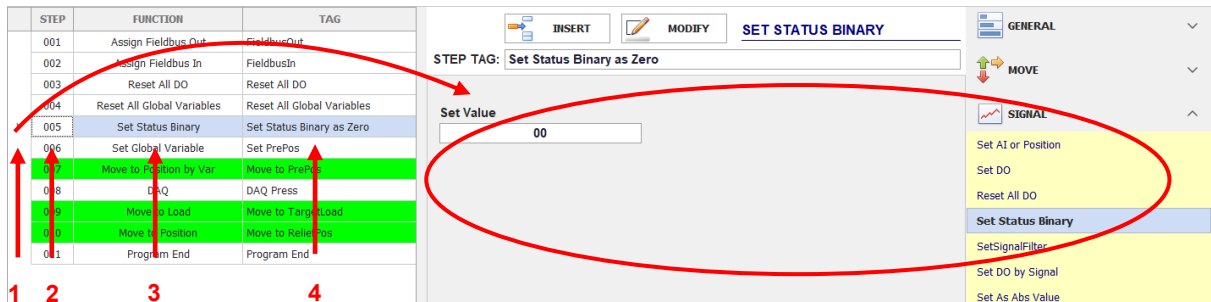
- Move to Position
- Move to Position by Var
- Move to Position by Var #2
- Move to Load
- Move to Load by Var
- Move to Load by Var #2
- Move to Load by Var #3
- Move to Load by Var #4
- Move to DI
- Move to Press
- Disable
- Move to Program Home
- Dynamic Move to Position

- Tag: Move to ReliefPos
- Axis #1 Enabled
- IsRelative: check
 - Since "IsRelative" is checked, the press moves in relative coordinates. It retracts 1 mm from the last press position.
- Speed (mm/s): 5
- Acc (mm/s^2): 5
- Max Load Limit (kN): 10
- Min Load Limit (kN): -5

L. 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 009, new DAQ step number should be smaller than that (001 ~008).
- Tag: DAQ Press
- Target Step: 009-Move to TargetLoad
- Save DAQ : Yes
- DAQ X Value: Axis #1 Position
- DAQ Y Value: Analog Input #1
- DAQ Sampling Rate: 0.005
- DAQ From: 120
- DAQ To: 140
- 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.

M. Insert “Move to Program Home”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	DAQ	DAQ Press
009	Move to Load	Move to TargetLoad
010	Move to Position	Move to PrePos
011	Move to Program Home	Move to Program Home
012	Program End	Program End

INSERT MODIFY **MOVE TO PROGRAM HOME**

STEP TAG: Move to Program Home

Enabled Disabled

Axis1

Speed [mm/s]

Acc. [mm/s^2]

Max Load Limit [kN]

Min Load Limit [kN]

Axis2

Speed [mm/s]

Acc. [mm/s^2]

Max Load Limit [kN]

Min Load Limit [kN]

Move to Load

Move to Load by Var

Move to Load by Var #2

Move to Load by Var #3

Move to Load by Var #4

Move to DI

Move to Press

Disable

Move to Program Home

Dynamic Move to Position

Dynamic Move to Position by Var

Set As Home

Move to AI

- 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
- Axis #1 Enabled
- Speed (mm/s): 50
- Acc (mm/s^2): 50
- Max Load Limit (kN): 1
- Min Load Limit (kN): -1

N. Insert “Analysis MinMaxAve”

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	DAQ	DAQ Press
009	Move to Load	Move to TargetLoad
010	Move to Position	Move to PrePos
011	Analysis MinMaxAve	Analysis DAQ Press
012	Move to Program Home	Move to Program Home
013	Program End	Program End

INSERT MODIFY **ANALYSIS MINMAXAVE**

STEP TAG: Analysis DAQ Press

Target DAQ

Range From

Range To

GV to save Min

GV to save Max

GV to save Ave

GV to save Variation

MEASURE

ANALYSIS

Analysis MinMaxAve

Analysis Turning Torque #1

Analysis Press #1

Analysis Press #2

Analysis Fx

Linear Regression

Linear Regression #2

Find Point

Find Cross Point

Find Cross Point #2

Analysis Load Drop

Analysis With Equation

Assign Analysis GV

- Tag: Analysis DAQ Press
- Target DAQ: 008-DAQ Press
- Analysis Range From: 120
- Analysis Range To: 135
 - Target DAQ range is normally to be wider than Analysis Range.
- Global Variable to Save Min: 001; RunMinLoad
- Global Variable to Save Max: 002; RunMaxLoad
- Global Variable to Save Average: 100;Global Variable #100
- Global Variable to Save Variation: 100;Global Variable #100
- GV #100 is mainly used when a variable is not assigned in Measure, Analysis. When using GV #100 for this purpose, make sure that it is not used for any functional purpose.

O. Insert “Gaging Global Variable” (Gaging RunMinLoad)

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	DAQ	DAQ Press
009	Move to Load	Move to TargetLoad
010	Move to Position	Move to ReliefPos
011	Analysis MinMaxAve	Analysis DAQ Press
012	Gaging Global Variable	Gaging RunMinLoad
013	Move to Program Home	Move to Program Home
014	Program End	Program End

GAGING GLOBAL VARIABLE

STEP TAG: Gaging RunMinLoad

GV to Gage: 001;RunMinLoad

Lower Limit: +0001.0000 Upper Limit: +0003.0000

Step to Jump: Pass Status Bin: Pass
014-Program End 01

Step to Jump: High Reject Status Bin: High Reject
014-Program End 02

Step to Jump: Low Reject Status Bin: Low Reject
014-Program End 03

- Tag: Gaging RunMinLoad
- GV to Gage: 001; RunMinLoad
- Lower Limit: 1
- Upper Limit: 3
 - “1 <= RunMinLoad (Global Variable #001) <= 3” then it becomes “Pass Case”.
- Case Pass Step to Jump: 014; Program End
- Case Pass Set Status Bin: 1
- Case High Reject Step to Jump: 014; Program End
- Case High Reject Set Status Bin: 2
- Case Low Reject Step to Jump: 014; Program End
- Case Low Reject Set Status Bin: 3

P. Insert “Gaging Global Variable” (Gaging RunMaxLoad)

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Move to Position by Var	Move to PrePos
008	DAQ	DAQ Press
009	Move to Load	Move to TargetLoad
010	Move to Position	Move to ReliefPos
011	Analysis MinMaxAve	Analysis DAQ Press
012	Gaging Global Variable	Gaging RunMinLoad
013	Gaging Global Variable	Gaging RunMaxLoad
014	Move to Program Home	Move to Program Home
015	Program End	Program End

GAGING GLOBAL VARIABLE

STEP TAG: Gaging RunMaxLoad

GV to Gage: 001;RunMinLoad

Lower Limit: +0002.0000 Upper Limit: +0005.0000

Step to Jump: Pass Status Bin: Pass
015-Program End 01

Step to Jump: High Reject Status Bin: High Reject
015-Program End 04

Step to Jump: Low Reject Status Bin: Low Reject
015-Program End 05

- Tag: Gaging RunMaxLoad
- Global Variable to Gage: 002; RunMaxLoad
- Lower Limit: 2
- Upper Limit: 5
 - 2 <= RunMaxLoad (Global Variable #2) <= 5 then it becomes “Pass Case”.
- Case Pass Step to Jump: 015; Gaging Max Load
- Case Pass Set Status Bin: 1
- Case High Reject Step to Jump: 015; Program End
- Case High Reject Set Status Bin: 4
- Case Low Reject Step to Jump: 015; Program End
- Case Low Reject Set Status Bin: 5



Q. EDIT Program

STEP	FUNCTION	TAG	COMMENT	COLOR
001	Assign Fieldbus Out	FieldbusOut		
	COPY	us In	FieldbusIn	
	PASTE	IO	Reset All DO	
	CUT	Variables	Reset All Global Variables	
	DELETE	Binary	Set Status Binary as Zero	
	UNDO	Variable	Set PrePos	
007	Move to Position by Var	Move to PrePos		
008	DAQ	DAQ Press		
009	Move to Load	Move to TargetLoad		
010	Move to Position	Move to ReliefPos		
011	Analysis MinMaxAve	Analysis DAQ Press		
012	Gaging Global Variable	Gaging RunMinLoad		
013	Gaging Global Variable	Gaging RunMaxLoad		
014	Move to Program Home	Move to Program Home		
015	Program End	Program End		

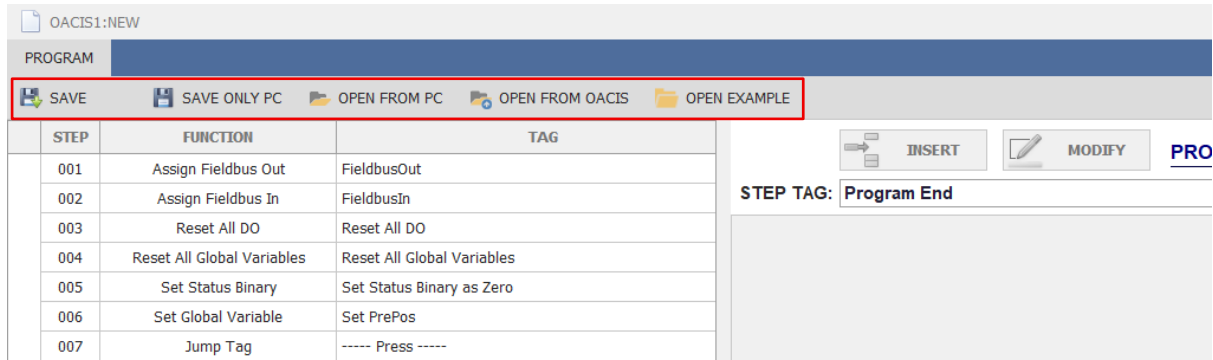
- **DELETE:** Select the step, right- click, and click "DELETE" to remove the selected step.
- **COPY:** Select the step, right-click, and click "COPY" to copy the selected step.
- **PASTE:** "PASTE" is used together with "COPY" or "CUT".
The copied or cut step can be pasted. When pasting, the step is inserted above the selected step.
- **CUT:** Select the step, right-click, and click "CUT" to remove the selected step. The step can then be moved to the desired position using "PASTE".
- **UNDO:** Right-click and click "UNDO" to cancel the most recent action.
- **COMMENT:** Comments can be added to each Step Function.
- **COLOR:** Each Step Function row can be highlighted with a color. Three colors are available: Red, Yellow, and Blue. When entering a color, only the first lowercase letter of each color (r, y, b) must be used.
 - r: Red Color Highlight
 - b: Blue Color Highlight
 - y: Yellow Color Highlight

STEP	FUNCTION	TAG	COMMENT	COLOR
013	Jump Tag	=====MOVE		
014	Move to Position by Var	Move to PrePosition	High Speed Approach	
015	Move to Position by Var	Move to ReadyPosition	Middle Speed Approach	
016	CAPTURE	Capture Press		
017	CAPTURE	Capture Seating		
018	CAPTURE	Capture Relief Pos		
019	DAQ	DAQ Seating	Report DAQ	r
020	DAQ2	DAQ2 Press	Reference DAQ	b
021	DAQ	DAQ Relief	Reference DAQ	y
022	Jump Tag	=====MOVE START		
023	Move to Load by Var	Move to SeatingLoad	Final Target	
024	Move to Load	Move to ReliefLoad	Relief	

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.

STEP	FUNCTION	TAG
001	Assign Fieldbus Out	FieldbusOut
002	Assign Fieldbus In	FieldbusIn
003	Reset All DO	Reset All DO
004	Reset All Global Variables	Reset All Global Variables
005	Set Status Binary	Set Status Binary as Zero
006	Set Global Variable	Set PrePos
007	Jump Tag	---- Press ----
008	Set AI or Position	Reset Loadcell as zero
009	Move to Position by Var	Move to PrePos
010	DAQ	DAQ Press

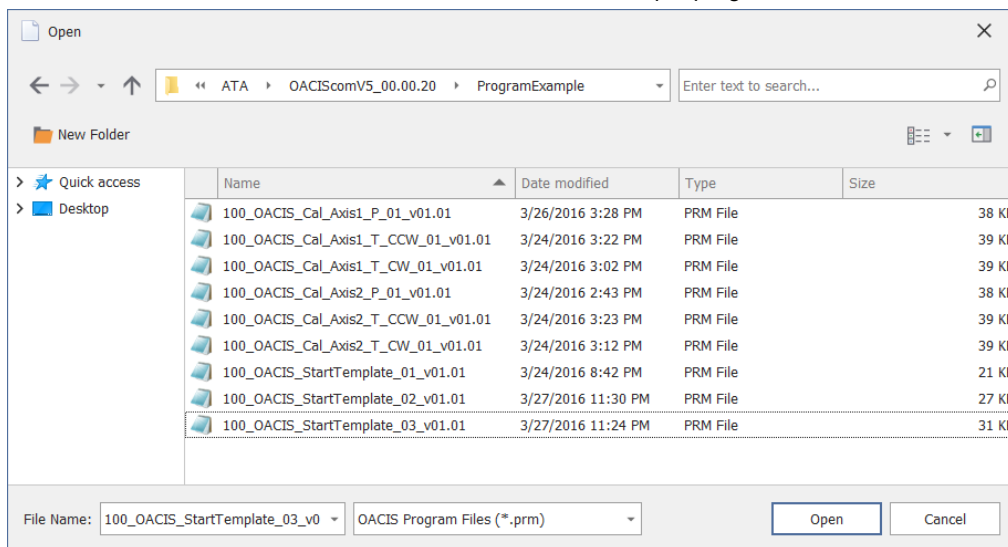
R. SAVE Program



- **SAVE** : 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 ONLY PC**: Save the program at local PC only.
 - You can save various programs with same program number if the program name is different.
- **OPEN FROM PC**: You can open a program from local PC.
- **OPEN FROM OACIS**: You can upload a program from the OACIS.

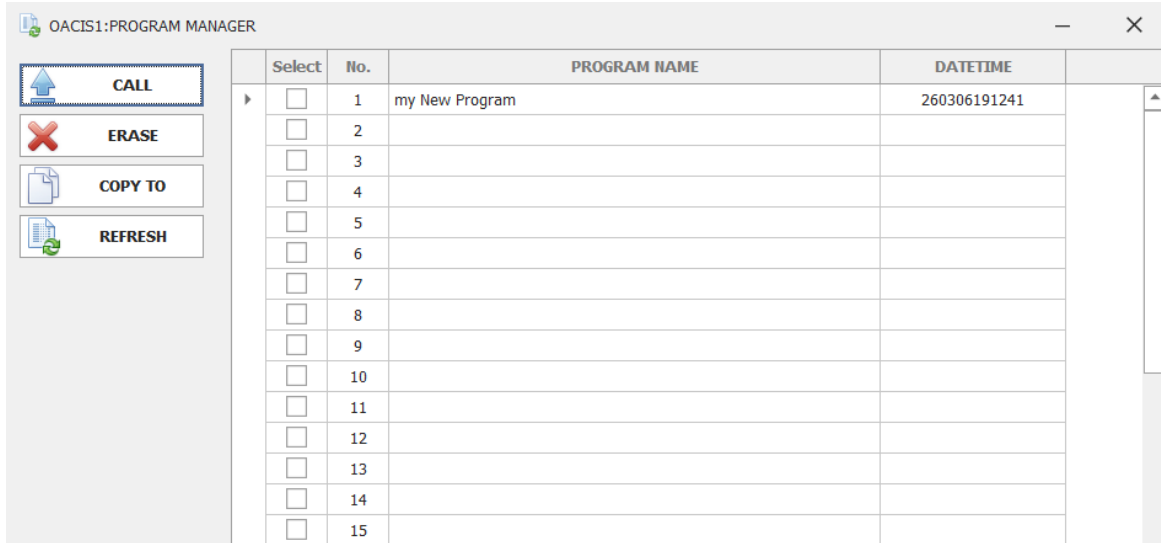


- Select a program.
- OPEN
- **OPEN EXAMPLE**: Click "OPEN EXAMPLE" to load an example program.

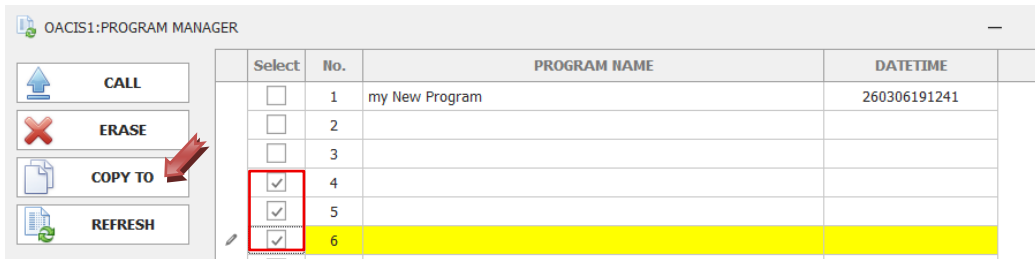


OACIScom

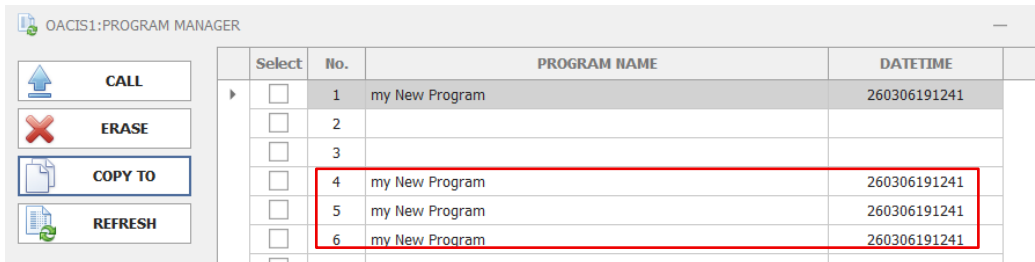
S. Program Manager



- **CALL:** Calls the selected program.
- **ERASE:** Deletes the selected program. Multiple programs can be selected and deleted at the same time.
- **COPY TO:** Copies the currently called program to another program number. The program can be copied to multiple program numbers at the same time.
 - Ex) Select Program 1 and click "CALL" -> select Program 4, 5, and 6, and then click "COPY TO". Program 1 will be copied to Program 4, 5, and 6.



- Ex) Program 1 is copied to Program 4, 5, and 6.

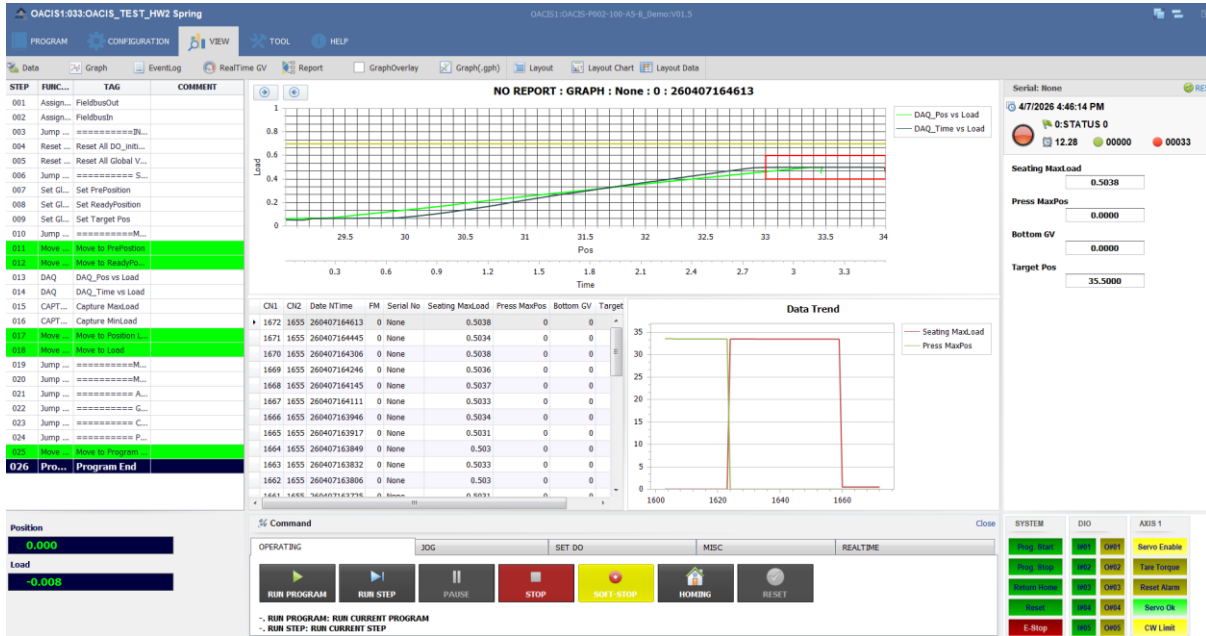


- **REFRESH:** Refreshes the program lists.

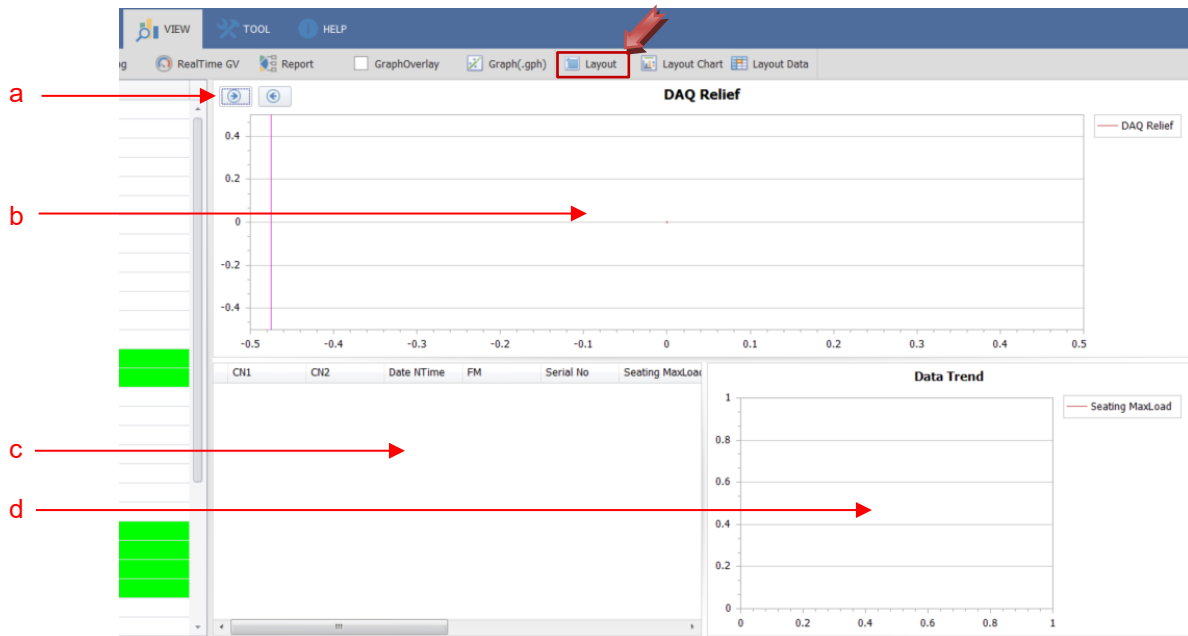
T. Now, you are ready to run your own program.

VIII. MAIN DASHBOARD

• The main dashboard displays the Report, DAQ graph, Result Data, Data Trend and real-time graph. After each completed cycle, the Report is updated to the first view with new data, and Result Data and Data Trend are updated. Use the Next and Previous buttons to navigate through individual DAQ graphs.



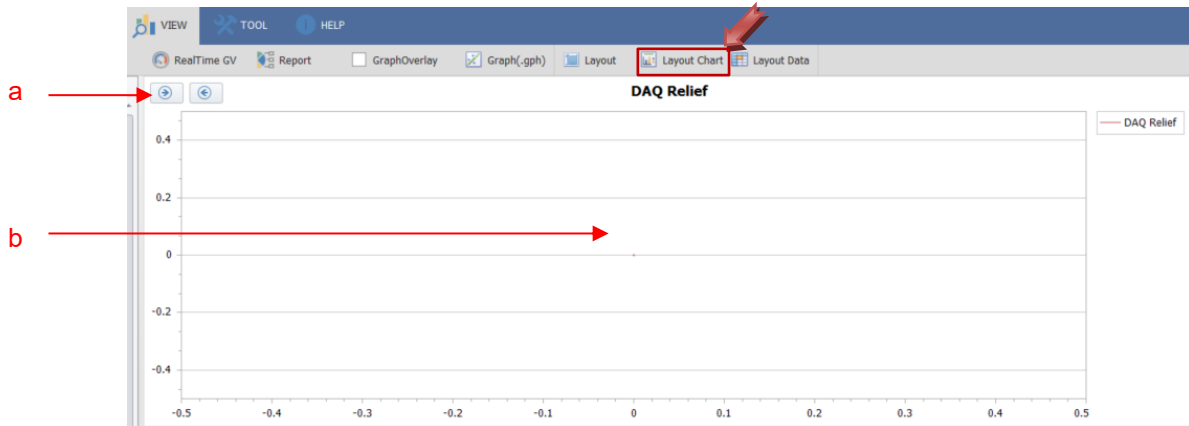
- **Layout Mode:** Displays Report & Graph, Result Data, Data Trend (or Real-Time Data) on a single screen.
 - To switch to Layout Mode, click “View” → “Layout”.



- a. Navigate through Report and DAQ graph using the Next and Previous buttons.
- b. Displays the Report and individual DAQ graph.

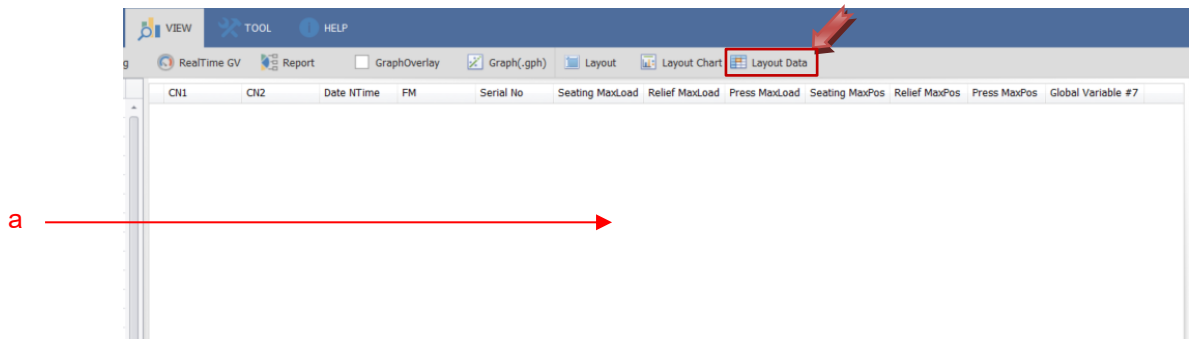
- c. Displays Result Data. Data is updated after each completed cycle. Each result includes Cycle No, Serial No(scanned information), Data and Time, Failure Mode, and Results (Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20 that checked in the “Save” check box under the program configuration)
- d. Displays Data Trend. Monitors trends of selected parameters as cycles accumulate (or displays real-time graphs). To display the real-time graph, select “Command” -> “Real-Time”

- **Layout Chart Mode:** Displays an enlarged Report & Graph on the main screen.
 - To switch to Layout Chart Mode, click “View” → “Layout Chart”.



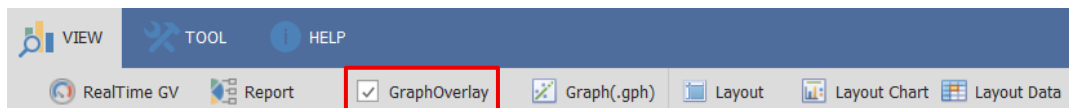
- a. Navigate through Report and DAQ graph using the Next and Previous buttons.
- b. Displays the Report and individual DAQ graph.

- **Layout Data Mode:** Displays Result Data in an enlarged view on the main screen.
 - To switch Layout Data Mode, click “View” -> “Layout Data”



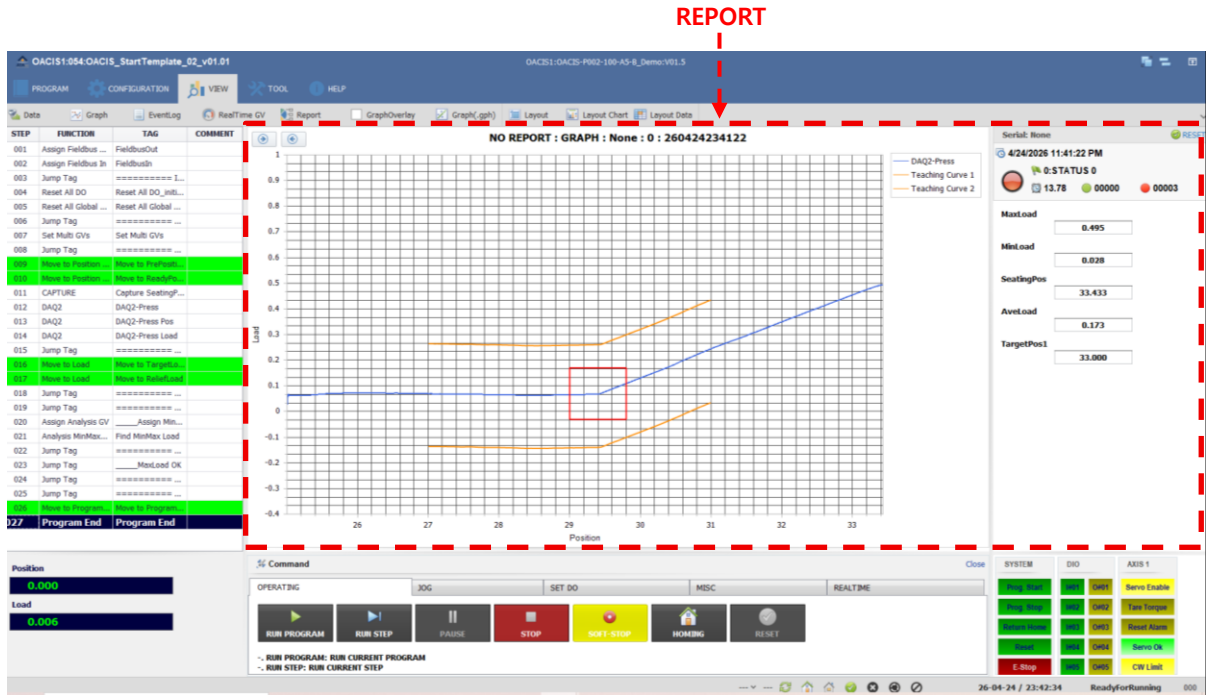
- a. Displays Result Data. Data is updated after each completed cycle. Each result includes Cycle No, Serial No(scanned information), Data and Time, Failure Mode, and Results (Global Variable #1 ~ Global Variable #100 and System Variable #1 ~ System Variable #20 that checked in the “Save” check box under the program configuration)

- **Graph Overlay:** Displays graphs with cumulative updates for each cycle.



A. Report

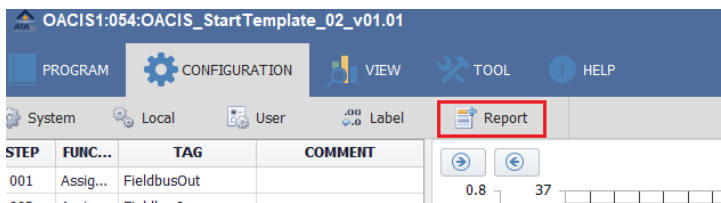
: The Report allows individual DAQ graphs to be combined and configured into the desired layout on the Dashboard. It also supports integrating and displaying Custom Division, Custom Window, and Teaching Curve functions on the Dashboard. OK/NG status can be verified via LED On/Off, and selected parameters can be displayed on the Dashboard.



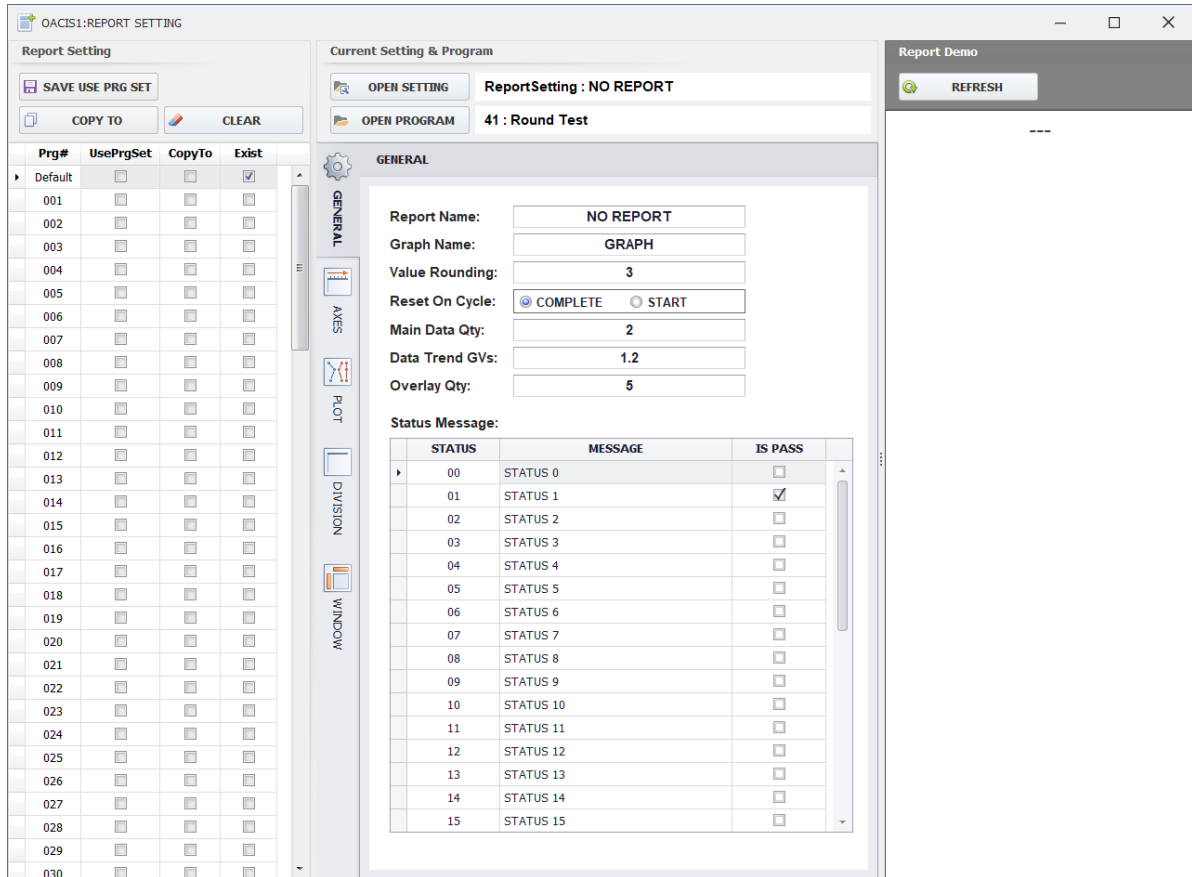
B. Report Setting

: In the Report settings, configure the Report name, Data, Data Trend, and Graph Overlay on the Dashboard. Configure graph colors and axis settings, as well as PLOT area settings, Custom Division, and Custom Window.

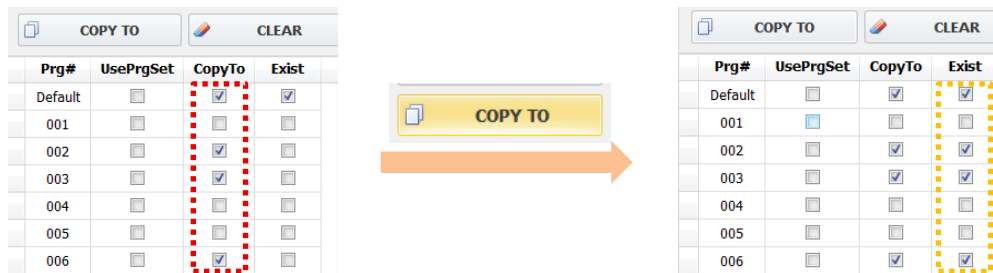
To configure the Report format, select “CONFIGURATION – Report”. The default password is “1”.



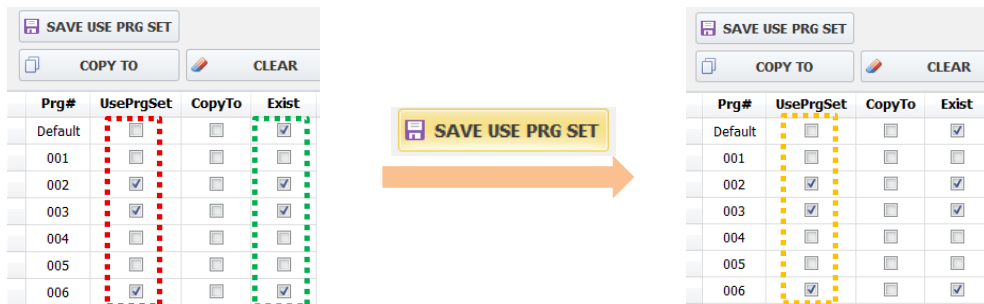
Note: Report settings can be configured per program, up to 120 programs. Typically, one part or product model corresponds to one OACIS program. DAQ result curves can be viewed according to the report settings defined for each program.



- **SAVE USE PRG SET:** To apply individual Report settings per program, select the checkbox for the corresponding program number in the UseProSet area, then click “SAVE USE PRO SET” to save the settings. To use UseProSet, first create an individual setting file using “CopyTo.”. When UseProSet is selected, individual Report settings are applied instead of the default settings.
- **COPY TO:** Save the Report settings. The configured settings can be saved as Default or to a specific program number. Select the checkbox for the target in the CopyTo area, then click “COPY TO” to save the settings file.
- **CLEAR:** Clear the selected checkbox in the CopyTo area
- **OPEN SETTING:** Load previously saved Report configuration files. After loading the Default or a specific program configuration file, modify the settings, then click “COPY TO” to save the changes.
- **OPEN PROGRAM**
- **How to Copy To (Save):** To save and apply the modified Report settings, select the “Copy To” checkbox for the target (Default or Program number), then click “COPY TO”.



- How to apply UseProSet:** To apply individual settings instead of Default settings for each program, select the "UseProSet" checkbox for the program, then click "SAVE USE PRO SET". To configure UseProSet, a Report file must exist. This can be confirmed by the status of the "Exist" checkbox of the corresponding program number.



- GENERAL:** To apply individual Report settings per program, select the checkbox for the corresponding program number in the UseProSet area, then click "SAVE USE PRO SET" to save the settings. To use UseProSet, first create an individual setting file using "CopyTo.". When UseProSet is selected, individual Report settings are applied instead of the default settings.

⚙️

GENERAL

GENERAL

AXES
PLOT
DIVISION
WINDOW

Report Name:

Graph Name:

Value Rounding:

Reset On Cycle: COMPLETE START

Main Data Qty:

Data Trend GVs:

Overlay Qty:

Status Message:

STATUS	MESSAGE	IS PASS
00	STATUS 0	<input type="checkbox"/>
01	STATUS 1	<input checked="" type="checkbox"/>
02	STATUS 2	<input type="checkbox"/>
03	STATUS 3	<input type="checkbox"/>
04	STATUS 4	<input type="checkbox"/>
05	STATUS 5	<input type="checkbox"/>
06	STATUS 6	<input type="checkbox"/>
07	STATUS 7	<input type="checkbox"/>
08	STATUS 8	<input type="checkbox"/>
09	STATUS 9	<input type="checkbox"/>
10	STATUS 10	<input type="checkbox"/>
11	STATUS 11	<input type="checkbox"/>
12	STATUS 12	<input type="checkbox"/>
13	STATUS 13	<input type="checkbox"/>
14	STATUS 14	<input type="checkbox"/>
15	STATUS 15	<input type="checkbox"/>
16	STATUS 16	<input type="checkbox"/>
17	STATUS 17	<input type="checkbox"/>
18	STATUS 18	<input type="checkbox"/>
19	STATUS 19	<input type="checkbox"/>

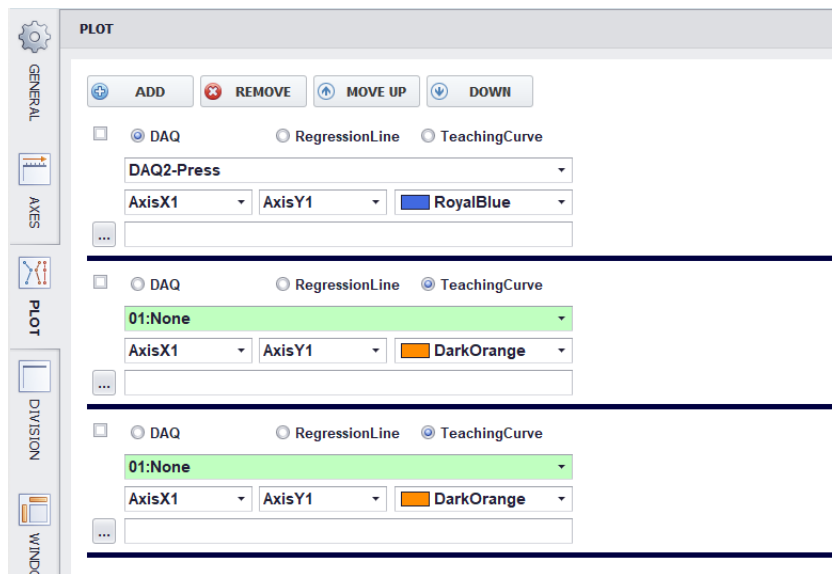
- Report Name:** Set the overall Report name.
- Graph Name:** Set the graph name.
- Value Rounding:** Set the number of decimal places for variable values displayed on the Dashboard. For example, if Value Rounding is set to 3, values are displayed up to three decimal places.

- **Reset On Cycle:** Configure the Report update timing on the Dashboard. Select “Complete” to reset the Report at the end of each cycle, then update it. Select “Start” to reset the Report at the beginning of each cycle, then update it at the end of the cycle.
 - **Main Data Qty:** One data row of selected parameter values is added and displayed per cycle. Set the number of accumulated data rows.
 - **Data Trend GVs:** Select the GV parameters to be displayed in the Data Trend.
If you want to add GV001, 002, 005, 006. And GV 001 and 002 have same X and Y axes and GV005 and 006 have the other axes. In this case you need to input as below;
Period(.) is the separator of GVs they are using same axes.
Comma(,) is the separator of GVs they are using different axes.
 - **Overlay Qty:** Set the number of overlaid graphs in Graph Overlay. If Overlay Qty is set to 5, graphs from the most recent 5 cycles are accumulated and displayed.
 - **Status Message:** In the DATA PANEL, select and edit status messages displayed as test results. The status messages are linked to Status Binary numbers used in the Gaging Step of the program. Up to 15 status messages are available for OACIS-1X and 2X, and up to 31 for OACIS-1XC and 2XC. Generally, #01 is used for PASS, and #02 and above are used for NG types.
- **AXES:** Configure X and Y axes by selecting single or multiple axes with different units.

The screenshot shows the 'AXES' configuration window. It is organized into two main sections: 'Axis X' and 'Axis Y'. Each section contains five individual axis configurations, labeled #1 through #5. Axis #1 in both sections is highlighted in green. In the 'Axis X' section, #1 is labeled 'Position' and has 'Auto Scale' set to 0. In the 'Axis Y' section, #1 is labeled 'Load' and has 'Fixed Scale' set to -0.4 to 1. Both #1 axes have 'MAJOR GRID VISIBLE' and 'MINOR GRID VISIBLE' checked. The other axes (#2-#5) are currently set to 'VISIBLE' and 'Auto Scale'.

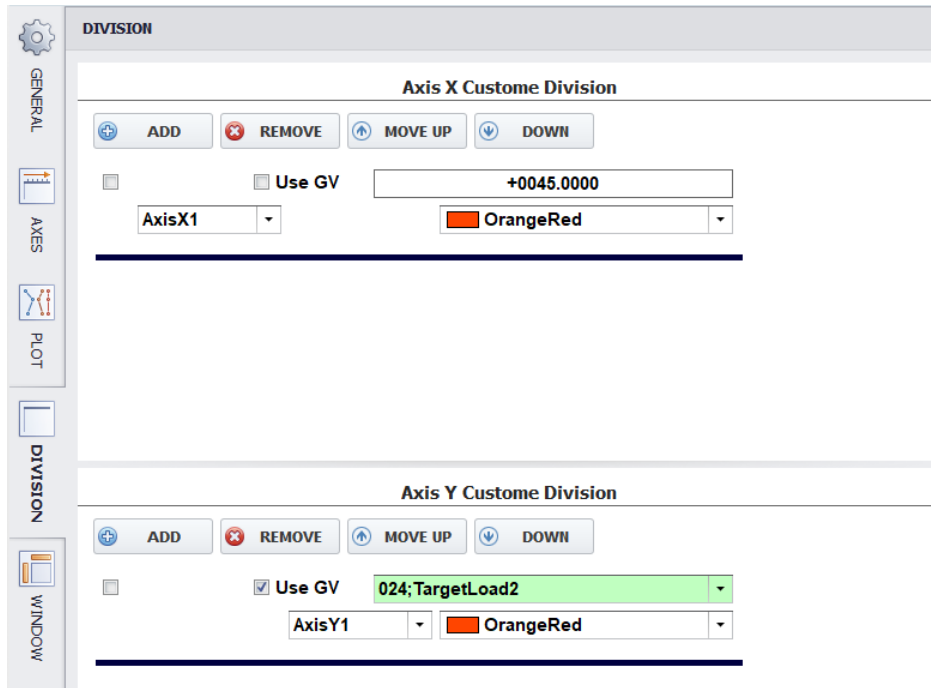
- **AXIS X #1 (VISIBLE / NON-VISIBLE):** Set visibility of the axis. Turn On to display and Off to hide.

- **AXIS SCALE MODE (Auto Scale Loose / Fixed):** Select “Auto Scale Loose” to automatically adjust X and Y axis ranges based on the data range of each PLOT SOURCE, regardless of the defined scale values. Select “Fixed” to apply axis ranges based on the values defined in the SCALE setting.
 - **SCALE:** When AXIS SCALE MODE is set to “Fixed,” the specified values are applied as the axis range.
 - **MAJOR GRID VISIBLE (CHECK):** Display major grid lines in the PLOT area. Check to show and uncheck to hide. Line color can be adjusted.
 - **MINOR GRID VISIBLE (CHECK):** Display minor grid lines in the PLOT area. Check to show and uncheck to hide. Line color can be adjusted.
- **PLOT:** Configure a single screen by combining DAQ Graphs, Regression Lines, and Teaching Curves, with up to 10 PLOTS.



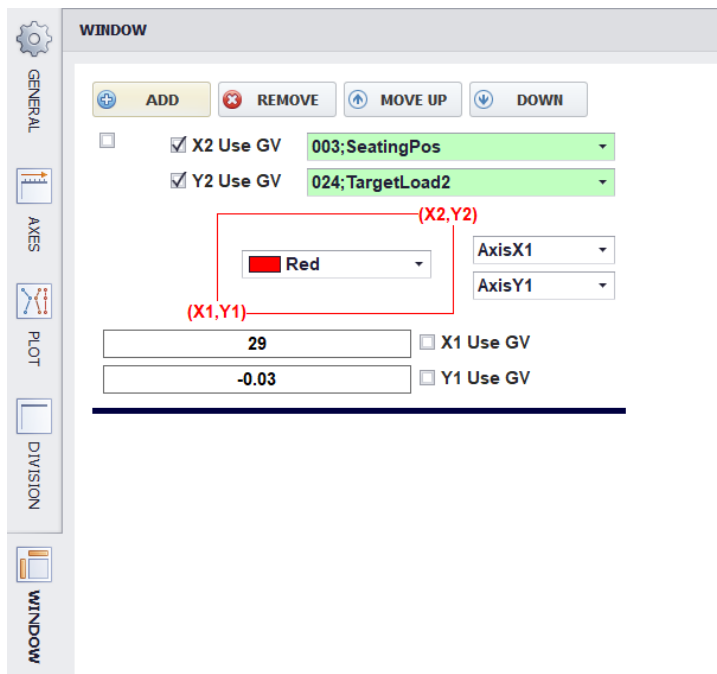
- **ADD:** Create a new PLOT.
- **REMOVE:** Select the checkbox of the PLOT to be removed, then click “REMOVE” to delete it.
- **MOVE UP:** Select the checkbox of the PLOT to move, then click “MOVE UP” to move it up.
- **MOVE DOWN:** Select the checkbox of the PLOT to move, then click “MOVE DOWN” to move it down.
- **PLOT SOURCE:** Select one of DAQ Curve, Regression Line, or Teaching Curve.
- **AXIS X:** Select and assign one of the configured X axes to the PLOT.
- **AXIS Y:** Select and assign one of the configured Y axes to the PLOT.
- **PLOT COLOR:** Set the color of DAQ Curves, Regression Lines, and Teaching Curves.
- **REGRESSION LINE RANGE:** When PLOT SOURCE is set to Regression Line, display the regression line within the specified range.
- **REFERENCE SOURCE:** For preview in the REPORT DEMO screen, click “...” to load Reference DAQ Curves, Regression Lines, and Teaching Curves.

- **DIVISION:** Divide the PLOT area into sections using intersecting lines of the X axis, the Y axis, or both axes.



- **Fixed Value:** Divide sections based on fixed values.
- **Use GV:** Divide sections using GV variables. Select the “Use GV” checkbox, then set the GV.

- **WINDOW:** In the PLOT area, a rectangular window can be created to highlight a specific area or display a Gaging Limit. The window is defined by X and Y values and can be set using fixed values or global variables.



- **REPORT DEMO:** The Report settings can be previewed through the REPORT DEMO screen. To run REPORT DEMO, a Reference DAQ Graph is required in the PLOT section. Click the “REFRESH” button to preview the Report screen.



IX. VIEW - DATA

: Raw Data in the database can be retrieved and exported as an Excel file. Additionally, Data Trend and SPC Data can also be viewed together.

A. DATA VIEW

The screenshot displays the OACIScom software interface. At the top, there is a navigation bar with buttons for PROGRAM, CONFIGURATION, VIEW, TOOL, and HELP. Below this, a secondary bar contains icons for Data, Graph, EventLog, RealTime GV, and Report. The 'Data' icon is highlighted with a red box and an arrow. Below the navigation bars, the 'OACIS1: DATA VIEW' window is open. It features a search interface with fields for 'OACIScom_Result_001', 'TIME' (4/24/2026 5:45 PM to 4/26/2026 1:36 PM), 'Q'ty' (1000000), 'UPDATE', 'EXPORT (*.xlsx)', and 'EXPORT (*.csv)'. There are also checkboxes for 'SQLite(.db)', 'MDB(.mdb)', 'SERIAL', and 'CN1'. Below the search fields is a table with columns for CN2, Save, Var1, Var2, Var3, Var4, Var5, Var6, Var7, Var8, Var9, Var10, Var11, Var12, Var13, Var14, and Var. The table contains data for various CN2 values and their corresponding variables. To the right of the table is a 'DATA TREND' graph showing a line plot for 'SeatingPos' over a range of CN2 values from 1874 to 1890. The graph shows a constant value of approximately 33.4. A red arrow points from the 'SeatingPos' label in the graph to the corresponding column in the table.

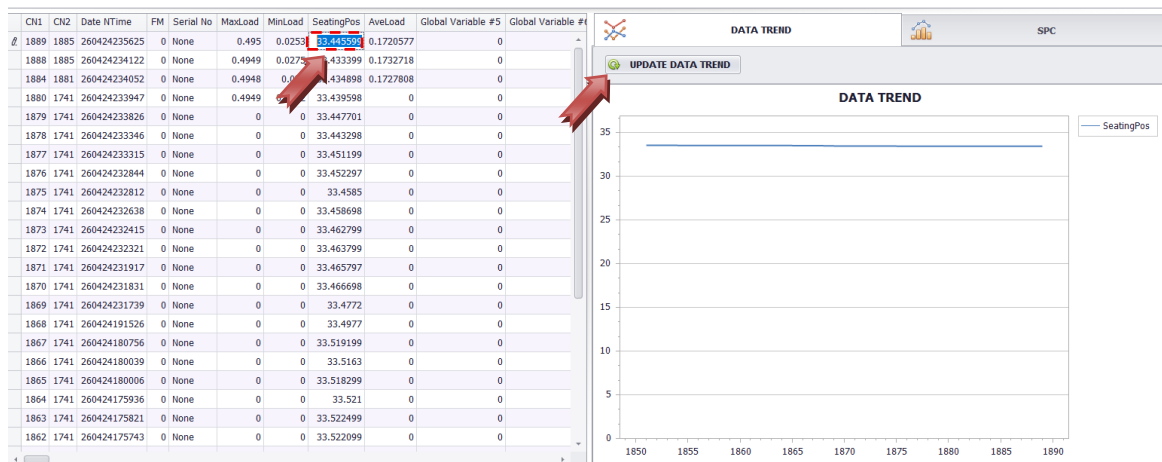
- DATA SEARCH:** Enter search conditions such as date range, serial number, and CN1 number to retrieve data. The retrieved data can be exported as an Excel file.
 - Program Number Selection:** Select the program number to query from "OACIScom_Result_number" at the top left.
 - External Path DB File Query:** Select the folder icon at the top left to retrieve data from an external DB file path.
 - DB File Extension Selection:** Select SQLite (.db) or MDB (.mdb) to retrieve data. OACIScom v5 uses SQLite (.db), while v4 uses MDB (.mdb). OACIScom v5 can also load MDB (.mdb) files from v4.
 - Data Filter:** Select one or more conditions (TIME, SERIAL, or CN1), enter condition values, and retrieve data. Select the left checkbox to apply the condition.
 - Q'ty:** Set the maximum number of records to retrieve.
 - Order:** Sort Raw Data in ascending (ASC) or descending (DESC) order.
 - UPDATE:** Select a program number or a DB file, set Data Filter conditions, and click the "Update" button to retrieve data.
 - SAVE ONLY VIEW:** In Program Edit - Program Configuration, only Global Variables with "SAVE" checked are displayed.
 - EXPORT(*.xlsx):** Export retrieved data as an Excel (.xlsx) file.
 - EXPORT(*.csv):** Export retrieved data as a CSV (.csv) file.
- GV CHANGE HISTORY:** View the change history of GV names. The CN2 number is updated from the time of change.

- c. **RAW DATA:** View the retrieved raw data.
 - **CN1:** Unique cycle number automatically generated by OACIS
 - **CN2:** Global Variable information number matched with the unique cycle number
 - **DateNTIME:** Stored date and time information
 - **FM:** Failure Mode, matched with Status Binary information
 - **Serial No:** Stores scanned Serial information. If no scanner is connected, "None" is displayed.
- d. **DATA TREND & SPC:** Data Trend and SPC Data can be viewed for selected GV variables from the retrieved Raw Data.

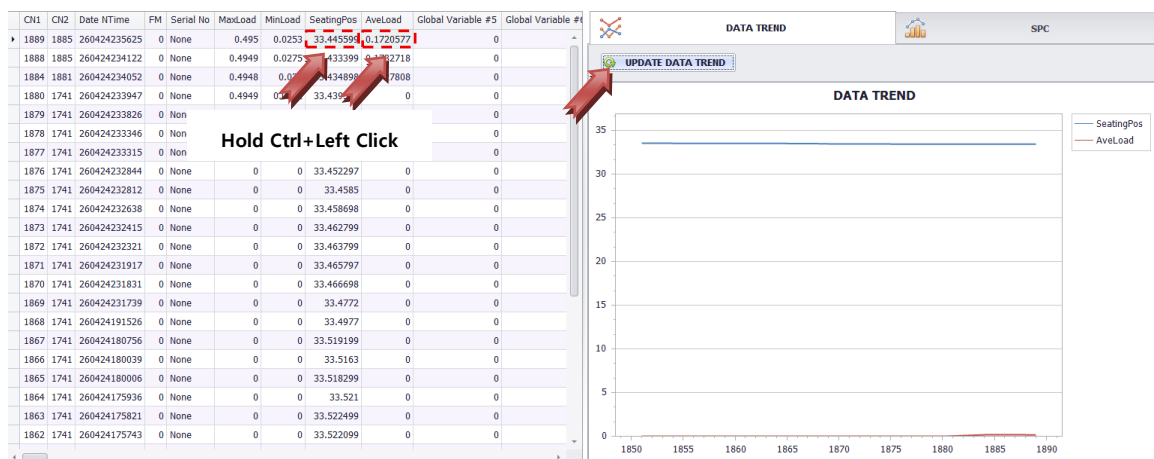
B. DATA TREND

: Displays Data Trend of selected parameters. Data Trends can be displayed individually or in multiple selections.

- Click any cell value of the parameter to display in Data Trend, then click the "UPDATE DATA TREND" button to view the trend.



- Multiple parameters can be selected and displayed in Data Trend. Hold Ctrl and left-click to select multiple cell value areas, then click the "UPDATE DATA TREND" button to view the trend.

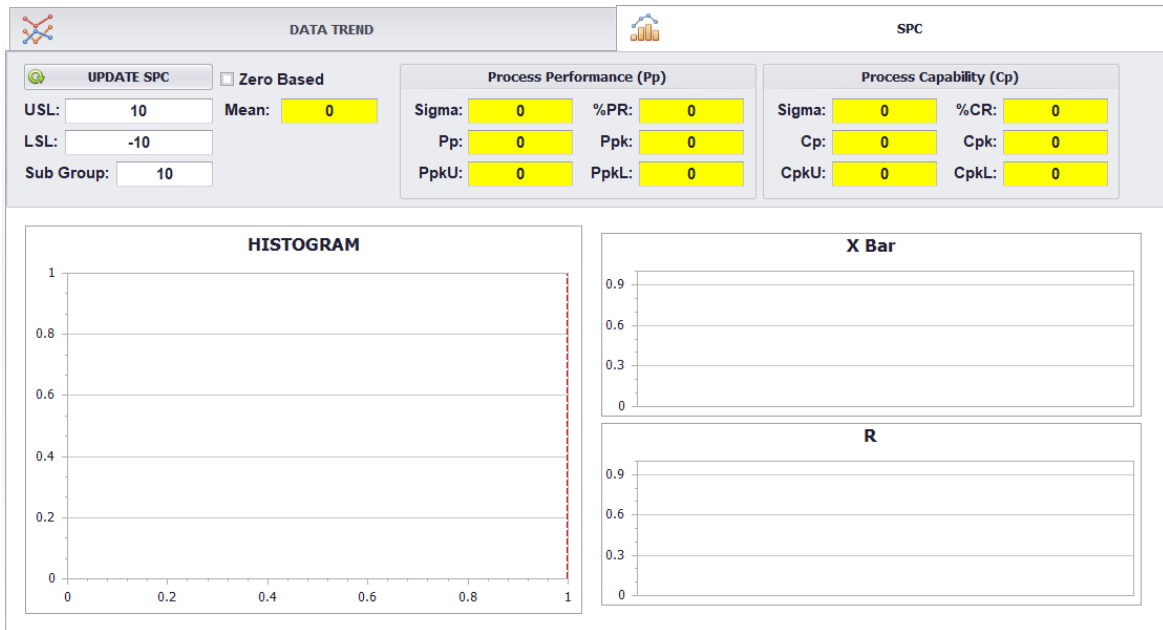


C. DATA – SPC (Statistical Process Control)

With OACIS result data, users can create SPC data, which is statistical process control. Users can calculate indexes such as sigma, Pp, Ppk, Cp, and Cpk from SPC and use them to improve quality and process.

In general, Pp and Ppk are indexes to evaluate process performance and are mainly used during equipment commissioning or new pilot stages. Cp and Cpk are indexes to evaluate process capability and are mainly used in the mass production stage.

The difference between Ppk and Cpk is based on standard deviation. Ppk represents the volatility over the entire data using the Overall standard deviation, and Cpk represents the volatility within subgroups using the Within standard deviation. For example, when data is collected over a week, Ppk is the volatility over the entire week, and Cpk is the volatility within the day.



- a. **UPDATE SPC:** Select parameters for SPC analysis, set SPC analysis conditions, and click “Update SPC” to display SPC data.
- b. **USL(Upper Specification Limit) / LSL(Lower Specification Limit):** Set the upper/lower specification of the index.
- c. **SUB GROUP:** When setting Cpk, set the size of subgroup. For example, if you set them to ‘Daily and Sub Group Size: 2’, the first two data are sampled and calculated every day. It is activated only when ‘Cpk Analysis mode’ is set.
- d. **Zero Based**
- e. **Mean**
- f. **DATA:** It shows the updated data. In Cpk mode, X_Bar and Range data are additionally displayed.
- g. **CONTROL CHART:** X_bar chart and range chart are displayed as graph trends. The chart is displayed only in Cpk mode.
- h. **Process Performance (Pp)**
 - Sigma: Standard deviation
 - PR(%): Inverse Pp, expressed as a percentage
 - Pp: Process performance index. This is a value that evaluates the performance of the process by matching the center of the distribution to the center of the specification, and the bias is not reflected. The larger the value, the better the performance.
 - Ppk: Process performance index reflecting bias from the center of the specification. The larger the value, the better the performance, and the smaller of Ppk_Upper and Ppk_Lower is the corresponding.

- PpkU: It shows the process mean and distribution compared with the upper specification limit.
- PpkL: It shows the process mean and distribution compared with the lower specification limit.
- i. **Process Capability (Cp)**
 - Sigma: Standard deviation value
 - CR(%): Inverse Cp, expressed as a percentage
 - Cp: Process capability index. This is a value that evaluates the capability of the process by matching the center of the distribution to the center of the specification, and the bias is not reflected. The larger the value, the better the performance.
 - Cpk: Process capability index reflecting bias from the center of the specification. The larger the value, the better the capability, and the smaller of Cpk_Upper and Cpk_Lower is the corresponding.
 - CpkU: It shows the process mean and distribution compared with the upper specification limit.
 - CpkL: It shows the process mean and distribution compared with the lower specification limit.
- j. **HISTOGRAM:** Displays the distribution of SPC data together with upper and lower limits (USL/LSL) as a bar graph.
- k. **X BAR CHART:** The chart shows the trend of the average value of the subgroup.
- l. **RANGE CHART:** The chart shows the trend of the range of the subgroup data max/min.

- Select parameters for SPC analysis, set SPC analysis conditions, and click “Update SPC” to display SPC data.

Serial No	MaxLoad	MinLoad	SeatingPos	AveLoad	Global
None	0.495	0.0253	33.445599	0.1720577	
None	0.4949	0.0275	33.433399	0.1732718	
None	0.4948	0.0272	33.434898	0.1727808	
None	0.4949	0.0272	33.439598	0	
None	0	0	33.447701	0	
None	0	0	33.443298	0	
None	0	0	33.451199	0	

DATA TREND

Zero Based

USL: Mean:

LSL:

Sub Group:

- Calculate the Ppk and Cpk data.

DATA TREND
SPC

Zero Based

USL: Mean:

LSL:

Sub Group:

Process Performance (Pp)

Sigma: %PR:

Pp: Ppk:

PpkU: PpkL:

Process Capability (Cp)

Sigma: %CR:

Cp: Cpk:

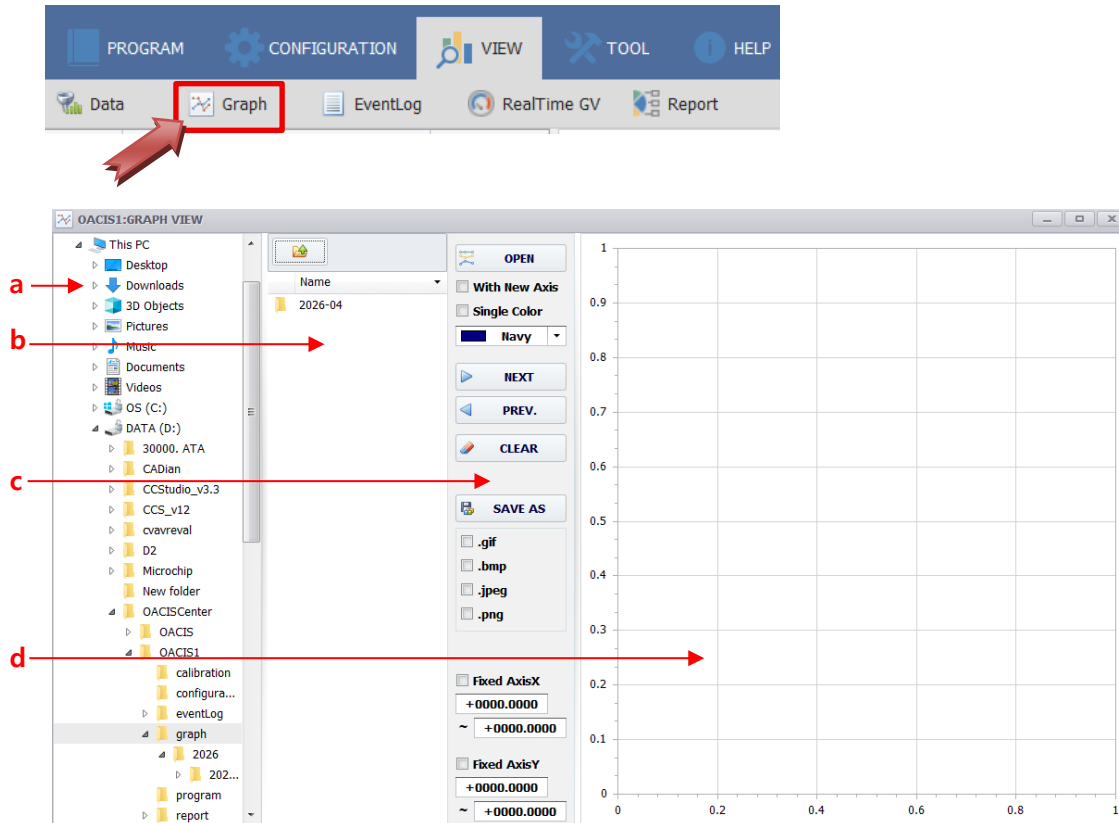
CpkU: CpkL:

HISTOGRAM

X. VIEW - GRAPH

: Graphs stored on the local PC can be viewed and exported in various formats. Click “VIEW-GRAPH” and the GRAPH VIEW window is displayed.

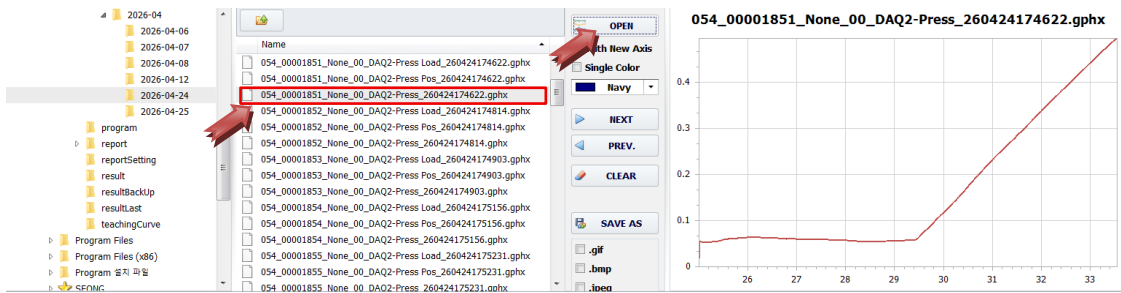
A. GRAPH VIEW



- Folder Navigation:** Displays the current folder path, and to open a graph file, navigate to the folder of the target date.
- Graph File Selection:** Select graph files. Multiple files can be selected by holding the Shift or Ctrl key and left-clicking the mouse.
- Graph Viewer Settings**
 - OPEN:** Select a graph file and click the “OPEN” button to display the graph in the right-side display window.
 - With New Axis:** When the “With New Axis” checkbox is selected while opening a graph, an additional plot scale is applied to each graph.
 - Single Color:** When the “Single Color” checkbox is selected and a color is specified, graphs are displayed in the selected color. When the “Single Color” checkbox is not selected, each graph is displayed in different colors when opened sequentially or in multiple selections.
 - NEXT / PREV:** Select and display the next or previous graph within the currently selected folder.
 - CLEAR:** Clears the current Graph Display window.
 - SAVE AS:** The current screen displayed in the Graph Display window can be saved as an image file. File format can be selected from GIF, BMP, JPEG, and PNG.
 - Fixed AxisX / Fixed AxisY:** When the “Fixed AxisX/Y” checkbox is selected, the X-axis and Y-axis ranges are applied based on the values defined in Scale Setting. When the checkbox is not selected, the X-axis and Y-axis ranges are automatically adjusted according to the data range of each Plot Source, regardless of the defined scale values.
- Graph Viewer Window:** Displays selected graphs with applied settings such as axes, color, and scale.

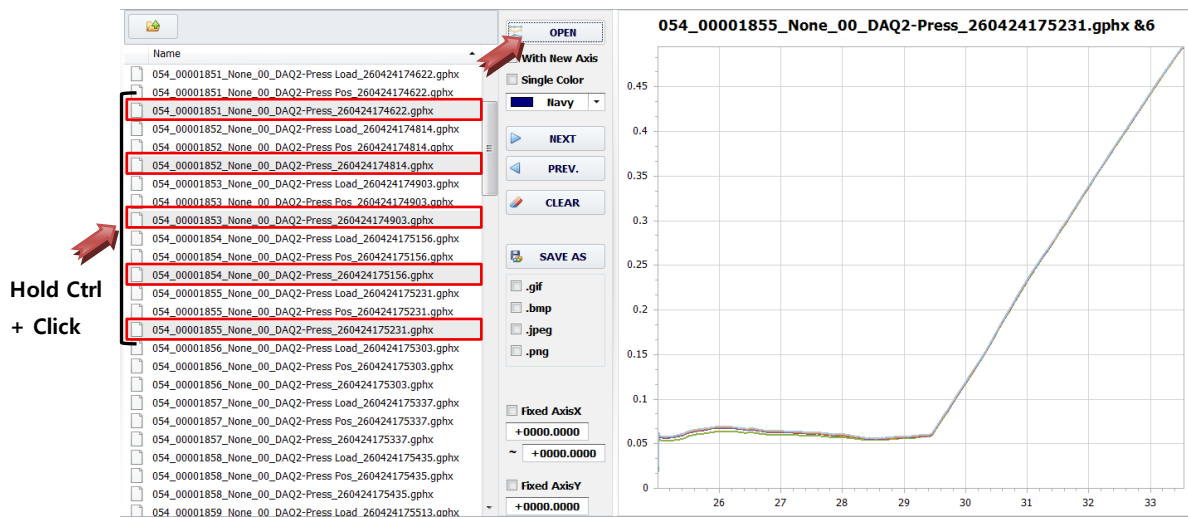
B. Open Single Graph

- Select one graph file and click the "OPEN" button.

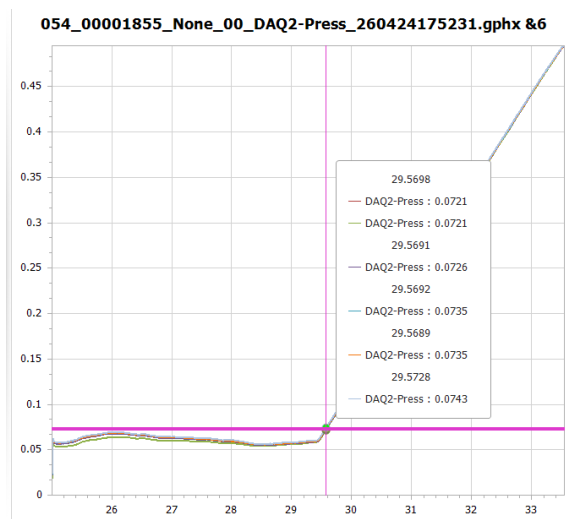


C. Open Multi Graphs

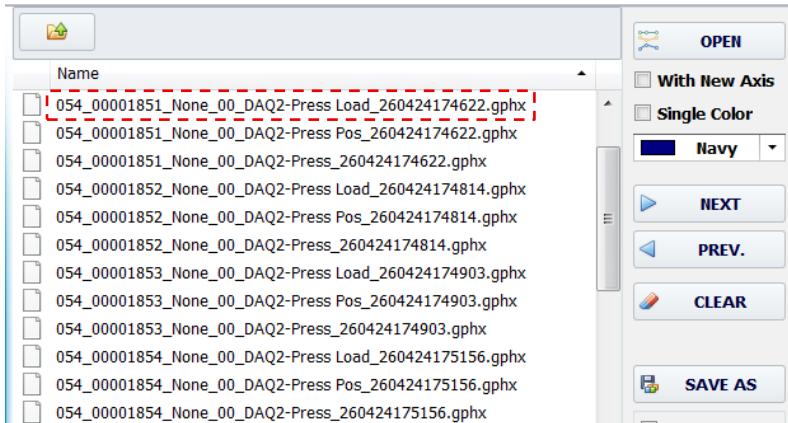
- Hold the Ctrl key and select multiple graph files, then click the "OPEN" button.
- Hold the Shift key and click to select a range of consecutive files.



- Move the mouse over the graph to view coordinate information for each graph.



D. Graph File Name



- **054:** Program Number
- **00001851:** Cycle Number
- **None:** Serial Information
- **00:** FM (Failure Mode, Status Binary Number)
- **DAQ2-Press Load:** Graph Name
- **260424174622:** Date and Time, 2026-04-24 17:46:22

E. Graph Control

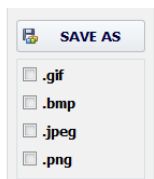
- Zoom In: Scroll the mouse wheel up or use <Shift> + Left Mouse Button.
- Zoom Out: Scroll the mouse wheel down or use <Alt> + Left Mouse Button.
- Pan: Click and drag with the left mouse button.

F. Clear

- Click the "CLEAR" button to remove all graphs displayed on the screen.

G. SAVE AS

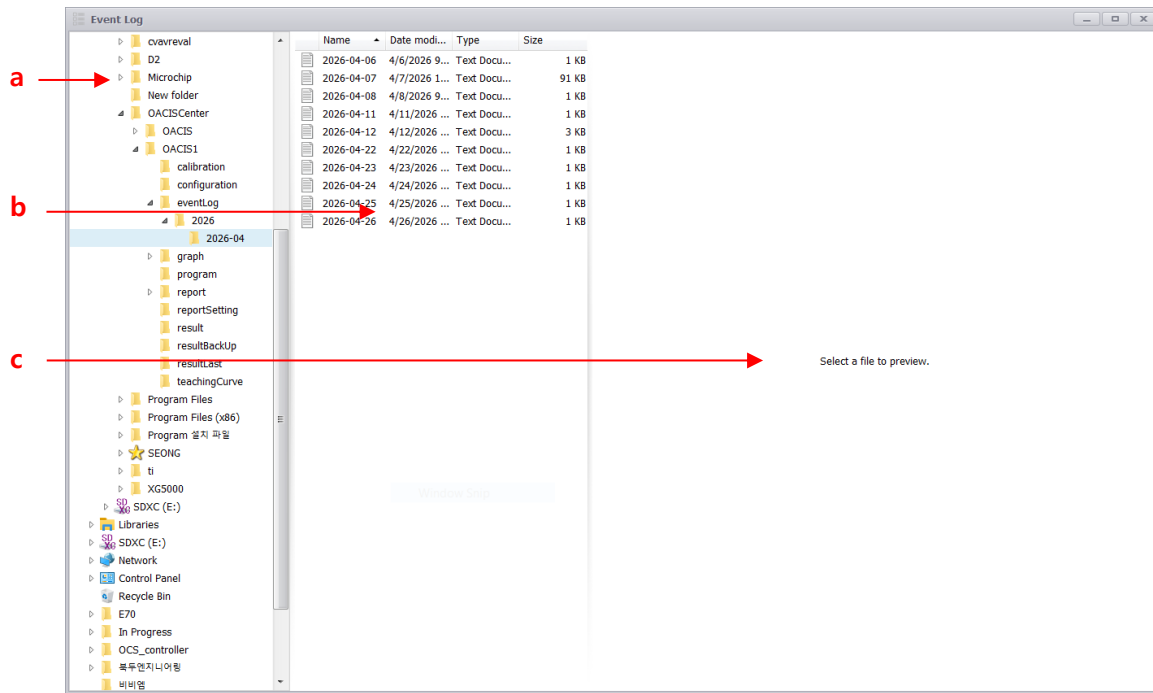
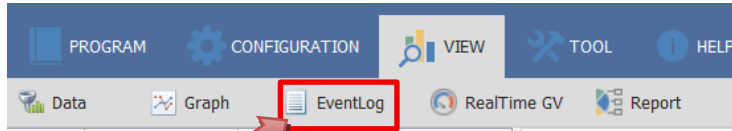
- The current screen displayed in the Graph Display window can be saved as an image file.
- File format can be selected from GIF, BMP, JPEG, and PNG.



XI. VIEW – Event Log

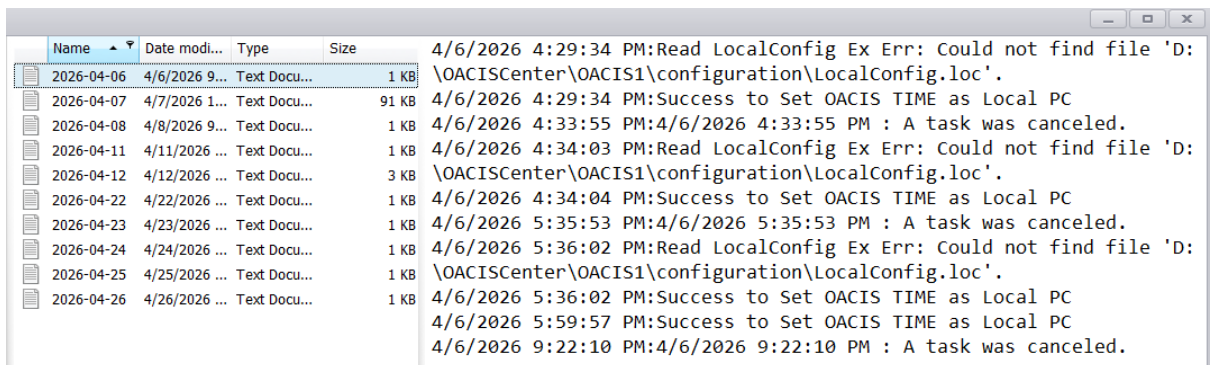
: Displays Config save history, Error history, Program save history, and other system-related logs. Event Log files are created on a daily basis when logs are generated.

A. Event Log



- Folder Navigation:** Displays the current folder path, and to open a Event Log file, navigate to the folder of the target date.
- Event Log File Selection:** Click a Event Log file.
- Event Log Viewer Window:** Displays Event Logs generated on the selected date.

B. Event Log View



XII. VIEW – REALTIME GV

: Displays Global Variable and System Variable parameter values in real time. Enables debugging of program operation using detailed Global Variable values for each step. Additionally, real-time trends of selected Global Variables can be monitored using “GV Data Trend”.

A. RealTime GV

The screenshot shows the OACIS RealTime GV interface. The top menu bar includes PROGRAM, CONFIGURATION, VIEW, TOOL, and HELP. Below it are icons for Data, Graph, EventLog, RealTime GV (highlighted with a red box and arrow), and Report. The main window shows a table of Global Variables and a 'GV Value Trend' graph. Red arrows labeled a through e point to specific UI elements: a (Step No), b (GV Name/Value), c (Data Trend GVs), d (REFRESH), and e (GV Value Trend graph).

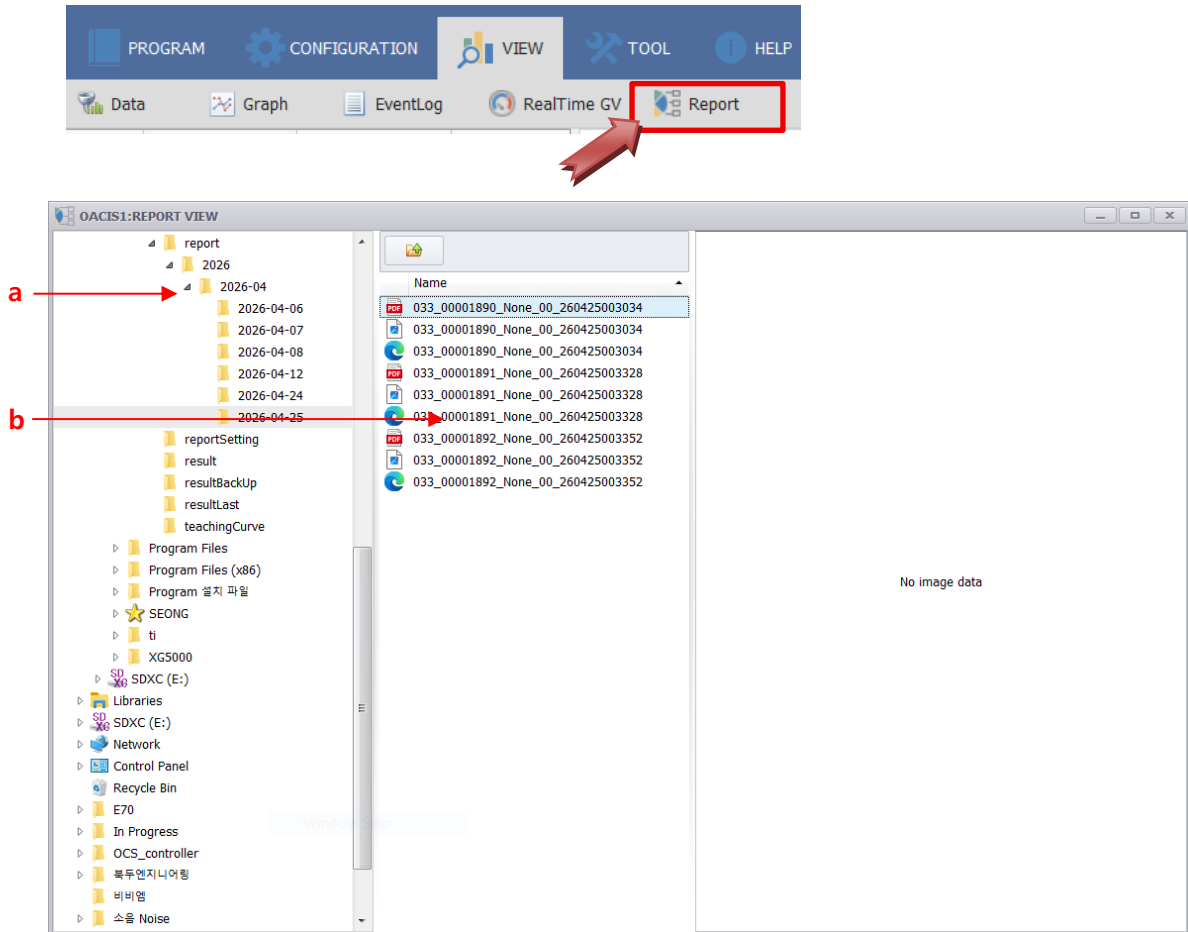
#	NAME	VALUE
001	MinPos	0
002	MaxPos	0
003	MinLoad	0
004	MaxLoad	0
005	0.2_Pos	0
006	0.7_Pos	0
007	Global Variable #7	0
008	Global Variable #8	0
009	Global Variable #9	0
010	Global Variable #10	0
011	PrePos	0
012	TargetLoad	0
013	Load_0.2	0
014	Load_0.7	0
015	Global Variable #15	0
016	Global Variable #16	0
017	Global Variable #17	0
018	Global Variable #18	0
019	Global Variable #19	0
020	Global Variable #20	0
021	Const_1	0
022	Const_5	0
023	Const_10	0
024	Const_0.1	0
025	Const_0.5	0
026		0
027	Global Variable #27	0
028	Global Variable #28	0
029	Global Variable #29	0
030	Global Variable #30	0

- Step No:** Displays the current running step number. (000: OACIS is not running)
- GV Name / Value:** Displays the names and real-time values of Global Variables #1 to #100 and System Variables #1 to #20
- Data Trend GVs:** Enter variable numbers to monitor real-time trends of GV values. Select the “Enable” checkbox to activate
- REFRESH:** Clears the Data Trend graph
- GV Value Trend:** Displays trends of selected Global Variables. The X-axis represents step number, and the Y-axis represents variable values at each step

XIII. VIEW – REPORT VIEW

: Reports stored on the local PC can be viewed. Click “VIEW-REPORT” and the REPORT VIEW window is displayed.

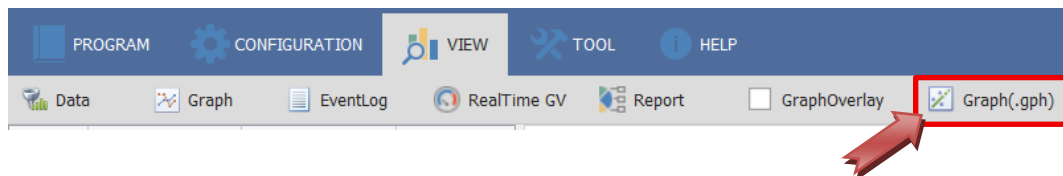
A. REPORT VIEW



- Folder Navigation:** Displays the current folder path, and to open a Report file, navigate to the folder of the target date.
- Report File Selection:** Select a Report file. Double-click the Report file to open it.

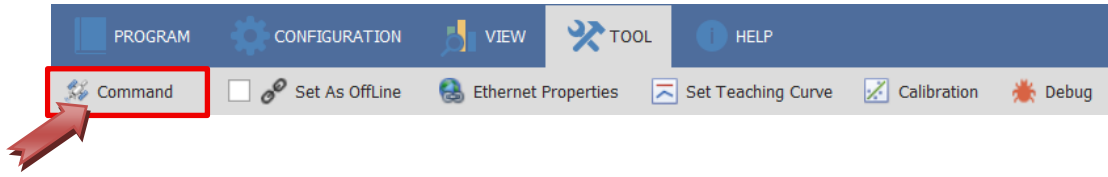
XIV. VIEW – GRAPH(.gph)

: OACIScom v4 (.gph) graph files stored on the local PC can be opened. Except for the file extension, all other functions are identical to GRAPH VIEW. For more details, refer to the VIEW - GRAPH manual.

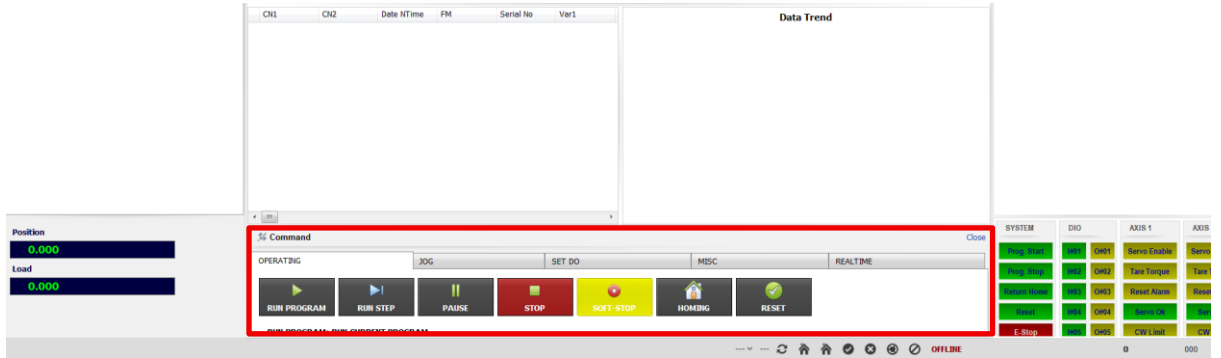


XV. TOOL – Command

: The Command tools at the bottom of the Main Dashboard can be displayed.

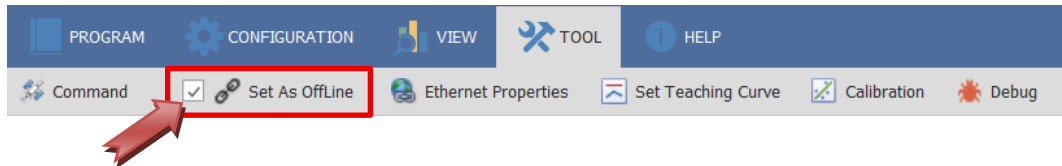


A. Command Tool



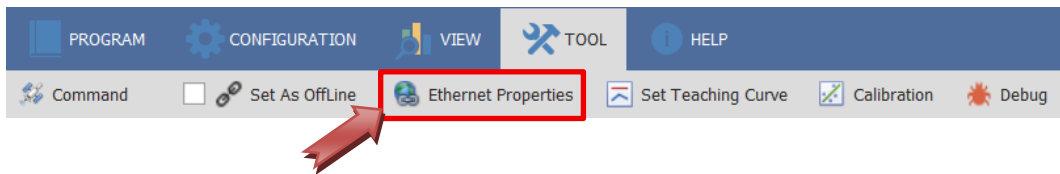
XVI.TOOL – Set As OffLine

: To disconnect communication between OACIScom and the OACIS controller, click “Set As OffLine”. When running “DEBUG - UDP COM TEST”, OACIScom must be in the OffLine state.



XVII. TOOL – Ethernet Properties

: The IP Address, Subnet Mask, and Gateway information of the OACIS controller can be changed.



B. ETHERNET PROPERTIES

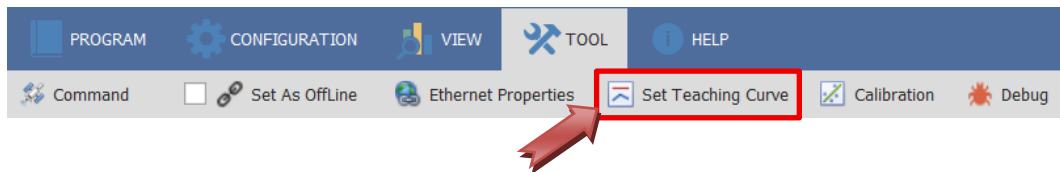
Note: To change the IP address, the current IP address must be known (the PC must be connected to the target OACIS). If the IP address is unknown, it can be checked via RS232 communication.

 A screenshot of the 'ETHERNET PROPERTIES' dialog box. It contains four input fields: 'TARGET OACIS IP ADDRESS' (with the value '192.168.000.003'), 'TARGET OACIS SUBNET MASK' (with the value '255.255.255.000'), 'TARGET OACIS GATEWAY' (with the value '192.168.000.001'), and 'TARGET OACIS MAC ID'. To the right of these fields are three buttons: 'CHANGE PROPERTIES' (with a green checkmark icon), 'READ PROPERTIES' (with a document icon), and 'READ MAC ID' (with a document icon).

- **Target OACIS IP Address**
 - The default OACIS IP Address is “192.168.0.3”.
 - A new IP Address can be entered.
- **Target OACIS Subnet Mask**
- **Target OACIS Gateway**
- **CHANGE PROPERTIES:** Enter the new IP address and other required information, then click the “CHANGE PROPERTIES” button to update the IP address and related information on the OACIS controller.
- **READ PROPERTIES:** Loads the IP address, Subnet Mask and Gateway information configured in the OACIS.
- **OACIS MAC ID:** Click the “READ MAC ID” button to read the MAC ID from the OACIS and display it.

XVIII. TOOL – TEACHING DAQ CURVE

: 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 (*.gphx) and then this curves be used for “Gaging DAQ by Teaching” included in GAGE function.



C. SET TEACHING CURVE

Note: OACIS can store up to 40 teaching graphs, corresponding to up to 20 teaching DAQ curves.

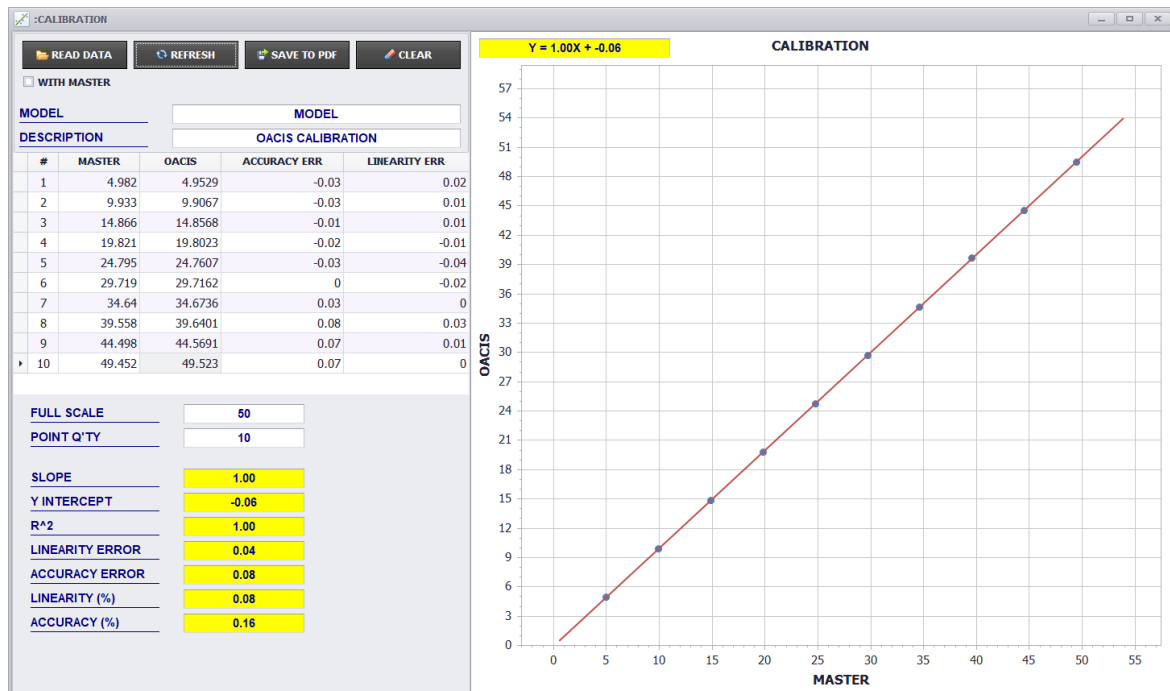
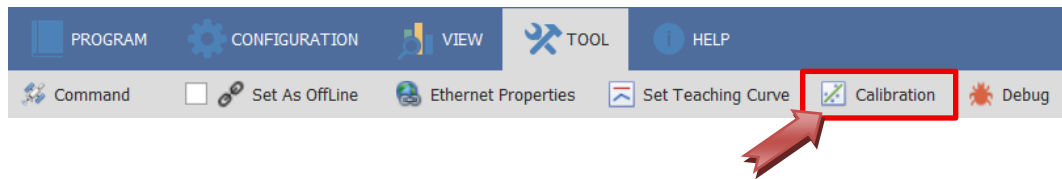
#	X	Y	#	X	Y
0	25.0107	0.2966	0	25.0107	-0.2034
1	25.0057	0.2775	1	25.0057	-0.2225
2	25.0107	0.2962	2	25.0107	-0.2038
3	25.0162	0.3099	3	25.0162	-0.1901
4	25.022	0.3181	4	25.022	-0.1819
5	25.0278	0.316	5	25.0278	-0.184
6	25.0335	0.3142	6	25.0335	-0.1858
7	25.0393	0.3134	7	25.0393	-0.1866
8	25.0455	0.3131	8	25.0455	-0.1869
9	25.0507	0.313	9	25.0507	-0.187
10	25.0558	0.313	10	25.0558	-0.187
11	25.0613	0.313	11	25.0613	-0.187
12	25.0668	0.313	12	25.0668	-0.187
13	25.0726	0.313	13	25.0726	-0.187
14	25.0784	0.313	14	25.0784	-0.187
15	25.0846	0.313	15	25.0846	-0.187
16	25.0906	0.313	16	25.0906	-0.187

- OPEN:** Loads Reference DAQ graphs (*.gphx) or Teaching Curves stored on the local PC. Selecting the “FROM OACIS” checkbox loads Teaching Curves stored in the OACIS controller.
 - Teaching Curve 1 / Teaching Curve 2 / DAQ As Ref:** Loads Teaching Curves or DAQ graphs stored on the local PC. Select one of the three sources, then click “OPEN”.
 - FROM OACIS:** Loads Teaching Curves stored in the OACIS controller. Select the “FROM OACIS” checkbox, choose a Teaching Curve, then click “OPEN”.
- CLEAR:** Clears the currently displayed DAQ graphs and Teaching Curves.
- Set Teaching Curve display window:** Displays DAQ graphs and Teaching Curves that are loaded or being edited.
- CREATE or MODIFY:** Creates or modifies Teaching Curves with offsets applied based on the Reference DAQ.
 - Offset Value:** Sets the Y-axis offset based on the Reference DAQ or generated Teaching Curve. The offset value can be set as \pm .
 - Source:** Selects the source used as the reference for applying the offset. If no curve exists, a Teaching Curve is generated with the offset applied based on the Reference DAQ or Teaching Curve. To modify an existing Teaching Curve, set the Source to the corresponding Curve #1 or #2, then apply the offset.
 - Color:** Selects the color used to display the curve in the Teaching Curve display window.
- Teaching Curve Data:** Allows direct editing of Teaching Curve coordinate data. Coordinate data in a selected range can be deleted, and new coordinate data can be inserted. Right-clicking on the data window displays the “Insert” and “Delete” editing tools.

- f. **SAVE AS:** Saves generated upper and lower Teaching Curves.
- **ONLY TO PC:** To save a created TEACHING CURVE only to the local PC, select the “ONLY TO PC” checkbox and click “SAVE AS”. If the “ONLY TO PC” checkbox is not selected, executing “SAVE AS” saves the curve to both the OACIS controller and the local PC.
 - **Number:** When saving a Teaching Curve, curve numbers can be assigned from 1 to 40.
 - **Name:** When saving a Teaching Curve, a curve name can be set.

XIX.TOOL – Calibration

: Calibration of the load cell or torque cell built into a servo press or nut runner may be required. Calibration is performed using a master and the OACIS calibration program. This program enables easy calculation of calibration results and generation of calibration reports.



- READ DATA:** After completing Master Load Cell measurement, loads OACIS Load Cell values from resultLast.txt. To use this file, OACIS load values must be stored in Global Variables in the calibration program.
- REFRESH:** Loads data from the selected resultLast.txt, displays it in the OACIS window, and automatically calculates specifications.
- SAVE TO PDF:** Saves the calibration result as a PDF file.
- CLEAR:** Clears the input data and calibration graph.
- FULL SCALE:** Sets the maximum load value for the calibration range.
- INSPECTION POINTS:** Sets the number of inspection points. Input range is 1 to 10.
- MASTER:** Enter measured values from the Master Load Cell. Load values at each point are determined by INSPECTION POINTS and FULL SCALE.
- OACIS:** Displays OACIS load values from resultLast.txt.
- SPECIFICATIONS:** Generates a linear regression line based on Master and OACIS data, providing Slope, Y-Intercept, Coefficient of Determination (R^2), Linearity Error, Accuracy Error, Linearity (%), and Accuracy (%).

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
- "SPC in Data updated

V5.00.00.01:

- OACIScom v5 updated