mek®

Gas System

Cs-Analyzer

Operation manual

Version 2.3.x

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Rev.2

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1. Introduction

Please read this manual carefully in order to use this software correctly, and understand the following: Learn the basic operation of the personal computer for yourself. Use the personal computer only for this software. Marantz Electronics, Ltd., and the suppliers are not responsible for any damage (including damage and failure of the hardware or other hardware irrespective of ordinary damage, special damage or consequential damage) that may directly or indirectly occur to the customers in connection with the install or use of this software and any claim from a third party.

2. Outline

CS-Analyzer is an application software that communicates to PostgreSQL via LAN and display the status of the PCB production. To use this software, CS-Center is required. Use this software on the condition that the screen resolution is 1280 x 960 high color (16 bit) or more and Ethernet network interface and TCP/IP communication is available. Fixed IP Address is required. Set the network adaptor and related devices in advance. HASP is necessary to execute this software. Installation of a driver is necessary to HASP.

3. System Requirement

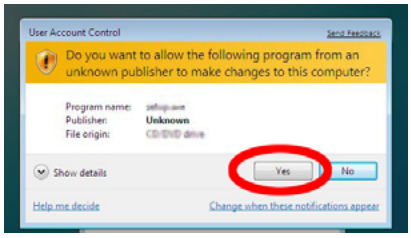
The following systems are necessary to execute CS-Analyzer.

- A computer on which Microsoft Windows XP/Windows 7/Windows 8/Windows 8.1/ Windows 10/Windows 11 Operation System.
- 50 GB or more free hard disc space (this capacity is only for software, not for data)
- Ethernet Network Interface (TCP/IP Fixed IP Address)
- The administrator authority to install and execute CS-Analyzer.

4. Installation of CS-Analyzer

Insert a media and double-click Install.exe in CsAna[xxxx] folder. [xxxx] is a four-digit number that means the software version. Install.exe may start automatically when the media is CD. Select “Install CS-Analyzer” for installation. Be sure to install the company name, your name and serial No. Otherwise, CS-Analyzer may not work. If CS-Analyzer is not installed in the same PC as CS-Center, Do not start CS-Analyzer at this point. You need to install HASP driver. Select “Install HASP driver ” in order to install the HASP driver. After completion of HASP driver installation, insert the HASP key into the USB terminal. You can now use CS-Analyzer after automatic driver setup.

*** Note: You may receive warning message while installing any Mek software to PC. Please just click "Yes", and continue installation.**



5. Un-Installation of CS-Analyzer

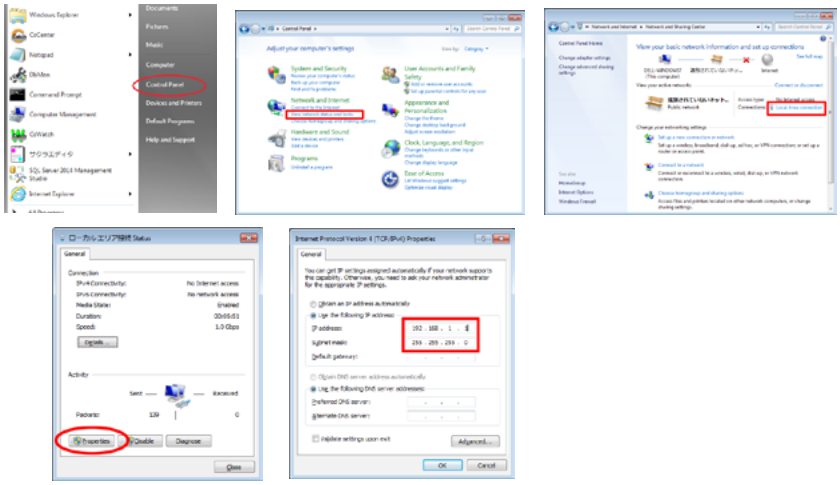
Select CS-Analyzer from “Add/Delete Application” on the control panel for un-installation.

6. PC Setting

Set IP Address. Set the network adaptor and related devices in advance, and TCP/IP should be available.

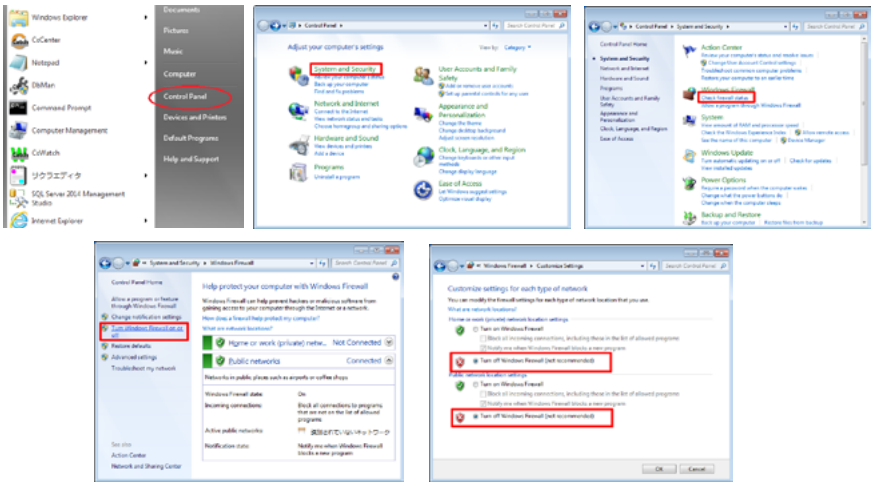
Network Settings

Open **Start** menu, select **Control Panel**. Select “**View network status and tasks**” in "Network and Internet" settings. Select "**Local Area Connection**". Select **Properties**. Select **Internet Protocol version 4 (TCP/IPv4)**, and press **Properties** button. Set IP Address, and others.



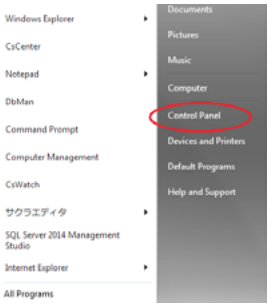
Kill FireWall

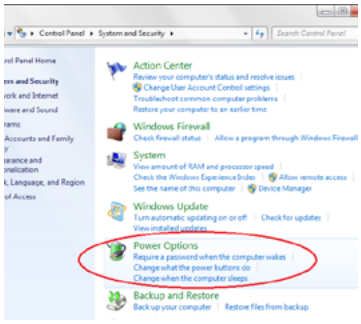
FireWall must be killed on PC for Catch System.
Open **Control Panel**, select **System and Security**. Select **Check firewall** status.
Select **Turn Windows Firewall on or off** on left list. Check **Turn off Windows Firewall (not recommended)** on for both network locations.

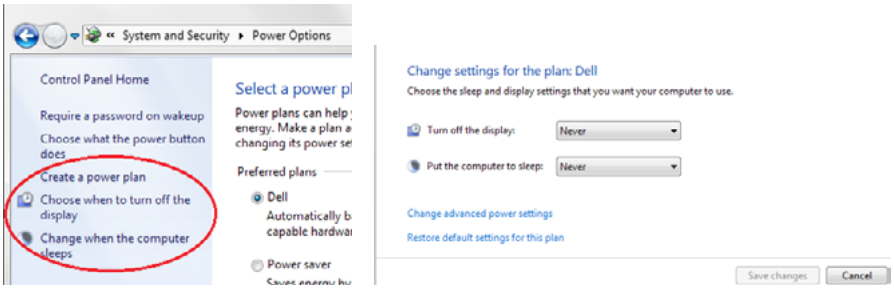


Disable the Sleep function

Open Start menu, select **Control Panel**. Select **System and Security**. Go to "Change settings for the plan" menu in **Power Options**. Select "**Never**" for "Turn off the display" and "Put the computer to sleep" settings.

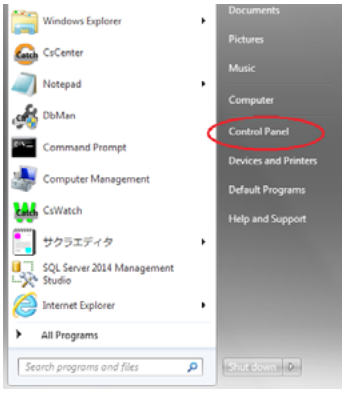


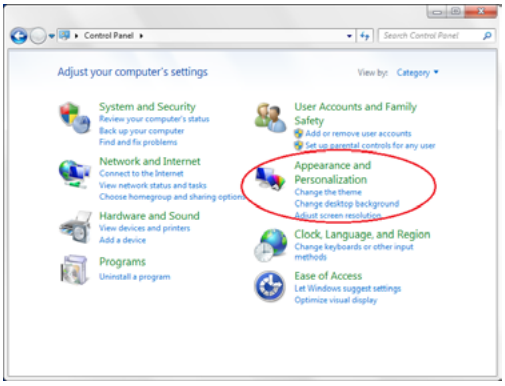


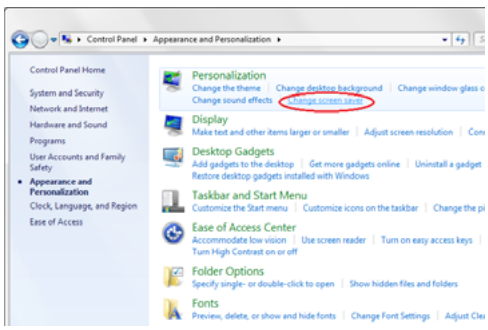


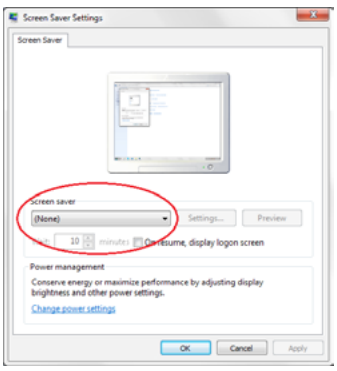
Disable the Screen Saver function

Open Start menu, select **Control Panel**. Select "Change screen saver" in "Appearance and Personalization". Select "None" in screen saver function.





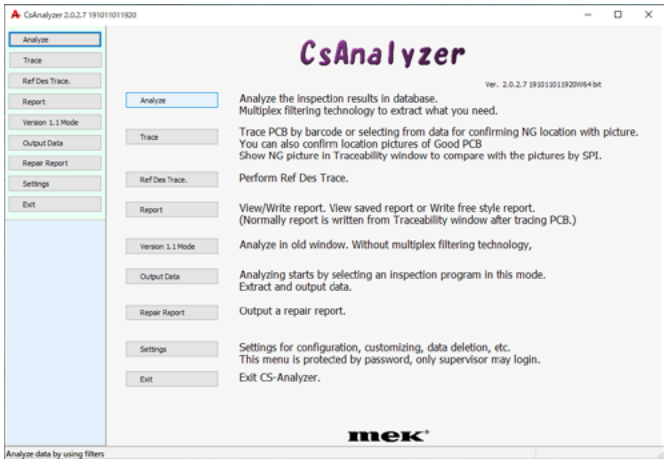




7. Basic Operation

Start CS-Analyzer

1. Power on PC.
2. Double click the shortcut of CS-Analyzer on desktop, or start up CS-Analyzer by selecting menu Start > Program > marantz > CS-Analyzer. For the first time the software requests to input password. Input **481120**. This password is required only for the first time for activation.
3. Main screen of CS-Analyzer is displayed after program starts.



4. Click the button of the menu in left part of the window, or click the button in the window which describes the function.

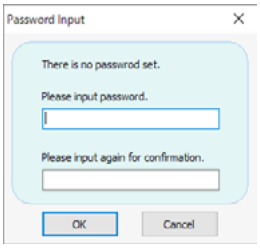
Exit CS-Analyzer

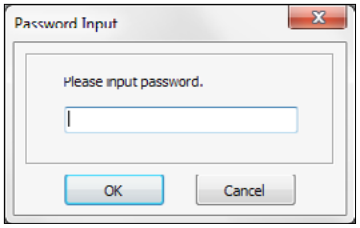
Click **Exit** button in main window of CS-Analyzer.

8. Setting of CS-Analyzer

AOI Setting

Select **Settings** from menu. For the first time, you will be requested to set password. Input any password.

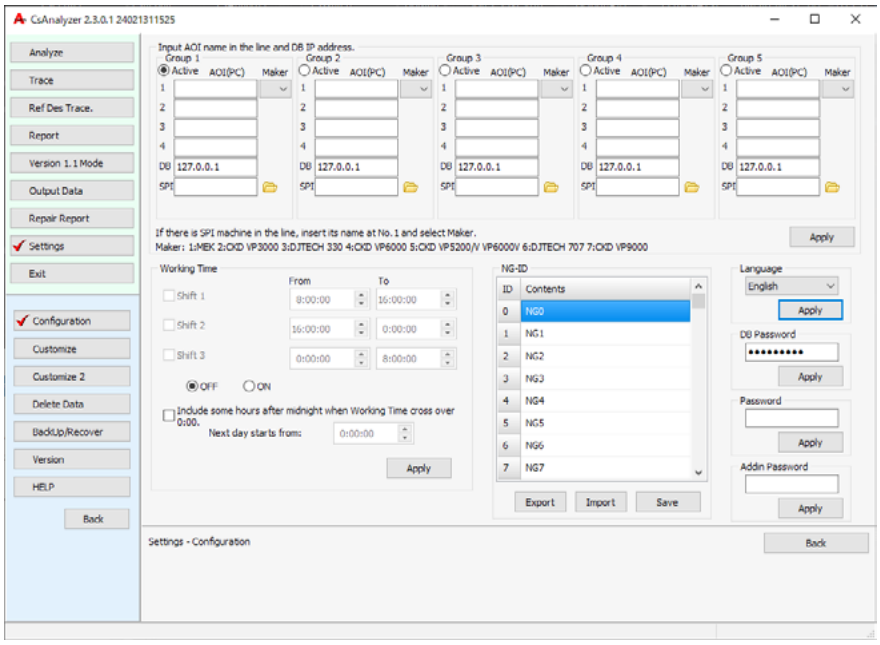




In the Settings screen, select **Configuration** from the list.
At half top of the screen, there is menu "**Input AOI name in the line and DB IP address**".
Group 1 is selected on default.
If you use SPI machine, input **SPI** machine name (PC name) in Row1, and select manufacturer's name from **Maker** pull-down.

1. MEK
2. CKD VP3000
3. DJTECH 330
4. CKD VP6000
5. CKD VP5200/V VP6000V
6. DJTECH 707
7. CKD VP9000

From Row2 to Row4, input AOI(PC) name. Input IP address of the PC where PostgreSQL database is installed to DB row.
Caution: AOI (PC) Name must be exactly same as the name you set in CS-Center.
For last Spi row, set the shared folder to data communication if you use SPI machine other than MEK.



NG-ID Setting

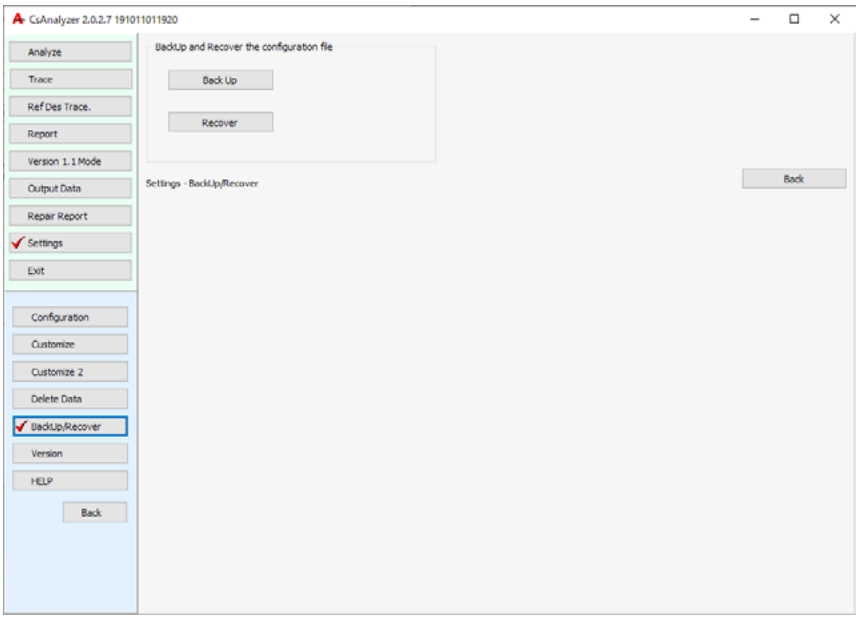
Assign NG ID to classify NG. You can set from NG0 to NG255. Select **Settings** from menu. In the Settings screen, select **Configuration**. If you want to edit or input NG classification, click the column. You can exit the edit mode by pushing **Enter** key or clicking other column. Click **Write** button to save the status, and complete the setting by clicking **Apply** button.

Language Setting

Set the language for software. Select **Settings** from menu. In the Settings screen, select **Configuration**. You can select the language from Japanese, English, Korean or Chinese. Please apply same language with other software and AOI. Complete the setting by clicking **Apply** button.

BackUp/Recover

Before finishing CS-Analyzer settings, it is recommended to output setting file. Select **Settings** from menu. In the Settings screen, select **BackUp/Recover**. Click **Back Up** button, and input any name. Your CS-Analyzer's settings will be exported as a file. Store it in safety place.



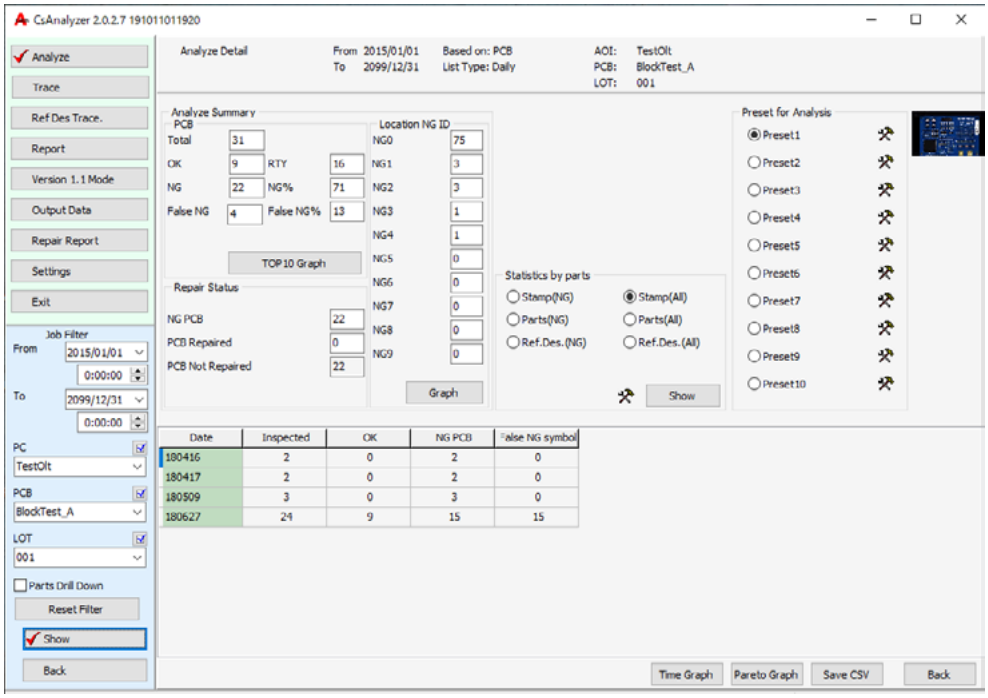
9. Analyze

CS-Analyzer offers you various statistic results which is analyzed in many angles. It can analyze the tendency of NG from multiple machines for desired period.
CS-Analyzer calculates and show results easily by text and graph, which helps to make monthly or weekly report. There are two method of calculation. If you do not put check on "An analysis screen of Ver.1 is used" in Customize window from Setting menu, please refer to the detail in "Calculation method for Version 2".

Calculation method for Version 1 screen

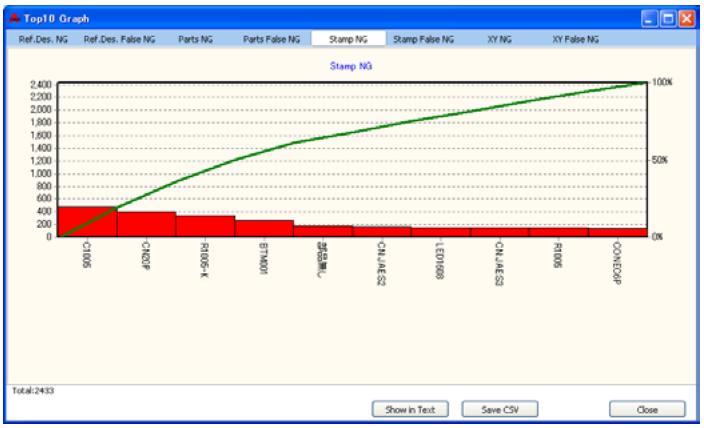
1. Select **Analyze** menu, then Job Filter will appear.
2. Input period you like to analyze. You can filter more by PC (AOI), PCB name and Lot. Click **Show** button.
3. Each calculation result of Analyze Summary, Repair Status, and Location NG ID is displayed at upper part of the window. If you set PC (AOI) and PCB name, PCB map of selected PCB will be displayed.

In lower part of the window, result of the analysis is displayed. The contents of analysis is from the setting in **Preset for Analysis**.



Analyze Summary

Display the summary result of each PCB with specified condition.
By pressing **TOP 10 Graph** button, you can see the top 10 of 'Reference Designator NG', 'Reference Designator False NG', 'Parts NG', 'Parts False NG', 'Stamp NG', 'Stamp False NG', 'XY NG' and 'XY False NG' by switching tabs. Contents can be shown in text format or output by CSV.

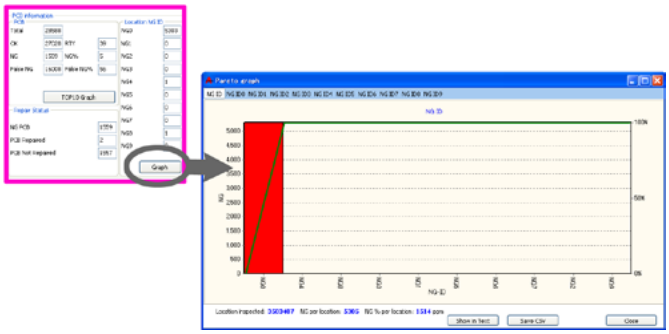


Repair Status

Show the number of NG PCB (data from AOI), PCB Repaired, and PCB Not Repaired (data from CS-Repair).

Location NG ID

Number of location NG, since 22X can classify NG in 10 reason, you can see the tendency of NG reason. This NG ID setting is set in **Configuration** in **Settings** menu.
By pressing **Graph** button, you can see Location NG ID in graph, By changing tabs, you can see the top 10 of worst locations for each ND ID.

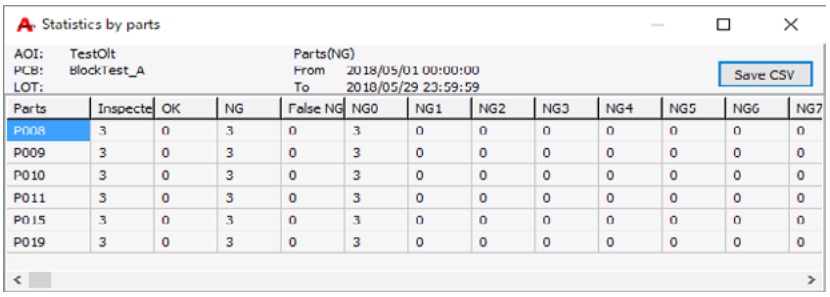


More Filtering

You can filter current data by Stamp, Parts or Reference Designator by activating "Parts Drill Down" when filtering data. This menu is inactive when "Parts Drill Down" is checked-off.
(You need register parts name at the Ref.Des/comment of inspection data for parts name analysis.)

Statistics by parts

You can see the statistics based on parts. Set From/To date, PC (AOI), PCB name. Summarize only NG of Stamp name, Parts name, and Reference Designator. Also it can summarize all content by set condition for Stamp name, Parts name, and Reference Designator. You can save the summarized content by CSV format. (You need to register parts name at the Ref.Des/comment of inspection data for parts name analysis.)



Parts	Inspecte	OK	NG	False NG	NG0	NG1	NG2	NG3	NG4	NG5	NG6	NG7
P008	3	0	3	0	3	0	0	0	0	0	0	0
P009	3	0	3	0	3	0	0	0	0	0	0	0
P010	3	0	3	0	3	0	0	0	0	0	0	0
P011	3	0	3	0	3	0	0	0	0	0	0	0
P015	3	0	3	0	3	0	0	0	0	0	0	0
P019	3	0	3	0	3	0	0	0	0	0	0	0

Preset for Analysis

This is the configuration for Analyze. You can create 10 preset depend on purpose.
Set the contents by clicking setting icon, and open **Preset for Analysis Result** window.

Name

Set the name for analysis result.

Column to show

Set content of analysis and parameter.

Unit Reference

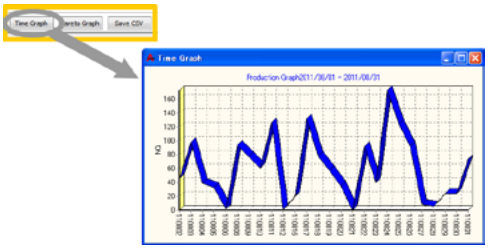
Set the method for analysis.

Report Main Key

Set the requirement for analysis to create either Pareto diagram with AOI name, PCB name, and Lot, or unit of time with Month, Day, and Time. You can change what items to show, and also can change the base of analysis (daily, monthly, etc) by Preset.

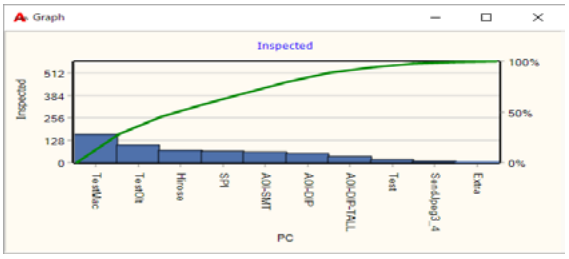
Time Graph

Select one row of Analysis, and press **Time Graph**. The row of the list is displayed in graph.



Pareto Graph

Select one row of Analysis, and press **Pareto Graph**. The row of the list is displayed in graph.



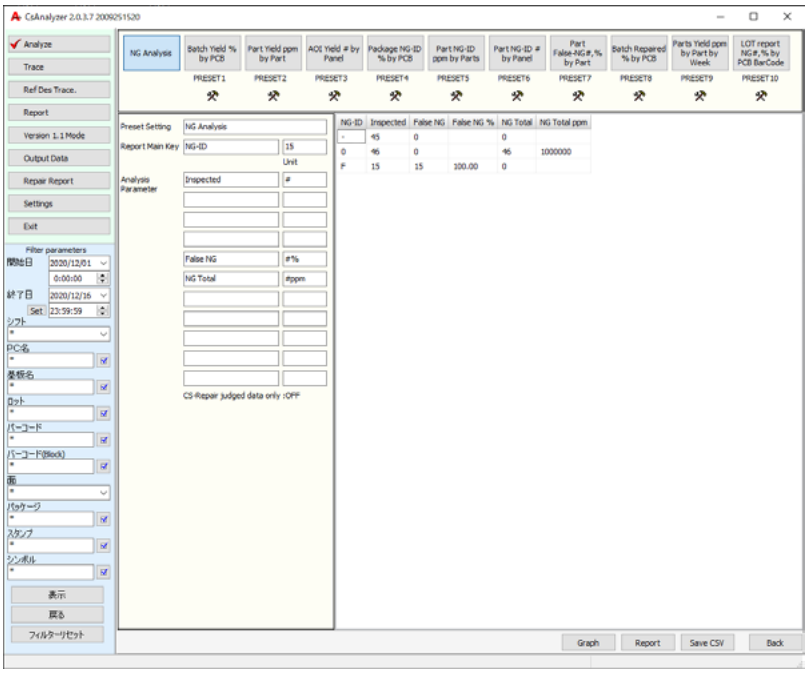
Save with CSV

By pressinc **CSV** button, you can export the list in CSV file.

Untick **An analysis screen of Ver.1 is used** from **Customize** of **Setting** menu to use Ver. 2 screen.

Calculation Method for Version 2

1. Select **Analyze** menu, then **Filter parameters** will appear.
2. Set the parameter you like to analyze. Click **Go!** button.
3. Calculation result appears. Preset setting is displayed at upper part of the window. Detail of analyzed Preset and Preset setting is displayed at middle part of the window. In lower part of the window, the result of the analysis is displayed.
   If you want to change the search condition, click Preset button at upper part of the window, and select Preset. Condition of Preset can be changed by clicking setting icon under Preset button.



Filter Parameters

Set the search condition for analyzed data.

SET

If you click SET button under "To" date, you can easily set start date and end date by **No, Day Now, 1 day, 2 days, 3 days, 1 week, 2 weeks, 1 month, 2 months, 3 months, 6 months,** and **1 year**.

Go!

Display the result at right side of the window which is analyzed by set parameter.

Cancel

Return to Top screen.

Reset Filter

Reset the filter parameter. Start date (From) becomes 00:00:00 of today, and end date (To) becomes 23:59:59 of today. Other condition reset to "ALL".

Search character input method

You can search by partial match by adding " * " when entering the search character for each parameter. If you do not add *, the search will be an exact match.
ex.)

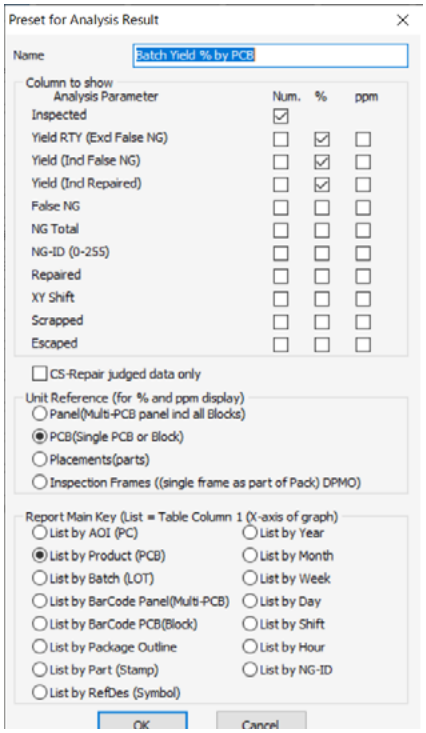
Prefix match	ABC*
Backward match	*ABC
Partial match	*ABC*

Search data selection method

By pressing the check button on the right side of the search character input field, a list of data that matches the search character will be displayed. By checking the data displayed in the list, you can set the data selected in the list as a search condition.

Preset for Analysis Result

This is the configuration for Analyze. You can create 10 Presets depned on purpose. Condition of each Preset can be changed by clicking setting icon under Preset button.



Name

Set the Name of Preset.

Column to show

Select the parameter from following for analysis, and put check mark.

Inspected

Summarize inspeted number. Put check mark to **Num.** box.

Yield RTY (Excl. False NG)

Summarize the number of OK result excluding False NG. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

Yield (Incl. False NG)

Summarize the number of production including False NG. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

Yield (Incl. Repaired)

Summarize the number of production including repaired PCB. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

False NG

Summarize the number of False NG. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

NG Total

Summarize the number of NG. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

NG-ID (0-255)

Summarize the NG-ID. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

Repaired

Summarize the number of repaired PCB. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

XY Shift

Summarize the XY shift result. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

Scrapped

Summarize the number of scrapped PCB. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

Escaped

Summarize the number of Escape. Put check mark either to **Num.**, **%**, or **ppm**. **Num.** is for number of inspection, **%** is for percentage to number of inspection, and **ppm** for ppm to number of inspection.

CS-Repair judged data only

Summarize only judged data by CS-Repair.

Unit Reference

Select the unit for summary.

Panel (Multi-PCB panel incl. all Blocks)
Summarize by the Panel (Multi-PCB panel including all Blocks).

PCB (Single PCB or Block)
Summarize by PCB (Single PCB or Block).

Placements (parts)
Summarize by number of parts.

Inspection Frames
Summarize by number of inspection frames.

Report Main Key

Select the main content to display for summarized result.

List by AOI
Set AOI (PC name) for main key.

List by Product (PCB)
Set PCB name for main key.

List by Batch (LOT)
Set LOT for main key.

List by BarCode Panel (Multi-PCB)
Set panel barcode for main key.

List by BarCode (Block)
Set block barcode for main key.

List by Package Outline
Set package for main key.

List by Part (Stamp)
Set Stamp for main key.

List by RefDes (Symbol)
Set Symbol to main key.

List by Year
Set Year to main key.

List by Month

Set Month to main key.

List by Week

Set Week to main key.

List by Day

Set Day to main key.

List by Shift

Set Shift to main key.

List by Hour

Set Hour to main key.

List by NG-ID

Set NG-ID to main key.

Analyze detail

Display result of the summarized data and Filter setting.

Preset setting

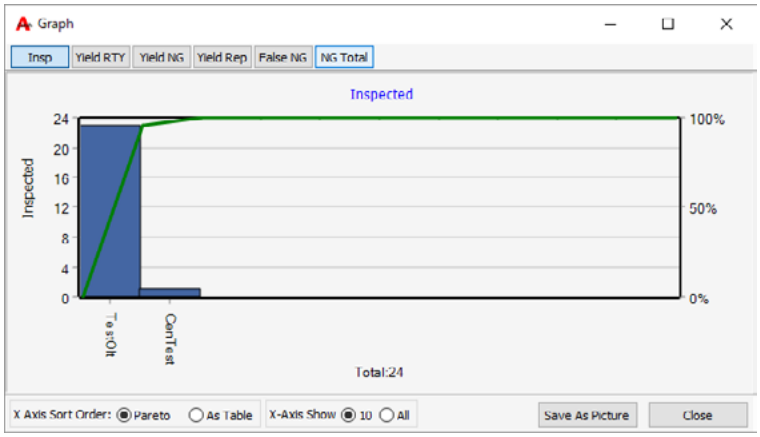
Display the search condition of selected Preset.

Result summary

Display the summary result.

Graph

Display summary result to Pareto diagram. You can change the target result by switching the button on top of the window.



X Axis Sort Order

Set the sort order to display for X axis. **Pareto** shows the order by inspection number, and **As Table** shows the order by parameter.

X Axis Show

Select the number of X axis to show by 10 or by All.

Save As Picture

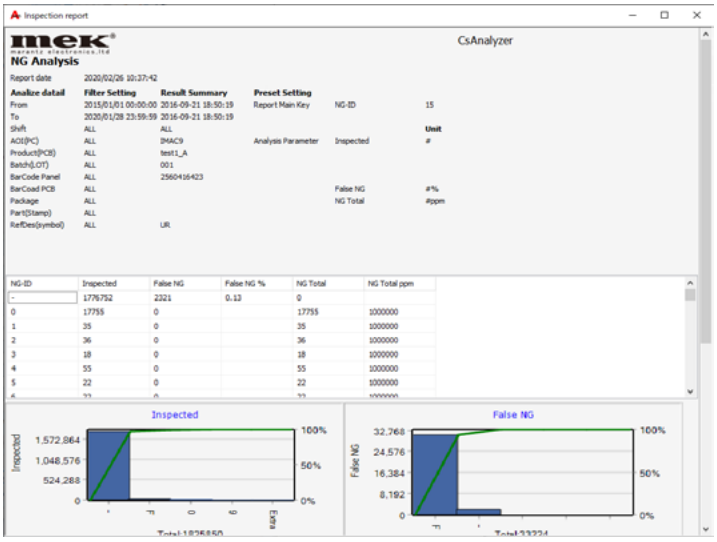
Save the picture by BMP. Window to set the file name will appear. Set the file name and click Save button.

Close

Click to close the graph.

Report

Display inpection report.



You can save and print the report by right click.

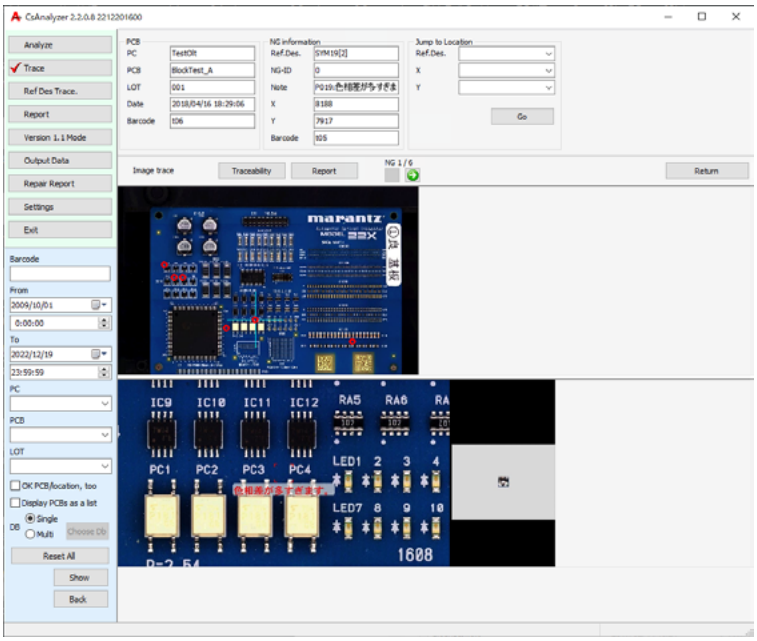
Save as CSV

Possible to save summarized result as CSV.

Window to set the file name is displayed. Set file name and click Save button.

10. Trace

Trace the picture of PCB from the data collected by CS-Center. You can search the picture of components on inspected PCB. Also you can compare inspection picture with picture of previous inspection process.
Note: You require barcode of each PCB to compare the picture.



Tracing Method

1. Press Trace button. Contents to set filter condition is displayed.

2. Set the filter condition, and press **Show** button. If you want to include OK PCB and show OK locations on PCB Map, put check to "**OK PCB/location, too**" on the lower left. If there are several data to match the set condition, you can narrow the search result from the window to select the data.

3. Result is displayed in the window. PCB information is shown on upper part of the window. PCB Map is displayed below this information. Location picture of the point shown by cross lines in PCB Map is displayed at the lower part of the window. You can ON/OFF the cross lines using space key. If you want to display other point, click arrow botton which locates above the PCB Map, or select XY point or Ref.Des. from "Jump to location", and press Go button.

4. You can compare the location picture with previous process by clicking **Traceability** button.

5. If you want to check multiple substrates that match the condition, check [Display PCBs as a list] checkbox. After checking the checkbox, press [Show] button, and the Ref Des switch button will appear. If there are multiple PCBs matching the criteria, the [Previous Ref Des/Next Ref Des] button will be enabled.

Traceability

NG

Display the NG picture from AOI. Component is displayed in the center of the window.
Operation on location picture:

Enlarge:	Click on the picture, a new window with enlarged picture pops up. Or select **Magnification** level on bottom.
Hide red cross:	Press Control key, to be visible press Control key again.
Display Cell Image:	By clicking on the name of AOI, the NG picture switch to Cell picture.

Scatter diagram

Displays the amount of position shifting XY as a scatter diagram, and enables to see the tendency of position shifting. The diagram displays with the colors from green to red depending on the amount. NG limit is shown as a red circle, and OK limit is shown as a green circle.

Control Chart

Displays the amount of position shifting per PCB, X and Y as line graph and average X and Y as points. If the number of PCB displayed on the upper part is 0, all PCB is displayed.If the number displayed is except 0, the number of PCB displayed becomes its value. If the number of PCB is more than that of displayed one, ☜ ☞ buttons on the right are available, and you can display the next page or the previous one. The value of discrepancy NG is displayed as a red line, the value of discrepancy OK is displayed as a green line.

Histogram

Displays the amount of position shifting as a histogram. The average is shown as purple line, and 3 sigma is shown as green line.

Close

Close the traceability window.

Magnification

Possible to change the magnification level of the picture.

Position

Select machine to show the picture in **Traceability** window.

PCB Map

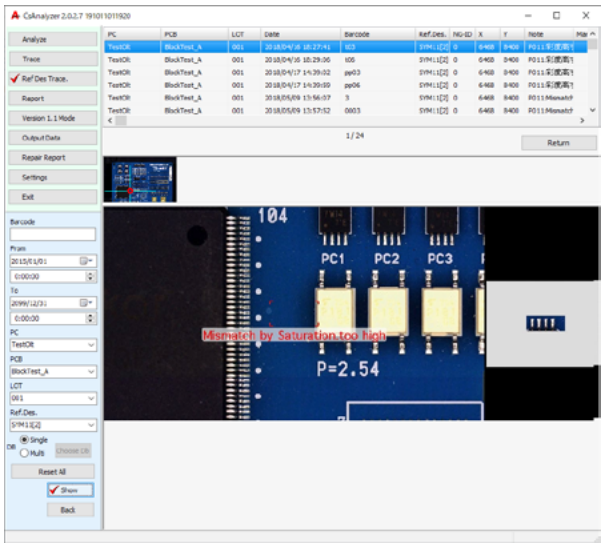
Display the location of selected component on PCB map.

Report

Display the window to create the report including data and picture you used for analyze.

11. Ref Des Trace

Trace the picture of PCB by Reference Designator from the data collected by CS-Center.



Tracing Method

1. Press **Ref Des Trace** button. Contents to set filter condition is displayed.

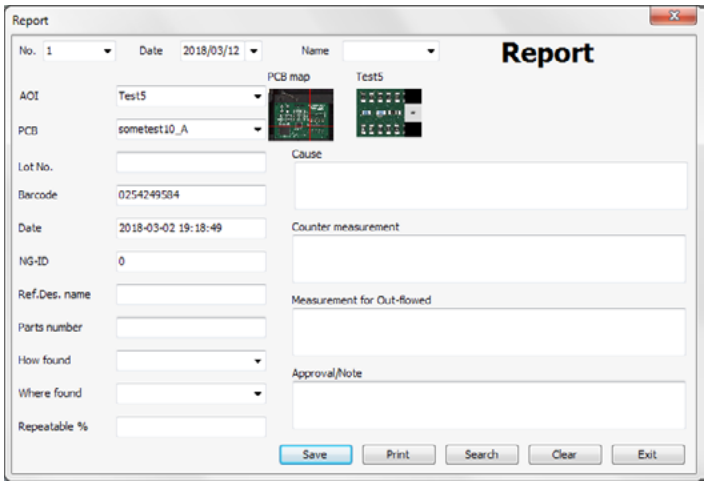
2. Set the filter condition, and press **Show** button.

3. Result is displayed in the window. PCB information is shown on upper part of the window. PCB Map is displayed below this information. Location picture of the point shown by cross lines in PCB Map is displayed at the lower part of the window.

4. Sub-menu is displayed by right clicking the picture. You can zoom up, zoom out, and save the result from the menu.

12. Report

You can create the report on CS-Analyzer after confirming and analyzing in Traceability window. When pressing Report button from Traceability window or Trace window, data and pictures that you used for analyzing is filled in Report Window. In the empty column like 'where found' or 'Cause', you can write in your comment. Picture size in report can be enlarged or reduced by changing magnifications in Traceability window.



Save

Save the content of the report. Normally data (including the picture) is saved permanently and secured from data delete function.

Print

Print the content of displayed report.

Search

Possible to search the report from report list.

Clear

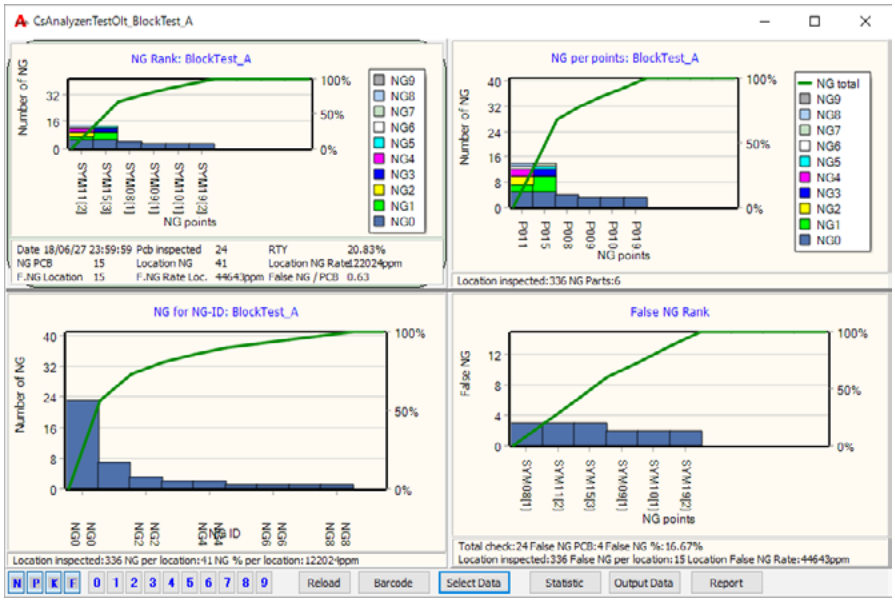
Clear all contents except the picture.

Exit

Exit the report and close the window.

13. Version 1.1 Mode

Summarize and analyze the data collected by CS-Center with specified content.
Summarize the NG condition and NG ID by symbol. For example summarize NG condition by date or by time for specified period. Also possible to analyze NG ID by symbol with Pareto graph.
Press **Version 1.1 Mode** button on the left list in CS-Analyzer to select the data to analyze.



Buttons for graph

After selecting data to analyze, you can set graphs to display by pressing N P K F 0 1 2 3 4 5 6 7 8 9 buttons. To deactivate, press the buttons again. The detail of the graphs are as followings:

Buttons	Graph	Remarks
N	NG Rank Graph	This totals the number of NG by points and displays in descending order. NG conditions are displayed at the bottom.
P	NG per Parts number Graph	Display per Parts Number by higher NG rate.
K	NG-ID Graph	This totals the number of NG by NG-ID, and displays a graph by NG-ID.
F	False NG Rank Graph	This totals the number of false NG by point, and displays in descending order of false calls.
0-9	Detailed Graph for each NG-ID	This totals NG of specified NG-ID by point and displays them in descending order.

NG conditions are as below:

Date	displays date that CS-Center receives data.
PCB inspected	displays the number of PCB inspected.
Rolled-Throughput-Yield (RTY)	displays the rate passed through at inspection.
NG rate	displays number of NG PCB out of PCB inspected.
NG PCB	displays number of NG PCB.
Symbol NG	displays the number of Reference Designators judged as NG.
Symbol False NG	displays the number of Reference Designators judged as False NG.
Symbol NG rate	display the rate of Reference Designators judged NG out of total in ppm.
Symbol False NG rate	display the rate of Reference Designators judges False NG out of total in ppm.
False NG / PCB	displays the False NG PCB rate per PCB.

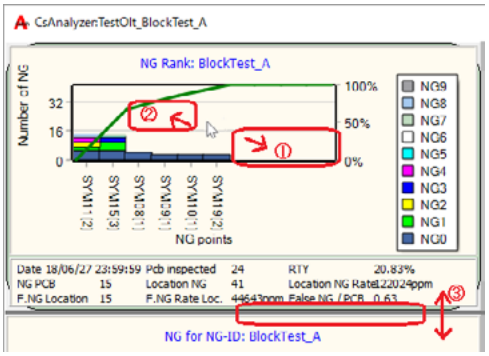
Common specification for graph

Zoom-in: Drag mouse from top left corner to bottom right corner (see No.1 on the image below).

Unlock Zoom-in: Drag mouse from bottom right corner to top left corner (No.2).

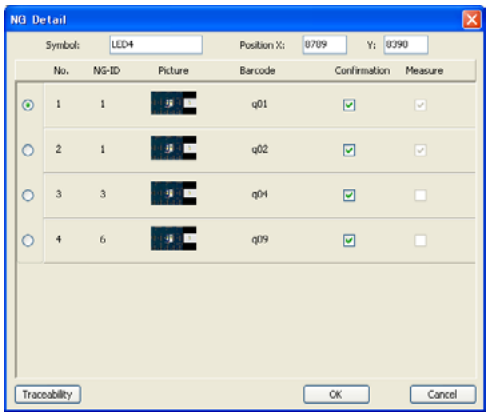
Resize: Drag the border line of the graph (No.3).

Sub-menu: Click on the graph by pressing right mouse button.



NG Detail Window

After selecting data and display data in graphs, if you are displaying N graph. click on the bar graph by right mouse button, the NG Detail Window is displayed.
You can check on Confirmation box as a sign of your confirmation.
You can open Traceability Window by selecting any NG in order to trace how the defect is caused.



Traceability

Put check to the radio button of NG picture in detail window, and press **Traceability** button.
Traceability window appears. You can compare the location of maximum 4 AOI or SPI in the same window. You can check NG picture, Scatter diagram, Control chart, and Histogram by each production line. Data is displayed with equally divided window in order from smaller machine number (AOI#1 to AOI#4). You can switch the window by sliding **Position** lever or put mouse cursor to **tabs**.

NG

Display the NG picture from AOI. Component is displayed in the center of the window.

Operation on location picture:

Enlarge: Click on the picture, a new window with enlarged picture pops up.
Or select **Magnification** level on bottom.

Hide red cross: Press Control key, to be visible press Control key again.

Display Cell Image: By clicking on the name of AOI, the NG picture switch to Cell picture.

Scatter diagram

Displays the amount of position shifting XY as a scatter diagram, and enables to see the tendency of position shifting. NG limit is shown as a red circle, and OK limit is shown as a green circle.

Control Chart

Displays the amount of position shifting per PCB, X and Y as line graph and average X and Y as points. The value of discrepancy NG is displayed as a red line, the value of discrepancy OK is displayed as a green line. If the number of PCB displayed on the upper part is 0, all PCB is displayed. If the number of PCB is more than that of displayed one, a next and previous buttons on the right are available, and you can display the next page or the previous one.

Histogram

Displays the amount of position shifting as a histogram. The average is shown as purple line, and 3 sigma is shown as green line.

Main

Go back to main menu of CS-Analyzer.

Return

Return to original NG detail window.

Magnification

Possible to change the magnification level of the picture.

Position

Select machine to show the picture in **Traceability** window.

PCB Map

Display the location of selected component on PCB map.

Report

Display the window to create the report including data and picture you used for analyze.

Previous/Next

Move to previous and next PCB location

Reload

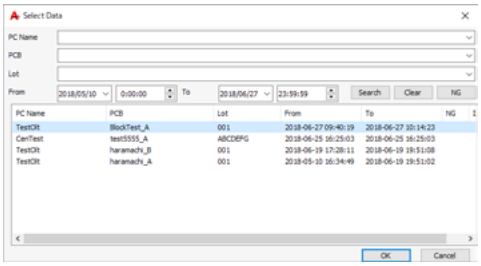
Refresh current data, if inspection continues, then additional inspection data is loaded.

Barcode

Search PCB by barcode. Input barcode numbers in the dialogue, and click OK.
If there are PCBs with same barcode number, a list is displayed. Select data and press set.
After selecting PCB by barcode, and press Select Data button, the selected PCB's production condition is displayed.

Select Data

Window to search and select data to analyze.
You can sort by PC Name, PCB, Lot number or production period (From/To).
By clicking each column, you can re-order data in descending or ascending.



PC Name

Select target AOI from pull down list.

PCB

Select target PCB (inspection program name) from pull down list.

Lot

Select target Lot number from pull down list.
If you put check mark to "Do not filter by Lot when loading data" in **Statistics Condition** at **Settings**-**Customize** menu, you can load the data by each PCB.

From

Sort the starting date and time of production period.

To

Sort the ending date and time of production period.

Search

Start sorting regarding setting value of PC Name, PCB, Lot, From and To.

Clear

Reset the search condition.

NG

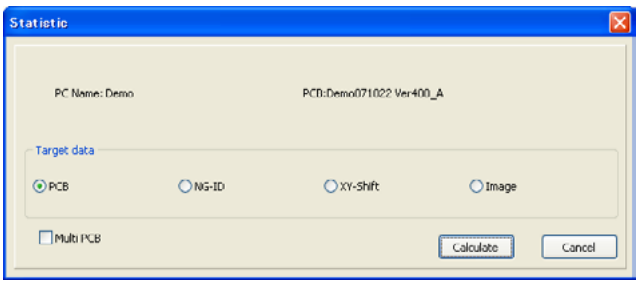
Display the number of NG and Inspection.

Period Input

By double-clicking on one of data on the list, you can even sort data by production period which already sorted by PC Name, PCB, Lot, From and To. This is useful when you want to analyze data of a month or a week.

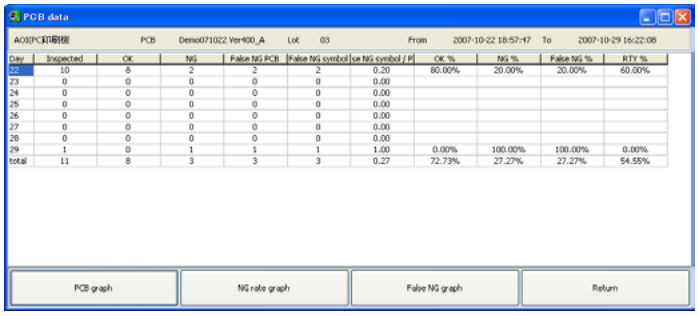
Statistic

In Statistic Window, you can display data related to PCB, NG-ID, XY-Shift or Image.
Select any radio button and press Calculate, then the list is displayed.
If your PCB is consisted from blocks, and you want to calculate per block, check on Multi PCB.



PCB data list

Data list per day of PCB (same inspection program) sorted by date/hour, PC Name, PCB, Lot and Working Shift. The width of each row can resize by dragging.

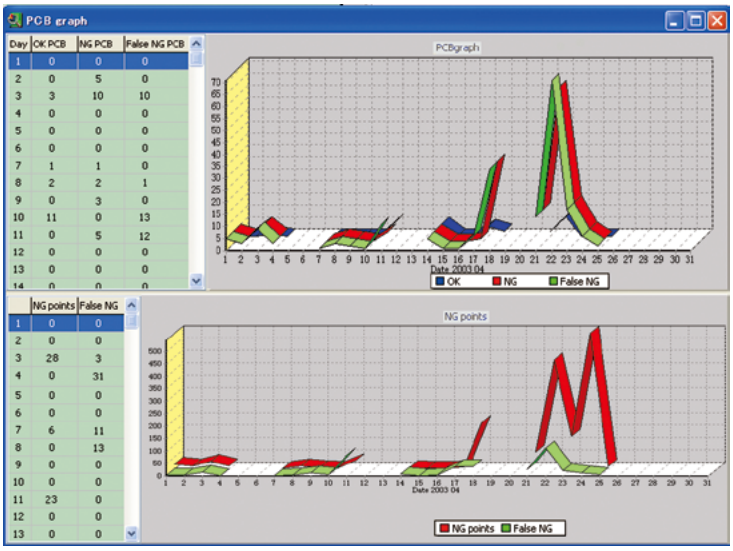


By clicking one of three graph buttons below, a corresponding graph is displayed. The width of each row can resize by dragging. You can enlarge the graph by clicking the mouse on graph, and dragging to lower right direction. You can cancel the enlargement of the graph by clicking the mouse on graph, and dragging to upper left direction. Display scrolling by right clicking and dragging on the graph.

PCB graph

Graph in upper half displays the number of PCB inspected with result OK, NG, and False NG in daily. The end line shows the total numbers. The graph in lower half displays the number of NG points and False NG in daily. The end line shows the total numbers.

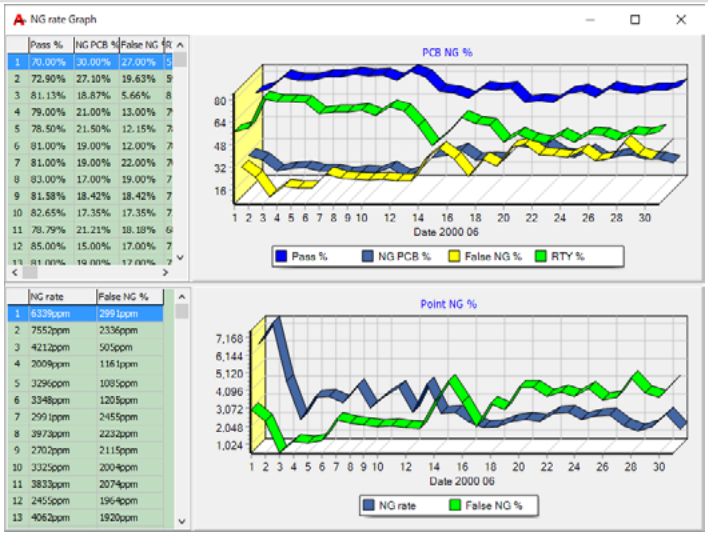
OK PCB	The total number of PCBs that have been judged acceptable (including those with false reports).
NG PCB	The number of PCBs containing defects.
False NG PCB	The number of False NGs.



NG rate graph

Graph in upper half displays the Pass rate (rate of good PCB), NG PCB rate, False NG rate, and RTY (rolled throughput yield) rate. The end line shows the average. The graph in lower half displays the NG rate and False NG rate in daily. The end line shows the average.

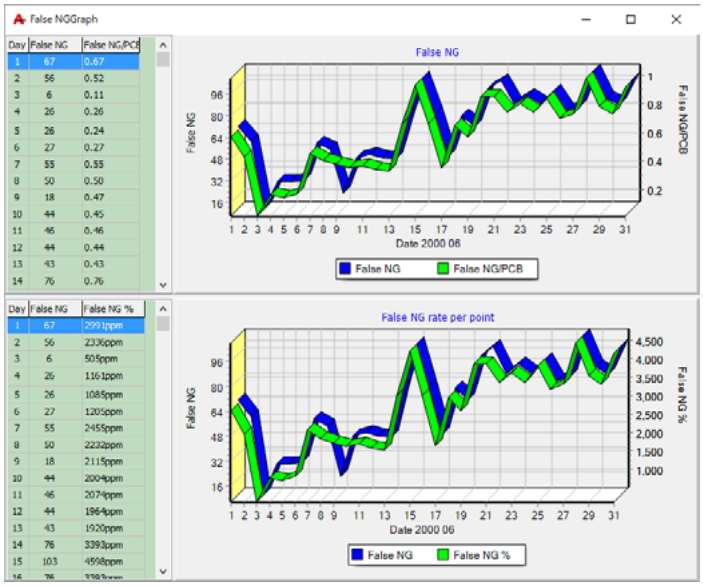
Pass %	The rate of PCBs that have been judged acceptable (including those with false reports).
NG PCB %	The rate of PCB with NG.
False NG PCB %	The rate of OK PCBs and NG PCBs containing false reports.
RTY %	The rate of PCB without NG nor False NG.



False NG graph

Graph in upper half displays the number of False NG and the number of False NG per PCB in daily. The end line shows the total.

Graph in lower half displays the number of False NG and the rate of False NG. The end line shows the total and average value.



A pop-up menu is displayed while right-clicking. The detail is as below.

Remarks: some of menus may not choose in particular circumstances.

Copy

Copies the selected (highlighted) data on the clipboard. The area to be selected can be specified by mouse dragging.

Select All

Select (highlights) all items.

Save as CSV

Save all data as CSV files. As the “SAVE AS” dialogue is displayed, input the folder and the file name and click the SAVE button.

Save As

Save a graph as a BMP file. As the “SAVE AS” dialogue is displayed, input the folder and the file name and click the SAVE button.

Print

Print graphs. As the PRINT dialogue is displayed, specify the number of copies to be printed and click the OK button. It is necessary to install the printer before using this software.

3D display

Display a graph in a three-dimensional form. Every selection of this function changes the graph between the three-dimension display and the regular one.

Point Display

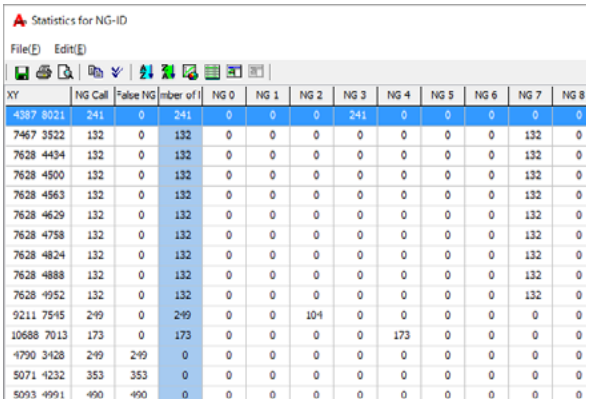
Display a box-shaped mark at each point of a graph. This function enables data check even if no line is displayed due to data discontinuity. Every selection of this function turns on/off the display of box-shape marks by turns.

Return

Close the PCB data window, and return to Statistic window.

NG-ID data and Image data

NG-ID data list collects only the data of False NG and NG inspection points. Image data list collects data for all inspection points.



XY	NG Call	False NG	mber of I	NG 0	NG 1	NG 2	NG 3	NG 4	NG 5	NG 6	NG 7	NG 8
4387 8021	241	0	241	0	0	0	241	0	0	0	0	0
7467 3522	132	0	132	0	0	0	0	0	0	0	132	0
7628 4434	132	0	132	0	0	0	0	0	0	0	132	0
7628 4500	132	0	132	0	0	0	0	0	0	0	132	0
7628 4563	132	0	132	0	0	0	0	0	0	0	132	0
7628 4629	132	0	132	0	0	0	0	0	0	0	132	0
7628 4758	132	0	132	0	0	0	0	0	0	0	132	0
7628 4824	132	0	132	0	0	0	0	0	0	0	132	0
7628 4888	132	0	132	0	0	0	0	0	0	0	132	0
7628 4952	132	0	132	0	0	0	0	0	0	0	132	0
9211 7545	249	0	249	0	0	104	0	0	0	0	0	0
10688 7013	173	0	173	0	0	0	0	173	0	0	0	0
4790 3428	249	249	0	0	0	0	0	0	0	0	0	0
5071 4232	353	353	0	0	0	0	0	0	0	0	0	0
5093 4991	490	490	0	0	0	0	0	0	0	0	0	0

Statistic function

List inspection points by Reference Designators or XY coordinates from selected data.

Cumulative	Statistics under certain production period.
Continuous	Statistics for continuous NG under selected period.
XY Cumulative	Statistics from XY positions.
XY Continuous	Statistics of continuous NG from XY positions.

Stamp Cumulative	Statistics of all stamps.
Stamp Continuous	Statistics of continuous NG on stamps.

Click on right mouse button on selected line, then sub-menu pops up.
The width of each column can be changed by dragging by mouse.
Click on right mouse button on the title of each column (e.g. NG Call, False NG...), sub-menu for sorting pops up.

File menu (Remarks: Some menu is also available on the tool bar.)

Save as CSV

Export the text data displayed in CSV format.

Print

Print displayed text.

Print Preview

Preview text to be printed.

Edit menu (Remarks: These menu are also available on tool bar.)

Copy

Copy the selected part on the clipboard.

Select All

Select all contents.

Sub-menu (Remarks: Some menu is also available on the tool bar.)

Ascending order

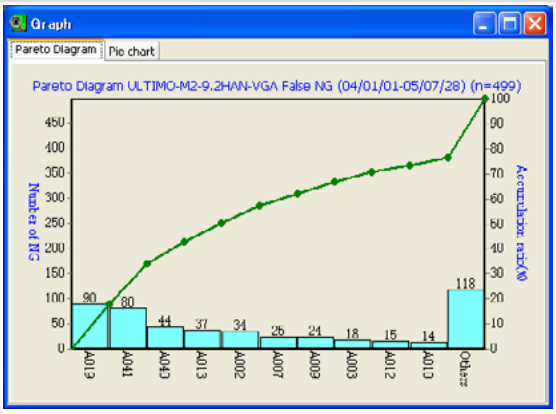
Change selected row's data in ascending order.

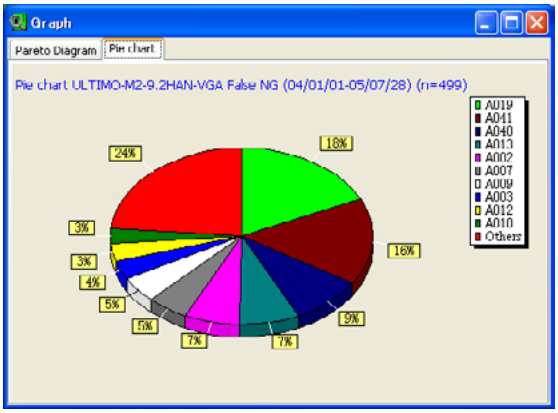
Descending order

Change selected row's data in descending order.

Graph

Display data of selected row in pareto graph or in pie chart.You can switch pareto graph and pie chart by tabs. You can also resize the window by pulling.Top 10 of selected row (analyzing target) is displayed in pareto diagram. Data out of Top 10 is summed up and displayed as others. You can check the position on displayed PCB Map with red circle and cross line by clicking the bar in the graph. (Except summed up other data.) Pop-up menu will appear with mouse right click.





Save As

Save a graph as a BMP file. As the “SAVE AS” dialogue is displayed, input the folder and the file name and click the SAVE button.

Print

Print graphs.

Display details

Display the detailed data of the cell that you select in Display details Window. Window can be resized and each window can be resized by pulling and dragging the border line next to the other window. PCB map and NG picture can be zoom-in, and save as picture from the sub-menu by clicking right mouse button.

Single arrow keys change NG picture to previous or next.

Double arrow keys change NG picture like movie to previous or next.

Stop button stops movie display started by double arrow keys.

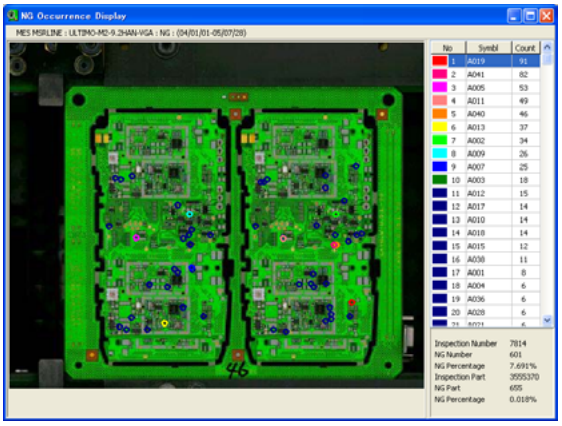
The interval of pictures displayed like movie can be set in mili second by clicking right mouse button on one of double arrow keys.

Traceability button moves you to the Traceability Window which the selected NG point is displayed.

Display NG on PCB map

Display all NG points (or False NG points) of selected row on PCB map.

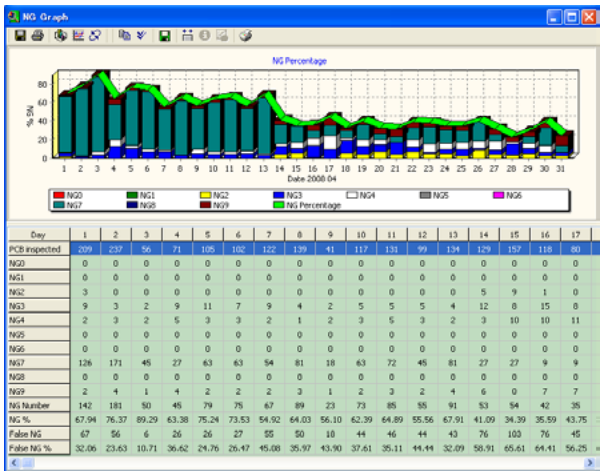
NG points are listed on the right and colored variously depending on the number of points. If you select a line of the list, yellow cross cursol is displayed on the point on PCB map.



NG Graph

Display NG rate and number of NG by graph from the sub-menu appears with right mouse click in NG-ID data window. It can also display the data by hour in a day.

Select the content from NG graph in display menu.



Sub-menu

Save As

This function saves a graph as a BMP file. As the “SAVE AS” dialogue is displayed, input the folder and the file name and click the SAVE button.

Print

This function prints graphs. As the PRINT dialogue is displayed, specify the number of copies to be printed and click the OK button. It is necessary to install the printer before using this software.

3D display

Display a graph in a three-dimensional form. Every selection of this function changes the graph between the three-dimension display and the regular one (2D).

Point Display

Display an astarisk mark at each point of a graph. This function enables data check even if no line is displayed due to data discontinuity. Every selection of this function turns on/off the display of astarisk marks by turns.

Change

Switch NG % graph and NG No. graph.

Copy

Copy the selected part on the clipboard. Copy area can be selected by dragging mouse.

All

Select all contents.

CSV

Export the graph data displayed in CSV format.

Line width

Change size of all columns.

Property

Show selected day's data in table by another window.

NG graph per day

Switch graph to daily graph of selected date.

Print both

Print both graph and table.

XY-Shift data List

Display statics for XY position shifting of selected data. Sub-menu is displayed by clicking any point of the list with right mouse click.

Stamp	Symbol	Count	MinX	MaxX	MinY	MaxY	AveX	AveY
1608P	C100	10	0.00	0.00	0.00	0.00	0.00	0.00
1608P	C101	10	0.00	0.25	0.00	0.05	0.08	0.01
1600P	C102	10	0.00	0.00	0.00	0.00	0.00	0.00
1608P	C200	10	0.00	0.20	0.00	0.15	0.02	0.03
1608P	C201	10	0.00	0.25	0.00	0.25	0.05	0.03
1608P	C500	10	0.00	0.00	0.00	0.00	0.00	0.00
1608P	C501	10	0.00	0.00	0.00	0.00	0.00	0.00
1608P	C502	10	0.00	0.25	0.00	0.25	0.06	0.07
1608P	C700	10	0.00	0.00	0.00	0.00	0.00	0.00
1600P	C701	10	0.00	0.00	0.00	0.00	0.00	0.00
1608P	C702	10	0.00	0.10	0.00	0.25	0.02	0.06

1 11

XY Shift Statistics

Display the statistics for XY position shifting by selecting XY position or Reference Designator in condition setting window. Select Reference Designator or XY position which you want create the graph, and display pop-up menu by right mouse click.

XY-Shift Graph

Scatter diagram, Line Graph and Histogram can be displayed by changing tab.

All Scatter diagram

Display scatter diagram of XY shift for all NG point without executing XY shifting statistics. It does not show the list.

Save as CSV

Save XY shift data as CSV files.

Copy

Copy the selected (highlighted) data on the clipboard. The area to be selected can be specified by mouse dragging.

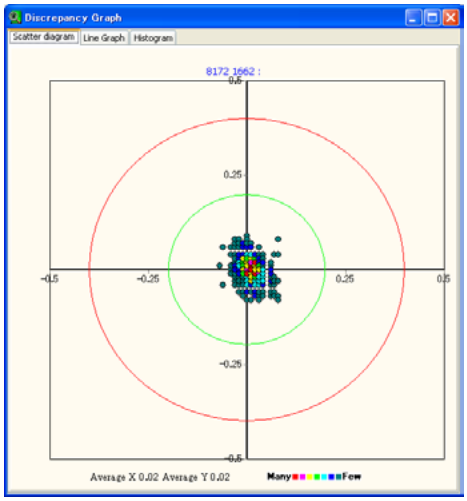
Select All

Select (highlights) all items.

XY shift graph

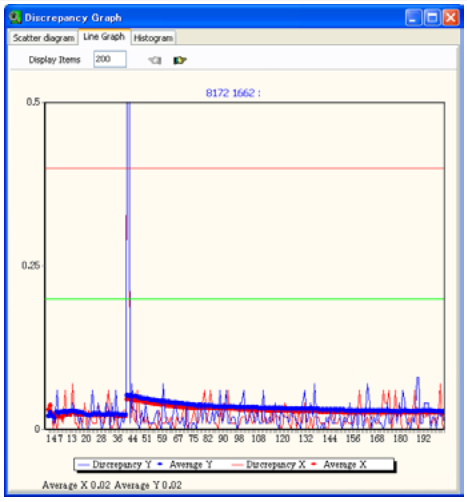
Scatter diagram

This graph displays the amount of position shifting XY as a scatter diagram, and enables to see the tendency of position shifting. NG limit is shown as a red circle, and OK limit is shown as a green circle.



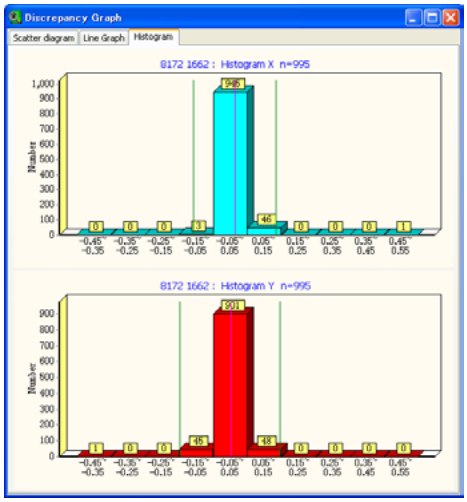
Line Graph

This graph displays the amount of position shifting per PCB, X and Y as line graph and average X and Y as points. The value of discrepancy NG is displayed as a red line, the value of discrepancy OK is displayed as a green line. If the number of PCB displayed on the upper part is 0, all PCB is displayed.If the number displayed is except 0, the number of PCB displayed becomes its value. If the number of PCB is more than that of displayed one, a next and previous buttons on the right are available, and you can display the next page or the previous one.



Histogram

This graph displays the amount of position shifting as a histogram.
The average is shown as purple line, and 3 sigma is shown as green line.
You can enlarge the graph by clicking the mouse on graph, and dragging to lower right direction. You can cancel the enlargement of the graph by clicking the mouse on graph, and dragging to upper left direction. Display scrolling by right clicking and dragging on the graph. Right clicking displays the pop-up menu.



Sub-menu

Save As

This function saves a graph as a BMP file.

Print

This function prints graphs. As the PRINT dialogue is displayed, specify the number of copies to be printed and click the OK button.

3D display

This function displays a graph in a three-dimensional form. Every selection of this function changes the graph between the three-dimension display and the regular one.

Point Display

This function displays an astarisk mark at each point of a graph. This function enables

data check even if no line is displayed due to data discontinuity. Every selection of this function turns on/off the display of astarisk marks by turns.

Graph setting

This sets graph.

Scale Max.

This sets the maximum value of the scale for the graph.

Histogram interval

This sets the interval of histogram.

Number of histogram

This sets the number of histograms.

Shift limit to be OK X/Y

This sets the shift OK limit of X and Y. The value you set is displayed as a green/red line.

Shift limit to be NG X/Y

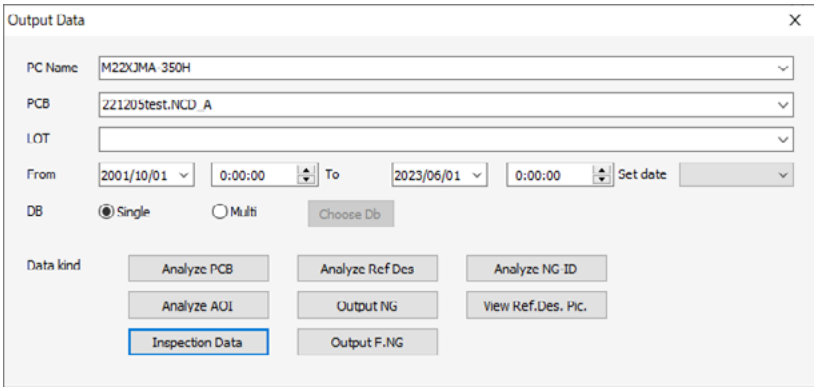
This sets the shift NG limit of X and Y. The value you set is displayed as a green /red line.

14. Output Data

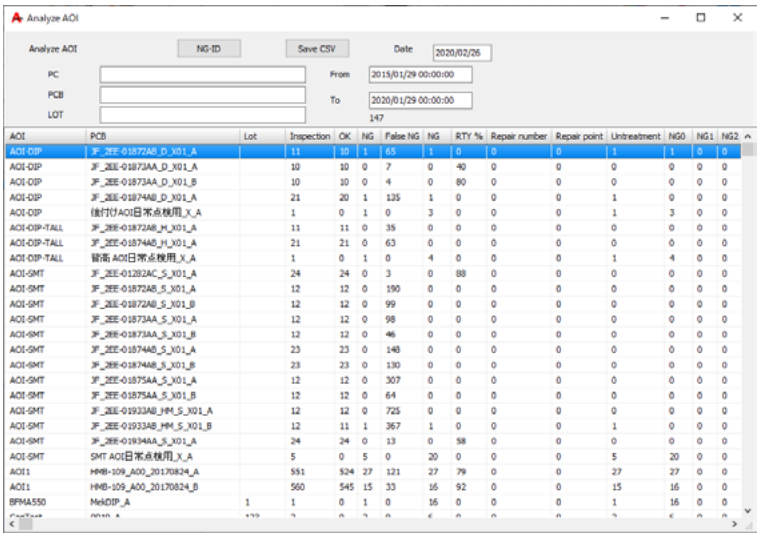
Data stored in database can be exported in CSV format. Data can be sorted by setting PC Name, PCB and From/To.

Then you have to select the main purpose of your analysis, if it is PCB based, to check Reference Designators or to check the tendency by NG-ID. Select from **Analyze PCB**, **Analyze RefDes** or **Analyze NG-ID** buttons. If you like to analyze per AOI, select **Analyze AOI**. If **Output NG** is selected, NG points per PCB will be output. By pressing any buttton, a new window for listing sorted data appears. Press Save as CSV.

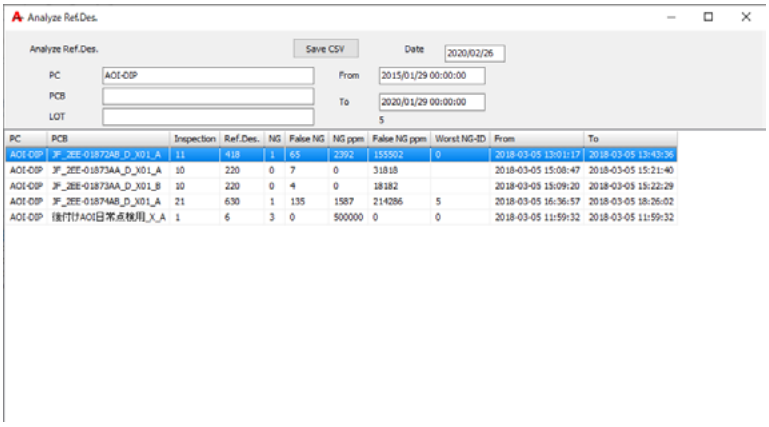
View Ref.Des.Pic. is different from others, it is for viewing pictures at selected Reference Designator by date.



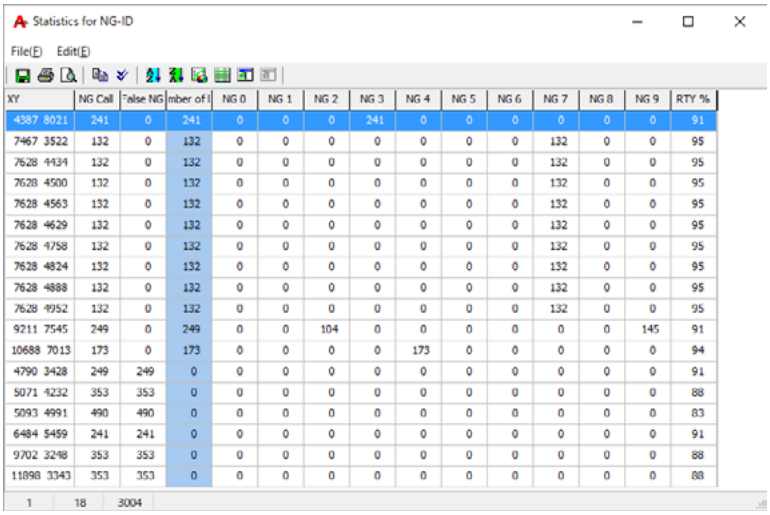
Analyze PCB



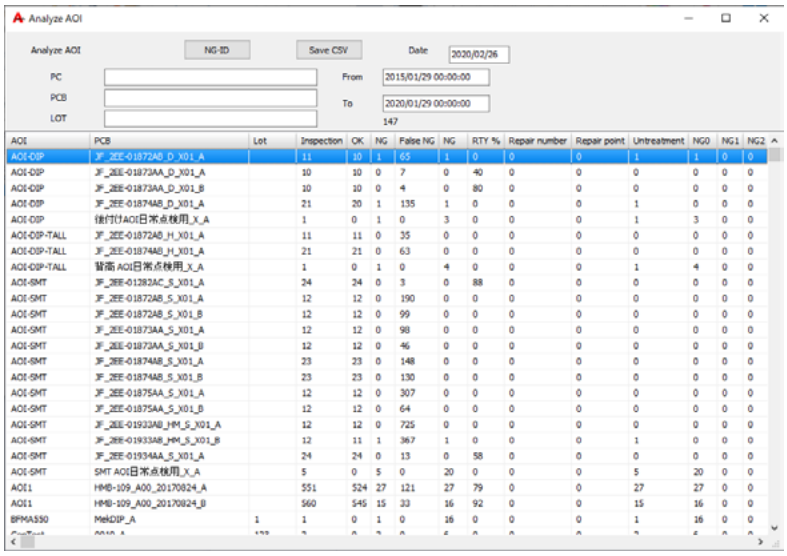
Analyze RefDes



Analyze NG-ID

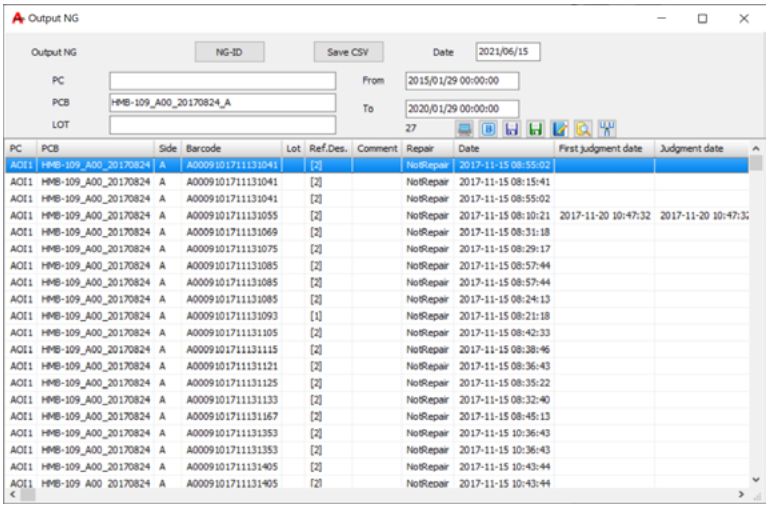


Analyze AOI



Output NG

This menu displays/outputs details of NG. The details of each button are as follows.



NG-ID

Displays and edit NG-ID from NG0 to NG9 for classifying NG.

Save CSV

Saves the output data in CSV format.

Displays a selected image.

Searches barcodes.

Saves the selected image in JPEG or BMP format.

Saves all images.

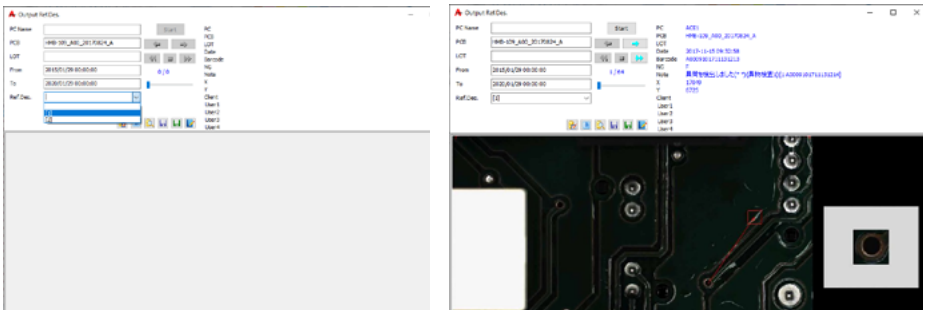
Edits file name when saving all images by the button above.

Selects the search period. Enter period and press "OK" to update the table.

Opens [Output item setting] screen. Only ticked items are displayed on Output NG screen. Click header to sort.

View Ref.Des.Pic.

This menu displays pictures at selected Reference Designator after specifying AOI and Inspection data and date.



1. Press pull-down tab at Symbol, all names of Ref.Des. will be listed. Select one.
2. Press **Start** button. Picture will be shown.

√ To see the next/previous picture, press or click left/right arrow keys on keyboard.

√ Click up/down arrow keys on keyboard to show pictures at one fifth out of total.

√ With sliding bar you can move freely.

√ To see pictures automatically, use . Pictures will be shown each 0.1 second. To change the interval, click on the button with right mouse button.

√ To jump to the desired picture, press and input the number.

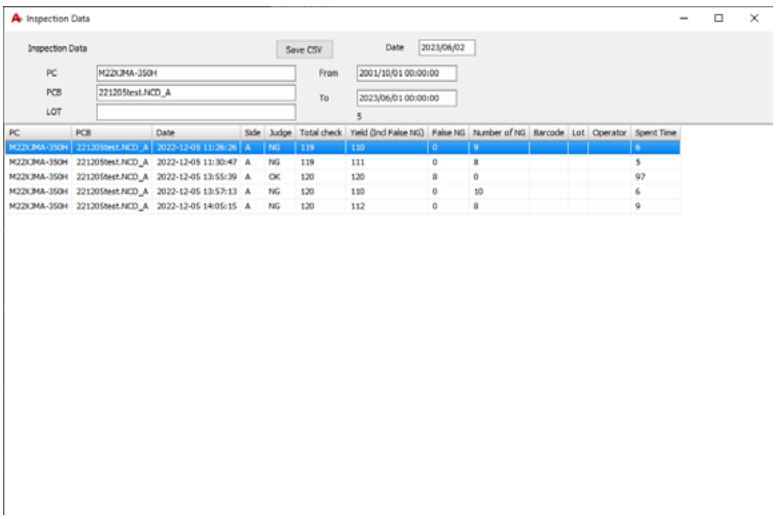
√ To show the desired picture by barcode, press and input the barcode.

√ To save the picture in JPEG or BMP format, press

*** If you connect only one AOI, press to switch to the other search method before pressing Start button. Response will be better. Normally SQL database searches and query data, but if you press this button, CS-Analyzer software does these operation.**

Output F.NG

Outputs the selected data in CSV format.

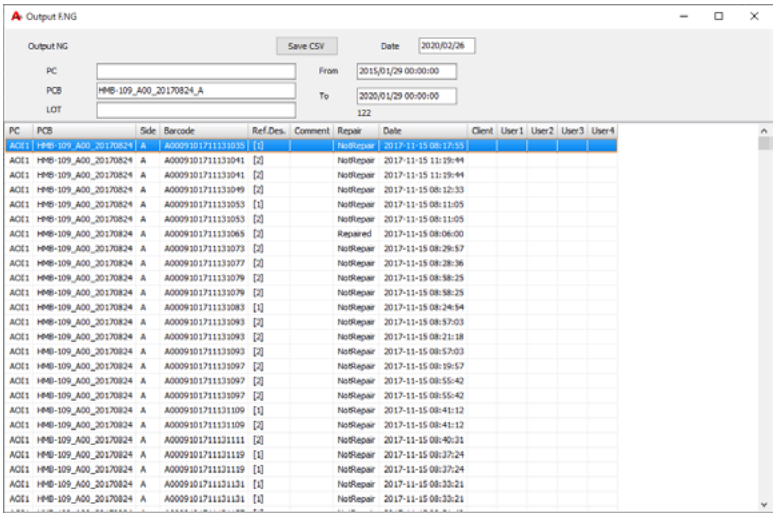


Click the CSV output button to save the output results in a CSV file.

The information to be output is as follows.

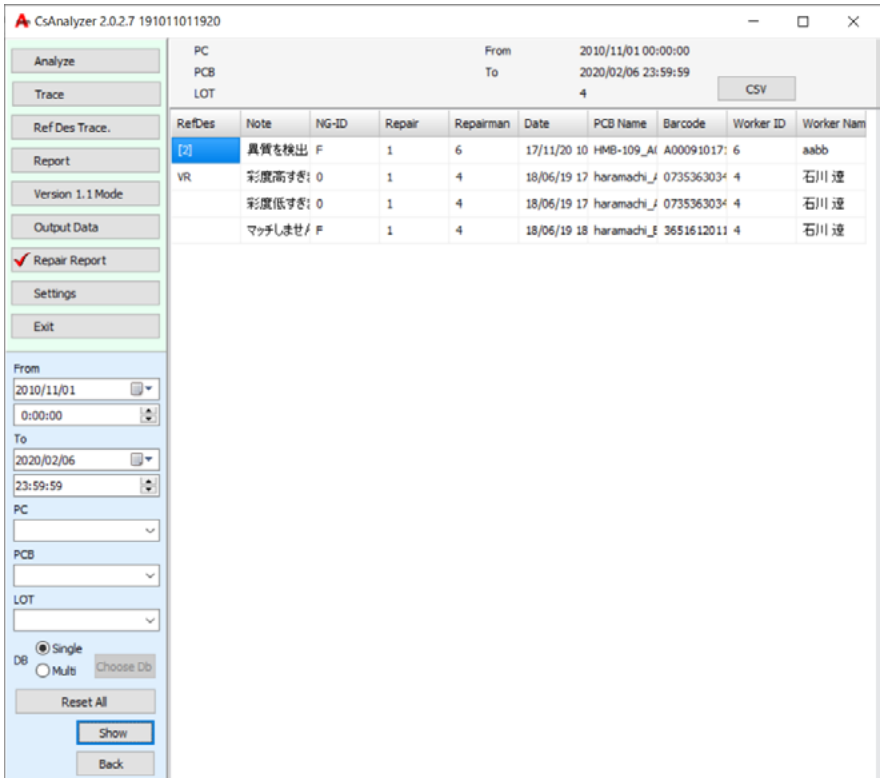
PC	Registered PC name.
PCB	Registered PCB name.
Date	The date and time when the inspection was performed.
Side	A or B side.
Judge	OK or NG.
Total Check	The number of inspections per PCB.
Yield (Incl. F. NG)	The number of good products, including false NG pre PCB.
False NG	The number of false NG per PCB.
Number of NG	The number of NG per PCB.
Barcode	Sheet barcode.
Lot	Lot number.
Operator	The person in charge of the inspection machine.
Spent Time	Seconds taken for the check.

Output F.NG



15. Repair Report

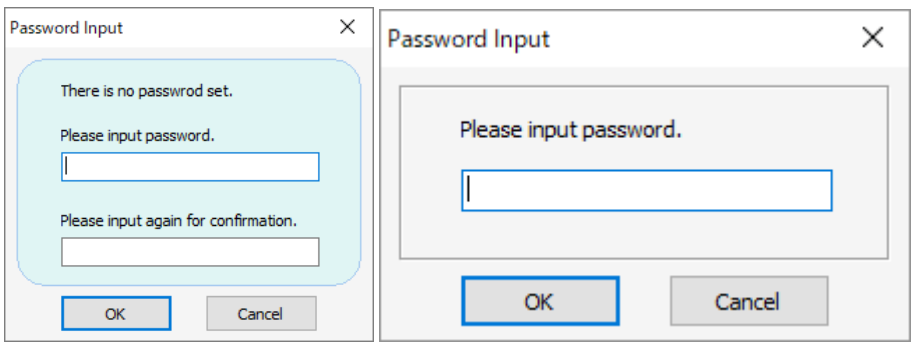
A list of date which is detected as "repair" on CS-Repair.



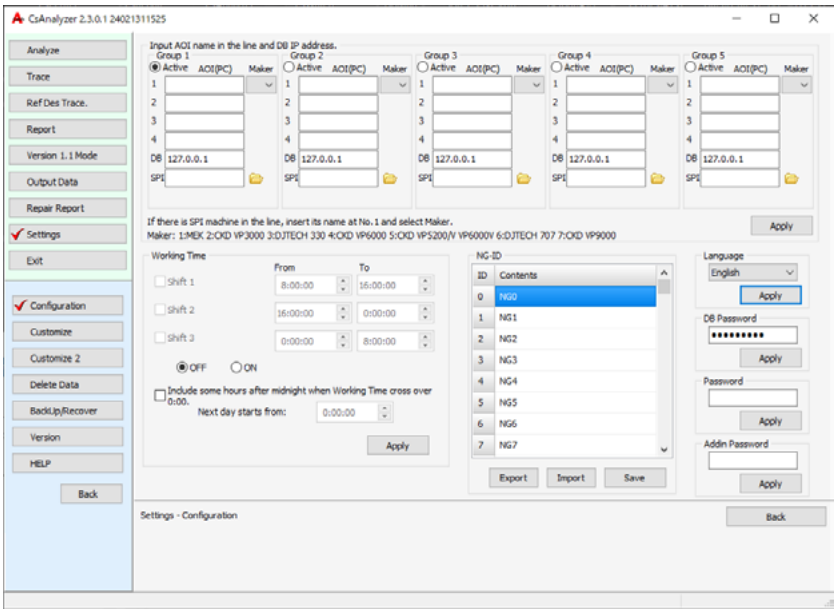
1. Select Repair Report.
2. Input filter on the lower left and select Show.
3. Filter information and number appear on the upper screen, and worker information appears on the lower.
4. Click **CSV** button to output the result.

16. Settings

You can set the operating environment of CS-Analyzer and data management. For the first time, you will be requested to set password. Input any password.



Configuration



AOI line configuration

Select **Settings** from menu. In the **Settings** screen, select **Configuration** from the list. At half top of the screen, there is menu "**Input AOI name in the line and DB IP address**". Group 1 is selected on default. If you use SPI machine, input **SPI** machine name (PC name) in Row1, and select manufacturer's name from **Maker** pull-down.

1. MEK
2. CKD VP3000
3. DJTECH 330
4. CKD VP6000
5. CKD VP5200/V VP6000V
6. DJTECH 707
7. CKD VP9000

From Row2 to Row4, input AOI(PC) name. Input IP address of the PC where PostgreSQL database is installed to DB row.

For last Spi row, set the shared folder to data communication if you use SPI machine other than MEK.

Working Time

You can set the shift work time. Select **ON**, and set working time from Shift 1 to Shift 3 accordingly. Click **Apply** to apply the settng.

NG-ID

You can display and edit NG-ID from NG0 to NG255 for classifying NG.

Export

Outputs the displayed NG-ID items to an arbitrary file.

Import

Reads NG-ID items from the file and displays them on the screen.

Save

Saves displayed NG-ID items.

Language Setting

You can select the language for software. Complete the setting by clicking **Apply** button.

DB Password

Password which requires to connect database. Same password is automatically applied which you set for installation. If you change the password in DbManager, you need to change this DB password too.

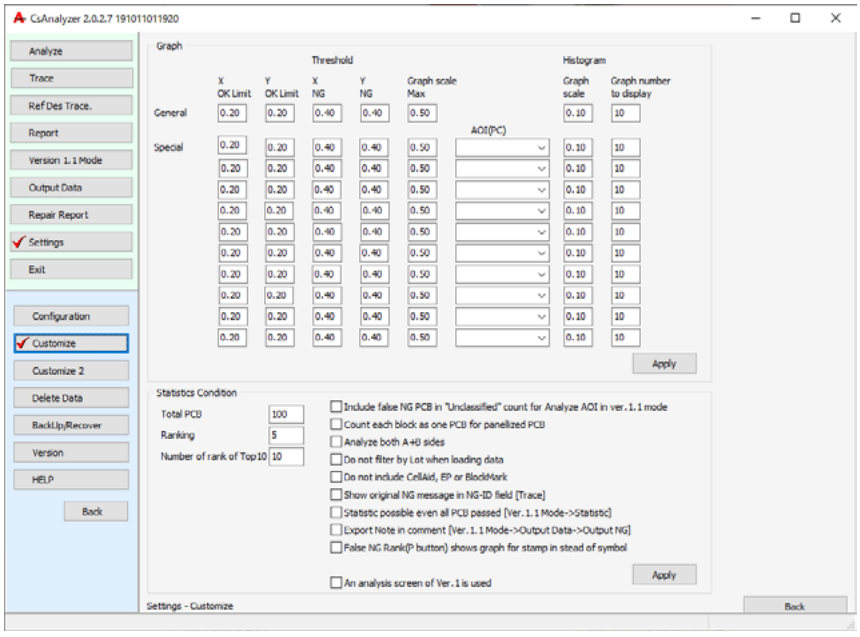
Password

Apply password to open setting window.

Addin Password

Apply password for Addin.

Customize



Graph

You can customize the **Threshold** and **Histogram** of graphs in this software. Inputting **General** will change all environment. Inputting **Special** will change the limit for only specified AOI.

X OK Limit (mm)

This sets the acceptable value of position shifting in X direction (mm) when the value

is less than the one already set.

Y OK Limit (mm)

This sets the acceptable value of position shifting in Y direction (mm) when the value is less than the one already set.

X NG (mm)

This sets the unacceptable value of position shifting in X direction (mm) when the value exceeds the one already set.

Y NG (mm)

This sets the unacceptable value of position shifting in Y direction (mm) when the value exceeds the one already set.

Graph Scale Max (mm)

Set maximum value of X and Y graphs in mm for each PC name.

Graph scale (mm)

Set the scale of the histogram in mm for each PC name.

Graph number to display

Set the number of the histogram to be displayed for each PC name.

Statistics Condition

Total PCB

Set the PCB number to be the target of statistics when analyzing,

Ranking

Number of the bars and data to be displayed in each graph.

Number of rank of Top 10

Default is Top 10, you can customize to other than 10.

Include false NG PCB in "Unclassified" count for Analyze AOI in ver.1.1 mode

If you want to include false NG when counting Untreatment in Analyze AOI in Output Data operation, check this on.

Count each block as one PCB for panellized PCB

When analyzing panelized PCB, display graphs based on panel instead of sheet.

Analyze both A+B sides

When analyzing data, combine both side A and side B data.

Do not filter by Lot when loading data

When loading data, if this option is ON, LOT filter is ignored.

Do not include CellAid, EP or BlockMark

When loading data, if this option is ON, stamps not related to inspection is excluded.

Show original NG message in NG-ID field [Trace]

When original NG message is active on AOI, show the message in NG-ID field in Trace screen.

Statistic possible even all PCB passed [Version1.1 Mode ->Statistic]

Normally if there is no NG PCB, you can't do Statistic. But by activating this, you are allowed to do Statistics to OK PCBs.

Export Note in comment [Version1.1 Mode ->Output Data ->Output NG]

Export Note in comment field when executing Output NG in Version 1.1 Mode's Output Data.

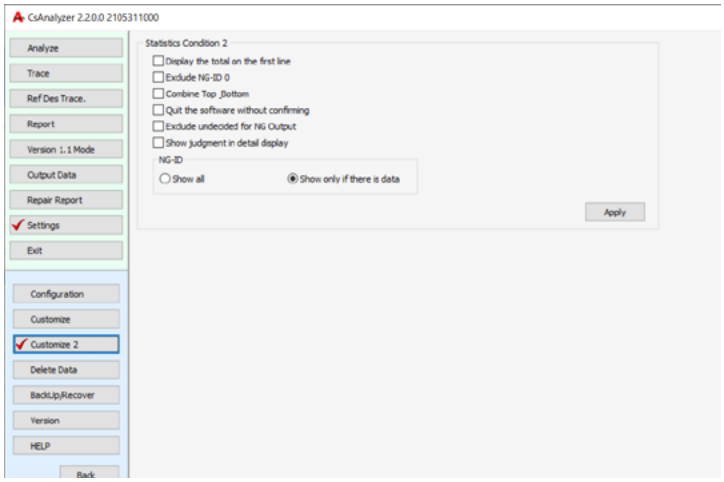
False NG Rank (P button) shows graph for stamp in stead of symbol.

Apply P button for Stamp summarization.

An analysis screen of Ver.1 is used

Use Ver.1 (former version) screen for analyzation.

Customize 2



Display the total on the first line

Display the total on the first line in Analyze window. This function is active when "An analysis screen of Ver.1 is used" is not checked in **Customize** window.

Exclude NG-ID 0

Exclude the data with NG-ID 0 when summarizing the data in Analyze window. This function is active when "An analysis screen of Ver.1 is used" is not checked in **Customize** window.

Combine Top_Bottom

Display combined data of A side and B side in Analyze window. This function is active when "An analysis screen of Ver.1 is used" is not checked in **Customize** window.

Quit the software without confirming

Tick to skip confirmation when quitting the software.

Exclude undecided for NG Output

Tick to export only NG on **Output NG**.

Show judgement in detail display

Inspection result and judgement result are displlayed on [Statistics for picture] - [Display details] screen.

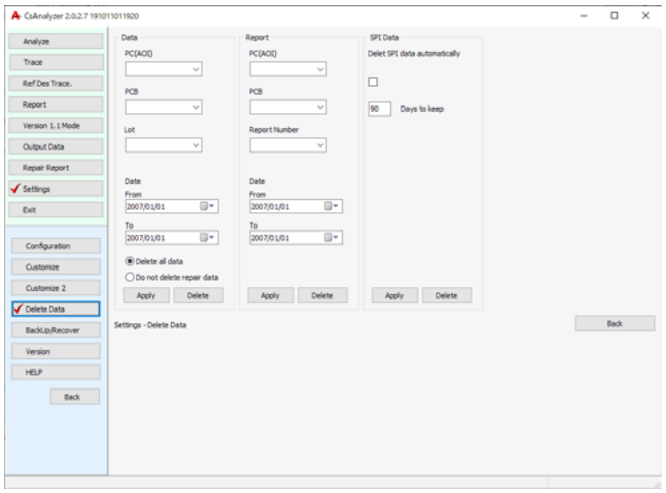
NG-ID

When set to [Show all], all NG-IDs from 0 to 255 will be displayed regardless of whether there is data or not. If set to [Show only if there is data], only NG-IDs which store data in the DB will be displayed.

***[Output NG-ID to NG Output] can be used as an option for [NG-ID] of [Output NG] - [Output Data] - [Output item setting] screen on ver 2.1.0.0 and greater.**

Delete Data

You can delete data in database from CS-Analyzer. Input specified Lot, Line, PCB, Date (From/To) to delete. However this function does not delete the data used for CS-Repair and Report.



Data

Input the Lot number, and click **Delete** button.

Report

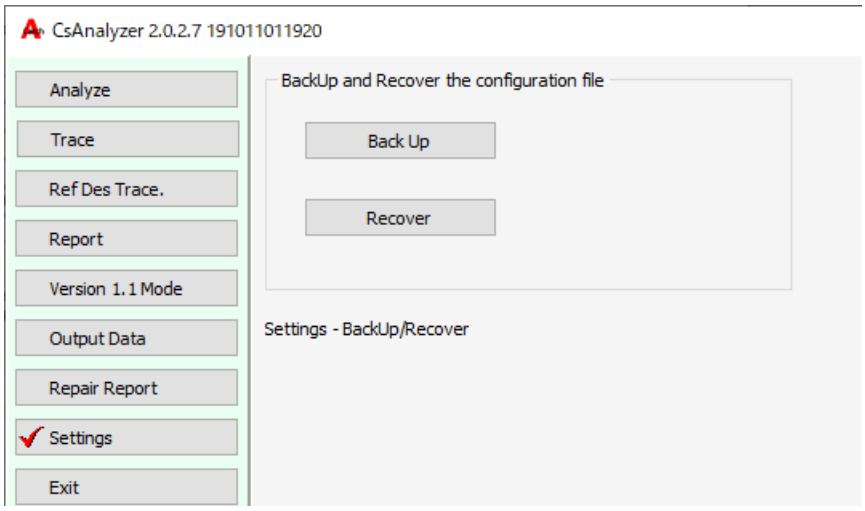
Input the Line, PCB, Date (From/To), and click **Delete** button.

SPI Data

Possible to delete SPI data automaticaly if you put check in "Delete SPI data automatically".
If you want to delete manually, delete with **Delete** button.

Backup/Recovery

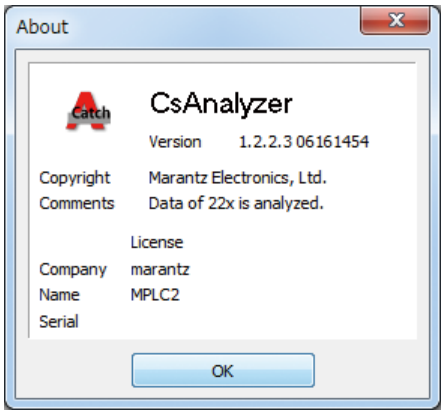
You can backup the configuration / customize settings of CS-Analyzer.
To export, execute "Back Up" button. To import, execute "Recover".



Backup should be done after the installation or after changing system configuration.

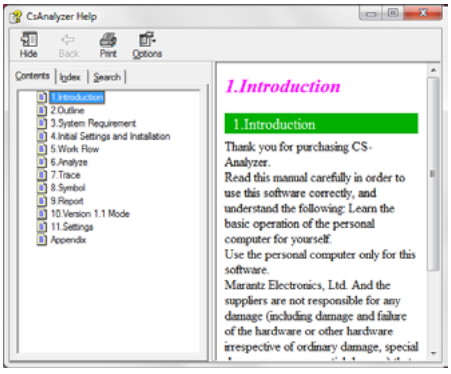
Version

You can confirm the version. Click **OK** to close the window.



Help

You can show the instant help.



17. Troubleshooting

Communication Error

If data is not received from CS-Center, confirm the following;

1. IP address has been set without overlapping with the other PC.
2. The subnet mask setting is the same in the PC where CS-Center is installed.
3. A cross cable is used for direct connection or a straight cable is used for connection with a hub as the cable to connect Macintosh/Windows PCs.
4. There is no X or ? In the control panel, system, and device manager of Windows.
5. Same port is used for both CS-Center and CS-Analyzer.
6. CS-Center is running when you try to connect CS-Analyzer.

18. Errors

Message	Explanation	Measurement
Incorrect key number	The key number you input is incorrect	Please input correct key number.
Invalid key number entry.		
Installation failed	Failed to install CS-Watch	Please re-try installation.
Please re-install		
Printer is not installed	Tried to print but printer not found	Please confirm the printer settings.
File incorrect	Setting file imported is incorrect	Please select correct setting file.
There is no data for this barcode.	Data for the barcode num. not found.	Please confirm the barcode num. or check the barcode search setting.
No valid data found	The target PCB was not found	Activate light-blue circle (show OK PCB)
HASP key not found	HASP key not working correctly, or driver error.	Confirm the connection of the key, confirm if correct driver is installed. If error is not improved, contact to your local reseller.
HASP key version invalid		
HASP key not found or key ID incorrect		
Hasp.dll loading error		
Hasp key routine not found		
Data is not read.	Error shown when executing filtering before loading data	Execute filtering after loading data
No data found for that query.	No corresponding data is found when executing query in Trace menu	Change filter for the query.
No data found	Executed query before opening data	Do after opening data
Invalid value.	Problem on data deletion settings	Please confirm the settings.
Not possible to delete.		
No data found to delete		
Incorrect Password.	Incorrect password to open Settings	Please input correct password
NG ID changed. Quit without applying the change?	NG ID is modified but not saved and another NG ID file is going to be open.	Click **NO** to save the change, and click **YES** to abort the change.
NG ID changed. Continue without applying change?		
Line Group changed. Quit without applying change?	Apply button is not clicked in Configuration setting, and try to go on to another window.	Click **NO** if you want to apply the setting. Click **YES** if you do not want to apply the changed setting.
Working Time has been changed. Quit without applying change?		
NG-ID setting has been changed. Quit without applying change?		
Graph setting has been changed. Quit without applying change?	Moving to the other window without applying the change.	Click **NO** to apply the change. Click **YES** to abort the change.
Statistics Condition has been changed. Quit without applying change?		
Total PCB is unusual. It is set as 100.	Incorrect number is set	Input integer number more than 1
Ranking is unusual. It is set as 10.		
Number of rank of Top10 is unusual. It is set as 10.		
Data Delete setting has been changed. Quit without applying change?	Moving to the other window without applying the change.	Click **NO** to apply the change. Click **YES** to abort the change.
3D information file is not found.	Communication to SPI machine or setting is incorrect	Confirm the communication and settings.
2D information file is not found.		
SPI information is not found.		
PC name or barcode is incorrect.		
Data was not able to load.		

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