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PRIMELINE MULTIGAUGING SPC SOFTWARE

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1. Introduction

The **PrimeLine™** is a multigauging SPC software solution for gauging applications. The software supports unlimited product models to be configured and has all the parameter settings required for dimensional gauging. The **PrimeLine™** solution consists of main software, Gauge Port device. The gauge port provides measurement values to the **PrimeLine™** software. **PrimeLine™** software sends and receives data to PLC.

In addition to basic measurement features, the software has very elaborative reporting with SPC. Offline and online SPC helps user keep track of production, rejection while using the system. All the reports can be directly exported to desired file format with number of filtering options. Instructions are also displayed at the bottom of each screen to guide the operator. These two features make the software very easy to use. User-friendly screens with color graphics or digital pictures display icons for simple menu selection.

2. Features

- **PrimeLine™** ensures a friendly interface with clear layout, user-friendly messages and making operation easy for all users.
- Up to 10GB of measurement data can be stored in database of **PrimeLine™**.
- **Robust Data Backup Policy:** PrimeLine implements a robust data backup policy with regular intervals, including daily, weekly, monthly, and yearly selectable options. This ensures that users' data is consistently and securely stored, providing peace of mind and data reliability.
- **Easy Report Generation:** PrimeLine simplifies the process of creating reports through its user-friendly interface. Users can effortlessly generate comprehensive reports in both CSV and PDF formats, ensuring flexibility in data analysis and convenient sharing. This feature allows users to export reports in their preferred format (.csv for data manipulation and .pdf for easy sharing and viewing).
- **PrimeLine™** features collectively contribute to an efficient and streamlined monitoring process, optimizing workflows and maximizing data accuracy from product selection to parameter monitoring.
- **Serial number** reset on a daily, weekly, or monthly basis, or at a preset batch count.
- **Setable Shift timings.**
- Absolute/relative mode of display for measured dimension.
- The measure external/internal diameter.
- SPC Charts-X-Bar R-Chart, X-Bar S-Chart, Pie-chart, Run-chart.
- Grading option.
- Gauge configuration utility.
- Password Protection.
- Real-time data plotting.
- This product supports inductive type of gauges and binary gauge input in addition to air gauges, if suitable GaugePort device is used.
- This product supports temperature sensor, biometric, barcode printer, pin marking machine or laser marking machine to directly mark the tested component.
- Protects the computer in case of a power outage by automatically shutting down the system after preset timeout. (Requires **PowerMon™** device and a UPS to be connected separately).
- Software can help optimize production processes, reducing lead times.

3. Screen functionality

- One of the key features of the **PrimeLine** multigauging SPC Software is the customization of the screens used for measurement. The operator in following the sequential steps to measure apart and collect data.
- The first step is to install the **PrimeLine** multigauging SPC software on the computer. The Bearing Case Gauging System page opens when clicked on the PrimeLine application, as shown in figure 1. Admin and Operator have two authorizations available.



Figure 1

- After Admin and Operator login, the main page will appear as shown in figure 2. After the main window opens, click on the Settings button to set the settings.

3.1 Main screen

On the main screen, select the product. The operation modes, cycle types, current serial numbers, accept and reject product counts, shift starting, and final results will be shown. As shown in figure 2, the following tabs will show up.

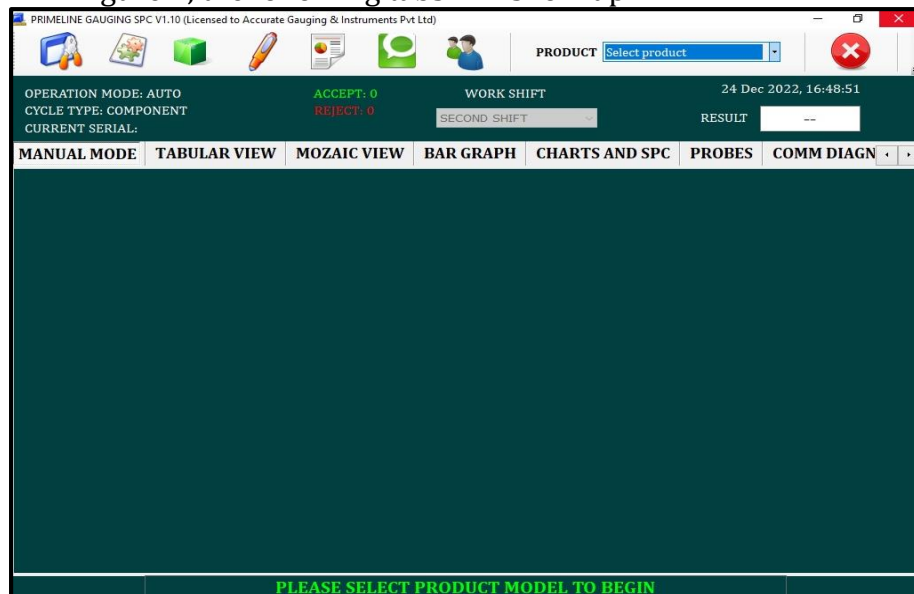


Figure 2

- 3.3.1 MANUAL MODE
- 3.3.2 TABULAR VIEW
- 3.3.3 MOSAIC VIEW
- 3.3.4 BAR CHART
- 3.3.5 CHARTS AND SPC
- 3.3.6 PROBES
- 3.3.7 COMMUNICATION DIAGNOSTICS

3.3.1 MANUAL MODE

- Click on the Manual mode tab. The following window can be seen in figure 3. To manually check the stations, click on the Manual mode tab.

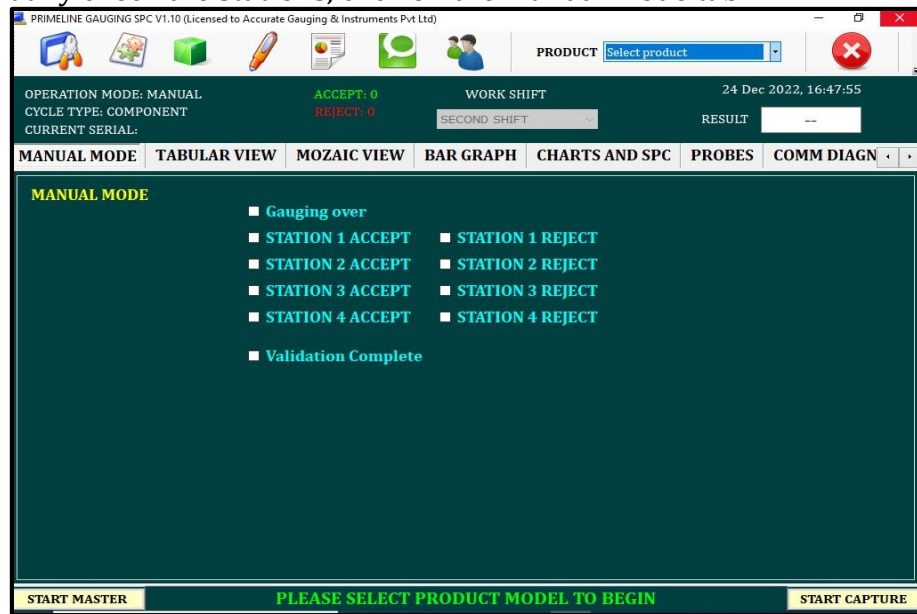


Figure 3

3.3.2 TABULAR VIEW

- Click on the Tabular mode tab. The following window can be seen in figure 4. In the tabular tab, the parameter, current value, lower limit, upper limit, and result of the selected product will be displayed.
- If the result is accepted, then the color of that parameter will be green, and if the result is rejected, then the color of that parameter will be red. The message “waiting for cycle start operator” will appear on the screen. After the operator starts the cycle, the message “capturing” will appear on the screen.



Figure 4

3.3.3 MOSAIC VIEW

- Click on the Mosaic mode tab. The following window can be seen in figure 5. In the mosaic tab, the parameter, TIR or average value, lower limit, upper limit and result of the selected product will be displayed.
- If the TIR or average value result is accepted, then the color of that value will be green and if the result is rejected then the color of that value will be red. The message 'waiting for cycle start operator' will appear on the screen after the operator start the cycle the message 'capturing' will appear on the screen.

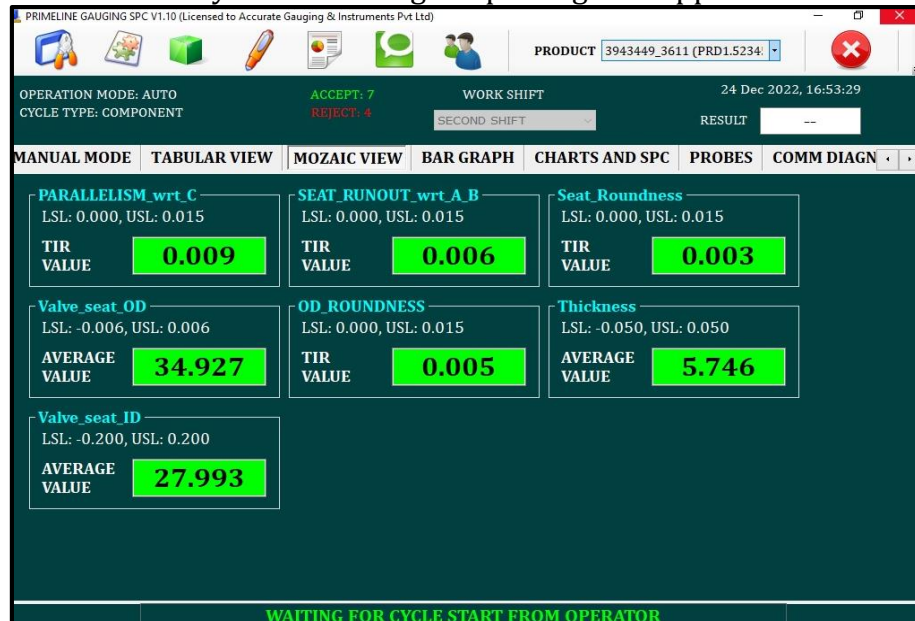


Figure 5

3.3.4 BAR CHART

- Click on the bar graph tab. The following window can be seen in figure 6. In the bar chart tab, the parameter, TIR or average value, lower limit, upper limit and result of the selected product will be displayed.
- If the TIR or average value result is accepted, then the color of that value will be green and if the result is rejected then the color of that value will be red. The message 'waiting for cycle start operator' will appear on the screen after the operator start the cycle the message 'capturing' will appear on the screen.



Figure 6

3.3.5 CHARTS AND SPC

- Click on the Charts and SPC tab. The following window can be seen in figure 7. Statistical Process Control (SPC) is an industry-standard methodology for measuring and controlling quality during manufacturing.
- The parameters of the selected product will appear in the line chart. The minimum value, maximum value, average value, and Std deviation of parameters will be seen in SPC calculations.

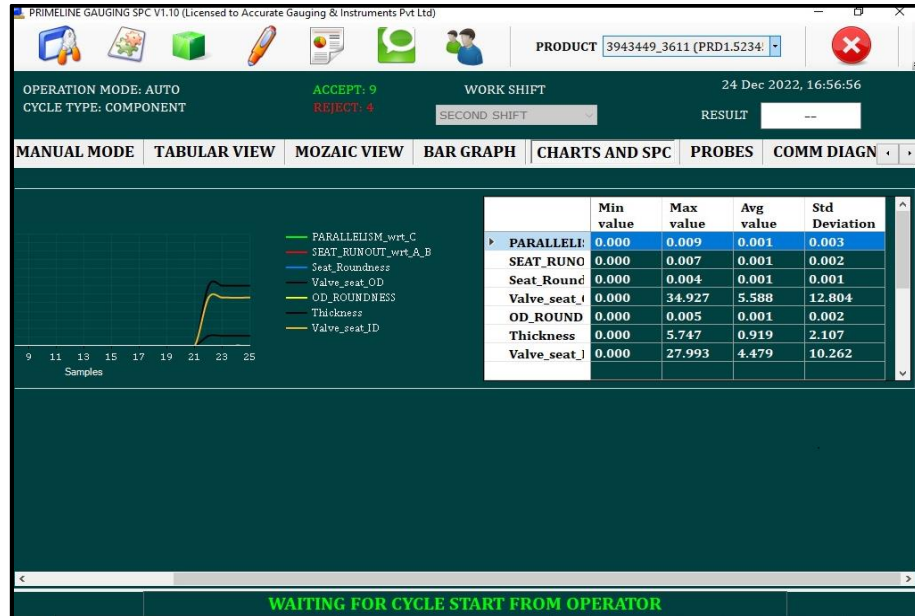


Figure 7

3.3.6 PROBES

- Click on the probes tab. The following window can be seen in figure 8.
- The readings of the probes are shown, which are connected to the gauge port.

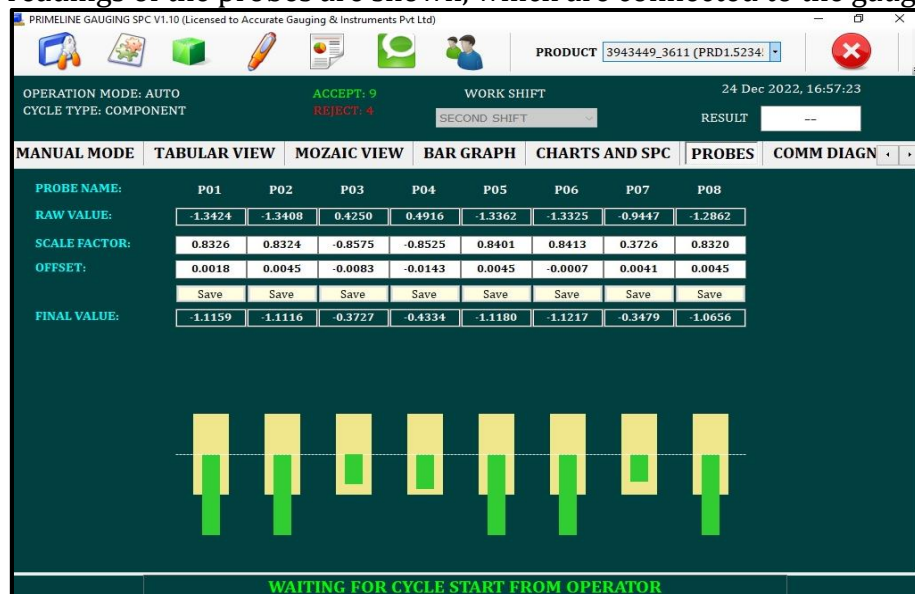


Figure 8

3.3.7 COMMUNICATION DIAGNOSTICS

- Click on the communication diagnostics tab. The following window can be seen in figure 9. Name, address, and value will appear in the Modbus coil/register.

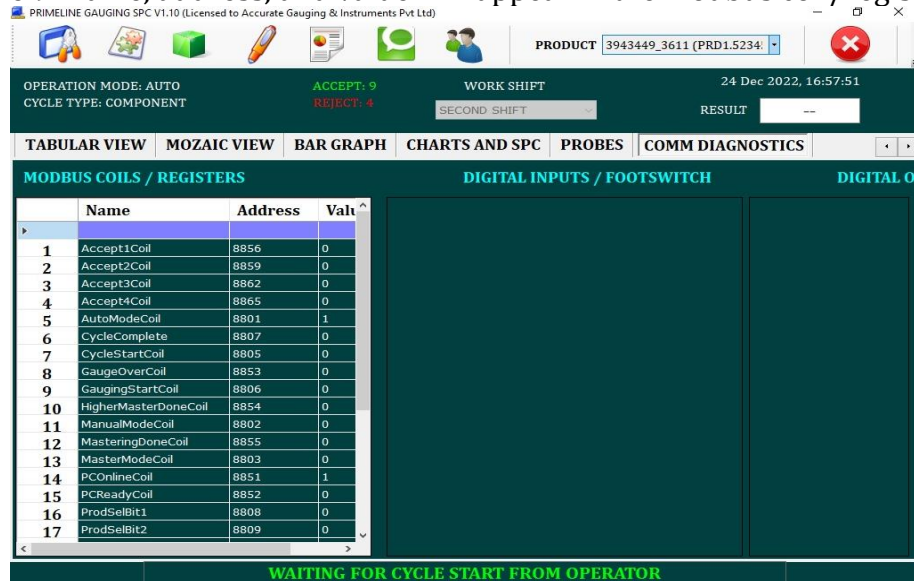


Figure 9

3.2 System settings

Click on the main page setting icon. Figure 10 is displayed after clicking on the settings icon.

Note- The settings button will be hidden so that the operator will not be able to make any changes to the settings.

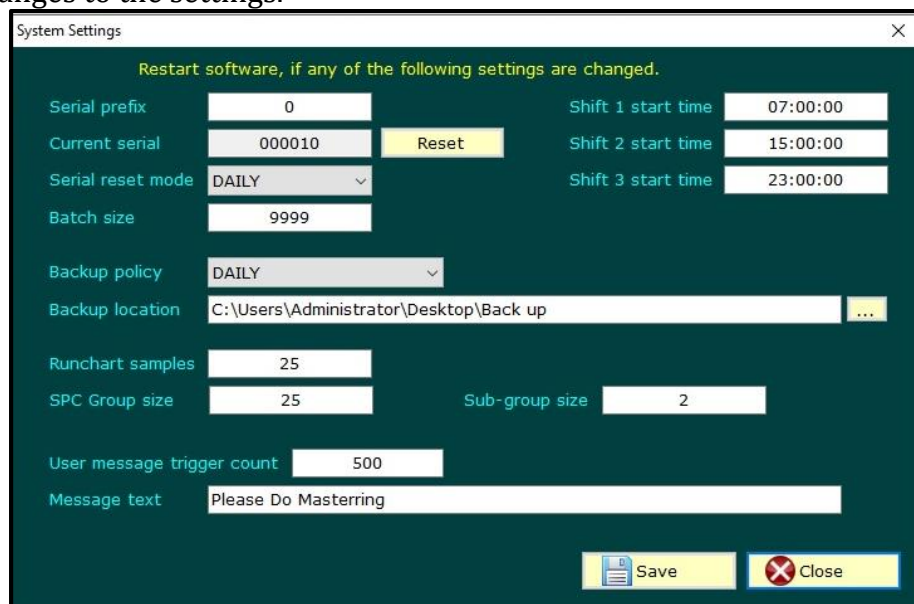


Figure 10

- 3.2.1 Serial prefix:** The serial prefix is generated automatically starting from 0, 1, 2...
- 3.2.2 Current serial:** Current serial number of the product will be displayed.
- 3.2.3 Reset button:** The reset button is used to reset the serial number. If the user wants to reset the serial number, they click on the reset button. The product's serial number is reset.
- 3.2.4 Serial reset Mode:** Reset the serial number in three ways daily, weekly, and monthly.
- 3.2.5 Batch size:** Batch size is the number of products to be manufactured.
- 3.2.6 Backup policy:** It is possible to set the backup policy to either daily, weekly, or monthly.

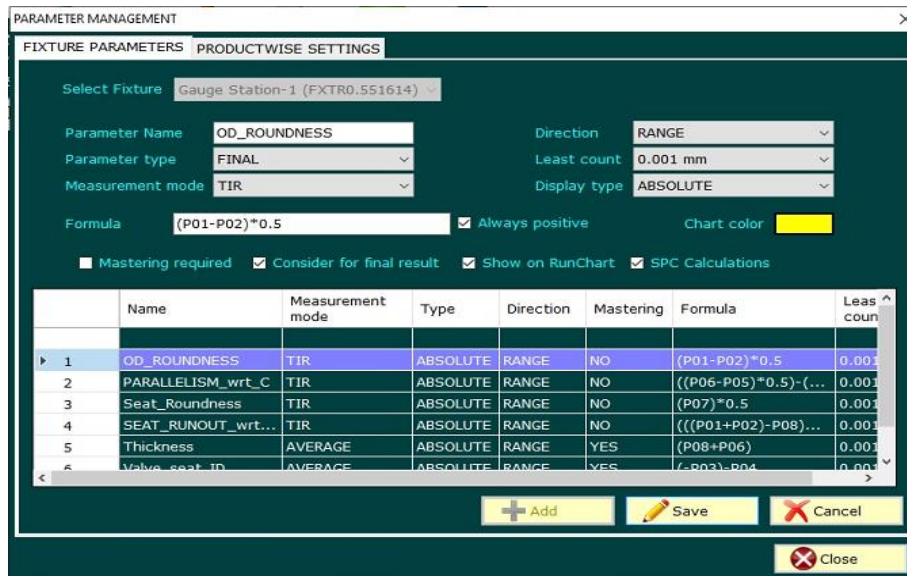
- 3.2.7 Backup Location**- Find the location where to save the backup.
- 3.2.8 Run Chart samples**- Run chart samples means Number of samples used for run chart. A run chart is a line chart of data plotted over time. In other words, a run chart graphically depicts the process performance or data values in time order.
- 3.2.9 SPC Group Size**- The group size is required for calculation of Cp and Cpk.
- 3.2.10 User message trigger count**- Set the trigger count.
- 3.2.11 Message text**- When the calibration or trigger count is reached, a message will be displayed to the user. For example, the trigger count is 500. After 500 counts reach the settable user message is displayed on screen.
- 3.2.12 Shift 1 start Time**- Enter the start time for the first shift here.
- 3.2.13 Shift 2 start time**- Enter the start time for the Second shift here.
- 3.2.14 Shift 3 start time**- Enter the start time for the Third shift here.
- 3.2.15 Shift 4 start time**- Enter the start time for the fourth shift here.
- 3.2.16  Save button**- After all settings are filled properly, click on the save button to save the settings.
- 3.2.17  Close button**- The Settings window closes after clicking on the Close button.
- Note**- If any of the following settings is changed, the software needs to be restarted.

3.3 Parameter management

Click on the main page parameter management icon. Figure 11 is displayed after clicking on the parameter management icon. Two tabs are shown here.

3.3.1 FIXTURE PARAMETERS

3.3.2 PRODUCTWISE SETTINGS



	Name	Measurement mode	Type	Direction	Mastering	Formula	Least count
1	OD_ROUNDNESS	TIR	ABSOLUTE	RANGE	NO	(P01-P02)*0.5	0.001
2	PARALLELISM_wrt_C	TIR	ABSOLUTE	RANGE	NO	((P06-P05)*0.5)-...	0.001
3	Seat_Roundness	TIR	ABSOLUTE	RANGE	NO	(P07)*0.5	0.001
4	SEAT_RUNOUT_wrt...	TIR	ABSOLUTE	RANGE	NO	((P01+P02)-P08)...	0.001
5	Thickness	AVERAGE	ABSOLUTE	RANGE	YES	(P08+P06)	0.001
6	Valve_seat_ID	AVERAGE	ABSOLUTE	RANGE	YES	(P03-P04)	0.001

Figure 11

3.3.1 FIXTURE PARAMETERS

- Select fixture:** The fixture that have been added in fixture management will show after for measuring internal diameter of component choose this option else results are different. clicking on the select fixture dropdown list.
- Parameter Name:** Select the parameter name of the fixture that was selected.
- Parameter Type:** Select Parameter Type
 - Final
 - Intermediate
- Measurement Mode**
 - AVERAGE

The final result is displayed after the measurements are taken and the average value calculated in this mode of measurement.

- **MINIMUM**
The final result is displayed after the measurements are taken and the minimum value calculated in this mode of measurement.
- **MAXIMUM**
The final result is displayed after the measurements are taken and the maximum value calculated in this mode of measurement.
- **TIR**
TIR mode total traverse of readings during measurement cycle are shown as result
- **CURRENT**
In this mode, display the current measured reading and use it to determine the final result.
- **Formula:** Add the Mathematical formula here.
- **Display type**
 - **RELATIVE**
In this mode nominal value will not be considered for final result display. Direct measurement value is shown on display as final result.
 - **ABSOLUTE**
In this mode nominal value will be added to the obtained measurement value and then final result will be displayed
- **Direction**
 - **ID (Internal Diameter)**
For measuring internal diameter of component choose this option else results are different. If measurement direction is ID in that case readings goes above higher limit values result will be REJECT, and if readings go below lower limit values result will be REWORK. EX-ID=15.20 mm If ID is 15.25mm then Reject Condition If ID is 15.15mm then Rework Condition.
 - **OD (Outer Diameter)**
For measuring outer diameter of component choose this option else results are different. If measurement direction is OD in that case readings goes above higher limit values result will be REWORK and if readings go below lower limit values result will be REJECT. EX-OD=20.20 mm If OD is 20.30mm then Rework Condition If OD is 20.10mm then Reject Condition.
 - **Range**
If the user wants to check and accept components only within a certain range, and all components outside of that range are rejected, then select this option.
 - **Binary**
1 and 0 means True or False.
- **Least count:** is measuring smaller changes in a value.
- **Always positive:** If the value is negative, it is converted into a positive value.
- **Chart color:** Set the color for the SPC chart using the chart color.
- **Consider for final result:** If you want to see the final result, click on consider for final result checkbox.
- **Mastering required:** If mastering is required, click on the 'Mastering Required' checkbox.
- **Show on run chart:** View the SPC chart on the main page window and click on the Show on SPC Chart checkbox.
- **Show online SPC result:** Statistical Process Control (SPC) is an industry-standard methodology for measuring and controlling quality during the manufacturing process. View the online SPC result, then click on Show online SPC result box.

-  **Add button:** After filling out all the fixture information, click on the 'Add' button and see this data in the table.
-  **Edit button:** To update the information of a particular fixture in the table, click on the edit button.
-  **Save button-:** Click on the save button to save edited information
-  **Delete button:** To delete the fixture in the table, click on the Delete button.
-  **Cancel button:** Clicking on the clear button above will clear all information.

3.3.2 PRODUCT WISE SETTINGS

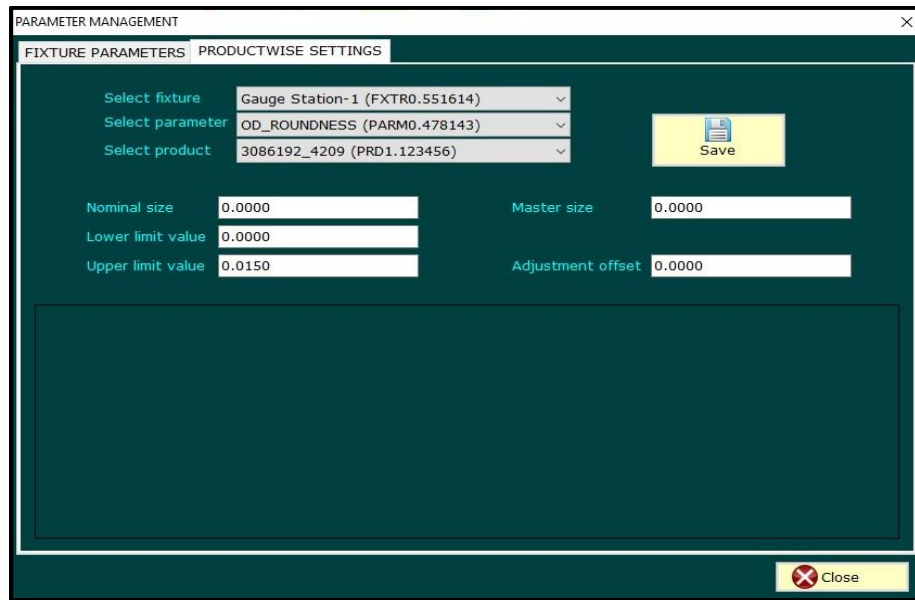


Figure 12

- **Select Fixture:** Clicking on the 'Select fixture' dropdown list will display the fixture that has been added to fixture management
- **Select Parameter:** Select the name of the parameter for the selected fixture.
- **Select Product:** Select the product for the selected fixture and parameter.
- **Nominal size:** 000.000 is default nominal value. User need to enter nominal value of the components to be used for measurement. Nominal value is used for showing measurement result in absolute mode only. For relative display mode, nominal value is not required. The nominal value lies between upper and lower limits. And the nominal size lies between these limits
- **Lower limit value:** This is lower specified limit of the dimensional measurement. When measurement value is below this limit, the component is for rework or reject depending upon direction.
- **Upper limit value:** This is upper specified limit of the dimensional measurement. When measurement value is above this limit, the component is for rework or reject depending upon direction.
- **Master Size:** Enter the master size value.
- **Adjustment offset:** Enter the value for adjustment offset.
-  **Save Button:** After above settings, click on the save button to save the settings.
-  **Close button:** Parameter management window close after click on the Close Button.

3.4 Fixture management

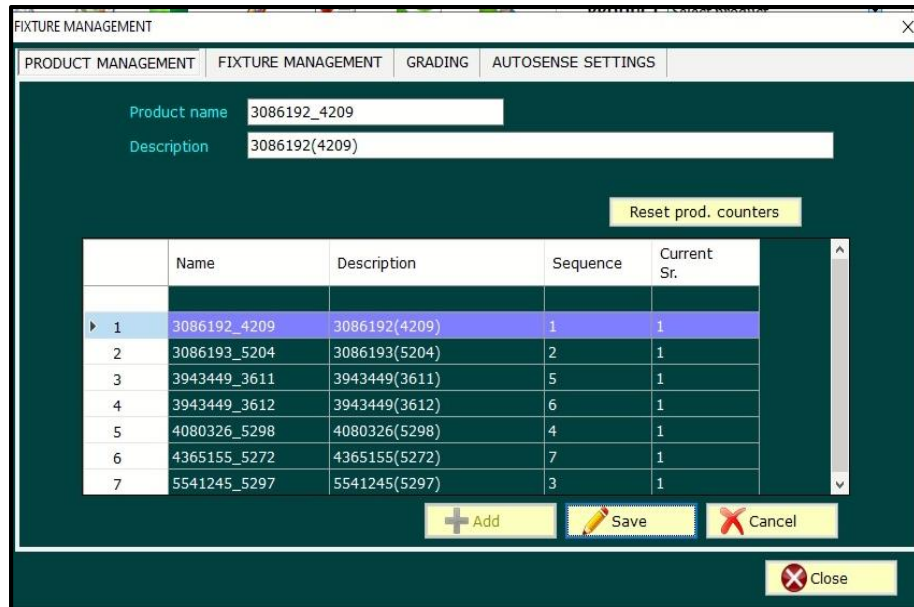
Click on the fixture management icon. Figure 13 is displayed after clicking on the fixture management icon. Four tabs are shown here.

3.4.1 PRODUCT MANAGEMENT

3.4.2 FIXTURE MANAGEMENT

3.4.3 GRADING

3.4.4 AUTOSENSE SETTINGS



	Name	Description	Sequence	Current Sr.
1	3086192_4209	3086192(4209)	1	1
2	3086193_5204	3086193(5204)	2	1
3	3943449_3611	3943449(3611)	5	1
4	3943449_3612	3943449(3612)	6	1
5	4080326_5298	4080326(5298)	4	1
6	4365155_5272	4365155(5272)	7	1
7	5541245_5297	5541245(5297)	3	1

Figure 13

3.4.1 PRODUCT MANAGEMENT

- **Name and Description:** Here, the product name and description for the selected row will be shown.
- **Reset Product Counters button:** Reset the production count for the product.
-  **Add button:** After filling all the Product Information, click on the 'Add' button and see this data in the table.
-  **Edit button:** To update the information of a particular fixture in the table, click on the 'edit' button.
-  **Save button:** Click on the save button to save the edited information.
-  **Delete button:** To delete the product from the table, click on the Delete button.
-  **Cancel Button:** After clicking on the 'clear' button above, all information will be cleared.

3.4.2 FIXTURE MANAGEMENT

Click on the Fixture Management tab. The following window can be seen in figure 14.

Figure 14 shows the 'FIXTURE MANAGEMENT' window. The 'Name' field is 'Gauge Station-1' and the 'Description' is '3086192(4209)'. The 'Cycle time' is '8.0' seconds. The 'Grade deciding parameter' is 'No grading' and the 'Unit' is 'MM'. The 'Mastering type' is 'SINGLE MASTERING', the 'Cycle start trigger' is 'MODBUS', the 'Cycle start value' is 'PLCMBComm (SPRT0.2360)', and the 'Temperature coeff.' is '0.000000'. The table below shows the following data:

	Name	Description	Unit	Cycle time	Grade parameter
1	Gauge Station-1	3086192(4209)	mm	8.0	--

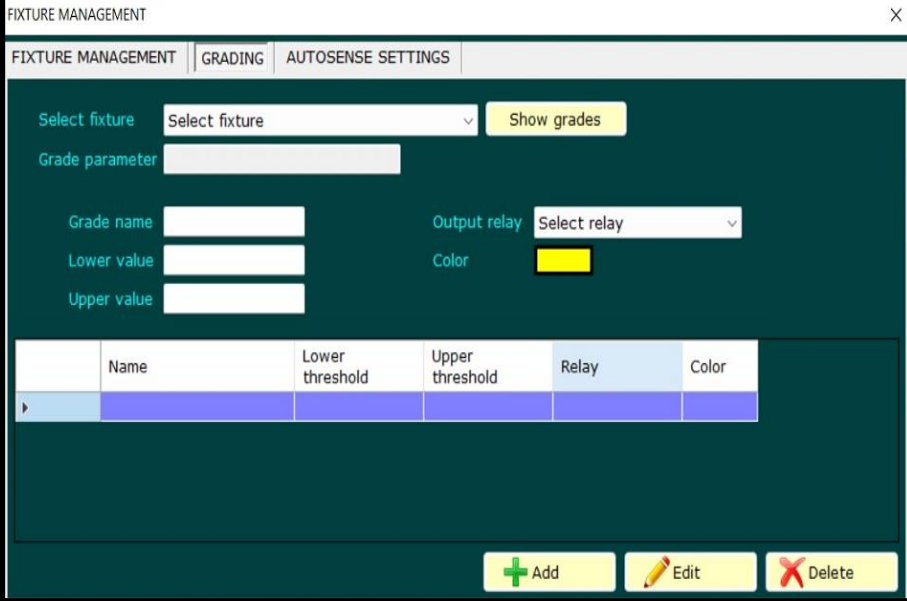
Figure 14

- **Name and Description:** The Station name and description of the selected row will appear here.
- **Grade deciding Parameter:** Select grade deciding parameter
 - **No Grading**
 - **Grading**
- **Unit:** This is the measurement unit selection option.
 - **mm (millimeter)**
To display the final results in millimeters, then select mm.
 - **Inch**
To display the final results inch, then select inch
- **Cycle time in Sec:** Select the cycle time in seconds.
- **Mastering Type:** Select mastering type
 - **Single mastering**
When there is only one reference master available, choose single master mode. Single mastering will work only when double mastering is already done at least once for that program.
 - **Double mastering**
when two reference masters are available for measurement, choosing double mastering is required for calibration. This is mandatory step. Double mastering must be done at least once before doing single mastering.
- **Cycle start Trigger:** See the list below and select how to start the cycle.
 - **Footswitch**
 - **Modbus**
 - **Digital Input/output**
 - **Scanner**
 - **Autosense**
- **Cycle start Value:** Select cycle start value.
- **Enable temperature compensation:** To enable temperature compensation, click the checkbox.
- **+ Add button:** After filling all the Fixture Management, click on the 'Add' button and see this data in the table.

-  **Edit button:** To update the information of a particular fixture in the table, click on the 'edit' button.
-  **Save button:** Click on the save button to save the edited information.
-  **Delete button:** To delete the information of fixture in the table, click on the delete button.
-  **Cancel Button:** After clicking on clear button above all information will clear.

3.4.3 GRADING

Click on Grading tab. The following window can be seen in figure 15.



Name	Lower threshold	Upper threshold	Relay	Color

Figure 15

- **Select Fixture:** The fixture that has been added to fixture management will show after clicking on the 'Select fixture' dropdown list.
- **Grade parameter:** The parameter's grade should be determined based on its quality, such as grade A, B, C, or D.
- **Grade Name:** Enter grade name for example very good, good, better,
- **Upper value:** This is Upper value which is higher than higher master value but acceptable in measurement. This value can be greater than or equal to higher master.
- **Lower value:** This is Lower value which is lower than lower master value but acceptable in measurement. This value can be lower than or equal to lower master.
- **Output Relay:** According to the grading, select which output relay to turn on.
- **Color:** Set the color to grading using the chart color.
- **Show grade button:** After filling all the information, click on the show button, the information of that fixture will appear in the table below.
-  **Add button:** After filling all the Fixture Management, click on the 'Add' button and see this data in the table.
-  **Edit button:** To update the information of a particular fixture in the table, click on the 'edit' button.
-  **Save button:** Click on the save button to save the edited information.
-  **Delete button:** To delete the information of fixture in the table, click on the delete button.

-  **Cancel Button:** After clicking on clear button above all information will clear.

3.4.4 AUTOSENSE SETTINGS

Click on Autosense settings tab. The following window can be seen in figure16.

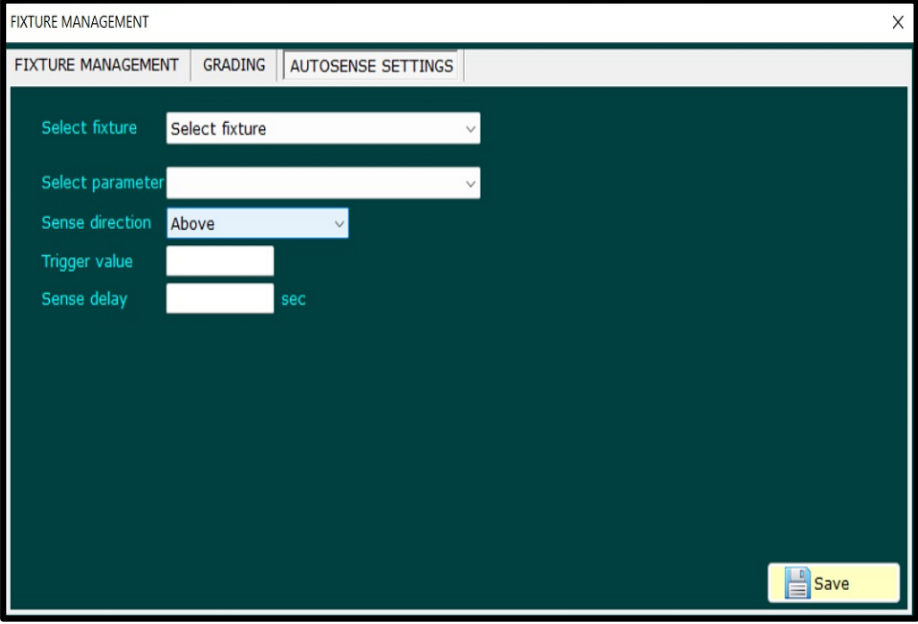


Figure 16

- **Select fixture:** The fixture that have been added in fixture management will show after clicking on the select fixture dropdown list.
- **Select parameter:** Parameter that has been added to parameter management will be shown after clicking on the 'Select Parameter' dropdown list.
- **Direction:** Select sense direction
 - **Above**
 - **Below**
- **Trigger Value:** Write the trigger value.
- **Sense delay in Sec:** Write the sense delay in second. The part's dimension is sense automatically based on the set delay
-  **Save button:** After above autosense settings, click on the save button and the record will be saved.

3.5 Communication interface management

Click on Communication Interface management button. Here are two options.

3.5.1 Add/Edit interfaces

3.5.2 MODBUS Configuration

3.5.1 Add/Edit interfaces

- Clicking on the Add/Edit interface tab will display the following window can be seen in figure 17.

COMMUNICATION INTERFACE MANAGEMENT

Add / edit interfaces MODBUS Configuration

Name:

Serial port:

Baud rate:

Parity:

Stop bits:

Communication type:

Data flow direction:

Frame delimiter (ASC):

Value delimiter (ASC):

Expected frame length:

No of parameters:

	Port name	Serial port	Baud rate	Comm type	Direction
1	Interface1Port	COM1	57600	KARLPL In...	Both
2	PLCMBComm	COM5	19200	MODBUS	Input only

+ Add Edit Delete

Figure 17

- **Name:** Enter the port name, for example, Interface port
- **Serial Port:** Select the serial port from the drop-down list, for example, COM3.
- **Baud Rate:** Select the baud rate, for example -19200
- **Parity:** A parity bit also known as a check bit. Select parity bit.
 - Even
 - Odd
 - None
- **Stop Bit:** Select stop bit.
 - 1
 - 0
- **Communication Type:** Select communication type
 - Modbus
 - Interface box
- **Data flow Direction:** Select data flow direction.
 - Both
 - Single
- **Frame and Value delimiter(ASC):** Write the frame and value delimiter.
- **Excepted frame Length:** Enter the expected frame length.
- **No. of parameters:** Enter the number of parameters.
- **Add button:** After filling all the interface communication Information click on add button and see this data in the table.
- **Edit button:** To update the information of a particular Port in the table, click on the edit button.
- **Save button:** Click on the save button to save edited information.
- **Delete button:** To delete the information of particular port in the table, click on the delete button.
- **Cancel Button:** After clicking on clear button above all information will clear.

3.5.2 MODBUS CONFIGURATION

- Click Modbus Configuration tab. The following window can be seen in figure 18.

COMMUNICATION INTERFACE MANAGEMENT

Add / edit interfaces MODBUS Configuration

Modbus port: PLCMBComm (SPRT0.236098)

Make absolutely sure that read and write registers are not mixed. Read and write registers must be allocated in distinct, non overlapping address areas.

Register Name: Accept1Coil Initial value: 0

Address offset: 8856 data type: Boolean

	Name	Port	Address	Data type	Initial value
1	Accept1Coil	PLCMBComm	8856	Boolean	0
2	Accept2Coil	PLCMBComm	8859	Boolean	0
3	Accept3Coil	PLCMBComm	8862	Boolean	0
4	Accept4Coil	PLCMBComm	8865	Boolean	0
5	AutoModeCoil	PLCMBComm	8801	Boolean	0
6	CycleComplete	PLCMBComm	8807	Boolean	0
7	CycleStartCoil	PLCMBComm	8805	Boolean	0
8	GaugeOverCoil	PLCMBComm	8853	Boolean	0
9	GaugingStartCoil	PLCMBComm	8806	Boolean	0

Read offset range: 8801 to 8824
Write offset range: 8851 to 8874

Figure 18

- Modbus Port:** Select the modus name, for example PLC Communication. If the Modbus port is not shown, then click on the search button.
- Register name:** Enter the register name.
- Address offset:** Enter the address offset.
- Initial value:** Enter the Initial value.
- Data Type:** Select the Data type
 - Boolean
 - Integer
 - Float
- Add button:** After filling all the interface communication Information click on add button and see this data in the table.
- Edit button:** To update the information of a particular Register in the table, click on the edit button.
- Save button:** Click on the save button to save edited information.
- Delete button:** To delete the particular Register in the table, click on the delete button.
- Cancel Button:** After clicking on clear button above all information will clear.
- Close button:** Probe management window close after click on the Close Button

Note: Make absolutely sure that the read and write registers are not mixed. The read and write register must be allocated in distinct, non-overlapping address areas.

Note: Read offset ranges from 8801 to 8824. Write offset ranges from 8851 to 8874.

3.6 Probe management

Click on Probe management button. Here are three options.

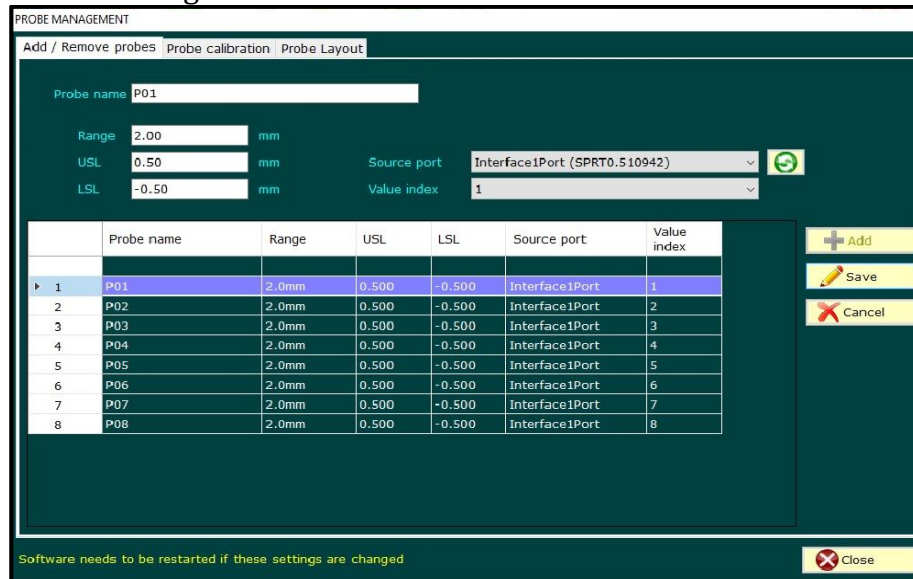
3.6.1 Add /Remove probes

3.6.2 Probe Calibration

3.6.3 Probe Layout

3.6.1 Add /Remove Probes

- Click Add/Remove probes tab, After Clicking tab the following window can be seen in figure 19.



	Probe name	Range	USL	LSL	Source port	Value index
1	P01	2.0mm	0.500	-0.500	Interface1Port	1
2	P02	2.0mm	0.500	-0.500	Interface1Port	2
3	P03	2.0mm	0.500	-0.500	Interface1Port	3
4	P04	2.0mm	0.500	-0.500	Interface1Port	4
5	P05	2.0mm	0.500	-0.500	Interface1Port	5
6	P06	2.0mm	0.500	-0.500	Interface1Port	6
7	P07	2.0mm	0.500	-0.500	Interface1Port	7
8	P08	2.0mm	0.500	-0.500	Interface1Port	8

Figure 19

- Probe Name:** Enter the probe name, for example P01.
- Rang:** Enter the measurement range in mm, for example: 1mm, 2mm, 5mm.
- USL:** Enter the upper limit of probe. This is Upper Size Limit value which is higher than higher master value but acceptable in measurement. This value can be greater than or equal to higher master.
- LSL:** Enter the lower limit of probe. This is Lower Size Limit value which is lower than lower master value but acceptable in measurement. This value can be lower than or equal to lower master.
- Source port:** Select source port from dropdown list. The port which has been added in communication interface management will show in dropdown list after clicking on Search button.
- Value index:** The value index starts from 1.
-  **Add button:** After filling all the probe Information click on add button and see this data in the table.
-  **Edit button:** To update the information of a particular probe in the table, click on the edit button.
-  **Save button:** Click on the save button to save edited information.
-  **Delete button:** To delete the particular probe in the table, click on the delete button.
-  **Cancel Button:** After clicking on clear button above all information will clear.
-  **Close button:** Probe management window close after click on the Close Button.

Note-Software need to be restarted if these settings are changed.

3.6.2 PROBE CALIBRATION

- Click Add/Edit interfaces tab, After Clicking tab the following window can be seen in figure 20.

PROBE MANAGEMENT

Add / Remove probes Probe calibration Probe Layout

Select probe for calibration P01 (PROB0.300130)

Reading from device -1.3424

Lower master value -0.500 Accept lower master --

Upper master value 0.500 Accept upper master

Scale factor 0.83264

Offset 0.0018

Final reading -1.1159 mm

Below is history of calibration of individual probe

Save

Software needs to be restarted if these settings are changed

Close

Figure 20

- Select probe for calibration:** The port that has been added in Add/Remove Probes in probe management will be shown in the dropdown list.
 - Reading from device:** The device reading will appear here.
 - Lower master Value:** Enter lower master value.
 - Upper master Value:** Enter Upper Master Value.
 - Scale Factor:** Scale factor is set 1.000.
 - Offset:** Enter Offset Value.
 - Final reading in mm:** Final reading= (Device data * Scale factor) +Offset value.
- Note**-Software needs to be restarted if these settings are changed.

3.6.3 PROBE LAYOUT

- Click Probe Layout tab, After Clicking tab the following window can be seen in figure 21.

PROBE MANAGEMENT

Add / Remove probes Probe calibration Probe Layout

Select image for probe layout

1.4(W) X 1.0(H)

Select probe P01 (PROB0.300130)

X Location

Y Location

Orientation

Add Delete

software needs to be restarted if these settings are changed

Close

Figure 21

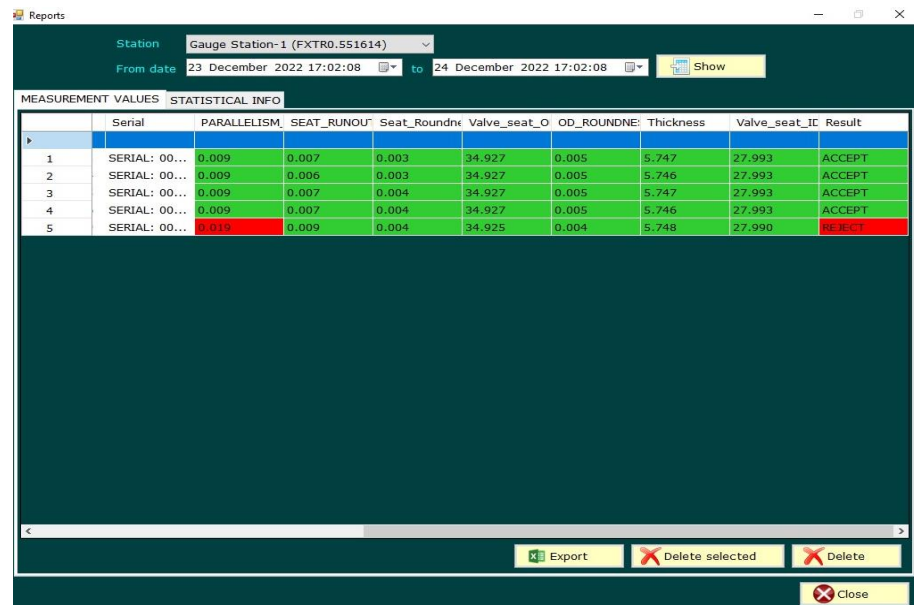
- Select image for probe layout:** Find the image of the new probe layout to set.

- **Select probe:** The select probe in dropdown list. The probe that has been added in Add/ Remove probe in probe management will show in dropdown list.
- **X location:** Where the X value is the position of the point with reference to the X-axis.
- **Y location:** Where the Y value is the position of the point with reference to the Y-axis.
- **Orientation:** Orientation is defined by angular displacement. Orientation can be described in terms of point or frame rotation.
-  **Add button:** After filling all probe layout Information click on add button and see this image in the left side on screen.
-  **Delete button:** To delete probe layout, click on the delete button.
-  **Close button:** Probe management window close after click on the Close Button.

Note-Software needs to be restarted if these settings are changed.

3.7 Reports

Click on reports icon on main screen. Image 22 is displayed after clicking on the report icon.



	Serial	PARALLELISM	SEAT_RUNOUT	Seat_Roundne	Valve_seat_O	OD_ROUNDNE	Thickness	Valve_seat_IC	Result
1	SERIAL: 00...	0.009	0.007	0.003	34.927	0.005	5.747	27.993	ACCEPT
2	SERIAL: 00...	0.009	0.006	0.003	34.927	0.005	5.746	27.993	ACCEPT
3	SERIAL: 00...	0.009	0.007	0.004	34.927	0.005	5.747	27.993	ACCEPT
4	SERIAL: 00...	0.009	0.007	0.004	34.927	0.005	5.746	27.993	ACCEPT
5	SERIAL: 00...	0.019	0.009	0.004	34.925	0.004	5.748	27.990	REJECT

Figure 22

3.7.1 Station: Select the station to see the report.

3.7.2 Select the form date and to: Select a date range and click on the show button to view the report.

3.7.3 Two tabs will be displayed after clicking on the show button.

3.7.1.1 MEASUREMENT VALUE

3.7.1.2 STATISTICAL INFO

3.7.1.1 MEASUREMENT VALUE

- The table will appear when you click on the 'Measurement Value' tab.
- This tab displays the serial number, parameters, and their results.
-  **Export button:** After clicking the export button, the report can be downloaded in a CSV file.
-  **Delete Selected button** "To delete a single record then select the row and click on the Delete selected button.

-  **Delete button:** To delete multiple records, then select the rows and click on the Delete button.

3.7.1.2 STATISTICAL INFO

- Click Statistical Info tab, After Clicking tab the following tab can be seen in figure 23.
 - **DISTRIBUTION AND STATISTICS**
 - **RUN CHART**
 - **X-BAR R CHART**
 - **X-BAR S CHART**
 - **PIE CHART**
- **Select Parameter:** Select the parameter from the drop-down list to view the statistics.
 - **Distribution and statistics Tab:** A bar chart will appear in the distribution and statistical tab as shown in figure 23.

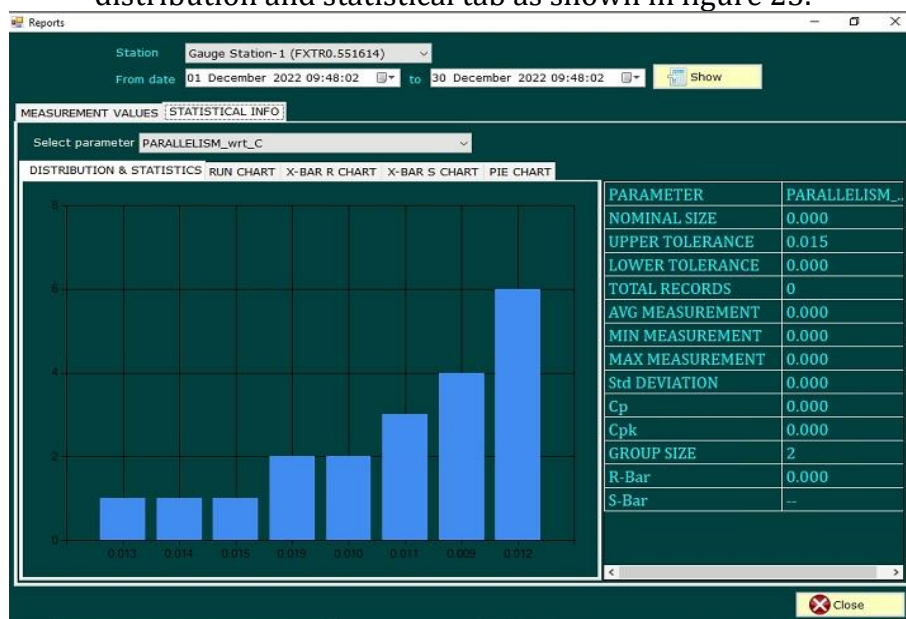


Figure 23

- **Run chart:** A run chart is a line graph. Seat runout with A, B, USL, LSL. Nominal are shown here as shown in figure 24.

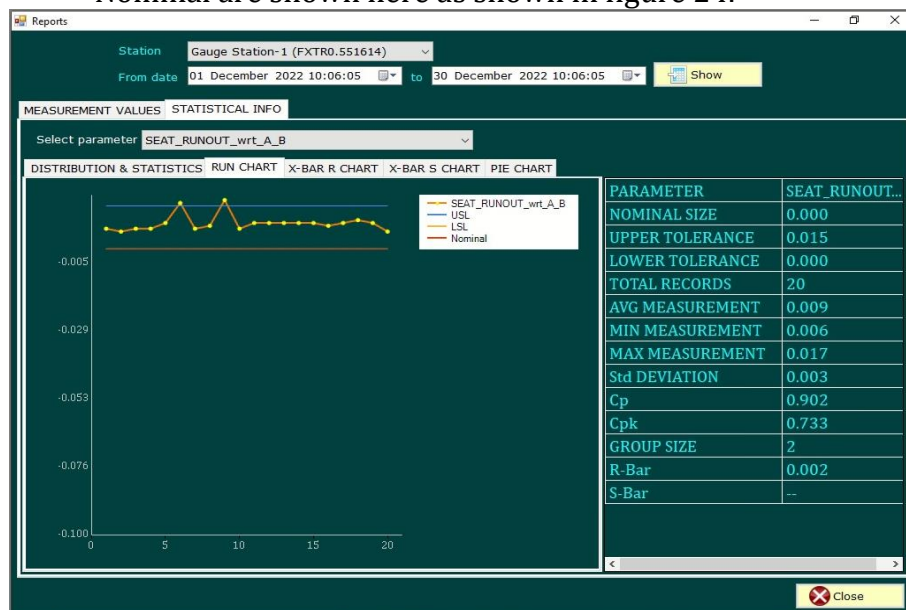


Figure 24

- **X bar R chart:** An X bar chart is a line graph. X- Bar, USL, LSL, nominal, range, and R-bar are shown here as shown in figure 25.

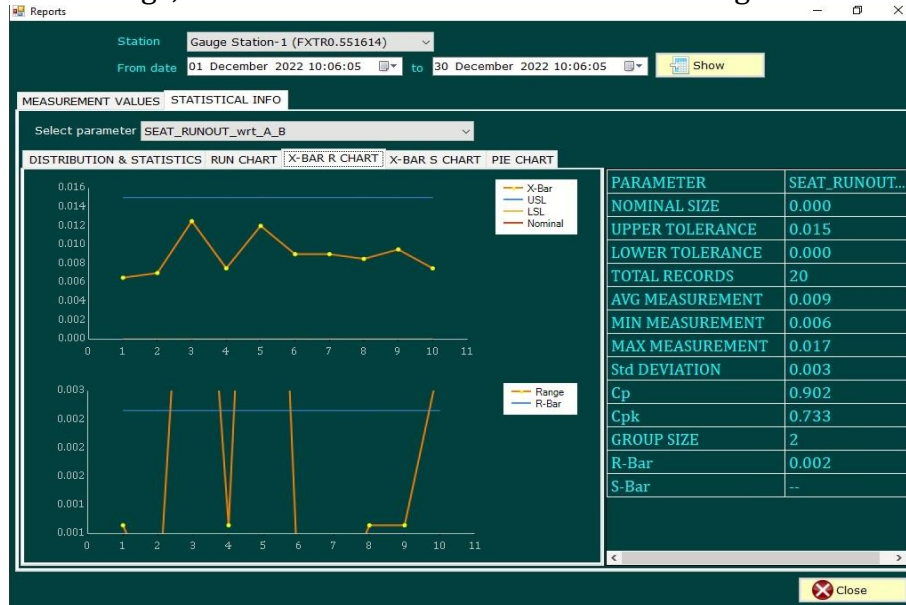


Figure 25

- **Pie chart:** A pie chart is a type of chart that visually displays data in a circular graph. Accept, reject, and rework are shown here as shown in figure 26.

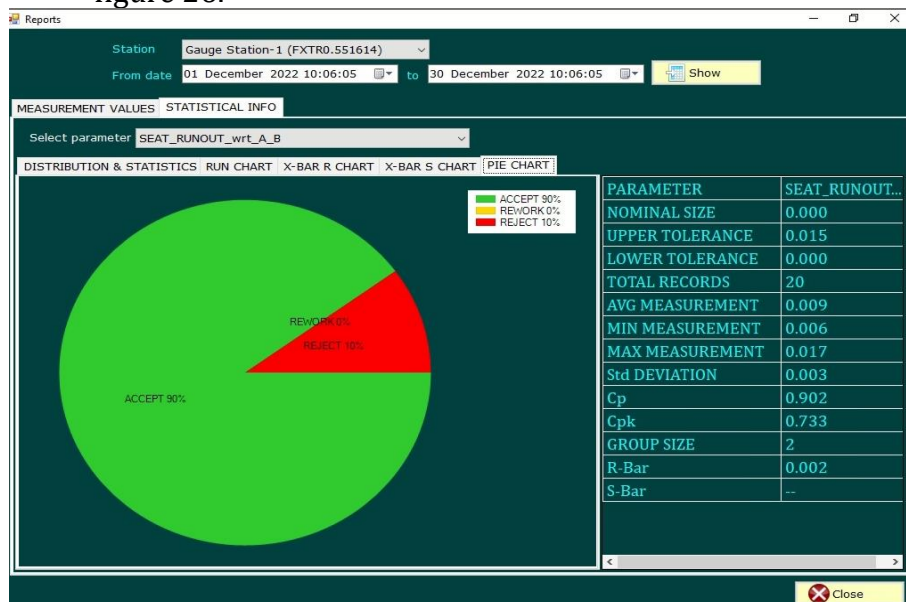
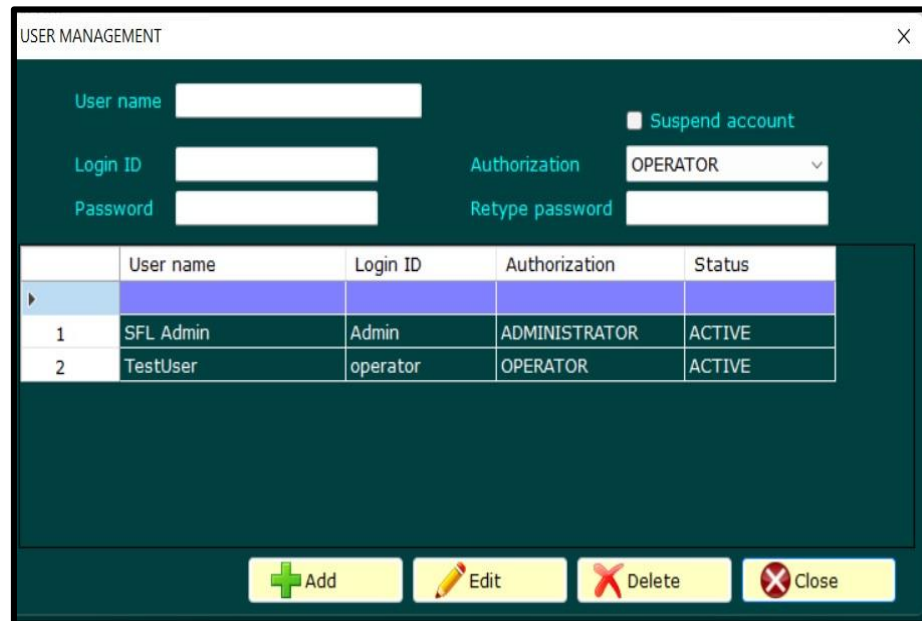


Figure 26

-  **Close button:** Report window close after click on the Close Button.

3.8 User management

Click on main page User Management symbol button, After Clicking tab the following window can be seen in figure 27.



The screenshot shows a 'USER MANAGEMENT' window with a dark green background. At the top, there's a title bar with a close button (X). Below the title bar, there are input fields for 'User name', 'Login ID', and 'Password'. To the right of these fields, there's a checkbox labeled 'Suspend account' and a dropdown menu for 'Authorization' currently set to 'OPERATOR'. Below the input fields, there's a table with columns: 'User name', 'Login ID', 'Authorization', and 'Status'. The table contains two rows of data. At the bottom of the window, there are four buttons: 'Add' (green plus icon), 'Edit' (yellow pencil icon), 'Delete' (red X icon), and 'Close' (red X icon).

	User name	Login ID	Authorization	Status
1	SFL Admin	Admin	ADMINISTRATOR	ACTIVE
2	TestUser	operator	OPERATOR	ACTIVE

Figure 27

3.8.1 **User name:** Enter the name of the new user.

3.8.2 **Login ID:** Enter the User Login ID.

3.8.3 **Password:** Enter the Password.

3.8.4 **Suspend account:** To temporarily disable the user's login account.

3.8.5 **Authorization:** Select authorization.

- Admin
- Operator

3.8.6 **Retype password:** Retype the existing password.

3.8.7  **Add Button:** Click on the 'Add' button to add a new user.

3.8.8  **Edit Button:** Click on the 'Edit' button to update the user profile.

3.8.9  **Save Button:** Click on the save button to save the edited information.

3.8.10  **Delete Button:** Click on the Delete button to delete the user profile.

3.8.11  **Cancel Button:** After clicking on the clear button above, all information will be cleared.

3.8.12  **Close button:** The user management window closes after clicking on the Close button.

4. Many peripherals can be connected to Prime Line multigauging SPC software

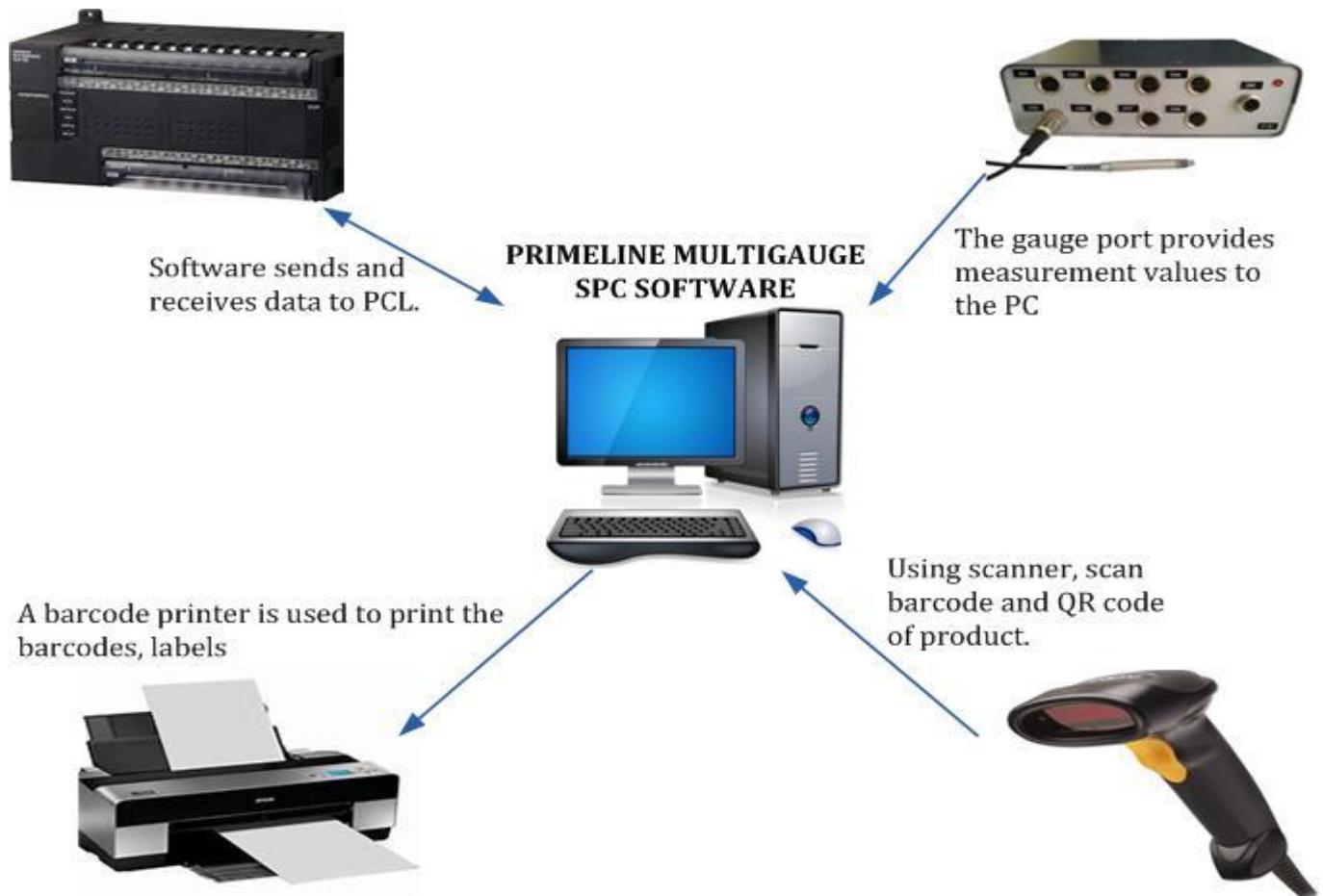


Figure 28

5. Auto correction schema

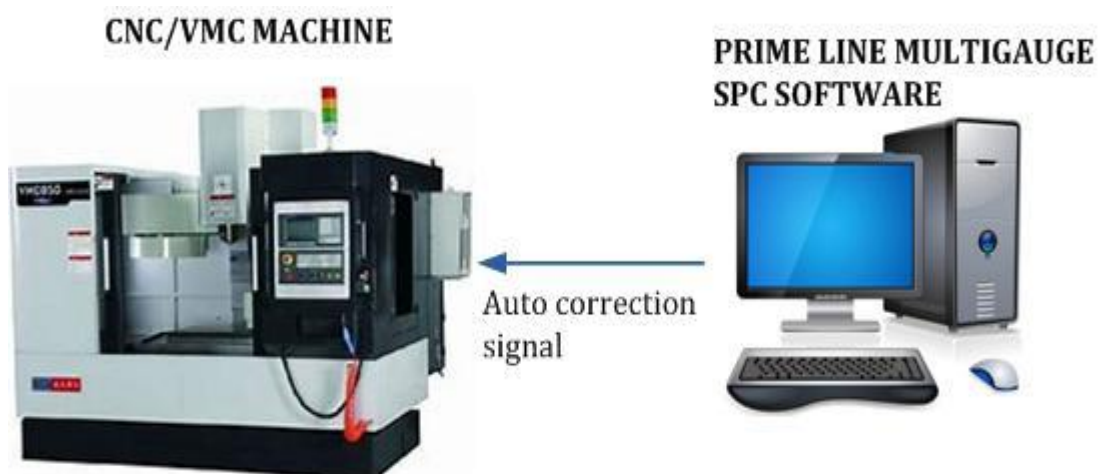


Figure 29

Warranty statement

All the products are covered under warranty for a period of 12 months against manufacturing defects, workmanship and malfunction under normal operating conditions. The warranty is subject to the terms and conditions mentioned below.

1. The warranty commences from the date of sale for a period of 12 months irrespective of the actual installation date.
2. The warranty is against manufacturing defects and any subsequent malfunction of the instrument during the normal operation. The warranty shall not be applicable in case of accidental damage, damage due to wrong operation, connection or conditions that are out of normal operating specifications.
3. MICRONBEATS Metrology Solutions, at its discretion may repair or replace the product depending on the condition of instrument, availability of spare parts and type of failure.
4. In case of warranty claim, the warranty period will not be extended and remains same as stated earlier from the date of sale.
5. Maximum liability of MICRONBEATS Metrology Solutions remains up to repair or replacement of the product only. Any damages or losses raised out of use of the instrument are not covered by this warranty. In any case, cost of the product will not be refunded.
6. In case of warranty claim, the product should be sent over to MICRONBEATS Metrology Solutions immediately after noticing the defect or failure. A detailed note of operating conditions in which fault occurred will be helpful in rectifying the defect.
7. Do not try to open or repair the instrument on your own. Warranty will stand null and void in such case. Products with tampered warranty seal will not be considered for warranty claims and regular service charges will be applicable.
8. In all claims, the company's decision will be final and legally binding.
9. Any and all disputes are subject to pune jurisdiction only.

Micronbeats Metrology Solutions
#226, Laxmi colony, Lane No.5,
Behind Manish market,
Hadapsar, Pune – 411028.
www.Micronbeats.com
sales@micronbeats.com

