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MICRON Beats ®

SPADE SPC EIFFEL DISPLAY UNIT
Applicable Firmware Version: **V5.10**

USAGE NOTICE

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1. INTRODUCTION

The new generation digital **Eiffel SPC** gauge features a 2.8-inch TFT color display, offering a modern, high-clarity visual interface for measurement and inspection. The full-color screen provides simultaneous visualization of readings, tolerance limits, bar graphs, and status indicators — all on one easy-to-read display.

The 2.8" TFT color display provides a graphical representation of measurement data, combining tri-color bar graphs and numerical readings in a clear and intuitive layout. The tri-color bar graph dynamically changes between green, red, and yellow to represent ACCEPT, REJECT, and REWORK conditions, respectively. This real-time visual feedback allows operators to quickly evaluate component quality and make prompt decisions during inspection or production processes.

The system's microcontroller-based hardware and user-friendly menu interface simplify setup and calibration, while the touch or keypad-based navigation enhances ease of operation.

Flexibility in settings makes the column a real versatile tool for quality checking for mass production of work pieces. The Display unit are mostly used for measuring cylindrical work piece features such as bores and shafts diameters. It is measuring technique that performs dimensional and geometric checks of the part

2. FEATURES OF SPC EIFFEL

Feature	SPC Eiffel
Display Type	2.8" TFT Color Display for enhanced visualization.
Tri-Color Bar Graph (ACCEPT / REWORK / REJECT)	✔
Store up to 10,500 records internally	✔
Measurement Units Supported (Metric/Inch)	✔
Measurement Modes (Static / Dynamic)	✔
Manually Selectable Programs	Up to 32 programs
Least Count Options	0.1µm, 0.2µm, 0.5µm, 1µm, 2µm, 5µm, 10µm
Measurement Mode (Absolute / Relative)	✔
Bar Graph Ranges (10, 25, 100, 250, 500)	✔
RS232 Computer Connectivity	✔
Auto Save & Auto Sense Facility	✔

Built-in Real Time Clock & Low Battery Warning	✔
Auto Correction Command (via RS232 / Ethernet)	✔
Settable Shift Timings	✔
Display of Total / Accept / Reject / Rework Counts	✔
SPC Features (Cp, Cpk, Pp, Ppk, Std Deviation, etc.)	✔
Password Protection for All Settings	✔
Optional Features (Available on request; additional cost applicable)	
Time-Based Air Cut-Off	✔
Low Air Pressure Alert	✔
Rejection BIN Interlock	✔
Ethernet, USB Port for Seamless Computer Connectivity	✔
Store up to 5 lakh records.	✔

Note-PrimeLogger software-only offering is available on demand.

3. SPECIFICATION

3.1 FUNCTIONAL SPECIFICATIONS

- **Communication Settings:** RS232 serial interface (No parity, 8 data bits, 1 stop bit), Ethernet and USB Port.
- **Baud Rate:** Selectable: 4800, 9600, 19200, 38400, 57600 bps *(*Factory default: 19200).
- **Probe Resolution Options:** 0.01 µm, 0.1 µm, 0.5 µm, 1 µm.
- **Probe Measurement Range:** ±1 mm, ±1.5 mm, ±2 mm, ±2.5 mm, ±3 mm.

3.2 ELECTRICAL SPECIFICATIONS

- **Power supply**: 100VAC to 265VAC, 50/60Hz.Fused with 1A slow blow glass fuse. A stable earth (ground) connection is required for proper operation of the device.
- **Probe excitation:** 2.5Vpp sine wave. 10 KHz for full bridge LVDT and 13 KHz for half bridge Tesa compatible probes. (Other factory options available on request).
- **Output:** 3 relay outputs.

3.3 PERFORMANCE SPECIFICATIONS

Following performance specifications have been identified at test lab when all the power supply specifications and operating conditions are at nominal values. These values may vary depending upon the field conditions. Proper care must be taken when high precision gauging is required.

- **Accuracy**
  ±0.1% within linear operation of inductive probe (1micron over the range of 1mm).
- **Drift**
  0.3micron over a period of 1hour.
- **Repeatability**
  After power cycle: 0.2micron
  After mechanical movement: 0.2micron.
- **Stability**
  ±0.15micron of nominal measured value at fixed position.
- **Maximum sampling time**

For inductive probe: 1mSec (1000samples per second).

- **Warm-up time**
  The device must be allowed to stabilize for at least 60seconds before actually using the measurement reading from the connected probes. Although instrument requires much less time to stabilize, it is good practice to allow some spare time after power on. The warm-up delay may not be required when instrument is powered off and then on within short time.

3.4 MECHANICAL SPECIFICATION

- 180mm (L) X 60mm (W) X 530mm (H).

4. KEYPAD FUNCTIONS

There are nine keys on keypad

4.1 UP (^) Arrow Navigation Key

This key is used for scrolling options when entering system settings mode. This key is also useful when entering digit values into the program setting mode.

4.2 Down (v) Arrow Navigation Key

This key is used for scrolling options when entering system settings mode. This key is also useful when entering digit values into the program setting mode.

4.3 Right (→) Arrow/NEXT Navigation Key

To move to the next system setting option without saving the changes made while in the system settings mode, use this key. This key is also useful when you are in the program setting mode. When entering values for different parameters such as LSL, USL, nominal value, higher master, lower master, etc. While entering digit values, use this key to move from the left decimal place to the right decimal place.

4.4 LEFT (←) Arrow/NEXT Navigation Key

To move to the back program setting option without saving the changes made while in the system settings mode, use this key. This key is also useful when you are in the program setting mode. When entering values for different parameters such as LSL, USL, nominal value, higher master, lower master, etc. While entering digit values, use this key to move from the left decimal place to the right decimal place.

4.5 SET key

This key is used to enter into the system setting mode. For entering into the system setting mode first turn off the device press and hold "SET" key then turn on device and hold the set key until you see on screen message "SETT".

4.6   ENT key

This key has dual functionality. When in setting mode, the 'ENT (enter)' key is used to enter the setting mode, save the selected values of the current option, and move to the next option. When in measurement mode, the 'ENT (enter)' key is used to transmit the current measurement data to the PC via serial communication.

4.7 CLR key

This key used to clear the current clear.

4.8 M1 key

M1 key is used to enter mastering mode. Entering into mastering, press the M1 key first. The message shown on screen 'PLACE PLUG IN HIGHER MASTER.' After placing the plug into the higher master, press the 'M1' key to save the M1 master value.
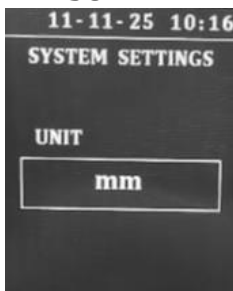
4.9 M2 key

The message shown on screen 'PLACE PLUG IN LOWER MASTER.' After placing the plug into the lower master, press the 'M2' key to save the M2 master value.

5. SYSTEM SETTINGS

This is options where you can configure your device. For entering into system settings mode, turn off the device and press and hold the "**SET**" key and turn on the device.

5.1 MEASUREMENT UNIT

Display the UNIT screen. Use the **UP (↑)** and **DOWN (↓)** keys to scroll through the available options. These are the measurement unit selection options.
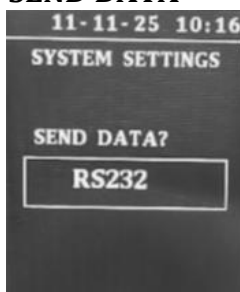
MM- (millimeter)-Select mm to display the final results in millimeters.
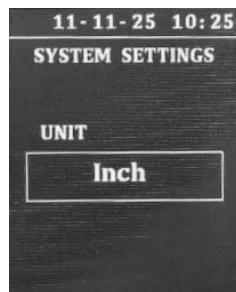
Inch-Select inch to display the final results in inch.

After selecting the desired measurement unit, press the **ENT** key to go to the next setting.

5.2 SEND DATA

This feature provides you facility to transmit stored measurement data to the PC via serial communication for analysis or report generation. The internal storage capacity has 10500 records, but if there are more, new records will override the older ones. Use the **UP (↑)** and **DOWN (↓)** keys to scroll through the available options. These are the send data selection options.

RS-232- A serial communication interface used for direct data transfer between the device and a PC.

Ethernet-Enables network-based communication between the device and a PC or server.
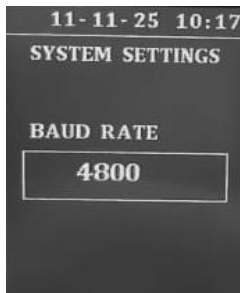**USB Drive-** Allows data transfer using a removable USB storage device.
NO
If the data is not sent, select 'NO'.

After selecting the data transfer option, press the **ENT** key to go to the next setting.
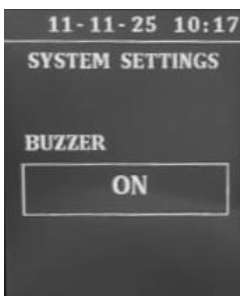
5.3   COMMUNICATION BAUD RATE

Using this option, select the baud rate for communication between the display device and the computer. Display the BAUD RATE screen.
Use the **UP (↑)** and **DOWN (↓)** keys to scroll through the available baud rates: **4800, 9600, 19200, 38400**, and **57600.**

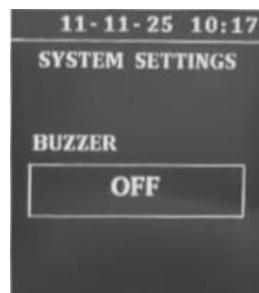After selecting the baud rate, press the **ENT** key to go to the next setting.

5.4   BUZZER STATUS

This feature provides an audio indication on key press. Display the BUZZER screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the following options.

ON
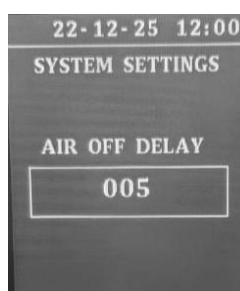To turn the buzzer on, select the ON option from the options.

OFF
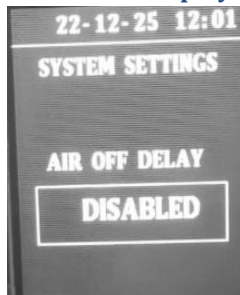To turn the buzzer off, select the OFF option from the options.

After selecting the buzzer status, press the **ENT** key to go to the next setting.

5.5   AIR OFF DELAY

Air Off Delay allows the user to control how long the air supply remains ON after activation. Display the AIR OFF DELAY screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the following options.
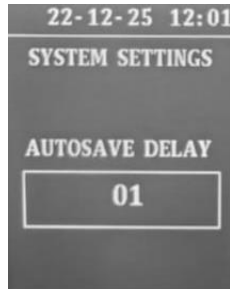
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If the Air Turn-Off Delay is set between **006 and 150** seconds, **disable**.

After selecting the Air Off Delay, press the **ENT** key to go to the next setting.
Note: The "Air off delay" parameter is not supported in **Eiffel SPC** probe Device.

5.6 AUTOSAVE DELAY

Display the AUTO SAVE DELAY screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the following options.

Auto save delay can be set from **1 seconds to 10 seconds** or can be **off**. The part's dimensions are automatically saved according to the set delay.

After selecting the auto save delay, press the **ENT** key to complete the system settings.
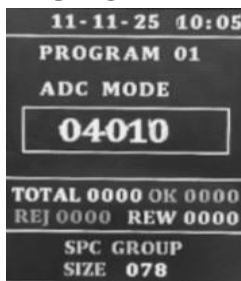
6. PROGRAM SETTINGS

Whenever you turn on the device you will get only two options on screen, ADC count and Manual program select. You can switch between options by pressing "**NEXT→**" Key**.** Press the "**SET**" key to go to the Program Settings.

6.1 ENTER PASSWORD

The user to enter the password to access the program settings menu.
Enter the 6-digit password by scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

6.2 ADC MODE

Shows the ADC count readings on the seven segment LED display.

6.3 MANUAL PROGRAM SELECT "01"

11-11-25 10:06
PROGRAM SETTINGS

SELECT PROGRAM
PROGRAM 01

Using this option, you can load the parameters value for any program. For selecting program scroll up using **UP (↑)** and **DOWN (↓)** keys.

After selecting the program, press the **ENT key** to go to the next setting.

6.4 RESULT DISPLAY LC

11-11-25 10:08
PROGRAM 01
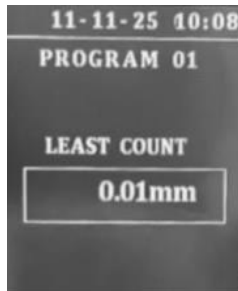
LEAST COUNT
0.01mm

Display the LEAST COUNT screen. Use the UP (↑) and DOWN (↓) keys to scroll through the available least count options.
If the MM option is selected-0.0001 mm, 0.0002 mm, 0.0005 mm, 0.001 mm, 0.002 mm, 0.005 mm, 0.010 mm.
If the INCH option is selected-0.00001″, 0.00002″, 0.00005″, 0.0001″, 0.0002″, 0.0005″, 0.001″

After selecting the least count options, press the **ENT key** to go to the next setting.

6.5 NOMINAL SIZE

11-11-25 10:06
PROGRAM 01

NOMINAL SIZE
015 .825
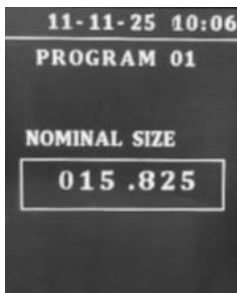
000.000 is default nominal value. User need to enter nominal value of the components to be used for measurement. Nominal value is used for showing measurement result in absolute mode only. For relative display mode, nominal value is not required. The nominal value lies between upper and lower limits. and nominal size lies between these limits.
Use the **UP (↑)** and **DOWN (↓)** keys to scroll the digits. To move to the next digit, press the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

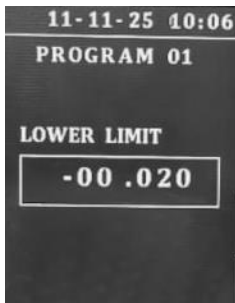After entering the nominal value, press the **ENT key** to move to the next setting.

6.6 USL

11-11-25 10:06
PROGRAM 01

UPPER LIMIT
000 .020
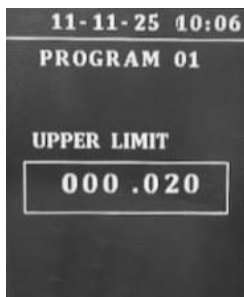
This is upper specified limit of the dimensional measurement. When measurement value is above this limit, the component is for rework or reject depending upon direction. Display the USL screen. Use the **UP (↑)** and **DOWN (↓)** keys to scroll the digits. To move to the next digit, press the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After entering the USL value, press the **ENT key** to move to the next setting.

6.7 LSL

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. Display the LSL screen. Use the **UP (↑)** and **DOWN (↓)** keys to scroll the digits. To move to the next digit, press the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After entering the LSL value, press the **ENT key** to move to the next setting.
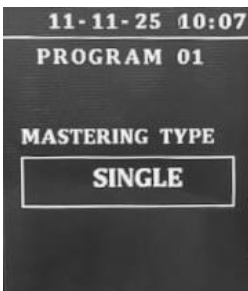
6.8 MASTERING TYEP
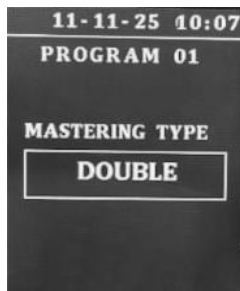
Mastering means the process of setting or calibrating the gauge using a reference master (known dimension part). It ensures that the gauge gives accurate measurement results during operation. Display the MASTER TYPE screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the mastering options.

DOUBLE
when two reference masters are available for measurement, choosing double mastering is required for calibration.

SINGLE
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

After entering the mastering type, press the **ENT key** to move to the next setting.
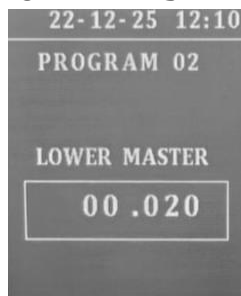
6.9 HIGHER MASTER
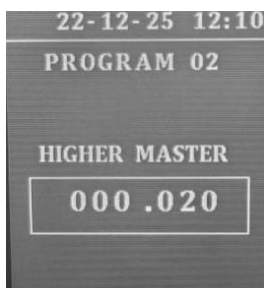
Enter the actual value of the higher master that was mentioned on the higher master component. Display the **HIGHER MASTER** screen.
Use the **UP (↑)** and **DOWN (↓)** keys to scroll the digits. To move to the next digit, press the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit

After entering the higher master value, press the **ENT key** to move to the next setting.

6.10 LOWER MASTER

Enter the actual value of the lower master that was mentioned on the lower master component. Display the LOWER MASTER screen. Use the **UP (↑)** and **DOWN (↓)** keys to scroll the digits. To move to the next digit, press the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit

After entering the lower master value, press the **ENT key** to move to the next setting.

6.11 MEASURING DIRECTION
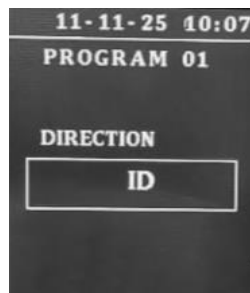
Final results are dependent on these selections.
ID (Internal Diameter)
For measuring Display the DIRECTION screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the direction options. Internal diameter of component chooses this option else results are different. If measurement direction is 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.
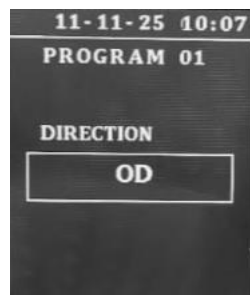
EX-ID=15.20 mm
f ID is 15.25mm then Reject Condition
If ID is 15.15mm then Rework Condition
OD (Outer Diameter)
For measuring outer diameter of component choose this option else results are different. If measurement direction is OD in that case readings goes above higher limit values result will be REWORK and if readings go below lower limit values result will be REJECT.
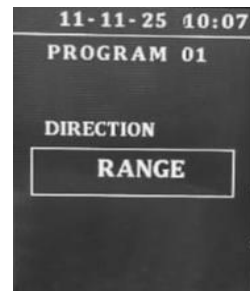
EX-OD=20.20 mm
If OD is 20.30mm then Rework Condition
If OD is 20.10mm then Reject Condition
Range
If the user wants to check and accept components only within a certain range, and all components outside of that range are rejected, then select this option.
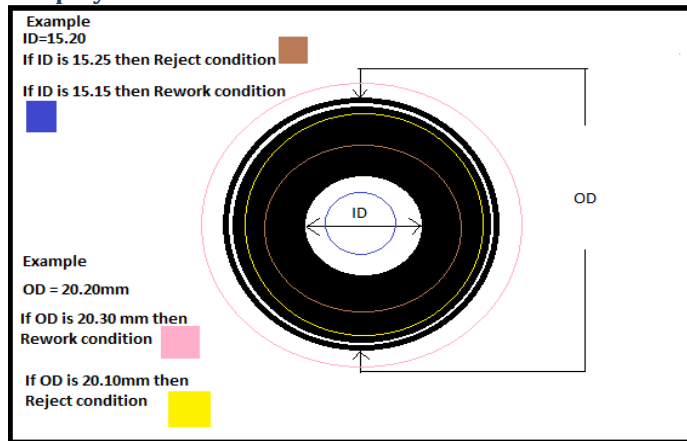
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Figure 1

After entering the measuring direction**,** press the **ENT key** to move to the next setting.

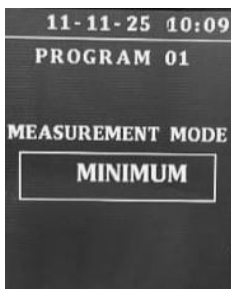## 6.12   MEASUREMENT MODE

Display the MEASUREMENT MODE screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the measurement mode options.
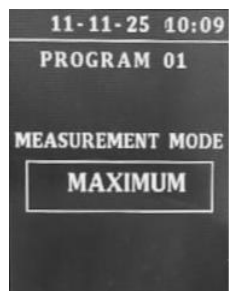**Current**
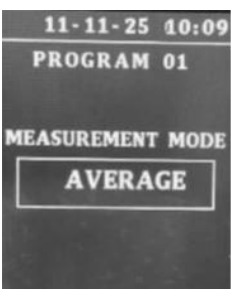In Current mode actual current moments readings are shown as result.

Max
In Max mode highest reading of measurement cycle is captured and displayed as result.

Min
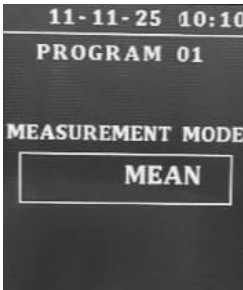In Min mode lowest reading of measurement cycle is captured and displayed as result.

Average
In Average mode average of all readings are shown as result.

11-11-25 10:10
PROGRAM 01

MEASUREMENT MODE
TIR

TIR

In TIR mode total traverse of readings during measurement cycle are shown as result.

11-11-25 10:10
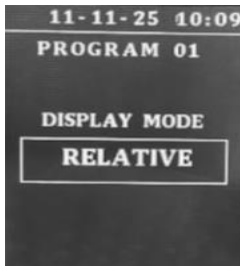**PROGRAM 01**

MEASUREMENT MODE
MEAN

MEAN

In Mean mode mean of all readings are shown as result.

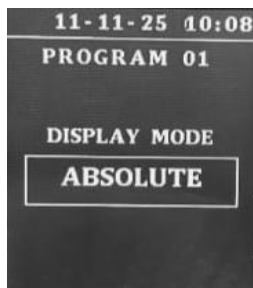After entering the measurement mode**,** press the **ENT key** to move to the next setting.

6.13   RESULT DISPLAY MODE

11-11-25 10:09
PROGRAM 01

DISPLAY MODE
RELATIVE

Display the DISPLAY MODE screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display there relative display mode options.

RELATIVE

In this mode nominal value will not be considered for final result display. Direct measurement value is shown on display as final result

11-11-25 10:08
PROGRAM 01

DISPLAY MODE
ABSOLUTE

ABSOLUTE

In this mode nominal value will be added to the obtained measurement value and then final result will be displayed.

After entering the result display mode**,** press the **ENT key** to complete the program settings.

7. ADMIN SETTINGS
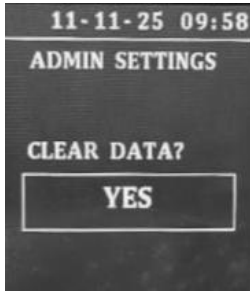
Press the "**SET**" key to go to the Admin Settings.

7.1   ENTER PASSWORD

11-11-25 09:58
ADMIN SETTINGS

ENTER PASSWORD
000000

The user to enter the password to access the admin settings menu.

Enter the 6-digit password by scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit
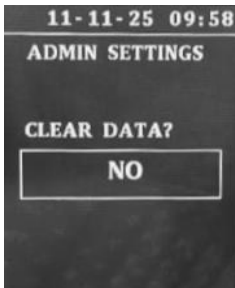
7.2 CLEAR DATA?

This feature provides you to clear all you recorded measurement data permanently. Once you clear your all data there is no way to get it back. So be careful when you clear data. Display the DATA CLEAR screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the following options.

YES
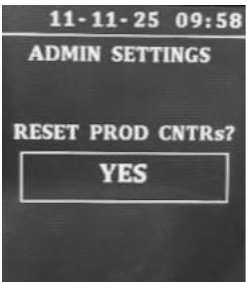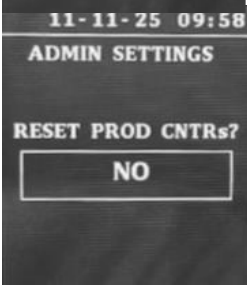To clear data, select 'YES' and wait. Data will be successfully cleared.

NO
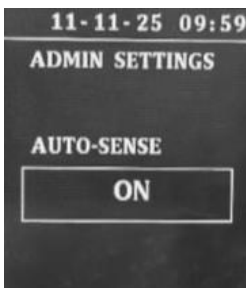If the data is not clear, select 'NO'.

7.3 RESET PRODUCT CONTROLS

Display the RESET PROD CNTRs screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the following options.
YES- Resets the product controls.
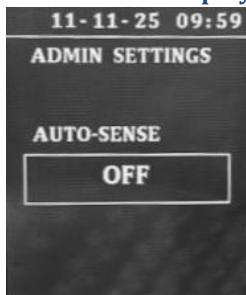
NO - Does not reset the product controls.

7.4 AUTO SENSE

The auto-sense concept in multigauging refers to the ability of the gauge to automatically detect the dimensions of the part being measured. Display the AUTO SENSE screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the following options.
ON
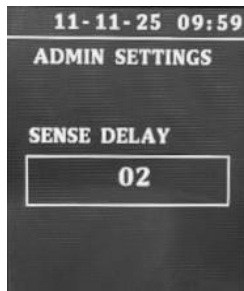If the auto sense is on, the sense delay and auto save screens will appear.

OFF
If the auto sense is off, the sense delay and auto save screens will not appear

After selecting the auto sense, press the **ENT** key to go to the next setting.

7.5 SENSE DELAY

Display the SENSE DELAY screen, then press the **ENT** key to enter the SENSE DELAY options. Scroll the **UP (↑)** and **DOWN (↓)** keys key to display the following options.
Sense delay can be set from **1 second to 10 seconds**. The part's dimension is measured automatically based on the set delay**.**

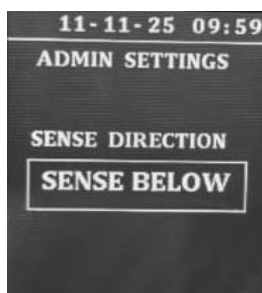After selecting the sense delay, press the **ENT** key to go to the next setting.

7.6 SENSE DIRECTION
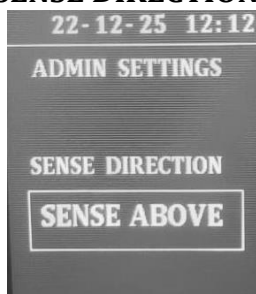
Display the SENSE DIRECTION screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the sense direction options.
 ABOVE
Select the sense direction Above or Below. If the cycle start trigger is expected when the value goes above idle value, select Above. Otherwise select Below.
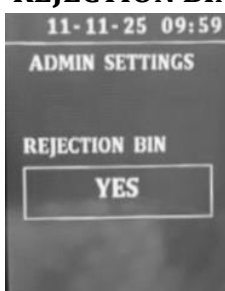
BELOW
Select the sense direction Above or Below. If the cycle start trigger is expected when the value goes below idle value, select below. Otherwise select Above

After selecting the sense direction, press the **ENT** key to go to the next setting.
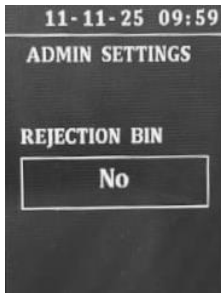
7.7 REJECTION BIN

If the component is rejected, the following screen will show.
Display the REJECTION BEEN screen. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the rejection been direction options.

YES-Enables the rejection bin operation for rejected components.

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NO-Disables the rejection bin operation for rejected components.

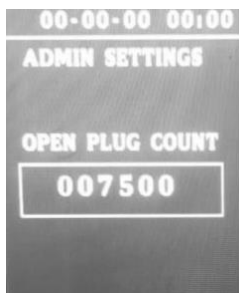After selecting the rejection bin, press the **ENT** key to go to the next setting.

7.8 SENSE TRIGGER

Set the sense trigger count. Scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit

After selecting the sense trigger, press the **ENT** key to go to the next setting.

7.9 OPEN PULG COUNT

To measure the open plug count, remove the plug in master then show the count and this count enter here. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After selecting the open plug count, press the **ENT** key to go to the next setting.
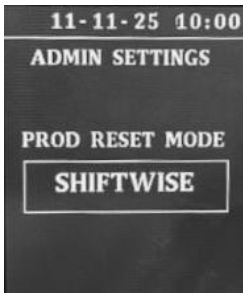
7.10 SPC GROUP SIZE
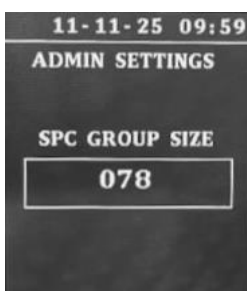
Defines the SPC group size required for the calculation of Cp and Cpk values. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After selecting the SPC group size, press the **ENT** key to go to the next setting.

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7.11   PROD RESET MODE

Scroll the **UP (↑)** and **DOWN (↓)** keys to display the product reset mode options.

**SHIFTWISE-** Resets the product count automatically at the end of each shift.
MANUAL- Product count is reset manually by the user.
DAILY- Resets the product count automatically at the end of each day.
MONTHLY- Resets the product count automatically at the end of each month.

After selecting the product reset mode, press the **ENT** key to go to the next setting.

7.12   SHIFT 1 START
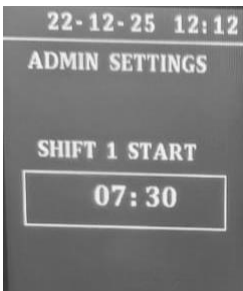
Enter the start time for the first shift here. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After selecting the shift 1 start, press the **ENT** key to go to the next setting.
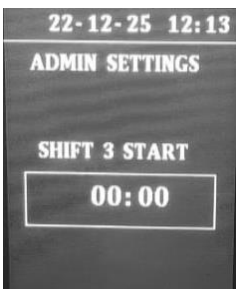
7.13   SHIFT 2 START

Enter the start time for the second shift here. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

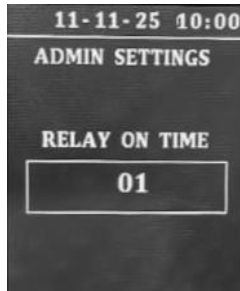After selecting the shift 2 start, press the **ENT** key to go to the next setting.

7.14   SHIFT 3 START

Enter the start time for the Third shift here. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

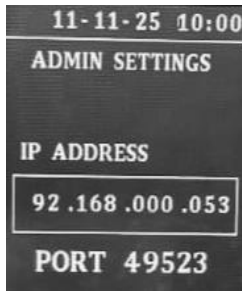After selecting the shift 3 start, press the **ENT** key to go to the next setting.

7.15   RELAY ON TIME

Set Relay On time. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After selecting the relay on time press the **ENT** key to go to the next setting.

7.16   IP ADDRESS

. This is the IP address of this device that will be used while communicating with other Ethernet devices on network. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After selecting the IP address, press the **ENT** key to go to the next setting.

7.17   SUBNET MASK
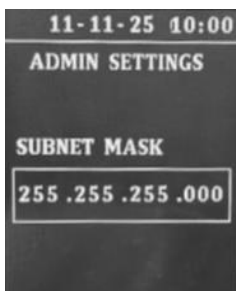
A subnet mask basically gives information on network and host portion of the address. It also helps to identify which part of IP address is reserved for the network and which part is available for host use. As the name indicates, the subnet mask is used to subdivide a network into smaller more manageable chunks. scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key.
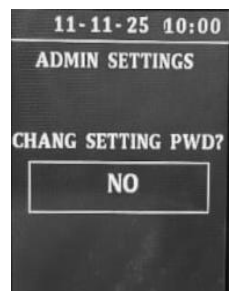
After selecting the subnet mask, press the **ENT** key to go to the next setting.

7.18   CHANGE SETTING PASSWORD
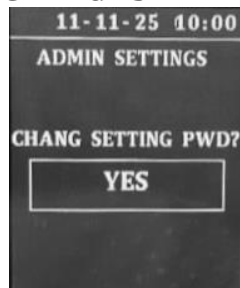
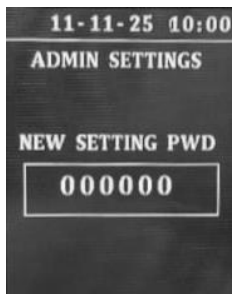Scroll the **UP (↑)** and **DOWN (↓)** keys to display the Change setting password options.
YES-Select **YES** to change the settings password.

NO- Select NO to not change the settings password.

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After selecting the change setting password, press the **ENT** key to go to the next setting.
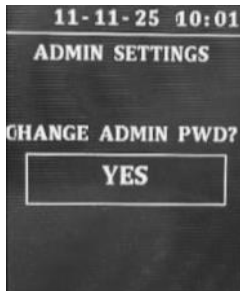
7.19 NEW SETTINGS PASSWORD

If the Change Settings Password option is set to YES, the following screen is displayed.

scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.

After selecting the new setting password, press the **ENT** key to go to the next setting.

7.20 CHANGE ADMIN PASSWORD

Scroll the **UP (↑)** and **DOWN (↓)** keys to display the Change admin password options.
YES-Select **YES** to change the admin password.

NO- Select NO to not change the admin password.

After selecting the change admin password, press the **ENT** key to go to the next setting

7.21 NEW ADMIN PASSWORD
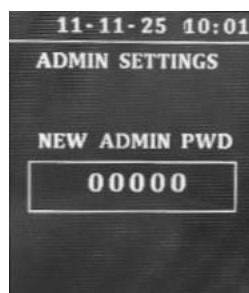
If the Change Admin Password option is set to YES, the following screen is displayed.

scrolling through the digits using the **UP (↑)** and **DOWN (↓)** keys, and move to the next digit using the **NEXT (→)** key and **LEFT (←)** key to move to the previous digit.
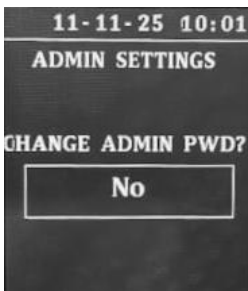
After selecting the new admin password, press the **ENT** key to go to the next setting.

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7.22 DEVICE ID

This feature provides you to manage or identify your display device. You can give device identification number for you ease. This device id is recorded into each transmitted data frame, using this device id you can bifurcate particular device data from your database. Display the DEVICE ID screen, then press the **ENT** key to enter the DEVICE ID options. Scroll the **UP (↑)** and **DOWN (↓)** keys to display the device ID options.
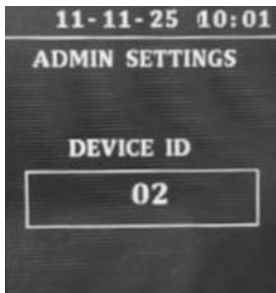You can set minimum "01" and maximum device id is "25".

After selecting the device ID, press the **ENT** key to complete the admin settings.

8. MASTERING
8.1 HOW TO DO MASTERING
8.1.1 DOUBLE MASTERING
- If Double Mastering is chosen under the Mastering Type option, the device will enter the Double Mastering procedure.
- Press the M1 key; the screen will display the message 'LOAD HI MASTER'.
- Place the plug on the Higher Master and press the M1 key.
- The screen will then display the message 'LOAD LO MASTER'.
- Place the plug on the Lower Master and press the M2 key.
- The message 'SAVE' will be displayed.

8.1.2 SINGLE MASTERING
Note: 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.
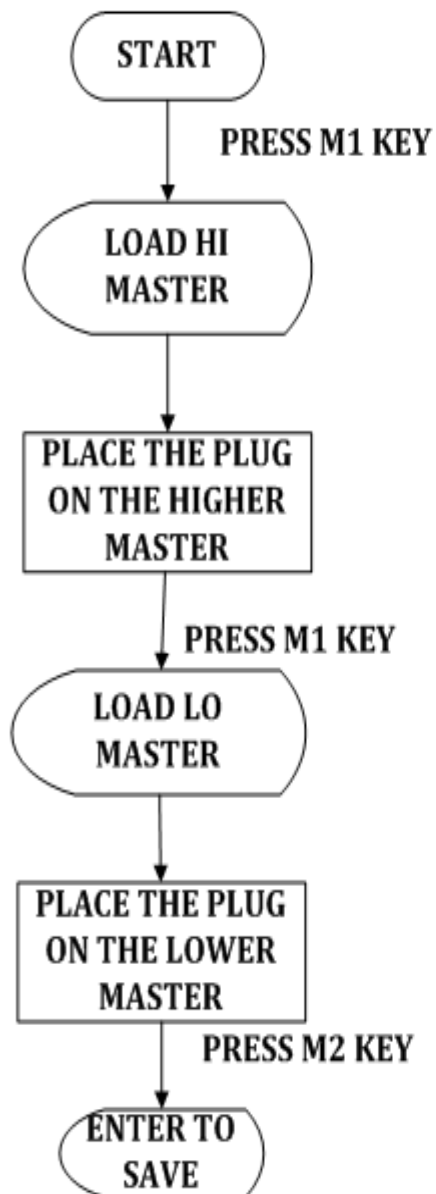- If Single Mastering is chosen under the Mastering Type option, the device will enter the Single Mastering procedure.
- Press the M1 key; the screen will display the message 'SINGLE MASTER'.
- Place the plug on the Master and press the M1 key.
- The message 'SAVE' will displayed.

8.2 MASTERING FLOW CHART

DOUBLE MASTERING – PROCEDURE

SINGLE MASTERING – PROCEDURE
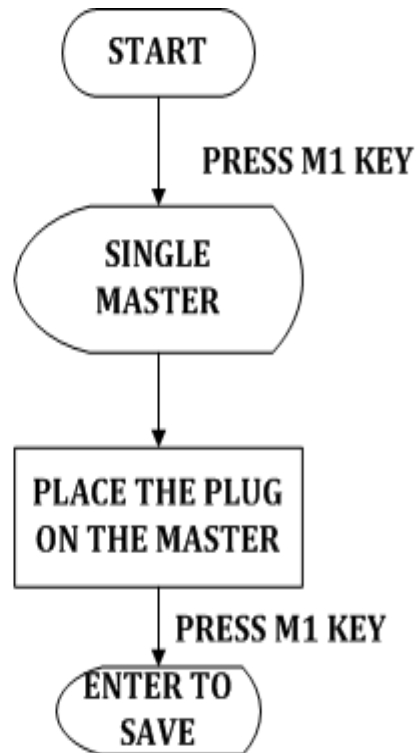
Note: When there is only one reference master available, choose single master mode. Single mastering will work only when double mastering is already done at least once for that program.

Figure 2

9. STANDARD EIFFEL DATA TRANSFER OPTIONS: RS-232, ETHERNET, AND USB

9.1 RS-232 /USB COMMUNICATION

Figure 3

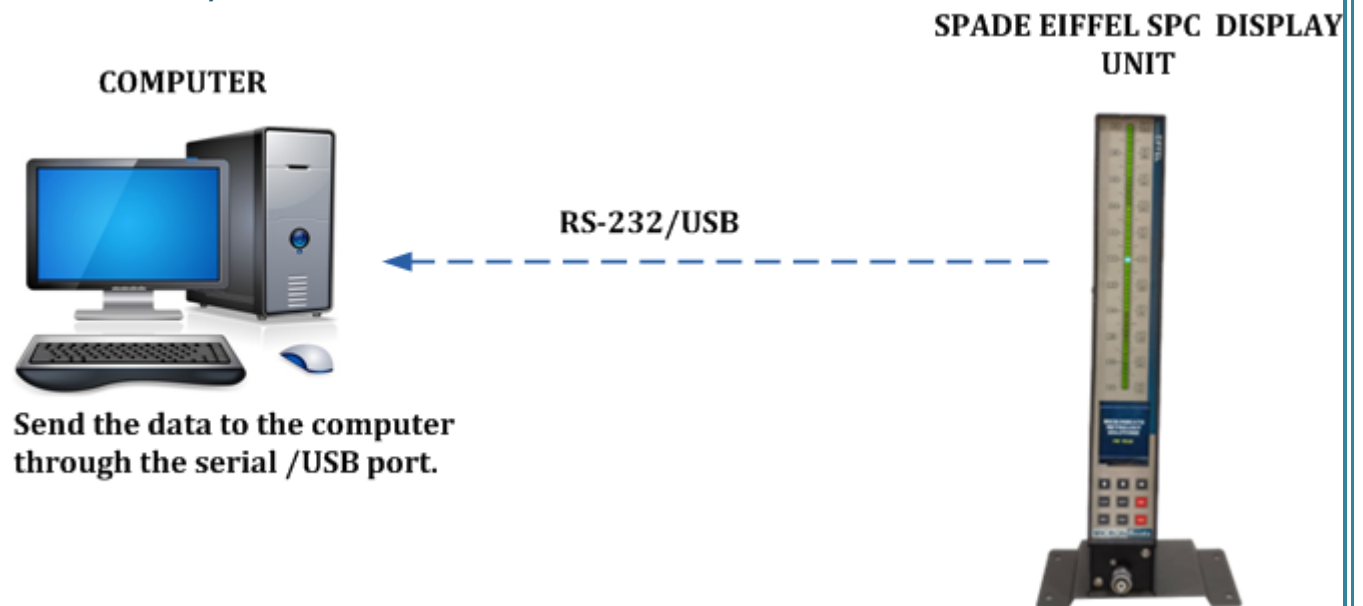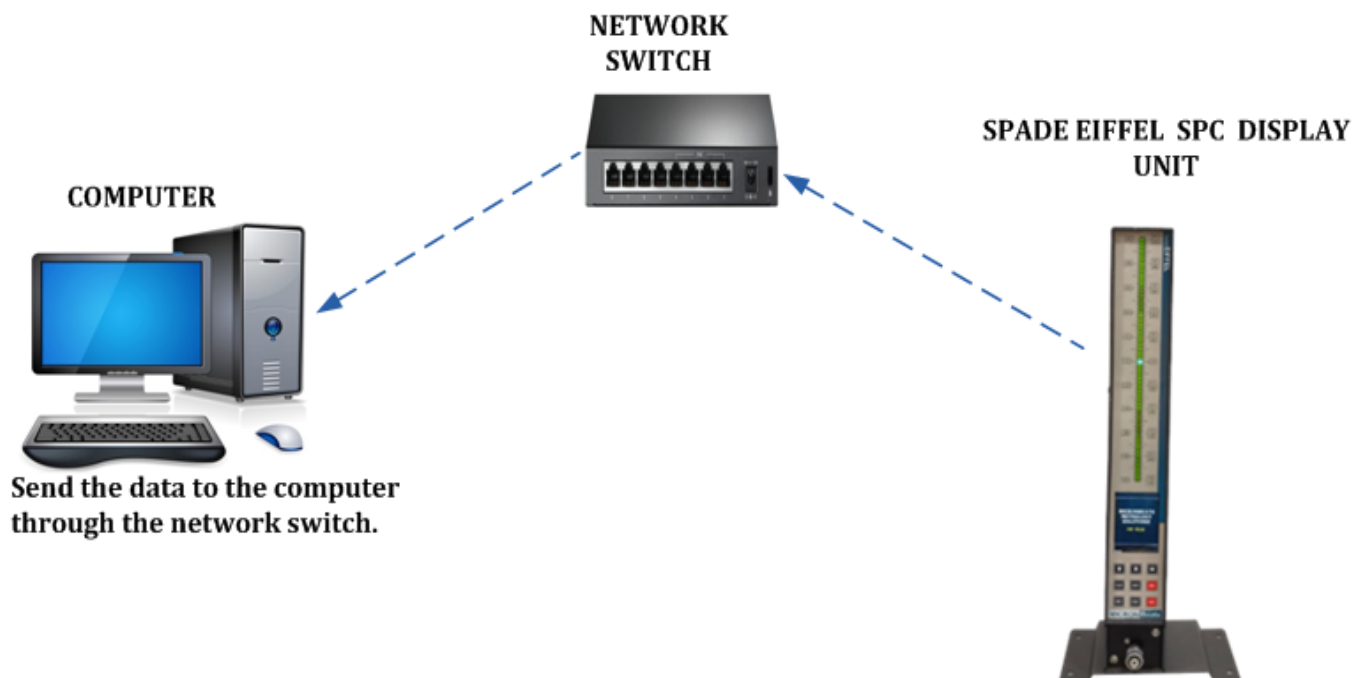## 9.2 ETHERNET COMMUNICATION

Figure 4

10. CONNECTION DETAIL

10.1 BACK PANEL PLATE CONNECTIONS
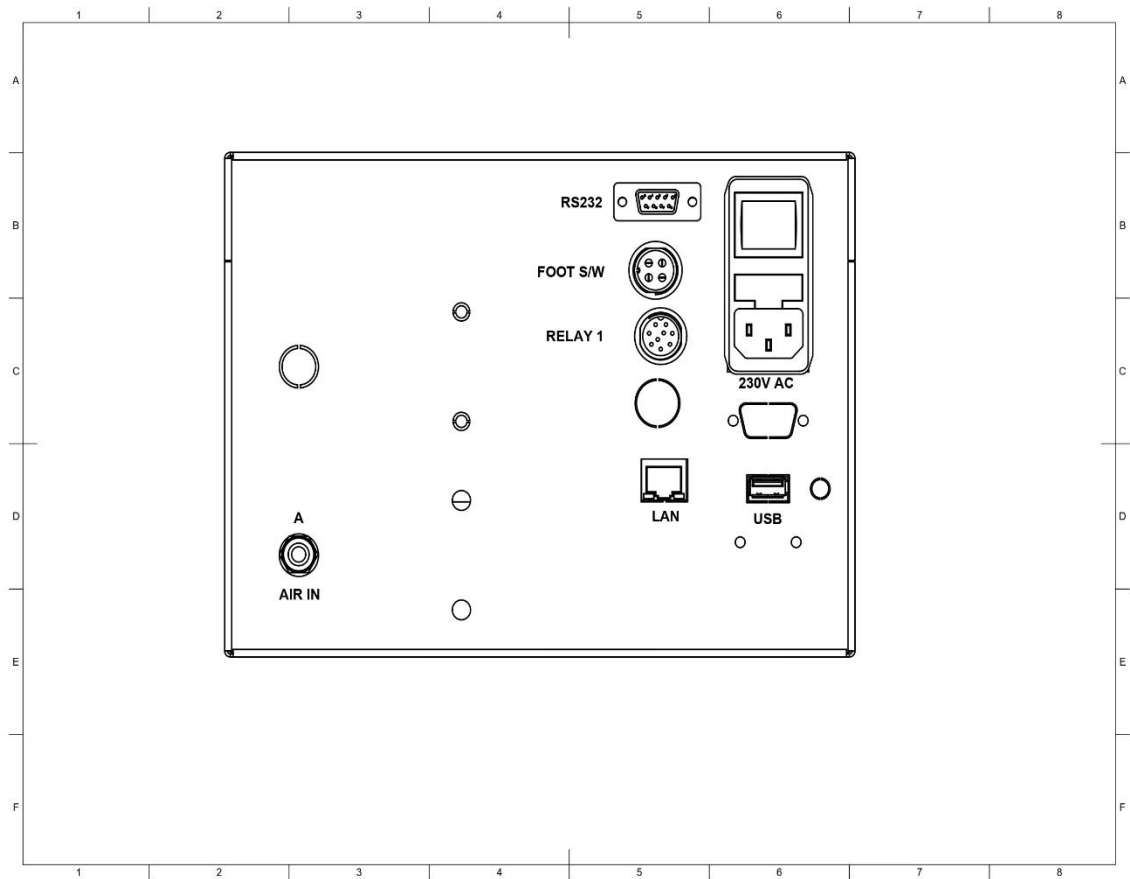
Figure 5

10.2 RESULT STATUS RELAY CONNECTION

9 Pin round Connector	Relay Connection	Relay
1	NC	ACCEPT Relay
2	CMN	
3	NO	
4	NC	REJECT Relay
5	CMN	
6	NO	
7	NC	REWORK Relay
8	CMN	
9	NO	

Table 1

UNIT | MX 9 PIN FEMALE CONNECTOR

RELAY 1(ACCEPT)

- PIN 1
- PIN 2
- PIN 3

RELAY 2(REJECT)

- PIN 4
- PIN 5
- PIN 6

RELAY 3(REWORK)

- PIN 7
- PIN 8
- PIN 9
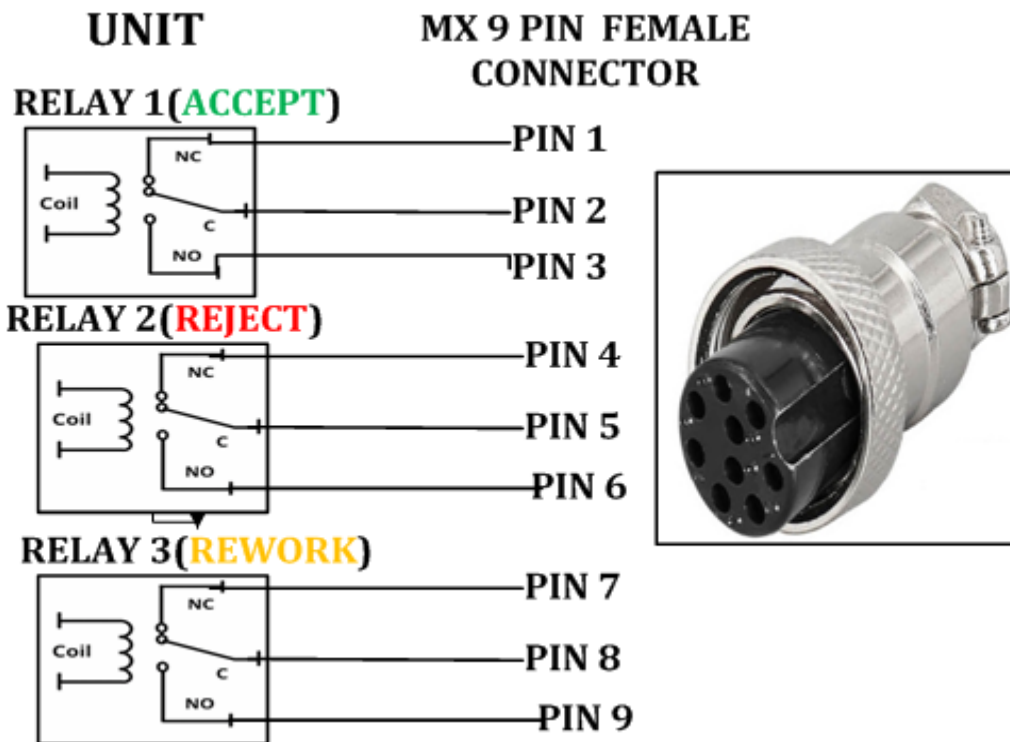
Figure 6

10.3 FOOT-SWITCH CONNECTION

4 Pin round connector	Connection
1	Common
2	Footswitch-1
3	Footswitch-2
4	NC

Table 2

- To operate Foot-switch-1 connect one terminal of switch to common (pin1 of 4pin connector) and another terminal to Foot-switch-1 (pin2 of 4pin mx male connector).
- To operate Foot-switch-2 connect one terminal of switch to common (pin1 of 4pin mx male connector) and another terminal to Foot-switch-2(pin3 of 4pin mx male connector).

FOOTSWITCH CONNECTION | MX 4 PIN MALE CONNECTOR

PIN 1 CMN
PIN 2 FOOTSWITCH 1(ACCEPT)
PIN 3 FOOTSWITCH 2(MASTERING)
PIN 4 NC (RESET)

Figure 7

10.4 SERIAL COMMUNICATION PORT

Display unit has D sub miniature 9pin female connector for serial interface. Below are pin details for this connector. If the is being connected to computer's serial port, one to one straight three core cable is required.

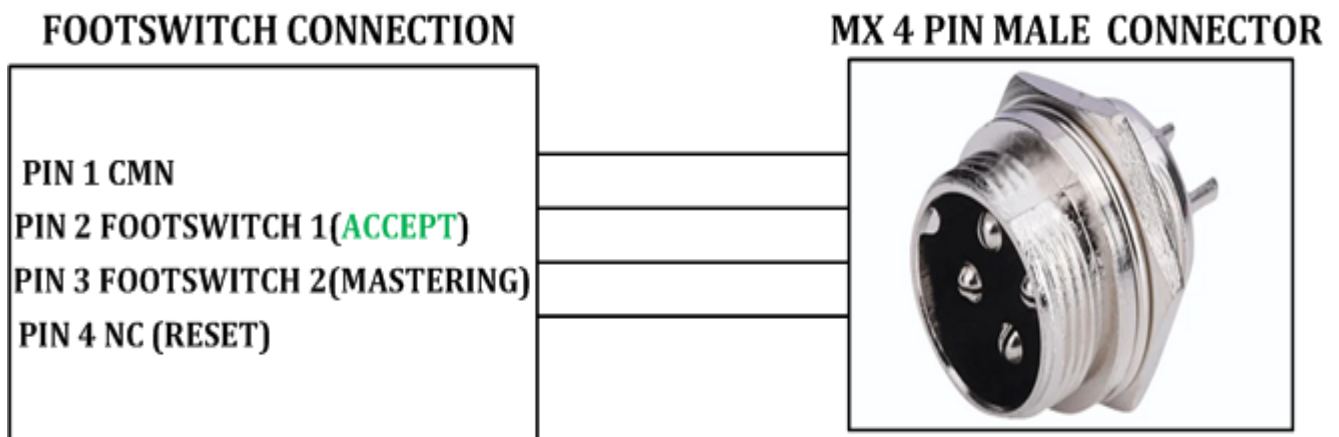| DB9 Pin	Signal Name
1	NC
2	TXD RS232
3	RXD RS232
4	NC
5	GND
6	FOOT- SWITCH COMMON
7	FOOT- SWITCH-1
8	FOOT- SWITCH-2
9	P1.11

Table 3

- **Table Terminology**
  NC: Do not make any electrical connection to these pins. Some or all of these pins might be used for internal testing and factory settings.
  GND: Supply negative.
  Warning: Wrong connection or over voltage at any of the D type connector pin may permanently damage the device.

10.5 REJECTION BIN

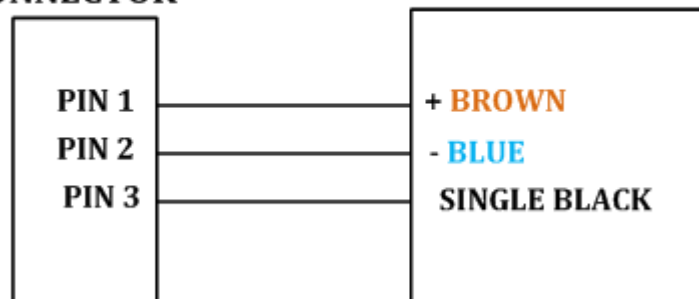| 3 Pin Proximity sensor	Connection
1	+
2	-
3	Single

Table 4

Figure 8

10. DATA TRANSMISSION FRAME FORMAT

A data frame is sent over RS232 port at predefined interval. All the data is in ASCII format and can be viewed on hyper terminal. Default interval setting is 50mSec and default baud rate is 19200.

CH1<01,01,0.1989mm,ACCEPT>
<REC01,01,0.2084mm,ACCEPT>

Device ID ←

Program Number ←

Reading ←

Result ←

Figure 9

11. 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.

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