



## **USER MANUAL**

# **Clip Checker Control Unit**

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# 1. LOGIN PAGE

- Enter the login password.
- If the password is correct then it will navigate to dashboard page.

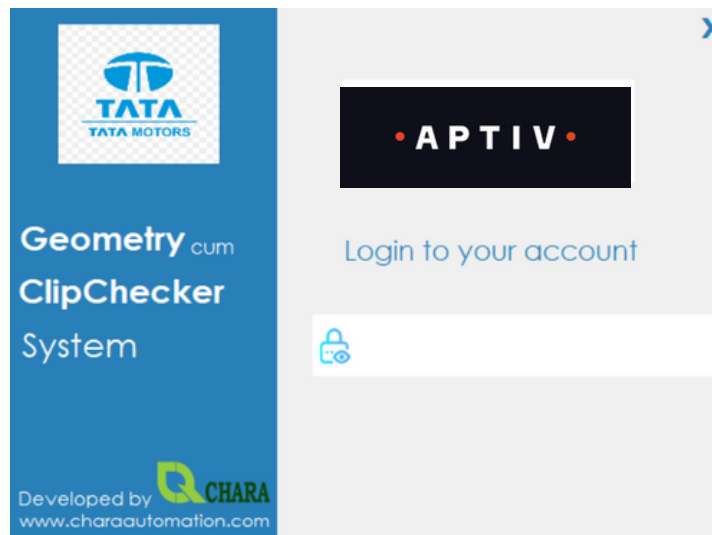


Fig.1.1

# 2. Dashboard

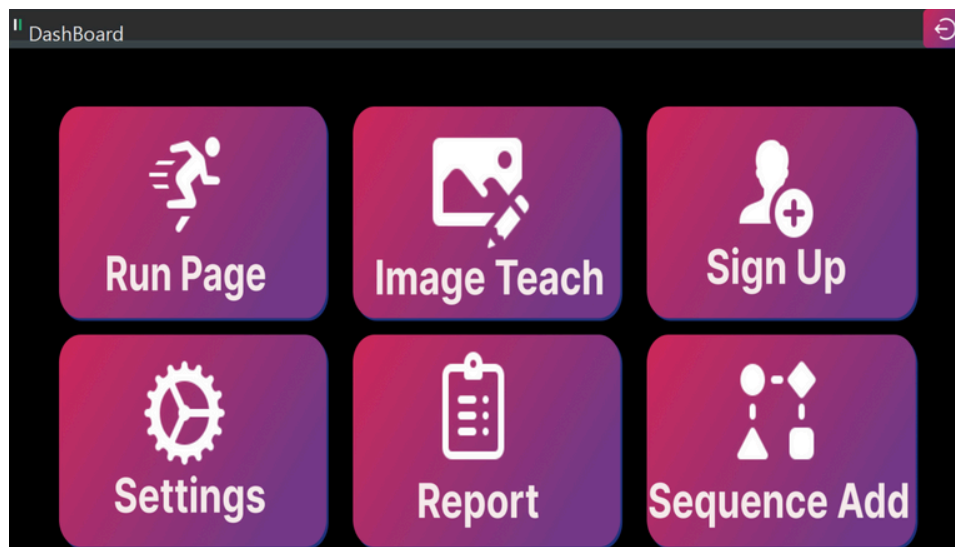


Fig.2.1

- Users can access different sections from the dashboard.
- The **Run page** is the main page to run the software in a controlled manner.

- **Image teach** is used to teach the clip location for identification in the display.
- **Sign up** page is used to add a new user.
- The **Settings** page controls all processes and collects input details from the user.
- The **Report** page provides access to all completed work reports..
- The **Sequence Add** page allows users to add a working program in a defined sequence.

### 3. RUN PAGE

- After scanning the part name from label , the cycle will be started.

| सैकन भाग का नाम |
|-----------------|
| CLIP1           |

- **Job count** is number of cycle count completed successfully will be added here.
- **Rejection count** is when the part get rejected, then it will be added to rejection and rejection count will get increased.

Job Count : 20

Rejection Count  
7

- **Cycle Time** in seconds, will be displayed here.
- **Target Cycle Time** If the cycle time reaches the target cycle time then it will change into red color.
- **Work instruction** will be displayed in the below panel.

Cycle Time : 00:00:48

Target Cycle Time 00:03:00

|                      |                                          |
|----------------------|------------------------------------------|
| Rejection Count<br>7 | प्रक्रिया पूरी करने के बाद एंड बटन दबाएं |
|----------------------|------------------------------------------|

|                      |             |             |
|----------------------|-------------|-------------|
| HOURLY TARGET/ACTUAL | Hour:1 10/0 | Hour:2 10/0 |
|----------------------|-------------|-------------|

- The hourly target will be displayed here. If the target is exceeded, it will be indicated with a red color.
- Working flow will be displayed in the table.

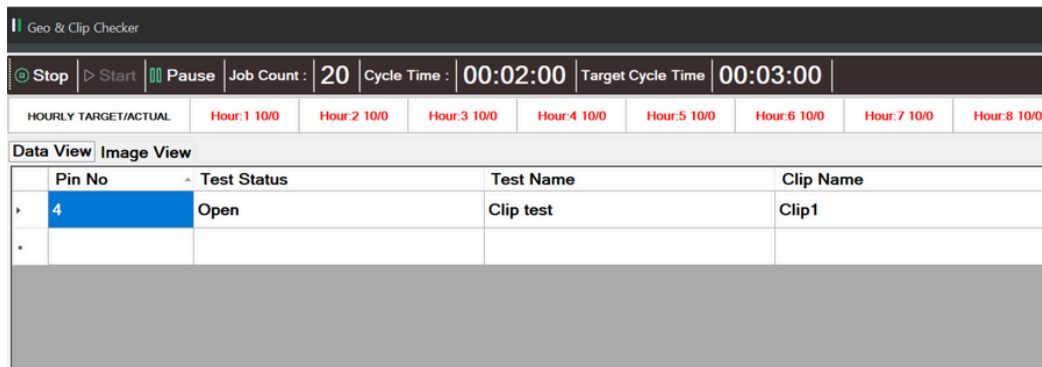
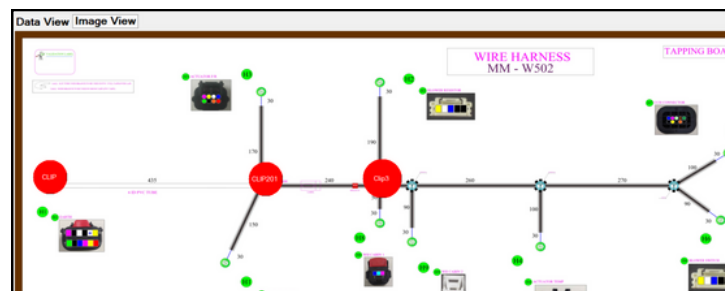
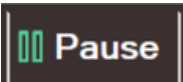
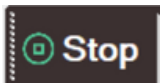
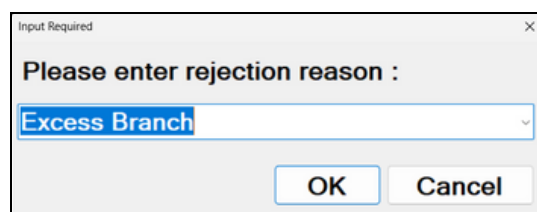
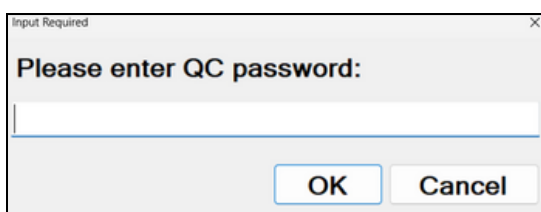


Fig.3.1

- Image and indication will be displayed in image view panel.



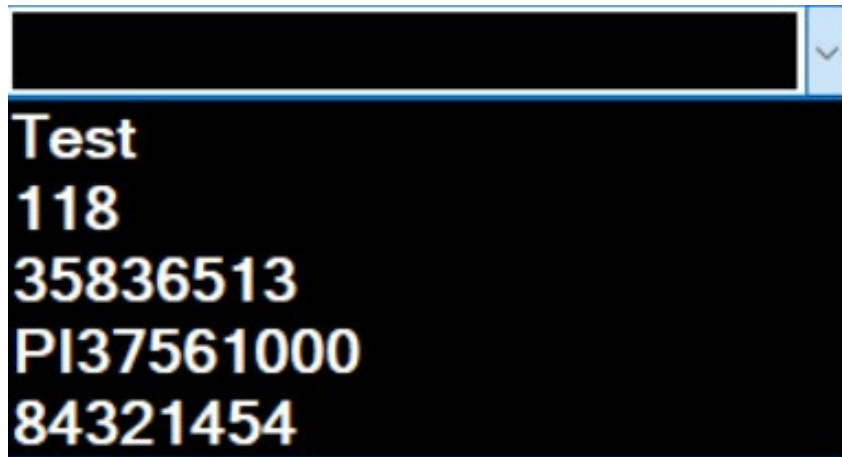
- To pause the cycle, click the 'Pause' button  (refer Fig.3.1).
- To stop the cycle, click the 'Stop' button and the process will stop (refer Fig.3.1). 
- A rejection password will be required, and upon confirmation, the part will be rejected, and select the rejection reason and click ok button .



- The Exit button will be enabled only after rejecting or stopping the process. 

## 4. IMAGE TEACH

- Images from the Image folder will be displayed here. If no images are found in the folder, this section will remain empty.



- Select the image name from the menu .Then the selected image will be displayed in the image panel.

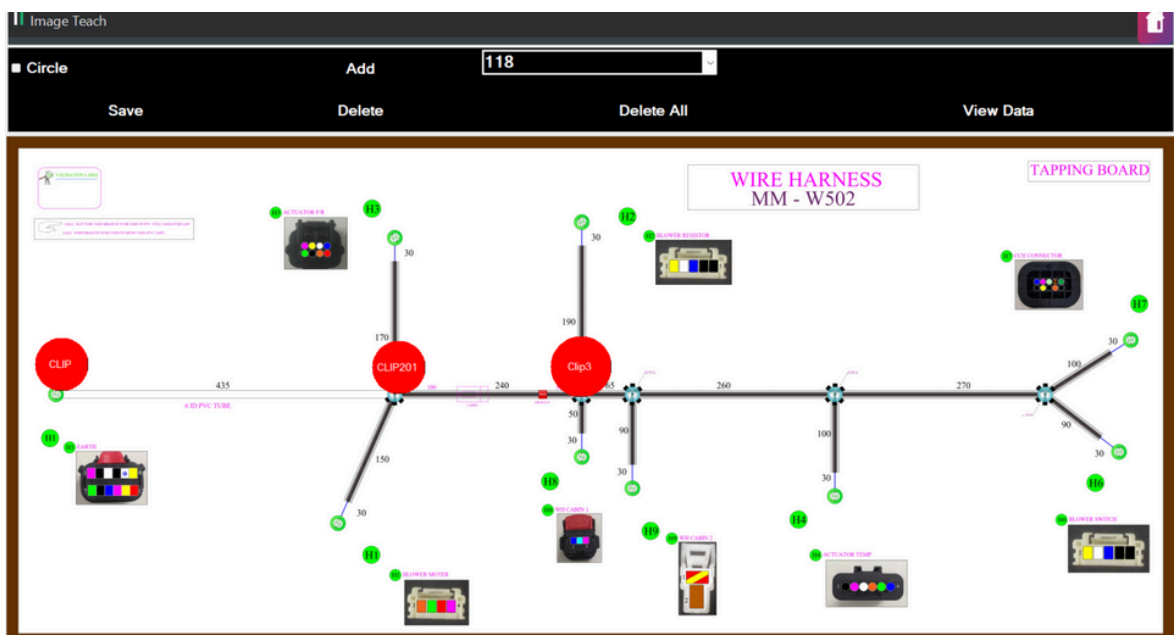
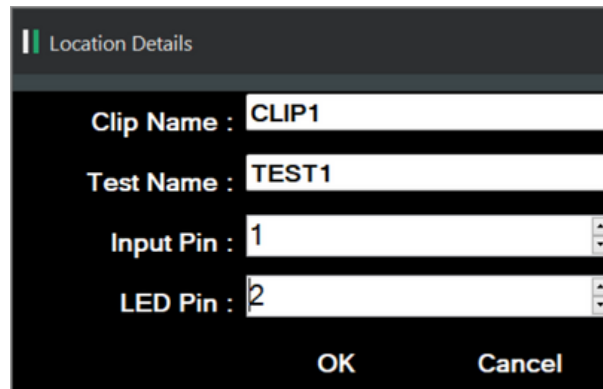


Fig.4.1

- Click add button to add new teaching panel box on the image.
- Use mouse scrolling to adjust the teaching panel size.
- To round the panel radius, select the Circle checkbox to enable it ☒ Circle (refer Fig.4.1).



- In the Teaching panel, right-click and select 'Save' button. This will enable a new screen.



Location Details

Clip Name : CLIP1

Test Name : TEST1

Input Pin : 1

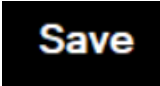
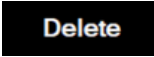
LED Pin : 2

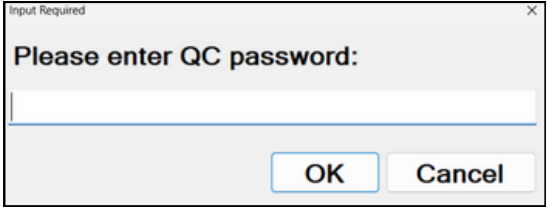
OK Cancel

- Enter the **clip name** to identify it.
  - Enter the **test name** to test the clip in any languages.
  - Provide the **input pin** for the specified clip.
  - Provide the **LED pin** for the specified clip.
  - Click 'OK' to save the details. The Teaching panel name will be updated to the image panel as the clip name.
- 
- Click 'OK' to save the details. The Teaching panel name will be updated to the image panel as the clip name.
  - To update the clip data, right-click the Teaching panel again, modify the data, and click 'OK' to save the changes.
  - To view the clip data click view data button and data will be shown in table format **View Data** (refer Fig.2).

|  | n | LED Pin | Location | size     | Delete |
|--|---|---------|----------|----------|--------|
|  |   | 2       | 479,268  | 70,70,35 | Delete |
|  |   | 6       | 37,264   | 70,70,35 | Delete |
|  |   | 10      | 713,262  | 80,80,40 | Delete |
|  |   |         |          |          |        |

- To delete the particular data, click delete button at the end of the table row.

- To save all programming data, click the 'Save' button  (refer Fig.2).
- To delete a specific data, select the panel and click the 'Delete' button. A confirmation page will appear and enter the QC password to confirm deletion.  (refer Fig.2).
- Follow the same step to delete all data.
- Click home button to exit this page.



Input Required

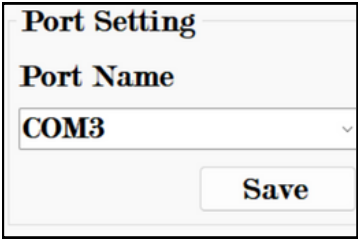
Please enter QC password:

OK Cancel

## 5.SETTINGS PAGE

### 5.1 General setting

- Select the port name from drop down menu for the communication and click save button.



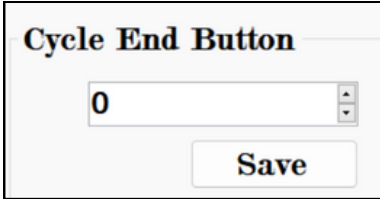
Port Setting

Port Name

COM3

Save

- To enable the Cycle End button, assign a pin number. If the pin number is set to 0, it will remain in the off state.

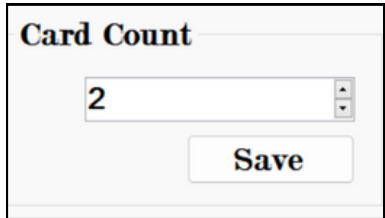


Cycle End Button

0

Save

- Enter the number of cards connected to the system.

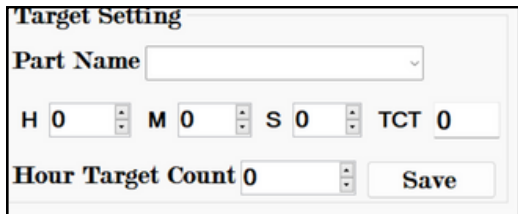


Card Count

2

Save

- Select the part name and set the tact time taken for a cycle completion and enter the target count to be completed per hour and save the settings.



Target Setting

Part Name

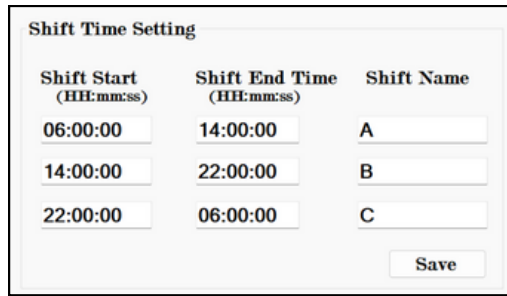
H 0 M 0 S 0 TCT 0

Hour Target Count 0

Save



- Adjust the shift timing as per the user's requirement and save the changes.

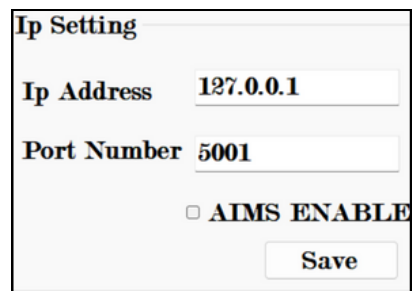


| Shift Start<br>(HH:mm:ss) | Shift End Time<br>(HH:mm:ss) | Shift Name |
|---------------------------|------------------------------|------------|
| 06:00:00                  | 14:00:00                     | A          |
| 14:00:00                  | 22:00:00                     | B          |
| 22:00:00                  | 06:00:00                     | C          |

Save

## 5.2 AIMS Setting

- To connect with AIMS server, enter the IP address and port number.
- To access this server enable the option and save the changes.



Ip Setting

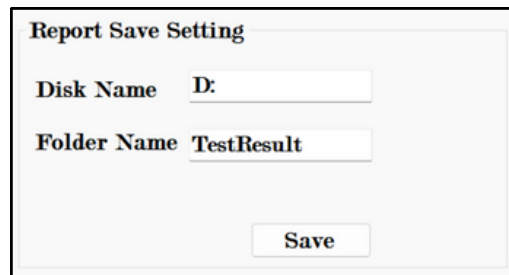
Ip Address 127.0.0.1

Port Number 5001

☐ AIMS ENABLE

Save

- Enter the disk name and folder name to save the report data.



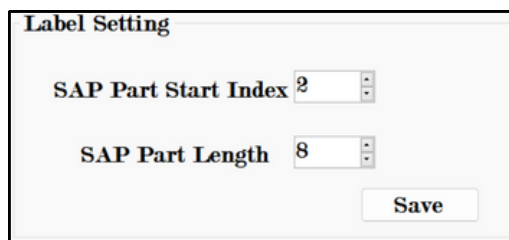
Report Save Setting

Disk Name D:

Folder Name TestResult

Save

- Select the index position and specify the length of the label content to retrieve the part name.



Label Setting

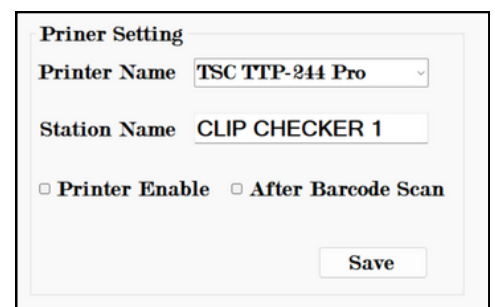
SAP Part Start Index 2

SAP Part Length 8

Save

## 5.3 Printer Setting

- Select the connected printer name and enter the station name.
- Select the check option to enable printer and check after barcode scan to start next cycle after scanning the barcode data.



Priner Setting

Printer Name TSC TTP-244 Pro

Station Name CLIP CHECKER 1

☐ Printer Enable ☐ After Barcode Scan

Save

## 6. SEQUENCE ADD PAGE

- In this page, you can select the part name from drop down menu and based on that part name the data will be shown in the table below.

Part Name

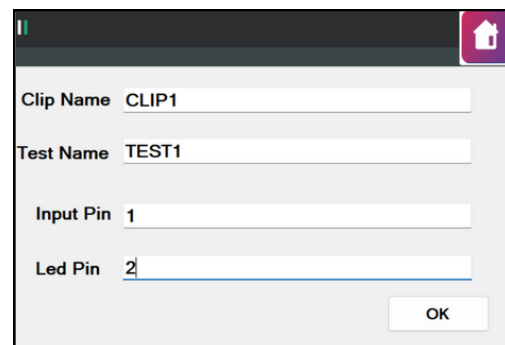
35836513

Add

|   | Clip Name | Test Name | Input Pin | Led Pin |        |
|---|-----------|-----------|-----------|---------|--------|
| ▶ | CLIP201   | क्लिप     | 4         | 2       | Delete |
|   | CLIP      | क्लिप     | 8         | 6       | Delete |
|   | Clip3     | क्लिप     | 12        | 10      | Delete |
| * |           |           |           |         |        |

Fig.6.1

- To delete the particular data, click delete button at the end of the table row.
- Click select file import button and import the data from the csv file. Imported data will be shown in the table **Select File Import**
- To add new part name you can click add and panel will open **Add** (refer Fig.6.1)
- Enter the **clip name** to identify it.
- Enter the **test name** to test the clip in any languages.
- Provide the **input pin** for the specified clip.
- Provide the **LED pin** for the specified clip.
- Click 'OK' to save the details. The Teaching panel name will be updated to the image panel as the clip name.
- To exit this panel click home button. 
- To delete all the part name click delete all button **Delete All**
- To save the part name to database, click save button. **Save**
- Click export button to export the selected part name to the selected path in csv format. **Export**



Panel form with fields: Clip Name (CLIP1), Test Name (TEST1), Input Pin (1), Led Pin (2), and an OK button.

## 7. REPORT PAGE

- All the work report data will be shown in the report table and can view the total data count **Total 186**

| Serial No      | Date       | Cycle Start Time | Operator Name | Shift | Part Name | Cycle Time | Status              | C  |
|----------------|------------|------------------|---------------|-------|-----------|------------|---------------------|----|
| 1              | 10-11-2024 | -                | Admin         | G     | TEST      | 24         | Pass                | 25 |
| 2              | 10-11-2024 | -                | Admin         | G     | TEST      | 24         | Pass                | 25 |
| 3              | 10-11-2024 | -                | Admin         | G     | TEST      | 15         | Pass                | 25 |
| 4              | 10-11-2024 | -                | Admin         | G     | 118       | 25         | Pass                | 25 |
| 5              | 10-11-2024 | -                | Admin         | G     | 118       | 6          | Pass                | 25 |
| 6              | 10-11-2024 | -                | Admin         | G     | TEST      | 11         | Pass                | 25 |
| 7              | 10-11-2024 | -                | Admin         | G     | TEST      | 18         | Pass                | 25 |
| 8              | 10-11-2024 | -                | Operator      | G     | 118       | 14         | Pass                | 25 |
| 9              | 10-11-2024 | -                | Admin         | G     | 118       | 15         | Pass                | 25 |
| 10             | 10-11-2024 | -                | Admin         | G     | 118       | 15         | Pass                | 25 |
| 11             | 10-11-2024 | -                | Admin         | G     | test      | 71         | Pass                | 25 |
| 12             | 10-11-2024 | -                | Admin         | G     | 118       | 6          | Pass                | 25 |
| 13             | 10-11-2024 | 18:36:48         | admin         | B     | test      | 00:00:12   | Excess Branch/Fail  | 11 |
| test1011240001 | 10-11-2024 | 19:25:36         | admin         | B     | test      | 00:00:15   | Clip Missing/Fail   | 11 |
| test1011240002 | 10-11-2024 | 19:29:51         | admin         | B     | test      | 00:00:09   | Missing Branch/Fail | 11 |
| test1111240003 | 11-11-2024 | 09:36:37         | admin         | A     | test      | 00:02:17   | PASS                | 05 |

- By selecting the date we can get the report data between From and To date.

From Date **Tuesday , April 8, 2025**

To Date **Tuesday , April 8, 2025**

- To clear the date filter, click the filter button. **Clear Filter**
- By clicking export button you can export this report data in the specified path. **Export**
- To download the particular report data, click on the report button at the end of the same row "Report Download".
- It will be stored in the specified report format as below.(refer Fig.7.1).

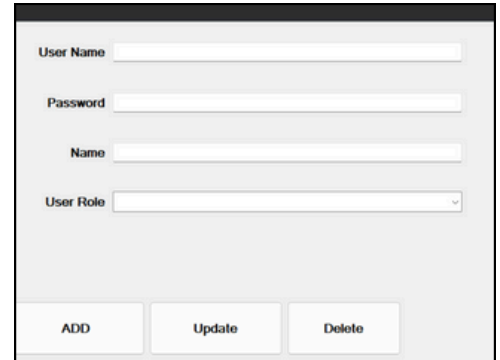
| Test Report                                |               |                     |                     |                |                                                                                       |
|--------------------------------------------|---------------|---------------------|---------------------|----------------|---------------------------------------------------------------------------------------|
| FG Part Numbr : PI37561000                 |               |                     | Date & Time :       | 12/2/2025 3:18 |  |
| FG Description : -                         |               |                     | Employee ID :       | admin          |                                                                                       |
| Production serial No : 4                   |               |                     | Work Order Number : | -              |                                                                                       |
| QR Code Serial No : PI37561000120225000048 |               |                     | Cycle Time:         | 120            |                                                                                       |
| Test Result : PASS                         |               |                     |                     |                |                                                                                       |
| Sl.No                                      | Test Items    | Description         | Date & Time :       |                | Result                                                                                |
| 1                                          | 13574973/CL01 | Clip Test           | 3:17:40             |                | Pass                                                                                  |
| 2                                          | 13574973/CL02 | Clip Test           | 3:17:36             |                | Pass                                                                                  |
| 3                                          | 35299122/CL03 | Clip Test           | 3:17:32             |                | Pass                                                                                  |
| 4                                          | 35299122/CL04 | Clip Test           | 3:17:31             |                | Pass                                                                                  |
| 5                                          | 35299122/CL05 | Clip Test           | 3:17:48             |                | Pass                                                                                  |
| 6                                          | 35299122/CL06 | Clip Test           | 3:17:31             |                | Pass                                                                                  |
| 7                                          | 35299122/CL07 | Clip Test           | 3:17:31             |                | Pass                                                                                  |
| 8                                          | 13581201/CL08 | Clip Test           | 3:17:31             |                | Pass                                                                                  |
| 9                                          | 35299122/CL09 | Clip Test           | 3:17:31             |                | Pass                                                                                  |
| 10                                         | 35299122/CL10 | Clip Test           | 3:17:32             |                | Pass                                                                                  |
| 11                                         | CMU-1         | Connector Detection | 3:17:32             |                | Pass                                                                                  |
| 12                                         | CMU-8         | Connector Detection | 3:17:32             |                | Pass                                                                                  |
| 13                                         | CAM1          | Color Detection     | 3:17:32             |                | Pass                                                                                  |

Fig.7.1

## 8. SIGN UP PAGE

### 8.1 Add user

- To add new user, enter user name, password, name in the respective input field.
- Select role from drop down menu and click add button to add new user (refer Fig.8.1.1).



The form contains four input fields: 'User Name', 'Password', 'Name', and 'User Role' (a dropdown menu). Below the fields are three buttons: 'ADD', 'Update', and 'Delete'.

Fig.8.1.1

- Users data will be shown in the below table.

|   | User name | Password | Name  | Type     |
|---|-----------|----------|-------|----------|
| ▶ | admin     | admin    | admin | Admin    |
|   | qc        | qc       | qc    | QC       |
|   | amp       | amp      | amp   | Operator |
| * |           |          |       |          |

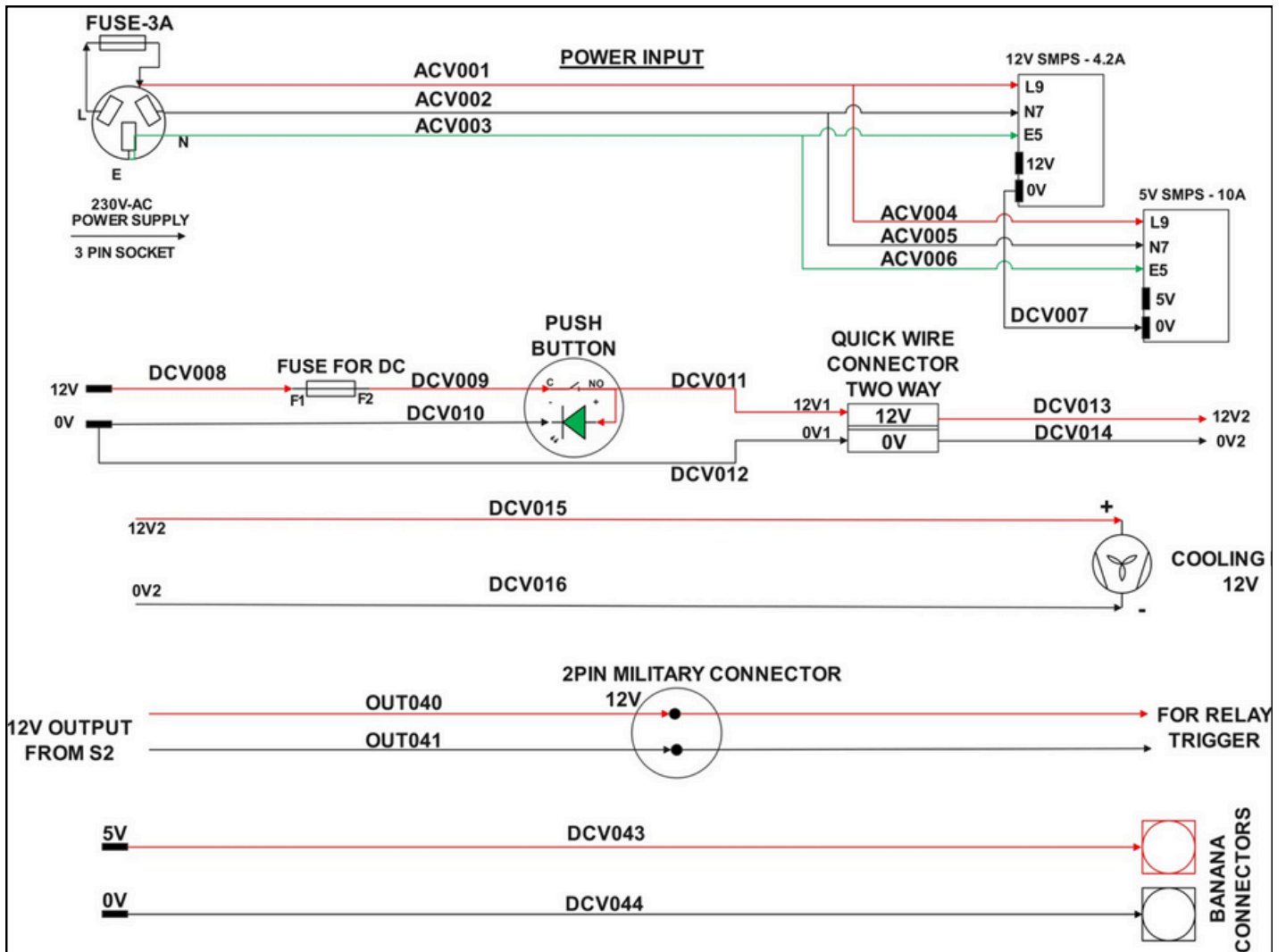
### 8.2 Update user

- To update the existing user, select the row that need to be change from the below table.
- Entire data from the selected row will be shown in the above input field and can modify data in the input box as user need.
- After the changes click update button to update user data to database. **Update** (refer Fig.8.1.1).

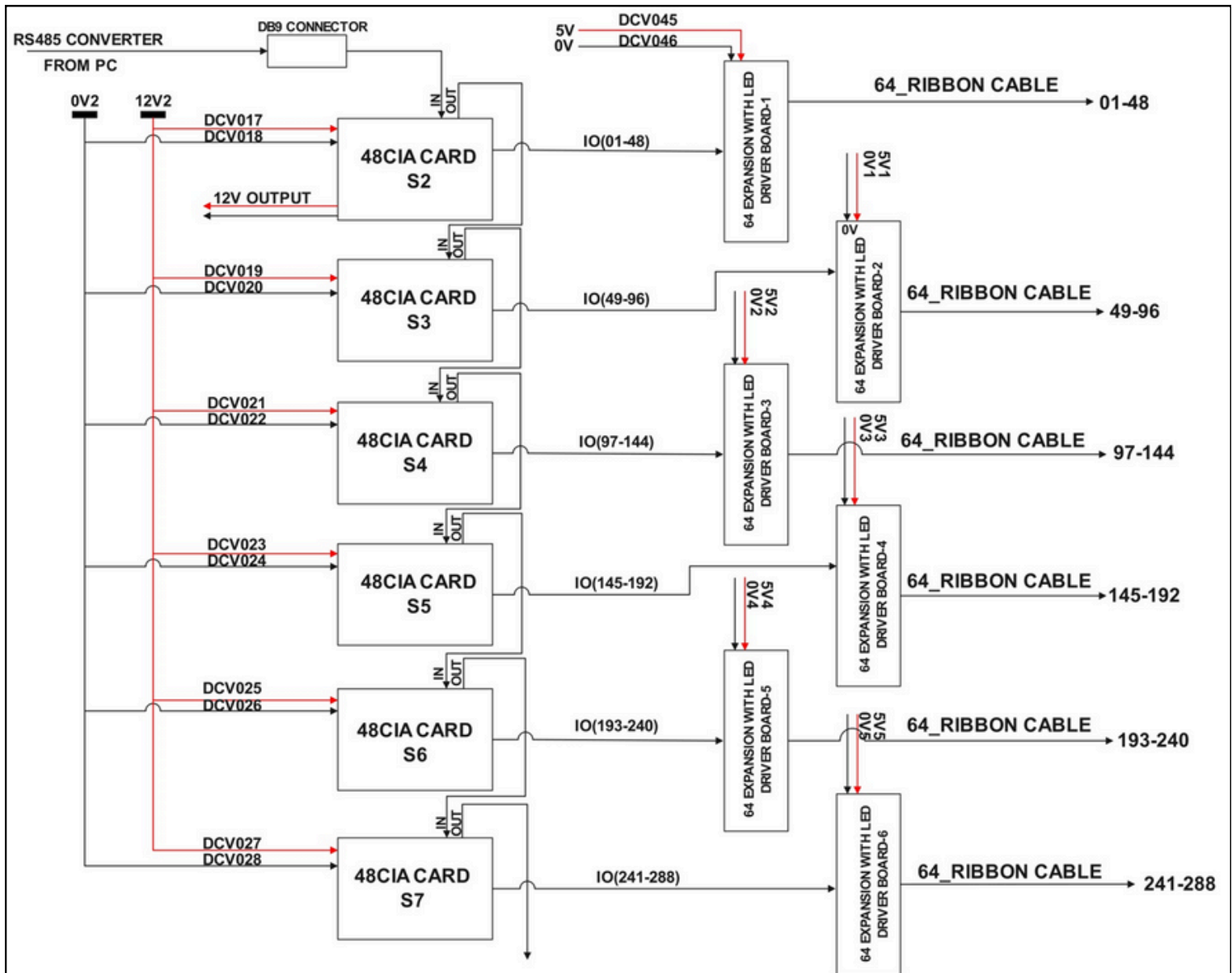
### 8.3 Delete user

- Select the row that need to be change from the below table and click delete button. **Delete** (refer Fig.8.1.1).

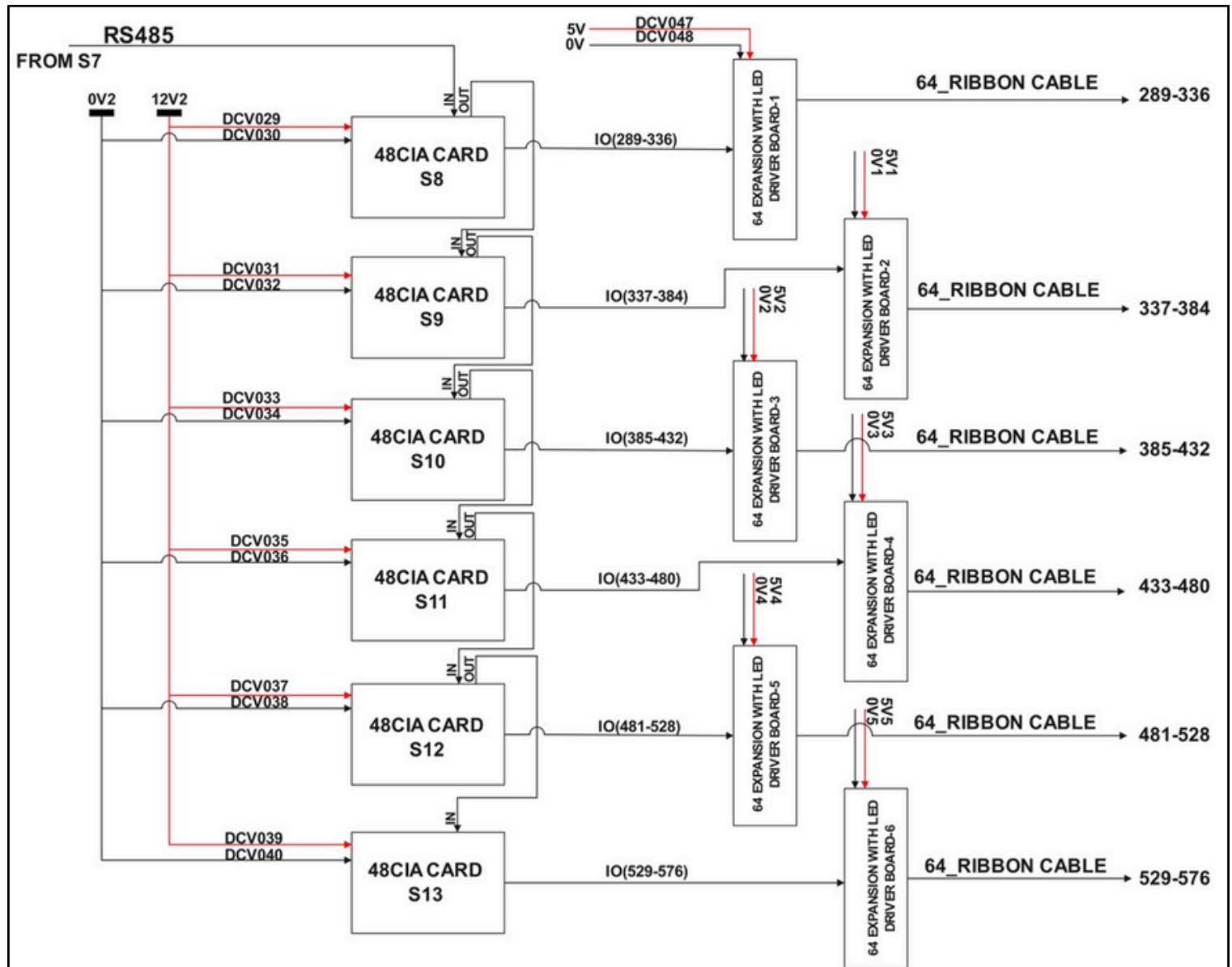
# ELECTRONICS CIRCUIT DIAGRAM



# ELECTRONICS CIRCUIT DIAGRAM

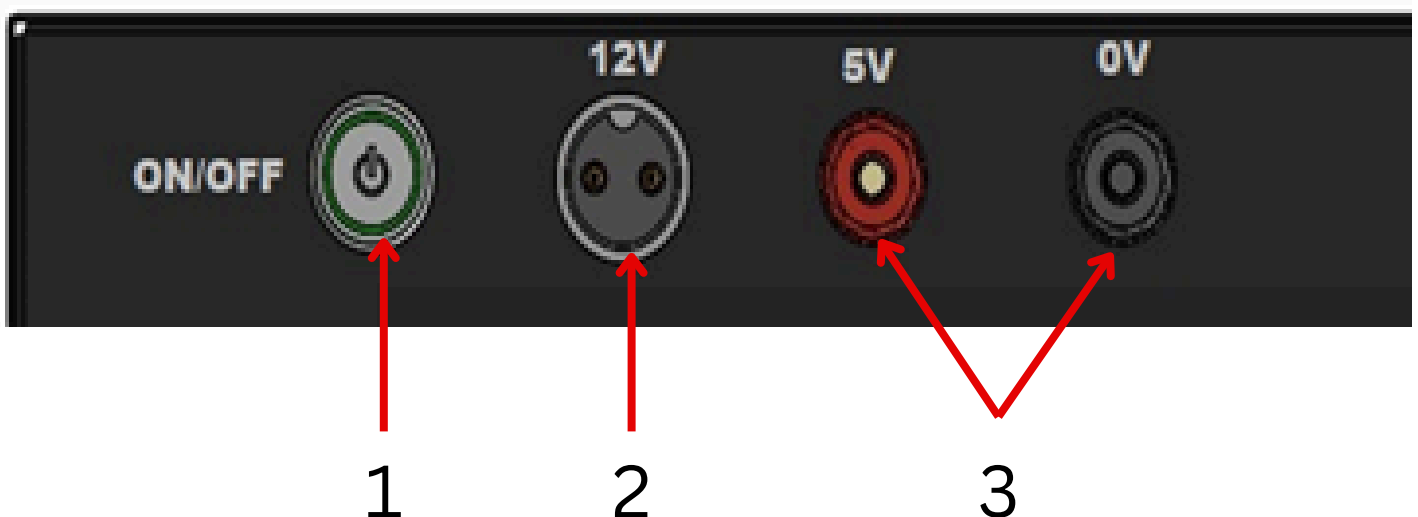


# ELECTRONICS CIRCUIT DIAGRAM



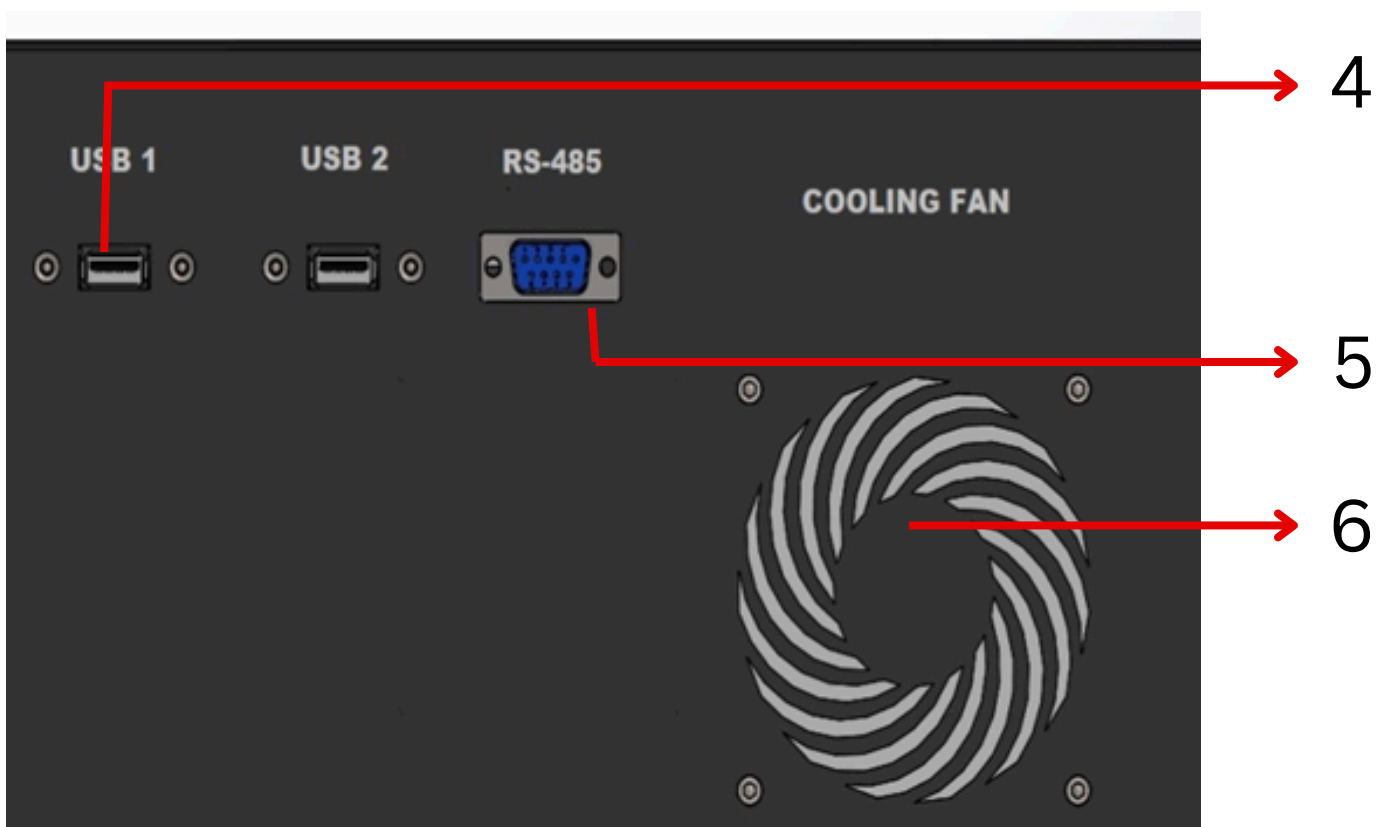


- This control Box have totally 432 I/O points. We can Expand up to 576 i/o points .
- This control unit works on NPN I/O points.
- This box have totally 9 ports. Each port have 64 Pin interface i/o pins.
- Here, we have connected only 48 I/O pins in each port. So, pins 49 to 64 will be empty and cannot be used.
- Each port acts as an individual slave ID. Each slave ID is connected serially using the RS-485 communication protocol.



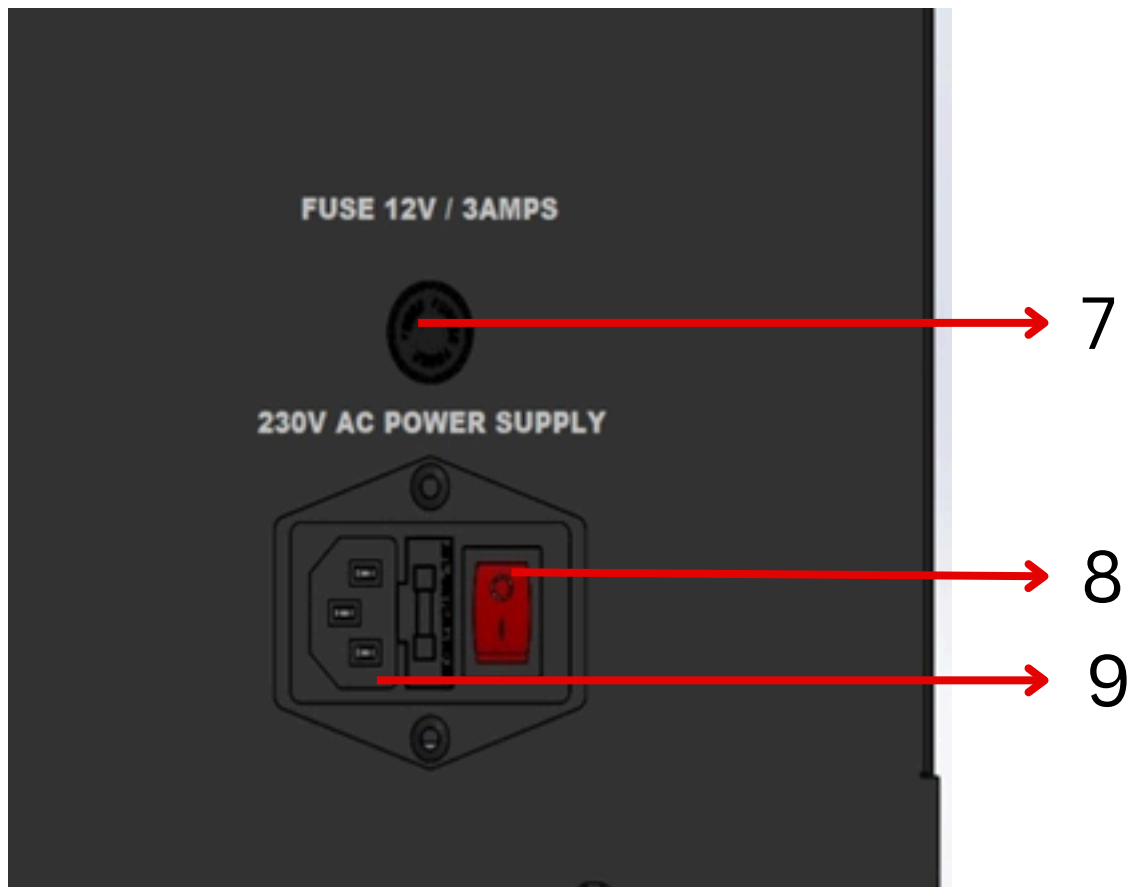


- Here, some control functions are available at the top. We will go through them one by one:
- **(1)** This ON/OFF switch is used to control the power button. When the switch is pressed, it will be in the "ON" state, indicated by a Green LED.
- **(2)** The 12V option is provided for external use. It can be used wherever required in an application, as the I/Os operate on an NPN system.
- **(3)** The 5V and 0V options can also be used for other purposes as needed. They are also utilized within the internal system.



- The backside panel also has some control functions. Let's go through them one by one:
- **(4)** This port is intended for USB functionality. However, in this control box, we do not use it since a PC is not implemented inside.

- **(5)** This port is used for the communication process. As mentioned earlier, we are using RS-485 communication, where multiple slave IDs are connected in serial mode.
- **(6) Exhaust fan** – Helps in heat dissipation and ventilation.



- **(7) Fuse protection for 12V operating voltage** – Prevents short-circuit issues and safeguards the system.
- **(8) ON/OFF switch for 230V AC power supply** – Used to control the main power supply.
- **(9) 230V AC power supply input port** – The main input port for supplying 230V AC power to the system.

## Control Box Dimension

