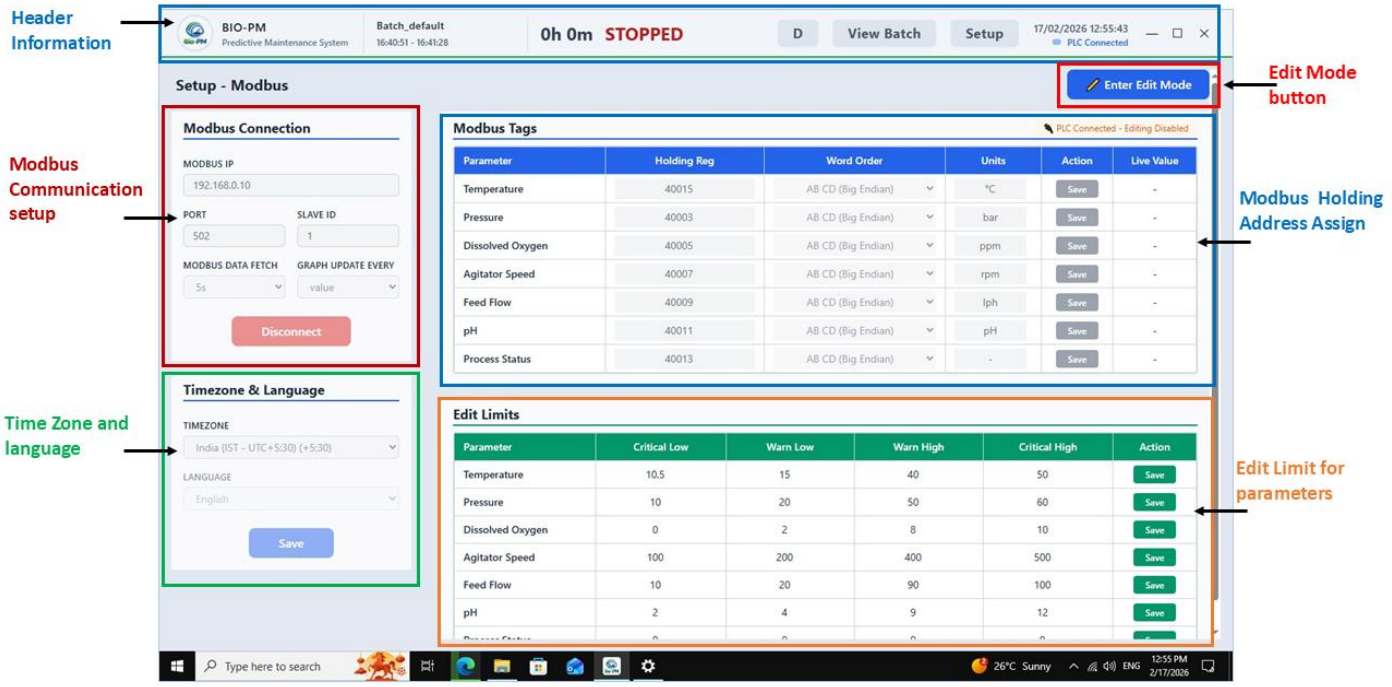
Setting up the Modbus for Bio-PM

Layout



User Steps

Step 1 Entering Edit Mode

1. Navigate to the **Setup – Modbus** page.
2. Click the **"Enter Edit Mode"** button located at the top-right corner.
3. A password prompt will appear.
4. Enter the 4-digit passkey.
    - Default password: **1234**
5. Click **Submit** to enable editing.

Note: *Modbus Connection, Modbus Tags, Time Zone, and Language settings are accessible only in Edit Mode.*

Step 2 Modbus Communication Configuration

Before modifying Modbus communication settings:

1. In the **Modbus Connection** section, click **"Disconnect."**
2. Confirm that PLC status shows **Disconnected**.

Now configure the following parameters:

- **Modbus IP Address** – PLC IP address
- **Port Number** – Default: 502 (unless changed in PLC)
- **Slave ID** – PLC slave address (*not mandatory for TCP/IP connection*)
- **Modbus Data Fetch Interval** – Time interval (in seconds) for reading data

- **Graph Update Option** – Defines how data is refreshed in graphs (as per values counts)

After completing changes, proceed to reconnect (see Section 4).

Step 3 Modbus Tag Configuration

In the **Modbus Tags** section:

For each parameter (Temperature, Pressure, RPM, etc.):

You can configure:

- **Holding Register** – PLC register address
- **Word Order** – Data format (e.g., Big Endian AB CD)
- **Units** – Measurement unit (°C, bar, rpm, etc.)

Steps:

1. Modify the required field.
2. Click **Save** for each parameter individually.

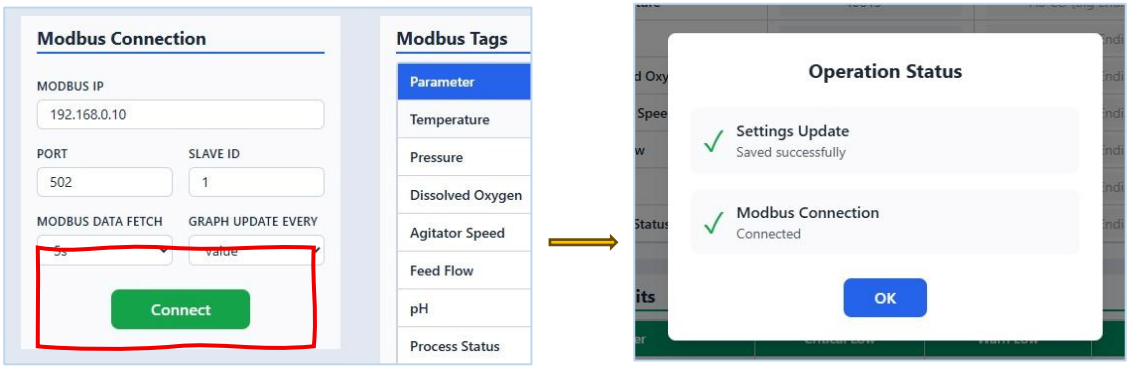
Important: Register numbers must match PLC configuration.

Step 4 Reconnecting PLC

After completing all changes:

1. Go to **Modbus Connection** section.
2. Click **"Connect."**
3. Verify PLC status shows **Connected**.

System will now begin fetching data using updated settings.



Step 5 Time Zone & Language Configuration

In the **Time Zone & Language** section:

- Select appropriate time zone.
- Select required language.
- Click **Save**.

Step 6 Exiting Edit Mode

After finishing configuration:

Click **"Exit Edit Mode"** to prevent accidental changes.

Process Start / Stop Control (Modbus Setting)

The **Process Status register** is used to control the start and stop of the process through Modbus.

This register must be programmed correctly in the PLC.

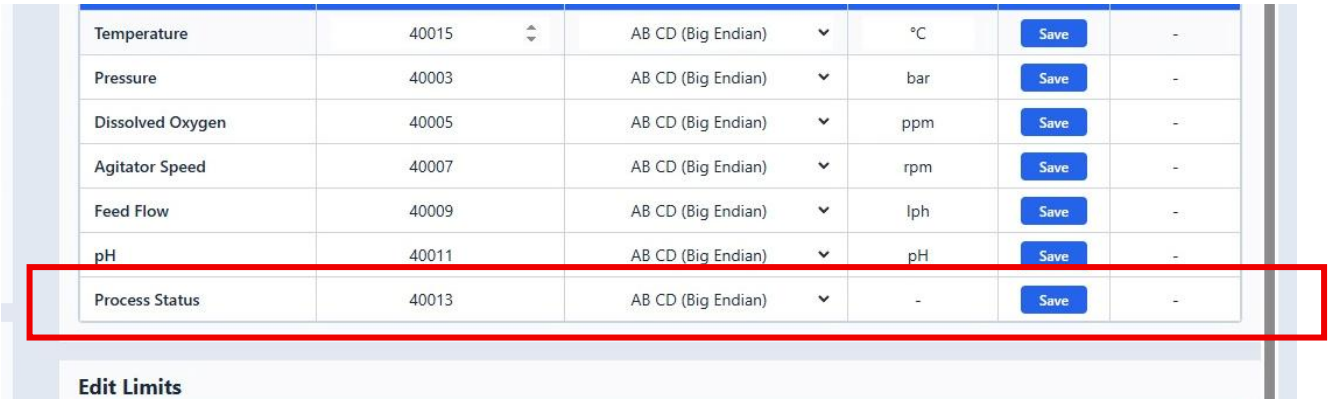
- When the register value is set to **100**, the batch will **start**.
- When the register value is set to **0**, the batch will **stop**.

-When the value is 100:

- The system starts running.
- Data collection begins automatically.

-When the value returns to 0:

- The process stops.
- Data collection stops.



Important Notes (Simple Rules)

- You cannot edit settings while PLC is connected.
- Always press Save after changing a value.
- Always reconnect after finishing edits.
- If connection fails, check IP address.

Limits

The **Edit Limits** section is used to set alarm limits for each process parameter. These limits help the system monitor process conditions and generate alerts when values go outside the safe operating range.

Each parameter includes four limit levels:

- **Critical Low**
- **Warning Low**
- **Warning High**
- **Critical High**

These limits define the acceptable operating range for the parameter.

Edit Limits

Parameter	Critical Low	Warn Low	Warn High	Critical High	Action
Temperature	10.5	15	40	50	Save
Pressure	10	20	50	60	Save
Dissolved Oxygen	0	2	8	10	Save
Agitator Speed	100	200	400	500	Save
Feed Flow	10	20	90	100	Save
pH	2	4	9	12	Save

Limits colour Scheme

- Critical High (CH) ---------- Above 60
- Warn High (WH) ---------- 50 – 60
- Normal ---------- 15 – 50
- Warn Low (WL) ---------- 10.5 – 15
- Critical Low (CL) ---------- 10.5 & Below