PC-Based Device Setup Utility

PPI
The Perfection Experts

UniSet

The All-in-One Setup Utility

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User Guide

MODBUS RTU
Analog / Digital I/O Modules

Single / Dual Output
Signal Isolators & Converters

CONTENTS

Section 1

OVERVIEW

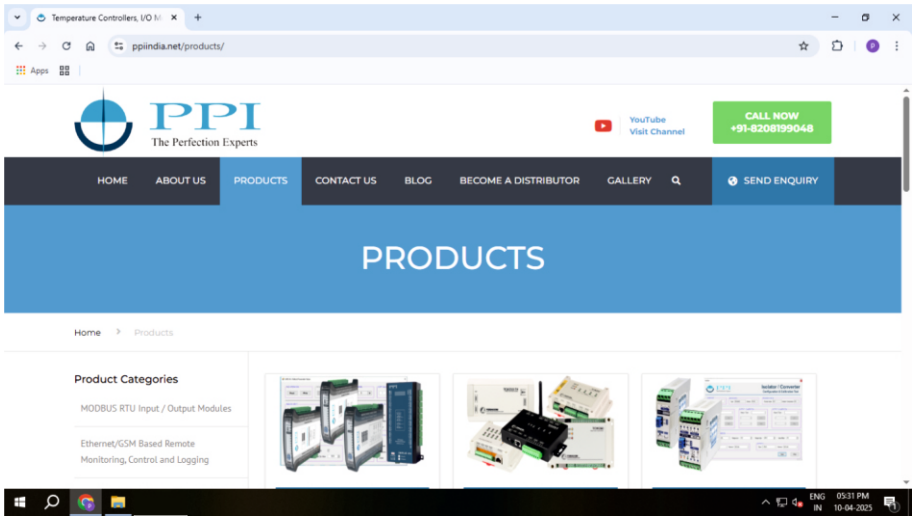
The **UniSet : The All-In-One Setup Utility** is a free Windows-based utility designed to simplify the setup, configuration, and real-time monitoring of PPI's range of **MODBUS RTU**-based products. It supports both **Serial I/O Modules** (analog/digital input/output devices) and **Signal Converters / Isolators** (SIG series), offering a unified interface for managing diverse devices from a single application.

Whether you're configuring I/O parameters, setting up alarms, or scaling input output signal levels, the tool eliminates the need for low-level MODBUS command programming, making configuration fast, accurate, and accessible to system integrators and engineers.

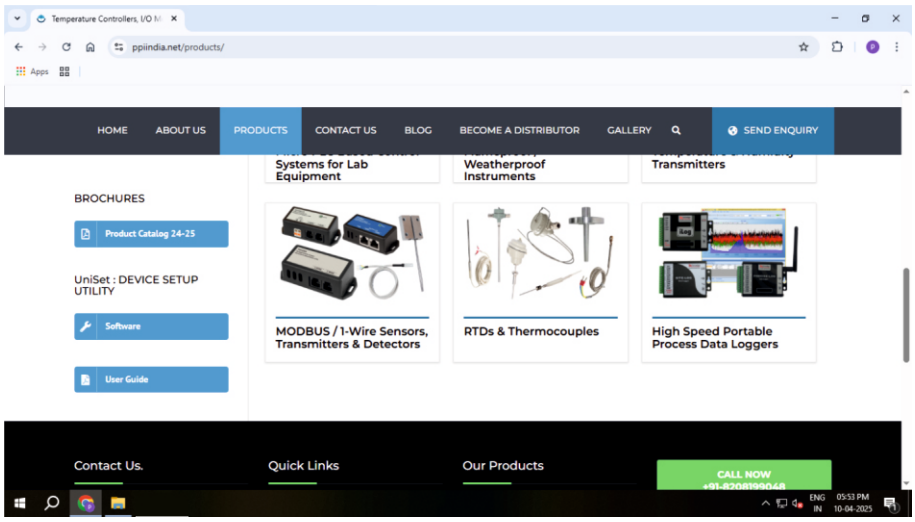
The **UniSet Configuration Tool** is available for **free download** from the **PPI website** and can be accessed from the **PRODUCTS** section.

To download and launch the tool:

1. Visit www.ppiindia.net and click on the **PRODUCTS** tab in the main navigation menu.



2. In the **left-hand panel**, scroll to **UniSet : Device Setup Utility**.

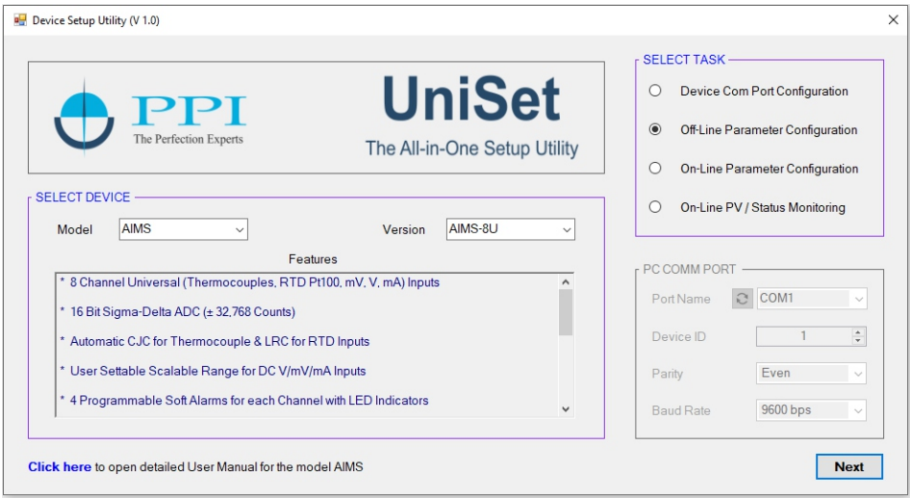


3. Two buttons will be visible under this section:
   - **Software** – Click to download the configuration utility archive (IO-Module-Configuration-Tool.rar).
   - **User Guide** – Click to download the PDF manual for reference.

4. After downloading the archive file:
   - Extract the contents into a folder (e.g., IO-Module-Configuration-Tool).
   - Open the folder and double-click on IO Module Configuration Tool.exe to launch the application.

Section 2

HOME SCREEN



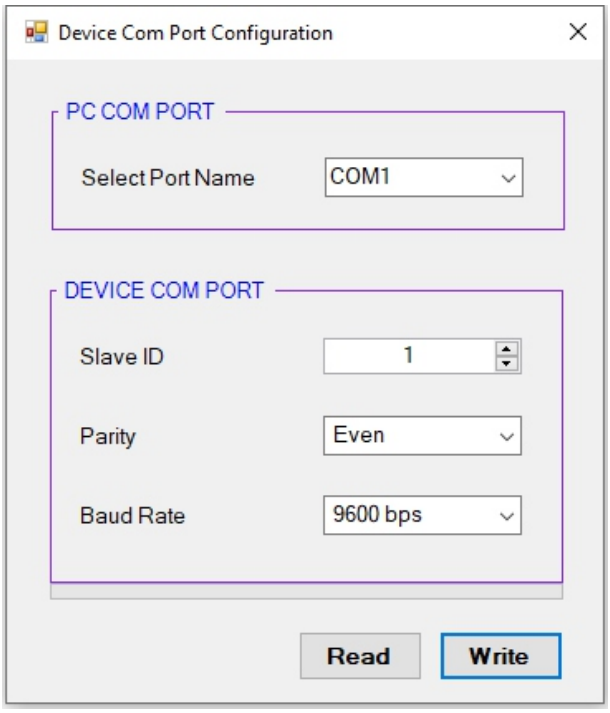
The Home Screen provides a simple and intuitive interface to begin configuring any supported product family.

1. In the **SELECT DEVICE** panel :
   - Use the **Model** dropdown to select the appropriate product family (e.g., AIMS, DIMS, AOMS, COMS, SIG).
   - Use the **Version** dropdown to select the specific model variant within the chosen family.
   - The **Feature** text block displays key specifications and highlights of the selected product.
2. Click the hyperlink **"Click here"** to optionally open the PDF-format **User Manual** corresponding to the selected model. This step is not mandatory and is intended for reference only-useful if you need detailed information on wiring, parameter descriptions, or device-specific configuration guidelines.
3. The **SELECT TASK** panel presents the following functional options:
   - **Device Com Port Configuration**: Set communication parameters (Slave ID, Baud Rate, Parity) by connecting the module in Configuration Mode.
   - **Off-Line Parameter Configuration**: Create and save configuration files without connecting to a device for backup or transfer.
   - **On-Line Parameter Configuration**: Read, edit, and write live configuration data to the connected module or save it to file. You can also reload a previously saved configuration file and write to the connected device.
   - **On-Line PV / Status Monitoring**: Monitor analog process values, alarms, or digital I/O states in real-time with the device connected. This option is available for Analog / Digital MODBUS Serial I/O modules only.
   - **On-Line I/O Calibration**: Calibrate SIG Series devices for analog inputs and analog outputs with the device connected. This option is available for SIG series Signal Converters / Isolators only.
4. The **PC COM PORT** panel is accessible during **On-Line tasks** and allows you to select the appropriate PC COM port and set Baud Rate, Parity, and Module ID to match the connected device. This option is available for Analog / Digital MODBUS Serial I/O modules only.

At the bottom right corner of the Home Screen, a **Next** button is provided. After selecting the desired task, click this button to open the corresponding configuration or monitoring window for the chosen product family.

Section 3

DEVICE COM PORT CONFIGURATION



This screen opens when the **Device Com Port Configuration** function is selected from the Home Screen. It allows users to read the current communication settings of the connected device and write new settings if required. Before proceeding, ensure that the device is set to **Configuration Mode** using its DIP switch settings.

To use this function:

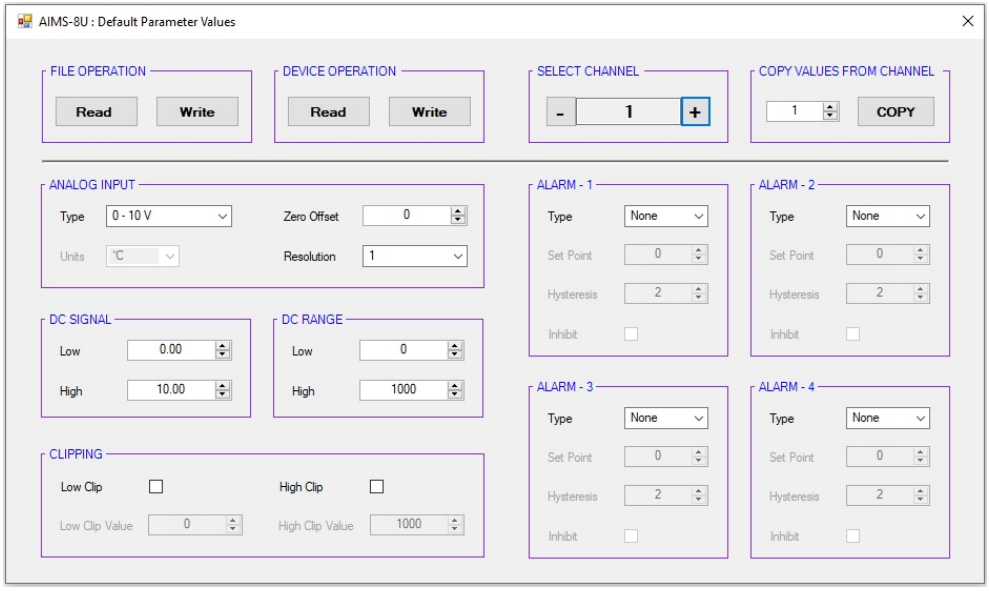
1. In the **PC COM PORT** panel, choose the COM port to which the device is connected.
2. Click **Read** to view the current Slave ID, Parity, and Baud Rate settings in the **DEVICE COM PORT** panel.
3. Modify the communication parameters as needed and click **Write** to update the settings on the device.

Section 4

ON-LINE / OFF-LINE PARAMETER CONFIGURATION

This screen opens upon selecting either the **On-Line Parameter Configuration** or **Off-Line Parameter Configuration** option from the **SELECT TASK** panel on the Home Screen. It allows users to read/write device parameters from/to a file (both On-Line and Off-Line modes) or directly from/to the connected device (On-Line mode only). The screen layout and available settings vary depending on the selected product family.

4.1 AIMS / AIMS Plus / CIM / CIM Plus Family Devices



1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.

2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.

3. **SELECT CHANNEL**: Choose the desired channel number using the +/- buttons to view and configure individual channel parameters.

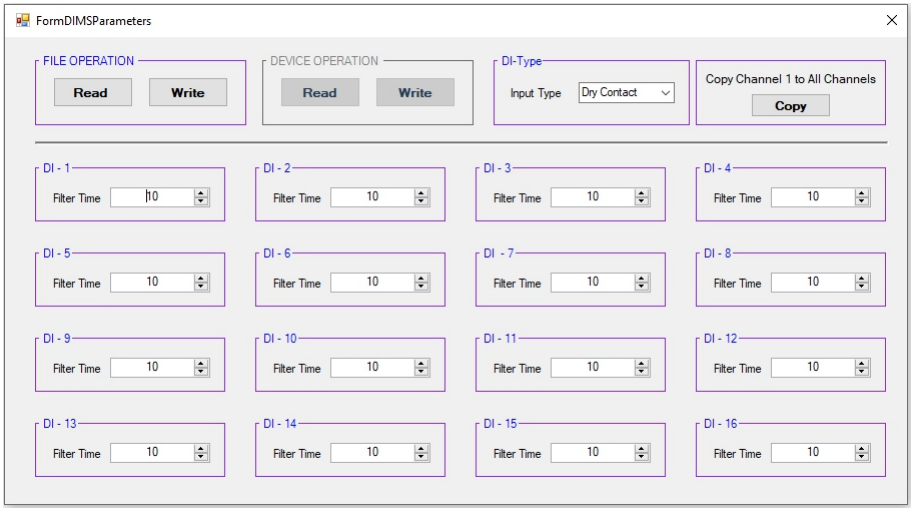
4. **COPY VALUES FROM CHANNEL**: Use this to replicate settings from one channel to another. For example, selecting Channel 2 and copying from Channel 1 will clone all parameters from Channel 1 to Channel 2.

5. Configure parameters using the available controls (dropdowns, numeric up/down fields, checkboxes).

6. After configuration, save settings to file and/or write to device as needed.

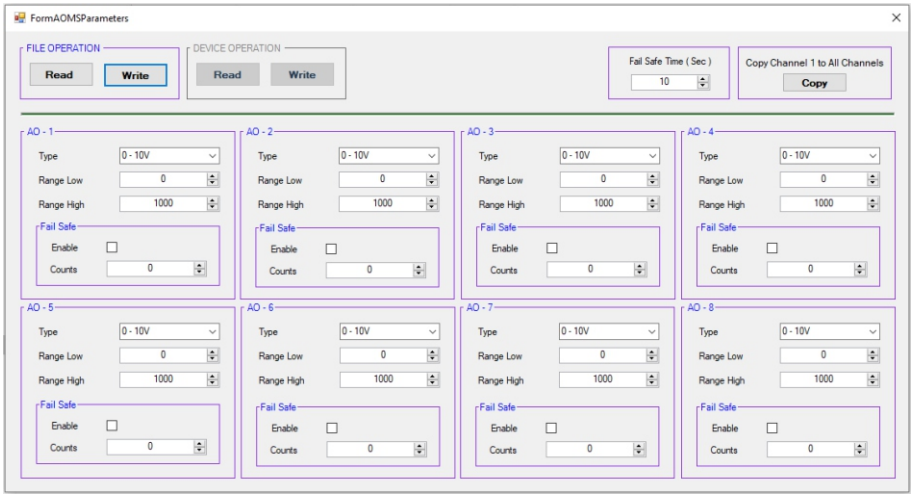
7. Click the **X** button (top-right) to return to the Home Screen.

4.2 DIMS Family Devices



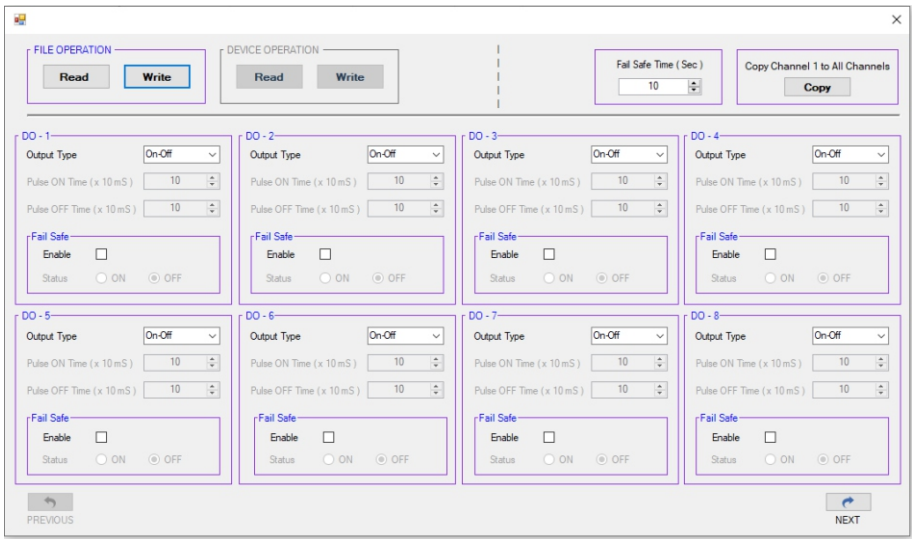
1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.
2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.
3. All channels appear on a single screen. No separate channel selection is required.
4. Use available controls to adjust parameters for each channel.
5. To apply common settings across channels, configure DI-1 and click the **Copy** button.
6. After configuration, save settings to file and/or write to device as needed.
7. Click the **X** button (top-right) to return to the Home Screen.

4.3 AOMS Family Devices



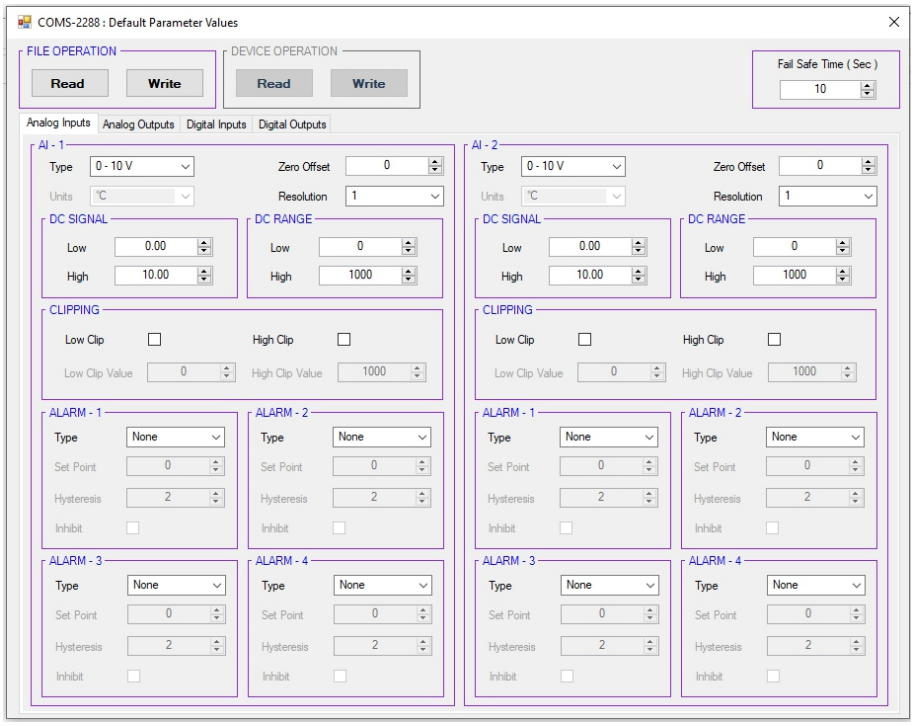
1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.
2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.
3. All channels appear on a single screen. No separate channel selection is required.
4. Use available controls to adjust parameters for each channel.
5. To apply common settings across channels, configure AO-1 and click the **Copy** button.
6. After configuration, save settings to file and/or write to device as needed.
7. Click the **X** button (top-right) to return to the Home Screen.

4.4 DOMS Family Devices



1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.
2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.
3. 8-channel models show all parameters on one screen. For 12 and 16-channel versions, use **NEXT** and **PREVIOUS** buttons to navigate between pages.
4. Use available controls to adjust parameters for each channel.
5. Use the **Copy** function after configuring DO-1 to replicate values across channels.
6. After configuration, save settings to file and/or write to device as needed.
7. Click the **X** button (top-right) to return to the Home Screen.

4.5 COMS2288 (COMS Family Devices)



1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.

2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.

3. COMS2288 is a combo module comprising 2 analog inputs, 2 analog outputs, 8 digital inputs, and 8 digital outputs.

4. The screen provides **four tabs**: Analog Inputs, Analog Outputs, Digital Inputs, and Digital Outputs.

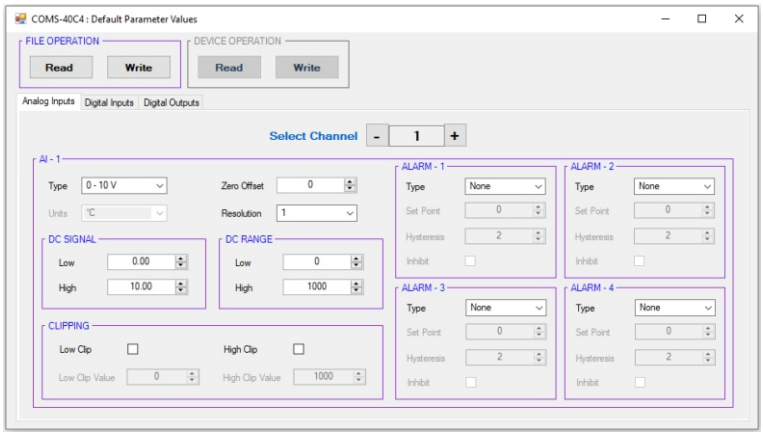
5. Each tab displays all respective channels:
   - **Analog Inputs**: 2 channels
   - **Analog Outputs**: 2 channels
   - **Digital Inputs**: 8 channels
   - **Digital Outputs**: 8 channels

6. Use available controls to configure parameters for each I/O channel.

7. After configuration, save settings to file and/or write to device as needed.

8. Click the **X** button (top-right) to return to the Home Screen.

4.6 COMS40C4 (COMS Family Devices)



1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.

2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.

3. COMS40C4 is a combo module comprising 4 analog inputs, 12 digital inputs, and 4 digital outputs.

4. The screen provides **three tabs**: Analog Inputs, Digital Inputs, and Digital Outputs.

5. Each tab displays all respective channels:
   - **Analog Inputs**: 4 channels
   - **Digital Inputs**: 12 channels
   - **Digital Outputs**: 4 channels

6. Use available controls to configure parameters for each I/O channel.

7. After configuration, save settings to file and/or write to device as needed.

8. Click the **X** button (top-right) to return to the Home Screen.

4.7 SIG Family Devices

PC-Based Device Setup Utility

1. **FILE OPERATION**: Load or save parameter settings from/to a file using the **Read** and **Write** buttons.

2. **DEVICE OPERATION** *(On-Line only)*: Read current parameters from the connected device or write new ones using the **Read** and **Write** buttons.

3. The screen contains three configuration panels: **ANALOG INPUT**, **ANALOG OUTPUT-1**, and **ANALOG OUTPUT-2**. The third panel appears only on models with dual analog outputs (e.g., SIG352D, SIG352T).

4. Configure input type, input scaling, output type, and output scaling using the provided controls.

5. A **MONITORING panel** at the bottom displays the scaled Process Value (PV) to verify input scaling. On SIG351T and SIG352T models, it also shows the **Ambient Temperature** measured via the Cold Junction Compensation (CJC) circuit. This panel is available only in On-Line mode.

6. After configuration, save settings to file and/or write to device as needed.

7. Click the **X** button (top-right) to return to the Home Screen.

Section 5

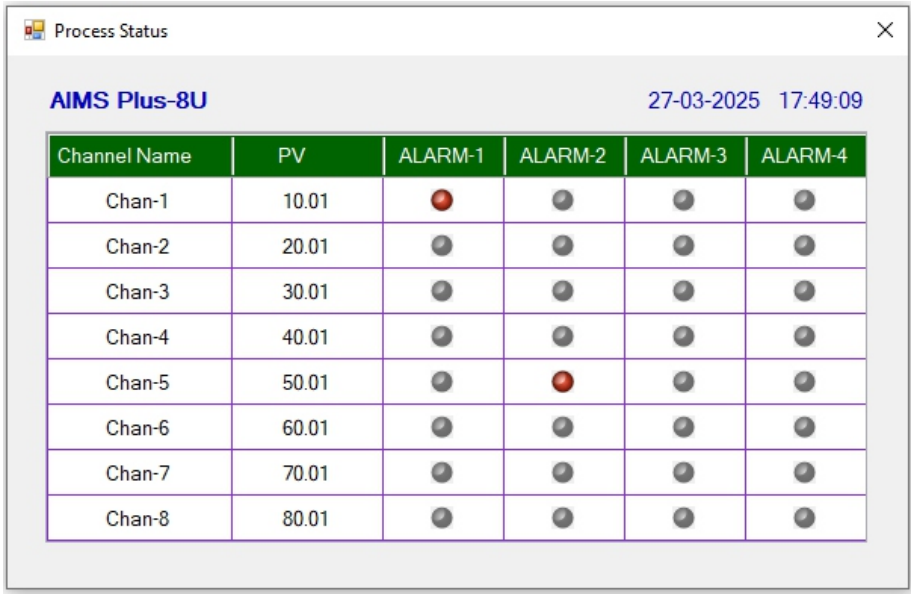
ON-LINE PV / STATUS MONITORING

This screen opens upon selecting the **On-Line PV / Status Monitoring** option from the **SELECT TASK** panel on the Home Screen. It enables users to monitor real-time **process values**, **alarms**, and **digital I/O statuses** from the connected device. The screen layout and functionality vary depending on the selected product family.

In addition to real-time process monitoring, this screen can be used to test output functionality. For **analog output modules**, users can send scaled counts to observe the corresponding voltage or current response. For **digital output modules**, commands can be issued to toggle the ON/OFF state of individual outputs.

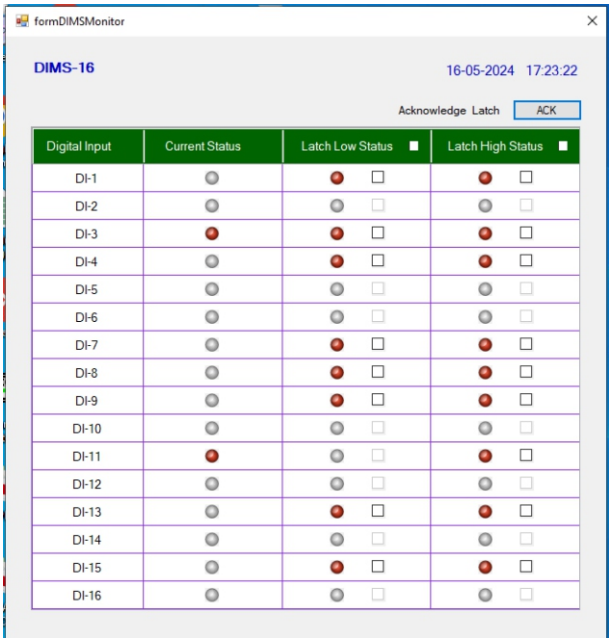
The PV / Status Monitoring screen is a valuable diagnostic and commissioning tool for verifying the operational health and behaviour of PPI I/O modules. It also provides a quick and interactive way to validate the module's performance in real-world conditions before field deployment or system integration.

5.1 AIMS / AIMS Plus / CIM / CIM Plus Family Devices



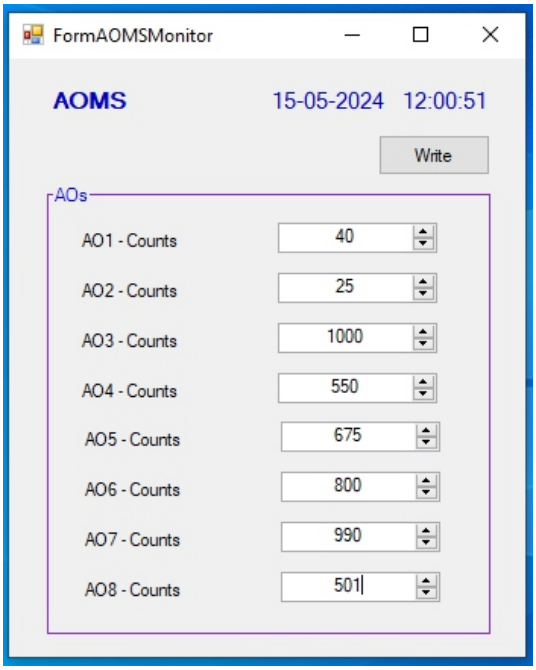
1. Displays measured and scaled **Process Values (PV)** along with alarm statuses in a tabular format.
2. The number of channels and available alarms vary by model.
3. PVs are displayed with the configured decimal resolution.
4. Active alarms are indicated with flashing **red bulbs**.
5. PV and alarm statuses are updated once per second.

5.2 DIMS Family Devices



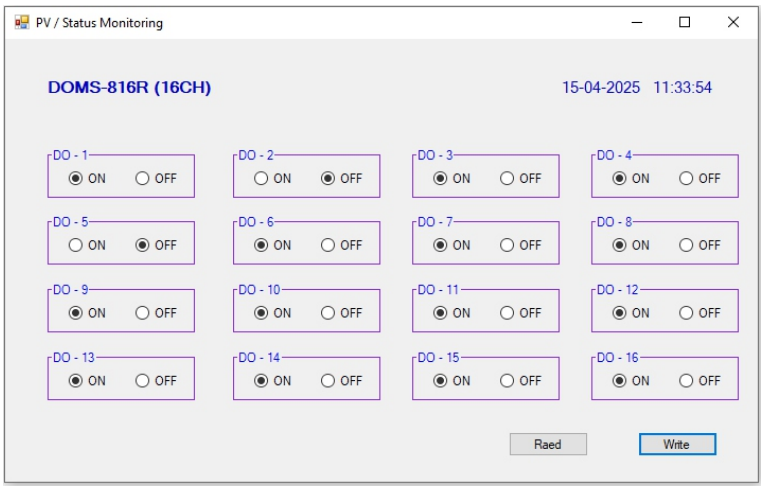
1. Displays the **real-time high/low status**, **latched low**, and **latched high** status for each digital input channel.
2. Channel count varies by device variant.
3. Logic HIGH = **Red bulb (ON)**; Logic LOW = **Gray bulb (OFF)**.
4. Latched statuses include a checkbox to acknowledge/reset them.
5. Status values refresh every one second.

5.3 AOMS Family Devices



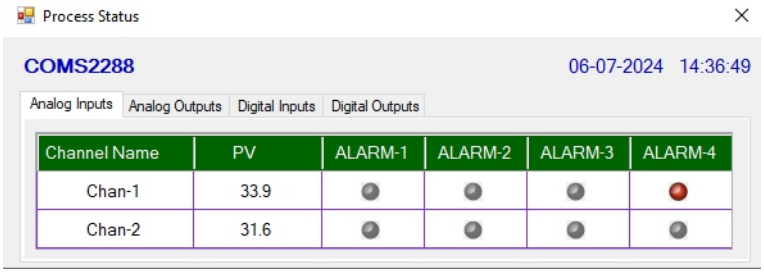
1. Each analog output channel has a **numeric up-down control** to set the scaled output count.
2. The values are transmitted to the connected device every one second.
3. The module outputs the corresponding **voltage or current signal** at the output terminals.

5.4 DOMS Family Devices



1. Each digital output has a pair of **ON/OFF radio buttons** to control its status.
2. The selected states are written to the device every one second.
3. The device updates the output status to match the selected command.

5.5 COMS2288 (COMS Family Devices)



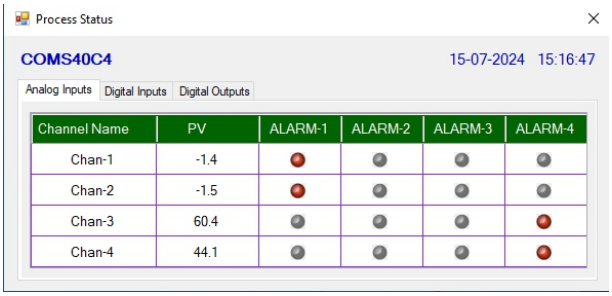
1. COMS2288 is a combo module comprising 2 analog inputs, 2 analog outputs, 8 digital inputs, and 8 digital outputs.
2. The screen provides **four tabs**: Analog Inputs, Analog Outputs, Digital Inputs, and Digital Outputs.
3. **Analog Inputs** Tab
   - Displays measured and scaled **Process Values (PV)** along with alarm statuses in a tabular format.
   - PVs are displayed with the configured decimal resolution.
   - Active alarms are indicated with flashing **red bulbs**.
   - PV and alarm statuses are updated once per second.

4. **Analog Outputs** Tab
   - Each analog output channel has a **numeric up-down control** to set the scaled output count.
   - The values are transmitted to the connected device every one second.
   - The module outputs the corresponding **voltage or current signal** at the output terminals.

5. **Digital Inputs** Tab
   - Displays the **real-time high/low status**, **latched low**, and **latched high** status for each digital input channel.
   - Logic HIGH = **Red bulb (ON)**; Logic LOW = **Gray bulb (OFF)**.
   - Latched statuses include a checkbox to acknowledge/reset them.
   - Status values refresh every one second.

6. **Digital Outputs** Tab
   - Each digital output has a pair of **ON/OFF radio buttons** to control its status.
   - The selected states are written to the device every one second.
   - The device updates the output status to match the selected command.

5.6 COMS40C4 (COMS Family Devices)



1. COMS40C4 is a combo module comprising 4 analog inputs, 12 digital inputs, and 4 digital outputs.

2. The screen provides **three tabs**: Analog Inputs, Digital Inputs, and Digital Outputs.

3. **Analog Inputs** Tab
   - Displays measured and scaled **Process Values (PV)** along with alarm statuses in a tabular format.
   - PVs are displayed with the configured decimal resolution.
   - Active alarms are indicated with flashing **red bulbs**.
   - PV and alarm statuses are updated once per second.

4. **Digital Inputs** Tab
   - Displays the **real-time high/low status**, **latched low**, and **latched high** status for each digital input channel.
   - Logic HIGH = **Red bulb (ON)**; Logic LOW = **Gray bulb (OFF)**.
   - Latched statuses include a checkbox to acknowledge/reset them.
   - Status values refresh every one second.

5. **Digital Outputs** Tab
   - Each digital output has a pair of **ON/OFF radio buttons** to control its status.
   - The selected states are written to the device every one second.
   - The device updates the output status to match the selected command.

Section 6

ON-LINE I/O CALIBRATION

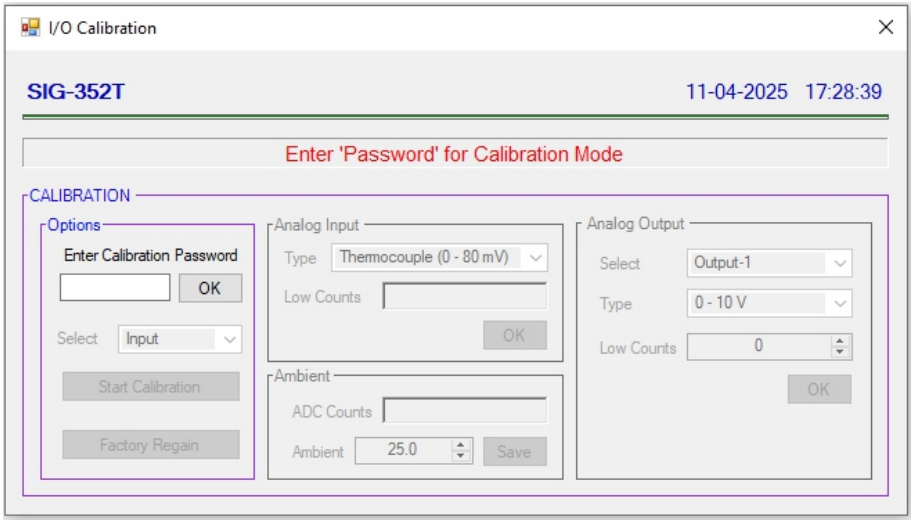
This screen opens upon selecting the **On-Line I/O Calibration** option from the **SELECT TASK** panel on the Home Screen. It is specifically available for **SIG series devices** and allows users to calibrate analog inputs, analog outputs, and ambient temperature sensing - depending on the model variant.

⚠ Important

Calibration should only be performed by trained personnel using certified voltage/current sources and precision measuring instruments in a laboratory environment.

The tool includes a **Factory Regain** feature to restore original factory calibration values. This is useful in case of errors or undesired changes made during calibration.

This interface provides a structured and guided environment for achieving precise I/O calibration in SIG devices, ensuring optimal field performance and accuracy.



Calibration Workflow

1. **Enter Password:**
   Calibration mode is protected to prevent unauthorized access. To begin, enter the password 4444.

2. **Step-by-Step Guidance**
   A text panel located above the calibration interface displays live instructions, guiding the user through each step of the process in red-highlighted text.

3. **CALIBRATION Panel**
   This main panel includes sub-panels that appear dynamically based on the selected calibration mode:
   - **Options**
   - **Analog Input**
   - **Ambient**
   - **Analog Output**

4. **Options Panel**
   Used to enter the calibration password, select the calibration type (Input / Output / Ambient), initiate or stop calibration, and restore factory defaults.

5. **Analog Input Calibration**
   - Accessible upon selecting **Input** in the Options panel.
   - Allows input type selection and 2-point calibration:
     - **Low Counts (Zero Calibration)**
     - **High Counts (Span Calibration)**

6. **Analog Output Calibration**
   - Accessible when **Output** is selected.
   - Supports channel selection (**Output-1** or **Output-2**) and output type (e.g., 0–10V, 4–20mA).
   - Involves two-point calibration:
     - **Low Counts** (e.g., 0V, 4mA)
     - **High Counts** (e.g., 10V, 20mA)

7. **Ambient Temperature Calibration**
   - Used for calibrating the onboard **ambient temperature sensor** (for CJC in thermocouple models).
   - A single-step calibration where the user inputs the current ambient temperature.

Section 7

VERSION HISTORY

Version	Release Date	Remark
1.0	01/04/2025	-----
1.1	03/07/2025	Fixed bug related to auto detection of AIMS Plus versions.

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