



AE FCM10K GUI

QUICK START GUIDE Rev0.10

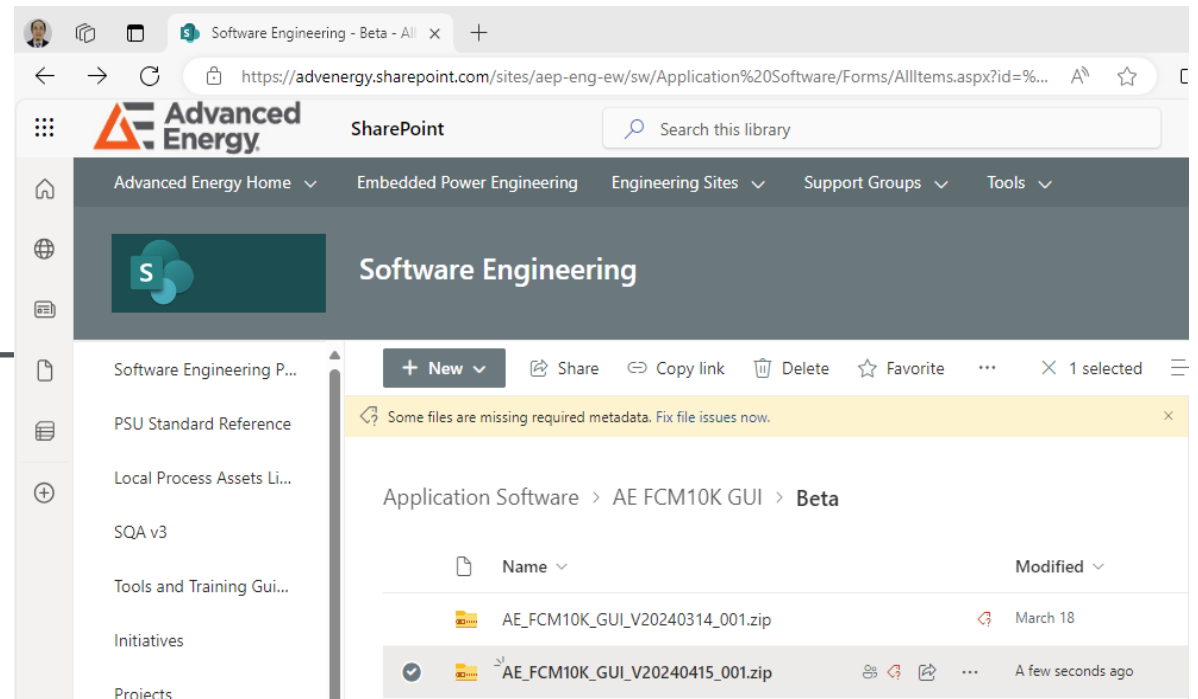
Software Package

Application package can be downloaded via SharePoint

Download Application

Select folder to download specific version of application.

- Old Development Version can be found in **Alpha** Folder
- Latest version can be found in **Beta** Folder.
- Stable Version can be found in **Release** Folder.



SharePoint Link

[Software Engineering - Beta - All Documents \(sharepoint.com\)](https://advenenergy.sharepoint.com/sites/aep-eng-ew/sw/Application%20Software/Forms/AllItems.aspx?id=%2FAE_FCM10K_GUI_V20240415_001.zip)

System Requirement

Operating System Requirement

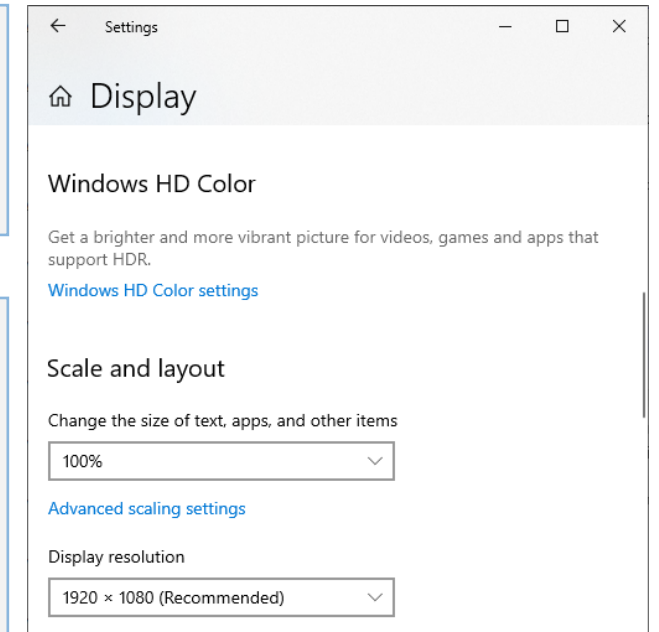
- Windows 10 OS and above

Minimum Hardware System Requirement

- 8G RAM
- 500mb Disk Space
- Dual Core Processor

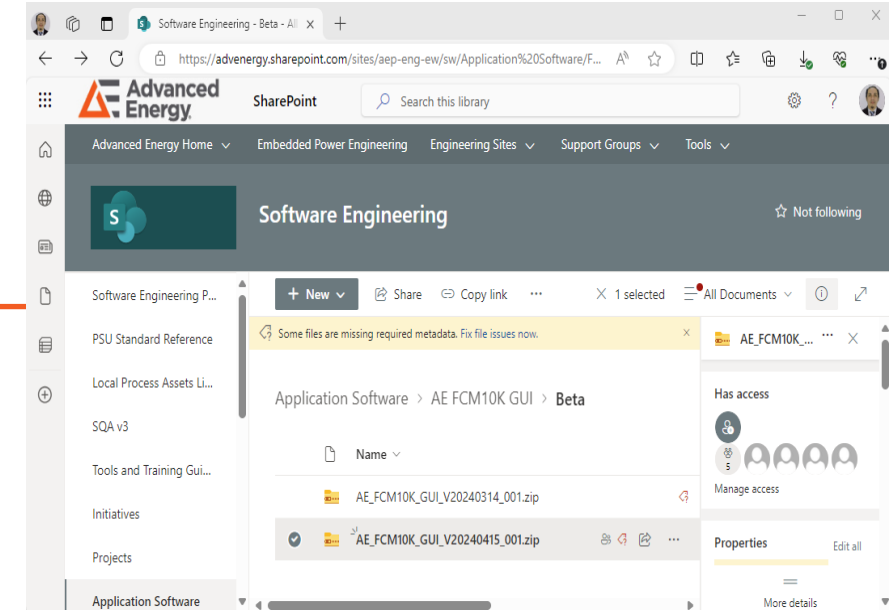
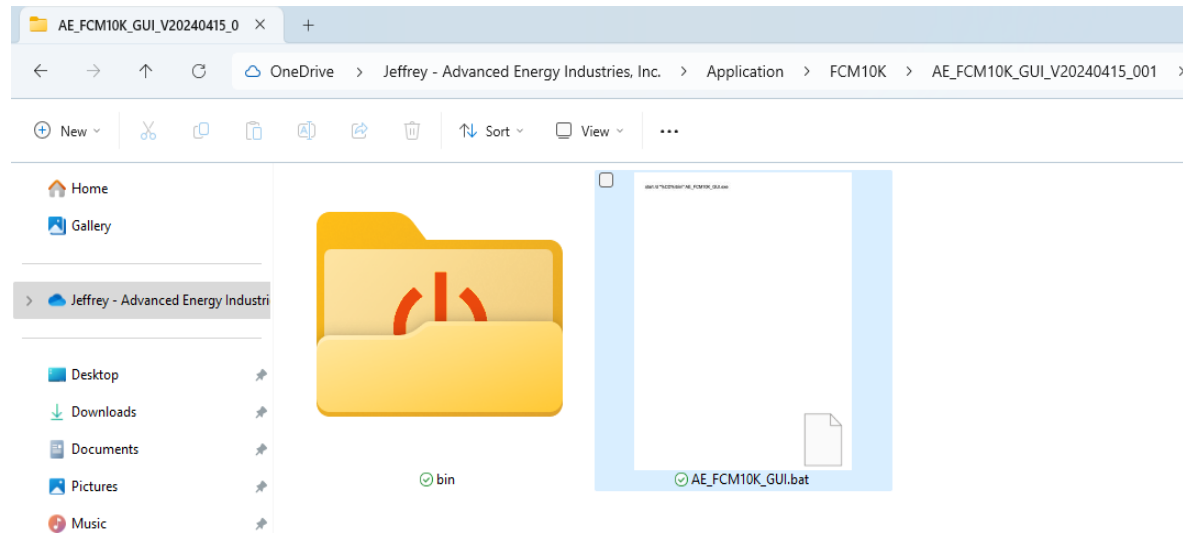
Screen Resolution Requirement

- Minimum Screen Resolution: 1024x768
- All Screen sizes with minimum 768 pixel screen height and above are supported except with screen size height of 600 (1280x600 not supported for the moment)
- Display Scale and Layout = **100%**
- Display Resolution = **1920 x1080** (Recommended)



Software Application Getting Started

Extract Downloaded Compressed File (AE_FCM10K_GUI_Vxx.xx.xx.zip)



AE_FCM10K_GUI Shortcut to Executable File

Click **AE_FCM10K_GUI** file to start the GUI.

Bin File

Bin folder contains original AE_FCM10K_GUI executable file, supporting files and reference database.

** Do not delete this folder*

Software Application

GUI Application Features

Top UI Section

- GUI Version
- Active Device
- Address of Active Device
- Active User
- Communication Status
- Application Window Button

Navigation Section

This shows Features Navigation Buttons



Main GUI Display Section

This section contain different display panel base on Press Button in the Navigation.

Software Main Features



Dashboard

- Input Readings
- Thermal Readings
- Output Readings
- Status Registers Fault Display



Monitoring & Configuration

- PSU Monitoring
- Manufacturing Information
- Basic and Advance Configuration



Scripting & Data Logging

- Modbus Command Sequence
- Save & Load Script to File
- Data Log To CSV File
- Multiple Device Address Support



Firmware Update

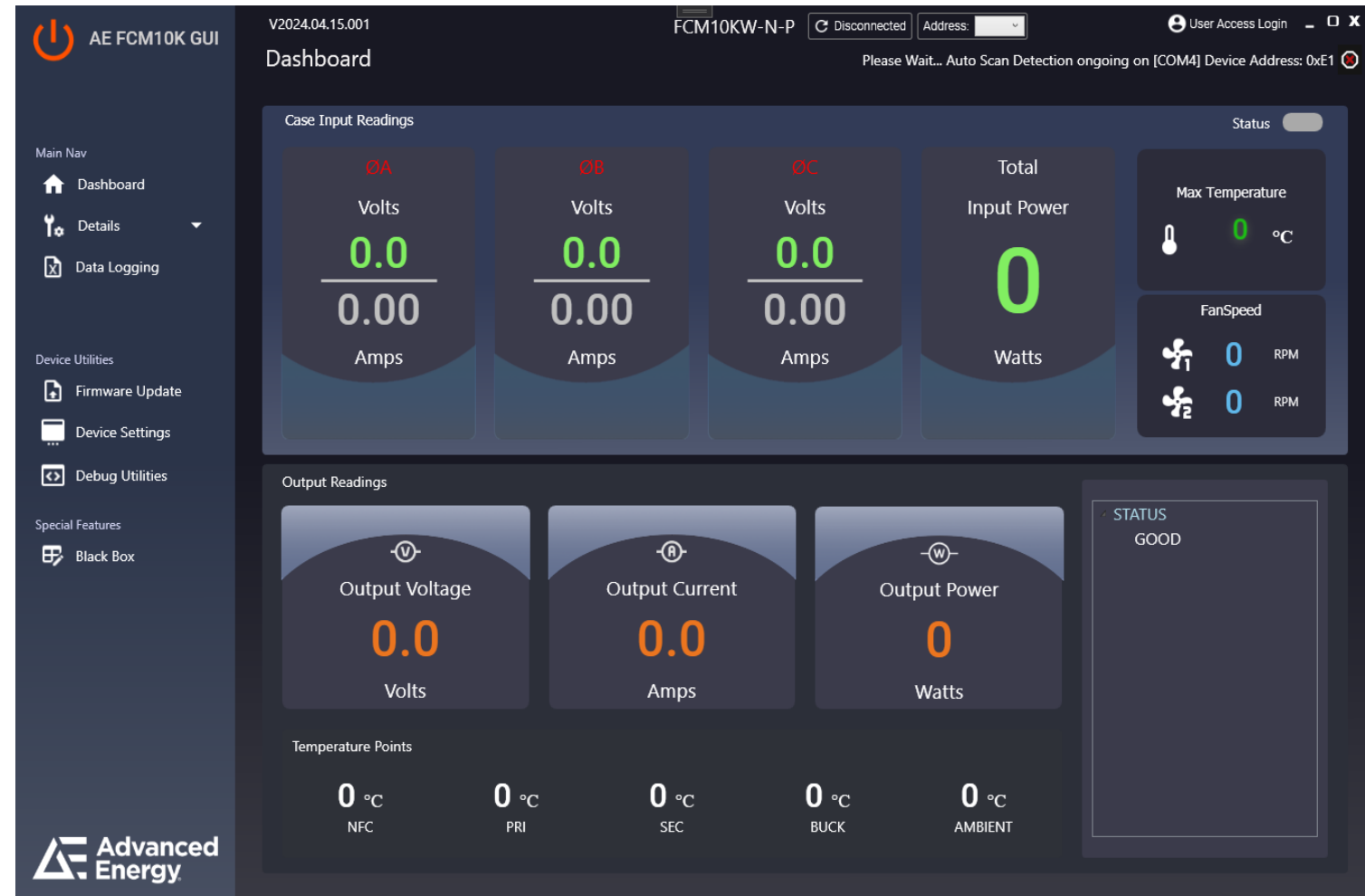
- Load Binary File
- Bootload Primary, Secondary and ISO

Main User Interface

QUICK START GUIDE

GUI Support Auto Load Configuration File. Please wait until the GUI Auto Device Detection Routine completed.

Wait until Auto Detection
Routine Completed



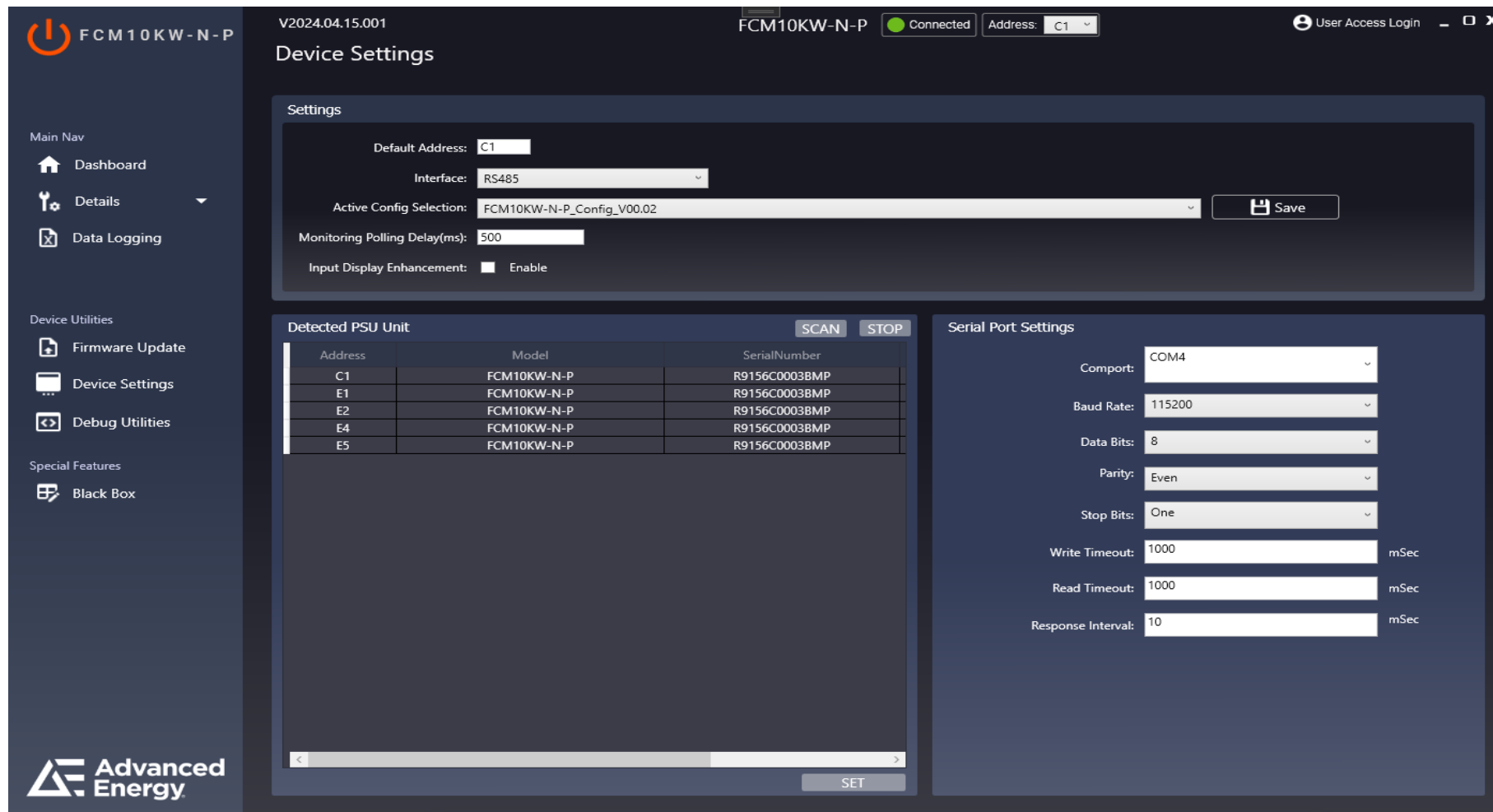
Application Device Settings

QUICK START GUIDE

Device Settings is the default window for failed auto device detection. Manually select correct Serial **Comport** and **Default Address** to make successful detection. Don't forget to press **Save**.

Note:

For this version, when Offline make sure to set correct Comport in Device Settings Page. Restart the GUI to start auto detection routine using new comport settings.



FCM10KW-N-P V2024.04.15.001 FCM10KW-N-P Connected Address: C1 User Access Login

Device Settings

Settings

Default Address: C1

Interface: RS485

Active Config Selection: FCM10KW-N-P_Config_V00.02 Save

Monitoring Polling Delay(ms): 500

Input Display Enhancement: ☐ Enable

Detected PSU Unit

Address	Model	SerialNumber
C1	FCM10KW-N-P	R9156C0003BMP
E1	FCM10KW-N-P	R9156C0003BMP
E2	FCM10KW-N-P	R9156C0003BMP
E4	FCM10KW-N-P	R9156C0003BMP
E5	FCM10KW-N-P	R9156C0003BMP

SCAN STOP

Serial Port Settings

Comport: COM4

Baud Rate: 115200

Data Bits: 8

Parity: Even

Stop Bits: One

Write Timeout: 1000 mSec

Read Timeout: 1000 mSec

Response Interval: 10 mSec

SET

Scan Multiple Device

QUICK START GUIDE

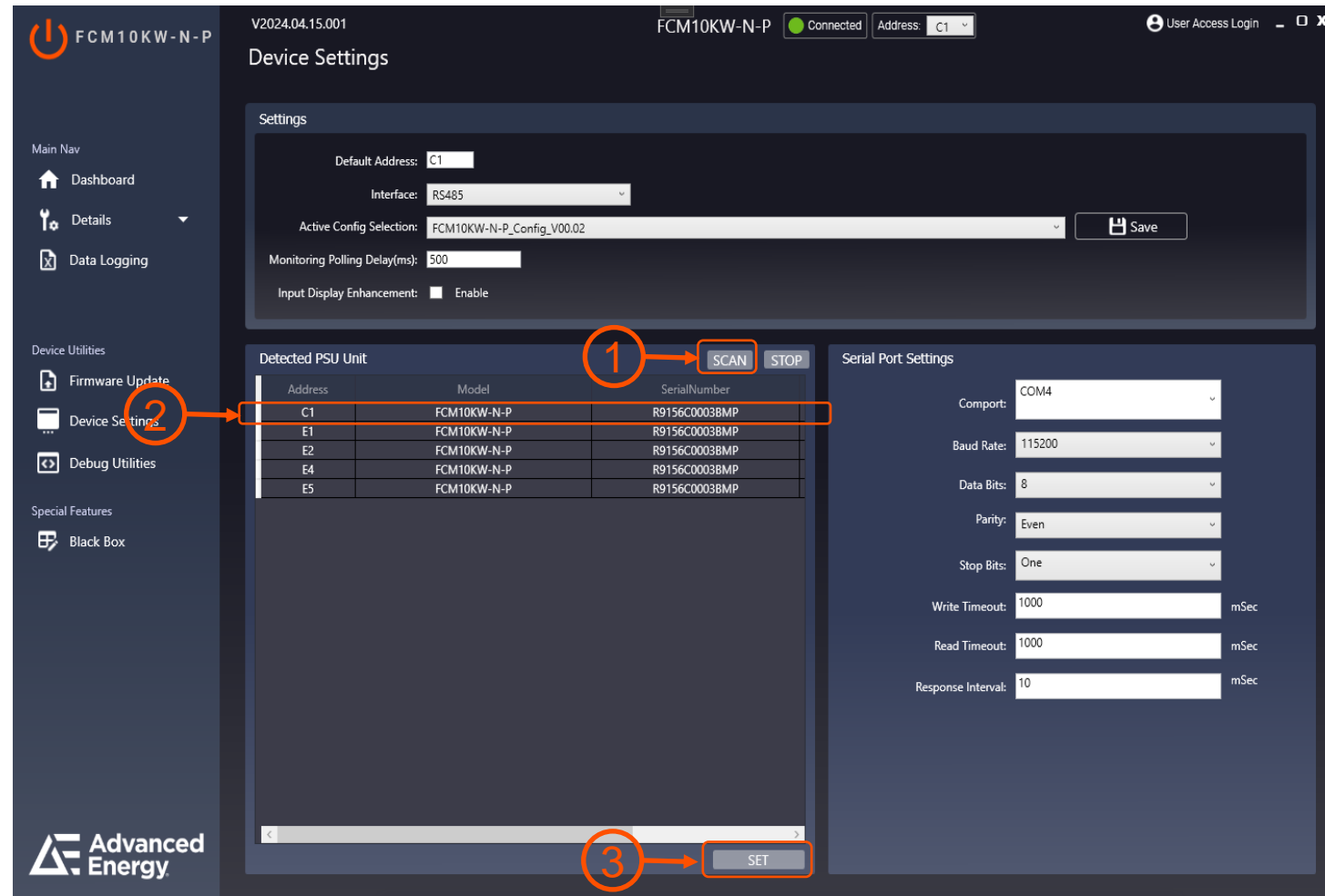
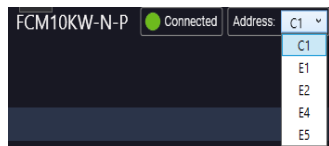
Device Settings supports multiple device detection. Press **SCAN** button to start device scanning.

Step 1: Press **SCAN** Button.

Step 2: Selected Specific Device.

Step 3: Press **SET** Button to connect on selected device.

Note:
Another option to Choose device is to select device address from Top UI Section



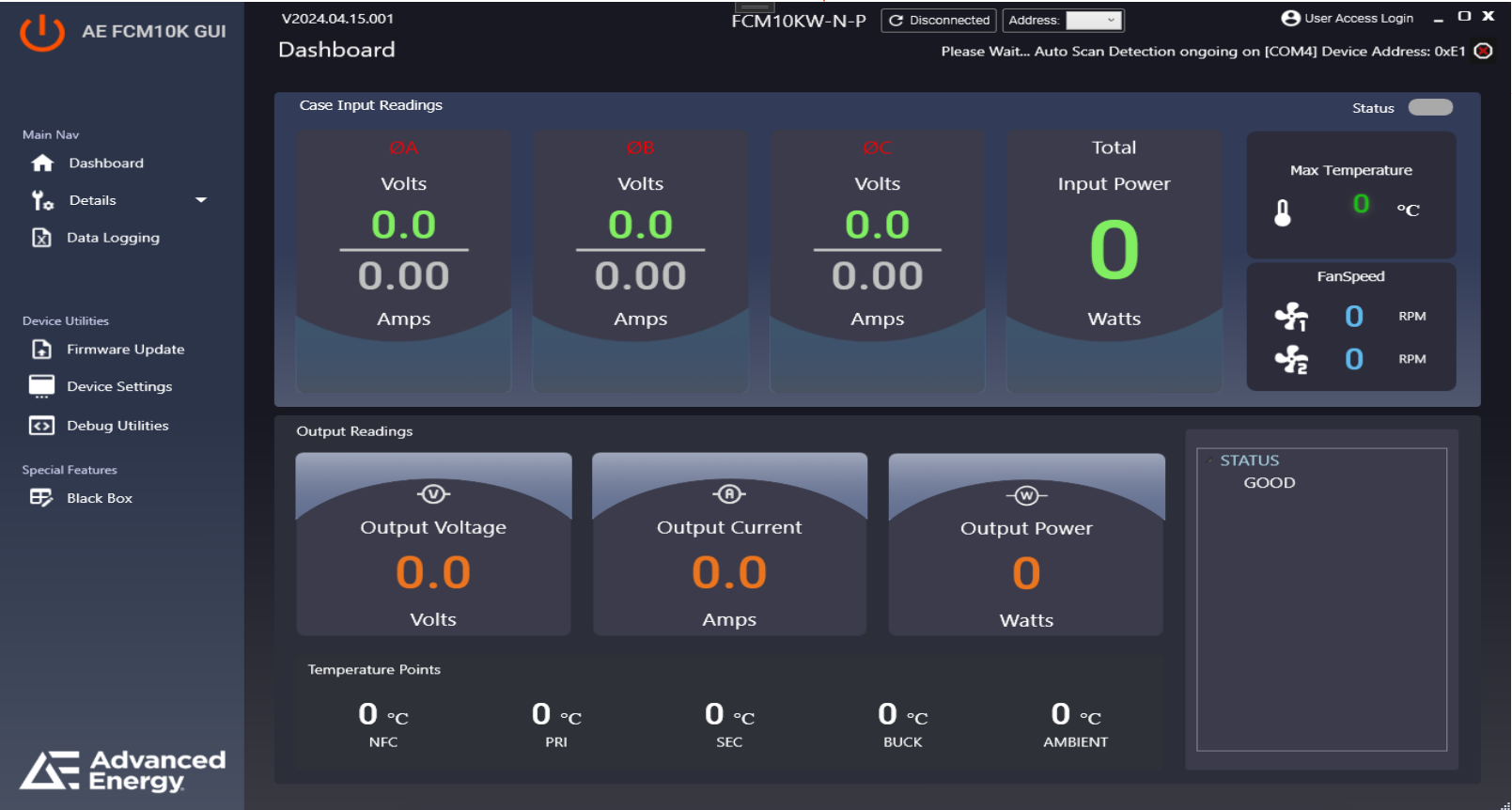
Dashboard - Offline

QUICK START GUIDE

Offline means no Device Detected using Default Address and Serial Comport.

Offline Status

Power Button Off



Gray is the color of Offline Status

QUICK START GUIDE

Dashboard is the default section for Online Mode. Online means GUI Detected the connected Device.

Power Button On/Off

Case Input Readings Section

Output Reading Section

Temperature Points Section

FCM10KW-N-P

V2024.04.15.001

FCM10KW-N-P

Connected

Address: C1

User Access Login

Main Nav

- Dashboard
- Details
- Data Logging

Device Utilities

- Firmware Update
- Device Settings
- Debug Utilities

Special Features

- Black Box

Case Input Readings

OA

Volts

208.0

5.00

Amps

OB

Volts

207.0

4.50

Amps

OC

Volts

206.0

4.59

Amps

Total

Input Power

11200

Watts

Status

Max Temperature

30 °C

FanSpeed

10500 RPM

9900 RPM

Output Readings

Output Voltage

54.5

Volts

Output Current

183.5

Amps

Output Power

10000

Watts

Temperature Points

30 °C

NFC

26 °C

PRI

27 °C

SEC

28 °C

BUCK

26 °C

AMBIENT

STATUS

GOOD

Detailed Status Register Display

Status is Green if Good and Dark Red if with faults

Max Temperature and Fan Speed Section

Detailed Status Register Display

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Can be accessible via Navigation Button, Context Menu or by clicking displayed parameter in the Dashboard.

Input Monitoring

Show Output Trimming User Inputs

Output Monitoring

FCM10KW - N - P

V2024.04.15.001

FCM10KW - N - P

Connected

Address: C1

User Access Login

Details

Monitoring

Information

Configuration

Input

208.0 v

5.00 A

3800 W

207.0 v

4.50 A

3750 W

206.0 v

4.59 A

3756 W

Output

VOUT 54.5

IOUT 183.5

POUT 10000

TEMPERATURE POINTS

26.0 °C

30 °C

27 °C

28 °C

26 °C

FAN SPEED

Fan Speed1 10500 RPM

Fan Speed2 9900 RPM

Advanced Energy

Temperature Points Monitoring

Fan Speed Monitoring

Output Trimming Steps

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Output Trimming feature was part of Monitoring Section. See Steps below to update Vref and Iref Trimming.

Step 1: Click Show Output Trimming to expand Vref and Iref User Input Section.

[Show Output Trimming](#) ➔

Step 2: Set Desired Vref or Iref Value

Vref Trim Value (V)

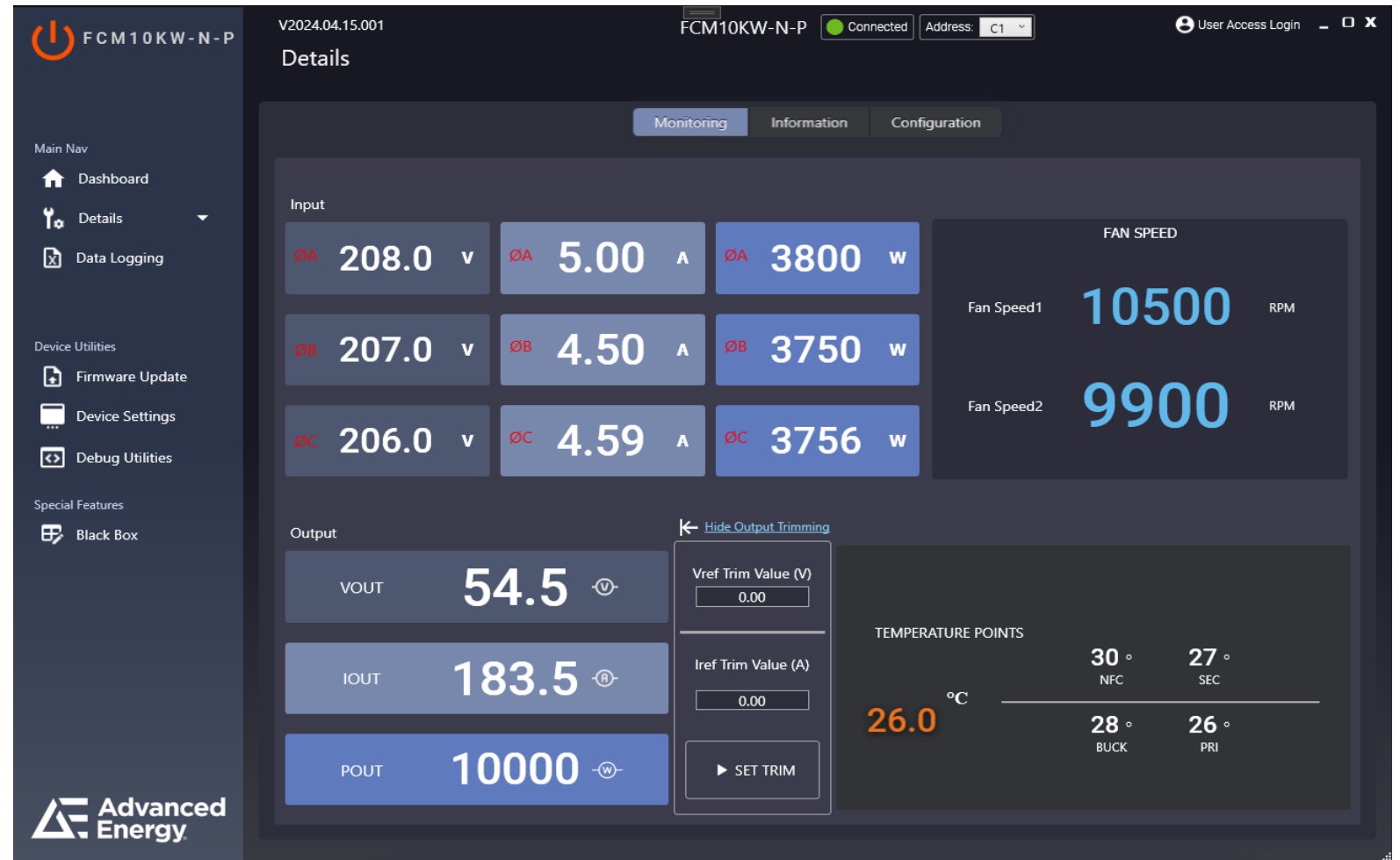
Iref Trim Value (A)

Step 3: Press Set Trim Button.

▶ SET TRIM

Step 4:

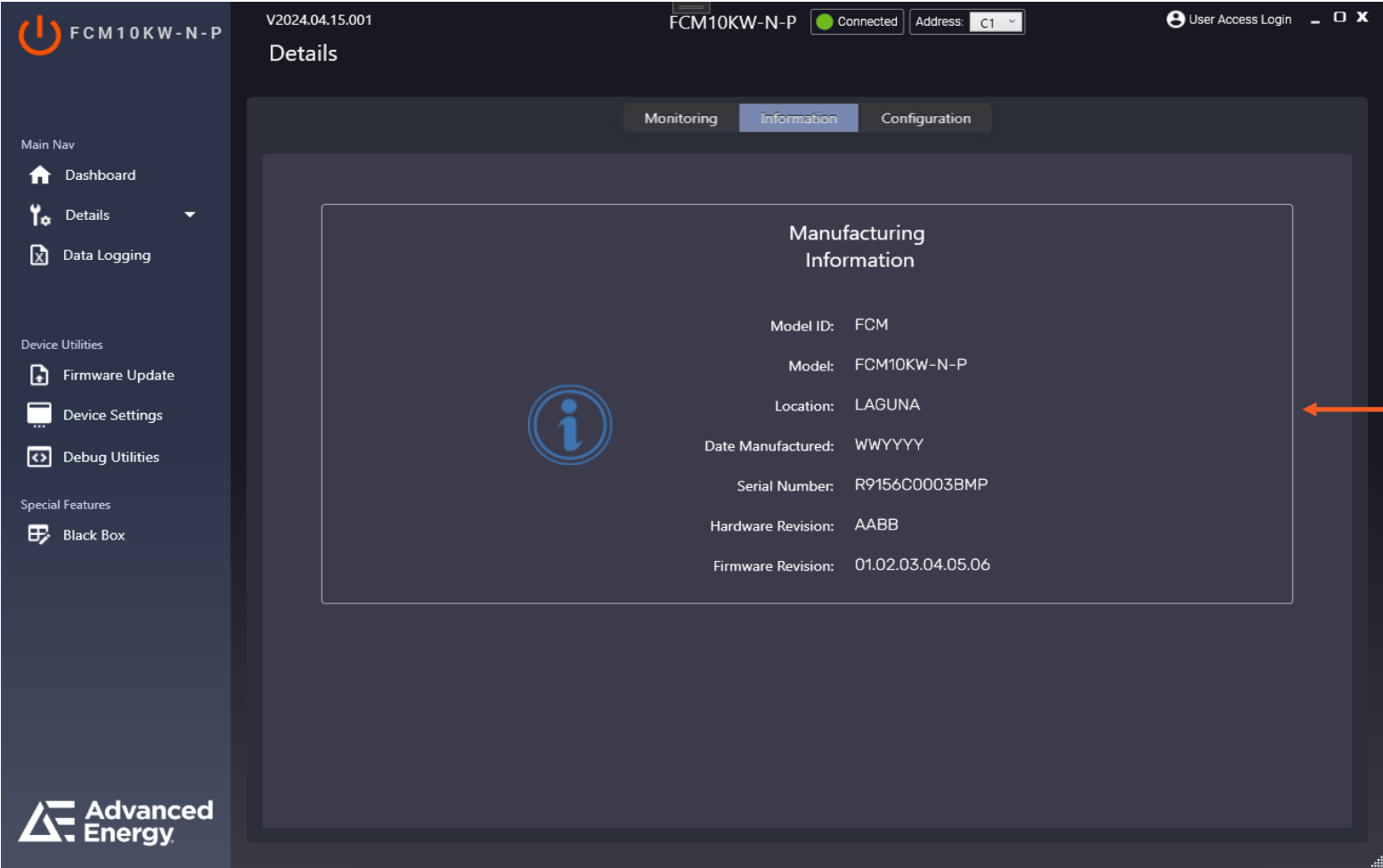
- Then See Update on VOUT or IOU



The screenshot displays the FCM10KW-N-P GUI interface. The top header shows the device name, version (V2024.04.15.001), and connection status (Connected). The left sidebar contains navigation options: Main Nav (Dashboard, Details, Data Logging), Device Utilities (Firmware Update, Device Settings, Debug Utilities), and Special Features (Black Box). The main content area is divided into three tabs: Monitoring, Information, and Configuration. The Monitoring tab is active, showing input and output parameters. The Input section displays three rows of data: ØA (208.0 V, 5.00 A, 3800 W), ØB (207.0 V, 4.50 A, 3750 W), and ØC (206.0 V, 4.59 A, 3756 W). The Output section displays VOUT (54.5 V), IOU (183.5 A), and POUT (10000 W). The right sidebar shows Fan Speed (10500 RPM, 9900 RPM) and Temperature Points (30 °C NFC, 27 °C SEC, 28 °C BUCK, 26 °C PRI). The bottom right corner features a 'Show Output Trimming' button and a 'SET TRIM' button.

QUICK START GUIDE

Can be accessible via Navigation Context Menu.




PSU Manufacturing Information


Detail – Basic Configuration


QUICK START GUIDE


Can be accessible via Navigation Context Menu.

 FCM10KW-N-P


Main Nav


 Dashboard


 Details

 Data Logging


Device Utilities

 Firmware Update

 Device Settings

 Debug Utilities

Special Features

 Black Box

V2024.04.15.001

FCM10KW-N-P

Connected

Address: C1

User Access Login

Details

Monitoring

Information

Configuration

Presentation last saved: Just now

IO Polarity

PSON Active Level:

☒ Active High

☐ Active Low

PSKILL Active Level:

☒ Active High

☐ Active Low

Output Config

Operation Mode:

☒ Current Source

☐ Voltage Source

Control Mode:

☒ Analog Mode

☐ Digital Mode

Device Address:

00

SET

Baud Rate Configuration:

9600

Fan Speed Override (%):

0

Vref Trim Value (V):

0.00

Max Vref Trim Limit (V):

0.00

Iref Trim Value (A):

0.00

Max Iref Trim Limit (A):

0.00


Show Advance Configuration Details

Ready to Configure

Summary Update

Refresh Read

Start Update

 Advanced Energy

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Detail – Updating Device Address Steps

QUICK START GUIDE

This feature is available only at Online Mode. When Changing address, set only the Device Address and don't change on any config parameter values to avoid communication error.

Step 1: Set Device Address Only.

Device Address:

Step 2: Click **SET** Button.

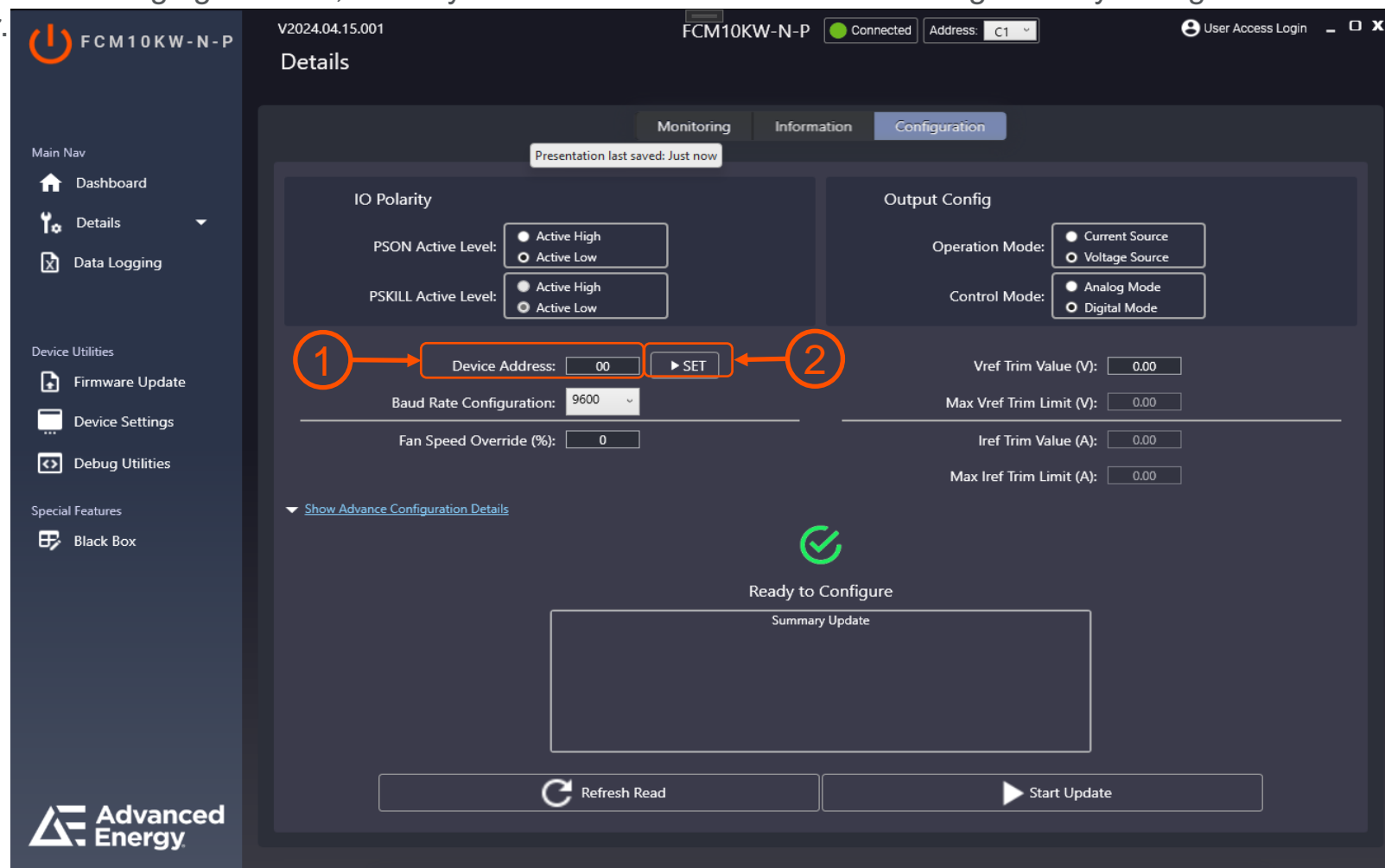
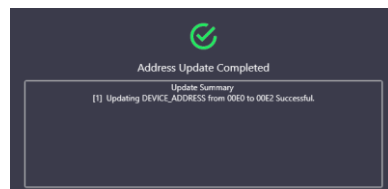
▶ SET

Step 3: Wait until Configuration Update Completed.

Please wait.. Changing Device Address Ongoing..

Step 4:

- Address Update Completed (Successful)
- Address Update Failed (Value not set)



Detail – Basic Configuration Steps

QUICK START GUIDE

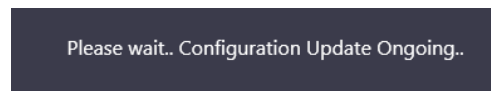
Configuration Feature only available at Online Mode. Follow below Configuration Steps.

Step 1: Set value in any Configuration Parameter value except Device address.

Step 2: Click Start Update.

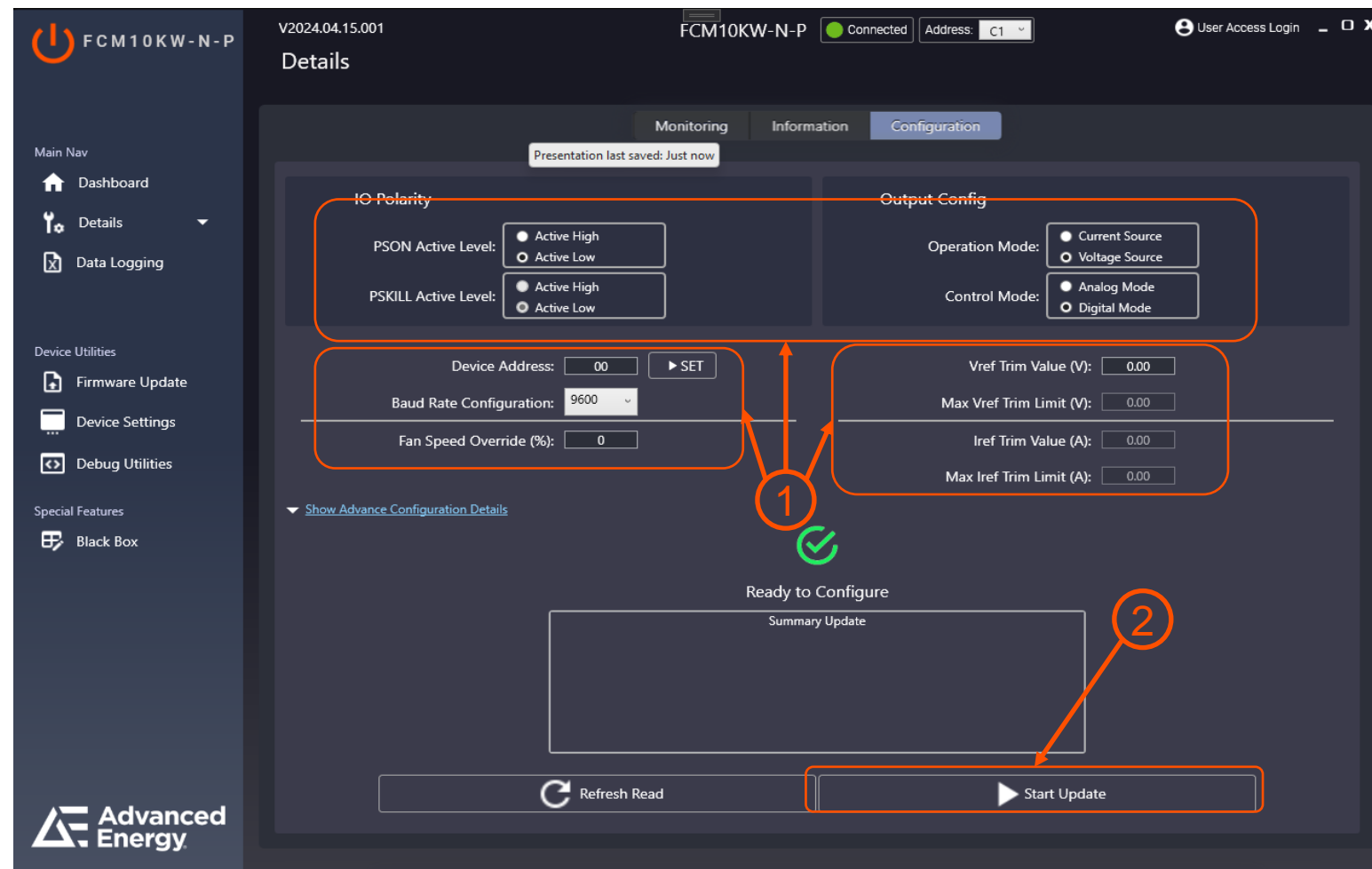
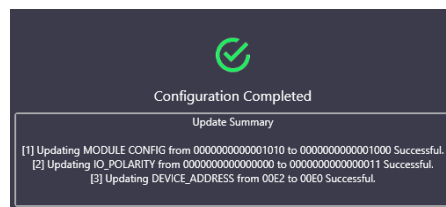


Step 3: Wait until Configuration Update Completed.



Step 4:

- Configuration Completed (Successful)
- Configuration Failed (Value not set)



QUICK START GUIDE

Can be accessible via Navigation Button. This section was intended for Command Sequence Generation and Data Logging.

COMMAND SELECTION

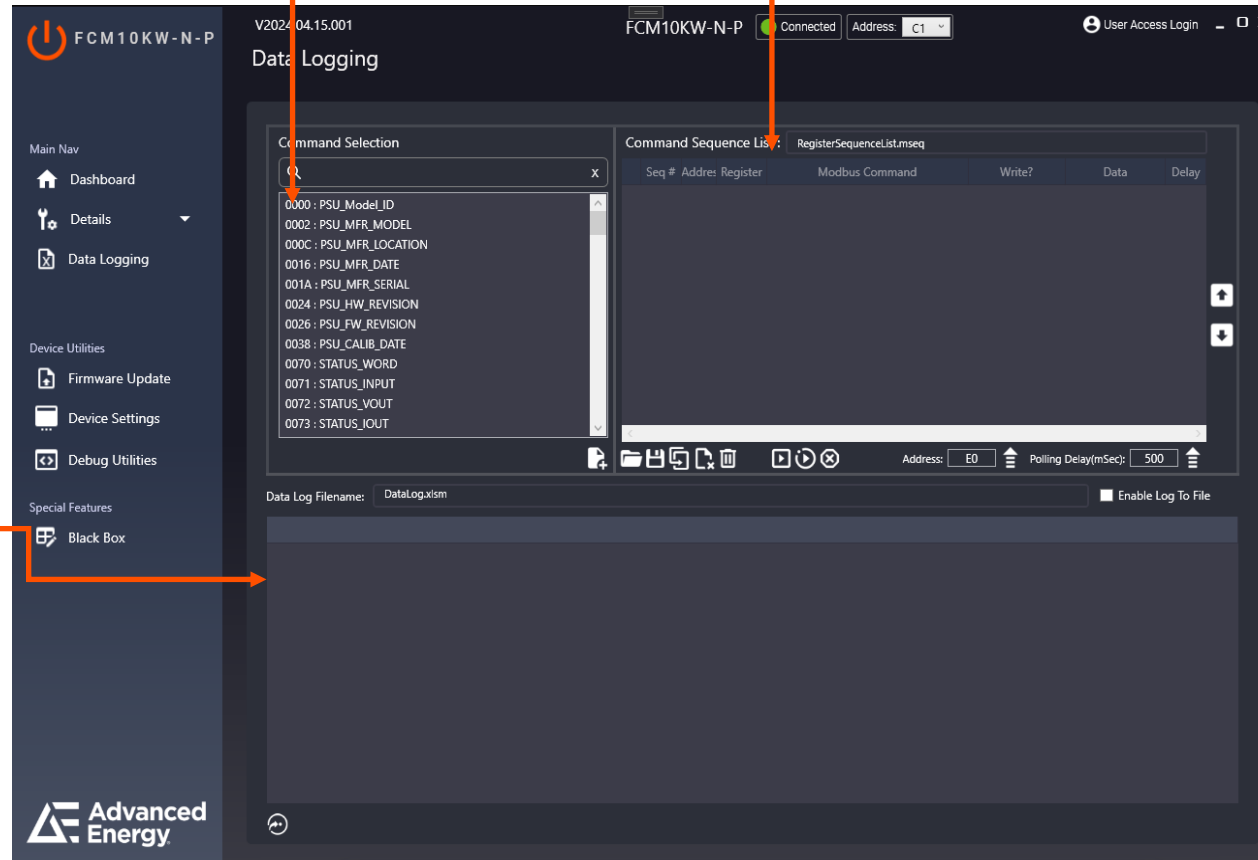
Listing of Supported Command Register from Active Device

COMMAND SEQUENCE LIST (SCRIPT)

User Command List, it can be also re-arrange base on user preferred sequence.

DATA LOGGING DISPLAY

This will display Data Log base from Command Sequence List.



The screenshot displays the FCM10KW-N-P GUI interface. The top bar shows the device name, version (V2024.04.15.001), and connection status (Connected). The sidebar on the left contains navigation buttons for Dashboard, Details, Data Logging, Device Utilities, and Special Features. The main panel is divided into two sections: 'Command Selection' and 'Command Sequence List'. The 'Command Selection' section lists supported command registers, including PSU_Model_ID, PSU_MFR_MODEL, PSU_MFR_LOCATION, PSU_MFR_DATE, PSU_MFR_SERIAL, PSU_HW_REVISION, PSU_FW_REVISION, PSU_CALIB_DATE, STATUS_WORD, STATUS_INPUT, STATUS_VOUT, and STATUS_IOUT. The 'Command Sequence List' section shows a table with columns for Seq #, Address, Register, Modbus Command, Write?, Data, and Delay. The 'Data Logging Display' section at the bottom shows the 'Data Log Filename' as DataLog.xlsm and an 'Enable Log To File' checkbox.

Quick Scripting Steps


QUICK START GUIDE

See Steps below to Create Command Sequence and Log data to file.

Step 1: Add Command from command selection.

Step 2: Click Enable Log to File to input CSV filename.

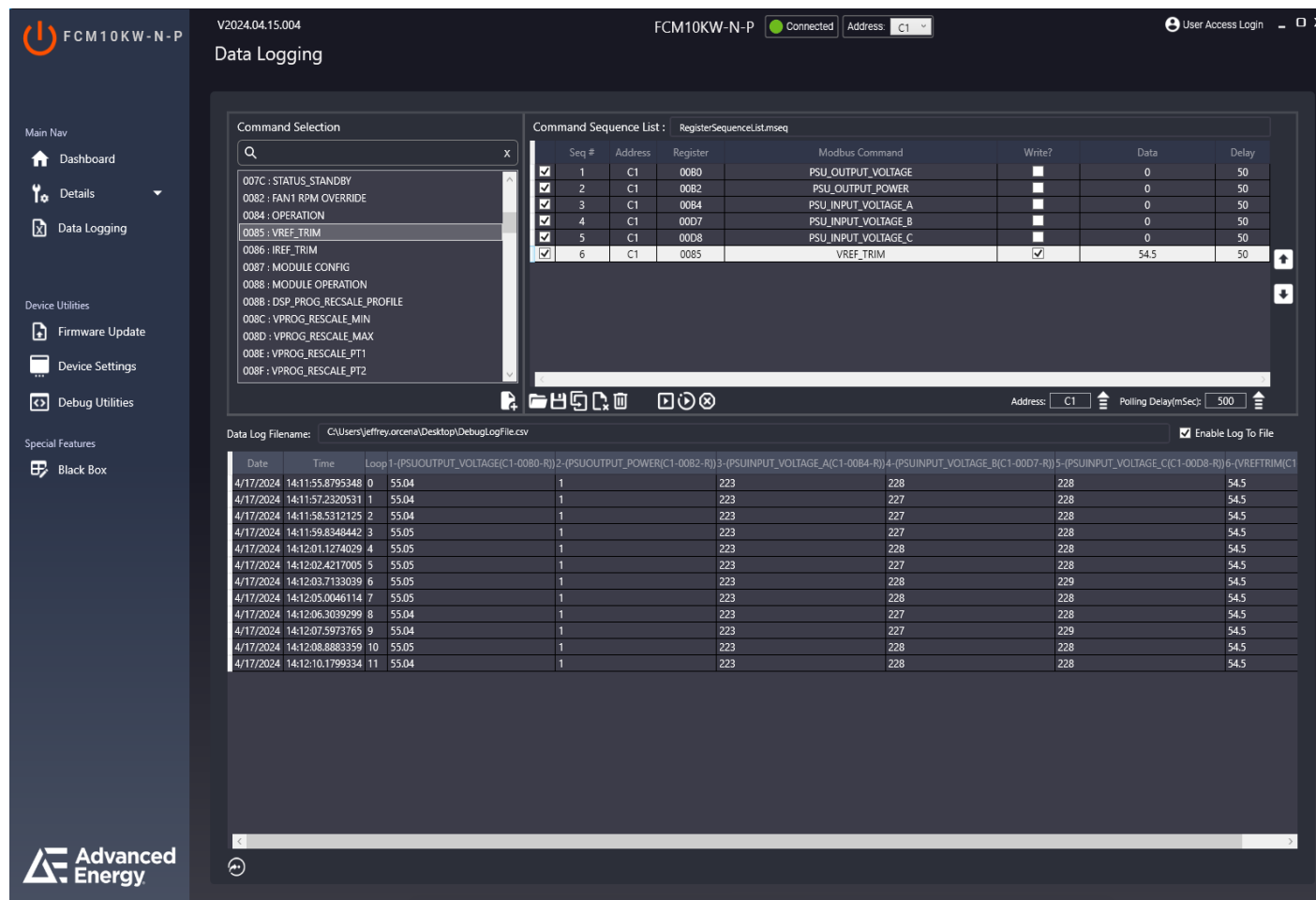


Step 3: Click Continuous Send of Registers  to start Command Execution.

Step 4: Click **Stop**  button to end execution.

Step 5: Open CSV file to Review Data Log

Note: Generated Command Sequence can be Save and Load into *.mseq file. Compatible from AE Modbus Tool *.mseq file.



V2024.04.15.004 FCM10KW-N-P Connected Address: C1 User Access Login

Data Logging

Command Selection

- 007C : STATUS_STANDBY
- 0082 : FAN1 RPM OVERRIDE
- 0084 : OPERATION
- 0085 : VREF_TRIM
- 0086 : IREF_TRIM
- 0087 : MODULE CONFIG
- 0088 : MODULE OPERATION
- 008B : DSP_PROG_RESCALE_PROFILE
- 008C : VPROG_RESCALE_MIN
- 008D : VPROG_RESCALE_MAX
- 008E : VPROG_RESCALE_PT1
- 008F : VPROG_RESCALE_PT2

Command Sequence List : RegisterSequenceList.mseq

Seq #	Address	Register	Modbus Command	Write?	Data	Delay
1	C1	0080	PSU_OUTPUT_VOLTAGE	<input type="checkbox"/>	0	50
2	C1	0082	PSU_OUTPUT_POWER	<input type="checkbox"/>	0	50
3	C1	0084	PSU_INPUT_VOLTAGE_A	<input type="checkbox"/>	0	50
4	C1	00D7	PSU_INPUT_VOLTAGE_B	<input type="checkbox"/>	0	50
5	C1	00D8	PSU_INPUT_VOLTAGE_C	<input type="checkbox"/>	0	50
6	C1	0085	VREF_TRIM	<input checked="" type="checkbox"/>	54.5	50

Data Log Filename: C:\Users\jeffrey.orena\Desktop\DebugLogFile.csv ☒ Enable Log To File

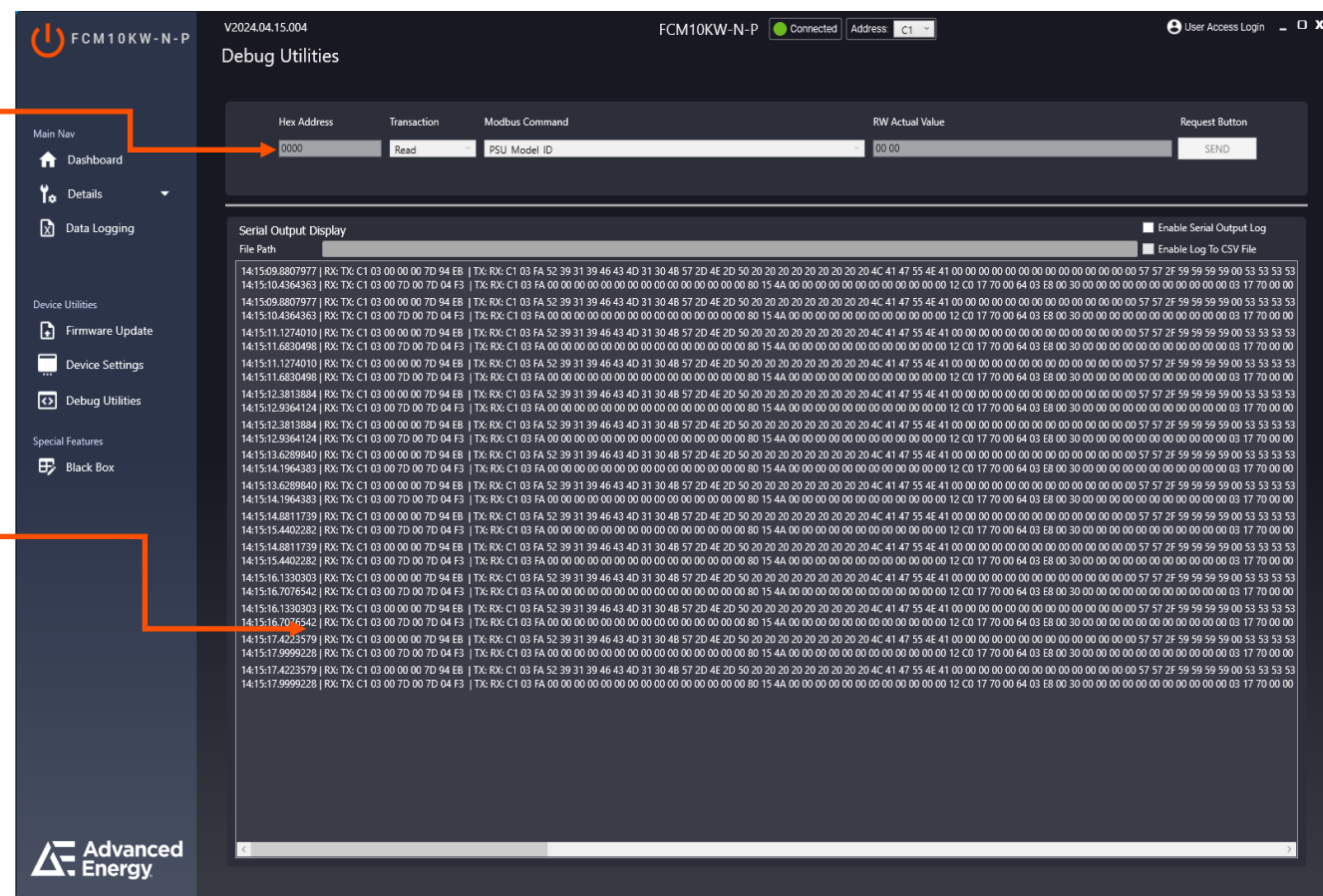
Date	Time	Loop	1-(PSUOUTPUT_VOLTAGE(C1-0080-R))	2-(PSUOUTPUT_POWER(C1-0082-R))	3-(PSUINPUT_VOLTAGE_A(C1-0084-R))	4-(PSUINPUT_VOLTAGE_B(C1-00D7-R))	5-(PSUINPUT_VOLTAGE_C(C1-00D8-R))	6-(VREFTRIM(C1-0085-R))
4/17/2024	14:11:55.8795348	0	55.04	223	228	228	228	54.5
4/17/2024	14:11:57.2320531	1	55.04	223	227	228	228	54.5
4/17/2024	14:11:58.5312125	2	55.04	223	227	228	228	54.5
4/17/2024	14:11:59.8348442	3	55.05	223	227	228	228	54.5
4/17/2024	14:12:01.1274029	4	55.05	223	228	228	228	54.5
4/17/2024	14:12:02.4217005	5	55.05	223	227	228	228	54.5
4/17/2024	14:12:03.7133039	6	55.05	223	228	229	228	54.5
4/17/2024	14:12:05.0046114	7	55.05	223	228	228	228	54.5
4/17/2024	14:12:06.3039299	8	55.04	223	227	228	228	54.5
4/17/2024	14:12:07.5973765	9	55.04	223	227	229	228	54.5
4/17/2024	14:12:08.8883359	10	55.05	223	228	228	228	54.5
4/17/2024	14:12:10.1799334	11	55.04	223	228	228	228	54.5

Advanced Energy

Can be accessible via Navigation Button. This section was intended for debugging and checking purposes only. It will display Actual Communication transaction between PSU device and the AE Standard GUI.

Disabled for the moment. Use Data Log Feature for individual command registers.

This is the Real Time Transaction Log generated when Send Request Execution Initiated in Command Sequence and Monitoring Mode.



Firmware Update

QUICK START GUIDE

Can be accessible via Navigation Button.

FIRMWARE SETTINGS

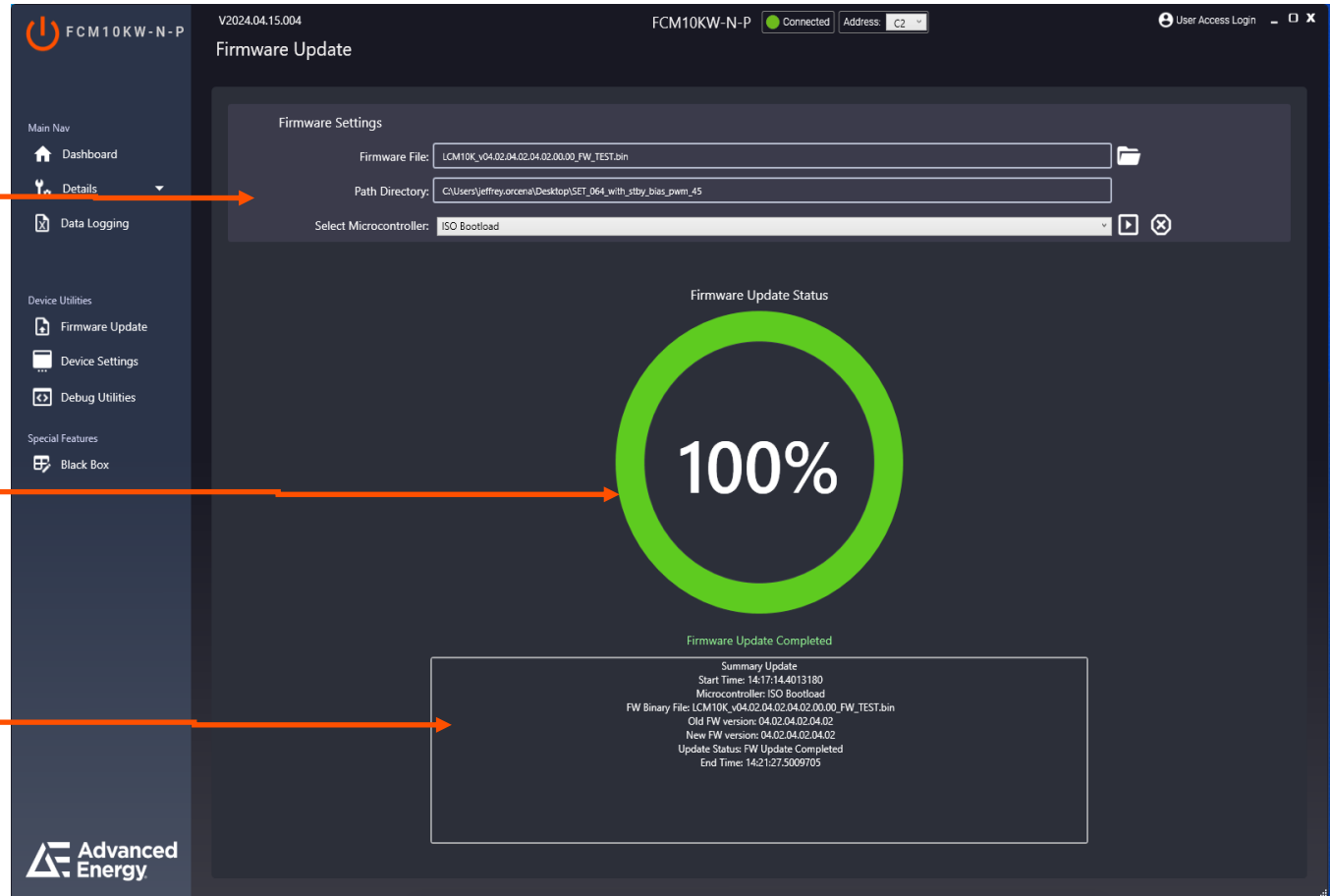
Select Microcontroller for update and load hex or binary file.

FIRMWARE UPDATE STATUS

Display firmware update progress.

Summary Update

Display firmware update summary report.



The screenshot displays the 'Firmware Update' interface for the FCM10KW-N-P device. The top bar shows the device name, version (V2024.04.15.004), and connection status (Connected). The left sidebar contains navigation options: Main Nav (Dashboard, Details, Data Logging), Device Utilities (Firmware Update, Device Settings, Debug Utilities), and Special Features (Black Box). The main content area is divided into three sections: 'Firmware Settings' with fields for 'Firmware File' (LCM10K_v04.02.04.02.00.00_FW_TEST.bin) and 'Path Directory' (C:\Users\jeffrey.orcena\Desktop\SET_064_with_stby_bias_pwm_45), and a 'Select Microcontroller' dropdown set to 'ISO Bootload'; 'Firmware Update Status' showing a large green progress circle at 100%; and 'Firmware Update Completed' with a summary report box.

Firmware Settings

- Firmware File: LCM10K_v04.02.04.02.00.00_FW_TEST.bin
- Path Directory: C:\Users\jeffrey.orcena\Desktop\SET_064_with_stby_bias_pwm_45
- Select Microcontroller: ISO Bootload

Firmware Update Status

100%

Firmware Update Completed

Summary Update
Start Time: 14:17:14.4013180
Microcontroller: ISO Bootload
FW Binary File: LCM10K_v04.02.04.02.00.00_FW_TEST.bin
Old FW version: 04.02.04.02.00.00
New FW version: 04.02.04.02.00.00
Update Status: FW Update Completed
End Time: 14:21:27.5009705

Firmware Update Steps

QUICK START GUIDE

See Steps Below for Firmware Update.

Step 1: Select Microcontroller.



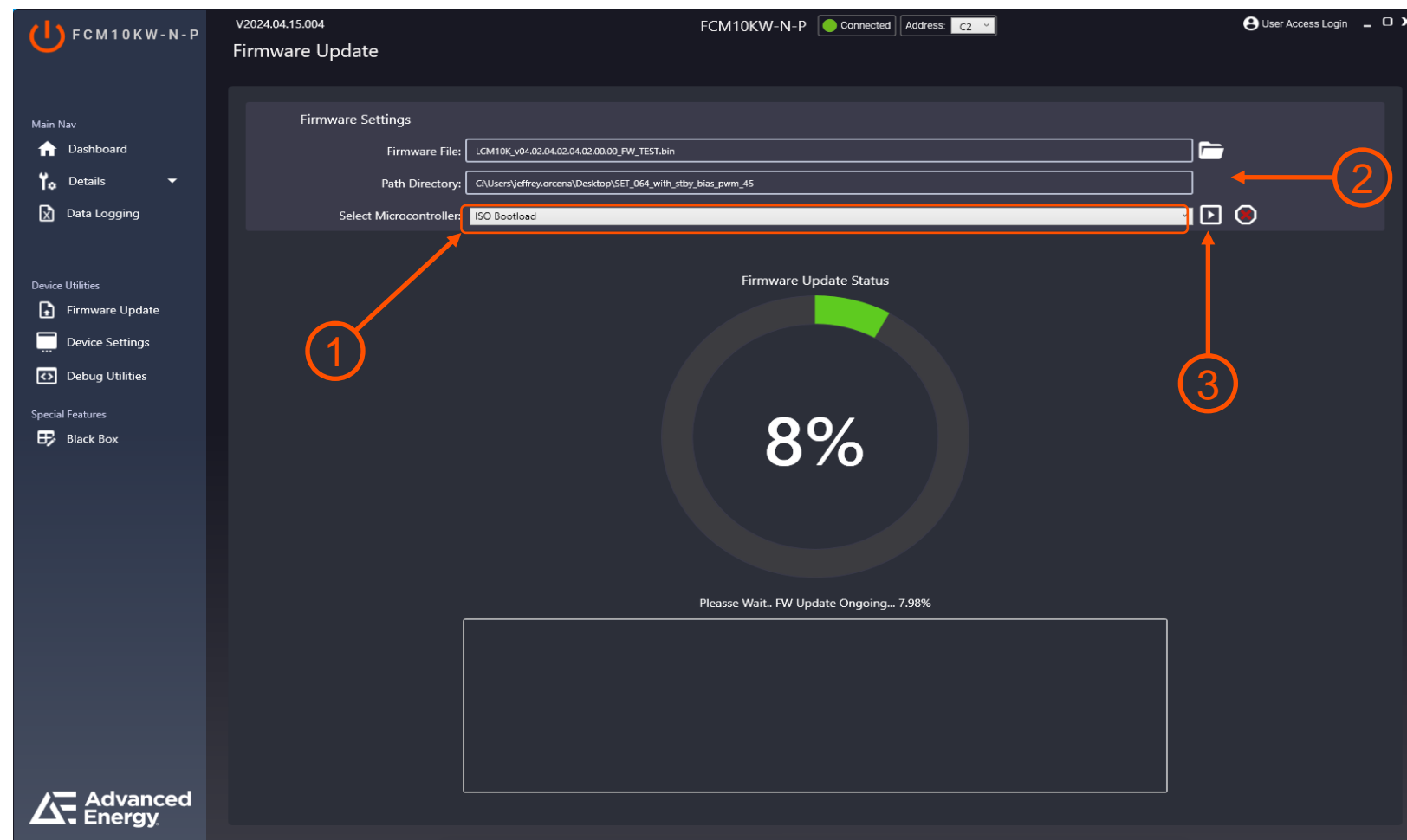
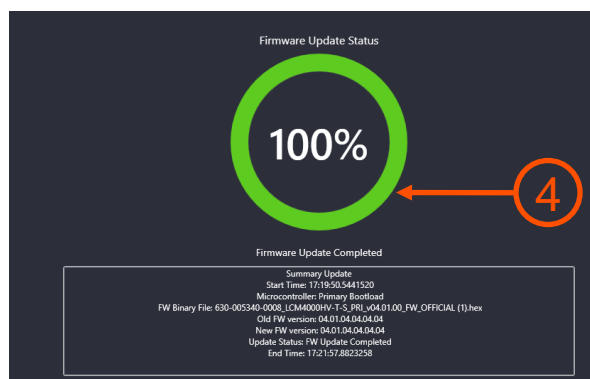
Step 2: Load Firmware Hex File.



Step 3: Click **Play Button** to start firmware update.



Step 4: Wait until firmware update completed.



QUICK START GUIDE

Can be accessible via Navigation Button.

File Record

Available Record from File 1 to File 10.

Read Record File Button


Execute File Record Reading.

Load From CSV

Get Record from CSV from file directory.

Save To CSV

Save Read Record File to CSV file.

 FCM10KW-N-P

Dashboard

Details

Data Logging

Device Utilities

Firmware Update

Device Settings

Debug Utilities

Special Features

Black Box

V2024.04.15.004

FCM10KW-N-P

Connected

Address: C1

User Access Login

Black Box

Select File Record : File Record 1

Read Record File

Load From CSV

Save To CSV

CSV FilePath :

Offset	Length	Description	Raw Data (Hex)	Actual Data
1559	2	FAULT_RECORD_STATUS_FAN_1_2	0A68	BITREGISTER00 BITREGISTER01 FAN_1_SPEED_OVERRIDDEN BITREGISTER05 FAN_2_FAULT BITREGISTER09 BITREGISTER08
1560	2	FAULT_RECORD_PSU_OUTPUT_VOLTAGE	0000	0
1561	2	FAULT_RECORD_PSU_OUTPUT_CURRENT	0000	0
1562	2	FAULT_RECORD_PSU_OUTPUT_POWER	0044	68
1563	2	FAULT_RECORD_PSU_OUTPUT_VOLTAGE	0000	0
1564	2	FAULT_RECORD_PSU_INPUT_VOLTAGE_A	0000	0
1565	2	FAULT_RECORD_PSU_INPUT_CURRENT_A	12C0	48
1566	2	FAULT_RECORD_PSU_INPUT_VOLTAGE_B	0000	0
1567	2	FAULT_RECORD_PSU_INPUT_CURRENT_B	0003	0.03
1568	2	FAULT_RECORD_PSU_INPUT_VOLTAGE_C	1770	6000
1569	2	FAULT_RECORD_PSU_INPUT_CURRENT_C	0000	0
1570	2	FAULT_RECORD_PSU_INPUT_POWER_TOTAL	0000	0
1571	2	FAULT_RECORD_TEMP1-PR1	0000	0
1572	2	FAULT_RECORD_TEMP2-SEC	0000	0
1573	2	FAULT_RECORD_TEMP3-BUCK	0001	0.01
1574	2	FAULT_RECORD_TEMP4-AMBIENT	0000	0
1575	2	FAULT_RECORD_TEMP5-NFC	0122	2.9
1576	2	FAULT_RECORD_PSU_FAN1	0000	0
1577	2	FAULT_RECORD_PSU_FAN2	0000	0
1578	2	FAULT_RECORD_PSU_STANDBY_VOLTAGE	0000	0
1579	2	FAULT_RECORD_PSU_STANDBY_CURRENT	0000	0
1580	2	FAULT_RECORD_PSU_MODULE_CONFIG	0000	0
1581	2	FAULT_RECORD_PSU_VREF_TRIM	0000	0
1582	2	FAULT_RECORD_PSU_IREF_TRIM	0000	0
1583	2	FAULT_RECORD_PSU_BAUD_RATE_CONFIG	0000	0
1584	2	FAULT_RECORD_PSU_VREF_MAX_LIMIT	0000	0
1585	2	FAULT_RECORD_PSU_IREF_MAX_LIMIT	0000	0
1586	2	FAULT_RECORD_PSU_PRI_ADP_UART_ERROR_COUNT	0000	0
1587	2	FAULT_RECORD_PSU_SEC_PRI_ADP_UART_ERROR_COUNT	0000	0
1588	2	FAULT_RECORD_PSU_SEC_LOGIC_ADP_UART_ERROR_COUNT	0000	0
1589	2	FAULT_RECORD_PSU_LOGIC_ADP_UART_ERROR_COUNT	0000	0
1590	4	FAULT_RECORD_PSU_TOTAL_TIME	00000000	0
1592	4	FAULT_RECORD_PSU_TIME_SINCE_LAST_ON	00000000	0

Black Box Record File Read Steps

QUICK START GUIDE

See Steps Below for Black Box Reading.

Step 1: Select File Record.

Select File Record : File Record 1

Step 2: Click Read Record File.

 Read Record File

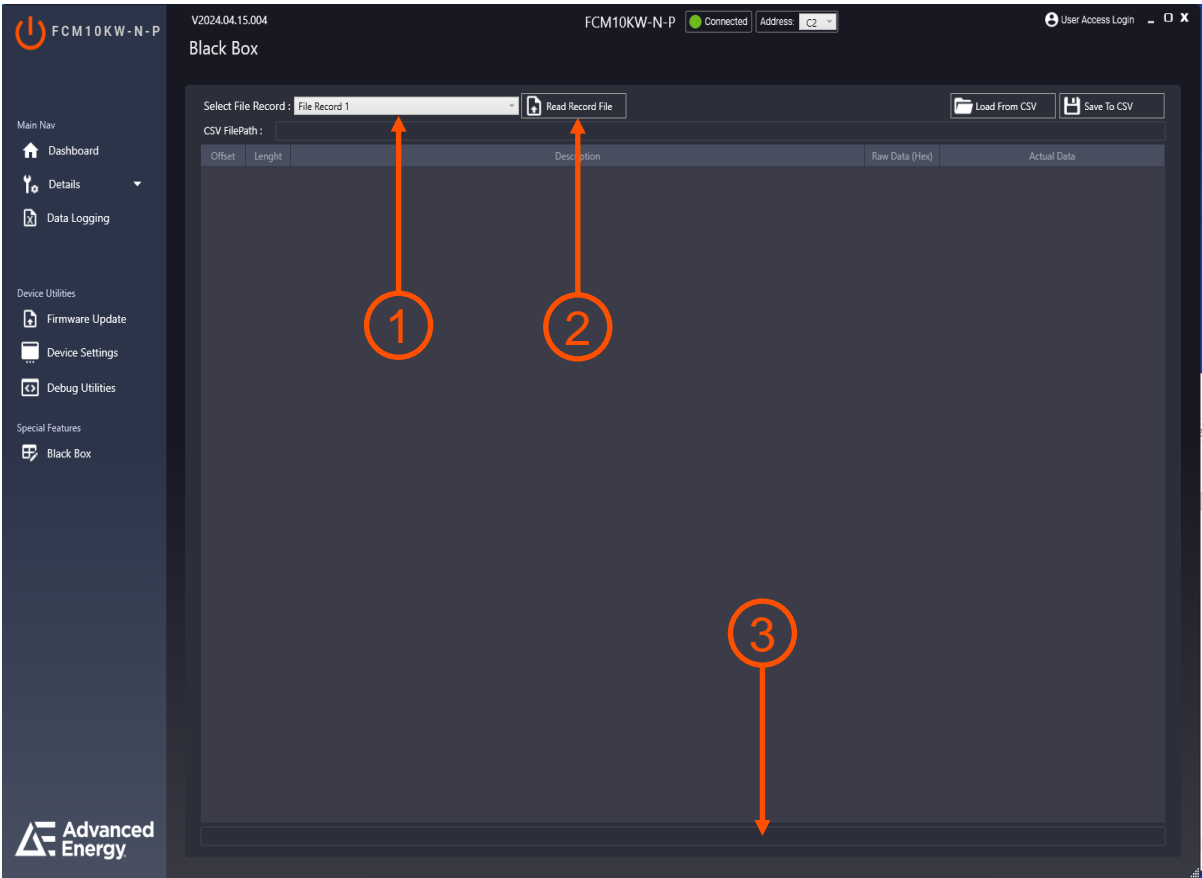
Step 3: Wait Until reading Complete.




Step 4: Read Completed when Black Box Display get updated.



Offset	Lenght	Description	Raw Data (Hex)	Actual Data
0	2	STATUS_WORD	8000	VOUT
1	2	STATUS_INPUT	0000	
2	2	STATUS_VOUT	0080	VOUT_OV_FAULT
3	2	STATUS_IOUT	0000	





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