



Graphical Control Panel User Manual

JMM-5000 PC/104-Plus DC/DC Power Supply

Revision A.0

APR 2016

Revision	Date	Comment
A.0	04/28/2016	Initial release

**FOR TECHNICAL SUPPORT
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1. INTRODUCTION

This document provides information relevant to the operation and demonstration of the JMM5000 single board computer's capabilities.

The Diamond Systems Universal Driver must be installed before executing the GUI program. For more details read the Universal Driver installation instructions provided with the Universal Driver package.

- To start the GUI in windows, Double click the following executable file JMM5000_GUI.exe
- To start the GUI in Linux, Run the following executable file with root user permission \$ /JMM5000_GUI.
- The main window of the control panel software is displayed on the screen as shown below in Figure 1.

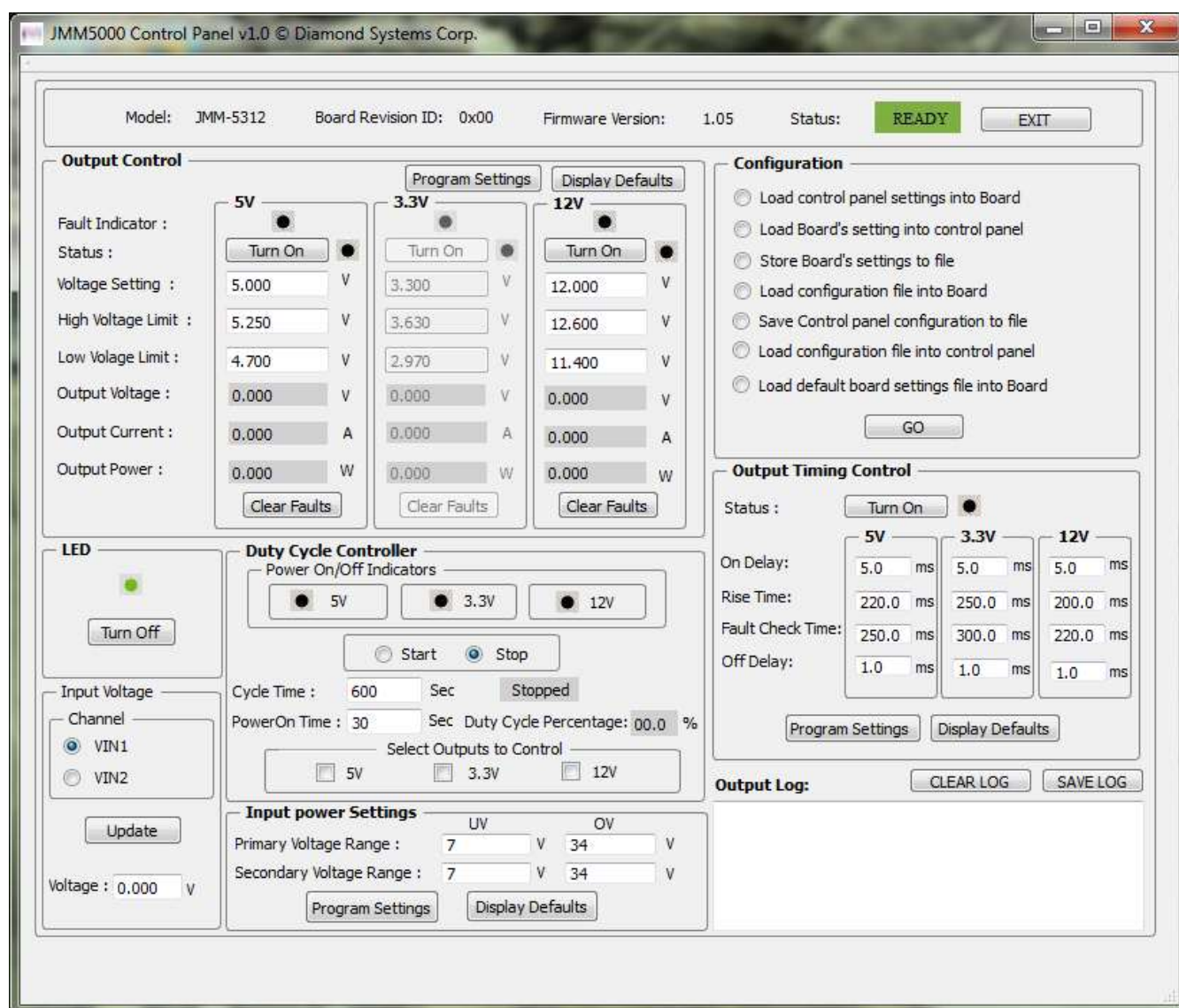


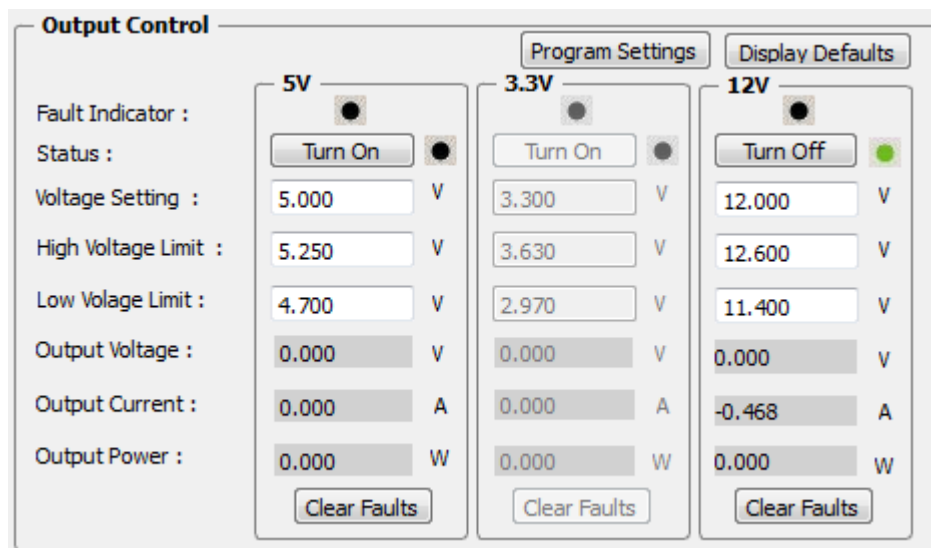
Figure 1: JMM5000 Control Panel

2. OUTPUT CONTROL

- Press on the “Turn On” button to enable the voltages, press on the “Turn Off” button to disable the voltages.
- Provide the Voltage Setting, High Voltage Limit, Low Voltage Limit values.
- Output Voltage, Output Current, and Output Power values are read from Control and updated if the output is enabled.
- Fault Indicator LED turns red when Over voltage , under voltage, over current, under Current fault occurs When the voltage is enabled. The fault indicator LED remains black if the fault doesn't occur when the voltage is enabled. The output log displays the fault which has occurred when the voltage is enabled.
- "Program Settings" button updates the voltage settings, High voltage limit, low voltage limit to the board registers and EEPROM.
- "Display default" button displays the voltage settings, High voltage limit, low voltage limit read from the board registers to the control panel.

Example: Enabling 12V output

- Press on the “Turn On” button to enable the voltage.
- Enter the Voltage Setting, High Voltage Limit, Low Voltage Limit values.
- Output Voltage, Output Current, Output Power values of 12V are read from Control and updated.



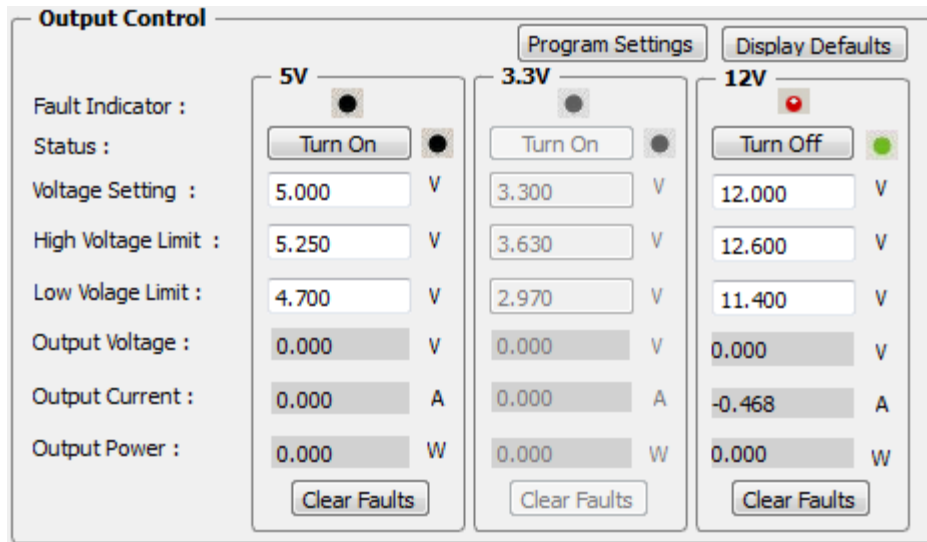
The screenshot displays the 'Output Control' window with three columns for 5V, 3.3V, and 12V outputs. Each column includes a 'Turn On' or 'Turn Off' button, a 'Status' indicator, and fields for 'Voltage Setting', 'High Voltage Limit', 'Low Voltage Limit', 'Output Voltage', 'Output Current', and 'Output Power'. A 'Clear Faults' button is at the bottom of each column. The 12V output is currently set to 'Turn Off' with a green status indicator.

Parameter	5V	3.3V	12V
Turn On/Off	Turn On	Turn On	Turn Off
Status	●	●	●
Voltage Setting	5.000 V	3.300 V	12.000 V
High Voltage Limit	5.250 V	3.630 V	12.600 V
Low Voltage Limit	4.700 V	2.970 V	11.400 V
Output Voltage	0.000 V	0.000 V	0.000 V
Output Current	0.000 A	0.000 A	-0.468 A
Output Power	0.000 W	0.000 W	0.000 W
Clear Faults	Clear Faults	Clear Faults	Clear Faults

Figure 2: Output Control


Example: Over fault occurrence when 12V output is enabled.

- When the 12V is enabled and over voltage fault occurs, the LED indicator of 12V LED is red in color.



	5V	3.3V	12V
Fault Indicator :	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Status :	Turn On <input type="radio"/>	Turn On <input type="radio"/>	Turn Off <input checked="" type="radio"/>
Voltage Setting :	5.000 V	3.300 V	12.000 V
High Voltage Limit :	5.250 V	3.630 V	12.600 V
Low Voltage Limit :	4.700 V	2.970 V	11.400 V
Output Voltage :	0.000 V	0.000 V	0.000 V
Output Current :	0.000 A	0.000 A	-0.468 A
Output Power :	0.000 W	0.000 W	0.000 W
	Clear Faults	Clear Faults	Clear Faults

- The fault occurred is displayed in the output log.



Output Log:

5V: OV Fault

3. DUTY CYCLE CONTROLLER

- Select the power supply outputs which are controlled by the duty cycle controller in the “Select Outputs to Control” group box.
- Provide Cycle time and Power on Time.
- Press the “Start” button to start the duty cycle and press “Stop” button to stop the duty cycle.
- Duty Cycle percentage is displayed based on the power on and cycle time.
- The “Power On/Off Indicators” displays the enabled and disabled status of the output controls.





Output is disabled



Output is enabled

- By selecting the outputs to be controlled by the duty cycle controller, the corresponding outputs are disabled in output control section.

Example: Controlling 3.3V, 5V, 12V outputs

- Select the 3.3V, 5V, 12V outputs in the “Select Outputs to Control” group box.
- Cycle time and Power on Time are provided as 300 seconds and 30 seconds respectively.
- Press the “Start” button.
- Duty Cycle percentage is displayed based on the power on and cycle time.
- The “Power On/Off Indicators” displays  when the outputs are enabled and  when outputs are disabled.
- 12V, 3.3V, 5V outputs are disabled in output control section.

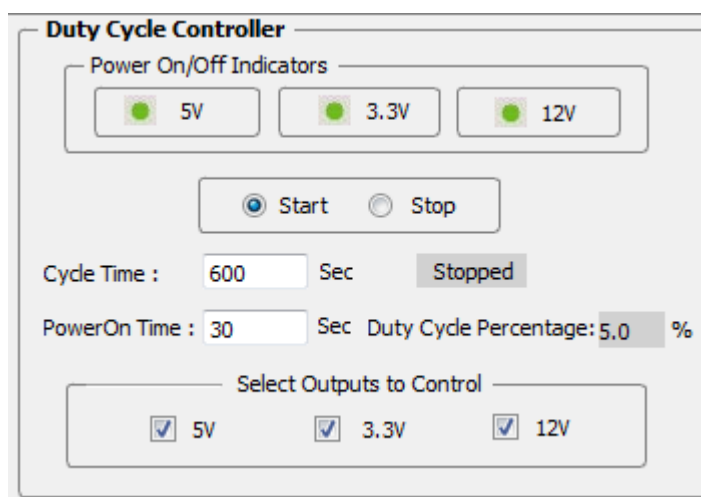


Figure 3: Duty Cycle Controller

4. CONFIGURATION

4.1. Load Control Panel Settings into Board

- Press on the “Load Control Panel Settings into board” button.
- Press on the “Go” button.
- It stores the user selected configurations of the control panel to the board registers and EEPROM.

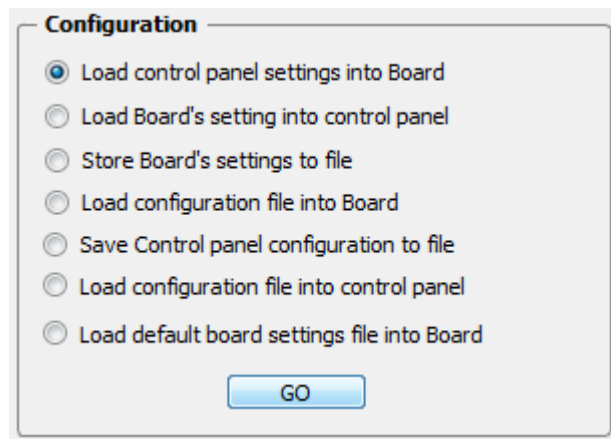
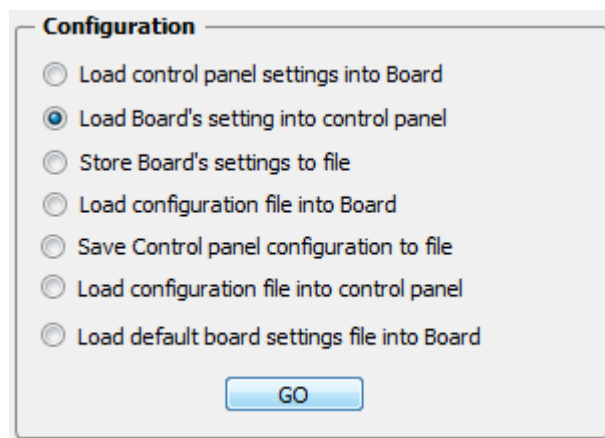


Figure 4: Configuration

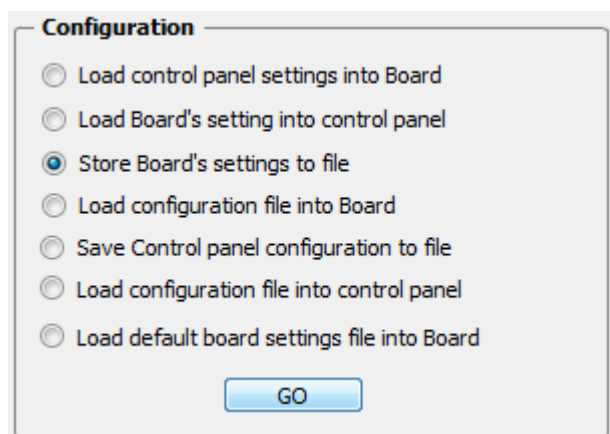
4.2. Load board's setting into Control Panel

- Press on the “Load board's setting into Control Panel” button.
- Press on the “Go” button.
- It reads the board registers and updates the Control panel.

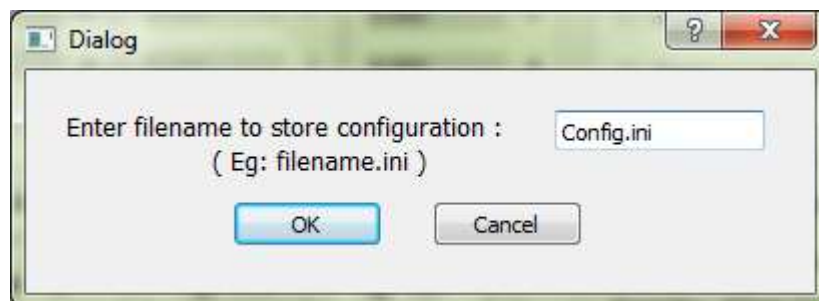


4.3. Store Board's settings to file

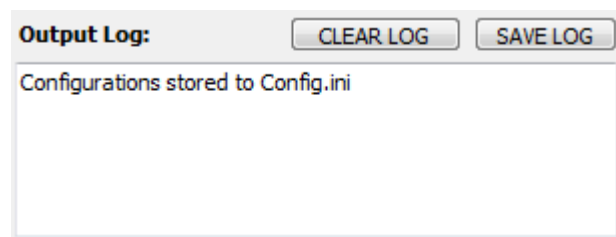
- Press on the “Store Board's settings to file” button.
- Press on the “Go” button.
- It reads the configuration from the board registers and updates the Control panel and saves it to a file.



- Enter the name for file with .int extension.

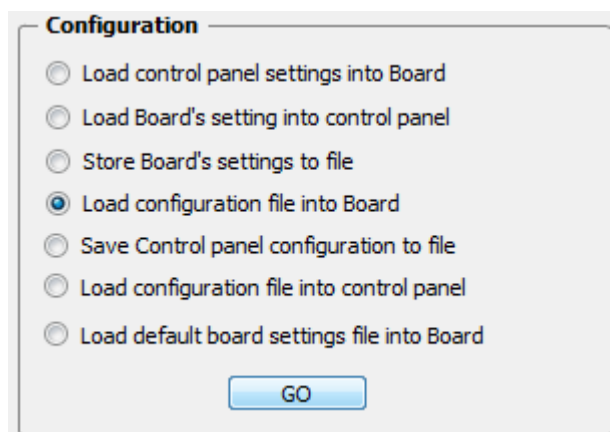


- Output Log shows the status.

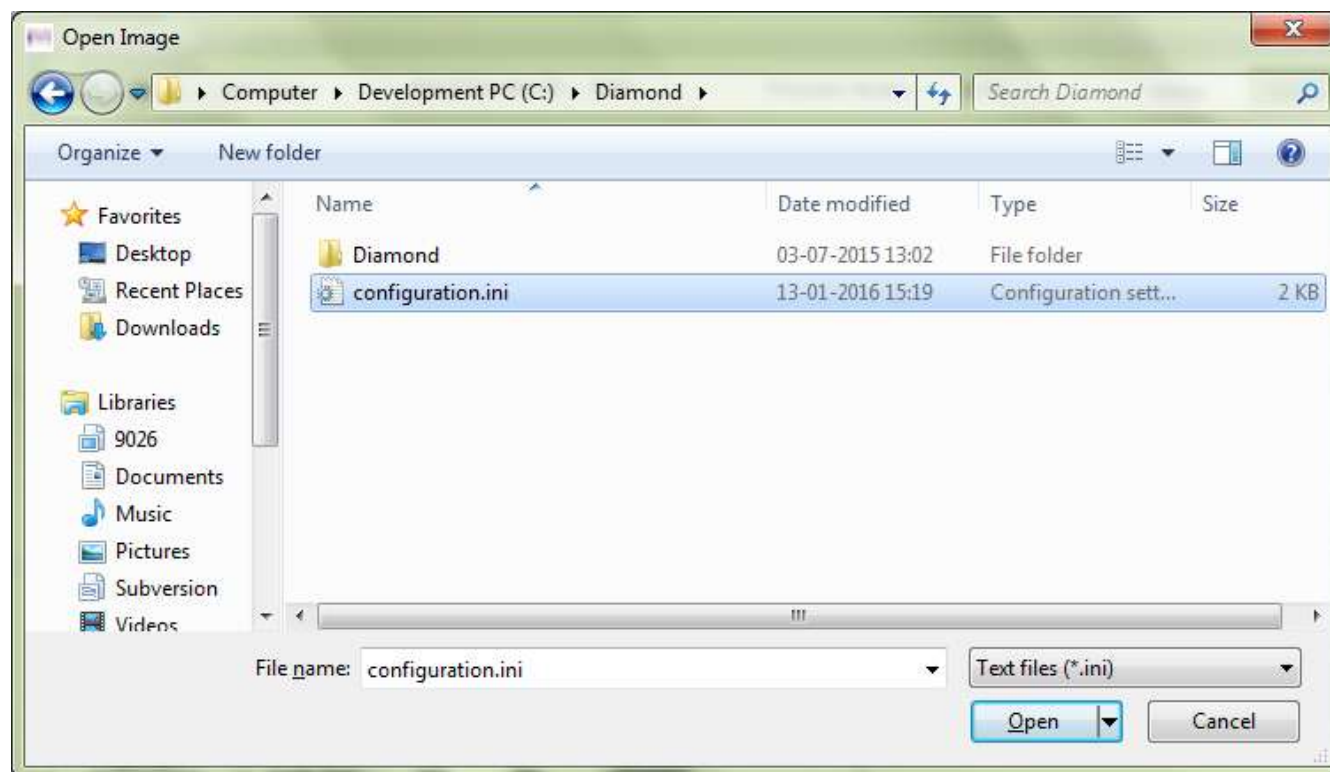


4.4. Load Configuration file to board

- Press on the “Load configuration file to board” button.
- Press on the “Go” button.
- It programs the board registers and EEPROM based on the configuration.ini file.
- It updates the control panel based on the configuration.ini file.

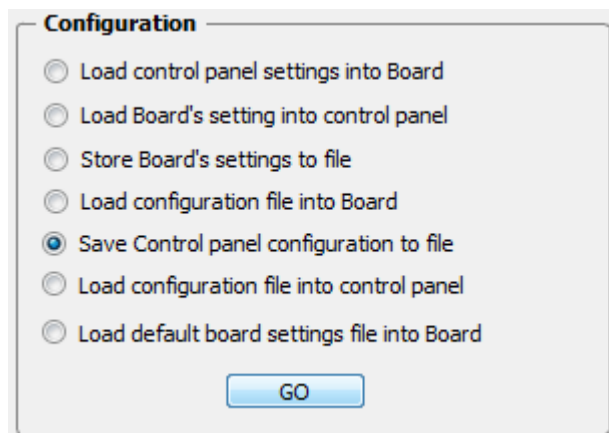


- Browse to the destination folder containing the configuration file and press “Open” button.

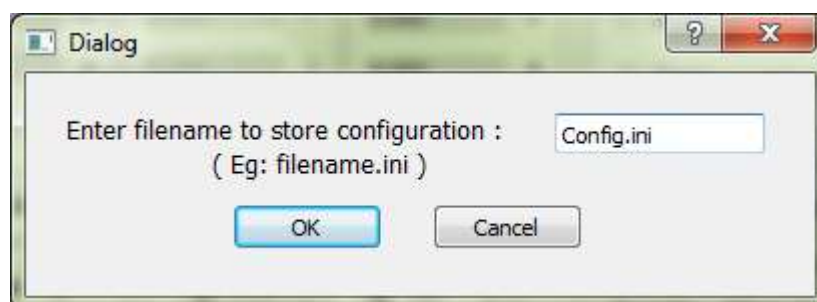


4.5. Save control panel configuration to file

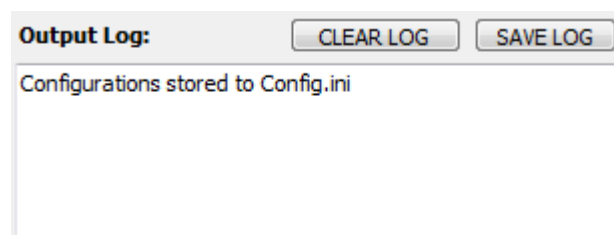
- Press on the “Save control panel configuration to file” button.
- Press on the “Go” button.
- It saves the user selected control panel settings to a file.



- Enter the name for file with .int extension.

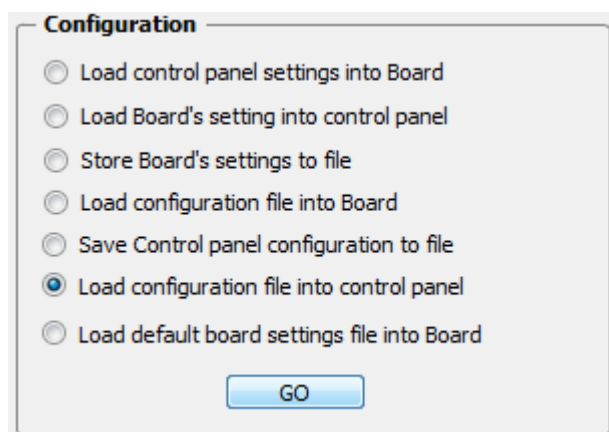


- Output Log shows the status.

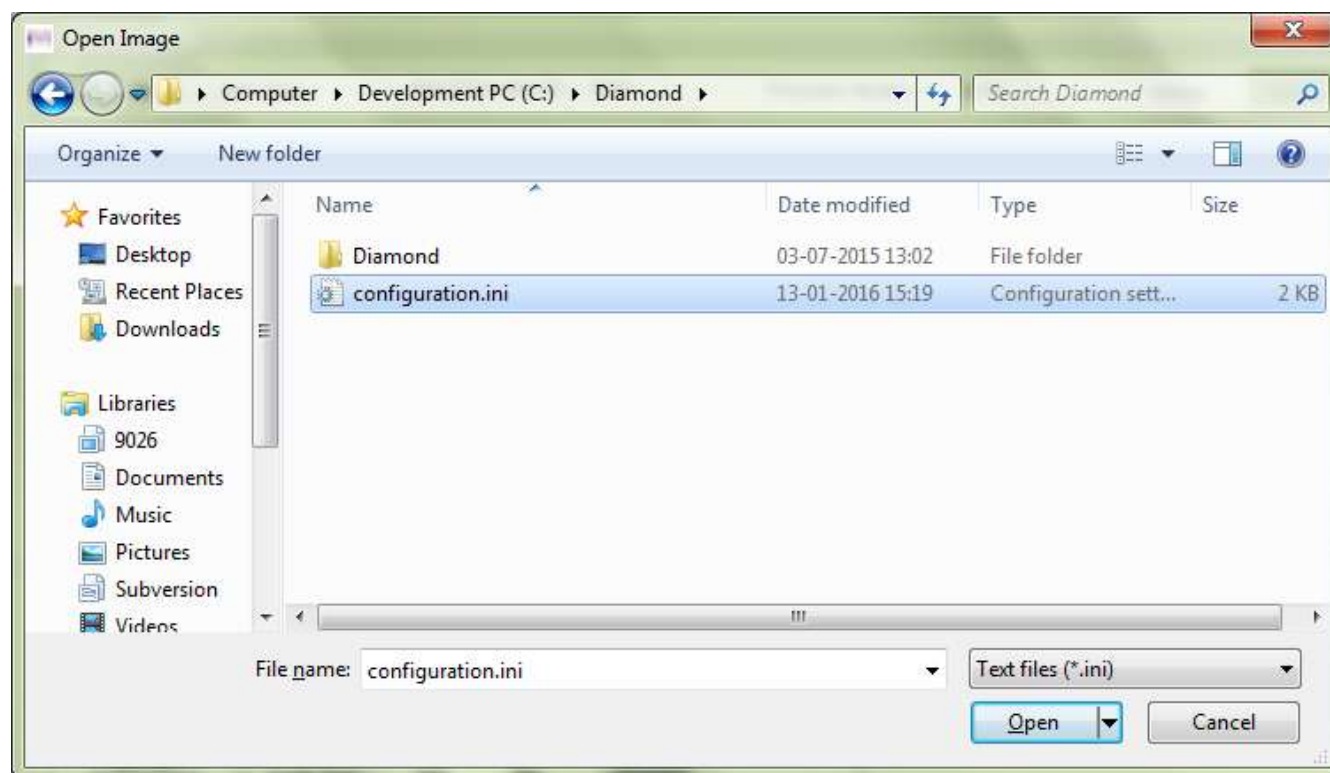


4.6. Load Configuration file to control panel

- Press on the “Load configuration file into control panel” button.
- Press on the “Go” button.
- It updates the control panel settings based on the file obtained from the “Save Control Panel configuration to file”.

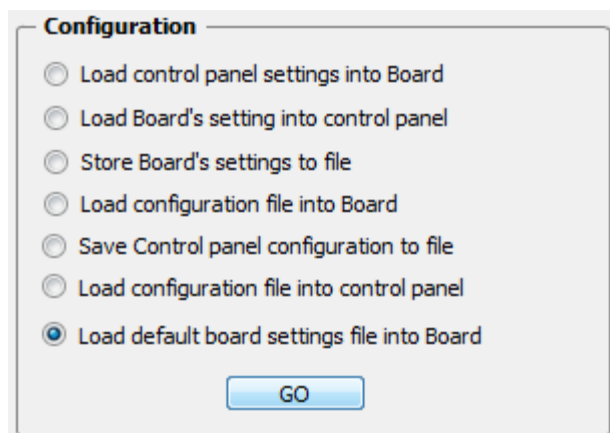


- Browse to the destination folder containing the configuration file and press “Open” button.



4.7. Load default Configuration file into board

- Press on the “Load configuration file into control panel” button.
- It programs the board registers and EEPROM based on the Default_configurations.ini file.



- Browse to the destination folder containing the Default_configurations.ini file and press “Open” button.



5. INPUT POWER SETTINGS

5.1. Update Settings

- Press on the “Update Settings” button.
- Enter the voltages in the “UV” and “OV” section of Primary and Secondary Voltage Range.
- The voltages in the “UV” and “OV” section of Primary voltage range updates the RDACs and EEPROMs of the POT1 and POT2.
- The voltages in the “UV” and “OV” section of Secondary voltage range updates the RDACs and EEPROMs of the POT3 and POT4.

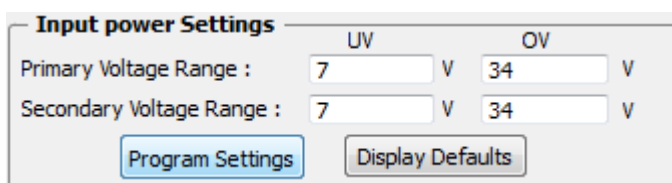


Figure 5: Update Settings

5.2. Display Defaults

- Press on the “Display Defaults” button.
- It updates the default values of the four POTs from the PIC flash into the control panel.

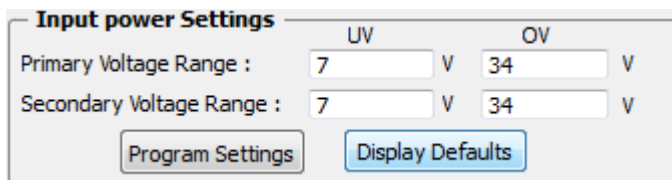
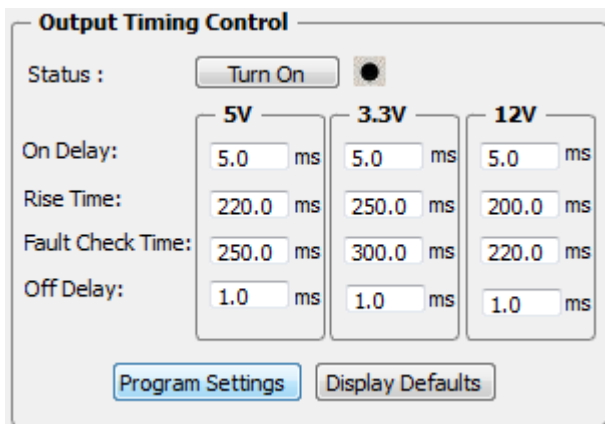


Figure 6: Update Defaults

6. OUTPUT TIMING CONTROL

6.1. Program Settings

- Enter Turn on Delay time, Rise Time, Fault Check Time, Off Delay time in milliseconds.
- Press “Program Settings” button.
- It loads the On Delay time, Rise Time, Fault Check Time, Off Delay time of 12V, 5V, and 3.3V into the LTC2974 RAM.



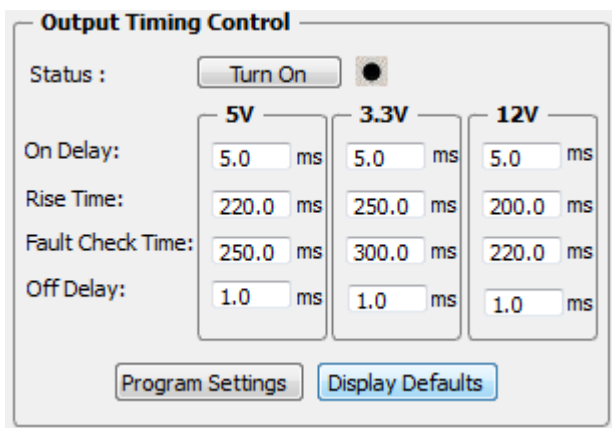
Output Timing Control

Status : ☒

	5V	3.3V	12V
On Delay:	5.0 ms	5.0 ms	5.0 ms
Rise Time:	220.0 ms	250.0 ms	200.0 ms
Fault Check Time:	250.0 ms	300.0 ms	220.0 ms
Off Delay:	1.0 ms	1.0 ms	1.0 ms

6.2. Display Defaults

- Press “Display Defaults” button.
- It displays On Delay time, Rise Time, Fault Check Time, Off Delay time default values of 12V, 5V, 3.3V from the PIC's flash storage to the Control panel.



Output Timing Control

Status : ☒

	5V	3.3V	12V
On Delay:	5.0 ms	5.0 ms	5.0 ms
Rise Time:	220.0 ms	250.0 ms	200.0 ms
Fault Check Time:	250.0 ms	300.0 ms	220.0 ms
Off Delay:	1.0 ms	1.0 ms	1.0 ms

Figure 8: Output Timing Control

7. INPUT VOLTAGE SECTION

- Select the channel number.
- Press Update.
- Voltage of the selected channel pin is read and displayed in the “Voltage” box.

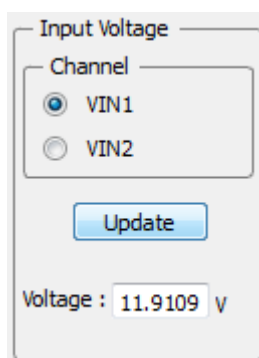


Figure 7: A/D Section

8. EXIT

- Press on the “EXIT” button.
- It closes the Graphical control panel application.

