

WandererBox V3

Lite / Plus / Pro / Dew Terminator

User Manual

2024.12



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1.Introduction

The WandererBox V3 is available in three versions: WandererBox Lite V3 , WandererBox Plus V3 , and WandererBox Pro V3. Additionally, there is the Wanderer Dew Terminator. A comparison of the 4 models is shown in Table 1.



Lite V3



Plus V3



Pro V3



Dew Terminator

The Lite V3 functions solely as a USB 3.0 hub and DC splitter without remote control capabilities. The Plus V3, Pro V3, and Dew Terminator support remote control features, ASCOM drivers, INDI drivers, and standalone control software for Windows PC.

Table 1 Model Comparison

	Lite V3	Plus V3		Pro V3		Dew Terminator
Power Input	12V DC5.5*2.1mm 8A max	12V DC5.5*2.5mm 10A max		12V 2 x DC5.5*2.5mm 18A max		12V DC5.5*2.1mm 10A max
DC Output	5 x Always On 12V Output Not controllable	DC1 (5525)	Always On 12V Output Cannot be switched on/off 10A max	DC1 (5525)	Always On 12V Output Cannot be switched on/off 10A max	3 x Always On 12V Output DC1,DC2,DC3: Three multifunctional PWM outputs Can be switched on/off independently Independent PWM control is possible 8A max each
		DC2 (5521)	0-13.2V Adjustable Regulated Output Can be switched on/off 3A max	DC2 (5525)	Always On 19V Regulated Output Cannot be switched on/off 6A max	
		DC3 (5521)	12V PWM/Switch\Output Can be switched on/off PWM control possible 8A max	DC3-4 (5521)	0-13.2V Adjustable Regulated Output Can be switched on/off together 5A max in total	
		DC4-6 (5521)	12V Switch Output Can be switched on/off together 8A max in total	DC5,6,7 (5521)	PWM/Switch Output Can be switched on/off independently Independent PWM control is possible 8A max each	
				DC8-9 (5521)	12V Switch Output Can be switched on/off together 8A max in total	
				DC10-11 (5521)	12V Switch Output Can be switched on/off together 8A max in total	
USB Hub	1 x USB3.1 3 x USB2.0 Not controllable	2 x USB3.1 3 x USB2.0 Can be switched on/off together		3 x USB3.1 6 x USB2.0 USB3.1:3 Independent switches USB2.0:2 sets of switches (3+3)		/
USB Power Supply	5V 3A	5V 5A		5V 6A		/
Voltage/Current Monitor	/	Input current/voltage monitor		Input current/voltage monitor 19V output current monitor 0-13.2V regulated output current monitor		/
Size	6.8*5.1*2.3cm	8.6×6.5×2.6cm		13.6*8.3*3.6cm		7.5*5.3*2.3cm
Weight	88g	150g		375g		91g
Environment Sensor (Included)	/	1 x DHT22 temperature & humidity sensor 1 x DS18B20 temperature probe		1 x DHT22 temperature & humidity sensor 3 x DS18B20 temperature probe		
Dew Heater Control	/	1 dew heater: Dewpoint temperature difference control Constant temperature control Manual control		3 independent dew heaters: Dewpoint temperature difference control Constant temperature control Manual control		
Cooling Fan	/	/		Yes		/
ASCOM Compatibility	/	Yes				
Screw Holes	M6 and M4 screw holes, 4mm deep					

2. Software (ASCOM Driver) Installation

Visit the official website at www.wandererastro.com to download the WandererEmpire software (Figure 1).



Figure1

Once installed, open WandererEmpire and navigate to the "WandererBox" option in the left menu (Figure 2).

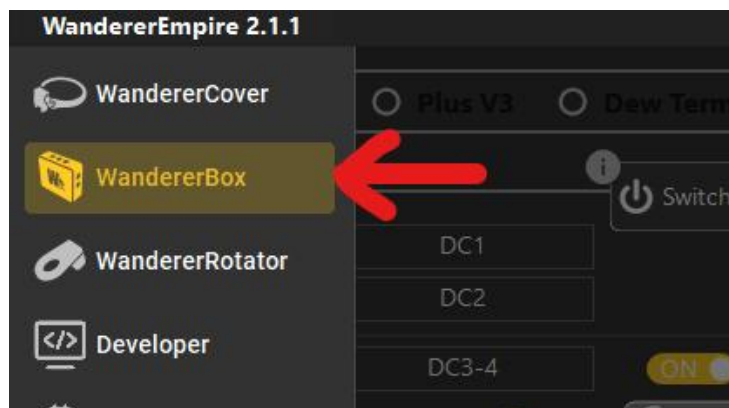


Figure2

Select your WandererBox model from the options "Pro V3," "Plus V3," or "Dew Terminator." If you know your WandererBox's COM port (viewable in Device Manager, labeled as CH340), select "Manually Choose Device COM Port" and pick the correct COM port from the dropdown menu (Figure 3). Then, click "Connect."

If unsure about the COM port, deselect "Select COM Manually" and click "Connect." WandererEmpire will automatically search for and connect to the appropriate COM port. Note that searching may be slower if multiple COM ports exist. Once identified, check "Select COM Manually" for faster connections in the future.

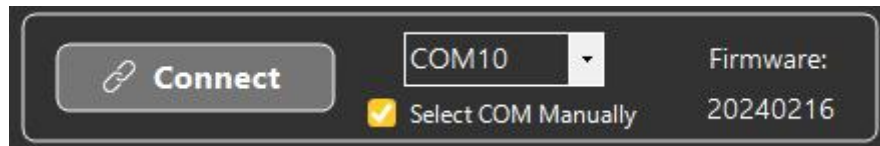


Figure3

Then find the WandererEmpire Device 1 in N.I.N.A. (Figure 4).



Figure4

Simply click Connect  , and the ASCOM driver will establish communication and connect with WandererEmpire. After the connection, the operations in N.I.N.A are synchronized and equivalent with those in WandererEmpire.

Once configured, **subsequent connections can be made directly from N.I.N.A.** The ASCOM driver will auto-launch WandererEmpire and use saved configurations to connect.

Important: Ensure that the model selected in WandererEmpire matches your actual WandererBox model to avoid connection issues. The software will remember the selected model for future sessions.

3. WandererBox Pro V3 Control Features

3.1 DC and USB Switches

WandererBox Pro V3 provides multiple DC output ports and USB output ports, as well as corresponding control functions. In the WandererEmpire software, the DC and USB switch control area is located on the left side of the interface (Figure 5). You can also control them in N.I.N.A. or S.G.P. **Once the ASCOM driver is connected, control in N.I.N.A. or S.G.P. is synchronized and equivalent to control in WandererEmpire(Figure 6).**

Additionally, you can **customize port names** in the text boxes to better distinguish devices. Custom names will also synchronize in N.I.N.A. (requires reconnecting the device).

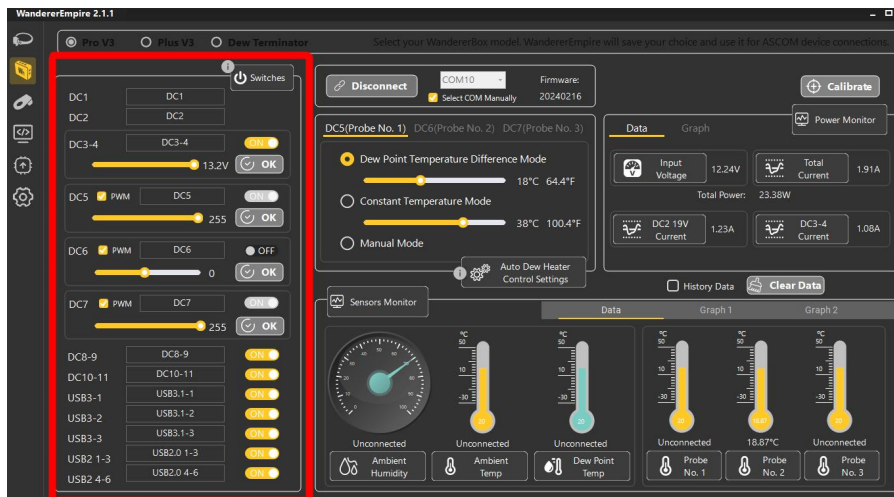


Figure 5

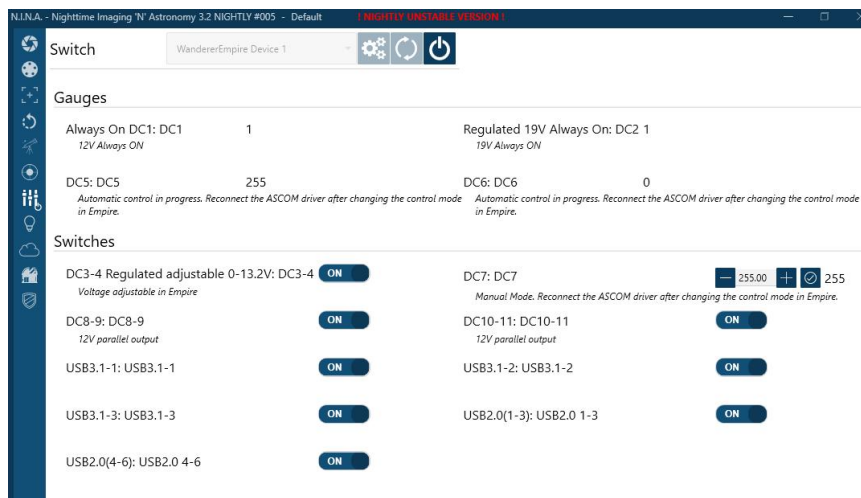


Figure 6

Hovering the mouse over the output port name will display detailed information for each port. The descriptions are listed below:

DC1 (Typically powers 12V mini-PCs or other 12V devices) :

(DC5525) 12V 10A normally open output, this DC port is directly connected to the input port.

DC2 (Powers 19V mini-PCs) :

(DC5525) 19V 6A regulated output for mini PCs.

DC3-4 (Adjustable voltage outputs, usually for cooled cameras) :

(DC5521) DC3 and DC4 are connected in parallel, sharing a maximum total current output of 5A. You can adjust the voltage (5V to 13.2V) to adapt to different devices. Be careful! Wrong voltage may burn your device. The voltage setting is saved inside the WandererBox and will not change unless you set it again.

DC5, DC6, DC7 (Multi-purpose PWM outputs for dew heaters or 12V devices) :

(DC5521) DC5, DC6, DC7 are three independent multi-function 12V PWM output ports (The maximum current of each DC port is 8A). Check PWM to adjust the power of dew heater or the brightness of flat panel, etc. . Uncheck PWM to make it work as normal switch to power your devices.

DC8-9 (Standard 12V outputs) :

(DC5521) DC8 and DC9 are two 12 volt power switches connected in parallel. They share a maximum output current of 8A.

DC10-11 (Standard 12V outputs) :

(DC5521) DC10 and DC11 are two 12 volt power switches connected in parallel. They share a maximum output current of 8A.

USB3.1-1:

No. 1 USB3.1 high-speed data port, it shares 5V 6A power supply with all USB ports.

USB3.1-2:

No. 2 USB3.1 high-speed data port, it shares 5V 6A power supply with all USB ports.

USB3.1-3:

No. 3 USB3.1 high-speed data port, it shares 5V 6A power supply with all USB ports.

USB2 1-3:

USB 2.0 ports No. 1, 2, and 3. They share 5V 6A power supply with all USB ports.

USB2 4-6:

USB 2.0 ports No. 4, 5, and 6. They share 5V 6A power supply with all USB ports.

3.2 Automatic Dew Heater Temperature Control

WandererBox Pro V3 provides three PWM dew heater output ports: DC5, DC6, and DC7. These can independently control three dew heaters simultaneously.

If you do not need to control dew heaters, you can deselect the PWM checkbox(Figure 7). In this case, the DC port will operate in a standard switch mode, supplying power to any 12V device.

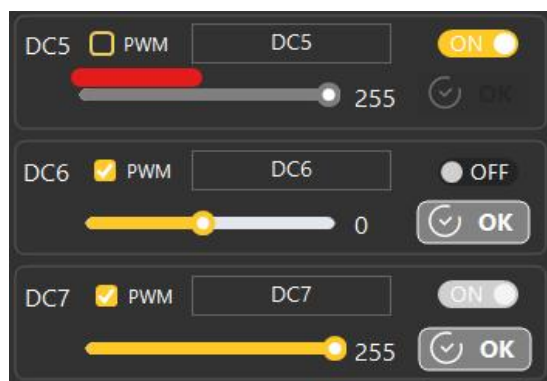
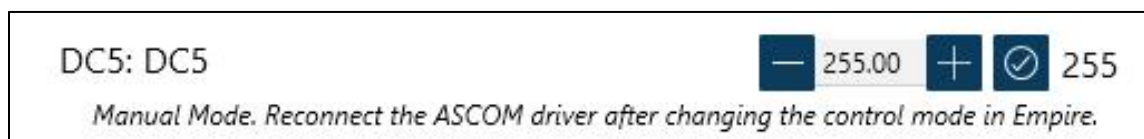


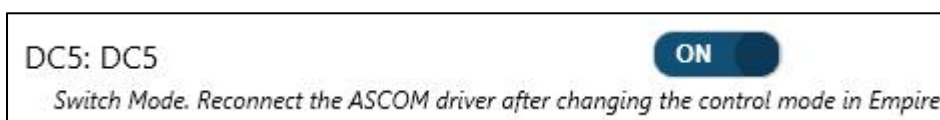
Figure 7

Please note that if you change the DC port working mode, please reconnect the ASCOM driver to refresh the control interface.

For example, when you check the PWM option of DC5 and then connect in N.I.N.A, you will see the following :



When you uncheck the PWM option of DC5 and then connect it in N.I.N.A, you will see the following:

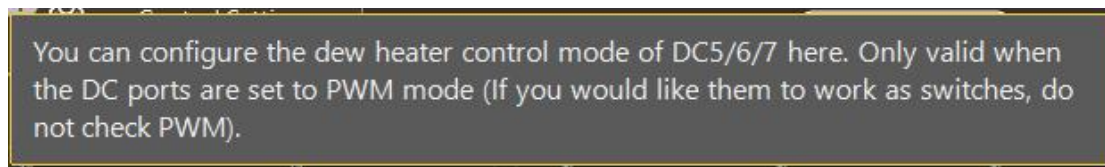


When you use DC5, DC6 or DC7 to power the dew heater, you will use the Automatic Dew Heater Temperature Control function in the center of the interface (Figure 8).



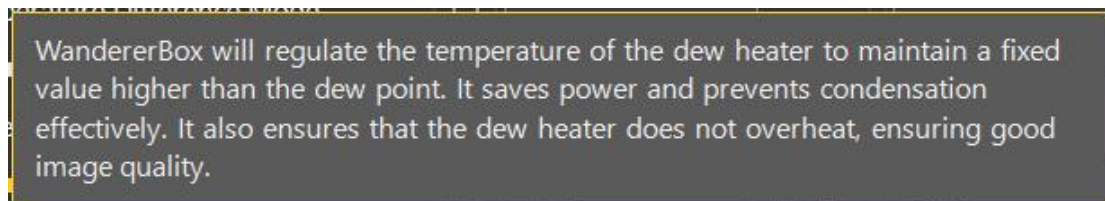
Figure 8

Hover the mouse over the info icon to get the prompt information:

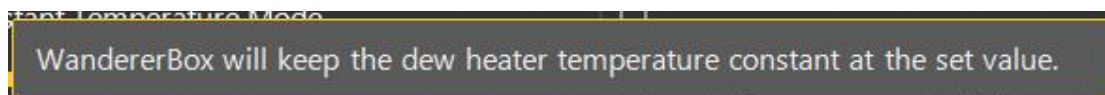


There are three modes for dew heater control. **Hover the mouse over the control mode name to get prompt information:**

1.Dew Point Temperature Difference Mode: This mode requires the included temperature and humidity sensor (Figure 9) and the included temperature probe (Figure 10).



2.Constant Temperature Mode: This mode requires the included temperature probe (Figure 10).



3.Manual Mode: Direct user control without requiring sensors.

Manually adjust the duty cycle of the PWM port to control the power of the dew heater(0-255).



Figure 9



Figure 10

When you use the dew point temperature difference mode or constant temperature mode, the DC port is in automatic control mode, and you cannot manually control the DC port. In N.I.N.A, you will see the following:

DC5: DC5

255

Automatic control in progress. Reconnect the ASCOM driver after changing the control mode in Empire.

3.3 Power, Environment Temperature and Humidity, and Dew Heater Monitoring

On the right side and at the bottom of the interface are the current and voltage monitoring window and the temperature and humidity monitoring window (Figure 11). You can choose to display data in numerical format or as a graph. Selecting "Historical Data" allows the graph to show all data from when the device was connected to the present. For unconnected temperature probes, their data will not be displayed (Figure 12).

Note: The current readings from WandererBox Pro V3 are for reference only and may be affected by USB input voltage and external magnetic fields. If the deviation is too large, try clicking the calibration button.

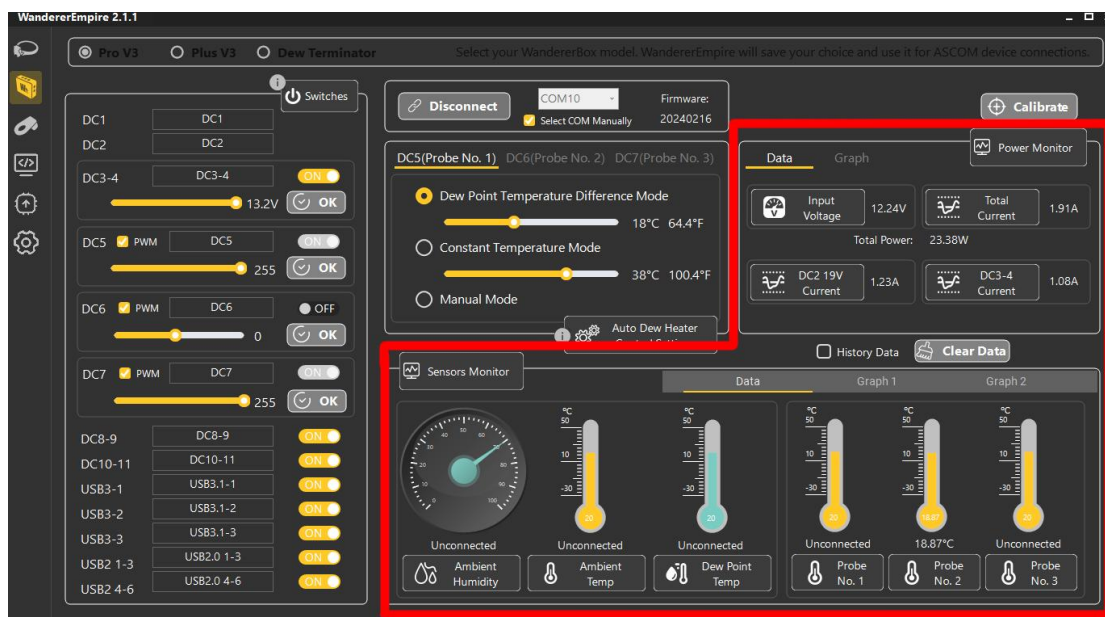


Figure 11

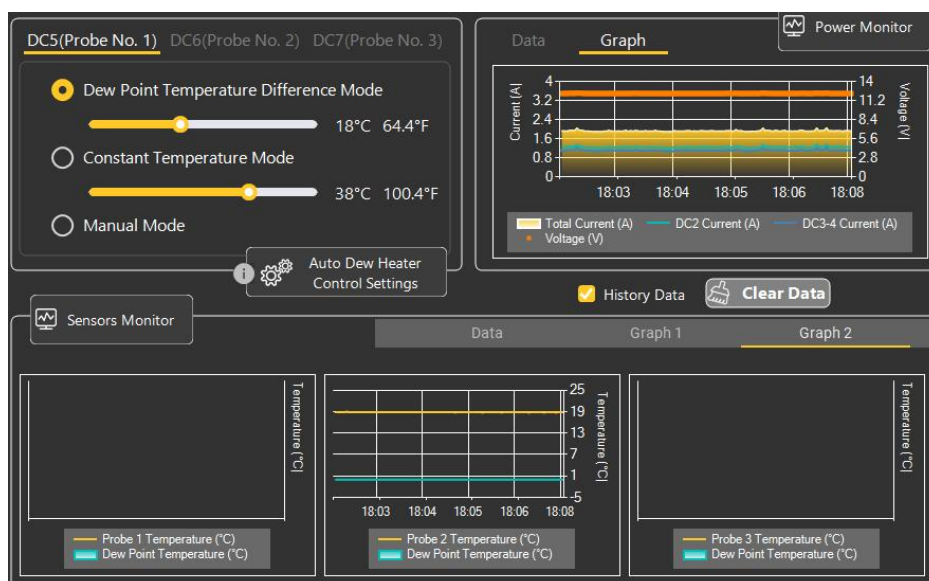


Figure 12

4. WandererBox Plus V3 Control Features

4.1 DC and USB Switches

WandererBox Plus V3 provides multiple DC output ports and USB output ports, as well as corresponding control functions. In the WandererEmpire software, the DC and USB switch control area is located on the left side of the interface (Figure 13). You can also control them in N.I.N.A. or S.G.P. **Once the ASCOM driver is connected, control in N.I.N.A. or S.G.P. is synchronized and equivalent to control in WandererEmpire**(Figure 14).

Additionally, you can **customize port names** in the text boxes to better distinguish devices. Custom names will also synchronize in N.I.N.A. (requires reconnecting the device).

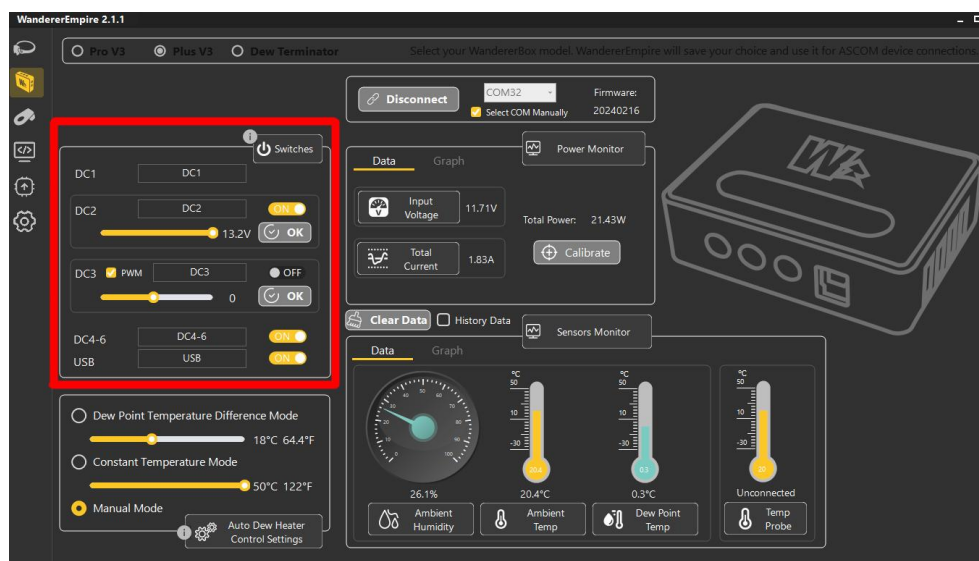


Figure 13

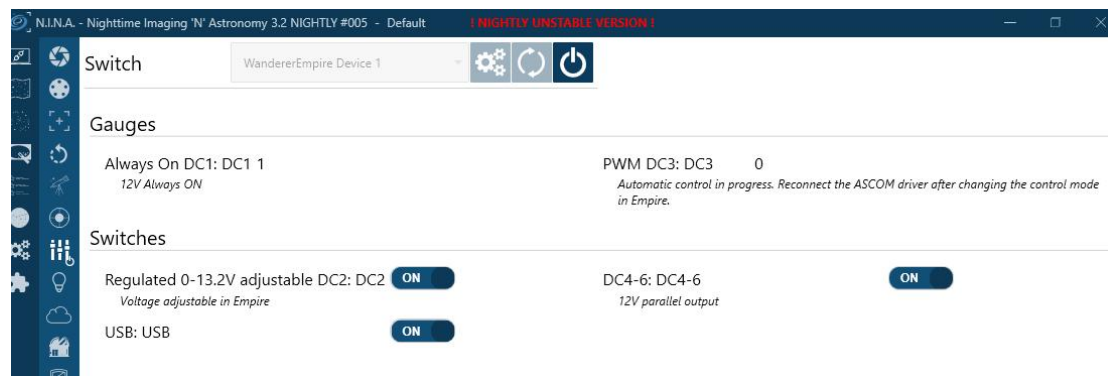


Figure 14

Hovering the mouse over the output port name will display detailed information for each port. The descriptions are listed below:

DC1 (Typically powers 12V mini-PCs or other 12V devices) :

(DC5525) 12V 10A normally open output, this DC port is directly connected to the input port.

DC2 (Adjustable voltage outputs, usually for cooled cameras) :

(DC5521) DC2 has a maximum current output of 3A. You can adjust the voltage (5V to 13.2V) to adapt to different devices. Be careful! Wrong voltage may burn your device. The voltage setting is saved inside the WandererBox and will not change unless you set it again.

DC3 (Multi-purpose PWM outputs for dew heaters or 12V devices) :

(DC5521) DC3 is a multi-function 12V PWM output port (The maximum current is 8A). Check PWM to adjust the power of dew heater or the brightness of flat panel, etc. . Uncheck PWM to make it work as normal switch to power your devices.

DC4-6 (Standard 12V outputs) :

(DC5521) DC4-6 are three 12 volt power switches connected in parallel. They share a maximum output current of 8A.

USB:

Master switch for all USBs.

4.2 Automatic Dew Heater Temperature Control

WandererBox Plus V3 provides a PWM dew heater output port (DC3) ,if you do not need to control dew heaters, you can deselect the PWM checkbox(Figure 15). In this case, the DC port will operate in a standard switch mode, supplying power to any 12V device.

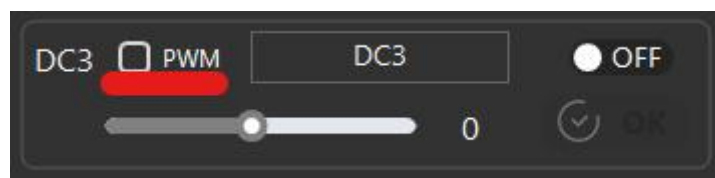
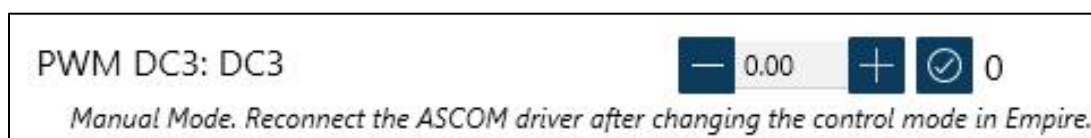


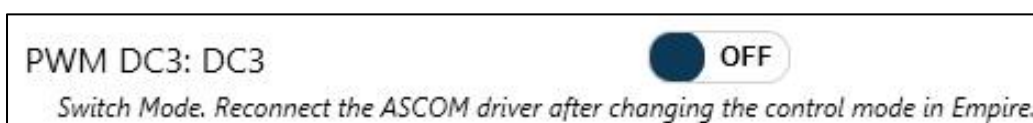
Figure 15

Please note that if you change the DC port working mode, please reconnect the ASCOM driver to refresh the control interface.

For example, when you check the PWM option of DC3 and then connect in N.I.N.A, you will see the following :



When you uncheck the PWM option of DC3 and then connect it in N.I.N.A, you will see the following:



When you use DC3 to power the dew heater, you will use the Automatic Dew Heater Temperature Control function (Figure 16).

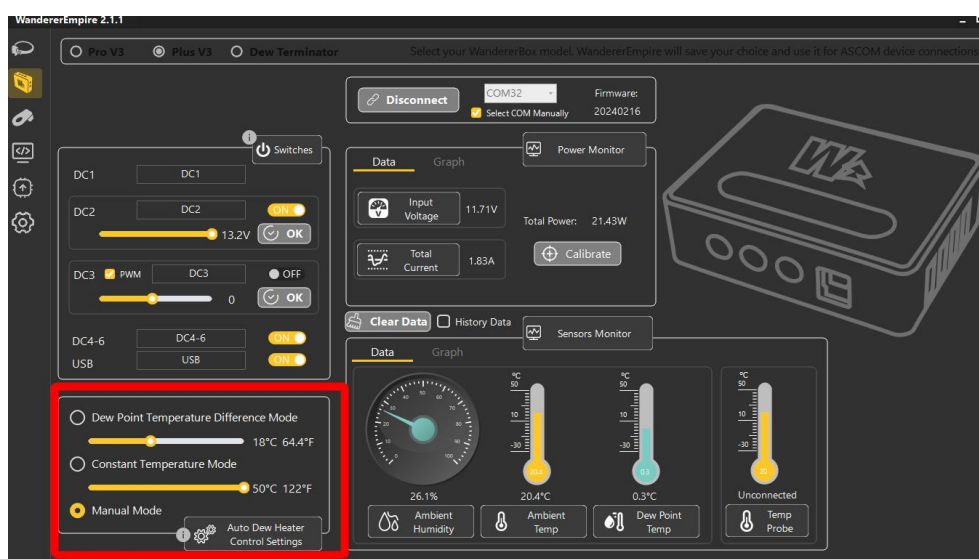


Figure 16

Hover the mouse over the info icon to get the prompt information :

You can configure the dew heater control mode of DC3 here. Only valid when the DC3 is set to PWM mode (If you would like it to work as a switch, do not check PWM).

There are three modes for dew heater control. **Hover the mouse over the control mode name to get prompt information:**

1.Dew Point Temperature Difference Mode: This mode requires the included temperature and humidity sensor (Figure 9) and the included temperature probe (Figure 10).

WandererBox will regulate the temperature of the dew heater to maintain a fixed value higher than the dew point. It saves power and prevents condensation effectively. It also ensures that the dew heater does not overheat, ensuring good image quality.

2.Constant Temperature Mode: This mode requires the included temperature probe (Figure 10).

WandererBox will keep the dew heater temperature constant at the set value.

3.Manual Mode: Direct user control without requiring sensors.

Manually adjust the duty cycle of the PWM port to control the power of the dew heater(0-255).

When you use the dew point temperature difference mode or constant temperature mode, the DC port is in automatic control mode, and you cannot manually control the DC port. In N.I.N.A, you will see the following:

PWM DC3: DC3 0

Automatic control in progress. Reconnect the ASCOM driver after changing the control mode in Empire.

4.3 Power, Environment Temperature and Humidity, and Dew Heater Monitoring

On the right side of the interface are the current and voltage monitoring window and the temperature and humidity monitoring window (Figure 17). You can choose to display data in numerical format or as a graph. Selecting "Historical Data" allows the graph to show all data from when the device was connected to the present. For unconnected temperature probes, their data will not be displayed (Figure 18).

Note: The current readings from WandererBox Plus V3 are for reference only and may be affected by USB input voltage and external magnetic fields. If the deviation is too large, try clicking the calibration button.

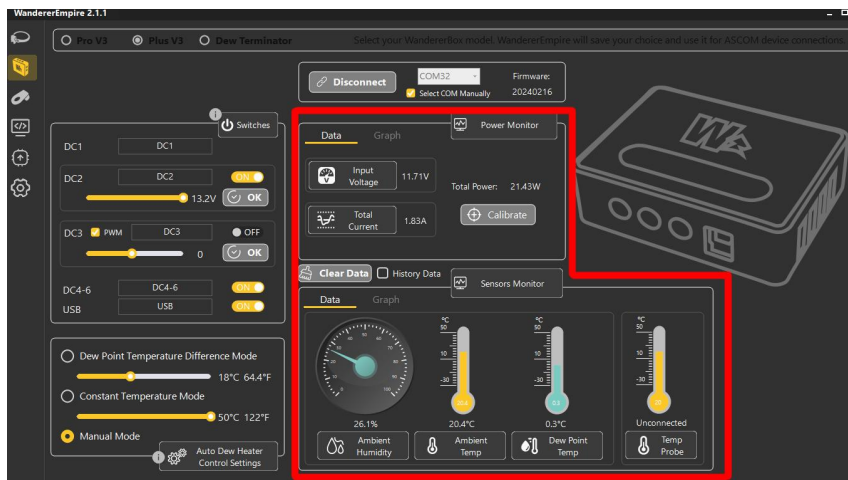


Figure 17

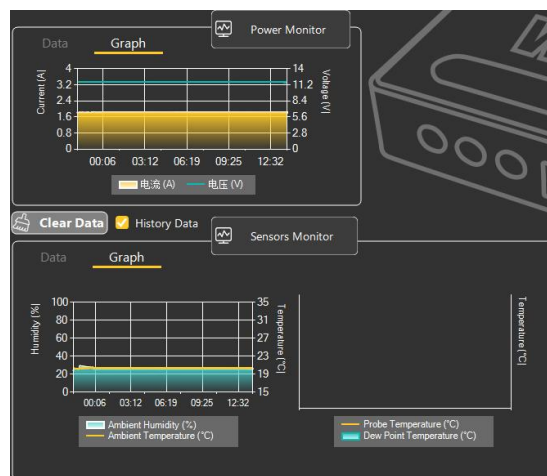


Figure 18

5. Wanderer Dew Terminator Control Features

5.1 DC Switches

Wanderer Dew Terminator provides multiple DC output ports as well as corresponding control functions. In the WandererEmpire software, the DC switch control area is located on the left side of the interface (Figure 19). You can also control them in N.I.N.A. or S.G.P. **Once the ASCOM driver is connected, control in N.I.N.A. or S.G.P. is synchronized and equivalent to control in WandererEmpire**(Figure 20).

Additionally, you can **customize port names** in the text boxes to better distinguish devices. Custom names will also synchronize in N.I.N.A. (requires reconnecting the device).



Figure 19

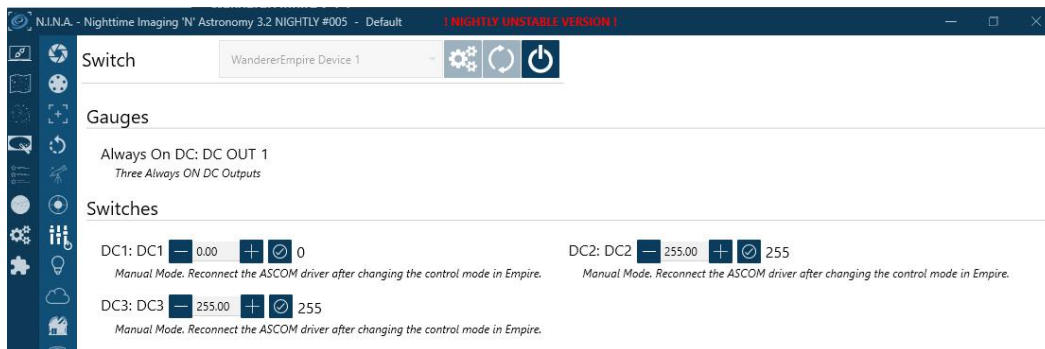


Figure 20

Hovering the mouse over the output port name will display detailed information for each port. The descriptions are listed below:

DC1 Always On (Three standard 12V outputs) :

(DC5521) Three 12V 10A normally open outputs, they are directly connected to the input port.

DC1, DC2, DC3 (Multi-purpose PWM outputs for dew heaters or 12V devices) :

(DC5521) DC1, DC2, DC3 are three independent multi-function 12V PWM output ports(The maximum current of each DC port is 8A). Check PWM to adjust the power of dew heater or the brightness of flat panel, etc. . Uncheck PWM to make it work as normal switch to power your devices.

5.2 Automatic Dew Heater Temperature Control

Wanderer Dew Terminator provides three PWM dew heater output ports: DC1, DC2, and DC3. These can independently control three dew heaters simultaneously.

If you do not need to control dew heaters, you can deselect the PWM checkbox(Figure 21). In this case, the DC port will operate in a standard switch mode, supplying power to any 12V device.

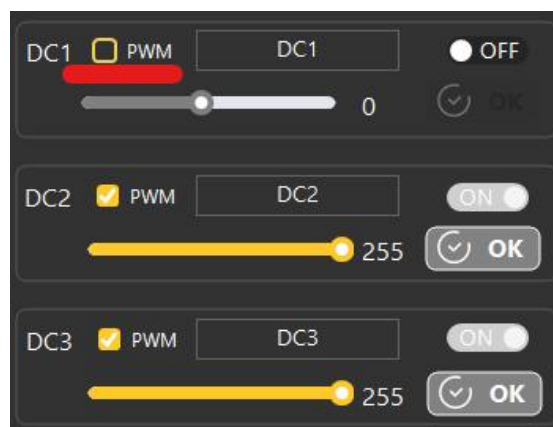
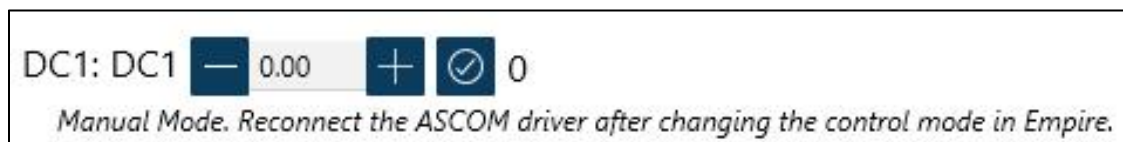


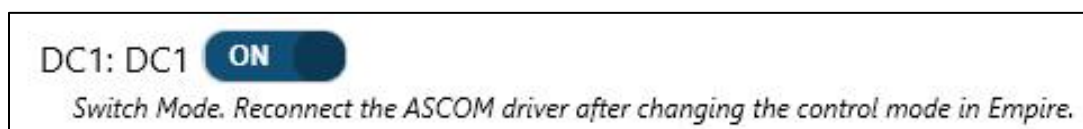
Figure 21

Please note that if you change the DC port working mode, please reconnect the ASCOM driver to refresh the control interface.

For example, when you check the PWM option of DC1 and then connect in N.I.N.A, you will see the following :



When you uncheck the PWM option of DC1 and then connect it in N.I.N.A, you will see the following:



When you use DC1, DC2 or DC3 to power the dew heater, you will use the Automatic Dew Heater Temperature Control function in the center of the interface (Figure 8).



Figure 22

Hover the mouse over the info icon to get the prompt information :

You can configure the dew heater control mode of DC1 here. Only valid when the DC1 is set to PWM mode (If you would like it to work as a switch, do not check PWM).

You can configure the dew heater control mode of DC2 here. Only valid when the DC2 is set to PWM mode (If you would like it to work as a switch, do not check PWM).

You can configure the dew heater control mode of DC3 here. Only valid when the DC3 is set to PWM mode (If you would like it to work as a switch, do not check PWM).

There are three modes for dew heater control. **Hover the mouse over the control mode name to get prompt information:**

1.Dew Point Temperature Difference Mode: This mode requires the included temperature and humidity sensor (Figure 9) and the included temperature probe (Figure 10).

WandererBox will regulate the temperature of the dew heater to maintain a fixed value higher than the dew point. It saves power and prevents condensation effectively. It also ensures that the dew heater does not overheat, ensuring good image quality.

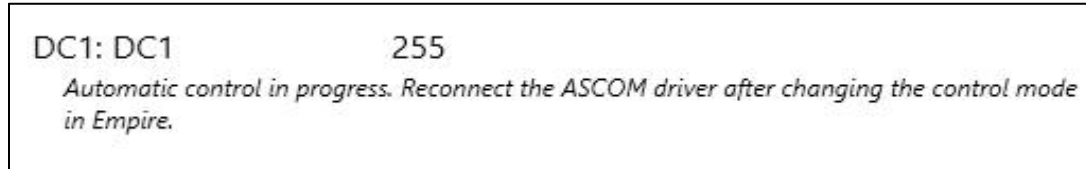
2.Constant Temperature Mode: This mode requires the included temperature probe (Figure 10).

WandererBox will keep the dew heater temperature constant at the set value.

3.Manual Mode: Direct user control without requiring sensors.

Manually adjust the duty cycle of the PWM port to control the power of the dew heater(0-255).

When you use the dew point temperature difference mode or constant temperature mode, the DC port is in automatic control mode, and you cannot manually control the DC port. In N.I.N.A, you will see the following:



5.3 Voltage, Environment Temperature and Humidity, and Dew Heater Monitoring

On the right side and at the bottom of the interface are the temperature and humidity monitoring window and the voltage monitoring window(Figure 23). You can choose to display data in numerical format or as a graph. Selecting "Historical Data" allows the graph to show all data from when the device was connected to the present. For unconnected temperature probes, their data will not be displayed (Figure 24).



Figure 23

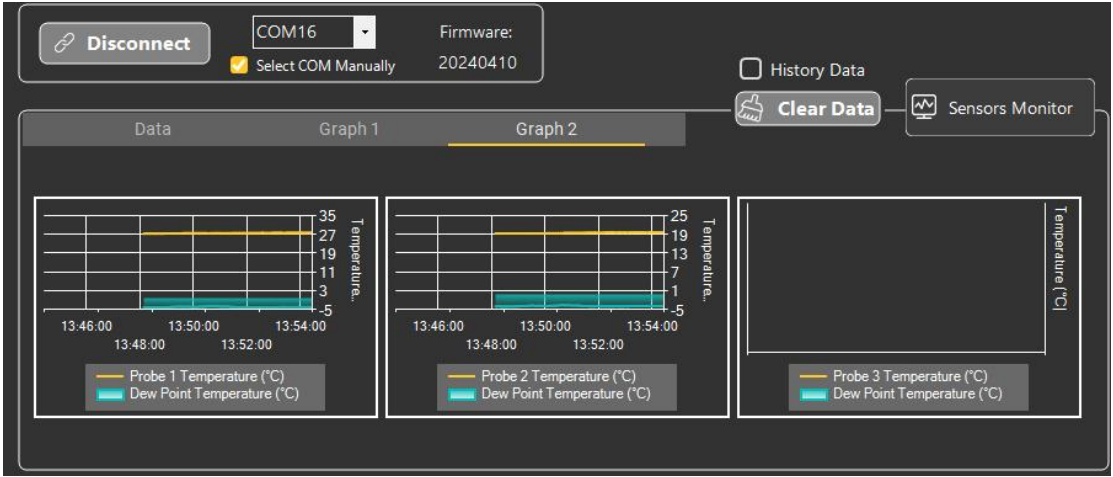


Figure 24

5.Firmware Upgrade

For Pro V3 and Plus V3 , you need to disassemble the back cover (by removing the two hexagon socket screws) and find the button for uploading the firmware (Figure 23), which is located near the USB input port.



Figure25

Press the button and click Upload, keep pressing the button until the upload is successful.

Watch the instructional video for detailed instructions:

[How to upload firmware for WandererBox Plus V3 & Pro V3 \(youtube.com\)](https://www.youtube.com/watch?v=...)

The video tutorial is based on the old version of the software. Please note that the firmware upgrade tool has now been integrated into WandererEmpire. It is recommended that you read the tutorial on the right side of the interface carefully (Figure26).

For Dew Terminator, there is no need to remove the back cover and press the button, just click to upload.

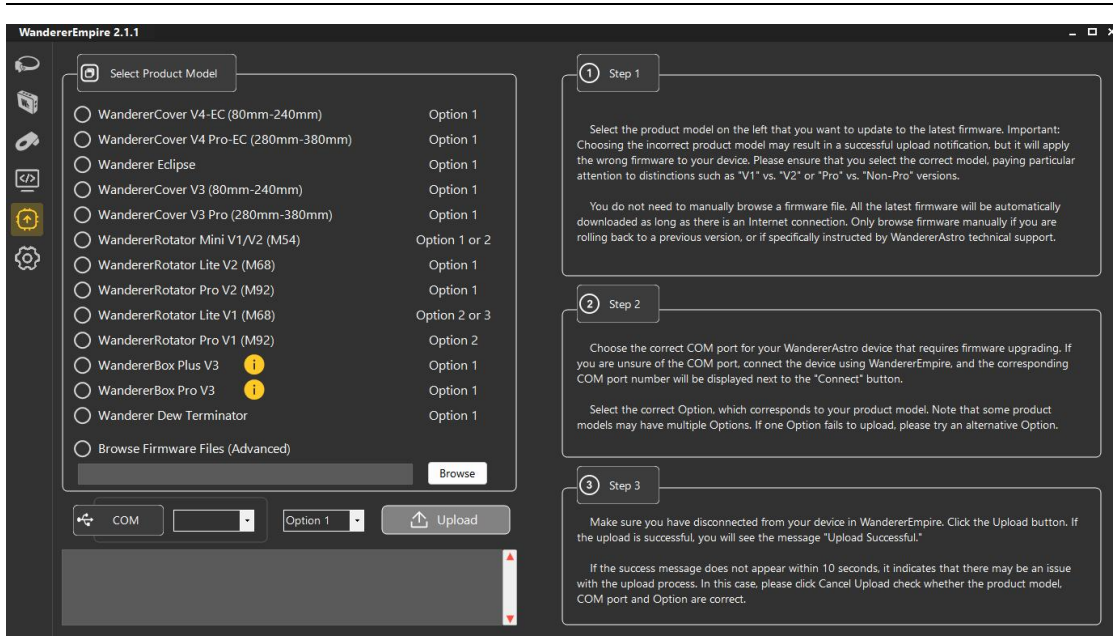


Figure26

6. Frequently Asked Questions

Q: The computer shows an unknown USB device.

A: It may be that the CH340 serial port driver is not installed. Please visit the official website to download CH341SER.exe and install it.

Q: Do both power input ports of WandererBox Pro V3 need to be connected?

A: The dual-port input is designed for backup, you only need to connect any one. If two channels are connected at the same time, it is recommended to use adapters of the same manufacturer and model.

Q: Why can't I get data even though I've plugged in the temperature probe?

A: Please insert the temperature probe firmly to the end.

Q: What power supply should I use?

A: The WandererBox series needs a 12V power input. The power supply should be capable of meeting the maximum required current of your device, and the maximum allowable input current of the powerbox should not be exceeded. For Lite V3, the power input jack 5521 is recommended, and for Pro V3 and Plus V3, the recommended power input jack is 5525.