



Remote Voltage & Current Control

Application Note

This Application Note was written to provide insight into how to set up and control the output voltage and/or current of NEVO+ configurable AC/DC power supplies. This application note shares proprietary software designed by Vox Power Ltd which can be used by our global channels and end users.

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Requirements:

1. A NEVO+ 600 or 1200 Watt configurable AC/DC power supply with any output module O/P 1 to O/P 4
2. A Vox Power I2C Interface (High Resolution Version)



3. A USB to I2C Converter

The converter can be purchased online in Europe and the USA from multiple sources at an average purchase cost of \$20 to \$25 each. Sample links are shown below EMEA and the USA.

EMEA: https://www.robot-electronics.co.uk/htm/usb_i2c_tech.htm

USA: <http://www.robotshop.com/en/devantech-usb-to-i2c-module.html>



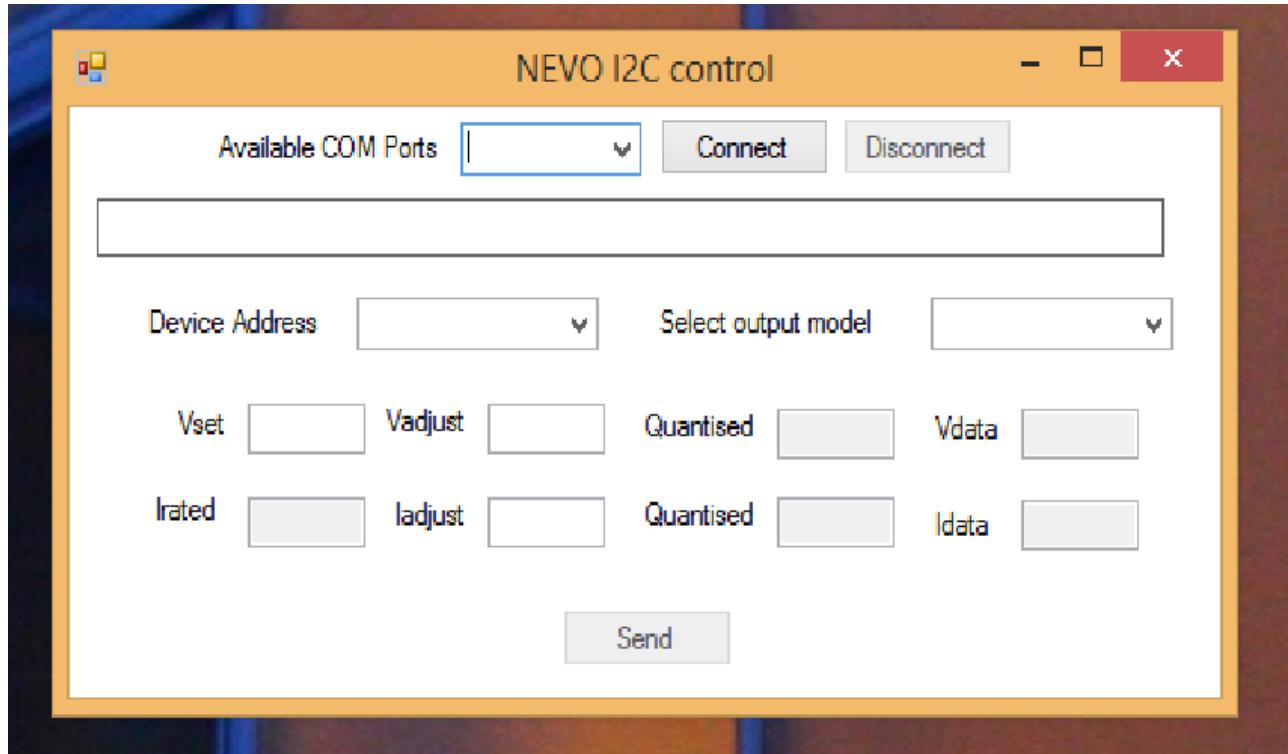
4. Download the driver for your converter using the below link. Select the driver based on the operating system in use on your laptop, desktop or tablet <http://www.ftdichip.com/FTDrivers.htm>

5. One USB A to B Cable

This cable is connected between the laptop, desktop or tablet and the USB to I2C converter.



6. Vox Power Software



Executable Vox Power Software



The software can be sent to customers with a .BAK extension as windows will block executable files. Once received the customer should save the .BAK file as an executable file i.e. use the extension .EXE when saving the file.

7. Vox Power single output cable set
8. Laptop, Desktop or Tablet

Next Steps

1. Save the Vox Power software to your desktop or folder
2. Connect the USB cable to your laptop, desktop or tablet and the other end to the I2C converter input
3. Connect the output of the I2C converter to the input of the I2C interface using the NEVO+ single output cable set.
4. Connect the output of the I2C interface to the NEVO+ O/P module J5 connector
5. Apply AC to the NEVO+ and connect the load to be applied.
6. Connect a meter to the output of the NEVO+ to check the voltage set point of the module being used and adjust accordingly.
7. Check the port name to be used on your laptop, desktop or tablet. It is normally Comm 2 but you can check this by going to the Control Panel/Device Manager folder.

Remote Voltage Programming

Firstly, ensure the I2C interface address is selected using the DIP switch settings shown below. When using a single I2C interface to control one module any address can be selected from the below table. The same address should be selected from the drop down menu in the software interface. Multiple I2C interfaces can be used to control multiple O/P modules with each interface being given one of the below addresses. One USB to I2C converter can be used to achieve this task by having four sets of cables attached to the output of the converter. Now, select the COM port being used, the interface address and type of module being controlled in the Vox Power software interface.

Switch setting (1=ON, 0=OFF, X=Don't care)		Slave Address		
1	2	3	4	Slave Address
0	0	X	X	20h
0	1	X	X	60h
1	0	X	X	A0h
1	1	X	X	E0h

It is very important to remember that the voltage adjustment range when using remote voltage programming is +/- 100% of the voltage set point. Therefore the over voltage protection set point of each module can be easily reached and exceeded resulting in the module entering a latch mode of operation.

Set the output module set point using the Vox software user interface shown on the previous page i.e. **(Vset)**. For O/P 1 this maybe 5V OR 12V for O/P 2, now enter the adjustment value (which can be anywhere from 0 to 10V for O/P 1 if the set point is 5V. **(Vadjust)**. The maximum rated current will automatically be loaded once the O/P module type is selected. Do not enter any values in the I-adjust box as we are not controlling the current at this time. The software provided allows for single module, single voltage change control and serves as test software for end users who intend using remote voltage programming. The end user may decide to write their own software which may have multiple voltage changes and time dwell control built in.

Remote Current Programming

In many applications, the current is the important function to be controlled or set while the voltage can vary. Current control using the Vox Power software is achieved by following the same steps as above but we enter a fixed value for the current limit in the **I-adjust** box. For example an O/P 1 module can have the current limit set to 15 amps and the voltage varied according to requirements. As stated above, current control of multiple modules can be achieved by having multiple cable set connections from the output of the USB to I2C converter.

The user needs to be aware that the current adjustment range is also very large i.e. 0 to 125% of the set point or I-rated. There will be a tolerance applicable also as to when the over current trip point will be activated which is typically 105% to 125% of I-rated. The user should default to a maximum of 105% of I-rated being available and refer any special requirements to their Vox Power representative.

Vox Power Part Number

Vox Power has allocated a part number for our customers to order the voltage and current control component parts i.e. **VC Control Accessories**. The accessory pack will contain the USB to I2C converter, USB A to B cable, I2C Interface and Single Output Cable Set. The cost will be \$80 OR €60 for sample/test quantities of 1 to 5 pieces