



Test Procedure for the NCV7703CGEVB Evaluation Board

Equipment – 1A, 14V power supply

Jumpers

Connect all jumpers to the board.

The Load Select jumpers connect in the position right.

The 5V/Ext. Vcc jumper should be to the left.

DIP Switches

Move all dip switches in their down position to indicate zeros.

Power Supply

Connect a 14V / 1A power supply to the VBAT / GND banana jack inputs.

- 1) Confirm the splash screen displays

“NCV7703C Triple Half-Bridge Driver with SPI Control “for 3 seconds.



- 2) Confirm the screen changes to the control screen.





DIP Switch Operation

Confirm Motor Operation

3) Set the following switches to 1

EN	H3	L2
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- a. Press the Transmit button.
 - i. Confirm the (right) motor turns on.
- b. Set all DIP switches to zero.
 - i. Confirm the motor turns off when EN is brought to zero.

4) Set the following switches to 1

EN	H1	L2
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- a. Press the Transmit button.
 - i. Confirm the (left) motor turns on.
- b. Set all DIP switches to zero.
 - i. Confirm the motor turns off when EN is brought to zero.

5) Set the following switches to 1

EN	L3	H2
----	----	----

- a. Press the Transmit button.
 - i. Confirm the (right) motor turns on.
- b. Set all DIP switches to zero.
 - i. Confirm the motor turns off when EN is brought to zero.

6) Set the following switches to 1

EN	L1	H2
----	----	----

- a. Press the Transmit button.
 - i. Confirm the (left) motor turns on.
- b. Set all DIP switches to zero.
 - i. Confirm the motor turns off when EN is brought to zero.

Confirm Continuous Transmit

7) Set the following switches to 1

Continuous Transmit	EN	L1	H2
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- a. Confirm the (left) motor turns on without the need to press Transmit.



Confirm Overcurrent Conditions

Note –

A power supply fail can also sometimes occur when doing the test with a short to VBAT depending on the power supply used in the testing. There is nothing wrong with the board during these conditions. The test result will look similar to the result below highlighting the first bit as a 1 on SO instead of a zero.

Normal operational results will report an overcurrent and an undercurrent when testing with the H-bridge test setup.



8) Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	L1	H2
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a. Confirm the display and motor is on.



- b. Momentary switch OCD Short 1 to VBAT.
- c. Confirm the display and motor is latched off.



- d. Toggle the EN dip switch. Confirm the display in a.
- e. Momentary switch OCD Short 2 to GND.
- f. Confirm the display and motor is latched off.





9) Set all dip switches to zero.

Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	L3	H2
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a. Confirm the display and motor is on.



- b. Momentary switch OCD Short 3 to VBAT.
- c. Confirm the display and motor is latched off.





10) Set all DIP switches to zero.

Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	H1	L2
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a. Confirm the display and motor is on.



- b. Momentary switch OCD Short 1 to GND.
- c. Confirm the display and motor is latched off.



- d. Toggle the EN dip switch. Confirm the display in a.
- e. Momentary switch OCD Short 2 to VBAT.
- f. Confirm the display and motor is latched off.





11) Set all dip switches to zero.

Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	H3	L2
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a. Confirm the display and motor is on.



- b. Momentary switch OCD Short 3 to GND.
- c. Confirm the display and motor is latched off.





Confirm Underload Conditions

12) Set all dip switches to zero.

Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	L1	H2
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a. Confirm the display and motor is on.



b. Remove the ULD 1 jumper. Confirm the display and the motor is off.



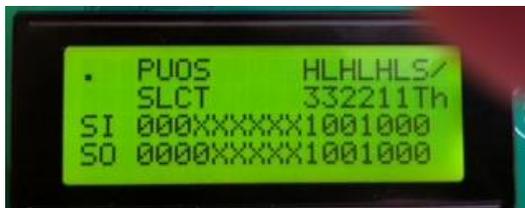
- c. Replace the ULD1 jumper. Toggle the EN dip switch to reset the SO ULD bit.
- d. Confirm the display in a. and the motor is on.
- e. Remove ULD 2 jumper. Confirm the display is the same as in b and the motor is off.
- f. Replace the ULD2 jumper.

13) Set all dip switches to zero.

Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	H3	L2
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g. Confirm the display and motor is on.



h. Remove the ULD 3 jumper. Confirm the display and the motor is off.





Confirm UVLO condition

14) Set all dip switches to zero.

Set the following switches to 1 with EN as the last switch.

Continuous Transmit	EN	H3	L2
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i. Confirm the display and motor is on.



j. Remove the UVLO jumper. Confirm the display and the motor is off.





ANNEX A – Arduino Programming

Instructions for programming of Arduino device

- 1) Make sure the ATMEGA328P-PU comes pre-loaded with the Arduino bootloader. Info is available on the Arduino web site if you choose to load the Arduino bootloader yourself (www.arduino.cc).
- 2) Download and install the Arduino Software (IDE) on your computer. It is available for Windows, Mac OS X, and Linux 32 bit, Linux 64 bit, and Linux ARM. <https://www.arduino.cc/en/Main/Software>

In most cases, just click on “Windows Installer”.

- 3) Plug the Arduino UNO into the USB port of your computer with the ATMEGA device in the socket.
- 4) Start the Arduino programming environment.
- 5) Open the “INO” file. FILE→OPEN
- 6) Verify correct board is selected.

Board→Arduino/Genuino UNO

- 7) Verify communications between the PC and the Arduino UNO.
TOOLS→PORT→”Serial Ports” In my case the serial port is COM5. Make sure there is a check in the box.
- 8) Upload the program to the Arduino board. SKETCH→UPLOAD
- 9) The Arduino device is now programmed.
- 10) Unplug the connector to the USB.
- 11) Remove Arduino device from its socket.
- 12) Done.