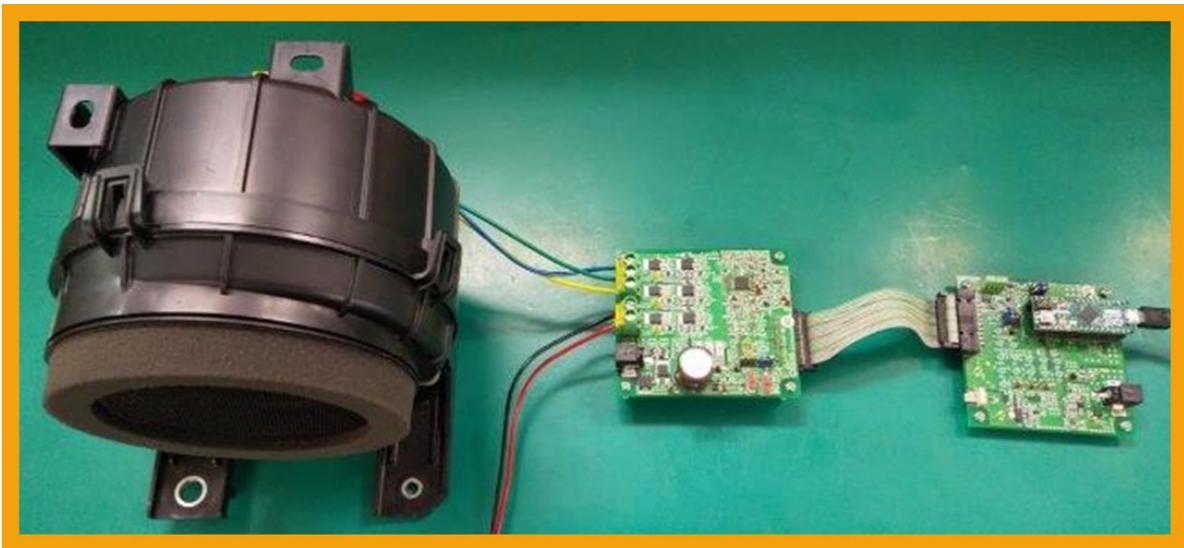


## Test Procedure for the LV8961HUWR2GEVK Evaluation Board

### Introduction

The LV8961HUW is a high-performance sinusoidal sensor-less three-phase BLDC motor controller with pre-drivers for automotive applications. An integrated two-stage charge pump provides gate current for a wide range of ultra-low Ron NFETs. The device offers a rich set of system protection and diagnostic functions such as over-current, over-voltage, short-circuit, under-voltage, over-temperature and many more. It supports open-loop as well as closed-loop speed control with user configurable startup, speed setting and proportional/integral (PI) control coefficients, making it suitable for a wide range of motor and load combinations. With an in-built linear regulator for powering an external circuit and a watchdog timer, the LV8961HUW offers the smallest system solution footprint. An SPI interface is provided for parameter setting and monitoring the system health. With the operating junction temperature tolerance up to 175°C, the LV8961HUW is an ideal solution for stand-alone automotive and industrial BLDC motor controls. This Test procedure shows how to use easily by LV8961 EVK.



### Equipment required

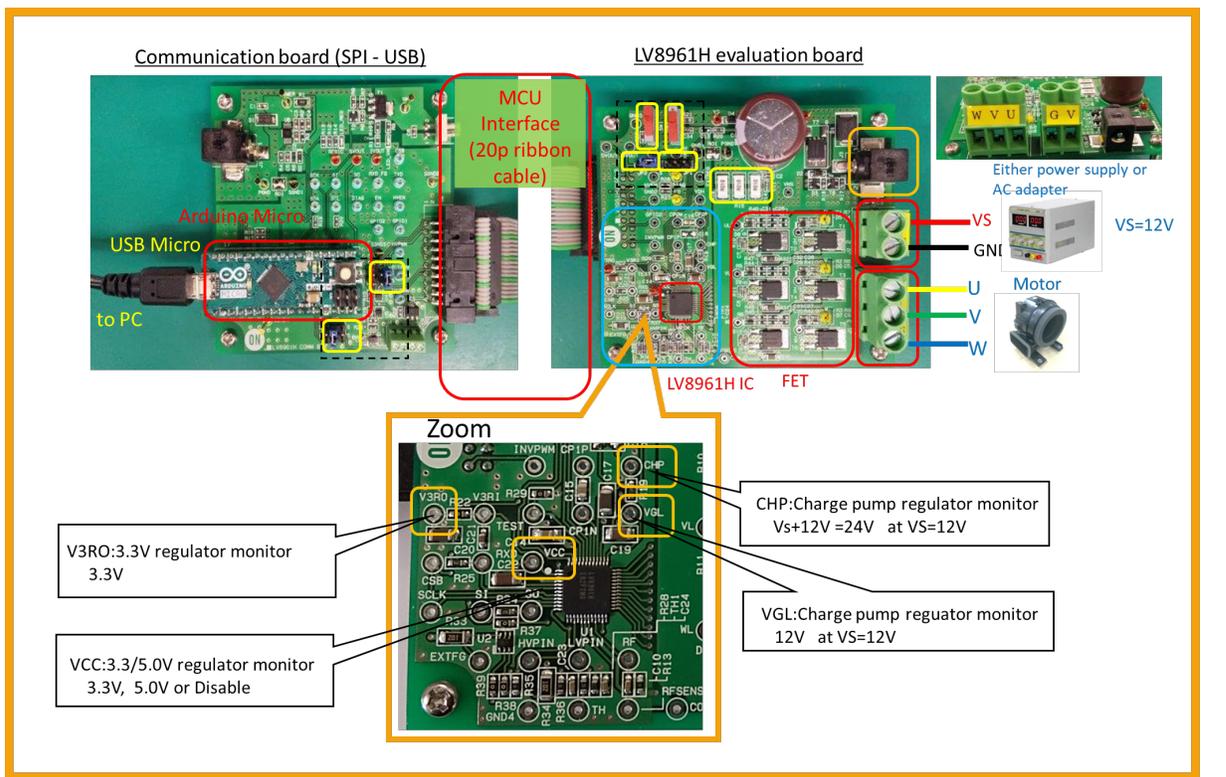
- Power supply: 12V (30A)
- Digital multi meter:
- Digital Oscilloscope:
- Currents probe:
- BLDC motor:

## Setup Procedure

LV8961HUWR2GEVK connects LV8961H evaluation board (EVB) and Communication board (COMB). The operating procedure shows the following.

Please confirm each regulator monitor of LV8961 EVB.

0. Connect LV8961 EVB and COMB.
1. Connect a Power supply to power terminal of EVB.
2. Connect a BLDC Motor to OUT terminal of EVB
3. SW1 Enable pin sets low and SW2 Wake pin sets high.
4. A Power supply sets 12V.
5. Measures each regulator monitor pin by digital multimeter.
6. Measures V3RO pin and shows 3.3V value. (Spec:3.135 ~ 3.465V)
7. Measure VCC pin and shows 0V value. (VCC regulator disable)
8. Measure VGL pin and show 12V value. (Spec:10 ~ 14V)
9. Measure VGH pin and show 24V value. (Spec:VS+9 ~ VS+14V)
10. If each pins show proper value, the EVK is normal board.

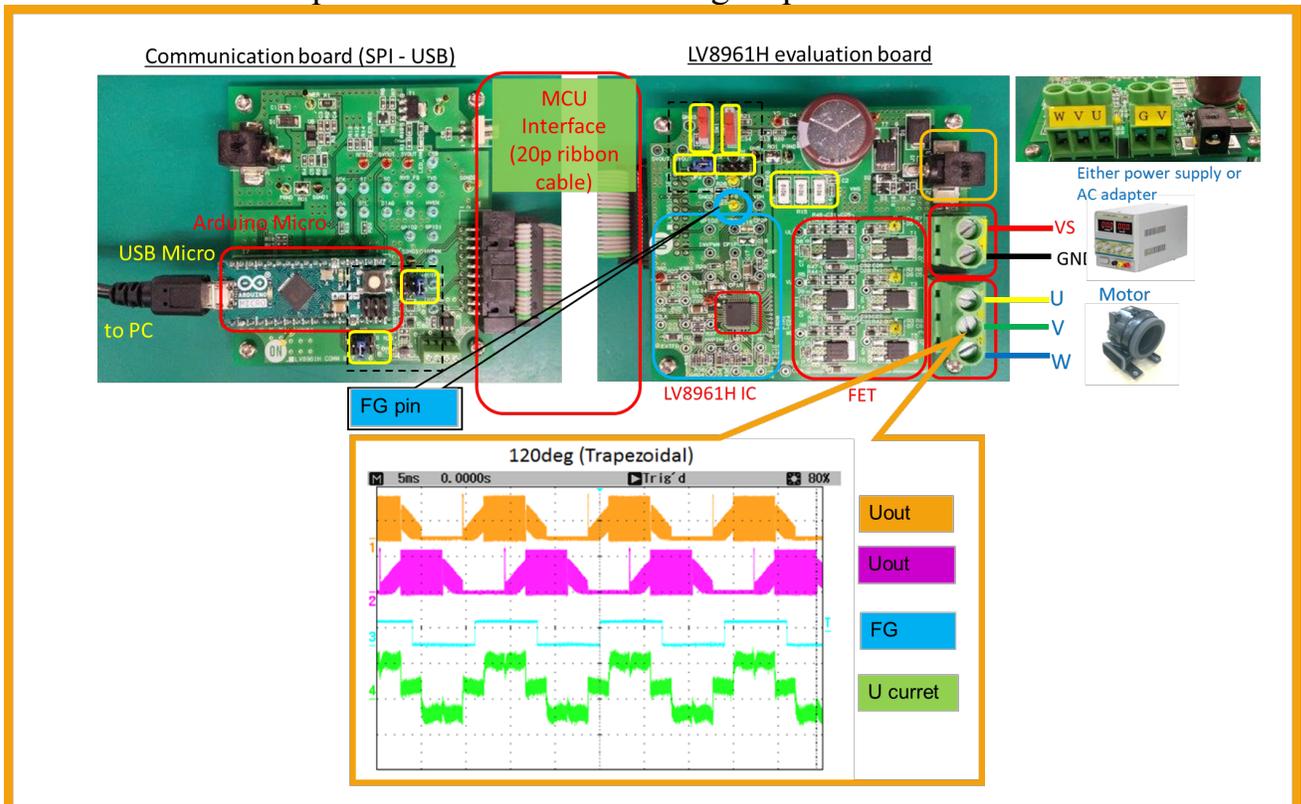


## Quick motor setup drive.

After setting Motor operating, Arduino micro USB of COMB connects PC USB. Then LV8961 is installed register data from Arduino micro. So LV8961 can drive the motor without GUI.

The operating procedure shows the following.

0. Connect LV8961 EVB and COMB.
1. Connect a Power supply to power terminal of EVB.
2. Connect a BLDC Motor to OUT terminal of EVB
3. SW1 Enable pin sets low and S5W2 Wake pin sets high.
4. A Power supply sets 12V.
5. Arduino micro USB of COMB connects PC USB.
7. LV8961 is installed register data from Arduino micro.
8. Measure VCC pin and shows 5V value. (Spec:4.75 ~ 5.25 V)  
When VCC pin shows Spec, the installed data is correct.
9. SW1 Enable pin sets High. (“Enable pin is low” shows motor stop.)
10. As ZPSEL register is set by 50% duty, when PWM input is 0% duty, LV8961 starts up by OUT 50% duty and drives the Motor.
11. Measurement each Pins by Digital Oscilloscope.
12. Confirm the waveform of each pins are correct.
13. SW1 Enable pin sets Low. Motor driving stops.





This Test Procedure shows that you are able to drive the motor by LV8961 EVK easily. This TEST procedure operating will be supported from LV8961 COMM BOX ver.2 board obtained since October 2021.

If you want to know how to control more detailed operation, you can confirm another file.

The parameter of LV8961 and GUI detail setting shows another file. Please see “LV8961H Parameter Setup for EVB and GUI.pdf” file.