

Group name: HKN

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1. What is the voltage at FLYBACK while the motor is running without the flyback diode? with the diode? Include screen captures of the measurements.

	Minimum without flyback diode	Maximum without flyback diode	Minimum with flyback diode	Maximum with flyback diode
Voltage	-761 mV	984 mV	-431 mV	1.10 V



Fig 1. FLYBACK voltage without flyback diode



Fig 2. FLYBACK voltage with flyback diode

2. What is the minimum voltage you observe on VCC while the motor is running without the decoupling cap? With the cap? Include screen captures of the measurements.

	Minimum voltage without decoupling cap	Minimum voltage with decoupling cap
Voltage	2.5 V	3.47 V

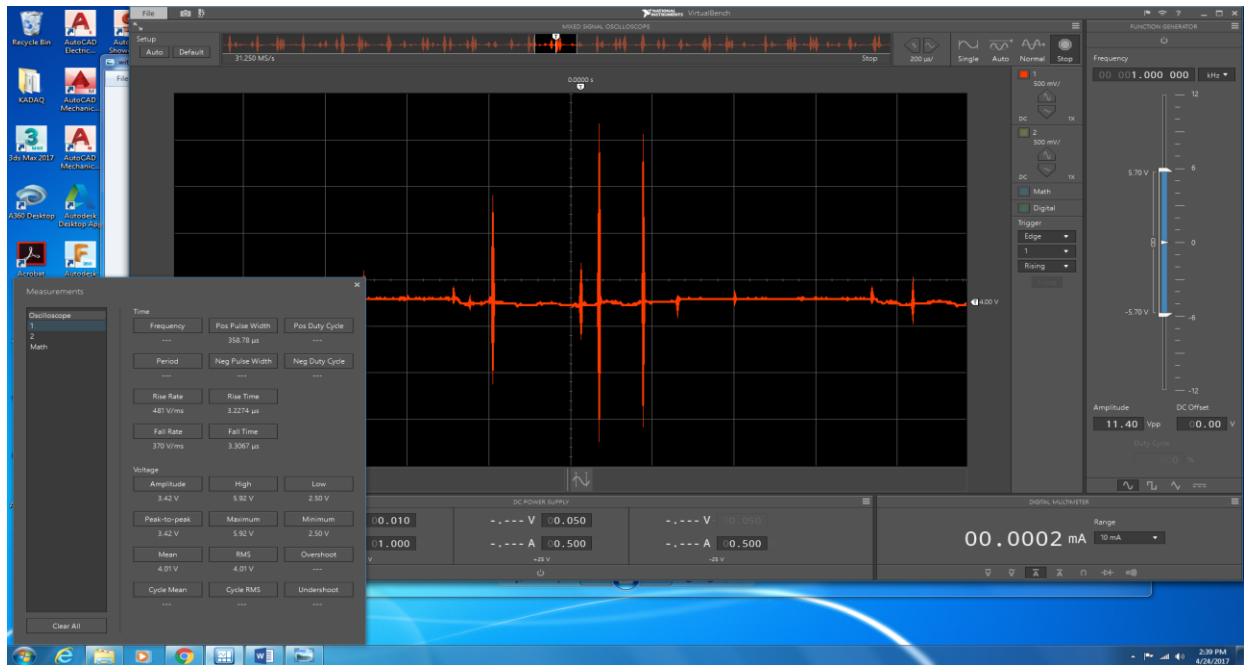


Fig 3. Minimum VCC voltage without decoupling cap

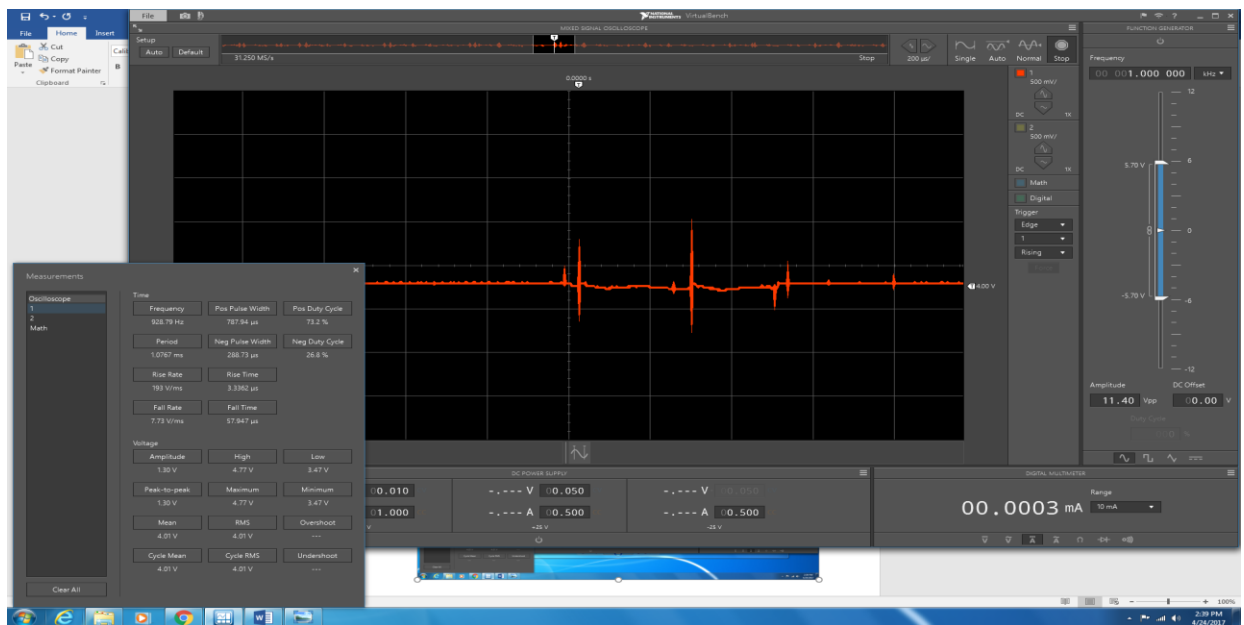


Fig 4. Minimum VCC voltage with decoupling cap

- What effect does the filter (C1 and R1) have on the PWM input to the controller (i.e., how is the signal at PWM different than the signal at FILTERED)? Include screen captures of each.

The filter blocks noise from the signal by applying a low pass filter between FILTERED and PWM.

	Minimum	Maximum
PWM voltage	-53.8 mV	3.07 V
FILTERED voltage	-301 mV	3.38 V

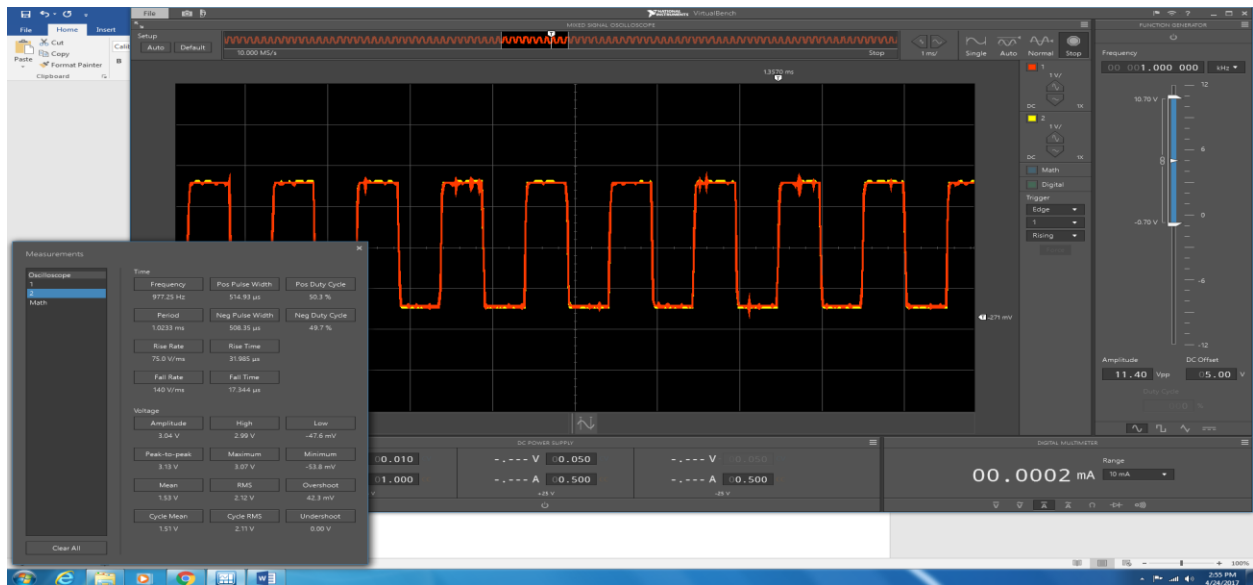


Fig 5. PWM voltage

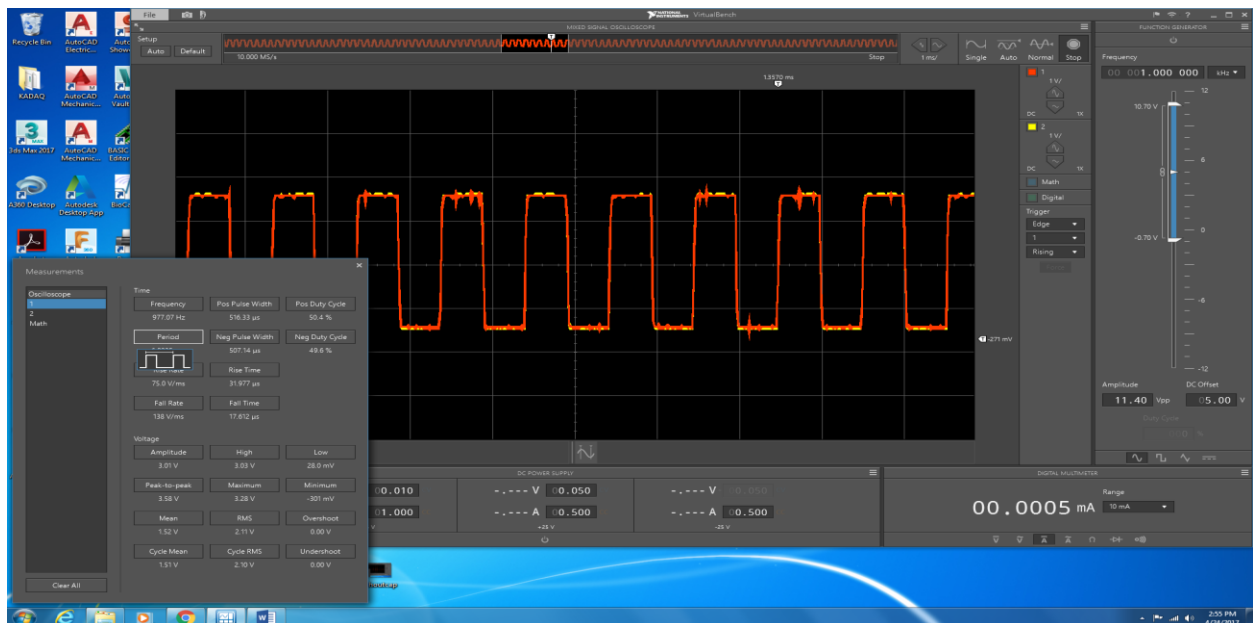


Fig 6. FILTERED voltage

4. What effect does the filter have on the voltage range on FLYBACK?

The filter limits the flyback voltage.

	Minimum	Maximum
FLYBACK voltage with filter	-431 mV	1.01 V
FLYBACK voltage without filter	-506 mV	4.23 V



Fig 7. FLYBACK voltage with no filter