

DC Motor Starting Current Test

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1 Test Conditions

- Location: Design Studio
- Date: Dec. 17, 2017
- Ambient Temperature: Room temperature (appx. 23-25° C)
- Environment: Loud, luminous

2 Test Procedure

The aim of this test is to measure the zero-speed current (maximum current) of the DC motor. To achieve this, we used the DC Power Supply's Current Limiter property. We directly connected the power supply to the motor. And by fixing the voltage level, we changed the current limit value step by step. The corresponding current values can be seen in the following table.

Trial Number	Voltage Level	Current Level	Is the limit exceeded?
#1	7.8 V	3.00 A	NO
#2	7.8 V	2.74 A	NO
#3	7.8 V	2.30 A	YES
#4	7.8 V	2.60 A	NO
#5	7.8 V	2.40 A	YES
#6	7.8 V	2.50 A	NO
#7	7.8 V	2.49 A	YES

The DC power supply makes a clique sound and turns the CC (Control and Current) LED on when the current limit is exceeded. By this method, we found the maximum current level under the voltage level 7.8 Volts which is about 2.49 Amperes. Below this value, all current levels will exceed the limit during the zero-speed tests.

A similar test is applied while the robot is moving. Two motors took 0.92 Amperes in this test.

3 Conclusion

These tests are performed in order to observe and measure the current rating of the motors at worst case (i.e. at start and at zero-speed issues). Comparing the test results , it can be concluded that the amount current drawn by motors is far from being harmful for the battery, the motor drive and the rest of the system.