



Remote Fast Acquisition using the DM3068

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Solution: The DM3068 Digital Multimeter is capable of a remote (USB, Ethernet, RS-232) reading rate of 2000 DC Volts readings/sec and 10k readings/sec to the internal memory/USB.

This document covers how to set up or program the instrument to achieve the fastest reading rates.

Remote Commands:

Here are the commands used to program the instrument to accomplish the fast reading rate.

Similar steps can be used to perform other measurement functions, but the fastest reading rates are only available for DCV, DCI, and 2 wire resistance measurements.

NOTE: For Serial Communication, the DM3068 requires a '\r\n' (Carriage return and New line) termination.

USB requires '\n' (New line) termination only.

Command Strings are enclosed in quotes "" and comments are denoted by '!'.



Steps:

- “CMDSET AGILENT” /Set Command set to Agilent
- “DISP OFF” /Turn off display
- “:TRIG:DELAY 0” /Set trigger delay to 0
- “VOLT:DC:RANGE <n>” /Set measurement range. <n> denotes desired /measurement range (200V, 20V, 2V, 0.2V)
- “ZERO:AUTO OFF” /Disable auto zero.

NOTE: This will cause drift in the measurements if it is left “off” for long readings times. A rule of thumb would be to enable Auto zero and take a new reading every 5 minutes.

- “FUNC 'VOLT:DC'” /Set measurement function.
- “VOLT:DC:NPLC 0.02” /Set measurement integration time.
- “TRIG:COUNT 1” /Set Trigger count
- “SAMP:COUN <n>” /Set Sample count.. <n> = number of samples to /collect
- “READ?” /Trigger measurements and read data from instrument



Front Panel Steps:

Here are the steps to set up your DM3068 to acquire the fastest reading rates.

Similar steps can be used to perform other measurement functions, but the fastest reading rates are only available for DCV, DCI, and 2 wire resistance measurements.

1. Start from factory defaults
 - Press Utility > System > Cfg > Default > Done
2. Select measurement function. Recall 10k readings/sec available with DCV, DCI, and 2 wire resistance only.
3. Set NPLC (Measurement integration rate) to 0.006.
 - Press Meas > Integ > NPLC > “left arrow” > 0.006





- 4. Disable Autozero.
 - Press Meas > AZ > Off



NOTE: This will cause drift in the measurements if it is left “off” for long readings times. A rule of thumb would be to enable Auto zero and take a new reading every 5 minutes.



5. Set the instrument to a fixed range.



6. Set trigger delay to 0s.

- Press Trig > Set > Delay > ZERO





You can then verify the reading rate by connecting the VMC connection (BNC) on the back panel of the DMM to an Oscilloscope and enable VMC output (Trig > VMC > ON) of the DMM.

This will send a Voltage Low signal (From 5V high to 0V low) for each sample acquired.