

DIGITECH QM-1520,2,5 DVM QUICK TESTS

This is a quick series of tests to check simple digital multimeters (DVM) for basic functionality.

It works best for quantity of the same brand and model such as a class set.

If a meter fails ONE test then that range is faulty,

if it fails more tests then the meter probably is not worth repairing

TEST (1) – checking the ohms range, the battery and the display

Select your first meter; select the **200 Ω** (ohms) range

Plug a test lead from the **COM-** socket to the **VΩmA** socket

Carefully check that the display correctly shows close to **00.0**.

Say in the range **00.0 to 03.0** (e.g. **00.2**)

If it reads higher or has an unstable reading the lead connections are bad.

Once you have a meter that passes this test we will use it as our **SOURCE** meter. It is used to output the test voltage for the other tests and we can ignore its display.

Now repeat TEST (1) to on the first meter to be fully tested

– we will call this our **METER UNDER TEST (MUT)**.

When that **MUT** passes TEST (1) proceed to TEST(2)

TEST (2) – checking the voltage ranges

Connect a test lead between the **COM-** sockets of the **SOURCE** meter and the **MUT**.

Connect another test lead between the **VΩmA** sockets of the **SOURCE** meter and the **MUT**.

(a) On the **MUT**; select the **20 DCV or V_{DC}** (20 volt dc) range

On the **SOURCE** meter; select the **200 Ω** (ohms) range

Check that the display correctly shows a voltage in the range of **2.00 to 3.00**.

(Take note of the voltage to compare with other meters)

(b) Increase the **MUT** range to **200 DCV or V_{DC}** and check that the display shows the same voltage

– remember we are now on a 200 volt dc scale and so the number of significant figures changes. eg. 02.0 to 03.0

(c) Increase the **MUT** range to **600 DCV or V_{DC}** and check that the display shows the same voltage.

eg. 002 to 003

When that **MUT** passes TEST (2) proceed to TEST(3)

TEST (3) – checking the current ranges

With the test leads between the **SOURCE** meter and the **MUT** in the positions as for TEST (2);

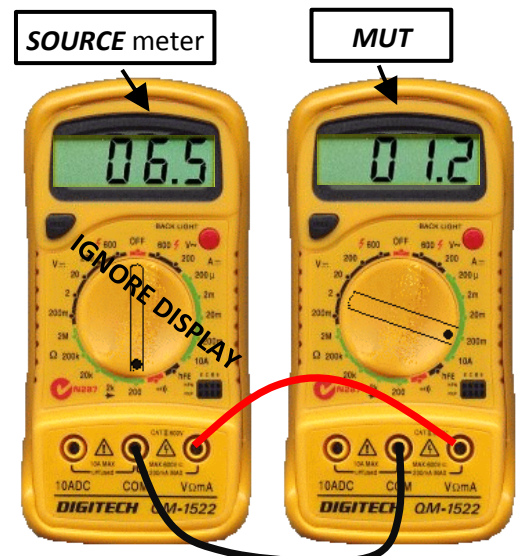
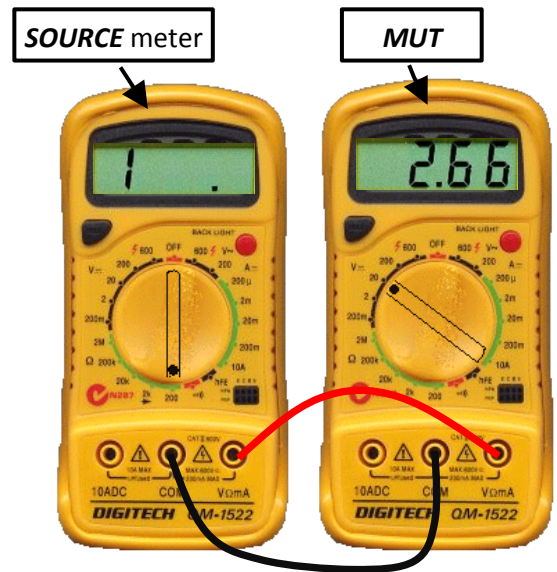
On the **MUT**; select the **200m DCA or A_{DC}** (200 mA DC) range

On the **SOURCE** meter; select the **200 Ω** (ohms) range

(a) Check that the display shows a current in the range of **1.00 to 3.00** correctly.

If the display stays at **000** then most likely the internal fuse has failed and will need replacing.

(b) Decrease the **MUT** range to **20m DCA or A_{DC}** and check that the display shows a current in the same range.



These tests do not test all the capabilities of the meter but will eliminate meters with that have the most common faults.