

The DT9205A is a low-cost *digital meter* made in China. It can measure DC and AC voltages, DC and AC currents, resistance, diode, capacitance, transistor, and continuity testing.

I bought this meter in 2013 on eBay and paid only £6.00 including postage. I just wanted to see what accuracy and range I could get for this amount. It came all the way from China, 8 days later after making payment, which is impressive. Obviously, you get what you pay for and I was not expecting anything for six pounds, but I was impressed with the large display, and the plastic case. It would cost more than six pounds to buy the components these days.

View



↑ Click image to enlarge ↑

2 M Ω - 20 M Ω - 2000 M Ω Resistance Ranges

One of the interesting features about this meter is the 2000 M Ω range for measuring large resistance values. Unfortunately, I did not have any resistors that large, but it is certainly something I would like to test in the future.

Un-fused 20 ampere Shunt

Due to the *un-fused* 20 ampere shunt, this meter is probably not best suited for high current measurement, and therefore, I would not use it for measuring anything more than 1 A.

Electrical engineers that I know tend to use very expensive professional equipment for high voltage and currents. Their meters also have to pass safety requirements periodically.

Test Leads / Probe Resistance

The leads appear to be identical to the DT830B and many other models. There might be one factory making these and supplying them to meter manufacturers. The resistance of the test leads is critical when measuring large currents of up to 20 A. I thought the leads were poor quality and this is definitely one feature that lets this meter down.

My leads were showing a resistance of $0.3\ \Omega$, which is a lot. This will of course distort measurement readings significantly. This is also another reason why you cannot use this meter to measure high currents of up to 20 A.

With two test leads, the total resistance is the following.

$$0.3\ \Omega + 0.3\ \Omega = 0.6\ \Omega$$

We can use P_R to calculate the power dissipated, to give the expression below.

$$\text{Power} = 20 \times 20 \times 0.6$$

$$\text{Power} = 240\ \text{W}$$

The wires will likely melt if they carried 20 amperes, and dissipated 240 W.

Addendum: Three weeks later, one of the test leads broke. The wire came off from the plastic probe! It broke from the place where the wire part goes into the plastic probe. Although the seller was willing to send another set of test leads, I decided to use my own ones from another meter because they were better quality. After changing the leads, the meter was performing far better than before.

LCD Quality



The 3 ½-digit LCD panel is large measuring 63 mm × 33 mm. The digit height is around 26 mm. This is definitely one of its better points. The contrast is very good and I am able to see the display in low light conditions. The contrast is also very good if you view it obliquely.

I have some expensive branded meters and their LCD contrast is not so good in comparison. This is probably because those meters are six to ten years old, and LCD technology has improved in that time.

Transistor Testing

This meter will test NPN and PNP bipolar transistors. I tested a couple of transistors and the meter performed very well. I was very impressed with this feature of the meter. I also tested some transistors that were partially short, and the meter did very well.

Capacitance Testing

The capacitance test range is 200 µF to 2 nF. I tested a couple of capacitors and it was accurate enough.

Auto Power OFF



The other useful function that I liked was the *auto power OFF* mode, as I am always forgetting to switch OFF when I am done with it, and this will save me a fortune in battery cost.

Summary

It is a nice meter for low voltage, and current, measurements. For low voltage hobby use, it is probably good enough. I used this meter for a while for low voltage (up to 20 V) measurements and it appears to work adequately.

Sometimes it does not measure the resistance values and you have to switch it OFF and then ON again. It is slightlyquirky in that sense, but seems to work for the most part.

On the plus side, the box has a CE mark signifying that the product conforms to all the applicable EC directives. However, CE marking is ælf-certification scheme, and does not actually signify approval.

After writing this article, the number of sellers increased, and there are many Chinese sellers on eBay and Amazon selling this.

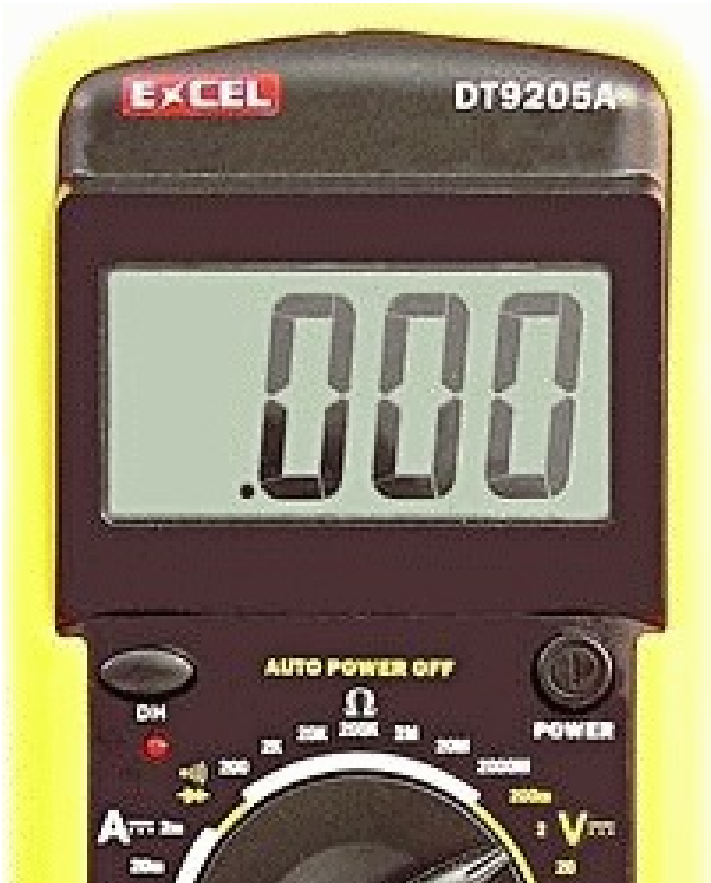
There appears to be many versions of this meter on eBay, indicating that the manufacturer is constantly making small changes and improvements to the product. I hope that they will be rolling out an even better design in the future.

In the following sections of this article, you can see the inside construction of the meter that I bought in 2013.

Specification

Maximum Display	3 ½ digits with automatic polarity
Display type	LCD
Measuring Method	Dual slope integration ADC
Over-range Indication	'1'
Max common mode voltage	500 V DC / AC RMS
Reading rate	2 to 3 readings per second
Operating Temperature	23 °C
Power Supply	9 V Battery PP3
Low battery indication	A battery symbol
Size	88 mm × 170 mm × 38 mm
Weight	340 g including battery
	Operating manual
Accessories	Test leads
	Battery

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