Technocrats Robotics

Instruments Task

Multimeter and Clamp meter

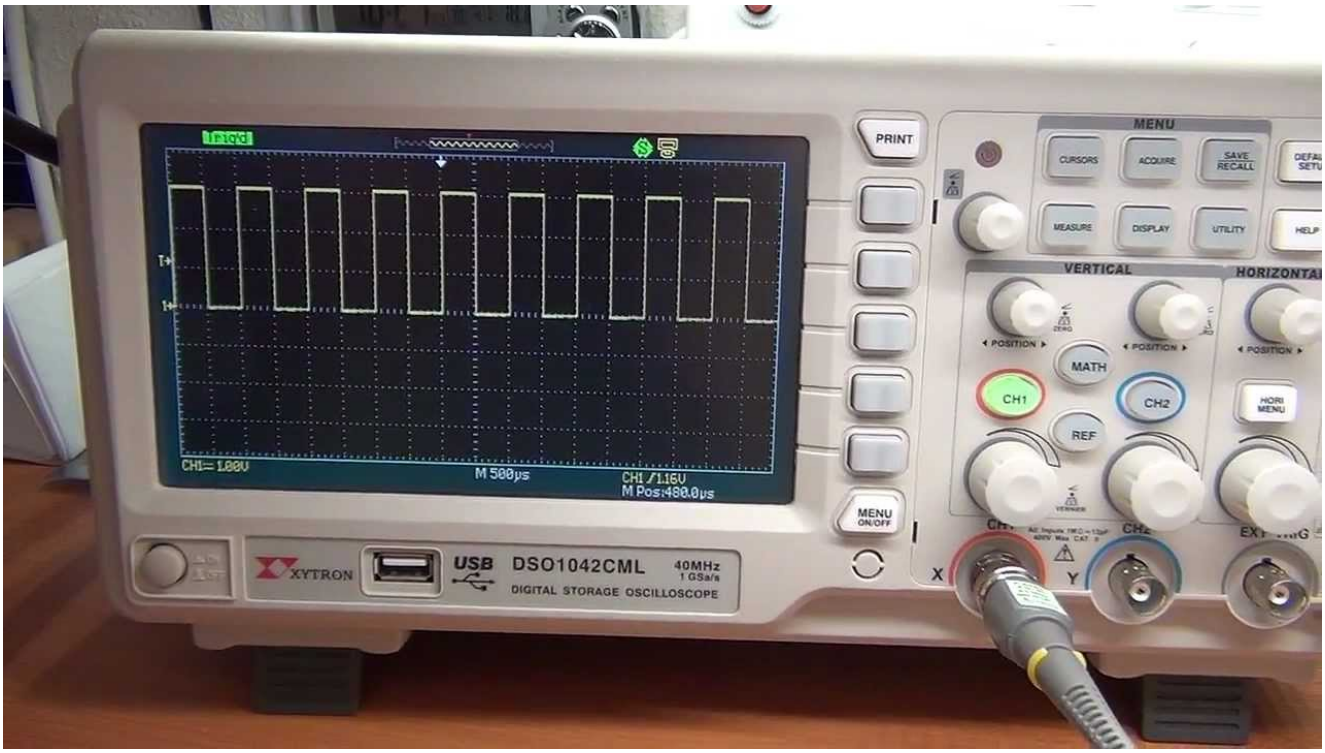
Multimeter
price:Rs 245 (for mini multimeter)

Clamp meter
price:Rs (500-1100)

How to use multimeter?
In multimeter there are two pribes which we can connect to the two terminals of the circuit or component of which we have to measure current,voltage,resistance or any other electrical quantity.
Multimeter works in varius mode to detect the given electrical quantity.We can measure both AC and DC supply using multimeter.
Multimeter works by passing a samll value of current from its one terminal then collects it from another passing through given circuit or any component and hence measures the required electrical quantity.

How to use clamp meter?
Clamp meter is made up of a jaw like structure that is made up of ferrite core and with a copper winding around it.The core and its winding act as a secondary winding.When ever a current carrying conductor is placed between the jaw like structure the secondary winding gets coupled and hence clamp meter measure the current.As the coupled current is very small due to the shunt used,the measured current is 1/1000th of the actual current.Clamp meter display the actual current by claculating the current from shunt's current.

Oscilloscope



How to use DSO?

DSO generally have two channels for observing two waveform of the componets ,circuits or any other thing.DSO is connected to the circuits using the probes,after the connection we get a waveform of the output (Voltage vs time period).There are various function such as to control the amplitude of the waveform,increase or decrease the frequency of the waveform , we can also hold the waveform and calculate the voltage by counting the no. of boxes in the screen and multiplying it with the value indicated by the time period dial.

Why to use DSO?

We can use DSO for following reasons:-

>To know whether the component is working properlly or not as every component gives a certain fixed waveform when connected to the DSO.

>To troubleshoot the circuit by analysing whether the input wave provided is free from noice or any kind of disturbance.

>Sometimes to check whether the required waveform needed at output is coming at output or not.

So, above point can be more often faced during practical use.We can use DSO for measuring voltages whenever there is no multimeter but if multimeter is there then voltage should be measured through the multimeter as voltage measuring through DSO is time consuming.DSO can be used to for correctifying the circuits.

Tachometer

How to use tachometer?

Tachometer is a device thet is used to measure the revolution per minute(rpm) of a moving object.In the market tachometer comes in two model one which is having a shaft like thing that goes into the moving system due to which the shaft moves.The tachometer consist of a motor which act as a generator, so when ever the shaft moves it produces some voltage.The tachometer is calibrated to convert the voltage into rpm and displays it on the LCD screen of the device.

Tachometer also comes in the form of photo tachometer, the basic principle behind the working of the photo tachomeer is that there is a laser source in it that use to emit light on the the revolving surface.The revolving surface is marked up with a reflective paint or any other material so it can be detected by the laser source and laser light gets reflected to be sensed by the light sensor.

Then the light sensor senses the time dilation and gives the output as in form of rpm.In this way a tachometer works.

Price:Rs 950

where to buy:https://www.amazon.in/Generic-DT2234C-Digital-Tachometer-Measurement/dp/B01GJC9D3W (Price Rs 940)

https://www.industrybuying.com/digital-tachometer-stroboscope-fulcrum-TES.DIG.71612343/ (Price 750)