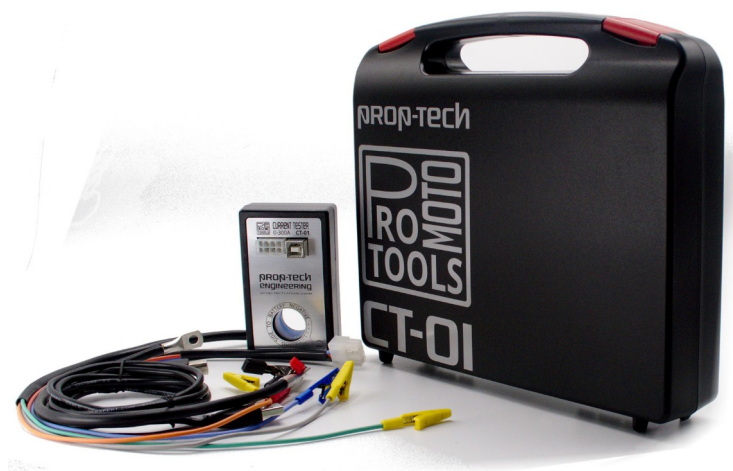


# ProMotoTools CT-01, CT01+ User manual

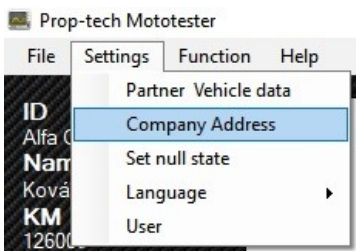


**New generation of current sensor ensure a rapid measurement for vehicle diagnostic. Voltage and current view on PC screen indicate battery condition, stater motor and engine wear.**

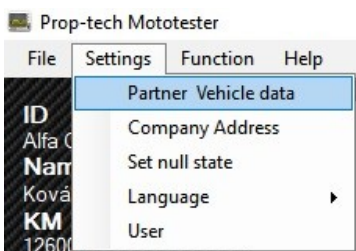
## **CT01 diagnostic functions:**

- 1, Battery condition: charged level, internal resistance, stating current durability test (mechanic gearbox case)
- 2, Starter motor: starter motor commutator condition
- 3, Engine condition under starting process.
- 4, Engine condition: long therm cranking condition (engine cranking – not starting); comparing cylinder compressions.
- 5, Alternator/Regulator/Rectifire condition: charging level.
- 6, Sensor test (VR, HALL) easy to use PC oscilloscope.

## **Before first measurement configure your tool:**

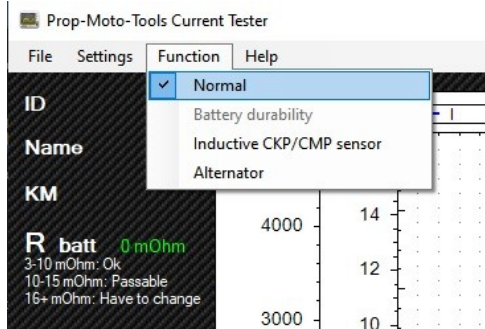


## **Configure vehicle:**

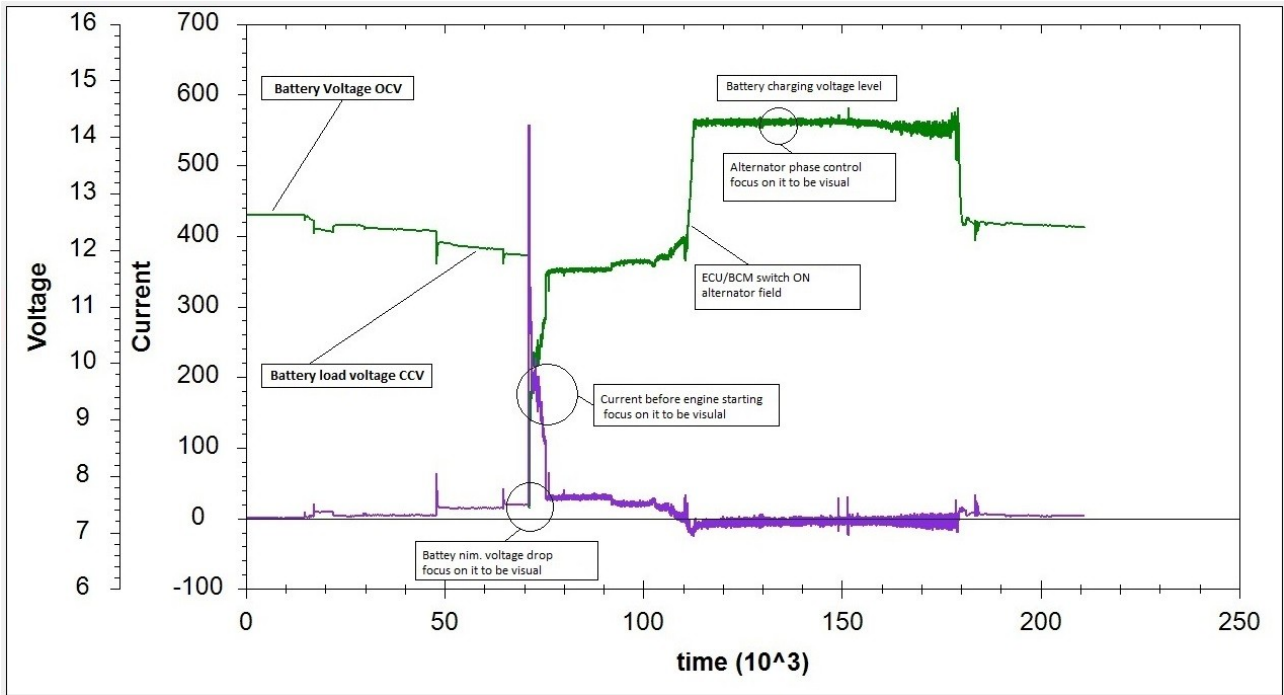


## Normal starting test:

From the menu list “Function” select Normal:



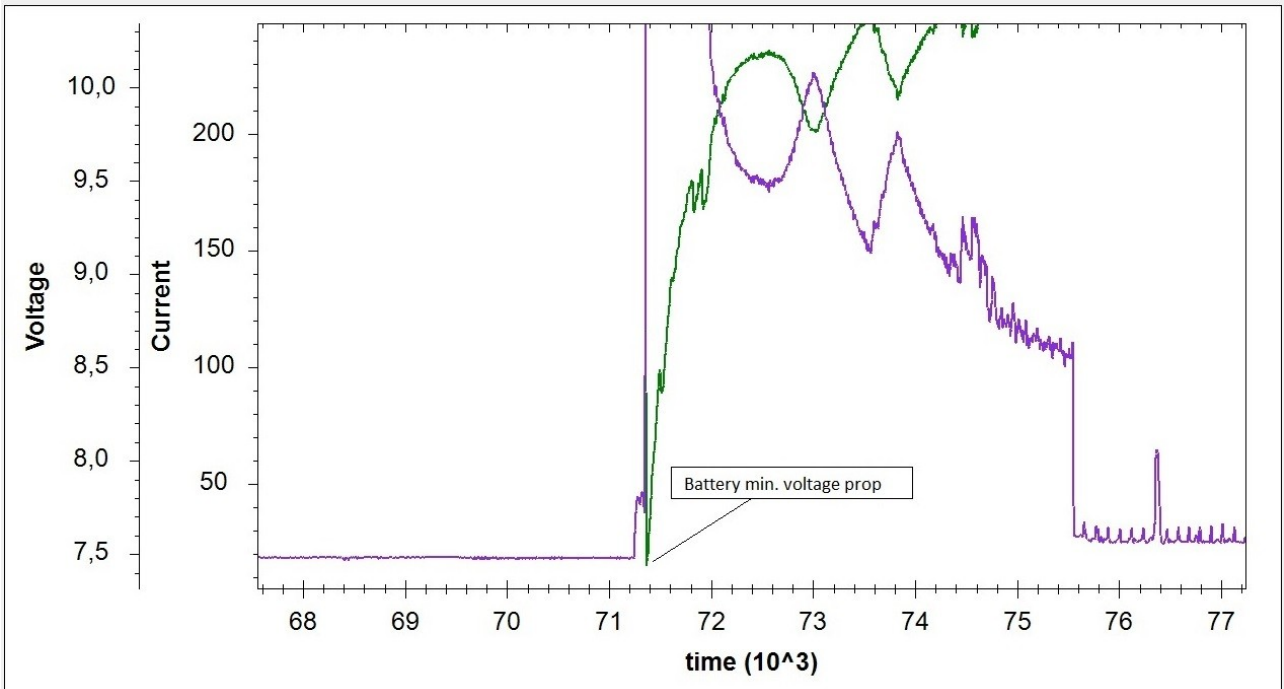
- 1, Take of battery negative terminal.
  - 2, Place negative cable thru the CT01 device. Note: „Battery side” text must be face to battery side.
  - 3, Connect lead wire back to the negative terminal of battery.
  - 4, Connect device voltage measurement wires to the battery terminals.
  - 5, Connect USB cable to the tool. Start the MT01 PC software. Red button will change to green one.
  - 6, Click “Start” button on Software
  - 7, Turn the IGN. Engine RUN ON. Do NOT crank engine jet! Wait until fuel pump start (of 3-5 sec.) and switch on headlight ON. (some bike have automatic system, do not care). Wait 2-3 sec. and:
  - 8, Start the engine and let it on idle speed for 5 sec. Increase engine rpm up to 3000 rpm. For 3 sec. After let it on idle 2 sec. And stop the engine.
- Click to „Stop” button! PC will show voltage and current curves. You can magnify by right click of mouse down, keep down and move cursor right.
- 9, Save record!



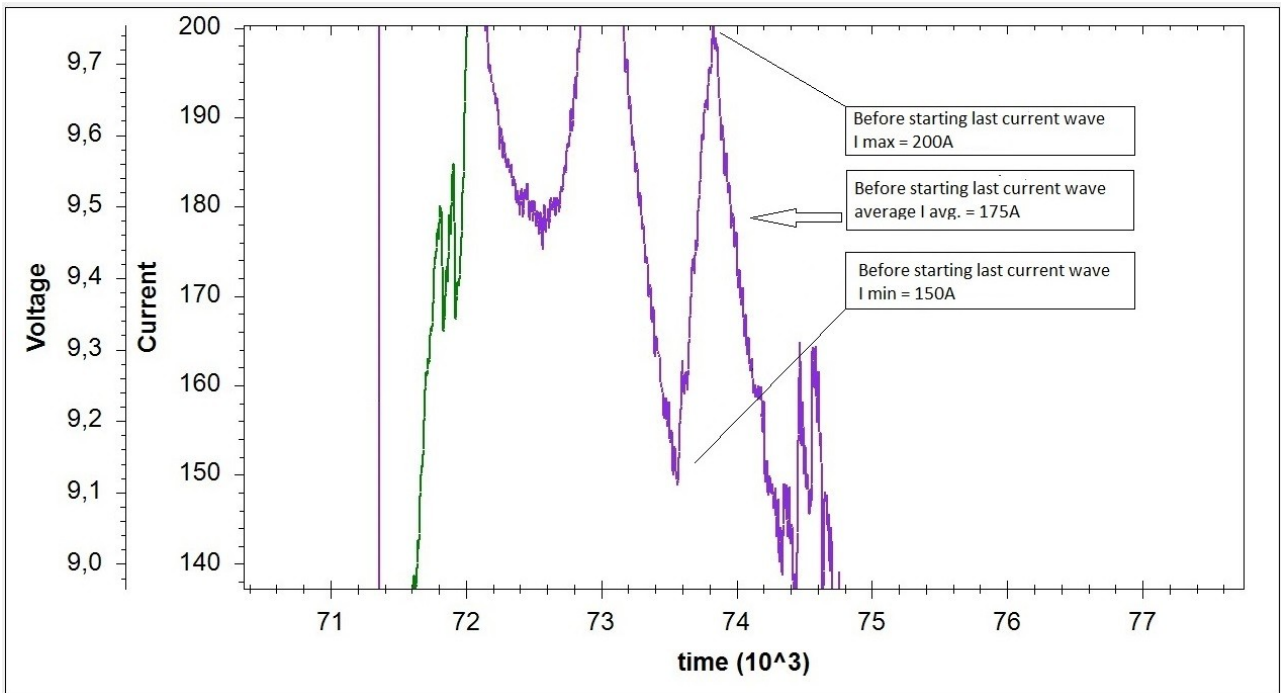
**Battery OCV open circuit voltage:** PC will indicate if voltage under 12,3 V.

**Battery CCV closed circuit voltage:** If headlamps loaded voltage drops under 11,8V, than charge battery for proper test results!

**Battery voltage drop:** if voltage drop under 6V, than this indicate defective battery, or improper starting current ability of battery.



**Battery voltage drop**



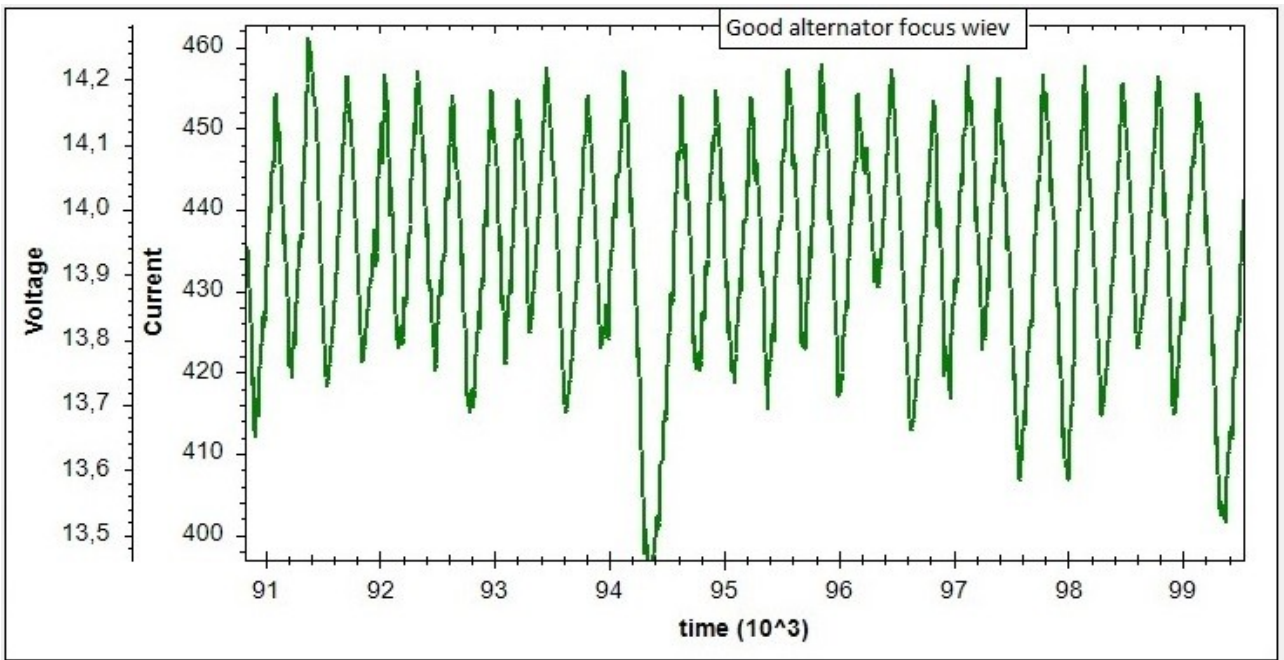
**Cranking current form**

**Before starting last compression current:** If value smaller than in table given, indicate starter motor or starter motor circuit fault. If value greater than in table, pls. Control starter motor mechanism or starter motor (bearing fault, .....

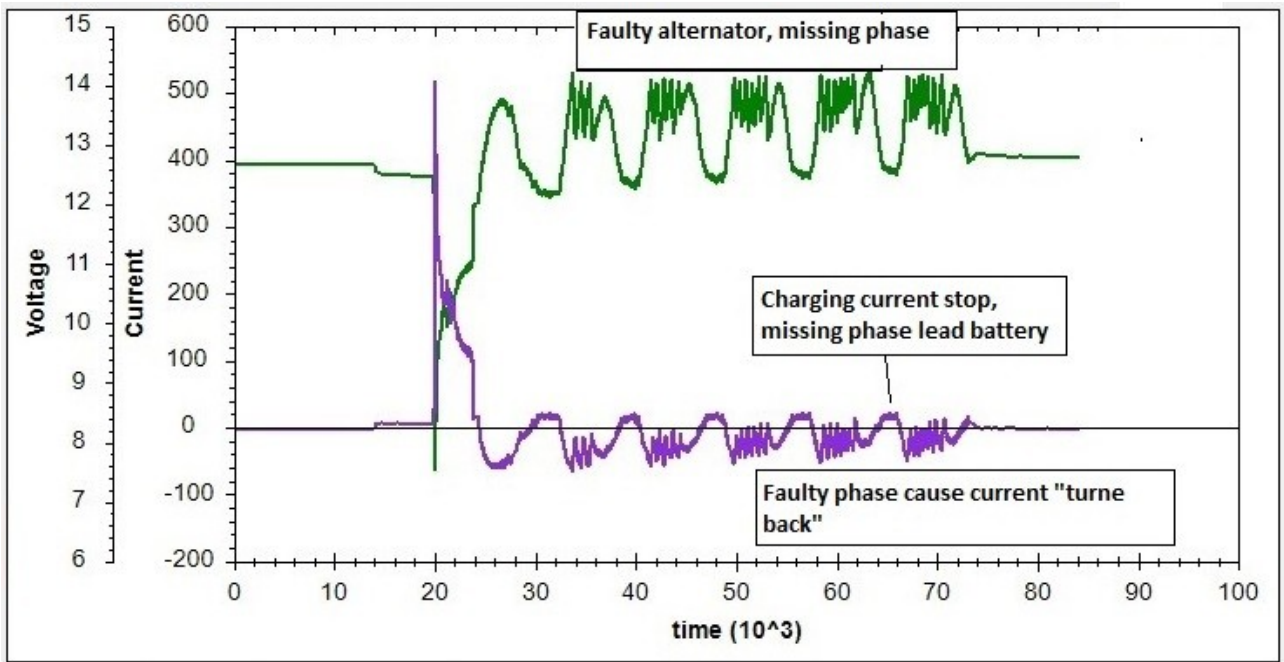
Engine ccm/cylinder	100	125	150	250	300	400 sinlge cyl.	400 multi cyl.	500+ syngl cyl.
Expected current	60	75	100	140	160	250	200	200

**Charging system diagnostic:**

Focus to voltage screen. Note the wave forms. It is must be periodic and waves looks similar to the sinus curve. Avg. Value should be over 13,8V.



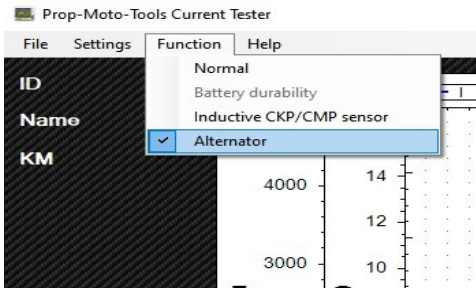
**Good charging system**



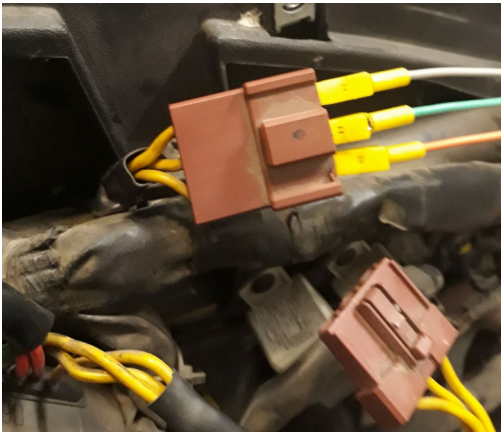
**Faulty alternator/charging system**

## Alternator/Generator individual test:

On the main screen select Alternator



Connect yellow crocodile clamps to the alternator



Start the measurement.

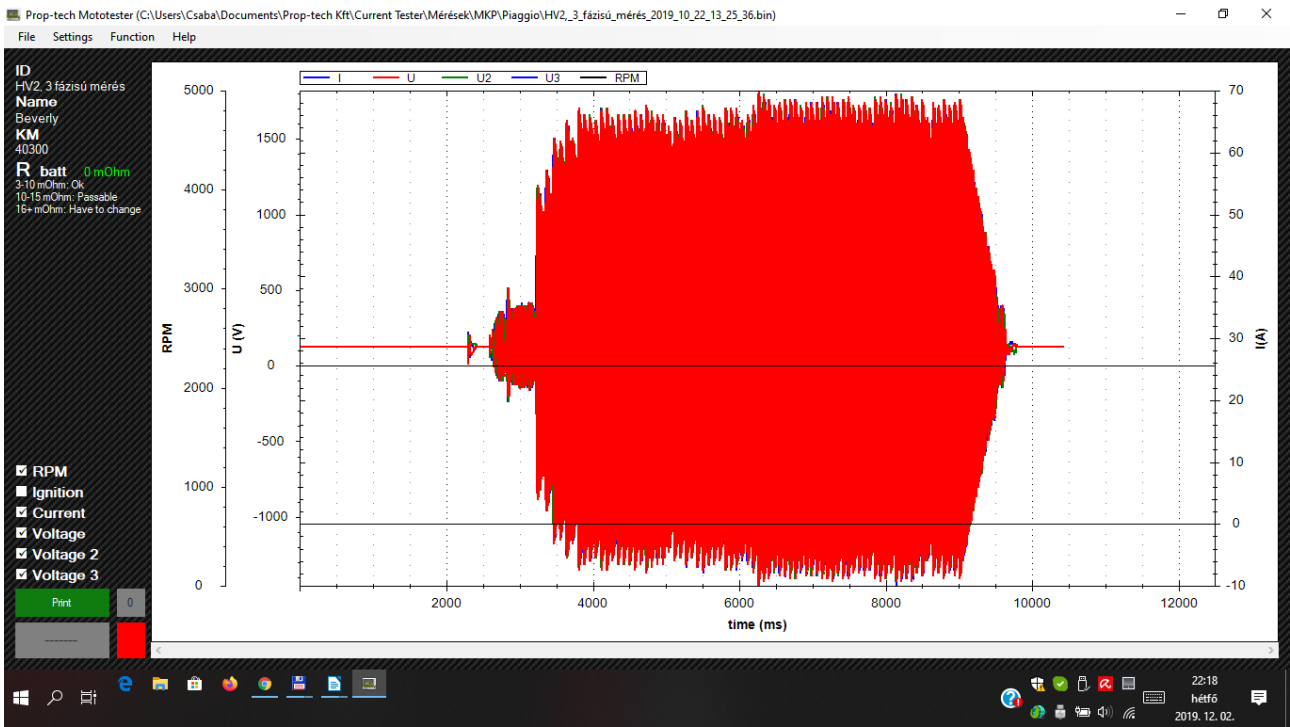
Start the engine and rev it up to 3000 Rpm.

Stop the engine.

Stop the measurement.

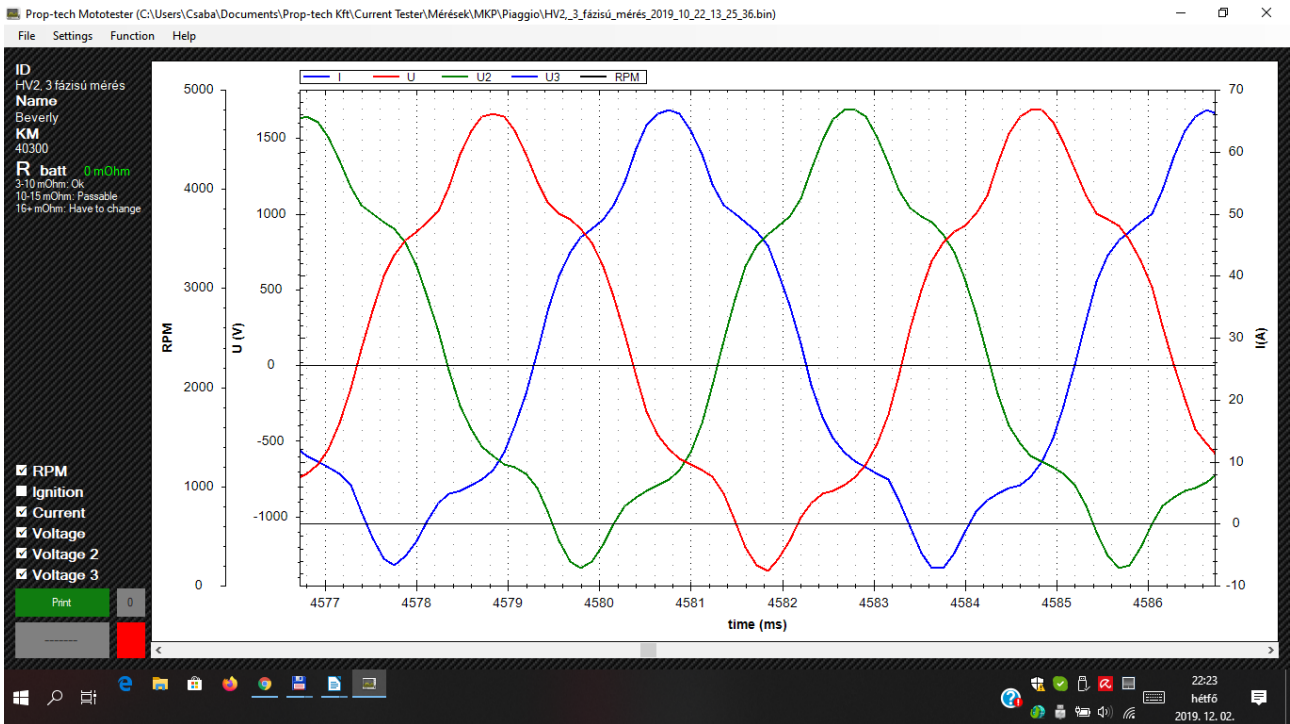
You will get this view:





**Move the cursor to the read field: Click on focus field, leave left button down and move cursor left a bit. You will magnify the curves.**

**You will magnify the curves.**

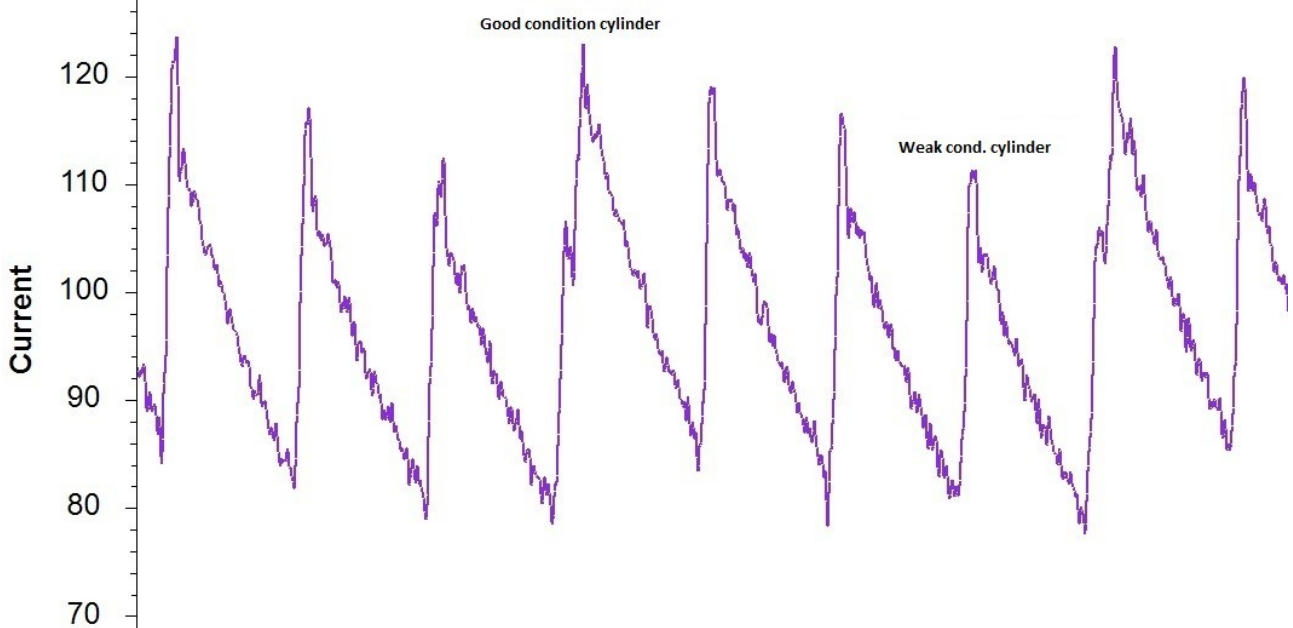


**If the curves are symmetrical, than Alternator OK.**

### **Engine condition test, long therm cranking current test:**

For protection of catalytic converter block fuel injection of engine. ( in case of difficulties you can block ignition too). Open throttle and crank engine for 5-6 second.

Note to the current curve! If maximum and minimum values same, than all cylinders has same compression forces. If one cylinder has a smaller current value (-15%), than this cylinder compression force weaker. To identify problematic cylinder pls. use cylinder identifier wire harness. It is a bleu crocodile clip. Connect it to the #1 cylinder ignition primer side. You can use injector signal too.



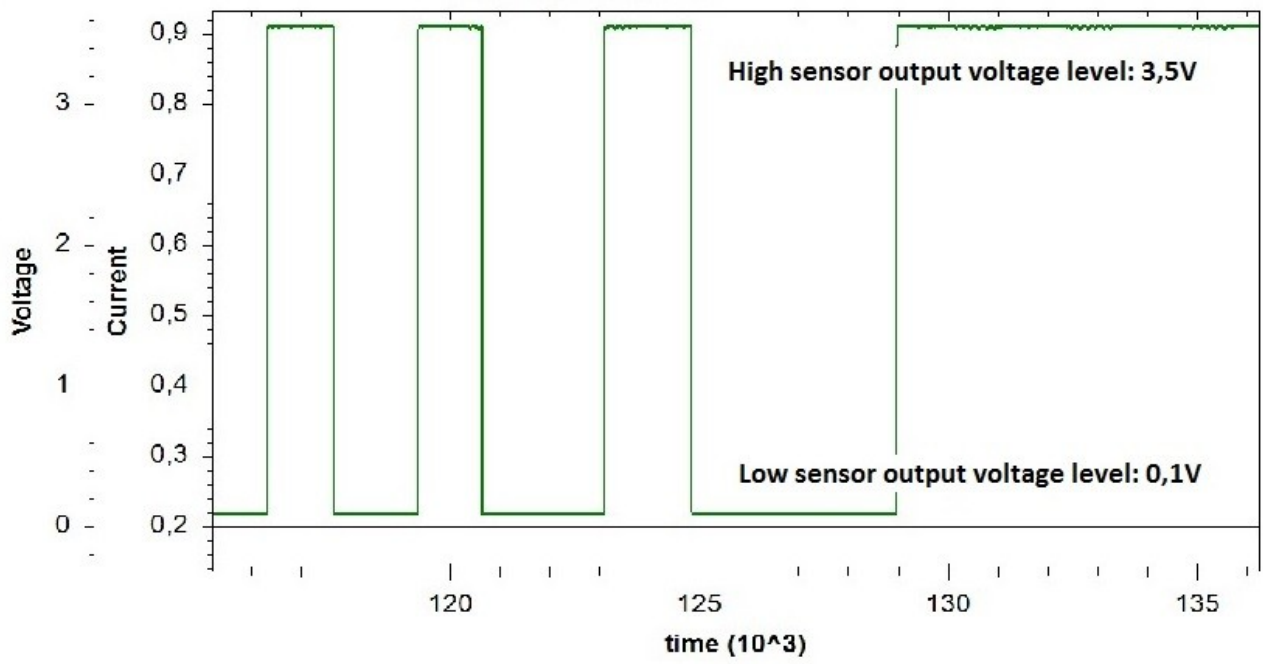
**Engine condition test**

### **Sensor test, PC oscilloscope function:**

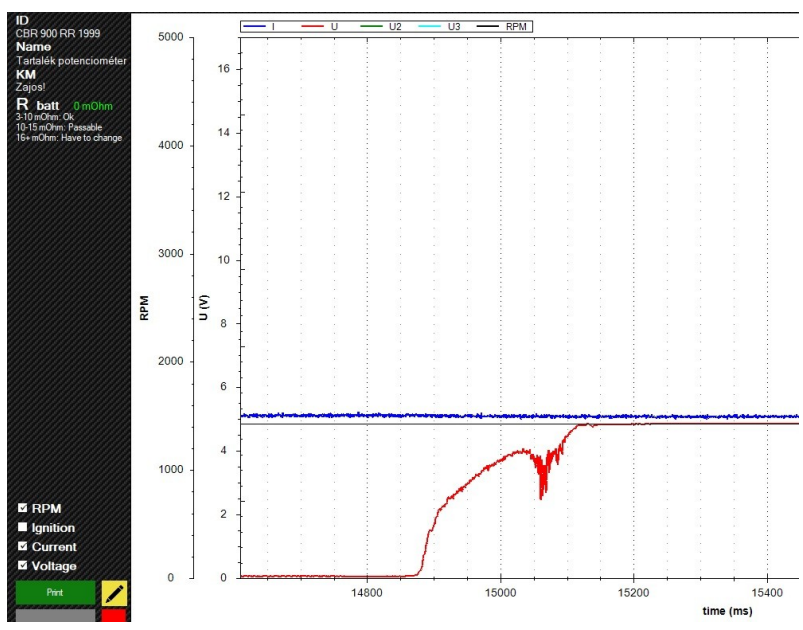
On "Normal" function tool can record sensor positive half impuls.

Note: tool can record only positive impulses. It is perfect for HALL sensors.



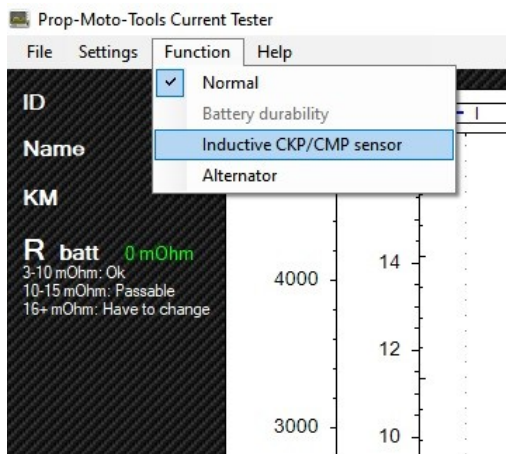


**TPS sensor fault:**

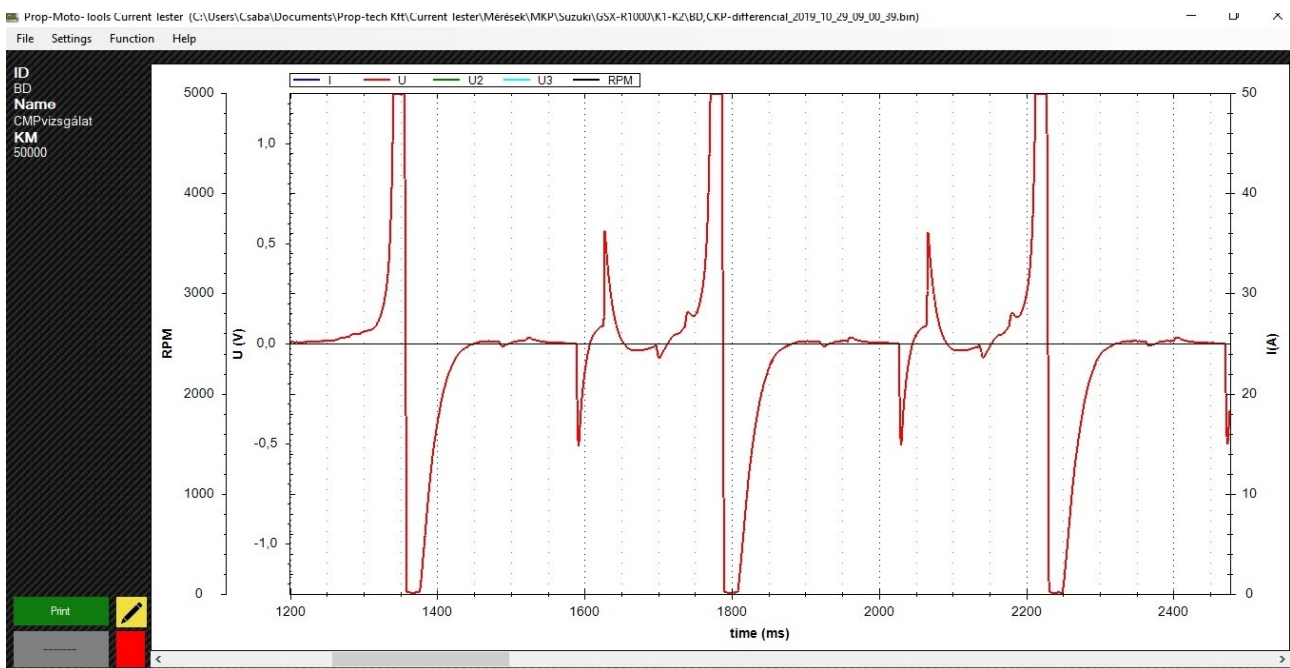


## Indutiv (VR) sensor test:

On the main screen select Inductive



Connect scope cable (white clamps) to the device. Unplug investigated coil and take white camps to the wires. Start record & crank engine for 2-3 sec. Stop record:



NOTE: the tool has a limited data record speed. Small (incorrect) waves can occurs.