

# OWNER'S MANUAL

## NIPPUR 10 (LED) ESR METER

### **Precautions.**

The first thing to do is be certain that the equipment you'll be using the meter on is disconnected from all power.

Most electrolytic capacitors will be discharged by circuitry around them within a few seconds of turning the power off. However, filter capacitors in power supplies can remain dangerously charged, especially if there is a fault.

Before using the meter, make sure that all power supply capacitors are fully discharged. Use a resistor from 100Ω to 1kΩ/ 5W if necessary.

Advisable using a good quality, low ohm (not curly) test lead ( $R < 0,3\Omega$ ) for exact measuring. Don't use the meter right next to an operating TV or monitor. High amplitude pulses radiated by the horizontal output stage can be picked up by the test leads and cause unstable readings.

### **Using the meter.**

Switch on meter by pressing the button. At the first installation you have to reset the test lead resistance by pressing again the button when keeps probes tightly together. You don't have to zeroing again, when switch the meter on again, because this value stored in a non-volatile memory. If you want to delete test lead resistance memory, just short the probes and keep the button pressing for 3 seconds. Warning: over 0,8Ω test lead's resistance the meter will switch off instead of zeroing. The meter's inputs are nonpolar.

### **Start measuring.**

Now start checking electrolytic capacitors in the area of the circuit where the fault is. Often the electrolytic capacitors which fail are the ones close to heat generating components such as power semiconductors and resistors, so check them first. Compare the reading you get with the front-panel table, and you will see that ESR is about normal or significantly above it. An electrolytic capacitor which is causing a fault is almost certain have an ESR which is many times higher the chart value for it. The best way if you replace all electro's whose ESR is two times higher than figures on the chart.

### **Brightness control.**

This meter assembled with super bright red led display, so generally you don't need the maximum

brightness of it. You can set the appropriate bright in 4 steps if you keep pressing button when switch on the meter. In 3 seconds you will see the actual brightness on the first digit which increasing in every second. Allow the button at the most appropriate bright, and this value will automatically stored in non volatile memory. You can see the brightness value on the display for a moment after every switch on the meter.

### **Energy saved mode (Stand by).**

In 10 seconds inactivity the meter will reduce its energy consumption. This mode takes for 10 minutes and overload led is flashing. You can continue measuring immediately from stand by.

### **Low battery warning and switching off.**

You can switch off the meter by pressing the pushbutton. "by by" continued with the battery voltage will flash on the display. If you forgot to switch out the meter, it will automatically do it after 10 minutes of inactivity. A "b" flashing in stand by, and dims the display if the battery voltage low. Under 5,8V of battery voltage the meter switch off by displaying "LO bA".

### **Specification:**

Resolution: 0,01 - 99Ω, auto (3) ranges  
Test signal amplitude: <100 mV pp  
Accuracy: Max. 5%  
Display: 2 digits high bright 7 segment led  
Update speed: 4 readings/ second.  
Power source: 9V battery (6LF22)  
Power consumption: 10 (stand by) – 270mW  
Dimensions: 70\*145\*40 mm  
Weight: 250 g with plastic case and battery  
Supplied accessories: Test leads, shock proof plastic case, battery, owner's manual

### **Warranty:**

One year from purchasing.

*This warranty does not apply to damage resulting from abnormal use, **overvoltage**, misuse, abuse or accident.*

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