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# LTIMETER

Test and measurement equipment for optimization of electric powerplants in model airplanes, helicopters and boats. The instrument is connected between the power source and the propulsion set.

## FEATURES:

- . Acquisition of voltage, current, rotational speed, temperature, internal resistance
- . Computation of power and energy amount
- . Storage of up to 64 readings
- . Alarm triggering upon exceeding critical values of one or more parameters
- . Storage of up to 64 readings following alarm triggering
- . Direct control of speed controllers
- . Connectivity with PC-compatible computer (optional)

# The most comprehensive test and measurement equipment for electric propulsion sets!

One of the first situations faced by a modeler, either a novice or an expert, is the need to accurately measure the performances of the electric propulsion set. Until now, these measurements required to purchase many different instruments, which proved itself impractical: the fairly high total cost of the instrumentation, not to mention the absence of certain equipment in the field of hobbyists-grade instrumentation, meant the measurement process always lacked a lot of important parameters, unless facing the possibility to buy laboratory-grade test equipment, with a projected expenditure beyond the possibilities of the average modeller (and even that of a medium-sized test and measurement laboratory!) Most of the previous commercial attempts at developing modellers-oriented custom instrumentation has been rewarded with poor results, either for poor integration between different functions, or for predicted high production costs, or for lack of user friendliness.

## That's the reason why Ultimeter was born.

This revolutionary instrument, which can be classified among instrumentation for professional use thanks to its technical characteristics and inherent precision, for the first time brought together the acquisition and computation of all the necessary parameters for a exhaustive study and optimization of the electric powerplants: voltage, current, power, energy quantity, temperature, rotational speed, internal resistance. All measurements are taken connecting the instrument between the power source and the motor/speed controller unit, using the heavy-duty cables supplied. Angular speed is measured with the probe on the front side of the case, inside temperature with the built-in probe, and outside temperature with the optional remote probe connected to the User Port. Noteworthy features are:

- 1) Storage of up to 64 readings, to compare different set-ups
- 2) Alarm triggering when exceeding values of one or more parameters
- 3) Automatic storage of up to 64 readings following alarm triggering
- 4) Built-in throttle control for Speed Controllers, for a minimum-parts test bench with built-in, alarms-triggered safety features
- 5) PC-compatible RS-232 link optionally available, to allow firmware upgrade, remote data logging and control.

### TECHNICAL DATA

Dimensions: 6 27/64" (Length) x 3 27/64" (width) x 1" (Depth)  
Weight: Approx. 9 Oz.  
Display: liquid crystals, 2 lines x 16 characters  
Keyboard: 3x3 matrix  
Cables: 10AWG, 6" long  
Power Supply: 9 Volts, 006P / 6F22 Dry Cell  
Maximum continuous operation: 4 hours, backlighting disabled

Base accuracy, analog measurements:  $\pm 0.2\% + 1/4000\text{th}$  full scale  
Reading accuracy: base accuracy + 1 resolution point  
Voltage: 0-50 V with 0.01 V resolution  
Current: 0-10 A with 0.05 A resolution, 10-100 A with 0.1 A resolution  
Power: 0-5000 W with 1 W resolution  
Rotational speed: 0-50000 Rpm, 0.1% resolution  
Temperatura: 0-150 °C / 32-302 °F, 0.1 degrees resolution  
Internal Resistance: 0-499.9 milliOhm, 0.1 milliOhm resolution

Maximum ambient temperature 45 °C - 113 °F  
Maximum relative humidity 90%  
Maximum measuring time vs. current (may vary as a function of ambient temperature)

No limits up to 20 A  
10' from 20 to 30 A with 5' pause  
5' from 30 to 40 A with 5' pause  
2' from 40 to 50 A with 5' pause  
1' from 50 to 60 A with 5' pause  
30" from 60 to 70 A with 10' pause  
15" from 70 to 80 A with 10' pause  
7" from 80 to 90 A with 10' pause  
3" from 90 to 100 A with 10' pause