



LIVE C.T. ADMITTANCE TESTER

505B DATASHEET



REDPHASE INSTRUMENTS

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KEY FEATURES

BATTERY POWERED AND PORTABLE WITH AUTO SHUT DOWN FEATURE AFTER 3 TO 4 MINUTES OF NON USE.

1.6KHZ ADMITTANCE MEASUREMENT LIVE.
DEAD OR LIVE BURDEN MEASUREMENTS.

EASY MENU DRIVEN OPERATION VIA LCD DISPLAY

INTERNAL MEMORY STORAGE AND USB FOR RESULTS TRANSFER TO PC.

QUICK TEST RESULTS CAN BE BEST INTERPRETED IN COMPARISON WITH OTHER C.T.'S
IN A POLYPHASE INSTALLATION.

1.0. APPLICATIONS

1.1. Where it is used

The Model 505B is a battery powered, field portable instrument for checking metering C.T.'s and secondary metering circuits in installations that cannot be taken offline such as in shopping marts, schools, universities and important public infra-structures that require a continuous power source and where down time and incorrect metering C.T.'s can be very costly from a revenue perspective,

1.2. Admittance measurements

The 505B is a 2 terminal device that is inserted in series into the C.T. secondary loop and superimposes a small 1.6kHz signal onto the existing 1 or 5 Amp A.C. current already flowing in the secondary circuit.

During an admittance test the 505B will apply a filtering process on the 1.6kHz signal and sample voltage and current measurements over time after which it will present the operator with an accurate admittance value for the C.T. under test.

1.3. Burden measurements

While in-circuit the 505B can undertake live burden measurements of the secondary circuit if needed.

Optionally a live burden measurement can also be made with the use of a clip-on accessory without having to insert the 505B in series into the metering circuit.

Dead burden tests may also be performed using a shunt on the test box in the metering circuit.

2.0. HARDWARE FEATURES

2.1. Power Source

- Powered by an internal rechargeable sealed lead acid battery.
- IEC mains connection.
- 2.5mm jack for an auxiliary D.C. Supply.

2.2. Interface

- Menu driven LED back lit 40 x 2 character Liquid Crystal Display.
- Numeric, navigation and special function keys for function selection, parameter input and operation
- USB interface provided for downloading data to PC.
- Internal memory storage capacity for up to 200 test records.

2.3. 505B Case

The 505B uses the well known "Pelican" brand injection moulded plastic case. The case is robust and hard wearing.

There is an internal aluminium chassis and an aluminium front panel with a reverse screened "Lexan" polycarbonate finish.

2.3.1. Case Size (L x W x H)

505B case: 340mm x 300mm x 150mm .

2.3.2. Weight

505B including battery: ~5kgs

Test leads & accessories: ~1.5kgs



3.0. OPERATING RANGE & ACCURACY

3.1. 1.6kHz Admittance

**Full Scale Ranges set to 1.5mS & 20mS.
Over-range to ability 50.0mS**

Range	Accuracy
0.2mS to 1.5mS	5% of reading across FS $\pm 0.05\text{mS}$
1.5mS to 20mS	5% of reading across FS $\pm 0.05\text{mS}$
20mS to 50mS	± 1.0 to 2.0mS of reading
>50.0mS	Over Range reading
Phase Error	$\pm 10^\circ$ maximum

Please Note:

The 505B upper full scale range has been revised to 20mS instead of 100mS, however over range headroom allows readings above 20mS up to 50mS to within a very tight accuracy tolerance.

Admittance readings beyond 50.0mS are meaningless, in fact an admittance reading beyond 10 to 20mS would indicate a fairly poor CT. Hence the 505B will display an "Over Range" message if the CT measures above 50.0mS.

3.2. Current at 50 and 60Hz

Range	Accuracy
0 to 1A	$\pm 0.05\text{A} \pm 1\%$ of reading
1 to 10A	$\pm 0.05\text{A} \pm 1\%$ of reading

3.3. Burden for 5A secondary C.T. loops

Range	Accuracy
0.1VA to 25VA	$\pm 0.5\text{VA} \pm 3\%$ of reading
25VA to 100VA	$\pm 3\%$ of reading
Power factor	0 to 1.00 ± 0.1

3.4. Burden for 1A secondary C.T. loops

Range	Accuracy
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0.1VA to 1VA	$\pm 0.02\text{VA} \pm 3\%$ of reading
1VA to 25VA	$\pm 3\%$ of reading
Power factor	$(0 - 1.00) \pm 0.1$

3.5. Burden for P.T. Secondaries over 57V, 63.5V, 100V or 110V

Voltage drop calculation 0 to 1% $\pm 0.05\%$

Burden 4VA to 25VA $\pm 5\text{VA}$

Burden 25VA to 100VA $\pm 10\text{VA}$

3.6. Burden Measurement types

- ◆ VA burden of the metering loop downstream from the test block, or at the C.T. secondary terminals (live burden method)
- ◆ VA burden of the metering loop from P.T. secondary terminals or at its test block.
- ◆ VA burden of disc type meter voltage coil.

4.0. POWER SUPPLY & CONSUMPTION

The Model 505B can be powered and operated from:

- its internal battery
- mains service voltage 85 to 264 VAC, from 47-440 Hz via IEC power cable.
- an external DC power supply via the front panel DC socket. Voltage input range: 9 to 14.5V DC at 2A..

The internal battery can be charged from mains only.

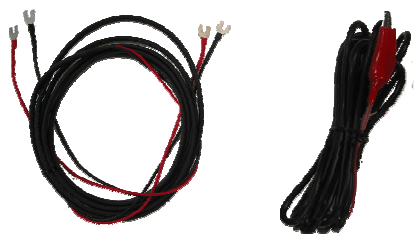
5.0. ACCESSORIES

5.1. Accessories Included

USB cable.

Secondary cable x 2 with spade connectors end to end. Lead length: 4m spade to spade

Battery Cable: 4m



5.2. Accessories (Optional)

505B-1 clip-on for out of circuit live Burden tests. Lead length: 3m.



6.0. OPERATING CONDITIONS

Operating temperature range: 0 to +40°C.

Humidity to 90%

WARRANTY

One year limited warranty.

Note:

A technical paper is available discussing types of C.T. defects and how to interpret these defects through admittance results.

Easily grasped by anyone involved in metering or protection, no great theoretical knowledge is needed.

Please contact Red Phase on: +613 9877 6988 or visit the web site for more details.