

## CT & PT PANEL



## HIGH VOLTAGE/CURRENT SOURCE

### Specification

Input : 230 Volts

Output : 150 KV (Max), Current as per your requirement with analog KV meter, Milli Meter & Timer for H.V. Test.

We also provide H.V. Transformer with above specification for H.V. Test & Partial discharge test, P.D. Free as per your requirement with Fiber Glass Tank.

Our High Voltage source having following Features:

3 Phase High Voltage Source, Star-Star with neutral taken out the tank for 1-Phase testing Purpose.

Input = 400 Volts, Output = 40 KV, VA = 10000



## CT BURDEN BOX & PT BURDEN BOX

### Specification

**CT Burden Box 5 Amp:** As per IEC/IS standard

- a) VA = 0-1.25-1.875-2.5-3.75-5, Power Factor : Unity
- b) VA = 5-7.5-10-15-30, Power Factor : 0.8 lag

**CT Burden Box 1 Amp:** As per IEC/IS standard

- a) VA = 0-1.25-1.875-2.5-3.75-5, Power Factor : Unity
- b) VA = 5-7.5-10-15-30, Power Factor : 0.8 lag

**PT Burden Box:** As per IEC/IS standard

63.5 Volts, 1.25VA to 200VA

110 Volts, 1.25VA to 200VA

NOTE : Specs. can be made as per your requirement.



## STANDARD CT & STANDARD PT

### Specification

Standard CT Ratio : 5 to 6000/1-5 Amp, VA = 5, As per IEC/IS standard

Standard PT Ratio : 110-220-330-440-660-880 Volts/110 Volts,  
VA=5, As per IEC/IS standard

Standard PT Ratio : 1100-2200-3300 Volts/110 Volts,  
VA=5, As per IEC/IS standard

Standard PT Ratio : 6.6KV or 11KV / 110Volts, VA=5, As per IEC/IS standard

Standard PT Ratio : 22KV or 33KV/110Volts, VA=5, As per IEC/IS standard

Standard PT Ratio : 66KV / 110 Volts, VA=5, As per IEC/IS standard

NOTE : Specs. can be made as per your requirement.

Specifications may change without notice due to continuous development.



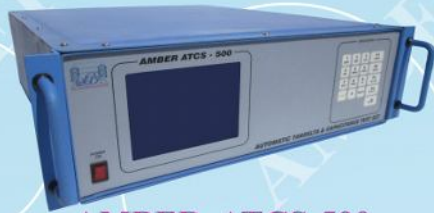
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# TAN DELTA AND CAPACITANCE TEST SET



**AMBER ATCS-500**



**AMBER ATCS-500<sup>HT</sup>**

## Features

- Complete Microprocessor control
- 3 Terminal Measurements with guard
- Transformer ratio arm measurement technique
- Grounded and ungrounded specimen tests.
- 3 Measuring leads with switching
- 320 x240 dot Back-Lit Graphical LCD display.
- Parameter entry through keyboard
- Alarm Indication for Error messages
- RS- 232 Printer Interface
- Parallel Port Printer Interface\*
- Automatic Save & Print\*
- Automatic updating of Date & Time\*
- USB (Pen drive) interface\*
- Measurement not affected by H.V. Interference

## Specification

### Capacitance

Range ATCS-500 : 0-240 pF upto 0.12  $\mu$ F  
 Accuracy : 0.2% of reading  $\pm$  4Pf  
 Operating Temperature : 0° - 50° C

### Dissipation Factor

Range : 0-30 %  
 Accuracy :  $\pm$  2% of Std reading  $\pm$  1% FS

### Test Voltage

ATCS-500 : 500V, 80Hz  
 : The instrument measures the

### Measurements

following combinations:  
 UST C<sub>H-L</sub> : (Ungrounded specimen test, Hi to Lo)  
 GST C<sub>H-G</sub> : (Grounded specimen test, Hi to Gnd)  
 GST C<sub>L-G</sub> : (Grounded specimen test, Lo to Gnd)  
 GST C<sub>H-G</sub> + C<sub>H-L</sub> : (Grounded specimen test, Hi to Gnd, Plus Hi to Lo)  
 GST C<sub>L-G</sub> + C<sub>L-H</sub> : (Grounded specimen test, Lo to Gnd, Plus Lo to Hi)

ATCS-500 Power : 230V  $\pm$  10%, 50Hz  $\pm$  100VA  
 or 110V  $\pm$  10%, 60Hz, 100VA

Dimensions : 19" x19"x8"(L x W x H)  
 weight : 22kgs (approx)

Specifications may change without notice due to continuous development.

**\*For ATCS-500<sup>HT</sup> Only.**

## Description

The Model ATCS-500 Low Voltage Tan Delta and Capacitance Test Set is an instrument designed for the accurate measurement of capacitance and Tan Delta of an electrical insulation of Transformers, Motors, Generators etc., This instrument is suitable to measure Grounded and Ungrounded measurements on a Test specimen.

A quick balancing of measurements is achieved by using a phase sensitive detector. The instrument uses Test frequency of 80Hz to make the measurement of electrical insulation in a high voltage switch yards to overcome the power line /HV interference.

The Graphical LCD is displays direct reading of capacitance in either  $\mu$ F or pF and the dissipation factor (Tan Delta) is expressed directly in percent.

The test voltage 500V has been chosen, neither too low to affect the accuracy of measurements nor too high to be dangerous to the operator.

## Application

For quick, simple and accurate Low Voltage Capacitance and Tan Delta tests in the shop or field on: Bushings, Generators, Insulators, Transformer Dry outs, Instrument Transformers, CVTs, Insulating Oils, Power Transformers, Breakers, Capacitor Banks, Cables, Motors.

## ATCS-500 Calibrator



This calibration box is used to cross check the instrument for the proper results. The portable Calibrator offers one Capacitance, four Tan Delta values. The maximum operating voltage is 500V AC.

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# Resistivity, Tan Delta & Dielectric Constant Test Set



## AMBER ARTD-10 / ARTD-10<sup>HT</sup> FEATURES

- Complete Microprocessor control
- Compact, Portable & Accurate
- Measures : Dielectric Constant  
Tan Delta  
Resistivity
- 320 x 240 dot Back-Lit Graphical LCD display
- Parameter entry through keyboard
- Alarm Indication for Error messages
- RS- 232 Printer Interface
- Parallel Port Printer Interface\*
- Automatic Save & Print\*
- Automatic updating of Date & Time\*
- USB (Pen drive) interface\*

## SPECIFICATIONS

### RANGES

Dielectric Constant	: 1 to 13
Tan Delta	: $10^{-5}$ to 10
Resistivity	: $10^9$ to $10^{17}$ ohm cm

### ACCURACY

Dielectric constant	: $\pm 0.2\%$ of standard reading $\pm 0.001$
Tan Delta	: $\pm 1\%$ of standard reading $\pm 0.3\%$ FS
Resistivity	: $\pm 3\%$ of standard reading $\pm 0.2\%$ FS linear

### RESOLUTION

Dielectric Constant	: 0.001
Tan Delta	: 0.1%
Resistivity	: 0.01

**CELL CONSTANT** : 3 digit adjustment for Tan Delta zero and Capacitance (cm) any cell or Test fixture between 50-70pF can be used.

**TEST VOLTAGE** : Internally generated  
Dielectric Constant : 0-3000V AC, in two ranges (0-1000V & 0-3000V)  
& Tan Delta

Resistivity : 500V DC – Fixed  
**POWER SUPPLY** : 230V AC  $\pm 10\%$ , 50Hz,  
OR 110V AC  $\pm 10\%$ ,  
60Hz, 150VA

Temperature Range :  $-10^\circ$  to  $50^\circ$  C  
Humidity : Ambient to 90% RH  
Dimensions : 19" x 15" x 6" (LxWxH)  
Weight : 15kgs (approx)

Specifications may change without notice due to continuous development.

**\*For ARTD-10<sup>HT</sup> Only.**

## OIL HEATER

An Induction Heater is used to heat the oil, at a high frequency to raise from the room temperature to  $90^\circ$  C in a time span of 15-20 minutes. A knob is provided to set the temperature and will be displayed on the Front Panel Digital Meter. LED is provided to indicate heating. For an operator safety, a micro switch is provided to cut-off the test voltage when the plexi cover of the heater is opened.

## SPECIFICATIONS

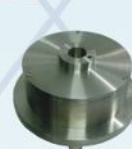
Power supply	: 230V AC $\pm 10\%$ , 50Hz OR 110V AC $\pm 10\%$ , 60Hz, 200VA
Temperature Range	: $20^\circ$ – $110^\circ$ C
Accuracy of Temperature	: $\pm 2^\circ$ C
Dimensions	: 7"x12"x13" (LxWxH)
Weight	: 15kgs (approx)

## RTC CALIBRATOR



This calibration box is used to cross check the instrument for the proper results. The portable Calibrator offers one Capacitance, three Tan Delta and four resistance values. The maximum operating voltage is 500V AC / DC.

## OIL CELL & SOLID CELL



This 3 Terminal Cell is designed for routine and laboratory Tan Delta tests on transformer oils and other electrical insulating Materials. The electrode of the cell is designed with a spherical bottom which offers more uniform stress on the oil as compared to electrode with tapered end.

## SPECIFICATIONS

Construction	: 3 terminal
Material	: Stainless Steel Body (SS316) with Teflon spacers
Capacitance	: 50-70pF
Electrode Spacing	: 2mm
Volume	: 45ml
Dimensions	: 90mm x 185mm (WxH)
Weight	: 2.5kgs (approx)

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# INSTRUMENT TRANSFORMER TEST SET



## AMBER iXR-2000<sup>M</sup>

### Features

- Complete Microprocessor Control
- Automatic Null adjustment
- CT/PT Test
- Manual & Automatic ranging
- RS-232 Printer interface
- Parameter entry through keyboard
- Class of Accuracy: IEC, IS, ANSI, IEC-S, IS-S
- Light weight & Portable

### Specification

<b>Current</b>	: 5A & 1A Nominal
Normal operation	: 0.5A-10A & 0.1A-2A
Extended operation	: 0.05A-10A & 0.01A-2A
<b>Voltage</b>	: 120V Nominal
Normal operation	: 30V - 200V
Extended operation	: 1.2V - 240V
<b>Consumption</b>	: Current 0.5VA @ 5A
	: Current 0.1VA @ 1A
	: Voltage 0.1VA @ 120V
<b>Frequency</b>	: 48Hz to 62Hz
<b>Measuring time</b>	: Instant Reading
<b>Power</b>	: 90V to 270V, 50Hz, 40VA
<b>Temperature</b>	: Upto 45°C
<b>Humidity</b>	: 0 to 95 RH
<b>Dimensions</b>	: 19"x 15"x 6" / 19"
	Rack mounting
<b>Weight</b>	: 12kgs (approx)

### Note:

Can be supplied the following Models:

Current Transformer Test Set(AMBER cXR-2000<sup>M</sup>)  
Potential Transformer Test Set(AMBER pXR-2000<sup>M</sup>)

### Description

AMBER's Instrument Transformer Test Set is a complete micro-processor controlled comparator, compares two instrument transformers (CT/PT) of nominally same ratios. So, a small variation in the excitation voltages, currents and frequencies does not affect the measurement. The CT Test set can test both 1A & 5A test CTs with 1A or 5A standard CT. This Instrument have an in-built RS-232 Printer interface that enables the user to dump the Measured values to a PC or serial printer.

### Display & Indicator

- 320 x240 dot Back-lit LCD display for error messages / data entry / measured value / Ratio Error & Phase Error.
- Balanced & Unbalanced condition
- Centiradian (CR) or Minute (Min)
- Measured value can be displayed in Volts, Amperes or % of rated value.
- Alarm indication for Error messages.

### Printing

- Date
- Serial number
- Burden (VA)
- Input voltage/Current in Volt/Amp
- Ratio error in %
- Phase angle error in Minute/CR
- Class of Accuracy

### Keyboard Controls

25 Keys Keypad consist of the following functions:

- 5A & 1A input
- Voltage input
- Auto range
- Range 0.2%, 2% & 20%
- Burden, Date, Serial No.
- Dead Band
- Centiradian / Minutes
- Print (RS-232)

**Accuracy** : Ratio Error in % and Phase Error in CR/Min

### Range

20% ( $\pm 19.99\%$ & $\pm 19.99\text{CR}$ or $\pm 680$ minutes)
2% ( $\pm 1.999\%$ & $\pm 1.999\text{CR}$ or $\pm 68.0$ minutes)
0.2% ( $\pm 1999\text{ppm}$ & $\pm 1999\mu\text{R}$ or $\pm 6.80$ minutes)

### Normal Operation

$\pm 1\% \text{ RDG} \pm 0.04$
$\pm 1\% \text{ RDG} \pm 0.004$
$\pm 1\% \text{ RDG} \pm 10$

### Extended Operation

$\pm 1\% \text{ RDG} \pm 0.10$
$\pm 1\% \text{ RDG} \pm 0.010$
$\pm 1\% \text{ RDG} \pm 20$

Specifications may change without notice due to continuous development.

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# INSTRUMENT TRANSFORMER TEST SET



**AMBER iXR-2000<sup>HT</sup>**

## Features

- Complete Microprocessor Control
- Automatic Null adjustment
- CT/PT Test
- Manual & Automatic ranging
- RS-232 & Parallel port Printer interface
- Parameter entry through keyboard
- Class of Accuracy : IEC, IS, ANSI, AS, BS, IEC-S, IS-S, AS-S, IEC-P, IS-P, AS-P, BS-P, IEC-PR, IS-PR, AS-PR, AS-L, AS-M, AS-ME
- Burden, PF & Impedance Measurement
- Automatic Save & Print
- Alarm Indicator, Data Holding Facility
- Automatic updating of Date & Time
- USB (Pen drive) interface

## Specification

<b>Current</b>	: 5A & 1A Nominal
Normal operation	: 0.5A-10A & 0.1A-2A
Extended Operation	: 0.05A-10A & 0.01A-2A
	: <b>0.05A-20A &amp; 0.01A-4A*</b>
Consumption	: 0.5VA @ 5A & 0.1VA @ 1A
<b>Voltage</b>	: 120V Nominal
Normal operation	: 30V - 200V
Extended Operation	: 1.2V - 240V
	: <b>1.2V - 480V*</b>
Consumption	: 0.1VA @ 120V
<b>Burden &amp; PF</b>	: $\pm 1\%$ Accuracy
Current	: 0VA - 80VA & 0 - $\pm 1.0$ PF
Voltage	: 0VA - 400VA & 0 - $\pm 1.0$ PF
<b>Impedance</b>	: CT - 0 $\Omega$ - 80 $\Omega$
	: PT - 10 $\Omega$ - 12K $\Omega$
<b>Frequency</b>	: 48Hz to 62Hz
<b>Measuring time</b>	: Instant Reading
<b>Power</b>	: 90V to 270V, 50/60Hz, 40VA
<b>Temperature</b>	: Upto 45°C
<b>Humidity</b>	: 0 to 95 RH
<b>Dimensions</b>	: 19" x 15"x6" / 19" Rack mounting
<b>Weight</b>	: 12Kgs (approx)
<b>Accuracy</b>	: Ratio Error in % and Phase Error in CR/Min

### Range

20% ( $\pm 19.99\%$ & $\pm 19.99$ CR or $\pm 680$ minutes)
2% ( $\pm 1.999\%$ & $\pm 1.999$ CR or $\pm 68.0$ minutes)
0.2 % ( $\pm 1999$ ppm & $\pm 1999\mu R$ or $\pm 6.80$ minutes)

### Normal Operation

$\pm 0.5\%$ RDG $\pm 0.04$
$\pm 0.5\%$ RDG $\pm 0.004$
$\pm 0.5\%$ RDG $\pm 10$

### Extended Operation

$\pm 1\%$ RDG $\pm 0.10$
$\pm 1\%$ RDG $\pm 0.010$
$\pm 1\%$ RDG $\pm 20$

**Note:** \* As per Customer Request.

Specifications may change without notice due to continuous development.

## Description

AMBER's Instrument Transformer Test Set is a complete micro-processor controlled comparator, compares two instrument transformers (CT/PT) of nominally same ratios. So, a small variation in the excitation voltages, currents and frequencies does not affect the measurement. The CT Test set can test both 1A & 5A test CTs with 1A or 5A standard CT. This Instrument have an in-built RS-232 & Parallel Port Printer interface that enables the user to dump the measured values to a PC/Printer and its having an In-built storage facility of 1250 readings, additionally an interface of USB is used to transmit/store/retrieve the measured values to/from the pen drive.

## Display & Indicator

- 320 x240 dot Back-Lit Graphical LCD display.
- Alarm indication for Error messages.

## Printing

- Customer Name
- Date
- Time
- Serial number
- Ratio
- Entered Burden in VA
- Type of Standard
- Input voltage/Current in V/A
- Ratio error in %
- Phase angle error in Min/CR
- Class of Accuracy
- Measured Burden
- Power Factor
- Impedance

## Keyboard Controls

25 Key pad membrane Contains the following keys:

- Print(F1)
- Graph(F2)
- Save(F3)
- Recall(F4)
- Hold(F5)
- USB Write(F6)
- USB Read(F7)
- Shift
- Delete
- Symbols

## Note:

Can be supplied the following Models:

Current Transformer Test Set(AMBER cXR-2000<sup>HT</sup>)  
Potential Transformer Test Set(AMBER pXR-2000<sup>HT</sup>)

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# TRANSFORMER RATIO METER

## Features

- Compact, Portable & Accurate
- Measures : Ratio & Ratio Deviation
  - : Phase angle
  - : Excitation Current
- Four Terminal measurement
- Three Phase Switching Network
- Reverse Polarity Indication & Correction
- Gain Control Detector
- Fast Acting MCB & a safety Fuse

## Description

AMBER Transformer ratio meters use the Striking feature of four terminal measurements. It basically measures the NO-LOAD turns ratio of a transformer i.e., **The ratio of the high voltage winding to the low voltage winding of a transformer.**

The ratio can be read off directly from the dials on the front panel. The percentage deviation dial makes finer resolution leading to increased system's accuracy. Additionally the facility of phase angle measurement can be used to predict inter-turn shorts, core shifts etc.

AMBER Transformer ratio meters has an in-built excitation current meter calibrated in two ranges (1mA & 1A). It measures the excitation current of the transformer under test at 120V. A three phase switching network is provided to ease the operation of cable connection. The protection circuit comprising of a fast action Miniature Circuit Breaker along with a fast blow fuse ensures absolute Safety of operation.

## Specification

<b>Measuring Range</b>	: 0.8 : 1 to 2021 : 1
<b>Accuracy</b>	: $\pm 0.1\%$ of the ratio
<b>Ratio Deviation</b>	: $\pm 0.5\%$ of the ratio with a resolution of 0.02
<b>Phase Angle in CR</b>	: Ranges of 0.55CR & 5.5CR
<b>Test Voltage</b>	: 3V/6V, 12V & 120V AC at 1A isolated
<b>Power</b>	: 230V AC $\pm 10\%$ , 50Hz, 150VA
<b>Dimensions</b>	: 16"x9" x 8" (LxWxH)
<b>Weight</b>	: 12Kgs (approx)



AMBER XR-120



AMBER XR-120s

## Applications

- Distribution Transformers
- Power Transformers
- Current Transformers
- Potential Transformers
- Auto Transformers

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# AUTOMATIC TRANSFORMER RATIO METER

## Features

- Complete Microprocessor controlled instrument
- Measures : Ratio with Deviation  
: Phase angle  
: Excitation Current
- Four Terminal measurement
- Three Phase switching network
- Reverse Polarity Indication & Correction
- Fast acting MCB & a safety Fuse
- RS-232 & Parallel Port Printer Interface
- USB (Pen drive) Interface Facility

## Description

AMBER Transformer ratio meters use the Striking feature of four terminal measurements. It basically measures the NO-LOAD turns ratio of a transformer i.e., **The ratio of the high voltage winding to the low voltage winding of a transformer.** Additionally the facility of phase angle measurement can be used to predict inter-turn shorts, core shifts etc.

AMBER Transformer ratio meters has an in-built excitation current meter calibrated in two ranges (1mA & 1A). It measures the excitation current of the transformer under test at 120V. A three phase switching network is provided to ease the operation of cable connection. The protection circuit comprising of a fast action Miniature Circuit Breaker along with a fast blow fuse ensures absolute Safety of operation.

The Instrument has an in built RS-232 & Parallel Port Printer interface that enables the user to dump the values to the Printer. In-built Data Storage facility is used to store the measured values. USB (Pen drive) Interface is used to transfer the measured values to the Pen drive.

## Specification

<b>Measuring Range</b>	: 0.8 : 1 to 2021 : 1
<b>Accuracy</b>	: $\pm 0.1\%$ of the ratio
<b>Phase angle in CR</b>	: Ranges of 0.50CR & 5.0CR
<b>Test Voltage</b>	: 3V/6V, 12V & 120V AC at 1A isolated
<b>Power</b>	: 230V AC $\pm 10\%$ , 50Hz, 150VA
<b>Dimensions</b>	: 19"x 15" x 6" (L x W x H)
<b>Weight</b>	: 20 Kgs (approx)

**NOTE :** AMBER XR-120S<sup>HT</sup> can measure only single phase.  
AMBER XR-120<sup>HT</sup> can measure three phases at a time.



AMBER XR-120S<sup>HT</sup> & AMBER XR-120<sup>HT</sup>

## Applications

- Distribution Transformers
- Power Transformers
- Current Transformers
- Potential Transformers
- Auto Transformers

## Display & Indicator

- 320x240 dot Back-lit Graphical LCD display.
- Alarm indication for wrong selection.

## Printing

- Customer Name
- Date & Time
- Serial number
- Transformer type
- Input voltage
- Ratio
- Phase angle in CR/MIN
- Excitation current in A (or) mA
- Vector group
- Terminals

## Key Board Controls

25 Key pad membrane Contains the following keys:

- Print(F1)
- Save(F2)
- Recall(F3)
- Shift (F4)
- USB Read(F5)
- USB Write(F6)
- I/O ON/OFF
- SEARCH
- Delete
- Symbols

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# DIGITAL MICRO-OHMMETER



**AMBER M-2K**

## Features

- Compact, light and portable Digital Micro-Ohmmeter
- Direct Digital Reading of resistance in Milliohm and Ohm
- Simple and easy four terminal connections to the sample
- High Accuracy
- Six Ranges from  $1\mu\Omega$  to  $2K\Omega$
- Measurement of grounded and ungrounded specimens
- An ideal low cost test set for inductive load measurement

## Description

AMBER M-2K is a compact, robust and truly portable digital Micro-Ohmmeter used for the measurement of low to very low resistance. AMBER M-2K is specially designed with customer in mind.

AMBER M-2K uses true four terminal measurement method. This eliminates error caused due to lead lengths. AMBER M-2K is a direct resistance reading instrument for resistive load and inductive load with simple and accurate measurements.

A constant current source is applied to the unknown resistance and the voltage drop across the unknown is Amplified / Ranged and displayed directly on a four and half digit LED D.P.M.

## Applications

- Quick and reliable measurement of low resistance.
- Low resistance measurements on buss-bars, contactors, circuit breakers and welded joints.
- An ideal instrument for inductive load measurements.

## Specification

Six Ranges	: 1999.9m $\Omega$ , 199.99m $\Omega$ , 19.999m $\Omega$ 1999.9 $\Omega$ , 199.99 $\Omega$ , 19.999 $\Omega$
Accuracy	: $\pm 0.5\%$ of the reading $\pm 0.25\%$ of the F.S
Resolution	: $1\mu\Omega$ resolution
Display	: Resistance reading on $4\frac{1}{2}$ digit LED D.P.M Milli Ohm, Ohm indicator lamps
Power	: 230V $\pm 10\%$ , 50Hz, 30VA
Temperature	: $0^\circ - 50^\circ$ C
Dimensions	: 10"x11"x5" (LxWxH)
Weight	: 4Kgs (approx)

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# DIGITAL WINDING RESISTANCE METER



**AMBER XRM-20K**

## Features

- Compact, Robust & Portable Instruments
- True four terminal measurement
- Direct digital reading of resistance
- Charging inductor mode for faster stability
- Up to 10 Amps DC constant current source
- Simple and easy four terminal connections
- High Accuracy
- Measurement on grounded specimens
- Disconnect status indicator for safety

## Indicator & Display

- 4½ digit LED display for Current & Resistance.
- Direct read-out in Milli Ohm or Micro Ohm.
- Safe & Unsafe indicator for cable connection.
- Indication of flow of output current.

## Switches & Controls

- Switch to select the DC current flow through the test specimen.
- Switch for power with indicator.
- Switch to select the range of resistance.
- Easy replaceable fuse on the rear panel.

## Specification

<b>Output Current</b>	: 0.1m, 1m, 10m, 0.1A, 1A & 10A
<b>Resistance Range</b>	: 0.1 $\mu$ – 20K $\Omega$
<b>Channel</b>	: Single
<b>Resolution</b>	: 0.0001m $\Omega$
<b>Rating</b>	: 10Amps Continuous
<b>Displays</b>	: Resistance reading on 4½ digit LED display
<b>Accuracy</b>	: $\pm 0.5\%$ of the reading & $\pm 5$ counts
<b>Power</b>	: 230V AC $\pm 10\%$ , 50Hz
<b>Temperature</b>	: 0° - 50° C
<b>Dimensions</b>	: 19"x15"x6" (LxWxH)
<b>Weight</b>	: 22 Kgs (approx)

## Description

AMBER's Digital winding Resistance Meter is Simple, Accurate & Robust instruments used to measure resistance of highly inductive & resistive loads. The true four terminal method is used to overcome even the errors due to lead lengths.

The constant current source is derived directly from the line voltage and the current regulator uses triac circuit on the AC side and an internal known shunt in the DC current path as reference.

The equipment has switches to control the current selected at different ratings and the other for choosing the appropriate range of resistance measurement and the value of resistance will be directly read-off from the 4½ digit LED display. The Instrument uses charging inductor mode to get faster stability.

## Applications

- High inductive & Resistive load measurements.
- Quick & reliable measurement of low & high resistance.
- Very low resistance measurements on buss-bars, contactors, breakers & welded joints.

Specifications may change without notice due to continuous development.

An ISO 9001 : 2015 Certified Company

S.P. INDUSTRIES, # C-104, 1<sup>st</sup> Floor, 8<sup>th</sup> Cross, Dyavasandra Industrial Estate, Mahadevapura Post, Bangalore-560 048.

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# DIGITAL MICRO-OHMMETER



**AMBER M-10**



**AMBER M-100**

## Features

- Compact, Robust & Portable
- Quick, Reliable & Accurate
- Direct read-out of Resistance & DC current
- 10 Amps (M-10) & 100 Amps (M-100)  
DC constant current source
- True four terminal measurement
- Measurement on grounded specimens
- RS-232 Printer Interface
- Automatic updating of Date & Time

## Applications

- Quick & reliable measurement of low resistance.
- Low resistance measurements on buss-bars, contactors, breakers & welded joints.

## Switches & Controls

- Switch to select the DC current flow through the test specimen.
- Switch for power with indicator.
- Switch to select the range of resistance.
- Easy replaceable fuse on the front panel.

## Description

AMBER Digital Micro Ohm-Meter is used for the measurement of low to very low range of resistance and also of grounded specimens.

The constant current source is derived directly from the line voltage and the current regulator uses triac circuit on the AC side and an internal known shunt in the DC current path as reference. The Voltage drop across the unknown resistance is amplified, ranged and displayed directly on a LCD display.

The equipment has two switches. one for the controlling of current flow through the specimen and the other for choosing an appropriate range of resistance measurement.

The Instrument has an in built RS-232 Printer interface that enables the user to dump the values to the Printer.

## Indicator & Display

- Warning Lamp for the current flow through the test specimen.
- 4x20 dot matrix LCD display for display the measured resistance & DC Current (M-100) in Amps.
- Direct read-out in milli or micro Ohm.
- Alarm for error messages.

## Specification

	<b>M-10</b>	<b>M-100</b>
<b>Range</b>	4(199.9 $\mu$ , 1999 $\mu$ , 19.99m & 199.9m $\Omega$ )	4(199.9 $\mu$ , 1999 $\mu$ , 19.99m & 199.9m $\Omega$ )
<b>Resolution</b>	0.1 $\mu\Omega$	0.1 $\mu\Omega$
<b>O/P Current</b>	10Amps	5,10,20,50 and 100 Amps
<b>Rating</b>	Continuous	5, 10 & 20A continuous 50A 15min-ON & 10min-OFF 100A 10min-ON & 10min-OFF
<b>Display</b>	Resistance reading on 4x20 dot matrix LCD display.	DC current & Resistance reading on 4x20 dot matrix LCD display.
<b>Accuracy</b>	$\pm 0.5\%$ of the reading & $\pm 5$ counts	$\pm 0.5\%$ of the reading & $\pm 5$ counts
<b>Power</b>	230V AC $\pm 10\%$ , 50Hz	230V AC $\pm 10\%$ , 50Hz
<b>Temperature</b>	0°- 50° C	0°- 50° C
<b>Dimensions</b>	16"x9"x8" (L x W x H)	18"x19"x8" (L x W x H)
<b>Weight</b>	12Kgs (approx)	40Kgs (approx)

Specifications may change without notice due to continuous development.

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# VARIABLE FREQUENCY GENERATOR



**AMBER VFG-60**



**AMBER VFG-110**

## Features

- Compact, Robust & Portable Instruments
- Direct digital reading of Frequency
- Direct digital reading of Voltage
- Variable Frequency from 40Hz to 60Hz
- Variable Voltage from 10V to 240V AC
- Resolution of 1V & 0.01Hz
- Power output rating 30VA
- Ideal for frequency & Voltage Relays

## Applications

Quick & reliable test on :

- Over / Under Voltage Relays
- Over / Under Frequency Relays

## Description

AMBER's Variable Frequency Generators are Compact, Robust and Truly portable test instruments. They can be used on field as well as lab purposes. The frequency can be read-off directly from the digital frequency meter with a resolution of 0.01Hz. The frequency can be comfortably varied from 40Hz to 60 Hz.

The Model VFG-60 has been incorporated with a four range switching system that allows the user to vary the voltage from 10V AC to 240V AC. The Voltage can be read off directly from the digital voltmeter with 1V resolution rated at 30VA.

The Model VFG-110 has two constant output voltage sources of 110V & 63.5V AC rated at 30VA.

Fast blow fuses have been used as a part of protection circuits.

## Specification

	<b>VFG-60</b>	<b>VFG-110</b>
<b>Output Voltage</b>	10V to 240VAC (in 4 Ranges)	110V & 63.5V AC
<b>Output Frequency</b>	40Hz to 60Hz	40Hz to 60Hz
<b>Output Power</b>	30VA	30VA
<b>Output Protection</b>	Fuse Protection	Fuse Protection
<b>Voltage Control</b>	ON/OFF Switch with 10 turn pot for smooth control.	ON/OFF Switch & Locking pot for $\pm 10V$ .
<b>Voltage Indicator</b>	3 digit voltmeter	xxxxxx
<b>Frequency Control</b>	10 turn pot for smooth setting	10 turn pot for smooth setting
<b>Frequency Indicator</b>	4 digit frequency meter	4 digit frequency meter
<b>Power</b>	230V AC $\pm 10\%$ , 50Hz	230V AC $\pm 10\%$ , 50Hz
<b>Dimensions</b>	14" x 12" x 6" (L x W x H)	14" x 12" x 6" (L x W x H)
<b>Weight</b>	12 Kgs (approx)	9 Kgs (approx)

Specifications may change without notice due to continuous development.

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