

# Test & Measuring Equipments

## WR 100 rack Mount

Suitable for Large to very Large Transformers, Generators, GT's & ICT's 2 or 3 measuring channels. Fastest discharge unit on the market. 3 temperature channels. Heavy duty protection circuitry



## WR 15A

High accuracy measurement of very low resistance of any inductive loads with the fastest discharge unit on the market and most advanced demagnetizing circuit, comes with its own rugged waterproof field



## WR 50A

2 or 3 measuring channels. Heavy duty protection circuitry. Fastest Discharge Unit on Market. 3 Temperature channels. Built in panel printer. Demagnetisation circuit. Internal «Heat run test»



# Test & Measuring Equipments

## XWRM-10

- ❖ Test Current: 10A,1A,100mA,10mA
- ❖ Resistance Range: 0.1 $\mu\Omega$  to 2000 $\Omega$
- ❖  $\pm 0.2\%$  accuracy
- ❖ On Load Tap Changer Testing
- ❖ Heat run test facility
- ❖ Internal memory for 99 test results
- ❖ USB interface with software for report generation



## XWRM-25 and 50 Amp

- ❖ Test Current: 50/25,10,5,1Amp & 100mA,10mA,1mA
- ❖ Resistance Range: 0.1 $\mu\Omega$  to 20K $\Omega$
- ❖  $\pm 0.1\%$  accuracy
- ❖ Heat Run Test Facility
- ❖ OLTC Dynamic test
- ❖ Temperature Measurement & Correction



# Test & Measuring Equipments

## 3 - Phase Turns Ratio Meter - TR MARK III 250V

Fully automatic 3 phase measurements. Automatic Vector Group Detection. Rugged and Reliable. A color LCD with back lighting and touch screen increases user comfort. USB interfaces make it easy to store

## 3 - Phase Voltage Extension To Turns Ratio Meter - T REX

The Raytech three phase voltage system T- REX is an optional system accessory for 3- Phase transformer ratio meter test sets. Fully automatic. Measuring phases other than 30°, shifting transformers, measure power rectifier transformers.

## Single Phase Turns Ratio Meter TR-1 & TR 1P

Fully automatic. Battery operated. Reverse polarity test. Continuity test. Pass/fail function. Extremely rugged.

Built in printer in the TR-1P model. Can be charged by DC Car adapter.



# Test & Measuring Equipments

## XTRM3

- ❖ Voltage Ratio, Ratio Error and Excitation Current
- ❖ Ratio Range up to 10,000
- ❖ Built in printer
- ❖ Internal memory for 500 results
- ❖ Software for Report Generation
- ❖ IP 54 compatible



## XTRM3A

- ❖ Turns Ratio, Ratio Error, Vector Group, Excitation Current & Phase angle
- ❖ Test Voltage: 10,40,100,200V
- ❖ Turns Ratio: 1:10,000
- ❖ Inbuilt Thermal Printer
- ❖ USB Interface for Report generation
- ❖ Internal Memory for 250 Results



# Test & Measuring Equipments

## 5KPI:5KV Insulation Tester

- ❖ Test Voltage up to 5KV
- ❖ Modes: IR, PI, DAR, DD, SV & Burn
- ❖ Resistance Range up to 10TΩ
- ❖ AC/DC Voltage measurement up to 600V
- ❖ Mains/Battery Operation
- ❖ Internal Memory with software for reports generation
- ❖ IP65,CAT IV Rating



## 10KPI:10KV Insulation Tester

- ❖ Test Voltage up to 10KV
- ❖ Modes: IR, PI, DAR, DD,SV, Burn, Hipot
- ❖ Resistance Range upto 20TΩ
- ❖ Selectable Trip current for Hipot
- ❖ AC/DC Voltage upto 600V
- ❖ Mains/Battery Operation
- ❖ Internal Memory with software for report generation
- ❖ IP54,CAT IV Rating



# Test & Measuring Equipments

## IT51:5KV Insulation Tester

- ❖ Diagnostic Modes: IR, PI
- ❖ Test Voltage:250V,500V,1KV,2.5KV,5KV
- ❖ Resistance Range up to 1T $\Omega$
- ❖ AC/DC Voltage measurement up to 600V
- ❖ Mains/Battery Operation
- ❖ IP54,CAT IV Rating



## IT250G:5KV Insulation Tester

- ❖ Test Voltage:250V,500V,1KV,2.5KV,5KV
- ❖ Resistance range upto 250G $\Omega$
- ❖ Internal memory for 1000 records
- ❖ Continuity Testing
- ❖ Auto Power Off
- ❖ IP54,CAT IV Rating





# Test & Measuring Equipments

## MIRT61:1KV IR + Multi meter

- ❖ Multi-featured single box design
- ❖ Test Voltage: 50,100,250,500 &1000V
- ❖ Resistance Range up to 6GΩ
- ❖ True RMS Multi meter functions
- ❖ Functions: Voltage, Current, Resistance, Capacitance, Diode, Continuity, frequency & duty cycle measurement
- ❖ Auto power off , Hold/Lock, Min/ Max, Filter
- ❖ IP54,CAT IV Rating



## i-12 : 1KV Insulation Tester

- ❖ Test Voltage: 50,100,250,500 &1000V
- ❖ Resistance Range upto 2GΩ
- ❖ Auto AC/DC 600V measurement.
- ❖ Continuity Testing
- ❖ Low resistance measurement:100Ω
- ❖ Memory for 10 readings
- ❖ IP54,CAT IV Rating



# Test & Measuring Equipments

## Capacitance & Tan Delta Test Set CAPO 2.5

The measuring instrument CAPO is a new Capacitance and Power Factor Test Set developed by Raytech Engineers. It's world unique battery operated and built in a portable rough case, so it is perfect for field use. The CAPO 2.5 is specially designed for fast and easy field measurement, with the well known high precision and quality of Raytech



CAPO 2.5	
Capacitance	+/- 0.1 % +/- 0.0 IpF
PF / tan delta	1 x 10-4 1 x 10-5 or 0.5% rdg
Operation screen	large 7" colour LCD touch screen Accuracy Resolution
Interfaces	USB host and device - RS232
Test voltage	0 - 2500 V



# Test & Measuring Equipments

## Current Transformer Test Set CT - T1

The measuring instrument CT-T1 is a new Current Transformer Tester in a portable case. Comparing to CT Analyzer the CT Tester has less functions but with the big advantage of fast and easy operation. Combined measurement of ASA10/50, IEEE30°, IEEE45°, knee point, turns ratio and polarity



CT - T1	
Current Range	0- 10A+ImA 0.1mA
Voltage Range Accuracy Resolution	0-2000V +0.1V 0.01 V
Ratio Range Accuracy Resolution	0-1000:1 0.05% 5 Digits; 0-5000:1 0.5% 5 Digits
Operation screen	- large 7" colour LCD -touchscreen - additional dig pot
Interfaces	USB host and device - RS232

# Test & Measuring Equipments

## Automatic Transformer Observing System

Raytech ATOS is designed to drastically reduce measuring time and increase test performance. A modular design based on Raytech instruments offers the possibility to create a custom solution for any application. Minimizes cabling time. Does all measurements (Winding Resistance and Turns Ratio) with one set of transformer connections. Uses up to three Multiplexers and measures transformers with three winding systems with one cabling sequence. Get your own configuration



# Test & Measuring Equipments

## Auto OIL BDV:OTS60A/80A/100A

- ❖ Preprogrammed test sequences
- ❖ Accuracy of 1% with 0.01KV resolution
- ❖ Temperature/humidity measurement
- ❖ HT chamber , Zero start & Earthling interlock
- ❖ Internal Memory for 100 Test results
- ❖ USB interface & Report generation
- ❖ Inbuilt Thermal Printer



## Manual Oil BDV:OTS60/80/100

- ❖ Voltage Calibrator for onsite
- ❖ Safety door, Earth & Zero start interlock
- ❖ Memory effect analog voltmeter
- ❖ Test vessel with electrode gap
- ❖ Transistor based relay to avoid fluctuating readings



# Test & Measuring Equipments

## Oil Tan delta & Resistivity Test Kit

- ❖ Dissipation factor measurement from 4.0 to  $1 \times 10^5$
- ❖ Measurement of the specific resistance with both polarities up to 100 T  $\Omega\text{m}$
- ❖ Measurement of the relative permittivity
- ❖ Highly precise induction heating of the cell with accurate temperature control
- ❖ Functional design for high efficiency, user-friendliness
- ❖ Test cell with safety ring, three electrodes and Teflon glass rings
- ❖ Calibration of the empty cell
- ❖ Emptying of the test cell possible without disassembly
- ❖ Direct temperature measurement by placing the sensor in electrodes
- ❖ Data management software

# Test & Measuring Equipments

## Contact Resistance: PCRM100S/200S

- ❖ Test current: 100A (PCRM100S) & 100/200A (PCRM200S)
- ❖ mV voltage drop measurement
- ❖ Resistance range 20m $\Omega$  (PCRM200S)/ 2m $\Omega$  (PCRM100S)
- ❖ 0.1 $\mu\Omega$  resolution
- ❖ Mains and Battery operated
- ❖ Internal memory – PCRM100 – 99, PCRM200 – 199 Test
- ❖ Built in thermal printer
- ❖ Software for report generation & analysis
- ❖ IP 54 ,CE
- ❖ Dual Ground technology



# Test & Measuring Equipments

## Contact Resistance: CRM100

- ❖ Test current :10A, 20A, 50A & 100A
- ❖ Resolution : 0.1 $\mu\Omega$
- ❖ Accuracy :  $\pm(0.5\%+5$  digits)
- ❖ Data management software
- ❖ Built-in Memory of 99 test result



## Contact Resistance :PCRM-100SM

- ❖ Test current:100A
- ❖ mV voltage drop measurement
- ❖ Resistance range: 0.1 $\mu\Omega$  2m $\Omega$
- ❖ Internal memory of 99 test results
- ❖ Dual Ground technology
- ❖ Economical



# Test & Measuring Equipments

## Contact Resistance: LR2045S

- ❖ Test current :Up to 1Amp
- ❖ Test mode: Continuous/Pulse
- ❖ Resistance range:  $1\mu\Omega$  to  $2000\Omega$
- ❖ Accuracy :  $\pm(0.5\%+5)$
- ❖ Zero adjustment to avoid lead error
- ❖ Back EMF protection
- ❖ USB Interface for data transfer
- ❖ Built-in Memory of 99 test result



## Contact Resistance :LR2065

- ❖ Test current: Upto 10Amp
- ❖ Resistance range:  $0.1\mu\Omega$  to  $2K\Omega$
- ❖ Accuracy :  $\pm(0.03\%+5)$
- ❖ Mains cum Battery Operation
- ❖ Low Battery Indication
- ❖ Lightweight & portable





# Test & Measuring Equipments

## Circuit Breaker Timer: MCBT-P

- ❖ 4 contact timing channels ( R,Y,B and N).
- ❖ Trigger option C,O,C-O with bounce.
- ❖ Time range 0-9999.9ms.
- ❖ Resolution of 0.1ms.
- ❖ Accuracy  $\pm 0.05 + 1$  Digit.
- ❖ In built Thermal printer.
- ❖ Internal memory for 100 records
- ❖ USB interface for data transfer & report
- ❖ Next Generation will have PIR timing & battery operation
- ❖ ( MCBT-X : without USB/Printer)



# Test & Measuring Equipments

## Primary Injection Kit: PIK Series

- ❖ Output current up to 3000Amp
- ❖ Zero start interlock for safety
- ❖ High VA burden to test high impedance object
- ❖ Digital timer for measuring tripping time
- ❖ CT Ratio, Polarity measurement
- ❖ Mounted on wheels for movement in switchyard



# Test & Measuring Equipments

## Relay Test Set: RTS Series

- ❖ Output current up to 200A
- ❖ Various ranges for better resolution
- ❖ AC/DC Voltage source of 0-250V
- ❖ High burden to test electromechanical relays
- ❖ Highly accurate timer
- ❖ Auto cut off upon tripping relay
- ❖ Adequate Protection facility with MCB & Fuses



# Test & Measuring Equipments

## High Voltage Test Set: HVT Series

- ❖ Output voltage up to 100KV
- ❖ Test Voltage available in AC ,DC & AC-DC
- ❖ Selectable trip current up to 100mA
- ❖ Zero start interlock
- ❖ Timer to set duration of test
- ❖ Audio/visual indications
- ❖ Overload protection
- ❖ Wheel mounted for easy transportation



# Test & Measuring Equipments

## HV Detector (HV50,HV132,HV220,HV440)

- ❖ Self Test button to check functionality
- ❖ Universal link suitable to most of telescopic rod
- ❖ Selectable Sensing distance(1m/3m/5m)
- ❖ Contact & Non Contact type detection
- ❖ Type tested telescopic rod for human safety

Sr. No.	Model Number	Voltage Class
1	HV50P	230V – 33KV
2	HV-50	3 – 50 KV
3	HV-132	11 – 132 KV
4	HV-220	33 – 220 KV
5	HV-440	66 – 440 KV



# Test & Measuring Equipments

## Precision Power Analyser

- ❖ Basic accuracy 0.1%.
- ❖ TRMS Voltage 600V Phase to neutral
- ❖ TRMS Current 8mA-80A(direct)
- ❖ RS232/USB Port for Computer interface
- ❖ Real time data recording by software
- ❖ Torque, RPM,% Slip, Efficiency Measurement
- ❖ Flow, Head, RPM, % Slip Measurement
- ❖ Tamper Proof calibration and long term stability
- ❖ User Friendly Operation with embossed key pad
- ❖ Four 10 volt DC channel



# Test & Measuring Equipments

## Epstein Tester:MET450

- ❖ 0.1% Accuracy
- ❖ 25Hz to 450Hz Source
- ❖ Auto/manual Test Method
- ❖ Fully Automatic Software
- ❖ Temper Proof Calibration
- ❖ Modes: Bridge, Torrid, Transformer, User





# Test & Measuring Equipments

## Earth Tester: DET20

- ❖ Soil Resistivity & Earth electrode Testing
- ❖ Test current 10mA at 128 Hz frequency
- ❖ Resistance Range:  $0.01\Omega$  to  $2000\Omega$
- ❖ Earth Voltage Measurement up to 200V
- ❖ Internal Rechargeable battery



## Clamp On Earth Tester:DECT3

- ❖ Resistance range : $0.01\Omega$  to  $1200\Omega$
- ❖ AC Leakage current :up to 20A
- ❖ Internal Memory for 99 records
- ❖ Alarm setting for resistance & current range
- ❖ Improved Jaw size of 65mm
- ❖ Verification loop for onsite calibration



# Test & Measuring Equipments

## Multi meter



# Test & Measuring Equipments

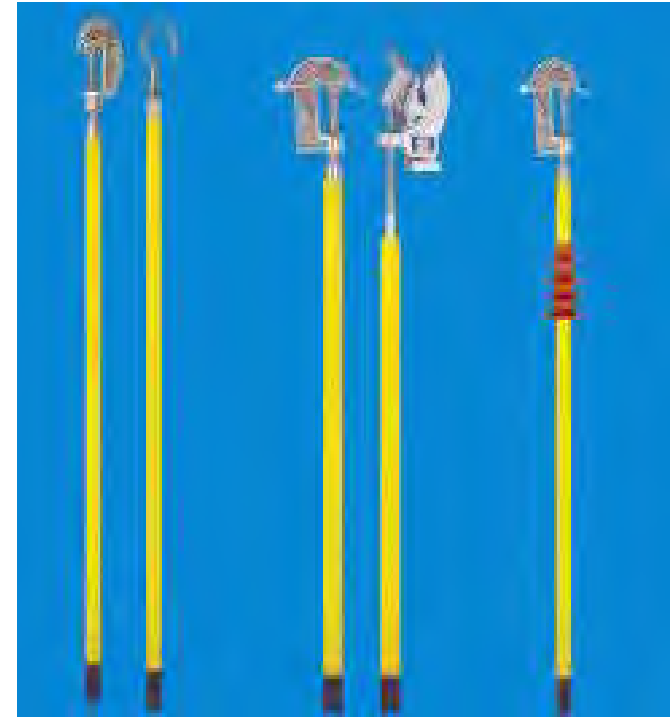
## Clamp Meters



# Test & Measuring Equipments

## Earthing Rods

- ❖ Available in customized length
- ❖ Suitable for 11kV to 440kV
- ❖ FRP telescopic safe guard
- ❖ Customized Termination
- ❖ Types Tested



# Test & Measuring Equipments

## Motor Generator Set

**Motor Generator Set** comprises of a Motor and a Generator, both mounted on a common base plate and coupled to each other through flexible coupling. A Control Panel comprising of a starter for the Motor, contactor for the Generator and Meters and Instruments, is supplied with the Converter.

### Applications:

- For Induced Over Voltage tests of CTs/ PTs/ Power & Distribution Transformers. 100 Hz, 150 Hz, 200 Hz, 250 Hz, 300 Hz, 400 Hz. Single Phase/Three Phase Power Source.
- 400 Hz for Ground Power Supply used for testing, maintenance and starting Helicopters and AirCrafts.
- 150 Hz for High Frequency Tools
- For supplying 60 Hz power (through belt drive arrangement)



# Test & Measuring Equipments

## Standard Voltage Transformers

From 1 KV to 40 KV dry-insulated. 1 KV to 500/A/3 KV Oil-insulated, Transformer ratio from 1 KV to 500/A/3 KV to 100 V up to 220/3 V with accuracy as max.  $\pm 0.005\%$ ,  $\pm 0.5$  Min at 0.4 to 1.2 rated voltage



# Test & Measuring Equipments

## Standard Current Transformers

From 1 KV dry insulated to 100 KV Oil- insulated Transformer ratio from 1A to 20 KA to 1A and 5 A with accuracy as max.  $\pm 0.005\%$ ,  $\pm 0.5$  Min at 0.05 to 2.0 rated current

