

PROGRAMMABLE P-E LOOP TRACER

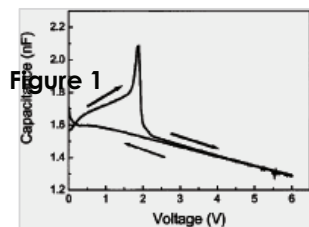
(A.C./D.C./PULSE)

model: MBHLT

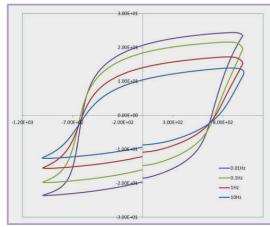
Introduction: MPELT series of P-E Loop tracer are capable for P-E Loop characterization of hard and soft magnetic material apart from other material under varies parametric variations. It is able to identify magnetic characteristic parameters of remanence Er, coercive force Pc, intrinsic coercive force PcJ and maximum P-E energy product (P.E)max at various frequencies from 0.01 Hz to 10.0 kilo hz under varied parametric condition.

Features: Select geometry size of sample automatically calculate the area; 2. Programmable range selection for different frequency; 3. Auto control excitation voltage when measuring normal permanent magnet; 4. Auto correct polarization drift during the entire testing process; 5. The Hall probe nonlinear automatically compensate; 6. Electromagnet design optimization, flexibly adjust;

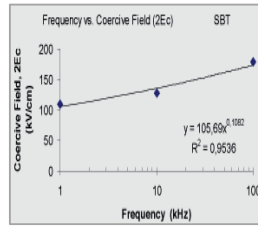
Operating Principle: Soft/hard electric material when placed under alternating/static electric field, tend to get volumetrically polarized as a result surface polarization charge appears. These polarization charges are proportional to displacement current which is in quadrature to real current attributing to real losses in dielectric current. The Loss/polarization level varies with frequency and as frequency raise, polarization of material falls and loss factor rises leading to quasi-ohmic character of device indicated by fall in slope level of P.E. loop.. Further It has also been observed that P-E behavior is distinct character of a dielectric material as any charge in its profile may used to assess grain structure, ferroelectric device reliability crack level and many more associated electro-ceramic parameter apart from routine diagnosis. In principle Polarization is defined as function of electric field as under..... $P = \epsilon \cdot x \cdot E$ where ϵ : absolute pimitivity, x : suspetility, and E is applied electric field.



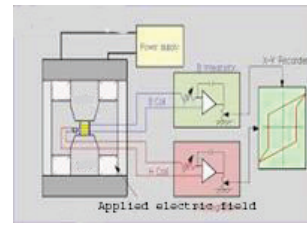
Capacitance/Volt Loop Tracer



P-E curve at different frequency



Coercive curve at different frequency



pictorial presentation of P-E set-up

General Specifications of P-E Loop tracer (A.C., /D.C.)

0.0 Hz frequency < 10.0 KHz

Model	Emax Volt/m.m.	Polarization C. 10 ⁻⁶ /cm ²	Frequency Hz/%D sine/square	Er/m.m.	%-pr Coulomb. 10 ⁻⁶ /cm ²	Temperature Deg-cel
MPELT-0520	+/-200000	999999	0-10 ⁺⁵ hz/0-100%	+/-200000	0.01-999.99	Upto 800
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MPELT-1020	+/-200000	999999	0-10 ⁺⁵ hz/0-100%	+/-200000	0.01-999.99	Upto 800
MPET-1020	+/-200000	999999	0-10 ⁺⁵ hz/0-100%	+/-200000	0.01-999.99	Upto 800
MPELT-1020	+/-200000	999999	0-10 ⁺⁵ hz/0-100%	+/-200000	0.01-999.99	Upto 800
MPELT-1020	+/-200000	999999	0-10 ⁺⁵ hz/0-100%	+/-200000	0.01-999.99	Upto 800

General Specifications of P-E CHARACTERIZATION SET-UP (A.C.,/D.C.)

- Operating voltage: 220 volt A.C., 50HZ.
- Measurement range (f): 10⁻⁰⁹-10⁻⁰⁴ ull scale): as above in different model.
- Electric field excitation : 10⁻⁰³-10⁻⁰ / 10⁻⁰-10⁺⁶ M volt/m.m. least count- 1/2/5 volt/m.m. AC/DC
- polarization measure range : 10⁻⁰⁶-10⁻⁰ C/m² least count- 5.0**
- Input capacitance/impedence: 10 nF/ above 10k megaohm
- Response time: 1000 sample/sec
- Burden: less than 100 micro volt/full scales current or better
- Accuracy error: 0.5/1.0/2.0 % reading
- Repeatability: 100 of reading
- Resolution(Polarization /Electric field): 1/2/ count optional on time behaviour of signal
- Linearity adjustment: upto 100 count
- Input imedence: ultra high (<1000 count burdon),
- Filtering: low pass (adjustable)
- Offset: variable upto 10,000 nano volts (manual/auto)
- CMMR: >80 db at 50-60 Hz
- Isolation: > 100 giga ohm
- Connector: BNC-9 pinx2 and BNC-25 pinx2
- Size: 8X8x12 inches/rack mounted or portable
- Interface: RS-232
- Option: ADDITIONAL SOFTWARE to plot P/E at different temperature/frequency



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