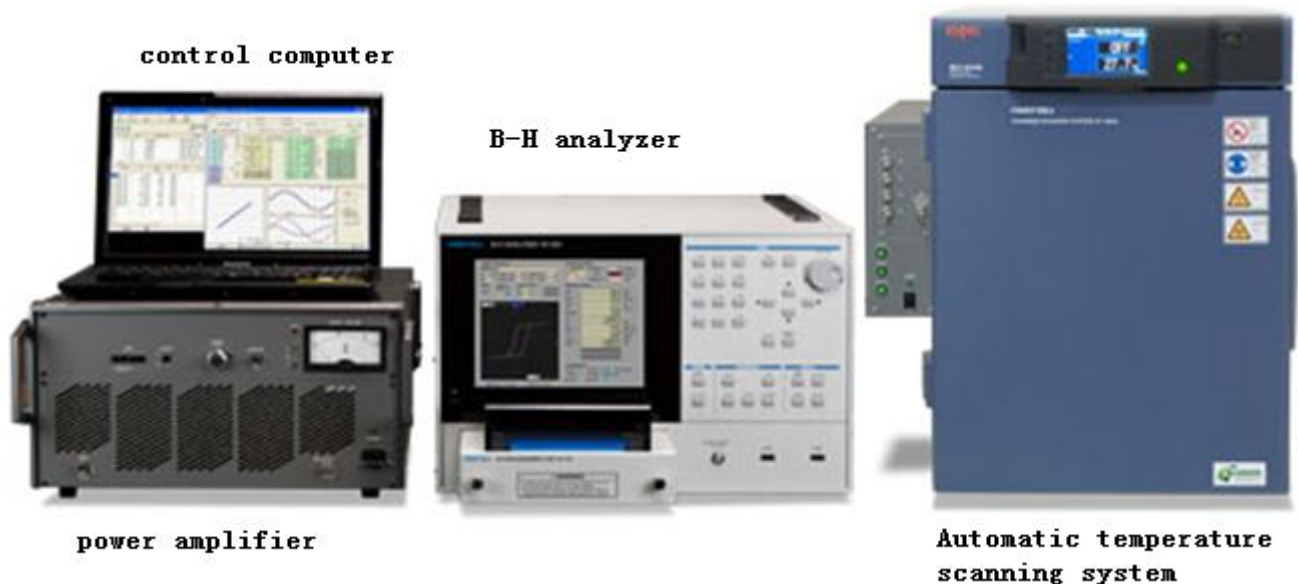


B-H Analyzers

SY-8218 is the latest generation soft magnetic AC characteristics tester with band wide 10 Hz to 10 MHz of Iwatsu. Iwatsu's B-H analyzers can be performed hysteresis loops analysis, power loss analysis and high current test signal LCR parameter test of soft magnetic materials which hiring cross-power method (IEC 62044-3). Depending on the focus of data analysis ,the instrument provides three test models: Pc model, B-H model and μ model for customers' choice.

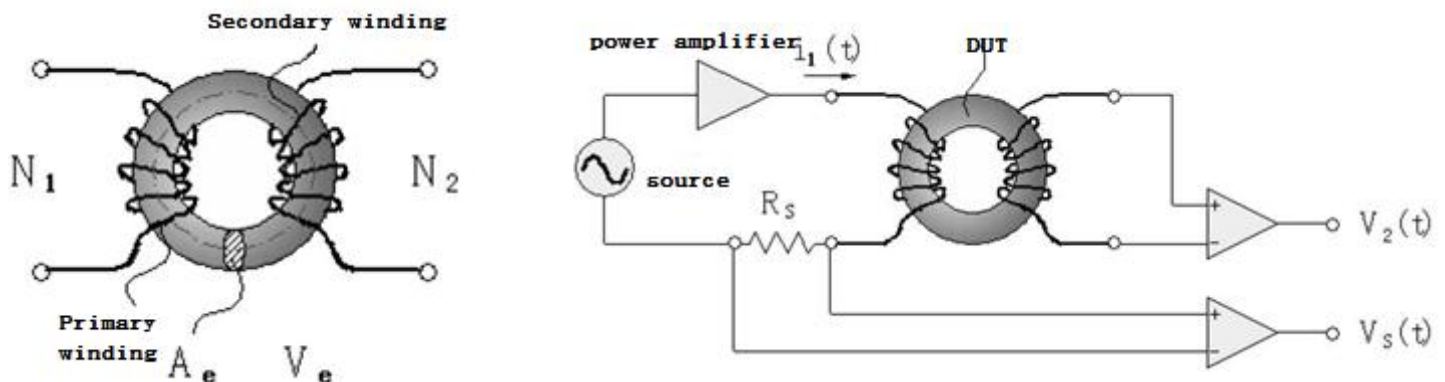


❖ Instrument parameters

| Device Name | SY-8218 |
|----------------------------------|--|
| Frequency Range | 10 to 10 MHz(Sin),DC to 3M Hz(Amplifier) |
| Temperature Changing Measurement | -30~150°C |
| Rated current / voltage / power | ± 140 V Max./ ± 5.2 A Max./ ± 350 VA |

| | |
|--------------------|-------------------------|
| | Max. |
| Test mode | B-H, P _c , μ |
| Single test number | 20 PCS |

❖ Measurement method



Device under test winding with primary coil (laps N_1) and secondary coil (laps N_2) connected to signal source through power amplifier. We can calculate magnetic field strength by testing voltage $V_s(t)$ of standard resistance series with the primary coil when a certain frequency of sinusoidal ac $i_1(t)$ flow. The induced electromotive force $V_2(t)$ is generated across the secondary coil since the alternating signal of primary coil. We can calculate magnetic flux density $B(t)$ combine with other known parameters in the same way. So we can calculate all other data by test $V_s(t)$ and $V_2(t)$.

❖ Test object

Toroid or Ei core. Suggesting throid and sample size requirements are as follows:

- The outer diameter: 10 mm to 36 mm

- Effective cross-sectional area: 8 mm² to 100 mm²
- Recommended size ratio: $D/d \approx 1.67$ 、 $h/d \approx 0.67$

❖ Test item

| B-H model | | Pc model | | μ model | |
|--------------------------------|--|----------------------------|--|----------------|---------------------------------|
| B _m | Max. magnetic flux density | B _m | Max. magnetic flux density | B _m | Max. magnetic flux density |
| B _r | Residual magnetic flux density | B _r | Residual magnetic flux density | H _m | Max. magnetic field strength |
| H _m | Max. magnetic field strength | H _m | Max. magnetic field strength | P _c | Core loss(P _c) |
| H _c | Coercive force | H _c | Coercive force | μ _a | Relative amplitude permeability |
| B _r /B _m | Rectangular ratio | μ _a | Relative amplitude permeability | μ _Z | Impedance permeability |
| μ _a | Relative amplitude permeability | P _c | Core loss(P _c) | μ'μ'' | Complex permeability |
| P _c | Core loss(P _c) | P _{c_v} | Core loss(P _{c_v}) | tanδ | Loss coefficient |
| P _{c_v} | Core loss(P _{c_v}) | P _{c_m} | Core loss(P _{c_m}) | L | Inductance |
| P _{c_m} | Core loss(P _{c_m}) | θ | Phase | R | Resistance |
| θ | Phase | VA | Apparent power | Q | Quality factor |
| 2φ _m | Total magnetic flux linkage | - | - | Z | Impedance |
| - | - | - | - | θ | Phase |