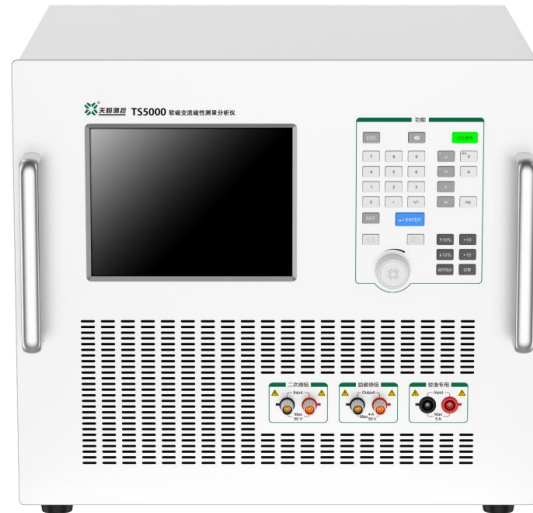


TD81 Series AC Magnetic Properties Measuring System for Soft Magnetic Materials



*Above picture is only for reference, subject to actual delivery

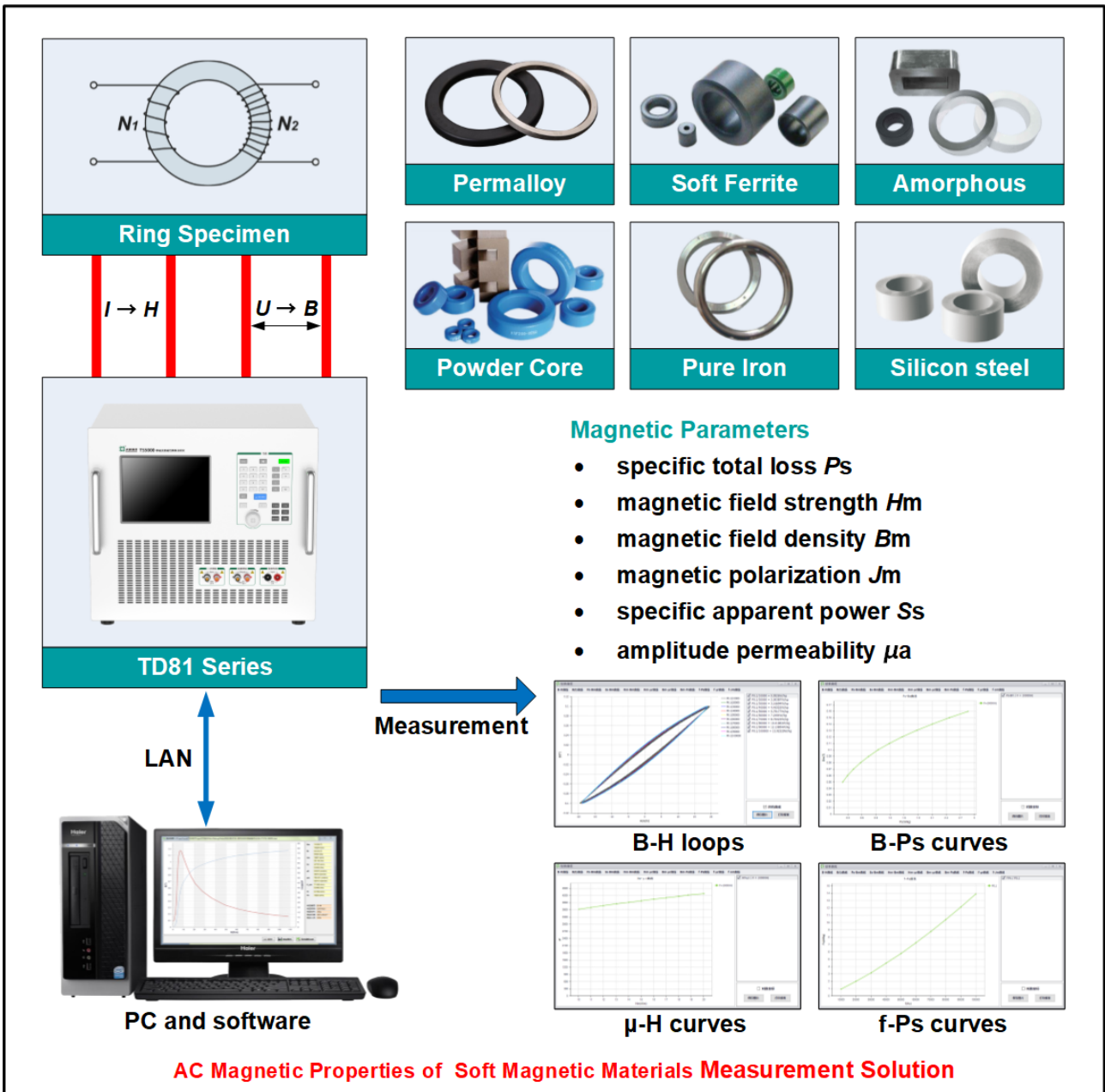
1. Summary

The TD81 Series is a dedicated system for measuring the **AC magnetic properties of soft magnetic materials**. It consists of an AC excitation and measurement unit and fully automated measurement software. The system is capable of automatically measuring the AC magnetic characteristic parameters of soft magnetic ring specimens within the frequency range of **20 Hz to 1 MHz** (refer to the ordering information), and generates corresponding magnetic characteristic curves. It features user-friendly operation, fast measurement, and excellent repeatability and reliability.

2. Features

- Electrical parameters calibration function.
- Testing mode: setting **H** to measure **B** or setting **B** to measure **Ps** .
- Testing in full frequency range with good accuracy and repeatability.
- Automatically testing with professional software.
- Automatically calculating magnetic parameters and curves.
- Complete curves drawing and data management functions.
- Modular design, easy to upgrade or maintenance.

3. Applications



4. Magnetic Parameter specifications

Magnetic Parameters		Optimal Measurement Uncertainty ($k = 2$) @1 kHz	Optimal Measurement Repeatability
Main Dynamic Magnetic Property Parameters	P_s	2.0%	1.0%
	μ_a	3.0%	1.0%
	B_m	1.0%	0.5%
	H_m	1.0%	0.5%
	δ	5.0%	1.5%
Other Magnetic Property Parameters for Reference	B_r	2.0%	1.0%
	H_c	3.0%	1.0%
	μ'	3.0%	1.0%
	μ''	3.0%	1.0%
	μ_L	3.0%	1.0%

- Testing conditions: $(23 \pm 5)^\circ\text{C}$, $20 \text{ Hz} \leq F \leq 20 \text{ kHz}$, demagnetized before testing.
- The ratio of the outer diameter to the inner diameter of the measured specimen should not be greater than 1.4, preferably less than 1.25.

5. Electrical Parameter Specifications

5.1 TD8110 / TD8120 / TD8130

Excitation Voltage Range	<i>10 mV_{pk} ~ 200 V_{pk}</i>		
Excitation Current Range	<i>0.5 mA_{pk} ~ 20 A_{pk}</i>		
Frequency Range	<i>20 Hz... 100 kHz... 200 kHz... 500 kHz Optional</i>		
Optimal Frequency Measurement Uncertainty	<i>0.1%</i>		
Frequency Range (Hz)	Maximum output power (peak value)	Optimal Measurement Uncertainty of Voltage and Current (k=2)	Optimal Measurement Accuracy of Active Power (k=2)
<i>20 ≤ F ≤ 1 k</i>	<i>700 VA</i>	<i>0.05%*RG^①</i>	<i>0.1%*FS^②</i>
<i>1 k < F ≤ 10 k</i>	<i>700 VA</i>	<i>0.1%*RG^①</i>	<i>0.2%*FS^②</i>
<i>10 k < F ≤ 100 k</i>	<i>700 VA</i>	<i>1.0 %*RG^①</i>	<i>2.0%*FS^②</i>
<i>100 k < F ≤ 300 k</i>	<i>200 VA</i>	<i>2.5%*RG^①</i>	<i>5.0%*FS^②</i>
<i>300 k < F ≤ 500 k</i>	<i>100 VA</i>	<i>5.0%*RG^①</i>	<i>8.0%*FS^②</i>
Notes ①: RG is range value; ②: FS = Voltage range value × Current range value			


5.2 TD8140

Excitation Voltage Range	10 mV _{pk} ~ 68V _{pk}		
Excitation Current Range	0.5 mA _{pk} ~ 6 A _{pk}		
Frequency Range	20 Hz... 1 MHz		
Optimal Frequency Measurement Uncertainty	0.1%		
Frequency Range (Hz)	Maximum output power (peak value)	Optimal Measurement Uncertainty of Voltage and Current (k=2)	Optimal Measurement Accuracy of Active Power (k=2)
$20 \leq F \leq 1 k$	400VA	0.05%*RG ^①	0.1%*FS ^②
$1 k < F \leq 10 k$	400VA	0.1%*RG ^①	0.2%*FS ^②
$10 k < F \leq 100 k$	400VA	1.0 %*RG ^①	2.0%*FS ^②
$100 k < F \leq 300 k$	240 VA	2.5%*RG ^①	5.0%*FS ^②
$300 k < F \leq 500 k$	240 VA	5.0%*RG ^①	8.0%*FS ^②
$500 k < F \leq 1 M$	200 VA	8.0%*RG ^①	12%*FS ^②
Notes ①: RG is range value; ②: FS = Voltage range value × Current range value			

6. General specifications

Power Supply	AC (220 ± 22) V, (50 ± 2) Hz
Temperature	Operating Temperature: 0°C~45°C;
Performance	Storage Temperature: -20°C~70°C
Humidity	Working humidity: 40%~80% R·H, no condensation
Performance	Storage humidity: < 95% R·H, no condensation

7. Ordering Information

TD81 	Testing Frequency	
	Code	Note
	<i>10</i>	20 Hz ~ 100 kHz
	<i>20</i>	20 Hz ~ 200 kHz
	<i>30</i>	20 Hz ~ 500 kHz
<i>40</i>	20 Hz ~ 1 MHz	

e.g.: TD8110 represents testing frequency is 20 Hz~100 kHz.

8. Auto-Testing Software

- The software runs on the Windows operating system, offering intuitive and user-friendly operation.
- Fully automated control and computation with intelligent judgment greatly minimize errors caused by manual operations.
- Real-time display of current, voltage, and power values; supports simultaneous display of $I(t)$, $U(t)$, $B(t)$ waveforms and $B(H)$ hysteresis loops in multiple windows. Real-time monitoring of waveforms and instrument status with the ability to stop the process at any time.
- Supports pre-setting multiple loss or magnetic induction test schemes by frequency, with save and load functions.
- Test reports include complete curve graphs, test results, test conditions, and specimen parameters.
- After multi-point testing, it can display $B(H)$ hysteresis loop clusters, $B(H)$ magnetization curves, $\mu_a(H)$ permeability curves, and $P_s(B)$ loss curves, with coordinate details available for each data point.
- Powerful file management functions, including auto-save, delete, and clear all data.
- Multiple export formats for test results: direct printing; export as JPG image or Excel spreadsheet.
- Compatible with various printer models and supports print preview. User name and logo can be conveniently added to the report.

9. Configuration List

No.	Name	Qty	Config.	Remark
1	<i>TD81 Measurement Host</i>	1	Standard	
2	Software	1	Standard	
3	RS232 Communication Cable	1	Standard	
4	Power Cord	1	Standard	
5	Fuse Tube	4	Standard	
6	Instruction Manual	1	Standard	
7	Certificate Of Conformity	1	Standard	
8	Computer	1	Optional	Third-party product
9	Printer	1	Optional	Third-party product
10	Working Bench	1	Optional	Third-party product

Note: The above is only for reference. The specific configuration list depends on the technical protocol.