

MS Synchronous Thermal Analyzer: Precision STA for Advanced Material Research



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Are you a lab researcher or equipment purchaser struggling with inconsistent thermal analysis results, time-consuming setups, or limited instrument versatility?

The MS Synchronous Thermal Analyzer (Model: MSDSCTGA1550STASWISS) is your all-in-one solution for simultaneous TGA and DSC measurements, delivering unmatched precision from room temperature to 1550°C. Designed for demanding applications in plastics, pharmaceuticals, catalysts, and composites, this Swiss-engineered instrument streamlines your workflow, enhances data accuracy, and accelerates material insights—helping you overcome common pain points like unreliable baselines, slow cooling

times, and manual calibrations.

Why Choose the MS Synchronous Thermal Analyzer?

In today's fast-paced lab environments, researchers face challenges such as thermal instability in samples, inaccurate heat flow measurements, and the need for multi-parameter analysis without switching instruments. Our STA addresses these head-on by combining Thermogravimetric Analysis (TGA) for mass changes and Differential Scanning Calorimetry (DSC) for energy conversions in a single, synchronized test. This not only saves time and reduces sample variability but also provides comprehensive data on thermal stability, decomposition, and phase transitions—empowering you to optimize processes, ensure quality control, and drive innovation in fields like R&D, pharmaceuticals, and advanced materials.

Key Benefits for Your Lab

- **Superior Precision and Reliability:** Achieve temperature fluctuations as low as $\pm 0.01^{\circ}\text{C}$ and mass resolution of 0.01mg, minimizing errors in critical experiments and ensuring repeatable results even in high-temperature scenarios.
- **Time-Efficient Operations:** Modular design allows quick furnace swaps and automated gas switching, cutting setup time and enabling seamless transitions between heating, cooling, and isothermal tests—ideal for high-throughput labs.
- **Versatile Applications:** Measure melting points, oxidation induction, adsorption/desorption, and more, solving pain points like incomplete data from separate instruments and supporting diverse materials from polymers to inorganics.

- **User-Friendly Interface:** A 7-inch full-color LCD touch screen with real-time data display and intelligent software for automatic reporting, baseline deduction, and multi-point calibration—reducing operator training needs and human error.
- **Enhanced Safety and Maintenance:** Closed ceramic insulation, exhaust gas interfaces, and capillary cooling systems protect your samples and extend instrument life, addressing concerns over contamination and downtime.
- **Cost-Effective Long-Term Value:** Built-in calibration, temperature compensation, and robust PID algorithms mean fewer recalibrations and lower maintenance costs, maximizing your ROI in lab equipment investments.

By integrating these features, the MS STA eliminates the frustration of fragmented analysis, providing synchronized TG and DSC/DTA data from the same sample. This leads to faster decision-making, reduced material waste, and compliance with stringent quality standards in research and industry.

Technical Specifications

Our analyzer emphasizes precision engineering for laboratory excellence. Below is a clear overview of its capabilities:

Parameter	Specification
Temperature Range	Room temperature to 1550°C
Temperature Resolution	0.01°C
Temperature Fluctuations	±0.01°C
Heating Rate	0.1 to 100°C/min
Balance Measurement Range	0.01mg to 5g
Mass Resolution	0.01mg
DSC Range	0 to ±2000 mW
DSC Sensitivity	0.001 mW
Constant Temperature Time	0 to 500 min (arbitrary setting)
Cooling Time	30 min (from 1000°C to 100°C)
Toggle Rate	16.6 Hz
Sample Rate	0.05 to 10 Hz (programmable)

Parameter	Specification
Sensor Type	K-type (standard) or E-type (optional), software-switchable
Experimental Modes	FTC and STC (arbitrary setting)
Experimental Types	Weight loss, weight gain (e.g., adsorption)
Program Temperature Control	Up to 12 stages, with cyclic scanning up to 9999 times (auto-save data)
Temperature Control	Heating, constant temperature, cooling
Instrument Calibration	Multi-point temperature correction on both host and software
Display	24-bit color, 7-inch LCD touch screen
Atmosphere Control	Dual atmospheres, automatic software switching
Parameter Standards	Includes standard substances for user calibration
Power Supply	AC 220V / 50Hz

These specs highlight the instrument's precision, with features like dual temperature sensors for simultaneous furnace and sample monitoring, ensuring accurate insights into material behaviors such as thermal stability, decomposition, and phase transitions.

Advanced Features for Optimal Performance

The MS STA is packed with innovative features to enhance your research precision and efficiency:

1. **High-Quality Built-In Balance:** Imported weighing system with internal calibration, temperature compensation, and constant-temperature water bath for superior accuracy and repeatability—perfect for detecting subtle mass changes.

2. **Position-Independent Weighing:** Built-in quality level guidance ensures consistent results regardless of sample placement within the scale range.
3. **Closed Ceramic Furnace:** Improves signal sensitivity, resolution, and baseline stability while supporting dual gas paths for airtight experiments.
4. **Capillary Water Circulation Cooling:** Wraps the furnace for rapid cooling, reducing wait times between runs.
5. **Customizable Exhaust Interfaces:** Reserves ports for secondary exhaust gas analysis, ideal for environmental or advanced studies.
6. **Flexible Sensors:** Imported brackets with switchable K-type or E-type sensors, optimized for polymer phase transitions and vitrification.
7. **Adjustable Sampling Frequency:** 0.05-10Hz settings for tailored data collection.
8. **Dual Temperature Sensors:** Monitors furnace and sample temperatures simultaneously for precise control.
9. **Dynamic PID Temperature Control:** Optimized algorithm enhances robustness in dual-mode operations.
10. **FTC and STC Modes:** Friendly, flexible temperature settings for diverse scenarios.
11. **Multi-Stage Programming:** 12-level control with cyclic scanning up to 9999 times and auto data saving.
12. **Multi-Point Calibration:** On both hardware and software for scenario-specific accuracy.
13. **High-Frequency Processor:** Faster processing for efficient control.
14. **Intelligent Atmosphere Switching:** Software-driven for higher efficiency.
15. **Comprehensive Testing:** Supports heating, cooling, and isothermal processes.
16. **Touch Screen Interface:** Real-time status and data display.
17. **Smart Software:** USB communication for baseline deduction, auto reports, and data processing (e.g., glass transition, oxidation induction, melting/crystallization).
18. **Top-Loading Modular Design:** Easy furnace/sensor swaps for wide applications and maintenance.
19. **Weight Gain/Loss Experiments:** Ideal for adsorption, decomposition, and more.
20. **Versatile Material Analysis:** Measures DSC/DTA (melting, crystallization, reaction heat) and TG (stability, composition ratios, water content).

These features emphasize precision, making the MS STA a reliable partner for solving pain points like unstable weighing in variable environments or inefficient multi-test setups.

What's Included in Your Purchase

- **Host Unit:** MSDSCTGA1550STASWISS (1)
- **Power Line:** 1
- **Experimental Software USB Drive:** 1
- **Data Line:** 1
- **Crucibles:** 100 pcs
- **Water Pumps:** 2
- **Water Pump Adapters:** 2
- **Multi-Functional Wrench:** 1
- **Tweezers:** 1
- **Fuses:** 5
- **PU Trachea:** 2
- **Silicone Water Pipes:** 4
- **Scoops:** 1
- **Certificate of Conformity, Warranty Card, Instruction Manual:** 1

Note: You'll need a computer, nitrogen cylinder, oxygen cylinder, and pressure-reducing gauges for full operation.

Ready to elevate your thermal analysis? Contact us today for a demo or quote.