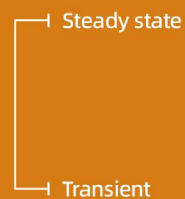


HEAT TRANSFER SERIES

This modular series, based on heat transfer curriculum, enables easy and systematic experiments. It helps students master heat transfer modes, measurement skills, experiment design, data analysis, and engineering calculations, laying a solid foundation for advanced study and research.

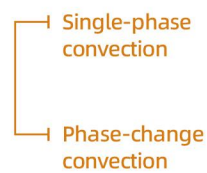
HEAT TRANSFER

01 Conduction



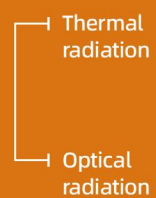
- 1D steady axial conduction
 - 1D steady radial conduction
 - Multilayer cylindrical wall conduction
 - Transient conduction in solids
 - Use of nomographs
 - Transient calculations for plates, cylinders, spheres
- ▶ TH101 Linear Conduction
 - ▶ TH102 Radial Conduction
 - ▶ TH107 Liquid and Gas Thermal Conductivity
 - ▶ TH106 Transient Conduction

02 Convection



- Air natural convection around tubes
 - Condensation / Boiling
 - Film boiling
- ▶ TH104 Convection and Radiation
 - ▶ TH111 Boiling Heat Transfer
 - ▶ TH300 Film Boiling Heat Transfer

03 Radiation



- Planck's law
 - Wien's displacement law
 - Stefan-Boltzmann law
 - Lambert's law
 - Kirchhoff's law
- ▶ TH103 Radiation Heat Transfer

04 Integrated Applications



- Plate heat exchangers
 - To be expanded
- ▶ TH200 Basic Heat Exchanger Test Bench



TH101-Linear Conduction Module

Study 1D steady-state conduction; analyze axial heat transfer and temperature distribution in rod-shaped materials.



TH102-Radial Conduction Module

Measures steady radial temperature distribution through cylindrical walls.



TH103- Radiation Heat Transfer Module

Verifies laws and principles of thermal and optical radiation.



TH111-Pool Boiling Heat Transfer Module

Studies convection, bubble boiling, and transition boiling in pool boiling.



TH110- Convection on Plates, Pins, and Fins Module

Compares heat transfer efficiency of flat plates, pin fins, and extended fins under natural and forced convection.

▶ TH100 Heat Transfer Base Unit



This product serves as a fundamental experimental platform designed to support various modules in the Heat Transfer Series. It provides functions such as data acquisition, display, storage, and adjustable power output. It is capable of collecting parameters including temperature, pressure, current, voltage, power, flow rate, wind speed, illuminance, and radiation intensity.

With excellent expandability and flexibility, it enables a wide range of heat transfer experiments through the integration of different functional modules.



TH104-Convection & Radiation Heat Transfer Module

Explores combined heat transfer by natural/forced convection and radiation.



TH105-Fin Surface Heat Transfer Module

Studies fin surface heat transfer and steady-state temperature profile under natural convection and radiation.



TH107-Thermal Conductivity of Liquids and Gases Module

Measures thermal conductivity of non-corrosive liquids and non-combustible gases.



TH106-Transient Conduction Module

Observes transient heat conduction and core temperature variation over time in metal bodies.



TH201- Double Pipe Heat Exchanger
Used to study the principles and process of convective heat transfer in concentric tube heat exchangers.



TH202-Plate Heat Exchanger
Used to study flow characteristics and heat transfer mechanisms within plate-type exchangers.

▶ **TH200 Heat Exchanger Base Unit**



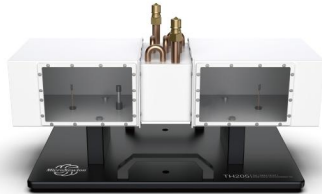
Base unit designed to support various heat exchanger modules. Provides water circulation, power control, and data acquisition functions (temperature, pressure, flow).
Highly expandable and customizable.



TH203-Shell-and-Tube Heat Exchanger
Designed for investigating convective heat transfer behavior in shell-side and tube-side flows.



TH204-Jacketed Heat Exchanger
Focuses on examining the heat transfer performance in jacketed vessel configurations.



TH205-Water-Air Fin Tube Heat Exchanger
Analyzes convective heat transfer between water and air and evaluates the effect of fin structures on heat transfer efficiency.



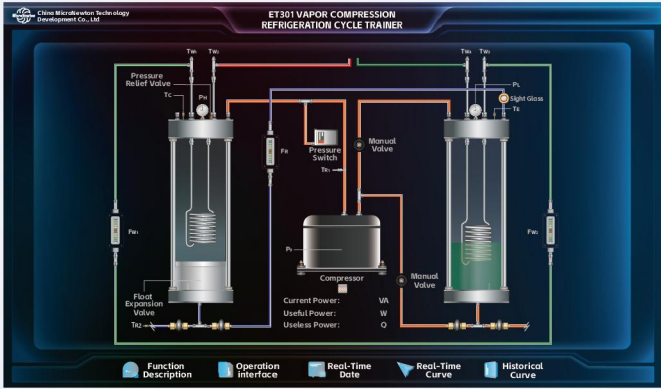
- ▶ **TH300 Film Boiling Heat Transfer Apparatus**
Investigates film boiling phenomena of water droplets under different drop heights, sizes, and surface structures.
1. Observe the Leidenfrost effect on smooth and rough surfaces
 2. Study droplet motion on grooved surfaces with various tilt angles
 3. Plot droplet lifetime and geometric changes over time
 4. Compare directional movement of droplets across different structures

PRODUCT UI INTERFACE

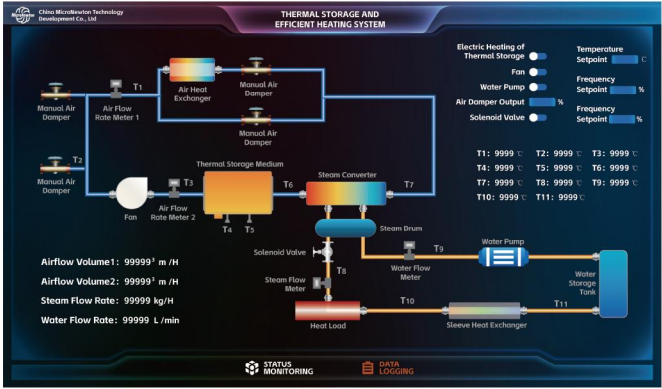
▶ **Vapor Compression Refrigeration Cycle Trainer**



▶ **Vapor Compression Refrigeration Cycle Trainer**



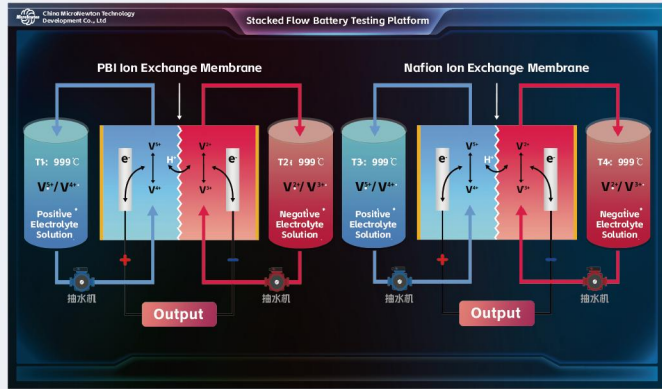
▶ **Thermal Storage and High-Efficiency Heating System**



▶ **Steam Absorption Refrigeration Experiment System**



▶ **Stacked Flow Battery Testing Platform**



▶ **LNG Cold Energy Recovery System**

