automated liquid handler for multiple pipetting scenarios

Automated Liquid Handler is a fully automated liquid handling platform with high flexibility and precise operation capability, capable of mounting single-channel or multi-channel pipetting modules according to different experimental needs, realizing the automation of various pipetting operations.

Automated Liquid Handler

Main Features

1. Diversified pipetting solutions: Supports single-channel flexible and 8-channel parallel pipetting; modes include one-to-one, one-to-many, many-to-one, stepwise, and layered pipetting for complex experimental designs.
2. Modular design: Offers 2-channel flexible and 8-channel fixed modules with free switching; optional plate-grasping robotic arm for automated plate handling.

3. High safety mechanism: Dual liquid level sensing (pressure-based pLLD & capacitance-based cLLD) ensures accurate liquid level identification and prevents mis-priming/empty pipetting.
4. Automation & integration: Seamless operation with modules for temperature control, magnetic separation, vibration mixing, etc.—supports full-process automation with minimal human intervention.
5. Flexible table layout: Customizable platform for arranging microplates, reagent tanks, waste tanks, and more to suit varied workflows.
6. Standards compatibility: Works with SBS standard microplates and labware for smooth workflow integration.
7. Air displacement pipetting principle: Delivers precise volume control (1μL–1000μL) for biological reagents, organic solvents, and more.

System Advantages

1. Efficiency & consistency: Multi-channel parallel pipetting shortens working time, reduces human error, and improves reproducibility.
2. Labor & consumables savings: 24/7 automation cuts manual workload; intelligent tip replacement reduces consumable waste.
3. Reliable safety: Multi-level liquid level detection and real-time operation monitoring—ideal for high-risk sample handling.
4. Highly customizable: Users select functional modules and channel combos for expandability and process adaptability.

5. Visualization interface: Graphical process designer—easy to learn and use, no programming background required.

Working Principle

1. Air displacement pipetting: Mechanical piston creates negative/positive pressure in tip for precise aspiration/dispensing (1μL–1000μL); enhanced by viscosity compensation and volume calibration algorithms.
2. Dual liquid level detection: Pressure (pLLD) and capacitance (cLLD) combine for accurate liquid level recognition across various sample types.
3. Real-time plate transfer monitoring: Sensors ensure accurate docking and prevent misoperation.

Application Fields

1. Molecular biology: PCR/qPCR setup, DNA/RNA extraction, purification, gradient dilution.
2. Drug development/screening: Compound spiking, reaction system setup, dose-response, high-throughput mixing/dilution.
3. Clinical medicine/testing: Sample pretreatment, automated dispensing of serum, urine, etc.
4. Cell/protein experiments: Medium exchange, cell passaging, protein blotting, ELISA, immunoprecipitation.
5. Food/environmental testing: Rapid pooling, toxicology analysis, microbial sample config/processing.

automated liquid handler for multiple pipetting scenarios

Model	**AH18-20**	**AH18-200**	**AH18-1000**
Pipetting range	1uL to 20uL	5uL to 200uL	10uL to 1000uL
Accuracy	2uL±5.0%	5uL±5.0%	10uL±5.0%
	20uL±1.0%	200uL±1.0%	1000uL±1.0%
Uniformity	CV≤3.0%, at 2uL	CV≤2.0%, at 5uL	CV≤3.0%, at 10uL
Volume increment	0.1uL		
compatibility	SBS standard plates, 96-well and 384-well plates		
Technical principles	air displacement type		
Functional Modules	Heating, oscillation, temperature control, oscillation temperature control, magnetic module		
Number of plate positions	8 and 12		12

automated liquid handler for multiple pipetting scenarios

Model	**AH18-20**	**AH18-200**	**AH18-1000**
External dimensions	800mmx550mmx600mm		800mmx480mmx560mm