

4LAB™

4titude's® 4LAB™ is an automated, high precision, pipetting system specifically designed for low-volume liquid handling. Low volume pipetting requires accuracy and consistency, which when performed manually, is tedious, time consuming and prone to human error.

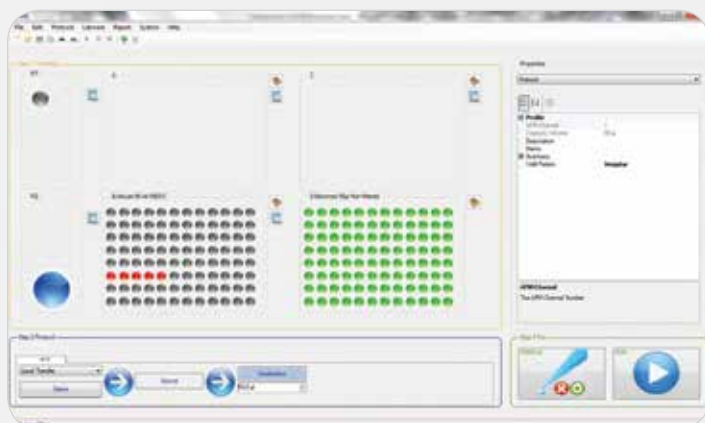
The 4LAB™ guarantees accuracy, precision and consistency, and reagent wastage is reduced. Unlike complex, multi-purpose robotic systems, our instrument was designed for the researcher without prior robotic experience. Intuitive set-up and programming will save your laboratory time and money instantly.

The 4LAB™ is available as a 4+2-position or 6+2 position workstation and with different optional modules like HEPA filter and UV lamp or active heating and cooling (coming soon).



Simple and Intuitive Software

- The 4LAB™ control software can be mastered in an hour.
- No off-site training or dedicated technician is required.
- Protocols can be quickly created and modified and transferred via USB memory stick.
- Extensive open labware database is pre-installed
- Software and labware database updates are available at no additional cost
- Sample concentration normalization programs for tube and plate formats are included as standard



Versatile and Adaptable

- 10 interchangeable standard microplate / tip rack adapters and 5 interchangeable reagent vessel adapters available for use with tubes (0,5 - 5ml) tube strips and plates (6, 12, 24, 48, 96 and 384well) or different reservoirs
- 5 cooling blocks can keep sensitive reagents and samples cold
- 4 automatic pipetting modules are available
- Optional modules with UV lamp and HEPA filters or active heating and cooling capabilities



UV light to eliminate DNA contamination



HEPA filter removes 99.97% of particles of a size of 0.3 micrometres or larger

Highly Accurate and Precise

- All automated pipetting modules are calibrated to ISO-8655 standards.
- Accurate pipetting results for the complete volume range of 1ul to 200ul.
- Excellent results for qPCR standard curve and replicates (Figure 1).
- Better Precision of pipetting results than manual pipetting (Figure 2).

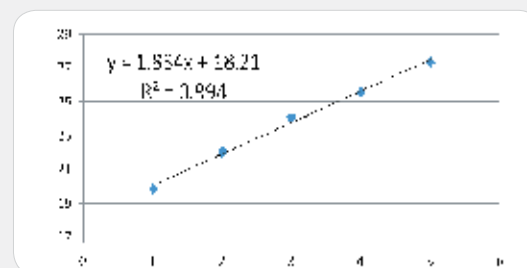


Figure 1. Excellent Serial Dilution Results
7µl NIH/3T3 Cell cDNA sample is diluted with 21µl water at 1:4 ratio, 4 times. Roche® LightCycler® 480 realtime PCR thermal cycler and Finnzyme DyNAmo® Flash SYBR® Green qPCR kit (F-415L) were used.

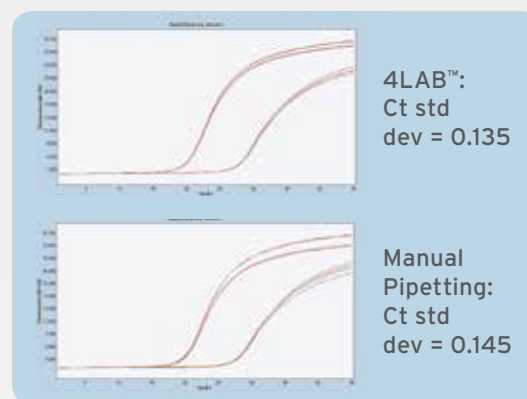


Figure 2. Superior Precision Results vs Manual Pipetting
Target: Human GAPDH (top curve) was amplified in 4 replicates. 18µl master-mix and 2µl cDNA were pipetting into 20µl reaction volume. Roche® LightCycler® 480 real-time PCR thermal cycler and Invitrogen™ Platinum™ Taq DNA Polymerase were used.

Affordable Solution

"40% reagent costs and 50% labour costs were saved by adopting the 4LAB™ and 384well PCR microplates in our SNP assay project... ..the 4LAB™ provided the high accuracy and precision we needed."

Mr Sheng-Jan Lin, Director of the Contract research Department, Seeing Bioscience Co. (Figure 3).

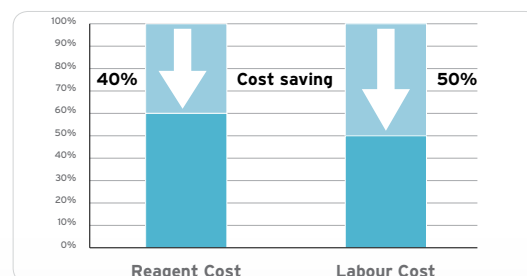


Figure 3. Cost Saving
A 4LAB™ customer cut reagent costs by 40% and labour costs by 50% by adopting the 4LAB™ in their SNP assay project.



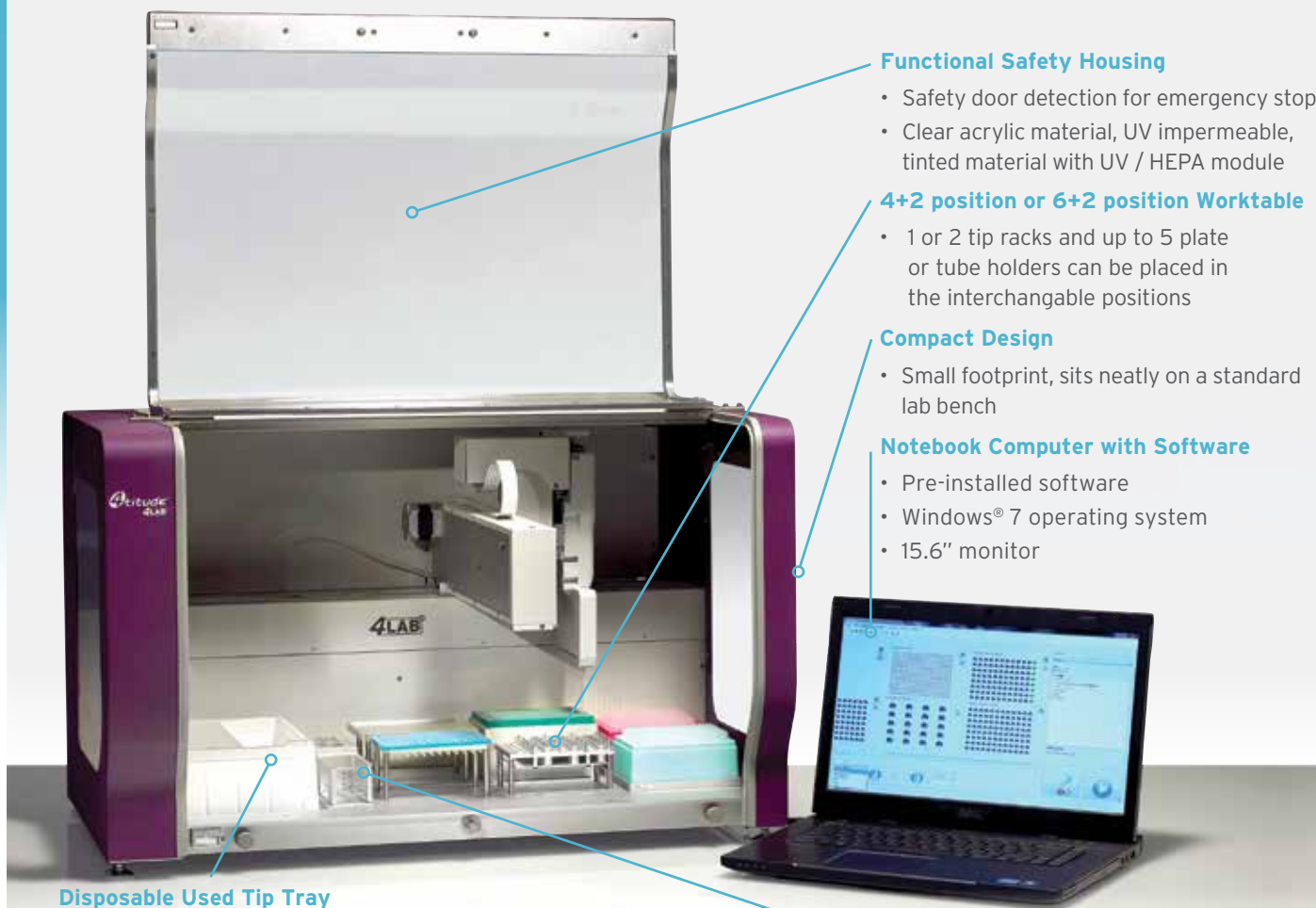
Automated Pipetting Modules (APM)

- Single or 8-channel with 1-50ul and 10-200ul
- 4LAB™ automatically recognises the APM installed
- Easy to change



Easy to Service

- The automated pipetting modules are simple to remove and can be returned to 4titude® for service and calibration.
- Only minimal maintenance of the 4LAB™ is necessary
- The entire system is compact and light-weight.



Functional Safety Housing

- Safety door detection for emergency stop
- Clear acrylic material, UV impermeable, tinted material with UV / HEPA module

4+2 position or 6+2 position Worktable

- 1 or 2 tip racks and up to 5 plate or tube holders can be placed in the interchangeable positions

Compact Design

- Small footprint, sits neatly on a standard lab bench

Notebook Computer with Software

- Pre-installed software
- Windows® 7 operating system
- 15.6" monitor

Disposable Used Tip Tray

- Capacity > 300tips

Reagent Area

- 2 interchangeable tube or reservoir holders
- Peltier-controlled active cooling blocks are available for various reagent vessels

NEW

- HEPA filtration with UV lamp option

COMING SOON

- Active heating / cooling block adapters

Performance

50µl Tip on single or 8-channel pipetting module	1µl	50µl
Accuracy (Rel.)	±7%	±1%
Precision (Rel. CV)	≤ 7.5%	≤ 0.4%
200µl Tip on single or 8-channel pipetting module	10µl	200µl
Accuracy (Rel.)	±3%	±0.8%
Precision (Rel. CV)	v≤ 1%	≤ 0.15%

Note: According to ISO-8655 standards (Gravimetric method), APM is calibrated in temperature (21-25°C, ±0.5°C) and humidity (60-90%) controlled environment. Twice-distilled water, robotic tips and microbalance were used.

Ordering Information

Code	Description	Quantity
4ti-2000	4LAB™ 4-Position System with Notebook Computer and Control Software	1
4ti-2200	4LAB6 6-Position System with Notebook Computer and Control Software	1
4ti-2010	50µl Single Channel Pipetting Module	1
4ti-2020	50µl 8-Channel Pipetting Module	1
4ti-2030	200µl Single Channel Pipetting Module	1
4ti-2040	200µl 8-Channel Pipetting Module	1
4ti-2051	96 Tip Rack Adapter	1
4ti-2052	Elevated 96-Well PCR Plate Adapter	1
4ti-2053	Elevated 384-Well PCR Plate Adapter	1
4ti-2054	1.5ml Tube Adapter, 4 x 2	1
4ti-2055	2ml (3x2) & 5ml (1) Tube Adapter	1
4ti-2056	Cooling Block for 96-Well PCR Plates	1
4ti-2057	Cooling Block for 384-Well PCR Plates	1
4ti-2058	Cooling Block for 1.5ml Tubes (4x2)	1
4ti-2059	Cooling Block for 2ml (3x2) and 5ml (1) Tubes	1
4ti-2060	20x1.5ml Tube Adapter	1
4ti-2061	Used Tip Tray, Disposable	10
4ti-2062	8-Channel Pipetting Reservoir	1
4ti-2063	Deep-Well Plate Adapter	1
4ti-2064	Reservoir (80ml), disposable	20
4ti-2100	50µl Pipette Tip, Non-Sterile	10x96
4ti-2101	200µl Pipette Tip, Non-Sterile	10x96
4ti-2104	50µl Pipette Tip, Filtered, Sterile	10x96
4ti-2105	200µl Pipette Tip, Filtered, Sterile	10x96
4ti-2065	Cooling Block for 20x1.5ml Tubes	1
4ti-2066	HLA Typing 96-well Terasaki Tray Adapter	1
4ti-2067	HLA Typing 60 and 72-well Terasaki Tray Adapter	1
4ti-2068	0.5ml Tube Adapter For 4ti-2060	1
4ti-0270	96well conical bottom PCR adapter	1
4ti-0271	Cell culture plate adapter	1
4ti-2072	Illumina 48well adapter	1
4ti-2073	3 x 8 tube strip adapter	1

Used Tip Tray
4ti-2061Elevated 384-well PCR
Adapter 4ti-20531.5ml (20) tube adapter
4ti-2060Elevated 96-well PCR
Adapter 4ti-2052Deep-well plate adapter
4ti-20631.5ml (4x2) tube adapter
4ti-20542ml (3x2) & 5ml (1) tube
adapter 4ti-20558-Channel Pipetting
Reservoir 4ti-2062

Illumina 48well adapter



3 x 8 tube strip adapter

Trademarks: Beckman®, Biomek® 3000 (Beckman Coulter Inc.); Roche®, LightCycler® 480 (Roche Group); DyNAmo™ (Finnzyme Oy); SYBR® (Molecular Probes Inc.); Invitrogen™ Platinum® (Invitrogen Corp.)

Note: Specifications are subjected to change without notice.

Technical Specification

Function: Liquid (Sample/Reagent) Transfer(LT)
Multiple Dispense (MD)
Serial Dilution (SD)
Hold (Pause)
Mixing (MIX)
Loop

Automated Pipetting: Interchangeable single/8-channel,
Module: Volume ranges of 1 - 50µl,
10 - 200µl

Connection: RS-232, USB2.0

Power Supply: 100~240V, 50/60 Hz, 100W

Size (W x D x H): 590 x 440 x 460 mm

Weight (N.W.): 25 Kg

For optional modules:

UV Lamp wavelength 254nm (UV-C)

Irradiation capacity of >40uW/cm2

HEPA system with 2x 3M Air-Mate™ HEPA Filter
and >200 l/min volume flow