

## TL6 Ultra Micro-volume Spectrophotometer



TL6 is the latest Ultra Micro-volume Spectrophotometer of PERSEE ANALYTICS. It is a small portable instrument for fast analysis of nucleic acid and protein concentrations by pipette sample droplet. You can drop the sample (sample volume=  $0.5\mu\text{L} \sim 2\mu\text{L}$ ) directly onto measuring head for sample analysis. When the analysis is complete, please use pipette to recycle the sample or the air-laid paper to remove the sample (no need to use the cuvettes or capillary). All the steps are simple and fast!

TL6 equipped with built-in methods for nucleic acid and protein quantification analysis, including UV absorption method, Bradford dye binding assay and the color method (Lowry, BCA and Biuret). In addition, the continuous wavelength design allows the users to customize their own detection methods and store them in the instrument. TL6 equipped with a large blue Backlit LCD display and operation panel, which can help the users to set the instrument and carry on all the detection process directly without additional computer. This design is helpful for saving the laboratory space. TL6 comes with the calibration function and can be used for sample analysis anytime and anywhere without preheat.

### 1. Technical Features

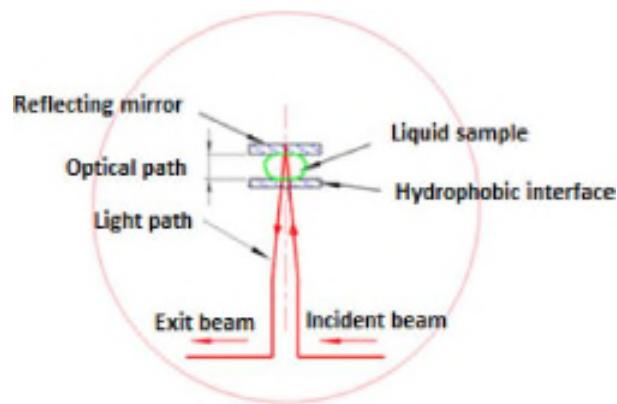
> **Patented Ultra Micro-volume sample detection technology**

- ✚ Sample volume=0.5 $\mu$ L~2 $\mu$ L
- ✚ Please drop the sample (sample amount= 0.5 $\mu$ L ~ 2 $\mu$ L ) directly onto measuring head for sample analysis. When the analysis is complete, use pipette to recycle the sample or the air-laid paper to remove the sample (no need to use the cuvette)






> **High performance Ultra micro-volume cell technology**

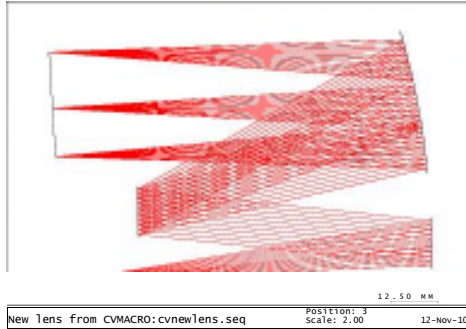
- ✚ **Optical path length: 0.4mm, 1mm (switch manually)**
- ✚ The reflection optical path design doubling the optical path and improves the test sensitivity.






> **Dual-channel CCD signal detection technology**

- ✚ Fast test

-  Wider wavelength measurement range
-  Higher sensitivity
-  No need for sample dilution






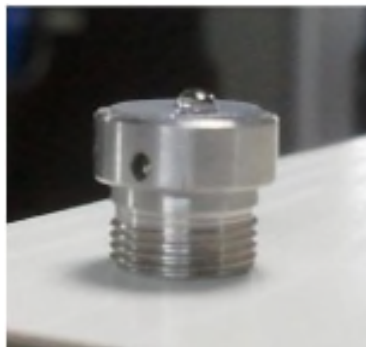
> **Unique functional module design**

-  Unique three functional integration module components design;
-  Compatible with standard 10mm cuvette;
-  TL60 also can be used as a standard UV spectrophotometer (without Preheat) with smaller dimension and lower power consumption.

## 2. Feature Introduction

> **Brand new hydrophobic sample test surface:**

-  **Save test time**-You can put the micro-volume sample onto the test surface directly and measure the sample immediately.
-  **Prevent cross- cross-contamination**-The Hydrophobic sample test surface design make the sample can be easily recycled without cross-contamination.
-  **Improve test accuracy.**



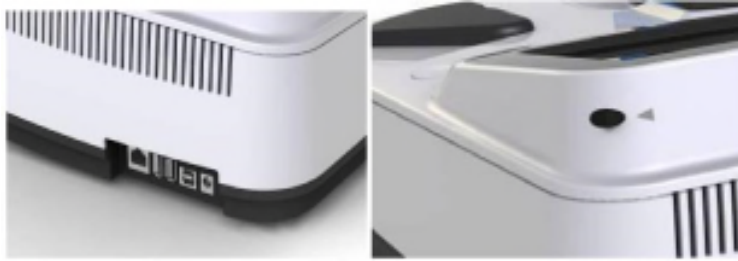
- > **Only need micro sample volume:** The device only need 0.5 $\mu$ L~ 2 $\mu$ L sample volumes for analysis without dilution. We can manually switch the optical path length of 0.4mm and 1mm.
- > **Fast test speed:** Each sample test will be completed in 5 seconds.
- > **Easy to operate:** All results can be displayed on the high resolution backlit LCD screen; including the standard curve, wavelength scanning images, etc. All the operation can be completed by clicking several keys.
- > **Flexible test method:** In the detection wavelength range of 200nm to 900nm, reading, peak identification and peaks detection can be completed in less than 5 seconds.



- > **Longer life optical components:** The instrument is set to switch on light source and read after pressing the Start key. This design can effectively reduce the working time and extend its life of light source.



- > **Multiple data export methods:** The data can be print by the optional printer connecting with the main unit, also can be save and print by transferring to the computer through USB or blue tooth.



### 3. Application

The TL6 Ultra Micro-volume Spectrophotometer is an ideal instrument for Nucleic acid, protein quantification and monitoring the growth of bacterial cultures analysis in public health, life sciences and research industries. It has become conventional instrument for modern molecular biology laboratory. Meantime, it also can fully achieve spectral scanning and quantitative measurement functions as a standard UV spectrophotometer with smaller dimension and lower power consumption.

- > **Disease control**
- > **University institutes**
- > **Agricultural inspection agency**
- > **Exit Inspection and Quarantine**
- > **Life sciences-related industries**

### 4. Test Items

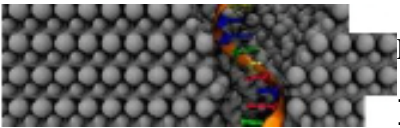
- > **dsDNA**



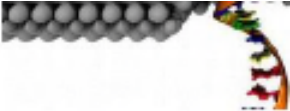
- > **ssDNA**

# PERSEE

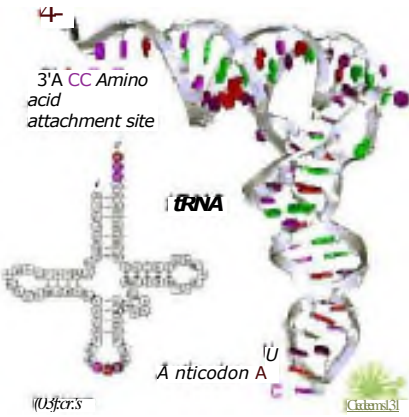
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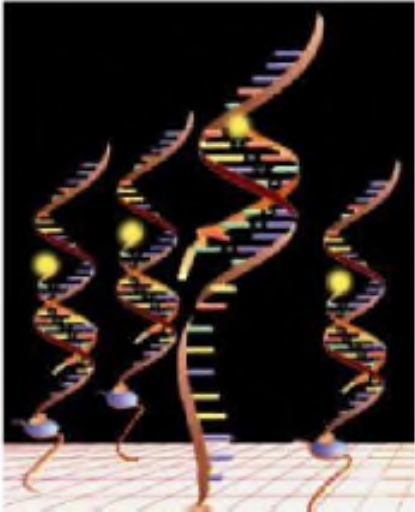
VN614) & 9<sup>4</sup>, 04; AAAA,  
L.L.k,  
IXI:CCCC



➤ RNA



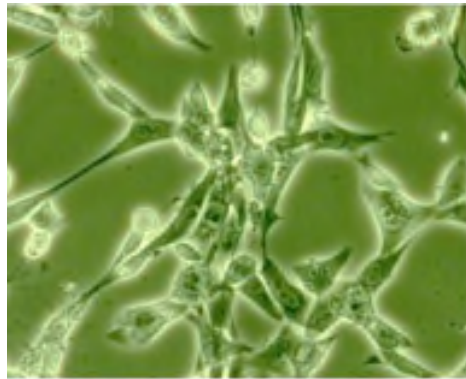
➤ Oligo



➤ Protein



> Cell culture



> Dyestuff

S .

• h  
 • cometalsKr,  
 x ya a \_  
 a.b/Wen  
 Software  
 Image analysis (using ImageJ)

## 5. Software



### > Nucleic acids



TL6 Ultra Micro-volume Spectrophotometer can test the concentration and purity of the nucleic acid samples (dsDNA, ssDNA, RNA, Oligo, etc.) in multiple units of  $\mu\text{g} / \text{mL}$ ,  $\text{ng} / \mu\text{L}$ ,  $\mu\text{g} / \mu\text{L}$ ,  $\text{pmol} / \mu\text{L}$  and  $\text{pmol}$ . If necessary, the user can change the dilution factor as well. User can test the UV absorption method related samples in the process of PCR product quantification and nucleic acid sample preparation by using micro sample volume. TL6 equipped with build-in method for oligonucleotide primers analysis. The device can automatically calculate the value of conversion factor ( $\mu\text{g} / \text{mL}$ ), the molecular weight, the theoretical absorbance ( $\text{AU} / \mu\text{mol}$ ) by inputting the sequence of the oligonucleotide (up to 66 bases).



> **Proteins**



TL6 equipped with a variety of build-in protein quantitative detection methods, including Bradford, BCA, Lowry, Biuret, A280 method (Christian Warburg, BSA, IgG, Lysozyme, molar extinction coefficient, mass extinction coefficient, E1%), UV method and UV formula method etc.. TL6 supports up to 27 standard samples (including repeated measurement samples) for building standard curve. The standard curve can be directly displayed on the LCD screen, printed or saved to method.

> **OD600**

The cell culture concentration can be determined by OD600.

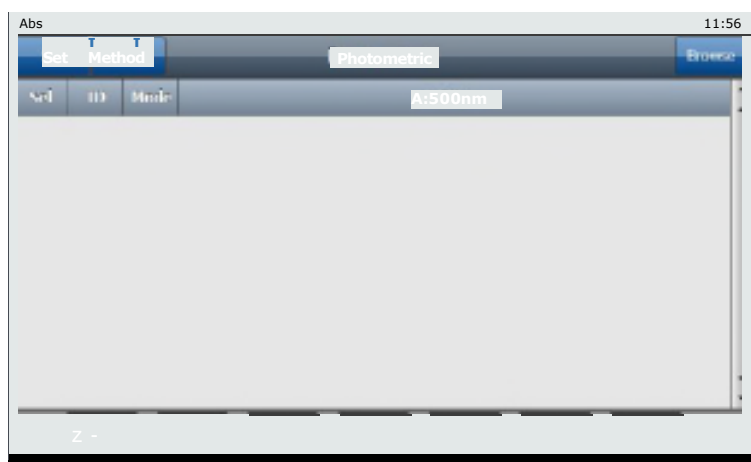
> **Spectrum scanning**



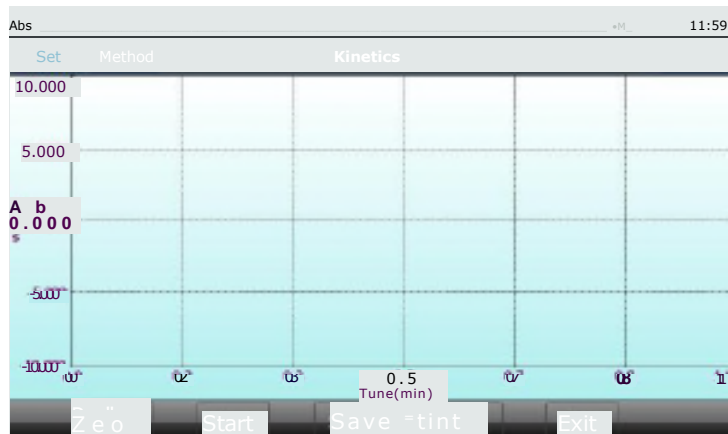
## > Quantitative measurement



## > Photometric measurement



## > Kinetics scanning



## 6. Specifications

<b>Key performance specifications</b>	
<b>Optical path</b>	0.4mm ,1mm ; Switch Manually
<b>Optical system</b>	Double beam
<b>Light Source</b>	Long-life Xenon lamp
<b>Receiver</b>	Dual Array CCD ,2048 Pixels
<b>Wavelength range</b>	190nm-1100nm
<b>Work wavelength range</b>	200nm-900nm
<b>Wavelength accuracy</b>	$\pm 1.0$ nm
<b>Wavelength repeatability</b>	$\leq 0.3$ nm
<b>Spectral bandwidth</b>	$3 \pm 0.6$ nm
<b>Micro mode transmittance accuracy</b>	$\pm 1\%$
<b>Micro mode transmittance repeatability</b>	$\leq 0.5\%$
<b>Transmittance accuracy</b>	$\pm 1\%$
<b>Transmittance repeatability</b>	$\leq 0.3\%$
<b>Stray light</b>	220nm (NaI): <0.5% 360nm (NaNO <sub>2</sub> ): <0.5%
<b>Noise</b>	0% noise: $\leq 0.1\%$ 100% noise: $\leq 0.5\%$
<b>Drift</b>	$\leq 0.5\%/30$ min
<b>Baseline flatness</b>	$\pm 0.005$ Abs (210nm ~890nm,0Abs)

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**Main unit function specifications**


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<b>Micro optical path switch manually</b>	0.4mm ,1mm ; Manual switch
<b>Compatible 10mm cuvette</b>	
<b>Printer</b>	USB
<b>Network( LAN)</b>	LAN Connect with the LAN for network communication.
<b>Communication Interface</b>	<p><b>USB main interface:</b> Support the flash memory, saving the data into the flash memory. Also can connect with the USB printer. Also can connect with the USB mouse for interface operation.</p> <p><b>USB slave interface:</b> Connect with the PC for the program updating by special Persee Portable Instruments Data management software. Or download, view, export and print the data.</p>
<b>Power supply(DC)</b>	15V DC
<b>Dimension(W×H×D)</b>	267mm×134mm×126mm
<b>Weight</b>	0.94kg

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