# Fluorometer Quick Operation Guide

Before conducting the experiment, please read this experimental operation guide.

## 1. Please choose the correct kit according to the test item and sample concentration.

◆ dsDNA

| Function | Sample concentration range (ng/μL) | Total Amount (ng) |
|---|---|---|
| dsDNA High Sensitivity | 0.005-120 | 0.1-120 |
| dsDNA Broad Range | 0.2-2000 | 4-2000 |

◆ RNA

| Function | Sample concentration range | Total Amount (ng) |
|---|---|---|
| RNA High Sensitivity | 250pg/μL - 100ng/μL | 5-100 |
| RNA Broad Range | 1ng/μL-1μg/μL | 20-1000 |
| RNA Extended Range | 10ng/μL-10000ng/μL | 200-10000 |
| microRNA | 50ng/mL-100μg/mL | 1-1000 |

◆ Oligo

| Function | Sample concentration range (ng/μL) | Total Amount (ng) |
|---|---|---|
| ssDNA | 0.05-200 | 1-200 |

◆ Protein

| Function | Sample concentration range | Total Amount (ng) |
|---|---|---|
| Protein BR Assay Kit | 100 ug/mL-20 mg/ml | 1-400ug |

## 2. The relationship between the sample volume and the working solution:

Total volume of DNA/RNA detection reaction solution = 200ul = sample volume (1-20ul) + reagent working solution (199-180ul)

Total volume of Protein BR detection reaction solution = 200ul = sample volume (10/20ul) + protein detection buffer (160/150ul) + protein detection reagent 30ul

## 3. The sample volume needs to be entered correctly, incorrect entry will lead to incorrect results.

## 4. The relationship between sample concentration and sample volume:

Taking the dsDNA HS kit as an example, the detectable range of the instrument is 0.1-120ng.

If the sample concentration is high, the sample volume can be reduced. For instance, the sample concentration is 50ng/ul, 2ul sample + 198ul working solution can be used. If the sample volume exceeds 2ul, it will exceed the detection range of the instrument. If the sample concentration is 100ng/ul, 1ul sample + 199ul working solution can be used.

If the sample concentration is low, the sample volume can be increased. For instance, the sample concentration is 0.1ng/ul,10ul sample + 190ul working solution can be used. If the sample concentration is 0.01ng/ul, 20ul sample + 180ul working solution can be used.

The volume of sample and working solution can be adjusted according to the approximate concentration range of the sample and most accurate detection results can be obtained while saving valuable samples.

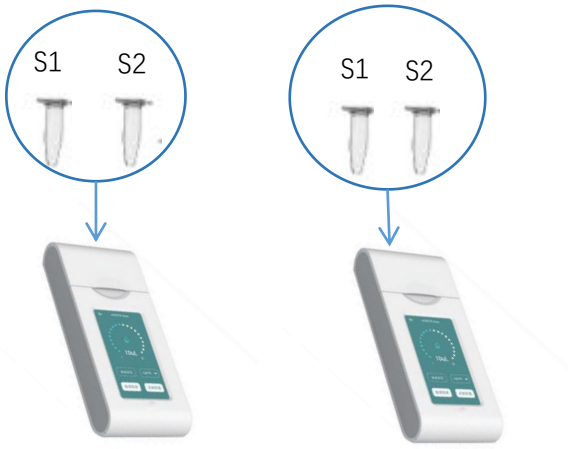
## 5. Consumables:

| | | |
|---|---|---|
| 1 | 0.5ml transparent thin wall PCR tube for single sample model machine; | Axygen/Thermo |
| 2 | 0.2ml transparent thin wall PCR tube for 8-sample model machine; | |

## 6. Accurate Quantification

6.1Each set of prepared calibration kit, including Standard 1 and Standard 2 shall be used for **one time only.** Please do not repeat using it to calibrate multiple devices.

6.2After the calibration reagent is prepared, it should be used within half an hour after sufficient light avoidance and thorough reaction.

| | |
|---|---|
| The same calibration reagent supports calibration for only one device. √   | Simultaneous calibration of multiple devices using the same calibration reagent may result in elevated quantitative results for the second and subsequent devices. ✗   |

**Example:** If the same set of calibration reagents is used to calibrate Fluorometer 1 first and then Fluorometer 2, it will lead to an elevated quantitative value for Fluorometer 2 after calibration.

| dsDNA | Fluorometer 1（ng/μl） | Fluorometer 2（ng/μl） |
|---|---|---|
| Sample1 | 2.64 | 3.063 |
| Sample2 | 4.62 | 5.568 |
| Sample3 | 7.34 | 8.533 |
| Sample4 | 18.6 | 21.54 |

6.3 Please make sure the pipettor is accurate and the sample volume is added correctly.

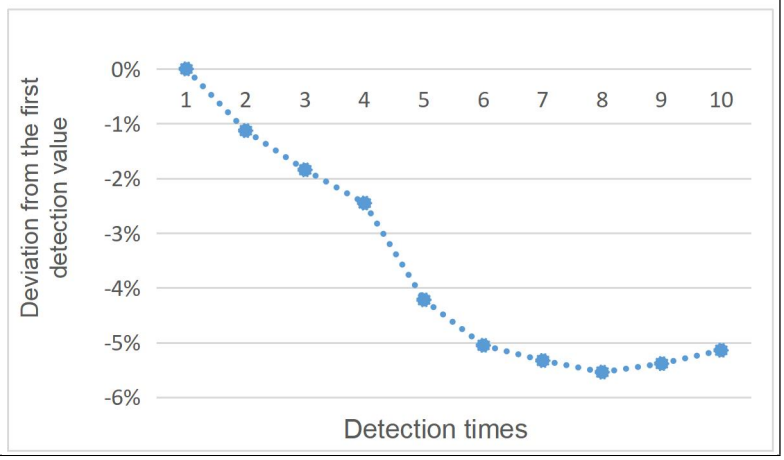
6.4Please prepare the reagent according to the instructions, ensuring it reacts adequately under

light-avoiding conditions.

6.5Please avoid multiple readings of the same sample tube, as subsequent readings may be inaccurate due to fluorescence decay.

In the presence of high-energy excitation, the chemical structure of the dye fluorescence master nucleus is destroyed, leading to photobleaching, resulting in a decrease in dye fluorescence intensity.

The graph on the right shows the fluorescence detection results repeated ten times for the same reagent tube:




6.6 Test immediately upon placement to avoid prolonged exposure of the reagent in the instrument, which can cause an increase in reagent temperature leading to decreased fluorescence values. If retesting is necessary, the reagent should be removed from the instrument and allowed to equilibrate to room temperature before testing again.

The fluorescence values of fluorescent dyes vary at different temperatures, with signal intensity decreasing as temperature increases. Prolonged placement of the reagent in the instrument will result in an increase in reagent temperature.

The graph on the right illustrates the fluorescence value detection of the reagent at different temperatures: