User Guide
RNA (R1) Cartridge Kit (C105110/C105210/C105810)

A. Specifications

Specification	Description
RNA Sizing Range	20-6,000 nt
L.O.D	5 ng/μL
Sample Number	100 runs
Shelf Life	4 months

B. Kit Components and Storage Conditions

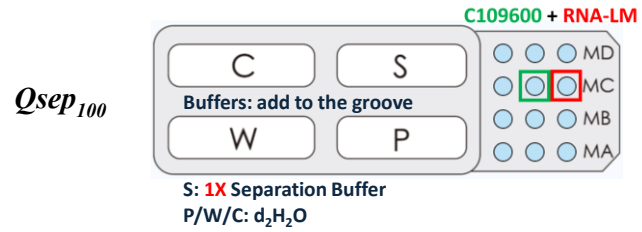
Item	Storage Condition
RNA Cartridge (C105110/C105210/C105810)	15-30˚C (Do Not Freeze)
5X Lower Marker (C109120-100A, 100 μL)	Short-Term (≤ 3 months): 4-30˚C Long-Term (> 3 months): -20˚C
10X Separation Buffer (C104409-10X, 15 mL/C104412-10X, 50 mL)	4-30˚C
10X Dilution Buffer (C104408-10X, 8 mL/C104411-10X, 25 mL)	4-30˚C
Mineral Oil (C104404, 8 mL)	4-30˚C

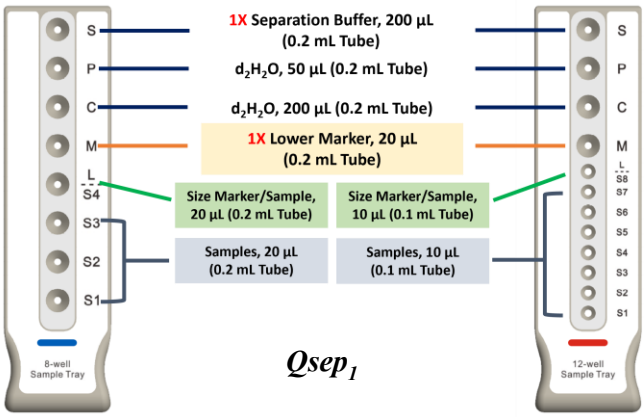
- **Please always store cartridges in a light-proof bag, and then store in the cartridge box after analysis.**

C. Cartridge Unpacking Preparation

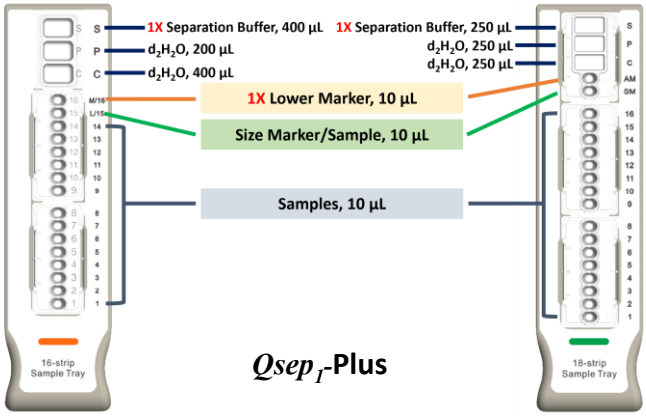
The new cartridge must undergo HV check and calibration. Please follow the instructions provided in the unpacking guide and calibrate using **1X** Lower Marker.

D. Buffer, Marker, and Sample Preparation

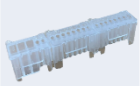




- **Ensure the buffer tray is pushed to the end until the color bar aligns with the edge of the holder.**



1. Compatible Sample Tubes

	Name	Cat. No.	Volume	Image
Qsep100 / 8-well Sample Tray	Micro Vial	C104250	≥ 2 μL	
	0.1 mL PCR Tube	-	≥ 10 μL	
	0.2 mL PCR Tube	-	≥ 20 μL	
12-well Sample Tray	0.1 mL Strip Tube	C104252	≥ 10 μL	
16-strip Sample Tray	16-strip Sample Tube	C104254	≥ 10 μL	
18-strip Sample Tray	18-strip Sample Tube	C104257	≥ 10 μL	

2. Buffer and Marker Preparation

- Separation Buffer (1X): Dilute 10X stock with DEPC-treated water.
- Dilution Buffer (1X): Dilute 10X stock with DEPC-treated water.
- Lower Marker (1X): Dilute 5X Lower Marker stock with 1X dilution buffer.

3. Sample and Ladder Pre-treatment

Heat-denature RNA samples and RNA 6000 Ladder from Thermo Fisher (diluted 20X with 1X dilution buffer) at 70℃ for 2 minutes and put on ice for at least 5 minutes.

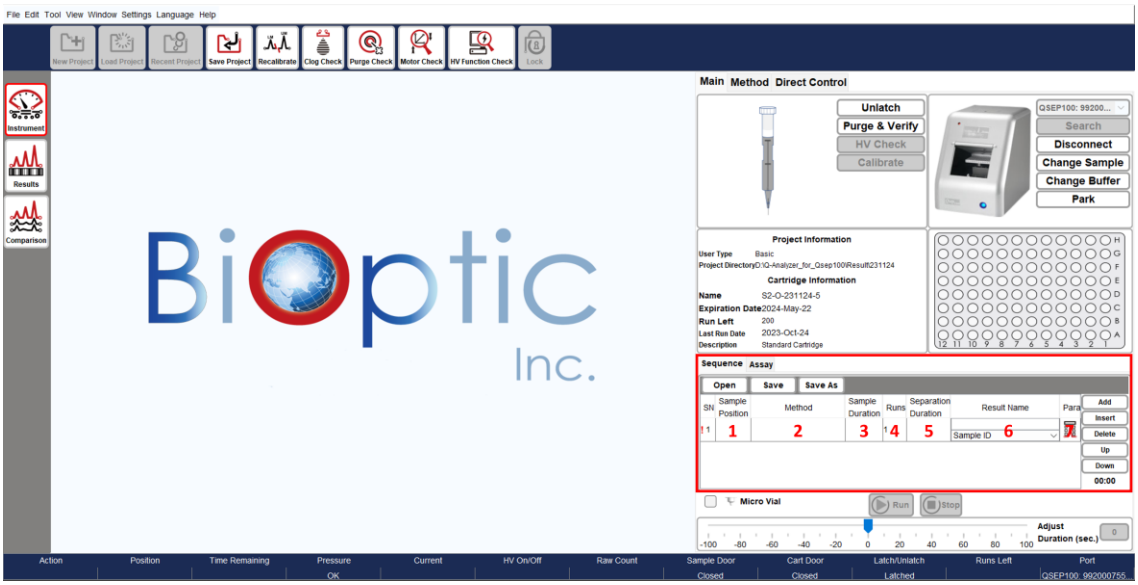
4. Recommended Sample Concentration

RNA sample: 5-50 ng/μL

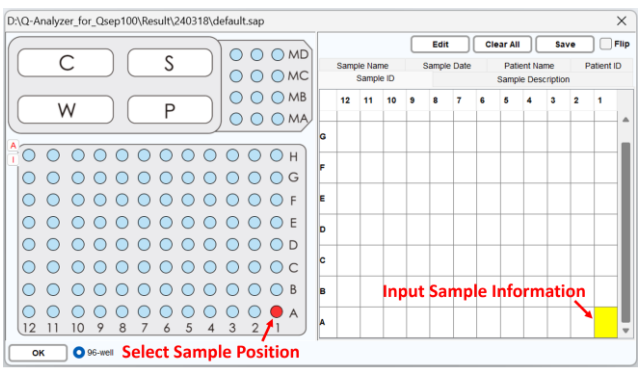
- **If the RNA sample concentration exceeds 50 ng/μL, dilute the sample 10X using 1X dilution buffer.**
- **If the sample is eluted in RNase-free water, add dilution buffer to achieve a sample concentration of ≥ 0.1X dilution buffer condition.**

User Guide
RNA (R1) Cartridge Kit (C105110/C105210/C105810)

E. Software Operation Guide

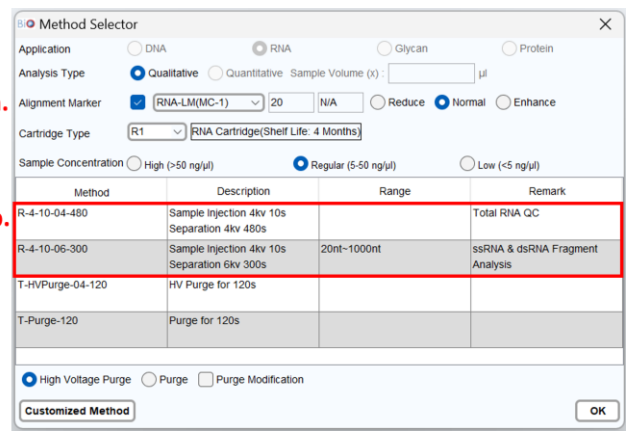


1. Sample Position: Place the sample and select the corresponding position. Input sample information if necessary.



- **For *Qsep*$_1$ and *Qsep*$_1$-Plus users, select the appropriate markers and proceed to step 2(b).**

2. Method: Select (a) Alignment Marker and (b) Analytic Method in the Method Selector.



- **Adjust injection conditions based on sample concentration.**

Sample Concentration	High (2kV, 10s)	Regular (4kV, 10s)	Low (8kV, 10s)
RNA	> 50 ng/µL	5-50 ng/µL	2-5 ng/µL

3. Sample Duration: Adjust the sample injection time to increase/decrease injection amount.

- **Modify injection conditions based on sample concentration.**

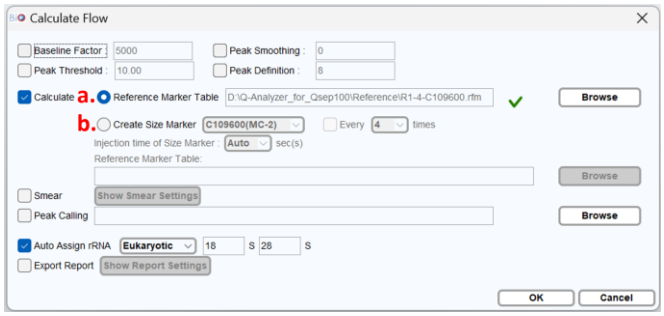
4. Runs: Set the repetition time.

5. Separation Duration: Adjust the duration to extend/reduce the separation time.

(Optional)

6. Result Name: Input the result name for the result file.

7. Para: Choose between (a) Reference Marker Table and (b) Create Size Marker for calculation.



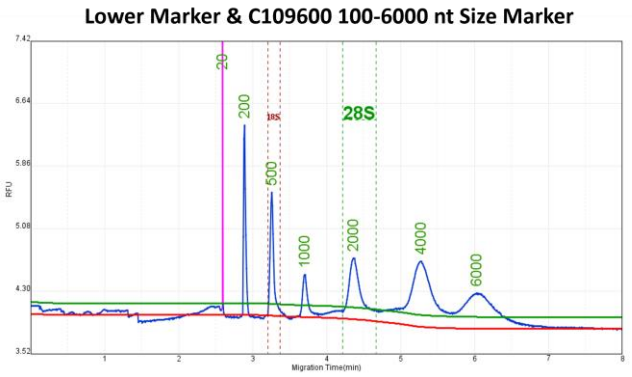
- **Size Marker (C109600) is the RNA 6000 Ladder from Thermo Fisher. Please purchase it from your local supplier.**
- **Dilute the size marker 20X using a 1X dilution buffer before use.**

8. Click “Run” to start the sequence analysis.

User Guide
RNA (R1) Cartridge Kit (C105110/C105210/C105810)

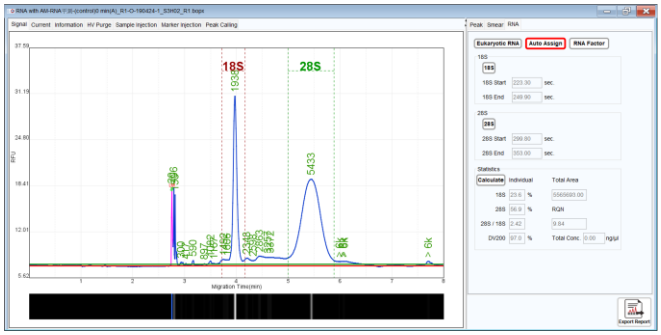
F. Result and Application

- **Lower Marker & Size Marker**



- **RNA Quality Number (RQN)**

The software will automatically identify 18S and 28S regions. Subsequently, it will provide the 28S/18S ratio and RQN value, ranging from 1 to 10. If the software fails to assign the 18S and 28S regions, click “Auto Assign”.

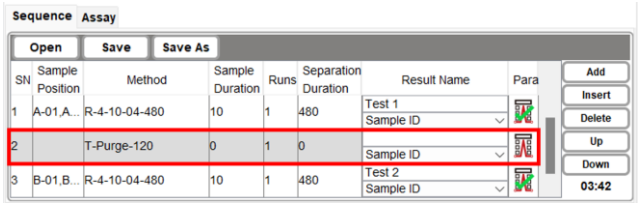


G. Troubleshooting

Before attempting any troubleshooting, ensure that the system is functioning properly and that all operations are following the instructions.

If encountering unstable current during sample injection or separation steps, which may be caused by unknown substances in reagent buffer or other kit buffers, consider the following solutions:

1. Dilute the sample using dilution buffer.
2. Centrifuge the sample for a period to allow residues to accumulate at the bottom of the tube.
3. Insert a “T-purge-120” method between several sample runs. For example, insert one run of “T-Purge-120” every 5-10 sample runs.



H. Cartridge Disposal

Please wear gloves before discarding the cartridge.

1. Bend the cartridge tip.
2. Open the cap on the gel reservoir and remove the inner cap.
3. Pour the gel into the chemical waste container.
4. Dispose of the cartridge in the trash bin.

Contact Information:
Company Name: BiOptic Inc.
Address: 5F., No.108, Minquan Rd., Xindian District, New Taipei City 23141, Taiwan
Tel: +886-2-2218-8726, Fax: +886-2-2218-8727, E-mail: service@bioptic.com.tw