

# Qubit™ RNA XR Assay Kits

Catalog No. Q33223, Q33224

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## Product information

The Qubit™ RNA XR (Extended Range) Assay Kits make quantitation of total RNA, rRNA, or large mRNA easy and accurate. The kits include concentrated assay reagent, dilution buffer, and prediluted RNA standards. To perform the assay, dilute the reagent using the buffer provided, add your sample (any volume from 1–20 µL is acceptable), then read the concentration using the Qubit™ Fluorometer (see Note below). The assay is highly selective for RNA over double-stranded DNA (dsDNA) (Figure 1, page 8) and is accurate for initial sample concentrations from 1 ng/µL to 80 µg/µL, providing an assay range of 20 ng–80 µg of RNA in the assay tube. The assay is performed at room temperature, and the signal is stable for 3 hours. Common contaminants such as salts, free nucleotides, solvents, detergents, or protein are well tolerated in the assay (Table 2, page 9).

**Note:** You can use this Qubit™ assay kit with Qubit™ 2.0, Qubit™ 3, and Qubit™ 4 Fluorometer models. To use the assay with the Qubit™ 2.0 and Qubit™ 3 models, download and install the appropriate program file (.qbt) from [thermofisher.com/qubit](http://thermofisher.com/qubit).

Table 1. Contents and storage

Material	Amount		Concentration	Storage*
	Q33223 (100 assays)	Q33224 (500 assays)		
Qubit™ RNA XR Reagent (Component A)	250 µL	1.25 mL	1X	<ul style="list-style-type: none"> <li>• &lt;-20°C</li> <li>• Desiccate</li> <li>• Protect from light</li> </ul>
Qubit™ RNA XR Buffer (Component B)	50 mL	225 mL	1X	<-20°C or <4°C
Qubit™ RNA XR Standard #1 (Component C)	1.1 mL	5 mL	0 ng/µL in TE Buffer	<-70°C
Qubit™ RNA XR Standard #2 (Component D)	5 × 220 µL	10 × 500 µL	8 ng/µL in TE Buffer	

\* When stored as directed, the kits are stable for at least 6 months from the date of receipt. The Qubit™ RNA Buffer can be stored at <-20°C or <4°C; it is stable at room temperature for ~1 week.

### Other Qubit™ assay kits

The Qubit™ RNA XR assay is intended for total RNA, rRNA, or large mRNA. For small RNA (~20 nt or bp), we recommend the Qubit™ microRNA Assay Kit (Cat. Nos. Q32880, Q32881).

In addition to the Qubit™ RNA XR Assay Kits described here, we also offer other kits for assaying RNA, DNA, and protein (Table 3, page 10). To determine the “Integrity and Quality” of your RNA sample, use the Qubit™ RNA IQ Assay. To explore DNA contamination of your sample, use the Qubit™ RNA BR Assay Kit together with the Qubit™ dsDNA BR or HS Assay Kit. These measurements give you a much better indication of sample purity than that produced by measuring the  $A_{260}/A_{280}$  ratio. To measure protein contamination in nucleic acid samples, run 1–20  $\mu\text{L}$  of the sample in the Qubit™ Protein Assay.

### Materials required but not provided

- Sterile or nuclease-free plastic container (disposable) for mixing the Qubit™ working solution (step 2.3, page 4)
- Nuclease-free pipettors and tips
- Qubit™ assay tubes (Cat. No. Q32856)

## Critical assay parameters

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### Assay temperature

The Qubit™ RNA XR Assay delivers optimal performance when all solutions are at room temperature (22–28°C). Temperature fluctuations can influence the accuracy of the assay (Figure 2, page 8).

To minimize temperature fluctuations, ensure that the Qubit™ RNA XR Buffer is at room temperature before use. Insert all assay tubes into the Qubit™ Fluorometer only for as much time as it takes for the instrument to measure the fluorescence; the Qubit™ Fluorometers can raise the temperature of the assay solution significantly, even over a period of a few minutes. Do not hold the assay tubes in your hand before reading because this warms the solution and results in a low reading.

### Incubation time

To allow the Qubit™ RNA XR Assay to reach optimal fluorescence, incubate the tubes for 2 minutes after mixing the sample or the standard with the working solution. After this incubation period, the fluorescence signal is stable for 3 hours at room temperature when the samples are protected from light.

### Photostability of Qubit™ reagents

The Qubit™ RNA XR Reagent exhibits high photostability in the Qubit™ Fluorometer, showing <0.3% drop in fluorescence after 9 readings and <1.5% drop in fluorescence after 40 readings. However, if the assay tube remains in the Qubit™ Fluorometer for multiple readings, a temporary reduction in fluorescence will be observed as the solution increases in temperature (Figure 2, page 8). Note that the temperature inside the Qubit™ Fluorometer may be as much as 3°C above room temperature after 1 hour. For this reason, if you want to perform multiple readings of a single tube, remove the tube from the instrument and let it equilibrate to room temperature for 30 seconds before taking another reading.

### Qubit™ Fluorometer calibration

For each assay, you have the choice to run a new calibration or use the values from the previous calibration. When you first use the instrument, perform a new calibration each time. As you become familiar with the assays, the instrument, your pipetting accuracy, and significant temperature fluctuations within your laboratory, you can decide how comfortable you are using the calibration data stored from the last time the instrument was calibrated. Additionally, remember that the fluorescence signal in the tubes containing standards and samples is stable for no longer than 3 hours. See Figure 3 (page 9) for an example of the calibration curve used to generate the quantification results.

### RNAse-free handling

The calibration standards included in the Qubit™ RNA XR Assay Kit are high-quality RNA standards. The integrity and concentration of these standards is critical to the optimal performance of the Qubit™ RNA XR Assay. As such, we highly recommend treating these standards as you would any other precious RNA. Use appropriate RNAse-free handling techniques, including RNAse-free gloves, filtered pipette tips, and tubes. Keep the tube lids closed whenever possible; do not touch the pipette to the inside wall of the tube when withdrawing a sample; thaw the RNA standards on ice, and return the RNA standard to the freezer as soon as possible after use. In case of possible RNAse contamination of a standard vial, the RNA standards are supplied pre-aliquoted into multiple vials. If RNAse contamination is suspected, we recommend that you discard the vial in question and use a new standard vial.

### Handling and disposal

No data are currently available that address the mutagenicity or toxicity of the Qubit™ RNA XR Reagent (Component A). This reagent is known to bind nucleic acid and is provided as a solution in DMSO. Treat the Qubit™ RNA XR Reagent with the same safety precautions as all other potential mutagens and dispose of the dye in accordance with local regulations.

## Install the Qubit™ RNA XR assay file

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### Download the .qbt file from the web

Qubit™ 2.0 and Qubit™ 3 Fluorometers require the addition of the Qubit RNA XR assay file to the instrument to run the Qubit™ RNA XR Assay.

Download the Qubit™ RNA XR assay file (RNA XR assay.qbt) from [thermofisher.com/qubit](http://thermofisher.com/qubit) and save it directly to your computer. Then, transfer the file from your computer to the root directory of your USB drive. Ensure that you only have a single .qbt file on your USB drive before uploading it to the Qubit™ 2.0 or Qubit™ 3 Fluorometer.

**IMPORTANT!** Downloading a .qbt file from the web directly to your USB drive may result in unexpected behavior.

**Note:** The Qubit™ 4 Fluorometer comes pre-loaded with the assay file. No download is necessary for this instrument.

## Upload the .qbt file to the fluorometer

- 1.1 Make sure that there is only one .qbt file on your USB drive.
- 1.2 With your Qubit™ 2.0 or Qubit™ 3 Fluorometer unplugged, insert the USB drive containing the Qubit™ RNA XR Assay file (RNA XR assay.qbt) into the USB port of the instrument.
- 1.3 Plug the Qubit™ 2.0 or Qubit™ 3 Fluorometer back and power it on. The instrument displays: “RNA XR assay.qbt file detected. Do you wish to upload?”  
  
Tap **Yes** to proceed with the upload, which will take ~2 seconds.
- 1.4 After the upload is complete, the Home Screen displays a new button called “RNA XR”, which indicates that the MyQubit RNA XR assay is permanently installed to the instrument. You do not need the USB drive to access the assay. Functionality of the pre-existing assays is not affected.

## Prepare standards and samples

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This protocol assumes that you are preparing standards to calibrate the Qubit™ Fluorometer. If you plan to use the last calibration performed on the instrument (see “Qubit™ Fluorometer calibration”, page 3), you need fewer tubes (step 2.1) and less working solution (step 2.3). For sample purity determinations, you can use the Qubit™ Fluorometer to calculate the amount of dsDNA and RNA in the same sample; to do this, simply perform each assay for your sample.

- 2.1 Set up the required number of 0.5-mL tubes for standards and samples. The Qubit™ RNA XR Assay requires 2 standards.

**Note:** Use only thin-wall, clear, 0.5-mL PCR tubes. Acceptable tubes include Qubit™ assay tubes (Cat. No. Q32856)

- 2.2 Label the tube lids.

**Note:** Do not label the side of the tube as this could interfere with the sample read. Label the lid of each standard tube correctly. Calibration of the Qubit™ Fluorometer requires the standards to be inserted into the instrument in the right order.

- 2.3 Prepare the Qubit™ working solution by diluting the Qubit™ RNA XR Reagent 1:200 in Qubit™ RNA XR Buffer. Use a clean plastic tube each time you prepare Qubit™ working solution. Do not mix the working solution in a glass container.

**Note:** The final volume in each tube must be 200 µL. Each standard tube requires 190 µL of Qubit™ working solution, and each sample tube requires anywhere from 180–199 µL. Ensure that you have sufficient Qubit™ working solution to accommodate all standards and samples.

For example, for 8 samples, prepare enough working solution for the samples and 2 standards: ~200 µL per tube in 10 tubes yields 2 mL of working solution (10 µL of Qubit™ RNA XR Reagent plus 1990 µL of Qubit™ RNA XR Buffer).

The Qubit™ 4 Fluorometer provides a reagent calculator, which quickly computes the necessary volume of working solution needed.

- 2.4 Add 190  $\mu\text{L}$  of Qubit™ working solution to each of the tubes used for standards.
- 2.5 Add 10  $\mu\text{L}$  of each Qubit™ standard to the appropriate tube, then vortex for 2–3 seconds to mix. Be careful not to create bubbles.

**Note:** Careful pipetting is critical to ensure that exactly 10  $\mu\text{L}$  of each Qubit™ RNA XR standard is added to 190  $\mu\text{L}$  of Qubit™ working solution.

- 2.6 Add Qubit™ working solution to individual assay tubes so that the final volume in each tube after adding sample is 200  $\mu\text{L}$ .

**Note:** Your sample can be anywhere from 1–20  $\mu\text{L}$ . Add a corresponding volume of Qubit™ working solution to each assay tube, anywhere from 180–199  $\mu\text{L}$ .

- 2.7 Add each sample to the assay tubes containing the correct volume of Qubit™ working solution, then vortex for 2–3 seconds to mix. The final volume in each tube should be 200  $\mu\text{L}$ .

- 2.8 Allow all tubes to incubate at room temperature for 2 minutes, then proceed to “Read standards and samples”. Follow the procedure appropriate for your instrument:

- Qubit™ 3 and Qubit™ 4 Fluorometers (page 5)
- Qubit™ 2.0 Fluorometer (page 6)

## Read standards and samples

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### Qubit™ 3 and Qubit™ 4 Fluorometers

- 3.1 On the **Home** screen of the Qubit™ 3 or the Qubit™ 4 Fluorometer, tap **RNA**, then select **RNA Extended Range** as the assay type. The “Read standards” screen is displayed. Tap **Read Standards** to proceed.

**Note:** If you have already performed a calibration for the selected assay, the instrument prompts you to choose between reading new standards and running samples using the previous calibration. If you want to use the previous calibration, skip to step 3.4. Otherwise, continue with step 3.2.

- 3.2 Insert the tube containing Standard #1 into the sample chamber, close the lid, then tap **Read standard**. When the reading is complete (~3 seconds), remove Standard #1.
- 3.3 Insert the tube containing Standard #2 into the sample chamber, close the lid, then tap **Read standard**. When the reading is complete, remove Standard #2.

The instrument displays the results on the Read standard screen. For information on interpreting the calibration results, refer to the *Qubit™ 4 Fluorometer User Guide*, available for download at [thermofisher.com/qubit](http://thermofisher.com/qubit).

- 3.4 Tap **Run samples**.

- 3.5 On the assay screen, select the sample volume and units:

- a. Tap the + or – button on the wheel, or anywhere on the wheel itself, to select the sample volume added to the assay tube (from 1–20  $\mu\text{L}$ ).
- b. From the **unit** dropdown, select the units for the output sample concentration.

- 3.6 Insert a sample tube into the sample chamber, close the lid, then tap **Read tube**. When the reading is complete (~3 seconds), remove the sample tube.

The top value (in large font) is the concentration of the original sample and the bottom value is the dilution concentration. For information on interpreting the sample results, refer to the *Qubit™ 4 Fluorometer User Guide*.

- 3.7 Repeat step 3.6 until all samples have been read.

## Qubit™ 2.0 Fluorometer

- 4.1 On the **Home** screen of the Qubit™ 2.0 Fluorometer, tap **RNA**, then select **RNA Extended Range** as the assay type. The Standards screen is displayed.

**Note:** If you have already performed a calibration for the selected assay, the instrument prompts you to choose between reading new standards and running samples using the previous calibration. If you want to use the previous calibration, tap **No** and skip to step 4.5. Otherwise, continue with step 4.2.

- 4.2 On the **Standards** screen, tap **Yes** to read the standards.

- 4.3 Insert the tube containing Standard #1 into the sample chamber, close the lid, then tap **Read**. When the reading is complete (~3 seconds), remove Standard #1.

- 4.4 Insert the tube containing Standard #2 into the sample chamber, close the lid, then tap **Read**. When the reading is complete, remove Standard #2.

When the calibration is complete, the instrument displays the Sample screen.

- 4.5 Insert a sample tube into the sample chamber, close the lid, then tap **Read**. When the reading is complete (~3 seconds), remove the sample tube.

The instrument displays the results on the Sample screen. The value displayed corresponds to the concentration after your sample was diluted into the assay tube. To find the concentration of your original sample, record this value and perform the calculation yourself (see “Calculate the sample concentration”, page 6) or let the instrument perform this calculation for you (see “Dilution Calculator”, page 7).

- 4.6 Repeat step 4.5 until all samples have been read.

## Calculate the sample concentration – Qubit™ 2.0 Fluorometer

**Note:** The Qubit™ 4 and Qubit™ 3 Fluorometers perform this calculation automatically.

The Qubit™ 2.0 Fluorometer gives values for the Qubit™ RNA XR Assay in µg/mL. This value corresponds to the concentration after your sample was diluted into the assay tube. To calculate the concentration of your sample, use the following equation:

$$\text{Concentration of your sample} = \text{QF value} \times \frac{200}{x}$$

where QF value = the value given by the Qubit™ 2.0 Fluorometer  
x = the number of microliters of sample added to the assay tube

This equation generates a result with the same units as the value given by the Qubit™ 2.0 Fluorometer. For example, if the Qubit™ 2.0 Fluorometer gives a concentration in µg/mL, the result of the equation is in µg/mL.

## Dilution Calculator – Qubit™ 2.0 Fluorometer

The Dilution Calculator feature of the Qubit™ 2.0 Fluorometer calculates the concentration of your original sample based on the volume of sample you added to the assay tube.

- 5.1 After the sample measurement is complete, tap **Calculate Stock Conc.** The Dilution Calculator screen is displayed.
- 5.2 Using the **volume** roller wheel, select the volume of your original sample that you added to the assay tube. When you stop scrolling, the Qubit™ 2.0 Fluorometer calculates the original sample concentration based on the measured assay concentration.
- 5.3 To change the units in which the original sample concentration is displayed:
  - a. Tap **µg/mL**.
  - b. On the **unit selection** pop-up screen, select a unit for your original sample concentration.
  - c. Touch anywhere on the screen to close the pop-up screen. The Qubit™ 2.0 Fluorometer automatically converts the units to your selection.

**Note:** The unit button next to your sample concentration reflects the change in units. For example, if you changed the unit to pg/µL, the button displays pg/µL.

- 5.4 To save the data from your calculation to the Qubit™ 2.0 Fluorometer, tap **Save** on the Dilution Calculator screen. The last calculated value of your measurement is saved in the \*.csv file and tagged with a time and date stamp.
- 5.5 To exit the Dilution Calculator screen, tap any navigator button on the bottom of the screen or tap **Read Next Sample**.

**Note:** When you navigate away from the Dilution Calculator screen, the Qubit™ 2.0 Fluorometer saves the last values for the sample volume and units on the Dilution Calculator screen only. Returning to the Dilution Calculator screen displays these last selected values.

# Appendix

## Selectivity of the Qubit™ RNA XR Assay

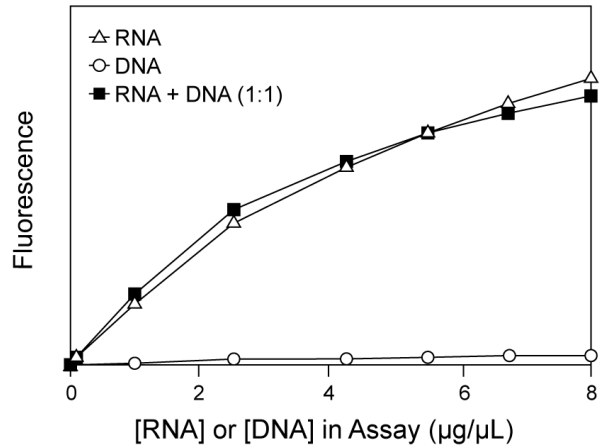


Figure 1. RNA selectivity of the Qubit™ RNA XR Assay. Triplicate 10-µL samples of Yeast tRNA (Δ), Calf Thymus DNA (O) or a 1:1 Mixture of RNA and DNA (■) were assayed using the Qubit™ RNA XR Assay. Fluorescence was measured and plotted versus the mass of nucleic acid for the RNA or DNA alone, or versus the mass of the RNA component in the 1:1 Mixture. The variation (CV) of replicate RNA determinations was <10%.

## Effect of temperature on the Qubit™ RNA XR Assay

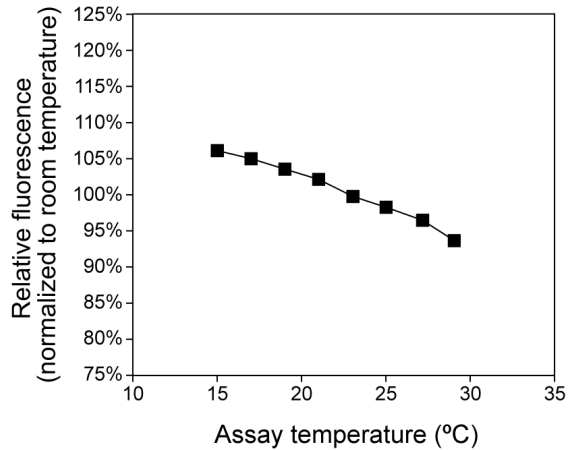


Figure 2. Plot of fluorescence vs. temperature for the Qubit™ RNA XR Assay. The Qubit™ assays are designed to be performed at room temperature, as temperature fluctuations can influence the accuracy of the assay.



How the Qubit™ Fluorometer calculates concentration

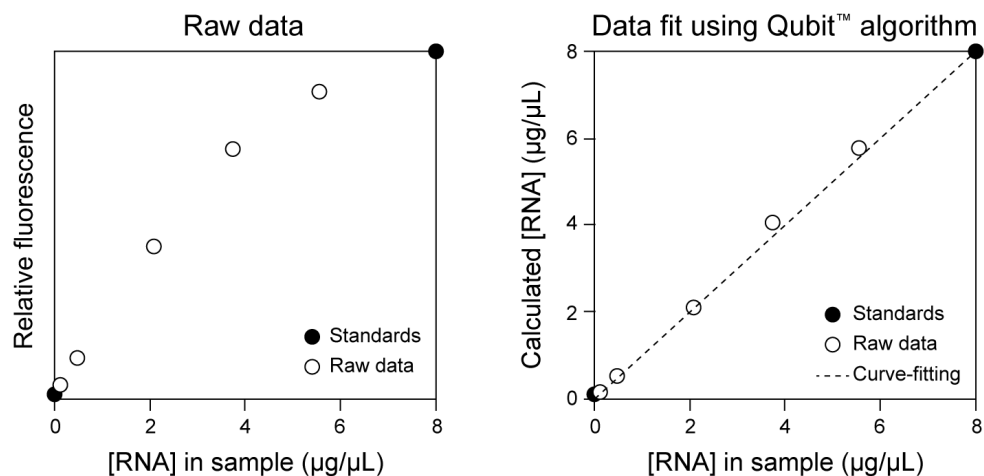


Figure 3. The curve-fitting algorithm used to determine concentration in the Qubit™ RNA XR Assay. The Qubit™ Fluorometer generates concentration data based on the relationship between the two standards used in the calibration. These plots demonstrate the ability to accurately quantitate the full range using only two calibration standards, using the curve-fitting algorithm (a modified Hill plot) in the Qubit™ RNA XR Assay. On the left is an actual experiment, showing fluorescence values for a range of RNA concentrations in the Qubit™ RNA XR Assay, while on the right the results from the Qubit™ assay are shown compared to known concentrations after quantitation. For reference, the curve fitting line is shown against the samples.

Contaminants tolerated by the Qubit™ RNA XR Assay

Table 2. Effect of contaminants in the Qubit™ RNA XR Assay\*

Contaminant	Final concentration in the assay	Concentration in 20-µL sample	Concentration in 10-µL sample	Result
Sodium chloride	50 mM	500 mM	1 M	OK
Magnesium chloride	1 mM	10 mM	20 mM	OK**
Sodium acetate	10 mM	100 mM	200 mM	OK
Ammonium acetate	50 mM	500 mM	1 M	OK
Potassium phosphate	10 mM	100 mM	200 mM	OK
Ethanol	1%	10%	20%	OK
Phenol	0.1%	1%	2%	OK
Chloroform	0.2%	2%	4%	OK
SDS	0.01%	0.1%	0.2%	OK**
Triton™ X-100	0.001%	0.01%	0.02%	OK
dNTPs	100 µM	1 mM	2 mM	OK
BSA	20 µg/mL	200 µg/mL	400 µg/mL	OK
IgG	10 µg/mL	100 µg/mL	200 µg/mL	OK
NTPs	1X	1X	1X	OK
ssDNA	1X	1X	1X	OK
dsDNA	1X	1X	1X	OK

\* RNA standards were assayed in the presence or absence of contaminants at the indicated final concentrations. Equivalent concentrations (approximate) in 10 µL or 1 µL sample volumes are also listed. In all cases, results are given as OK, usually less than 10% perturbation. For best results, add the same amount of contaminant to the standard samples.

\*\* Although some distortion of the standard curve was noted at this concentration, the results were within 10% of expected values. For higher accuracy, reduce the level of impurity present or add it at the same concentration to your standard solutions.

**Qubit™ assay kits compatible  
with the Qubit™ Fluorometer**

A number of fluorescence-based quantification kits are available for use with the Qubit™ Fluorometer. Use Table 3 to choose a kit based on the target molecule being measured and the number of assays you require.

**Table 3.** Qubit™ assay kits for use with the Qubit™ Fluorometer

Product	Cat. No.	No. of assays*	Target	Notes
Qubit™ dsDNA BR Assay Kit	Q32850	100	dsDNA	<ul style="list-style-type: none"> <li>• Core range (high confidence): 0.01 µg/mL to 5 µg/mL<sup>†</sup></li> <li>• Extended range (moderate confidence): 5 µg/mL to 10 µg/mL<sup>†</sup></li> <li>• Useful for quantitation of genomic and miniprep DNA samples</li> <li>• Accurate in the presence of RNA, salts, solvents, proteins, and free nucleotides</li> </ul>
	Q32853	500		
Qubit™ dsDNA HS Assay Kit	Q32851 Q33230	100	dsDNA	<ul style="list-style-type: none"> <li>• Core range (high confidence): 1 ng/mL to 500 ng/mL<sup>†</sup></li> <li>• Extended ranges (moderate confidence): 0.5 ng/mL to 1 ng/mL and 500 ng/mL to 600 ng/mL<sup>†</sup></li> <li>• Useful for quantitation of PCR products, viral DNA, and samples for subcloning</li> <li>• Accurate in the presence of RNA, salts, solvents, proteins, and free nucleotides</li> </ul>
	Q32854 Q33231	500		
Qubit™ ssDNA Assay Kit	Q10212	100	ssDNA	<ul style="list-style-type: none"> <li>• Core range (high confidence): 5 ng/mL to 1000 ng/mL<sup>†</sup></li> <li>• Extended ranges (moderate confidence): 1 ng/mL to 5 ng/mL and 1000 ng/mL to 1200 ng/mL<sup>†</sup></li> <li>• Useful for quantitation of oligos, primers, denatured DNA, PCR products</li> <li>• Accurate in the presence of salts, urea, solvents, proteins, ATP, and agarose</li> </ul>
Qubit™ RNA HS Assay Kit	Q32852	100	RNA	<ul style="list-style-type: none"> <li>• Core range (high confidence): 25 ng/mL to 500 ng/mL<sup>†</sup></li> <li>• Extended ranges (moderate confidence): 20 ng/mL to 25 ng/mL and 500 ng/mL to 1000 ng/mL<sup>†</sup></li> <li>• Useful for quantitation of samples for microarray, RT-PCR, and Northern blot procedures</li> <li>• Accurate in the presence of DNA, salts, solvents, proteins, and free nucleotides</li> </ul>
	Q32855	500		
Qubit™ RNA BR Assay Kit	Q10210	100	RNA	<ul style="list-style-type: none"> <li>• Core range (high confidence): 0.1 µg/mL to 5 µg/mL<sup>†</sup></li> <li>• Extended ranges (moderate confidence): 0.05 µg/mL to 0.1 µg/mL and 5 µg/mL to 6 µg/mL<sup>†</sup></li> <li>• Useful for quantitation of samples for microarray, RT-PCR, and Northern blot procedures</li> <li>• Accurate in the presence of DNA, salts, solvents, proteins, and free nucleotides</li> </ul>
	Q10211	500		
Qubit™ RNA XR Assay Kit	Q33233	100	RNA	<ul style="list-style-type: none"> <li>• Core range: 0.1 µg/mL to 400 µg/mL<sup>†</sup></li> <li>• Useful for quantitation of samples for RT-PCR, qRT-PCR or RNA-SEQ</li> <li>• Accurate in the presence of DNA, salts, solvents, proteins, and free nucleotides</li> </ul>
	Q33234	500		
Qubit™ microRNA Assay Kit	Q32880	100	RNA	<ul style="list-style-type: none"> <li>• Core range (high confidence): 5 ng/mL to 500 ng/mL<sup>†</sup></li> <li>• Extended ranges (moderate confidence): 2.5 ng/mL to 5 ng/mL and 500 ng/mL to 750 ng/mL<sup>†</sup></li> <li>• Useful for quantification of samples for qRT-PCR and sequencing applications</li> <li>• Accurate in the presence of rRNA, large mRNA (&gt;1000 bp), salts, solvents, proteins, and free nucleotides</li> </ul>
	Q32881	500		

\*Based on an assay volume of 200 µL.  
<sup>†</sup>Concentration ranges refer to the concentration of the sample after dilution in the assay tube.

**Table 3 (continued).** Qubit™ assay kits for use with the Qubit™ Fluorometer

Product	Cat. No.	No. of assays*	Target	Notes
Qubit™ Protein Assay Kit	Q33211	100	Protein	<ul style="list-style-type: none"> <li>• Core range (high confidence): 1.25 µg/mL to 25 µg/mL<sup>†</sup></li> <li>• Extended ranges (moderate confidence): 1 µg/mL to 1.25 µg/mL and 25 µg/mL to 26 µg/mL<sup>†</sup></li> <li>• Little protein-to-protein difference in signal</li> <li>• Accurate in the presence of DTT, β-mercaptoethanol, amino acids, and DNA</li> <li>• Signal is stable for 3 hours</li> </ul>
	Q33212	500		
Qubit™ RNA IQ Assay Kit	Q33221	75	RNA integrity and quality	<ul style="list-style-type: none"> <li>• Although small in size, the tertiary structure of 5s and tRNA will bind the large RNA dye</li> <li>• Accurate in the presence of salts, protein, solvents and RNA stabilization reagents</li> <li>• Signal is stable for 1 hour</li> <li>• For use with the Qubit™ 4 Fluorometer; the assay does not work on the original Qubit™, Qubit™ 2.0, or Qubit™ 3 Fluorometers</li> </ul>
	Q33222	275		

\*Based on an assay volume of 200 µL.  
<sup>†</sup>Concentration ranges refer to the concentration of the sample after dilution in the assay tube.

## Ordering information

Cat. No.	Product name	Unit size
Q33223	Qubit™ RNA XR Assay Kit, 100 assays . . . . .	1 kit
Q33224	Qubit™ RNA XR Assay Kit, 500 assays . . . . .	1 kit
<b>Related products</b>		
Q32850	Qubit™ dsDNA BR Assay Kit, 100 assays *2–1000 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q32853	Qubit™ dsDNA BR Assay Kit 500 assays *2–1000 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q32851	Qubit™ dsDNA HS Assay Kit, 100 assays *0.2–100 ng* *for use with the Qubit™ Fluorometer . . . . .	1 kit
Q32854	Qubit™ dsDNA HS Assay Kit, 500 assays *0.2–100 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q33230	Qubit™ 1X dsDNA HS Assay Kit, 100 assays . . . . .	1 kit
Q33231	Qubit™ 1X dsDNA HS Assay Kit, 500 assays . . . . .	1 kit
Q10212	Qubit™ ssDNA Assay Kit, 100 assays *1–200 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q10210	Qubit™ RNA BR Assay Kit, 100 assays *20–1000 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q10211	Qubit™ RNA BR Assay Kit, 500 assays *20–1000 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q32852	Qubit™ RNA HS Assay Kit, 100 assays *5–100 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q32855	Qubit™ RNA HS Assay Kit, 500 assays *5–100 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q33221	Qubit™ RNA IQ Assay Kit, 75 assays *for use with the Qubit™ 4 Fluorometer* . . . . .	1 kit
Q33222	Qubit™ RNA IQ Assay Kit, 275 assays *for use with the Qubit™ 4 Fluorometer* . . . . .	1 kit
Q32880	Qubit™ microRNA Assay Kit, 100 assays *1–100 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q32881	Qubit™ microRNA Assay Kit, 500 assays *1–100 ng* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q33211	Qubit™ Protein Assay Kit, 100 assays *0.25–5 µg* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q33212	Qubit™ Protein Assay Kit, 500 assays *0.25–5 µg* *for use with the Qubit™ Fluorometer* . . . . .	1 kit
Q33233	Qubit™ 1X dsDNA HS Assay - Lambda DNA Standard . . . . .	5 mL
Q33234	Qubit™ 1X dsDNA HS Assay - Calf Thymus DNA Standard . . . . .	5 mL
Q33235	Qubit™ RNA IQ Assay - RNA Standards . . . . .	1 set
Q33236	Qubit™ XR Assay - RNA Standard . . . . .	1 set
Q32856	Qubit™ assay tubes *set of 500* . . . . .	1 set

# Documentation and support

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## Customer and Technical Support

Visit [thermofisher.com/support](http://thermofisher.com/support) for the latest in services and support, including:

- Worldwide contact telephone numbers
- Product support, including:
  - Product FAQs
  - Software, patches, and updates
  - Training for many applications and instruments
- Order and web support
- Product documentation, including:
  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

**Note:** For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

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**Revision history:** Pub. No. MAN0017501

Revision	Date	Description
B.0	04 April 2018	Update assay accuracy and assay range values in Product information.
A.0	07 December 2017	New user guide

 **Manufacturer:** Life Technologies Corporation | 29851 Willow Creek Road | Eugene, OR 97402

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