invitrogen

Qubit™ Flex Fluorometer

USER GUIDE

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Revision C

For Research Use Only. Not for use in diagnostic procedures.

ThermoFisher SCIENTIFIC

Life Technologies Holdings Pte Ltd | Block 33 | Marsiling Industrial Estate Road 3 | #07-06, Singapore 739256
For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

Revision history: MAN0018186 C (English)

Revision	Date	Description
C	29 September 2025	Updating to current format for consistency of style and terminology.
B.0	23 January 2020	Changing “A” product skus to new “Q” skus.
A.0	11 October 2019	New document for Qubit™ Flex Fluorometer User Guide.

The information in this guide is subject to change without notice.

Contents

CHAPTER 1 About this guide 8

Overview 8
User documentation 8
Text and keyboard conventions 8
User attention words 9
Safety alert words 9
SDSs 9

CHAPTER 2 Product information 10

Product contents 10
Upon receiving the instrument 10
Register your instrument 10
Product description 11
Qubit™ Flex Fluorometer 11
Features 11
Optional: License to assist with 21 CFR Part 11 requirements 12
SAE Mode 12
Security 12
Auditing 12
Electronic signature 12
Instrument exterior components 13
Product specifications 14
Physical characteristics 14
Operating conditions 15
Technical specifications 15
Hardware 16
USB drive 16

CHAPTER 3 Getting started 17

Set up the Qubit™ Flex Fluorometer 17
Set up the instrument 17
Set language and date/time options 18
Connect to the network 20
(Optional) connect to the network 20
After instrument setup 23
Home screen 23
About instrument screen 24
Sign in 25
Create a local instrument profile 25
Sign in to your Connect account 27
Guidelines for using the Qubit™ Flex Fluorometer 31
Recommendations 31
Assay tubes for the Qubit™ Flex Fluorometer 31

CHAPTER 4 Perform assays 32

Before you begin 32
Materials needed 32
Sign in to your profile 32
(Optional) use the assay range calculator to determine the assay range 34
Use the assay range calculator 34
Use the reagent calculator to prepare Qubit™ working solution 38
Use the reagent calculator 39
Timer 40
Run standards for assay calibration 42
Run new standards 42
Calibration results 45
(Optional) Re-run standards after calibration error 46
Read samples 46
Before you begin 46
Insert samples 47
(Optional) enter assay kit lot #, add tags, add sample IDs 49
Run samples 53
(Optional) Rename samples during acquisition 54
Results 56
View results 56
Fluorometer mode 58
Introduction 58
Read sample in fluorometer mode 58
Read multiple samples in fluorometer mode 61

(Optional) use the molarity calculator to determine sample molarity 61
Use the molarity calculator 62
(Optional) use the normalization calculator to determine how to dilute the samples to the same molarity, concentration, or mass 65
Select the normalization calculator 65
Normalize your samples to the same molarity 66
Normalize your samples to the same concentration 68
Normalize your samples to the same mass and volume 71

CHAPTER 5 Manage data 74

Overview 74
View detailed sample data 74
View list of data sets 74
(Optional) filter data sets 75
Select data set and view detailed sample data 77
Information in the detailed sample data 79
Edit sample name 80
Edit sample name 80
Export data 82
Introduction 82
Export data 83
Delete data 87
Delete data files 87

CHAPTER 6 Configure instrument settings 90

Instrument settings 90
Access the instrument settings screen 90
Sleep mode 91
Adjust the sleep mode 91
Brightness 92
Adjust screen brightness 92
Date and time 93
Set the date and time 93
Network connection 97
Access the network connection screen 97
Connect to a Wi-Fi network 98
Connect to a local area network (LAN) 100
Map a network drive 101
Create a Shared Folder (Windows) 106
Reset instrument 108
Reset instrument 108
Language 109
Change the displayed language 109

Cloud region 110
Change the cloud region 110
Delimiter 111
Select the delimiter used in CSV exports 111

CHAPTER 7 Instrument maintenance 112

Maintenance and cleaning 112
Maintenance 112
Clean the Qubit™ Flex Fluorometer 112
Software updates 113
Before you begin 113
Update the software 113
System verification 115
Perform system verification test 115
Replace battery 121
Replace battery 122

APPENDIX A Troubleshooting 124

Troubleshooting 124
Handling samples 124
High reading 124
Low reading 125
Critical Qubit™ assay considerations 126
How the Qubit™ Flex Fluorometer calculates concentration 126
Incubation time 127
Photobleaching of Qubit™ reagents 128
Assay temperature 128
Qubit™ Flex Fluorometer calibration 129

APPENDIX B Ordering information 130

Qubit™ Flex Fluorometer and accessories 130

APPENDIX C Safety 132

Symbols on this instrument 132
Standard safety symbols 132
Control and connection symbols 133
Conformity symbols 133
General instrument safety 134
Operating the instrument 134
Safety precautions 134
Cleaning and decontamination 134
Removing covers or parts of the instrument 135
Safety and electromagnetic compatibility (EMC) standards 135
Safety and EMC standards 135
Environmental design standards 136
Chemical safety 137
Chemical waste safety 137
Chemical waste hazard 137
Chemical waste safety guidelines 138
Waste disposal 138
Electrical safety 139
Overvoltage rating 139
Biological hazard safety 140

APPENDIX D Documentation and support 141

Customer and technical support 141
Limited product warranty 141

1 About this guide

Overview

This user guide describes how to operate the Qubit™ Flex Fluorometer.

User documentation

The guides listed below are available with the Qubit™ Flex Fluorometer.

Guide	Pub. No.
Qubit™ Flex Fluorometer User Guide	MAN0018186
Qubit™ Flex Fluorometer Quick Reference Card (QRC)	MAN0018187

Additional resources are available on the Qubit™ Technical Resources page. Go to **thermofisher.com/qubit** to access protocols, application notes, and tutorials.

Text and keyboard conventions

Text and keyboard conventions used in the *Qubit™ Flex Fluorometer User Guide* are listed below. For safety alert words and symbols used in Thermo Fisher Scientific user documentation, see “Safety alert words” on page 9.

Convention	Use
Bold	**Bold** text indicates user action. For example: Click **Run**.
▶	Right arrow symbol (▶) indicates a menu choice, and separates successive commands you execute or select from a drop-down or shortcut menu. For example:Select **Settings** ▸ **Instrument Settings**.

User attention words

Two user attention words appear in Thermo Fisher Scientific user documentation. Each word implies a particular level of observation or action as described below.

Note: Provides information that may be of interest or help but is not critical to the use of the product.

IMPORTANT! Provides information that is necessary for proper instrument operation, accurate installation, or safe use of a chemical.

Safety alert words

Four safety alert words appear in Thermo Fisher Scientific user documentation at points in the document where you need to be aware of relevant hazards. Each alert word—**IMPORTANT, CAUTION, WARNING, DANGER**—implies a particular level of observation or action, as defined below:

IMPORTANT! Provides information that is necessary for proper instrument operation, accurate installation, or safe use of a chemical.

CAUTION! – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

WARNING! – Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

DANGER! – Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

Except for **IMPORTANT!** safety alerts, each safety alert word in a Thermo Fisher Scientific document appears with an open triangle figure that contains a hazard symbol. These hazard symbols are identical to the hazard symbols that are affixed to Thermo Fisher Scientific instruments (see "**Safety symbols**" in Appendix C).

SDSs

The Safety Data Sheets (SDSs) for any chemicals supplied by Thermo Fisher Scientific are available to you free 24 hours a day. For instructions on obtaining SDSs, see "**Safety Data Sheets (SDS)**".

IMPORTANT! For the SDSs of chemicals not distributed by Thermo Fisher Scientific contact the chemical manufacturer.

2 Product information

Product contents

The Qubit™ Flex Fluorometer is shipped with the following components:

Component	Quantity
Qubit™ Flex Fluorometer	1 each
Qubit™ Flex power cord (shipped separately)[1]	1 each
USB drive	1 each
Qubit™ Flex LAN cable	1 each
Qubit™ Flex Fluorometer Quick Reference Card (QRC)	1 each
Certificate of Conformity (COC)	1 each
Qubit™ screen cleaning cloth	1 each
Wi-Fi Dongle	1 each

[1] The power cords for the Qubit™ Flex Fluorometer are not interchangeable with those for the other Qubit™ Fluorometer models. Powering the instrument with an unapproved power cord can irreversibly damage the instrument.

See "Product description" on page 11 for the description and specifications of the Qubit™ Flex Fluorometer.

Upon receiving the instrument

Examine the instrument carefully for damage incurred during transit. Ensure that all parts of the instrument, including the accessories listed above, are included with the product. Damage claims must be filed with the carrier; the warranty does not cover in-transit damage.

See Chapter 3, "Getting started" for instructions to set up the Qubit™ Flex Fluorometer.

Register your instrument

Go to **thermofisher.com/qubit** to register your instrument. You will be asked to supply the serial number, your name, and your contact details. Registering your instrument ensures that you will receive notifications of software upgrades and information on new assays for use with the Qubit™ Flex Fluorometer.

Product description

Qubit™ Flex Fluorometer

The Qubit™ Flex Fluorometer is a benchtop fluorometer for the quantification of DNA, RNA, microRNA, and protein. With the Qubit™ Flex Fluorometer, you can directly measure the fluorescence of up to 8 samples simultaneously using the highly sensitive and accurate fluorescence-based Qubit™ assays.

Features

- Fast and highly accurate quantification of DNA, RNA, and protein of up to 8 samples simultaneously in 3 seconds.
- High levels of accuracy using only 1–20 µL of sample, even with very dilute samples.
- Use of dyes selective for dsDNA, RNA, or protein minimizes the effects of contaminants in the sample.
- Stores results from up to 10,000 samples.
- 8-inch, state-of-the-art color touchscreen for easy workflow navigation.
- Instrument indicates samples that are in the extended range or out of range.
- Saves sample data as a CSV (comma separated value) file or PDF (portable document format) file.
- On-board Reagent and Range Calculators provide instructions to prepare Qubit™ working solution using your sample and standard inputs and to select the most accurate assay for your expected concentration range.
- On-board Molarity and Normalization Calculators allow you to calculate molarity of your samples based on nucleic acid length and determine how to dilute the samples to the same concentration, respectively, using the results from your assays.
- Allows easy definition and saving of assay preferences.
- Exports data to a USB drive, to a network drive, or to the Connect cloud-based platform.
- Connects to the local area network via the LAN (RJ-45) port using an Ethernet cable or wirelessly using the supplied Wi-Fi adaptor.
- Instrument user interface can be personalized to display in the language of your choice including English, French, Spanish, Italian, German, simplified Chinese and Japanese.
- *(Optional):* Security Software license (SKU Q31994) is available for purchase to aid compliance with 21 CFR Part 11 regulations.

Optional: License to assist with 21 CFR Part 11 requirements

SAE Mode

Qubit™ Flex Security Software for 21 CFR Part 11 (Cat. No. Q31994) is an optional add-on software for the Qubit™ Flex Fluorometer. The software offers the features for security, auditing, and electronic signature (SAE).

1. 21 CFR Part 11 compliance is composed of both procedural and technical requirements. Procedural requirements are the standard operating procedures instituted by the end user, and technical requirements are the functional characteristics of the compliance management software used. Together, when met, these requirements enable institutions to meet 21 CFR part 11 guidelines for traceability of electronic records.
2. Along with the Qubit™ Flex Security Software for 21 CFR Part 11 support, our service and support organization offers installation qualification and operational quantification (IQ/OQ) services for the Qubit™ Flex Fluorometer.
3. For more information, see Qubit™ Flex SAE Software Solution for 21 CFR Part 11 Compliance User Guide (MAN0028384) and Specification Sheet (COL26867).

Security

- Authentication of user login information.
- Ability to set password guidelines and expiry dates.
- Lockout access and reauthentication requirements after a period of inactivity.
- System lockout upon unauthorized attempts to access software.
- Ability of administrator to define user roles and permissions.
- Verification of each user's permissions to perform predefined activities.
- Identification of data tampering.

Auditing

- Generation of audit trail log.
- Tracking of changes and committed actions to user roles, account management, and system settings.
- Ability of administrator to determine actions that required an input reason to change.
- Audit trail record presented in readable and filterable formats.

Electronic signature

- Administrator determination of e-signature requirements.
- Ability to review records and sign electronically.

Instrument exterior components

Figure 1 Top view

Figure 2 Rear view

① **Touchscreen** is the user interface containing the controls for all the functions needed and displays data from the assays.

② **Sample chamber** is used to load the Qubit™ Flex Tube Strip containing your samples into the fluorometer for analysis.

③ **USB drive ports (Type A)** allow you to transfer and save data to your computer using a USB flash drive or wirelessly to a network drive or a Connect account using the Wi-Fi dongle (supplied with the instrument).

④ **Power inlet** connects the Qubit™ Flex Fluorometer to an electrical outlet using the supplied power cord and the appropriate plug.

⑤ **LAN port (RJ-45)** allows you to connect to the network using an Ethernet cable.

Product specifications

Physical characteristics

Instrument type:	Benchtop fluorometer
Instrument dimensions:	7.3 in (w) × 11.1 in (l) × 4.1 in (h) (18.6 cm × 28.2 cm × 10.3 cm); rectangular shape
Weight:	60 oz. (1.7 kg)
Operating power:	100–240 ±10% VAC, 1.3 A
Frequency:	50/60 Hz
Electrical input:	48 VDC, 1.87 A

IMPORTANT! If the supplied power fluctuates ±10% beyond the rated voltage, a power line regulator may be required. High or low voltages can adversely affect the electronic components of the instrument.

Operating conditions

Installation site:	Indoor use only
Altitude:	Between sea level and 2000 m (6500 ft.) above sea level
Operating temperature:	10–30°C
Operating humidity:	15–80% (non-condensing)
Pollution degree:	The instrument has a Pollution Degree rating of II. The instrument may only be installed in an environment that has nonconductive pollutants. Typical environment with a Pollution Degree II rating are laboratories and sales and commercial areas.

Note: Operating the instrument outside validated conditions may lead to degradation over time. Use the system verification assay to verify the proper functioning of the photodiodes.

Technical specifications

Dynamic range:	4 orders of magnitude
Processing time:	≤3 seconds/sample
Light sources:	Blue LED (max 460–480 nm) Red LED (max 620–640 nm)
Excitation filters:	Blue 456–484 nm Red 612–644 nm
Emission filters:	Green 513–563 nm Far-Red 671–693 nm
Detectors:	Photodiodes; measurement capability from 320–1100 nm
Calibration type:	2- or 3-point standard
Sample chamber:	Accommodates one Qubit™ Flex Tube Strip
Tube type:	Qubit™ Flex Tube Strip (8× 0.2-mL thin-wall polypropylene tubes; Cat. No. Q33252)
Warm-up time:	<35 seconds

Hardware

Display:	8-inch capacitive touchscreen with high resolution color display
Output ports:	3× USB ports
Networking capability:	Connection via the LAN (RJ-45) port using an Ethernet cable or wirelessly using the supplied Wi-Fi adaptor
Power supply:	AC adaptor with country-specific power cords

USB drive

Capacity:	4 Gigabyte or less
Type:	FAT32–formatted

3 Getting started

Set up the Qubit™ Flex Fluorometer

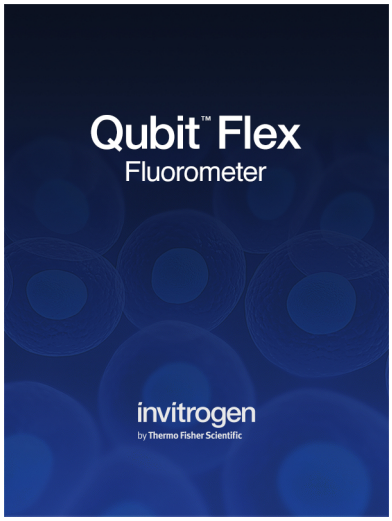
Set up the instrument

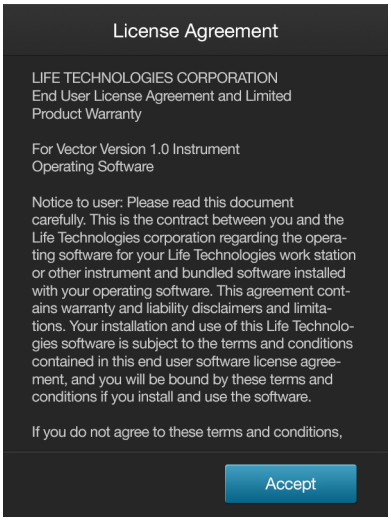
The Qubit™ Flex Fluorometer is a stand-alone instrument that does not require connection to a computer.

1. After unpacking the instrument, place the instrument on a flat, level, dry surface.
2. Plug one end of the supplied power cord into the Qubit™ Flex Fluorometer.
3. Attach the appropriate plug adaptor to the other end of the power cord.
4. Plug the power cord into the electrical outlet. Ensure that the power adaptor plug remains accessible to allow disconnection.

   IMPORTANT! Use the power cord plug adapter supplied with the instrument that is appropriate for the electrical outlet configuration in your country. Powering the instrument with an unapproved power cord can irreversibly damage the instrument. Note that the power cords for the Qubit™ Flex Fluorometer are not interchangeable with those for the other Qubit™ Fluorometer models.

5. The instrument automatically powers on, first displaying the splash screen, then the **End User License Agreement (EULA)** screen.





Note: The **End User License Agreement (EULA)** screen is displayed on the first use of the instrument. On subsequent uses, the **Home screen** (“Home screen” on page 23) is displayed after the splash screen.

6. Click **Accept** to accept the terms of the agreement and proceed to “Set language and date/time options” (“Set language and date/time options” on page 18).

Note: You can also view and export the EULA from the **About Instrument** screen (“About instrument screen” on page 24).

7. To power off the Qubit™ Flex Fluorometer, unplug it.

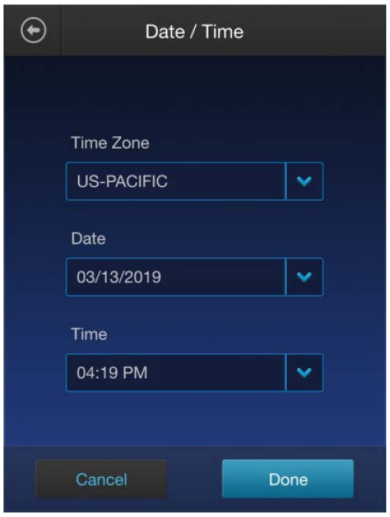
Set language and date/time options

After you accept the EULA, the instrument shows the **Language displayed** and **Date/Time** screens, which allow you to set language and date/time options. If you wish, you can later change the language settings from the **Settings** ▸ **Instrument Settings** ▸ **Language** screen (“Change the displayed language” on page 109).

1. On the **Language displayed** screen, select the **Language** you want your instrument to display, then press **Next**.

   Available options are **English**, **French**, **German**, **Italian**, **Chinese**, **Japanese**, and **Spanish**.

2. On the **Date/Time** screen, select the **Time Zone**, set the **Date** and **Time** in the desired format, then press **Next**.



Note: For detailed instructions on how to configure date/time options and to set the date and time, see ""Set the date and time" on page 93".

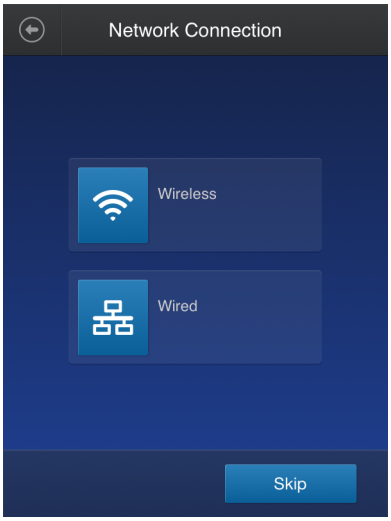
Connect to the network

(Optional) connect to the network

After you set language and date/time options, the instrument displays the Network Connection screen, which allows you to configure network options. If you wish, you can skip this step and connect to the network later from the **Settings** ▸ **Instrument settings** ▸ **Network connection** screen (“Network connection” on page 97).

1. On the **Network Connection** screen, select **Wireless** or **Wired** connection.

   If you wish to use the instrument without joining a network, press **Skip**. You can always join a network and configure network settings later.



2. Depending on your choice, the instrument displays the **Choose Network** or the **IP Configuration** screen (for Wireless and Wired connection, respectively).

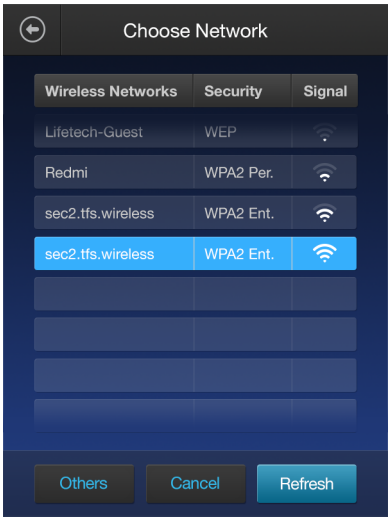


Figure 3 Choose Network screen (for Wireless connection)

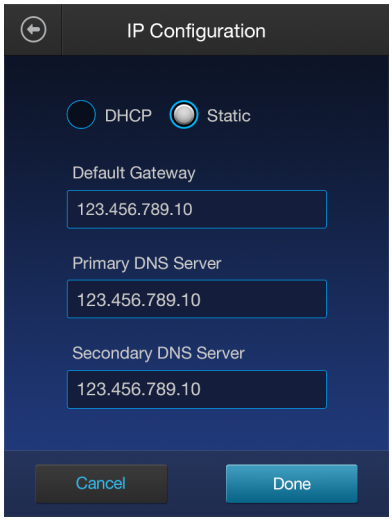


Figure 4 IP Configuration screen (for Wired connection)

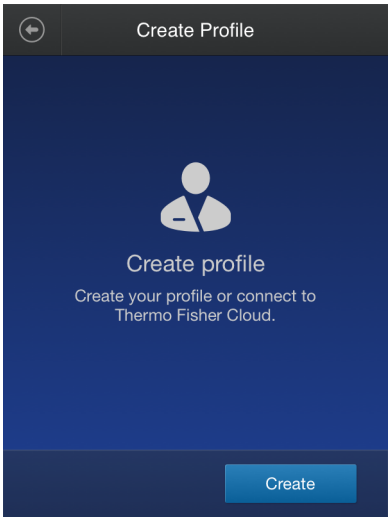
3. For wireless connection, select the network you want to join, then follow the on-screen instructions to configure the network options. When finished, press **Join**.

   For wired connection, configure the network connection options, then press **Done**.

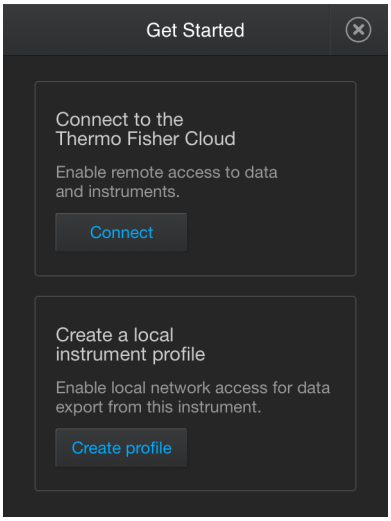
   For detailed instructions on how to join a network (wireless or wired) and configure network options, see “Network connection”, “Network connection” on page 97.

4. Create profile. Qubit™ Flex Fluorometer allows you to create a local instrument profile for each user.

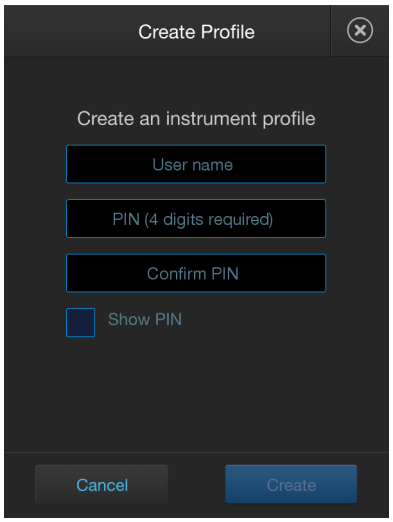
   If you wish, you can skip this step and create a profile later from the **Profile** screen.



a. Choose a local profile (easiest) or connect to your Thermo Fisher Cloud account. More information on logging in with the Thermo Fisher CLoud can be found in the "“Sign in” on page 25".



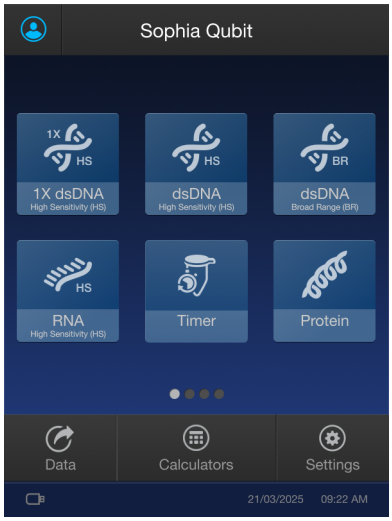
b. Choose a **Username** and **PIN**.



After instrument setup

Home screen

After you have set instrument preferences, the instrument automatically displays the **Home** screen.



From the **Home** screen, you can:

- Sign in to your local instrument profile or your Connect account.
- Select the assays to perform:

1X dsDNA High Sensitivity (HS)	dsDNA High Sensitivity (HS)	dsDNA Broad Range (BR)
RNA High Sensitivity (HS)	RNA Broad Range (BR)	RNA Integrity & Quality (IQ)
RNA Extended Range (XR)	1X dsDNA Broad Range (BR)	Protein
Oligo™ (ssDNA)	microRNA	Endotoxin
Fluorometer Mode Blue	Fluorometer Mode Red	–

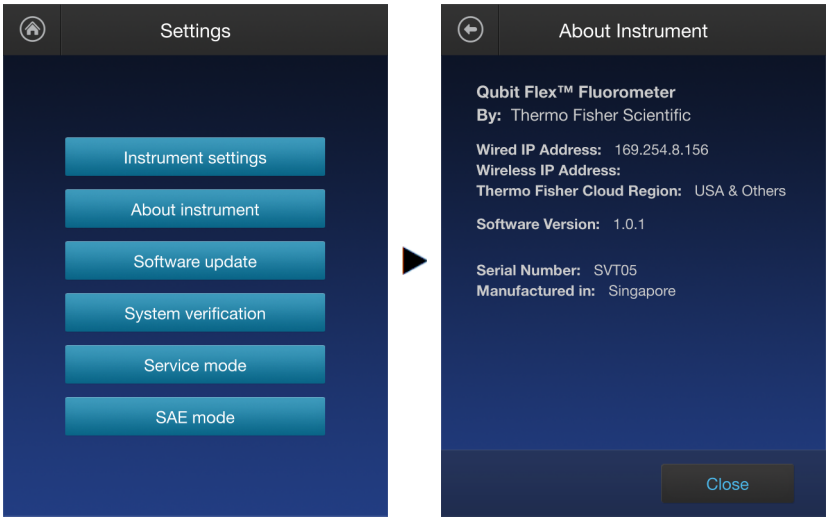
- Set a timer.
- Access saved data.
- Filter, delete, or export data.
- Configure instrument settings.
- Use the **Reagent Calculator** to determine the exact volumes of Qubit™ buffer and reagent required to prepare the Qubit™ working solution.
- Use the **Range Calculator** to determine the best assay to use for your sample.

About instrument screen

The **About Instrument** screen displays information about your Qubit™ Flex Fluorometer, including the currently installed software version.

To access the **About Instrument** screen:

1. On the **Home** screen, press (Settings) **Settings**.
2. On the Settings screen, press **About Instrument** to display the **About Instrument** screen.



3. Press **Close** or **Back** ( ) to return to the **Settings** screen.

Sign in

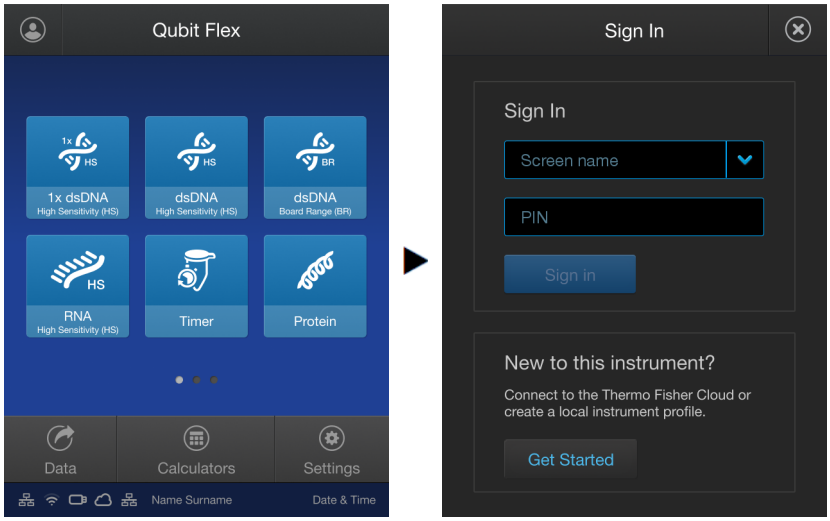
Create a local instrument profile

Note: To adhere to new cybersecurity legal standards, the latest firmware for Qubit™ Flex instruments will require users to login in order to access certain menu options (such as instrument settings, software update, and system verification). When not logged in these menu options will appear to be inactive.

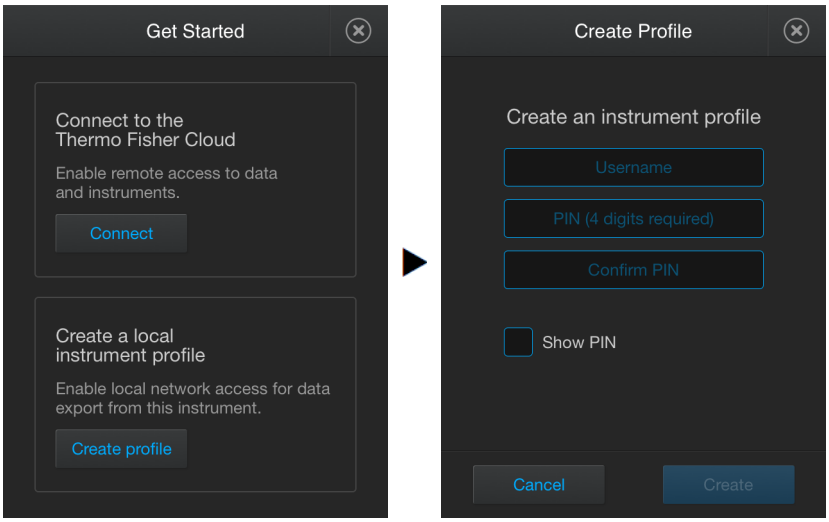
Qubit™ Flex Fluorometer allows you to create a local instrument profile for each user. A local instrument profile allows you to access all instrument settings, save data to a mapped network location, and connect to your Thermo Fisher Scientific Connect account.

1. On the **Home** screen, press the **Profile** button ( ) on the top left corner of the screen to open the **Sign In** screen.

   If you are new to the instrument and have not yet created a profile, press **Get Started** to open the **Get Started** screen.



2. Press **Create Profile**, then create your **User name** and **PIN**.

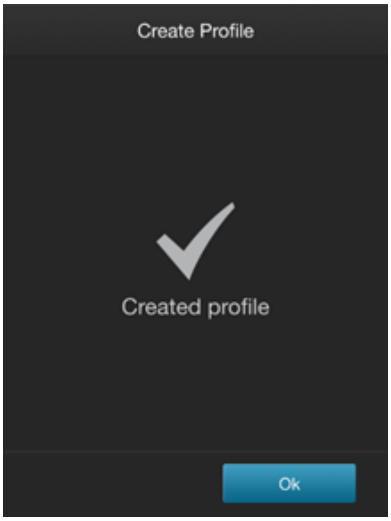


3. Press the **User name** field, enter the desired user name for the profile (1–20 alphanumeric characters, no spaces), then press **Done**.

4. Press the **PIN** field, enter a 4-digit PIN, then press **Done**.

5. Enter the **PIN** in the **Confirm PIN** field, then press **Done**.

6. Press **Create** to create the local instrument profile.



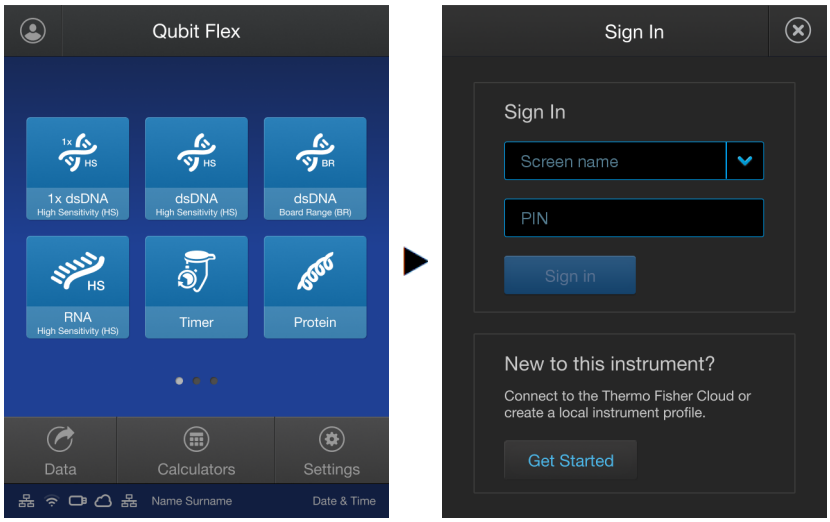
Sign in to your Connect account

After you have joined a network, you can also connect to your Connect account, Connect-based platform, to store and access your data files.

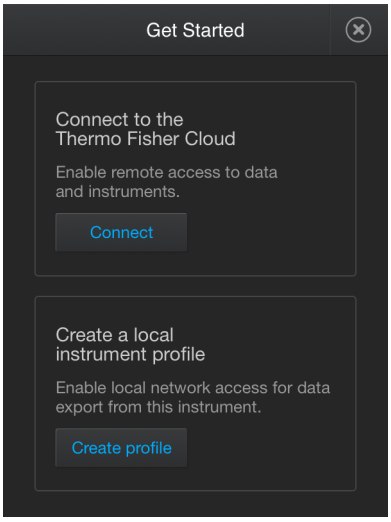
Note: To connect to the Connect, you must have a Connect account or create one. To create your Connect account online or to sign in to your existing account, go to **thermofisher.com/cloud**.

1. Ensure that you are connected to the network on your Qubit™ Flex instrument ("(Optional) connect to the network" on page 20).

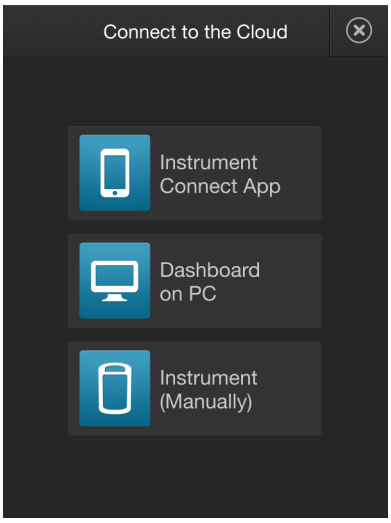
2. On the **Home** screen, press the **Profile** ( ) button on the top left corner of the screen to open the Sign In dialog.



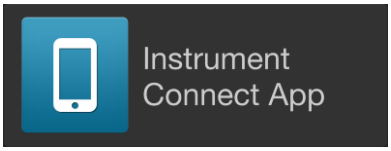
3. On the **Sign In** screen, press **Get Started**, then press **Connect** to open the **Connect to the Cloud** screen.



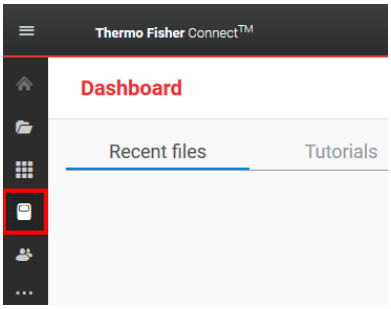
4. **Connect to the Cloud** screen offers three methods to sign in to your Thermo Fisher Connect account:
   - **Instrument Connect App** on your mobile phone (Step 5 on page 28)
   - **Dashboard on PC** (Step 6 on page 28)
   - **Instrument (Manually)** (Step 7 on page 30)



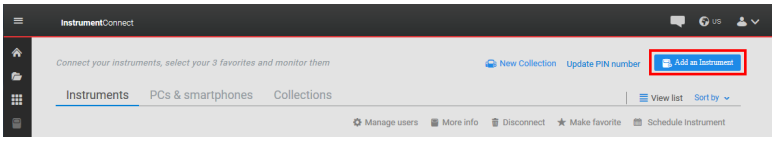
5. To connect to your Thermo Fisher Connect account with the **Instrument Connect App** on your mobile phone:
   a. Download the **Instrument Connect Mobile App** from the application store on your mobile phone.
   b. Press **Instrument Connect App** on the **Connect to the Cloud** screen, then follow the steps on the Qubit™ Flex instrument. When finished, go to Step 8 on page 30.



6. To connect to your Thermo Fisher Connect account with **Dashboard on PC**:
   a. Go to **thermofisher.com/cloud** and sign in to your Thermo Fisher Connect account.
   b. On the Connect dashboard, press the **Instrument Connect** button ( ).

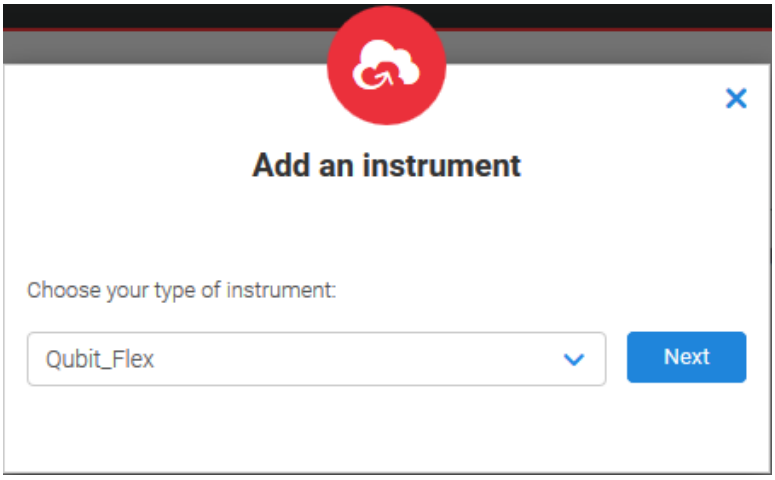


c. On the Instrument Connect screen, press **Add an Instrument** (Add an Instrument).

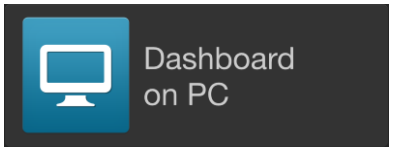


Add an instrument dialog opens.

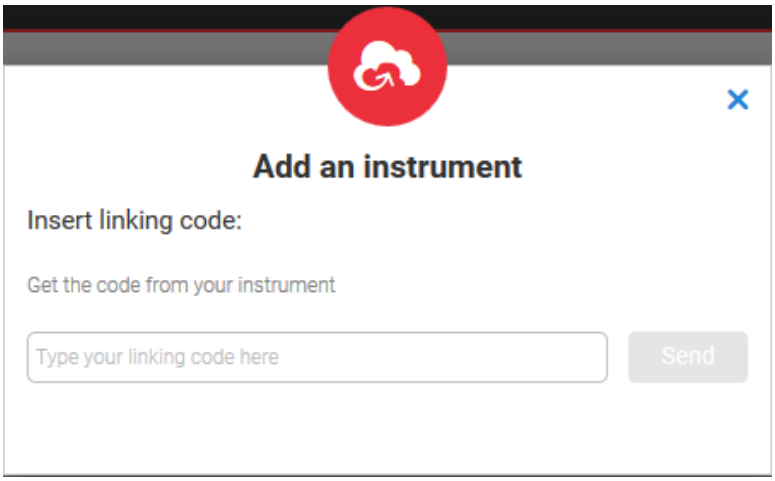
d. From the instrument type dropdown, select **Qubit_Flex**, then press **Next**.



e. Press **Dashboard on PC** on the **Connect to the Cloud** screen (on the Qubit™ Flex instrument; see Step 4 on page 28) to display the linking code.

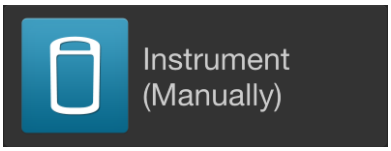


f. Enter the linking code displayed on the Qubit™ Flex instrument into the **Add an instrument** dialog, then press **Send**.

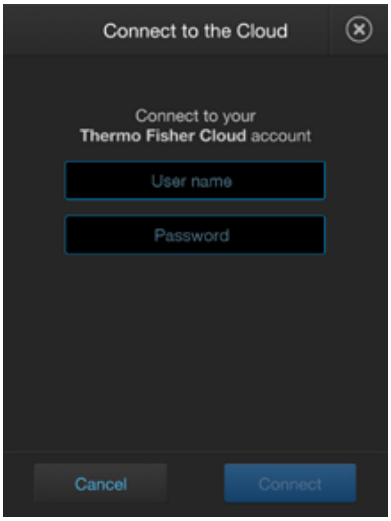


g. When finished, go to Step 8 on page 30.

7. To manually connect to your Thermo Fisher Connect account using the **Qubit™ Flex instrument**:
   a. Press **Instrument (Manually)** on the **Connect to the Cloud** screen (on the Qubit™ Flex instrument; see Step 4 on page 28).

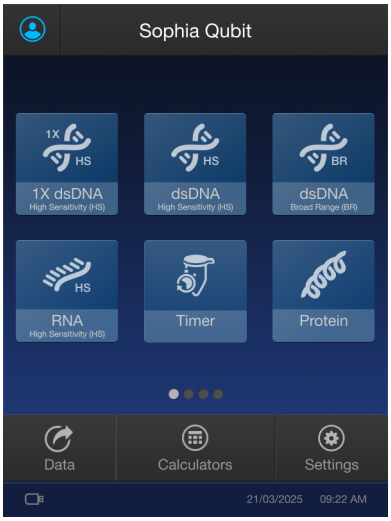


   b. Enter your **User name** and **Password** for your Thermo Fisher Connect account, then press **Connect**.



8. When you have signed in to your Thermo Fisher Connect Account, the **Profile** button on the **Home** screen becomes blue ( ).

   When signed in, you can export your data to your Connect account.



Guidelines for using the Qubit™ Flex Fluorometer

Recommendations

To obtain the best results, follow the recommendations below. For more information, see ““Critical Qubit™ assay considerations” on page 126”.

- Do **not** operate the instrument in direct sunlight.
- Wear gloves during sample handling.
- Use the instrument at room temperature only (22–28°C).
- Bring all kit reagents to room temperature and insert all assay tubes into the instrument only for as much time as it takes for the instrument to measure the fluorescence.
- Do not hold the assay tubes in your hand before performing a measurement.
- Make sure that you have calibrated the Qubit™ Flex Fluorometer using the appropriate standards.
- The assay volume must be 200 µL for an accurate read.
- Vortex or pipette mix to ensure the working solution and sample or standards are properly mixed. A shaker can be used for ease-of-use, as long as the solutions are adequately being agitated and not just moved laterally.
- Take care not to create air bubbles when mixing the sample or standard with the working solution.
- Incubate the tubes for the Qubit™ DNA and RNA assays for 2 minutes after mixing the sample or standard with the working solution.
- Incubate the tubes for the Qubit™ protein assays for 15 minutes after mixing the sample or standard with the working solution.
- If you are performing 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.

Note: Multiple readings of RNA samples are not recommended.

- Visit **thermofisher.com/qubit** for additional application notes, technical notes, citations, software updates, and a list of validated Qubit™ assays that have been tested using the Qubit™ Flex Fluorometer.

Assay tubes for the Qubit™ Flex Fluorometer

Only thin-wall, clear 0.2-mL PCR tube strips are appropriate for use in the Qubit™ Flex Fluorometer. For best results, we recommend using Qubit™ Flex Tube Strips (Cat. No. Q33252).

4 Perform assays

Before you begin

Materials needed

- A Qubit™ assay kit appropriate for quantifying your samples (see Appendix B, “Ordering information” for available Qubit™ assay kits and ordering information)
- DNA, RNA, or protein samples in Qubit™ Flex Tube Strips
- Appropriate standards for your assay in Qubit™ Flex Tube Strips
- Single channel pipette (1–20 µL), multichannel pipette (200 µL)
- Qubit™ Flex Reservoir (Cat. No. Q33253) or other suitable sample reservoir

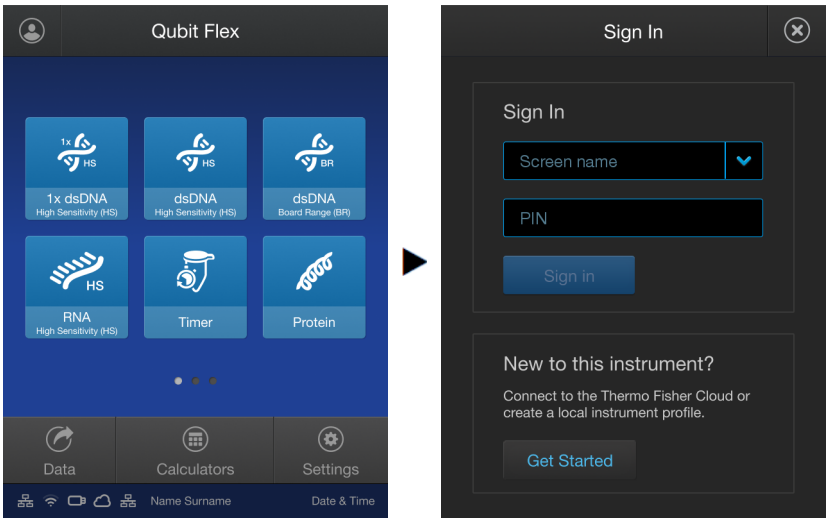
Note: For instructions on the preparation of the assay standards, see the instructions that accompany the assay you are using or the *Qubit™ Flex Fluorometer Quick Reference Card (QRC)* (Pub. No. MAN0018187).

- *(Optional)* USB drive, Wifi dongle, or Ethernet cable for data transfer, supplied with the instrument or available separately

Note: You can also transfer your data to a network location or your Connect account wirelessly, if you have set up a wireless connection.

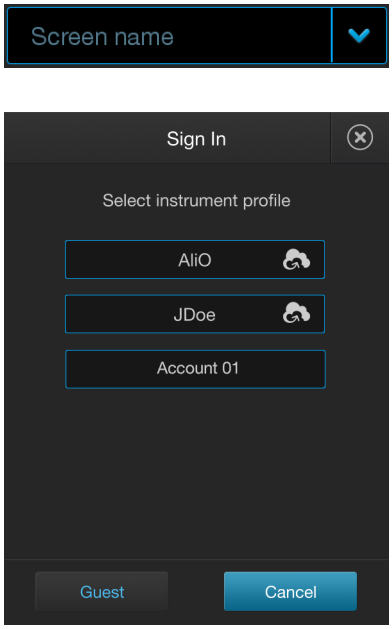
Sign in to your profile

1. Press the **Profile** ( )on the top left corner of the screen to open the Sign In dialog.



2. If you are new to the instrument and have not yet created a local instrument profile or signed in to your Thermo Fisher Connect account, press **Get Started**.
   - To create a local instrument profile, see “Create a local instrument profile” on page 25.
   - To sign in to your Thermo Fisher Connect account, see “Sign in to your Connect account” on page 27. Otherwise, go to Step 3 on page 33.

3. Press **Screen name**, then select your instrument profile from the available options.



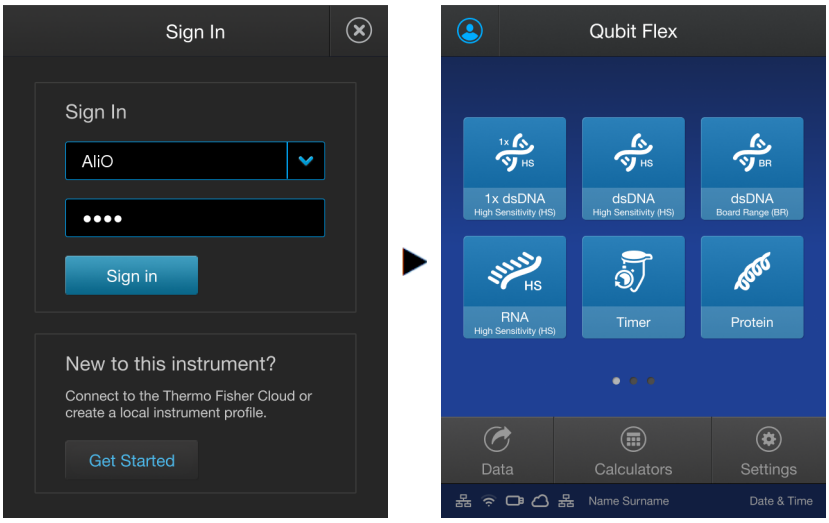
Note: The Connect icon next to a screen name indicates that the profile has an associated Connect account.

When the Connect icon is blue, the profile is signed in to the associated Connect account.

---

4. Press **PIN**, enter the **PIN** for your profile, then press **Enter**.

5. Press **Sign in** to sign in to your account and return to the **Home** screen ( ). The blue profile button indicates that you have signed in to your account.



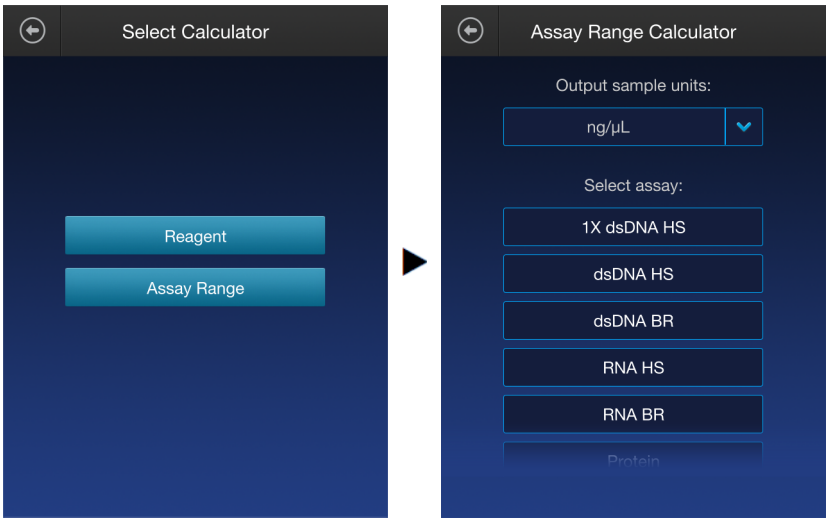
(Optional) use the assay range calculator to determine the assay range

The on-board Assay Range Calculator displays the core sample concentration range for which the selected assay is most accurate, as well as the extended low and high ranges based on your sample volume. Knowing the assay range can help you determine which Qubit™ assay provides the most accurate quantification based on your sample volume and estimated sample concentration.

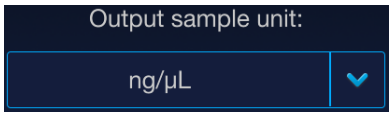
Use the assay range calculator

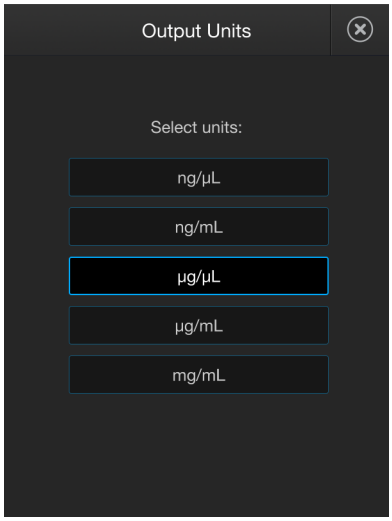
1. On the **Home screen**, press **Calculators** ( ).

2. On the **Select Calculator** screen, press **Assay Range** to open the Assay Range Calculator.

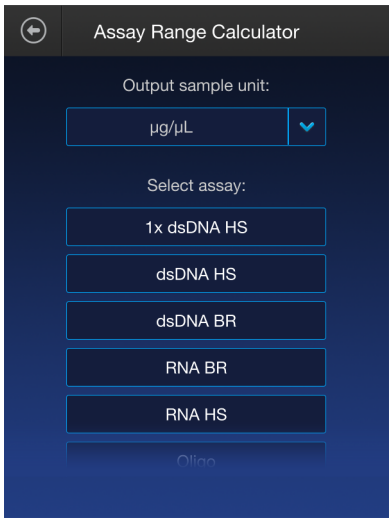


3. Press **Output sample unit**, then select the **units** in which you wish to view the assay range.

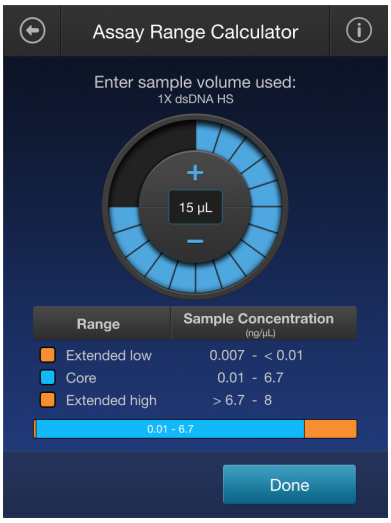




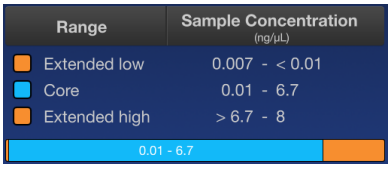
4. Select the **Assay** for which you wish to view the assay accuracy range.



5. Enter the **sample volume** to be used directly in the sample volume text box. You can also use the **+** and **–** buttons or adjust the sample volume wheel.



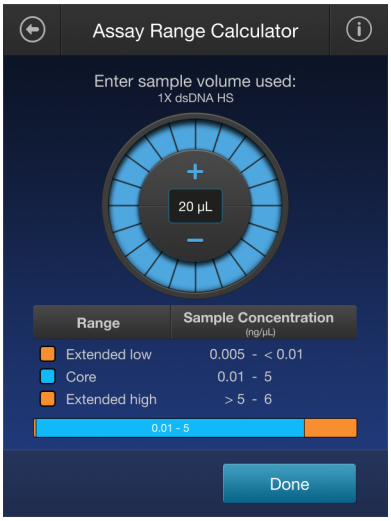
The Assay Range Calculator displays the Core™ sample concentration range for the selected assay and the Extended low and high ranges based on your sample volume input.

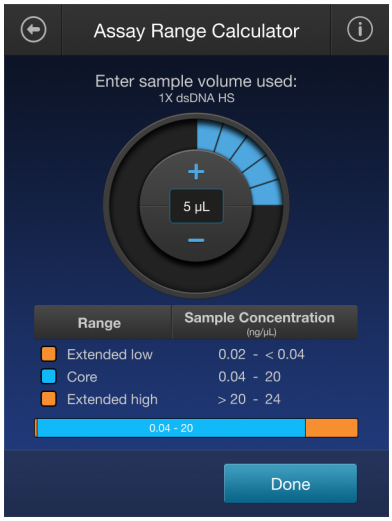


Note: Samples with concentrations within the Core™ range of the assay will have <15% relative error for the given sample volume. Samples with concentrations within the extended range will have <25% relative error for the given sample volume.

---

6. Increase or decrease the sample volume to observe how changes in the sample volume affect Core™ and Extended accuracy ranges for the assay.





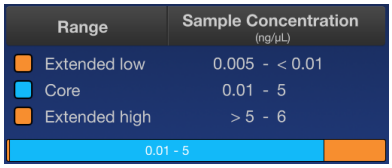


Figure 5 dsDNA HS Assay range for 20 µL sample volume

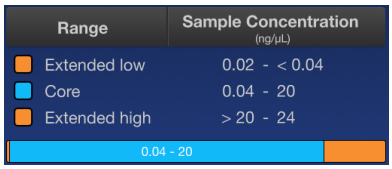
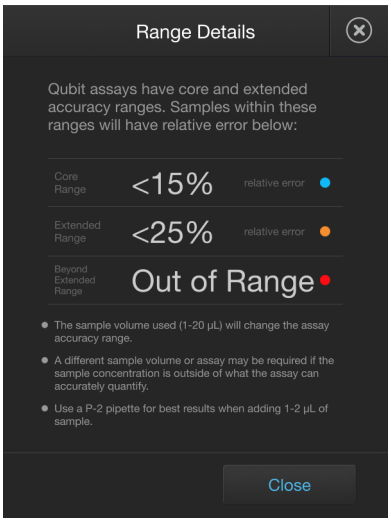


Figure 6 dsDNA HS Assay range for 5 µL sample volume

Note: The sample volume used (1–20 µL) changes the assay accuracy range. For highest accuracy, use the maximum sample volume that would keep the concentration measurements within the core range. **To minimize pipetting error, we recommend measuring at least 2 µL of sample**.

Note that a different sample volume or assay may be required if the sample concentration is outside of what the assay can accurately quantify.

7. Press the **Information** icon ( ) on the header bar to view the **Range Details** (relative errors for the core and extended ranges) and guidelines for obtaining best assay results.



8. Press **Close** to return to the Assay Range Calculator.

9. *(Optional)* If desired, repeat the procedure for another assay to determine whether it would provide more accurate results in the expected concentration range.

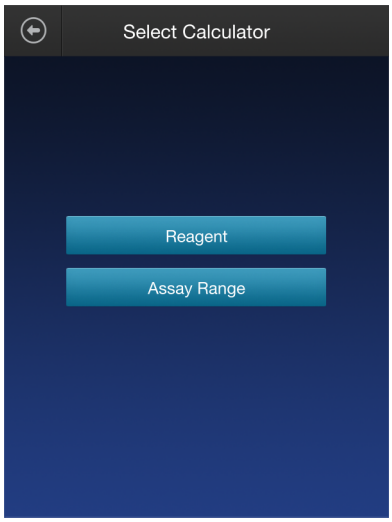
10. Press **Done** to return to the Home screen.

Use the reagent calculator to prepare Qubit™ working solution

Use the on-board Reagent Calculator to determine the amount of Qubit™ dye and buffer required to prepare the Qubit™ Working Solution for your samples and standards.

Use the reagent calculator

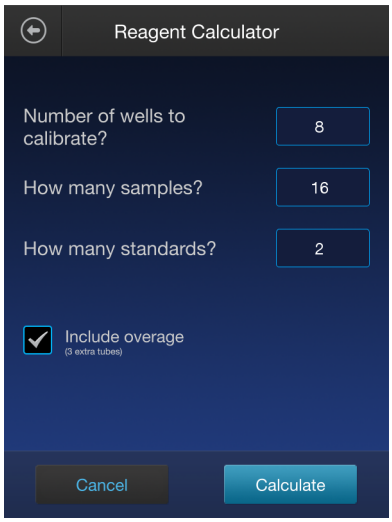
1. On the **Select Calculator** screen, press **Reagent** to open the Reagent Calculator.



2. Enter the **number of wells** to calibrate.

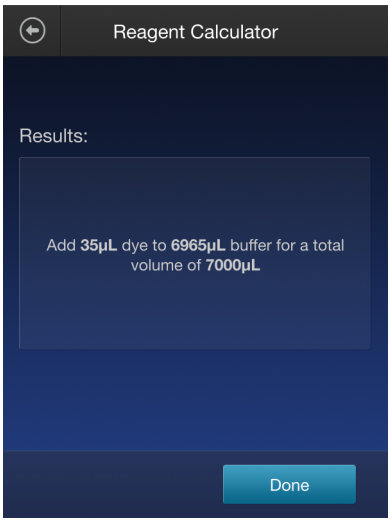
   Note: You have the option to calibrate 1–8 wells. Only calibrated wells can be used to run a sample. Calibrating all 8 wells allows you to run 8 samples at a time, while calibrating fewer wells allows you to conserve reagent. (See #unique_68/unique_68_Connect_42_GUID-9B8E013A-FBAE-43D7-877A-899463E105ED on page 129 for details on well calibration).

3. Enter the total **number of samples and standards** that you plan to run.



4. *(Optional)* Select **Include overage**, to include reagents for three additional tubes (600 µL) in the total calculated volume.

5. Press **Enter** to calculate the amount of Qubit™ dye and buffer required to prepare the Qubit™ Working Solution with these inputs.



Note: You can change the total number of tubes that you plan to run or the overage selection on this screen.

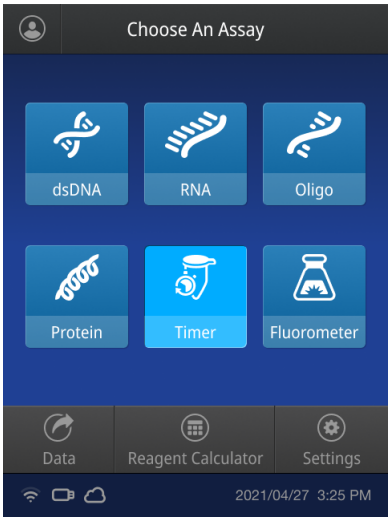
6. Press **Done** to return to the **Select Calculator** screen.

7. Press the **Back** button to return to the **Home screen** or press **Assay Range** to open the Assay Range Calculator (“(Optional) use the assay range calculator to determine the assay range” on page 34).

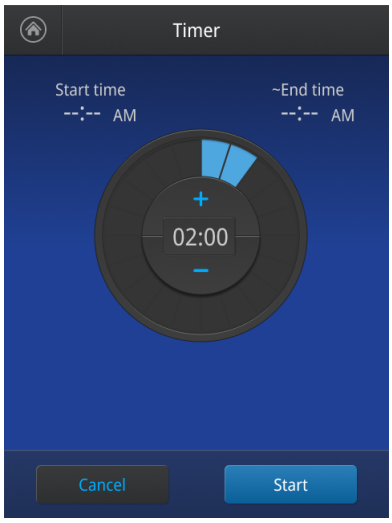
Timer

Optional: Use Assay Incubation **Timer** to keep track of sample incubation.

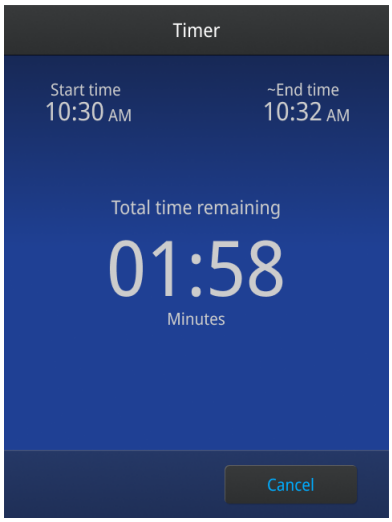
1. Select **Timer**.



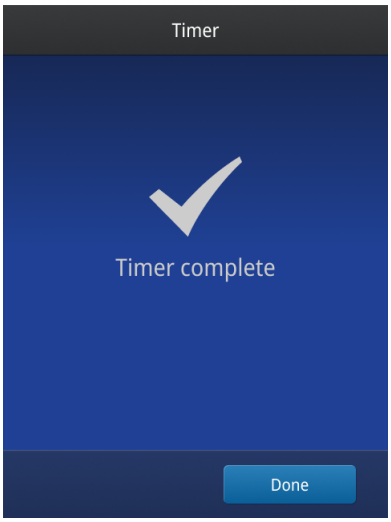
2. Set the timer for the recommended incubation assay time (2 minutes for nucleic acid assay samples, 15 minutes for protein assay samples).



3. Tap **Start**.



4. Screen will indicate when time is complete.



Run standards for assay calibration

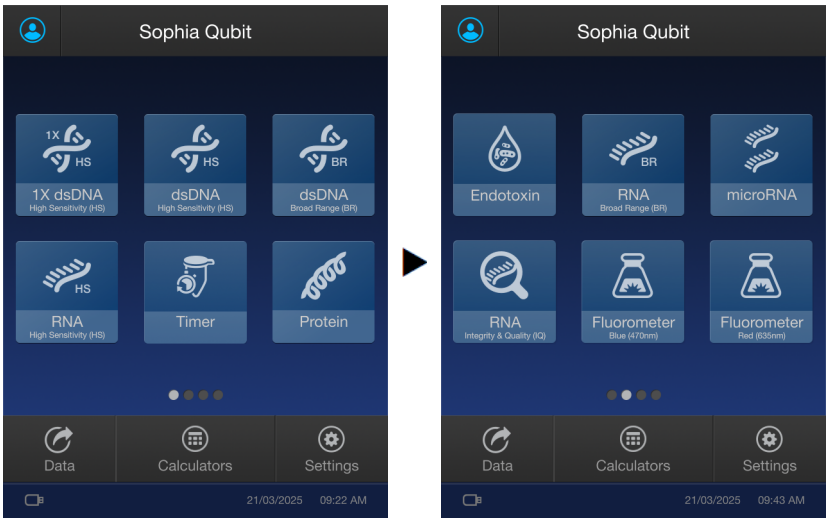
For each assay, you can run new standards to calibrate the assay on the Qubit™ Flex Fluorometer or use the values from the previous calibration. For more information, see ““Qubit™ Flex Fluorometer calibration” on page 129”.

IMPORTANT! Be sure to use the appropriate standards for your assay. For best results, run new standards each time you perform an assay.

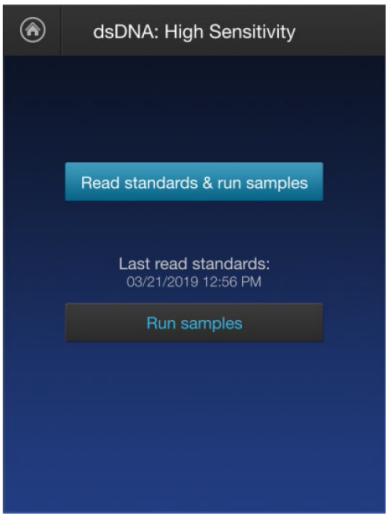
Run new standards

1. On the **Home screen**, press to select the **Assay** to perform.

   To view the next screen of available assays, swipe to the left. To return to the previous page, swipe to the right.

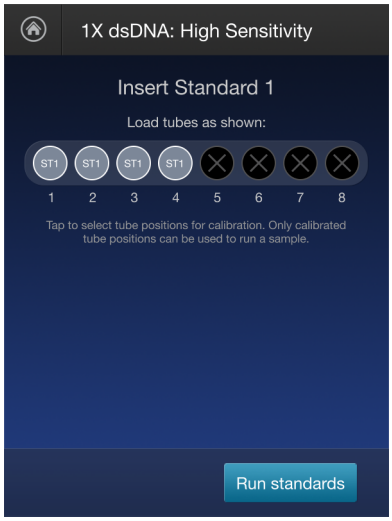


2. When prompted, press **Read standards & run samples** to read new standards.

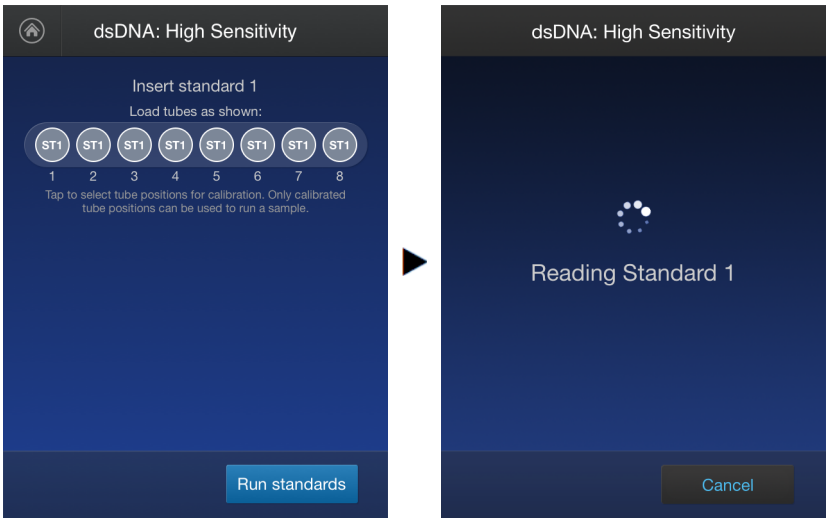


Note: To apply the previous calibration to your assay, press **Run samples**. See “Read samples” on page 46”.

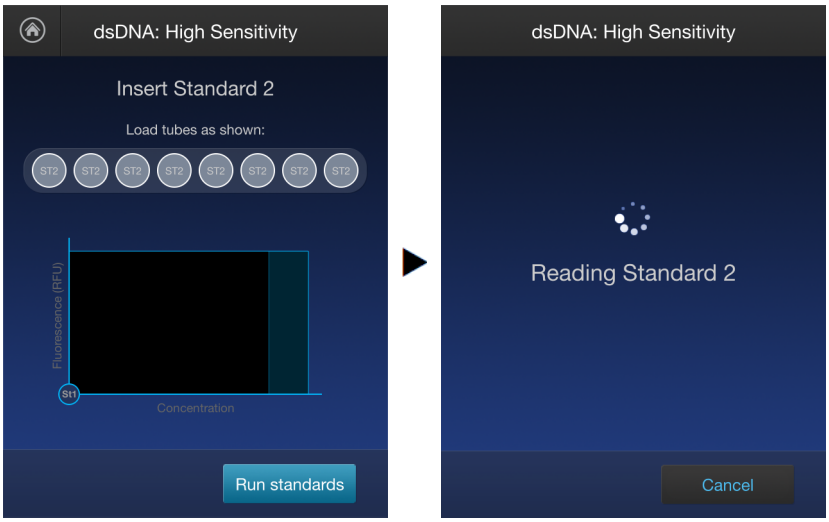
3. If you wish to run fewer than 8 samples at a time, you may calibrate fewer than 8 standards. Tap to deselect wells that do not need to be calibrated. You must calibrate consecutive wells.



4. When prompted, load the Qubit™ Flex Tube Strip containing Standard #1 into the sample chamber, then press **Run standards**. The reading takes 3 seconds.



5. When prompted, insert Standard #2, then press **Run standards**.



6. *For Qubit™ protein assays only:* When prompted, insert Standard #3, then press **Run standards**.

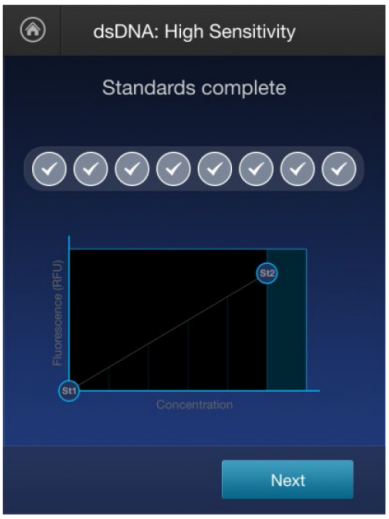
   The calibration is complete after Standard #2 is read (or after Standard #3 for Qubit™ protein assays) and the software displays the results (see ""Calibration results" on page 45").

7. If your calibration is successful, press **Next** to proceed to ""Read samples" on page 46".

Calibration results

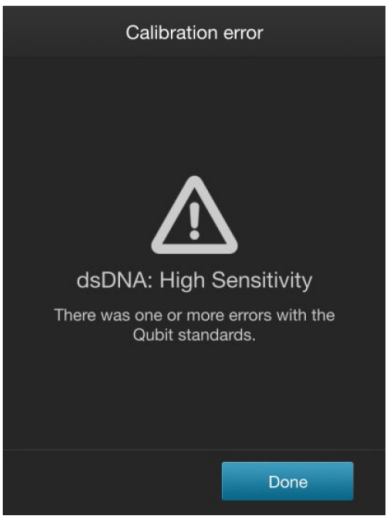
- If the calibration is successful, **Standards complete** screen with the **Fluorescence vs. Concentration graph** is displayed.

  In the **Fluorescence vs. Concentration graph**, the standard data points are connected by a line and open circles represent correct standards.



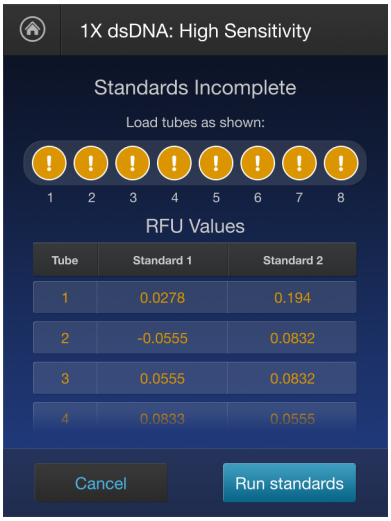
- If the calibration is not successful, **Calibration error** message and the RFU values are displayed.

  If you receive the **Calibration error** message, you can re-run the standards (see "(Optional) Re-run standards after calibration error" on page 46).



(Optional) Re-run standards after calibration error

1. In the **Calibration error** screen, press **Done**.
2. You can choose to re-run the standards or prepare a fresh set of standards. Then load Standard #1 into the instrument.



Note: You can use the RFU values to troubleshoot. For example, if the Standard 1 and Standard 2 RFUs are very similar, it could mean you ran the same standard twice. Contact technical support for additional troubleshooting advice.

3. Press **Run standards**, then repeat the calibration procedure.

Read samples

Before you begin

- Calibrate the Qubit™ Flex Fluorometer as described in Step 4 on page 33. (Run the appropriate standards or accept the values from the previous calibration.)
- Prepare the samples. Refer to the instructions provided with the assay.

Note: Incubate the samples for the appropriate amount of time after mixing them with the working solution (2 minutes for the Qubit™ DNA and RNA assays, 15 minutes for the Qubit™ protein assay).

Insert samples

1. When prompted, load the tube strip containing the samples as shown in the **Insert samples** screen. If the number of samples you wish to run is fewer than the number of calibrated wells, press to deselect the tube positions that do not contain a sample.

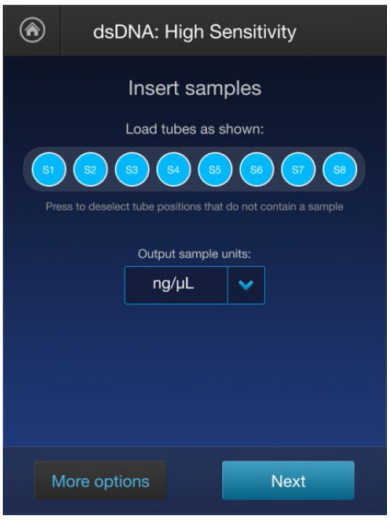


Figure 7 All 8 tubes contain samples

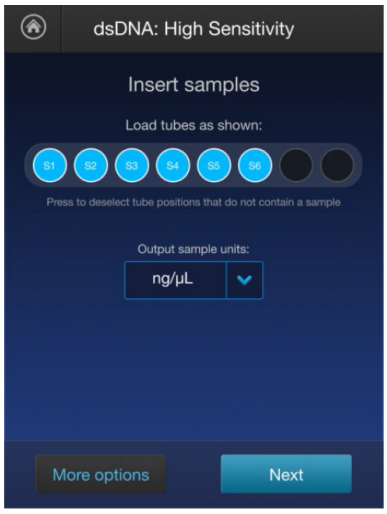
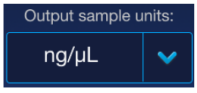
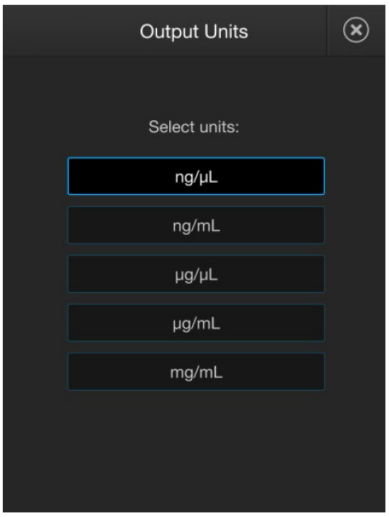


Figure 8 No sample in positions S7 and S8

2. Press **Output sample units** to open the **Output Units** screen, then select the desired units.





3. Press **Next** to go to the Sample volume screen.

4. In the **Sample volume** screen, enter the **sample volume** added to the assay tube (between 1 and 20 µL).

   You can enter the volume directly in the sample volume text box, use the **+** and **–** buttons, or adjust the sample volume wheel.

   When you enter the sample volume, the assay range information on the screen automatically changes to reflect the new core and extended accuracy ranges based on the sample volume.

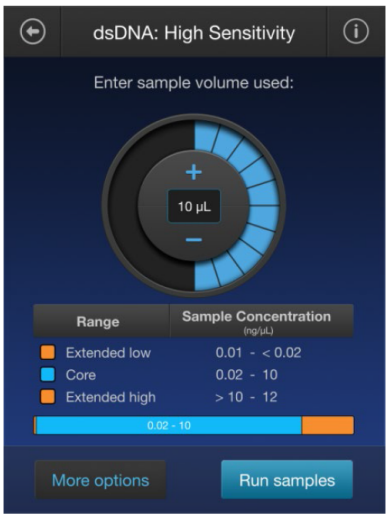


Figure 9 dsDNA HS Assay range for 10 µL sample volume

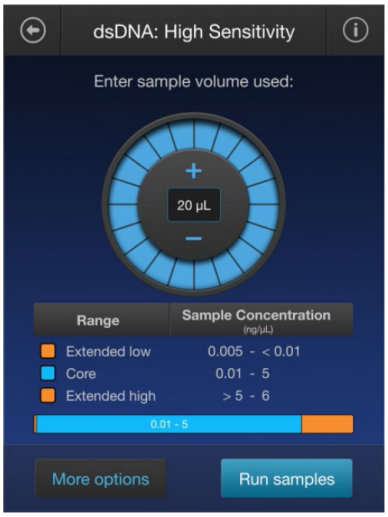


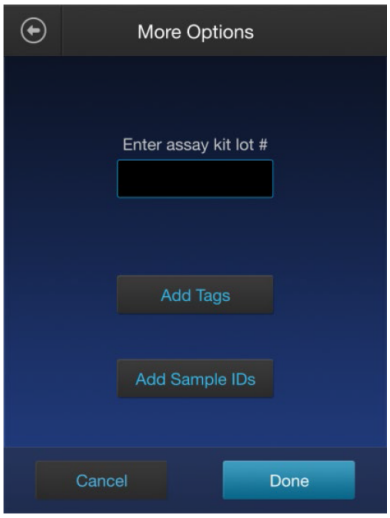
Figure 10 dsDNA HS Assay range for 20 µL sample volume

Note: The sample volume used (1–20 µL) changes the assay accuracy range. For highest accuracy, use the maximum sample volume that would keep the concentration measurements within the core range. If the sample concentration is outside of what the assay can accurately quantify, a different sample volume or assay may be required.

(Optional) enter assay kit lot #, add tags, add sample IDs

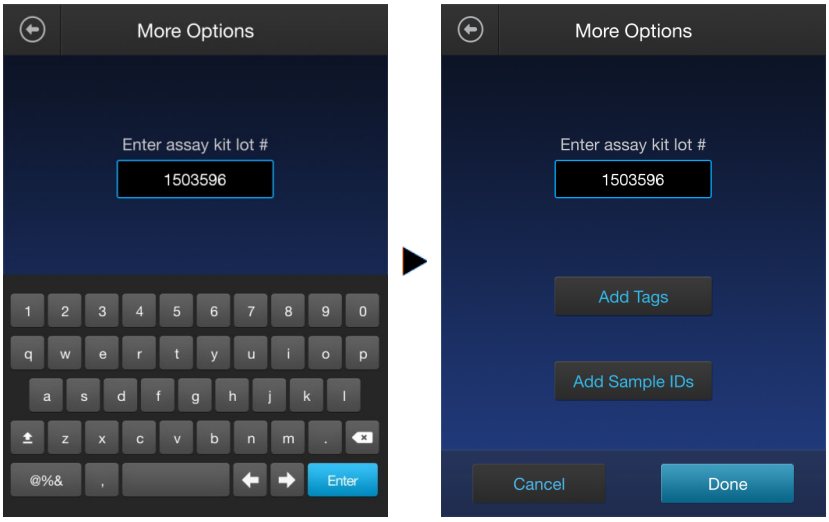
1. Press **More options** to open **More Options** screen, where you can:
   - **Enter assay kit lot #** (Step 2 on page 50)
   - **Add Tags** to your sample run (Step 3 on page 50)
   - **Add Sample IDs** (Step 6 on page 52)

   The information you have entered will be available on the Data Details of your samples (“Information in the detailed sample data” on page 79).

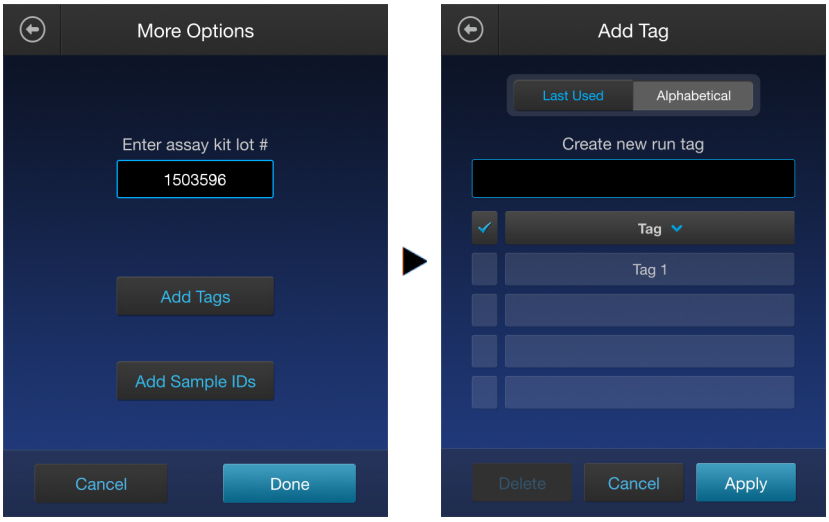


Note: You can open the **More Options** screen from the Insert Samples ("Insert samples" on page 47) or the **Sample Volume** (Step 3 on page 48) screens.

2. To enter an assay kit lot number, press the **Enter assay kit lot #** text box, enter the assay kit lot number, then press **Enter**.

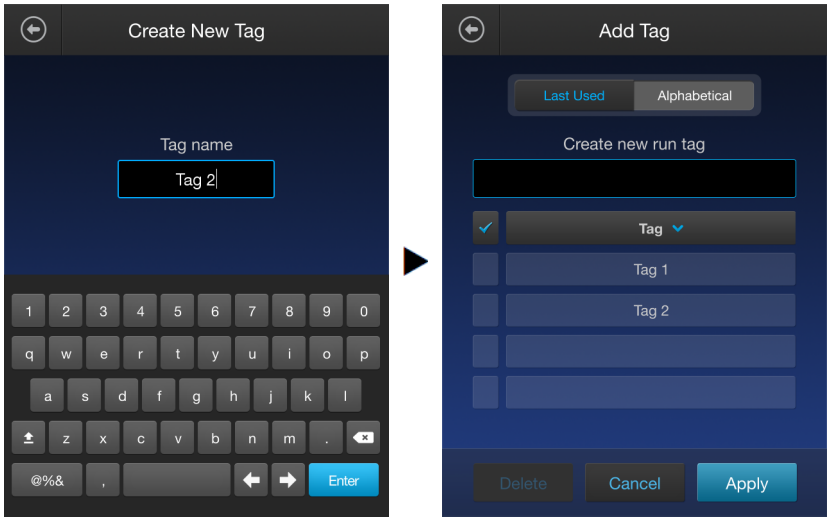


3. To add a tag to your samples in the run, press **Add Tags** on the **More Options** screen to open the **Add Tag** screen.



4. To create a new tag, press the **Create new run tag** text box to open the Create **New Tag** screen, enter the new tag, then press **Enter**.

   The new tag will be added to the list of available tags on the **Add Tag** screen.



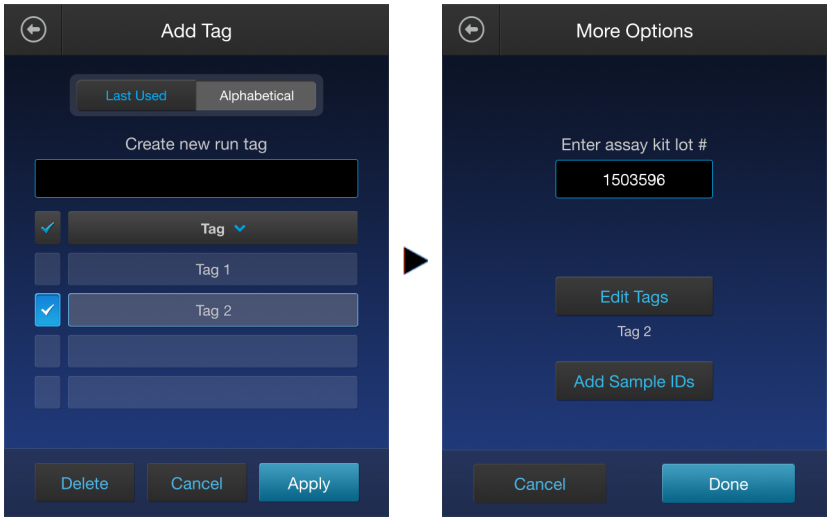
Note: To filter the list of available tags for the last used tag, press **Last Used**.

To display all existing tags alphabetically, press **Alphabetical**.

To sort the list of available tags alphabetically in ascending or descending order, press the **Tag column header**.

5. Select the desired tag from the list of available tags, then press **Apply** to add the selected tag to your samples and return to the **More Options** screen.

   The tag you have applied to your sample run is displayed on the **More Options** screen and the **Add Tags** button changes to **Edit Tags**.

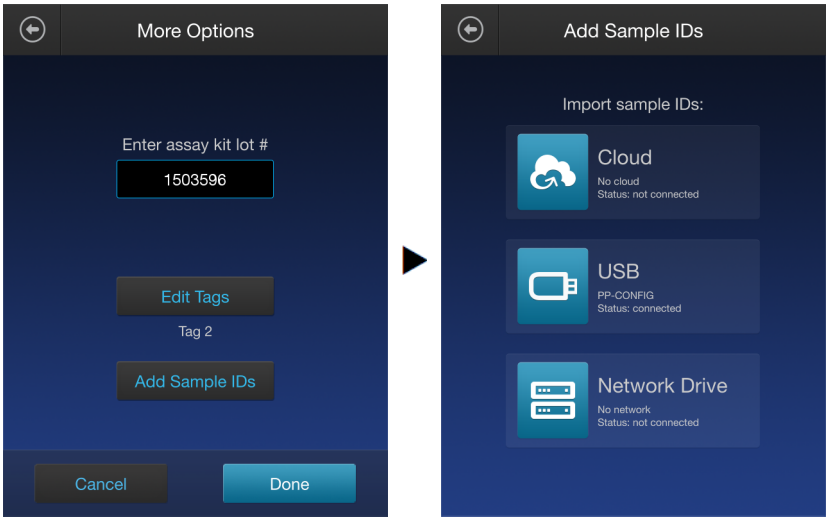


Note: To return to the **More Options** screen without applying a tag to your samples, press **Cancel**.

To delete an existing tag, select the tag from the list of available tags, then press **Delete**.

To change the tag applied to your sample run, press **Edit Tags** on the **More Options** screen.

6. To add sample IDs to your samples, press **Add Samples IDs**, then select **Cloud** (your Connect account; see "Sign in to your Connect account" on page 27 for sign in instructions), **Network Drive**, or **USB** for the location of the sample IDs you want to import.

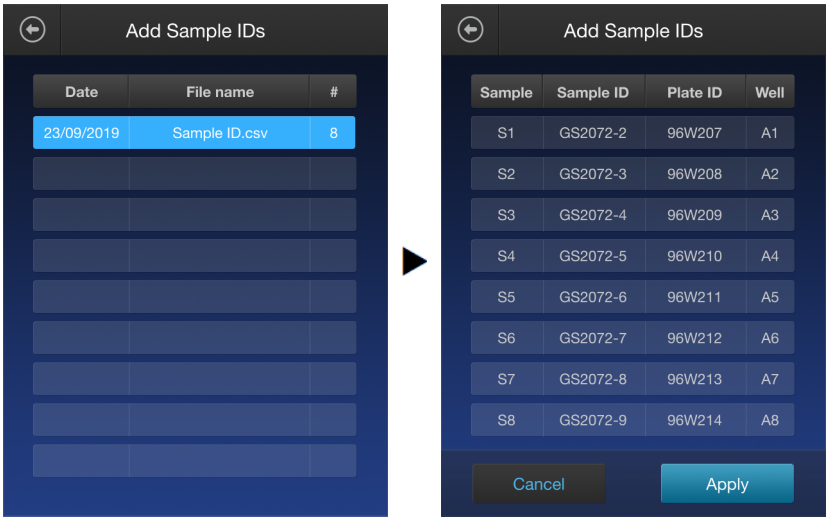


Note: The file containing the sample IDs must be in CSV (comma separated value) format and filled out like the example below: first "Plate Barcode" then "Well" and "Sample Id". You do not need to insert text in the rows for fields you do not require, but **the three columns must be named exactly as indicated**.

	A	B	C
1	Plate Barcode	Well	Sample Id
2	96W207	A1	GS2072-2
3	96W208	A2	GS2072-3
4	96W209	A3	GS2072-4

---

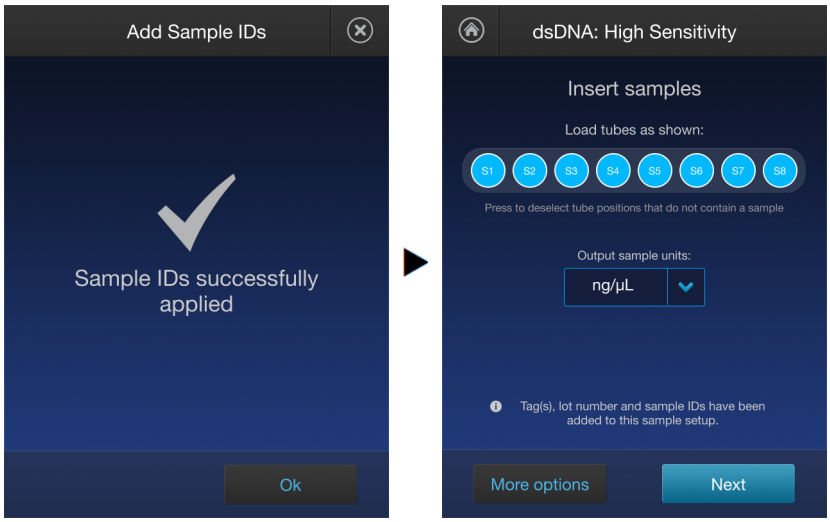
7. Select the file containing the sample IDs from the list of available files, then press **Apply**.



8. Press **OK** at the confirmation page.

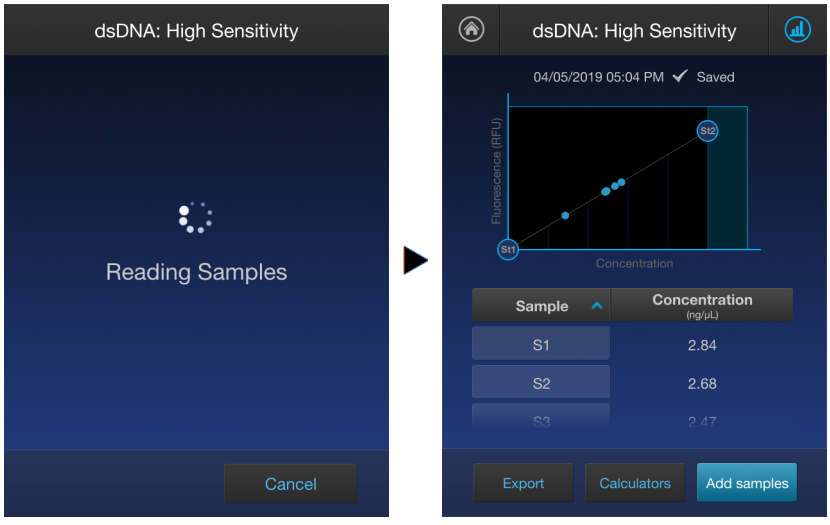
9. When finished entering assay kit lot number and applying tags and sample IDs, press **Done** at the **More Options** screen. The assay screen displays the new information added to your samples at the bottom of the screen.

   To go back to the assay screen without applying the new information, press **Cancel**.



Run samples

1. Press **Run samples**. The reading takes approximately 3 seconds and the results are displayed in graph view in the **Results** screen (see ““Results” on page 56”).



2. To display the results in list view, press the () **Graph** button to unselect it.

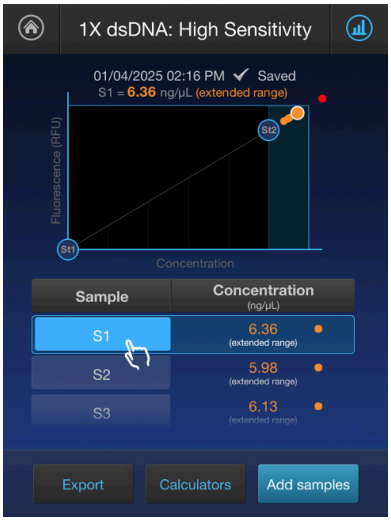
   The **Results** screen lists the concentration of each original sample using the output units selected at the beginning of the assay.

Note: By default, the **Results** screen displays the measurements in graph view. However, the graph settings are "sticky", so that if you close the graph, the next time anyone runs an assay, the graph view is hidden and the results are shown in list form.

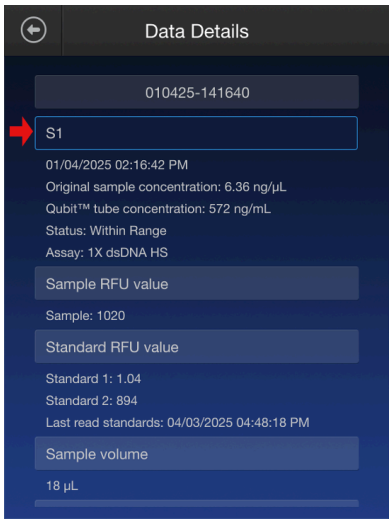
3. To run more samples, press **Add samples**, and repeat the procedure.

(Optional) Rename samples during acquisition

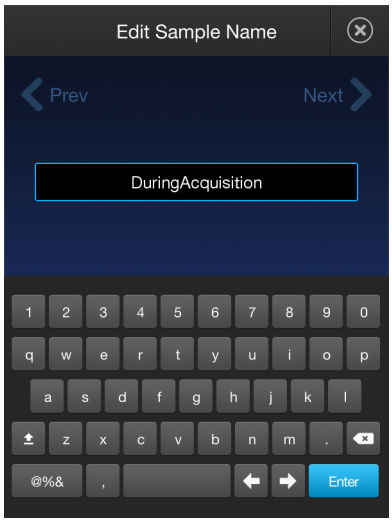
1. During acquisition, double tap the sample name to access data details.



2. Select the **sample name box** in the **Data Details** screen.



3. Use the keyboard to rename the sample.



4. Press **Enter** to return to the **Data Details** screen.

5. Press the **back button** to return to the main sample acquisition screen. Notice the new name appears in this screen.

Results

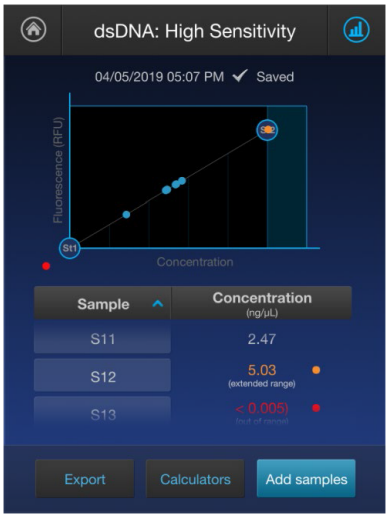
View results

1. The instrument automatically displays the **Results** screen after the completion of each sample run.

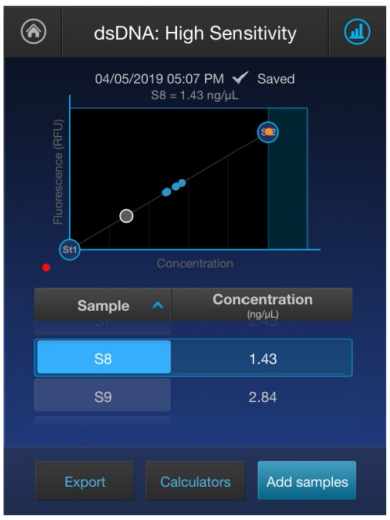
   By default, the results are displayed in graph view, which shows the **Fluorescence vs. Concentration graph** and lists the concentration of each original sample below the graph.

   In the graph:

   - Open circles represent correct standards.
   - Blue circles represent samples that fall within the assay's core range.
   - Orange circles represent samples that fall within the assay's extended range.
   - Red circles represent samples that fall outside the assay's range.



2. To view a sample on the **Fluorescence vs. Concentration graph**, press the desired sample on the sample list. The selected sample is displayed as a gray circle on the graph.



3. To display the results in list view, press the (📊) **Graph** button to hide the graph.

   The **Results** screen shows the concentration of each original sample in a list form, using the output units selected at the beginning of the assay.

   - If the concentration of a sample is within the assay's extended range, the concentration value is displayed in orange, and an "extended range" message and an orange circle are displayed next to the concentration value.
   - If the concentration of a sample is outside of the assay's range, an "out of range" message and a red circle are displayed next to the sample.

4. To display the results in graph view again, press the (📊) **Graph** button.

Fluorometer mode

Introduction

You can use the Qubit™ Flex Fluorometer as a mini-fluorometer by selecting the **Fluorometer mode**.

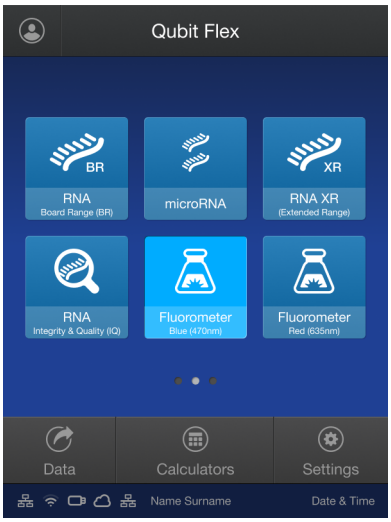
The **Fluorometer mode** allows you to select the excitation light source (blue LED or red LED) while reading fluorescence in both the green and far-red emission channels (for the blue LED) or in the far-red emission channel only (for the red LED).

The reading is in raw fluorescence units (RFU).

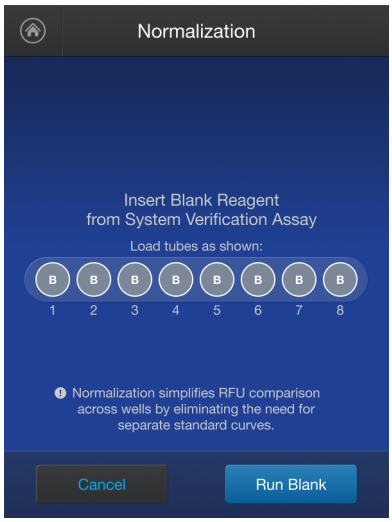
Read sample in fluorometer mode

Note: Normalization is required for Fluorometer Mode, this process simplifies RFU comparison across wells by calibrating all wells to a reference standard. If you have not performed normalization before, you must perform the normalization workflow using the Qubit™ Flex System Verification Assay Kit (Cat. No. Q33254).

1. On the **Home** screen, press **Fluorometer Blue** or **Fluorometer Red**.



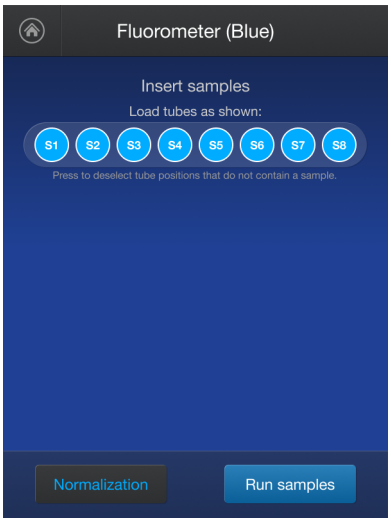
2. Insert a tube strip with 200 µL of the **Blank Reagent** in each tube.



3. Insert a tube strip with 200 µL of the **Green** or **Red** reagent (depending on fluorometer mode) in each tube.

4. Once the normalization workflow is complete, your Qubit™ will automatically apply calculations so that wells can be compared to each other in fluorometer mode. You may now insert samples.

Note: Export the data to view the calculations and the raw RFU data before the calculations are applied.



5. For Blue excitiation, the Qubit™ Flex displays the RFU from the combined Green and far Red emission of your sample. For Red excitation, the Qubit™ Flex displays the far Red emission of your sample.

Figure 11 Blue excitiation

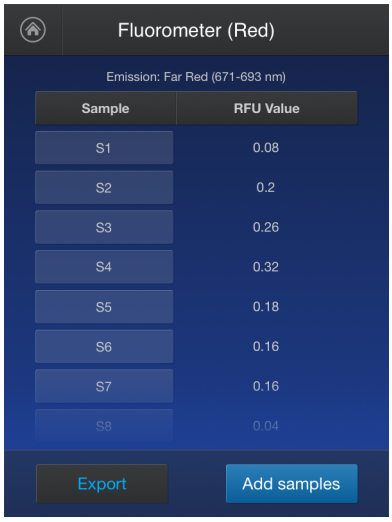


Figure 12 Red excitiation

Read multiple samples in fluorometer mode

To read multiple samples in the **fluorometer** mode:

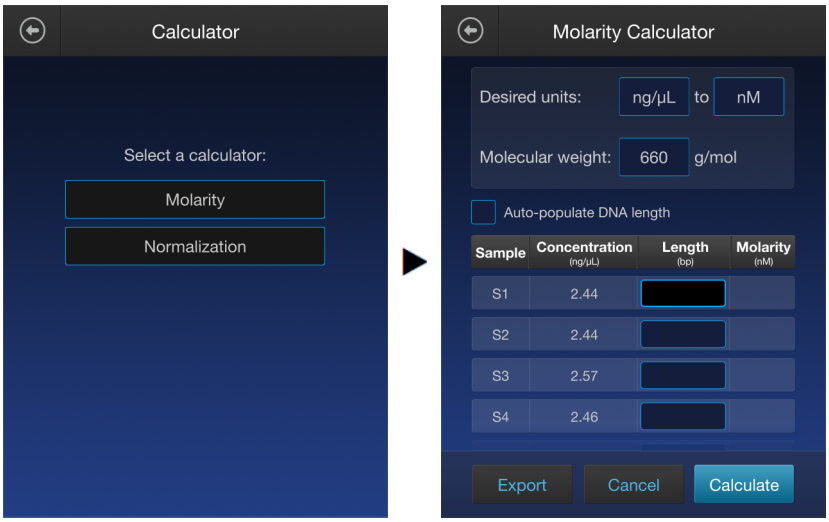
1. Remove the current sample, and insert a new sample.
2. Press **Add Samples**.

(Optional) use the molarity calculator to determine sample molarity

The on-board Molarity Calculator allows you to calculate the molarity of your samples based on nucleic acid length and their measured concentration.

Use the molarity calculator

1. On the **Results** screen, press **Calculators**, then select **Molarity** to open the Molarity Calculator.



2. On the **Molarity Calculator** screen, press the **Desired units** fields to select the **input** and **output** units.

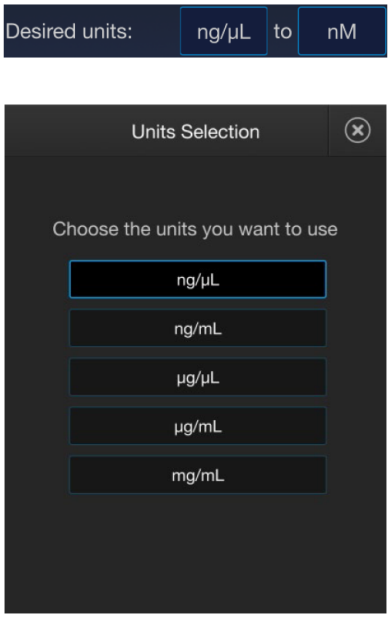


Figure 13 Input units

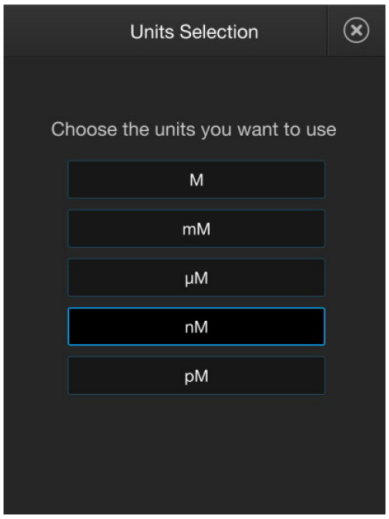


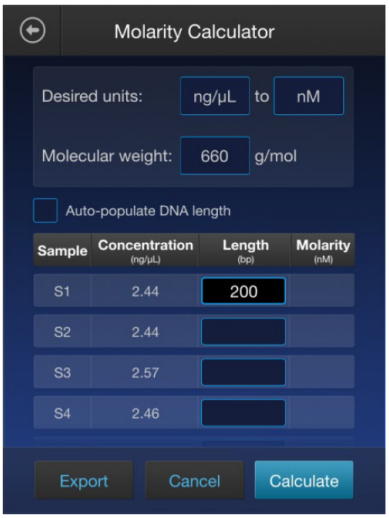
Figure 14 Output units

Note: The Qubit™ Flex Fluorometer auto-populates the Molecular weight (MW) depending on the Qubit™ assay performed (for example, for the dsDNA HS assay, it uses a default value of 660 g/mol for the average molecular weight of one DNA base pair).

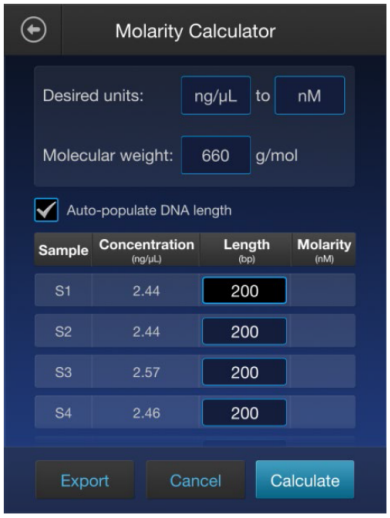
To change the auto-populated MW value, press the **Molecular weight** field and enter the desired average molecular weight of your sample.

---

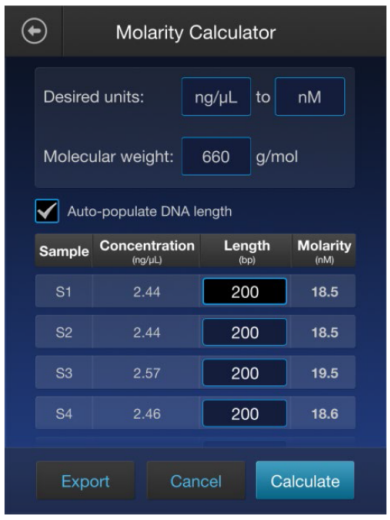
3. Press **Length (bp)** field for Sample 1 (S1), enter the length (bp) of Sample 1, then press **Enter**.



4. If all your samples have the same length, select **Auto-populate DNA length**.



5. Press **Calculate** to calculate the molarity of your samples based on the assay results and DNA length in the output units that you have selected.



Note: When you press Calculate, the instrument saves the data from molarity calculations with the sample data in the CSV file.

6. To export your results, press **Export**. The instrument exports the complete CSV file with all sample data, including the molarity calculation results.

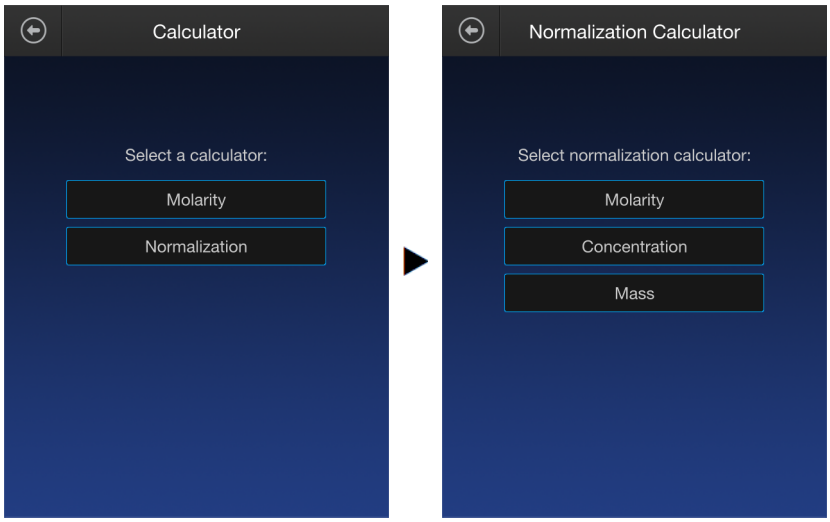
   To go back to the **Calculator** screen, press the **Back** button.

(Optional) use the normalization calculator to determine how to dilute the samples to the same molarity, concentration, or mass

The on-board Normalization Calculator helps you to normalize your samples of variable concentration to the same molarity, concentration, or mass using the results from your assay.

Select the normalization calculator

1. On the **Results** screen, press **Calculators**, then press **Normalization**.

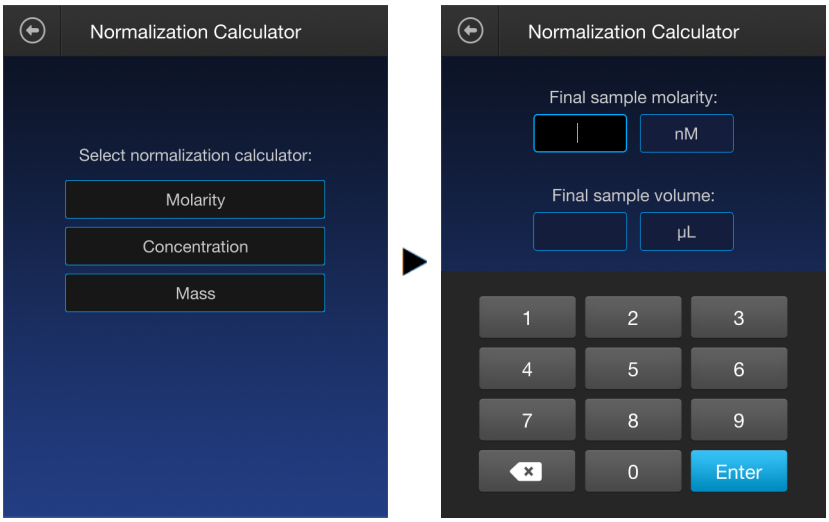


2. On the **Normalization Calculator** screen, select:
   - **Molarity** to determine how to dilute your samples to the same final molarity and volume (“Normalize your samples to the same molarity” on page 66).
   - **Concentration** to determine how to dilute your samples to the same final concentration (“Normalize your samples to the same concentration” on page 68).
   - **Mass** to determine how to dilute your samples to the same final mass and volume (“Normalize your samples to the same mass and volume” on page 71).

Note: The option to normalize your samples based on molarity is available only if you have run the Molarity calculator (“(Optional) use the molarity calculator to determine sample molarity” on page 61) on your samples.

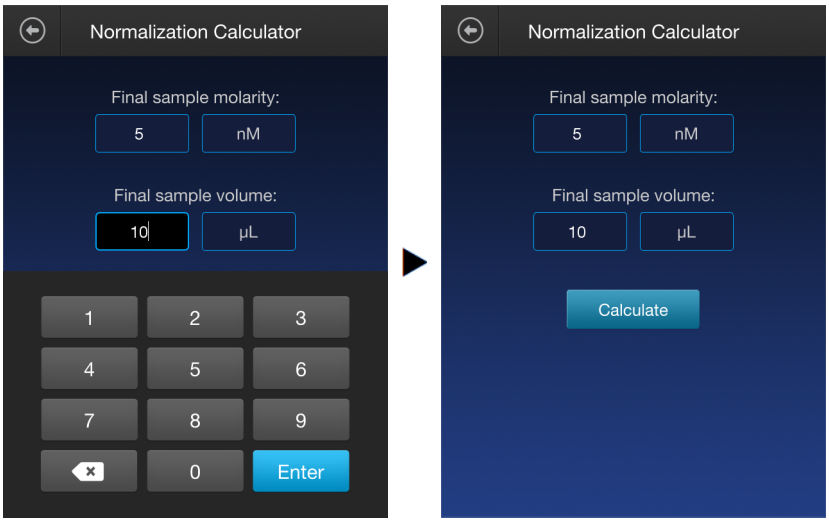
Normalize your samples to the same molarity

1. On the **Normalization Calculator** screen, select **Molarity**.



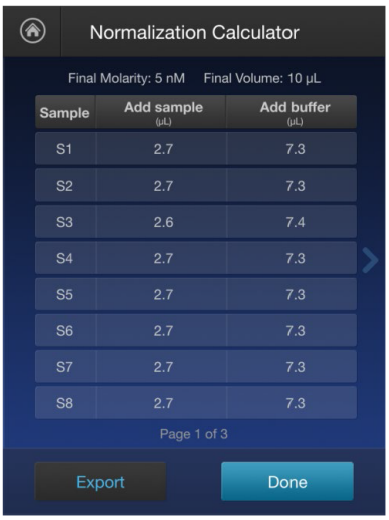
2. Enter the **Final sample molarity** and select **units**.

3. Enter the **Final sample volume** and select **units**, then press **Enter**.



Note: The minimum allowed sample volume on the Normalization Calculator is 5 µL.

4. Press **Calculate** to see how much sample and buffer to mix to achieve the desired final sample concentration and volume.



Note: When you press **Calculate**, the instrument saves the data from normalization calculations with the sample data in the CSV file.

5. Press the (›) **right arrow** to view results that display the required sample: buffer dilution before mixing ("Required Dilution", if applicable) and the sample concentration after the dilution ("Diluted conc.").

   If dilution is not required before mixing, then "N/A" is displayed in the Required Dilution and Diluted conc. columns for the sample.

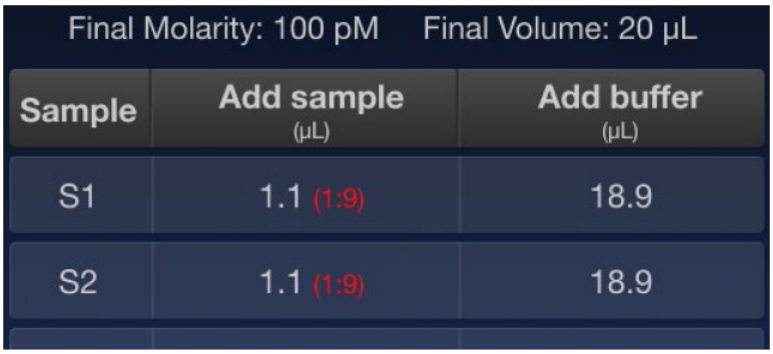
6. Press the (›) **right arrow** again to view, which displays the actual sample concentration ("Concentration").

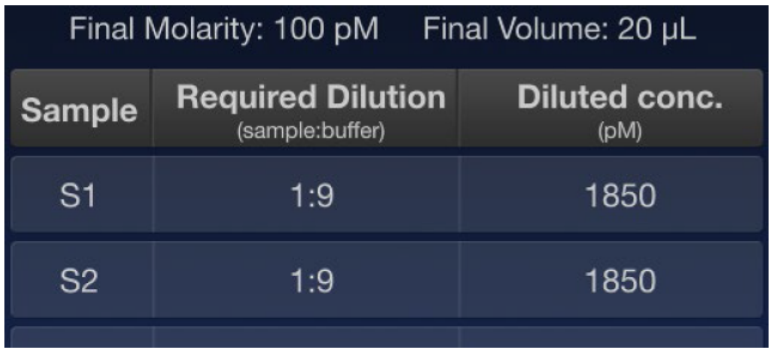
7. Press the **left arrow** to go back to the previous page.

8. To export your calculations, press **Export**. The instrument exports the complete CSV file with all sample data, including the normalization calculation results.

9. Otherwise, press **Done** to close the Normalization calculator and go back to the Calculator screen.

Note: If your sample needs further dilution before mixing to achieve the desired final molarity, the required sample:buffer dilution is indicated in the Add sample column (in red) and in the Required Dilution column (of calculation results, respectively).

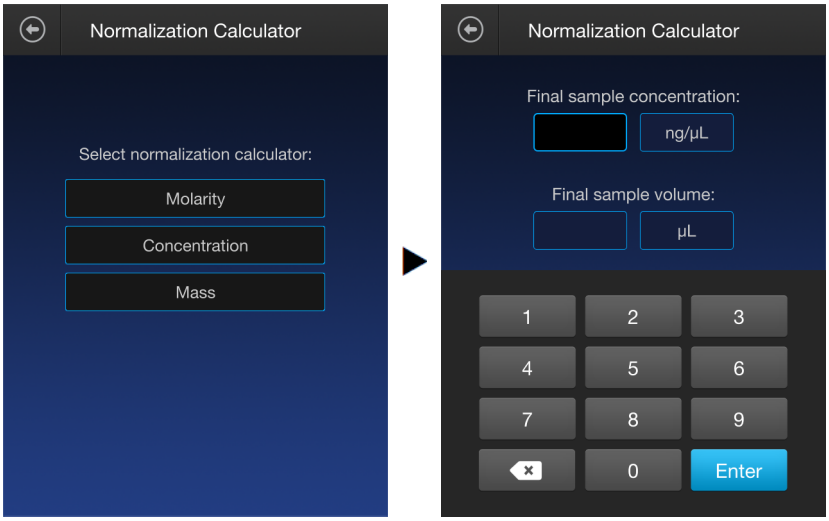




If dilution is not required before mixing, then the Required Dilution and Diluted conc. columns display "N/A" for the sample.

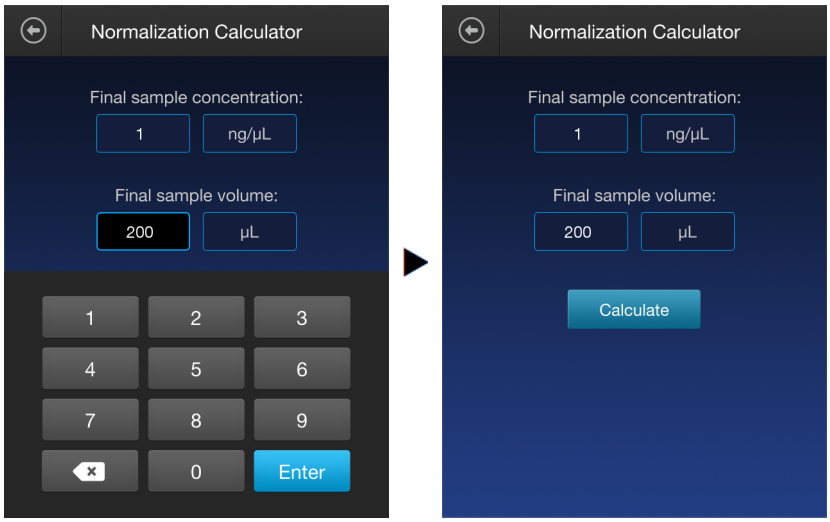
Normalize your samples to the same concentration

1. On the **Normalization Calculator** screen, select **Concentration**.



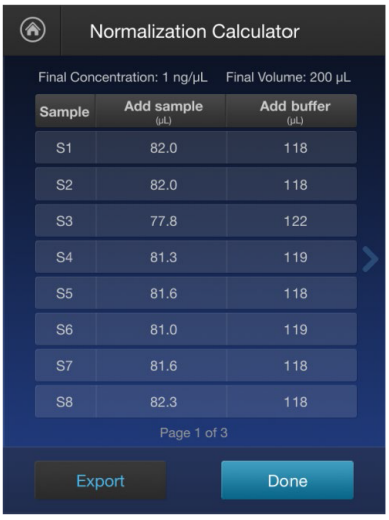
2. Enter the **Final sample concentration** and select **units**.

3. Enter the **Final sample volume** and select **units**, then press **Enter**.



Note: The minimum allowed sample volume on the Normalization Calculator is 5 µL.

4. Press **Calculate** to see how much sample and buffer to mix to achieve the desired final sample concentration and volume.



Note: When you press Calculate, the instrument saves the data from normalization calculations with the sample data in the CSV file.

5. Press the (›) **right arrow** to view of results, which displays the required sample:buffer dilution before mixing (“Required Dilution”, if applicable) and the sample concentration after the dilution (“Diluted conc.”).

   If dilution is not required before mixing, then “N/A” is displayed in the Required Dilution and Diluted conc. columns for the sample.

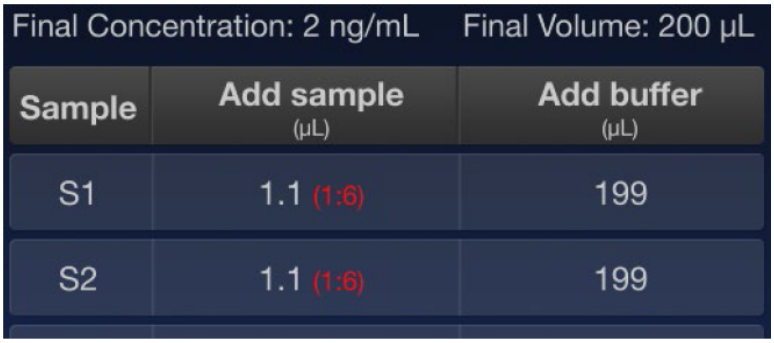
6. Press the (›) **right arrow** again to view of results, which displays the actual sample concentration ("Concentration").

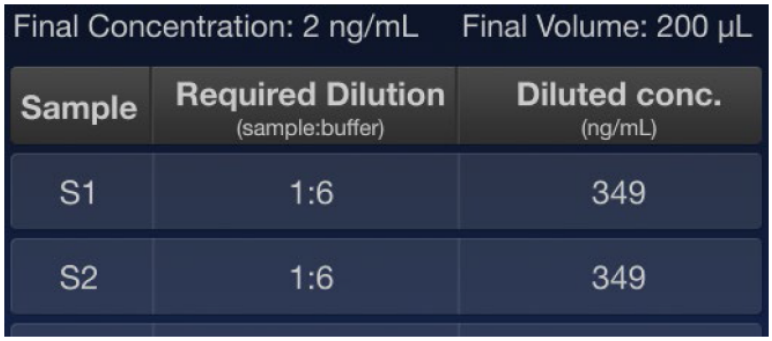
7. Press the **left arrow** to go back to the previous page.

8. To export your calculations, press **Export**. The instrument exports the complete CSV file with all sample data, including the normalization calculation results.

9. Otherwise, press **Done** to close the Normalization calculator and go back to the Calculator screen.

Note: If your sample needs further dilution before mixing to achieve the desired final concentration, the required sample:buffer dilution is indicated in the "Add sample" column (in red) and in the "Required Dilution" column (of calculation results, respectively).

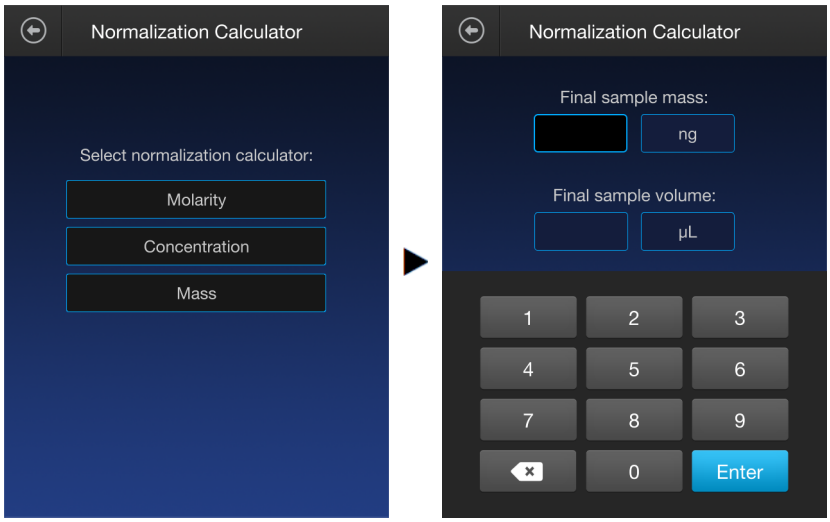




If dilution is not required before mixing, then the Required Dilution and Diluted conc. columns display "N/A" for the sample.

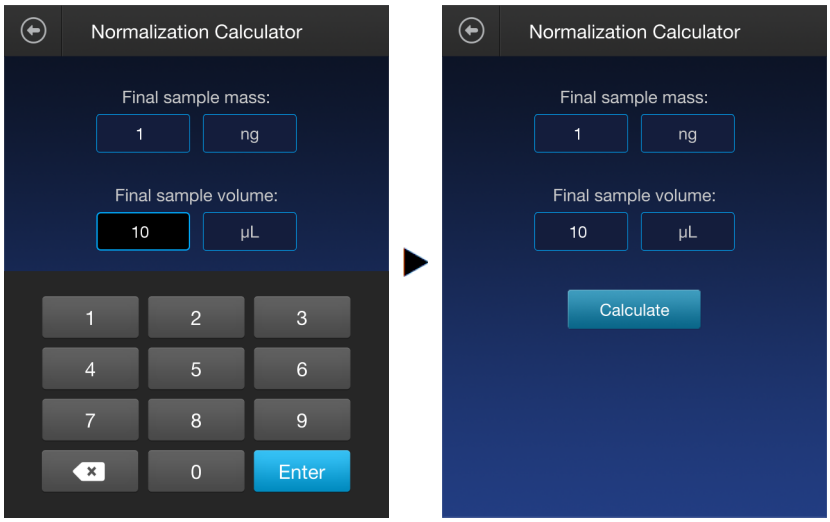
Normalize your samples to the same mass and volume

1. On the **Normalization Calculator** screen, select **Mass**.



2. Enter the **Final sample mass** and the desired **units**.

3. Enter the **Final sample volume** and the desired **units**, then press **Enter**.



Note: The minimum allowed sample volume on the Normalization Calculator is 5 µL.

4. Press **Calculate** to see how much sample and buffer to mix to achieve the desired final sample concentration and volume.

Note: When you press **Calculate**, the instrument saves the data from normalization calculations with the sample data in the CSV file.

5. Press the (›) **right arrow** to view of results, which displays the required sample:buffer dilution before mixing ("Required Dilution", if applicable) and the sample concentration after the dilution ("Diluted conc.").

   If dilution is not required before mixing, then "N/A" is displayed in the Required Dilution and Diluted conc. columns for the sample.

6. Press the (›) **right arrow** again to view of calculation results, which displays the actual sample concentration ("Concentration").

7. Press the **left arrow** to go back to the previous page.

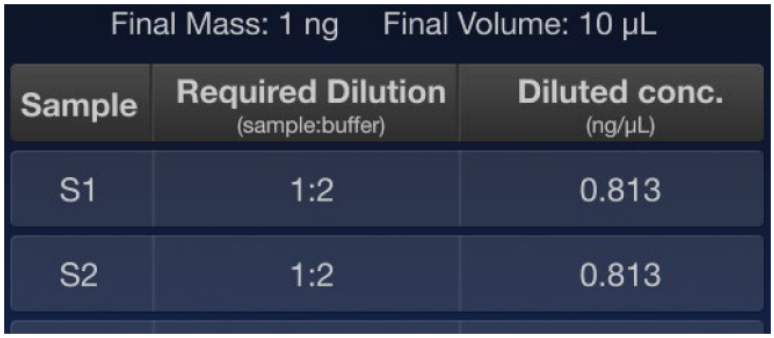
8. To export your calculations, press **Export**. The instrument exports the complete CSV file with all sample data, including the normalization calculation results.

   Otherwise, press **Done** to close the Normalization calculator and go back to the **Calculator** screen.

Note: If your sample needs further dilution before mixing to achieve the desired final mass and volume, the required sample:buffer dilution is indicated in the "Add sample" column (in red) and in the "Required Dilution" column (of calculation results, respectively).

Final Mass: 1 ng Final Volume: 10 µL

Sample	Add sample (µL)	Add buffer (µL)
S1	1.2 (1:2)	8.8
S2	1.2 (1:2)	8.8



Final Mass: 1 ng Final Volume: 10 µL

Sample	Required Dilution (sample:buffer)	Diluted conc. (ng/µL)
S1	1:2	0.813
S2	1:2	0.813

If dilution is not required before mixing, then the Required Dilution and Diluted conc. columns display "N/A" for the sample.

---

5 Manage data

Overview

The Qubit™ Flex Fluorometer can save data for up to 10,000 samples.

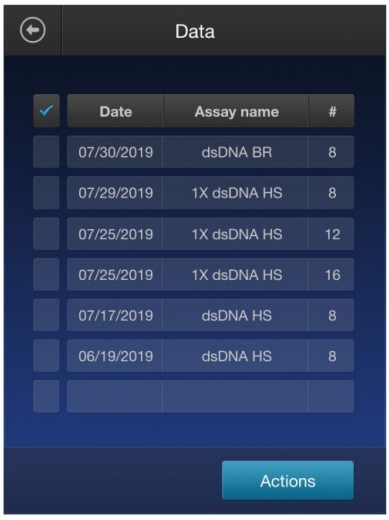
For the saved data, the Qubit™ Flex Fluorometer allows you to:

- View detailed data for each sample (“View detailed sample data” on page 74).
- Rename data files (“Edit sample name” on page 80).
- Export data as a PDF or CSV file to a USB drive, Network drive, or to your Connect account (Step 3 on page 81).
- Delete data files (“Delete data” on page 87).

View detailed sample data

View list of data sets

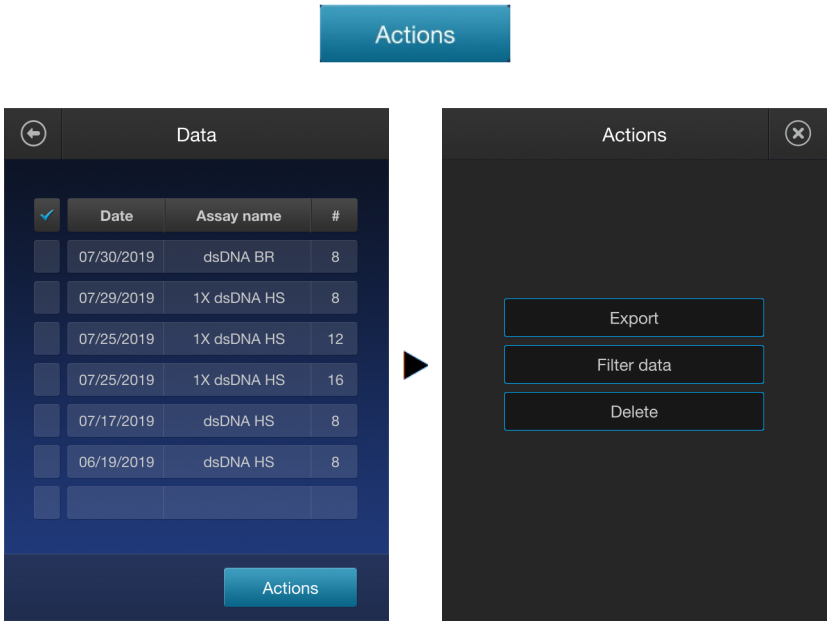
1. On the **Home screen**, press **Data** ( ). The **Data** screen opens and displays the list of data sets that are saved in the instrument.



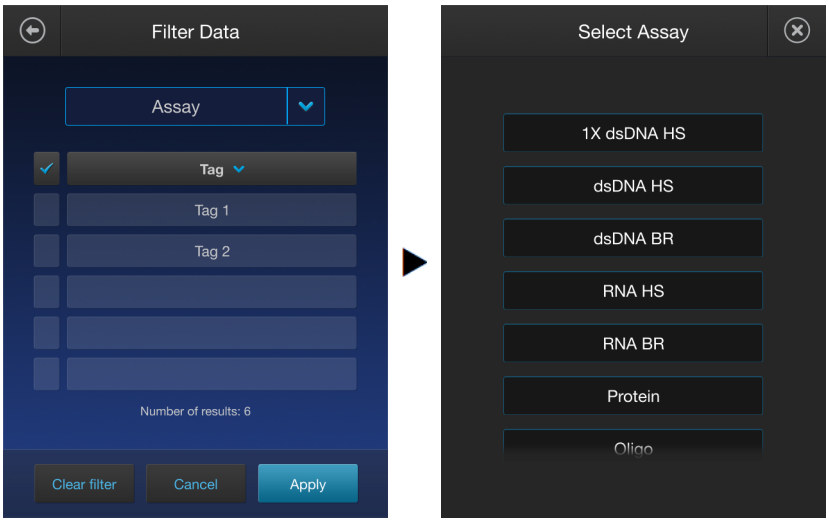
2. By default, the data sets are arranged by date in descending order. To sort the data sets, press the appropriate category in the header row:
   - To sort the data sets by date in ascending order, press **Date**.
     To sort the data sets by date in descending order, press **Date** again.
   - To sort the data sets by Assay name in descending order, press **Assay name**.
     To sort the data sets by Assay name in ascending order, press **Assay name** again.
   - To sort the data sets by the number of samples in descending order, press **#**.
     To sort the data sets by the number of samples in ascending order, press **#** again.

(Optional) filter data sets

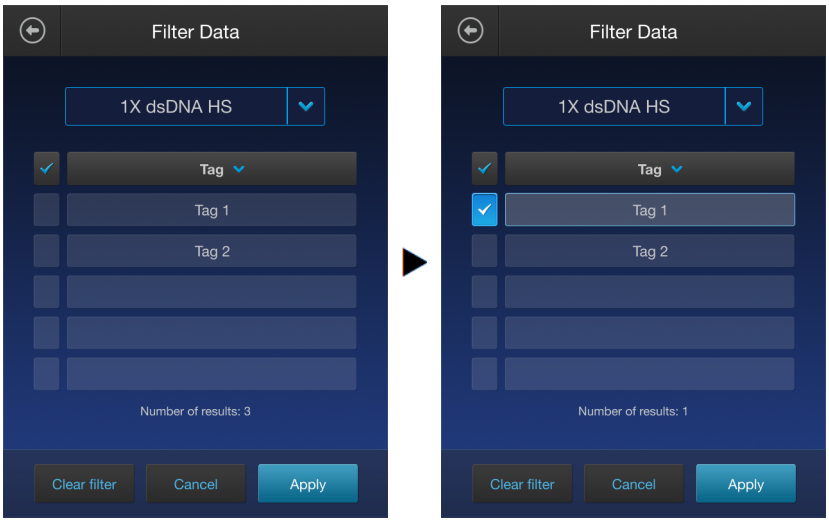
1. To filter data sets by Assay or Tag, press **Actions** to open the **Actions** screen, then select **Filter data**.



2. On the **Filter Data** screen, press **Assay**, then select the **Assay of interest**.

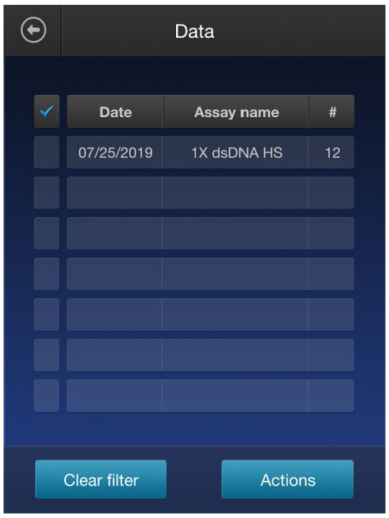


3. If you had applied a tag to the assay ("(Optional) enter assay kit lot #, add tags, add sample IDs" on page 49), select the **Tag** from the list. Otherwise, go to step 4 on page 50.



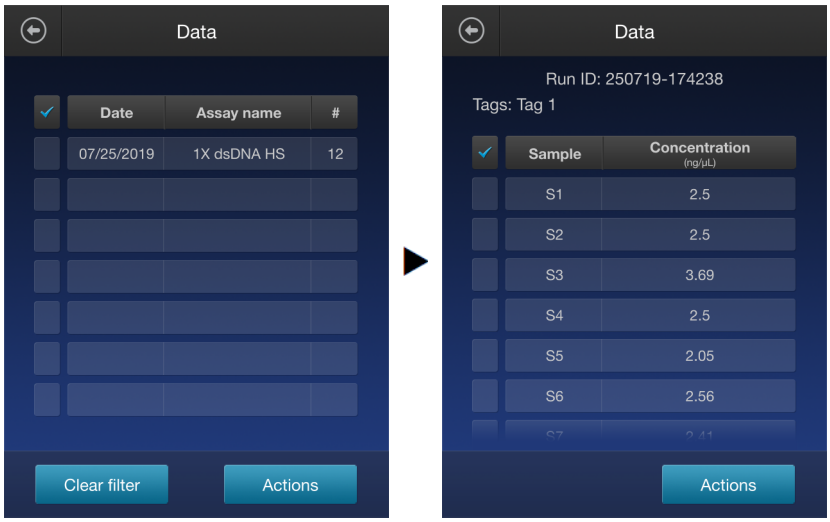
4. Press **Apply** to filter the data list by the assay and tag you have selected.

   Only the data sets that satisfy the filter criteria are displayed in the **Data** screen.

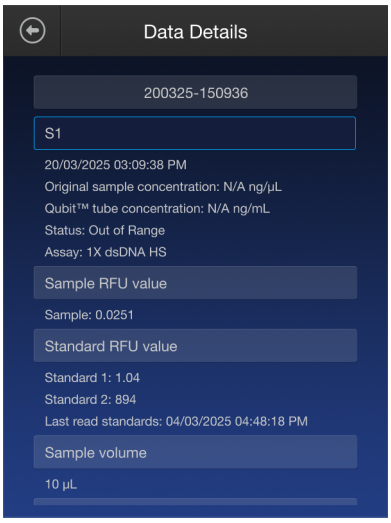


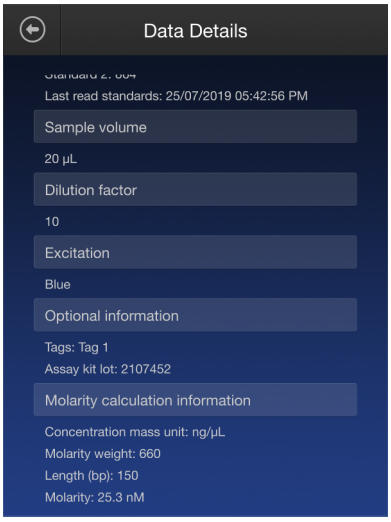
Select data set and view detailed sample data

1. On the **Data** screen (filtered or not filtered), press the **data set of interest**. The **Data set** screen opens and displays a list of samples in that run.

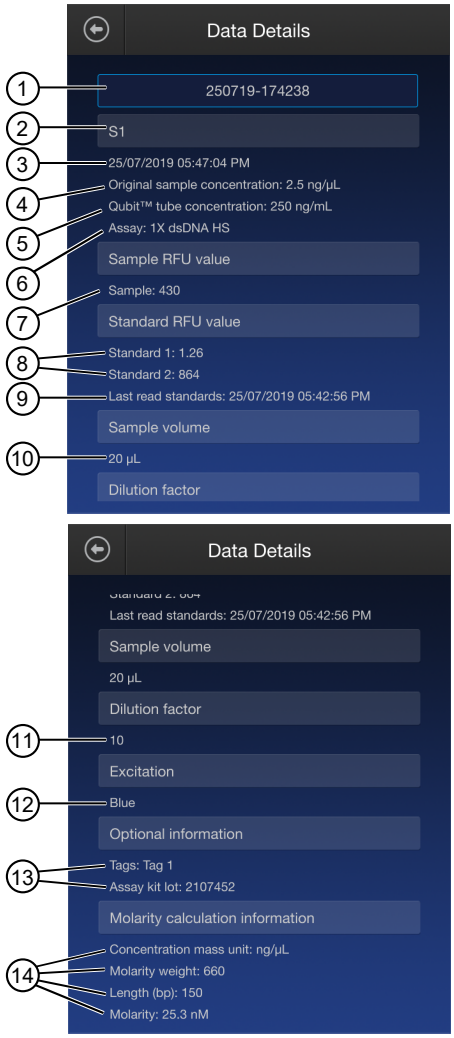


2. To view the sample details, press the **sample of interest**. A **Data details** screen opens. To view sample details that do not fit in the screen, scroll down.





Information in the detailed sample data

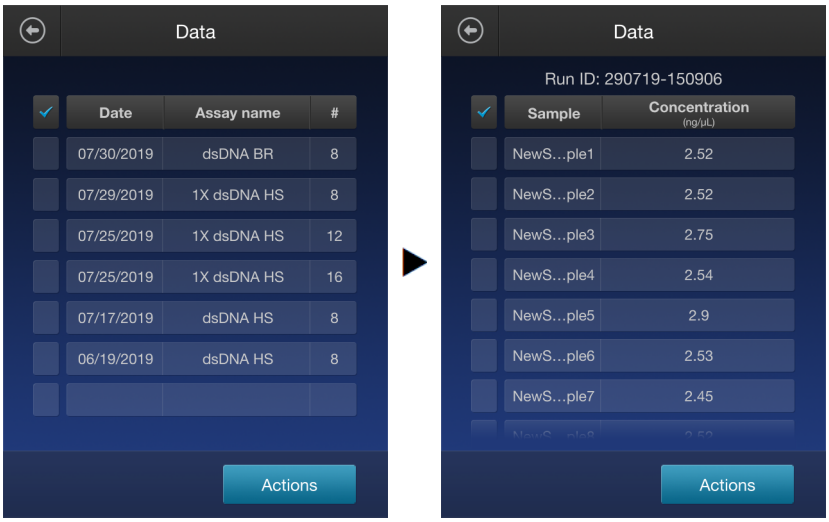


1. Run ID
2. Sample name
3. Assay date
4. Original sample concentration
5. Qubit™ tube sample concentration
6. Assay name
7. Sample RFU* value*RFU: Relative Fluorescence Units
8. RFU values for the standards
9. Date of last read standards
10. Sample volume
11. Dilution factor
12. Excitation channel
13. Optional information (Tags, Reagent lot etc.)
14. Molarity calculation information (units, nucleic acid length, MW, molarity)

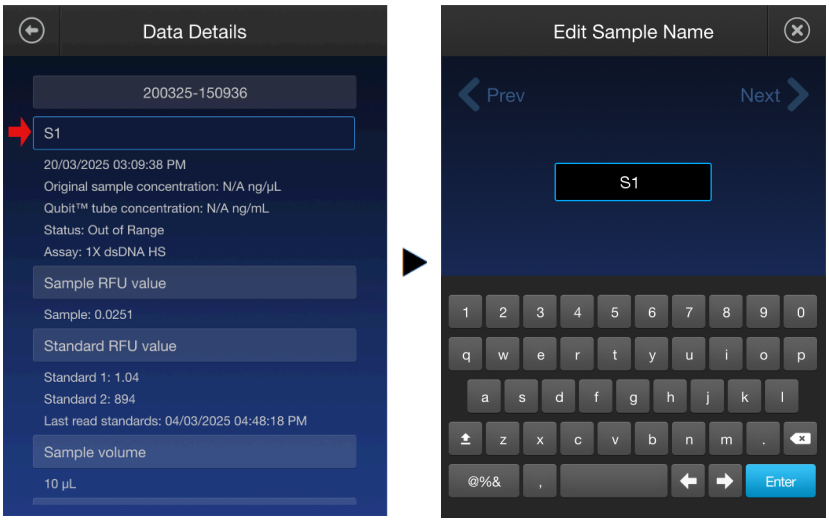
Edit sample name

Edit sample name

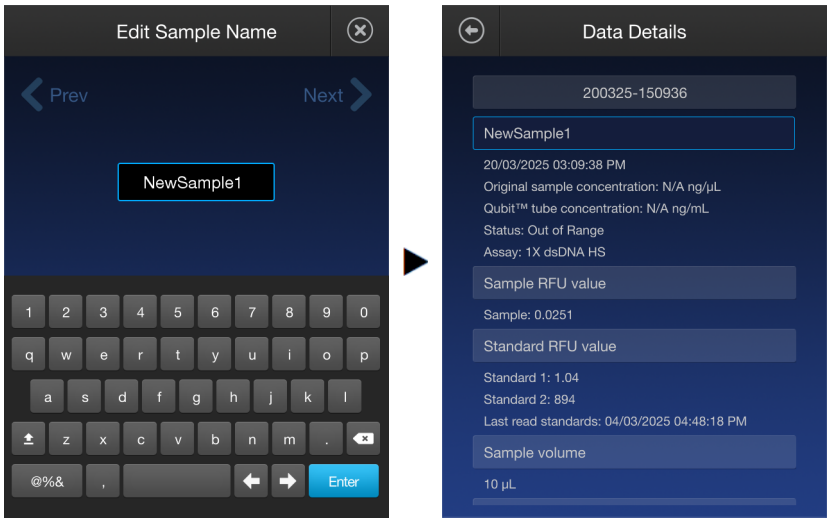
1. On the **Data** screen, select the **data set of interest**, then select the **sample** you want to rename.



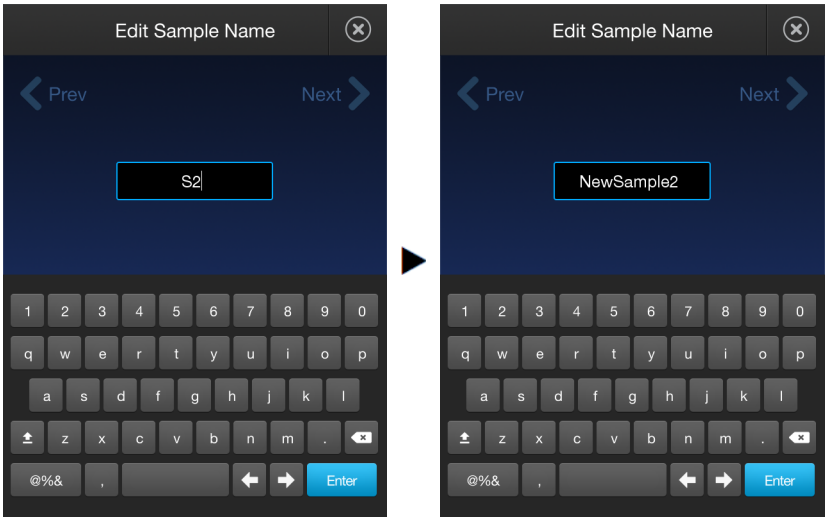
2. On the **Data details** screen, press the **Sample set #** field (indicated by red arrow). **Edit Sample Name** screen opens.



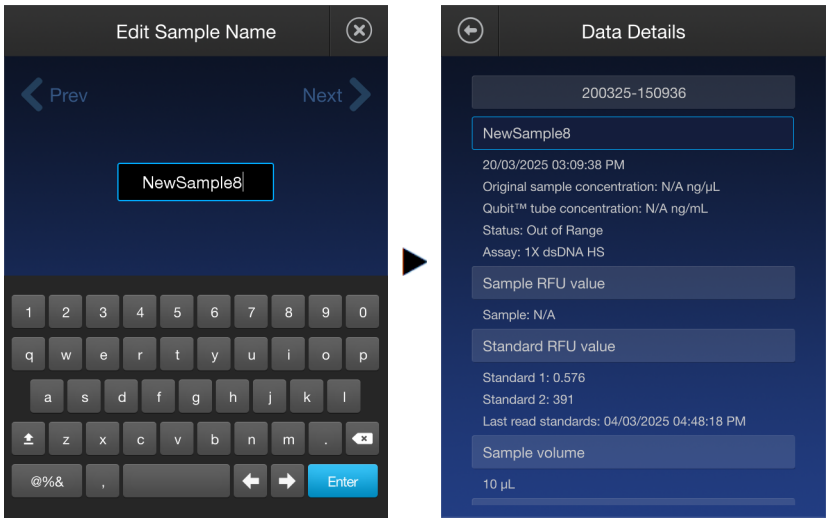
3. Enter the desired sample name, then press **Enter**. **Data Details** screen reappears and displays the new sample name.



4. If you wish to rename all of the samples in the data set, press the **Next** button to go the next sample (instead of pressing **Enter** at step 3 on page 81), then enter the new name for that sample.



5. Repeat for all remaining samples. When finished renaming all the samples, press **Enter**. **Data Details** screen reappears and displays the new sample name.



6. Press the **Back** button to return to the **Data** screen for the assay. All of the samples display the new sample names.

Export data

Introduction

The Qubit™ Flex Fluorometer is designed for standalone use; it does not require an external computer. However, to archive data and generate reports, you can export the numeric data stored in the CSV or PDF file to a computer using a USB flash drive, or save to your Connect account or a network drive wirelessly or via the Ethernet cable. You can then view the file in any spreadsheet program.

Export data

1. On the **Home screen**, press **Data** to open the **Data** screen.

2. To export entire data sets, press the **check box** to the left of each data set that you wish to export. You can select multiple data sets.

   To select all data sets to export, press the **blue check** icon on the header row.

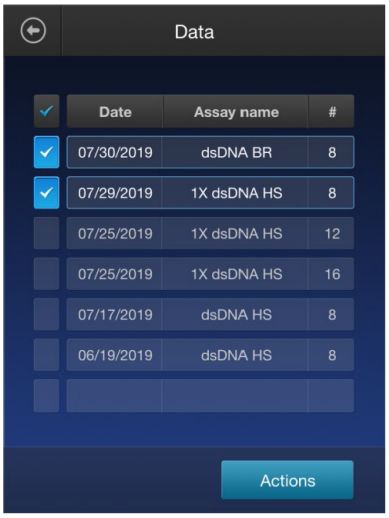


Figure 15 Two data sets selected

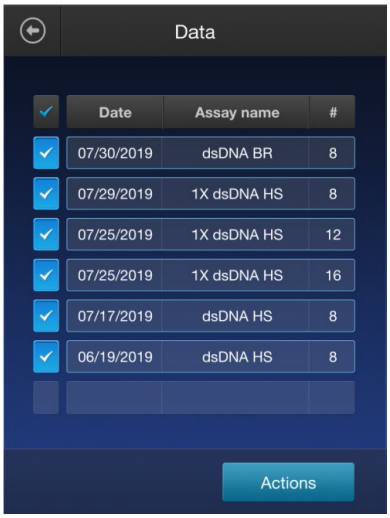
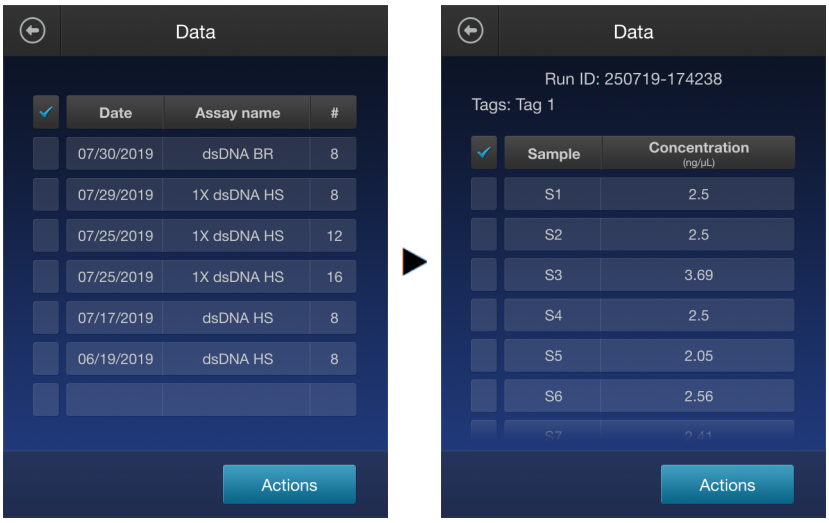


Figure 16 All data sets selected

3. To export only individual data entries from a data set, press the **data set of interest** to view individual samples in the data set.



4. Press the **check box** to the left of the samples that you wish to export. You can select multiple samples to export.

   To select all samples in the data set to export, press the **blue check** icon on the header row.

Figure 17 Three samples in the data sets selected

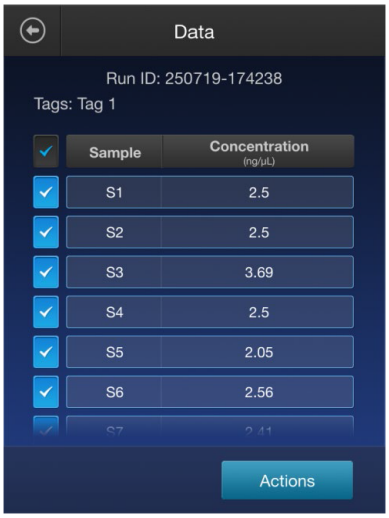
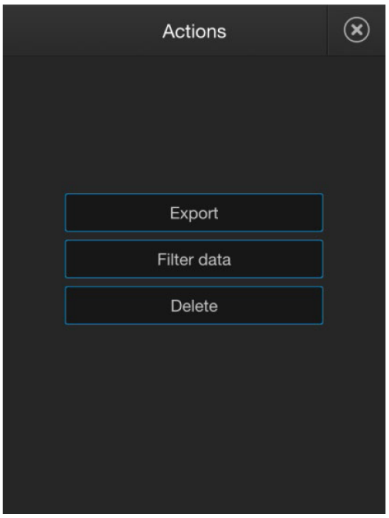


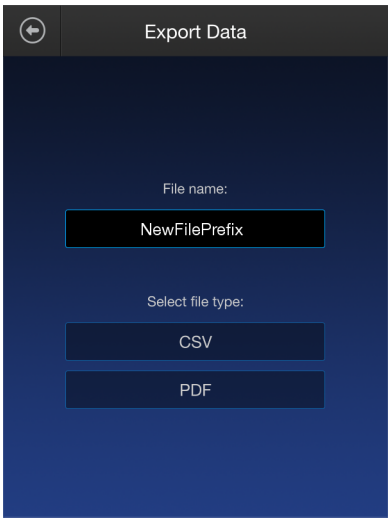
Figure 18 All samples in the data set selected

5. After you have selected the data sets or the samples, press **Actions**, then select **Export**.

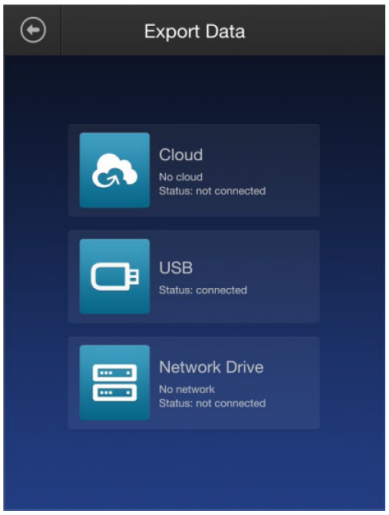


6. *(Optional)* You can rename the file prefix by selecting the **File name box**.

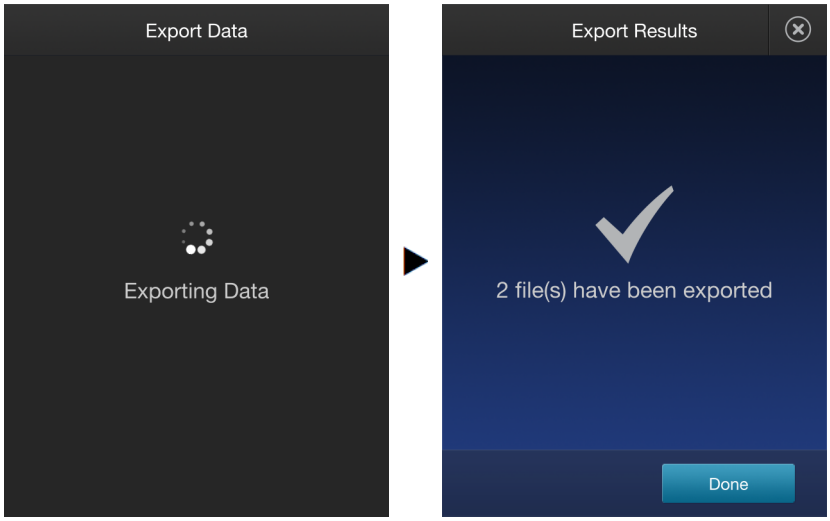
7. In the **Export data** screen, select the **File type**. Available options are CSV and PDF files.



8. In the **Export data** screen, select the **Export method**. Available options are **Cloud** (i.e., your Connect account), **USB**, and **Network Drive**.
   - To export data to a USB drive, insert the USB drive into the Qubit™ Flex Fluorometer.
   - To export data to your Connect account or a network drive, ensure that the instrument is connected to the network wirelessly or via an Ethernet cable. See “Connect to the network” on page 20 for more information on connecting to a network drive.



9. The numeric data is automatically saved as a CSV or PDF file. You can open the CSV file using any spreadsheet program. You can open the PDF using any document reader.



Delete data

Delete data files

1. On the **Home screen**, press **Data**.

2. On the **Data** screen, press the **check box** to the left of each data set you wish to delete. To select all data sets, press the **blue check** icon on the header row.

   To delete only individual sample files from a data set, press the **data set of interest** to view individual samples in the data set, then press the **check box** to the left of the samples you wish to delete.

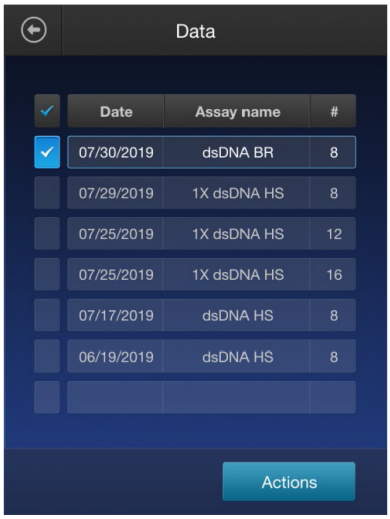
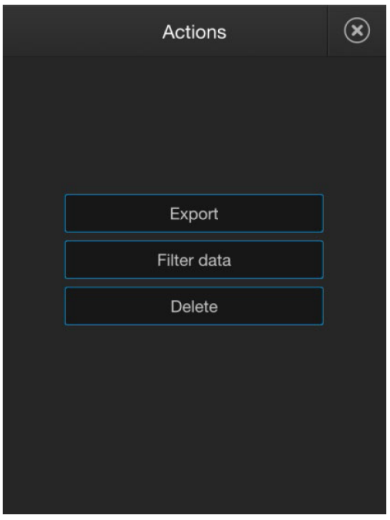


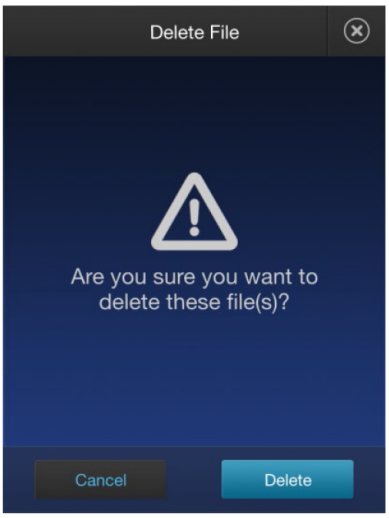
Figure 19 Select data sets to delete

Figure 20 Select Sample files to delete

3. After you have selected the data sets or the samples, press **Actions**, then select **Delete**.



4. Press **Delete**. A **warning screen** appears.



5. Press **Delete** to permanently delete the sample data or data set.

6. Press **Cancel** to return to the screen previously viewed without deleting any data.

6 Configure instrument settings

Instrument settings

You can configure the following instrument settings for the Qubit™ Flex Fluorometer from the **Settings** ▸ **Instrument Settings** screen:

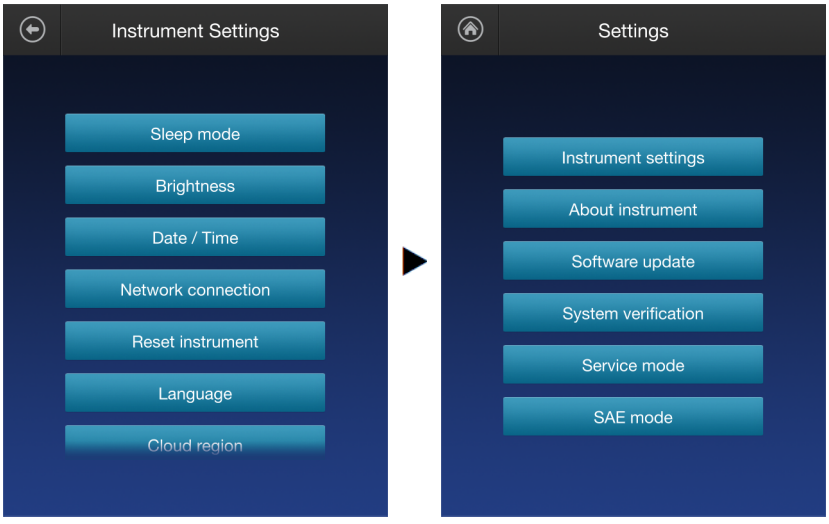
- Sleep mode (“Adjust the sleep mode” on page 91)
- Brightness (“Adjust screen brightness” on page 92)
- Date/Time (“Set the date and time” on page 93)
- Network Connection (“Network connection” on page 97)
- Reset instrument (“Reset instrument” on page 108)
- Language (“Change the displayed language” on page 109)
- Cloud region (“Cloud region” on page 110)
- Delimeter

Access the instrument settings screen

1. On the **Home** screen, press **Settings** (Settings).

   Note: You must be signed in to access instrument settings. If you are not signed in and select an inaccessible button, you will be directed to the sign-in page.

2. On the **Settings** screen, press **Instrument settings** to display the **Instrument settings** screen.

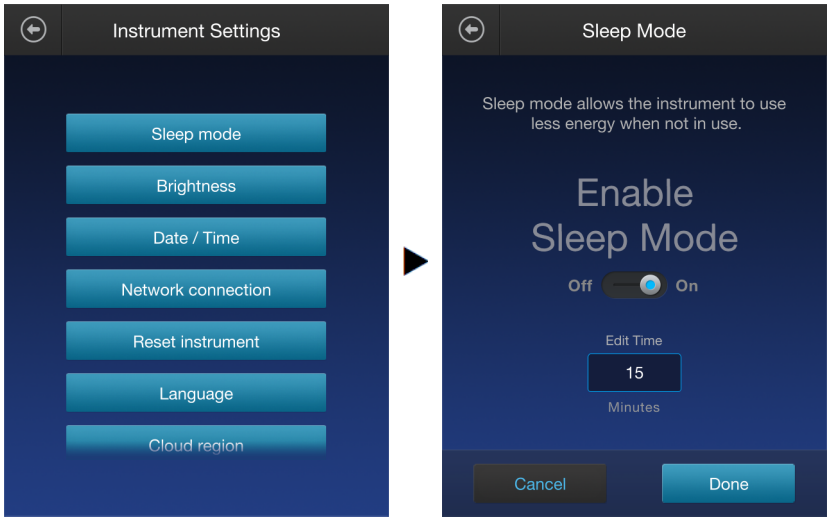


Sleep mode

Adjust the sleep mode

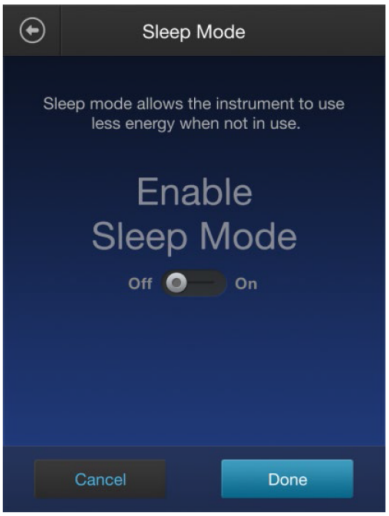
The Qubit™ Flex Fluorometer has a sleep mode (for example, automatic standby) that is triggered by inactivity. The system default is 10 minutes of inactivity before the instrument goes into sleep mode.

1. On the **Instrument Settings** screen ("Access the instrument settings screen" on page 90), press **Sleep Mode**.



2. To change the time of inactivity before the instrument goes into sleep mode, press **Edit Time** field, then enter the time between 1–60 minutes.

3. To disable the sleep mode, toggle the **Enable Sleep Mode** switch to the **Off** position.



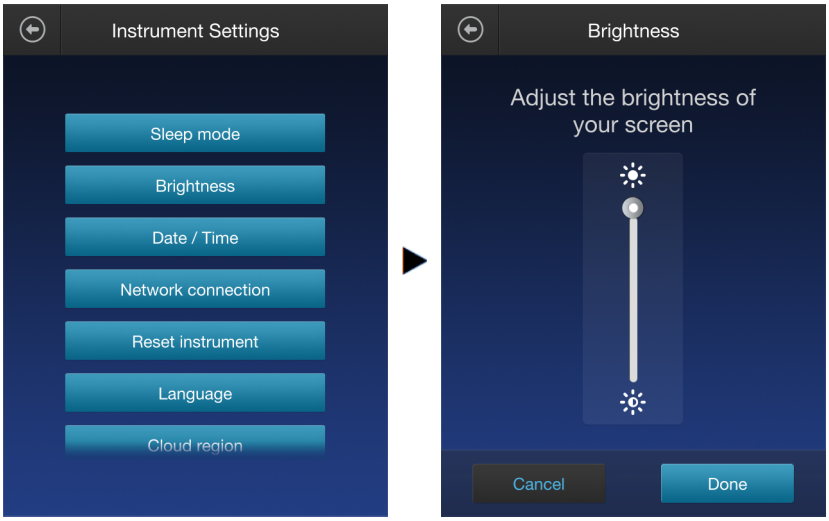
4. Press **Done** to save the changes and return to the **Instrument Settings** screen.

   Press **Cancel** or **Back** ( ) to return to the **Instrument Settings** screen without saving the changes.

Brightness

Adjust screen brightness

1. On the **Instrument Settings** screen ("Access the instrument settings screen" on page 90), press **Brightness**.



2. Move the **Brightness slider** up or down to adjust the brightness of the display.

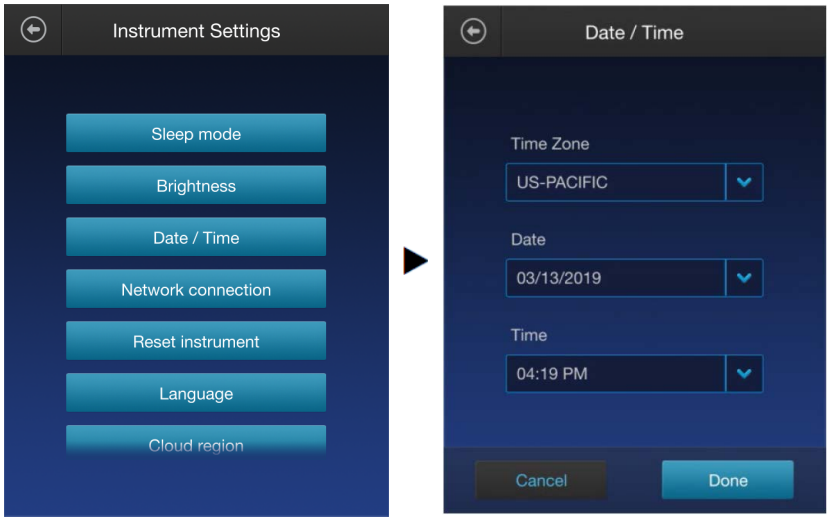
3. Press **Done** to save the changes and return to the **Instrument settings** screen.

   Press **Cancel** or **Back** ( ) to return to the **Instrument settings** screen without saving the changes.

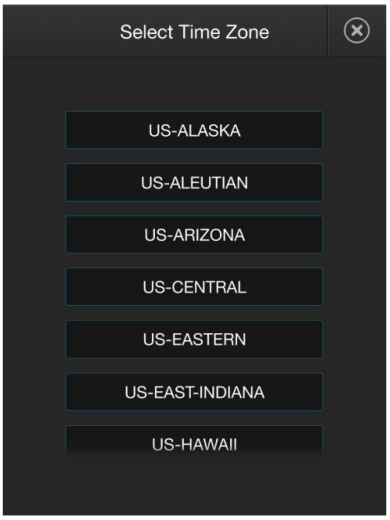
Date and time

Set the date and time

1. On the **Instrument Settings** screen ("Access the instrument settings screen" on page 90), press **Date/Time**.

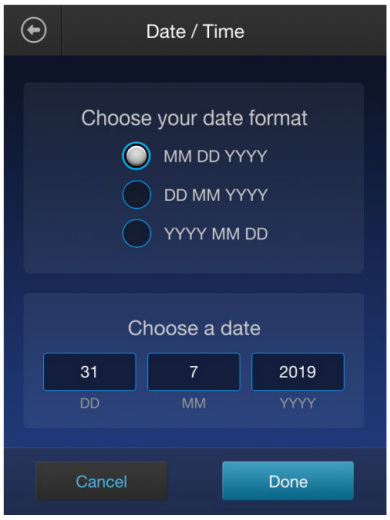


2. Press **Time Zone**, then select the time zone for your location from the list.

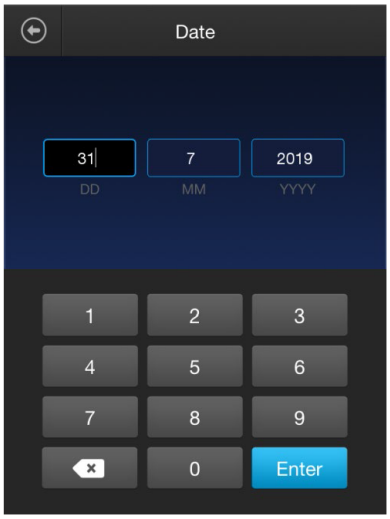


3. Press **Date**, then choose **MM DD YYYY**, **DD MM YYYY**, or **YYYY MM DD** for the date format.

   Note: This will only change the date format on the **GUI**. The date format in exported files will always be in the standard **DD MM YYYY** format.



4. To set the date, press the **DD**, **MM**, and **YYYY** fields to enter the Day, Month, and Year.



5. Press **Enter** when finished entering the date, then press **Done**.

6. Press **Time**, then choose **12 Hour** or **24 Hour** for the time format.

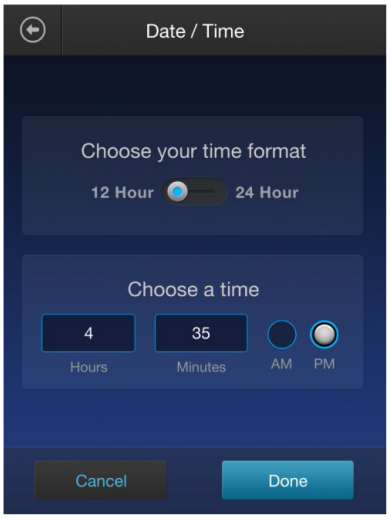


Figure 21 12-Hour format

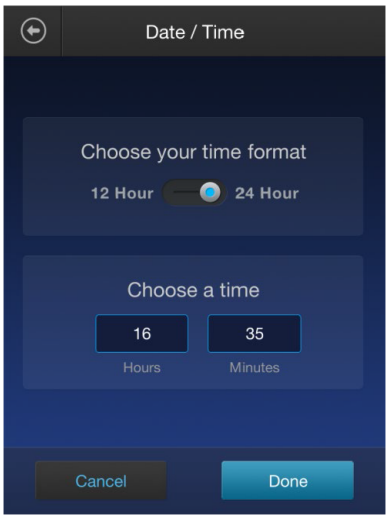


Figure 22 24-Hour format

7. To set the time, press the **Hours** and **Minutes** fields to enter the Hours and Minutes. If you have chosen the 12 Hour format, select **AM** or **PM**.

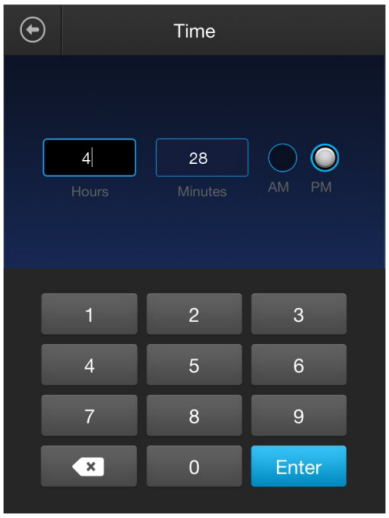


Figure 23 12-Hour format

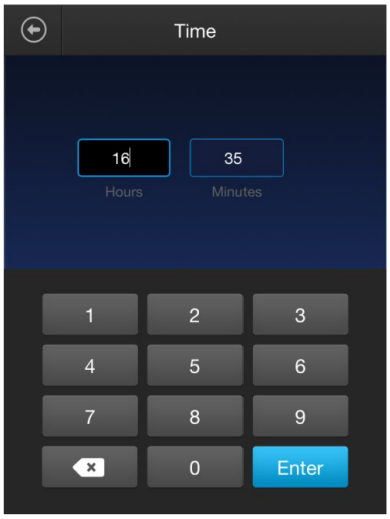


Figure 24 24-Hour format

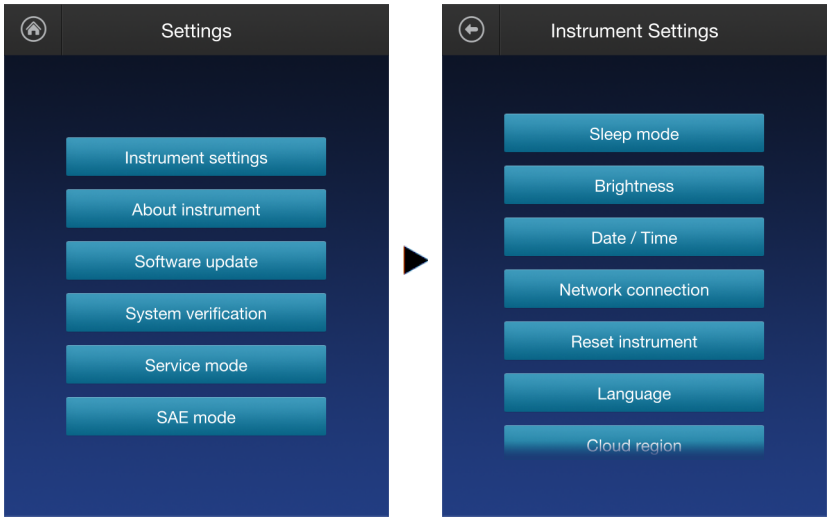
8. Press **Enter** when finished entering the time, then press **Done**.

Network connection

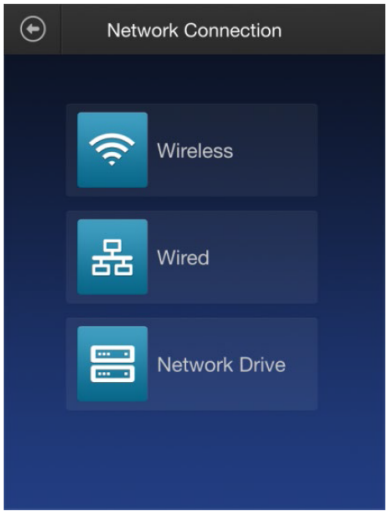
Access the network connection screen

Network Connection screen allows you to connect to an available wireless network using the supplied Wi-Fi adaptor, or to configure and join a local area network via the LAN (RJ-45) port using an Ethernet cable. After you have joined a network, you can also connect to Thermo Fisher Scientific's Connect cloud-based platform to store and access your data files.

1. To access the **Network Connection** screen, press **Settings** ▸ **Instrument Settings**, then select **Network connection**.



2. The **Network Connection** screen opens.



- To connect to a Wi-Fi network, go to “Connect to a Wi-Fi network” on page 98.
- To establish a wired connection to a local area network (LAN), go to “Connect to a local area network (LAN)” on page 100.
- To map a network drive to save your Qubit™ Flex files, go to “Map a network drive” on page 101.

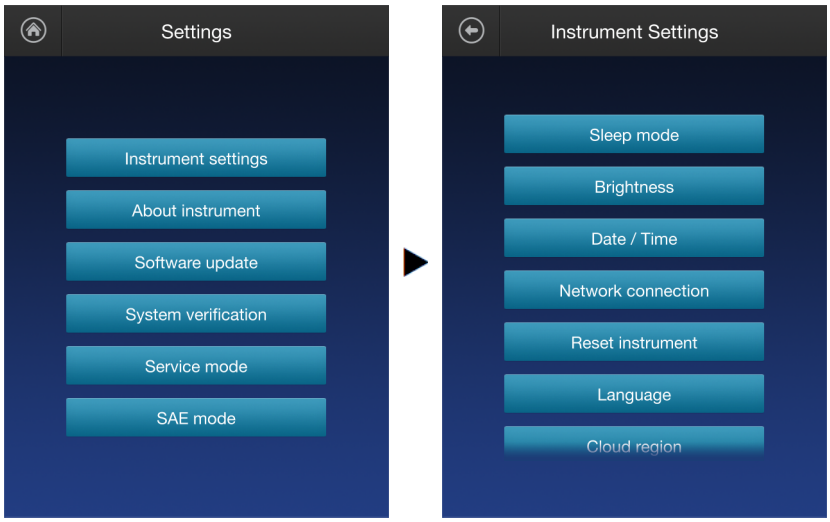
Connect to a Wi-Fi network

1. Ensure that your USB Wi-Fi dongle is inserted into one of the available USB ports on the instrument (see “Instrument exterior components” on page 13).

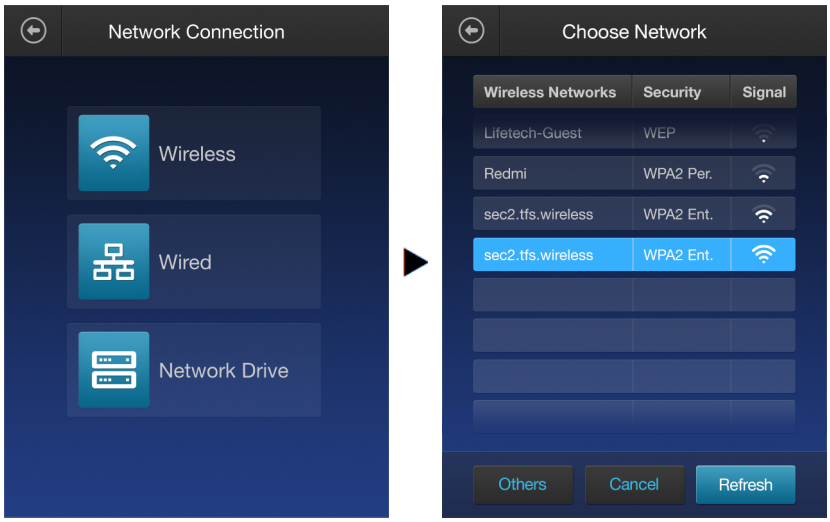
   If it is not, insert the Wi-Fi dongle, then restart the instrument by disconnecting and reconnecting the power supply.

   Note: The Wi-Fi dongle must be connected during start-up in order for the instrument to recognize it and establish network connection.

2. Press **Settings** ▸ **Instrument Settings**, then select **Network connection**.



3. On the **Network Connection** screen, press **Wireless**. The instrument searches for available wireless networks within range.



4. On the **Choose Network** screen, press the network you want to join.

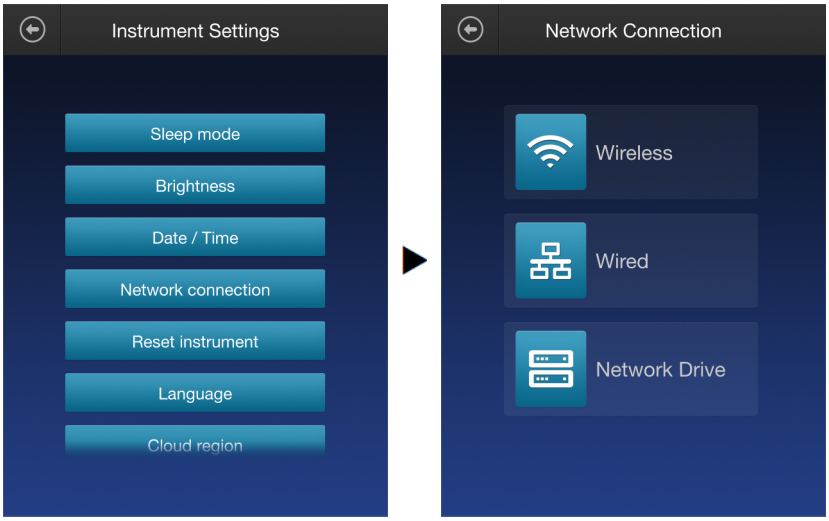
5. If required, enter the appropriate security credentials, then press **Join**. After the connection is established, the network is highlighted in **blue**.

Note: Troubleshooting Tip: If you are unable to connect to a network, try connecting to your phone's personal hotspot or a network with minimal security restrictions to rule out network security issues.

Connect to a local area network (LAN)

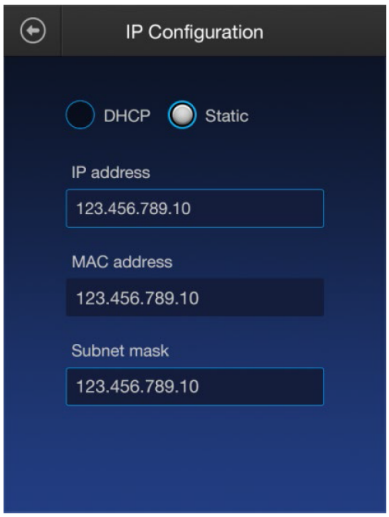
1. Ensure that the instrument is connected to an active network jack via the LAN (RJ45) port (“Instrument exterior components” on page 13) using a standard Category 6 Ethernet cable.

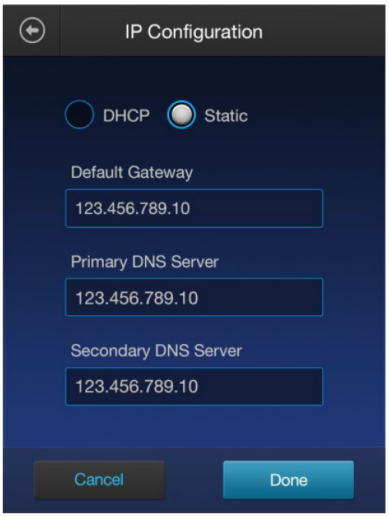
2. On the **Instrument Settings** screen, press **Network connection**, then select **Wired**.



3. On the **IP Configuration** screen, select **DHCP** or **Static**.

4. If you have selected **Static**, enter the static **IP address**, **MAC address**, **Subnet mask**, **Default Gateway™ address**, and primary and secondary **DNS server addresses** for the LAN port.



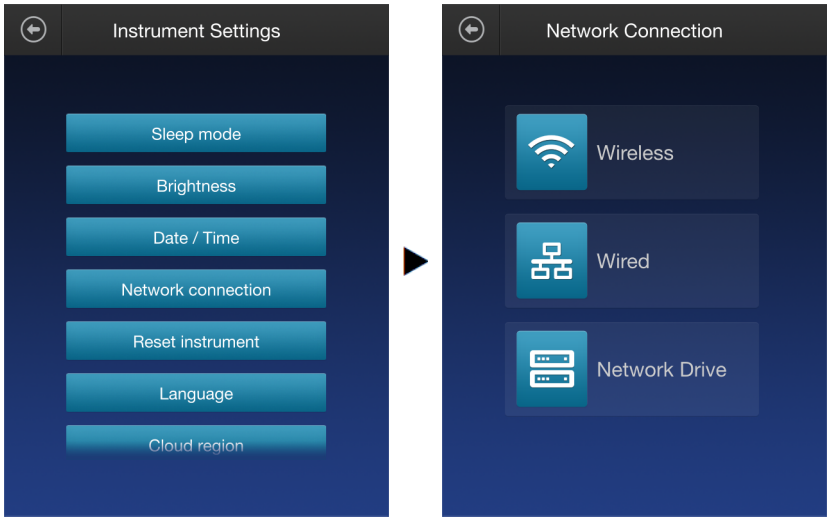


5. Press **Done** to join the local area network.

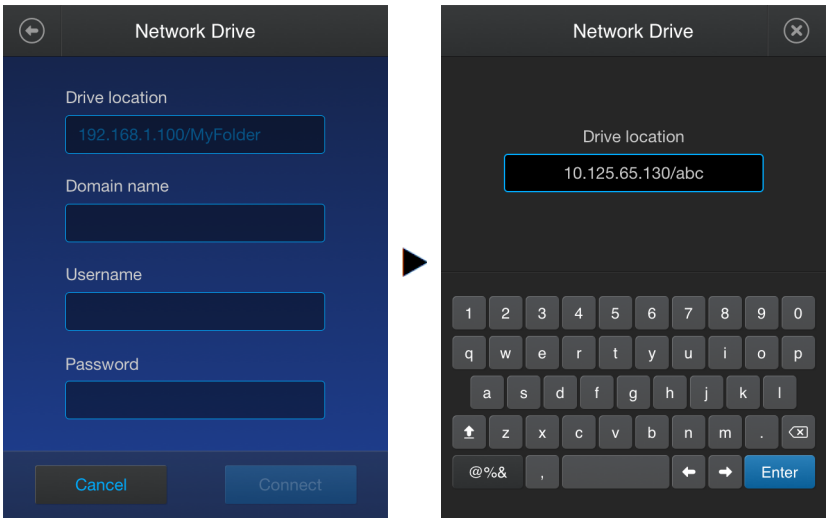
Map a network drive

1. Ensure that the instrument is connected to an active network (see "Connect to a Wi-Fi network" on page 98 and "Connect to a local area network (LAN)" on page 100) and that you have signed in to your profile ("Sign in to your profile" on page 32).

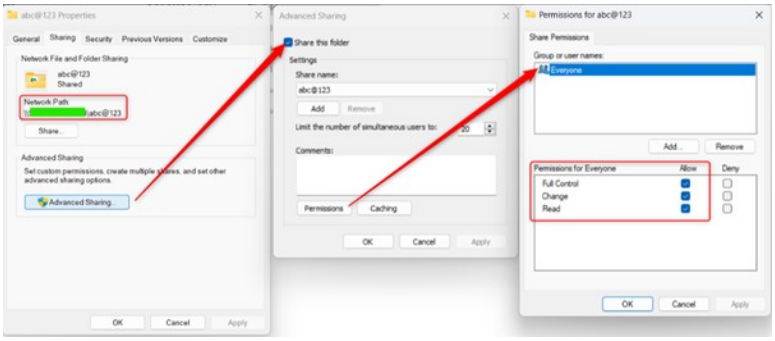
2. On the **Instrument Settings** screen, press **Network connection**, then select **Network Drive**.



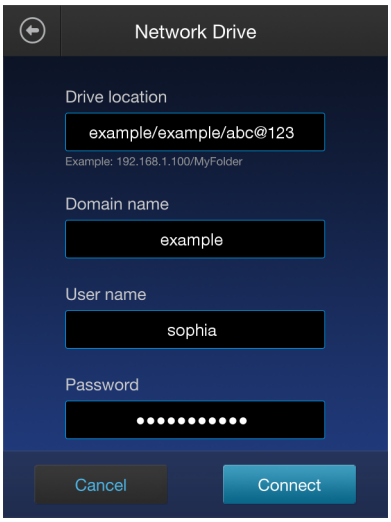
3. On the **Network Drive** screen, press **Drive location**, enter the location of the drive to save your Qubit™ Flex files, then press **Enter**.



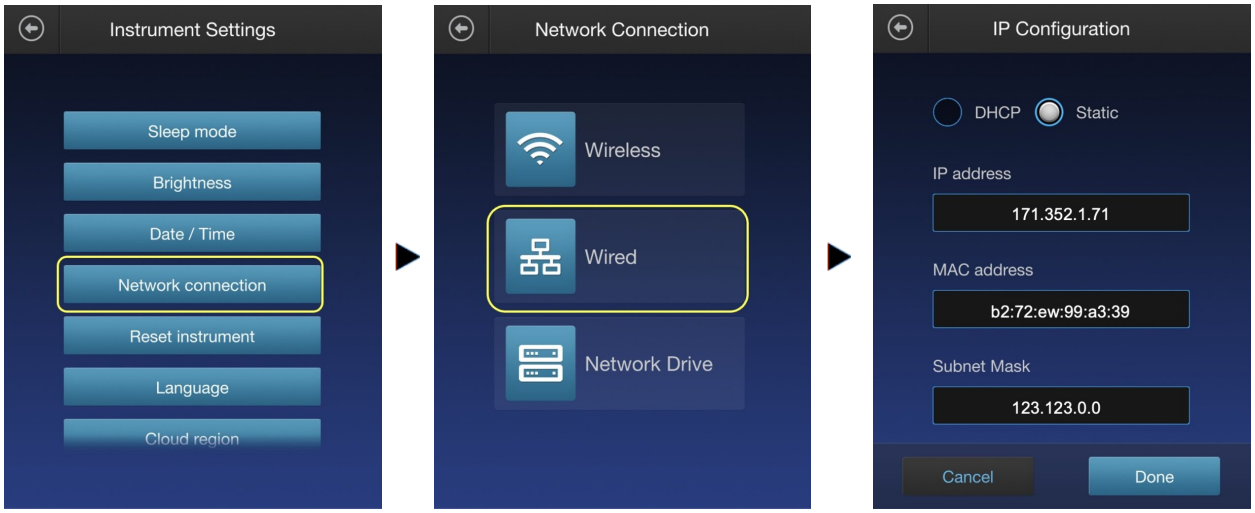
- Open CMD Prompt to check hostname and domain name:
  - Press **windows icon** and select **Run**.
  - Then type **cmd** and press **OK**.
  - **Check hostname**: Enter command **hostname**.
  - **Check domain name**: Enter command **systeminfo | findstr /B /C:"Domain"**
  - The hostname and domain name will be used in Step 4.
- Check file permissions.



- Input the **host name**, **domain name** and **user name** to the instrument.



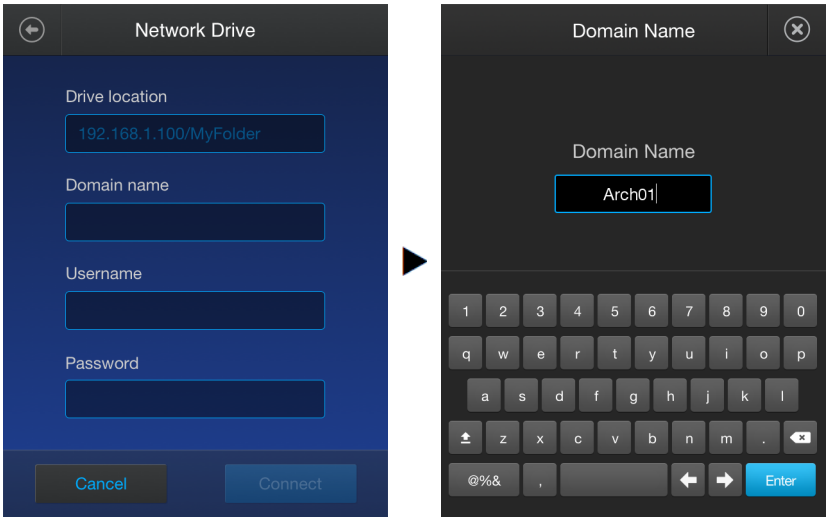
- Check that the instrument and PC are on the same subnet.



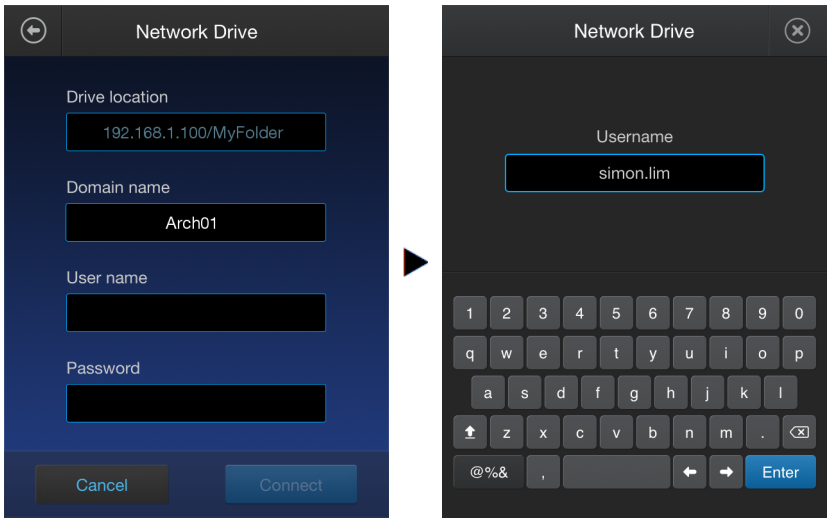
- If the instrument and PC are on different subnets, certain conditions must be met to enable communication. Here are the key factors to consider:
  - **Routing**:
    - A router or Layer 3 device (like a switch with routing capabilities) must be set up to manage traffic between the two subnets.
    - The devices must have the correct gateway addresses configured, pointing to the router that can route traffic between the subnets.
  - **Firewall Rules**:
    - Make sure that any firewalls between the subnets allow traffic to pass through.
    - This includes both network firewalls and firewalls on the devices themselves.

- **Network Configuration**:
  - Make sure the routing table on each device has routes to the other subnet, which usually happens automatically if the default gateway is set correctly.
  - Check that the subnet masks are correctly set so the devices recognize addresses in the other subnet as external.
- **IP Addressing**:
  - Both devices must have unique IP addresses within their own subnets.
  - For example, if the PC is on subnet 192.168.1.0/24 and the instrument is on subnet 192.168.2.0/24, the PC could have an IP address of 192.168.1.10 and the instrument could have an IP address of 192.168.2.10.
- **DNS Configuration**:
  - If the devices need to communicate using hostnames, make sure DNS is set up correctly to match the hostnames with the right IP addresses.
- **Example Configuration**:
  - PC Configuration (Subnet: 192.168.1.0/24)
    IP Address: 192.168.1.10
    Subnet Mask: 255.255.255.0
    Default Gateway: 192.168.1.1
  - Instrument Configuration (Subnet: 192.168.2.0/24)
    IP Address: 192.168.2.10
    Subnet Mask: 255.255.255.0
    Default Gateway: 192.168.2.1
  - Router Configuration
    Interface 1 (Subnet 192.168.1.0/24): IP Address 192.168.1.1
    Interface 2 (Subnet 192.168.2.0/24): IP Address 192.168.2.1
  - Routing Table: Ensure that routes are configured to allow traffic between the two subnets.

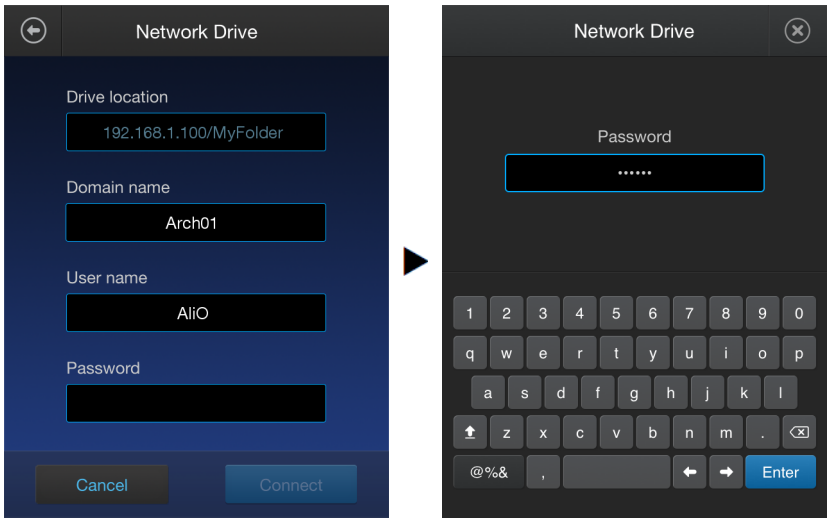
4. Press **Domain name**, enter the domain name where the drive is located, then press **Enter**.



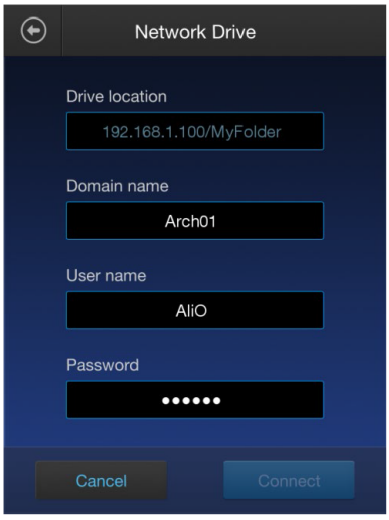
5. Press **User name**, enter your user name for the network drive, then press **Enter**.



6. Press **Password**, enter your password for the network drive, then press **Enter**.



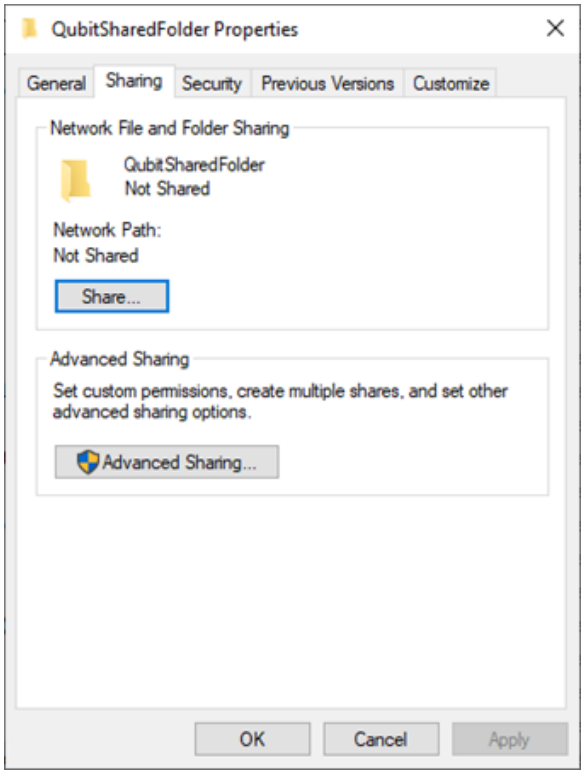
7. When finished entering all the required fields for the **Network Drive**, press **Connect**.



Create a Shared Folder (Windows)

Note: It is highly recommended that a local IT representative assist with this process.

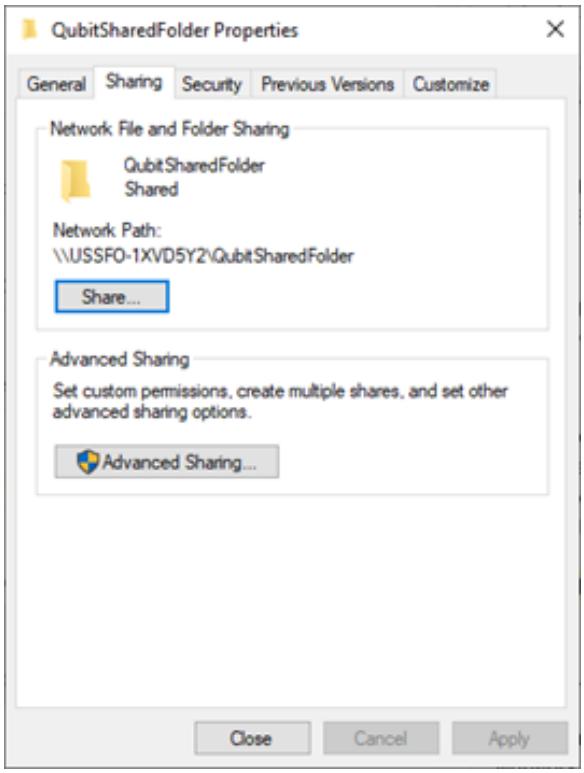
1. Create a new folder on a networked PC.
2. Right Click, select **Properties** and go to the **Sharing tab**.



3. Click **Advanced Sharing**, checkbox for **Share this folder** and click **OK**.

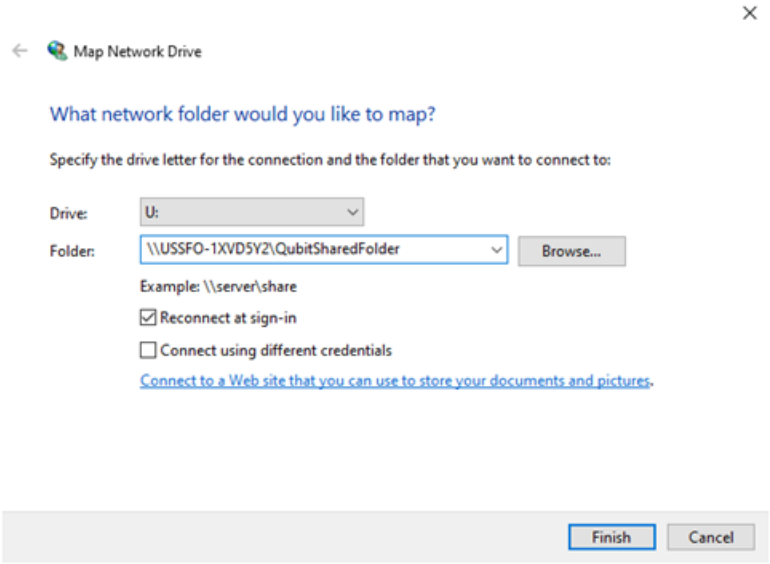
4. Click **Permissions**, select **Everyone** and allow **Full Control** then click **OK**.

5. Record the **Network Path** and click **Close**.



6. Access the **This PC folder**, click on the **Computer tab**, and click **Map network drive**.

7. Assign the **Drive a letter**, enter the previously recorded **Network Path** and click **Finish**.

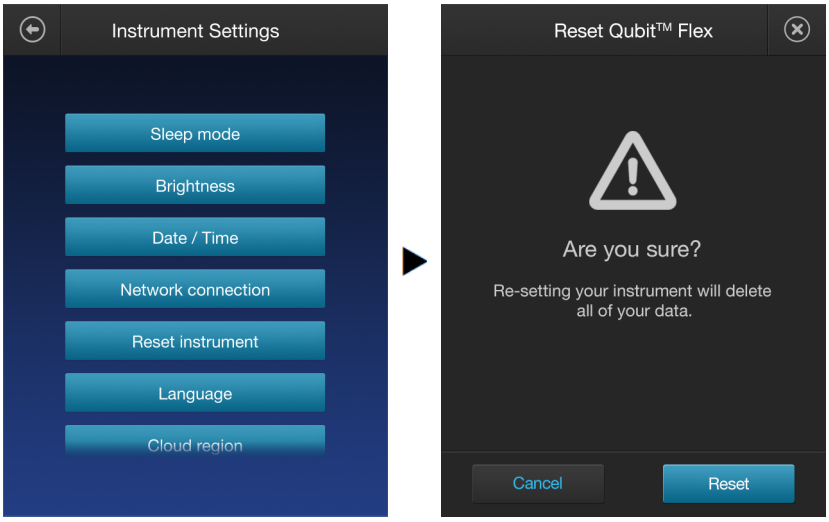


Reset instrument

Reset instrument

Reset instrument function returns the Qubit™ Flex Fluorometer to its default factory settings, and **erases all saved data** and **user-defined instrument settings**.

1. On the **Instrument Settings** screen (“Access the instrument settings screen” on page 90), press **Reset instrument** to display the Reset Qubit™ Flex screen.



2. To return the instrument to its default factory settings, press **Reset**.

   After the reset is complete, all data, user-defined instrument settings, and custom assays are removed, and the instrument displays the Home screen.

   Press **Cancel** or **Exit** (⊗) to return to the **Instrument settings** screen without saving the changes.

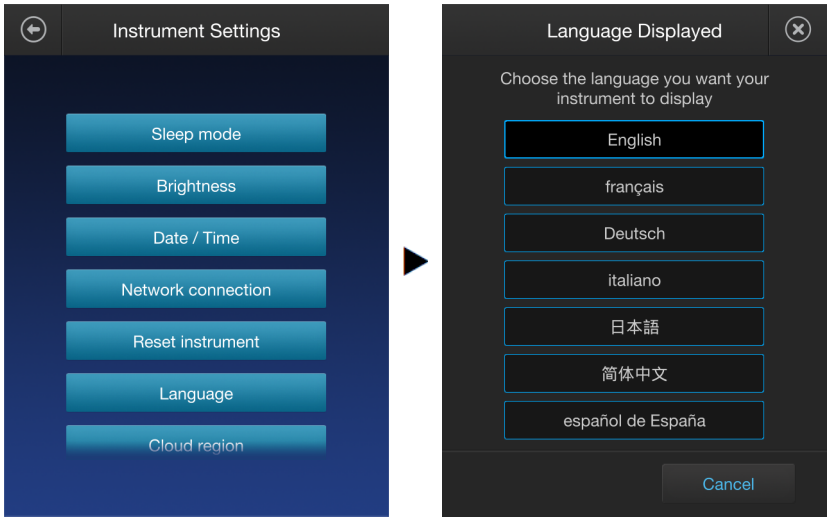
IMPORTANT! The reset function is **not** reversible.

Language

Change the displayed language

You can change the language that the Qubit™ Flex Fluorometer displays to **English** (default), **French**, **German**, **Italian**, **Spanish**, **simplified Chinese**, and **Japanese**.

1. On the **Instrument Settings** screen ("Access the instrument settings screen" on page 90), press **Language** to display the **Language** screen.



2. Press to select the desired language. Available options are **English**, **French**, **German**, **Italian**, **Chinese**, **Japanese**, and **Spanish**.

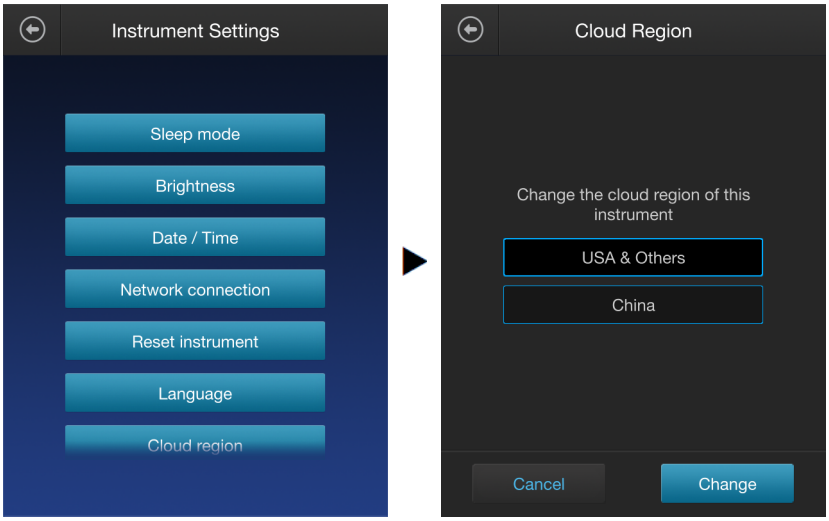
3. When prompted, press **Yes** to confirm the change and return to the **Instrument settings** screen.

   If you do not want to change the language settings, press **Cancel** or **Exit** ( ) to return to the **Instrument settings** screen without saving the changes.

Cloud region

Change the cloud region

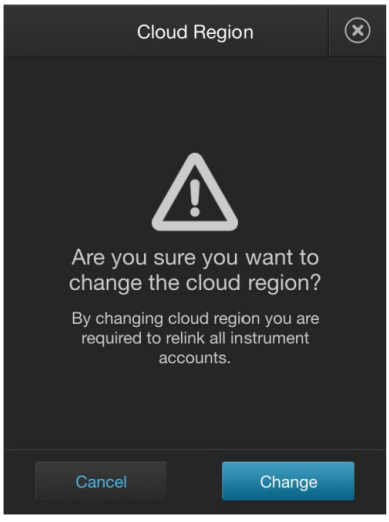
1. On the **Instrument Settings** screen ("Access the instrument settings screen" on page 90), press **Cloud region**.



2. Select the cloud region from the available choices, then press **Change**.

3. When prompted, press **Change** to close the **warning screen**, then press **Change** again to change the cloud region of the instrument. The instrument will restart after changing the cloud region.

   If you do not want to change the cloud region, press **Cancel** to return to the previous screen.

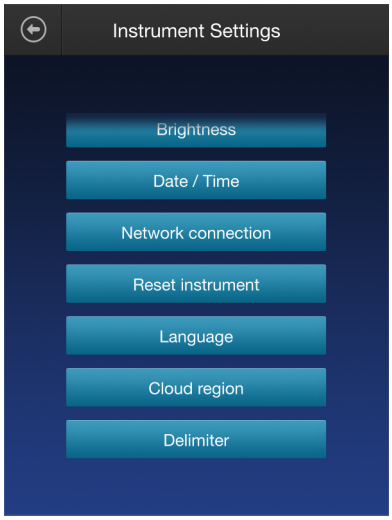


Note: If you change the cloud region of the instrument, you must relink all instrument accounts.

Delimiter

Select the delimiter used in CSV exports

1. On the **Instrument Settings** screen (“Access the instrument settings screen” on page 90), press **Delimiter**.
2. Choose the delimiter that will be used in CSV exports. The options are comma separated (default) and semicolon separated.
3. Select **Done**.



7 Instrument maintenance

Maintenance and cleaning

Maintenance

The Qubit™ Flex Fluorometer does not need regular maintenance. To troubleshoot problems with the instrument, contact Technical Support.

- **Do not** perform any repairs or service on the Qubit™ Flex Fluorometer to avoid damaging the instrument.
- **Do not expose the Qubit™ Flex Fluorometer to direct sunlight**.

CAUTION! Never disassemble or service the instrument yourself. Do not remove any covers or parts that require the use of a tool. Unauthorized repairs may damage the instrument or alter its functionality, which may void your warranty. Contact your local distributor to arrange for service.

Clean the Qubit™ Flex Fluorometer

We recommend that you clean the Qubit™ Flex Fluorometer periodically to prevent the buildup of dust and dirt that might reduce its performance and cause contamination.

CAUTION! To avoid electrical shock, always disconnect the power cable before cleaning or decontaminating the instrument.

IMPORTANT! Using a cleaning or decontaminating method other than that specified by the manufacturer may result in damage to the instrument.

- Clean the surface of the Qubit™ Flex Fluorometer with a damp cloth.
- To clean the touchscreen, disconnect the power cable, and clean the touchscreen with a soft cloth lightly moistened with LCD (liquid crystal display) cleansing detergent.
- Cleaning the screen with excessive force can damage the touchscreen. Wipe the screen dry immediately.
- Do not use abrasive cleaning solutions or material to prevent the touchscreen from getting scratched.
- To disinfect the instrument, disconnect the power cable from the Qubit™ Flex Fluorometer and clean the instrument, including the touchscreen, with a soft cloth lightly moistened with 70% ethanol, 70% isopropanol, or 10% bleach (0.6% sodium hypochlorite).
- The cloth included with the instrument is not recommended for use with ethanol or isopropanol.

- Ensure that the cleaning solution does not enter the power button, the power inlet, the sample port, or the USB drive ports.
- Never pour or spray any liquids directly on the instrument to avoid electrical shock when the instrument is plugged in.

Software updates

Keeping your software updated ensures that your Qubit™ includes the latest features and functionality. In versions 1.10.1 and higher, the Qubit™ Flex will display a message once per year, reminding you to check the technical resources page for the latest software update. Once you dismiss the message, it will not appear again for another year.

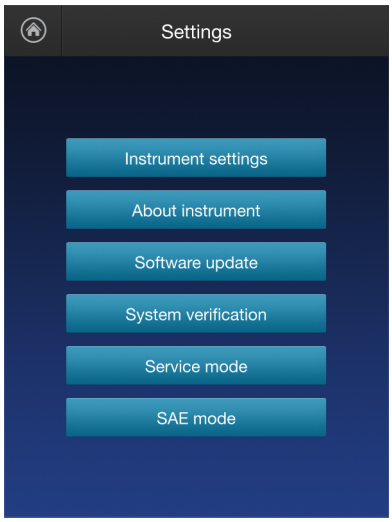
Before you begin

1. Download the latest software to a USB drive or to your network from **thermofisher.com/qubit**.
2. If using a USB drive, insert the USB drive into the instrument.

   If using a network drive, ensure that the instrument is connected to the network wirelessly or via an Ethernet cable.

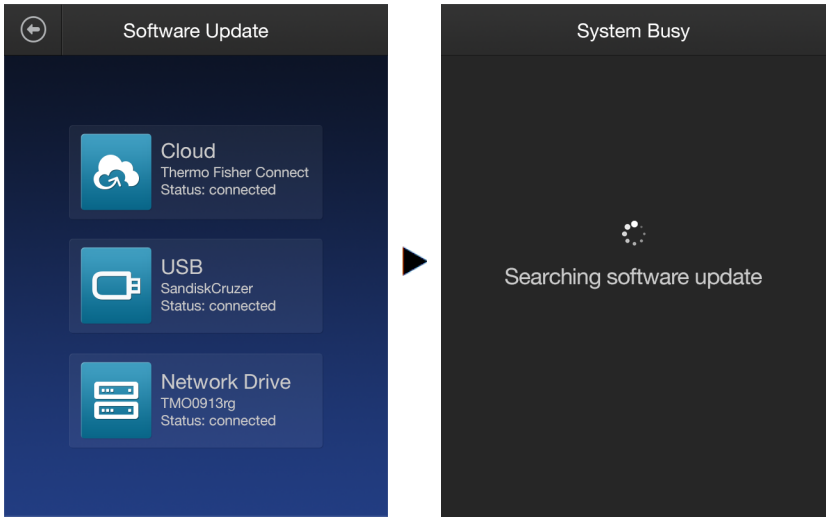
Update the software

1. On the **Home** screen, press **Settings**, then select **Software update**.



2. On the **Software Update** screen, select **Cloud**, **USB**, or **Network Drive**. Regardless of the chosen option, you must sign in before selecting **Software Update**.

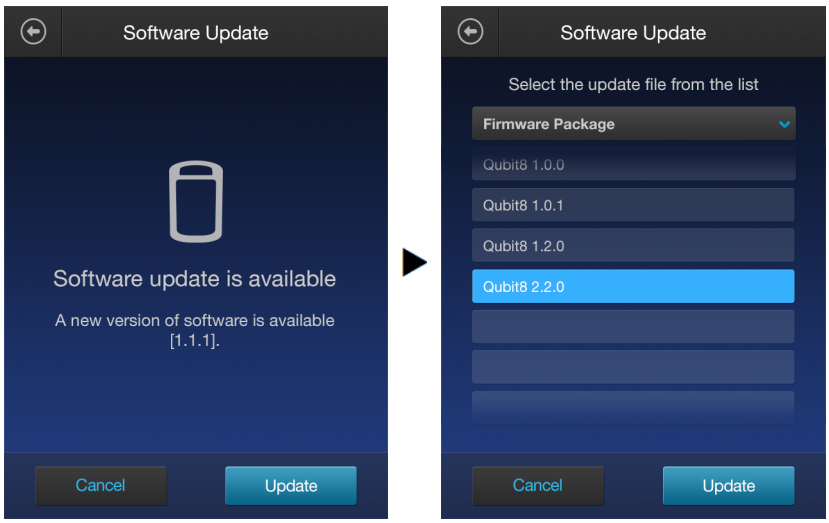
   The instrument searches your Connect account, the USB drive, or the network drive for the update.



Note: If the USB drive is not inserted into the USB drive port or the instrument does not recognize the USB drive, a warning message is displayed.

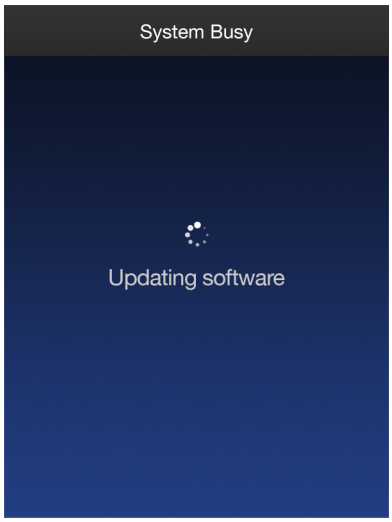
To proceed with the software update, insert the correct USB drive into the instrument, then press **Retry**.

3. If a new update is available and the appropriate files are detected, the instrument displays "**Software update is available**". Press **Update** to view the available versions of the software.



4. Select the software version you want install on the instrument for the update, then press **Update**.

5. After updating the software, the instrument will automatically restart to complete the process.

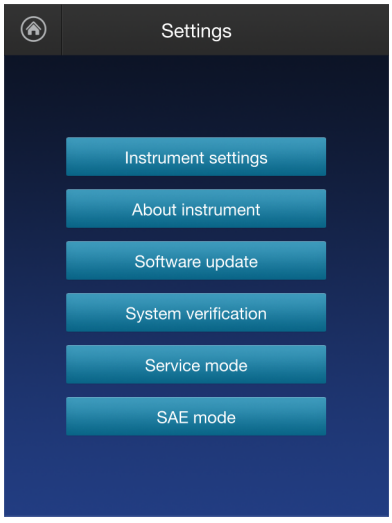


System verification

The system verification checks the internal components of the Qubit™ Flex Fluorometer and requires the use of the Qubit™ Flex System Verification Assay Kit (Cat. No. Q33254). Perform the system verification when a problem with the instrument is suspected. It is not necessary to perform the verification regularly.

Perform system verification test

1. On the **Home screen**, press **Settings**, then select **System Verification**.

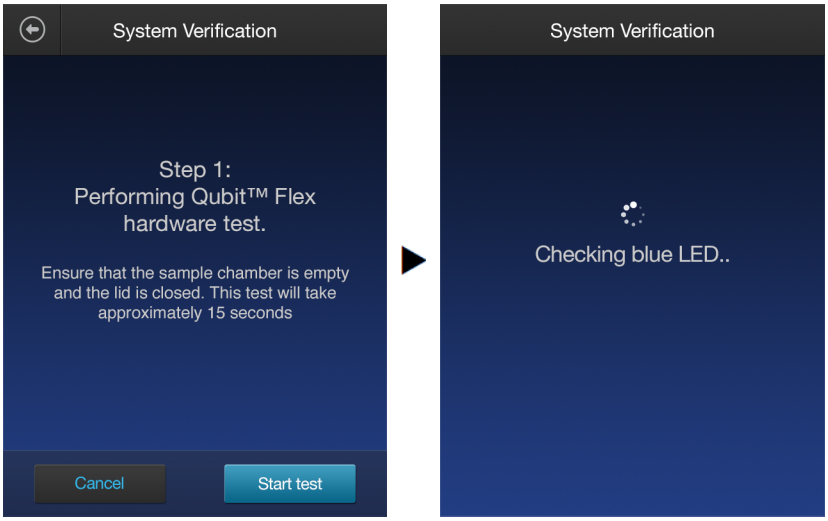


2. On the **System Verification** screen, press **Next**.

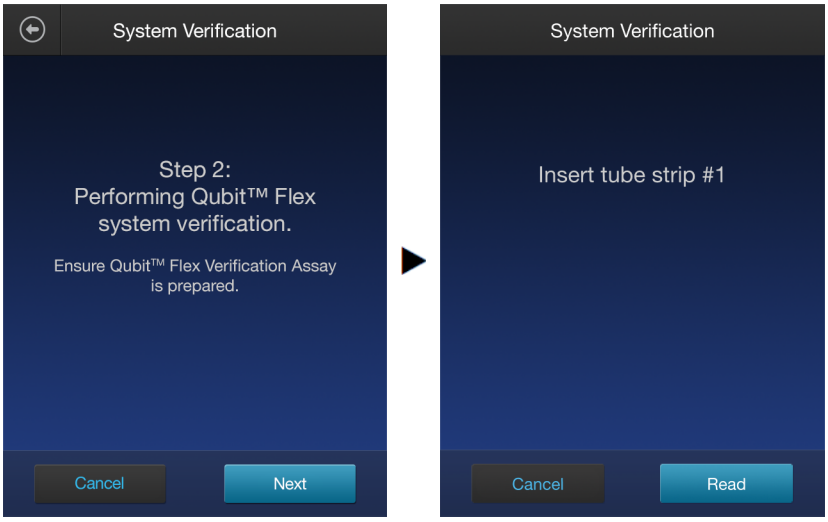
3. When prompted, set up three Qubit™ Flex Tube Strips and label the tube strip lids 1–3.

4. Add 200 µL of Blank Reagent to each tube of tube strip #1, 200 µL of Green Fluorescence Reagent to each tube of tube strip #2, and 200 µL of Far Red Fluorescence Reagent to each tube of tube strip #3, then press **Next**.

5. When prompted, ensure that the sample chamber is empty and the lid is closed, then press **Start test** to run the Qubit™ Flex hardware test (Step 1 on page 115 of System Verification). This test takes approximately 15 seconds.



6. When prompted, ensure that the Qubit™ Flex Verification Assay is prepared, then press **Next**.



7. Insert tube strip #1 into the sample chamber, close the lid, then press **Read**.

8. When prompted, read tube strip #2 and tube strip #3 as described for tube strip #1.

9. When the test is complete, the software displays the error status.
   - If no errors are found, **System Verification Pass** message appears. Press **Close** to return to the **Settings screen** or press **Next** to view the System Verification Report (Step 10 on page 118).
   - If errors are found, **Error Reading Reagents** message appears. Verify that the test was run with the lid closed, then press **OK** to re-run the test with the tube strips in the correct order.

- If the **System Verification Failed** message persists after re-running the tube strips with the lid closed, do **not** use the instrument and contact Technical Support for help.

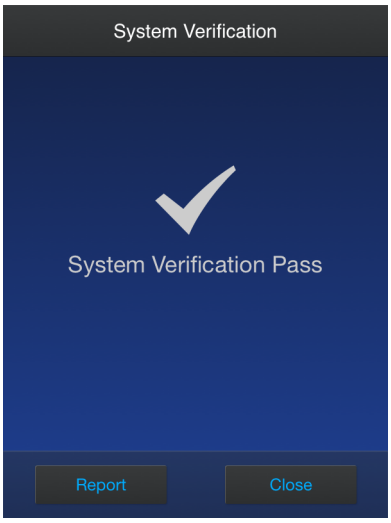


Figure 25 System Verification Pass

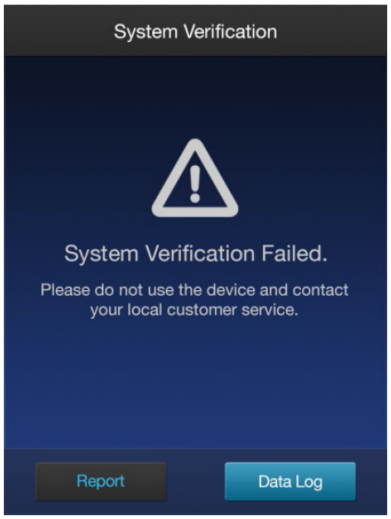


Figure 26 System Verification Failed

10. Press **Report** to view the **System Verification Report** or press **Data Log** to view and export the available data logs (Step 10 on page 118).

    The **System Verification Report** shows the pass/fail status of the instrument components.

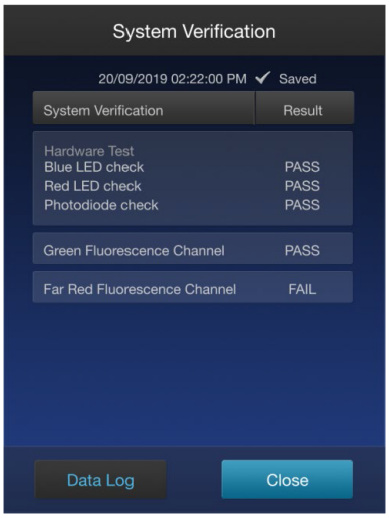


Figure 27 Far Red Fluorescence Channel Fail

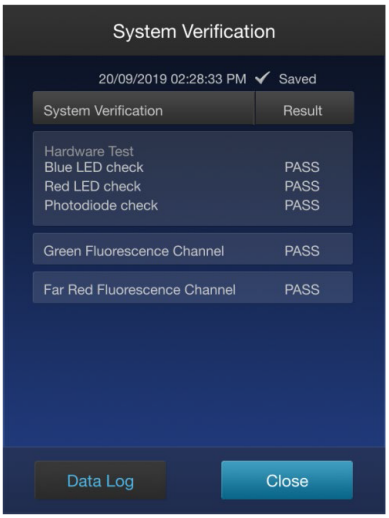
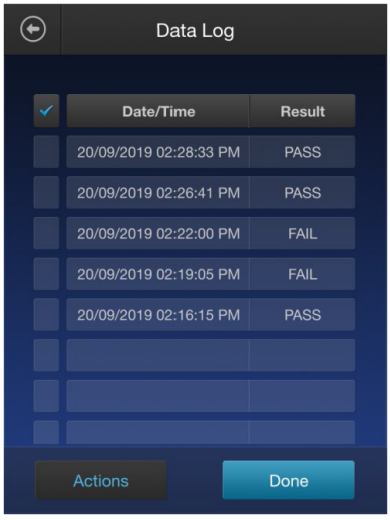
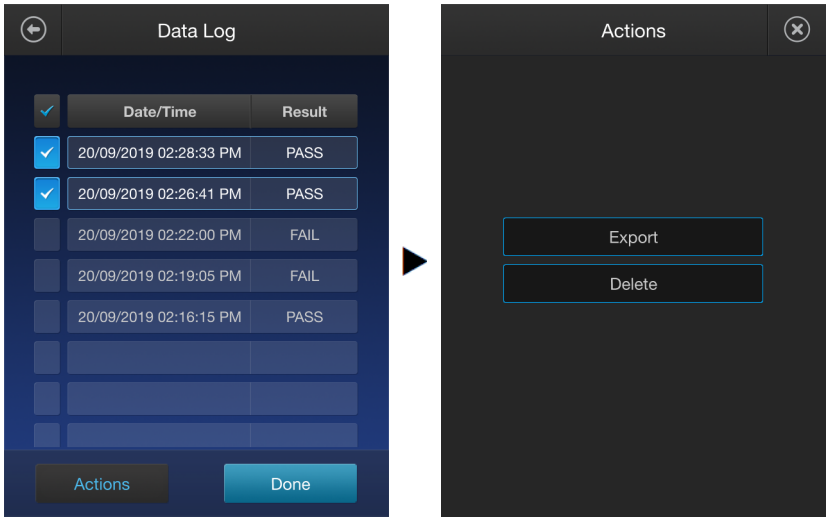


Figure 28 All Pass

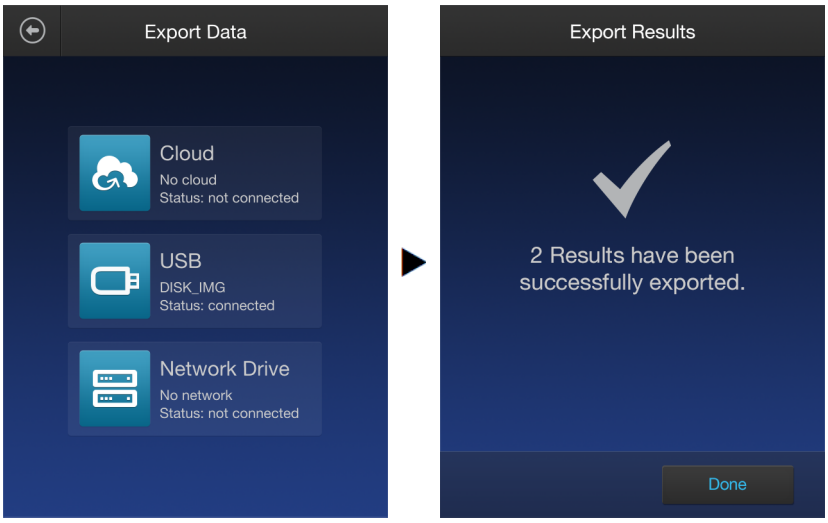
11. Press **Close** to return to the **Settings screen** or press **Data Log** to view the available data logs.



12. To export a **Data Log** as a PDF report, select the desired **Data Log**, press **Actions**, then press **Export**. You can select multiple **Data Logs** for export.



13. Select **Cloud** (Thermo Fisher Connect cloud-based platform), **USB**, or **Network Drive** for the location where you want to save the PDF report of the Verification Assay Test Results.



14. To delete a **Data Log**, select the desired **Data Log**, press **Actions**, then press **Delete**. You can select multiple **Data Logs** for deletion.

Replace battery

The Qubit™ Flex Fluorometer contains a 3 V CR2450 battery, which is required to record the export CSV file date and time. When the battery runs out, the system cannot keep the time setting, which indicates the need to replace the battery.

Replace battery

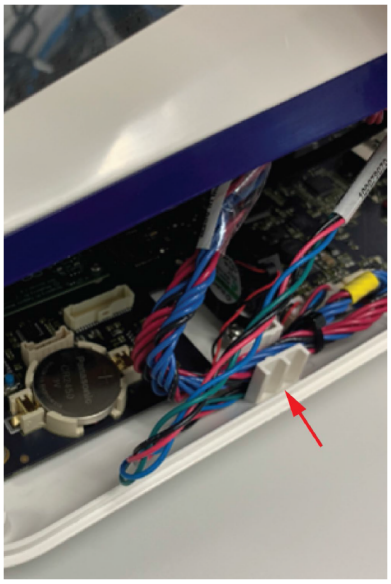
1. Disconnect the Qubit™ Flex Fluorometer from the power source.
2. Remove the four screws (as indicated by the red arrows) on the bottom chassis of the Qubit™ Flex instrument using a Phillips-head screwdriver.

3. Flip the instrument so that the top chassis is facing up.
4. Open the instrument slightly (~ 3 cm) from the bottom right side.

5. Pry the old battery from its housing using a flat-head screwdriver and remove it.

6. Insert the new 3 V CR2450 battery to the battery housing.

7. Arrange two cable assemblies into the groove on the bottom chassis, place the top chassis on the bottom chassis so that the slots for the screws align properly, then tighten the four screws on the bottom chassis using a Phillips-head screwdriver.



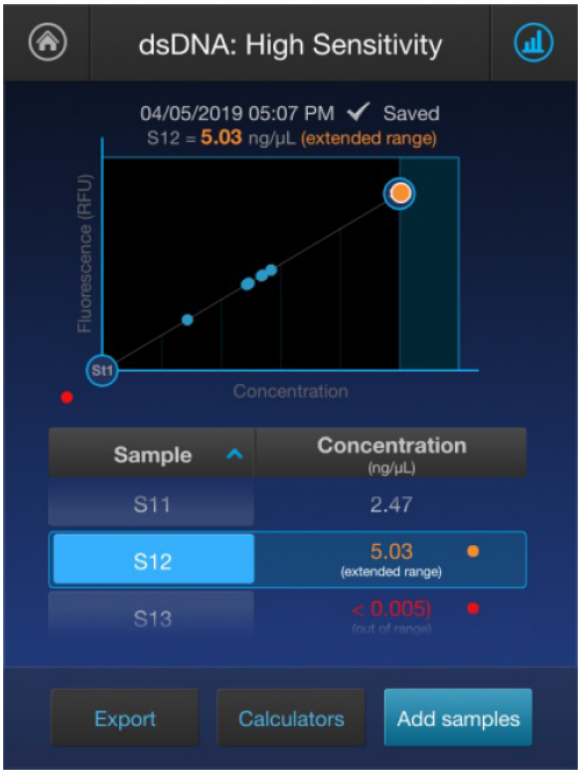
Troubleshooting

Handling samples

- The calibration standards included in the Qubit™ microRNA, Qubit™ RNA HS, and Qubit™ RNA BR Assay Kits are high-quality RNA standards. The integrity and concentration of these standards is critical to the optimal performance of the Qubit™ RNA assays. We highly recommend treating the rRNA standards as you would any other precious RNA. Use appropriate RNase-free handling techniques, including RNase-free gloves, pipette tips, and tubes. Keep the tube lids closed whenever possible; do not press the pipet to the inside wall of the tube when withdrawing a sample. Return the RNA standards to –80°C as soon as possible after use.
- Ensure that the assay tubes are at room temperature at the time the reading is taken. Do not hold assay tubes in your hand and do not leave assay tubes in the Qubit™ Flex Fluorometer for longer than it takes to read the fluorescence. See “Assay temperature” on page 128”.
- Be careful not to spill sample into the sample chamber. Promptly wipe any spills.
- The Qubit™ assays are very sensitive and even small amounts of material from a previous sample may result in errors. Use a clean Qubit™ Flex Tube Strip for each reading.
- The tube must be clean and dry on the outside when taking readings. Moisture and condensation on the tube surface can lead to reading errors.
- Minute bubbles in samples will cause errors in readings. Be sure not to introduce bubbles into samples. Slight tapping on the tube wall or brief centrifugation will often help dissipate bubbles.
- Validate Qubit™ results by using Standard 2 to create a dilution series as a sample, then compare replicates of readings to the expected concentration. This ensures accurate readings and builds trust in the results. Contact Technical Support for further guidance.

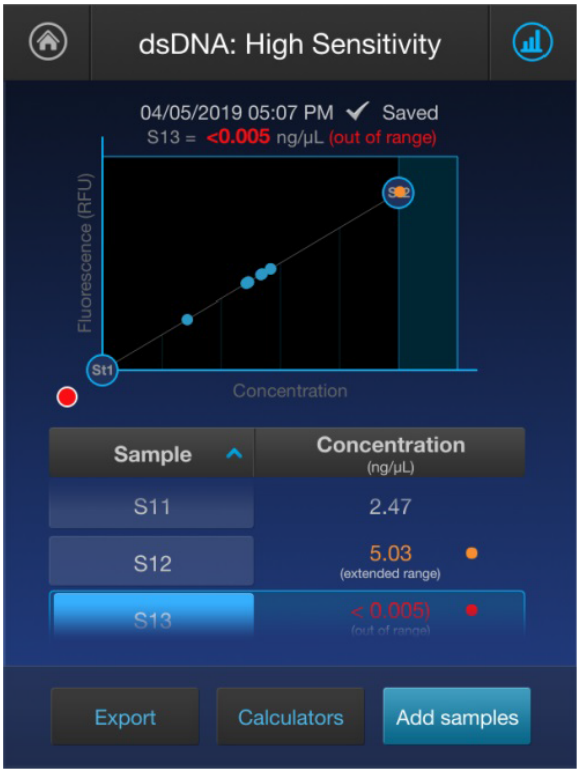
High reading

- The sample is out of range. Use a sample that is less concentrated or add a smaller volume of sample into the assay to further dilute the sample.
- For Qubit™ quantification assays, view the Fluorescence vs. Concentration graph in the Results screen to confirm that the values for the samples fall between the values of the standards (Step 2 on page 57).
- Ensure that the lid is closed while reading standards and samples.
- Prepare samples and standards according to the instructions in the Qubit™ assay kit you are using.
- Ensure that the assay is performed entirely at room temperature.



Low reading

- The sample is out of range. Use a sample that is more concentrated or use a lower dilution (for example, 20 µL in 180 µL instead of 10 µL in 190 µL).
- For Qubit™ quantification assays, view the Fluorescence vs. Concentration graph in the Results screen to confirm that the values for the samples fall between the values of the standards (Step 2 on page 57).
- Ensure that you have prepared the Qubit™ Working Solution correctly (1:200 dilution using the buffer provided in the kit).
- Ensure that you have prepared the standard tubes correctly (10 µL of each standard in 190 µL of Qubit™ Working Solution).
- Ensure that the standard and sample tubes are filled to 200 µL.
- Protect the Qubit™ reagent and working solutions from light.
- Select the correct Qubit™ Flex Fluorometer assay for the Qubit™ assay you are performing and calibrate the fluorometer correctly. Standards must be used in the correct order.
- Ensure that the assay is performed entirely at room temperature.



Critical Qubit™ assay considerations

How the Qubit™ Flex Fluorometer calculates concentration

The Qubit™ Flex Fluorometer generates concentration data based on the relationship between the two standards used in calibration (three for the Qubit™ protein assay). The plot below shows the line corresponding to the curve-fitting algorithm (a modified Hill plot) used in the calculation of concentration data for the Qubit™ RNA HS assay. For reference, the positions of the standards and a set of data points from an actual experiment are shown superimposed onto the line. This plot demonstrates that the curve-fitting algorithm gives accurate values for quantification.

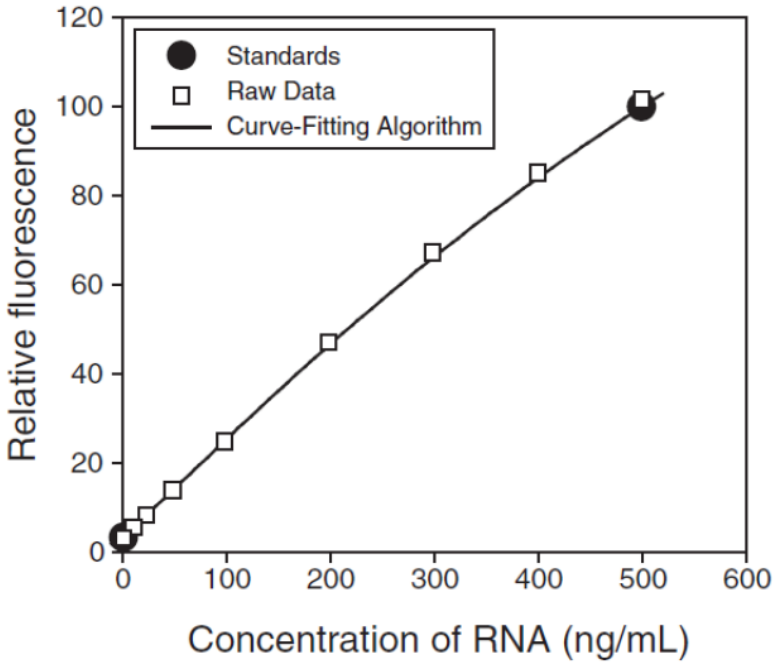


Figure 29 The curve-fitting algorithm used to determine concentration in the Qubit™ RNA HS assay. Data for other Qubit™ quantification assays are generated by similar algorithms.

Incubation time

To allow the Qubit™ assay to reach maximum fluorescence, incubate the tubes for the DNA and RNA assays for 2 minutes after mixing the sample or standard with the working solution. After this incubation period, the fluorescence signal is stable for 3 hours at room temperature for all nucleic acid assays except the Qubit™ ssDNA assay, which is stable for up to 30 minutes.

The Qubit™ protein assay requires 15 minutes of incubation for a stable signal. For greatest accuracy in the protein assay, the incubation time of the samples should be within 10 minutes of the incubation time of the standards.

Photobleaching of Qubit™ reagents

The Qubit™ DNA and protein exhibit high photostability in the Qubit™ Flex Fluorometer, showing <0.3% drop in fluorescence after 9 readings and <2.5% drop in fluorescence after 40 readings. It is important to remember, however, that if the assay tube remains in the Qubit™ Flex Fluorometer for multiple readings, a temporary reduction in fluorescence will be observed as the solution increases in temperature (see Figure 30 in ""Assay temperature" on page 128"). The RNA assays should only be read once.

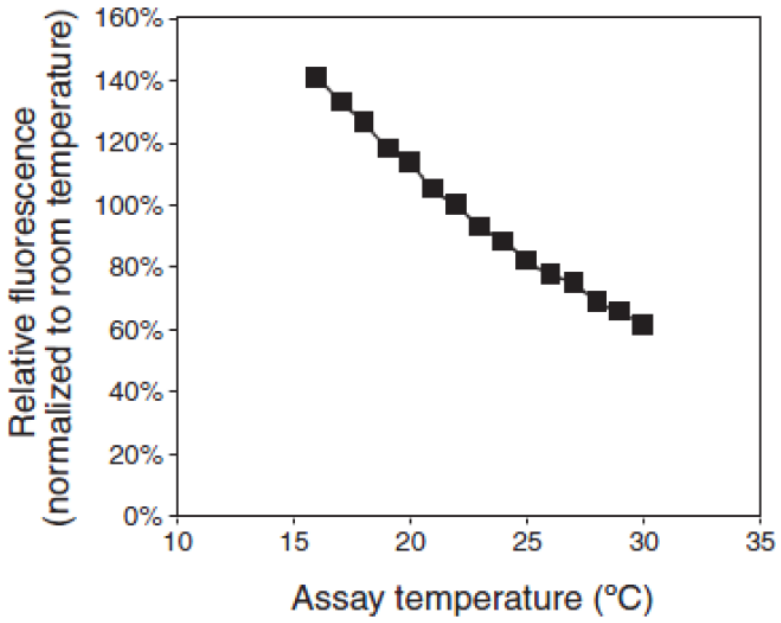


Figure 30 Effect of temperature on the Qubit™ dsDNA BR assay. Qubit™ dsDNA HS, Qubit™ ssDNA, Qubit™ RNA HS, and Qubit™ protein assays show similar sensitivities over the same range.

Note that the temperature inside the Qubit™ Flex Fluorometer may be as much as 3°C above room temperature after 1 hour. For this reason, 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.

Assay temperature

The Qubit™ assays were designed to be performed at room temperature (22–28°C), and temperature fluctuations can influence the accuracy of the assay.

To minimize temperature fluctuations, store all kit reagents at room temperature and insert all assay tubes into the Qubit™ Flex Fluorometer only for as much time as it takes for the instrument to measure the fluorescence, because the Qubit™ Flex Fluorometer 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 a measurement, because holding the tubes warms the solution and results in a low reading.

Qubit™ Flex Fluorometer calibration

For each assay, you have the choice to run standards for a new calibration or to use the values from the previous calibration.

As 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 determine the level of comfort you have using the calibration data stored from the last time the instrument was calibrated.

Remember also that the fluorescence signal in the tubes containing the standards and the samples is stable for not longer than 3 hours. See Figure 29 in ““How the Qubit™ Flex Fluorometer calculates concentration” on page 126” (“How the Qubit™ Flex Fluorometer calculates concentration” on page 126) for an example of the calibration curve used to generate the quantification results.

Accuracy is best when samples and standards are similar; but alternative standards can be used. For example, if quantifying samples with modified nucleotides, create your own Standard 2 using the modified sample at the same concentration as the assay's Standard 2.

B

Ordering information

Qubit™ Flex Fluorometer and accessories

The following products can be used with the Qubit™ Flex Fluorometer and are available separately from Thermo Fisher Scientific. For more information, visit **thermofisher.com** or contact Technical Support.

Product	Quantity	Cat. No.
Qubit™ Flex Fluorometer	1 each	Q33327
Qubit™ Flex Quantitation Starter Kit	1 kit	Q45894
Qubit™ Flex NGS Starter Kit	1 kit	Q45893
Qubit™ Flex Endotoxin Detection Starter Kit	1 kit	Q32894
Qubit™ Flex Fluorometer with Security Software	1 kit	Q45895
Qubit™ Flex Software License - SAE Module for 21CFR pt 11 support	1 license	Q31994
Qubit™ Flex USB Flash® Drive	1 each	Q46009
Qubit™ Flex Wi-Fi dongle	1 each	A26774
Qubit™ Flex Fluorometer International Power Supply (replacement)	1 each	A56309
Qubit™ Flex Tube Strips	125 strips	Q33252
Qubit™ Flex Reservoir (10 mL)	100 each	Q33253
Qubit™ Flex System Verification Assay Kit	1 kit	Q33254
Qubit™ RNA BR Assay Kit	100 assays 500 assays	Q10210 Q10211
Qubit™ RNA HS Assay Kit	100 assays 500 assays	Q32852 Q32855
Qubit™ ssDNA Assay Kit	100 assays	Q10212
Qubit™ dsDNA BR Assay Kit	100 assays 500 assays	Q32850 Q32853
Qubit™ dsDNA HS Assay Kit	100 assays 500 assays	Q32851 Q32854

(continued)

Product	Quantity	Cat. No.
Qubit™ 1X dsDNA HS Assay Kit	100 assays	Q33230
	500 assays	Q33231
Qubit™ Protein Assay Kit (0.25–5 µg)	100 assays	Q33211
	500 assays	Q33212
Qubit™ microRNA Assay Kit (0.5–100 ng)	100 assays	Q32880
	500 assays	Q32881
Qubit™ dsDNA HS Assay - Lambda DNA Standard	5 mL	Q33233
Qubit™ Endotoxin Assay	80 assays	Q32891
Qubit™ RNA IQ Assay Kit	75 assays	Q33221
	275 assays	Q33222
Qubit™ 1X dsDNA BR Assay Kit	100 assays	Q33266
	500 assays	Q33265

C

Safety

WARNING! GENERAL SAFETY. Using this product in a manner not specified in the user documentation may result in personal injury or damage to the instrument or device. Ensure that anyone using this product has received instructions in general safety practices for laboratories and the safety information provided in this document.

- Before using an instrument or device, read and understand the safety information provided in the user documentation provided by the manufacturer of the instrument or device.
- Before handling chemicals, read and understand all applicable Safety Data Sheets (SDSs) and use appropriate personal protective equipment (gloves, gowns, eye protection, and so on). To obtain SDSs, visit **thermofisher.com/support**.

Symbols on this instrument

Symbols may be found on the instrument to warn against potential hazards or convey important safety information. In this document, the hazard symbol is used along with one of the following user attention words.

- **CAUTION!**—Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
- **WARNING!**—Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
- **DANGER!**—Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

Standard safety symbols

Symbol and description
CAUTION! Risk of danger. Consult the manual for further safety information.
CAUTION! Risk of electrical shock.
CAUTION! Hot surface.
CAUTION! Pinch point.
CAUTION! Potential biohazard.

Control and connection symbols

Symbols and descriptions	
	On (Power)
	Off (Power)
	Earth (ground) terminal
	Protective conductor terminal (main ground)
	Direct current
	Alternating current
	Both direct and alternating current

Conformity symbols

Conformity mark	Description
	Indicates conformity with safety requirements for Canada and U.S.A.
	China ROHS EFUP 25 (Environmental Friendly Use Period of 25 years)
	Indicates conformity with European Union requirements.
	Indicates conformity with Australian standards for electromagnetic compatibility.
	INDICATES CONFORMITY WITH THE WEEE DIRECTIVE 2012/19/EU. **CAUTION!** To minimize negative environmental impact from disposal of electronic waste, do not dispose of electronic waste in unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provision and contact customer service for information about responsible disposal options.

General instrument safety

WARNING! PHYSICAL INJURY HAZARD. Use this product only as specified in this document. Using this instrument in a manner not specified may result in personal injury or damage to the instrument.

Operating the instrument

Ensure that anyone who operates the instrument has:

- Received instructions in both general safety practices for laboratories and specific safety practices for the instrument.
- Read and understood all relevant Safety Data Sheets (SDSs). See "**Safety Data Sheets (SDS)**".

Safety precautions

Do not install the instrument in areas with high humidity, such as greenhouses or incubators, to prevent the risk of electric shock. If water or other materials enter the instrument, the adaptor, or the power inlet, disconnect the power cord immediately and contact a service technician:

- Make sure to only use the 12V power supply that comes with the Qubit™. Use of higher than 12V power supply will damage the Qubit™ Flex Fluorometer device.
- Do not press the main plug or power cord with wet hands.
- Ensure the power supply input voltage matches the voltage available at your location.
- Do not install the instrument on an inclined surface or in areas subject to vibrations, as this may cause malfunction or damage.
- Securely plug the power cord into both the wall outlet and the instrument.
- To avoid potential shock hazard, make sure that the power cord is properly grounded.
- Be sure to position the equipment such that it is easy to disconnect the instrument.
- If the instrument is broken or dropped, disconnect the power cord and contact technical services. Do not disassemble the instrument.
- Use only authorized accessories (adaptor, power cord, and USB drive).
- For operating environment, see "Product specifications" on page 14.
- If the instrument emits smoke, disconnect the power cord from the wall outlet and contact technical services.

Cleaning and decontamination

CAUTION! Cleaning and Decontamination. Using cleaning or decontamination methods other than those recommended by the manufacturer may compromise the safety or quality of the instrument.

Removing covers or parts of the instrument

WARNING! PHYSICAL INJURY HAZARD. The instrument is to be serviced only by trained personnel or vendor specified in the user guide. Do not remove any covers or parts that require the use of a tool to obtain access to moving parts.

Safety and electromagnetic compatibility (EMC) standards

The instrument design and manufacture complies with the following standards and requirements for safety and electromagnetic compatibility.

Safety and EMC standards

Reference	Description
UL 61010–1/CAN/CSA–C22.2 No. 61010–1 IEC/EN 61010–1	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements.
UL 61010–2–081/CAN/CSA–C22.2 No. 61010–2–081 IEC/EN 61010–2–081	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2–081: Particular Requirements for Automatic and Semi-Automatic Laboratory Equipment for Analysis and Other Purposes.
FCC Part 15 Subpart B (47 CFR)	This instrument has been tested to and complies with standard 47 CFR FCC Part 15 “Radio Frequency Devices”; Subpart B “Unintentional Radiators”. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
ICES–001	This instrument has been tested to and complies with standard ICES-001, “Industrial, Scientific and Medical (ISM) Radio Frequency Generators.”
EU Directive 2014/35/EU	European Union “Low Voltage Directive”
EU Directive 2014/30/EU	European Union “EMC Directive”
IEC 61326-1 EN 61326-1	Class A; Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements – Part 1: General Requirements.
AS/NZS CISPR 11	This instrument has been tested to and complies with standard AS/NZS CISPR 11, “Limits and Methods Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical (ISM) Radio-frequency Equipment.”

Environmental design standards

Reference	Description
Directive 2012/19/EU	European Union “WEEE Directive”—Waste electrical and electronic equipment
EU Directive 2011/65/EU Commission Delegated Directive (EU) 2015/863	European Union “RoHS Directive”—Restriction of hazardous substances in electrical and electronic equipment
SJ/T 11364-2014	“China RoHS” Standard—Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products For instrument specific certificates, visit our customer resource page at **www.thermofisher.com/us/en/home/technical-resources/rohs-certificates.html**
Regulation EC 1907/2006	European Union “REACH Directive”— Registration, Evaluation, Authorisation and Restriction of Chemicals

Chemical safety

WARNING! GENERAL CHEMICAL HANDLING. To minimize hazards, ensure laboratory personnel read and practice the general safety guidelines for chemical usage, storage, and waste provided below. Consult the relevant SDS for specific precautions and instructions:

- Read and understand the Safety Data Sheets (SDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials. To obtain SDSs, see the "Documentation and Support" section in this document.
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing).
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with sufficient ventilation (for example, fume hood).
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer cleanup procedures as recommended in the SDS.
- Handle chemical wastes in a fume hood.
- Ensure use of primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- After emptying a waste container, seal it with the cap provided.
- Characterize (by analysis if needed) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure that the waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.
- **IMPORTANT!** Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

WARNING! HAZARDOUS WASTE (from instruments). Waste produced by the instrument is potentially hazardous. Follow the guidelines noted in the preceding General Chemical Handling warning.

WARNING! 4L Reagent and Waste Bottle Safety. Four-liter reagent and waste bottles can crack and leak. Each 4-liter bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position.

Chemical waste safety

Chemical waste hazard

CAUTION! HAZARDOUS WASTE!

Refer to Safety Data Sheets (SDSs) and local regulations for handling and disposal.

Chemical waste safety guidelines

To minimize the hazards of chemical waste:

- Read and understand the Safety Data Sheets (SDSs) provided by the manufacturers of the chemicals in the waste container before you store, handle, or dispose of chemical waste.
- Provide primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the SDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the SDS.
- Handle chemical wastes in a fume hood.
- After emptying the waste container, seal it with the cap provided.
- Dispose of the contents of the waste tray and waste bottle in accordance with good laboratory practices and local, state/provincial, or national environmental and health regulations.

Waste disposal

If potentially hazardous waste is generated when you operate the instrument, you must:

- Characterize (by analysis, if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure the health and safety of all personnel in your laboratory.
- Ensure that the instrument waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.

IMPORTANT! Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

Electrical safety

WARNING! Fuse Installation. Before installing the instrument, verify that the fuses are properly installed and the fuse voltage matches the supply voltage. Replace fuses only with the type and rating specified for the unit. Improper fuses can damage the instrument wiring system and cause a fire.

WARNING! Voltage Selector Switch. Before installing the instrument, verify that the voltage selector switch is set for the supply voltage. This will prevent damage to the instrument, reduce risk of fire, and enable proper operation.

WARNING! Ensure appropriate electrical supply. For safe operation of the instrument:

- Plug the system into a properly grounded receptacle with adequate current capacity.
- Ensure the electrical supply is of suitable voltage.
- Never operate the instrument with the ground disconnected. Grounding continuity is required for safe operation of the instrument.

WARNING! Power Supply Line Cords. Use properly configured and approved line cords for the power supply in your facility. If the line cord is damaged, contact Technical Support.

WARNING! Disconnecting Power. To fully disconnect power either detach or unplug the power cord, positioning the instrument such that the power cord is accessible.

Overvoltage rating

The Qubit™ Flex Fluorometer, has an installation (overvoltage) category of II, and is classified as portable equipments.

Biological hazard safety

WARNING! Potential Biohazard. Depending on the samples used on this instrument, the surface may be considered a biohazard. Use appropriate decontamination methods when working with biohazards.

WARNING! BIOHAZARD. Biological samples such as tissues, body fluids, infectious agents, and blood of humans and other animals have the potential to transmit infectious diseases. Conduct all work in properly equipped facilities with the appropriate safety equipment (for example, physical containment devices). Safety equipment can also include items for personal protection, such as gloves, coats, gowns, shoe covers, boots, respirators, face shields, safety glasses, or goggles. Individuals should be trained according to applicable regulatory and company/ institution requirements before working with potentially biohazardous materials. Follow all applicable local, state/provincial, and/or national regulations. The following references provide general guidelines when handling biological samples in laboratory environment.

- U.S. Department of Health and Human Services, *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, 6th Edition, HHS Publication No. (CDC) 300859, Revised June 2020
  cdc.gov/labs/bmbl
- Laboratory biosafety manual, fourth edition. Geneva: World Health Organization; 2020 (Laboratory biosafety manual, fourth edition and associated monographs)
  who.int/publications/i/item/9789240011311

Documentation and support

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  - Safety Data Sheets (SDSs; also known as MSDSs)

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

Limited product warranty

Life Technologies Corporation and its affiliates warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have questions, contact Life Technologies at **www.thermofisher.com/support**.