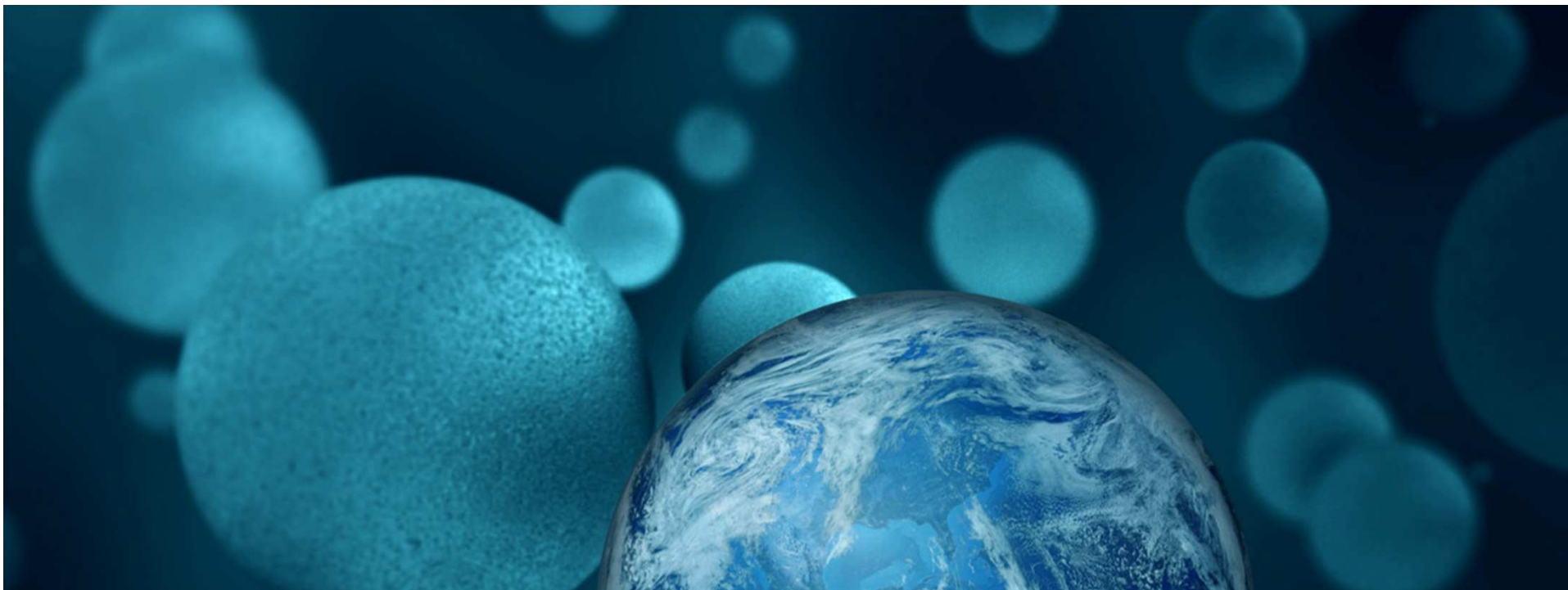


## Suggestions for the Trainer...

- This is the system overview presentation for both QS3 and QS5
- Please prepare yourself according to the type of the SSO
  - Half day SSO (mostly for QS3) – the time for this intro is 20 minutes
  - Check the slides and reduce the content as needed
  - Full one day SSO (mostly for QS5) – the time for this intro is 60 minutes
- The slide deck contains two parts
  - About the instrument
  - About the software (Design & Analysis)



**ThermoFisher**  
SCIENTIFIC

## **QuantStudio™ 3 & 5 Real Time PCR Systems**

*Letizia Gerace*  
*Senior qPCR/CE Application Scientist*

The world leader in serving science

# Instrument Features

- Touchscreen
- 10 GB of Onboard Memory (2,000-5,000 run files)
- Wi-Fi connectivity, enabling remote monitoring
- Low maintenance
- Factory calibrated for Applied Biosystems™ reagents
- Browser Based Software (Cloud), enabling PC/MAC compatibility

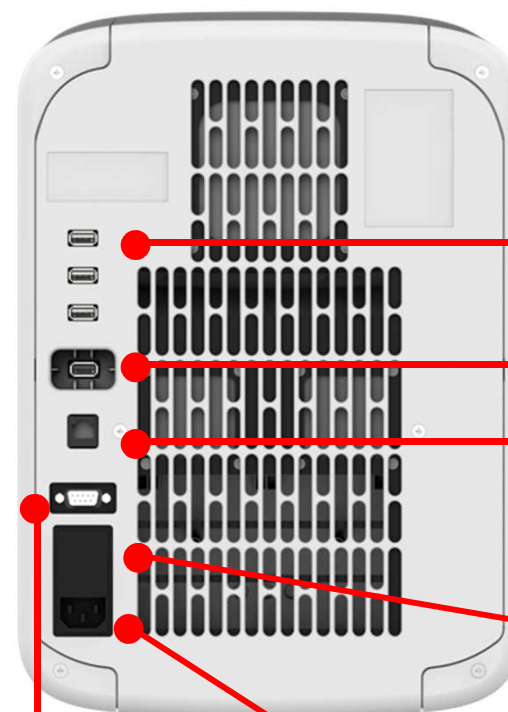


# Instrument Front & Rear Features

Touchscreen (stand-alone capabilities, PIN-protected user accounts, and dye calibration/RNaseP functionality)

USB port for template upload and data download

Motorized block drawer (controlled by touchscreen)



USB ports

WiFi adapter port (optional use)

Ethernet port : RJ45 (10/100Mbps)

Fuse cover

Power port: 100/240 VAC

RS232 port (Service only)

# Technical Specifications

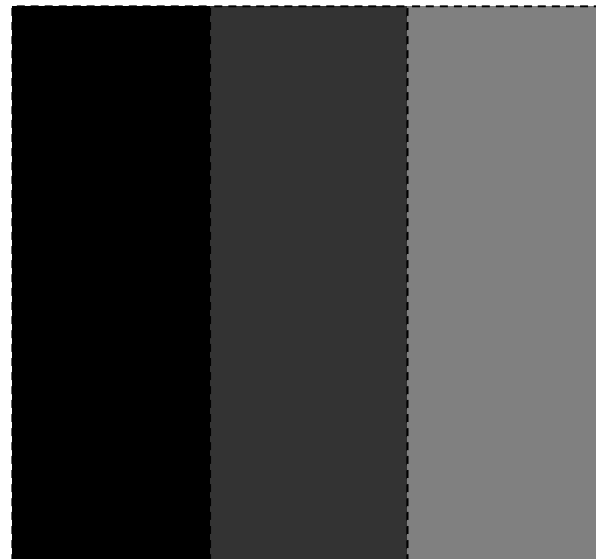
	QuantStudio™ 3 Real Time PCR System	QuantStudio™ 5 Real Time PCR System
Block configurations	96-well 0.1 ml block :10-30 µl 96-well 0.2 ml block : 10-100 µl	96-well 0.1 ml block :10-30 µl 96-well 0.2 ml block : 10-100 µl 384-well: 5-20 µl
Run time	<30 minutes	96-well block: <30 minutes 384-well block: <35 minutes
Excitation source	Bright white LED	Bright white LED
Optical Detection	4 coupled filters	96-well block: 6 decoupled filters 384-well block: 5 coupled filters
Temperature Zone Function	3 VeriFlex zones	96-well block: 6 VeriFlex zones 384-well block: N/A
Temperature Accuracy and Uniformity	0.4 °C & 0.2 °C	0.4 °C & 0.2 °C
Max block ramp rate	96-well 0.1 ml block: 9 °C/sec 96-well 0.2 ml block: 6.5°C/sec	96-well 0.1 ml block: 9 °C/sec 96-well 0.2 ml block: 6.5°C/sec 384-well block: 6.0 °C/sec
21 CFR p11 enablement	No	Yes, with no additional fees
Detection Sensitivity	10 log dynamic range sensitivity 1 copy 1.5 fold differences in target quantities	10 log dynamic range sensitivity 1 copy 1.5 fold differences in target quantities



# VeriFlex™ Blocks

- Independent temperature control in each zone (more precise than gradient)
- Can program at will, including multiple zones with same temp (Temp. difference between adjacent zones  $<5^{\circ}\text{C}$ )
- Great for optimization and also running multiple assays at the same time

QuantStudio™ 3

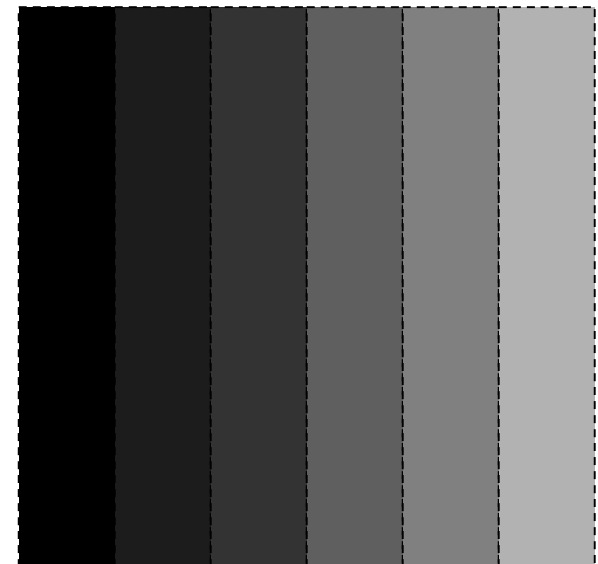


60°C

61°C

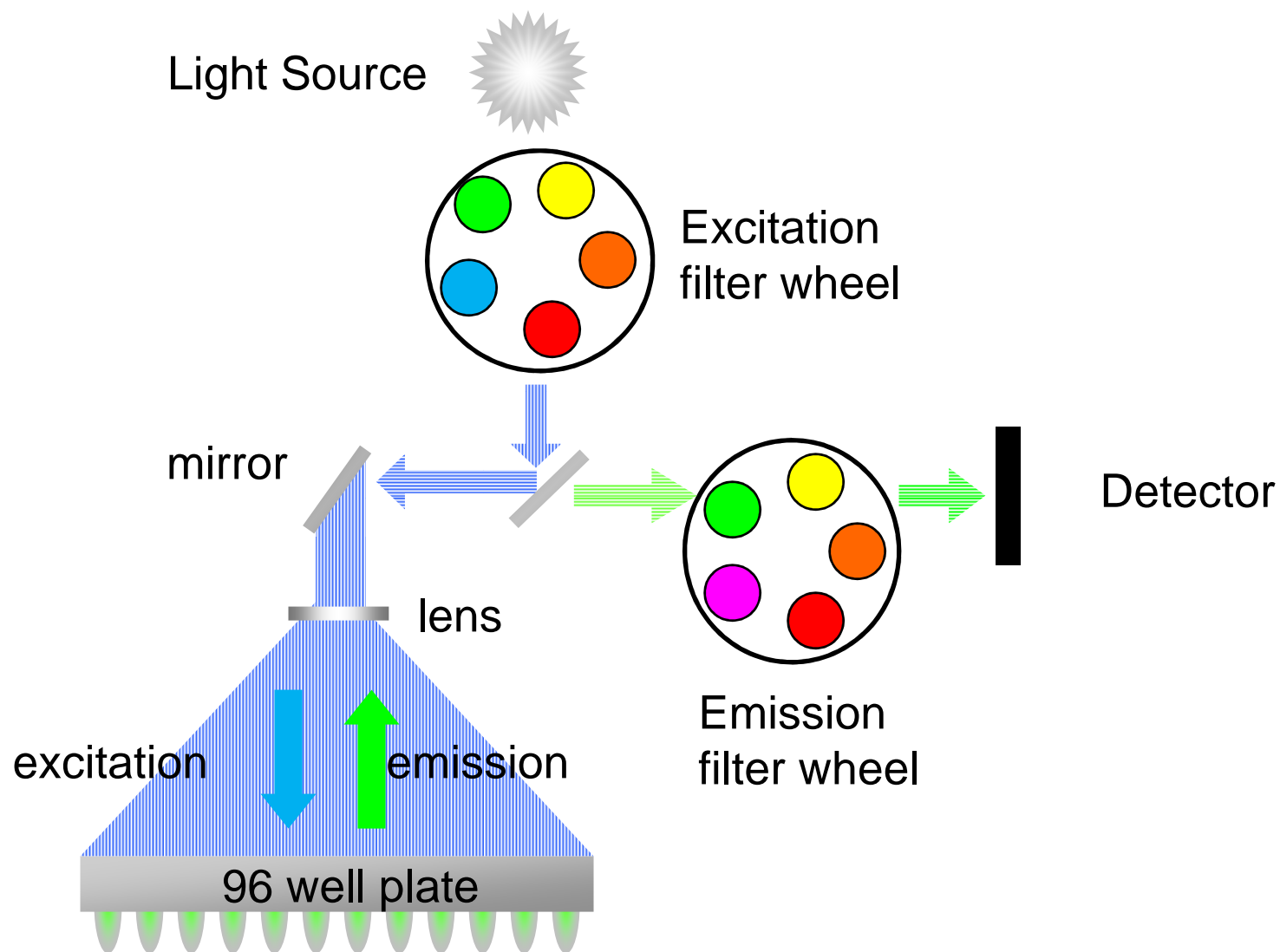
62°C

QuantStudio™ 5 96-well block



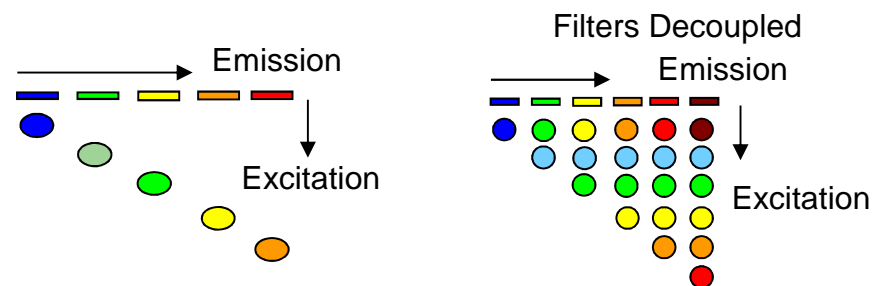
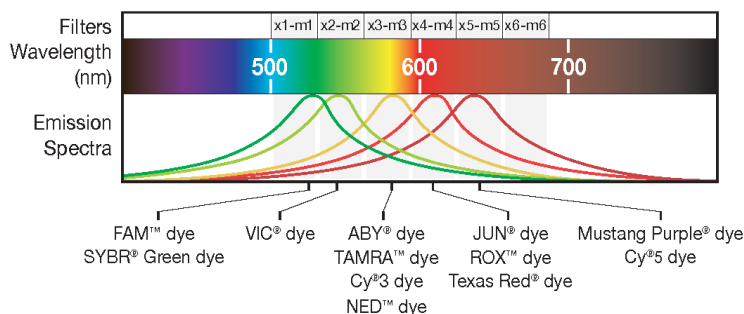
60°C 61°C 62°C 63°C 64°C 65°C

# OptiFlex™ System with Bright White LED



# Multiplex Capabilities

Channel	Dye Examples	Excitation Filter	Emission Filter	QuantStudio™3	QuantStudio™5 384w-block	QuantStudio™5 96-block
x1-m1	<b>FAM™</b> and <b>SYBR Green</b>	470 ± 15nm	520 ± 15nm	✓	✓	✓
x2-m2	<b>VIC™</b> , <b>JOE™</b> , <b>TET™</b> , <b>HEX™</b>	520 ± 10nm	558 ± 12nm	✓	✓	✓
x3-m3	<b>TAMRA™</b> , <b>NED™</b> , <b>ABY™</b>	550 ± 10nm	586 ± 10nm	✓	✓	✓
x4-m4	<b>ROX™</b> , <b>JUN™</b> , Texas Red™	580 ± 10nm	623 ± 14nm	✓	✓	✓
x5-m5	<b>Mustang Purple™</b> , <b>LIZ™</b> , <b>Cy®5</b>	640 ± 10nm	682 ± 14nm		✓	✓
x6-m6	Cy®5.5, Alexa Fluor™	662 ± 10nm	711 ± 12nm			✓

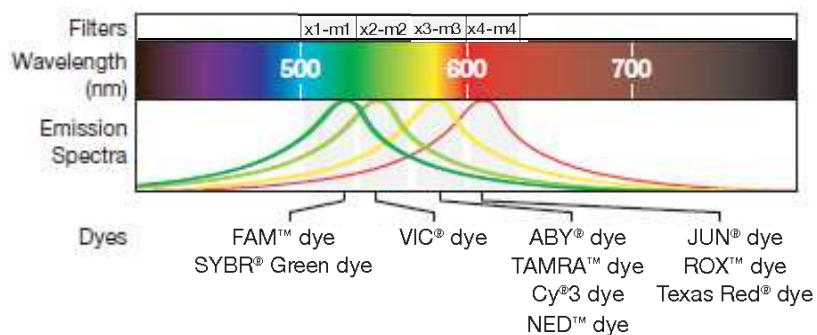




# Multiplexing Capabilities - QuantStudio™ 3

- OptiFlex™ System with Bright White LED
- Four color locked filter system
- Factory calibrated

Peak channel	Color	Filter wavelength (nm) <sup>[1]</sup>		Pre-calibrated dyes	Example custom dyes
		Excitation	Emission		
x1-m1	Blue	470 ± 15	520 ± 15	FAM™ and SYBR® Green	SYT09
x2-m2	Green	520 ± 10	558 ± 12	VIC®	HEX™, TET™, and JOE™ <sup>[2]</sup>
x3-m3	Yellow	550 ± 10	587 ± 10	ABY®, NED™, and TAMRA™	Cy®3
x4-m4	Orange	580 ± 10	623 ± 14	JUN® and ROX™	Texas Red®

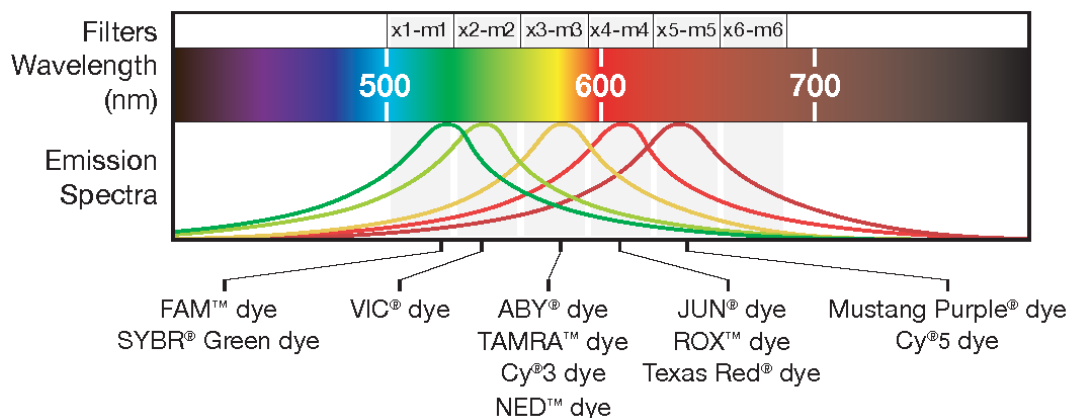


# Multiplexing Capabilities - QuantStudio™ 5

- OptiFlex™ System with Bright White LED
- Six color unlocked filter system
- Factory calibrated

Peak channel	Color	Filter wavelength (nm) <sup>[1]</sup>		Pre-calibrated dyes	Example custom dyes
		Excitation	Emission		
x1-m1	Blue	470 ± 15	520 ± 15	FAM™ and SYBR® Green	SYT09
x2-m2	Green	520 ± 10	558 ± 12	VIC®	HEX™, TET™ and JOE™
x3-m3	Yellow	550 ± 10	587 ± 10	ABY®, NED™, and TAMRA™	Cy®3
x4-m4	Orange	580 ± 10	623 ± 14	JUN® and ROX™	Texas Red®
x5-m5	Red	640 ± 10	682 ± 14	Cy®5 and MUSTANG PURPLE®	LIZ®
x6-m6	Deep-Red	662 ± 10	711 ± 12	None*	Cy®5.5

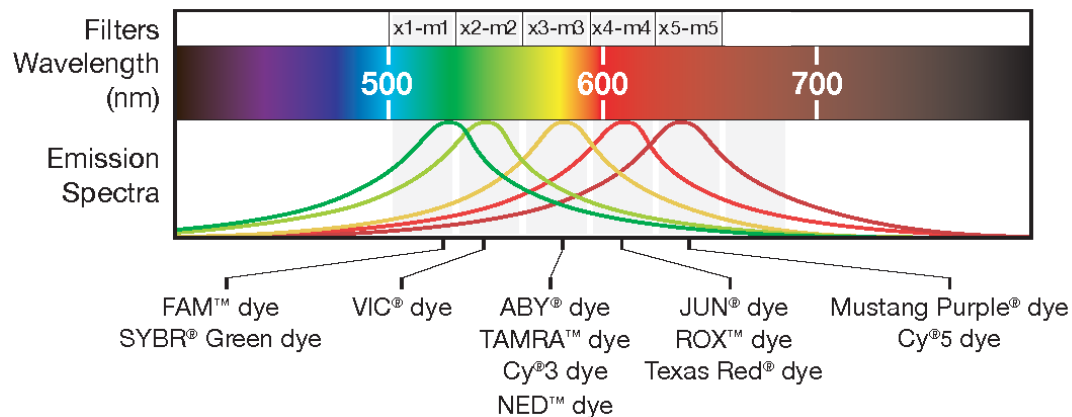
\*This filter set currently does not support any dyes supplied by Thermo Fisher Scientific



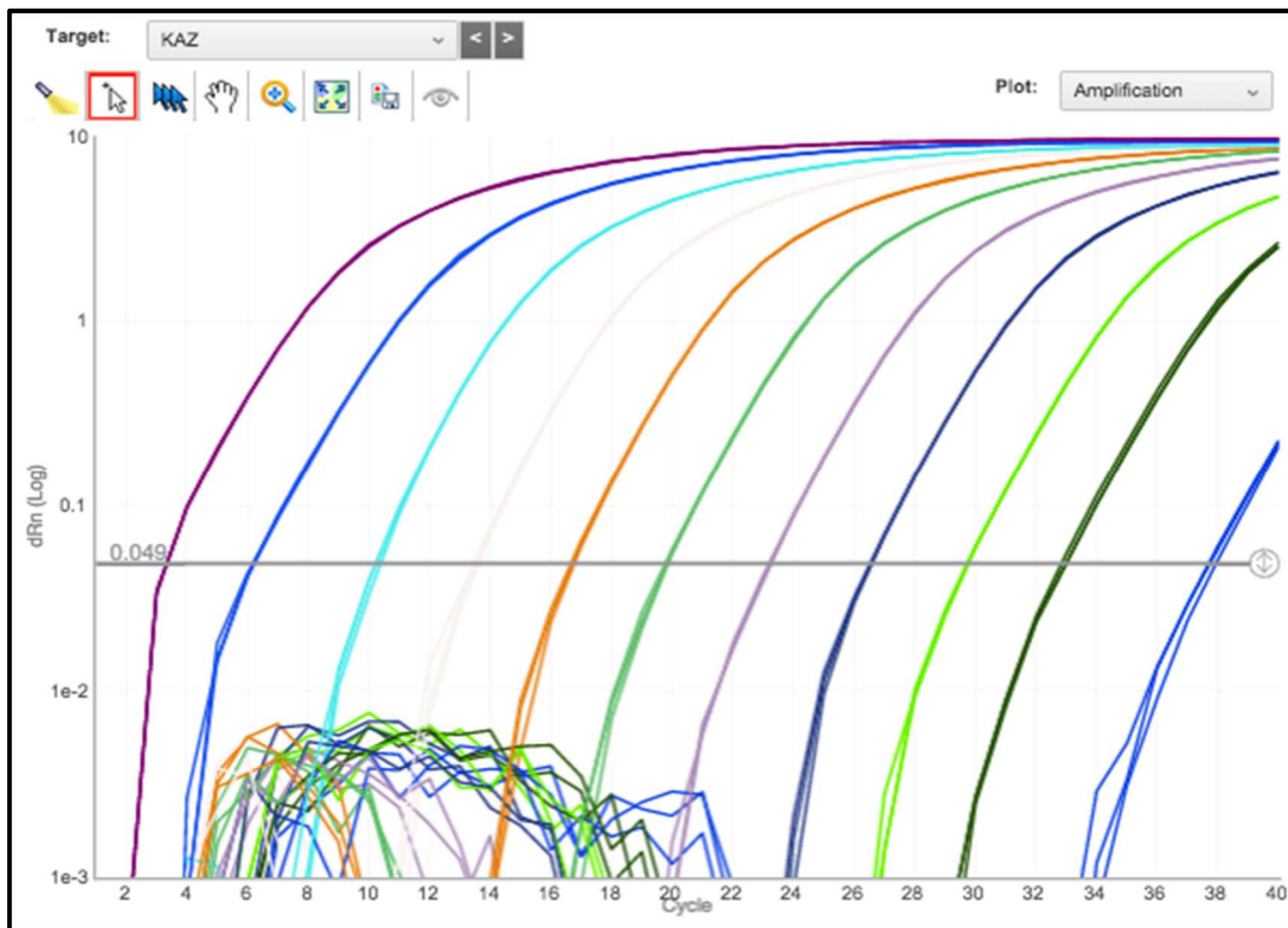
# Multiplexing Capabilities - QuantStudio™ 5 – 384w

- OptiFlex™ System with Bright White LED
- Five color locked filter system
- Factory calibrated

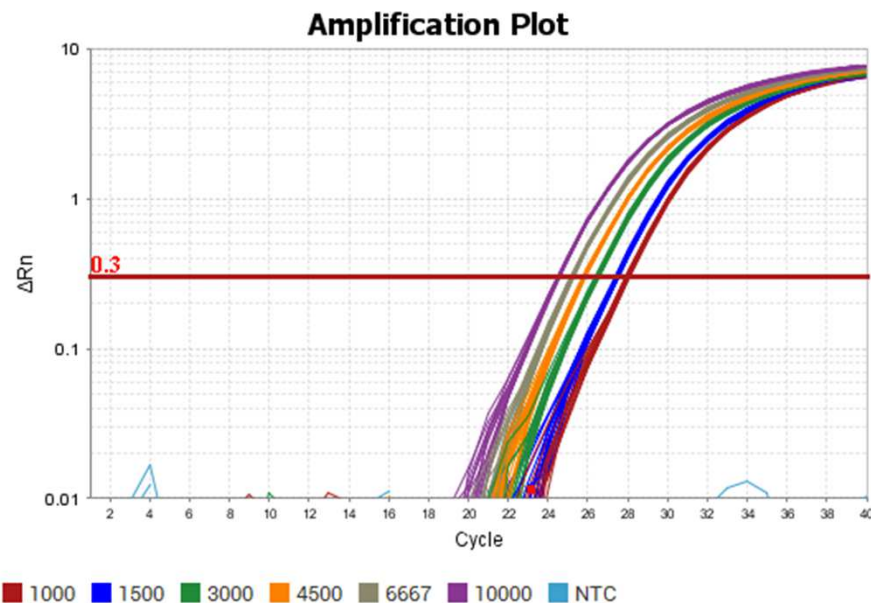
Peak channel	Color	Filter wavelength (nm) <sup>[1]</sup>		Pre-calibrated dyes	Example custom dyes
		Excitation	Emission		
x1-m1	Blue	470 ± 15	520 ± 15	FAM™ and SYBR® Green	SYT09
x2-m2	Green	520 ± 10	558 ± 12	VIC®	HEX™, TET™ and JOE™
x3-m3	Yellow	550 ± 10	587 ± 10	ABY®, NED™, and TAMRA™	Cy®3
x4-m4	Orange	580 ± 10	623 ± 14	JUN® and ROX™	Texas Red®
x5-m5	Red	640 ± 10	682 ± 14	Cy®5 and MUSTANG PURPLE®	LIZ®



# 10-Log Dynamic Range Sensitivity

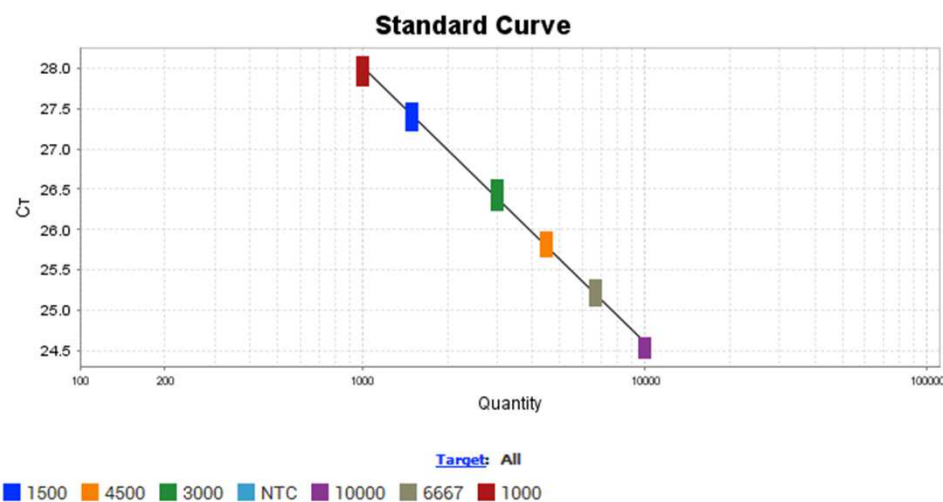


# QuantStudio™ 3 & 5 Enable 1.5-Fold Discrimination

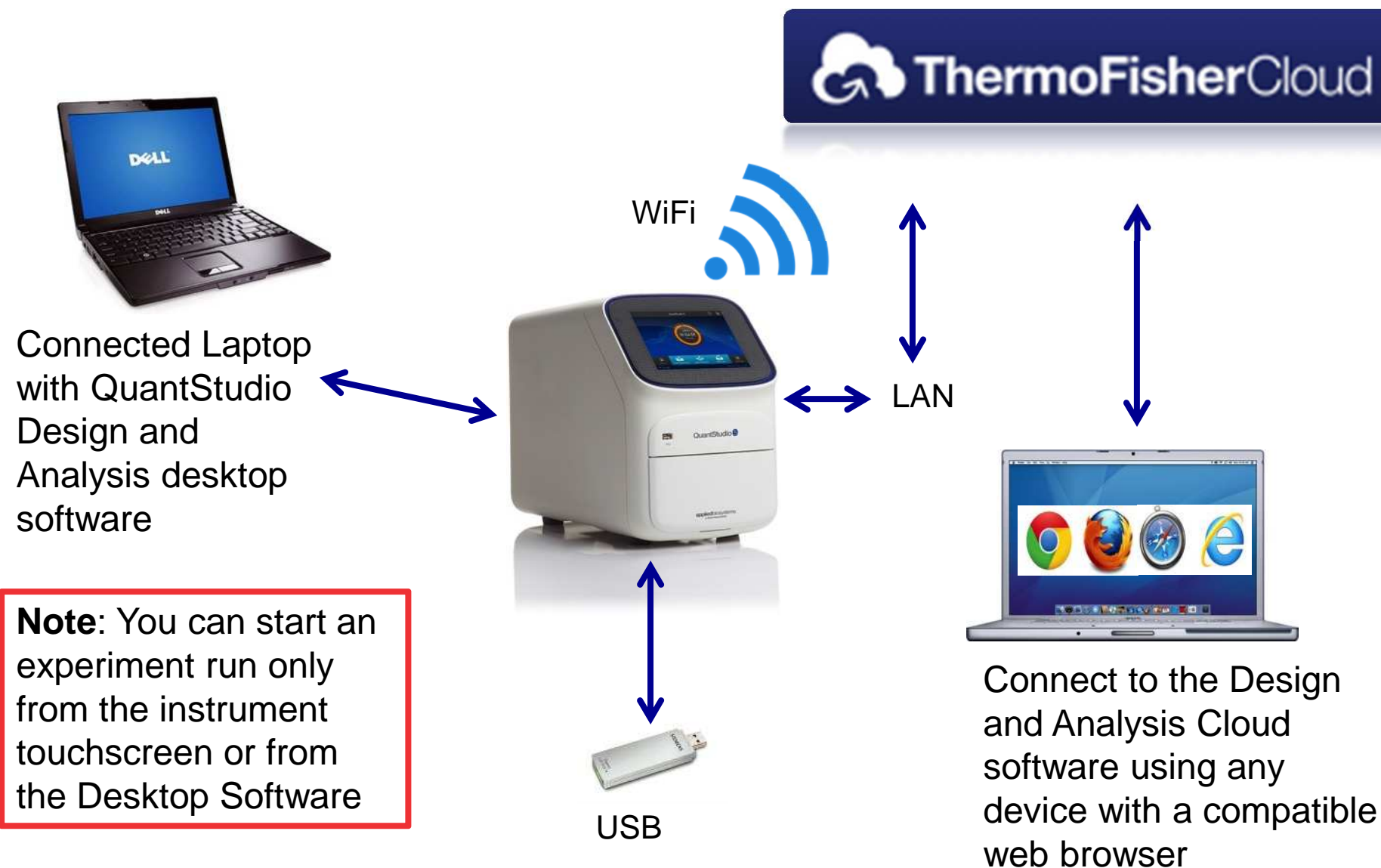


Amplification plots for 1.5-fold dilutions of KAZ plasmid amplified with PE2 TaqMan™ assay under standard Fast run conditions using the TaqMan Fast Advanced Master Mix.

Quantity	C <sub>T</sub>	Std Dev
1000	27.9	0.063
1500	27.45	0.059
3000	26.40	0.060
4500	25.80	0.047
6667	25.20	0.049
10000	24.50	0.041

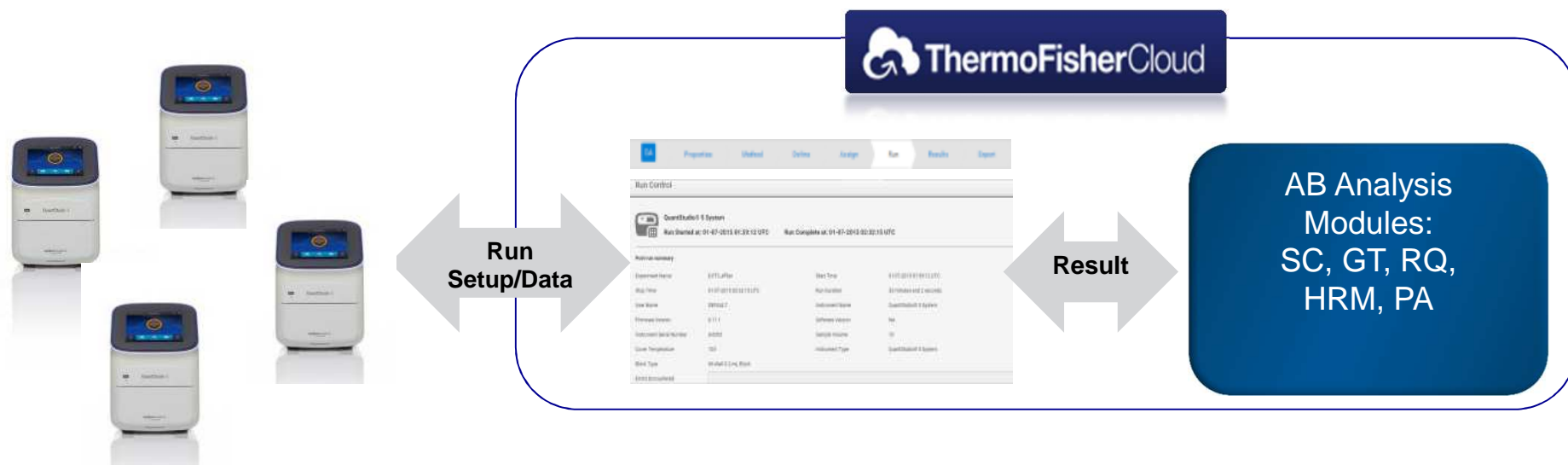


# Instrument Configurations: Stand-alone, Desktop, or Online



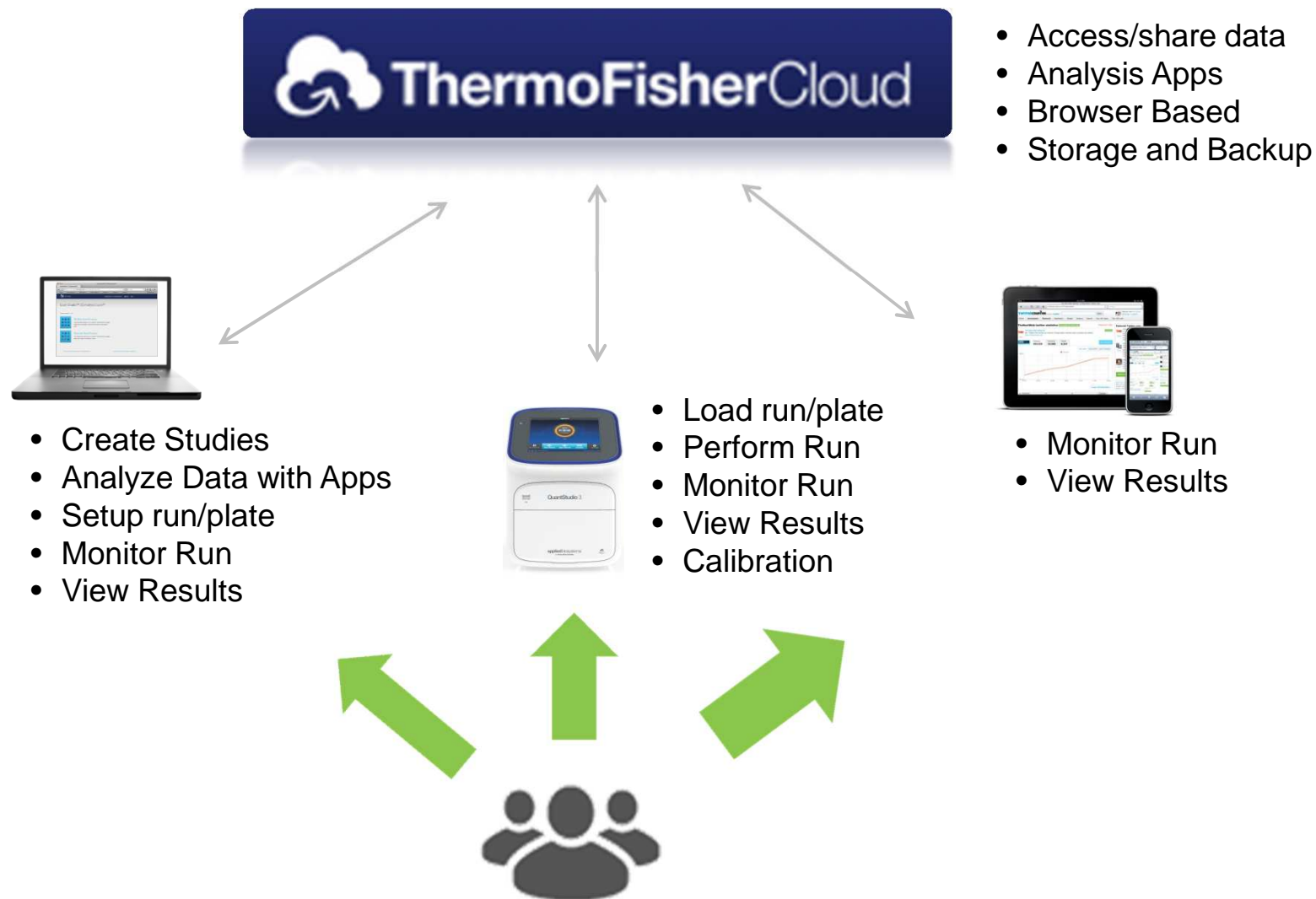
# Ability to Connect Multiple Instruments

- Single software to connect and control all QuantStudio 3/5 instruments in the lab
- Seamless integration with instruments that helps minimize manual data transfer

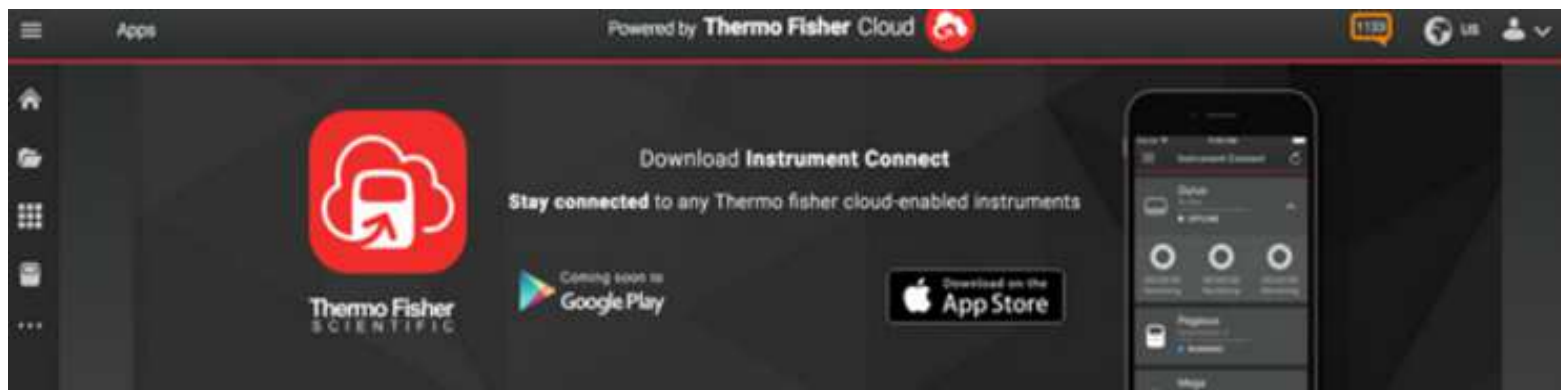




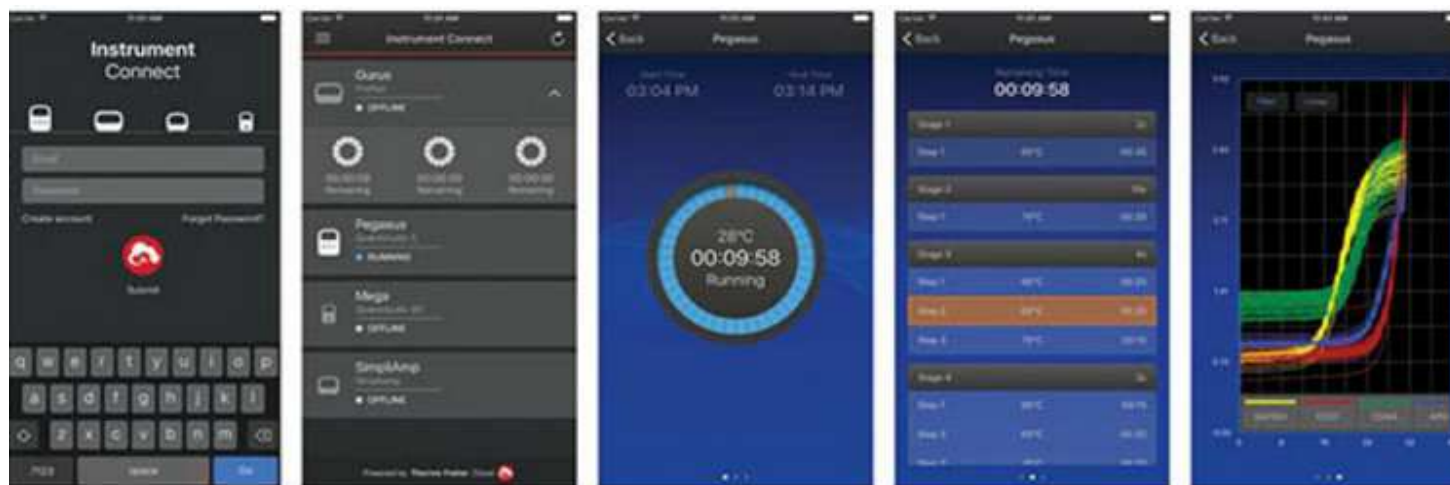
# How the Cloud is utilized with QuantStudio™ 3 & 5



# Instrument Connect Mobile App



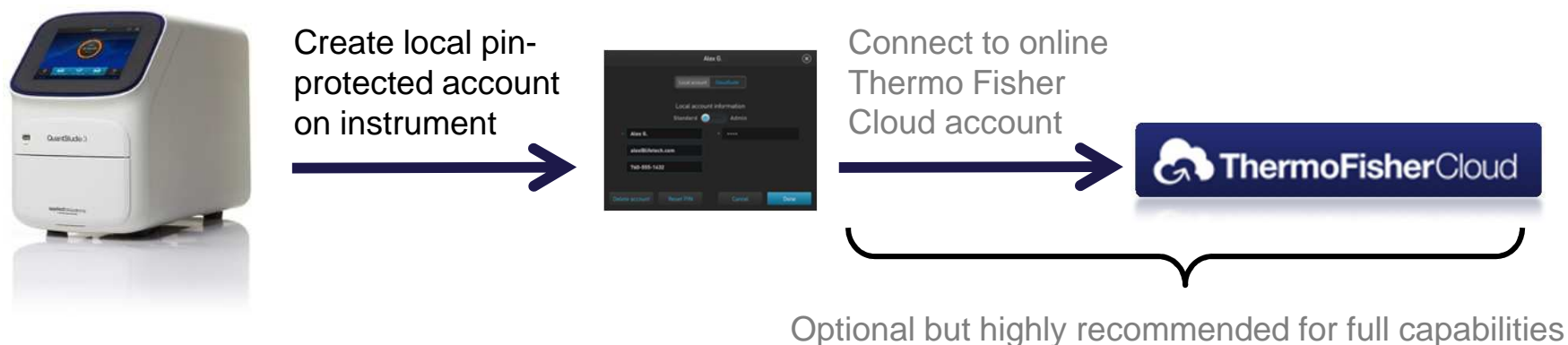
Monitor your runs on multiple devices



# Interactive Touch Screen



# Instrument Local User Accounts



- Create individual accounts for multiple users
  - PIN-protected accounts help keep protocols and data safe and stop “accidental” run interruptions
- Instrument users can be designated as “Admin” or “Standard” users
  - First user defaults to “Admin” status but can create other Admins, as needed

## Administrator Only Tasks

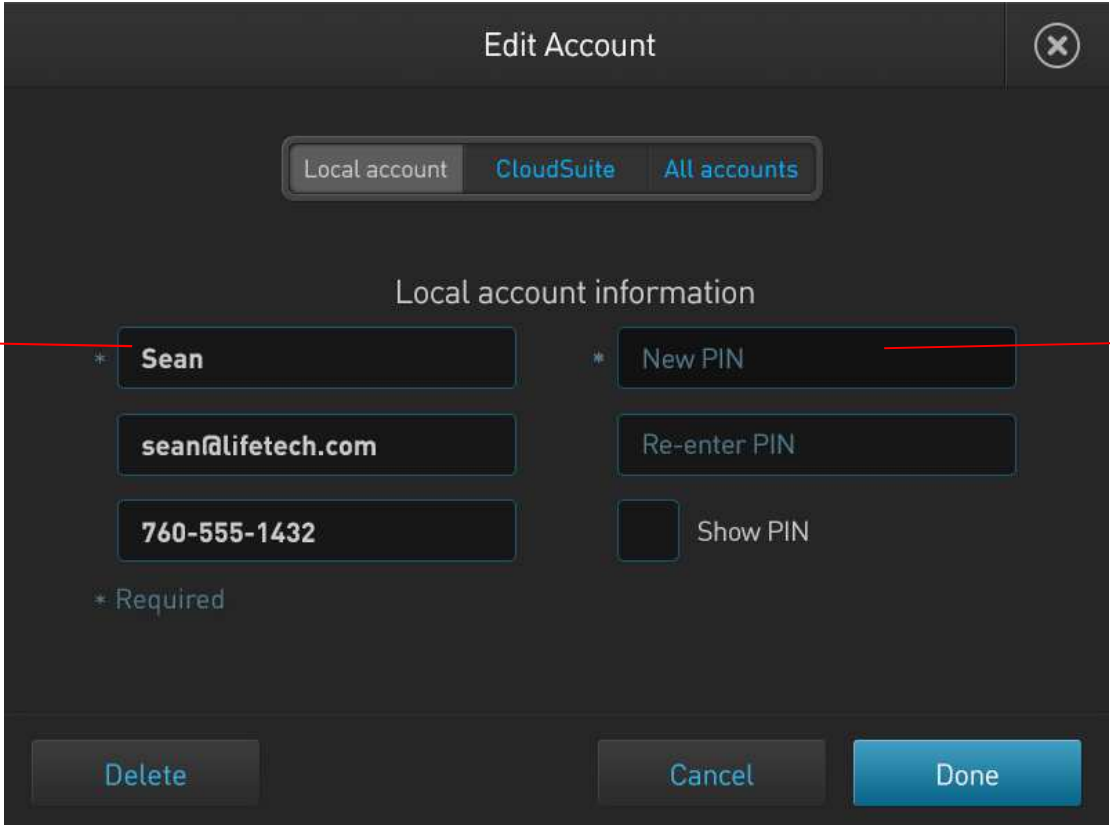
- Enable SAE module (QS 5 only)
- Require Sign-In
- Enable Remote Instrument Monitoring
- Update Instrument Software
- Manage/View all Instrument Profiles
- Select Cloud Region
- Manage Sign-Out Timer and Instrument Name

After logging in, Standard Accounts start and save run files in their own folders.

# Create Local User Account and Link to Cloud

Enter User Name

Set PIN  
(and remember it!)



The screenshot shows a dark-themed 'Edit Account' dialog box. At the top, there are three tabs: 'Local account' (selected), 'CloudSuite', and 'All accounts'. Below the tabs, the section is titled 'Local account information'. It contains two columns of input fields. The left column has three fields: a username field with the text 'Sean' (preceded by an asterisk), an email field with 'sean@lifetech.com', and a phone number field with '760-555-1432'. The right column has two fields: a 'New PIN' field (preceded by an asterisk) and a 'Re-enter PIN' field. Below these fields is a 'Show PIN' checkbox. A red line connects the 'Enter User Name' text to the username field. Another red line connects the 'Set PIN (and remember it!)' text to the 'New PIN' field. At the bottom of the dialog are three buttons: 'Delete', 'Cancel', and 'Done'. A small note '\* Required' is located below the phone number field.

\* Required

Delete Cancel Done

## Why link to the Cloud?

The Cloud enables you to download run files from the cloud and automatically upload them when complete

# Admin and Standard User Accounts

Alex G.

Local account CloudSuite

Local account information

Standard ☒ Admin

Alex G.

alexg@lifetech.com

760-555-1432

Manage Cancel Done

Note: the first user with “Admin” status to connect to the Cloud will be the Cloud Admin for that linked instrument

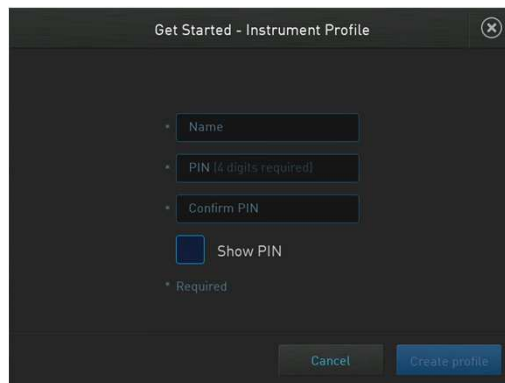


# Account Setup on Touchscreen

## One Step

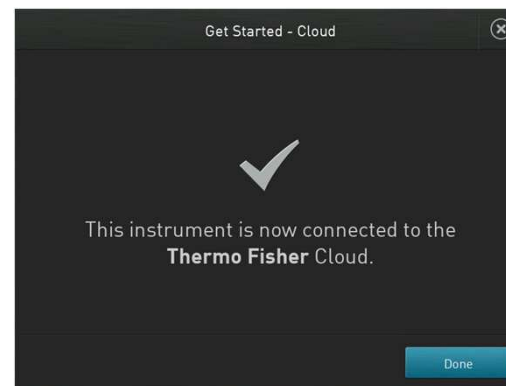
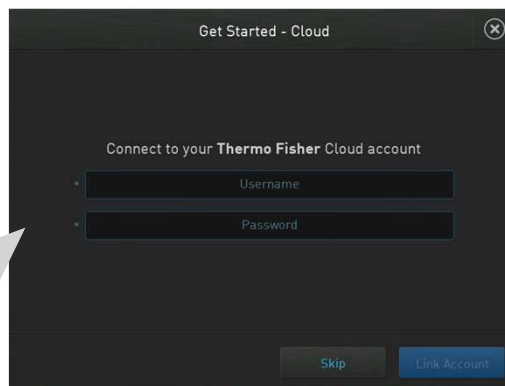
### Instrument Profile Setup

- Enter Name & PIN
- Select “Create Profile”



### Optional Step to link to Thermo Fisher Cloud Account

- Enter Thermo Fisher Cloud account credentials & select “Link Account”
- Or select “Skip” to complete setup without linking to cloud account



# Use touchscreen to edit reagent info, destination, and plate setup

2013\_MyFile

Experiment Type  
Standard Curve

Properties Plate Method

Experiment ID  
2013\_MyFile

Plate barcode

Reagent info:  
Undefined

Data destination:  
USB

Comments:

Tags:

Edit Cancel Start Run

2013\_MyFile

Properties Plate Method

Targets/Dyes

Sample names

Biological groups

Manage Cancel Start run

Multiple Targets

Well A1

Target name	Color	Task
Target name 1	Yellow	Unknown
Target name 2	Red	Unknown
Target name 3	Purple	Unknown
Target name 4	Blue	Unknown
Target name 5	Green	Unknown
Target name 6	Orange	Unknown

Edit Delete Cancel Done

2D reagent barcodes supported for Applied Biosystems reagents!

2013\_MyFile

Reagent information

Name Reagent barcode

Type Part #

Lot # Expiration (date)

Add Comment Cancel Done

2013\_MyFile

Data destination

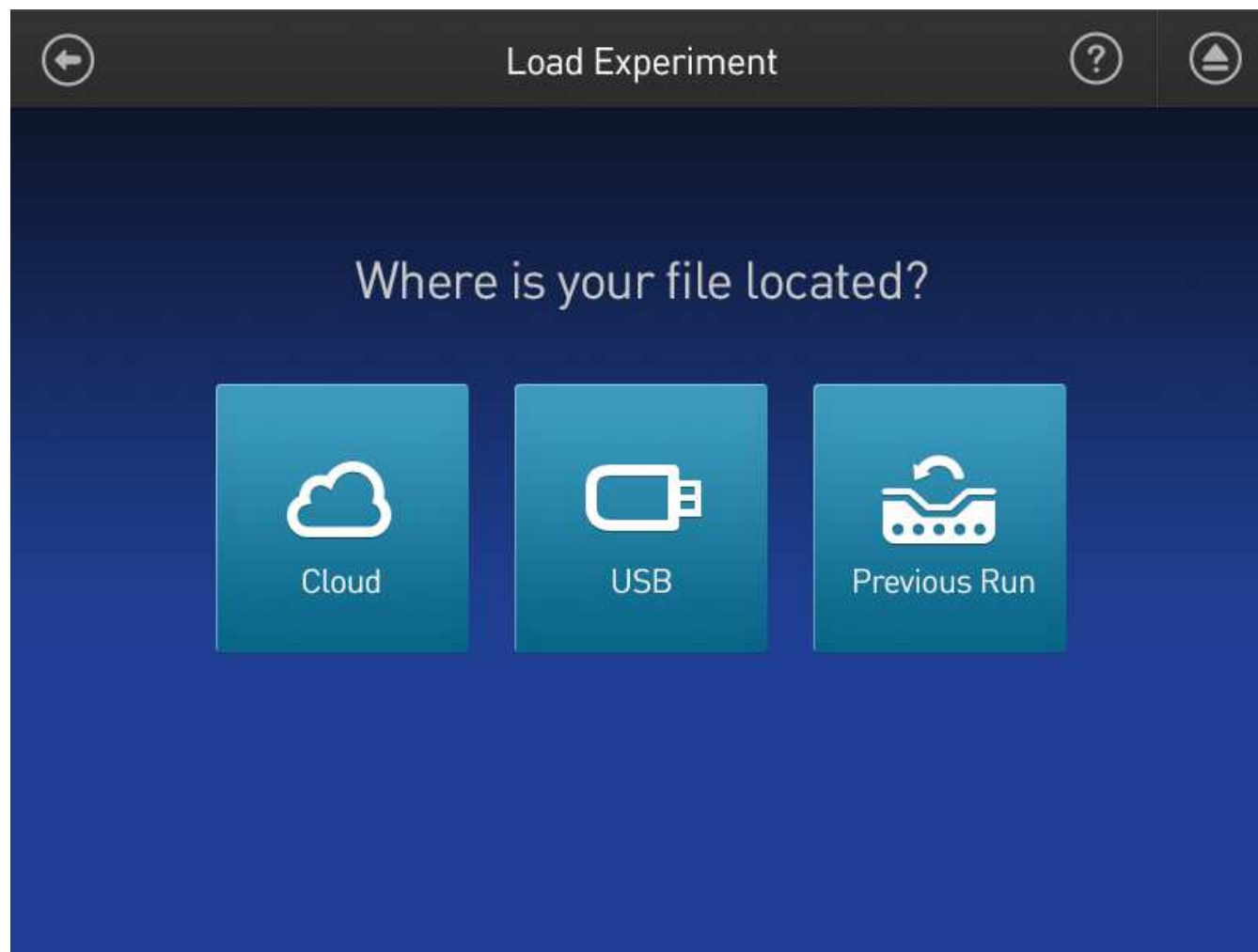
Where would you like to send your data?

Cloud  
Life Technologies CloudSuite  
Status: connected  
Destination: LT/NIH\_Grant\_7817  
Automatically export

USB  
SandiskCruzer  
Status: connected  
Destination: USB/Smith-experiments  
Automatically export

Add Comment Cancel Done

## Access run files from multiple locations



# Edit run protocol



Full method editing capabilities on the touch screen,  
including VeriFlex, Pause, and Melt

# Monitor Progress During the Run

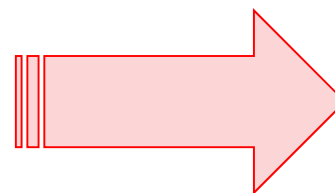
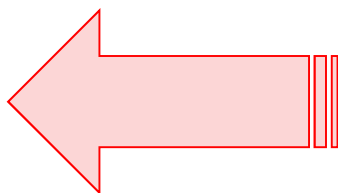
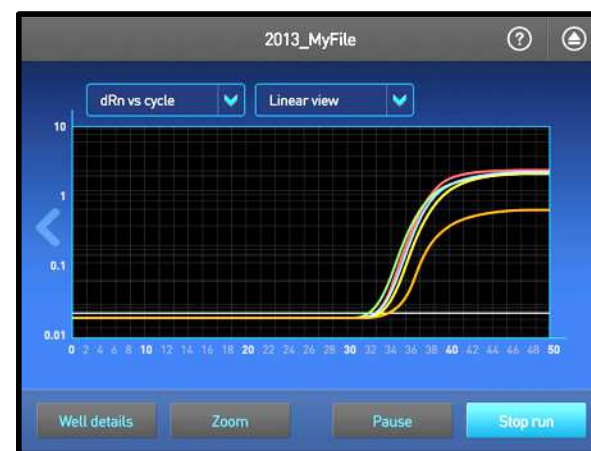
Time Remaining



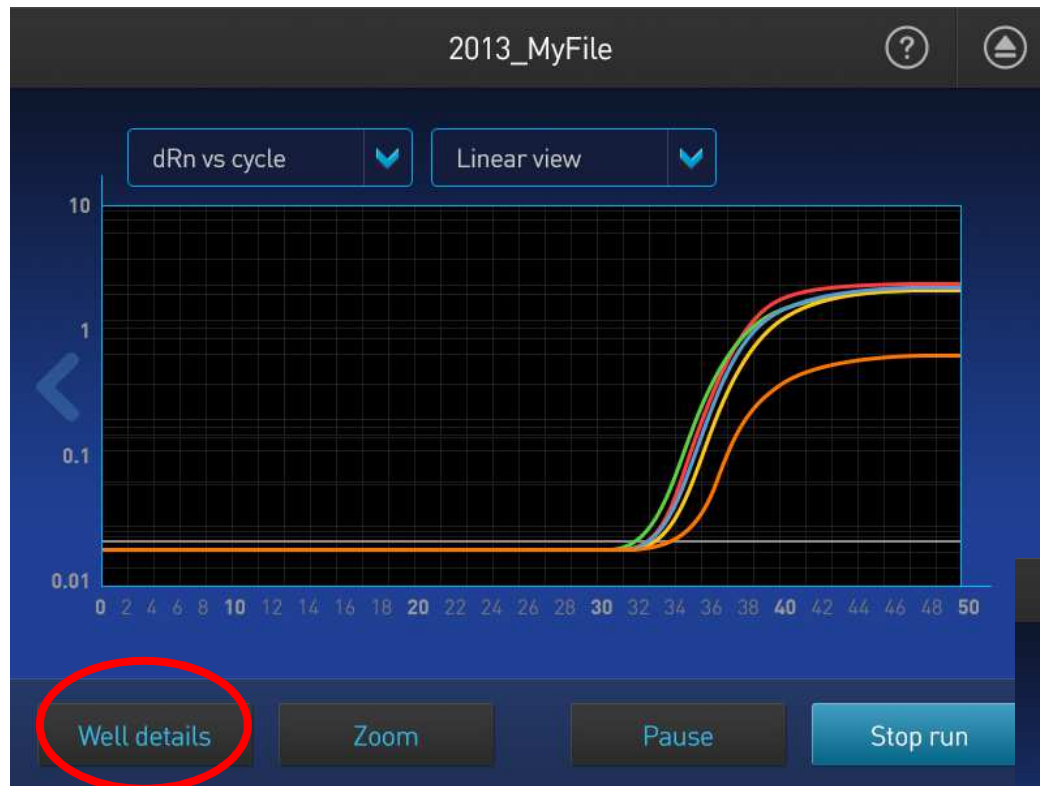
Thermal Protocol Status



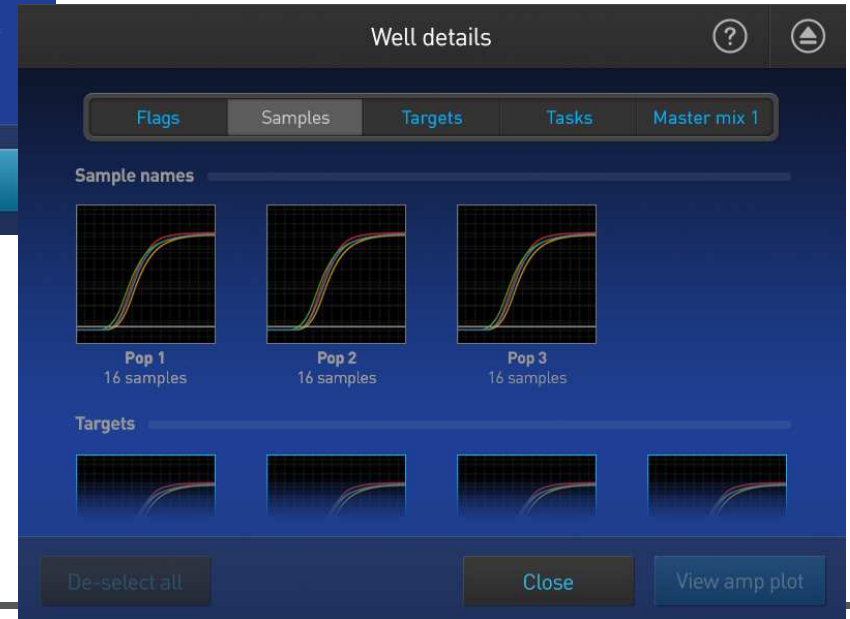
Live Amplification Curves



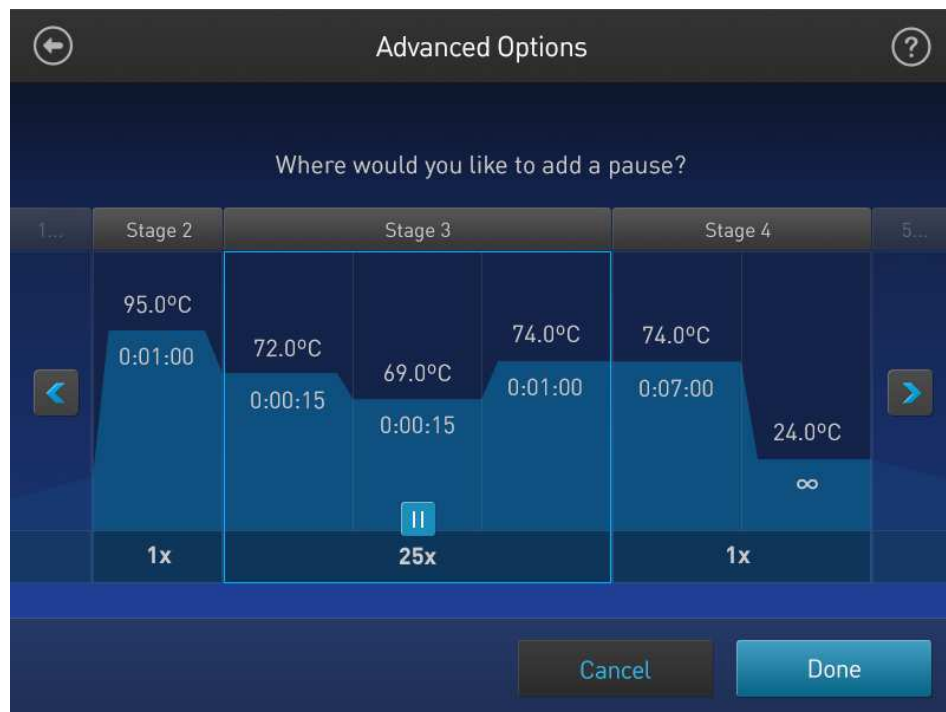
# Review amp plots in real time



Review well details and select amplification plots to view by Target, Sample, Task, or Master Mix



# New Feature: Run Pause



Program a Pause into the run:  
define which step and at what  
temperature to pause

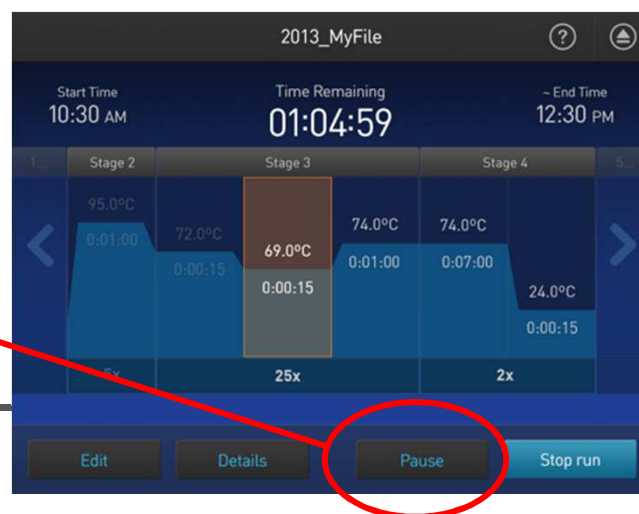
Advanced Options

Pause temperature:

Pause after cycle:

1 2 3  
4 5 6  
7 8 9  
0 /  
← ∞ Done

Or pause a run on the fly





# Enhanced Instrument Touchscreen

- Ability to lock instrument touchscreen during run to prevent run interruptions
  - Only current user and admin can unlock during the run.
  - Anyone can unlock and access instrument after run is completed.

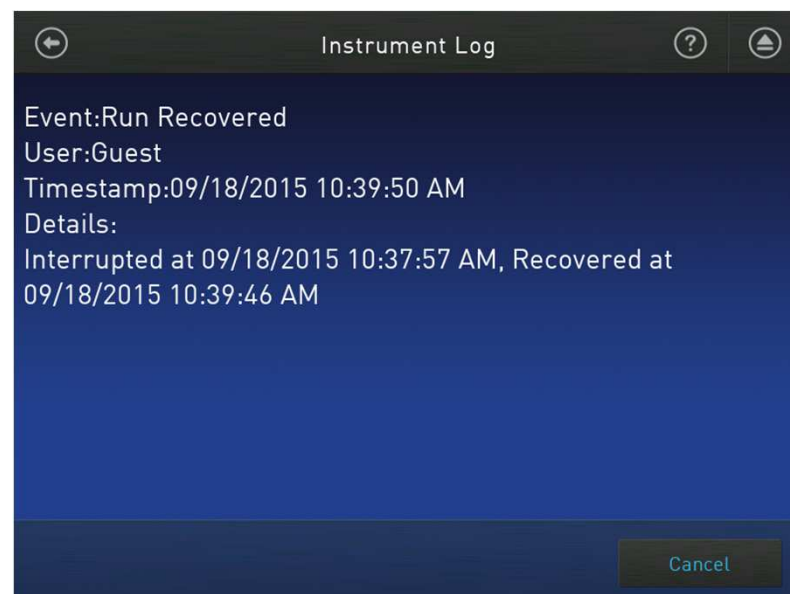
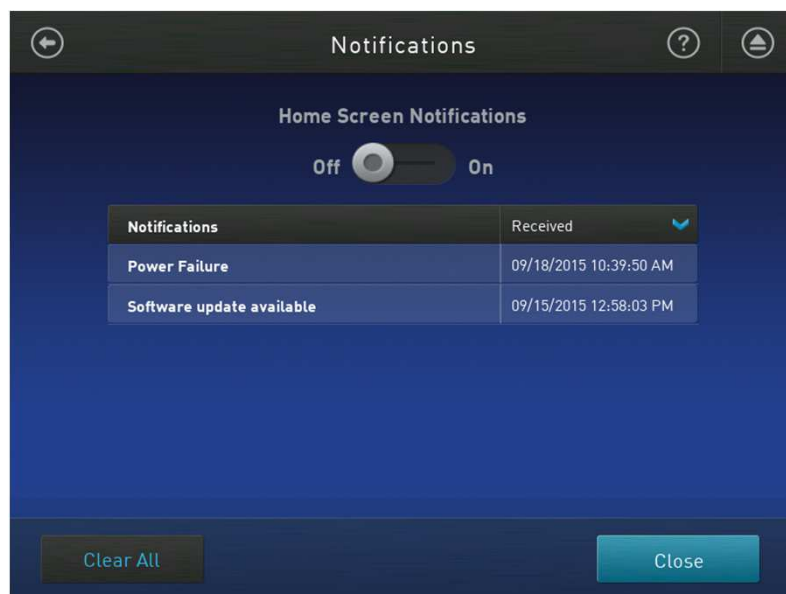


- Ability to transfer run data to/from a 'Network Location'

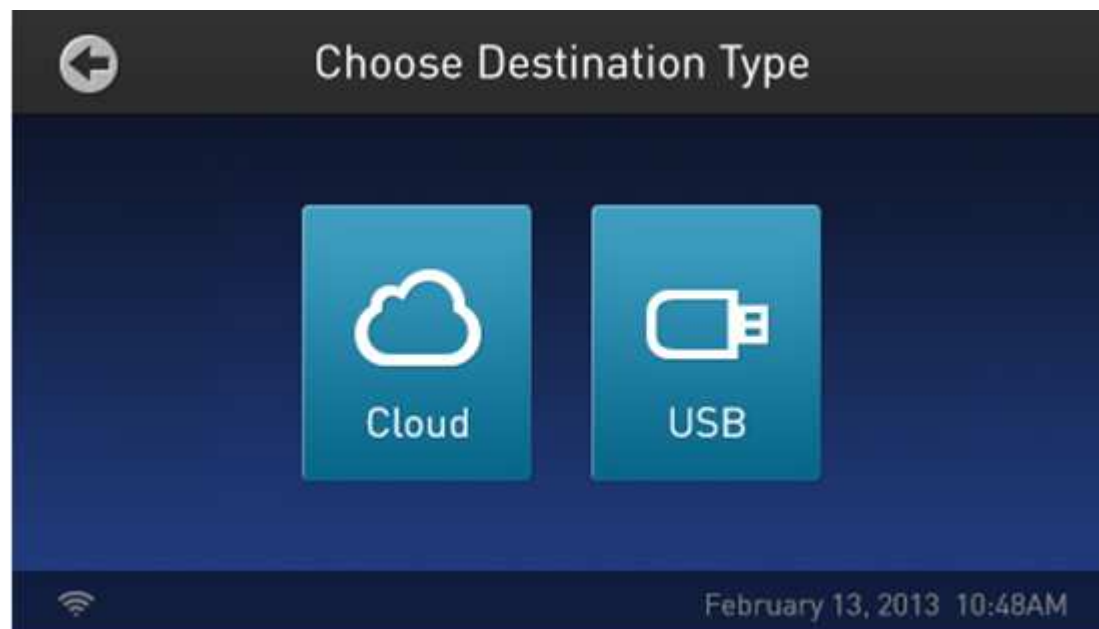


## Enhanced Instrument Touchscreen (2)

- Power Failure Mode
  - On-going run resumed automatically within 30'
  - On screen notifications, Run log & instrument log



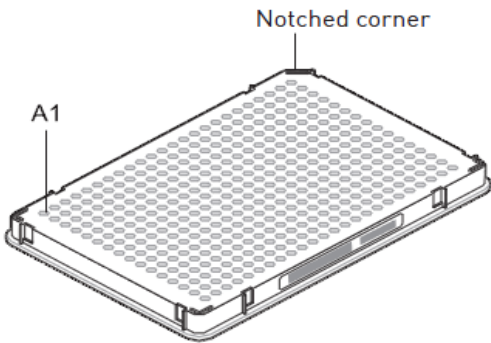
# Options to Upload Data



1. **Cloud = Data saved to user's online account**
2. **USB = Data saved to attached USB drive**
3. **Desktop = Data automatically saves back to desktop if run started from desktop**

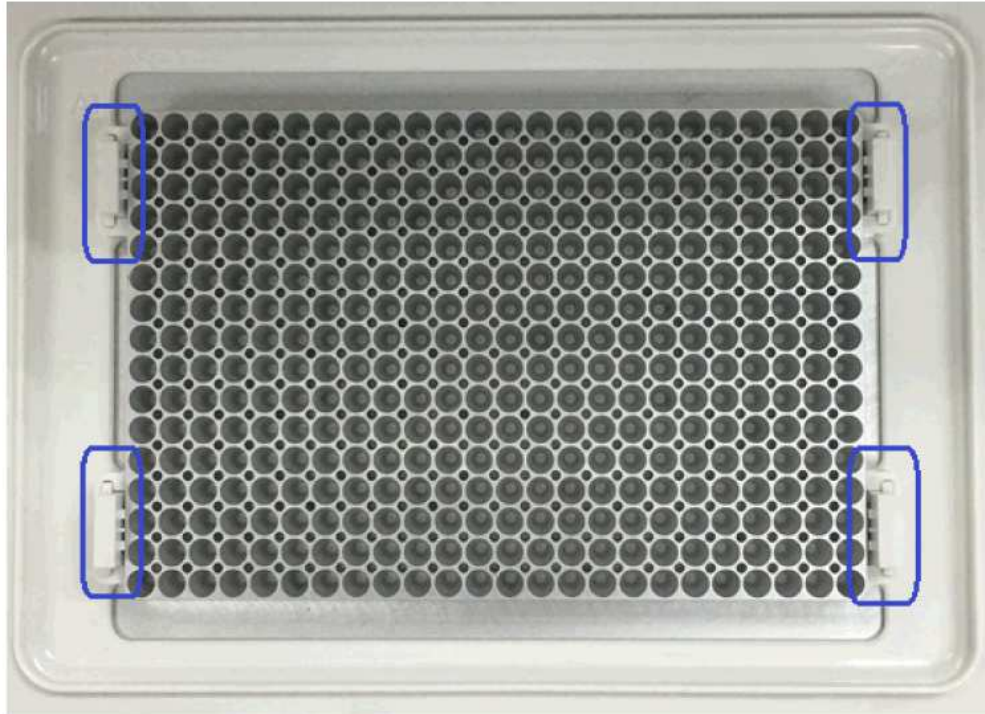
## QuantStudio™ 3 & 5 consumables

## Disposables – 384 well

Sample block	Consumable	
384-well plate	 <p>The diagram shows a 384-well plate from a perspective view. A label 'A1' points to the first column on the left. A label 'Notched corner' points to the top-right corner of the plate, which is cut at a 45-degree angle. The plate has a grid of 384 wells (16 columns by 24 rows).</p>	<ul style="list-style-type: none"><li>• MicroAmp® Optical Adhesive Film</li><li>• MicroAmp® Optical 384-Well Reaction Plate with Bar Code</li></ul>

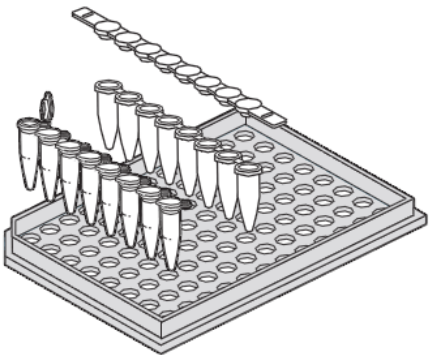
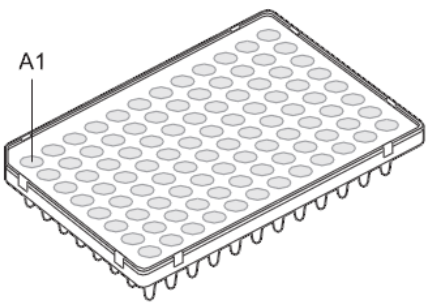
- Use the proper Plate Adaptor for 384-well block - Ref for reordering 4457087
- Supported volume on 384-well block: 5 to 20µl

## Plate Ejector for 384w block



- Plate ejector is part of the machine
- No Tubes/Strips available for 384w block
- Do not remove.

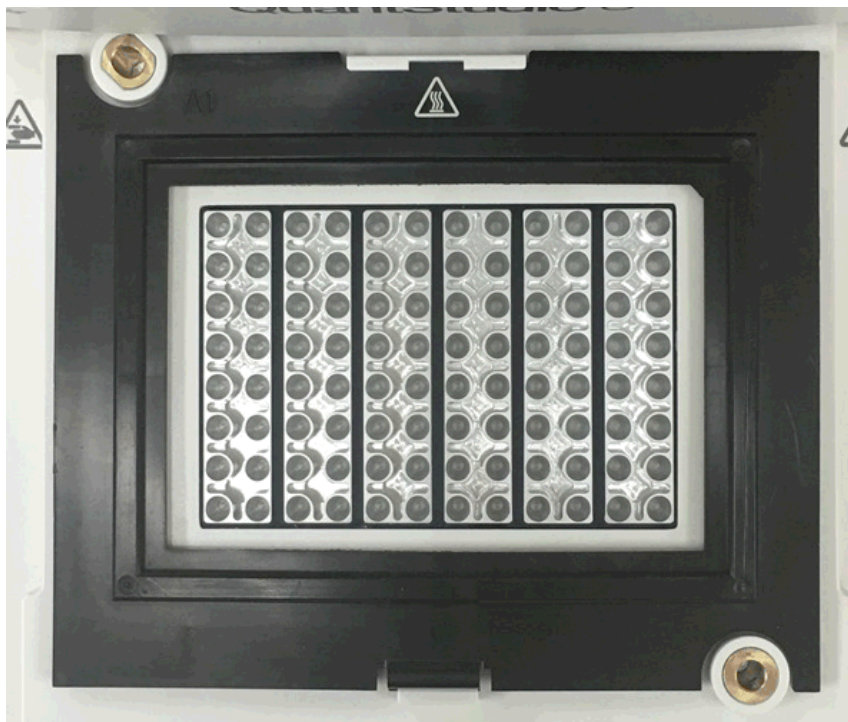
# Disposables – 96-well 0.2 ML

Sample block	Consumable	
96-well plate, 0.2 mL		<ul style="list-style-type: none"> <li>• MicroAmp® Optical 8-Cap Strip</li> <li>• MicroAmp® 8-Tube Strips (0.2-mL)</li> <li>• MicroAmp® Reaction Tubes without Caps (0.2-mL)</li> <li>• MicroAmp® 96-Well Tray/Retainer Set <b>4381850</b></li> </ul>
		<ul style="list-style-type: none"> <li>• MicroAmp® Optical Adhesive Film</li> <li>• MicroAmp® Optical 96-Well Reaction Plate with Bar Code</li> </ul>

- Supported volume on 0.2 ML 96-well block: 10 to 100µl



## Plate Ejector & Tray retainer (for 96w 0.2ML block)

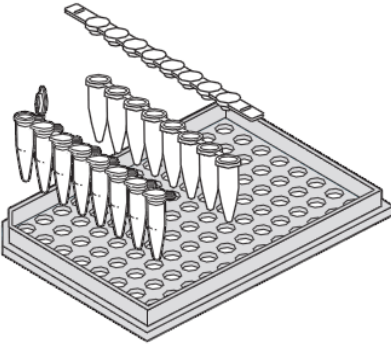
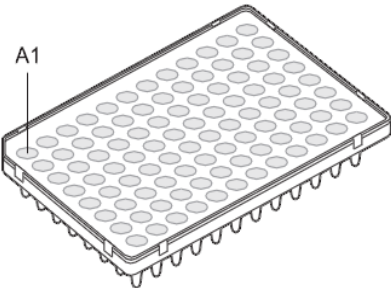


- Plate ejector is part of the machine
- Do not remove.



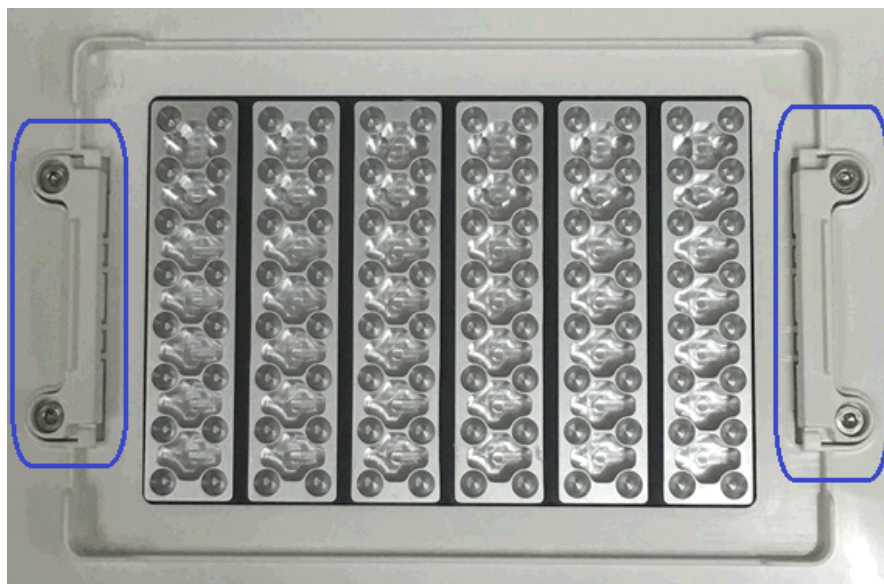
- Tubes/Strips to combine with 4381850
- Tray/retainer set for 96w 0.2 ML block
- Box of 10 tray/retainer set

# Disposables – 96-well 0.1 ML

Sample block	Consumable	
96-well fast plate, 0,1ml		<ul style="list-style-type: none"> <li>• MicroAmp® Optical 8-Cap Strip</li> <li>• MicroAmp® Fast 8-Tube Strips</li> <li>• MicroAmp® Fast Reaction-Tube w/ caps</li> <li>• MicroAmp® Fast 96-Well Tray /Retainer <b>4379983</b></li> </ul>
		<ul style="list-style-type: none"> <li>• MicroAmp® Optical Adhesive Film</li> <li>• MicroAmp® Optical 96-Well Fast Reaction Plate with Bar Code</li> </ul>

- Supported volume on 0.1ML Block: 10 to 30µl

## Plate Ejector & Tray (for 96w 0.1ML block)



- Plate ejector is part of the machine
- Do not remove.



- Tubes/Strips to combine with 4379983
- Tray for 96w 0.1 ML block
- Box of 10 trays

# How to use single tubes and tube-strips

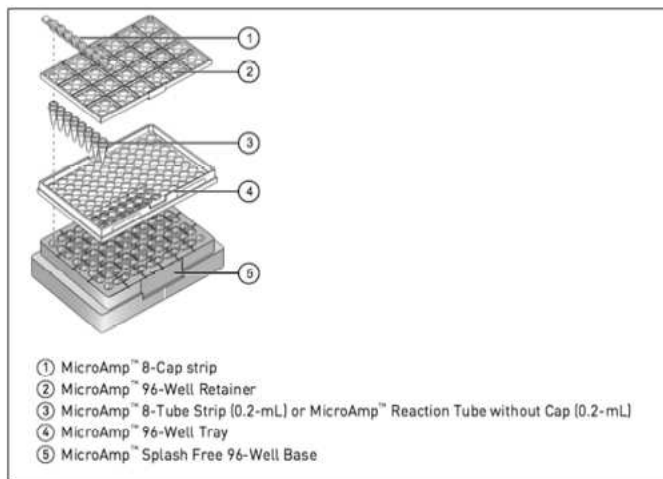
appliedbiosystems  
by Thermo Fisher Scientific

## Using Applied Biosystems™ MicroAmp™ Tubes and Strips with a Tray/Retainer on the Applied Biosystems™ QuantStudio™ 3 and 5 Real-Time PCR Systems

When using individual 0.1/0.2ml tubes and strips on the QuantStudio 3 and 5 Real-Time PCR 96-well Systems the following adaptations should be made :

1. Assemble the MicroAmp tubes/strip and caps on the Blue Tray/Retainer (SKU 4381850 for 0.2ml or SKU 4379983 for 0.1ml) following the instructions available online at:

[https://tools.thermofisher.com/content/sfs/manuals/100033471\\_MicroAmpReactionPlates\\_TubeStrips\\_Tubes\\_UB.pdf](https://tools.thermofisher.com/content/sfs/manuals/100033471_MicroAmpReactionPlates_TubeStrips_Tubes_UB.pdf)



2. Once the tubes/strips are securely capped, place the blue Tray/Retainer on the instrument block with the black adapter on the block:

- Plastics should be optical
- Seal properly with the required tools
- Use the proper tray/adaptor
- Balance the tube positions



# Recommendations

- Prepare the 96-plates in a MicroAmp Splash Free 96 well base
- This base can protect plate wells from the bottom
- Also can hold the plate fix while pipetting
- Catalog number to order: 4312063 (box of 10 bases)



- Centrifuge the plate 1 min x 900g
- Do not use markers on the plates/tubes

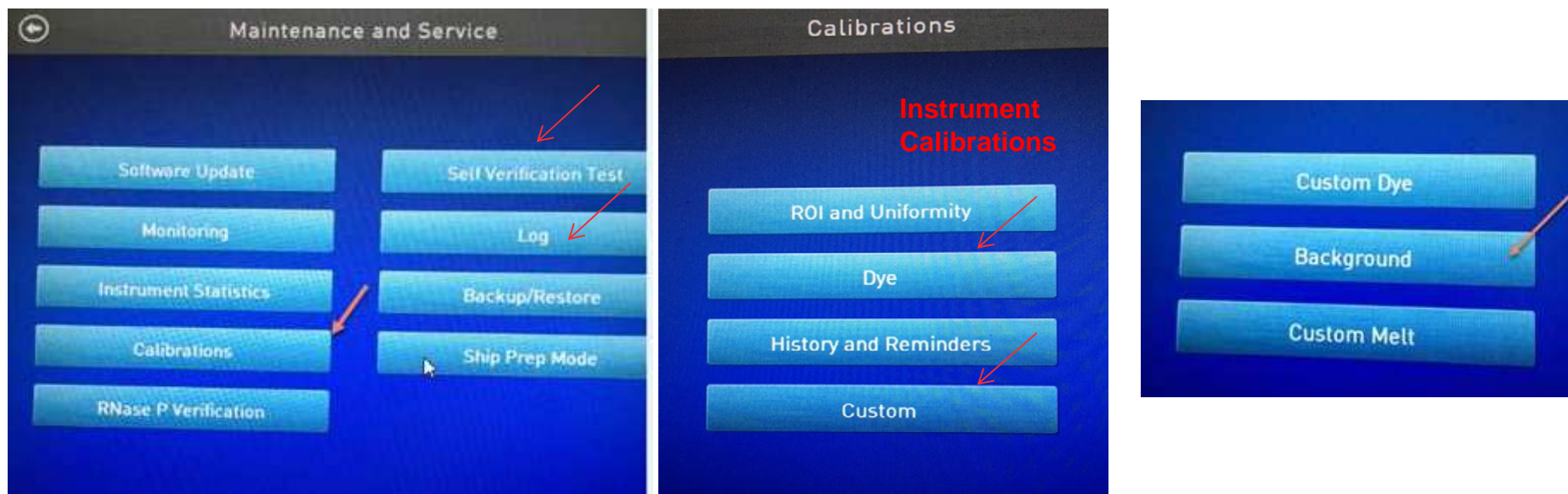
## Maintenance & Service

# Recommended Maintenance and Calibration

Frequency	User-performed maintenance task
Weekly	Check disk space and power off the instrument for at least 30 seconds
	Clean the instrument surface with a lint-free cloth
Monthly	Perform a background calibration (to check for thermal block contamination)
	Run disk cleanup and defragmentation
	Perform instrument self-test
Every 2 years	Perform ROI, uniformity, dye, and normalization calibrations
As needed	Perform an RNase P instrument verification run
	Replace the instrument lamp



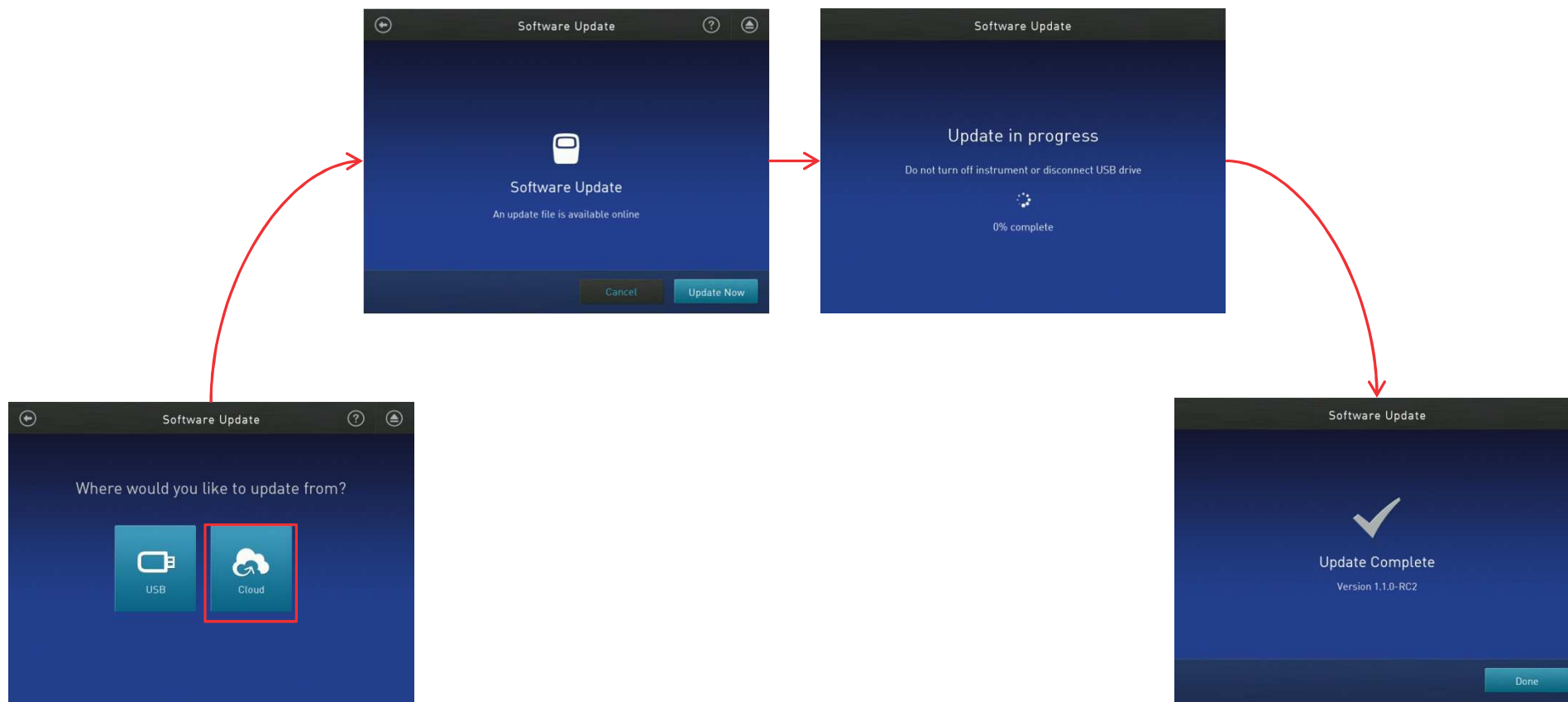
# Background, Dye calibrations and Log files



- For instrument malfunctions, please perform the self verification test and export the log files



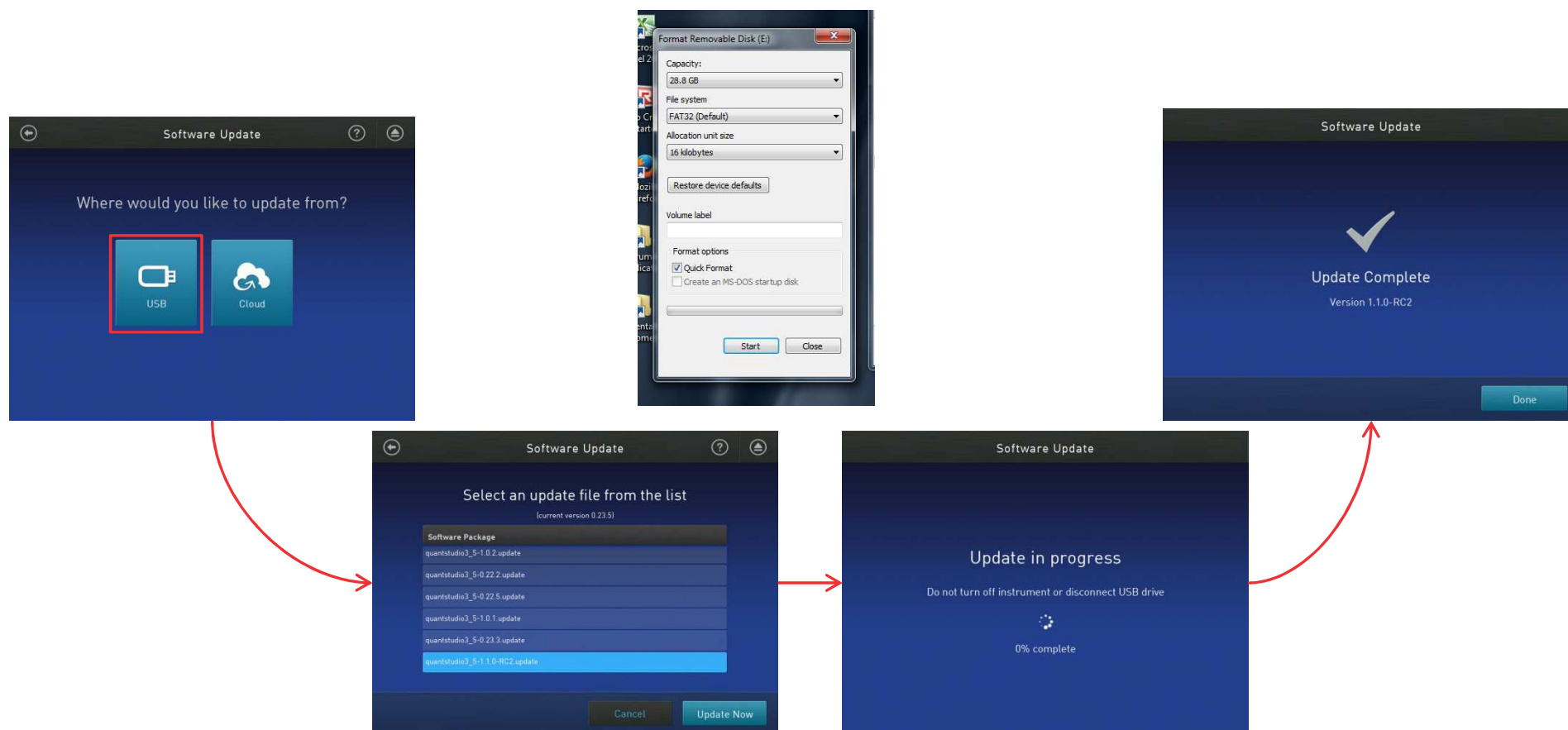
# Firmware upgrade from the cloud



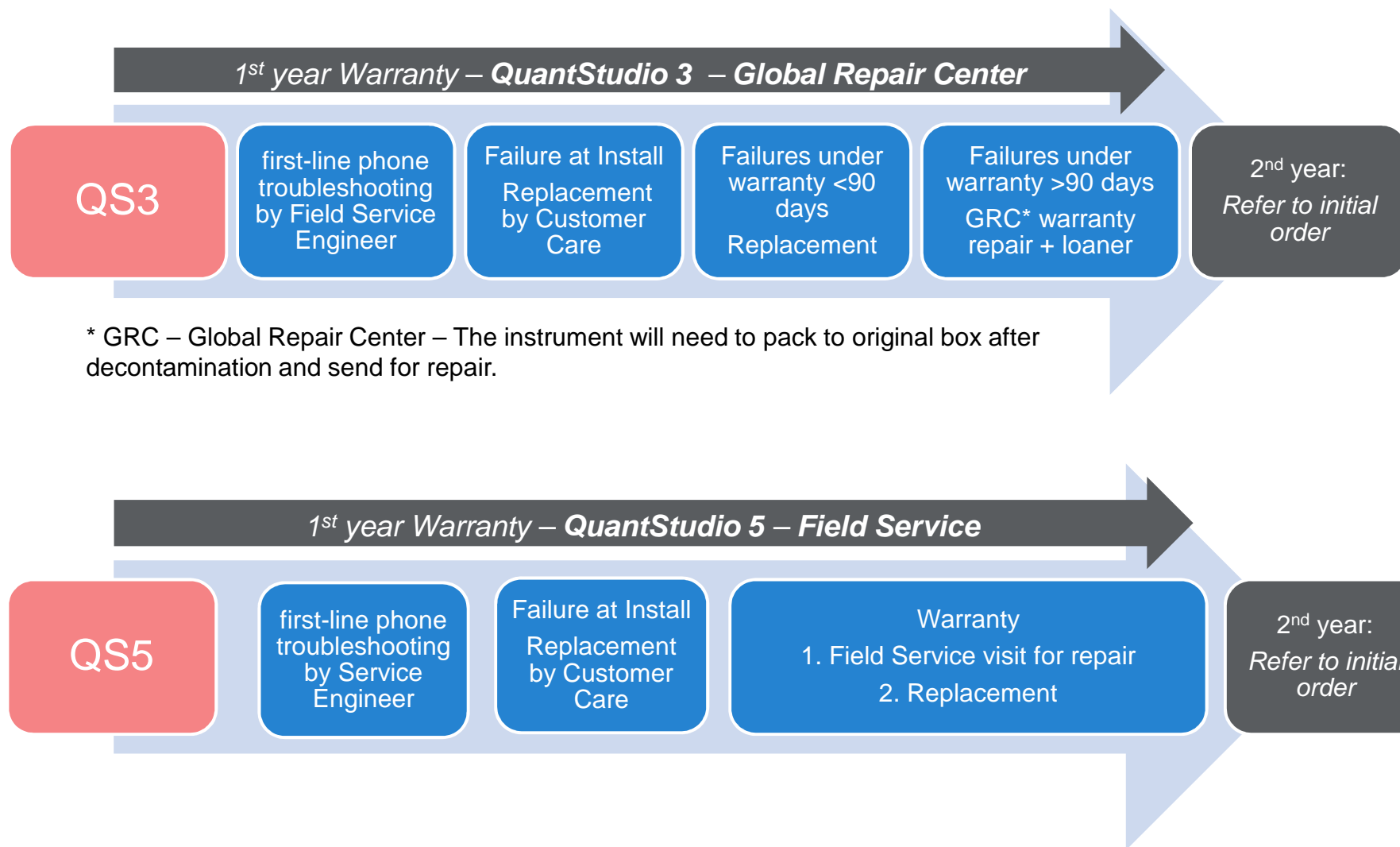
On eGUI, Firmware Upgrade for a cloud connected instrument:  
Settings>Maintenance and Service>Software Update

# Firmware upgrade via USB

- Go to [QS D&A Software Download Webpage](#)
- Click on “Download” next to the “Firmware” option and download file to USB drive
- Attach USB drive to instrument and, on eGUI, Settings>Maintenance and Service>Software Update



# QuantStudio 3 and 5 - Service Plans



# Service Plans

Service Plans at a glance	Repair Center service plans		On-site service plans			
	AB Repair Center Support Plus	AB Repair Center Support Plus Care	AB Maintenance	AB Maintenance Plus	AB Assurance	AB Complete
On-site Response Time			Target 2 business days*	Target 2 business days*	Guaranteed 2 business days*	Guaranteed next business day*
Scheduled On-site Planned Maintenance (PM)		✓	✓	✓	✓	✓
Remote Diagnostics	✓	✓	✓	✓	✓	✓
Parts, Labor & Travel for Repair, included	✓	✓		10% discount optional add-on in select regions	✓	✓
Computer repair & replacement, included	✓	✓			✓	✓
Priority access to Tech Support Mon-Fri, 8am - 5pm, local time	✓	✓			✓	✓
Priority access to Remote Service Engineer Mon - Fri, 8am - 5pm, local time	✓	✓			✓	✓
Re-qualification post PM & critical repairs						✓
Field Application Scientist Consult						✓
Loaner instrument issued during repair (Repair Center plans only)	✓	✓				

Where can I find technical help?



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Media Formulations

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Biotinylation Reagent Selection Tool

Cell Staining Tool

Crosslinker Selection Tool

ELISA Kits by Target Tool

Fluorescence SpectraViewer

Lab Apps

Restriction Enzyme Finder

Spectra Data

Thermo Scientific Molecular Biology Tools

Vector Selection Tool

# Instrument and Application Support Centers

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### Technical Resources

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Instrument Repair

Software Downloads

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Order & Web FAQs

Events

Training

### General Resources

How-To & Educational Videos

Life in the Lab

Mobile & Desktop Apps

Newsletters & Journals

Product Selection Guides & Tools



Product Documentation

Product FAQs

Selection Guides & Tools

Webinars

Contact Us

## Support centers by application

Resources and tips for getting started, and troubleshooting help all in one location. Browse the support centers by application for technical support.

### Antibodies and immunoassays

- [Antibodies](#)
- [ELISA Kits and Antibody Pairs](#)
- [Luminex Assays](#)
- [View all](#)

### Capillary electrophoresis applications

- [Fragment Analysis](#)
- [Sanger Sequencing](#)
- [View all](#)

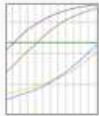
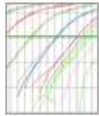

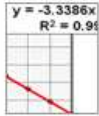
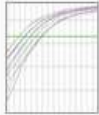
# What if the qPCR does not work?

<http://www.lifetechnologies.com/fr/en/home/life-science/pcr/real-time-pcr/qpcr-education/real-time-pcr-troubleshooting-tool/gene-expression-quantitation-troubleshooting.html>

- [Real-Time PCR Troubleshooting Tool](#)

## Gene Expression | Quantitation Troubleshooting

*I am having problems with...*

	<b>Abnormal Amplification</b> <i>Your curves are sigmoidal or amplification occurs later than you expected.</i>
	<b>NTC Positive Amplification</b> <i>You have an amplification product in your no template control (NTC).</i>
	<b>No Amplification</b> <i>You have no detectable PCR product.</i>
	<b>Poor PCR Efficiency</b> <i>If the slope of your standard curve is below -3.6, you have poor PCR efficiency.</i>
	<b>Normal Amplification Curve Example</b> <i>Your amplification curve should look something like this</i>



# Training Services



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## Application and Instrument Training Courses

### Training Services

Thermo Scientific European Training  
Courses - Scientific Instruments

LabCoat Live Training Series

Events



Get hands-on lab experience and further your working knowledge of applications and instrument operation with our Application Training Courses, available at our Customer Training Centers located throughout the world. Our centers are state-of-the-art laboratories equipped with the latest Thermo Fisher Scientific instruments and products, computer-based interactive training, and the opportunity to collaborate with application scientists.

An award-winning team of application scientists delivers courses bringing hundreds of years of collective experience in using, training, and troubleshooting sequencing, real-time PCR, cell culture, and molecular biology. This knowledge, combined with our world-class facilities, makes us the ideal choice for all of your training needs.

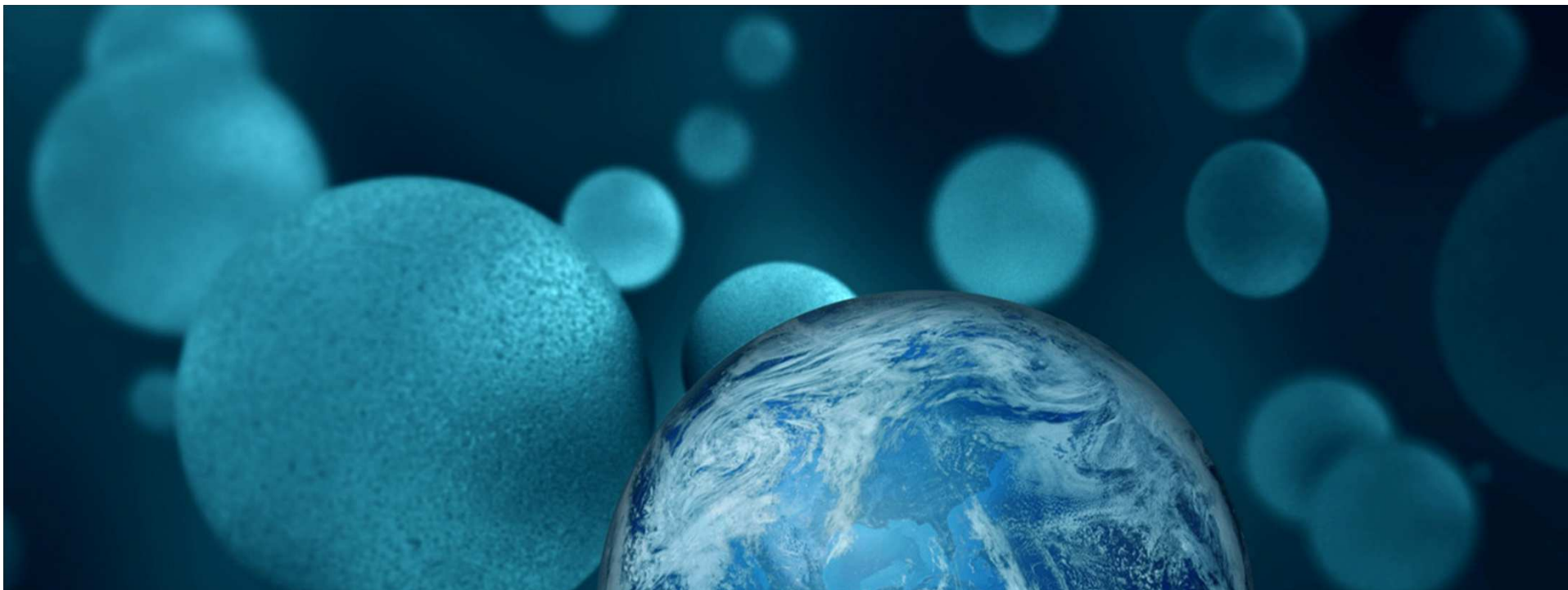
## Technical Support Hotline – Contact Center

*00 800 5345 5345*



[www.thermofisher.com/askaquestion](http://www.thermofisher.com/askaquestion)

[eurotech@thermofisher.com](mailto:eurotech@thermofisher.com)



**ThermoFisher**  
S C I E N T I F I C

## QuantStudio™ Design and Analysis Software

The world leader in serving science

## Desktop and Web Browser-Based Software Available

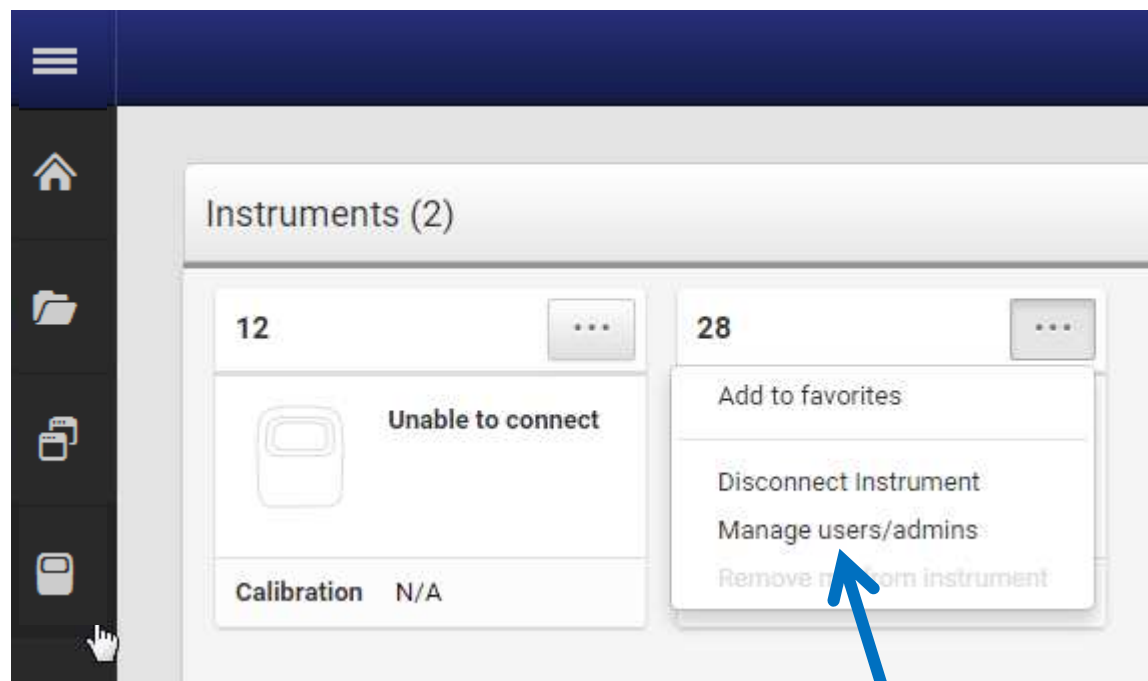
Features	Web	Desktop
Plate Set Up - Compatible with 7500, 7500 Fast, Step One, Step One Plus, and QuantStudio <sup>T</sup> 6 and 7 setup files - Custom attributes for sample - VeriFlex <sup>T</sup> Support	✓	✓
Edit Thermal Protocol	✓	✓
Locked Template*	✓	✓
Start Run	✗	✓
Programmable Pause*	✓	✓
Single plate analysis	✓	✓
Multiple plate analysis	✓	✗
Remote monitoring	✓	✓
SAE (available for QuantStudio 5 only)	✗	✓

# QuantStudio™ Design and Analysis Software

- The QuantStudio Design and Analysis Software supports a variety of analysis methods, including:
  - Absolute Quantitation
    - Standard Curve
  - Relative Quantitation
    - Relative Standard Curve
    - Comparative CT ( $\Delta\Delta$  CT)
    - Multiplate  $\Delta\Delta$  CT Studies
  - Presence/absence (Plus/Minus) assays with an internal positive control
  - Melt curve analysis
  - Genotyping (including real-time amplification)
- Multiplate GEx analysis available online on the QuantStudio Design and Analysis **Cloud** Software

# QuantStudio™ Design and Analysis Cloud software: Instrument Admin? (Optional)

**Manage connected  
instruments**



**Note: If a Cloud admin is not setup at install, any lab user who connects the instrument online will become the admin!**

**Allow others to  
connect**

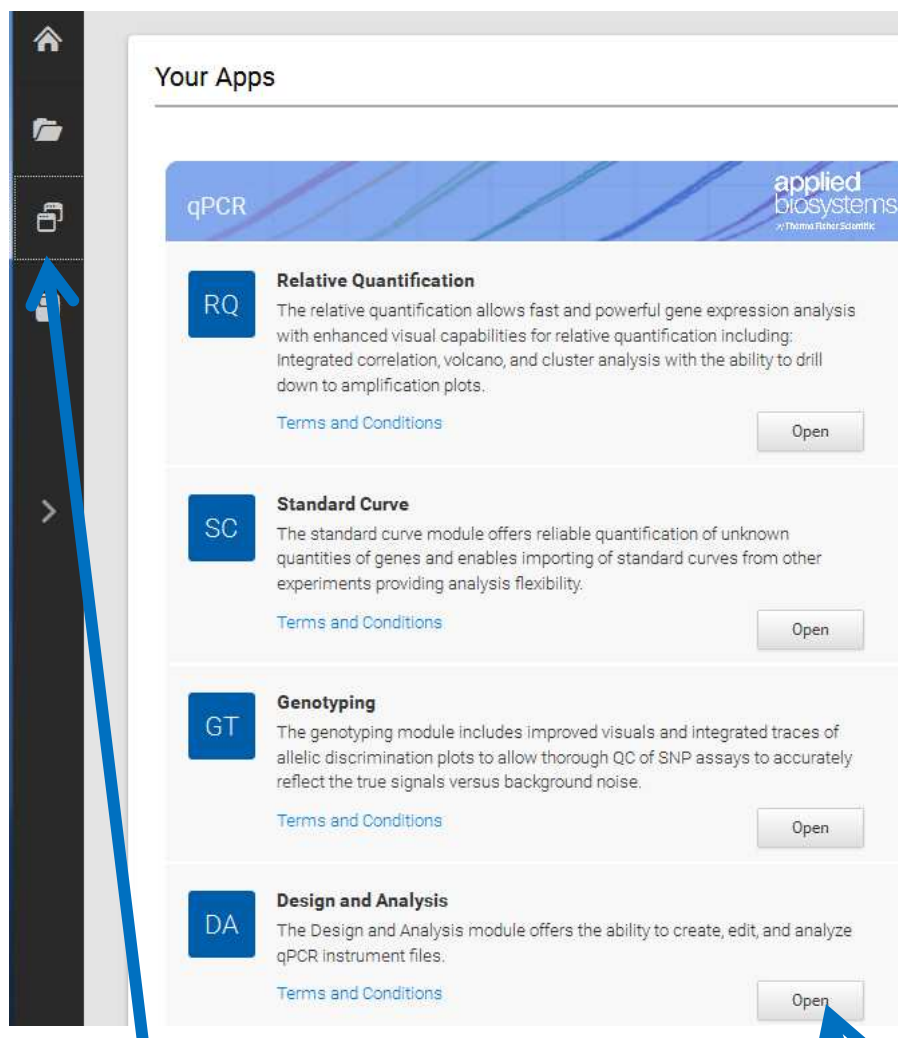


# Connected Instrument

The screenshot displays the 'Connected Instrument' interface. At the top, there is a navigation bar with tabs: Summary, Events History, Calibrations History, and Statistics. Below this, on the left, is a list of calibration types with checkboxes: All (checked), ROI, Background, Uniformity, Dye, and RnaseP. An 'Export' button with a '.pdf' label and a download icon is also present. The main area shows a table header for 'Calibrations History' with columns: Calibration Type, Result, User, and Run Date. Below the header, it states 'No calibrations'. Below this, there is a smaller version of the same interface. At the bottom, there is a 'My runs' section with two sub-sections: 'Runs by user' and 'Runs by type'. The 'Runs by type' section shows 'In the past 30 days:' with '0 runs' and '0 hours use'. To the right of these sections, there is a table header for 'Experiment Name' and 'Experiment Type', and a message: 'You have not performed any experiment runs.'

1. Monitor run progress
2. Review calibration status
3. Check instrument statistics
  - a. Runs by user
  - b. Runs by type

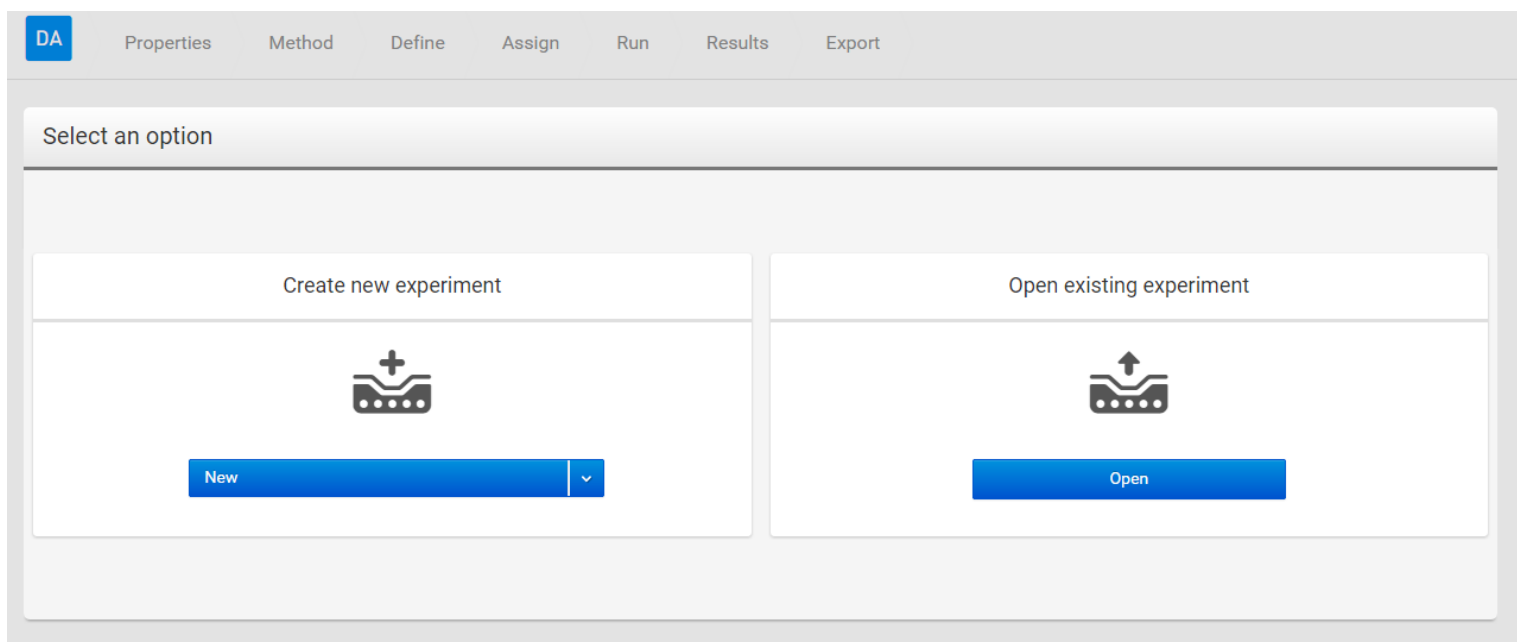
# Start Run or Open a Run File



“Your Apps”



# Start Run or Open a Run File



**Remember to Save!**



Experiment properties

**Name** 2015-03-08 221618

**Barcode** Barcode - optional

**User name** User name - optional

**Instrument type** QuantStudio® 5 System

**Block type** 96-Well 0.2-mL Block

**Experiment type** Standard Curve

**Chemistry** TaqMan® Reagents

**Run Mode** Fast

Comments - optional

☐ Notifications

Progress

☐ Run started

☐ PCR cycling started

☐ Run paused

☐ Run stopped

☐ Run about to end

☐ Run completed

Conditions

☐ Instrument error

Email addresses, seperated by semi-colon (;)

Actions ...

Save

Save As

- When a run file is created, it will exist as an .edt file until it is run
- The .edt file will remain, even after the .eds file is generated

# Applied Biosystems™ 2D Barcodes

Experiment type: Standard Curve

Chemistry: TaqMan® Reagents

Run Mode: Fast

Run status options:  
☐ Run paused  
☐ Run stopped  
☐ Run about to end  
☐ Run completed

cloudsuite

Chemistry details

Reagent Name	Reagent Type	Lot Number	Part Number	Expiry Date
New Reagent				

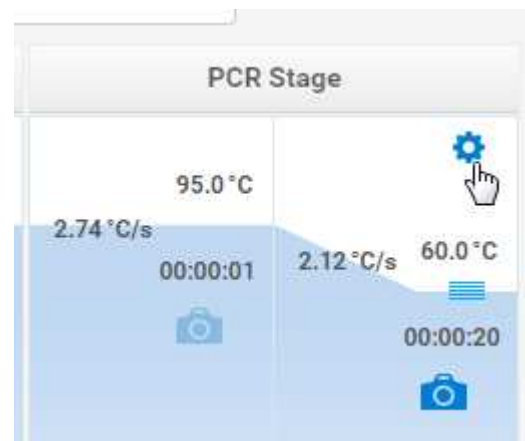


Use a 2D barcode scanner to track reagent details:

- Part Number
- Lot Number
- Expiration Date



Programmable Pause



## Settings

- VeriFlex™ blocks
- AutoDelta

The screenshot shows the 'AutoDelta settings' dialog box. It has two tabs: 'Veriflex steps' and 'AutoDelta settings'. The 'AutoDelta settings' tab is active, showing the following options:

- ☒ Enable Veriflex®
- ☐ Enable AutoDelta
- AutoDelta Temperature: 0.00 (Valid AutoDelta Temperature Range: -1.4 to 0.99)
- AutoDelta Time: 0:00 (Valid AutoDelta Time Range: 0:00 to 2:29)
- Starting Cycle: 1

The 'Veriflex steps' tab shows a table of temperature distance between adjacent zones:

Zone	Temperature (°C)
1-2	60
3-4	60
5-6	55
7-8	55
9-10	60

Define targets and samples

Actions ...

Targets

Add +

...

Color	Name	Reporter	Quencher	Comments
<div></div>	GAPDH	JUN	None	
<div></div>	CD44	ABY	None	
<div></div>	APOE	VIC	None	
<div></div>	FZD1	FAM	None	

Samples

+

...

Color	Name	
<div></div>	UHR_cDNA	0a6

Delete Selected Sample(s)

Import Samples

Export Samples

Import and Export

Samples

+

...

	Comments	SP_UUID
JA		0a69a5d71451401ebf8...

Add columns

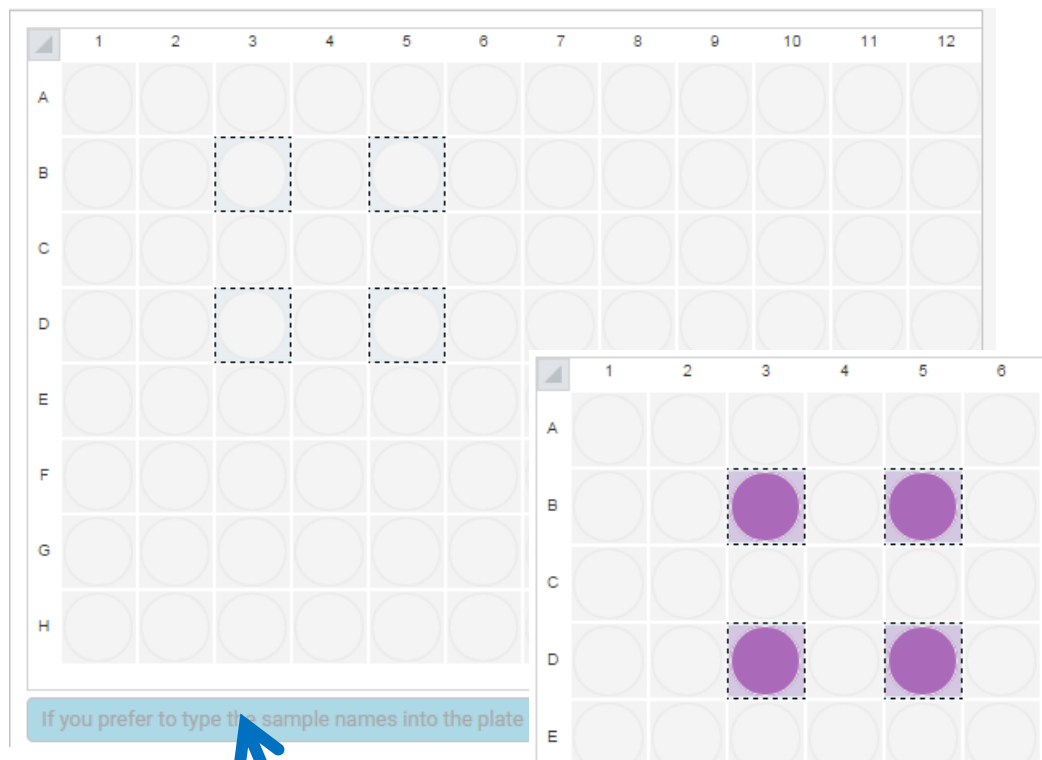
Plate Attributes

Passive

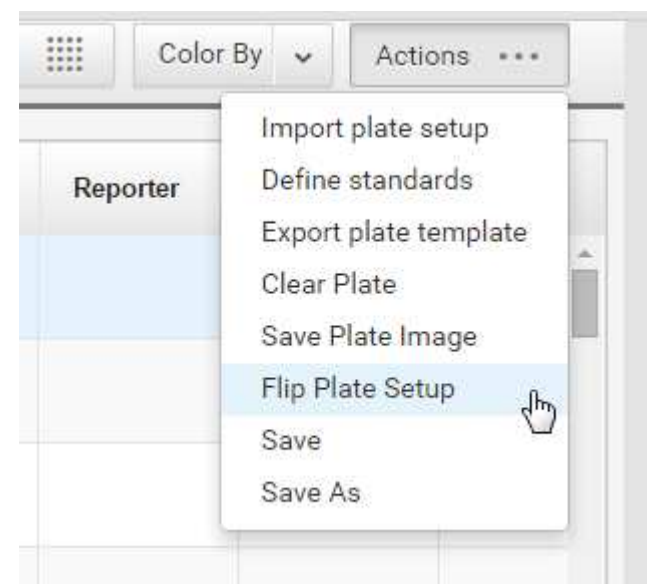
ROX

reference

Optional passive reference




Select well and type sample names



- Import & Export
- Save plate image
- Flip plate setup

Run Control



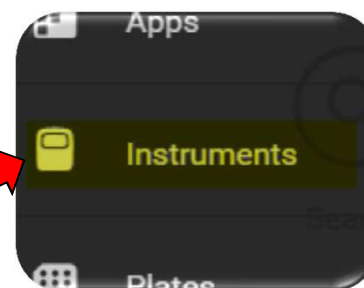
**QuantStudio® 5 System**  
 Run Started at: 01-07-2015 01:59:12 UTC      Run Complete at: 01-07-2015 02:32:15 UTC

Post-run summary

Experiment Name	DVT3_4Plex	Start Time	01-07-2015 01:59:12 UTC
Stop Time	01-07-2015 02:32:15 UTC	Run Duration	33 minutes and 2 seconds
User Name	DEFAULT	Instrument Name	QuantStudio® 5 System
Firmware Version	0.11.1	Software Version	NA
Instrument Serial Number	dvt003	Sample Volume	10
Cover Temperature	105	Instrument Type	QuantStudio® 5 System
Block Type	96-Well 0.2-mL Block		
Errors Encountered			

**Start Run from touchscreen or desktop  
(not Cloud)**

**Monitor Run from “Instruments”**







**Export**

**Name**  
 Export file name  
 Comments - optional

**File Type**  
 \*.csv

**Decimal (\*1~6)**  
 3

**Content**  
☒ Results  
☐ Amplification Data  
☐ Multicomponent Data  
☐ Raw Data

**Customize** Customize what is imported within each item above

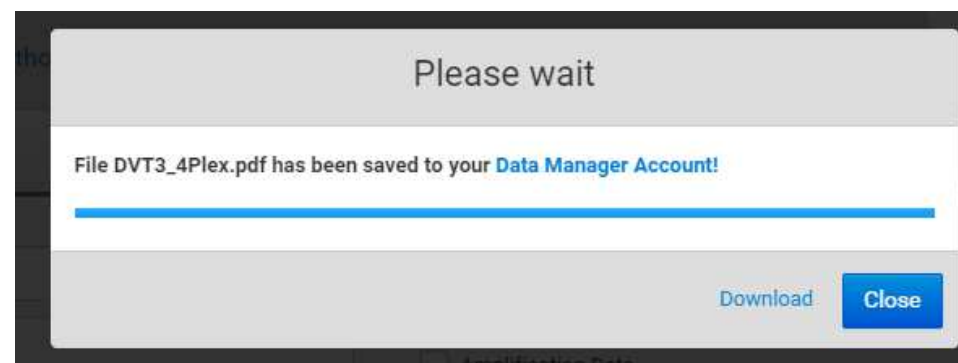
**Options**  
☐ Unify the above content files into one file  
☒ Split the above content files into individual files

**Export** Actions ...

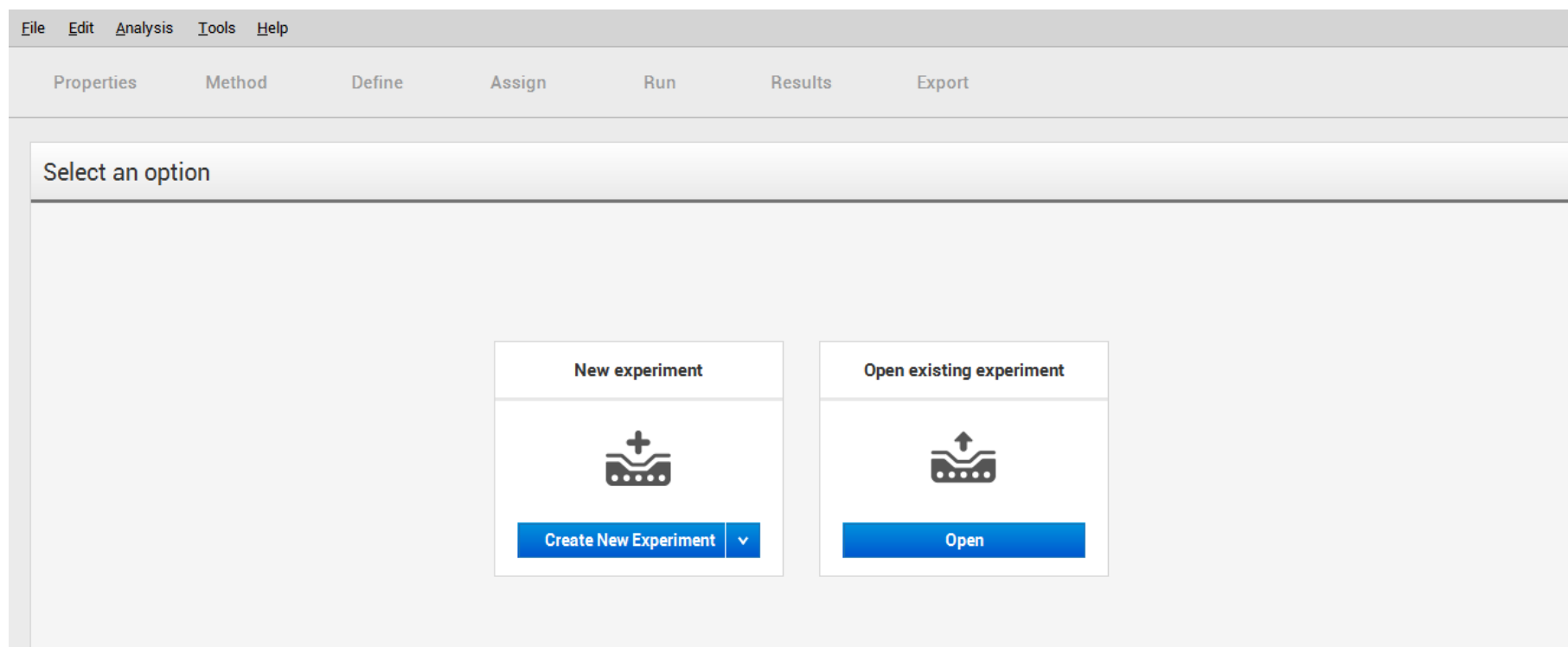
Save  
 Save As  
 Generate Report

**Export to local computer:  
 Text, csv, Excel™, and RDML  
 (xml)**

**Report saved online,  
 option to download  
 as PDF**

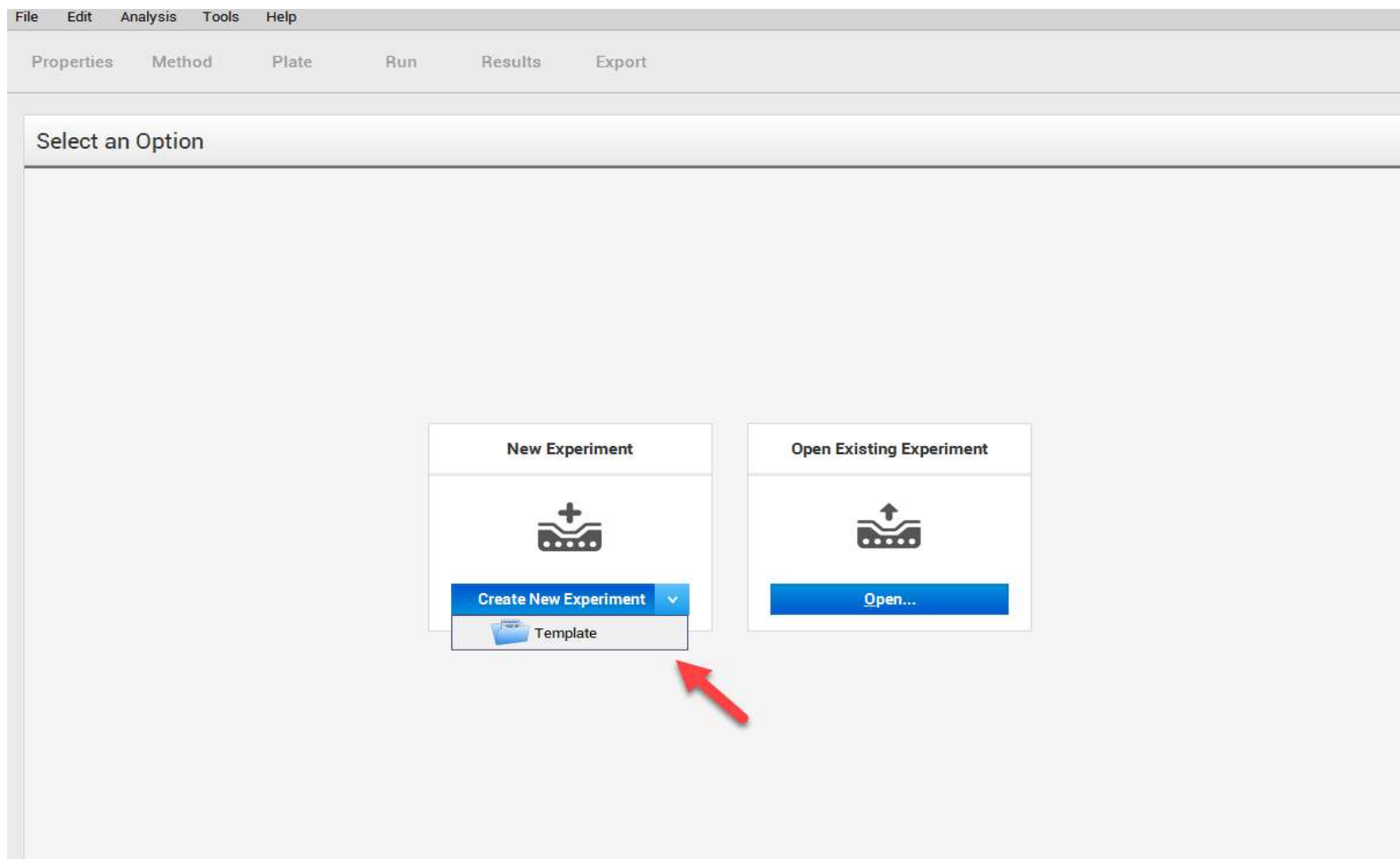


# Desktop – For those who can not be online



- Similar look and feel as online software

# Experiment Setup



- Create your experiment or start it from a template

# Experiment Properties

Properties

Method

Define

Assign

Run

Results

Export

## Experiment Properties

Save

Name

2015-06-04\_131959

Barcode

Barcode - optional

User name

User name - optional

Instrument type

QuantStudio® 3 System

Block type

96-Well 0.2-mL Block

Experiment type

Standard Curve

Chemistry

TaqMan® Reagents

Run mode

Fast

[Manage chemistry details](#)

Comments - optional

Next

# Applied Biosystems™ 2D Barcodes

Experiment type: Standard Curve

Chemistry: TaqMan® Reagents

Run Mode: Fast

Run paused

Run stopped

Run about to end

Run completed

Manage Chemistry Details

cloud suite

Chemistry details

Remove + Add + X

Reagent Name	Reagent Type	Lot Number	Part Number	Expiry Date +
New Reagent				

DA Pro

Barcode

User name

Instrument type

applied biosystems

SYBR® Select Master Mix

REF 4472908

Store at: 2-8°C

LOT 1104081

Exp. Date: 04-Apr-2018

For Research Use Only. Not intended for any in-vitro diagnostic or therapeutic use.

Read 505

applied biosystems

SYBR® Select Master Mix

REF 4472908

Store at: 2-8°C

LOT 1104081

Exp. Date: 04-Apr-2018

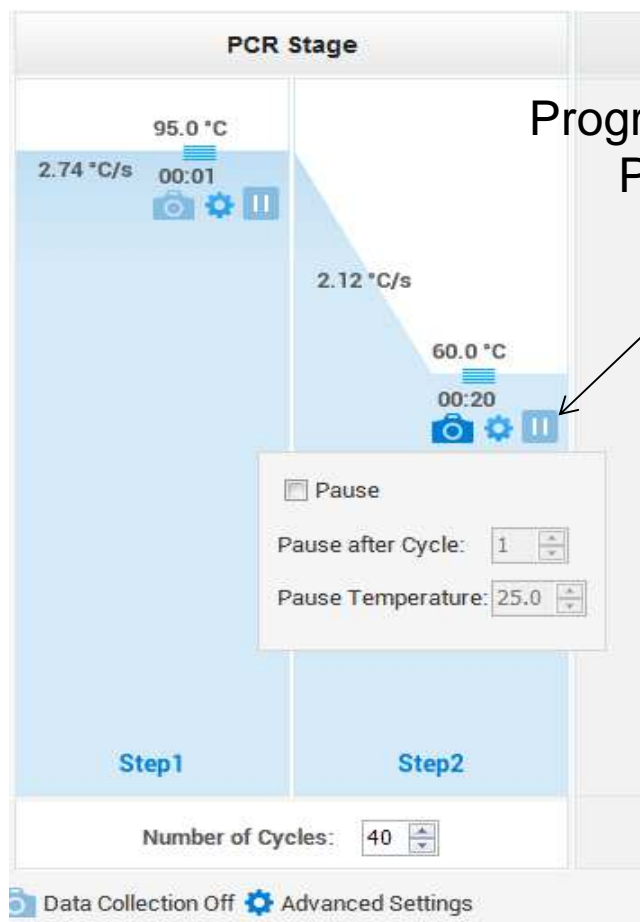
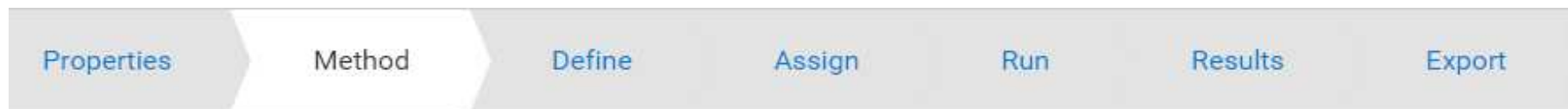
For Research Use Only. Not intended for any in-vitro diagnostic or therapeutic use.

Read 505

Use a 2D barcode scanner to track reagent details:

- Part Number
- Lot Number
- Expiration Date

# Run Method

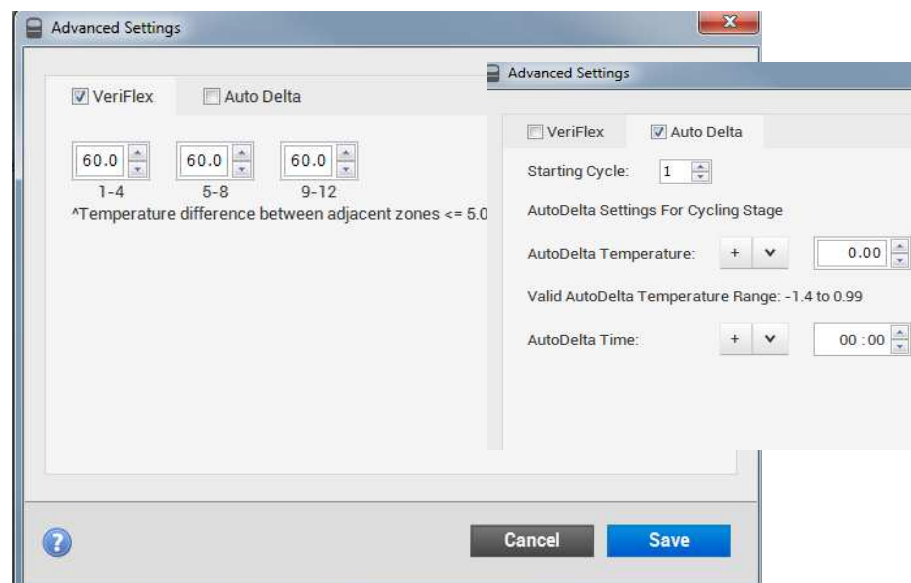


Programmable  
Pause



## Advanced Settings

- Veriflex™
- AutoDelta



# Define Samples and Targets

Properties

Method

Define

Assign

Run

Results

Export

## Define Targets and Samples

Save

### Targets

+ Add Action

	Target Name	Reporter	Quencher	
■	GAPDH	JUN	None	×
■	CD44	ABY	None	×
■	APOE	VIC	NFQ-MGB	×
■	FZD1	FAM	NFQ-MGB	×

Optional passive reference

### Samples

+ Add Action

	Sample Name
■	Sample 1

Save to Library  
Import from Library  
Delete  
Import from File

Import and Save to Library

### Biological Replicate Groups

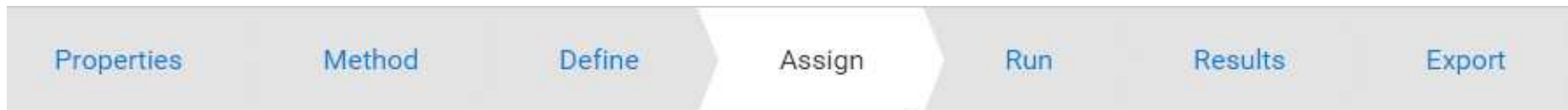
+ Add

Biological Group Name	Comments

### Passive Reference

ROX

# Assign plate information



Assign Targets and Samples

Quick Setup Advanced Setup

Well Attributes

Sample

Target

Well Comments

Plate Attributes

Passive Reference

Select wells and type names

View

1 2 3 4 5 6 7 8 9 10 11 12

A sample 2 sample 2

B

C

D sample 2 sample 2

E

F

G

H

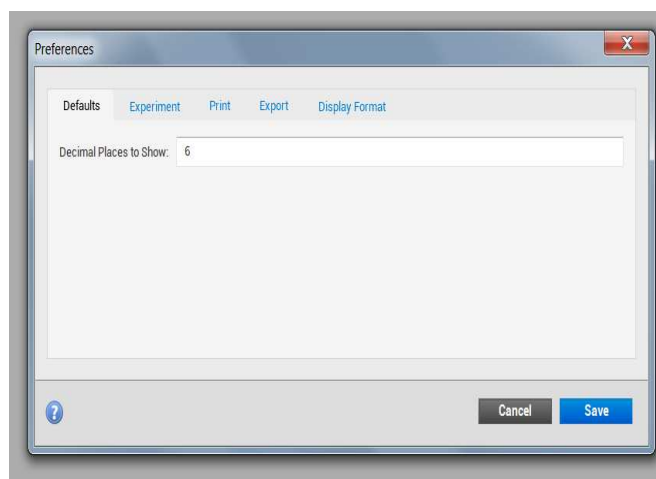
Wells: U O S O N O 92 Empty

Previous Next

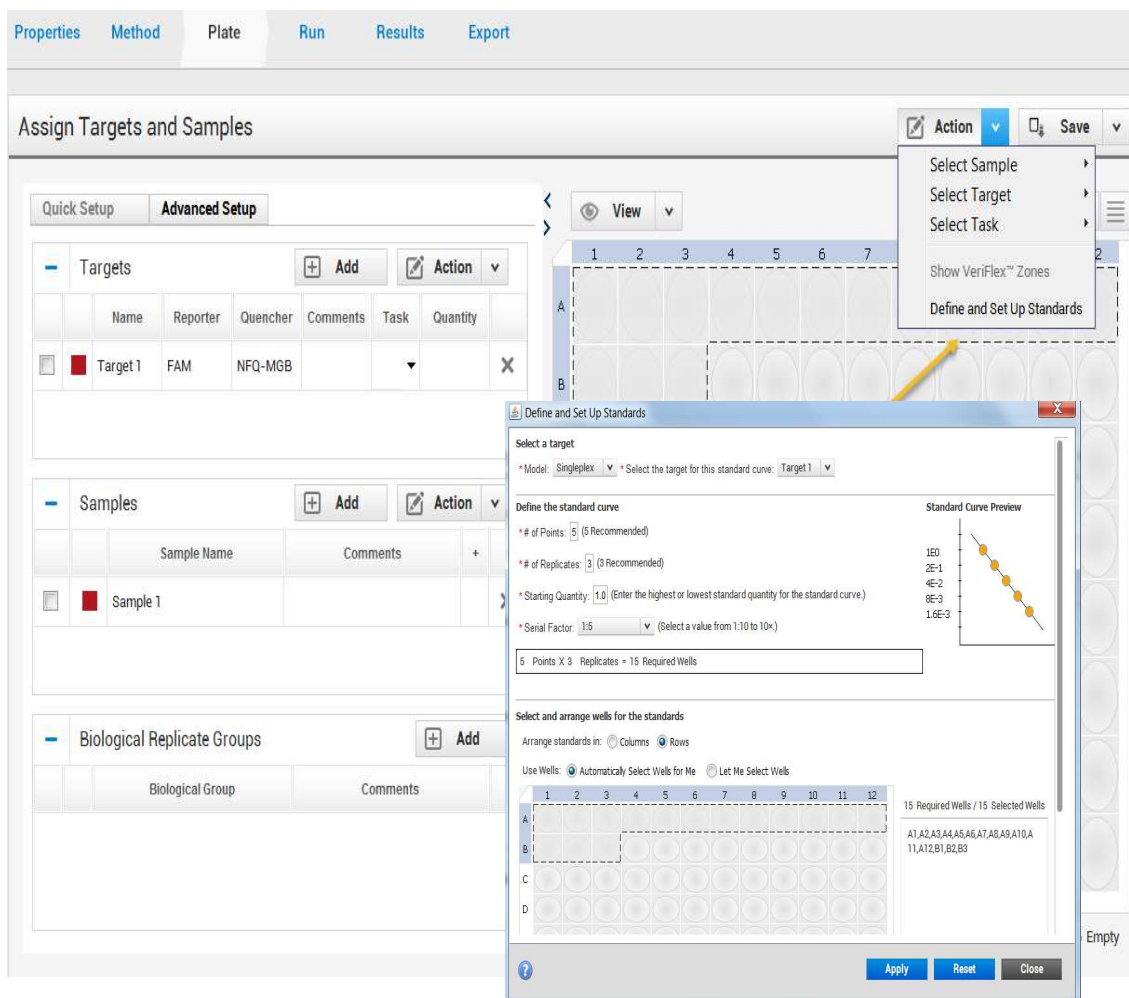


# Standard Curve: Define and Setup Standards Wizard

Tools> Preferences> Defaults



Set your decimals



# Start your run

The screenshot displays the QuantStudio 5 System software interface. At the top, a navigation bar includes tabs for Properties, Method, Define, Assign, and Run. The Run tab is active, showing a 'START RUN' button and a 'Save' button. Below this is the 'Run Control' panel, which includes a 'Post-run summary' table and a 'Run Control' section. A red arrow points to the 'START RUN' button. A text box with a red arrow pointing to the 'Save As Locked Template...' option in the File menu says 'Save your experiment as template'.

**Run Control**

**QuantStudio® 5 System**

Run Started at: 01-07-2015 01:59:12 UTC      Run Complete at: 01-07-2015 02:32:15 UTC

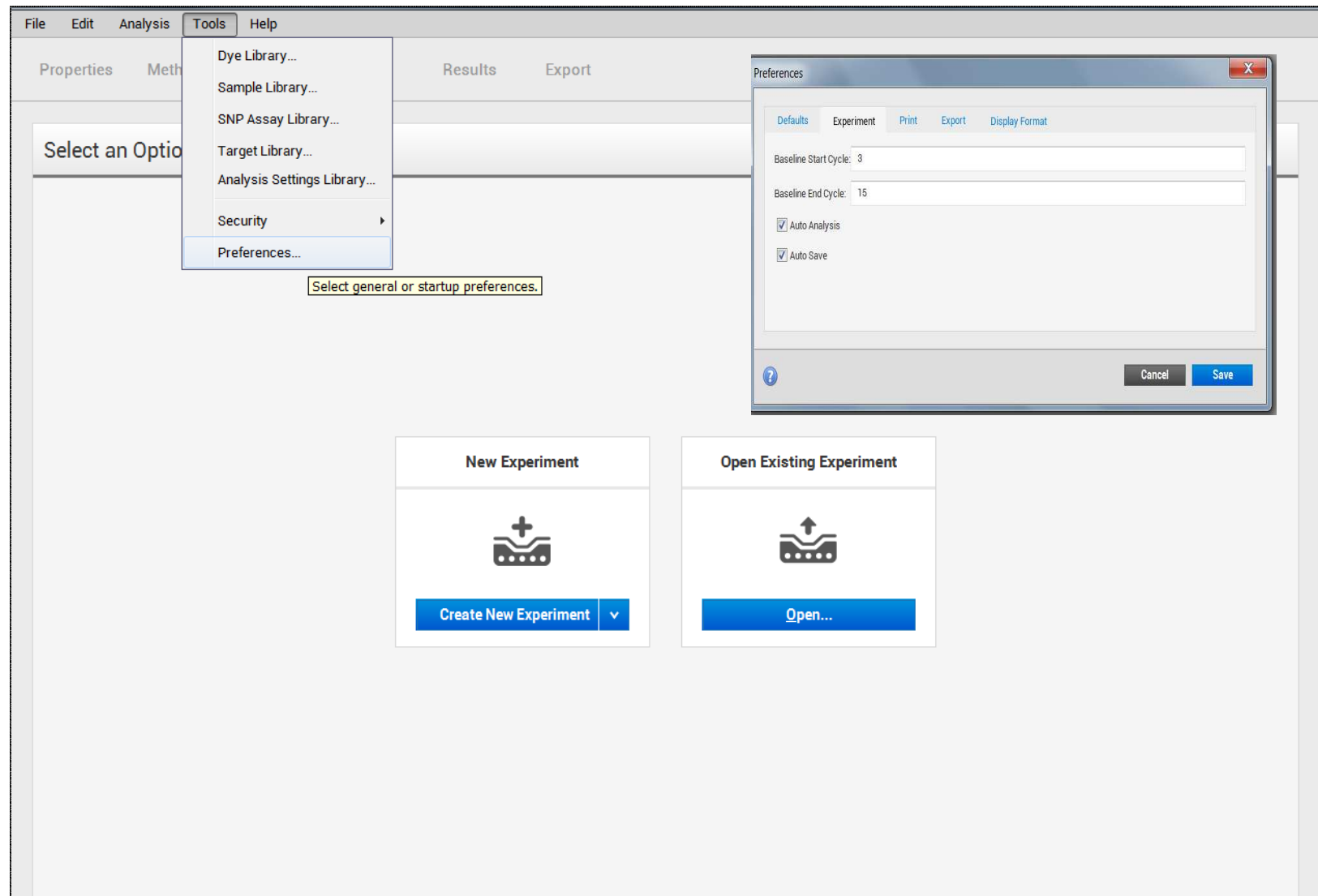
**Post-run summary**

Experiment Name	DVT3_4Plex	Start Time	01-07-2015 01:59:12 UTC
Stop Time	01-07-2015 02:32:15 UTC	Run Duration	0:32:15
User Name	DEFAULT	Instrument Name	QuantStudio 5 System
Firmware Version	0.11.1	Software Version	0.11.1
Instrument Serial Number	dvt003	Sample Volume	20.0 µL
Cover Temperature	105	Instrument Type	QuantStudio 5 System
Block Type	96-Well 0.2-mL Block		
Errors Encountered			

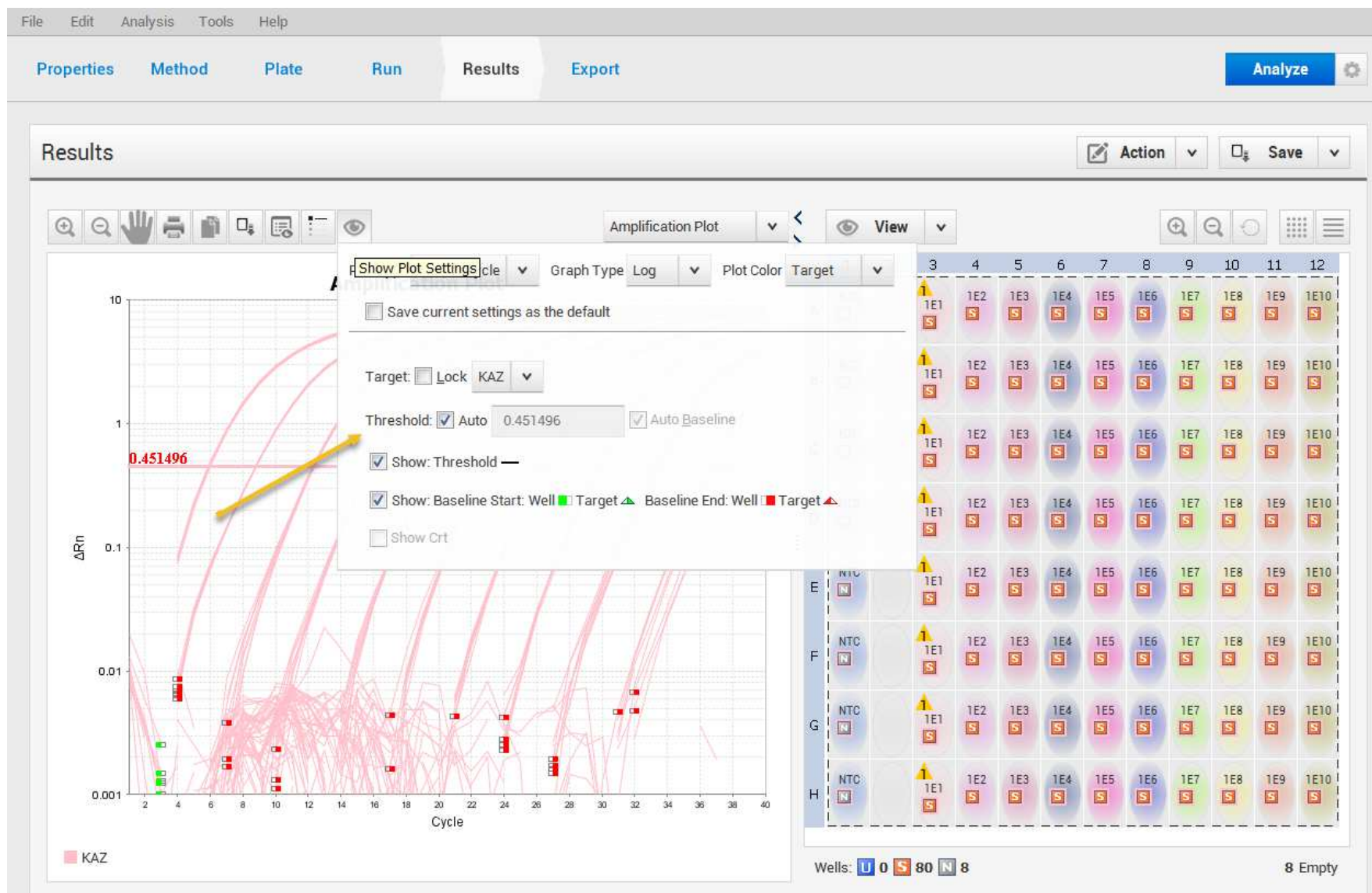
**Save your experiment as template**

**Start Run from touchscreen or desktop**

# Analysis Settings: Defaults



# Changing threshold and baseline for single target



# Changing thresholds and baselines for all targets

Analysis Settings for 9\_log\_Fast\_Adv\_MMx\_20uL

Cr Settings | Flag Settings | Advanced Settings | Standard Curve Settings

**Data Step Selection**  
Select the step and stage to use for Cr analysis. Only stage/step combinations for which data suitable for Cr analysis have been collected are displayed.

PCR Stage/Step: Stage2, Step2

**Algorithm Settings**  
Baseline Threshold: [v]

**Default Cr Settings**  
Default Cr settings are used to calculate the Cr for targets without custom settings. To edit the default settings, click **Edit Default Settings**.

Threshold: AUTO Baseline Start Cycle: AUTO Baseline End Cycle: AUTO **Edit Default Settings**

Target	Threshold	Baseline Start	Baseline End
KAZ	AUTO	AUTO	AUTO

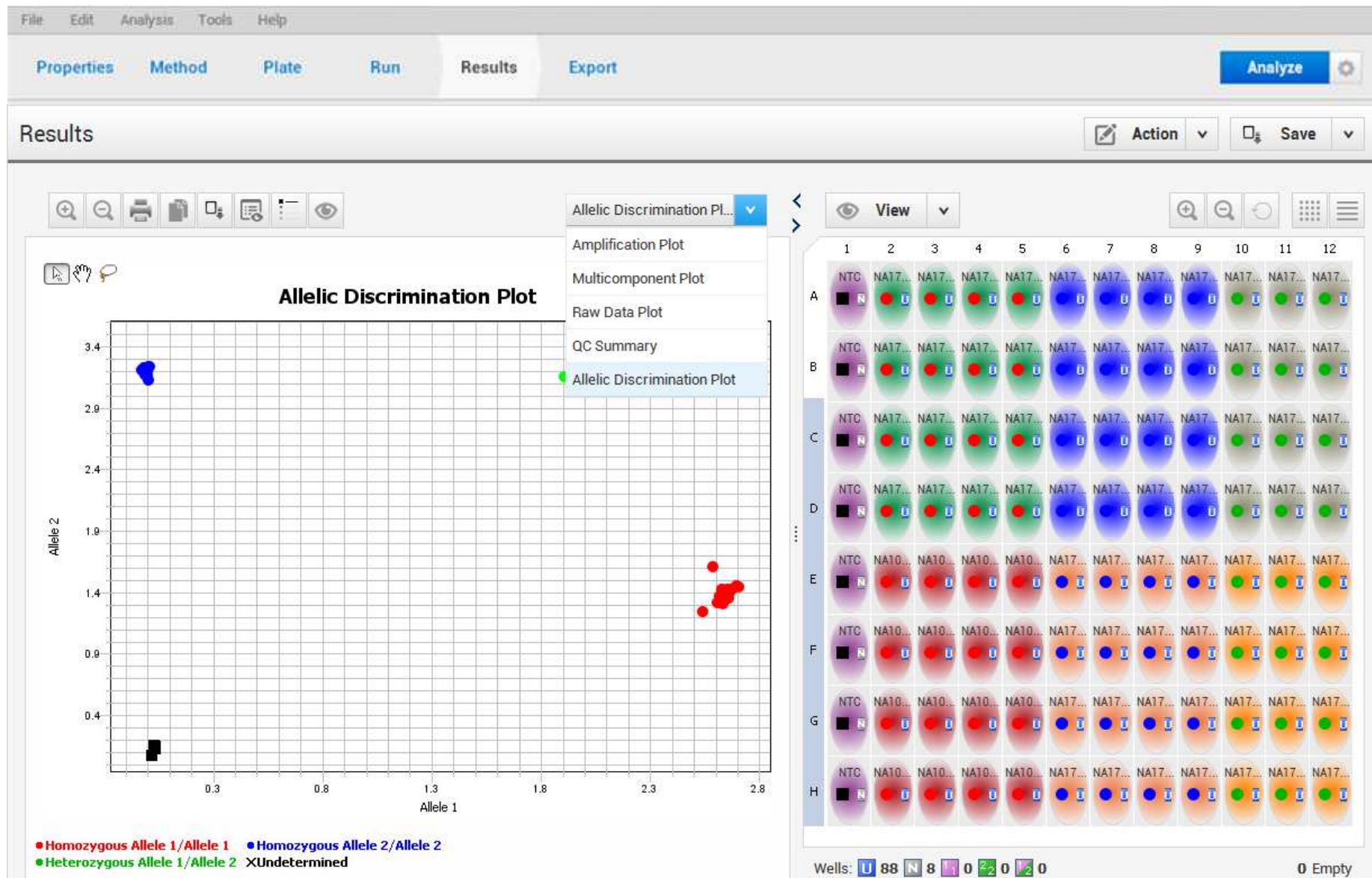
**Cr Settings for KAZ**  
Cr Settings to Use: ☐ Default Settings  
☒ Automatic Threshold  
Threshold: 0.451496  
☒ Automatic Baseline  
Baseline Start Cycle: 3 End Cycle: 15

Buttons: Save... Load... Cancel Revert Apply

Background: Wells: 10 11 12 (each with 1E8, 1E9, 1E10 and a red 'S' icon). 8 Empty.



# SNP Genotyping Results



# Export Settings

File Edit Analysis Tools Help

Properties Method Plate Run Results Export

Export

☐ Auto Export **Export** Save ▼

File Name: 2017-03-13\_090819

File Type: QuantStudio ▼  
(\*.xls) ▼

Location: C:\Applied Biosystems\QuantStudio Design & Ar **Browse...**

☒ Open exported files when complete  
(for manual export only)

**Content**

<input checked="" type="checkbox"/> Sample Setup	<input type="checkbox"/> Raw Data
<input checked="" type="checkbox"/> Amplification Data	<input type="checkbox"/> Multicomponent Data
<input checked="" type="checkbox"/> Results	<input type="checkbox"/> Melt Curve Raw Data
<input type="checkbox"/> Melt Curve Result	<input type="checkbox"/> Reagent Information

**Customize** Customize what is exported within each item above.

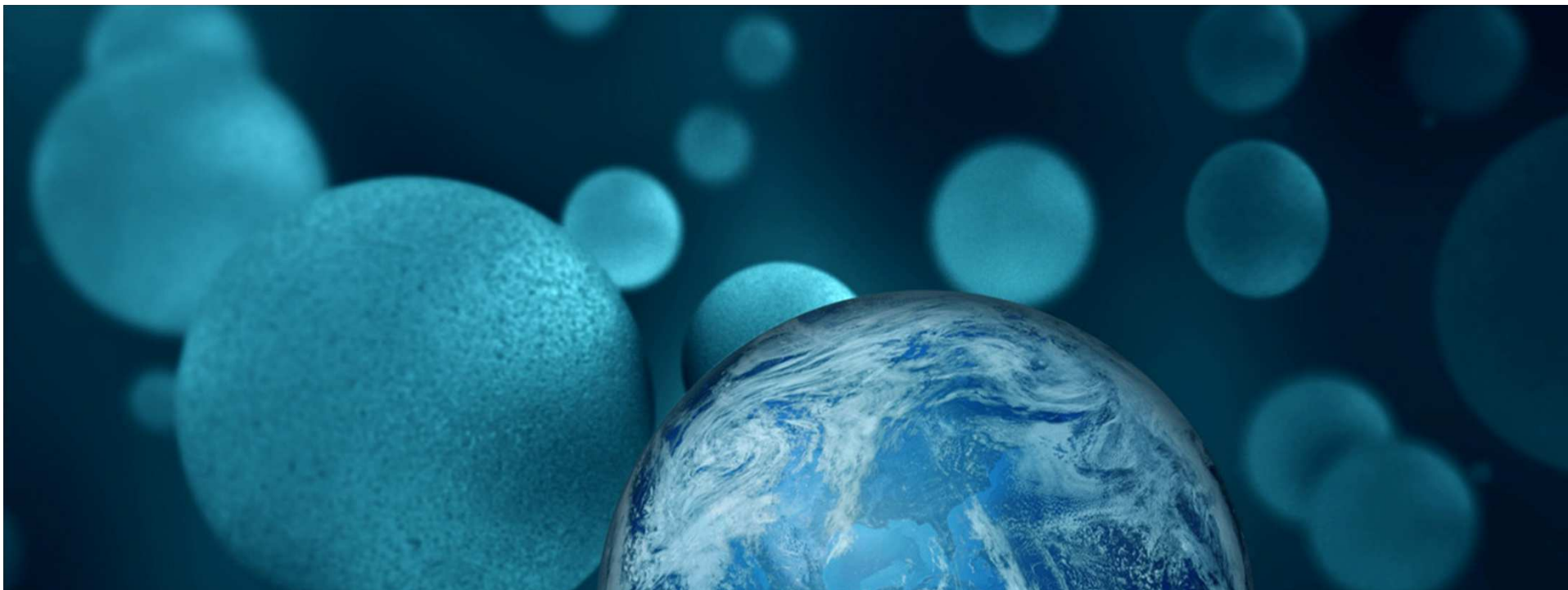
**Options**

☒ Unify the above content into one file

☐ Split the above content items into individual files

**Previous**

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**QUESTIONS?**

**Note: For Research Use Only. Not for use in diagnostic procedures.**

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## Appendix

## Ramp rate

## Block Ramp rate – Technical specifications

Re: Applied Biosystems™ QuantStudio™ 3 and 5 Real-Time PCR System Peak Block Ramp Rates

Dear Valued Customer:

Thank you for your inquiry related to our Applied Biosystems™ QuantStudio™ 3 and 5 Real-Time PCR System Peak Block Ramp Rates. The table below outlines the peak Up and Down Ramp Rates for these systems by block type:

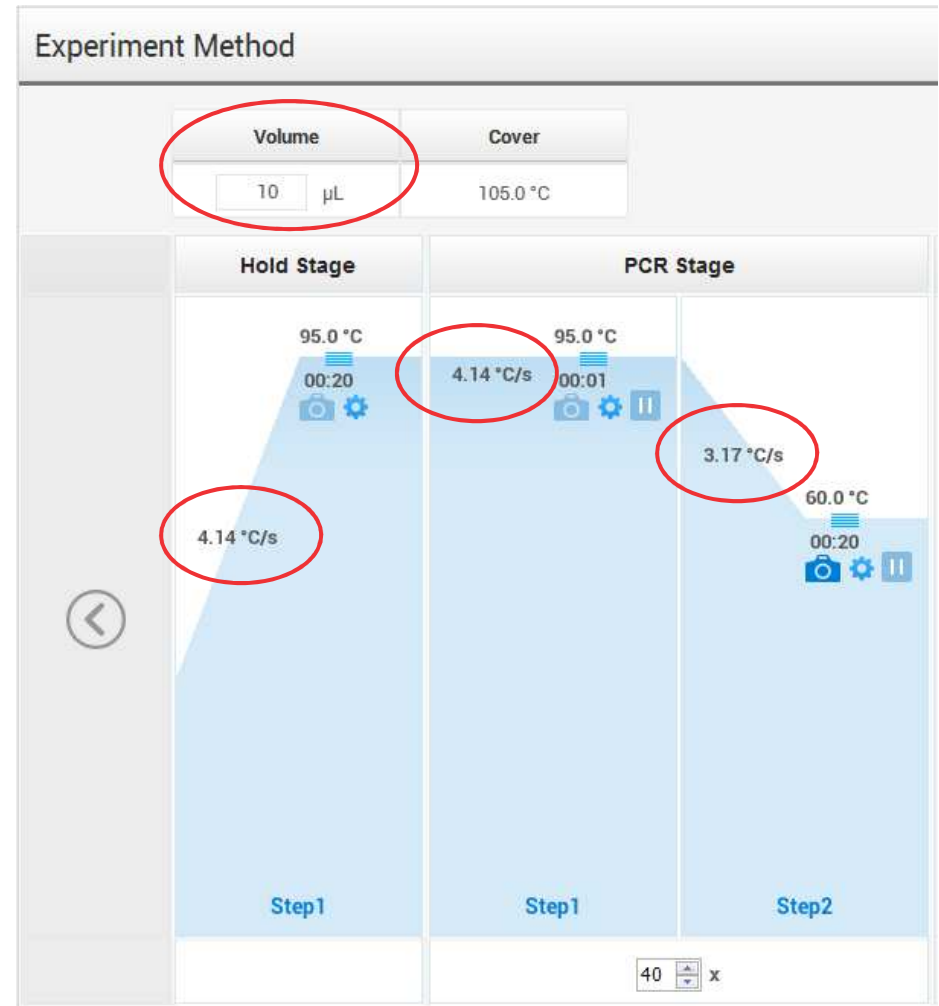
Block Type	Peak (Up Ramp)	Peak (Down Ramp)
96-well 0.2ml	6.5C/s	5.4C/s
96-well 01.ml	9.0C/s	7.7C/s
384-well	6.0C/s	4.8C/s

# Sample ramp rate – User can set this in the software

- User can set two parameters

- Reaction volume
- Sample ramp required

... and actual block ramping is calculated by a proprietary algorithm.



# Maximum programmable sample ramp rate per volume

## 96well 0.2ml

Vol	UR	DR
1	3.66	2.87
10	3.48	2.70
50	2.74	2.12
100	1.94	1.80

## 96well 0.1 ml

Vol	UR	DR
1	4.81	3.71
10	4.50	3.44
20	4.14	3.16
30	3.76	2.90

## 384well

Vol	UR	DR
1	2.92	2.15
5	2.57	1.99
10	2.27	1.87
20	1.99	1.76

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