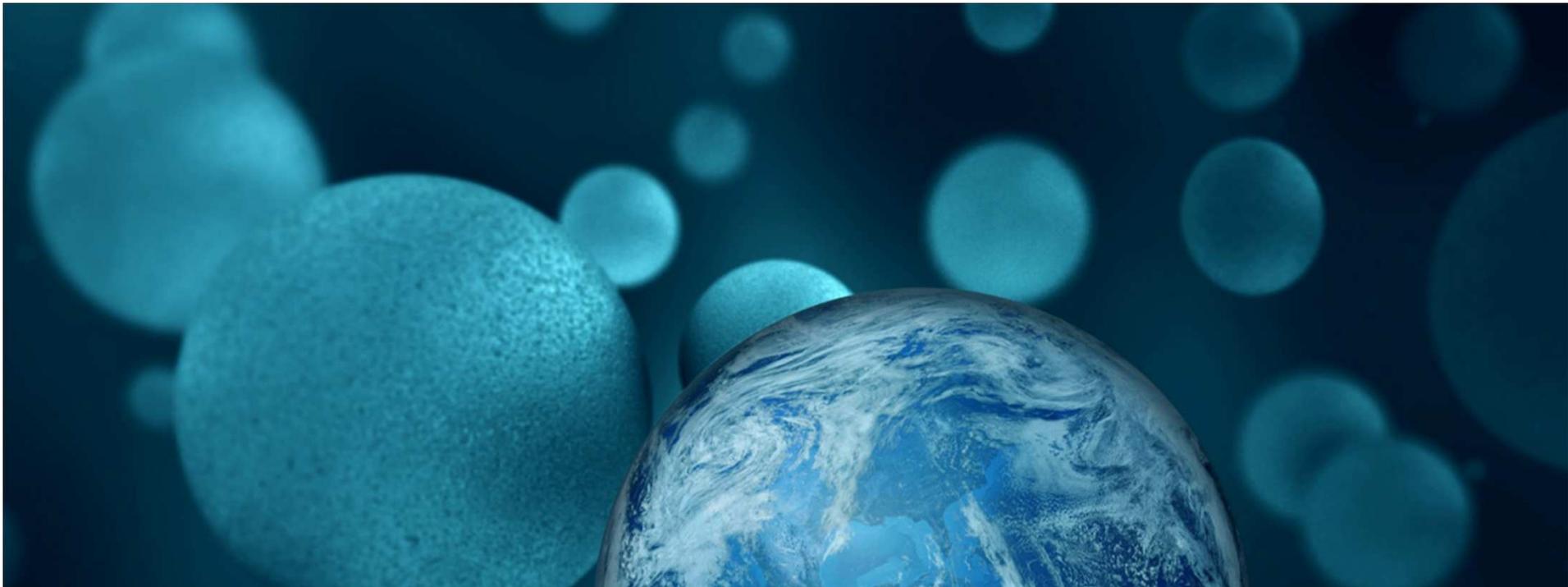


Suggestions for the Trainer...

- 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

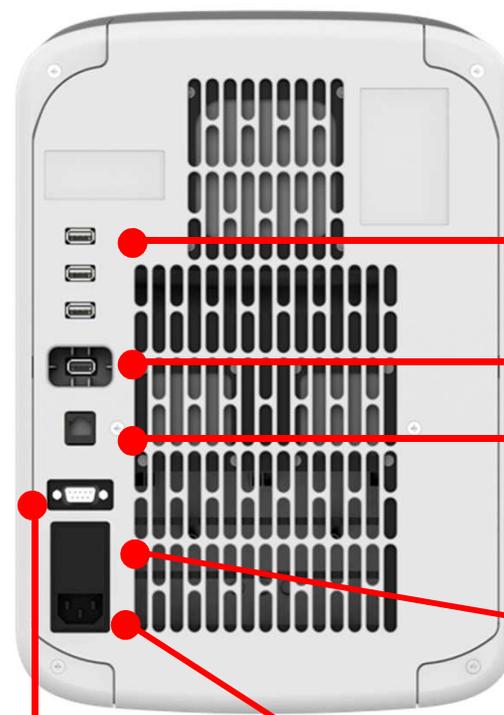


Instrument Front & Rear Features

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

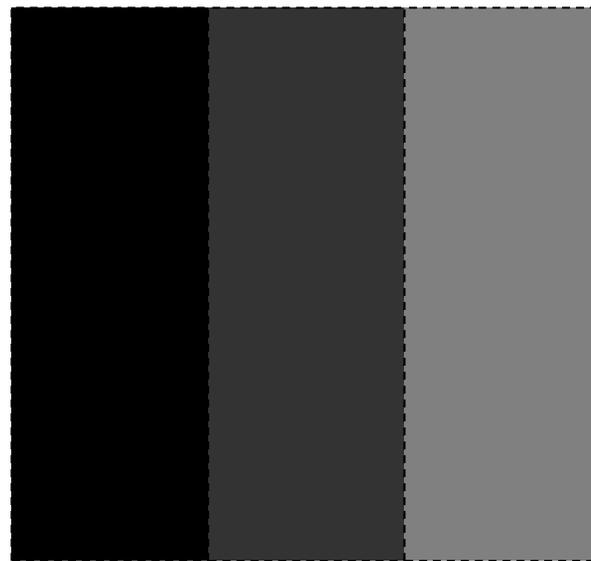
	QuantStudio™ 3 Real Time PCR System	QuantStudio™ 5 Real Time PCR System
Block configurations	96-well 0.1 ml block :10-30 µl 96-well 0.2 ml block : 10-100 µl	96-well 0.1 ml block :10-30 µl 96-well 0.2 ml block : 10-100 µl 384-well: 5-20 µl
Run time	<30 minutes	96-well block: <30 minutes 384-well block: <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

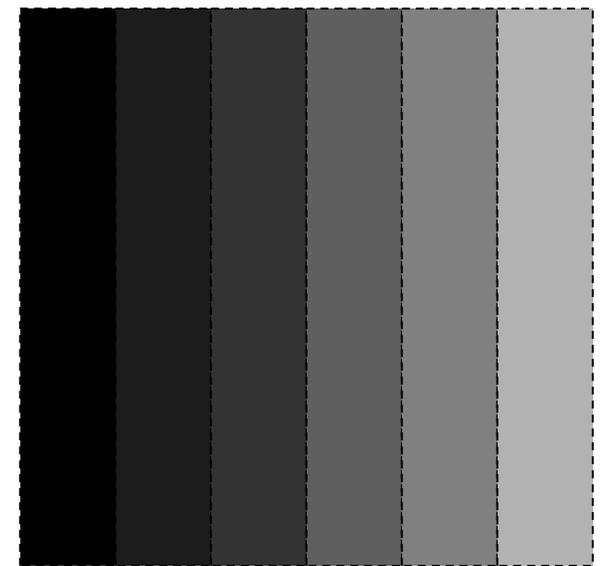
- Independent temperature control in each zone (more precise than gradient)
- Can program at will, including multiple zones with same temp (Temp. difference between adjacent zones <math><5^{\circ}\text{C}</math>)
- Great for optimization and also running multiple assays at the same time



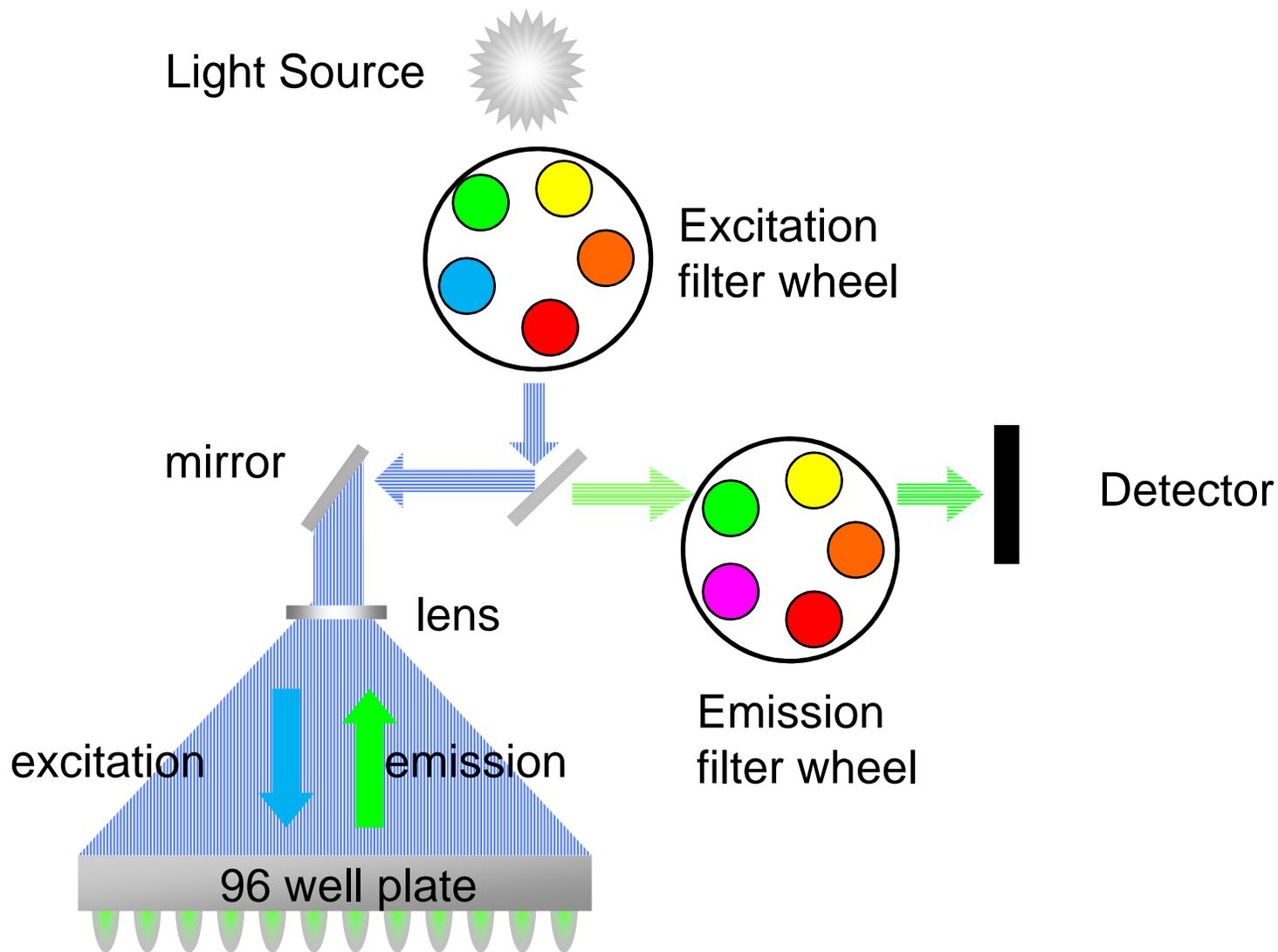
QuantStudio™ 3



QuantStudio™ 5 96-well block

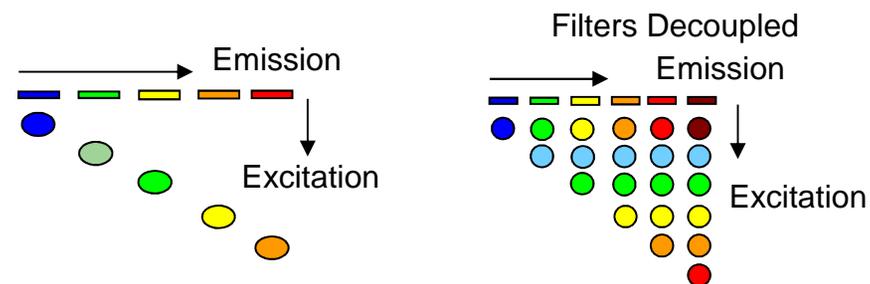
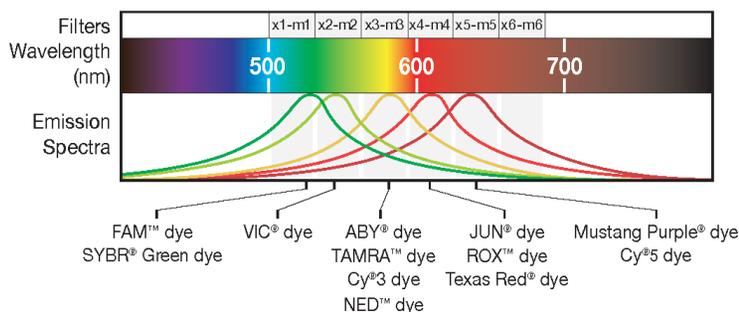


OptiFlex™ System with Bright White LED



Multiplex Capabilities

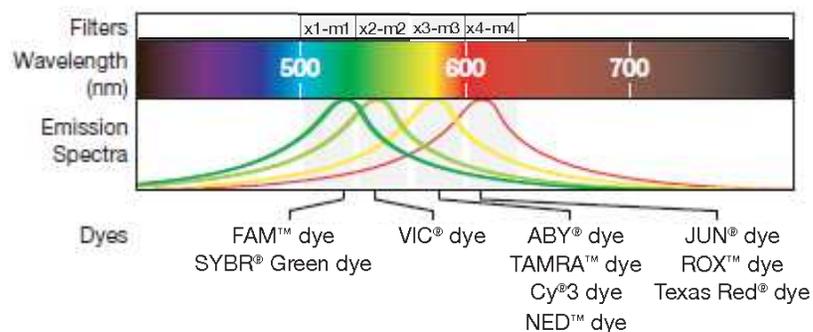
Channel	Dye Examples	Excitation Filter	Emission Filter	QuantStudio™3	QuantStudio™5 384w-block	QuantStudio™5 96-block
x1-m1	FAM™ and SYBR Green	470 ± 15nm	520 ± 15nm	✓	✓	✓
x2-m2	VIC™, JOE™, TET™, HEX™	520 ± 10nm	558 ± 12nm	✓	✓	✓
x3-m3	TAMRA™, NED™, ABY™	550 ± 10nm	586 ± 10nm	✓	✓	✓
x4-m4	ROX™, JUN™, Texas Red™	580 ± 10nm	623 ± 14nm	✓	✓	✓
x5-m5	Mustang Purple™, LIZ™, Cy®5	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) ^[1]		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™ ^[2]
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®

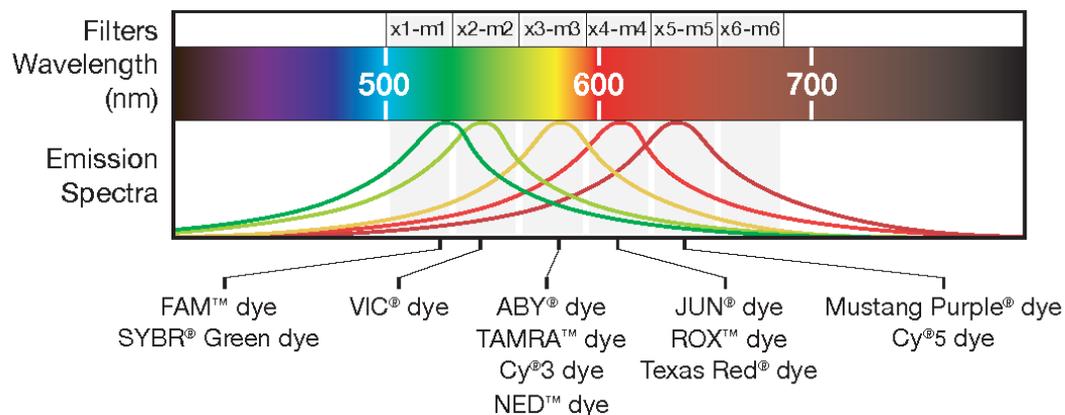


Multiplexing Capabilities - QuantStudio™ 5

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

Peak channel	Color	Filter wavelength (nm) ^[1]		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

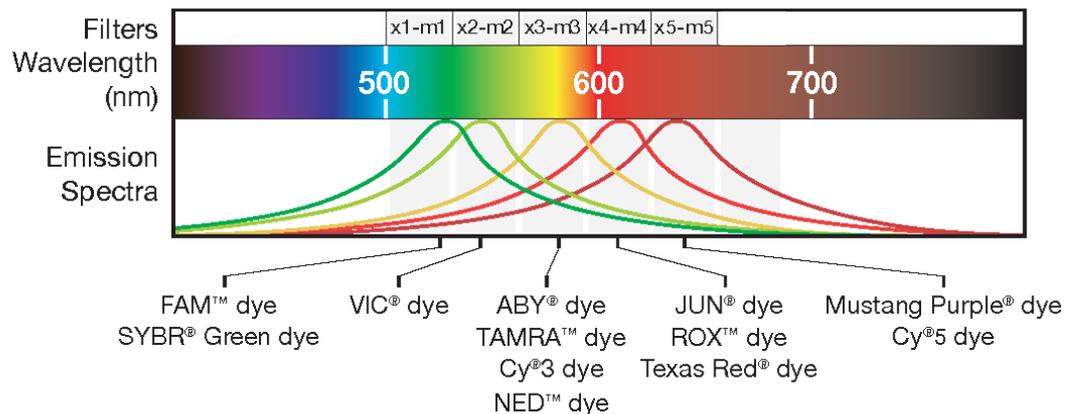
*This filter set currently does not support any dyes supplied by Thermo Fisher Scientific



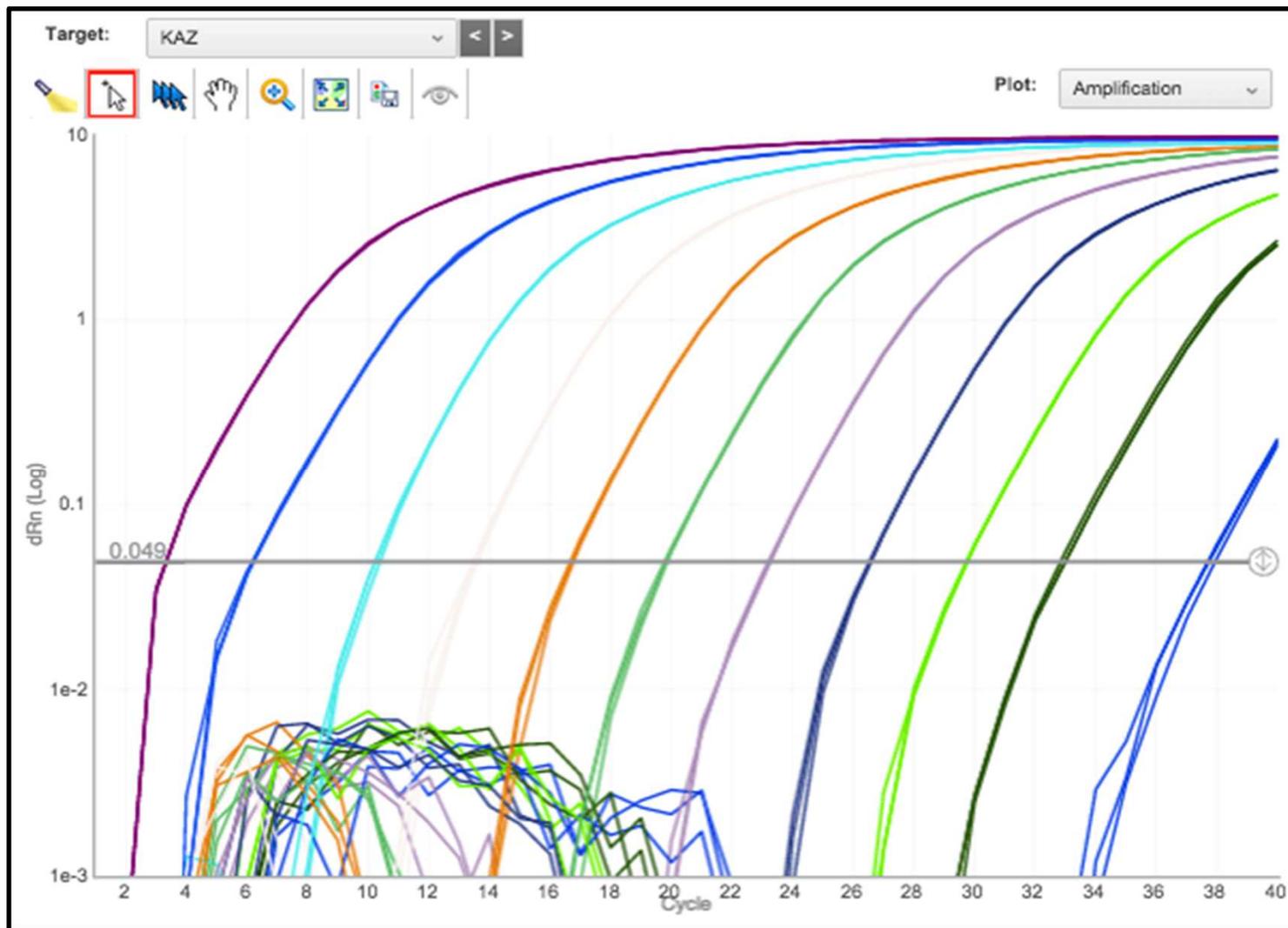
Multiplexing Capabilities - QuantStudio™ 5 – 384w

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

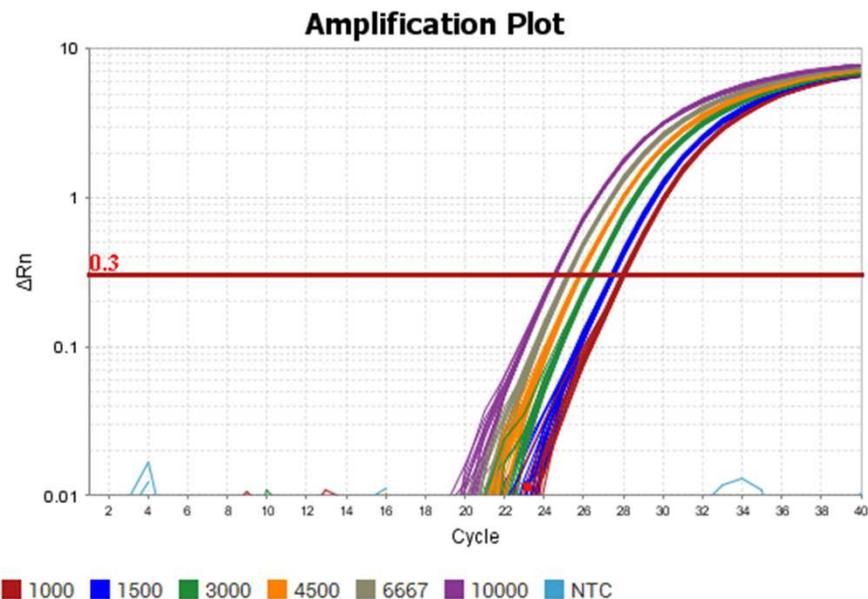
Peak channel	Color	Filter wavelength (nm) ^[1]		Pre-calibrated dyes	Example custom dyes
		Excitation	Emission		
x1-m1	Blue	470 ± 15	520 ± 15	FAM™ and SYBR® Green	SYT09
x2-m2	Green	520 ± 10	558 ± 12	VIC®	HEX™, TET™ and JOE™
x3-m3	Yellow	550 ± 10	587 ± 10	ABY®, NED™, and TAMRA™	Cy®3
x4-m4	Orange	580 ±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

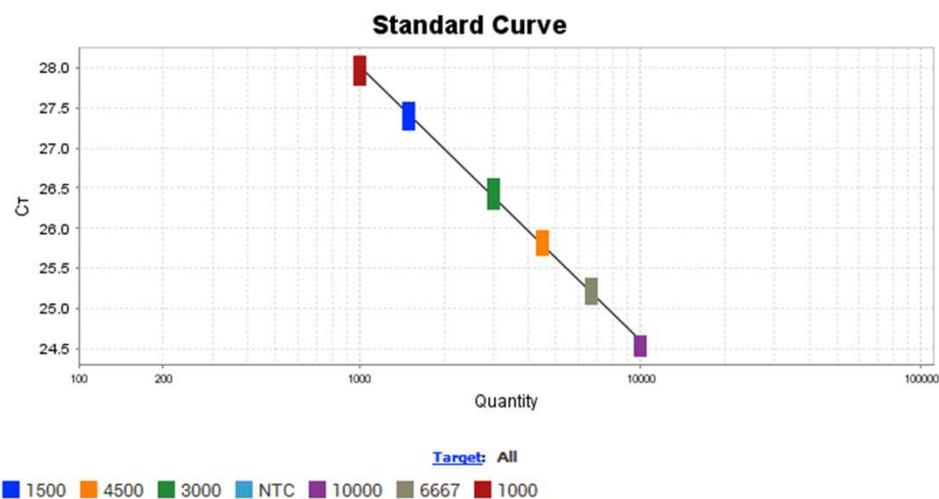


QuantStudio™ 3 & 5 Enable 1.5-Fold Discrimination



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 _T	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



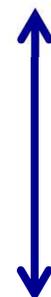
Connected Laptop with QuantStudio Design and Analysis desktop software



WiFi



LAN



Connect to the Design and Analysis Cloud software using any device with a compatible web browser

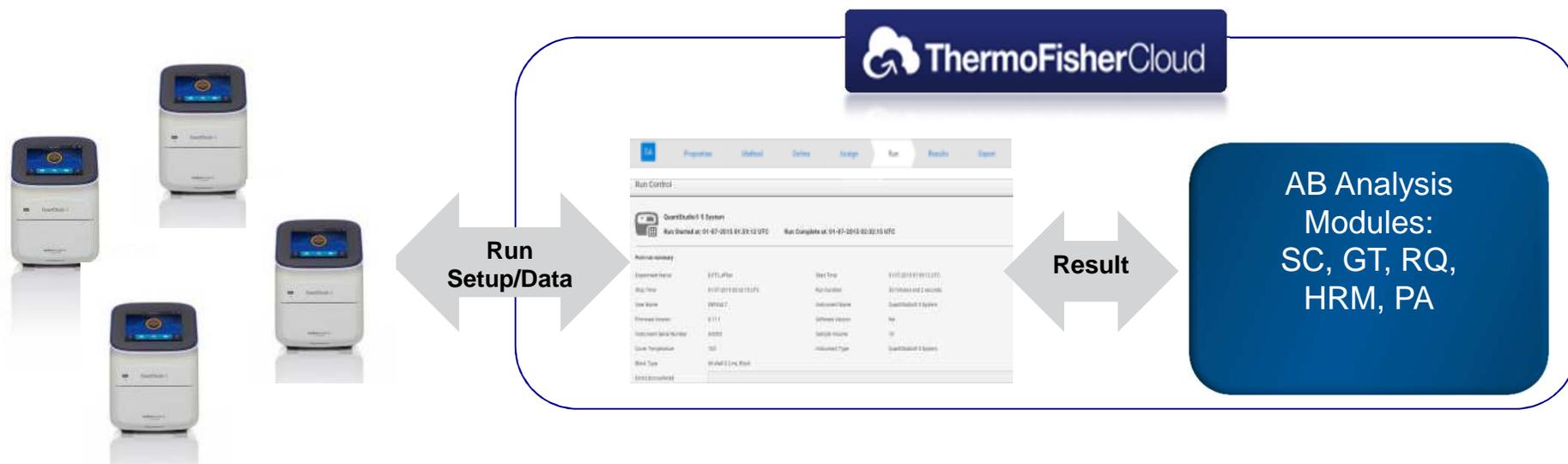
Note: You can start an experiment run only from the instrument touchscreen or from the Desktop Software



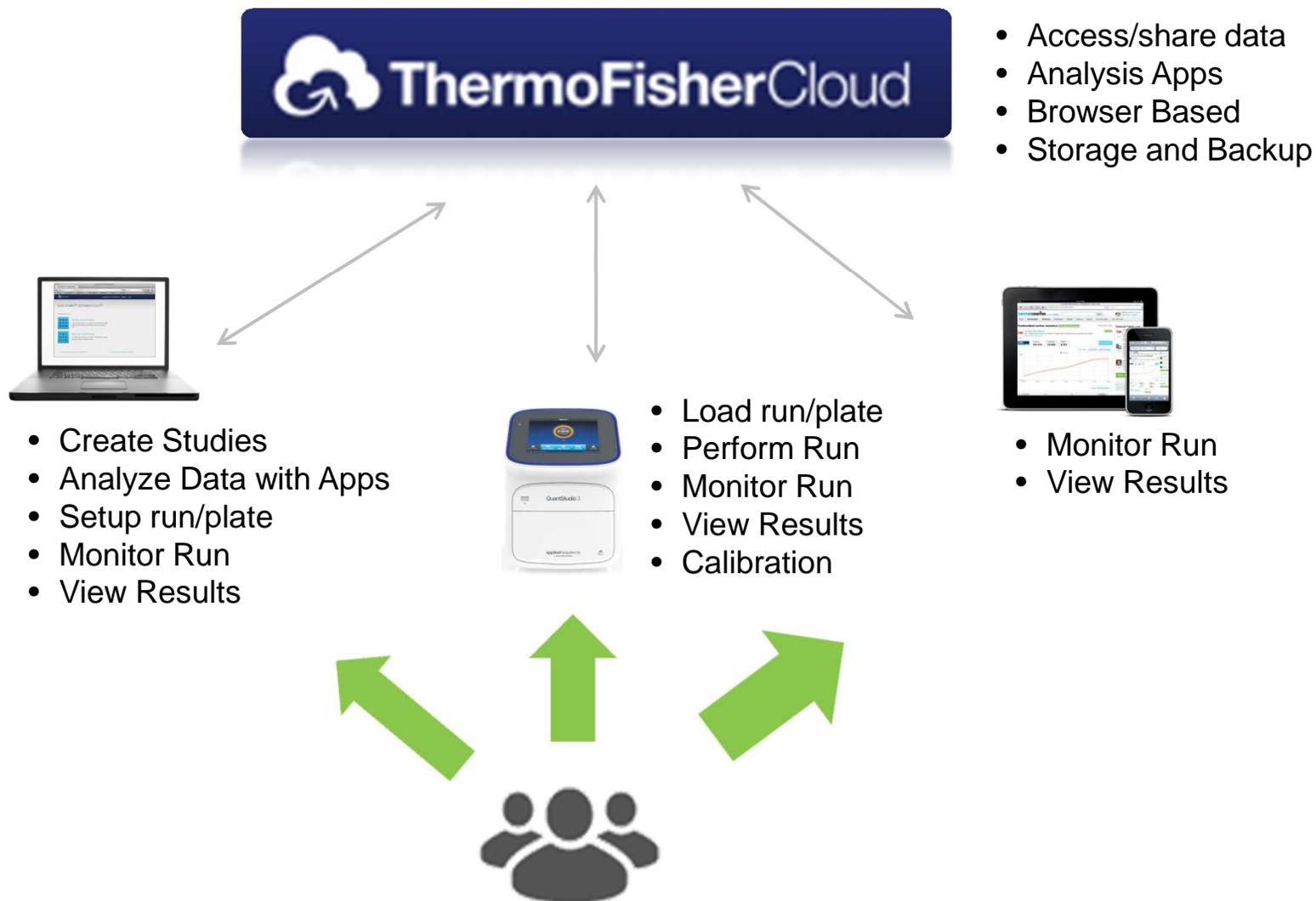
USB

Ability to Connect Multiple Instruments

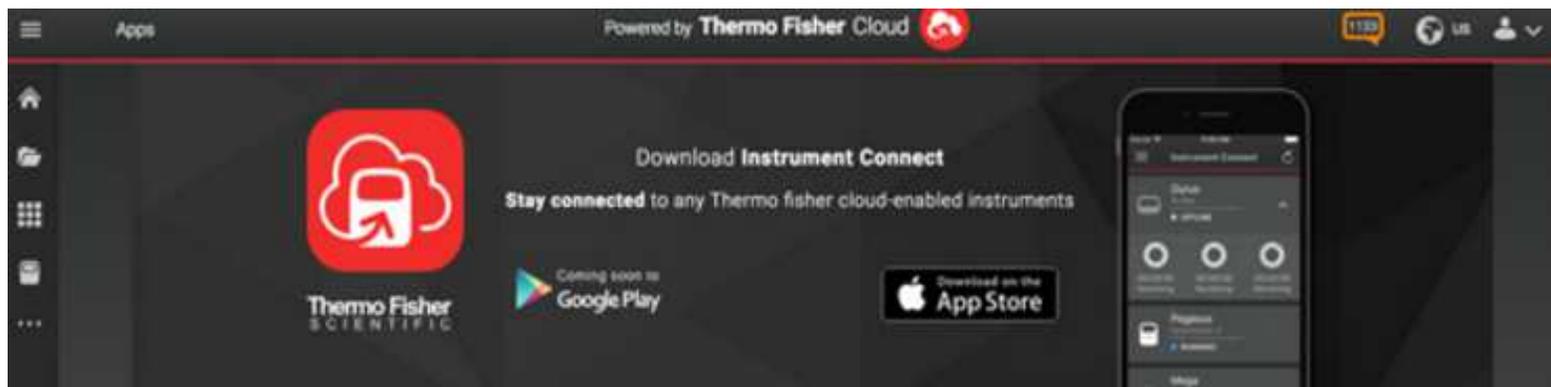
- Single software to connect and control all QuantStudio 3/5 instruments in the lab
- Seamless integration with instruments that helps minimize manual data transfer



How the Cloud is utilized with QuantStudio™ 3 & 5



Instrument Connect Mobile App



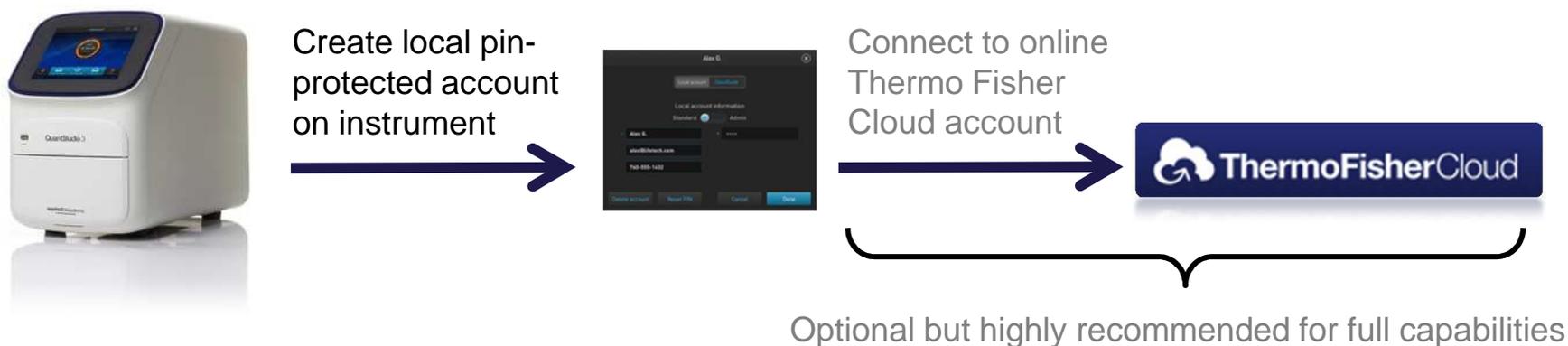
Monitor your runs on multiple devices



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

The screenshot shows the 'Edit Account' dialog box with the following fields and annotations:

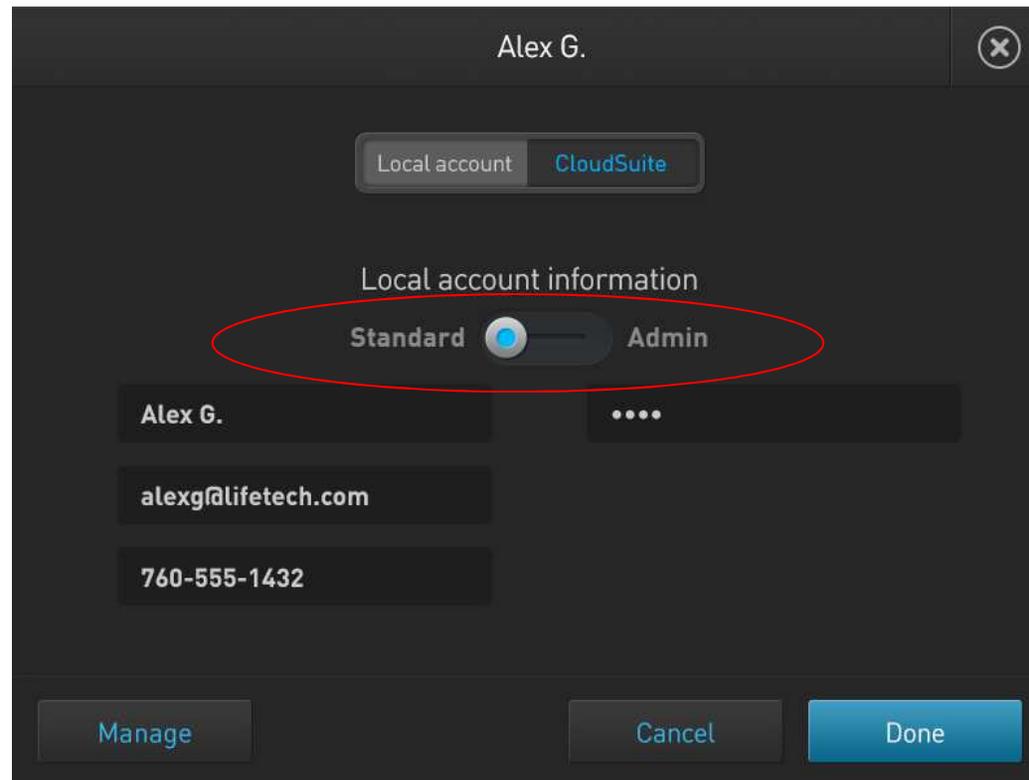
- Local account information:**
 - User Name:** Sean (Annotated with 'Enter User Name')
 - Email:** sean@lifetech.com
 - Phone:** 760-555-1432
- CloudSuite information:**
 - New PIN:** (Annotated with 'Set PIN (and remember it!)')
 - Re-enter PIN:** (Empty field)
 - Show PIN:** (Toggle switch)

Buttons at the bottom: 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



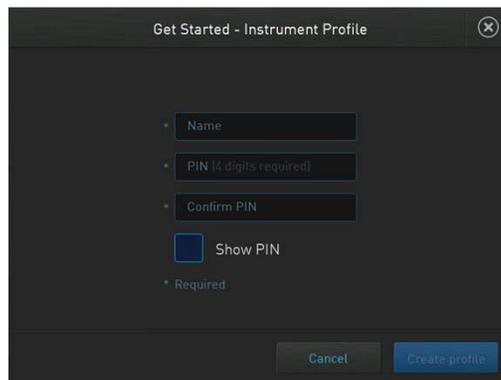
Note: the first user with “Admin” status to connect to the Cloud will be the Cloud Admin for that linked instrument

Account Setup on Touchscreen

One Step

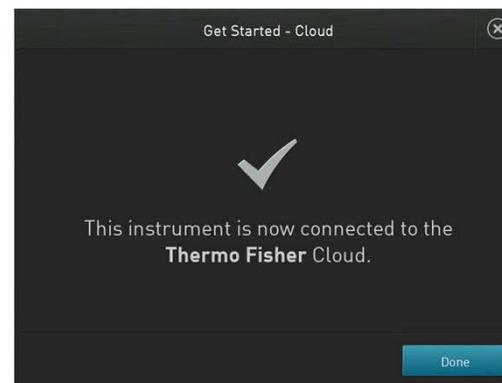
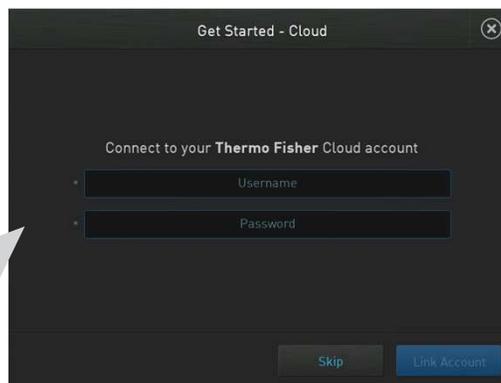
Instrument Profile Setup

- Enter Name & PIN
- Select "Create Profile"

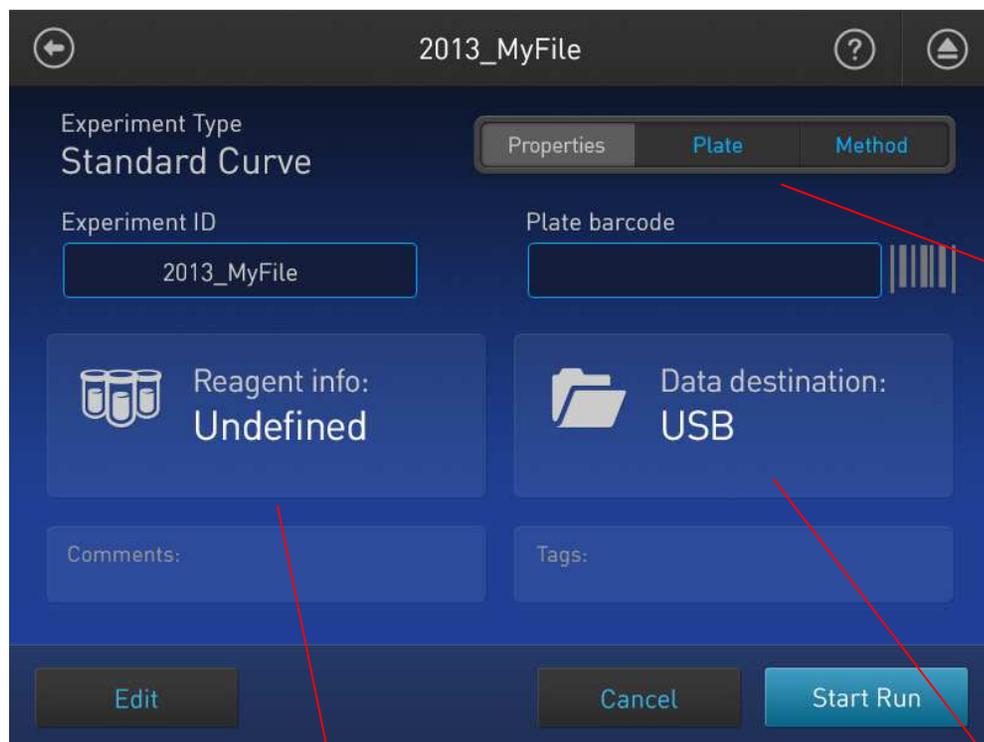


Optional Step to link to Thermo Fisher Cloud Account

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



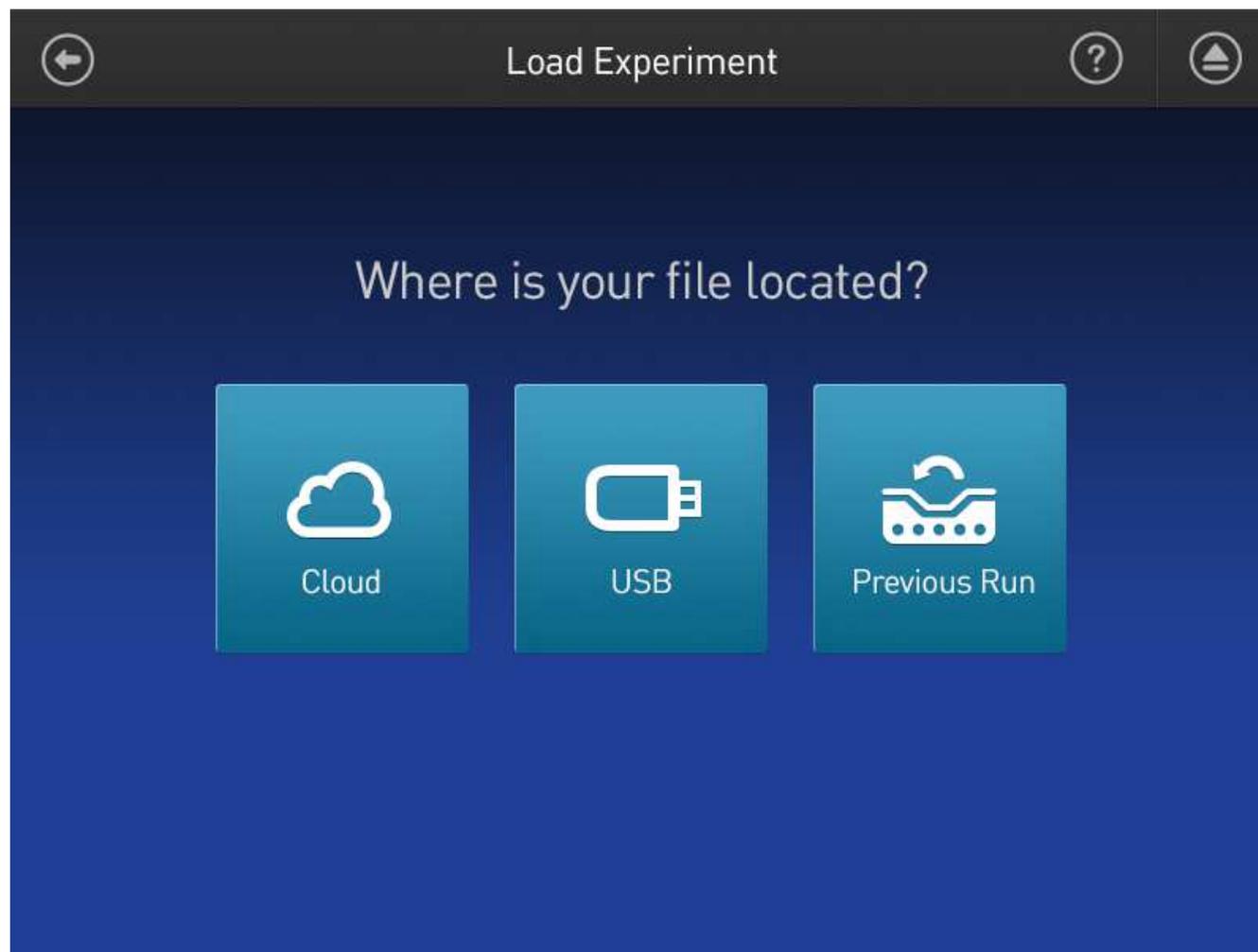
Use touchscreen to edit reagent info, destination, and plate setup



2D reagent barcodes supported for Applied Biosystems reagents!



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

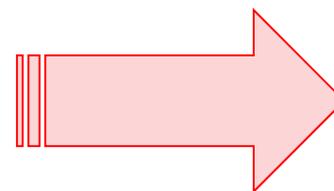
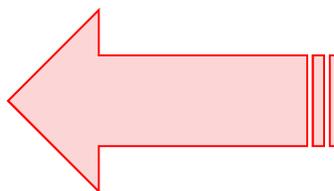
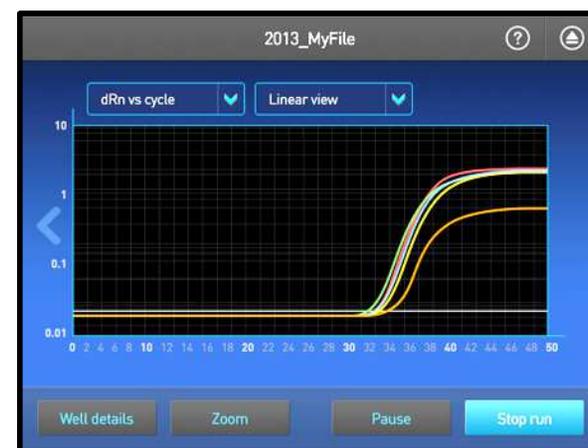
Time Remaining



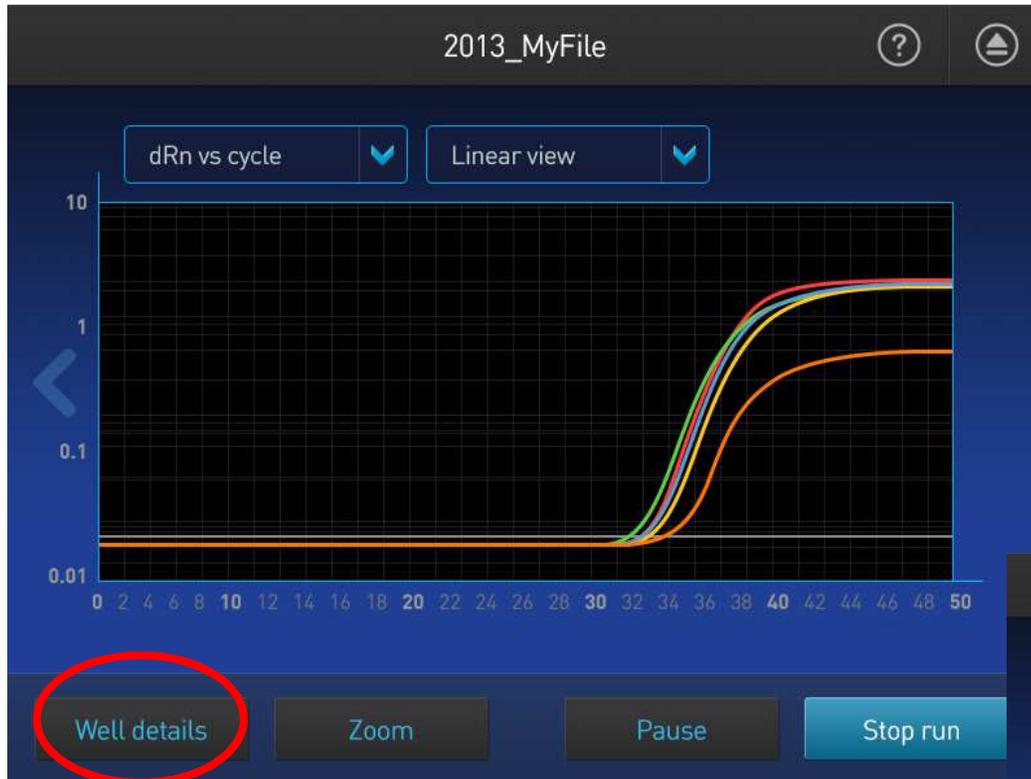
Thermal Protocol Status



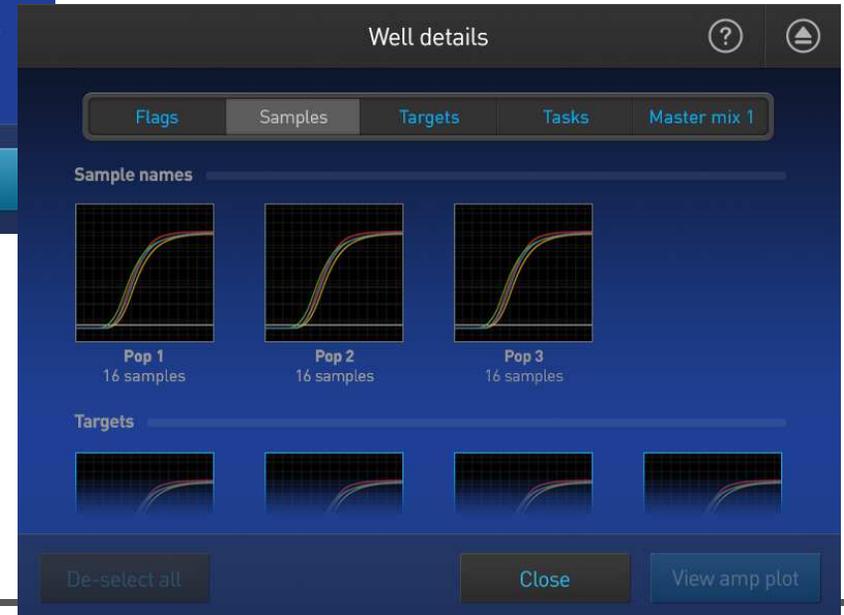
Live Amplification Curves



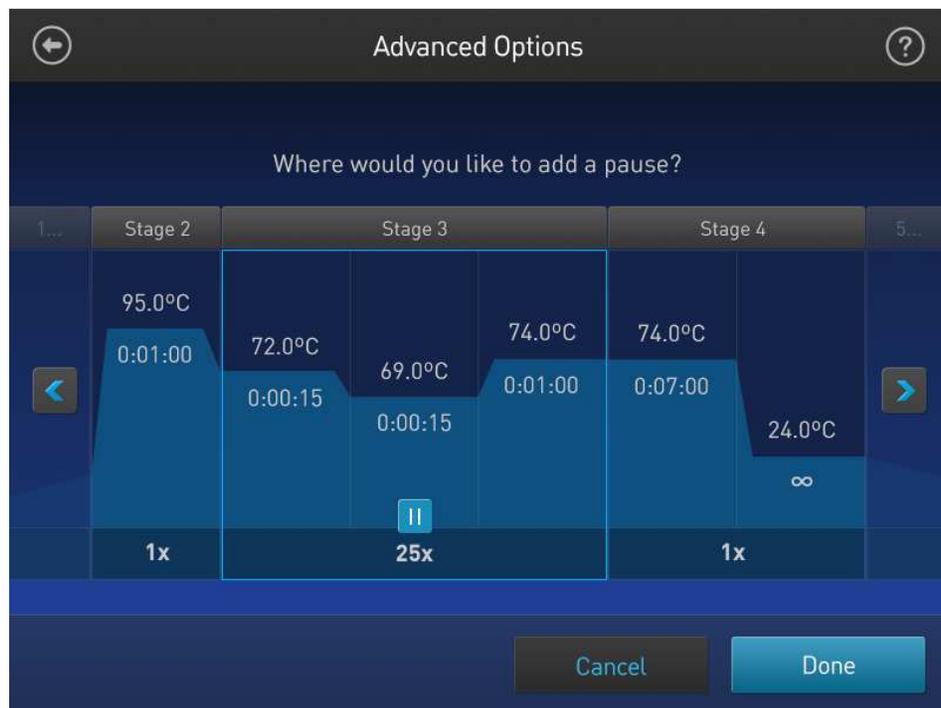
Review amp plots in real time



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



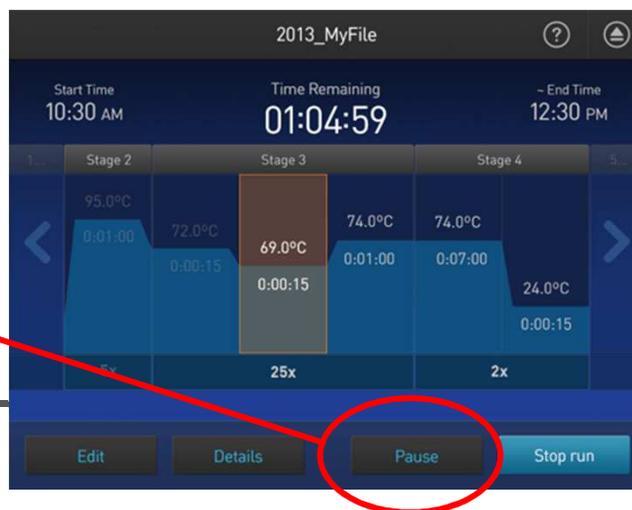
New Feature: Run Pause



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

The screenshot shows the 'Advanced Options' screen with a numeric keypad. The 'Pause temperature' field contains the value '1'. The 'Pause after cycle' field is empty. The keypad includes buttons for digits 0-9, a backspace key, an infinity symbol, and a 'Done' button.

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.

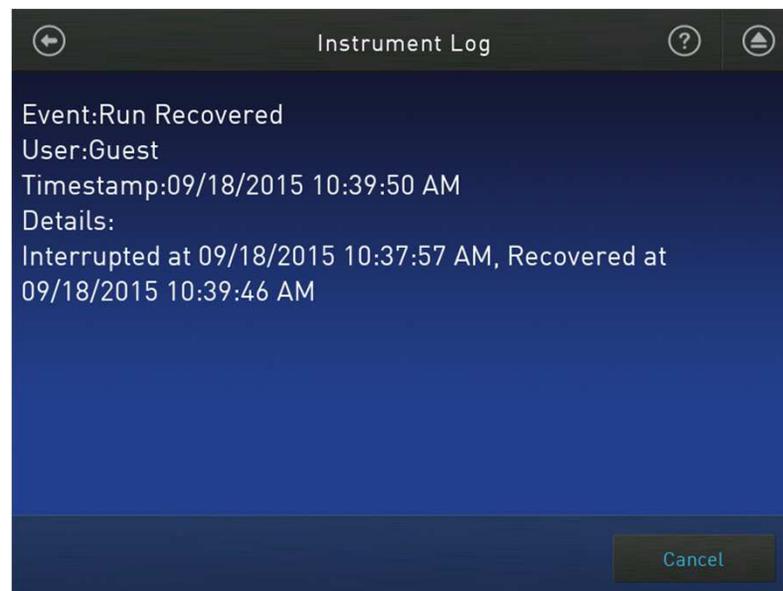
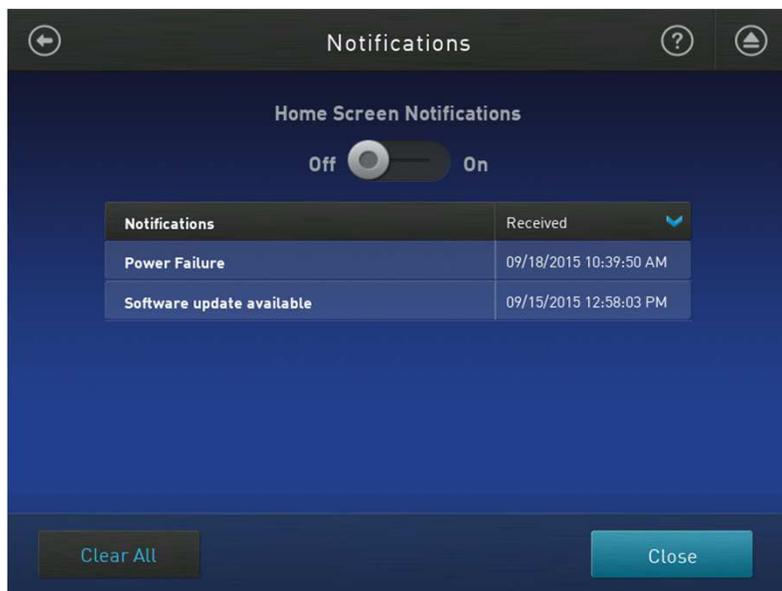


- Ability to transfer run data to/from a ‘Network Location’



Enhanced Instrument Touchscreen (2)

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



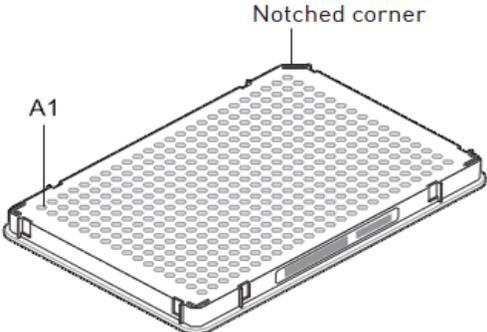
Options to Upload Data



- 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**

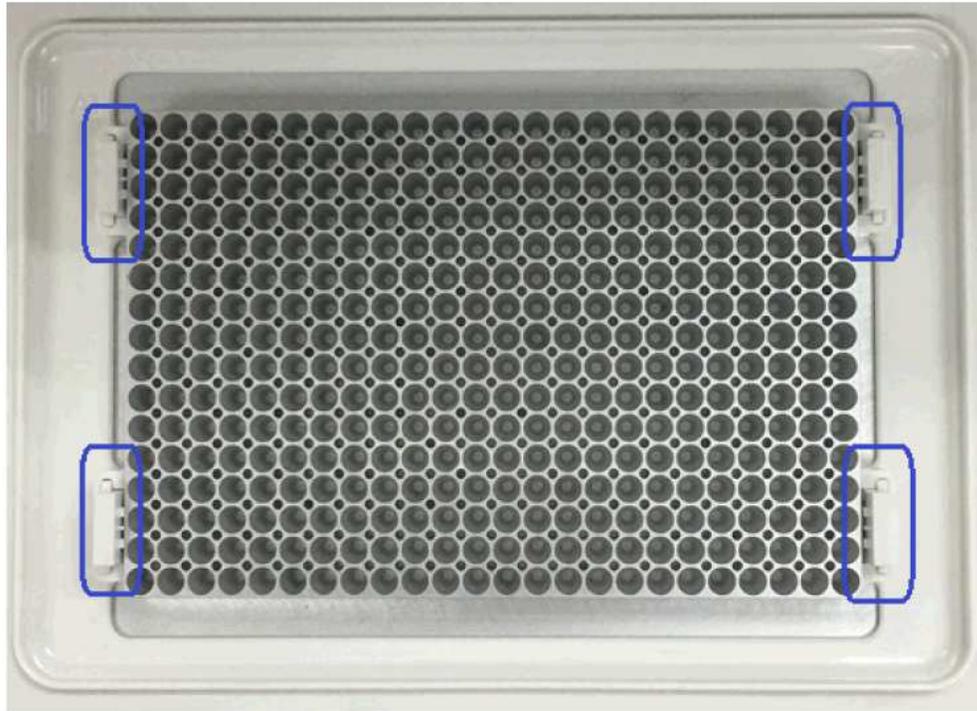
QuantStudio™ 3 & 5 consumables

Disposables – 384 well

Sample block	Consumable	
384-well plate	 <p>The diagram shows a 384-well plate with a grid of wells. A label 'A1' points to the top-left corner of the plate. Another label 'Notched corner' points to the top-right corner of the plate, which is slightly indented.</p>	<ul style="list-style-type: none">• MicroAmp® Optical Adhesive Film• MicroAmp® Optical 384-Well Reaction Plate with Bar Code

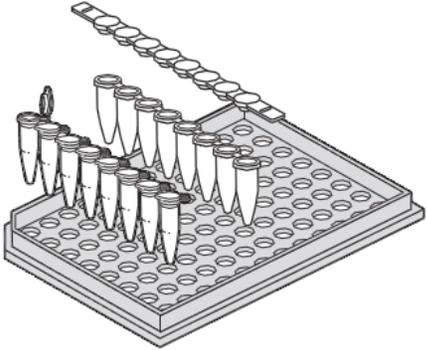
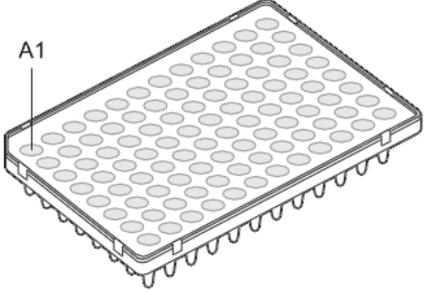
- Use the proper Plate Adaptor for 384-well block - Ref for reordering 4457087
- Supported volume on 384-well block: 5 to 20µl

Plate Ejector for 384w block



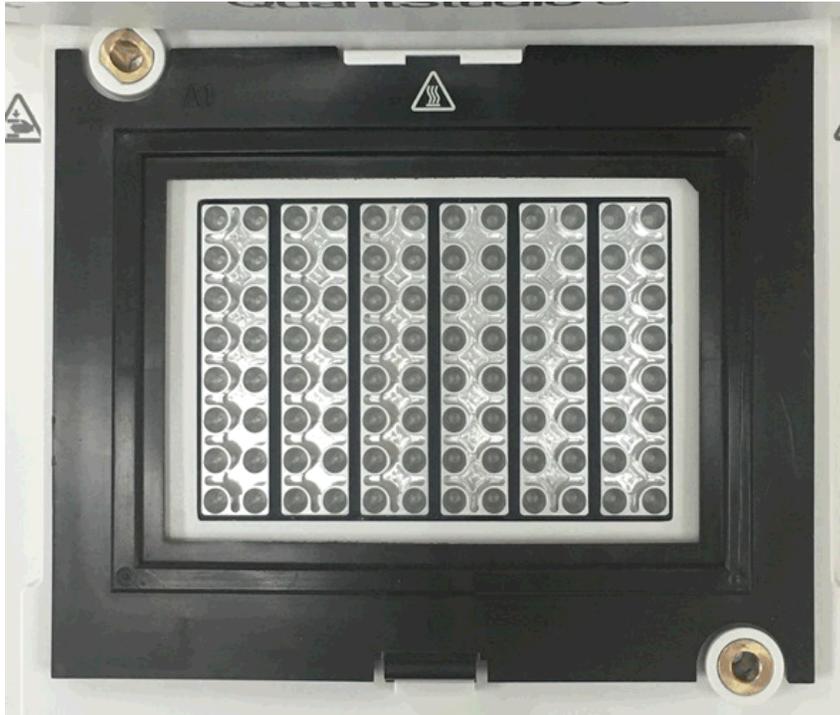
- Plate ejector is part of the machine
- No Tubes/Strips available for 384w block
- Do not remove.

Disposables – 96-well 0.2 ML

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

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

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

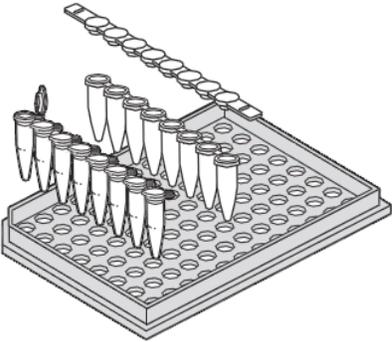
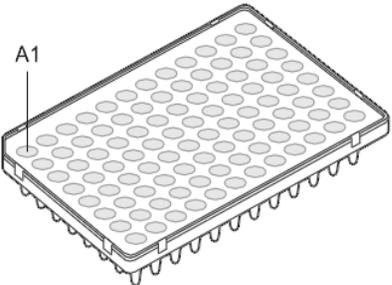


- Plate ejector is part of the machine
- **Do not remove.**



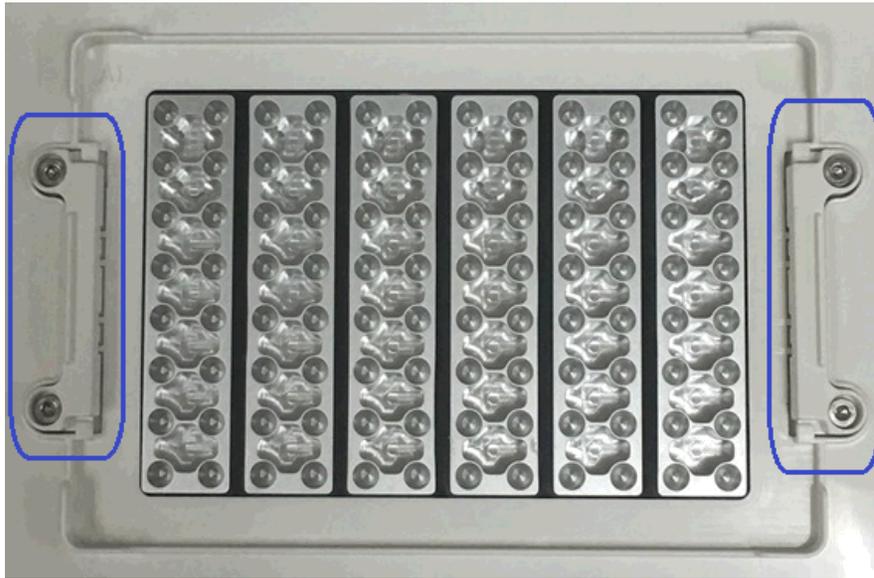
- Tubes/Strips to combine with 4381850
- Tray/retainer set for 96w 0.2 ML block
- Box of 10 tray/retainer set

Disposables – 96-well 0.1 ML

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

- 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

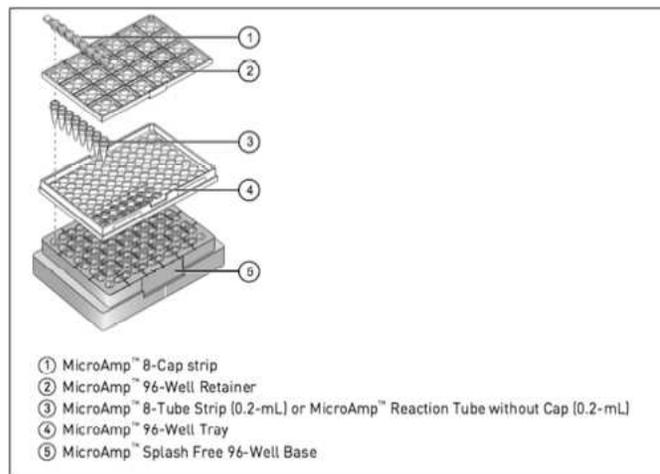
appliedbiosystems
by Thermo Fisher Scientific

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



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/adapter
- 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)



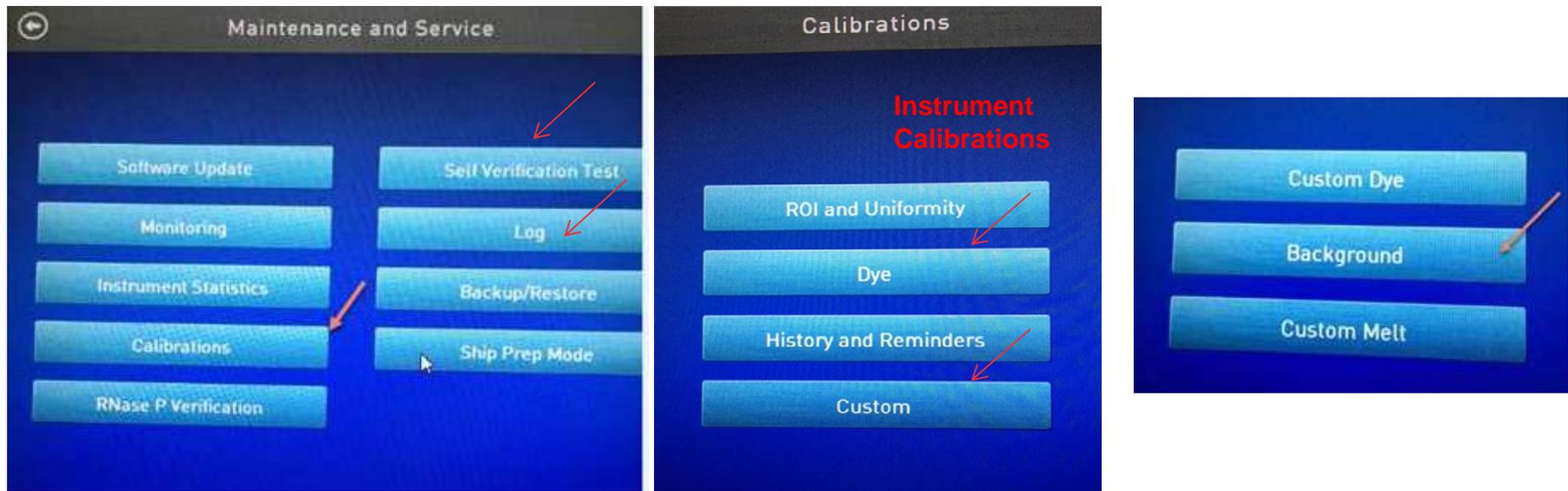
- Centrifuge the plate 1 min x 900g
- Do not use markers on the plates/tubes

Maintenance & Service

Recommended Maintenance and Calibration

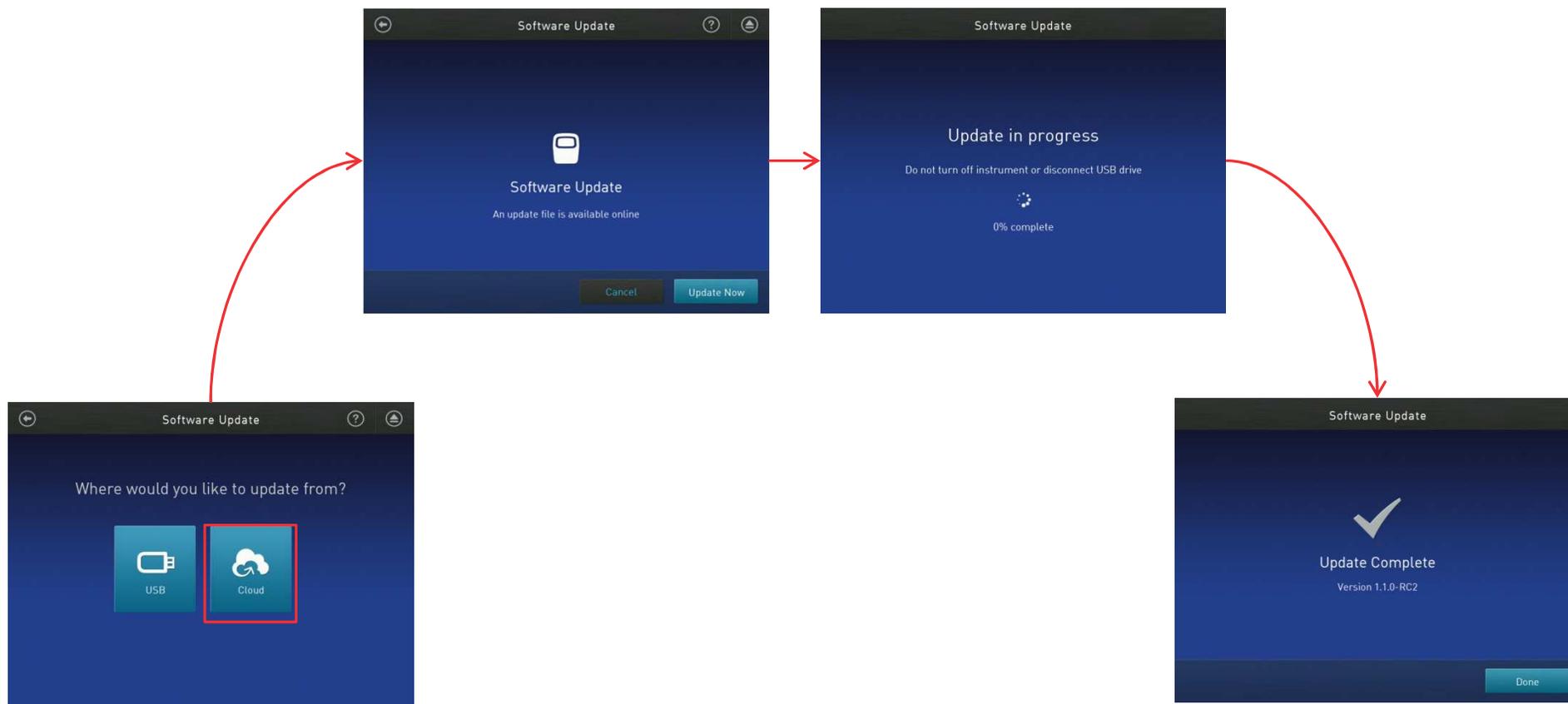
Frequency	User-performed maintenance task
Weekly	Check disk space and power off the instrument for at least 30 seconds
	Clean the instrument surface with a lint-free cloth
Monthly	Perform a background calibration (to check for thermal block contamination)
	Run disk cleanup and defragmentation
	Perform 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

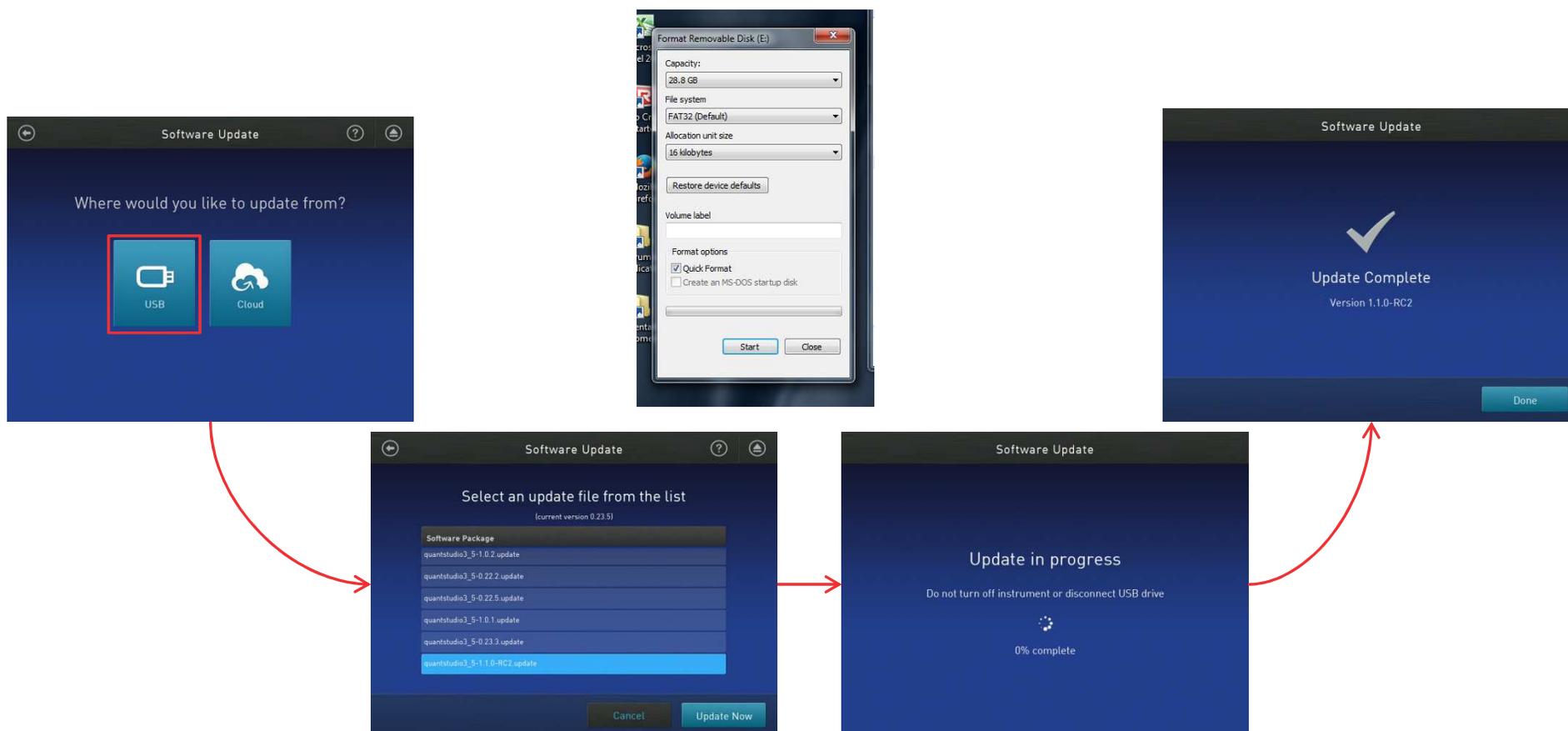
Firmware upgrade from the cloud



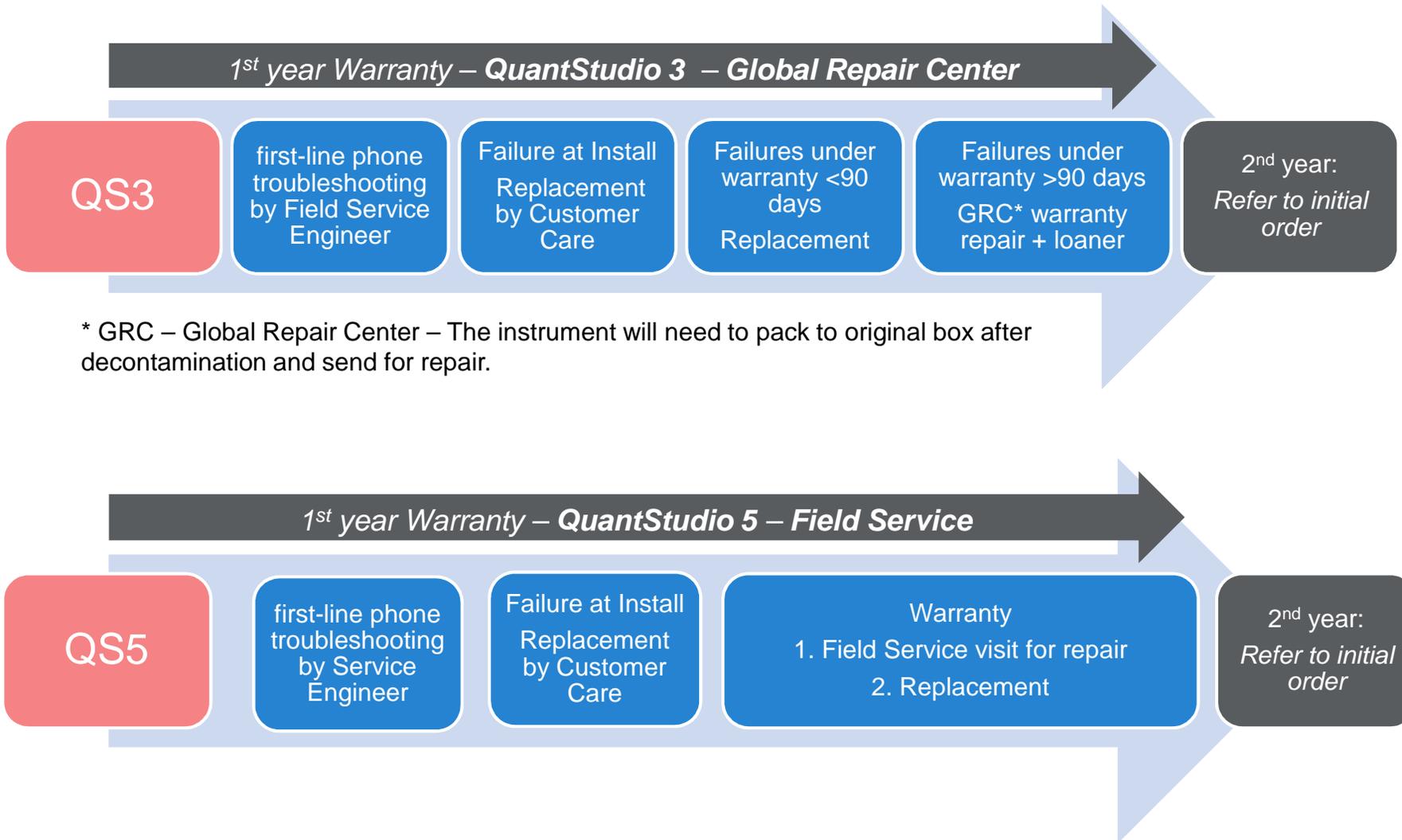
On eGUI, Firmware Upgrade for a cloud connected instrument:
Settings>Maintenance and Service>Software Update

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?



Thermo Fisher Scientific Services and Support



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Biotinylation Reagent Selection Tool

Cell Staining Tool

Crosslinker Selection Tool

ELISA Kits by Target Tool

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Lab Apps

Restriction Enzyme Finder

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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 >](#)

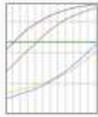
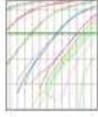
What if the qPCR does not work?

<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...

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

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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.

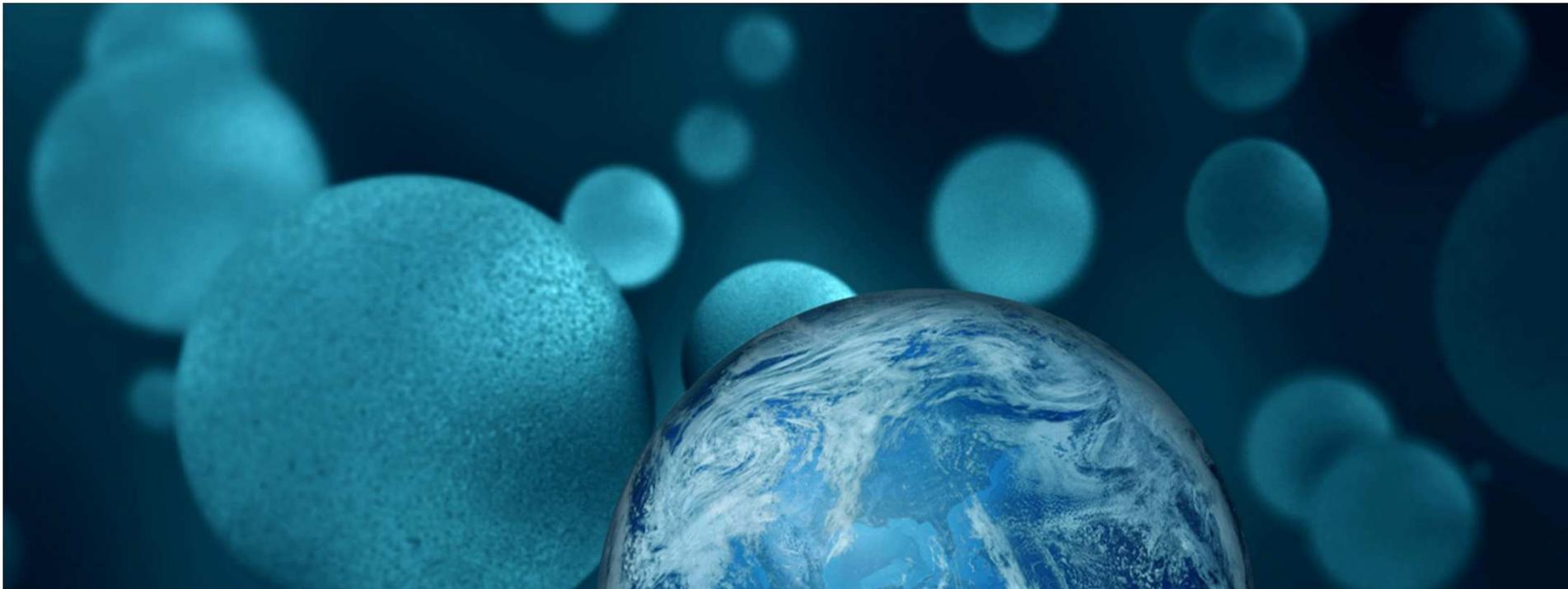
Technical Support Hotline – Contact Center

00 800 5345 5345



www.thermofisher.com/askaquestion

eurotech@thermofisher.com



ThermoFisher
S C I E N T I F I C

QuantStudio™ Design and Analysis Software

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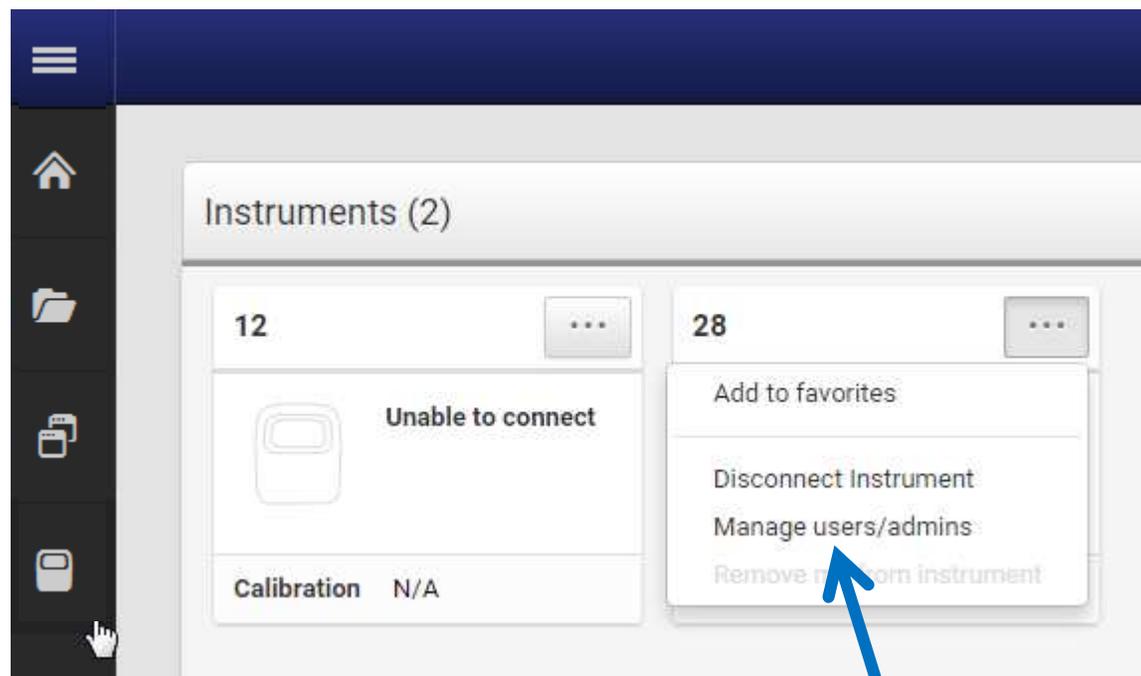
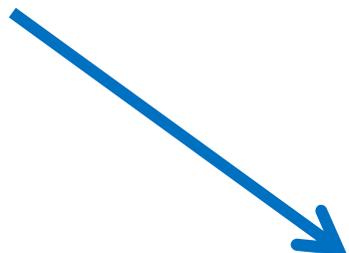
Features	Web	Desktop
Plate Set Up - Compatible with 7500, 7500 Fast, Step One, Step One Plus, and QuantStudio ^T 6 and 7 setup files - Custom attributes for sample - VeriFlex ^T Support	✓	✓
Edit Thermal Protocol	✓	✓
Locked Template*	✓	✓
Start Run	✗	✓
Programmable Pause*	✓	✓
Single plate analysis	✓	✓
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' software interface. At the top, there is a navigation bar with tabs for 'Summary', 'Events History', 'Calibrations History', and 'Statistics'. Below this, a list of calibration types is shown with checkboxes: All, ROI, Background, Uniformity, Dye, and RnaseP. An 'Export' button is visible with a dropdown menu set to '.pdf'. The main content area shows a table header for 'Calibrations History' with columns for 'Calibration Type', 'Result', 'User', and 'Run Date'. Below the header, it states 'No calibrations'. Below this, there is another navigation bar with tabs for 'Summary', 'Events History', 'Calibrations History', and 'Statistics'. The 'My runs' section is active, showing 'Runs by user' and 'Runs by type' sections. The 'Runs by type' section shows 'In the past 30 days:' with a list of '0 runs' and '0 hours use'. To the right, there is a table header for 'Experiment Name' and 'Experiment Type', with the text 'You have not performed any experiment runs.' below it.

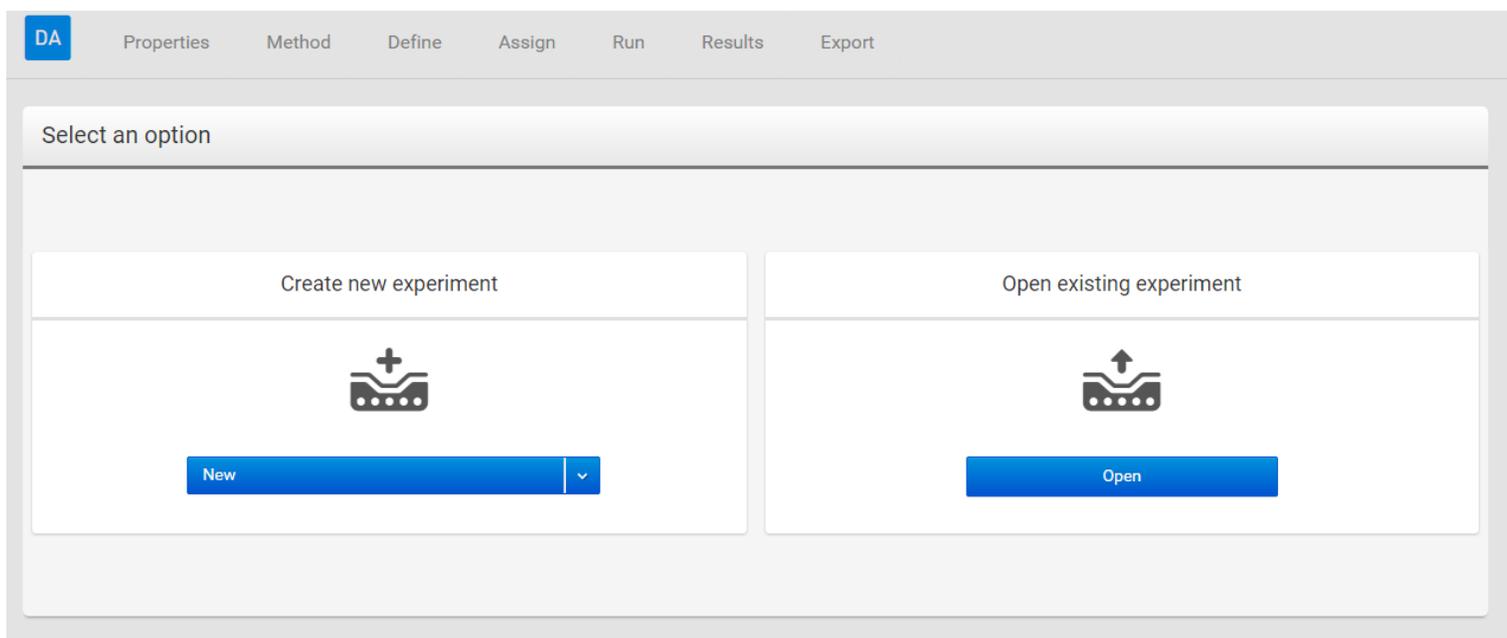
1. Monitor run progress
2. Review calibration status
3. Check instrument statistics
 - a. Runs by user
 - b. Runs by type

Start Run or Open a Run File

The screenshot displays the 'Your Apps' section of the software interface. On the left, a dark sidebar contains navigation icons: a home icon, a folder icon, a document icon, and a blue arrow pointing to the 'Your Apps' title. The main content area is titled 'Your Apps' and features a header for 'qPCR' with the 'applied biosystems' logo. Below the header are four application cards, each with a blue square icon containing a white letter (RQ, SC, GT, DA), a title, a brief description, a 'Terms and Conditions' link, and an 'Open' button. The 'Open' button for the 'Design and Analysis' card is highlighted with a blue arrow.

“Your Apps”

Start Run or Open a Run File



Remember to Save!



Experiment properties

Name	<input type="text" value="2015-03-08 221618"/>	Comments - optional <input type="text"/>
Barcode	<input type="text" value="Barcode - optional"/>	
User name	<input type="text" value="User name - optional"/>	
Instrument type	<input type="text" value="QuantStudio® 5 System"/>	<input type="checkbox"/> Notifications <input type="text" value="Email addresses, seperated by semi-colon (;)"/> Progress <input type="checkbox"/> Run started <input type="checkbox"/> PCR cycling started <input type="checkbox"/> Run paused <input type="checkbox"/> Run stopped <input type="checkbox"/> Run about to end <input type="checkbox"/> Run completed
Block type	<input type="text" value="96-Well 0.2-mL Block"/>	
Experiment type	<input type="text" value="Standard Curve"/>	
Chemistry	TaqMan® Reagents	
Run Mode	Fast	Conditions <input type="checkbox"/> Instrument error

- 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

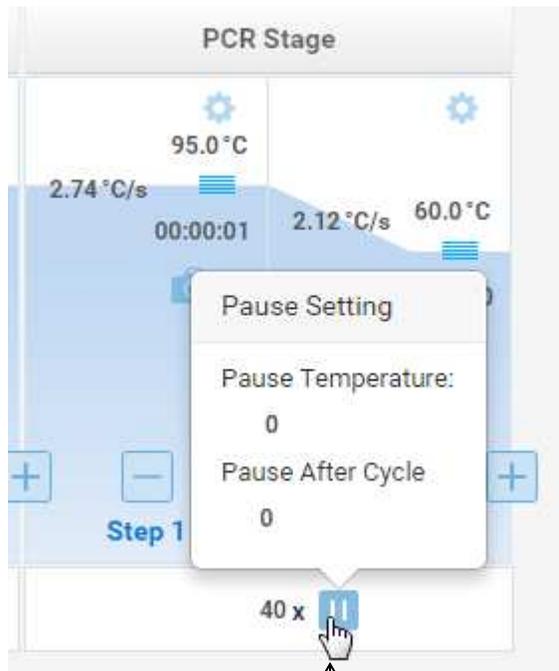
The screenshot shows the software interface for managing experiments. On the left, there are dropdown menus for 'Experiment type' (Standard Curve), 'Chemistry' (TaqMan® Reagents), and 'Run Mode' (Fast). To the right, there are checkboxes for 'Run paused', 'Run stopped', 'Run about to end', and 'Run completed'. A 'Manage Chemistry Details' link is visible. A 'cloudsuite' logo is also present. A 'Chemistry details' window is open, displaying a table with columns: Reagent Name, Reagent Type, Lot Number, Part Number, and Expiry Date. The 'Reagent Name' field contains 'New Reagent'. A blue arrow points from the 'Manage Chemistry Details' link to the 'Chemistry details' window.

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

Veriflex steps AutoDelta settings Veriflex steps AutoDelta settings

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

60 60 55 55 60

1-2 3-4 5-6 7-8 9-10

Temperature distance between adjacent zones

Define targets and samples Actions ...

Targets Add + ...

Color	Name	Reporter	Quencher	Comments
Green	GAPDH	JUN	None	
Orange	CD44	ABY	None	
Blue	APOE	VIC	None	
Red	FZD1	FAM	None	

Samples + ...

Color	Name	Comments
Red	UHR_cDNA	0a6

Delete Selected Sample
 Import Samples
 Export Samples

Import and Export

Samples + ...

Color	Name	Comments	SP_UUID
Blue	JA		0a69a5d71451401ebf8...

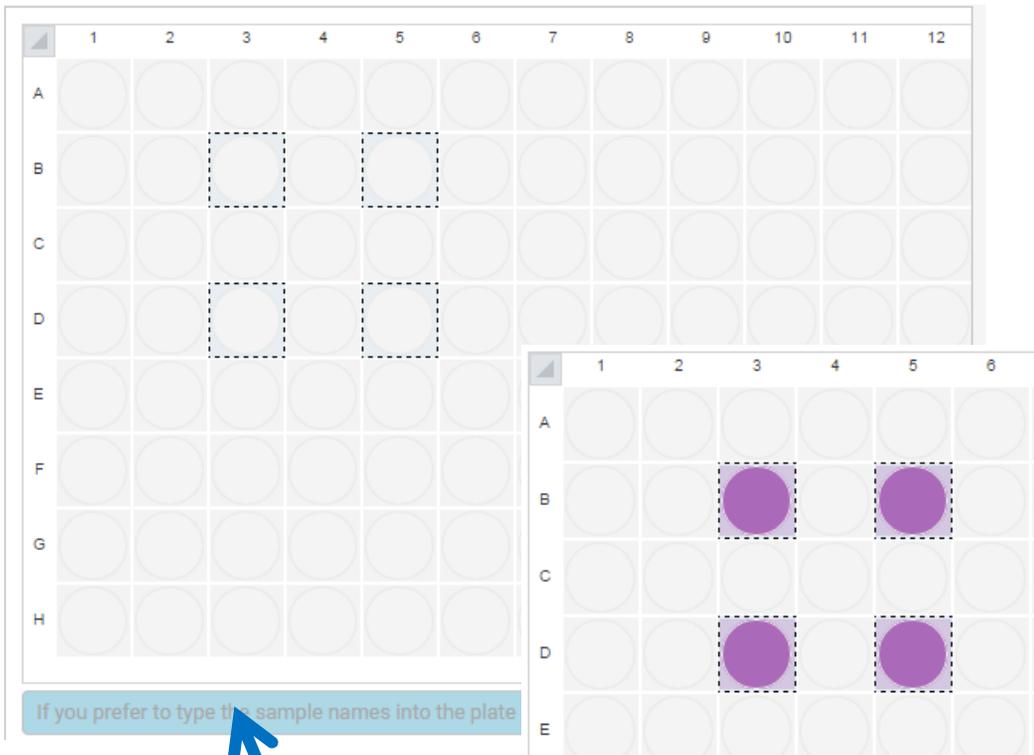
Add columns

Plate Attributes

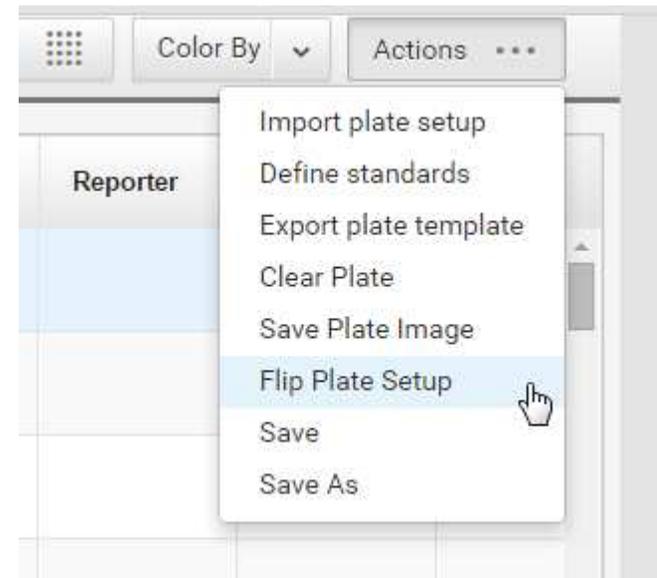
Passive ROX

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

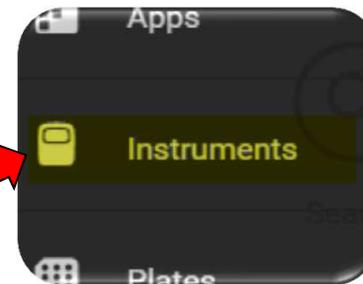
Run Complete at: 01-07-2015 02:32:15 UTC

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”



Experiment All < > Actions ...

Amplification > 🔍 🔍 👤 🔍 📄 Views 👁️

Well Table > -- None -- > Flag Details

#	Well	Omit	Target	Sample	Amp Status	Amp S
1	A1		APOE	UHR_cDNA	Undetermined	0.000
2	A1		CD44	UHR_cDNA	Undetermined	0.000
3	A1		FZD1	UHR_cDNA	Undetermined	0.000
4	A1		GAPDH	UHR_cDNA	Undetermined	0.000
5	A2		APOE	UHR_cDNA	Undetermined	0.000
6	A2		CD44	UHR_cDNA	Undetermined	0.000
7	A2		FZD1	UHR_cDNA	Undetermined	0.000

All > < > Flag Details

- All
- GAPDH
- CD44
- APOE
- FZD1

Amplification Curve only, e.g. no Genotypes

Scroll from target to target

Export

Export Actions ...

Name: Export file name
Comments - optional

File Type: *.csv

Decimal (+1-6): 3

Content:
 Results
 Amplification Data
 Multicomponent Data
 Raw Data

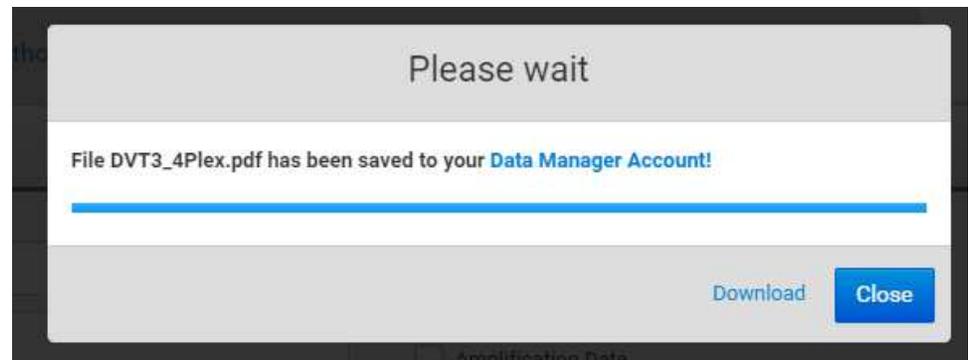
Customize: Customize what is imported within each item above.

Options:
 Unify the above content files into one file
 Split the above content files into individual files

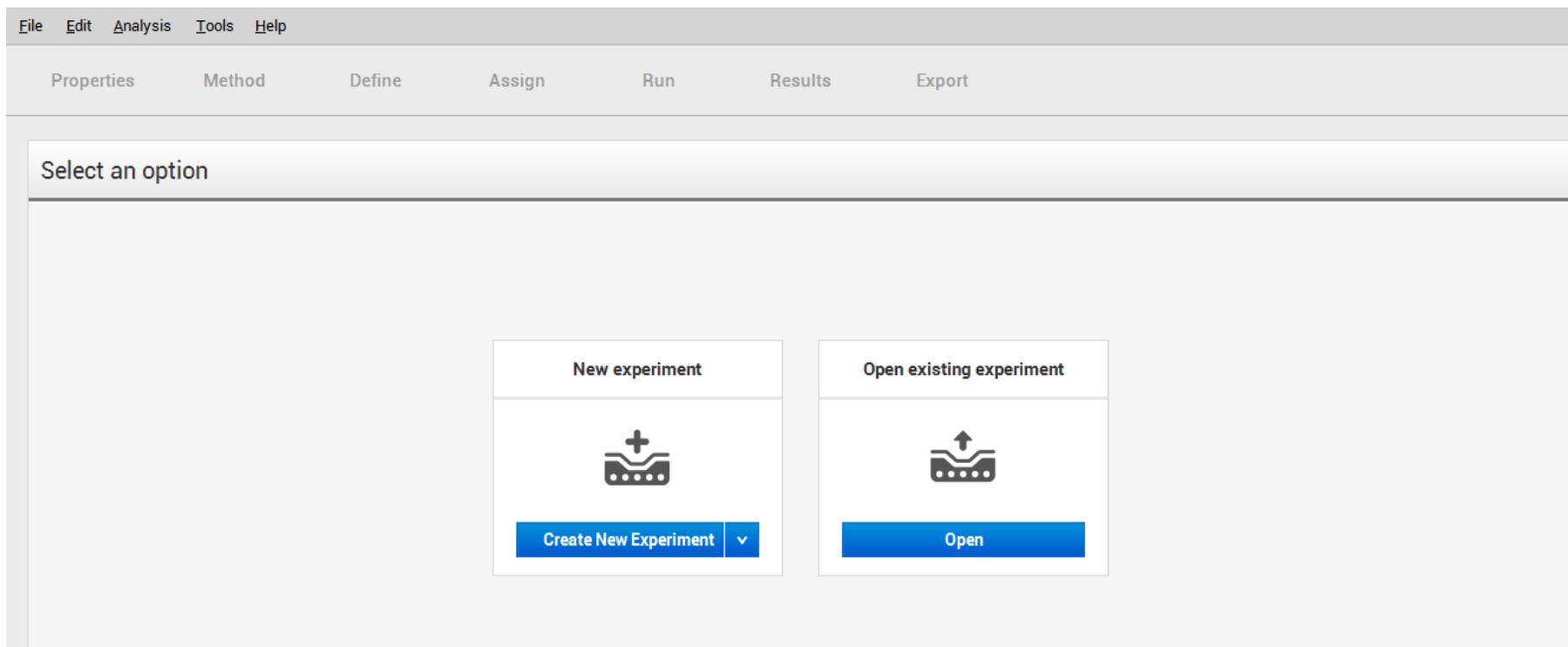
Save
Save As
Generate Report

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

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

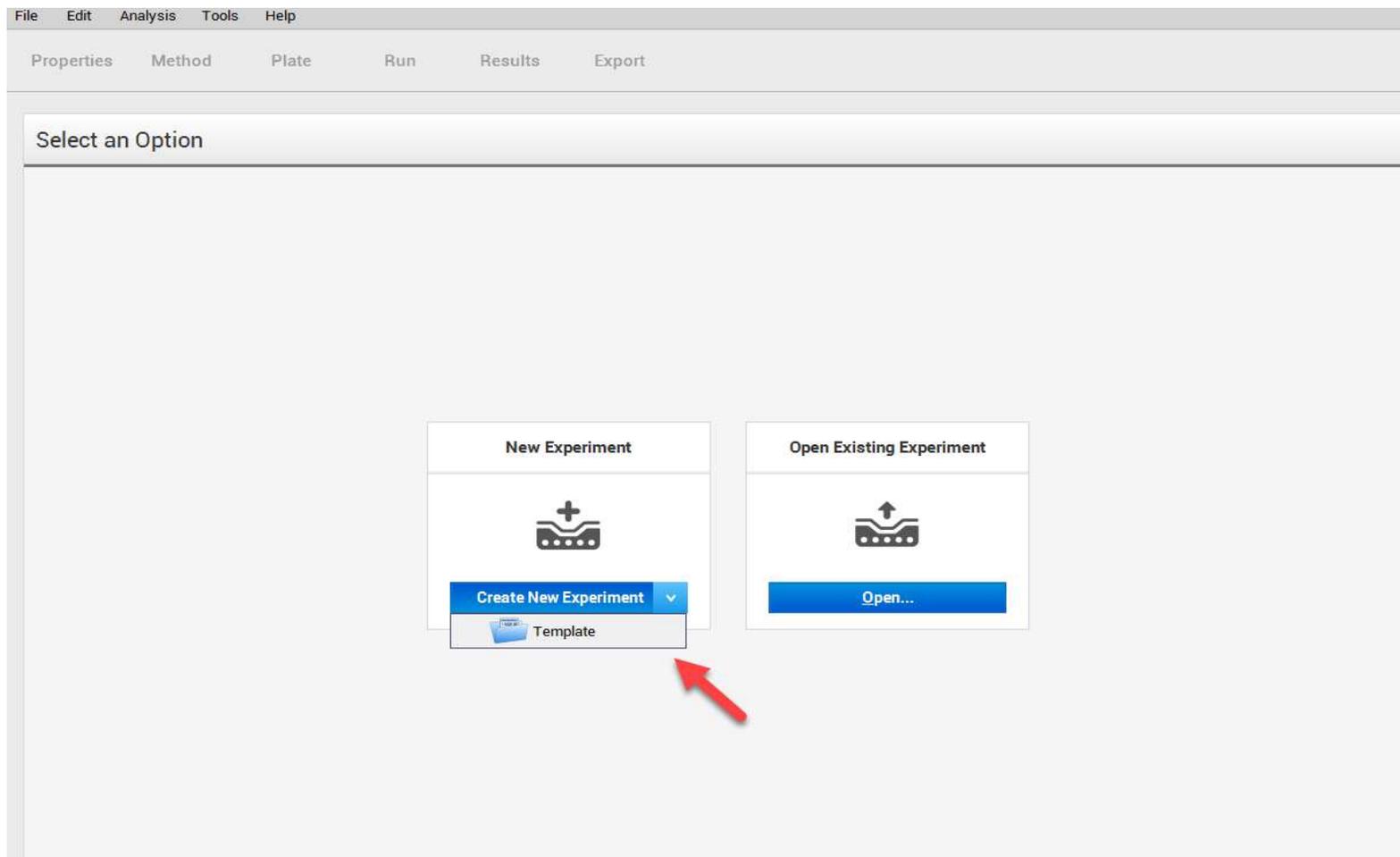


Desktop – For those who can not be online



- 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

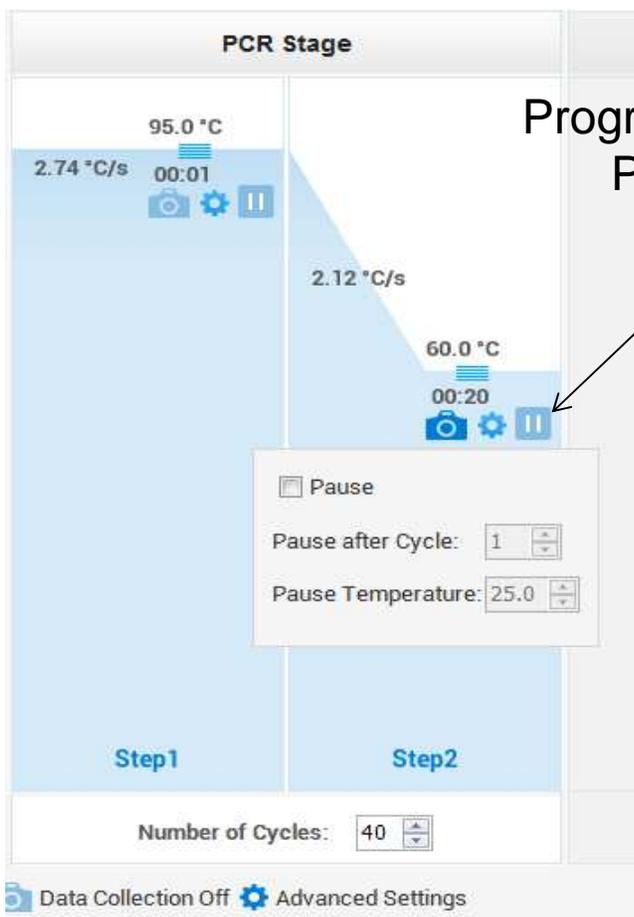
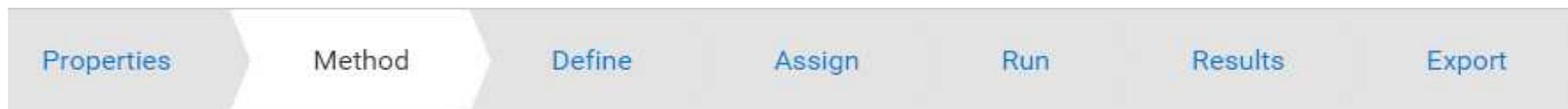
The screenshot shows the software interface for managing experiments. On the left, there are dropdown menus for 'Experiment type' (Standard Curve), 'Chemistry' (TaqMan® Reagents), and 'Run Mode' (Fast). To the right, there are checkboxes for 'Run paused', 'Run stopped', 'Run about to end', and 'Run completed'. A 'Manage Chemistry Details' link is visible. A 'cloudsuite' logo is also present. A 'Chemistry details' window is open, displaying a table with columns: Reagent Name, Reagent Type, Lot Number, Part Number, and Expiry Date. The 'Reagent Name' field contains 'New Reagent'. A blue arrow points from the 'Manage Chemistry Details' link to the 'Chemistry details' window.



Use a 2D barcode scanner to track reagent details:

- Part Number
- Lot Number
- Expiration Date

Run Method

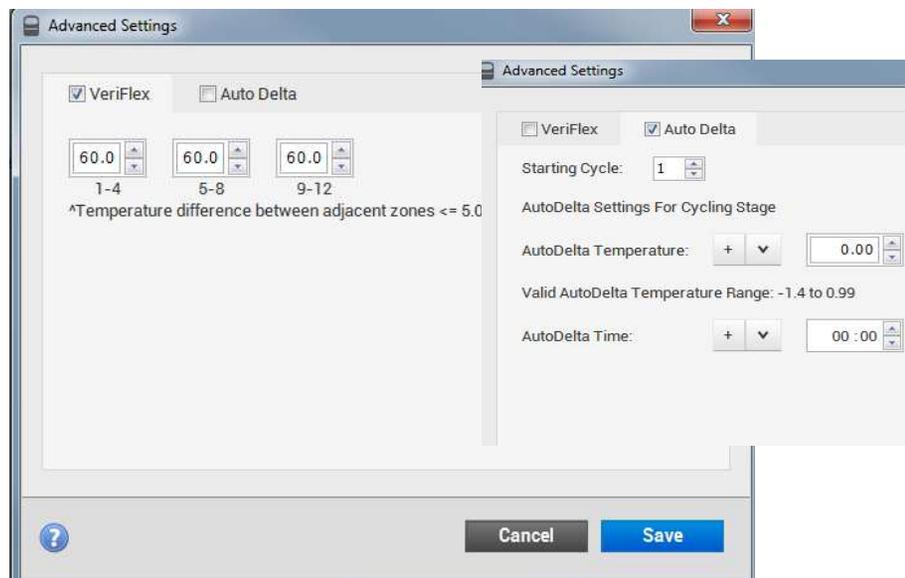


Programmable Pause



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

Import and Save to Library

- Save to Library
- Import from Library
- Delete
- Import from File

Biological Replicate Groups

+ Add

Biological Group Name	Comments
-----------------------	----------

Passive Reference

ROX

Assign plate information

Properties

Method

Define

Assign

Run

Results

Export

Assign Targets and Samples

Quick Setup | Advanced Setup

Well Attributes

Sample: sample 2

Target: New Target

Well Comments: Well Comments

Plate Attributes

Passive Reference: ROX

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

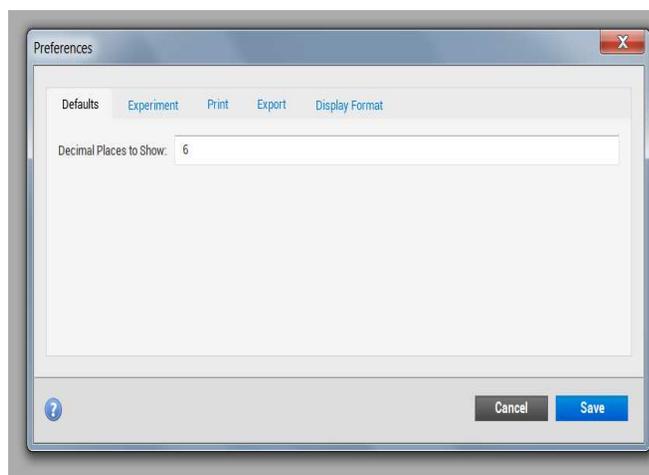
92 Empty

Previous

Next

Standard Curve: Define and Setup Standards Wizard

Tools > Preferences > Defaults



Set your decimals

The main screenshot shows the 'Assign Targets and Samples' wizard. It has tabs for 'Quick Setup' and 'Advanced Setup'. The 'Targets' table contains one entry: Target 1, FAM, NFQ-MGB. The 'Samples' table contains one entry: Sample 1. The 'Biological Replicate Groups' table is empty. A 'Define and Set Up Standards' dialog is open, showing a 'Standard Curve Preview' graph and a 12-well plate layout. The dialog is configured for 5 points, 3 replicates, and a starting quantity of 1.0. The selected wells are A1-A5, A6-A10, B1, and B8.

Name	Reporter	Quencher	Comments	Task	Quantity
Target 1	FAM	NFQ-MGB			

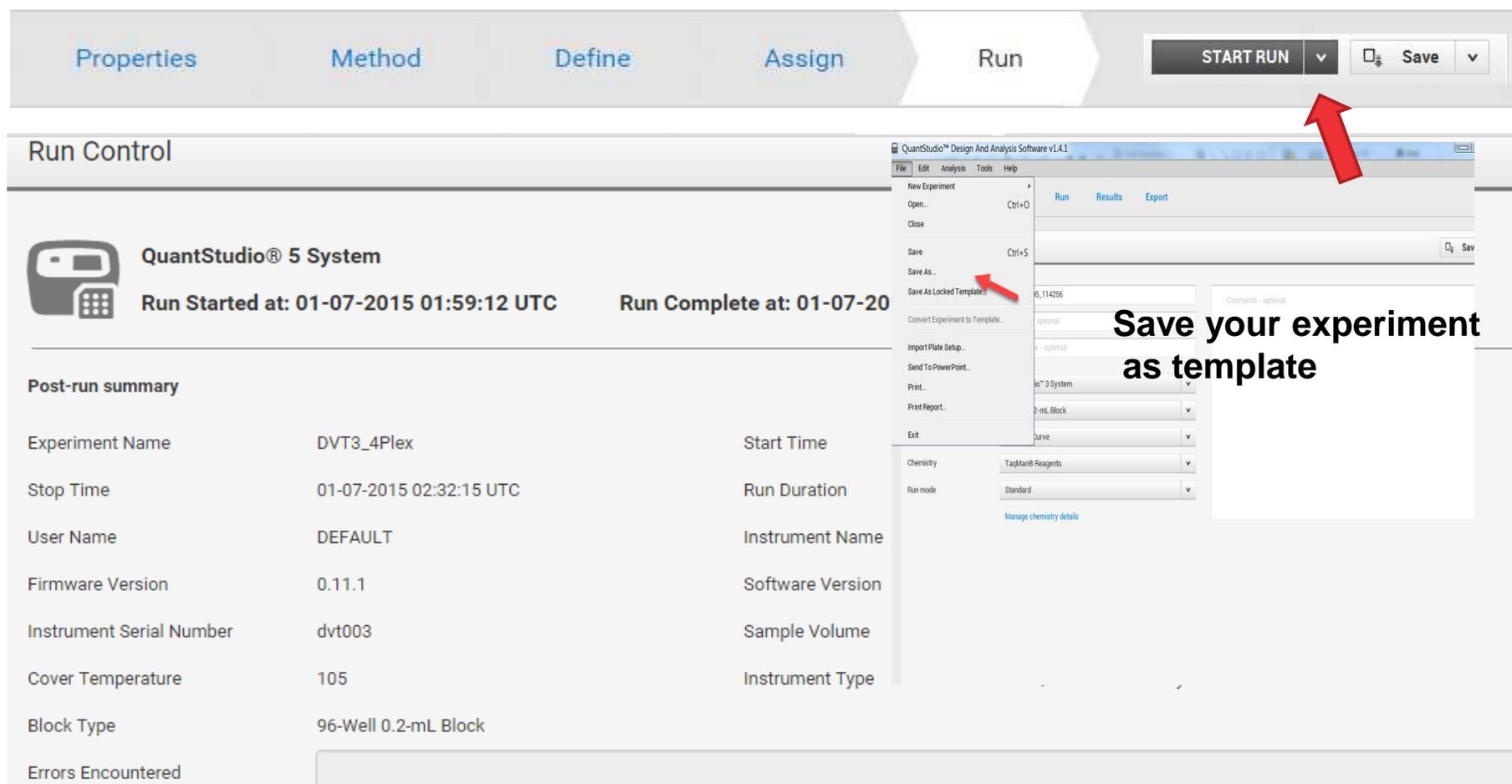
Sample Name	Comments
Sample 1	

Biological Group	Comments
------------------	----------

Standard Curve Preview

15 Required Wells / 15 Selected Wells
A1,A2,A3,A4,A5,A6,A7,A8,A9,A10
B1,B2,B8

Start your run



Properties Method Define Assign Run

START RUN Save

Run Control

QuantStudio® 5 System
Run Started at: 01-07-2015 01:59:12 UTC Run Complete at: 01-07-20

Post-run summary

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

QuantStudio™ Design And Analysis Software v1.4.1

File Edit Analysis Tools Help

- New Experiment
- Open... Ctrl+O
- Close
- Save Ctrl+S
- Save As...
- Save As Locked Template...
- Convert Experiment to Template...
- Import Plate Setup...
- Send To PowerPoint...
- Print...
- Print Report...
- Exit

Run Results Export

Save

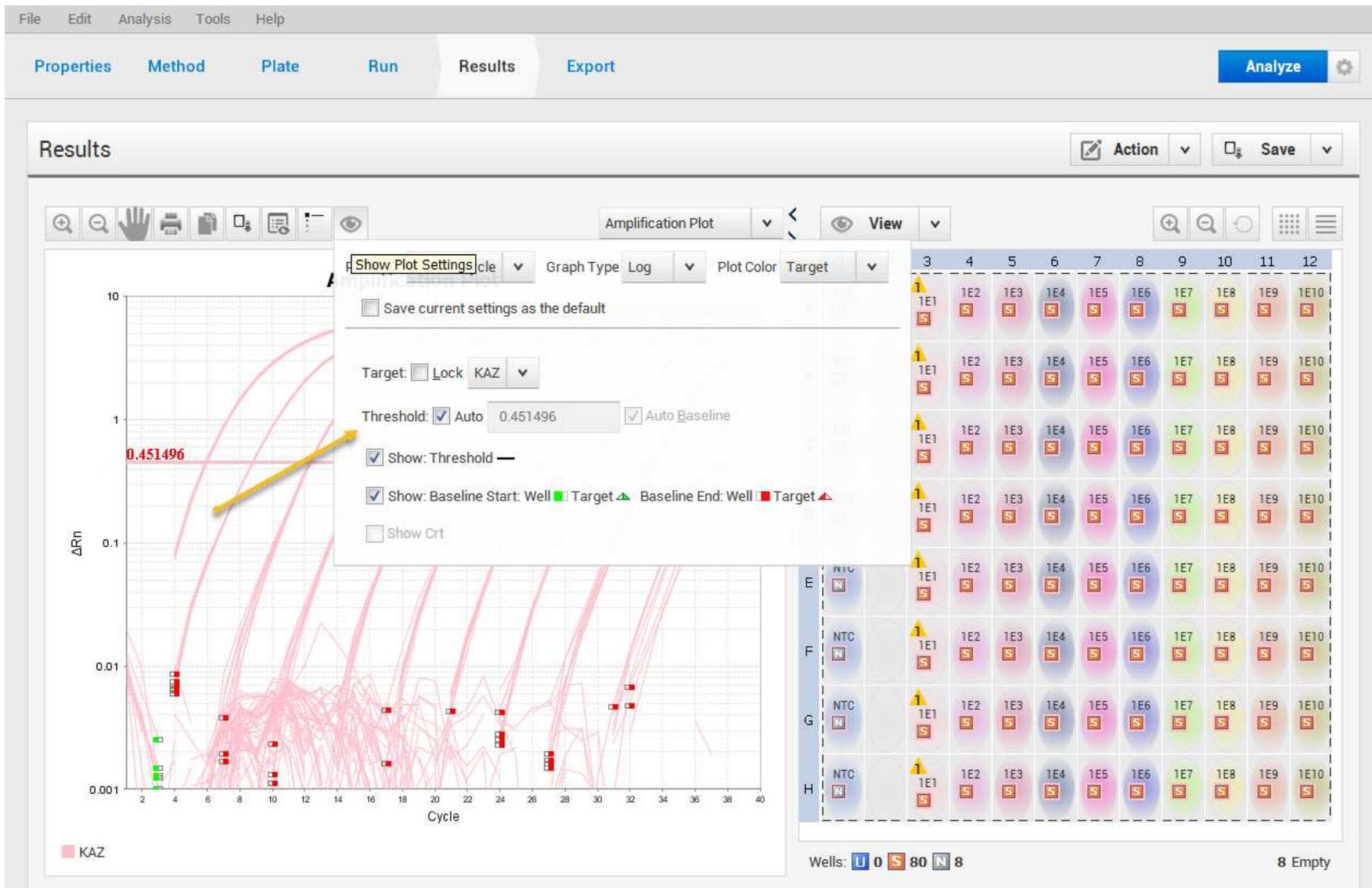
Save your experiment as template

Start Run from touchscreen or desktop

Analysis Settings: Defaults

The screenshot displays the software's main interface. At the top, a menu bar includes 'File', 'Edit', 'Analysis', 'Tools', and 'Help'. The 'Tools' menu is open, listing options such as 'Dye Library...', 'Sample Library...', 'SNP Assay Library...', 'Target Library...', 'Analysis Settings Library...', 'Security', and 'Preferences...'. A tooltip below the 'Preferences...' option reads 'Select general or startup preferences.' In the background, a 'Preferences' dialog box is open, showing the 'Defaults' tab. This tab contains input fields for 'Baseline Start Cycle' (set to 3) and 'Baseline End Cycle' (set to 15), along with checked checkboxes for 'Auto Analysis' and 'Auto Save'. The dialog also features 'Cancel' and 'Save' buttons. Below the main interface, two large buttons are visible: 'New Experiment' with a plus sign icon and 'Create New Experiment' button, and 'Open Existing Experiment' with an upload icon and 'Open...' button.

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

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

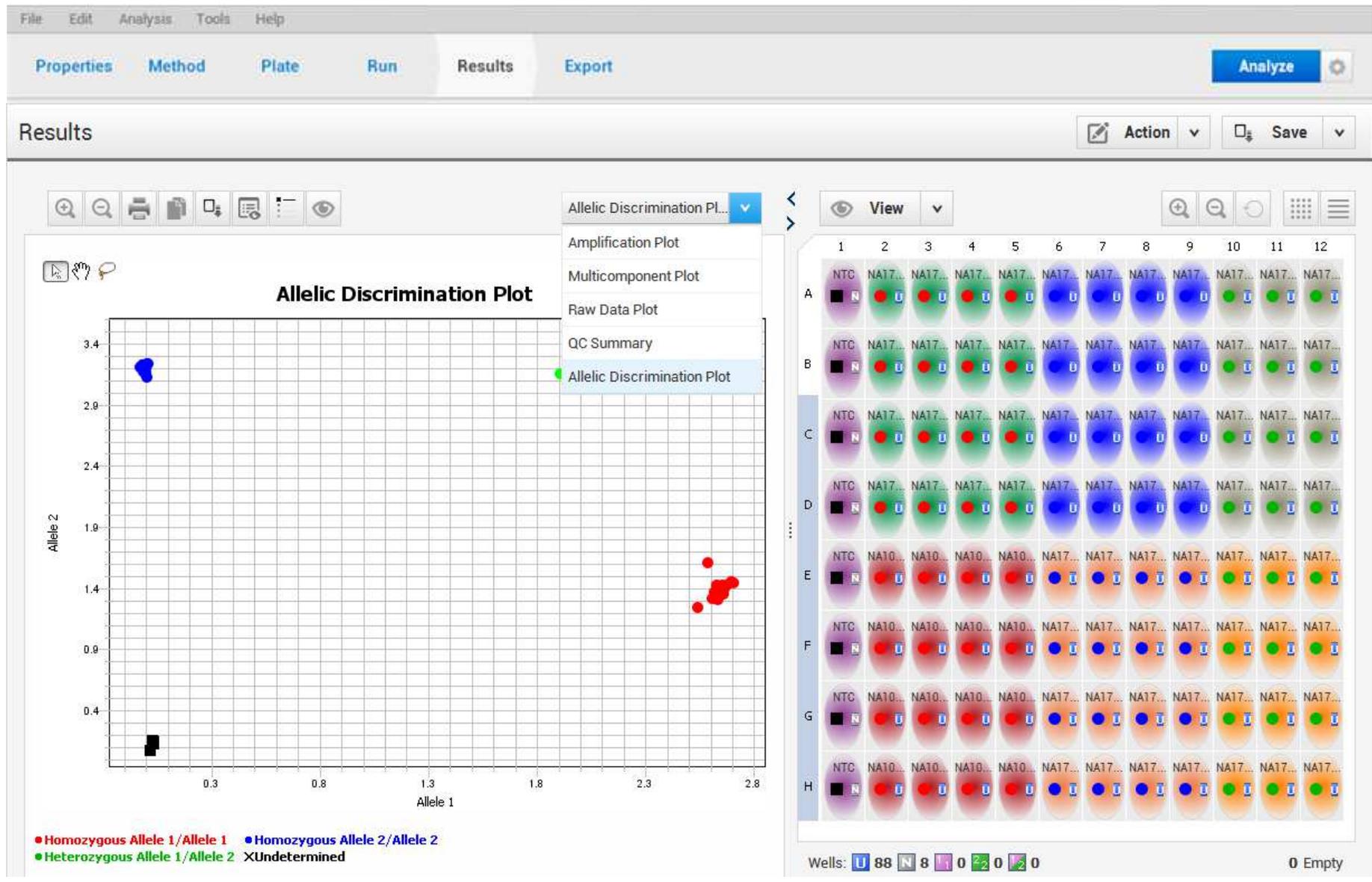
Cr Settings for KAZ
Cr Settings to Use: Default Settings

Automatic Threshold
Threshold: 0.451496

Automatic Baseline
Baseline Start Cycle: 3 End Cycle: 15

Save... Load... Cancel Revert Apply

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

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

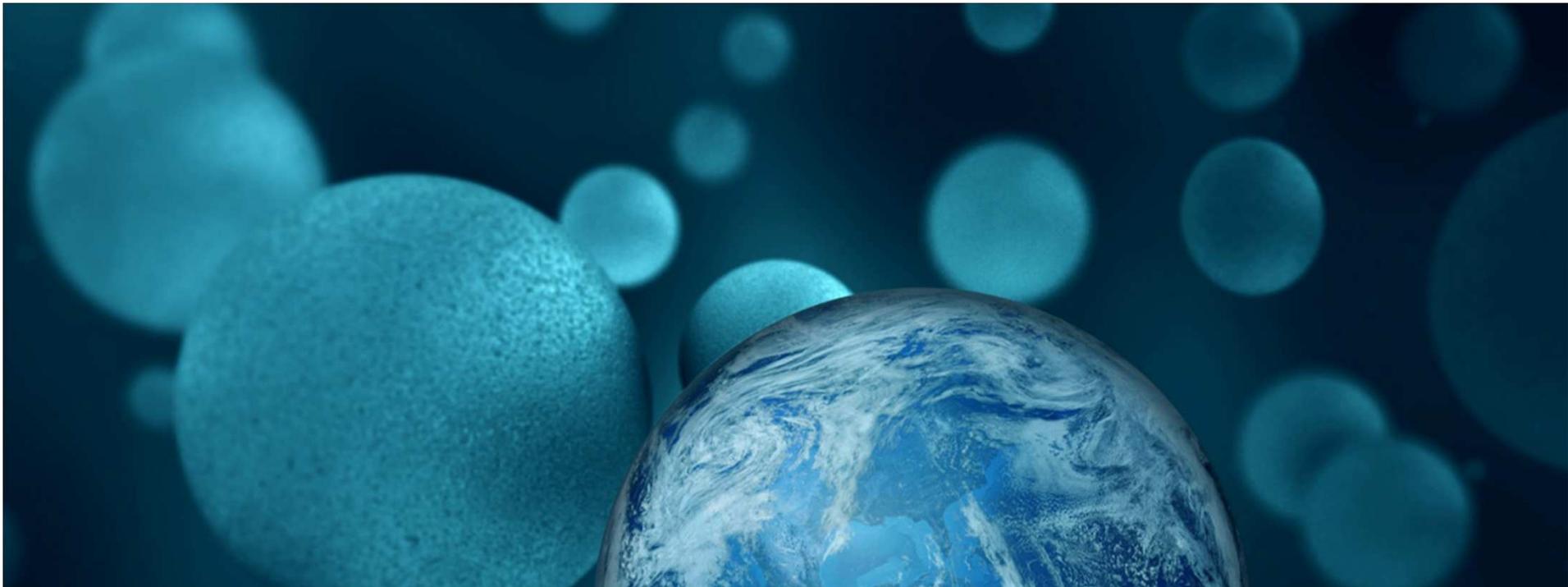
Customize what is exported within each item above.

Options

Unify the above content into one file

Split the above content items into individual files

Home 2017-03-13_09...x



ThermoFisher
S C I E N T I F I C

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:

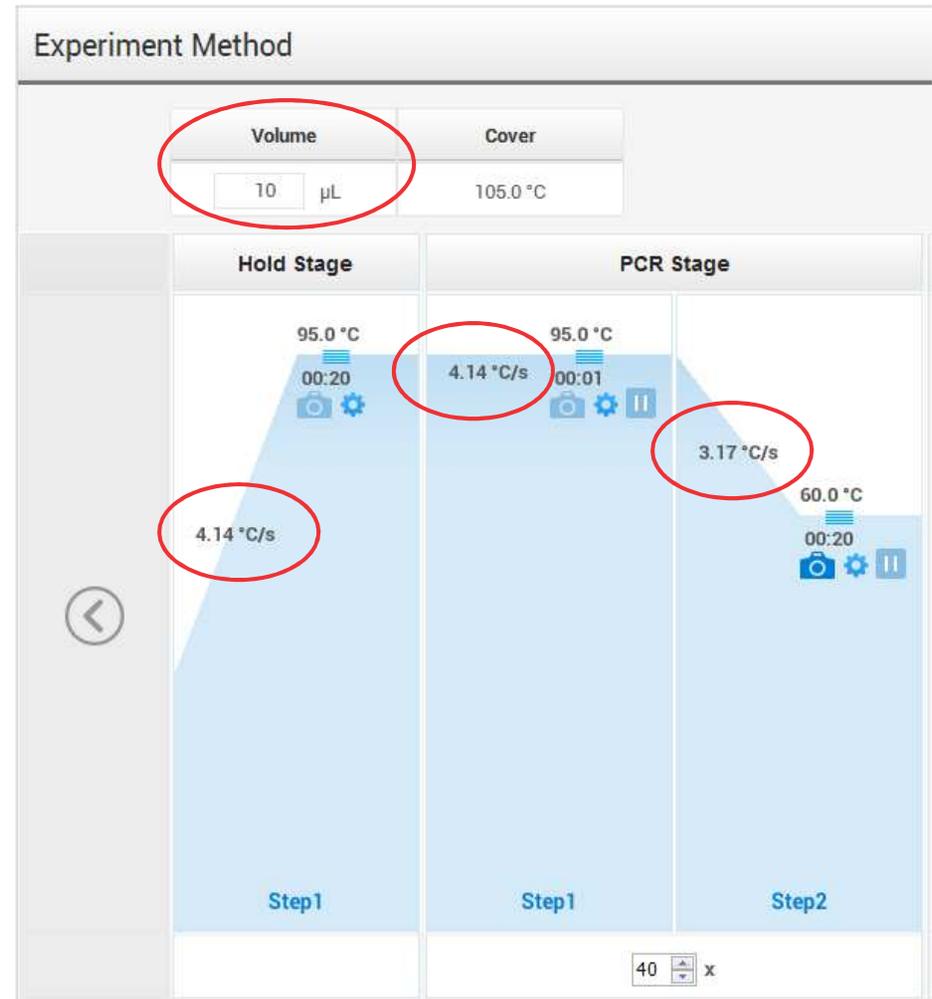
Block Type	Peak (Up Ramp)	Peak (Down Ramp)
96-well 0.2ml	6.5C/s	5.4C/s
96-well 01.ml	9.0C/s	7.7C/s
384-well	6.0C/s	4.8C/s

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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