

AriaMx

Real-Time PCR System

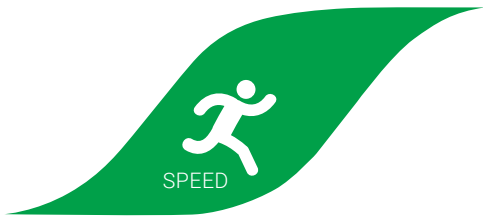


TOTAL CONFIDENCE qPCR

Agilent Technologies provides a comprehensive approach to real-time quantitative PCR (qPCR)—from sample preparation to data analysis. Every Agilent qPCR instrument, including the AriaMx Real-Time PCR System, comes with the same quality, intuitive software, and technical support that you have come to expect from the successful Mx3000P and Mx3005P qPCR instruments on the market today.

Whether you are new or experienced in qPCR, Agilent's full range of products and industry-leading support is sure to keep you up and running with complete confidence and superior results.





Confidence in Success with Brilliant Ultra-Fast Master Mixes

Our unique Brilliant reagents are equally robust and reproducible across a variety of assays—even on fast cycling platforms. Superior specificity is delivered utilizing a novel, faster-activating hot start method to minimize the formation of primer-dimers and other off-target reactions.

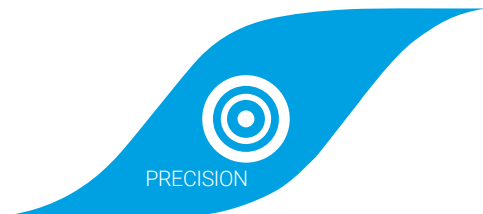
- Enhanced rapid hot start capability
- Reliable and reproducible data



Confidence in a System that Meets Your Needs—Today and Tomorrow

The agile design of the AriaMx Real-Time PCR System offers the industry's first configurable and customer-changeable optics. Now you can mix-and-match optics to suit your needs today, and easily change them to suit your needs for tomorrow.

- Modular design
- Ready-to-use
- Future-proof



Confidence in Easy-to-Use, Precise Software

The AriaMx Software combines robust data analysis algorithms and intuitive organization for precision and ultimate ease-of-use.

- Control experimental bias due to differences in amplification efficiencies through a proprietary algorithm
- Multiple, customizable data analysis algorithms
- Thermocycling control and precision you expect from a more expensive instrument
- 21 CFR part 11 compliant software



AriaMx

BETTER SYSTEMS. BRILLIANT RESULTS.



Confidence in a system that meets your needs today and tomorrow.

The AriaMx Real-Time PCR System is a fully integrated qPCR amplification, detection, and data analysis system. The system's modular design combines a state-of-the-art thermal cycler, an advanced optical system with spectra-optimized LED cartridges, and data analysis software.

The instrument leverages a comprehensive software suite of on-board instrument diagnostics, giving you confidence that instrument failpoints are identified prior to running your assay. Experience total confidence with AriaMx's blend of speed, agility, and precision.





SPEED

Ready, Go!

Factory Calibrated

AriaMx is ready to go—no need to set quantification curves or calibrate the instrument.

Ultra-Fast Chemistry

AriaMx is optimized for Agilent's Brilliant III reagents, but also runs all fast chemistries.

Blazing Scan Times

Scan all channels in less than three seconds—the fastest in the industry.

AGILITY

Today and Tomorrow

Modular Design

Modular cartridges make in-lab upgrades possible with the click of a button.

Intuitive Interface

AriaMx's touchscreen makes system integration easy for all users.

Broad Applications

AriaMx supports more than one assay and chemistry. Applications include: Gene Expression, Comparative Quantification (Single-Plex and Multiplex), Quantitative PCR (Single-Plex and Multiplex), Genotyping, Allele Discrimination, NGS Library Quantification, and more.

PRECISION

Superior Data

Thermal Control

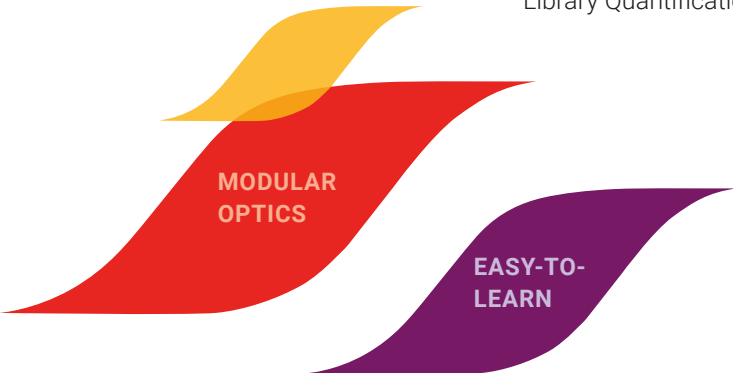
Easily maintains within $\pm 0.2^{\circ}\text{C}$ or less of target temperature.

Impressive Sensitivity

Two-fold discrimination in a single cycle with 95% confidence over a wide range of copies.

Robust Validation

Tested on 100,000 samples.



SPEED

BRILLIANT REAGENTS

Agilent Technologies provides a total solution approach to real-time quantitative PCR.

- Robust validation and tight manufacturing quality controls
- SYBR assay results in 42 minutes using Brilliant III reagents
- Open reagent platform: use your assays and reagents

Ultra-Fast SYBR Master Mixes

A proprietary, quick acting hot start *Taq* mutant enables ultra-fast reactions which maintain amplification efficiency, R2, dynamic range and detection sensitivity.



AriaMx instrumentation makes routine and complicated applications faster and easier without sacrificing data integrity. Applications where AriaMx excels:

- **HRM**
Confidently genotype the toughest alleles in less time
- **Multiplex**
More agility and speed in your assays with reagents optimized for your reactions
- **NGS Library Quantification**
Optimal cluster density improving efficiency and data quality

- **miRNA Quantification**
Master mixes which enable your assays to discriminate miRNA differences—even by one SNP
- **Open Platform**
Instrumentation validated for all major manufacturer kits as well as Agilent reagents



FIG. 1 Six Color Standard Curve Data by Fluor

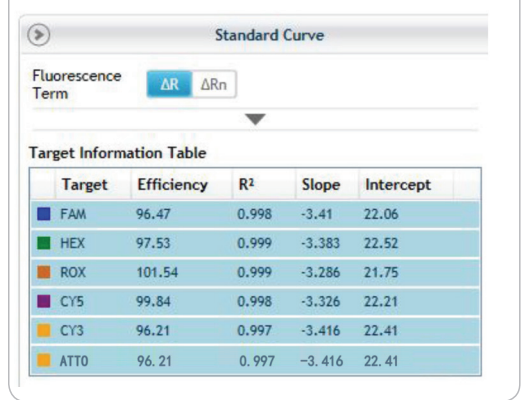
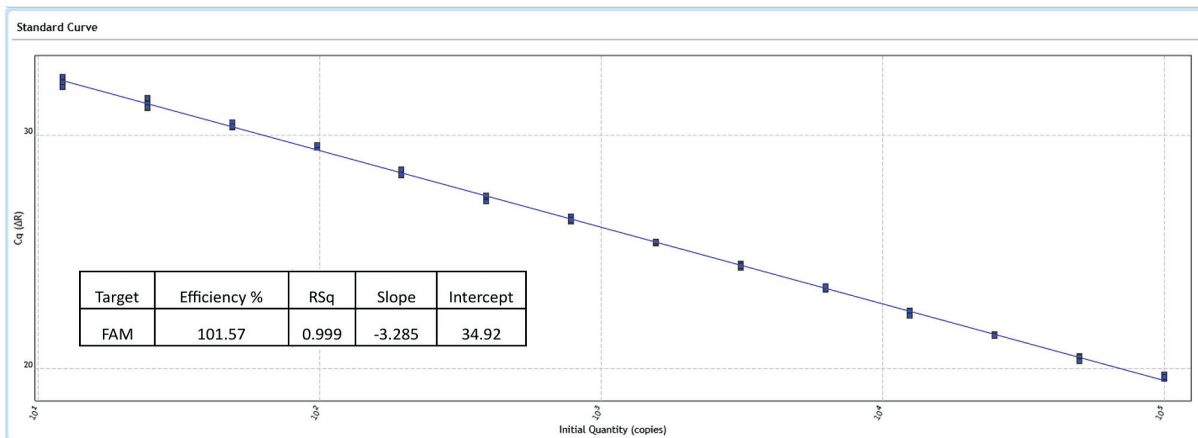
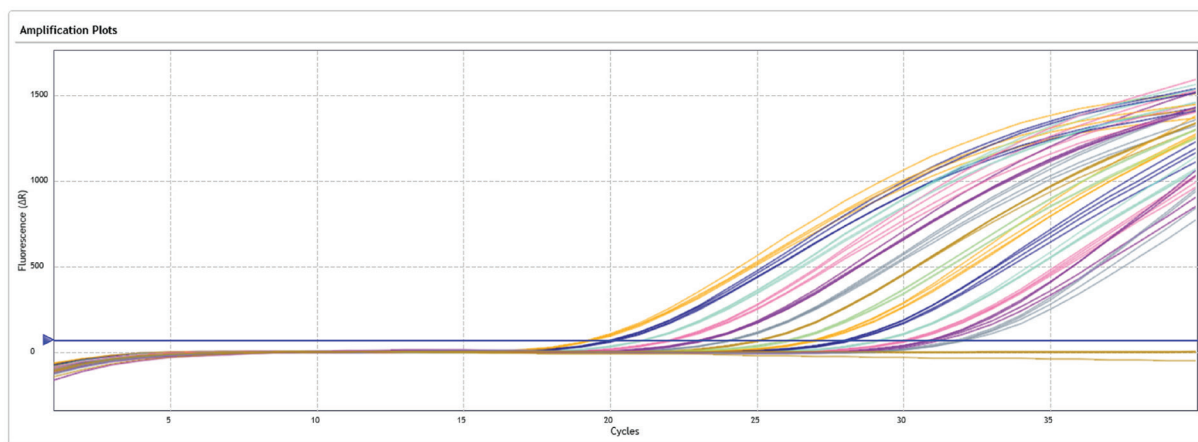


FIG. 2 SYBR Green Assay—Amplification and Standard Curve Plots Showing Sensitivity Measuring a Two-Fold Change



The standard curve consisted of nine, ten-fold dilutions starting with 1×10^9 copies and ending at two copies. Amplification plots are below.





BRILLIANT HRM ULTRA-FAST LOCI MASTER MIX

Fast chemistry to confidently identify hard-to-detect genotypes.

High Resolution Melt Application

High resolution melt analysis (HRM) is a quick method to monitor and record the melt profile of amplicons in a sample, post-PCR. HRM's high sensitivity can detect even the smallest of melting temperature changes like those caused by single-base changes, nucleotide repeats and small deletions in DNA.

Some of the more common applications of HRM include: genotype confirmation, mutation identification and screening, clone confirmation and methylation analysis.

HRM is often used at hypervariable loci to find hard-to-detect base changes. In contrast to *TaqMan* assays, which can easily miss new or unknown mutations, HRM can detect any mutation between two primers in the assay. HRM also cost-effectively resolves small changes while maintaining melting temperature control.

Brilliant HRM Ultra-Fast Loci Master Mix Advantages

- **Mix and Go**
MgCl₂ and dNTPs are included.
- **Better stability**
Stable after multiple freeze thaws, reducing wastage and increasing batch-to-batch reliability.
- **Fast-Start Taq**
Three-minute activation time for the proprietary mutant Fast-Start Taq polymerase.
- **EvaGreen Release-on-Demand based dye**
Non-toxic and can be added at saturating concentrations—insuring minimal inhibition while preserving high sensitivity.
- **Platform independent**
Use with any HRM-capable thermocycler.

High-Performance Agilent HRM Options:



Brilliant HRM Ultra-Fast Loci Master Mix
Faster HRM on any platform with total confidence



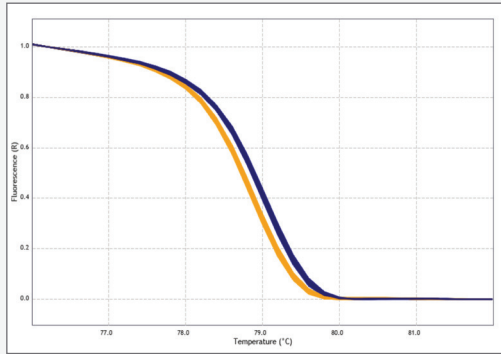
Complete AriaMx HRM Solution
The fastest way to confidently identify hard-to-detect genotypes

Agilent HRM Ultra-Fast Loci Master Mix

For the scientist looking to quickly “mix-and-go” with greater confidence, Agilent now offers the Brilliant Ultra-Fast Loci Master Mix as a stand alone reagent—validated to work on your existing instrumentation. Although optimized for Agilent’s AriaMx, the master mix also works on most major manufacturer instrumentation.

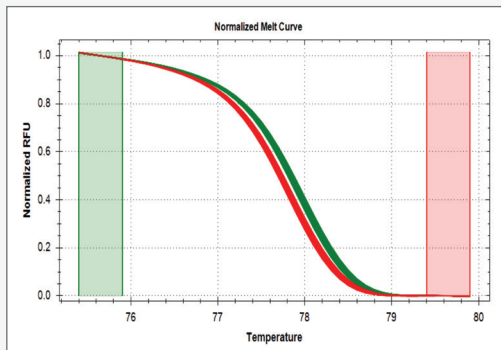
The HRM Ultra-Fast Loci Master Mix combines a fast-start mutant *Taq* polymerase, $MgCl_2$ buffer optimized for most HRM reactions, dNTPs and an EvaGreen low toxicity dye, considered the most reliable for HRM.

FIG. 3 HRM of SNP Rs9939609 (FTO) Using Brilliant HRM Master Mix on Three Different Instruments



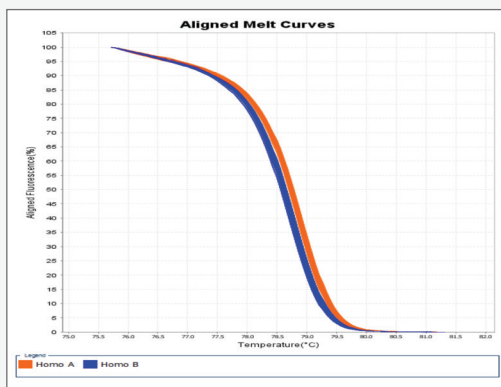
Panel A (Agilent AriaMx qPCR System)

SNP identified using Brilliant HRM Master Mix on Agilent’s AriaMx qPCR Instrument.



Panel B (Competitor B)

The same SNP identified using Brilliant HRM Master Mix on Competitor B qPCR Instrument.



Panel AB (Competitor AB)

The same SNP identified using Brilliant HRM Master Mix on the Competitor AB qPCR Instrument.



BRILLIANT HRM ULTRA-FAST LOCI MASTER MIX

Complete HRM Solution for total confidence in your data.

Intuitive HRM Software

Agilent includes fully featured software for HRM analysis which contains several benefits over other software packages with respect to plate set up, analysis and reporting (Table 1). Unlike competitive HRM software, Agilent HRM software comes standard with the AriaMx Real-Time PCR System—included with the instrument at no charge.

The Agilent platform’s speed advantage over the competition is due to fast scan times and an algorithm used to interpolate the maximum T_m peak value. Other platforms report the highest melt peak value observed during the run, requiring additional scans to obtain an equivalent answer.

Table 1. Comparison of Instrument Software for HRM Analysis

Feature	Instrument		
	A (AriaMx)	B	AB
Set up replicates quickly using “smart-rules-based” software	●	●	●
Use files from a previously-run experiment as a template	●	●	●
Use a highlighting feature to link plots to the results table for easier analysis	●	●	●
Hover over each plot to reveal key data (e.g. X, Y coordinates, replicate number, dye channel)	●	●	●



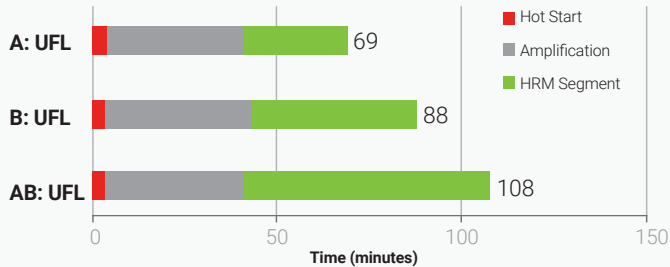
Part Number	Description
5190-7827	Brilliant III HRM Ultra-Fast Loci Master Mix
5190-7702	AriaMx HRM Calibration Kit



Agilent Complete HRM Solution

For researchers ready for a change in genotyping speed and confidence, Agilent offers a complete solution: **HRM Master Mix**, an **instrument** and **analysis software**.

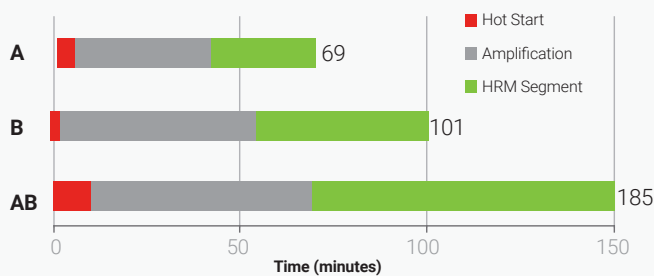
FIG. 4 Agilent AriaMx qPCR Instrument is > 20% Faster than Competitor Instruments



This graph shows the time required to identify the Class IV SNP Rs9939609 FTO with the Brilliant HRM Ultra-Fast Loci Master Mix (UFL) on three different qPCR instruments. The assay consisted of a hot start, 40 cycles of qPCR amplification and a high resolution melt segment. The time differences observed are due to: 1) differences in instrument scanning speeds, 2) the number of measurements over the temperature profile, and 3) *Taq* polymerase's activation time.

- A:** AriaMx instrument with Brilliant HRM Master Mix
- B:** Competitor B qPCR instrument with Brilliant HRM Master Mix
- AB:** Competitor AB qPCR instrument with Brilliant HRM Master Mix

FIG. 5 Agilent Complete HRM Solution is > 30% Faster than Competing HRM Solutions



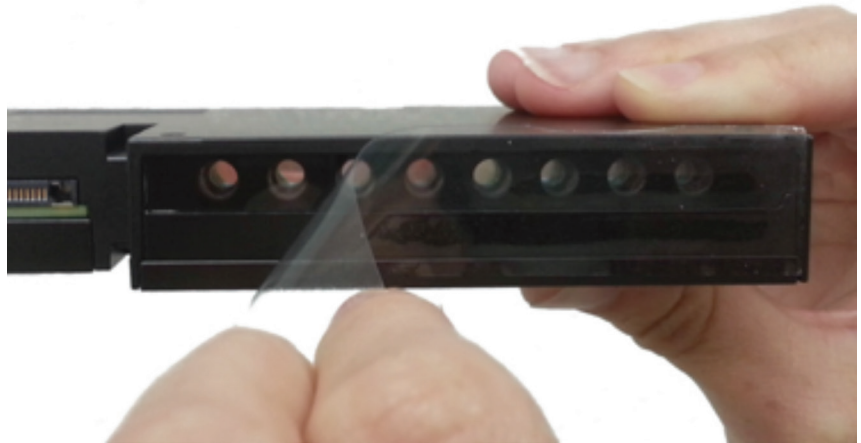
This graph shows the time to identify the Class IV SNP Rs9939609 FTO on three competing qPCR instruments with manufacturer's respective HRM chemistries. Manufacturer's recommended HRM protocols were used.

- A:** Agilent AriaMx qPCR Instrument with Agilent Brilliant HRM Ultra-Fast Loci Master Mix
- B:** Competitor B qPCR instrument and competitor B's HRM Master Mix
- AB:** Competitor AB qPCR instrument with competitor AB's HRM Master Mix

Using Agilent's complete HRM solution, **the time to correctly identify the most difficult-to-detect genotypes can be cut in half** (Figure 5). The longest run time (185 minutes) was on the AB instrument with the AB reagents. In contrast, on the Agilent AriaMx instrument with the Brilliant HRM Ultra-Fast Loci Master Mix, the same result was obtained in only 69 minutes. Now researchers can identify difficult-to-detect genotypes much faster than any other 96-well plate based solution—with ease and confidence.



MODULAR OPTICAL CARTRIDGES The first real-time PCR system with optics contained in modular cartridges, the AriaMx allows for less cross talk between channels—resulting in improved data resolution.



**MULTIPLEX
FROM 2 TO 6
CHANNELS**

Ready, Go!

AriaMx comes calibrated straight from the factory. Calibration is only necessary if future modules are added. Now you can be confident you are measuring biological variation over the instrument's life.

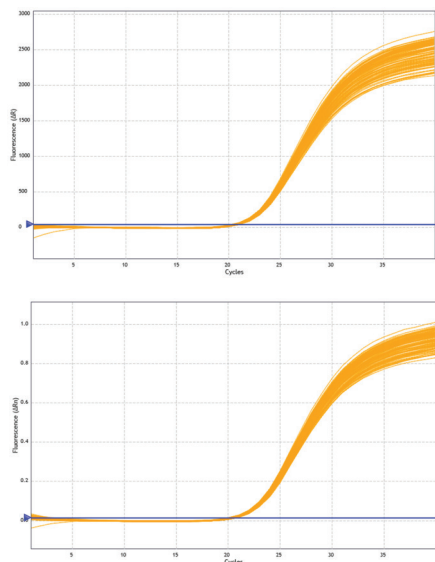
Key Features

- Expandable and upgradeable in the lab
- No reference channel needed
- "Set it and forget it" calibration
- Future-proof
- Accommodate as many or as few optic channels as you require

With optical cartridges that have no need for a reference channel, the tight calibration of the cartridges and steady emission wavelengths from the instrumentation provide consistent data with every run.



Fig. 6 Validation Run With No ROX Reference (Above) and With ROX Reference (Below)*



When detecting biologically relevant changes, which occur at low thresholds, instrument sensitivity is critical. The SYBR uniformity curves at left were generated as part of the AriaMx validation on the same day. Both begin at cycle seven and end at cycle 17.

**Sigma multiplier was set to 19 for both runs. Adaptive smoothing was also on for the baseline graph. $dR, SD = 0.13 Cq$ for both runs.*

Better multiplexing: Don't sacrifice time, samples or reagents

We know you're always looking to maximize information obtained from rare samples. Multiplexing is one solution to getting answers in the least amount of time. However, multiplexing often requires extensive optimization of reagents, which can be expensive in both time and reagent costs and is quickly becoming an impractical method. Agilent's Brilliant Master Mixes allow you to normalize your results with internal controls, providing the most accurate quantification possible.

Agilent Brilliant Multiplex qPCR Master Mixes

Providing sensitive, real-time amplification, Agilent Brilliant Multiplex qPCR Master Mix allows the use of internal controls to provide normalization within each reaction while reducing time and reagent costs. The Brilliant Multiplex qPCR Master Mix provides amplification of up to four targets per reaction, and each requires far less template than if performed in four separate reactions. Moreover, the sensitivity remains equivalent to that seen in single-plex.

Agilent Complete Multiplex Solution

AriaMx delivers answers from multiplexing experiments faster than most thermocycler-based platforms. Get ready for an improvement in time-to-results and accuracy.

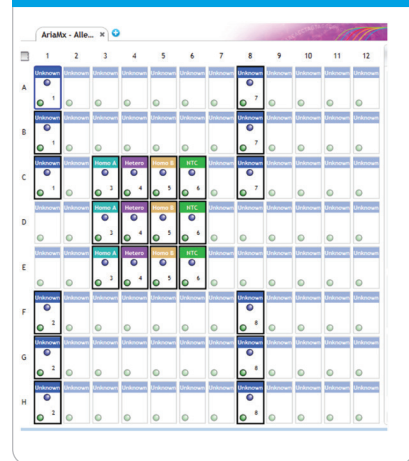
Part Number	Description
600880	Brilliant III Ultra-Fast QPCR Master Mix for Multiplex Reactions
600884	Brilliant III Ultra-Fast QPCR Master Mix for Multiplex Reactions

PRECISION

Advanced, yet easy-to-use **SOFTWARE** with proprietary algorithms accompany AriaMx's precision chemistry and thermocycling capability.



Fig. 7 Easy-to-access Plate and Well Maps



Easy Touchscreen Set-Up

Simple-to-use, feature-rich touchscreen allows you to set up runs with the touch of a finger.

21 CFR Part 11 compatible features are available by licensing ET software.

Plate Maps at Your Fingertips

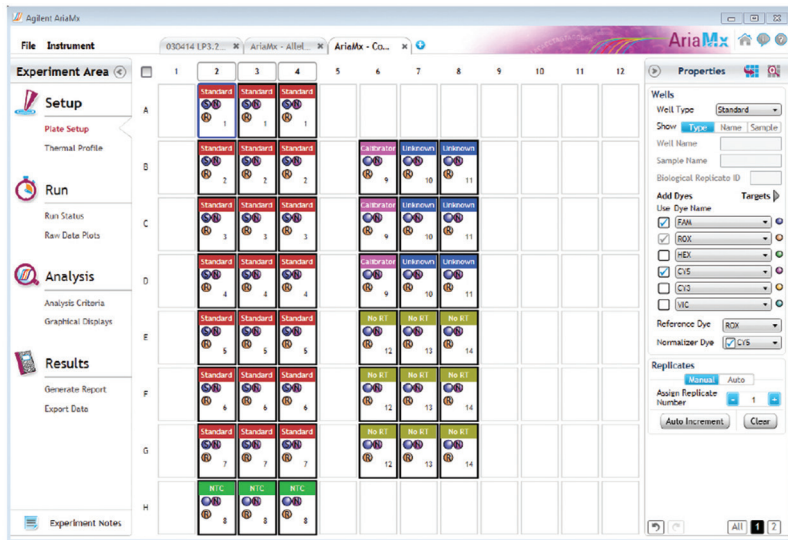
Program at the plate and well level. Simply hover over a well, and its details will open in a new window.

New Software Features

- Touchscreen Set-Up
- Onboard Diagnostics
- Remote Monitoring
- Base software included with instrument purchase



Fig. 8 Set-up Screen for Comparative Quantitation



AriaMx Software helps you control experimental bias due to differences in amplification efficiencies through a proprietary algorithm—resulting in higher accuracy.

Pre-programmed Assays

Pre-programmed assays allow for easy selection of calibrators, normalizers and sample associations.

- Quantitative PCR
- Allele Discrimination
- Comparative Quantification
- High-Resolution Melt

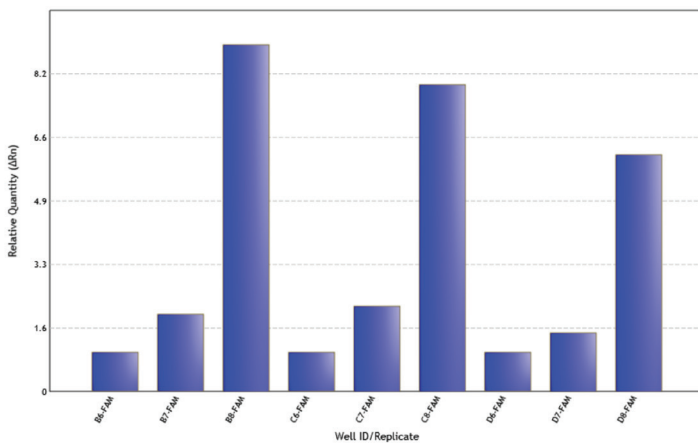
In high throughput gene expression studies, standard curves are not used. Relative quantity calculation is automated using the Comparative Quantitation module in the AriaMx Software. See Figure 8 for details.

Multiple, Customizable Data Analysis Algorithms

Identify NGS Bias and Fragment Drop

Accurate NGS library quantification is crucial for determining sequencing efficiency and data quality.

Fig. 9 Relative Gene Expression

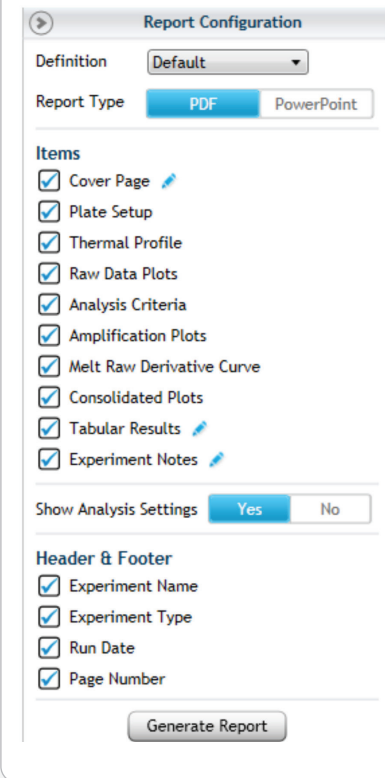


Easy Reporting

Easily export raw data in multiple formats with the touch of a finger. Select only those datasets you want displayed using custom data reports:

- Plate Set-Up
- Experimental Thermal Profile
- Raw Data Plots
- Analysis Criteria
- Amplification Plots
- Allele Determination
- Graphical Displays
- Tabular Results
- Experimental Notes

Fig. 10 Report Configuration





SERVICES

Give your research the attention it deserves. Regain time lost on peripheral tasks and focus on the critical processes that keep your lab competitive and successful.

- Speedy delivery for critical parts
- Dedicated instrument support for fast issue resolution

More Reliable Results and Achievements

Agilent service agreements, preventative maintenance, and compliance services are sold to you at the system level, assuring all modules of your system are covered.

Confidence, Not Compromise

Agilent's service group stands behind every instrument, giving you confidence in equipment functionality and data. Agilent has one global focal point: providing our customers with the best service available worldwide. It's no wonder that over 70% of our service employees stay with Agilent for over five years. Equipped with calibrated and traceable tools, our service technicians verify your equipment is running at maximum performance. Agilent hardware and software qualification protocols ensure rapid conflict resolution. Specialized remote monitoring (free to activate as needed) allows Agilent's service group to troubleshoot your instrument directly from the lab, providing confidence at every turn.

Breadth of Services

Agilent's professional services team has been called upon for our support with customized training, systems and enterprise integration, workflow design, special engineering projects, protocol development, and project management. We have conducted over 100,000 successful system qualifications worldwide, and our genomics professionals operate in 65 countries.

Rapid Assistance

Whatever the challenge, Agilent's broad resources address your needs. Expect reduced repair time with:

- **Call Center:** Rapid assistance with instrumentation, reagents, applications, and protocols requires a vast knowledge of a variety of chemistries. That's why our technical support professionals are PhD scientists with genomics experience—just like you.
- **Detailed Asset Information:** Agilent's tracking system provides critical information on instrument usage, resulting in quicker solutions.
- **Wireless Technology:** Enables our service team to provide instant access to a database of information and resources.
- **Remote Monitoring:** Instrument health monitored remotely for greater troubleshooting flexibility.

Warranty and Multi-Year Upfront Coverage

Each AriaMx has a global warranty, including the standard warranty for the country of purchase. If moved to another country, the destination country's standard warranty will apply to the instrument.*

Services available for purchase with AriaMx include:

- Return to Agilent (RTA): This may be accomplished with a loaner instrument, exchanging out your instrument, or direct return of your instrument to Agilent.
- Installation and Familiarization (I&F): Have an Agilent Field Service engineer or member of our team install and familiarize you with the AriaMx.
- Standard Preventative Maintenance (PM): Agilent is available to run routine maintenance check-ups on your instrument annually to ensure peak performance for the upcoming year.**
- Extended Preventative Maintenance: Conducted annually on your instrument and includes thermal block tests to evaluate uniformity and precision.**
- Silver Service Package: Bundled service including Standard Preventative Maintenance check-ups and the Return to Agilent (RTA) program, if necessary.



* Except for on-site warranty where Agilent does not have an applicable product-specific support presence or authorized representative in that country.

** Unless a service contract is in place, parts replaced outside the scope of preventative maintenance will be charged as a repair event (this includes the engineer's time and materials).

Specifications

Feature	Description
Excitation Source	8 dye specific LEDs per optical module
Detection Sources	8 photodiodes
Optical Cartridges	SYBR/FAM HEX ROX CY3 CY5 ATTO425 6 slots, swappable optical modules
Dye Selection	Excitation and Emission
Reaction Volume	10 µL to 30 µL
Chemistries Supported	SYBR, HRM
Thermal System	Six Peltiers made from two ceramic plates with semi-conductor elements, 96-well
Thermal System Temperature Range	25.0 – 99.9°C Heating: 6.0°C/sec Cooling: 3.0°C/sec (Median), 2.5°C/sec (Average) Accuracy: ± 0.2°C or better at typical annealing, amplification, and denaturation temperatures
Dynamic Range	9
Experiment Types	Quantitative PCR with dye, Quantitative PCR with probe, Allele Discrimination with HRM, Allele Discrimination with probe, Comparative Quantitation, User Defined
Uniformity	± 0.4°C
Data Acquisition Time	<3 seconds for all
Electrical Power (input)	100 – 240VAC, 50/60Hz, 1100VA
Operating Environment	20 – 30°C, 20 – 80% non-condensing humidity, 7500 feet, max altitude
Weight	50 lbs. (23 kg)
Dimensions	19.7" W x 18.1" D x 16.5" H (50cm x 46cm x 42cm)

Feature	Description
Sample Containers	96-well plates, strip tubes; 0.2 mL tubes
Warranty	<ul style="list-style-type: none"> • 1-year warranty is standard with the instrument • 5-year warranty and service packages available
Onboard Analytics	<ul style="list-style-type: none"> • Thermal, physical, interactive (sensors) tests • Extended: 125 performance points tested in 30 minutes • Start-up: 59 performance points tested in ~1 minute • Optional bypass of both features
Services (upon request)	<ul style="list-style-type: none"> • Installation and familiarization • Standard preventative maintenance • Extended warranty and service contracts available
Operating System	• Windows 10 - with preferred language set to English (United States)
MS Office Compatibility	• Microsoft 2010 and 2013 compatible
Run Modes	<ul style="list-style-type: none"> • Stand alone • PC connected • LAN connected to PC (more than 20 instruments can be connected and monitored remotely) • USB connected, external devices
Software	<ul style="list-style-type: none"> • Free software including LIMS connectivity • 21 CFR part 11 compliant software
Optical Module Calibration and Cleaning	<ul style="list-style-type: none"> • All channels can be tested and calibrated • All attributes of optical channels are calibrated at the factory – LED light output, light path, mirror, and photodiode • Optical modules can be cleaned in lab without Agilent technician or sending back to factory
Selected Applications	<ul style="list-style-type: none"> • Quantitative and qualitative gene expression analysis • miRNA analysis • Genetic mapping • Genetic fingerprinting • NGS library quantification • 2-6 channel multiplex ability • HRM analysis (including genotyping, mutational analysis, and class IV SNP detection) • Pathogen quantification



Quick Reference

Useful Tools

qPCR Decision Tree: Determine which qPCR reagents or enzymes best serve your needs.

Software Updates: Ensure your software is the most current version.

qPCR Methods and Applications Guide: Useful for both new and expert users.

Field Notes: Updates and quick tips on AriaMx, from new applications to protocols you can rely on.

Ordering Information

Category	Part Number	Description	Quantity	
Base Instrumentation	G8830A	AriaMx Real-Time PCR System	1	
Optical Cartridges	G8830-67001*	SYBR/FAM Optical Cartridge	1/pack	
(*Select 1-6 filters to add to base instrument. Additional filters can be added to base instrument at any time)	G8830-67002*	ROX Optical Cartridge	1/pack	
	G8830-67003*	HEX Optical Cartridge	1/pack	
	G8830-67004*	CY3 Optical Cartridge	1/pack	
	G8830-67005*	CY5 Optical Cartridge	1/pack	
	G8830-67006*	ATTO425 Optical Cartridge	1/pack	
Software Upgrade and PC	G5380AA	Electronic Tracking software	1	
	G5381AA	HRM analysis software upgrade	1	
	G4983AA	AriaMx Software on HP Laptop	1	
Plastics	401490	AriaMx 96-well plates, skirted and low profile	1 x 25/pack	
	401491	AriaMx 96-well plates, skirted and rigid	1 x 25/pack	
	401494	AriaMx 96-well plates, non skirted low profile	1 x 25/pack	
	401492	AriaMx adhesive plate seals	1 x 50 plates	
	401493	AriaMx low profile strip tubes for PCR and qPCR applications, without caps	8/strip x 120/box	
	401425	AriaMx Strip caps for PCR and qPCR applications	8/strip x 120/box	
Reagents	PROBE	600880	Brilliant III Ultra-Fast QPCR Master Mix	400 rxns
	SYBR	600881	Brilliant III Ultra-Fast QPCR Master Mix, 10 pack	10 x 400 rxns
		600882	Brilliant III Ultra-Fast SYBR Green QPCR Master Mix	400 rxns
		600883	Brilliant III Ultra-Fast SYBR Green QPCR Master Mix, 10 pack	10 x 400 rxns
		600884	Brilliant III Ultra-Fast QRT-PCR Master Mix	400 rxns
		600885	Brilliant III Ultra-Fast QRT-PCR Master Mix, 10 pack	10 x 400 rxns
		600886	Brilliant III Ultra-Fast SYBR Green QRT-PCR Master Mix	400 rxns
		600887	Brilliant III Ultra-Fast SYBR Green QRT-PCR Master Mix, 10 pack	10 x 400 rxns
		302106	MycoSensor QPCR Assay Kit	100 rxns
		302107	MycoSensor QPCR Assay Kit	50 rxns
	MULTIPLEX	5190-7708	AriaMx SYBR Qualification Plate	1 plate/pack
	HRM	600553	Brilliant Multiplex qPCR Master Mix	200 rxns
		5190-7827	Brilliant HRM Ultra-Fast Loci Master Mix	200 rxns
		5190-7702	AriaMx HRM Calibration Kit	1 x 96-well plate
Starter Packs		600906*	AriaMx SYBR Green Starter Pack	1
(*Includes cDNA synthesis kits and recommended plastics)		600907*	AriaMx qRT-PCR Starter Pack	1
		5190-9370	Brilliant HRM Ultra fast Starter Pack	1

For Research Use Only. Not for use in diagnostic procedures.
PR7000-2827