

BETTER SYSTEMS. BRILLIANT RESULTS.

Agilent Real-Time PCR Solutions



Agilent Technologies | Genomics

TOTAL CONFIDENCE qPCR

Built on Stratagene's legacy of excellence, Agilent Technologies provides a simplified and comprehensive approach to real-time quantitative PCR (qPCR)—from sample preparation to data analysis. Every qPCR solution, including the AriaMx, comes with the same quality, intuitive software, and technical support you've come to expect from the 3000Mx instrumentation. That's because many of our Stratagene colleagues are now members of the Agilent-Aria team—ready to support your team at every step.

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.

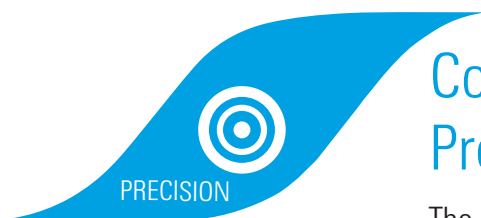
- Enhanced rapid hot start capability
- Reliable and reproducible data



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



INTRODUCING

AriaMx

BETTER SYSTEMS. BRILLIANT RESULTS



Confidence is 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.



**PRE-RUN TEST:
60+ ATTRIBUTES
IN ~1MIN**

**PRECISE
THERMAL
UNIFORMITY**



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 two seconds—the fastest in the industry.

AGILITY

Today and Tomorrow

Modular Design

In-lab upgrades with the click of a cartridge make in-lab repairs possible.

Lower Life-time Costs

Agilent instrumentation, reagents, and service portfolio are tough to beat!

Intuitive Interface

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

PRECISION

Superior Data

Dynamic Range

Measure quantitative differences across 10 orders of magnitude.

Thermal Control

Easily maintains within 0.2°C or less of target temperature.

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.

Robust Validation

Tested on 100,000 samples across 14 different assays and chemistries.

MODULAR
OPTICS

EASY TO
LEARN

SPEED

BRILLIANT REAGENTS Built upon Stratagene's legacy, Agilent Technologies provides a total solution approach to real-time quantitative PCR.

- Robust validation and tight manufacturing quality controls
- SYBR assays results in 42 minutes using Brilliant III reagents
- Open reagent platform: use your assays and reagents
- AffinityScript for the toughest samples and alleles

Ultra-Fast SYBR Master Mixes

Unsurpassed in specificity and sensitivity, Brilliant Ultra-Fast reagents help achieve success in real-time PCR applications across a variety of assays.

A proprietary, quick-acting hot start Taq mutant enables ultra-fast reactions that maintain amplification efficiency, R2, dynamic range, and detection sensitivity. Brilliant reagents can reduce total cycling time by roughly 60% relative to standard cycling protocols.



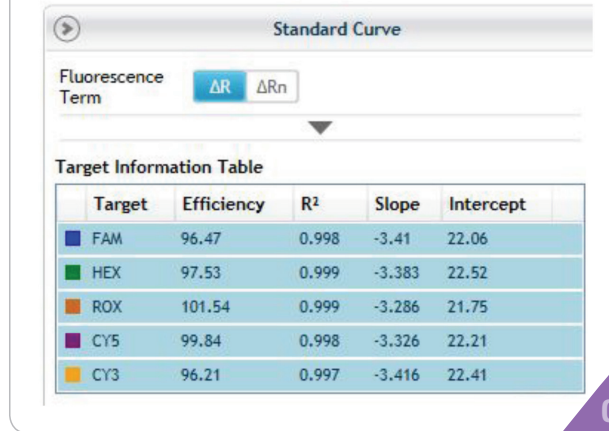
Brilliant Multiplex qPCR Master Mixes

Amplify up to five targets in a single well with the sensitivity seen in single-plex qPCR reactions.

Application Kits

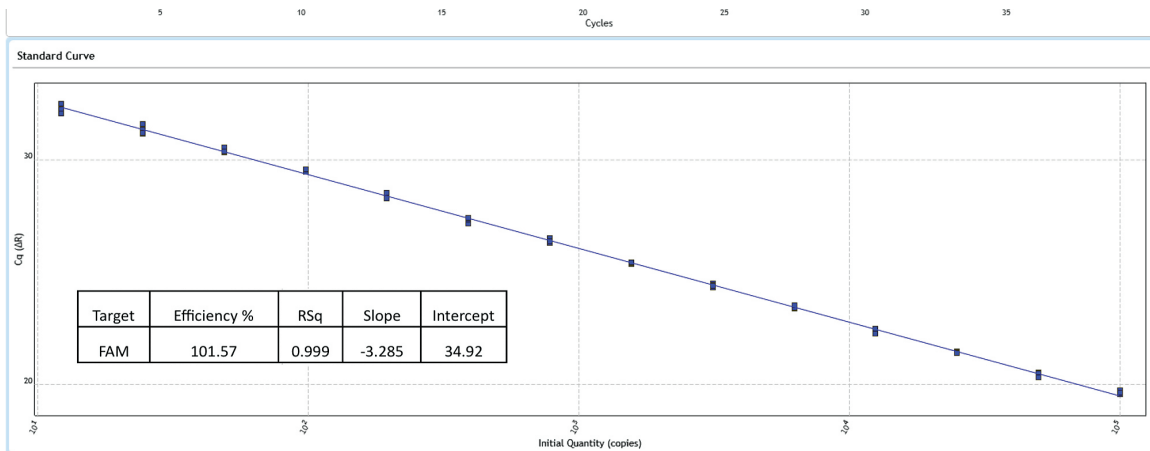
- **NGS Library Quantification**
Optimal cluster density improving efficiency and data quality
- **MycoSensor**
Detects common mycoplasma strains, down to 50 copies gDNA
- **miRNA Master Mix**
Discriminates miRNA differing by even one SNP

FIG 1: Five Color Standard Curve Data by Fluor

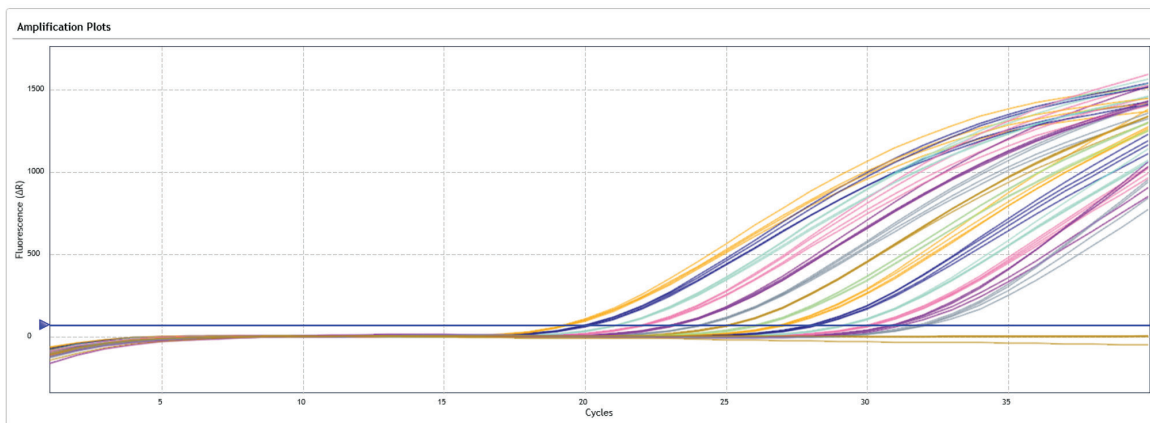


**GREATER
RESISTANCE TO
INHIBITORS**

FIG. 2 Amplification and Standard Curve Plots Showing Sensitivity to Measure a Two-fold Change

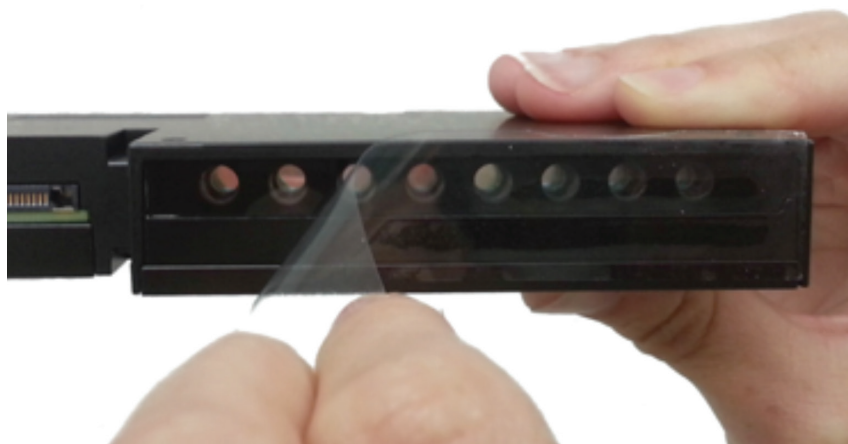


The standard curve consisted of nine, ten-fold dilutions starting with 1×10^9 and ending at two copies. This experiment was repeated and the amplification plots are below.



AGILITY

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!

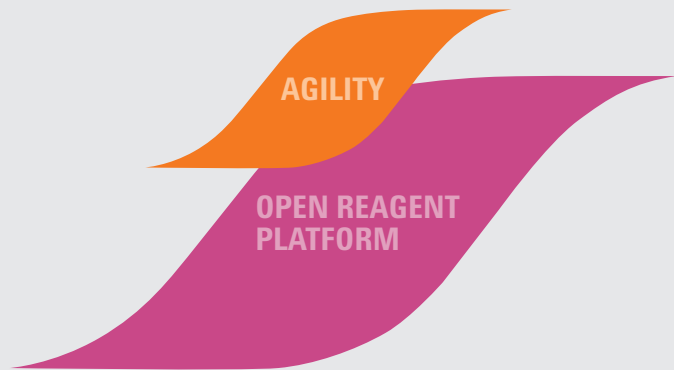
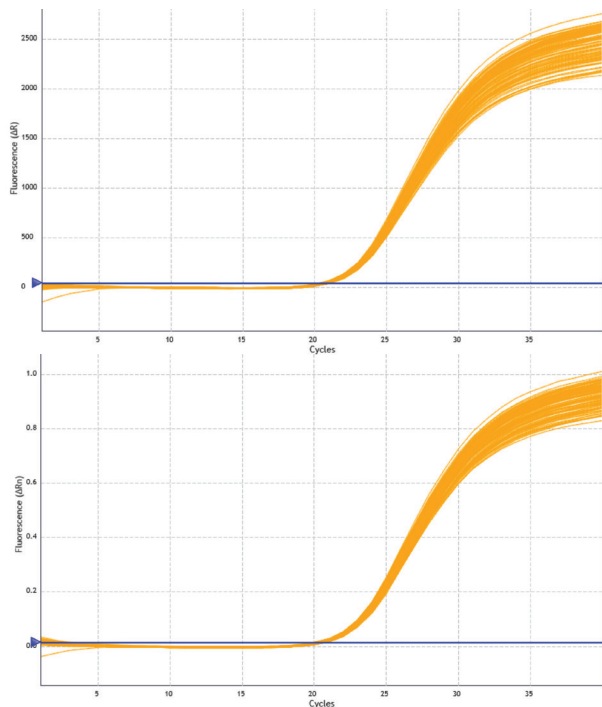
AriaMx comes calibrated straight from the factory. Calibration is only necessary if future modules are added. Now you can be confident you are measuring biological variation over the instrument's life.

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. 3 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.

HIGH RESOLUTION MELT (HRM) REAGENTS

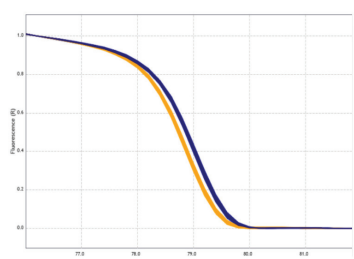
Brilliant HRM Ultra-Fast Loci

HRM is based on detecting small differences in allele disassociation, which demands brilliant dsDNA-binding dyes, precise instrumentation, and

sophisticated software tools. Using the AriaMx Real-Time qPCR System, the need to conduct HPLC is eliminated without sacrificing high-quality results.

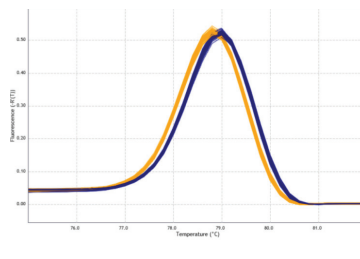
Resolving Class IV SNPs: Class IV SNP data, the most difficult-to-resolve, are used to demonstrate the resolving power of the AriaMx Real-Time qPCR System. For the allele in this graph, the AriaMx maintained a thermal uniformity across all wells with only 0.13°C of T_m separation.

FIG. 4 Normalized Melt



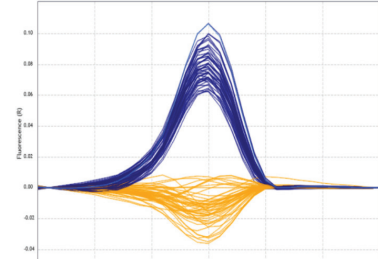
Clean, sharp melt curves for a class IV SNP (wt and mutant) with 142 base pairs. Results were generated using Agilent's Brilliant HRM Ultra-Fast Loci reagents and AriaMx Software.

FIG. 5 Normalized, Derivative Melt (-dR)



On-board software enables two distinct allelic populations to be identifiable. Brilliant HRM Ultra-Fast Loci and other manufacturers' reagents were used to validate the AriaMx. Agilent reagents provided the shortest run times and highest precision.

FIG. 6 Difference Plot (-R)



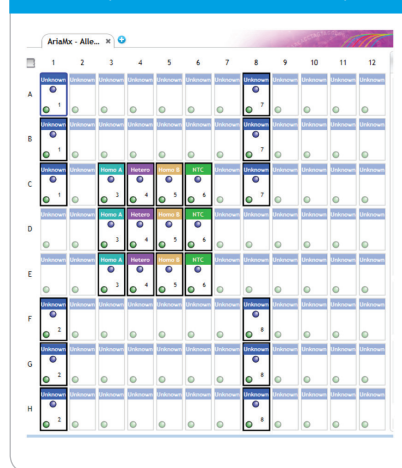
The tight replicates (for the same experiment as Figure 5) demonstrate the AriaMx and Brilliant HRM reagents' capabilities to separate two alleles. For this allele, the instrument maintained a thermal uniformity across all wells with only 0.13°C of T_m separation.

PRECISION

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

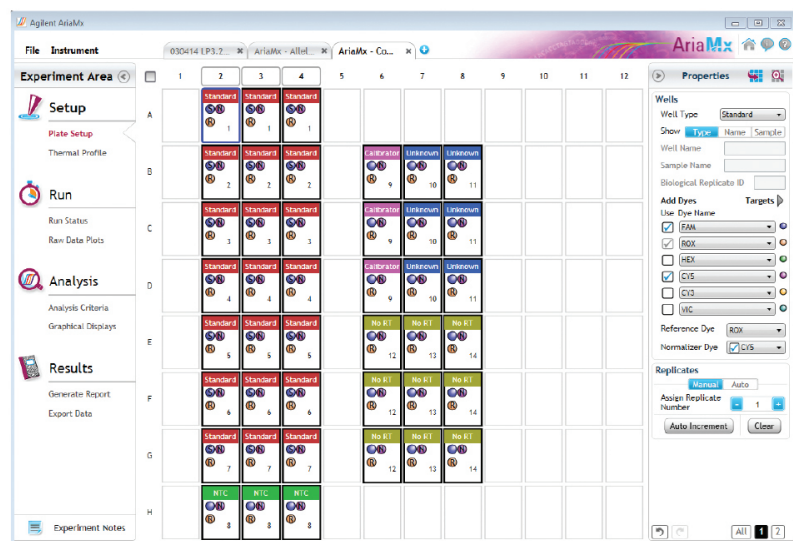
Plate Maps at Your Fingertips

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

New Software Features

- Touch Screen 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 Quantitation
- 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.

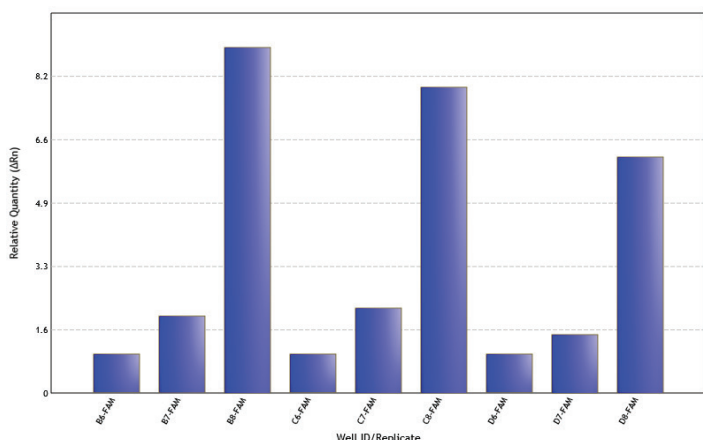
Multiple, Customizable Data Analysis Algorithms

Identify NGS Bias and Fragment Drop

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

Combine the AriaMx System with the Agilent Bioanalyzer for a powerful gene expression and next-gen sequencing solution. See www.agilent.com/genomics/bioanalyzer for more details.

FIG. 9 Relative Gene Expression

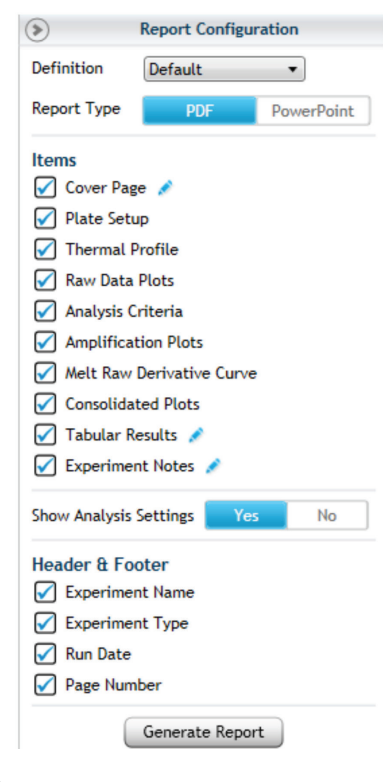


Easy Reporting

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, preventive 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.



2-year base warranty sold with the instrument. Additional coverage can be purchased at a minimal cost.

2 YEARS	+1 YEAR	+2 YEARS	+3 YEARS
Initial Warranty Sold with instrument (covers 2 years)	Extended Warranty 3 Adds additional year (covers 3 years) 8D3	Extended Warranty 4 Adds additional year (covers 4 years) 8D4	Extended Warranty 5 Adds additional year (covers up to 5 years) 8D5

* 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 silicon photo-detectors per optical module
Dyes (at launch)	<p>SYBR/FAM 462.5 – 516.0nm. Detectable C_t for 0.001ng/DNA per reaction ($R^2 > 0.980$)</p> <p>HEX 535.0 – 555.0nm. Detectable C_t for 0.001ng/DNA per reaction ($R^2 > 0.980$)</p> <p>ROX 585.0 – 610.0nm. Detectable C_t for 0.001ng/DNA per reaction ($R^2 > 0.980$)</p> <p>CY3 542.0 – 568.5nm. Detectable C_t for 0.001ng/DNA per reaction ($R^2 > 0.980$)</p> <p>CY5 635.0 – 665.0nm. Detectable C_t for 0.001ng/DNA per reaction ($R^2 > 0.980$)</p> <p>6 slots, swappable cartridges – Ask about custom cartridge design program</p>
Dye Selection	Excitation and emission
Reaction Volume	10 μ L to 30 μ L
Chemistries Supported	SYBR, Probe, HRM
Thermal System	Six peltiers made from two ceramic plates with semi-conductor elements, 96 well
Thermal System Temperature Range	<p>25.0 – 99.9°C</p> <p>Heating: 6°C/sec</p> <p>Cooling: 3°C/sec (Median), 2.5°C/sec (Average)</p> <p>Accuracy: $\pm 0.2^\circ\text{C}$ or better at typical annealing, amplification, and denaturation temperatures</p>
Dynamic Range	10 fold
Comparative Quantitation	2x (Range 1.3x to 3x), 10x (Range 6.5x to 15x)
Multiplex	Difference in C_t between single-plex and multiplex assay wells is <0.7
Sensitivity (FAM)	Discriminates between 2 fold populations ranging from 100k to 12 copies with 95% confidence
Uniformity	$C_t - \text{St Dev}$ (5s/10s) <0.20 , 5 colors, SYBR and T_M assays
Electrical Power (input)	100 – 240VAC, 50/60Hz, 1100A
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)
Sample Containers	0.2ml tubes, 96 well plates, strip tubes
Warranty	<ul style="list-style-type: none"> • 2 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 and Enhanced Preventative Maintenance • Additional year warranty (+1 increments, up to 5 years coverage) • Return-to-Agilent Instrument Exchange Program • Thermal block verification
Operating System	Windows 7
Run Modes	<ul style="list-style-type: none"> • Stand alone • PC connected • LAN connected: more than 20 instruments can be connected and monitored remotely • External devices/USB connected
Optical Module Calibration and Cleaning	<ul style="list-style-type: none"> • All channels can be tested and calibrated • All attributes of channels can be calibrated – LED light, light path, and mirror • 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 analysis • HRM analysis (including genotyping, mutational analysis, and class IV SNP detection) • Pathogen quantification

QUICK REFERENCE

Useful Tools and Web Links

Visit www.agilent.com/genomics/ariamx to view video demonstrations and for additional resources, such as:

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.

TECHNICAL SUPPORT

Americas

qPCR@agilent.com | **800.227.9770**

Other regions, consult:

www.agilent.com/genomics/contactus

ORDERING INFORMATION

Category	Part #	Description	Quantity
Instrumentation	G8830A	Base Instrument	1
	G8830-64000	AriaMx Real-Time PCR System 5 Fixed	1
	G8830-64010	AriaMx Real-Time PCR System 4 Fixed	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	Agilent 96 Well Plates, Non-Skirted Low Profile	1 x 25/pack
	401492	AriaMx Adhesive Plate Seals	1 x 25/pack
	401493	AriaMx Low Profile Strip Tubes for PCR and qPCR Applications Without Caps	8/strip x 120/box
	401425	Strip Caps for PCR and qPCR Applications	8/strip x 120/box
Reagents and References	5190-7708	SYBR Reference Plate	1/pack
	5190-7702	HRM AriaMx Calibration Kit	1 x 96 well plate
	5190-7862	Brilliant HRM Ultra-Fast Loci Master Mix	2 ml/200 rxns
Optical Modules	G8830-67701	FAM Cartridge Module	1/pack
	G8830-67702	ROX Cartridge Module	1/pack
	G8830-67703	HEX Cartridge Module	1/pack
	G8830-67704	CY3 Cartridge Module	1/pack
	G8830-67705	CY5 Cartridge Module	1/pack



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1 800.227.9770 | www.agilent.com/genomics/ariamx

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