## 구매 규격 시트

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가. 특징 :
1. LED 광원을 이용한 도립 형광 현미경
2. 현미경에 컴퓨터 시스템이 내장되어 있어 캡처등의 이미지작업이 직접 가능
3. 형광 이미지에 적합한 고감도, 고해상도 sCMOS 카메라 내장
4. 고감도-정밀도가 뛰어난 광학시스템
5. 2-100X 배율의 Long Working Distance, Cover slip 전용 렌즈 장착 가능
6. LED 형광 광원 사용
7. 현미경과 LED 광원, 디지털카메라, 컴퓨터, 이미지작업 시스템과 고해상도의 디스플레이가 일체화된 디지털 도립 현미경 시스템
8. Trans RGB 기능을 통해 조직 염색 시료 확인 가능(H&E Staining)
9. 정확한 자동 조점 시스템을 이용한 시료 확인 가능
10. Z-Stacking 기능을 이용한 두께운 시료를 정확히 확인 가능
11. 타임랩스(Time lapse) - Onstage Incubator 장착 시 Live cell imaging 가능(Option)

나. 사양 :
1) 광학(Optics)
   - 고감도, 고정밀도의 광학 시스템 (Infinity corrected optical system)
   - RMS-threaded objectives with 45 mm parfocal distance
   - 순열개 조작 가능한 5 개의 렌즈 포지션
   - Screen magnifications and fields of view

2) 광원(Illumination)
   - 형광용 LED광원 (Fluorescence LED based illumination)
   - 교체 가능한 형광 LED cube
   - warm - up cool - down 시간 필요 없음
   - 반영구적인 수명 (50,000 시간 이상)
   - 광량조절이 가능
   - 유지보수, 교체, 아라이먼트 조정 등이 필요없이 간편하게 사용가능
- U.S. Patent NO. 7,502,164

3) Stage
- X-Y 축 사양: axis fine positioning controls, 69 mm (2.7 inch) per rotation
- 110 mm X 110 mm (4.3 in X 4.3 in) range of motion
- Z-axis focusing controls, 10~370 μm/rotation
- 다양한 culture dish에 적응하기 위한 다양한 vessel holder 제공

4) 컴퓨터와 소프트웨어 내장 (On-board computer)
- 광량, 밝기, 명암 등을 소프트웨어 이용하여 간편하게 조작 가능
- 마우스 콤보를 이용한 이미지작업용 소프트웨어 내장
- 18.5 인치 HD LCD 디스플레이 일체형 모니터, 1920 X 1080 pixel (adjustable tilt)
- 이미지 캡처와 이미지 저장 가능
  (16 bit monochrome TIFF or PNG (12 bit dynamic range) 24 bit color TIFF or PNG,JPG,BMP)
- 2.0 USB 포트 4 개, 3.0 USB 포트 1개 제공 USB 통해 저장된 이미지 전송 가능.
- WIFI 이용한 Cloud server 사용 가능
- 1 DVI 포트 제공되어 모니터 등의 다른기기와 호환가능

5) Camera
- High-sensitivity 3.2 MP (2048 x 1536) monochrome CMOS sensor
- 2048 × 1536, 3.2 Megapixels
- 3.45 μm pixel resolution

6) Condenser and filters
- 3 position turret for bright field and phase contrast
- Condenser slides: pinhole, diffuser, green, meniscus filters
- Condenser working distance: 53 mm

7) Contrast methods
- 형광과 일반 광학용 관찰 가능
  Fluorescence and transmitted light(brightfield and phase contrast)

8) Applications
- Time lapse 기능
  (최소 10 초 단위의 .avi movie files 로 데이터 저장)
- Cell counting
  자동 세포 개수 기능으로 다양한 사이즈의 Cell counting 가능
- Transfection
  (Automatically capture and overlay images for transfection analysis)

9) 규격
- 높이(Operating height): 23 inches
- 폭(Depth) : 18 inches
- 너비(Width) : 18 inches

다. 구 성 :
1. Inverted Fluorescence Microscope (본체)
2. High-sensitivity 3.2 MP (2048 x 1536) monochrome CMOS sensor
3. Objective(대물렌즈) - 4X Acromat PH 0.13NA/10.58
4. Objective(대물렌즈) - 10X Acromat PH 0.25NA/7.45
5. Objective(대물렌즈) - 20X Fluorite PH 0.45NA/6.12
6. Objective(대물렌즈) - 40X Fluorite 0.65NA/1.79
7. Objective(대물렌즈) - 40X Fluorite 0.75NA/0.72
8. 형광라이트큐브(형광필터 시스템) - DAPI
9. 형광라이트큐브(형광필터 시스템) - GFP
10. 형광라이트큐브(형광필터 시스템) - RFP
11. Vessel HOLDER - Dual-slide holder
12. Vessel HOLDER - Universal
13. 데이터 분석과 저장 등을 위한 컴퓨터 시스템 내장

라. 기 타 :
1. 설치와 운영은 구매사용자에게 책임이 있습니다.
2. 1년의 무상유지보수
EVOS M5000 Imaging System

Description
The Invitrogen™ EVOS™ M5000 Cell Imaging System is a fully integrated digital inverted microscope for four-color fluorescence, transmitted-light and color applications.

Manufacturing disclosure
We are the sole manufacturer of the EVOS M5000 Cell Imaging System. The system is sold and serviced only by Thermo Fisher Scientific, Fisher Scientific and authorized distributors.

Differentiating features of the instrument
- **Camera** - a highly sensitive 3.2 MP monochrome CMOS camera (2048 x 1536) with 3.45 μm pixel resolution. The monochrome camera affords the best sensitivity for detection of faint fluorescence signals and allows quantitative analysis.

- **Optics** - Infinity-corrected optical system; RMS-threaded objectives with 45 mm parfocal distance

- **Objectives** – Wide selection of high-quality, long-working distance (LWD), and coverslip-corrected objectives

- **Color Transmitted Light Imaging** – Patent pending color illumination mode enables rendering of true color in transmitted light, e.g., imaging H&E stained tissue sections.
• **Technical training for new users**—Every EVOS M5000 Imaging System includes access to a self-paced online educational experience designed to help you get up to speed quickly and efficiently anywhere, anytime. The Digital SmartStart™ 3D Experience includes interactive visual demonstrations of how to install, operate, and maintain your instrument.

• **Product warranty and service**—
  - One year of warranty (standard warranty) is included with your instrument purchase. Additional years of coverage (extended warranty) may be purchased and can help you avoid unnecessary downtime and extend the life of your instrument. An instrument warranty package makes it easy to secure multiple years of coverage with Planned Maintenance right at the time of purchase.
  - If your instrument needs repair, our Rapid Exchange (REX) service provides a factory-certified, refurbished, replacement instrument within two business day from the time we determine a replacement is required. Our AB Repair Center (ABRC) Support is ideal for customers in regulated environments that must maintain asset tagging consistency to comply with regulated protocols. With ABRC, we offer a targeted 2-day response to all inquiries related to your instrument and repair turnaround time is typically 3 weeks from receipt of the instrument. Our comprehensive service includes:
    - Unlimited instrument repair (parts, labor, and shipping charges are included)
    - Unlimited technical support (phone, WebEx™ conference)

• **Qualification services**—Installation qualification (IQ) and operational qualification (OQ) services help satisfy regulatory requirements by verifying and documenting that your instrument is installed and operating according to manufacturer’s specifications upon installation and after a move.

Find out more at [thermofisher.com/evosm5000](http://thermofisher.com/evosm5000)
• Fluorescence LED Light Cubes - We invented the light cube that combines a bright, stable and low energy LED light with hard-coated filters and a dichroic mirror to produce a highly sophisticated light engine that allows placement close to the sample and (minimal light loss), immediate startup (no wait), 50,000h life (low total cost) and digital control (better illumination control) compared to halogen bulbs. Hard-coated filter sets have sharper edges and significantly higher transmission efficiencies that typically result in >25% more light transmission than traditional soft-coated filters. Custom cubes are also available upon request.

- Lightcubes (EX) (EM)
  - DAPI 357/44 447/60
  - TagBFP 390/18 447/60
  - CFP 445/46 510/42
  - GFP 470/22 510/42
  - YFP 500/24 524/27
  - RFP 531/40 593/40
  - Invitrogen Texas Red 585/29 624/40
  - Invitrogen Cy5 628/40 692/40
  - Invitrogen Cy5.5 655/46 794/16
  - Invitrogen Cy7 710/40 775/46
  - CFP-YFP 445/45 542/27
  - AO 42/46 488LP
  - AOred 442/46 628/32

• Incubation Integration – the EVOS M5000 is compatible with the Invitrogen Onstage Incubator. For live cell imaging over hours or days, the optional EVOS Onstage Incubator functions as an environmental chamber on top of the microscope stage and is operated seamlessly from within the instrument interface. Through control of temperature, humidity and CO₂ as well as oxygen for normoxic and hypoxic conditions, it is possible to study live cell dynamics over extended periods.

• Networking capability - Connection through Windows, server message block (SMB), or wifi network via an Ethernet cable connection

• WiFi enablement – included wifi dongle allows for software upgrades with the click of a button

• Cloud connectivity - Connection to Thermo Fisher cloud for access to images and data anytime and anywhere

Software
• Integrated onboard operating software
  - Autocenter
  - Z-stacking
  - Cell Counting
  - Confluence Measurement
  - Annotations tool

• Optional Analysis Software – Celleste Image Analysis software is powerful, easy-to-use software. Easily count, segment, classify and analyze complex images to create reports that include the parameters and data you need. Utilize automation tools to eliminate repetitive steps and minimize chances of errors or inconsistencies.

• Image saving - Once you have finished editing and analysis, save the images and data to the embedded hard-drive, an external USB device or a local network.

Support
• Technical applications scientists—Technical applications scientists (TAS) with years of cell biology and microscopy experience support our customers worldwide. This remote staff will work with users on our toll-free technical support phone hotline or by email to support application development, instrument inquiries, and troubleshooting.
국문 규격서

COMMODITY DESCRIPTION

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A. 특성
1. PCR의 기본분석 방법과 혁신적인 장비와 소프트웨어가 함께하여 핵산서열의 대용량 시료에 대한 정량을 수행하는 장치이다.
2. Real-time PCR 방법으로 핵산서열을 검출하고 정량을 완벽하게 수행한다.
3. 96well 샘플 블록은 3개의 분리된 필터가 블록으로 구성되어 있으며, 10μl에서 100μl의 반응액을 사용하도록 디자인되어 있다.
4. 대립유전자 식별(SNP 검출)과 내부에 항상 나타나는 대조군(IPC)을 이용한 양/음성 분석과 같은 비정량 실험 또한 가능하며 제공되는 소프트웨어는 SNP분석에 대해 자동으로 정확한 결과를 제시하여 줌.
5. 평균 5년 이상 수명이 유지되고 오랫동안 지속되는 밝은 White LED 광원을 사용하고 있으며, 광원은 최소 60,000 시간의 수명을 가진다.
6. 컴퓨터의 연결없이 운영이 단독으로 장비의 운영이 가능하다.
7. 장비에 사용된 터치스크린의 인터페이스는 컴퓨터없이 장비를 빠르게 운영하기 위한 프로토콜을 저장할 수 있다.
8. 1000개에서 5000개 사이의 표준кон대정량 운영파일의 저장이 가능한 10GB의 메모리 수용력을 가지고, 업그레이드와의 이상 시에 장비를 최대한 보호할 수 있도록 디자인되어 있다.
9. fluorogenic 5' nuclease assay 와 fast chemistries 를 이용하여 실시간유전자증폭반응을 40분 안에 마칠 수 있도록 디자인 되어 있다.
10. 장비는 TaqMan® 프로브와 SYBR® Green DNA binding dye chemistry, 최소 두 가지 동종의 화학반응을 지원한다.
11. 본 장비는 99.7%신뢰수준으로 5,000에서 10,000 개 사이의 주요유전자들 구분이 가능한 실시간 정량유전자 분석기의 사양을 가진다.
12. 본 장비는 0.2ml standard 96well, 빼른 0.1ml 96well 모델의 두가지 타입의 블록을 가진 모델 중에 선택이 가능하며, 모든 블록은 30분 이내에 빠른 프로토콜의 운영이 가능하다.

B. 시스템구성
1. 실시간유전자분석 시스템
2. 소프트웨어
3. 기본 악세사리

1 set
1 set
1 set

C. 상세규격
I. 실시간유전자 분석시스템

1. 화학물질
   (1) Fluorogenic 5' Nuclease Assay 방식
       PCR 반응용액에 표적 염기서열과 상보성이 있는 형광염료가 붙은 탐침을 첨가하는 방식이며, 탐침은 표식과 흡수염료를 포함하고 있는 20bp 내외의 짧은 뉴클레오티드 점합체로서, PCR 과정에서 시료 DNA의 특정 표적염기서열이 존재할 경우 순방향과 역방향 프라이머 사이에 특이하게 탐침이 결합된다. 이후 합성효소의 핵산분해 활성이 탐침을 잘라내면 그 결과로 탐침에 붙어 있던 표식 염료의 양도가 증가하게 되며, 이 과정은 매 cycle에서 일어나며 PCR 산물의 축적을 방해하지 않는다.
   (2) Minor Groove Binder Assay
       Minor Groove Binder는 탐침의 녹는 온도(Tm)를 향상시키는 더 짧은 길이의 탐침으로도 실험할 수 있게 되며, 짧은 probe는 항상된 식별력을 제공한다. 이 탐침은 A/T가 많이 존재하는 염기서열에 대한 개체별 차이도 효과적으로 검증하도록 한다.
   (3) Double-stranded DNA Binding Dye SYBR Green I
       두 개의 DNA에 효과적으로 결합하는 SYBR Green I dye는 PCR 산물의 축적을 매우 쉽게 관찰 할 수 있게 하며, PCR 반응 중 DNA의 양이 기하급수적으로 증가함에 따라 염료로부터 방출되는 형광의 양도 비율적으로 증가한다.

2. 온도조절파트
   (1) 블록 구성 : 0.2ml 96well
   (2) 반응 용액의 불록 : 10~100ul(0.2ml)
   (3) 최대 온도조절 속도 : 초당 6.5도
   (4) 온도의 균등성 : 0.4℃
   (5) 온도의 정확도 : 0.25℃
   (6) VeriFlex 블록 : 3 개의 독립적인 온도구획
   (7) 가열/냉각 방법 : Peltier
   (8) 운영시간 : 40분 이내(Fast reagent 사용 시)

3. 형광 감지 시스템
   (1) 발광 광원 : Bright white LED
   (2) 필터/색 : 4 coupled filters
   (3) 발광/검출범위 : 450~600nm/500~640nm
   (4) 검출 기기 : CMOS camera
   (5) 염료 적합성 : FAM/SYBR Green, VIC/JOE/HEX/TET, ABY/NED/ TAMRA/CY3, JUN/ROX/Texas Red

4. 시스템 수행능력
   (1) 적용가능한 운영방식: Gene expression, SNP genotyping, CNV, Mutation scanning, MicroRNA profiling, HRM, Mutation detection, Protein thermal shift, Methylation analysis.
   (2) 역학 범위: 10 logs
   (3) 민감도 (해상도) : 한 가지 반응의 타겟물질에서 1.5배까지의 차이를 검출
(4) 민감도 (DNA 수량) : 1 copy
(5) 다중분석 : 4 가지의 타겟 물질까지 검출
(6) 장비 구성 : 시스템, 파스널컴퓨터, 클라우드 기반 데이터 저장

5. 형광감지시스템의 보정
(1) 본 장비는 순수하고 보정이 완료된 염료에 최적화된 네 개의 형광 발광 필터 히트를 사용하여 같은 Well 에서 다중의 염료를 검출할 수 있다.
(2) 본 장비는 태피턴스염료를 사용하여 파이어링에서 발생되는 작은 편차를 보정할 수 있다.
(3) 본 장비는 정확한 형광감지시스템과 다중구성 알고리즘을 사용하여 정확하고 재현가능한 CT값을 구현할 수 있어, 급격하게 증가되는 구간으로부터 정확하게 모니터링이 가능하고 데이터를 산출해낸다.

II. 소프트웨어
1. 본 장비에 내장된 소프트웨어는 절대/상대정량, 유/무 분석 그리고 대립형질구분 및 SNP검출에 대한 형광결과의 수치화 분석을 지원 하도록 설계되어 있다.
2. 녹는 곡선 단계에서 PCR 시에 서로 다른 필터 셀러 수치가 가능하도록 설계되어, 같은 구동으로 TaqMan 과 SYBR Green 화학반응을 지원한다.
3. 실험의 문제해결을 위해 처리되지 않은 미 가중 형광 데이터와 다중구성의 데이터를 제공한다.
4. 사용자가 동시에 500개의 실험결과의 저장이 가능하도록 지원한다.
5. 장비의 소프트웨어는 같은 네트워크 내에 컴퓨터를 사용하여 장비의 조작이 가능하고 장비의 데이터를 분석할 수 있다.
6. 온라인상의 소프트웨어는 연결된 장비의 상태와 실시간 운영구성의 상황을 공급한다.
7. 온라인 상의 소프트웨어는 연결된 장비로부터 차동완료된 실험결과에 접근이 가능하다.
8. 7900HT, Viia™ 7, and RDML (Real time Data Markup Language, compliant with MIQE Guidelines ) 소프트웨어에서 공유가능한 포맷을 포함하기 때문에 실험데이터를 자동으로 내보낼 수 있는 기능의 설정이 가능하다.
9. 선택적으로 프라임와 프로브 디자인 소프트웨어의 구입이 가능하다.
10. 온라인 상의 소프트웨어는 유전자발현실험을 위한 내부조절선택이 가능한 프로그램을 공급한다.
11. 온라인 상의 소프트웨어는 같은 타입의 장비의 다른 플레이트의 분석을 위해 하나의 플레이트로부터 표준곡선을 받아들이기 위한 기능구현이 가능하다.
12. 장비 소프트웨어는 온도 프로토콜, 타겟과 레이아웃의 변형을 제한하기 위해 페스워드로 운영이 가능하다.
13. 장비 소프트웨어는 엑셀과 JPG와 같은 모든 그래프가 가공되지 않은 데이터와 분석 데이터를 포함하는 결과로 저장하여 외부로 내보낼 수 있다.
14. 장비 소프트웨어는 TaqMan 과 SYBR Green chemistry 방식을 이용하여 Standard Curve, Relative Standard Curve, Relative Quantification Gene Expression, and SNP Genotyping 실험을 따르게 운영하기 위해 웹스타트 프로토콜이 저장되어 있다.
15. 장비 소프트웨어는 장비관리 전에 플레이트의 설정 없이 장비운영이 가능하고, 부정
확한 염료 또는 타겟배경을 포함하여 장비런닝 후의 플레이트 설정에 대한 치수를 교정이 가능하다.

III. 주 장비에 포함된 기본 품목

1. 화학적 설치 키트
   (1) TaqMan RNase P Instrument Verification Plate 1 kit

2. 데이터제어 시스템
   (1) Intel Core i7, 2.80GHz, Window 10 1 set
   (2) 17" Monitor 1 set

D. 비고

1. 장비의 설치 및 초기 작동은 사용자가 원하는 장소에서 공급자에 의해 수행한다.
2. 장비가 정상적으로 설치 및 작동이 됨을 확인 후, 1년간 성능을 보증한다.
3. 공급자 증명원 및 기술지원 확약서를 공급 가능해야 한다.
QuantStudio 3 and QuantStudio 5
Real-Time PCR Systems

Connect to your data anytime, anywhere
Connect with your future

The modern laboratory is undergoing a technological revolution. Today’s scientific breakthroughs emerge in a context of unparalleled connectivity. Lab instruments not only are more compact, automated, powerful, and accessible, but also can store and can connect to platforms that can share vast amounts of data, facilitating scientific advances through global collaboration.

As your trusted partner at the leading edge of this era of innovation, we’ve developed the Applied Biosystems® QuantStudio™ 3 and 5 Real-Time PCR Systems. These high-performance benchtop instruments allow you to remotely monitor your runs, as well as easily access and securely share results with colleagues anywhere, anytime when connected to Thermo Fisher Cloud. With your data always within reach and shareable, the answers shaping the future of science are never far away.
Discover the QuantStudio 3 and 5 Real-Time PCR Systems

The QuantStudio 3 and 5 Real-Time PCR Systems are the latest additions to our family of QuantStudio systems. These instruments provide our latest advancements in touch screen usability, allowing you to stay connected to your data easily. They're designed for both new and experienced users who need simple and affordable real-time PCR systems without compromising performance or quality.

Interactivity
- Interactive touch screen.
- Run and edit directly from touch screen.
- Easy and intuitive interface.

Accessibility
- Access experiment runs from any location, anytime, with remote monitoring.
- Wi-Fi enabled connectivity.
- Utilize portable devices to quickly analyze data when you need to.

Collaboration
- Quickly share data sets and protocols online.
- Send large files securely around campus or around the world.
- Integrate and analyze multiple data sets and data types into one project.

Access, analyze, and share data anytime, anywhere — Remotely monitor your runs, analyze real-time data sets in minutes, share data in a secure space, and share results online with colleagues around the world, with Web browser-based software.

Obtain results you can trust — Detect differences in large quantities and limit 1.5 to 1 singleplex reactions, and obtain 10 logs of linear dynamic range.

Establish standard operating procedures and compliance with ease — Lockup protocol templates, in-run quality control (QC) feedback, and QC capability of consumables offer greater control of experiment data. Real-time PCR run-up language (RPLA) report is available for compatibility with QMAC guidelines.

Helps save valuable time — 3 or 6 independent temperature zones for flexibility to run multiple experiments simultaneously. Fast thermal cycling is also available, enabling results in less than 30 minutes.

Get started quickly — Instrument is factory-calibrated for optical and thermal assembly, quick installation, and immediate use.

Skip the learning curve — With preassembled protocol templates, learning is minimized for new users, allowing you to focus on your research.

Maximize benchtop space — Compact instrument can be configured as stand-alone or an accessory to fit most laboratory needs.

Get a premium instrument at an affordable price — Innovation doesn't have to come at a premium price. Get the state of the art at a price that you can afford, with the QuantStudio family of instruments.
Interactivity

Simple, intuitive software — at your fingertips

- Interactive touch-screen interface and simplified QuantStudio® Design and Analysis Software make it easy to get started and stay organized.
- Easily identifiable icons guide you through the workflow to set up runs and analyze experiments.
- Graphical interface allows easy editing of experimental conditions (Figure 1A).
- Interactive touch screen allows you to manipulate view to a particular graph or data point (Figure 1B).
- Option to pause or resume a real-time PCR run on demand.
- Preconfigured protocol templates allow quick selection of default protocols for standard applications.
- Locked workflow feature allows for experiment consistency in tightly controlled environments.

Accessibility

Access QuantStudio Design and Analysis Software two ways

Web-based or online:
- Web browser-based system configuration with PC or Mac® computers.
- Streamlined software for improved usability and analysis response time.
- Enables secure access of your data when and where you want it.
- No software to install, no additional fees, and no versions to update.
- Monitor and check instrument status.

Desktop:
- Traditional co-located computer system configuration.
- Streamlined software for improved usability and analysis response time.
- No additional fees.

For more information about the Thermo Fisher Cloud platform and data security, go to thermofisher.com/thermofishercloud
Collaboration

Fast and powerful secondary analysis software to extract and share results

Applied Biosystems® Analysis Modules are innovative cloud-based data analysis applications that bring together multiple data sets in one convenient place, and render them in stunning data visualizations for improved analysis and insights.

Easy to use
One-click quality checks and comparisons between different visualizations, for simple and convenient data analysis.

Integrated analysis solution
Integrate your experiments into a single project — analyze various gene groups of data, such as time course experiments or cell line comparisons, and pick ideal settings to easily compare data.

Superior security
Powered by Amazon Web Services®, the Thermo Fisher Cloud platform helps protect your data in a highly secure environment using SSL, biometric authentication and physical security measures.

MGE guideline support
This instrument software allows users to save predefined analysis settings for auto-exporting raw data into their format of choice, including MGE, Interlab data, mark-up language, compliant with MGE guidelines, export format.

The Applied Biosystems Analysis Modules include:

Absolute quantification

Relative quantification

Genotyping

Anywhere, anytime access
Access your data with a compatible browser on any device. Each registered user has a PII-protected account on Thermo Fisher Cloud.

Fast and powerful analysis
Analysis speeds up to 10 times faster than our desktop software version, to help analyze more data and gain insights more quickly than before using Thermo Fisher Cloud.

Figure 1: Absolute quantification module for gene expression analysis. The module enables a visual inspection of gene expression trends across biological conditions, as well as the ability to highlight specific gene expression trends.

Figure 2: Relative quantification module for gene expression analysis. The module enables a comparative inspection of gene expression trends across biological conditions, as well as the ability to highlight specific gene expression trends.

Figure 3: Genotyping module for genetic analysis. The module enables a visual inspection of genetic variants and haplotypes within specific regions of the genome, as well as the ability to highlight specific genetic variants and haplotypes.
Generate high-quality data for a variety of applications

Performance you can trust
Utilizing proven QBRan™ technology and VeriFlex™ Blocks, QuantStudio 3 and 5 systems offer improved data accuracy and sensitivity for a broad range of genomic applications, such as analysis of gene expression, miRNA and targeting RNAs, SNP genotyping, copy number variation, mutation detection, drug metabolism enzymes, and protein expression.

Assay flexibility to support your application
The QuantStudio 3 and 5 systems support probe-based assays as well as droplet-based assays. TaqMan® probe-based assays, developed with powerful algorithms and optimized primer pairs, enable outstanding specificity and sensitivity. SNP chemistry is an economical alternative for target identification or initial screening assays. The QuantStudio 3 system has 4 filters collected for FAM/HEX/ROX, VIC/JOE, RED/MAMA®, and RED dye. The QuantStudio 5 System offers 96-well and 384-well format options, allowing for a broader range of detection chemistries and assay multiplexing. The 384-well format has 9 excitation filters (600-985nm) and 8 emission filters (600-705nm), and the 384-well format has 6 excitation filters (450-490nm) and 5 emission filters (490-525nm).

Precise quantification with 1.5-fold discrimination

Excellent reproducibility and 10-log dynamic range

Melt curve analysis

Genotyping analysis

For more information about TaqMan Assays and formats, go to thermofisher.com/taqman

Figure 1: Melt curve analysis showing the efficiency of the software in the melt curve analysis, with a 1.5-fold discrimination and 10-log dynamic range. The data show high-quality results with 14 nM of nucleotide sublimates, allowing for the broad linear dynamic range of the system.

Figure 2: Assay flexibility to support your application. The QuantStudio 3 and 5 systems support probe-based assays as well as droplet-based assays. TaqMan® probe-based assays, developed with powerful algorithms and optimized primer pairs, enable outstanding specificity and sensitivity. SNP chemistry is an economical alternative for target identification or initial screening assays. The QuantStudio 3 system has 4 filters collected for FAM/HEX/ROX, VIC/JOE, RED/MAMA®, and RED dye. The QuantStudio 5 System offers 96-well and 384-well format options, allowing for a broader range of detection chemistries and assay multiplexing. The 384-well format has 9 excitation filters (600-985nm) and 8 emission filters (600-705nm), and the 384-well format has 6 excitation filters (450-490nm) and 5 emission filters (490-525nm).

Figure 3: Melt curve analysis showing the efficiency of the software in the melt curve analysis, with a 1.5-fold discrimination and 10-log dynamic range. The data show high-quality results with 14 nM of nucleotide sublimates, allowing for the broad linear dynamic range of the system.

Figure 4: Genotyping analysis showing the efficiency of the software in the genotyping analysis, with a 1.5-fold discrimination and 10-log dynamic range. The data show high-quality results with 14 nM of nucleotide sublimates, allowing for the broad linear dynamic range of the system.

Figure 5: Melt curve analysis showing the efficiency of the software in the melt curve analysis, with a 1.5-fold discrimination and 10-log dynamic range. The data show high-quality results with 14 nM of nucleotide sublimates, allowing for the broad linear dynamic range of the system.

Figure 6: Genotyping analysis showing the efficiency of the software in the genotyping analysis, with a 1.5-fold discrimination and 10-log dynamic range. The data show high-quality results with 14 nM of nucleotide sublimates, allowing for the broad linear dynamic range of the system.

For more information about TaqMan Assays and formats, go to thermofisher.com/taqman

QuantStudio 3 and 5 Real-Time PCR Systems
### Technical specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>QuantStudio 3</th>
<th>QuantStudio 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample capacity (test)</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Reaction volume</td>
<td>0.1 µl, block: 18-30 µl, 0.2 µl, block: 16-40 µl</td>
<td>0.1 µl, block: 18-30 µl, 0.2 µl, block: 16-100 µl</td>
</tr>
<tr>
<td>Footprint (H x W x D)</td>
<td>57 cm x 39 cm x 40 cm</td>
<td>27 cm x 55 cm x 40 cm</td>
</tr>
<tr>
<td>Excitation source</td>
<td>Bright white LED</td>
<td>Bright white LED</td>
</tr>
<tr>
<td>Optional detection</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Detection filters</td>
<td>4 coupled filters</td>
<td>6 coupled filters</td>
</tr>
<tr>
<td>Excitation/absorption range</td>
<td>400-600 nm/480 nm/560 nm</td>
<td>510-600 nm/550-700 nm</td>
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<tr>
<td>Multiplexing</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>3D barcode reading</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Heating/cooling method</td>
<td>Pellet</td>
<td>Pellet</td>
</tr>
<tr>
<td>Temperature zone function</td>
<td>5.0°C ± 0.2°C</td>
<td>5.0°C ± 0.2°C</td>
</tr>
<tr>
<td>Max block ramp rate</td>
<td>39°C ± 1°C</td>
<td>39°C ± 1°C</td>
</tr>
<tr>
<td>Automatic ramp rate</td>
<td>31°C ± 1°C</td>
<td>31°C ± 1°C</td>
</tr>
<tr>
<td>Temperature uniformity</td>
<td>39°C ± 1°C</td>
<td>39°C ± 1°C</td>
</tr>
<tr>
<td>Temperature accuracy</td>
<td>39°C ± 1°C</td>
<td>39°C ± 1°C</td>
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<tr>
<td>Run time</td>
<td>35 minutes</td>
<td>35 minutes</td>
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<tr>
<td>Dye compatibility (fluorescence)</td>
<td>FAM, ROX, HEX, TAMRA, CY5, SYBR Green®</td>
<td>FAM, ROX, HEX, TAMRA, CY5, SYBR Green®</td>
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<tr>
<td>Chemistry reagents</td>
<td>Fast standard</td>
<td>Fast standard</td>
</tr>
<tr>
<td>Fast standard</td>
<td>Yes, with the additional base</td>
<td></td>
</tr>
<tr>
<td>Number of samples</td>
<td>1 sample</td>
<td>1 sample</td>
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<tr>
<td>Sensitivity</td>
<td>1 copy</td>
<td>1 copy</td>
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<tr>
<td>Fast standard</td>
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<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>1 copy</td>
<td>1 copy</td>
</tr>
</tbody>
</table>

QuantStudio 3 and Real-Time PCR systems
Flexible service plans
Choose from a variety of service options that balance your budget, productivity, uptime, and regulatory requirements. Plans start with the most basic repair modes and scale to premium offerings including advanced support and compliance services. On-site service plans are optimal for sites that have time-sensitive work and need to get their instruments back online quickly. These plans include guaranteed response times in most regions, scheduled planned maintenance, and automatic software upgrades. The All Repair Center plan is a cost-effective choice for customers who can allow their instrument to be sent away for repair — this plan provides a barrier instrument so that customers can maintain productivity while their instrument is being repaired.

Compliance and validation services
Our compliance and validation services are designed to help you balance business and regulatory requirements. From site assessment and/or software qualification to full system validation, we partner with you to help mitigate regulatory risks and get your processes up and running.

Training courses
Our application and instrument training programs are led by scientists who are ready to enhance your workflow through experiential design tools, best practices, workflow training, and instrument troubleshooting. Hands-on classes are available at our Thermo Fisher Scientific training centers in your area.

Technical support
If you have questions about product selection or use, easy or complex design, data analysis, or troubleshooting, contact our team of technical support scientists or access our online product and application support tools.

Financing options
If you’re looking for accelerated asset or investment, technology protection, or cash flow management, our innovative financing options can help meet your company’s budgetary needs and bottom-line goals. Contact your local sales representative for more details.

For a full schedule of courses, including self-paced online classes, go to thermofisher.com/training

Service plans at a glance

<table>
<thead>
<tr>
<th>Service plan at a glance</th>
<th>All Repair Center Support Plan</th>
<th>All Repair Center Support Plus Plan</th>
<th>All Maintenance Plan</th>
<th>All Assurance</th>
<th>All Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-site response time</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Scheduled on-site planned maintenance (PM)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Remote diagnostics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Parts, labor, and travel for repairs, labor</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Computer repair and replacement, included</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Priority access to Tech Support (M-F), 8 a.m.-8 p.m. local time</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Priority access to Remote Service Engineer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Repackaging cost or PM and critical repairs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Field Application/Scientific consultation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Lower instrument usage during repair (Repair Center plans only)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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(Prices and terms vary by region.)

QuantStudio 3 and 5 Real-Time PCR Systems
QuantStudio 3 and 5 Real-Time PCR Systems

## Ordering information

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
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<td><strong>QuantStudio 3 system configurations</strong></td>
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<tr>
<td>QuantStudio 3 Real-Time PCR System (96-well, 0.1 mL block)†</td>
<td>A28136</td>
</tr>
<tr>
<td>QuantStudio 3 Real-Time PCR System (96-well, 0.2 mL block)†</td>
<td>A28137</td>
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<tr>
<td>QuantStudio 3 Real-Time PCR System AB Assurance Service Plan</td>
<td>ZG11SCQS3STD</td>
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<tr>
<td>QuantStudio 3 Real-Time PCR System IQ/OO/IPV Service</td>
<td>A28480</td>
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</table>

| **QuantStudio 5 system configurations**           |          |
| QuantStudio 5 Real-Time PCR System (96-well, 0.1 mL block)† | A28138   |
| QuantStudio 5 Real-Time PCR System (96-well, 0.2 mL block)† | A28139   |
| QuantStudio 5 Real-Time PCR System (384-well block)† | A28140   |
| QuantStudio 5 Real-Time PCR System AB Assurance Service Plan | ZG11SCQS5STD |
| QuantStudio 5 Real-Time PCR System IQ/OO/IPV Service | A28482   |

†Does not include computer. Additional Cat. Nos. are available that include laptop or desktop computer.

## How to reach us

To find your order support or technical support team, go to [thermofisher.com/contactus](http://thermofisher.com/contactus)

For product FAQs, protocols, training courses, and webinars, go to [thermofisher.com/technicalresources](http://thermofisher.com/technicalresources)