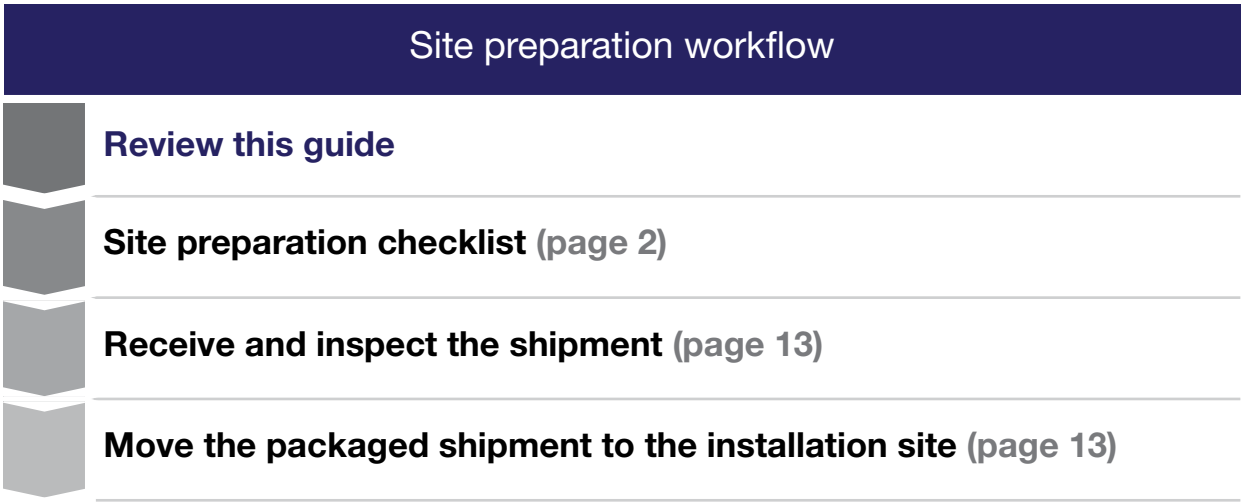
QuantStudio™ 12K Flex Real–Time PCR System

Publication Number 4470654 Revision C

Site preparation workflow

IMPORTANT! Thermo Fisher Scientific does not install, service, or repair products in area designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4).

A Thermo Fisher Scientific service representative will contact you to schedule the installation. When the installation date is scheduled, perform the following tasks.



Installation time and training

After the shipment is unpacked, the installation takes approximately 1.5 business days.

During and/or after installation, the service representative performs the following tasks:

- Unpacks and installs the instrument and the computer
- Powers on the instrument and sets up the first user
- Installs the software on the computer
- Performs the calibrations and the RNase P verification

For additional training and reference information, see the user documents that are provided with the product.

Site preparation checklist

IMPORTANT! Complete, date, and initial all items in the following checklist before the scheduled installation date. If the site preparation checklist is not complete when the service representative arrives, the scheduled installation may be postponed.

✓	Date	Initials	Site preparation requirement	See page
☐			Customer responsibilities have been reviewed.	3
☐			Personnel have been assigned tasks and responsibilities.	
☐			The installation site is identified and meets the following requirements:	
			☐ Space and clearance	8
			☐ Environmental	9
			☐ Electrical	10
			☐ Network	11
			☐ Safety	12
☐			Antivirus software is available for installation on the computer that is provided with the instrument.	12
☐			All materials for installation and operation are available.	13
☐			The shipment was received and inspected as follows:	13
			☐ The items shown on the shipping list are the items that were ordered at the time of purchase.	
			☐ Damage to shipping containers was reported to the shipping company that delivered the shipment and to your service representative.	
			☐ Damage or mishandling was recorded on the shipping documents.	

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✓	Date	Initials	Site preparation requirement	See page
			☐ If provided with the shipment, all reagents and plates are unpacked and stored as specified on package labels.	13
☐			The installation site is cleared and ready for the installation.	13
☐			The packaged shipping containers are moved to the installation site.	

Customer responsibilities

Personnel	Responsibilities and tasks to perform before the installation date
Site preparation/ installation coordinator	• Reviews the site preparation guide for site requirements. • Coordinates personnel and tasks. • Selects the installation site. • Reviews checklists with applicable personnel to verify that the site is properly prepared. • Reviews checklists with the service representative to verify that the site is properly prepared.[1] • Receives and inspects the packaged shipment. • Unpacks and stores the reagents box (if provided) according to the specifications indicated in the product information sheets. • Schedules the installation and informs personnel of the installation day. • Ensures that the site is clear of unnecessary material on the installation day. • Is available to assist the service representative throughout installation.[1]
Laboratory safety representative	• Reviews the safety requirements later in this guide. • Ensures that all customer-provided materials for installation are present at the site. • Ensures that primary users (responsible for training other users) are available for training during the installation.
Laboratory personnel/ primary users	• Reviews the safety requirements later in this guide. • Ensures that all customer-provided materials for installation are present at the site. • Ensures that primary users (responsible for training other users) are available for training during the installation.

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Personnel	Responsibilities and tasks to perform before the installation date
Facilities personnel	• Ensures that the installation requirements are met for the installation site. – Space at the installation site – Building clearances – Humidity and temperature – Waste collection – Electrical supply – Computer (if included with product) – Safety and installation materials • Moves the packaged shipment to the site before the installation date. • Is available to assist service representative and laboratory personnel. • If applicable, ensures that at least two people are available to help the service representative move and position the instrument.
Network or IT specialist (if the product will be connected to a network)	• Ensures that active, tested local area network (LAN) connections are in place. • Ensures that network hardware is compatible with an RJ45-type connector. • If necessary, supplies additional cables. • Is available during installation to connect the product to the network. • If applicable, provides and installs a network or dedicated printer. ⚠ **CAUTION!** Do not connect the product components to the network before the service representative arrives.

[1] Required for service representative installation of the instrument.

Site requirements

Dimensions and weights

To prepare for installation, provide space for receipt and configuration of the components listed in this section. This section provides dimensions and weights for the packages you will receive, and it describes the dimensions of the components after installation and configuration.

Components (packaged)

Ensure that the building clearances allow for transport of the packaged components.

Package	Height	Length (depth)	Width	Weight
Instrument	112.5 cm (44.3 in.)	74.7 cm (29.4 in.)	90.7 cm (35.7 in.)	85 kg (187 lbs)
Computer	71.1 cm (28 in.)	72 cm (28.5 in.)	43.2 cm (17 in.)	31.7 kg (70 lbs)
Monitor	21.6 cm (8.5 in.)	44.4 cm (17.5 in.)	38.1 cm (15 in.)	6.35 kg (14 lbs)
QuantStudio™ 12K Flex AccuFill™ System	101.6 cm (40 in.)	106.68 cm (42 in.)	87.63 cm (34.5 in.)	102.06 kg (225 lbs)

CAUTION! PHYSICAL INJURY HAZARD. Do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more people.

Components (unpackaged)

Ensure that the installation site bench space can accommodate the dimensions and support the weights.

Component	Height	Depth	Width	Weight
QuantStudio™ 12K Flex Real–Time PCR System				
Instrument[1]	73.8 cm (29.0 in.)	66.0 cm (26.0 in.)	50.4 cm (19.8 in.)	70.0 kg (154.3 lbs)
Computer[2]	56.5 cm (22.3 in.)	54.7 cm (22.4 in.)	21.6 cm (8.5 in.)	24.9 kg (55.0 lbs)
Monitor	38.0 cm (15.0 in.)	13.7 cm (5.4 in.)	37.4 cm (14.7 in.)	3.0 kg (6.7 lbs)
Keyboard	5.0 cm (2.0 in.)	15.25 cm (6.0 in.)	44.7 cm (17.5 in.)	0.1 kg (0.2 lbs)
QuantStudio™ 12K Flex AccuFill™ System[3]				
Instrument	50 cm (20 in.)	70 cm (27.5 in.)	80 cm (31.5 in.)	80 kg (176 lbs)

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Component	Height	Depth	Width	Weight
Computer	41.1 cm (16.2 in.)	43.8 cm (17.2 in.)	18.7 cm (7.4 in.)	14.3 kg (31.5 lbs)
Monitor (with stand)	38.1 cm (15.0 in.)	14.0 cm (5.5 in.)	37.5 cm (14.8 in.)	4.6 kg (10.2 lbs)

[1] Weight varies depending on the sample block installed.
[2] Computer specification differs depending on the computer ordered with the system (laptop or desktop).
[3] Optional component of the system. The system includes an instrument and a computer.

CAUTION! PHYSICAL INJURY HAZARD. Do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more people.

Configured system dimensions

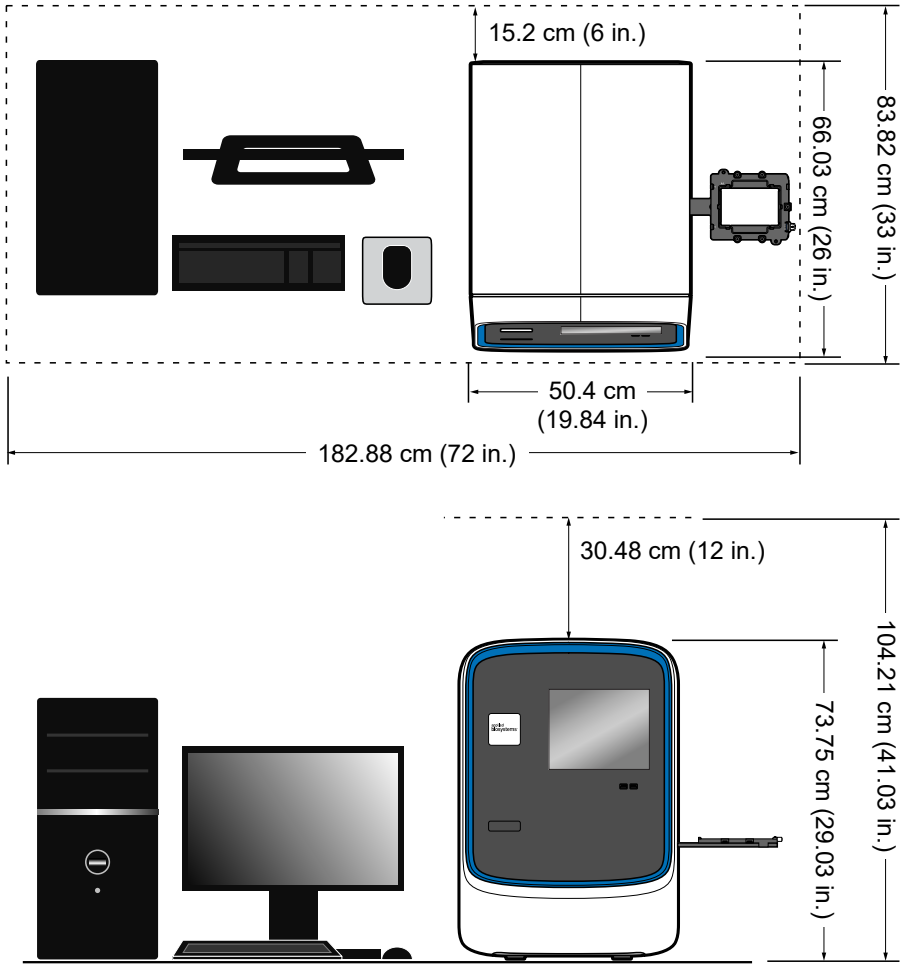

Figure 1 Setup requirements (not to scale)

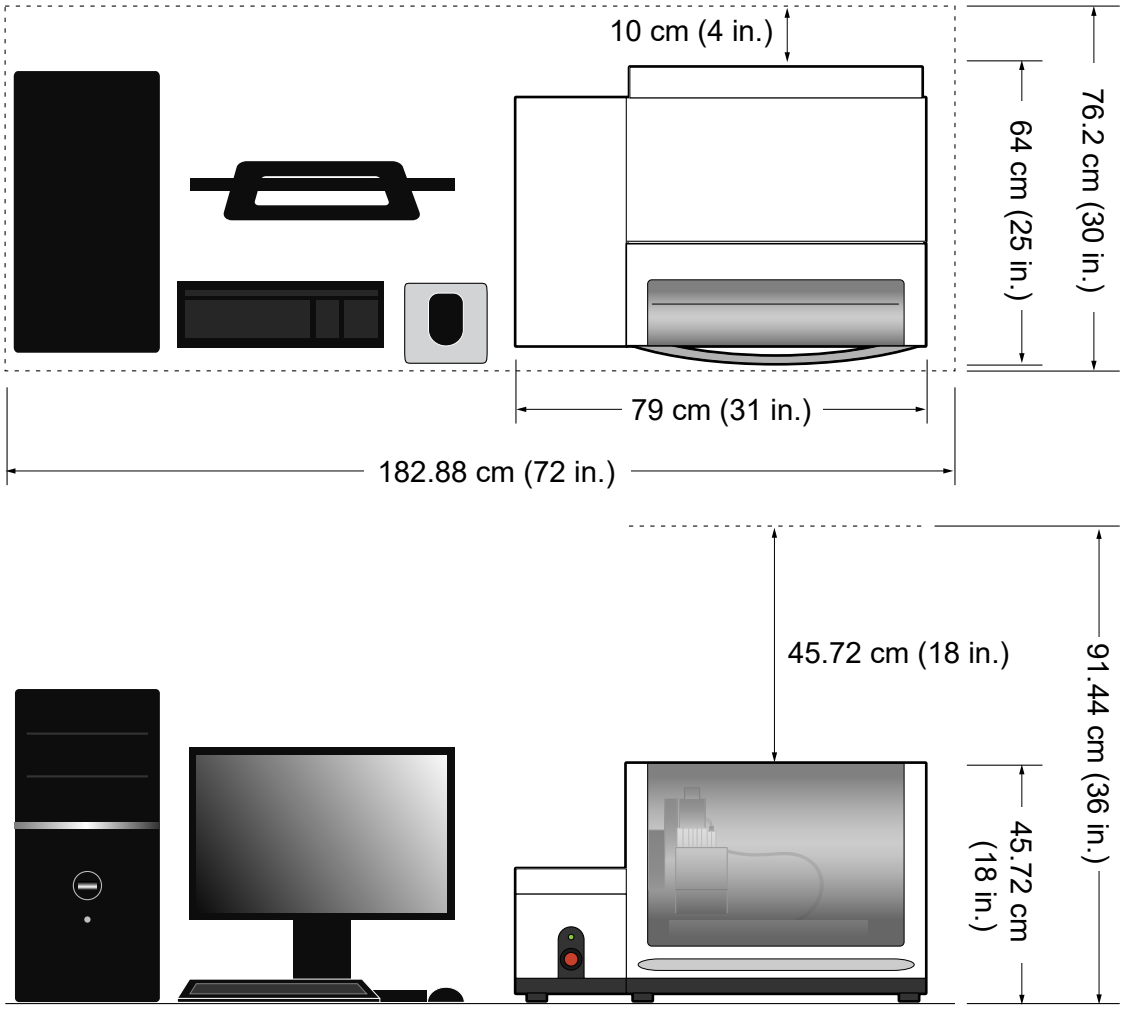

Figure 2 Setup requirements for QuantStudio™ 12K Flex AccuFill™ System (not to scale)

Component clearances required for installation and maintenance

During instrument installation and maintenance, it is necessary to access the back of the instrument. If the back of the instrument faces a wall, ensure that there is sufficient clearance on the bench to rotate the instrument for access.

IMPORTANT! For safety, the power outlet for the instrument must be accessible.

Component	Top	Front	Sides	Back
QuantStudio™ 12K Flex Real-Time PCR Instrument	30.48 cm (12 in.)	122 cm (48 in.)	51 cm (20 in.)	15.2 cm (6 in.)
QuantStudio™ 12K Flex AccuFill™ System	190 cm (76 in.)	—	—	10 cm (4 in.)
Computer and optional uninterrupted power supply	—	30.48 cm (12 in.)	—	15.24 cm (6 in.)

Environmental requirements

Ensure that the installation room is maintained under correct environmental conditions.

Condition	Acceptable Range
Installation site	Indoor use only
Altitude	Located between sea level and 2000 m (6500 ft.) above sea level
Humidity	• QuantStudio™ 12K Flex Real-Time PCR Instrument, computer, uninterrupted power supply unit: – 20%–80% (noncondensing) • Maximum humidity for the QuantStudio™ 12K Flex AccuFill™ System: – 80% at 31°C – 50% at 40°C
Temperature	15°C to 30°C (60°F to 85°F) **Note:** The room temperature must not fluctuate more than 2°C over a 2-hour period.
Thermal output	During operation the net thermal output, based on the actual current draw of the QuantStudio™ 12K Flex Real-Time PCR Instrument, computer, and QuantStudio™ 12K Flex AccuFill™ System, is expected to be approximately 2731 Btu/h [800W].
Vibration	The instrument is not adjacent to strong vibration sources, such as a centrifuge, pump, or compressor. Excessive vibration will affect instrument performance.
Pollution	The instrument has a Pollution Degree rating of II. The instrument can only be installed in an environment that has nonconductive pollutants such as dust particles or wood chips. Typical environments with a Pollution Degree II rating are laboratories and sales and commercial areas. The noise output of the instrument is <60dB at idle.
Other conditions	Ensure the room is away from any vents that could expel particulate material on the system components. Avoid placing the instrument, computer, and UPS unit adjacent to heaters, cooling ducts, or in direct sunlight. Do not place the QuantStudio™ 12K Flex Real-Time PCR Instrument next to electrically noisy devices, such as a refrigeration unit, or vibration sources, such as a centrifuge, pump, or compressor. Excessive vibration can affect instrument performance.

Electrical requirements

CAUTION! Do not unpack or plug in any components until they are configured for the proper operating voltage by the service representative.

WARNING! For safety, the power outlet for the instrument must be accessible at all times. For information about the space needed between the wall and the instrument, see “Component clearances required for installation and maintenance” on page 8. In case of emergency, you must be able to immediately disconnect the main power supply to all the equipment. Allow adequate space between the wall and the equipment so that the power cords can be disconnected in case of emergency.

Device	Rated Voltage	Rated Frequency	Rated Current	Rated Power
QuantStudio™ 12K Flex Real-Time PCR Instrument	100–240 +/- 10% VAC	50/60 Hz	12.5 A	1100 VA
Computer (desktop)			2.1 A	125 VA
(Optional) Computer (laptop)			4.6 A	90 VA
Monitor			1.5 A	65 VA
QuantStudio™ 12K Flex AccuFill™ System			0.6 A	75 VA
QuantStudio™ 12K Flex Real-Time PCR Instrument (Australia and New Zealand)	230 +/- 10% VAC	50 Hz	6.3 A	1100 VA

Electrical protective devices

We recommend several protective devices in environments with large voltage and power fluctuations.

Recommended devices
Power line regulator
• 1.5-kVA power line regulator • Use in areas where the supplied power fluctuates in excess of ±10% of the normal voltage. • Power fluctuations can adversely affect the function of the instrument and computer. **Note:** A power line regulator monitors the input current and adjusts the power supplied to the instrument or computer. It does not protect against a power surge or failure.

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Recommended devices
Surge protector
• 10-kVA surge protector (line conditioner) • Use in areas with frequent electrical storms or near devices that are electrically noisy, such as refrigerators, air conditioners, or centrifuges. • Short-duration, high-voltage power fluctuations can abruptly terminate the function of, and thereby damage the components of, the computer and the instrument. **Note:** A dedicated line and ground between the instrument, computer, and the building's main electrical service can also prevent problems caused by power fluctuations.
Uninterruptible power supply (UPS)
• 1.5-kVA uninterruptible power supply (UPS) • Use in areas prone to power failure. • Power failures and other events that abruptly terminate the function of the instrument and computer can corrupt data and possibly damage the system. ⚠ **CAUTION! PHYSICAL INJURY HAZARD.** Do not attempt to lift or move the UPS unit without the assistance of at least two people. Improper lifting can cause painful and permanent back injury. See the UPS manufacturer user guide for more information. **IMPORTANT!** A UPS provides power for a limited time. It is meant to delay the effects of a power outage, not to serve as a replacement power source. In the event of a power loss, power off the instrument and computer unless you expect to regain power within the battery life of the UPS.

Network requirements

The computer is factory-configured for the TCP/IP protocol. The product includes a fast Ethernet adapter (10/100Mbps) with an RJ45-type connector and one 3-m (9.8-ft) crossover Ethernet cable that connects the computer and the instrument.

If the instrument will be connected to a LAN, an active, tested LAN connection must be in place before the scheduled installation date. Due to differences in network connections, the service representative cannot configure the system to access a specific network.

You must supply a standard Category 5 Ethernet cable of the required length to connect the computer to your LAN.

Safety requirements

Safety practices

A safety representative from your facility must ensure that:

- Personnel establish and follow all applicable safety practices and policies to protect laboratory personnel from potential hazards.
- All applicable safety devices and equipment are available at all times.

Required safety equipment

Your laboratory has specific safety practices and policies designed to protect laboratory personnel from potential hazards that are present. Follow all applicable safety-related procedures at all times.

The following safety equipment and protection from hazards must be available at the installation site:

- Protection from any sources of hazardous chemicals, radiation (for example, lasers, radioisotopes, radioactive wastes, and contaminated equipment), and potentially infectious biological material that may be present in the area where the service representative will work.
- Appropriate fire extinguisher:
  - You are responsible for providing an appropriate fire extinguisher for use on or near the equipment.
  - The types and sizes of fire extinguishers shall be suitable for use on electrical and chemical fires as specified in current codes, regulations, and/or standards, and with approval of the Fire Marshall or other authority having jurisdiction.
  - The installation of appropriate fire extinguishers shall be in addition to other fire-protection systems and not as a substitute or alternative to them.
- Eyewash
- Safety shower
- Eye and hand protection
- Adequate ventilation, including vent line/fume hood, if applicable
- Biohazard waste container, if applicable
- First-aid equipment
- Spill cleanup equipment
- Applicable Safety Data Sheets (SDSs)

Antivirus software requirements

No antivirus software is provided because customer preferences and network requirements vary. You are responsible for installing antivirus software of your choice to protect the computer against viruses.

Materials for installation and operation

Installation materials

Ensure that the following materials are available before installation of the product:

- Safety glasses, lab coats, and chemical-resistant, disposable gloves (powder-free)
- Glassware washing solution
- Lint-free tissues
- Mobile bench to allow access to the instrument for maintenance and service
- Easily accessible specified power outlet
- External network connection
- Available laboratory equipment
  - One of the instrument (including the computer and if purchased, a UPS unit)
  - Freezer (–20°C)
  - Refrigerator or cold-room (4°C)
  - Vortexer
  - Pipettors

Operation materials

Additional supplies and consumables are necessary for routine operation. Contact a sales representative to order these additional supplies. Use only supplies as specified by Thermo Fisher Scientific.

Receive and inspect the shipment

1. Verify that the items shown on the shipping list are the same items that you ordered at the time of purchase.
2. Carefully inspect the shipping containers. Report any damage to the shipping company and to your service representative. Record any damage or mishandling on the shipping documents.
3. Immediately unpack the reagents box (boxed separately from the instrument components). Store the components as specified.

IMPORTANT! Do not unpack shipping containers at this time. To protect yourself from liability for damage that occurred during shipping, inspect the shipping containers and report damage as described above.

Move the packaged shipment to the installation site

1. Clear the installation site of all unnecessary materials.
2. Move the packaged shipment to the installation site.

CAUTION! PHYSICAL INJURY HAZARD. Do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more people.

CAUTION! Do not tip the package on end. Tipping may damage the hardware and electronics.

Note: After installation, keep the packaging in case you need to relocate the components.

Documentation and support

Related documentation

Document	Pub. No.
QuantStudio™ 12K Flex Real–Time PCR System v1.6 or later Maintenance and Administration Guide	MAN0018832
QuantStudio™ 12K Flex Real–Time PCR System v1.6 or later Multi-Well Plates and Array Card Quick Reference	MAN0018833
QuantStudio™ 12K Flex AccuFill™ System Site Preparation Guide	4457095
QuantStudio™ 12K Flex AccuFill™ System User Guide	MAN0025669

Customer and technical support

Visit **thermofisher.com/support** for the latest service and support information.

- Worldwide contact telephone numbers
- Product support information
  - Product FAQs
  - Software, patches, and updates
  - Training for many applications and instruments
- Order and web support
- Product documentation
  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

  Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

Limited product warranty

Life Technologies Corporation and its affiliates warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have questions, contact Life Technologies at **www.thermofisher.com/support**.

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For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

Revision history: 4470654 C (English)

Revision	Date	Description
C	15 May 2024	• The branding was updated. • The installation timeline and training information were updated (“Installation time and training” on page 2). • The Twister™ Robot was removed. • The information about unpackaged components was updated to include each component of the QuantStudio™ 12K Flex AccuFill™ System. The dimensions and weight of the QuantStudio™ 12K Flex AccuFill™ System were updated. (“Components (unpackaged)” on page 5). • Environmental requirements were added for electrically noisy devices and excessive vibration (“Environmental requirements” on page 9). • The instructions to report damage to shipping containers were updated (“Receive and inspect the shipment” on page 13). • A note was added to keep the packaging (“Move the packaged shipment to the installation site” on page 13). • The related documentation was updated (“Related documentation” on page 14). • The support information was updated (“Customer and technical support” on page 14). • The limited product warranty was added (“Limited product warranty” on page 15).
B	5 May 2012	Baseline for this revision history.

The information in this guide is subject to change without notice.

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