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GeneRead™ QIAcube® User Manual

Sample to Insight

QIAGEN

Contents

1 Introduction

Thank you for choosing the GeneRead QIAcube. We are confident it will become an integral part of your laboratory.

Before using the GeneRead QIAcube, it is essential that you read this user manual carefully and pay particular attention to the safety information. The instructions and safety information in the user manual must be followed to ensure safe operation of the instrument and to maintain the instrument in a safe condition.

1.1 About this user manual

This user manual provides information about the GeneRead QIAcube in the following sections:

1. Introduction
2. Safety Information
3. General Description
4. Instrument Procedures
5. Operating Procedures
6. Maintenance Procedures
7. Troubleshooting
8. Technical Data

   Appendices

The appendices include the following:

- Equipment and reagents required
- GeneRead QIAcube ordering information

1.1.1 Technical assistance

At QIAGEN, we pride ourselves on the quality and availability of our technical support. Our Technical Services Departments are staffed by experienced scientists with extensive practical and theoretical expertise in molecular biology and the use of QIAGEN® products. If you have any questions or experience any difficulties regarding the GeneRead QIAcube or QIAGEN products in general, do not hesitate to contact us.

QIAGEN customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other scientists as well as to the researchers at QIAGEN. We therefore encourage you to contact us if you have any suggestions about product performance or new applications and techniques.

For technical assistance and more information, please see our Technical Support Center at **www.qiagen.com/goto/TechSupportCenter** or call one of the QIAGEN Technical Service Departments or local distributors (see back cover or visit **www.qiagen.com**).

1.1.2 Policy statement

It is the policy of QIAGEN to improve products as new techniques and components become available. QIAGEN reserves the right to change specifications at any time.

In an effort to produce useful and appropriate documentation, we appreciate your comments on this user manual. Please contact QIAGEN Technical Services.

1.1.3 Version management

This document is the *GeneRead QIAcube User Manual*, Revision 1.

1.2 Intended use of the GeneRead QIAcube

The GeneRead QIAcube is designed to automate the relevant steps of the template preparation for the GeneReader platform.

The PCR amplification process, which is part of single molecule sequencing template preparation, is performed with an external PCR cycler.

The GeneRead QIAcube is intended to be used only in combination with QIAGEN kits indicated for use with the GeneRead QIAcube for applications described in the respective QIAGEN kit product sheets or handbooks.

The GeneRead QIAcube is intended for use by professional users trained in molecular biological techniques and the operation of the GeneRead QIAcube instrument.

1.3 Requirements for GeneRead QIAcube users

The table below covers the general level of competence and training necessary for transportation, installation, use, maintenance, and servicing of the GeneRead QIAcube.

Task	Personnel	Training and experience
Delivery	No special requirements	No special requirements
Installation	Laboratory technicians or equivalent	Appropriately trained and experienced personnel familiar with use of computers and automation in general
Routine use (running protocols)	Laboratory technicians or equivalent	Appropriately trained and experienced personnel familiar with use of computers and automation in general
Maintenance procedures	Laboratory technicians or equivalent	Appropriately trained and experienced personnel familiar with use of computers and automation in general
Servicing	QIAGEN Field Service Specialists only	Trained and authorized by QIAGEN

2 Safety Information

Before using the GeneRead QIAcube, it is essential that you read this user manual carefully and pay particular attention to the safety information. The instructions and safety information in the user manual must be followed to ensure safe operation of the instrument and to maintain the instrument in a safe condition.

The following types of safety information appear throughout the *GeneRead QIAcube User Manual*.

WARNING 	The term WARNING is used to inform you about situations that could result in personal injury to you or other persons. Details about these circumstances are given in a box like this one.

CAUTION 	The term CAUTION is used to inform you about situations that could result in damage to the instruments or other equipment. Details about these circumstances are given in a box like this one.

The advice given in this manual is intended to supplement, not supersede, the normal safety requirements prevailing in the user's country.

2.1 Proper use

WARNING 	**Risk of personal injury and material damage** **[W1]** Improper use of the GeneRead QIAcube may cause personal injuries or damage to the instrument. The GeneRead QIAcube must only be operated by qualified personnel who have been appropriately trained. Servicing of the GeneRead QIAcube instrument must only be performed by a QIAGEN Field Service specialist.

Perform the maintenance as described in Section 6. QIAGEN charges for repairs that are required due to incorrect maintenance.

WARNING **Risk of personal injury and material damage** **[W2]**

The GeneRead QIAcube is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

WARNING **Risk of personal injury and material damage** **[W3]**

Do not attempt to move the GeneRead QIAcube during operation.

CAUTION **Damage to the instrument** **[C1]**

Avoid spilling water or chemicals onto the GeneRead QIAcube. Damage caused by water or chemical spillage will void your warranty.

In case of emergency, power OFF the GeneRead QIAcube at the power switch at the front of the instrument and unplug the power cord from the power outlet.

WARNING **Liquid handling** **[W4]**

Do not insert or remove workdecks on the GeneRead QIAcube with liquids loaded. Liquids should be loaded once the workdeck has been inserted in the workdeck drawer, before the workdeck drawer is closed.

In case of careless insertion or removing or workdecks, liquids may spill and contaminate work surfaces or other tubes.

CAUTION **Damage to the instrument** **[C2]**

Only use QIAGEN spin columns and GeneRead QIAcube consumables with the GeneRead QIAcube. Damage caused by use of other types of spin columns or chemistries will void your warranty.

WARNING **Risk of personal injury and material damage** **[W5]**

Do not use damaged rotor adapters. The rotor adapters are for single use only. Do not reuse the rotor adapters, as they can be damaged by the high *g* forces experienced in the centrifuge.

CAUTION **Risk of material damage** **[C3]**

Empty the tip-disposal container prior to use to prevent a tip jam in the waste drawer. Failure to empty the waste container may result in a block of the robotic arm, and could damage the instrument or cause run failure.

WARNING 	**Fire hazard**	**[W6]**
	Empty the liquid waste bottle before each run and make sure to place it correctly back in the GeneRead QIAcube instrument. Spilling of liquid-waste may cause an electrical short-circuit and fire.	

WARNING 	**Risk of personal injury and material damage**	**[W7]**
	Load tubes properly to avoid plastic crash. In the event of a plastic crash, sharp plastic particles could be inside the centrifuge. Be careful when handling items inside the centrifuge.	

CAUTION 	**Damage to the instrument**	**[C4]**
	Only use the correct volume of liquids. Use of higher liquid volumes than directed may result in damage to the centrifuge rotor.	

2.2 Electrical safety

Note: Disconnect the line power outlet before servicing.

WARNING 	**Electrical hazard**	**[W8]**
	Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous. Intentional interruption is prohibited. **Lethal voltages inside the instrument** When the instrument is connected to line power, terminals may be live and opening covers or removing parts is likely to expose live parts.	

WARNING 	**Damage to electronics**	**[W9]**
	Before powering ON the instrument make sure that the correct supply voltage is used. Incorrect use of supply voltage may damage to electronics. See specifications indicated on the type plate of the instrument.	

WARNING	**Risk of electric shock** [W10]
	Do not open any panels on the GeneRead QIAcube. **Risk of personal injury and material damage** Only perform maintenance that is specifically described in this user manual.

To ensure satisfactory and safe operation of the GeneRead QIAcube, follow the guidelines below:

- The line power cord must be connected to a line power outlet that has a protective conductor (earth/ground).
- Do not adjust or replace internal parts of the instrument.
- Do not operate the instrument with any covers or parts removed.
- If liquid has spilled inside the instrument, power OFF the instrument, disconnect it from the power outlet, and contact QIAGEN Technical Services.

If the instrument becomes electrically unsafe, prevent other personnel from operating it, and contact QIAGEN Technical Services.

The instrument may be electrically unsafe when:

- It or the line power cord appears to be damaged.
- It has been stored under unfavorable conditions for a prolonged period.
- It has been subjected to severe transport stresses.

2.3 Environment

Operating conditions

WARNING	**Explosive atmosphere** [W11]
	The GeneRead QIAcube is not designed for use in an explosive atmosphere.

WARNING	**Risk of explosion** [W12]
	The GeneRead QIAcube is intended for use with reagents and substances supplied with QIAGEN kits. Use of other reagents and substances may lead to fire or explosion.

CAUTION 	**Damage to the instrument** **[C5]** Direct sunlight may bleach parts of the instrument and cause damage to plastic parts. The GeneRead QIAcube must be located out of direct sunlight.

2.4 Chemicals

WARNING 	**Hazardous chemicals** **[W13]** Some chemicals used with this instrument may be hazardous or may become hazardous after completion of the protocol run. Always wear safety glasses, gloves, and a lab coat. The responsible body (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe and that the instrument operators are not exposed to hazardous levels of toxic substances (chemical or biological) as defined in the applicable Safety Data Sheets (SDSs) or OSHA,* ACGIH,† or COSHH‡ documents. Venting for fumes and disposal of wastes must be in accordance with all national, state, and local health and safety regulations and laws.

* OSHA: Occupational Safety and Health Administration (United States of America).

† ACGIH: American Conference of Government Industrial Hygienists (United States of America).

‡ COSHH: Control of Substances Hazardous to Health (United Kingdom).

Toxic fumes

If working with volatile solvents or toxic substances, you must provide an efficient laboratory ventilation system to remove vapors that may be produced.

WARNING 	**Toxic fumes** **[W14]** Do not use bleach to disinfect used labware. Bleach in contact with salts from the buffers used can produce toxic fumes.

2.5 Waste disposal

Used labware, such as library pool tubes, QIAGEN spin columns, filter-tips, or rotor adapters, may contain hazardous chemicals. Such wastes must be collected and disposed of properly according to local safety regulations.

For more information about how to dispose of the GeneRead QIAcube, see Waste Electrical and Electronic Equipment (WEEE), page 77.

WARNING 	**Hazardous chemicals and infectious agents** **[W15]** The waste contains library pools and reagents. This waste may contain toxic material and must be disposed of properly. Refer to your local safety regulations for proper disposal procedures.

2.6 Mechanical hazards

The hood of the GeneRead QIAcube must remain closed during operation of the instrument. Only open the hood when instructed to do so by the software.

WARNING 	**Moving parts** **[W16]** To avoid contact with moving parts during operation of the GeneRead QIAcube, the instrument must be operated with the hood closed. If the hood sensor is not functioning correctly, contact QIAGEN Technical Services.

Centrifuge

Make sure that the rotor and buckets are installed correctly. All buckets must be mounted before starting a protocol run, regardless of the number of library pools to be processed. If the rotor or buckets show signs of mechanical damage or corrosion, do not use the GeneRead QIAcube; contact QIAGEN Technical Services.

CAUTION 	**Damage to the instrument** **[C6]** The GeneRead QIAcube must not be used if the centrifuge lid is broken. Make sure that the rotor is installed correctly and that all buckets are properly mounted, regardless of the number of library pools to be processed. Load the rotor symmetrically according to the loading charts. Only use rotors, buckets, and consumables designed for use with the GeneRead QIAcube. Damage caused by use of other consumables will void your warranty.

In case of breakdown, caused by power failure, the centrifuge lid can be manually opened to remove the library pools (see Section 6.4.1).

WARNING 	**Moving parts** **[W17]** In case of breakdown caused by power failure, remove the power cord and wait 10 minutes before attempting to manually open the centrifuge lid.

CAUTION 	**Damage to the instrument** **[C7]** Do not manually move the z-module (pipettor head) to the front of the instrument following a power failure. Damage may occur if the cover of the GeneRead QIAcube is closed and collides with the z-module.

WARNING 	**Risk of personal injury and material damage** **[W18]** Raise the centrifuge lid carefully. The lid is heavy and may cause injury if it falls down.

CAUTION 	**Risk of overheating** **[C8]** To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the GeneRead QIAcube. Slits and openings that ensure the ventilation of the GeneRead QIAcube must not be covered.

Changing workdecks

WARNING 	**Risk of injury** **[W19]** Take care when inserting or removing the workdecks. The workdecks are heavy and may pinch your fingers.

CAUTION 	**Risk of fire** **[C9]** Take care when exchanging workdecks to avoid damaging electrical contacts.

2.7 Maintenance safety

WARNING 	**Risk of personal injury and material damage** **[W20]** Only perform maintenance that is specifically described in this user manual.

WARNING 	**Risk of explosion** **[W21]** When cleaning the GeneRead QIAcube with alcohol-based disinfectant, leave the GeneRead QIAcube hood open to allow flammable vapors to disperse. Only clean the GeneRead QIAcube when worktable components have cooled down.

WARNING 	**Risk of fire** **[W22]** Do not allow cleaning fluid or decontamination agents to come into contact with the electrical contacts of either the GeneRead QIAcube or the removed workdecks.

WARNING 	**Risk of personal injury and material damage** **[W23]** The rotor nut must be securely tightened using the rotor key supplied with GeneRead QIAcube. If the rotor nut is not tightened properly, it can become loose during operation of the centrifuge.

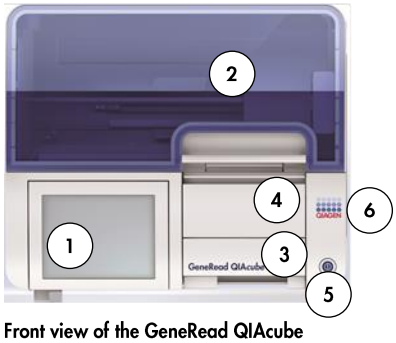
2.8 Symbols on the GeneRead QIAcube

Symbol	Location	Language	Description
	On the shaker	EN	Heat hazard – the temperature of the shaker can reach up to 70°C (158°F)
	Near the centrifuge; near the robotic arm	EN	Mechanical hazard – avoid contact with moving parts
	On the instrument	EN	Magnetic field hazard — Pacemaker wearers should maintain a distance of 50 cm (20 in.) from the magnetic field
	Type plate on the back of the instrument	EN	WEEE about the disposal of waste electrical and electronic equipment for Europe and rest of the world
	Type plate on the back of the instrument	EN	Legal manufacturer
	On the back of the instrument	EN	Consult instructions for use

3 General Description

The GeneRead QIAcube is designed to automate select QIAGEN kits. The GeneRead QIAcube controls integrated components, including a centrifuge, heated shaker, magnetic station, pipetting system and robotic gripper.

3.1 External features of the GeneRead QIAcube



Front view of the GeneRead QIAcube

Protective panel

Rear view of the GeneRead QIAcube

1	Touchscreen	6	USB port (side of instrument)
2	Hood	7	2 USB ports behind protective panel
3	Waste drawer	8	RJ-45 serial port (for use by QIAGEN Field Service Specialists only)
4	Workdeck drawer	9	Rear power switch
5	Front power switch	10	Power cord socket

Touchscreen

The touchscreen allows the user to select and run protocols and save data files. Messages displayed in the touchscreen guide the user through workdeck setup after a protocol has been selected. During processing of library pools, the touchscreen shows the protocol status and remaining time.

Hood

The GeneRead QIAcube hood protects users from the moving robotic arm. The hood can be manually opened to gain access to the workdecks. During operation of the GeneRead QIAcube, the hood must remain closed and should only be opened when instructed to do so by the software. Therefore a hood lock has been implemented to avoid unappropriated opening.

Power switch

There are two power switches on the GeneRead QIAcube. The front power switch is located at the front right of the GeneRead QIAcube. To power ON the GeneRead QIAcube, press the switch. The beeper sounds, and the startup screen appears. The instrument then automatically performs initialization tests.

To conserve energy, the GeneRead QIAcube can be powered OFF when not in use. To power OFF the GeneRead QIAcube, press the switch.

Note: There is also a main power switch located at the rear of the instrument. This switch must be turned to the "1" position for the power switch on the front to function.

Note: After powering OFF the GeneRead QIAcube, wait a few seconds before powering it ON again. In rare cases, the system could fail to start if the on/off switch is used too fast.

RJ-45 serial port

The RJ-45 serial port, located on the back of the instrument beside the power switch, is for use by QIAGEN Field Service Specialists and to establish the connection to GeneRead Link.

USB ports

Three USB ports allow connection of the GeneRead QIAcube to a USB stick. Data files, such as support package or report files, can be transferred via the USB port from the GeneRead QIAcube to the USB stick.

IMPORTANT: Do not remove the USB stick while uploading software, transferring data files or running a protocol.

Waste drawer

Used disposable filter-tips and columns are discarded through 2 slots in the worktable and collected in the waste drawer. The drawer also contains the liquid-waste bottle and a red cap.

IMPORTANT: The cap is never to be used while the machine is being operated. The cap will only be used when the user intends to empty the liquid waste. The cap is used to avoid spilling liquid during transportation/handling.

Workdeck drawer

The workdeck drawer is used to insert, load and remove workdecks from the GeneRead QIAcube.

Power cord socket

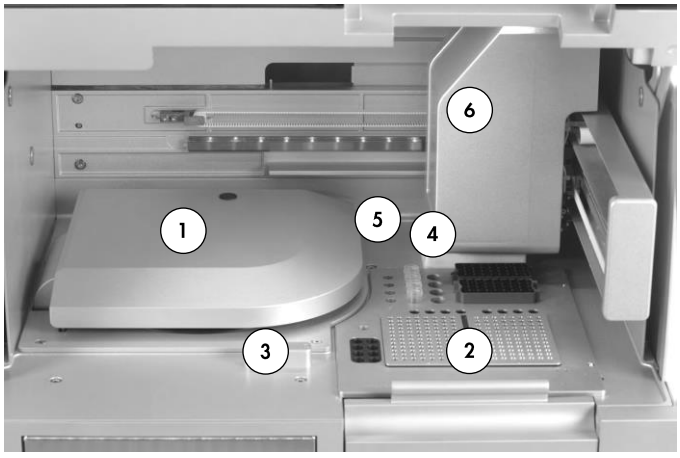
The power cord socket is located at the rear right of the GeneRead QIAcube and allows connection of the GeneRead QIAcube to a power outlet via the supplied power cord.

Cooling air outlet

Cooling air outlets are located at the left side of the GeneRead QIAcube and allow cooling of the internal components of the GeneRead QIAcube.

CAUTION 	**Risk of overheating** **[C8]** To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the GeneRead QIAcube. Slits and openings that ensure the ventilation of the GeneRead QIAcube must not be covered.

3.2 Internal features of the GeneRead QIAcube



Internal view of the GeneRead QIAcube.

1	Centrifuge	4	Disposal slots for tips and columns
2	Workdeck	5	Liquid waste disposal slot
3	Tip sensor	6	Robotic arm

Centrifuge

The centrifuge is equipped with 12 swing-out buckets, each of which can hold a disposable rotor adapter. For ease of use and high process safety, a gray line marks the side of the bucket that must face toward the center of the rotor. All centrifuge buckets must be mounted before starting a run, regardless of the number of library pools to be processed. Be sure to follow the loading instructions provided by the software to ensure correct loading of the centrifuge.

Note: The centrifuge must be symmetrically loaded. Follow instructions provided by the software.

WARNING 	**Risk of personal injury and material damage [W7]** Load tubes properly to avoid plastic crash. In the event of a plastic crash, sharp plastic particles could be inside the centrifuge. Be careful when handling items inside the centrifuge.

Rotor adapter

A disposable rotor adapter holds a QIAGEN spin column in a centrifuge bucket during library pool processing. For ease of use and high process safety, the rotor adapters are designed so that they fit into a centrifuge bucket only in the correct orientation.

The wash position of the rotor adapter is open at the bottom, enabling wash buffers to flow through and collect at the bottom of the rotor adapter during centrifugation. The other 2 positions in the rotor adapter are closed. Be sure to follow the loading instructions provided by the software.

WARNING 	**Risk of personal injury and material damage [W5]** Do not use damaged rotor adapters. The rotor adapters are for single use only. Do not reuse the rotor adapters, as they can be damaged by the high *g* forces experienced in the centrifuge.

Tip disposal slots

Disposable filter-tips are alternately discarded through each of the tip disposal slots into the waste drawer. This prevents discarded tips from piling up in the waste drawer.

Liquid waste slot

Liquid waste is discarded through this slot into the liquid waste container.

Column disposal slot

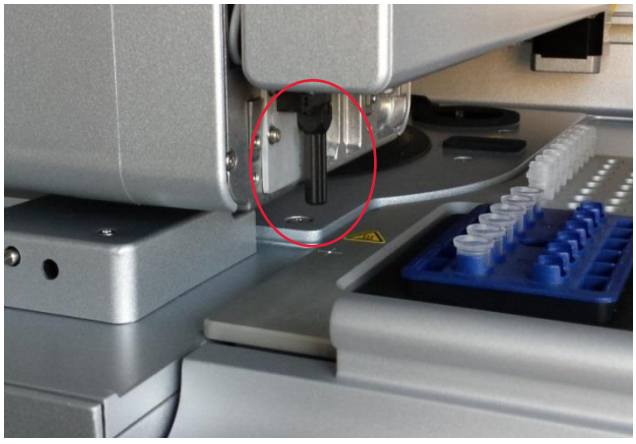
Used columns are discarded through this slot into the waste drawer.

Robotic arm

The robotic arm provides accurate and precise positioning of the robotic gripper and pipetting system on the GeneRead QIAcube worktable and also includes the optical and ultrasonic sensor.

NOTE: The ultrasonic sensor has a black beam columnator. If, for any reason, this beam columnator falls off or is missing, the instrument will display an error message to inform the user

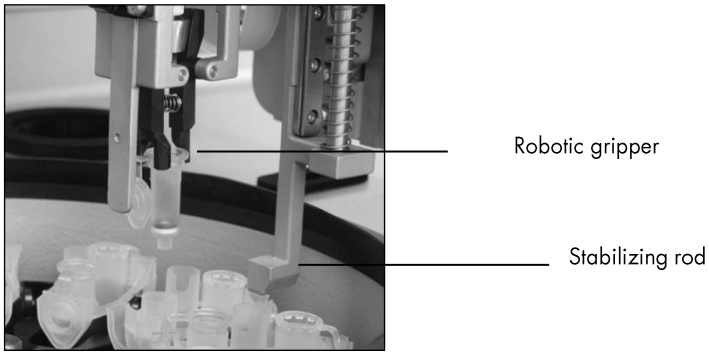
that the beam columnator is missing and the runs cannot be started. To replace the beam columnator, it needs to be manually adjusted it to its original position (see image below).



Black beam columnator (see red circle) of the ultrasonic sensor.

Robotic gripper

The robotic gripper transfers spin columns. During transfer of a spin column, a stabilizing rod holds the rotor adapter in place, ensuring it remains properly seated in the centrifuge bucket. The robotic gripper is behind the panel covering the robotic arm.



Fully automated spin-column processing.

Pipetting system

The GeneRead QIAcube is equipped with a single-channel pipetting system that moves in the X, Y and Z directions. The dilutor, fitted with a tip adapter, is connected to a precision syringe pump, which enables accurate transfer of liquids. The tip adapter allows aspiration and dispensing of liquid through an attached disposable tip. Disposable filter-tips (200 µl, 1000 µl and 1000 µl wide-bore) are used for library pool processing to minimize the risk of cross-contamination.

Workdecks

Table 2. Workdeck 1

GeneRead QIAcube workdeck position	Consumables
A	2 ml tubes (4 positions)
B	10 ml tubes (4 positions)
C	10 ml tubes (4 positions)
D	1 blue colored tip rack (200 µl tips)
E	1 light gray colored tip rack (1000 µl tips) or 1 dark gray colored tip rack (1000 µl widebore tips)
F	2 ml tube (1 position)
G	2 ml tubes, with cooling (4 positions)*
H	2 ml tubes, with cooling (4 positions)*
J	2 ml tubes, with heating (4 positions)*
K	2 ml tubes, with heating (4 positions)*
L	96-well PCR plate (1 position)
M	96-well PCR plate (1 position)

* The temperature of these positions is regulated only when the workdeck is fully inserted into the instrument.

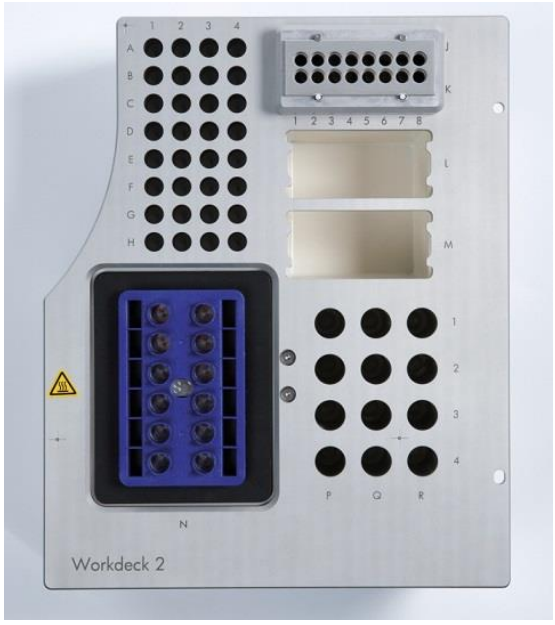


Table 3. Workdeck 2

GeneRead QIAcube workdeck position	Consumables
A–H	2 ml tubes (32 positions)
J	0.2 ml PCR tube strips (1 position) or single PCR tubes (8 positions)
K	0.2 ml PCR tube strips (1position) or single PCR tubes (8 positions)
L	1 tip rack (200 µl, 1000 µl, or 1000 µl wide-bore tips)
M	1 tip rack (200 µl, 1000 µl, or 1000 µl wide-bore tips)
N	Shaker for 2 ml tubes (12 positions)
P	10 ml tubes (4 positions)
Q	10 ml tubes (4 positions)
R	10 ml tubes (4 positions)

Shaker

The shaker adapter "2" for 2 ml tubes is preinstalled on the GeneRead QIAcube. Place 2 ml tubes into a rack that fits onto the shaker adapter. The positions on the shaker rack are numbered to enable easy loading.

Tip sensor

The tip sensor checks that the tip adapter has picked up a tip and checks whether it is a 200 µl or a 1000 µl type filter-tip.

Tip racks

Two tip racks can be placed on the GeneRead QIAcube workdeck 1 and workdeck 2. Tips can be purchased in prefilled tip racks holding 200 µl filter-tips or 1000 µl filter-tips, regular or wide bore.

Note: Only filter-tips designed for use with the GeneRead QIAcube must be used.

4 Instrument Procedures

4.1 System delivery and installation

This section provides instructions on unpacking, packing and installing the GeneRead QIAcube.

4.1.1 Requirements

Site requirements

The GeneRead QIAcube must be located out of direct sunlight, away from heat sources, and away from sources of vibration and electrical interference. Refer to Section 8 for the operating conditions (temperature and humidity). The site of installation should be free of excessive drafts, excessive moisture, and excessive dust and not be subject to large temperature fluctuations.

Refer to Section 8 for the weight and dimensions of the instrument.

Use a level workbench that is large enough and strong enough to accommodate the GeneRead QIAcube. Ensure that the workbench is dry, clean, and vibration-proof and has additional space for accessories. Approximately 85 cm (34 in.) clearance above the workbench is required to accommodate the GeneRead QIAcube instrument with the lid open. Allow at least 10 cm (4 in.) of free space behind the instrument for cabling. For further information about the required specifications of the workbench, contact QIAGEN Technical Services.

The GeneRead QIAcube must be placed within approximately 1.5 m (59 in.) of a properly grounded (earthed) AC power outlet. The power line to the GeneRead QIAcube instrument should be voltage regulated and surge protected.

Note: It is recommended to plug the instrument directly into its own power outlet and not to share the power outlet with other lab equipment. Do not place the GeneRead QIAcube on a vibrating surface or near vibrating objects.

WARNING 	**Explosive atmosphere** **[W11]** The GeneRead QIAcube is not designed for use in an explosive atmosphere.

CAUTION 	**Risk of overheating** **[C7]** To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the GeneRead QIAcube. Slits and openings that ensure the ventilation of the GeneRead QIAcube must not be covered.

WARNING 	**Risk of personal injury and material damage** **[W2]** The GeneRead QIAcube is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

Power requirements

The GeneRead QIAcube operates at:

- 100–120 V AC, 50/60 Hz, 650 VA (North America and Japan)
- 220–240 V AC, 50/60 Hz, 650 VA (Europe)

Ensure that the voltage rating of the GeneRead QIAcube is compatible with the AC voltage available at the installation site. Mains supply voltage fluctuations are not to exceed 10% of nominal supply voltages.

WARNING/ CAUTION 	**Damage to electronics** **[W9]** Before powering on the instrument make sure that the correct supply voltage is used. Incorrect use of supply voltage may damage electronics. See specifications indicated on the type plate of the instrument.

Grounding requirements

To protect operating personnel, the National Electrical Manufacturers' Association (NEMA) recommends that the GeneRead QIAcube be correctly grounded (earthed). The instrument is equipped with a 3-conductor AC power cord that, when connected to an appropriate AC power outlet, grounds (earths) the instrument. To preserve this protection feature, do not operate the instrument from an AC power outlet that has no ground (earth) connection.

Installation of AC power cord

The AC power cord connects to the socket located at the rear of the GeneRead QIAcube, and the other end to the AC power outlet.

4.2 Unpacking the GeneRead QIAcube

Before unpacking the GeneRead QIAcube, move the package to the site of installation and check that the arrows on the package point upward. In addition, check whether the package is damaged. In case of damage, contact the transporter of the package.

Open the top of the transportation box to remove the power cord before lifting the box. Remove the black foam protector lid and lift up the box.

When lifting the GeneRead QIAcube, slide your fingers under both sides of the workstation and keep your back straight.

IMPORTANT: Do not lift the GeneRead QIAcube out of the packaging by the touchscreen display (refer to Section 3.1), as this will damage the instrument.

WARNING 	**Risk of personal injury and material damage [W2]** The GeneRead QIAcube is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

After unpacking the GeneRead QIAcube, check that the following document is supplied:

- Packing list

Read the packing list to check that you have received all items. If anything is missing, contact QIAGEN Technical Services.

Check that the GeneRead QIAcube is not damaged and that there are no loose parts. If anything is damaged, contact QIAGEN Technical Services. Make sure that the GeneRead QIAcube has equilibrated to ambient temperature before operating it.

Retain the package in case you need to transport the GeneRead QIAcube in the future. Instructions for packing the GeneRead QIAcube are given in Section 4.4. Using the original package minimizes the possibility of damage during transportation of the GeneRead QIAcube.

4.3 Installing the GeneRead QIAcube

This section describes important actions that must be performed before operating the GeneRead QIAcube. These actions include:

- Removal of the GeneRead QIAcube accessories.
- Removal of the protective film from the GeneRead QIAcube hood.
- Removal of the protector for workdeck 2
- Removal of the protector for the robotic arm.
- Connection of the power cord to the back of the GeneRead QIAcube.
- Powering ON the GeneRead QIAcube and removal of workdeck 1.
- Installation of the centrifuge rotor and buckets.

Remove GeneRead QIAcube accessories

Remove the power cord from the foam packing material on top of the GeneRead QIAcube.

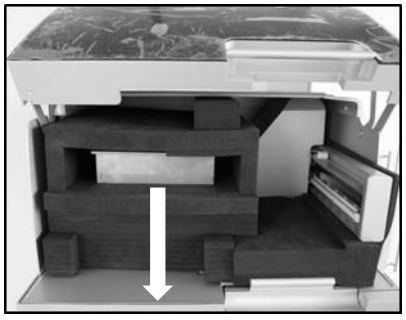
Remove the accessory bag from the waste drawer.

Removing the protective film from the GeneRead QIAcube hood

Carefully peel off the protective film from the GeneRead QIAcube hood.

Remove the foam protectors

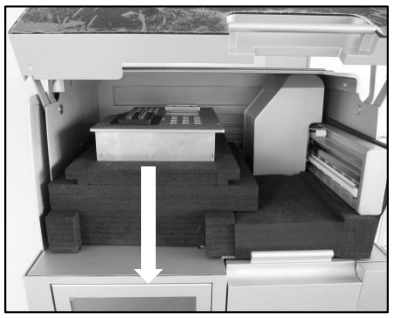
During transportation, a foam protector prevents workdeck 2 from moving inside the GeneRead QIAcube. Before using the instrument, this protector must be removed.



Foam protector for workdeck 2.

Remove the foam protector as follows:

Gently pull the foam protector towards you (see picture above).



Foam protector for workdeck 2.

Remove workdeck 2, and then the bottom foam protector from workdeck 2.

During transportation, a foam protector also prevents the movable parts of the GeneRead QIAcube from moving along the X- and Y-axes. Before moving the instrument, this protector must be removed.

Foam protector for robotic arm.

Remove the foam protector as follows:

Gently pull the foam protector towards you to remove it (see picture above).

After removing the protectors for the robotic arm, and for workdeck 2, make sure to close the GeneRead QIAcube hood.

Installation of AC power cord

1. Remove the power cord from the foam packing material on top of the GeneRead QIAcube. Ensure that the power switch is set to the OFF position.
2. Check that the voltage rating on the label at the back of the GeneRead QIAcube matches the voltage available at the installation site.
3. Plug the power cord into the power-cord socket.
4. Plug the power cord into a grounded power outlet.

4.3.1 Powering ON the GeneRead QIAcube

Check that the GeneRead QIAcube operates properly:

1. Make sure that the hood of the GeneRead QIAcube is closed.
2. Power ON the GeneRead QIAcube using the power switch.
    - The beeper sounds and the startup screen appears.
    - The instrument automatically performs initialization tests.
    - The centrifuge lid opens.
    - Workdeck 1 in drawer is released.

If there is an initialization error, check that the power cord is properly connected to the GeneRead QIAcube and power outlet. Retry the initialization process. If the problem persists, contact QIAGEN Technical Services.

Note: If you powered ON the GeneRead QIAcube before closing the hood, the instrument will not perform an initialization and the centrifuge lid will not open. Close the hood, the centrifuge lid will open and workdeck 1 will be released.

Preparing the rotor

1. Wait until the centrifuge lid opens automatically and the QIAcube hood is unlocked.
2. Open the hood of the GeneRead QIAcube. The foam protector on the rotor will be visible.

Foam protector for safe transportation of the rotor.

3. Remove the foam protector from the rotor.

Removing the foam protector from the rotor.

4. Securely tighten the rotor using the rotor key that is supplied with the GeneRead QIAcube.

Tightening the rotor using the rotor key.

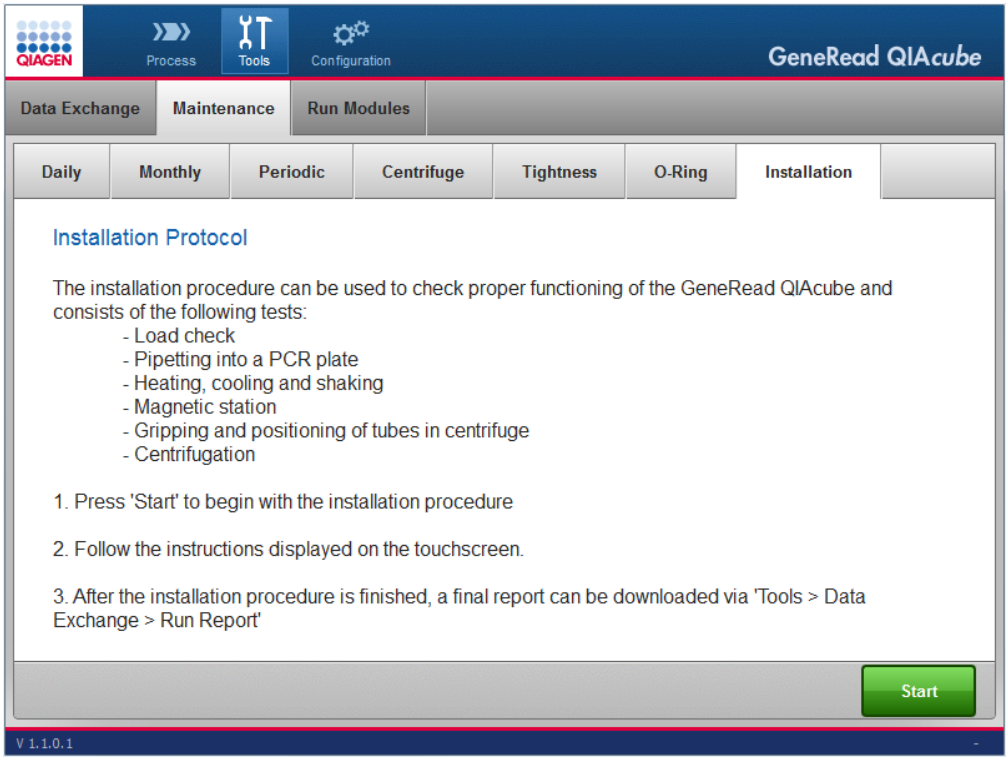
4.3.2 Installation protocol

Before operating the GeneRead QIAcube with real samples, the installation protocol can be run to confirm proper functionality of the instrument.

Note: To perform the installation protocol, the following components are necessary:

- 5 x rotor adapter [Rotor Adapters (10 x 24), cat. no. 990394]
- 5 x enrichment column (included in QIAGEN GeneRead Clonal Amp Q Kit, cat. no. 185001)
- 1 x PCR plate (included in QIAGEN GeneRead Clonal Amp Q Kit, cat. no. 185001, or Eppendorf twin.tec® PCR Plate 96, Eppendorf® cat. no. 0030133366)
- 1 x 200 µl tip rack (blue colored) [Filter-Tips, 200 µl (1024), cat. no. 990332]
- 1 x 1000 µl tip rack (light gray colored) [Filter-Tips, 1000 µl (1024), cat. no. 990352]
- 1 x 10 ml tube (included in QIAGEN GeneRead Clonal Amp Q Kit, cat. no. 185001, or Sarstedt® cat. no. 60.551)
- 2 x 2 ml tube [Sample Tubes CB (2 ml), cat. no. 990382, or Sarstedt cat. 72.608]

To run the installation protocol, from the Main menu, select Tools, then the Maintenance menu, and then the Installation tab.



There are 8 tests that will be performed:

- Load check: This test will check if the instrument load check and tip detection are working properly.
- Pipetting into PCR plate: This test will verify equal pipetting of liquid on the PCR plate.
- Heating: This test will check if the heater on workdeck 1 at positions J and K is working.
- Cooling: This test will check if the cooler on workdeck 1 at positions G and H is working.
- Shaking: This test will check if heating and shaking on workdeck 2 at position N is working.
- Magnetic station: This test will check if the magnetic station is working.
- Gripper: This test will check if the gripper is working and spin columns are handled properly.
- Centrifuge: This test will check if the centrifuge is working.

Follow the instructions displayed on the touchscreen. After the installation procedure is finished, a final report can be downloaded via Tools > Data Exchange > Run Report.

If all the tests pass, the instrument is now ready to be operated. If for any reason the installation protocol fails, contact QIAGEN Technical Services.

4.4 Packing the GeneRead QIAcube

If you need to transport the GeneRead QIAcube, the instrument must first be decontaminated (see Section 6.5) and then prepared as follows:

1. Prepare packing material. Materials required are the cardboard carton, the pallet with foam blocks, the foam lid, and the foam protector for the robotic arm.

   Note: The centrifuge lid must be open to allow access to the inside of the centrifuge. If the lid is not open, perform steps 2–5. If the lid is open, proceed with step 6.
2. Close the instrument hood.
3. On the main screen, press the Tools button.
4. In the Tools menu, press the Run Modules tab.
5. In the Run Modules menu press the Centrifuge tab and then press Open Centrifuge Lid.

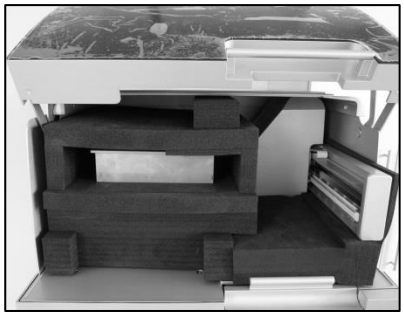
6. Open the instrument hood.
7. Place workdeck 1 in the workdeck drawer and close the drawer.
8. Close the hood.
9. On the main screen, press the Tools button.
10. In the Tools menu, press the Run Modules tab.
11. In the Run Modules menu, press the Heater tab.
12. In the Heater menu, press Lock.
13. After workdeck 1 is locked, open the hood.
14. Carefully place the foam rotor protection disk on top of the centrifuge rotor.
15. Gently press the foam rotor-protection disk down onto the rotor until resistance is felt.
16. Close the instrument hood.
17. Press Close Centrifuge Lid.
18. When the centrifuge lid is closed, power OFF the GeneRead QIAcube by both the front and rear power switches and open the hood.
19. Insert the foam protector into the front of the instrument.
20. Press the foam down between the centrifuge and the robotic arm.

Foam protector inserted between the centrifuge and the robotic arm.

21. Push the foam until the rear end touches the back wall of the instrument. Ensure that the arm is held firmly in place and cannot move.
22. Insert the bottom foam protector and workdeck 2 on the centrifuge.

Foam protector for workdeck 2.

23. Push the top of the foam protector until the front end touches the bottom of the foam.



Foam protector for workdeck 2.

24. Make sure that the GeneRead QIAcube hood can be closed properly. The hood should lightly brush against the foam.

25. Place the accessories into the waste drawer. The following accessories should be packed in air cushion bags:

- Rotor key
- Allen key
- Shaker rack plugs

19. Place the GeneRead QIAcube onto the pallet and put the black foam lid over the top of the instrument. Place the box onto the instrument. When lifting the GeneRead QIAcube, slide your fingers under both sides of the workstation and keep your back straight.

IMPORTANT: Do not lift the GeneRead QIAcube by the touchscreen display (refer to Section 3.1), as this will damage the instrument.

WARNING 	**Risk of personal injury and material damage [W2]** The GeneRead QIAcube is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.

20. Place accessories into the black foam lid. The following accessories should be packed in air cushion bags:

- Power cord

21. Seal the outside edges of the carton with tape to protect against moisture.

    Note: Using the original package minimizes potential damage during transportation of the GeneRead QIAcube.

5 Operating Procedures

WARNING 	**Moving parts** **[W16]** To avoid contact with moving parts during operation of the GeneRead QIAcube, the instrument must be operated with the hood closed. If the hood sensor is not functioning correctly, contact QIAGEN Technical Services. Check that the GeneRead QIAcube is positioned so that it is easy to access the power connector on the back of the instrument and the power switch on the front at all times, and that it is easy to power the instrument OFF and disconnect it.

WARNING 	**Risk of personal injury and material damage** **[W3]** Do not attempt to move the GeneRead QIAcube during operation.

5.1 GeneRead QIAcube software

The GeneRead QIAcube is operated through the touchscreen, which will guide you step by step through the correct loading of the workdecks and the running of protocols.

IMPORTANT: The hood of the GeneRead QIAcube must remain closed during operation of the instrument. Only open the hood when instructed to do so by the software.

5.2 Changing the workdecks

The GeneRead QIAcube contains two workdecks. This section describes how to exchange the workdecks and how to load consumables, reagents and library pools onto each of the GeneRead QIAcube workdecks.

Before proceeding, we recommend that you familiarize yourself with the features of the instrument by referring to Section 3.

For ease of loading, library pools, consumables, and reagents for each workdeck should be loaded after the workdeck is placed into the open workdeck drawer (i.e., before the workdeck drawer is closed and locked into place).

Note: The temperatures of positions G, H, J, K, L and M on workdeck 1 (refer to Table 2, page 23) are regulated only when the workdeck is fully inserted into the instrument.

Note: Once a protocol run has been defined, if the workdeck is not the correct one, the software will automatically release the workdeck.

CAUTION 	**Damage to the instrument** **[C2]** Only use QIAGEN spin columns and GeneRead QIAcube consumables with the GeneRead QIAcube. Damage caused by use of other types of spin columns or chemistries will void your warranty.

WARNING 	**Liquid handling** **[W4]** Do not insert or remove workdecks on the GeneRead QIAcube with liquids loaded. Liquids should be loaded once the workdeck has been inserted in the workdeck drawer, before the workdeck drawer is closed. In case of careless insertion or removing or workdecks, liquids may spill and contaminate work surfaces or other tubes.

WARNING 	**Risk of injury** **[W19]** Take care when inserting or removing the workdecks. The workdecks are heavy and may pinch your fingers.

Changing the workdeck.

1. Ensure that the previous step in workflow is complete and the instrument hood is unlocked.
2. Remove the waste drawer and empty solid and liquid wastes as described in Section 6.
3. Place the liquid waste bottle back into the waste drawer (the opening facing you) and slide the waste drawer back into the correct location.
4. The instrument will release the workdeck and disconnect it from power.

   Note: Cooling, heating and shaking cannot be performed during the workdeck exchange.
5. Pull the workdeck drawer into its protruding position.
6. Remove the workdeck and place it on the workbench.
7. Place the required workdeck into the matching opening in the workdeck drawer. The software will guide you through the loading of library pools, reagents and consumables.
8. Push the workdeck drawer slowly back into the instrument until the pull-in mechanism closes the drawer.
9. Close the hood, and the GeneRead QIAcube will lock the workdeck in place and start the run.

   Note: The sound of the motor indicates the positioning and connecting of the workdeck. Confirmation of successful workdeck insertion will be displayed on the touchscreen.

5.3 Setting up the GeneRead QIAcube

5.3.1 Loading the tip racks

The GeneRead QIAcube is provided with 3 types of tip racks: a rack for 200 µl filter-tips (blue-colored), a rack for 1000 µl filter-tips (light-gray colored) and a rack for 1000 µl wide-bore filter-tips (dark-gray colored). During the load check, the GeneRead QIAcube checks that the correct tip racks have been placed on the workdeck and that there are sufficient tips for the protocol run. Only use filter-tips designed for use with the GeneRead QIAcube.

GeneRead QIAcube tip racks.

IMPORTANT: Do not use damaged filter-tips. Do not load damaged tip racks onto the workdeck.

5.3.2 Loading the rotor adapters

Rotor adapters can be placed into a rotor adapter holder enabling convenient and easy loading of enrichment columns. Place enrichment columns into the appropriate positions in each rotor adapter as instructed by the software. A rotor adapter is correctly loaded with the enrichment column in Position 1 (see images below).

WARNING 	**Risk of personal injury and material damage [W7]** Load rotor adapters and enrichment columns properly to avoid plastic crash. In the event of a plastic crash, sharp plastic particles could be inside the centrifuge. Be careful when handling items inside the centrifuge and remove particles from the centrifuge.

Rotor adapter holder.

Example of enrichment column loaded into a rotor adapter.

Loading the centrifuge

Place the loaded rotor adapters into the centrifuge buckets when instructed to do so by the software. For ease of use and high process safety, the rotor adapters only fit into the centrifuge buckets in one orientation.

Note: All 12 centrifuge buckets (blue metal parts) must be mounted before starting a protocol run, even if fewer than 4 samples are to be processed; however, the number of inserted rotor adapters and enrichment columns must correspond to the number of samples according to the instruction by the software.

WARNING 	**Risk of personal injury and material damage [W5]** Do not use damaged rotor adapters. The rotor adapters are for single use only. Do not reuse the rotor adapters, as they can be damaged by the high *g* forces experienced in the centrifuge.

5.3.3 Loading the shaker

For more information about the required sample tube type (e.g., 2 ml screw-cap microtubes, Sarstedt® cat. no. 72.693.005), refer to the appropriate QIAGEN kit handbook. Load opened

tubes (without a cap) into the shaker rack on workdeck 2. The positions are numbered for ease of loading.

IMPORTANT: Load the tubes without a cap.

Note: Only use consumables that are indicated for use in the respective QIAGEN kit handbook.

Shaker rack with sample tubes.

5.3.4 Loading reagents

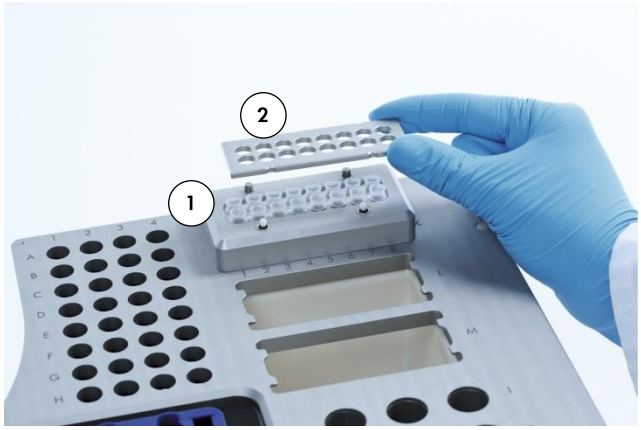
The exact volume of reagent required for a protocol depends on the number of samples. Reagent volume, tube type and the position into which the tube should be placed are defined step by step in the software. For kit-specific instructions, refer to the relevant QIAGEN kit handbook.

IMPORTANT: Because the GeneRead QIAcube does not perform a load check on these positions, it is essential to use the correct tube type filled with exactly the volume of reagent described in the protocol. Incorrect reagent volumes can lead to pipetting errors during the protocol run. Make sure to open the tubes before placing them onto the workdeck.

Note: Only use consumables that are indicated for use in the respective QIAGEN kit handbook.

5.3.5 Loading the magnetic station

Remove the cover of the magnetic station. Insert the 8-strip tubes as prompted on the screen. Reinstall the cover to properly fix the 8-strip tubes within the magnetic station.



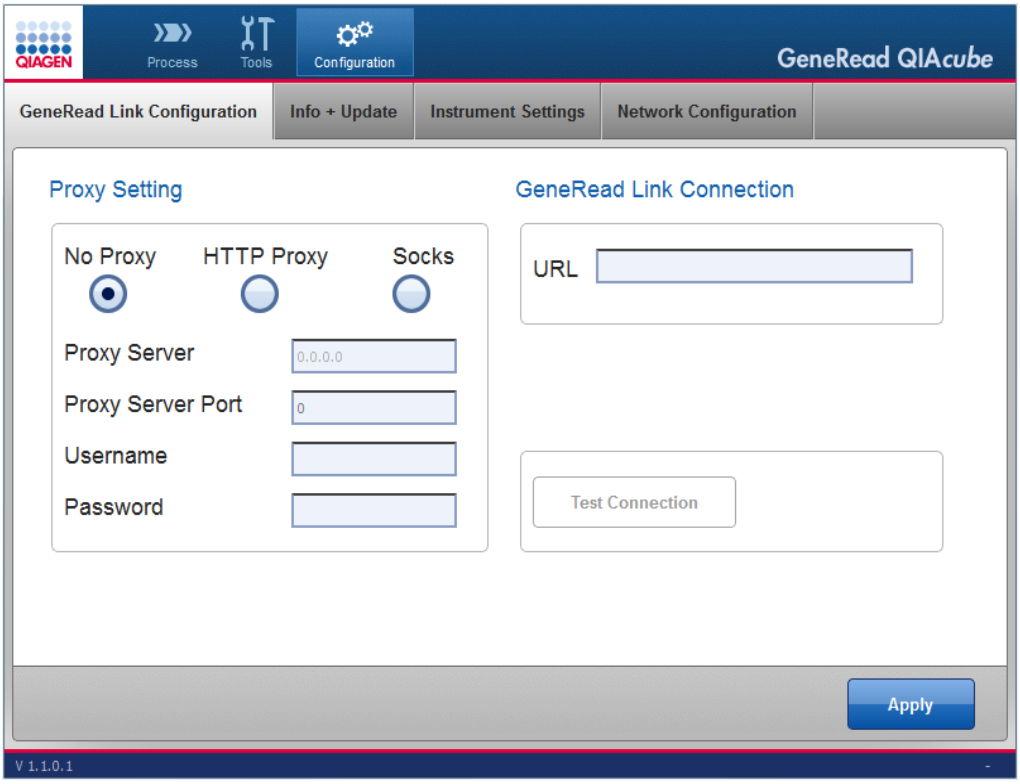
1: Magnetic station.

2: Cover of the magnetic station.

5.4 GeneRead Link

To run experiments using GeneRead Link, it must first be enabled by a QIAGEN Field Service Specialist. Once enabled, you can establish the connection to GeneRead Link following this process:

1. Ensure that the instrument is connected to the network via a LAN cable.
2. On the touchscreen go to Configuration and select the GeneRead Link Connection tab.
3. Enter the GeneRead Link settings.
4. Press Apply.



Once the connection is established, the instrument can still be used without GeneRead Link by skipping the "Select Experiment" step in the protocol.

5.5 Running a protocol

IMPORTANT: Before starting any protocol, thoroughly read the relevant QIAGEN kit handbook.

IMPORTANT: Do not open the instrument hood during a run. In the event the hood is opened during a run, the run will stop. If the tip adapter has picked up a tip, then it must be removed by hand.

For ease of loading, library pools, consumables and reagents should be loaded before the workdeck is placed into the open workdeck drawer (i.e., before the workdeck drawer is closed and locked into place).

Note: The temperature of positions H, G, J and K on workdeck 1 is only regulated when the workdeck is fully inserted into the instrument.

6 Maintenance Procedures

The following maintenance procedures must be carried out to ensure reliable operation of the GeneRead QIAcube:

- Regular maintenance – after each protocol run
- Daily maintenance – after the last protocol run of the day
- Monthly maintenance – every month
- Periodic maintenance – when necessary; at least every 6 months

Following these procedures ensures that the GeneRead QIAcube is free of dust and liquid spills.

The cleaning agent is chosen according to the goal of the cleaning procedure, the library pool material, and the downstream assay.

WARNING 	**Risk of fire** [W22] Do not allow cleaning fluid or decontamination agents to come into contact with the electrical contacts of either the GeneRead QIAcube or the removal workdecks.

Cleaning agents

The following disinfectants and detergents are recommended for cleaning the GeneRead QIAcube.

Note: If you would like to use disinfectants different from those recommended, ensure that their compositions are similar to those described below.

- General cleaning of the GeneRead QIAcube:
- Mild detergents (e.g., Mikrozid® AF sensitive)
- 70% ethanol (for cleaning the worktable only, not the GeneRead QIAcube hood)

Removal of RNase contamination

- RNaseZap® RNase Decontamination Solution (Ambion, Inc., cat. no AM9780) can be used for cleaning surfaces. Do not submerge worktable items, centrifuge rotor, or waste drawer. These should be sprayed with the decontamination agent after being removed from the instrument.

Removal of nucleic acid contamination

- DNA-ExitusPlus™ (AppliChem, cat. no. A7089,0100) can be used for cleaning surfaces. Do not submerge worktable items, centrifuge rotor or waste drawer. These should be sprayed with the decontamination agent after being removed from the instrument. DNA-ExitusPlus is very sticky and foamy. For this reason, after cleaning the items with DNA-ExitusPlus, it is required to clean the items with a wet cloth several times, or rinse them with running water, until the DNA-ExitusPlus is completely removed. This is especially important for the rotor and swing-out buckets so that the buckets do not get stuck during centrifugation and positioning.

General instructions

- Do not use spray bottles to spray cleaning liquids onto surfaces of the GeneRead QIAcube workstation. Spray bottles should be used only for items that have been removed from the workstation.
- If solvents or saline, acidic, or alkaline solutions are spilt on the GeneRead QIAcube or if QIAGEN buffers splash the instrument hood, wipe the spilt liquid away immediately.
- Follow manufacturer's safety instruction for handling cleaning agents.
- Follow manufacturer's instruction for soaking time and concentration of the cleaning agents. Immersing for longer than the recommended soak time can harm the instrument.
- Do not use alcohol or alcohol-based disinfectants to clean the GeneRead QIAcube hood. Exposing the GeneRead QIAcube hood to alcohol or alcohol-based disinfectants will cause surface cracking. Clean the GeneRead QIAcube hood with distilled water only or a mild detergent.
- Take care that no liquid runs down the touchscreen. Liquid may be drawn through the dust protection sealing by capillary forces and cause malfunction of the display. To clean the touchscreen, moisten a soft lint-free cloth with water, ethanol, or a mild detergent and carefully wipe the display. Wipe dry with a paper towel.

WARNING	**Toxic fumes** [W14] Do not use bleach to disinfect used labware. Bleach in contact with salts from the buffers used can produce toxic fumes.

WARNING	**Risk of electric shock** [W10] Do not open any panels on the GeneRead QIAcube. **Risk of personal injury and material damage** Only perform maintenance that is specifically described in this user manual.

WARNING	**Hazardous chemicals and infectious agents** [W15] The waste contains library pools and reagents. This waste may contain toxic or infectious material and must be disposed of properly. Refer to your local safety regulations for proper disposal procedures.

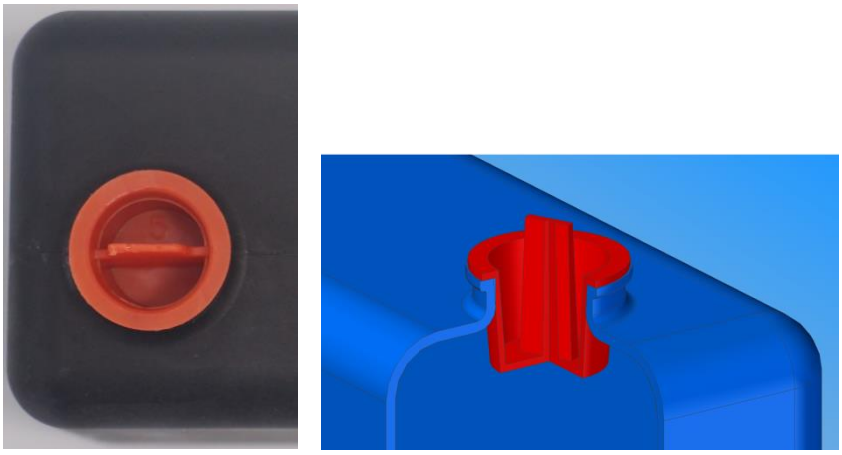
WARNING	**Risk of personal injury and material damage** [W1] Improper use of the GeneRead QIAcube may cause personal injuries or damage to the instrument. The GeneRead QIAcube must only be operated by qualified personnel who have been appropriately trained. Servicing of the GeneRead QIAcube instrument must only be performed by a QIAGEN Field Service Specialist.

WARNING	**Risk of explosion** [W21] When cleaning the GeneRead QIAcube with alcohol-based disinfectant, leave the GeneRead QIAcube hood open to allow flammable vapors to disperse. Only clean the GeneRead QIAcube when worktable components have cooled down.

6.1 Regular maintenance procedure

At the end of each run, you will be prompted by the software to empty the waste drawer and liquid waste:

1. Open the waste drawer and carefully remove the liquid waste bottle.
2. Plug the waste bottle with the waste bottle cap before transporting to the waste disposal station (see image below).



Waste bottle with cap.

3. Open the waste bottle and pour the liquid waste into a suitable laboratory liquid waste collection container. Refer to your local safety regulations for proper disposal procedures.
4. Wash the liquid waste bottle with warm water.
5. Empty the tips in the waste drawer into a suitable laboratory waste container.
6. Place the liquid waste bottle back into the liquid waste drawer and remove the waste bottle cap. After use, store the cap safely and DO NOT leave the cap within the bottle or machine. Carefully place the tip waste drawer back into the GeneRead QIAcube.
7. Remove used disposable labware and unwanted library pools and reagents from the worktable. Discard them according to your local safety regulations.

WARNING	**Fire hazard** **[W6]** Empty the liquid waste bottle before each run and make sure to place it correctly back in the GeneRead QIAcube instrument. Spilling of liquid-waste may cause an electrical short-circuit and fire.

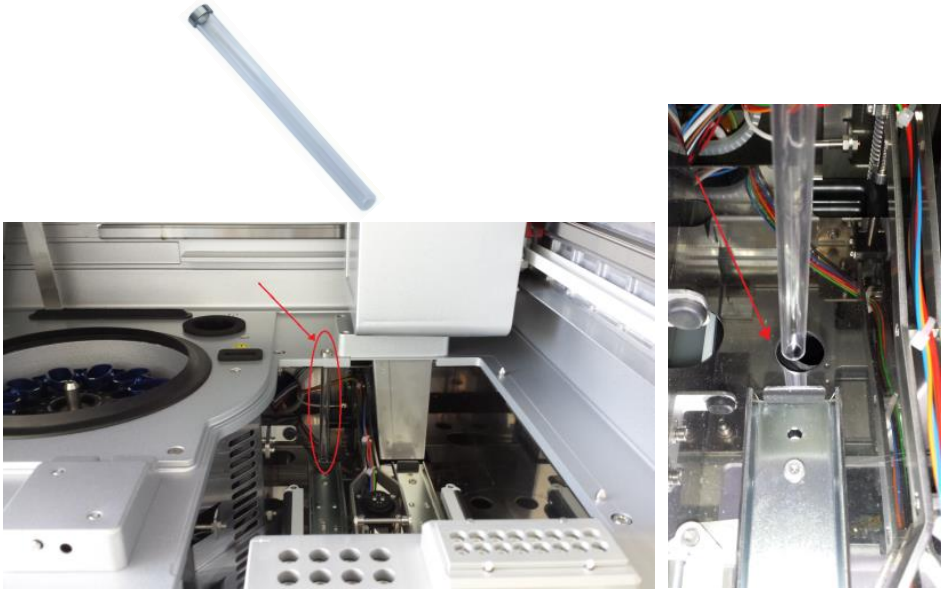
6.2 Daily maintenance procedure

After running the last protocol run of the day, perform the daily maintenance procedure:

1. Remove used disposable labware and unwanted library pools and reagents from the workdeck. Discard them according to your local safety regulations.
2. Empty the waste drawer and check that the liner is clean. If necessary, clean it with cleaning agent, and then rinse with distilled water.

Waste drawer, liner and waste bottle.

3. Remove the liquid waste pipe and check that the interface (sheet metal part) between the waste bottle and the liquid waste pipe is clean. If necessary, clean the pipe and the interface with cleaning agent and rinse with distilled water.



Liquid waste pipe, and interface between waste bottle and liquid waste pipe (red circle and arrows).

6.3 Monthly maintenance procedure

Perform the regular maintenance procedure before you perform the monthly maintenance procedure. Select the appropriate cleaning agent according to the library pool material and downstream assay.

1. Power OFF the GeneRead QIAcube at the power switch.
2. Thoroughly wipe the worktable with a soft lint-free cloth moistened with cleaning agent. Incubate as appropriate, rinse with distilled water, and wipe dry with paper towels.

3. Clean the workdeck drawer with cleaning agent. Incubate as appropriate, rinse thoroughly with distilled water, and wipe dry with paper towels.
4. Clean the shaker rack, labware tray and heating adapter with cleaning agent. Incubate as appropriate, rinse thoroughly with distilled water and wipe dry with paper towels.
5. Clean the liner of the waste drawer with cleaning agent. Incubate as appropriate, rinse with distilled water, and wipe dry with paper towels.
6. Thoroughly wipe the inside and outside of the GeneRead QIAcube using the cleaning agents.

   Note: Inspect the waste drawer and waste bottle during maintenance. Contact QIAGEN Technical Services if any broken parts are observed.

   IMPORTANT: Do not use alcohol or alcohol-based disinfectants to decontaminate the GeneRead QIAcube hood.

   IMPORTANT: Take care that no liquid runs down the touchscreen. Liquid may be drawn through the dust protection sealing by capillary forces and cause malfunction of the display. To clean the touchscreen, moisten a soft lint-free cloth with 70% ethanol or a mild disinfectant and carefully wipe the display. Wipe dry with a paper towel.

   IMPORTANT: Cover contactors and electronics with a paper towel when cleaning the column holder, gripper and stabilization rod with detergents.

6.4 Periodic maintenance procedure

Select the appropriate cleaning agent according to the library pool material and downstream assay (see Section 6, "Cleaning agents").

6.4.1 Cleaning the centrifuge

The centrifuge lid must be open to allow access to the inside of the centrifuge. The lid should be opened only after the centrifuge has come to a complete stop. If the lid does not open automatically, perform the following steps:

1. On the main screen, press the Tools button.
2. In the Tools menu, select the Run Modules tab.
3. In the Run Modules menu select the Centrifuge tab and press the Open Centrifuge Lid button.

Cleaning the rotor and buckets

1. Power OFF the GeneRead QIAcube at both the front and rear power switches, and unplug the power cord from the power outlet.
2. Remove used disposable labware, library pool tubes and reagents from the workdeck. Discard according to your local safety regulations.

3. Remove all disposable rotor adapters, including tubes and enrichment columns, from the buckets.
4. Remove the buckets from the rotor. Undo the rotor nut on top of the rotor using the rotor key, and carefully lift the rotor off the rotor shaft.

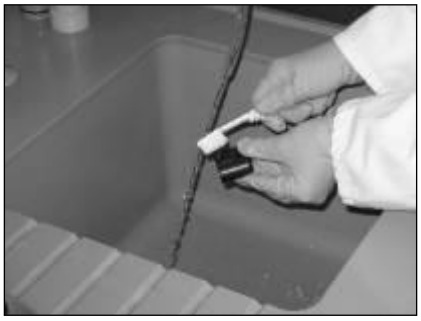
Undoing the rotor nut.

5. Submerge the rotor, buckets and rotor nut in cleaning agent. Incubate as appropriate.
6. Rinse thoroughly with distilled water. Use a brush (i.e., a toothbrush or tube brush) to clean any parts that are difficult to access, such as the bucket mount and the rotor head. Wipe surfaces dry with a soft lint-free cloth. If available, dry the buckets and rotor with pressurized air.

   IMPORTANT: Be sure to remove all traces of disinfectant from the centrifuge buckets. Residual disinfectant can cause the buckets to jam.

Rotor head.

Bucket mounts.



Brushing a bucket.

Brushing the rotor.

7. Apply a few drops of mineral oil (Anti-Corrosion Oil [rotor], cat. no. 9018543) on a soft, lint-free cloth, and wipe the bucket mount and hook that the bucket hangs on. A thin, invisible oil film should cover the bucket mount and hook, but no droplets or smear should be apparent.

   IMPORTANT: Before applying oil to the rotor buckets on the rotor, make sure that the rotor and all buckets are completely dry.

   IMPORTANT: Make sure to remove all residual salt.

   IMPORTANT: Use only lint-free paper towels and brushes.

   IMPORTANT: Be sure to remove all traces of disinfectant from the centrifuge buckets. Residual disinfectant can cause the buckets to jam.

Cleaning the centrifuge

1. Moisten a soft lint-free cloth with cleaning agent, and clean the inside of the centrifuge and the centrifuge gasket. Incubate as appropriate.

   Note: Do not spray disinfectant into the centrifuge.

2. Wipe dry with lint-free paper towels. If available, use a vacuum cleaner.

   IMPORTANT: Make sure the gaskets remain in the proper positions.

   IMPORTANT: Make sure to use lint-free paper towels.

3. Clean the centrifuge lid with a soft lint-free cloth moistened with cleaning agent. Incubate as appropriate, clean with water and wipe dry with paper towels.
4. Check the centrifuge gasket for damage. If the gasket is damaged or shows signs of wear, contact QIAGEN Technical Services.

Installing the centrifuge rotor and buckets

1. Replace the rotor buckets.

   When replacing the rotor buckets, the side of the rotor bucket that must face toward the rotor shaft is marked with a gray line. Hold the bucket at an angle with the gray line facing the centre of the rotor and hang the bucket on the rotor. Check that all buckets are properly suspended and can swing freely.

2. Mount the rotor.

   The rotor can be mounted in only one orientation. The pin on the rotor shaft fits into a notch on the underside of the rotor directly underneath rotor position 1. Line up position 1 of the rotor with the pin on the rotor shaft and carefully lower the rotor onto the shaft. Install the rotor nut on top of the rotor and tighten using the rotor key supplied with the GeneRead QIAcube. Make sure that the rotor is securely seated.

WARNING	**Risk of personal injury and material damage** **[W23]** The rotor nut must be securely tightened using the rotor key supplied with GeneRead QIAcube. If the rotor nut is not tightened properly, it can become loose during operation of the centrifuge.

IMPORTANT: All centrifuge buckets must be mounted before starting a run.

To power ON the GeneRead QIAcube after cleaning the centrifuge, refer to Section 6.6.5.

6.4.2 GeneRead QIAcube tip adapter ring replacement (O-ring replacement)

This section describes how to replace the GeneRead QIAcube tip adapter ring. The tip adapter ring only needs to be replaced if:

- The GeneRead QIAcube failed the tightness test.
- The O-ring replacement information (within the Maintenance tab on the touchscreen) displays the "overdue" warning (yellow background color), which occurs if the current tip change count is greater than the configured maximum.

Note: The following products are required for this procedure:

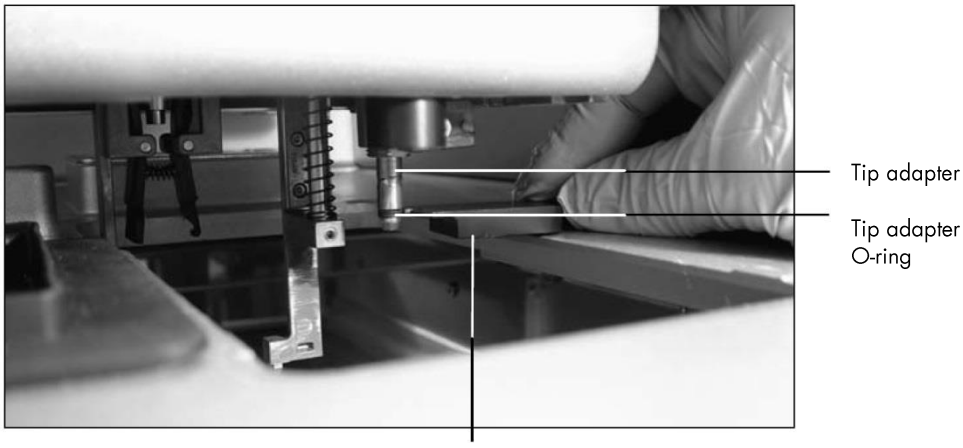
- QIAcube Tip Adapter Ring Tool (cat. no. 9018388)
- Set O-rings (10), QIAC (cat. no. 9018472)
- Or, QIAcube Tip Adapter Ring Replacement Kit, which contains cat. nos. 9018388 and 9018472 (cat. no. 9018389)

Removing the old tip-adapter ring

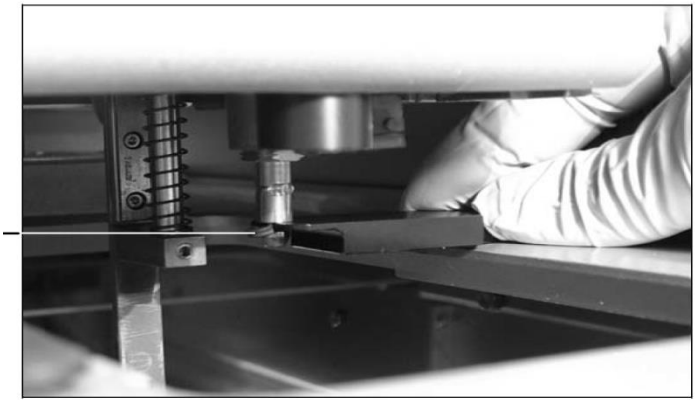
1. Access the tip adapter by following the steps below:
   a. Power ON the instrument.
   b. Select Tools in the Main menu.
   c. Select the Maintenance tab.
   d. Select the O-ring tab.
   e. Press Start to begin with the O-ring replacement procedure.

Follow the instructions displayed on the touchscreen. You will be instructed to remove the workdeck. The robotic arm will move forwards and downwards enabling the tip adapter to be accessed through the drawer opening. Open the QIAcube hood when the robotic arm has stopped moving. Open the drawer completely.

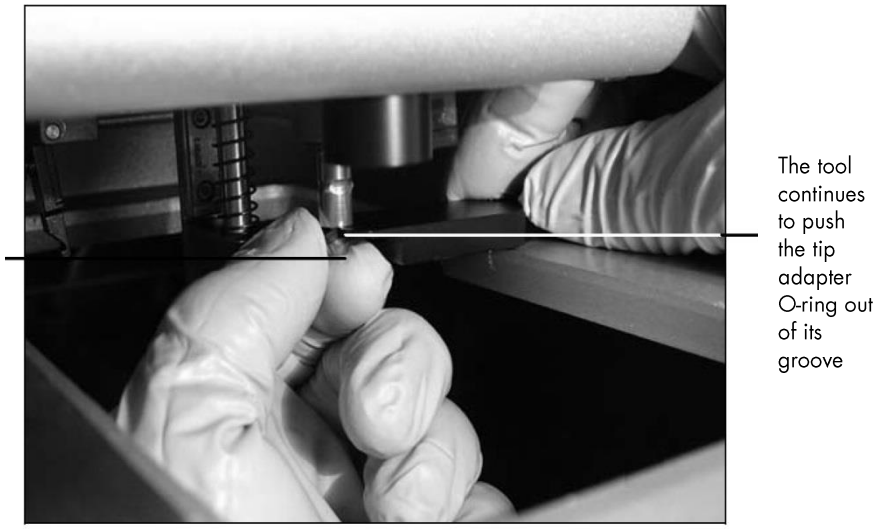
2. Using your right hand, place the QIAcube Tip Adapter Ring Tool on the QIAcube worktable to the right of the opening for the waste drawer (see image below).



3. Push the QIAcube Tip Adapter Ring Tool against the tip adapter O-ring until the O-ring is displaced from its groove. Use your left hand to steady the robotic arm (see image below).

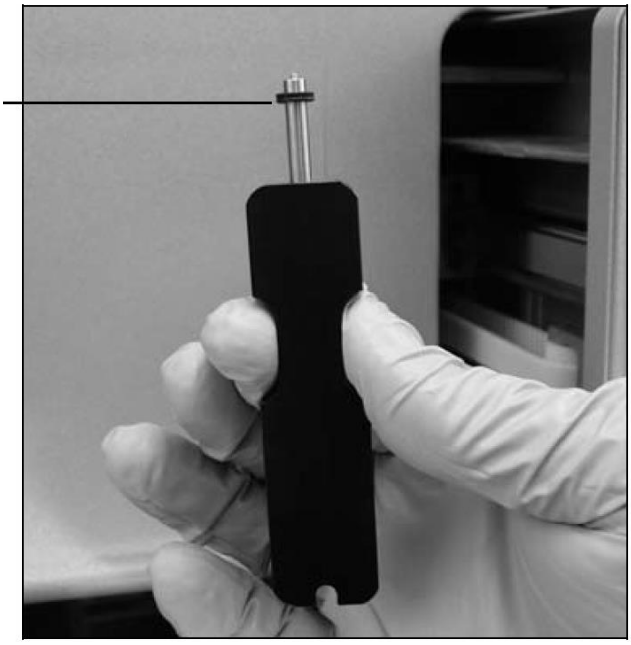


4. Using your left thumb and index finger, carefully slide the tip adapter O-ring off the tip adapter (see image below).

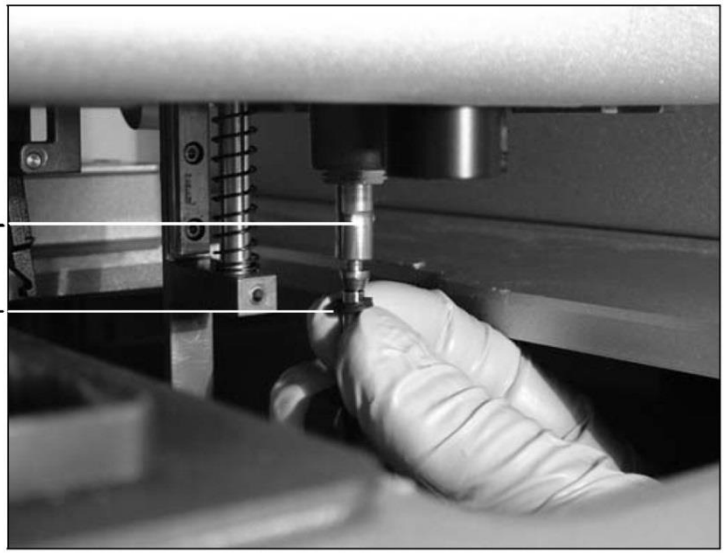


Installing a new tip-adapter O-ring

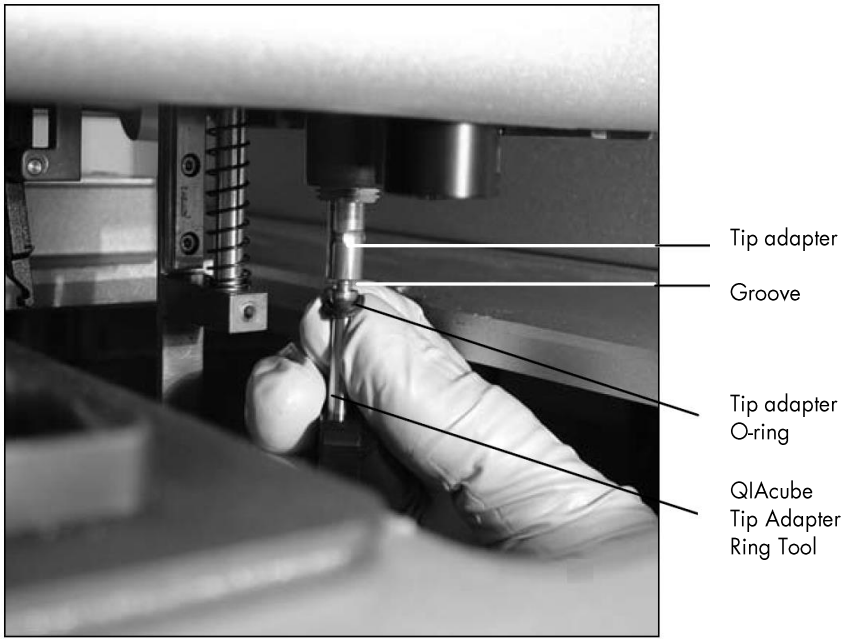
1. Place the new tip adapter O-ring onto the end of the steel shaft at the opposite end of the QIAcube Tip Adapter Ring Tool (see image below).



2. Using your right hand, position the QIAcube Tip Adapter Ring Tool up so that the end of the steel shaft is centered in the opening of the tip adapter (see image below).



3. Using the thumb and index finger of the hand that is holding the QIAcube Tip Adapter Ring Tool, carefully slide the tip adapter O-ring up onto the tip adapter, and into the groove (see image below).



4. Make sure that the tip adapter O-ring is centered in the groove. Check that the O-ring can be gently rotated and is not twisted.
5. Close the drawer and the GeneRead QIAcube hood.
6. Press Cancel and then confirm twice with OK. The GeneRead QIAcube will initialize and the robotic arm will move back to its home position.
7. Replace the labware tray and the waste drawer.
8. Run the tightness test located on the Maintenance tab.

6.5 Decontaminating the GeneRead QIAcube

If the GeneRead QIAcube is contaminated with amplified DNA templates, it should be decontaminated.

To decontaminate the GeneRead QIAcube, follow the periodic maintenance procedure in Section 6.4, using the recommended disinfection agents.

6.6 Cleaning the GeneRead QIAcube centrifuge after a plastic crash

WARNING	**Risk of personal injury and material damage [W7]** Load tubes properly to avoid plastic crash. In the event of a plastic crash, sharp plastic particles could be inside the centrifuge. Be careful when handling items inside the centrifuge.

Select the appropriate cleaning agent according to the library pool material and downstream assay (see Section 6, "Cleaning agents").

6.6.1 Opening the centrifuge lid

The centrifuge lid must be open to allow access to the inside of the centrifuge. The lid should be opened only after the centrifuge has come to a complete stop. If the lid does not open automatically, perform the following steps:

1. On the main screen, press the Tools button.
2. In the Tools menu, select the Run Modules tab. In the Run Modules menu, go to the Centrifuge tab and press Open centrifuge lid.

Cleaning the rotor and buckets

1. Power OFF the GeneRead QIAcube at both the front and rear power switches, and unplug the power cord from the power outlet.
2. Remove used disposable labware, library pool tubes and reagents from the worktable. Discard according to your local safety regulations.
3. Remove all disposable rotor adapters, including tubes and enrichment columns, from the buckets.
4. Remove the buckets from the rotor. Undo the rotor nut on top of the rotor using the rotor key, and carefully lift the rotor off the rotor shaft.

Undoing the rotor nut.

5. Submerge the rotor, buckets, rotor nut and rotor key in cleaning agent. Incubate as appropriate.
6. Rinse thoroughly with distilled water. Use a brush (i.e., a toothbrush or tube brush) to clean any parts that are difficult to access, such as the bucket mount and the rotor head. Wipe surfaces dry with a soft lint-free cloth. If available, dry the buckets and rotor with pressurized air.

   Note: It is recommended to dry using pressurized air to remove any small plastic particles adhering to the rotor or buckets. Special care must be taken to remove any plastic particles from the rotor pegs, floor and back of the centrifuge compartment, and the rotor shaft guide. When handling the bucket, pay particular attention that the bucket mount is not damaged.

Rotor head.

Bucket mounts.

Brushing a bucket.

Brushing the rotor.

7. Apply a few drops of mineral oil (Anti-Corrosion Oil [rotor], cat. no. 9018543) on a soft, lint-free cloth, and wipe the bucket mount and hook. A thin, invisible oil film should cover the bucket mount and hook, but no droplets or smear should be apparent.

   IMPORTANT: Before applying oil to the rotor buckets on the rotor, make sure that the rotor and all buckets are completely dry.

   IMPORTANT: Make sure to remove all residual plastic and salt.

   IMPORTANT: Use only lint-free paper towels and brushes.

   IMPORTANT: Be sure to remove all traces of disinfectant from the centrifuge buckets. Residual disinfectant can cause the buckets to jam.

Rotor head.

Bucket mounts.

6.6.2 Cleaning the centrifuge

1. Moisten a soft lint-free cloth with cleaning agent, and clean the inside of the centrifuge and the centrifuge gasket. Incubate as appropriate.

   Note: Do not spray disinfectant into the centrifuge.

2. Wipe dry with lint-free paper towels. If available, use a vacuum cleaner to remove any small plastic particles from the inside of the centrifuge.

   Tweezers or tape can be used to remove plastic particles from any difficult to access parts. Special care must be taken to remove any plastic particles from the rotor pegs, floor and back of the centrifuge compartment, and the rotor shaft guide.

   IMPORTANT: Make sure the gaskets remain in the proper positions.

   IMPORTANT: Make sure to use lint-free paper towels.

   IMPORTANT: Make sure all plastic particles are removed.

Plastic debris in the centrifuge.

Removing plastic debris with tape.

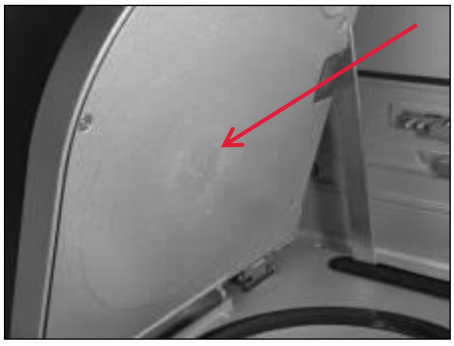
Removing plastic debris with tweezers.

IMPORTANT: Make sure to use lint-free paper towels.

IMPORTANT: Make sure that all plastic particles are removed.

IMPORTANT: Make sure the gaskets remain in the proper positions.

3. Clean the centrifuge lid with a soft lint-free cloth moistened with a cleaning agent. Incubate as appropriate, and wipe dry with paper towels.



Centrifuge lid with plastic dust.

4. Check if plastic particles are below the gasket.

5. Check the centrifuge gasket for damage. If the gasket is damaged or shows signs of wear, contact QIAGEN Technical Services.

6.6.3 Cleaning the worktable

1. Remove the workdeck and store it on the workbench.
2. Empty the waste drawer and check that the liner is clean. If necessary, clean with cleaning agent, rinse with distilled water, and wipe dry with paper towels.
3. Clean the shaker rack, labware tray, and heating adapter with cleaning agent. Incubate as appropriate, rinse thoroughly with distilled water, and wipe dry with paper towels.
4. Clean the surface of the worktable using a soft, lint-free cloth moistened with cleaning agent. Incubate as appropriate, clean with water and wipe dry with lint-free paper towels.

   IMPORTANT: Do not spray liquid onto the worktable or workdecks. Take particular care not to spray liquid onto the display.

   IMPORTANT: Make sure to use lint-free paper towels.

   IMPORTANT: Make sure that every plastic item is wiped off.

Centrifuge and worktable after cleaning.

6.6.4 Installing the centrifuge rotor and buckets

1. Replace the rotor buckets.

   When replacing the rotor buckets, the side of the rotor bucket that must face toward the rotor shaft is marked with a gray line to help prevent buckets from being loaded incorrectly. Hold the bucket at an angle with the gray line facing the centre of the rotor and hang the bucket on the rotor. Check that all buckets are properly suspended and can swing freely.

2. Mount the rotor.

   The rotor can be mounted in only one orientation. The pin on the rotor shaft fits into a notch on the underside of the rotor directly underneath rotor position 1. Line up position 1 of the rotor with the pin on the rotor shaft and carefully lower the rotor onto the shaft. Install the rotor nut on top of the rotor and tighten using the rotor key supplied with the GeneRead QIAcube. Make sure that the rotor is securely seated.

WARNING 	**Risk of personal injury and material damage** **[W23]** The rotor nut must be securely tightened using the rotor key supplied with GeneRead QIAcube. If the rotor nut is not tightened properly, it can become loose during operation of the centrifuge.

IMPORTANT: All centrifuge buckets must be mounted before starting the test run.

6.6.5 Operating the centrifuge after cleaning

The centrifuge must be operated independently before starting further runs to test if residual plastic parts are still in the centrifuge.

1. Power ON the GeneRead QIAcube at the front and back power switch.
2. Close the instrument hood.
3. On the main screen, press the Tools button.
4. In the Tools menu, select the Run Modules tab.
5. In the Run Modules menu select the Centrifuge tab. Set centrifuge time to 1 min and the centrifugation speed to 10,000 x *g*.
6. Press the Close button (centrifuge will also close automatically before centrifugation starts).
7. Press the Start button.

   Note: Rotor adapters and other consumables are not required.
8. Carefully listen to the sound during centrifugation.

Unusual sound during centrifugation

If any grinding, rattling or crunching sounds are heard during the centrifugation, there are still loose plastic particles inside the centrifuge. Repeat the cleaning procedure described in Section 6.6.

Note: It may be necessary to repeat the procedure several times to remove all plastic particles.

No unusual sound during centrifugation

If no unusual sound from loose plastic particles can be heard during centrifugation, the next library pool run can be started.

7 Troubleshooting

7.1 General information

This section provides information about what to do if an error occurs when using the GeneRead QIAcube instrument.

7.2 Contacting QIAGEN Technical Services

If an error persists and you need to contact QIAGEN Technical Services, note down the steps leading to the error and the information from any dialog boxes that appear. Create a support package file by following the steps below. This information will help the QIAGEN Technical Service Specialist to resolve the error.

7.2.1 Creating a log file package

1. On the main screen, press the **Tools** button.
2. In the **Tools** menu, press the **Data Exchange** tab and then **Support Package**.
3. Connect the USB stick to one of the 2 USB ports behind the protective panel.
4. Press **Download Support Package**. The support package is a zip file that can be sent to QIAGEN Technical Services.

7.3 Operation

	Comments and suggestions
Centrifuge	
Bucket does not swing back into place	Clean the centrifuge and rotors as described in Section 6.
Imbalance detected	Make sure the rotor is symmetrically loaded. Remove the rotor and check the centrifuge chamber for loose plasticware. Power OFF the GeneRead QIAcube, wait for a few minutes, and power it back ON again. If the error persists, contact QIAGEN Technical Services.
Imbalance detected, loud noise heard during centrifugation	Ensure that loose parts are cleared from the worktable prior to centrifuge operation to avoid loose parts jamming or damaging the centrifuge.

	Comments and suggestions
Shaker	
Insufficient library pool mixing	Observe the shaker rotation through the Plexiglas front of the instrument. In the event of incorrect shaker movement, contact QIAGEN Technical Services for repair.
Incorrect repositioning of shaker	The shaker should re-position itself towards the right side once shaking is completed. Remove any obstructions that prevent the shaker from returning to the correct position.
Robotic arm	
Robotic arm does not return to set position	Ensure that the instrument is placed on a stable, flat, and level surface as described in Section 4.
Pipettor	
Pipet tips not picked up by automatic pipettor	Make sure that the tip rack is not damaged and is correctly positioned on the worktable.
Pipet tips not disposed of correctly	Empty the waste drawer and ensure it is not broken. Perform regular maintenance, as described in Section 6.
Droplets observed on workdeck	The pipettor is dripping liquid. Contact QIAGEN Technical Services for repair.
Pipetting errors or system crash	Ensure there is no debris between the instrument and removable workdeck.
Mechanical	
Frame of instrument is distorted (e.g., uneven, unstable, or not level)	Ensure that the instrument is placed on a stable, flat, and level surface as described in Section 4.
Hood sensor error: instrument will not function	Ensure the hood is properly closed. The instrument will not function if the hood is open.
Broken instrument hood	Ensure that only the cleaning products as described in Section 6 are used on the hood.
Waste drawer jams but can still be inserted	Empty the waste drawer. Perform regular maintenance, as described in Section 6.
Broken waste drawer	Handle the waste drawer with both hands when inserting or removing the drawer.
Incorrectly inserted waste drawer	Insert the waste drawer with both hands, as described in Section 6.
Pipet tips not disposed of correctly	Make sure the top of the tip disposal slot (refer to Section 3.2) is not broken.
Scratches appear on the instrument	Always use the cleaning products as described in Section 6. Do not use bleach or ethanol, as they can damage the surface of the instrument.

	Comments and suggestions
Pipetting errors or system crash	Ensure there is no debris between the instrument and removable workdeck.
Workdeck does not return to correct position when loaded	Remove any obstructions that prevent the workdeck from loading correctly.
Electronic	
Display does not turn on	Do not touch the display with excessive force or use corrosive chemicals to clean the display surface. Contact QIAGEN Technical Services for repair.
Error when copying files to USB	Power OFF the GeneRead QIAcube, wait for a few minutes, and power it ON again. Save the file(s) to the USB stick again. Check the USB stick on a PC to ensure it is functional. If the error persists, contact QIAGEN Technical Services.
USB device not detected	Power OFF the GeneRead QIAcube, wait for a few minutes, and power it ON again. Insert the USB stick into the USB port. Check the USB stick on a PC to ensure it is functional. If the error persists, contact QIAGEN Technical Services.

7.3.1 Centrifuge

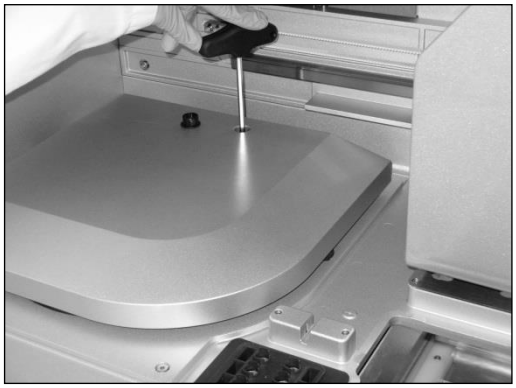
Opening the centrifuge lid in the event of a breakdown

In case of power failure, the centrifuge lid can be manually opened so that the library pools can be removed. To open the centrifuge lid, follow the instructions below.

WARNING 	**Moving parts** **[W17]** In case of breakdown caused by power failure, remove the power cord and wait 10 minutes before attempting to manually open the centrifuge lid.

WARNING 	**Risk of personal injury and material damage** **[W18]** Raise the centrifuge lid carefully. The lid is heavy and may cause injury if it falls down.

1. Power OFF the GeneRead QIAcube.
2. Unplug the power cord from the power outlet. Wait 10 min for the rotor to stop.
3. Open the instrument hood.
4. Carefully move the robotic arm to the right side of the worktable, furthest away from the centrifuge lid.
5. Remove the screw protection on top of the centrifuge lid.
6. Using the rotor wrench, turn the screw counter clockwise.



Turning the screw in the centrifuge lid.

7. Remove the waste drawer. The centrifuge release cord will be visible on the left side of the waste drawer compartment.

9. Pull the cord firmly to release the lid from the lock.

10. Manually raise the centrifuge lid.

11. Hold the raised lid and remove the library pools from the rotor.

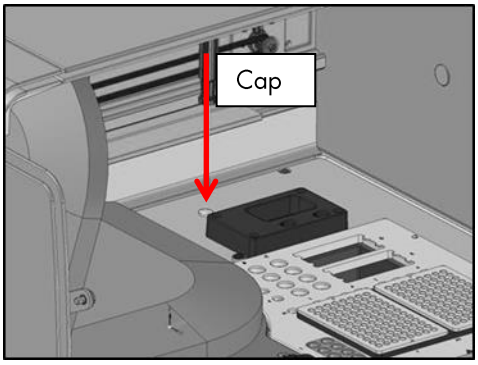
Removing library pools.

Contact QIAGEN Technical Services for instructions on how to reset the lid.

Opening the workdeck drawer in the event of a breakdown

In the event the power is lost, the workdeck must be manually released from the workdeck drawer with the following steps:

1. Open the workdeck drawer.
2. Remove the cap (see figure below).



Removing the workdeck.

3. Insert a size nr. 3 screwdriver.
4. Turn the screwdriver clockwise until the workdeck is unlocked.

Increased library pool temperature

Check the slits and openings at the bottom and the rear of the instrument.

CAUTION 	**Risk of overheating** **[C7]** To ensure proper ventilation, maintain a minimum clearance of 10 cm at the sides and rear of the GeneRead QIAcube. Slits and openings that ensure the ventilation of the GeneRead QIAcube must not be covered.

- Slits and openings for ventilation must not be covered.
- You should be able to detect an air-flow at the openings.
- If an air-flow cannot be detected, contact QIAGEN Technical Services.

Excessive noise

Excessive noise during centrifugation may indicate that there are loose parts inside the centrifuge or that the rotor is not balanced.

1. Press Cancel to stop the protocol run.
2. When the centrifuge has come to a complete stop, the lid should open. If the lid does not open follow the procedure outlined in Section 6.4.1.
3. Remove the buckets from the rotor. Undo the rotor nut on top of the rotor using the rotor key and carefully lift the rotor off the rotor shaft.
4. Check that there are no loose parts inside the centrifuge or on the rotor. Check that the rotor is loaded symmetrically. Check that the rotor, buckets, and gasket are not damaged.
5. If there are loose parts inside the centrifuge or on the rotor, clean according to Section 6.6.

Liquid spills in the centrifuge

The rotor adapter is designed for use with QIAGEN automated protocols. Do not fill the rotor adapters with liquid.

Liquid spills may occur if QIAGEN spin columns become blocked due to library pool overloading. Do not exceed the maximum amount of starting material.

Incorrect installation of the centrifuge buckets may also cause rotor adapters to leak. Check that the buckets are installed properly and can swing freely (see page 65).

If there is a liquid spill in the centrifuge, clean according to the instructions in Section 6.4.1.

8 Technical Data

QIAGEN reserves the right to change specifications at any time.

8.1 Environmental conditions – operating conditions

Power	100–120 V AC, 50/60 Hz, 650 VA (North America and Japan) 220–240 V AC, 50/60 Hz, 650 VA (Europe) Mains supply voltage fluctuations are not to exceed 10% of nominal supply voltages
Fuses	100–120 V AC instrument: 2x 8A slow 220–240 V AC instrument: 2 x 4A slow
Overvoltage category	II
Air temperature	18 to 28°C (64.4 to 82.4°F)
Relative humidity	15–75% (noncondensing)
Altitude	Up to 2000 m (6500 ft.)
Place of operation	For in-house use only
Pollution level	2
Environmental class	3K2 (IEC 60721-3-3)

8.2 Transportation conditions

Air temperature	–25°C to 60°C (–13°F to 140°F) in manufacturer's package
Relative humidity	Max. 75% (noncondensing)
Environmental class	2K2 & 2M2 (IEC 60721-3-2)

8.3 Storage conditions

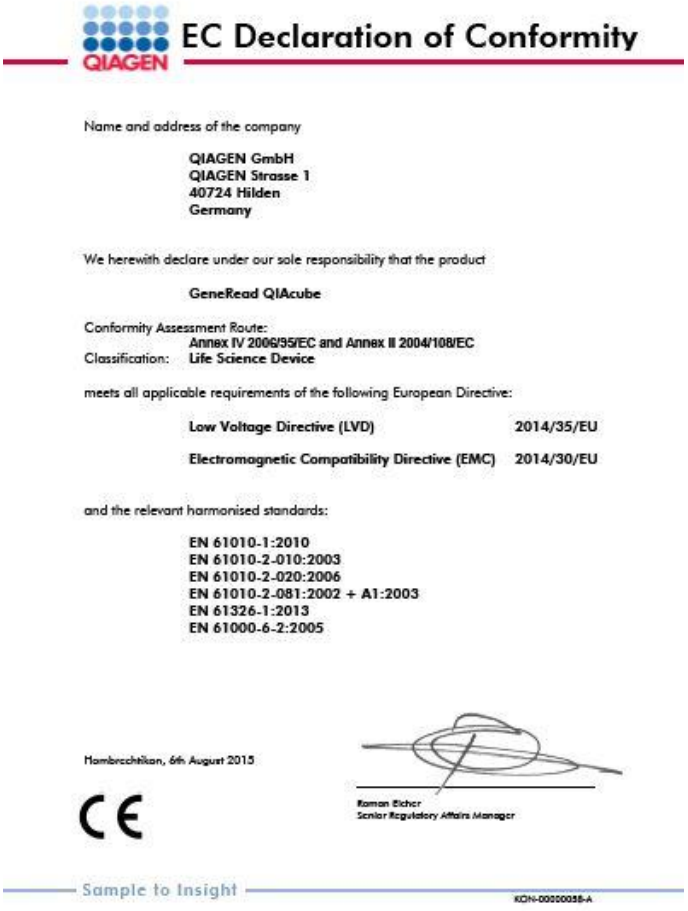
Air temperature	5°C to 40°C (41°F to 104°F) in manufacturer's package
Relative humidity	5–75% (noncondensing)
Environmental class	1K2 & 1M2 (IEC 60721-3-1)

8.4 Mechanical data and hardware features

Dimensions (hood closed)	Width: 65 cm (25.6 in.) Height: 58 cm (22.8 in.) Depth: 62 cm (24.4 in.)
Dimensions (hood open)	Width: 65 cm (25.6 in.) Height: 82 cm (32.3 in.) Depth: 62 cm (24.4 in.)
Weight	Without workdeck: 81.8 kg (180.3 lb.) Workdeck 1: 4.1 kg (9.0 lb.) Workdeck 2: 4.1 kg (9.0 lb.)
Centrifuge	• 12,000 x *g* maximum • Swing-out rotor, maximum 45° • 12 rotor positions
Shaker	• Speed 100–2000 rpm • Amplitude 2 mm • Heating range of ambient temperature to 70°C (158°F) • Ramp-up time of <5 minutes from ambient temperature to 55°C (±3°C) • Difference in the temperature detected by the internal sensor and the temperature of the library pool liquid is approximately –2°C
Pipetting system	• Syringe size 1 ml • Pipetting range 50–900 µl
Capacity	Up to 4 library pools per run

Appendix A

Declaration of Conformity



QIAGEN

EC Declaration of Conformity

Name and address of the company

QIAGEN GmbH
QIAGEN Strasse 1
40724 Hilden
Germany

We herewith declare under our sole responsibility that the product

GeneRead QIAcube

Conformity Assessment Route:
Annex IV 2006/95/EC and Annex II 2004/108/EC
Classification: **Life Science Device**

meets all applicable requirements of the following European Directive:

Low Voltage Directive (LVD)	**2014/35/EU**
Electromagnetic Compatibility Directive (EMC)	**2014/30/EU**

and the relevant harmonised standards:

EN 61010-1:2010
EN 61010-2-010:2003
EN 61010-2-020:2006
EN 61010-2-081:2002 + A1:2003
EN 61326-1:2013
EN 61000-6-2:2005

Hombrechtikon, 6th August 2015

CE

Roman Eicher
Senior Regulatory Affairs Manager

Sample to Insight

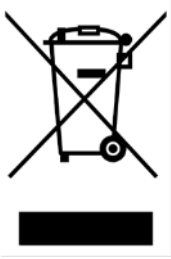
KON-00000058-A

Waste Electrical and Electronic Equipment (WEEE)

This section provides information about disposal of waste electrical and electronic equipment by users.

The crossed-out wheeled bin symbol (see below) indicates that this product must not be disposed of with other waste; it must be taken to an approved treatment facility or to a designated collection point for recycling, according to local laws and regulations.

The separate collection and recycling of waste electronic equipment at the time of disposal helps to conserve natural resources and ensures that the product is recycled in a manner that protects human health and the environment.



Recycling can be provided by QIAGEN upon request at additional cost. In the European Union, in accordance with the specific WEEE recycling requirements and where a replacement product is being supplied by QIAGEN, free recycling of its WEEE-marked electronic equipment is provided.

To recycle electronic equipment, contact your local QIAGEN sales office for the required return form. Once the form is submitted, you will be contacted by QIAGEN either to request follow-up information for scheduling collection of the electronic waste or to provide you with an individual quote.

FCC Declaration

The ''United States Federal Communications Commission'' (USFCC) (in 47 CRF 15. 105) declared that the users of this product must be informed of the following facts and circumstances.

''This device complies with part 15 of the FCC:

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.''

"This Class B digital apparatus complies with Canadian ICES-0003.''

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

QIAGEN GmbH Germany is not responsible for any radio television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connection cables and equipment other than those specified by QIAGEN GmbH, Germany. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

Liability Clause

QIAGEN shall be released from all obligations under its warranty in the event repairs or modifications are made by persons other than its own personnel, except in cases where the Company has given its written consent to perform such repairs or modifications.

All materials replaced under this warranty will be warranted only for the duration of the original warranty period, and in no case beyond the original expiration date of original warranty unless authorized in writing by an officer of the Company. Read-out devices, interfacing devices, and associated software will be warranted only for the period offered by the original manufacturer of these products. Representations and warranties made by any person, including representatives of QIAGEN, which are inconsistent or in conflict with the conditions in this warranty shall not be binding upon the Company unless produced in writing and approved by an officer of QIAGEN.

Appendix B

GeneRead QIAcube accessories and consumables

Ordering information

Product	Contents	Cat. no.
Filter-Tips, 1000 µl (1024)	Disposable Filter-Tips, racked; (8 x 128)	990352
Filter-Tips, 1000 µl, wide-bore (1024)	Disposable Filter-Tips, wide-bore, racked; (8 x 128)	990452
Filter-Tips, 200 µl (1024)	Disposable Filter-Tips, racked; (8 x 128)	990332
Rotor Adapters (10 x 24)	Disposable Rotor Adapters (240) and 1.5 ml Elution Tubes (240); for use with the GeneRead QIAcube	990394
Rotor Adapter Holder	Holder for 12 disposable rotor adapters; for use with the QIAcube	990392

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at **www.qiagen.com** or can be requested from QIAGEN Technical Services or your local distributor.

Index