

RapidHIT™ ID System Mobility Guidance

USER GUIDE

for use with:

RapidHIT™ ID System v2.0 and later

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A	1 July 2025	New document for the RapidHIT™ ID System.

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

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Get started

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This guide contains the information needed to use the RapidHIT™ ID System (Cat. No. A41810) in a mobile environment.

About the RapidHIT™ ID System

The RapidHIT™ ID System (Cat. No. [A41810](#)) is a fully automated rapid DNA analysis system designed to generate forensic DNA profiles in as little as 90 minutes, without the need for a traditional laboratory setup. The system can be used in a permanent location or deployed for use in the field.

The RapidHIT™ ID System uses the following components.

- **RapidHIT™ ID sample cartridges**—Self-contained sample cartridges include reagents and the size standard for Applied Biosystems™ STR (short tandem repeat) chemistry. The sample is added to the cartridge, then the sample cartridge is inserted into the instrument.
- **RapidHIT™ ID instrument**—The instrument provides an intuitive user interface that guides users through routine use. The primary cartridge is inserted into the instrument and integrates sample preparation and capillary electrophoresis to generate DNA profiles in 90–110 minutes.
- **RapidLINK™ Software**—When an instrument run is complete, the DNA profile is sent to the RapidLINK™ Software. In the RapidLINK™ Software, users can perform the following functions:
 - Review DNA profiles, view electropherograms, and update DNA profiles.
 - Monitor all instruments that contribute DNA profiles to the RapidLINK™ Software.

For more information about the RapidHIT™ ID System, see your RapidHIT™ ID System user guide.

About the RapidHIT™ ID Case

The RapidHIT™ ID Case is designed for the storage, transport, and field workstation support of the RapidHIT™ ID System. The case is designed to protect the system from shocks and vibrations during vehicle transportation or palletized shipment. At a field location, the RapidHIT™ ID Case can be assembled into a workstation.

The RapidHIT™ ID Case is supplied with the following internal components.

- Accessories slot and foam plug
- Computer slot and foam plug

Note: Keep the plugs to fill unused compartments in the RapidHIT™ ID Case.

The RapidHIT™ ID Case stores the following components. Any components that are not listed must be transported separately.

Note: The primary cartridge is replaced with the shipping cartridge during transportation. For more information, see “Prepare the RapidHIT™ ID System for transportation” on page 13.

- RapidHIT™ ID System
- RapidHIT™ ID System power cord
- Drip tray
- Ethernet cord (up to 6 feet)
- Computer (up to 15 inches)
- Computer power cord
- Barcode scanner

For more information about the RapidHIT™ ID Case, see the *RapidHIT™ ID Case Product Information Sheet* (Pub. No. MAN1001227).

Field workstation

The RapidHIT™ ID System is portable and can be easily moved to different sites. When setting the system up in the field, ensure that you create an efficient and safe temporary workstation tailored to the needs of the location. The temporary workstation can remain in a vehicle or be moved a short distance to a protected environment. We recommend using the RapidHIT™ ID Case for transport and setup, as it can be assembled into a workstation. Alternatively, you can transport the system in a custom case, then set up the system at a custom field workstation.

To optimize the function of the RapidHIT™ ID System at your field workstation, see Chapter 2, “Mobility use guidelines”.

Workflow validation

We recommend that you verify or validate your workflow in a mobile environment, as appropriate for the intended use of the data and any associated regulatory requirements. The Thermo Fisher Scientific HID Professional Services (HPS) team provides services to validate RapidHIT™ ID workflows. For more information, contact your local Thermo Fisher Scientific sales representative.

Parts of the RapidHIT™ ID instrument



Figure 1 Instrument front

- ① Sample cartridge port
- ② Primary cartridge (contains gel cartridge)
- ③ Power button (controls the internal computer)

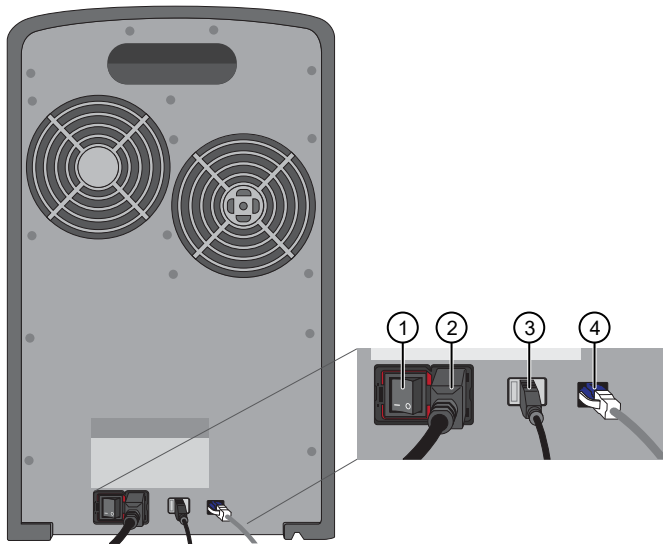


Figure 2 Instrument rear panel

- ① Main power switch
- ② Power connection
- ③ USB port for optional barcode scanner connection
- ④ Ethernet port for computer connection

The instrument also includes an internal environmental sensor that monitors temperature and humidity.

IMPORTANT! Do not lean on any part of the instrument. This action could cause damage or breakage, especially to the display screen.

Parts of the primary cartridge

The following figures show the parts of the primary cartridge. The primary cartridge comes with the shipping cover and plugs. If you need replacements, contact Thermo Fisher Scientific Technical Support.

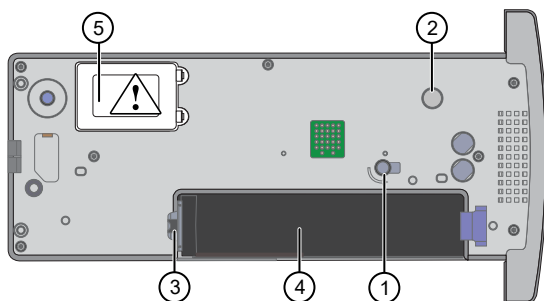


Figure 3 Parts of the primary cartridge assembled with plugs and cover

- ① Shipping plug on check valve
- ② Shipping plug on cathode block
- ③ Gel cartridge inlet
- ④ Gel cartridge slot
- ⑤ Shipping cover on capillary



CAUTION! The capillary is fragile. Handle the primary cartridge with care after you remove the capillary cover.

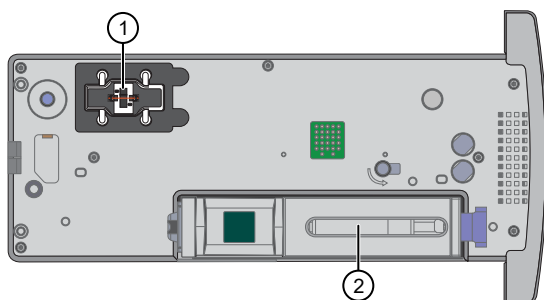


Figure 4 Parts of the primary cartridge assembled with the gel cartridge

- ① Capillary
- ② Gel cartridge



Mobility use guidelines

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RapidHIT™ ID System

Run samples on the RapidHIT™ ID System used in the mobile environment monthly to help ensure that the system continues to operate as expected. In between samples, keep the system powered on with a utility cartridge inserted in the sample cartridge port.

We recommend that you bring extra primary cartridges (Cat. No. [A53084](#)) and utility cartridges (Cat. No. [A42471](#)) to a field location. The gel cartridge can be stored either in the primary cartridge or separately. For storage information, see “Environmental requirements” on page 10.

Continuity of power supply

The RapidHIT™ ID System must be connected to a continuous power source to maintain refrigeration of the gel cartridge and timely execution of self-maintenance procedures. Power sources include the power grid, generator, or portable battery power station. All power sources must provide clean, pure sine wave AC power. Disconnection from power for more than 60 minutes, consecutively or non-consecutively, causes the gel integrity to progressively degrade and can compromise the shelf-life. Powering down the RapidHIT™ ID System during transportation, with the primary cartridge removed, is acceptable. If the system is disconnected from power for more than 60 minutes, consecutively or non-consecutively, complete an instrument performance check on restart and before running additional samples.

The RapidHIT™ ID System has two separate power switches. The switch at the rear of the instrument is the main power input. We recommend that the main power input is always connected to a power source and switched on. This puts the instrument into standby mode, enabling the on-board gel cooler to operate and keep the primary cartridge gel at 2–8°C. The switch at the front of the instrument turns on the internal computer and touchscreen display. A source of main power is always required when the instrument has a primary cartridge installed.

The switch at the front of the instrument toggles between **On** and **Standby Mode**. When not in use, leave the RapidHIT™ ID System in standby mode. A green light indicates the RapidHIT™ ID System is in standby mode, and a blue light indicates the RapidHIT™ ID System is on.

Power sources

The main power source must meet the output requirements. Power sources can include grid power, generator power, or portable power.

For more information about electrical specifications, see your RapidHIT™ ID System user guide.

Option	Description
Grid power source	The system is compatible with 100V to 240V AC Mains power.
Generator or portable power source	Thermo Fisher cannot specifically recommend a generator or portable battery power station but can instead provide general guidance on what attributes are important for performance. Vendors of these products have been known to change configuration which can negatively impact instrument performance. It is recommended to test and validate any new power source internally before purchasing many units or planning to operate the instrument with one in a remote environment. Power supply devices must use a sine wave output waveform (instead of square wave or simulated sine wave). Anything other than sine wave generates too much noise on the input power line, which can cause issues with the electronics in the instrument.

Environmental requirements

Use the RapidHIT™ ID System in a sheltered environment and on a stable surface. Set up the RapidHIT™ ID System in an upright position. The instrument operating specifications must be followed. For more information, see your RapidHIT™ ID System user guide.

Condition	Requirement
Altitude	Safety tested up to 2,600 meters (8,500 feet)
Electromagnetic interference	Do not use this instrument near sources of strong electromagnetic radiation (for example, unshielded intentional RF sources), which can interfere with the proper operation of the device.
Transient/overvoltage category	Installation categories II
Vibration	Do not install the instrument near strong vibration sources, such as a centrifuge, pump, or compressor. Excessive vibration affects instrument performance.
Pollution degree	II Do not install the instrument in an environment that has nonconductive pollutants such as dust particles or wood chips. Typical environments with a Pollution Degree II rating are laboratories and sales and commercial areas.

(continued)

Condition	Requirement
Operating conditions	15–30°C (59–86°F) Room temperature should not fluctuate $\pm 2^{\circ}\text{C}$ during an instrument run 20–80% relative humidity, noncondensing
Storage conditions	For instrument only without the primary cartridge installed: 4–40°C (39–104°F) Minimum 20% relative humidity, maximum 80% (non-condensing) IMPORTANT! - The primary cartridge, without the gel cartridge installed, requires storage at 15–30°C (59–86°F). - The gel cartridge requires storage at 2–8°C (36–46°F).
Transport conditions	–20°C to +60°C (–4°F to +140°F) Minimum 20% relative humidity, maximum 80% (non-condensing)
Other conditions	Ensure that the room is away from any vents that could expel particulate material on the components. Avoid placing the instrument and computer near heaters, cooling ducts, or in direct sunlight. Maintain about 10 cm (4 in.) of space around all sides of the instrument for air flow.

RapidLINK™ Software configuration

We recommend that the supplied Thermo Fisher Scientific computer system is co-located with the mobile instrument to enable the RapidLINK™ Software and its applications to be used. The laptop computer supplied by Thermo Fisher Scientific has a custom image for use with the RapidLINK™ Software. If you use a different computer, we cannot guarantee optimal performance of RapidLINK™ Software.

We recommend using the RapidLINK™ Software with the RapidHIT™ ID System. The software enables you to view and edit DNA profiles, and conduct instrument performance monitoring and data processing.

To ensure a secure data transfer from the RapidHIT™ ID System to the remotely located RapidLINK™ Software, maintain a stable internet connection for remote troubleshooting, reach-back support, and data transfers.

If using a computer that is remotely located from RapidHIT™ ID System (for example, a mobile hotspot or satellite), we recommend that you preconfigure the RapidHIT™ ID System and computer prior to deployment. If using a remotely located computer, contact Thermo Fisher Scientific Technical Support for more information.

Transportation

If moving the RapidHIT™ ID System on a smooth surface to a nearby room, you can transport the system on a cart. If moving on a rough surface or to a room in another building or location, enclose the RapidHIT™ ID System in the RapidHIT™ ID Case (Cat. No. [A40004464](#)) or a custom case.

If you require a shock-absorbing platform, we recommend consulting a transportation specialist to customize a solution that meets your specific needs. If a shock-absorbing platform is not available, using a dedicated mobility case can provide sufficient protection for transporting the RapidHIT™ ID System.

If the RapidHIT™ ID System is set up in a transportation vehicle, do not perform a run while the vehicle is in motion. Samples must be run only when the vehicle is stationary.

Avoid driving on unpaved roads or rough terrain, as this can damage the RapidHIT™ ID System. Rapid acceleration or deceleration can generate forces that exceed ISTA3B certified standards. You are responsible for independently assessing road conditions and driving behavior.

Thermo Fisher Scientific is not liable for damage caused by customer mishandling during transportation or at field sites. We recommend that you use the AB Assurance protection plan (Cat. No. ZG11SCRHID). If your use case demands extended or after hours support we also recommend that you use the Priority Support 24/7 service attachment (Cat. No. ZGLPSCRHID). For more information, contact your local Thermo Fisher Scientific sales representative.

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Set up a field workstation

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Prepare the RapidHIT™ ID System for transportation

In this procedure, the primary cartridge is replaced with the shipping cartridge during transportation and the instrument is disconnected from power. If you need to maintain continuity of power during transportation, see “Using a custom case” on page 18.

1. Remove the primary cartridge from the RapidHIT™ ID instrument, then insert the shipping cartridge that was delivered with the RapidHIT™ instrument.
 - a. Tap , then tap .
 - b. Tap **Yes** to confirm that you want to remove the primary cartridge.
 - c. When the insert utility cartridge screen is displayed, insert the utility cartridge into the instrument. The utility cartridge has a red label and is provided with the new primary cartridge. A countdown timer starts at 10 minutes while the instrument disengages the primary cartridge.
 - d. When the remove primary cartridge screen is displayed (~3 minutes after you insert the utility cartridge), pull the used primary cartridge out of the instrument.
 - e. When the insert primary cartridge screen is displayed, insert the shipping cartridge that was delivered with the RapidHIT™ instrument.
 - f. When the remove utility cartridge screen is displayed, remove the utility cartridge from the instrument.

Note: If you do not have a shipping cartridge, contact Thermo Fisher Scientific Technical Support.

2. (Optional) Store the primary cartridge.

For information about parts of the primary cartridge, see Figure 3 on page 8.

 - a. Cover the capillary with the shipping cover.
 - b. Insert the shipping plug on cathode block.
 - c. Insert the shipping plug on check valve, then rotate it ¼ turn clockwise.

- d. Place the cartridge into a plastic bag to protect it from damage, then store the cartridge at 2–8°C.

We recommend that you store the primary cartridge in a portable cooler or refrigerator.

Keep the primary cartridge in an upright position to prevent damage.

Note: If you discard the used primary cartridge, use proper precautions for disposal. Follow local, state, provincial, and federal regulations for disposal.

3. Ensure that the drip tray is emptied and placed in the accessories slot.
4. Press the front button to power off the instrument.
See “Parts of the RapidHIT™ ID instrument” on page 6.
5. On the instrument real panel, switch off the main power switch.
6. Unplug the ethernet cord, the RapidHIT™ ID instrument power cord, and any USB accessories.

Using the RapidHIT™ ID Case

We recommend that you transport the RapidHIT™ ID System in the RapidHIT™ ID Case. At the location, the RapidHIT™ ID Case can be assembled into a field workstation.

Pack and transport the RapidHIT™ ID System in the RapidHIT™ ID Case

1. Open all case latches, then remove the lid of the RapidHIT™ ID Case.
2. Place the RapidHIT™ ID instrument in the case bottom of the RapidHIT™ ID Case.

IMPORTANT! When lifting the RapidHIT™ ID instrument, lift using the bottom of the instrument and rear handle, not the handle on the primary cartridge.

3. *(If needed)* Place the computer in the computer slot of the RapidHIT™ ID Case.
4. Place any of the following components in the accessories slot of the RapidHIT™ ID Case.
 - RapidHIT™ ID instrument power cable
 - Drip tray
 - Ethernet cord
 - Computer power cord
 - Barcode scanner
5. Use the case plugs to fill any unused compartments.

6. Place the lid on the case bottom with the red **Front** stickers aligned, then close all the latches.



Figure 5 Case front

- ① Case lid **Front** sticker
- ② Case bottom **Front** sticker
- ③ Case lid lifting handle
- ④ Front latch

7. Use any of the following options to transport the RapidHIT™ ID Case.

IMPORTANT! Do not lift with the retractable handle.

Option	Description
Short distance transportation	
Hand-carry	With the help of at least 3 people, use the handles on each side of the case lid, then lift and carry the case to the setup location.
Rolling on case wheels	Extend the case handle, tilt the case, then roll the case to the setup location. Avoid rolling the case on uneven ground.
Long distance transportation	
Vehicle	The RapidHIT™ ID System can be transported in a vehicle when it is secured in its designated transport case. For more information, see “Transportation” on page 12. Users must comply with transport standard ISTA 3B:2017 for maintaining the integrity of their warranty and contract terms. Users are responsible for independently assessing road conditions and driving behaviour. See the RapidHIT™ ID service terms and conditions for more information.

(continued)

Option	Description
Palletized shipment	Strap the case to a pallet for shipping using the following guidelines. • The pallet must have a minimum clearance around case of 2 inches. • We recommend using reusable ratchets with webbing, or plastic based disposable strapping to secure the case in a stationary position. Use a minimum of 3 straps per side to secure the case. • For enhanced stability, secure the straps into the indents located on the case cover.

Set up a workstation using the RapidHIT™ ID Case

IMPORTANT! Due to the size and weight of the RapidHIT™ ID System while it is in the RapidHIT™ ID Case, at least 3 people are required to transfer the instrument into and out of a vehicle. For more information about the RapidHIT™ ID Case, see the *RapidHIT™ ID Case Product Information Sheet* (Pub. No. MAN1001227).

Ensure that the RapidHIT™ ID Case workstation meets the environmental requirements. For information about the environmental requirements, see “Environmental requirements” on page 10.

1. Retract the case handle.
2. Unlatch all case latches.
Ensure latches are flipped down to avoid hazards.
3. Remove the case lid, then place the lid on ground.

IMPORTANT! Ensure that the case lid is right-side up.

4. With the help of at least two people, lift the case bottom with the instrument onto the case lid, ensuring the red **Front** stickers are on the same side of the case.

IMPORTANT! Do not lift with the retractable handle.

5. Interlock the case lid and case bottom.

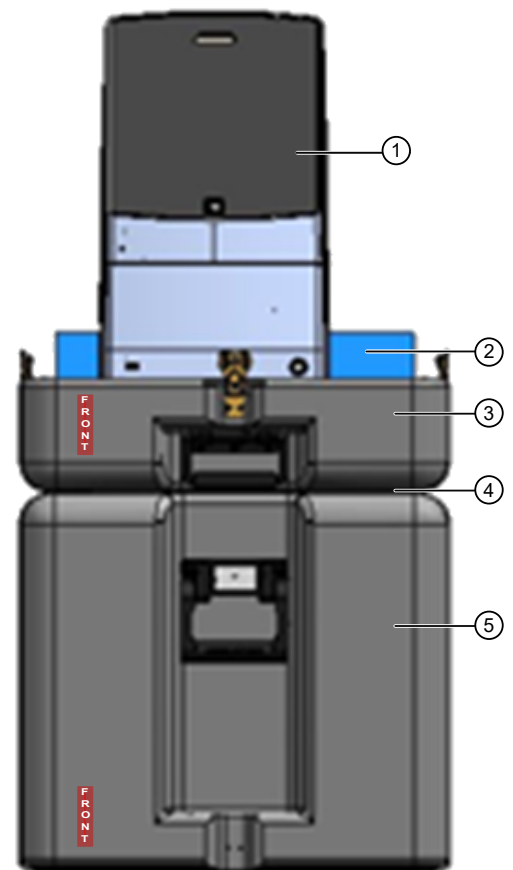


Figure 6 RapidHIT™ ID Case field workstation

- ① RapidHIT™ ID System
- ② Foam plugs and slots
- ③ Case bottom
- ④ Interlocked case lid and case bottom
- ⑤ Case lid

Using a custom case

Note: We recommend transporting and setting up the temporary workstation using the RapidHIT™ ID Case (Cat. No. [A40004464](#)). For more information about the RapidHIT™ ID Case, see the *RapidHIT™ ID Case Product Information Sheet* (Pub. No. MAN1001227).

If you need continuity of power, you can use a partially-enclosed case with openings for a power source to remain connected to the rear of the instrument. We also recommend that the case have front, bottom, and rear ventilation for airflow. For more information about the power supply, see “Continuity of power supply” on page 9.

If using a fully enclosed case, the RapidHIT™ ID System must be disconnected from the power source, disabling the on-board gel cooler that maintains the health of the primary cartridge.

IMPORTANT! When transferring the RapidHIT™ ID instrument to a custom case, lift using the bottom of the instrument and the rear handle, not the handle on the primary cartridge.

At the location, you can set up a custom field workstation and replicate a laboratory environment for temporary use in a vehicle or other sheltered environment. For information about the environmental requirements, see “Environmental requirements” on page 10.

Thermo Fisher Scientific is not responsible for instrument damage resultant of custom case operation. We recommend that the case contains vibration-absorbing foam that can dampen vibrations over 18Hz, withstand at least 20G of shock on all sides, and the instrument maintains an upright position in the case. The case can be tilted when rolling a wheeled case to the setup location.



Prepare the RapidHIT™ ID System

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Set up the RapidHIT™ ID System

1. Equilibrate the primary cartridge to room temperature (15–30°C) for at least 20 minutes.
2. Set up the RapidHIT™ ID System.
 - a. Ensure that the drip tray is emptied and is placed under the instrument.
 - b. Plug in the RapidHIT™ ID instrument power cord.
 - c. *(If needed)* Plug in the ethernet cord.
 - d. *(If needed)* Plug in any USB accessories.
3. Power on the instrument.

For more information, see your RapidHIT™ ID System user guide.
4. *(If needed)* Remove the shipping cartridge.

Follow the same instructions for removing the primary cartridge. For more information, see your RapidHIT™ ID System user guide.

IMPORTANT! Save the shipping cartridge for future use.

5. *(If needed)* Insert the primary cartridge.

Option	Action
Insert the saved primary cartridge.	1. Remove the primary cartridge from the bag. 2. Remove the capillary cover. 3. Remove the shipping plug on cathode block. 4. Rotate the shipping plug on check valve ¼ turn counter-clockwise, then remove it. 5. Insert the primary cartridge, then follow the instrument instructions. For more information, see your RapidHIT™ ID System user guide.
Insert a new primary cartridge	See your RapidHIT™ ID System user guide.

Complete an instrument performance check

If a primary cartridge is reinserted into the instrument after transportation, or if the instrument is moved to a new environment where the temperature change is greater than $\pm 5^{\circ}\text{C}$ range from the previous location, complete an instrument performance check.

1. Run a positive control cartridge.

The instrument does not accept sample cartridges until the positive control cartridge has been run.

2. *(Recommended)* Run an allelic ladder cartridge.

For more information, see your RapidHIT™ ID System user guide.



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Customer and technical support

For support, use one of the contact methods listed below, depending on your location.

Location	Contact method
In North America	Send an email to: HIDTechSupport@thermofisher.com
	Call 888-821-4443; select option 2, say "Application Support", then say "HID" or "Human Identification".
Outside North America	Contact your local support office.

For the latest services and support information for all locations, go to thermofisher.com/support to obtain the following information.

- Worldwide contact telephone numbers
- Product support
- Order and web support
- Safety Data Sheets (SDSs; also known as MSDSs)

Additional product documentation, including user guides and Certificates of Analysis, are available by contacting Customer Support.



Thermo Fisher Scientific Concierge contact information

Contact your Thermo Fisher Scientific Concierge Team or your local Field Service Engineer (FSE) for any questions you may have.

Location	Support contact information
Americas	AMER.Concierge@thermofisher.com
Asia, Pacific, Japan	APJ.Concierge@thermofisher.com
Europe, Middle East, Africa	EMEA.Concierge@thermofisher.com
Other regions	thermofisher.com/askaquestion



Limited product warranty

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

