CTS™ Xenon™ Electroporation System

Catalog Number A52727

Pub. No. 100107079 Rev. B

Product description

The CTS™ Xenon™ Electroporation System is a novel, benchtop device consisting of the CTS™ Xenon™ Electroporation Instrument, single-use consumables for performing transfection of cells, and specialized buffers.

Two types of consumable are used for performing transfection.

- The SingleShot format uses an electroporation chamber to process 2×10^7 to 1×10^8 cells in a 1 mL sample volume.
- The MultiShot format uses a cartridge and sample bags to process 1×10^8 to 2.5×10^9 cells in a 5–25 mL sample volume.

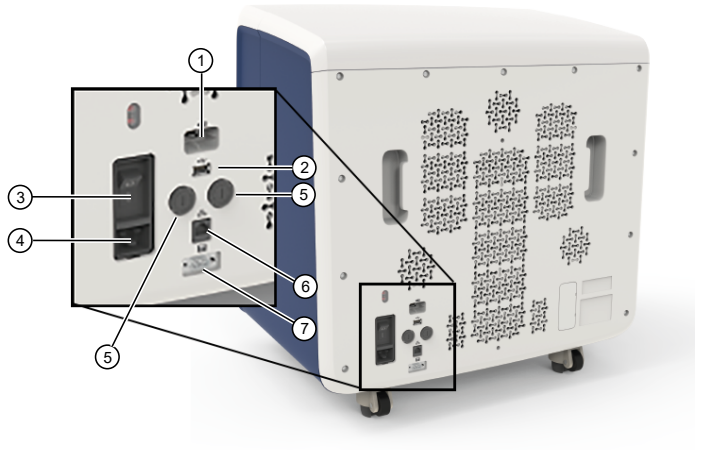
Two proprietary buffers are compatible with various cell types including primary lymphocytes and stem cells.

- The CTS™ Xenon™ Electroporation Buffer is compatible for use with a wide variety of mammalian cell types.
- The CTS™ Xenon™ Genome Editing Buffer is designed to improve performance with gene editing specific payloads.

CTS™ Xenon™ Electroporation Instrument

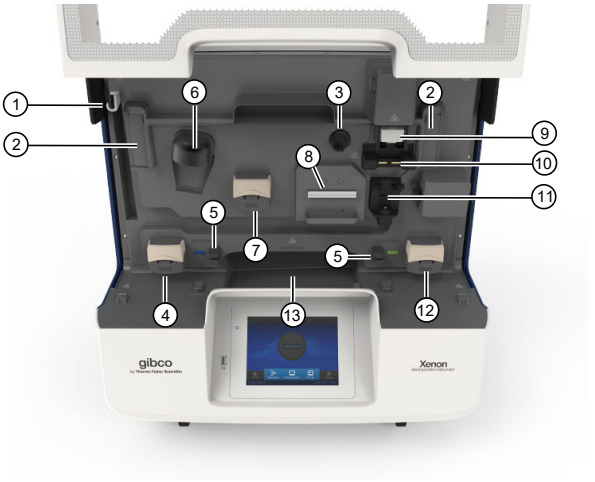
Front and rear view

① Door
② Touch screen
③ Castor with pad and wheel (× 4)
④ Grab rail (on left and right sides)



① USB wireless adaptor port
② USB 2.0 port
③ Power switch
④ Power cable inlet
⑤ Fuse compartment
⑥ Ethernet port
⑦ Peripheral interface port (RS-232)

Internal view



① Input bag hook
② Cartridge handle springboard
③ Stopcock driver
④ Input pump
⑤ Ultrasonic sensor
⑥ Mixing cup interface
⑦ Mixing cup output pump
⑧ Cooling block
⑨ Chip reader
⑩ Upper electrode mount
⑪ Electroporation chamber holder
⑫ Output pump
⑬ Output bag tray

User interface overview

Symbol	Function
Main dial	
	Use **Load protocol** to choose from a list of protocols to be used for electroporation. The main dial displays the instrument status when a protocol is run (see “Touchscreen status indicators”).
Optimization screen	
	Select an optimization protocol for a new cell type that does not have specific electroporation parameters.
Create protocol screen	
	• Create a new SingleShot protocol • Create a new MultiShot protocol • Edit an existing SingleShot protocol • Edit an existing MultiShot protocol
Run previous screen	
	Select and run a protocol from the run history

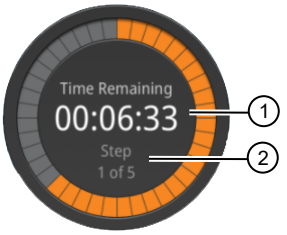
Touchscreen controls

Table 1 General touchscreen controls

Button	Function
	Returns to the previous screen
	Go to Home screen
	Go to Sign in screen
	Go to Settings screen
	Close the current modal window.

Touchscreen status indicators

Table 2 Status indicators

Button	Function
	View instrument status 1. Time remaining 2. Protocol status (step, paused, etc.)
	Indicates whether a USB device is inserted into the instrument.
	Indicates whether the Wi-Fi is on or off.
	Indicates whether the instrument is connected to wired network.
	Indicates whether the instrument is connected to the Thermo Fisher™ Connect Platform.

Electroporation parameters

The CTS™ Xenon™ Electroporation Instrument is designed to operate within specific parameters. The values and limits for each parameter are listed below. If your input value exceeds the maximum value, an error is displayed.

Parameters that can be modified include:

- **Pulse voltage** (range: 500–2,500 V)
- **Pulse width** (range: 1–30 ms)
- **Number of Pulses** (range: 1–10 pulses)
- **Pulse interval** (range: 500 ms–1 second (in 100 ms intervals))
- **Cell Type**
- **Buffer Type** (Electroporation buffer, Genome editing buffer)
- **Pulse Type** (Conventional, Reverse polarity)

SingleShot protocol

1	Prepare cells for electroporation	Prepare cell suspensions for electroporation either manually, or using an automated system such as the CTS™ Rotea™ Counterflow Centrifugation System.
2	Load SingleShot Protocol	**2.1.** Select **Load Protocol**. **2.2.** Select the **SingleShot** option, then navigate to the protocol that you want to use. **2.3.** Confirm that the protocol parameters are suitable for your procedure. **2.4.** Load the SingleShot chamber into the instrument.
3	Prepare SingleShot chamber	**3.1.** Fill the SingleShot chamber with ~1 mL of cell suspension. Allow the liquid to form a convex meniscus at the lip of the chamber to prevent bubbles from being trapped inside when the chamber is sealed. **3.2.** Attach the cap to the SingleShot chamber. Invert the electroporation chamber to ensure that there are no bubbles inside. **3.3.** Insert the SingleShot chamber into the electroporation chamber holder so that the upper and lower electrodes meet the electrical contacts.
4	Run SingleShot protocol	**4.1.** Close the instument door. **4.2.** Select **Run single shot/Electroporate** to start the electroporation process.

MultiShot protocol

1	Prepare cells for electroporation	Prepare cell suspensions for electroporation either manually, or using an automated system such as the CTS™ Rotea™ Counterflow Centrifugation System.
2	Load MultiShot Protocol	**2.1.** Select **Load Protocol**. **2.2.** Select the **MultiShot** option, then navigate to the protocol that you want to use. **2.3.** Enter the MultiShot volume. **2.4.** Load the MultiShot cartridge into the instrument.
3	Prepare MultiShot cartridge	**3.1.** Fill the input bag with up to 30 mL of cell suspension. **3.2.** Attach the input and output bags to their fluid lines. **3.3.** Insert the MultiShot cartridge into the instrument. **3.4.** Push the electroporation chamber push latch forward to engage the electroporation chamber with the electrical contacts of the instrument. **3.5.** Attach the input bag to the holder hook and place the output bag in the output bag tray. **3.6.** Route the tubes through each pump and the pre-cooling block.
4	Run MultiShot protocol	**4.1.** Enter the MultiShot volume, then select **Next**. **4.2.** Select **Transfer** to move cells from the input bag to the mixer. **4.3.** Close the instument door. **4.4.** Select **Electroporate** to start the electroporation process.

Life Technologies Holdings Pte Ltd | Block 33 | Marsiling Industrial Estate Road 3 | #07-06, Singapore 739256
For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.