E-Gel™ Power Snap Plus Electrophoresis Device

invitrogen

QUICK REFERENCE Pub. No. 100105462 Rev. D

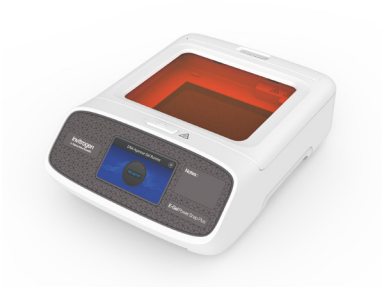
Contents

Catalog Number G9110

Components	Amount
E-Gel™ Power Snap Plus Electrophoresis Device	1 each
E-Gel™ Adapter for E-Gel™ Power Snap Plus Electrophoresis Device	1 each
Power cord with adapter	1 each
Safe Imager™ Viewing Glasses	1 each

Product description

- The Invitrogen™ E-Gel™ Power Snap Plus Electrophoresis Device is an easy-to-use automated device designed for use with pre-cast E-Gel™ agarose gels.
- Contains a power supply, blue light transilluminator and amber filter in one device.
- Compatible with precast E-Gel™, E-Gel™ EX, E-Gel™ 48 and E-Gel™ 96 Agarose Gels, as well as E-PAGE™ gels.



E-Gel™ Power Snap Plus Electrophoresis Device

E-Gel™ Power Snap Electrophoresis Device with E-Gel™ Power Snap Plus Camera

Online resources

- Visit our product pages for protocols, safety, and additional product information.
- Go online to view related E-Gel™ products.
- For support, visit thermofisher.com/support.

For Research Use Only. Not for use in diagnostic procedures.

Required materials

- DNA sample (See table of **Recommended DNA sample amounts**)
- E-Gel™ agarose gel (See Gel selection guide)
- E-Gel™ DNA Ladder (See Ladder selection guide) or equivalent DNA ladder
- (*Optional*) 1X E-Gel™ Sample Loading Buffer (Cat. No. 10482055)
- E-Gel™ Power Snap Plus Camera (Cat. No. G9200), E-Gel™ Imager, or other imager
- USB memory device

Important guidelines

- Dilute samples containing high salt concentration buffers (certain restriction enzyme and PCR buffers) 2- to 20-fold before loading.
- For E-Gel™ gels with SYBR™ Safe DNA stain dilute samples 5–10 fold.
- For E-Gel™ EX gels dilute samples 10–30 fold.
- Keep all sample volumes uniform. Load any empty wells with 1X E-Gel™ Sample Loading Buffer or deionized water.

Manufacturer: Life Technologies Holdings Pte Ltd Block 33 | Marsiling Industrial Estate Road 3 | #07-06, Singapore 739256

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Instrument setup

1. Connect the power cord to the adaptor, then plug the adaptor plug to the E-Gel™ Power Snap Plus Electrophoresis Device.
2. Plug the power cord into an electrical outlet.
3. Turn on the master switch located at the back of the device.
4. Set the date and time on the camera upon first use. See the E-Gel™ Power Snap Electrophoresis System User Guide for instructions.

Update firmware

IMPORTANT! Firmware upgrade cannot be performed while a run is in progress.

1. Insert the USB memory device with the new firmware in the USB port of the instrument.
2. Select **Settings > Firmware update**.
3. Select **Yes** to start the upgrade.

IMPORTANT! To prevent instrument malfunction and required service, do not power off the instrument during the upgrade.

When the upgrade process is complete, the instrument will automatically restart.

Touch screen controls

Symbol	Function
View gel	
	Turn on blue light transillumination back light.
Pause run	
	Pauses the protocol to allow the following actions: ▪ Adjust time of run duration ▪ Cancel the protocol
Resume run	
	Resume run after pausing.

Touch screen controls

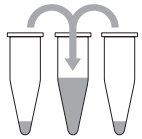
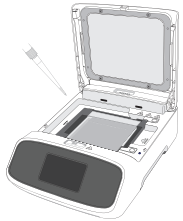
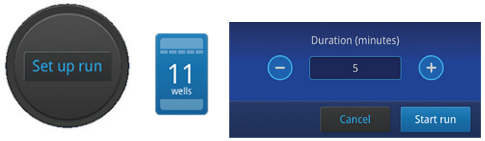
Symbol	Function
Settings	

	Gives access to the following items:
	▪ About instrument
	  ▪ see instrument model, serial no., firmware version
	  ▪ view/export EULA
	▪ Instrument settings
	  ▪ Set instrument name
	  ▪ Adjust screen brightness
	▪ Maintenance & services
	  ▪ Update firmware
	  ▪ Export instrument log
	  ▪ Perform self verification test

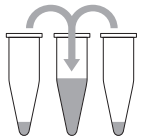
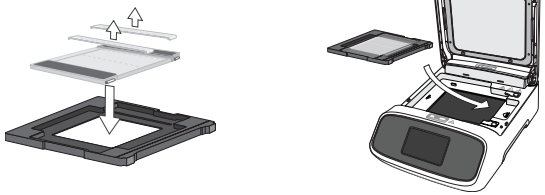
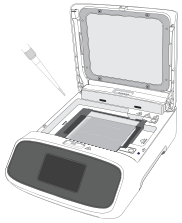
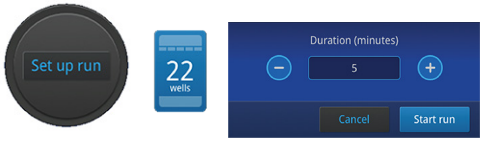
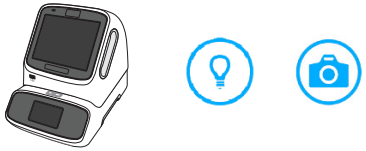
Up/Down arrows	
	Go up or down to next screen.
Back arrow	
	Return to previous screen.
Exit screen	
	Close screen.

For support, visit thermofisher.com/support.

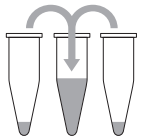
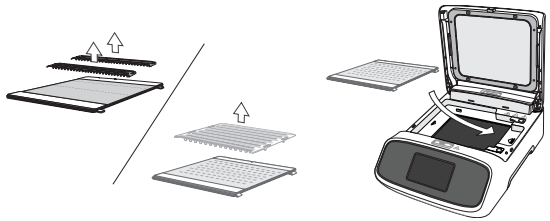
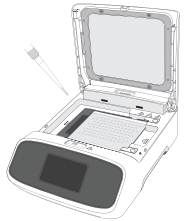
E-Gel™/E-Gel™ EX cassette DNA electrophoresis protocol

	Step		Action
1–5 min	1		**Prepare samples**	Prepare DNA samples in deionized water OR 1X E-Gel™ Sample Loading Buffer (Cat. No 10482055). ▪ For optimal separation follow guidelines from table of **Recommended DNA sample amounts**. ▪ The total sample volume is 20 µL.
10–40 min	2		**Prepare gel**	a. Remove the gel from the package and gently remove the comb from the E-Gel™ cassette, then place the cassette into the cassette adapter. Load gels within 15 minute after opening package. b. Insert gel cassette into the E-Gel™ Power Snap Plus Electrophoresis Device, starting from the right edge.
	3		**Load samples**	a. Load 20 µL of prepared sample. Keep all sample volumes uniform. b. Load 20 µL of prepared E-Gel™ DNA ladder. c. Load 20 µL of of 1X E-Gel™ Sample Loading Buffer or deionized water in all empty wells. Run gels within 1 minute after loading samples.
	4		**Run the gel**	a. Select **Set up run**. b. Select the **Category** and **Type** corresponding to the E-Gel™ cassette in the device. c. Adjust run time duration if necessary, then select **Start run**.
	5		**Check status**	▪ View gel progress anytime by selecting the **View gel** button. ▪ The run automatically stops when the protocol is complete. If necessary, select **Add time** to extend the run.
1–2 min	6		**Capture image**	a. Connect the E-Gel™ Power Snap Plus Camera to the electrophoresis unit. b. Select the **View gel** button on the camera touch screen. **Note**: Allow the gel to cool down for 5–10 minutes before image capture to enhance gel sensitivity. c. Adjust exposure time if necessary, then select **Capture** to save the image to the image gallery. d. Discard the used gel.

E-Gel™ Double Comb cassette DNA electrophoresis protocol

	Step		Action
1–5 min	1 	**Prepare samples**	Prepare DNA samples in deionized water OR 1X E-Gel™ Sample Loading Buffer (Cat. No 10482055). ▪ For optimal separation follow guidelines from table of **Recommended DNA sample amounts**. ▪ The total sample volume is 20 µL.
10–40 min	2 	**Prepare gel**	a. Remove the gel from the package and gently remove the combs from the E-Gel™ cassette, then place the cassette into the cassette adapter. Load gels within 15 minute after opening package. b. Insert gel cassette into the E-Gel™ Power Snap Plus Electrophoresis Device, starting from the right edge.
	3 	**Load samples**	a. Load 20 µL of prepared sample. Keep all sample volumes uniform. b. Load 20 µL of prepared E-Gel™ DNA ladder. c. Load 20 µL of of 1X E-Gel™ Sample Loading Buffer or deionized water in all empty wells. Run gels within 1 minute after loading samples.
	4 	**Run the gel**	a. Select **Set up run**. b. Select the **Category** and **Type** corresponding to the E-Gel™ cassette in the device. c. Adjust run time duration if necessary, then select **Start run**.
	5 	**Check status**	▪ View gel progress anytime by selecting the **View gel** button. ▪ The run automatically stops when the protocol is complete. If necessary, select **Add time** to extend the run.
1–2 min	6 	**Capture image**	a. Connect the E-Gel™ Power Snap Plus Camera to the electrophoresis unit. b. Select the **View gel** button on the camera touch screen. **Note**: Allow the gel to cool down for 5–10 minutes before image capture to enhance gel sensitivity. c. Adjust exposure time if necessary, then select **Capture** to save the image to the image gallery. d. Discard the used gel.

E-Gel™ 48/96 Comb cassette DNA electrophoresis protocol

	Step		Action
1–5 min	1 	**Prepare samples**	Prepare DNA samples in deionized water OR 1X E-Gel™ Sample Loading Buffer (Cat. No 10482055). ▪ For optimal separation follow guidelines from table of **Recommended DNA sample amounts**. ▪ The total sample volume is 15 µL (48-well) or 20 µL (96-well).
10–40 min	2 	**Prepare gel**	a. Remove the gel from the package and gently remove the comb(s) from the E-Gel™ cassette. Load gels within 15 minute after opening package. b. Insert gel cassette into the E-Gel™ Power Snap Plus Electrophoresis Device, starting from the right edge.
	3 	**Load samples**	Load wells. Keep all sample volumes uniform. Use 15 µL for 48-well gels or 20 µL for 96-well gels. a. Load prepared samples with a multichannel pipettor. b. Load prepared E-Gel™ DNA ladder inot marker wells. c. Load 1X E-Gel™ Sample Loading Buffer or deionized water in all empty wells. Run gels within 1 minute after loading samples.
	4 	**Run the gel**	a. Select **Set up run**. b. Select the **Category** and **Type** corresponding to the E-Gel™ cassette in the device. c. Adjust run time duration if necessary, then select **Start run**.
	5 	**Check status**	▪ View gel progress anytime by selecting the **View gel** button. ▪ The run automatically stops when the protocol is complete. If necessary, select **Add time** to extend the run.
1–2 min	6 	**Capture image**	a. Connect the E-Gel™ Power Snap Plus Camera to the electrophoresis unit. b. Select the **View gel** button on the camera touch screen. **Note**: Allow the gel to cool down for 5–10 minutes before image capture to enhance gel sensitivity. c. Adjust exposure time if necessary, then select **Capture** to save the image to the image gallery. d. Discard the used gel.

Troubleshooting

For detailed troubleshooting instructions see the E-Gel™ Power Snap Electrophoresis System User Guide at thermofisher.com or contact Technical Support.

Observation	Cause	Solution
No current	Cassette improperly inserted or is defective	Remove the gel cassette and re-insert the cassette correctly. Use a fresh cassette.
Poor resolution or smearing of bands	Sample overloaded	Do not load more than 200 ng of DNA per band in a volume of 20 µL.
	High salt samples	Dilute your samples 2- to 20-fold.
	Sample not loaded properly or low sample volume loaded	Do not introduce bubbles while loading samples. For best resolution, keep all sample volumes uniform and load water into empty wells.
Melted gel	Run time extended beyond recommended	Do not run the gel longer than recommended.
Sample leaking from wells	Wells damaged during comb removal	Be sure to remove the comb gently without damaging the wells.
	Sample overloaded	Load 20 µL of sample per well.
DNA sample cannot be seen	Inhibition of visualization by heat	Wait 10–15 minutes for gel to cool before visualization

Recommended DNA sample amounts

- Use the amount of DNA indicated in the following table according to the appropriate sample type. Overloading sample DNA will result in poor resolution.
- If unsure about how much DNA to use, test a range of concentrations to determine the optimal concentration for your particular sample.
- Load recommended total sample volume for each gel type.
- Keep all sample volumes uniform. If you do not have enough samples to fill all the wells of the gel, load an identical volume of deionized water into any empty wells.
- Prepare your samples by adding E-Gel™ 1X Sample Loading Buffer or deionized water to the required amount of DNA to bring the total required sample volume.

Gel type	%Agarose	Sample with single DNA band	Sample with multiple DNA bands (maximum)	Total loading volume
E-Gel™ EX	1%, 2%, 4%	0.5 ng–100 ng	50 ng	20 µL
E-Gel™ EX Double Comb	1%, 2%	0.5 ng–100 ng	50 ng	
E-Gel™ with SYBR™ Safe DNA Stain	1%, 2%, 4%	3 ng–300 ng	500 ng	
E-Gel™ with SYBR™ Safe DNA Stain Double Comb	1%, 2%	3 ng–300 ng	500 ng	
E-Gel™ 48	1%, 2%, 4%	20 ng–100 ng	500 ng	15 µL
E-Gel™ 96	1%, 2%	20 ng–100 ng	500 ng	20 µL
E-Gel™ NGS™	0.8%	200 ng–800 ng		20 µL
E-Gel™ CloneWell™ II with SYBR Safe	0.8%	200 ng–800 ng		25 µL
E-Gel™ SizeSelect™ II	2%	500 ng		25 µL
E-PAGE™ 96	6%, 8%	20 µg (protein)		15 µL

Ladder selection guide

Product	Recommended DNA ladder				
	E-Gel™ 1 Kb Plus DNA Ladder (Cat. No. 10488090)	E-Gel™ 1 Kb Plus Express DNA Ladder (Cat. No. 10488091)	E-Gel™ 96 High Range DNA Marker (Cat. No. 12352019)	E-Gel™ Sizing DNA Ladder (Cat. No. 10488100)	E-Gel™ 50 bp DNA Ladder (Cat. No. 10488099)
E-Gel™ Agarose Gels with SYBR™ Safe DNA Stain, 1%	✓	—	—	—	—
E-Gel™ Agarose Gels with SYBR™ Safe DNA Stain, 2%	—	—	—	—	✓
E-Gel™ Double Comb Agarose Gels with SYBR™ Safe DNA Stain, 1%	—	✓	✓	—	—
E-Gel™ Double Comb Agarose Gels with SYBR™ Safe DNA Stain, 2%	—	✓	—	—	—
E-Gel™ Agarose EX Gel, 1%	—	✓	—	—	—
E-Gel™ Agarose EX Gel, 2%	—	—	—	—	✓
E-Gel™ EX Double Comb Agarose Gels, 1%	—	✓	✓	—	—
E-Gel™ EX Double Comb Agarose Gels, 2%	—	—	✓	—	✓
E-Gel™ CloneWell II	—	✓	—	—	—
E-Gel™ SizeSelect II	—	—	—	✓	—
E-Gel™ NGS	✓	✓	—	—	—

Product	Recommended low range DNA ladder		Recommended RNA ladder	
	E-Gel™ Low Range Quantitative DNA Ladder (Cat. No. 12373031)	E-Gel™ Ultra Low DNA Ladder (Cat. No. 10488096)	Millennium RNA Marker (Cat. No. AM7150)	Century-Plus RNA Ladder (Cat. No. AM7145)
E-Gel™ Agarose Gels with SYBR™ Safe DNA Stain, 4%	—	✓	—	—
E-Gel™ Double Comb Agarose Gels with SYBR™ Safe DNA Stain, 2%	✓	—	—	—
E-Gel™ Agarose EX Gel, 1%	—	—	✓	—
E-Gel™ Agarose EX Gel, 2%	—	—	—	✓
E-Gel™ Agarose EX Gel, 4%	—	✓	—	—

For more ladder options visit thermofisher.com/egelladders.

For support, visit thermofisher.com/support.

Gel selection guide

Application	Product	Agarose %	Sample wells	In-gel stain	Amount	Cat. No.
Routine agarose workflow	E-Gel™ Agarose Gels with SYBR™ Safe DNA Stain, 1%	1%	11 wells	SYBR™ Safe	10 gels	A42100
					2 x 10 gels	A45202
					5 x 10 gels	A45203
	E-Gel™ Agarose Gels with SYBR™ Safe DNA Stain, 2%	2%	11 wells		10 gels	A42135
					2 x 10 gels	A45204
					5 x 10 gels	A45205
	E-Gel™ Agarose Gels with SYBR™ Safe DNA Stain, 4%	4%	11 wells		10 gels	A42136
					2 x 10 gels	A45206
	E-Gel™ Double Comb Agarose Gels with SYBR™ Safe DNA Stain, 1%	1%	22 wells		10 gels	A44884
					2 x 10 gels	A42347
	E-Gel™ Double Comb Agarose Gels with SYBR™ Safe DNA Stain, 2%	2%	22 wells		10 gels	A42348
					2 x 10 gels	A42390
Fast and ultra-sensitive DNA sample analysis	E-Gel™ Agarose EX Gel, 1%	1%	11 wells	SYBR™ Gold II	10 gels	G401001
					20 gels	G402001
	E-Gel™ Agarose EX Gel, 2%	2%	11 wells		10 gels	G401002
					20 gels	G402002
	E-Gel™ Agarose EX Gel, 4%	4%	11 wells		10 gels	G401004
	E-Gel™ EX Double Comb Agarose Gels, 1%	1%	22 wells		10 gels	A42345
					2 x 10 gels	A44887
	E-Gel™ EX Double Comb Agarose Gels, 2%	2%	22 wells		10 gels	A42346
					2 x 10 gels	A44889
Cloning workflow	E-Gel™ CloneWell™ II Agarose Gels with SYBR Safe, 0.8%	0.8%	7 wells	SYBR™ Safe	10 gels	G661818
NGS size selection workflow	E-Gel™ SizeSelect™ II Agarose Gels, 2%	2%	7 wells	SYBR™ Gold II	10 gels	G661012
	E-Gel™ NGS™ 0.8% Agarose Gels	0.8%	11 wells	SYBR™ Safe	10 gels	A25798

For high throughput or other stain options visit thermofisher.com/egel.