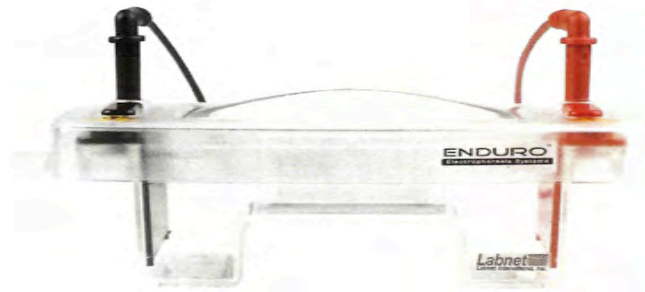


ENDURO™ Horizontal Gel System
Electrophoresis Systems **User Manual**



ENDURO 7.7

E1007-7

ENDURO 7.70

E1007-10

ENDURO 10.10

E1010-10

ENDURO 15.10

E1015-10 ←

ENDURO 15.15

E1015-15

ENDURO 20.20

E1020-20

Labnet 

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About This Manual

This manual is designed to assist you in the optimal usage of your Enduro Horizontal Gel System. The manual is available in English, French, German, Italian, Portuguese, and Spanish on our website at:

www.labnetinternational.com/document-center

Important Notice

Care and Maintenance:

These products and associated accessories should never come into contact with the following cleaning agents, as these will cause irreversible and accumulative damage:

Acetone	Chloroform	Methanol	Carbon tetrachloride
Phenol	Alkalis	Ethanol	Isopropyl alcohol

Water at temperatures above 60°C will cause damage to the acrylic tanks, trays and other parts.

The tanks should be thoroughly rinsed with warm or distilled water but vigorous cleaning is not necessary or advised. Air drying is recommended before use.

Cleaning Products and Accessories

Products are best cleaned using warm water and a mild detergent.

The units should only be cleaned with the following:

Warm water with a low concentration of soap or other compatible mild detergent. Compatible detergents include dishwashing liquid, Hexane and Aliphatic hydrocarbons. The units should not be left in detergents for more than 30 minutes

SAFETY PRECAUTION



WHEN USED CORRECTLY, THESE UNITS POSE NO HEALTH RISK. HOWEVER, THESE UNITS CAN DELIVER DANGEROUS LEVELS OF ELECTRICITY AND ARE TO BE OPERATED ONLY BY QUALIFIED PERSONNEL FOLLOWING THE GUIDELINES LAID OUT IN THIS INSTRUCTION MANUAL.

ANYONE INTENDING TO USE THIS EQUIPMENT SHOULD READ THE COMPLETE MANUAL THOROUGHLY.

THE UNIT MUST NEVER BE USED WITHOUT THE SAFETY LID CORRECTLY IN POSITION.

THE UNIT SHOULD NOT BE USED IF THERE IS ANY SIGN OF DAMAGE TO THE EXTERNAL TANK OR LID.

THESE UNITS COMPLY WITH THE STATUTORY CE SAFETY DIRECTIVES:

73/23/EEC: LOW VOLTAGE DIRECTIVE: IEC 1010-1:1990 plus AMENDMENT 1:1992

EN 61010-1:1993/BS EN 61010-1:1993

PACKING LISTS:

Labnet ENDURO 7.7 and ENDURO 7.10™

Units include tank, lid and electrodes and include the following accessories:

Buffer Volume 225 mL

	Tray	Tray Dams	Combs	Loading Guides	Cables
Labnet ENDURO 7.7	7 x 7cm (W x L)	Pack of 2	2 x 1.5mm, 8 sample	Well Visualization Strips	Black Red
Labnet ENDURO 7.10	7 x 10cm (W x L)	Pack of 2	3 x 1.5mm, 8 sample	Well Visualization Strips	Black Red

Labnet ENDURO 10.10™

Units include tank, lid and electrodes and include the following accessories:

Buffer Volume 300 mL

	Tray	Tray Dams	Combs	Loading Guides	Cables
Labnet ENDURO 10.10	10 x 10cm (W x L)	Pack of 2	2 x 1.5mm, 10 sample (Multichannel)	Well Visualization Strips	Black Red

Labnet ENDURO 15.10 and ENDURO 15.15™

Units include tank, lid and electrodes and include the following accessories:

Buffer volume 500 mL

	Tray	Tray Dams	Combs	Loading Guides	Cables
Labnet ENDURO 15.10	15 x 10cm (W x L)	Pack of 2	1 x 1.5mm, 20 sample, 1 x 1.5mm, 16 sample (Multichannel)	Well Visualization Strips	Black Red
Labnet ENDURO 15.15	15 x 15cm (W x L)	Pack of 2	1 x 1.5mm, 20 sample, 1 x 1.5mm, 16 sample (Multichannel), 1 x 1.5mm, 28 sample (Multichannel)	Well Visualization Strips	Black Red

Labnet ENDURO 20.20™

Units include tank, lid and electrodes and include the following accessories:

Buffer Volume 1200 mL

	Tray	Tray Dams	Combs	Loading Guides	Cables
Labnet ENDURO 20.20	20 x 20cm (W x L)	Pack of 2	2 x 1.5mm, 20 sample (Multichannel), 2 x 1.5mm, 40 sample (Multichannel)	Well Visualization Strips	Black Red

The packing lists should be referred to as soon as the units are received to ensure that all components have been included. The unit should be checked for damage when received, save packaging for carrier. Please contact your supplier if there are any problems or missing items.

Usage Guidance and restrictions:

- Maximum altitude 2,000m.
- Temperature range between 4°C and 60°C.
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Not for outdoor use.

This apparatus is rated POLLUTION DEGREE 2 in accordance with IEC 664.

POLLUTION DEGREE 2, states that: "Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected".

Care and Maintenance:-

Cleaning ENDURO Horizontal Units

Units are best cleaned using warm water and a mild detergent. **Water at temperatures above 60°C can cause damage to the unit and components.** The units should not be left in detergents for more than 30 minutes. The tank should be thoroughly rinsed with warm water, followed by distilled water to prevent build up of salts but care should be taken not to damage the enclosed electrode. Vigorous cleaning is not necessary or advised. Air drying is recommended before use.

The units should never come into contact with the following cleaning agents, these will cause irreversible and cumulative damage:-

Acetone, Phenol, Chloroform, Carbon tetrachloride, Methanol, Ethanol, Isopropyl alcohol, Alkalis.

RNase Decontamination

This can be performed using the following protocol:-

Clean the units with a mild detergent as described above.

Wash with 3% hydrogen peroxide (H₂O₂) for 10 minutes.

Rinse with 0.1% DEPC- (diethyl pyrocarbonate) treated distilled water.

Caution: DEPC is a suspected carcinogen. Always wear gloves and safety glasses.

RNaseZAP™ (Ambion) can also be used. Please consult the instructions for use with acrylic gel tanks.

Setting up the ENDURO Horizontal Gel Tanks:-

Instructions for attaching Electrode Leads to the lid

1. Note the position of the lid on the unit. This shows the correct polarity and the correct orientation of the cables, black is negative and red positive.
2. Remove the lid from the unit. Note if the lid is not removed, fitting the cables may result in un-tightening of the gold plug and damage to the electrode.
3. Screw the cables into the tapped holes as fully as possible so that there is no gap between the lid and the leading edge of the cable fitting.
4. Refit the lid.

Instructions for using Gel Visualization Strips



These can be fitted to the unit to enhance visibility of the wells if desired.

1. Seat the tray in the unit and note the position of the comb grooves. The samples run black to red but the trays can be used frontward or backwards so ensure that the comb grooves closest to the black electrode are marked.
2. Remove the tray.
3. Peel the back off of the loading guide and carefully apply the loading guide directly to the outside of gel box.

The unit is now ready for use.

Gel Preparation:-

1. Table 1 shows the volume of agarose solution required to make the desired agarose gel for each unit tray size. For a standard 0.7% agarose gel, add 0.7 grams of agarose to 100 mL of 1x TAE or TBE solution. The same 1 x solution should be used in the tank buffer solution.

Table 1.

ENDURO 7.7 ENDURO 7.10		ENDURO 10.10		ENDURO 15.10 ENDURO 15.15		ENDURO 20.20	
Tray	Gel volume 10 mm of gel thickness	Tray	Gel volume 10 mm of gel thickness	Tray	Gel volume 10 mm of gel thickness	Tray	Gel volume 10 mm of gel thickness
7 x 7cm	50 mL	10 x 10cm	100ml	15 x 10cm	150 mL	20 x 20cm	400 mL
7 x 10cm	70 mL			15 x 15cm	225 mL		

2. Add the agarose powder to a conical flask.
3. Add the appropriate amount of 1x TAE or TBE solution from the table above. To prevent evaporation during the dissolving steps below, the conical flask should be covered.
4. Dissolve the agarose powder by heating the agarose either on a magnetic hot plate with stirring bar or in a microwave oven. If using the microwave method, mark the level of the solution on the container. The microwave should be set at around a 400 watt or medium setting and the flask swirled every minute. The solution should be heated until all crystals are dissolved. This is best viewed against a light background. Crystals appear as translucent. These will interfere with sample migration if not completely dissolved. Once the agarose is completely dissolved add ddi water to the solution to the marked level.

The gel must be cooled to between 50°C and 60°C degrees before pouring.

Gel Pouring:

1. Fit the casting dams over each end of the tray and place onto a level surface. The dams should be fitted so that there is no gap between the sides of the tray and the groove in the dams. This will ensure that there is no possibility of gel leakage.



2. Place the comb(s) in the grooves. Each tray has more than one comb groove so that multiple combs can be used. Using multiple combs increases sample number available per gel but decreases run length. Care must be taken to ensure that samples from the first wells do not migrate into the lanes of the second comb wells.



3. Pour in the agarose carefully so as not to generate bubbles. Any bubbles that do occur can be smoothed to the edge of the gel and dispersed using a pipette tip.
4. Allow the agarose to set, on a flat surface; the agarose will become opaque once solidified.

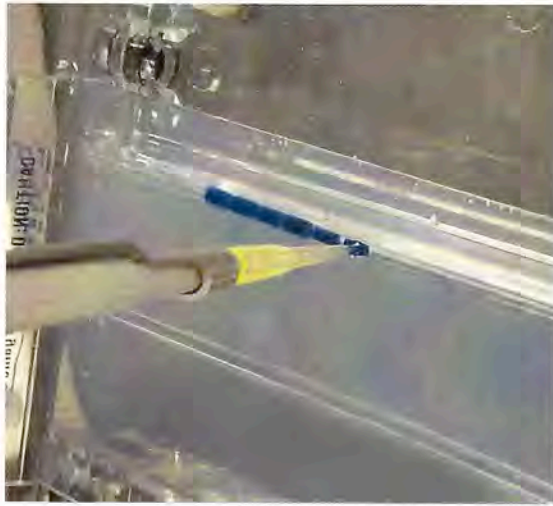
5. Carefully remove the gel casting gates and comb and transfer the gel tray to the main tank.

Running the Gel:-

1. Mix the sample to be loaded with sample buffer – see page 9 for sample buffers. Usually 3ul of sample buffer is adequate but less may be used with sample volumes of less than 10ul.
2. Fill the tank with buffer until the gel is just flooded. This will give the fastest resolution times. For enhanced sample resolution, fill the unit to 5mm above the gel.

Note: DNA, and RNA have a net negative charge and will migrate towards the anode.

3. Load the samples into the wells using pipettes. When using MC compatible combs load samples with a Multi-channel pipette, see listing in accessories page 11 for identification of these.



4. Carefully place the lid on the tank and connect to a power supply.

5. Typically gels are run at between 90 and 150 volts. Maximum voltages are indicated on the serial number of each unit. It should be noted that higher voltages generally give faster but poorer quality sample resolution.

NOTE: Use only power supplies equipped with no-load and ground fault detection



Gel Staining and Viewing:-

1. Transfer the gel to a vessel containing the appropriate volume of 0.5 µg/mL ethidium bromide stain for 15–30 minutes, see solutions on page 9. The entire gel should be covered.

NOTE: Ethidium bromide is a suspected carcinogen and the necessary safety precautions should be undertaken. Always wear protective clothing, gloves and safety glasses

2. De-stain the gel for 10–30 minutes in distilled water again ensuring the gel is completely immersed.
3. Rinse the gel twice for 10 seconds with distilled water.
4. Transfer the gel to a UV Transilluminator.
5. The samples will often appear as brighter, clearer bands when photographed or viewed using a gel documentation system.

Solutions:

1x TAE 40 mM Tris (pH 7.6), 20 mM acetic acid, 1 mM EDTA.

50x (1L) dissolve in 750 ml distilled water:

242 g Tris base (FW = 121)

57.1 ml glacial acetic acid

100 ml 0.5 M EDTA (pH 8.0).

Fill to 1 liter with distilled water.

1x TBE 89 mM Tris (pH 7.6), 89 mM boric acid, 2 mM EDTA

10x (1L) dissolve in 750 ml distilled water:

108 g Tris base (FW = 121)

55 g boric acid (FW = 61.8)

40 ml 0.5 M EDTA (pH 8.0)

Fill to 1 liter with distilled water.

Sample Loading Dye

10x sample buffer stock consists of 50% glycerol, 0.25% bromophenol blue, and 0.25% xylene cyanole FF in 1x TAE buffer. Only 1–10 mL of the 10x loading dye should be prepared.

Ethidium Bromide Solution 10mg/ml

Add 10 mg of Ethidium Bromide to 1 mL distilled water.

Accessories List

Additional accessories available. Contact Labnet International for details.

Combs for ENDURO 7.7 & ENDURO 7.10 Labnet Cat No.	Description	Comb Thickness (mm)	Approximate Sample Volume	Multichannel Compatible
E1107-16-1.5	Comb 16 sample	1.5	5mm gel 15ul	No
E1107-12MC-1.5	Comb 12 sample	1.5	20ul	Yes
E1107-5-1.5	Comb, 5 sample	1.5	68ul	No
E1107-16-1	Comb 16 sample	1	27ul	No
E1107-8-1	Comb 8 sample	1	25ul	No
E1107-12MC-1	Comb 12 sample	1	14ul	Yes
E1107-10-1.5	Comb 10 sample	1.5	27ul	No

Combs for Labnet ENDURO 10.10

Labnet Cat#	Description	Comb Thickness (mm)	Approximate Sample Volume	Multichannel Compatible
E1110-20MC-1	Comb 20 sample	1	5mm gel 14ul	Yes
E1110-10MC-1	Comb 10 sample	1	27ul	Yes
E1110-20MC-1.5	Comb 20 sample	1.5	20ul	Yes
E1110-12-1.5	Comb 12 sample	1	23ul	No
E1110-15-1.5	Comb 16 sample	1.5	24ul	No
E1110-8-1	Comb 8 sample	1	41ul	No
E1110-16-0.75	Comb 16 sample	0.75	12ul	No
E1110-16-2	Comb 16 sample	2	32ul	No
E1110-12-1.5	Comb 12 sample	1.5	34ul	No
E1110-10MC-1.5	Comb 10 sample	1.5	41ul	Yes
E1110-12-0.75	Comb 12 sample	0.75	17ul	No
E1110-25-2	Comb 25 sample	2	20ul	No

Combs for Labnet
ENDURO 15.10 &
ENDURO 15.15

Labnet Cat#

E1115-16MC-1.5
E1115-20-1.5
E1115-30MC-1.5
E1115-28MC-1
E1115-30MC-1
E1115-20-1
E1115-8-1
E1115-14MC-2
E1115-18-1
E1115-20-2
E1115-35-1.5
E1115-16MC-1
E1115-18MC-1
E1115-12-1.5
E1115-20-0.75
E1115-12-1
E1115-14MC-1.5
E1115-16MC-1
E1115-10-1
E1115-14MC-1

Comb Thickness (mm)

5 mm gel

Description

Comb 16 sample
Comb 20 sample
Comb 30 sample
Comb 28 sample
Comb 30 sample
Comb 20 sample
Comb 8 sample
Comb 14 sample
Comb 18 sample
Comb 20 sample
Comb 35 sample
Comb 16 sample
Comb 18 sample
Comb 12 sample
Comb 20 sample
Comb 12 sample
Comb 14 sample
Comb 16 sample
Comb 10 sample
Comb 14 sample

Comb 28 sample
Comb 10 sample
Comb, 16 sample

Approximate Sample Volume

5 mm gel

41ul
32ul
19ul
11ul
13ul
21ul
100ul
59ul
11ul
43ul
15ul
27ul
17ul
61ul
16ul
41ul
44ul
27ul
45ul
29ul

8ul
68ul
54ul

Multichannel Compatible

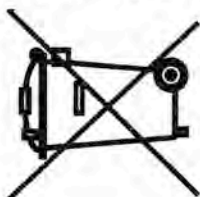
Yes
No
Yes
Yes
Yes
No
No
Yes
Yes
No
No
Yes
Yes
No
No
Yes
Yes
No
Yes
Yes

Yes
No
Yes

7 @
50.41ul
21.13ul

Equipment Disposal-European Regulations

According to Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), Enduro Horizontal Gel System is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.



Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at the following link: www.coming.com/weee



Combs for Labnet
ENDURO 20.20

Labnet NA Cat#

E1020-20MC-1
E1020-20MC-0.75
E1020-40MC-1
E1020-40MC-1.5
E1020-20MC-1.5
E1020-25-1
E1020-30-1
E1020-40MC-2
E1020-16-0.75
E1020-50-2

Comb Thickness (mm)

Approximate Sample Volume

5 mm gel

Description

Comb 20 sample
Comb 20 sample
Comb 40 sample
Comb 40 sample
Comb 20 sample
Comb 25 sample
Comb 30 sample
Comb 40 sample
Comb 16 sample
Comb 50 sample

Comb 20 sample
Comb 10 sample
Comb, 16 sample

Multichannel Compatible

Yes
Yes
Yes
Yes
Yes
No
No
Yes
Yes
No
No
Yes

LIMITED WARRANTY

Labnet International Inc. warrants that this product will be free from defects in material and workmanship for a period of one (1) year from date of purchase. This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual.

Should this product require service, contact Labnet's Service department at 732-417-0700 to receive a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Labnet International Inc. will not be responsible for damage incurred by improper packaging. Labnet may elect for onsite service for larger equipment.

This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover motor brushes, fuses, light bulbs, batteries or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier.

ALL WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION OF 12 MONTHS FROM THE ORIGINAL DATE OF PURCHASE.

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Please register your product online at:
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LN 134000