

Microchip Electrophoresis System
for DNA/RNA Analysis

MCE-202 (MultiNA)

Installation Requirements Manual **(Installation Preparations and Checklist)**

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ANALYTICAL & MEASURING INSTRUMENTS DIVISION

1. INTRODUCTION

This document describes the preparations need to be performed by the customer in advance of installation of MCE-202 (MultiNA) in order that the installation process can be accomplished smoothly. Thoroughly read this document before preparing the installation site and auxiliary equipment. If you have any questions, please contact your Shimadzu representative.

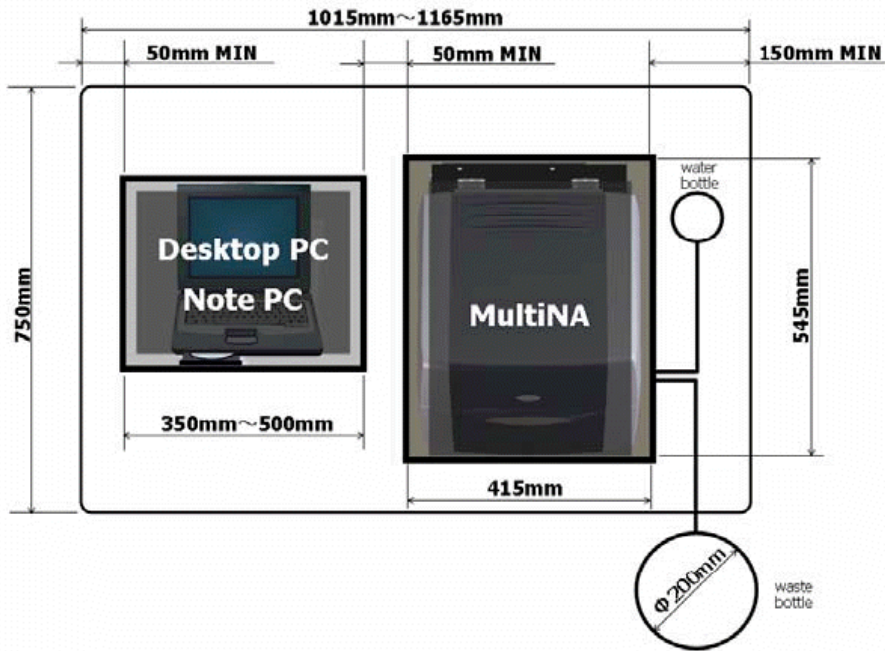
2. INSTALLATION SITE CONDITIONS

To ensure the system is used correctly and safely, always observe the installation precautions indicated below.

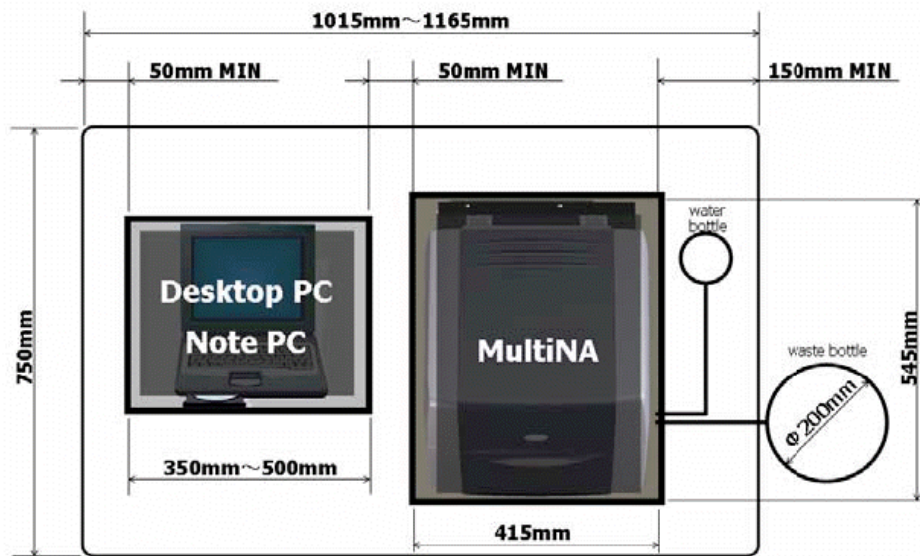
2.1 Installation Space

- (1) The main unit weights 43 kg. When installing the instrument, consider the total weight in combination with other equipment such as PC.
The instrument must be supported on a table that is flat, stable and able to support the instrument total weight.
- (2) The installation site space must be 1015 to 1165mm(width) (when using desktop PC) X 600mm(depth) X 980 mm (height) or more including instrument body, PC and water bottle. The waste bottle that is placed on the floor is not included. Height means the maximum dimension with the instrument cover open.
- (3) There must be a maintenance space behind the instrument. Leave a maintenance space 50mm or more away from the wall. If the condition is not satisfied, there is a possibility that performance decreases due to instrument overheating caused by insufficient air-cooling by fan. In addition, the top cover becomes unable to be opened to the maximum.
- (4) Place the instrument where easy to access to the rear of the instrument.
When replacing a syringe or a plunger, opening the syringe cover on the rear of the instrument is necessary.
- (5) When replacing a pump cartridge, opening the front cover is necessary. Leave a space of 100mm or more to the front of the instrument so that the front cover can be removed when replacing the pump cartridge.
- (6) Install the instrument not to interference with operation of power switch located on the bottom back of the right side of the instrument. If a trouble is found on the instrument, power supply must be turned off immediately.
- (7) The waste bottle should be placed on the floor.
The waste fluid moves to the waste bottle by the difference of water head. Set it below the instrument.
- (8) Please pay attention to the following particulars when handling the drain tube. Cut the tube according to the installation position.
 - * Tube must not be twisted.
 - * Tube must not be lifted in the middle.
 - * Tube end must not contact with the waste fluid in the waste bottle.
 - * If required, prepare a safety fastener to prevent the instrument from falling in the event of an earthquake.
- (9) Recommendation: part number 037-62401-03 fastener RT-400 gray (two-pack)

Layout Example 1: Waste bottle in front of the main body



Layout Example 2: Waste bottle on the right of the main body.



2.2 Installation Site Conditions

Prepare a site that satisfies the following conditions.

- (1) Do not allow any open flames near this instrument.
The use of the fire is strict prohibition in the installation site of this instrument. Also, avoid locating any equipment that generates a spark in the same room. Do not use a flammable spray (hair spray, insecticide spray, etc.) near the instrument. Provide fire extinguishers for use in case of fire.
- (2) Sink must be provided.
If solvent of reagent gets into eyes or on the skin, it must be flushed away immediately. Provide equipment such as eye wash stations and safety showers as close to the instrument as possible.
- (3) Installation of the instrument in locations subject to large amounts of corrosive gases, dirt, or dust is strictly prohibited.
In order to ensure that this instrument attains its specified service life and maintain the specified level of performance, avoid locating the system where it is exposed to corrosive gasses or high levels of dust.
- (4) Do not install this instrument near equipment that generates strong magnetic fields.
In order to ensure that this instrument operates properly, do not install it in a location that is subject to strong magnetic fields. Also, if there are large amounts of noise in power lines, add noise filters as appropriate.
- (5) To keep performance, please perform the installation subject to the operating environment conditions below.
 - * Ambient temperature between 18°C and 28°C, with minimal daily temperature variations.
(If temperature goes outside the above range, an error may occur and the instrument may stop.)
 - * Not exposed to direct air flow from heating or cooling system.
 - * Not subject to direct sunlight.
 - * No vibration.
 - * Between 40% and 80% relative humidity.
 - * Condensation must be absolutely avoided.
- (6) During analysis, ensure that the gap between the top cover and the main unit, and the drain tube connection port, are not directly subject to light from any light source (e.g., tabletop fluorescent lamps, electric torches, and camera flashes). Otherwise, noise may occur.

2.3 Power Supply Facilities

- (1) The power supply voltage and power consumption of the instrument are listed below. The power supply voltage of the instrument is indicated by the label on the power connector of the rear of the instrument. Connect the instrument only to a power supply with the voltage indicated. Otherwise, fire or electric shock may occur.

Check that the power supply voltage is stable and has sufficient current capacity to operate all the components of the system. If not, the instrument will not operate at its rated performance levels.

P/N	Power-supply voltage	Power consumption	Frequency
292-28000-40, 42, 44, 49, 58, 59	100-120/220-240V	300VA	50/60Hz

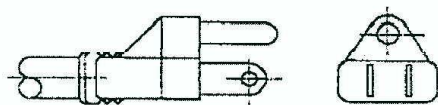
- (2) Ground the instrument.
Inadequate grounding may result in electric shock injuries in the event of failures or short circuits. Grounding is important to ensure stable operation.
- (3) Do not insert the adaptor earth lead into the power socket or let it contact the power socket. This may result in fire or electric shock injuries.
- (4) Please handle the power cable with care.
On failure to comply with the followings may result in damage to the power cable, fire, electric shock injuries, or breakdown.
If the cable is damaged, immediately contact Shimadzu.
 - * Do not place heavy objects on the cable.
 - * Do not allow it near heating devices.
 - * Do not modify the power cable.
 - * Do not forcibly bend or stretch the cable.
 - * Be sure to Insert and remove the cable with holding the plug.

2.4 Grounding

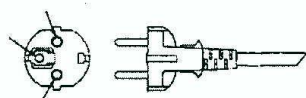
Make sure to ground the instrument to prevent electric shock injuries and to ensure stable operation.

Power cable supplied as a standard accessory

Terminal shape



AC100-120V



AC220-240V

To ensure safety, it is recommended to use a power supply with a circuit breaker.

2.5 PC

PC is necessary to control this instrument. The specification is shown below.

CPU	Intel PentiumIII processor or compatible processor Operation clock frequency 1GHz or more
RAM	512 MB or more (for Windows Xp) 1GB or more (for Windows 7 professional 32bit version) 2GB or more (for Windows 7 professional 64bit version) 2GB or more (for Windows 10 professional 64bit version)
HDD	40GB or more
Mouse	PS/2 mouse or USB mouse
Display resolution	1024x768 or more, High Color (65536 colors) or more
LAN	100BASE-TX
Other required peripherals	CD-ROM or CD-R/RW
OS	WindowsXP Professional SP2 or later Windows 7 professional 32/64bit version Windows 10 professional 64bit version

3. Other Preparation

Refrigerator / Freezer

Reagent kit (DNA-1000 kit is necessary)

Microchip

Chip Cleaning Solution RA

Please refer to the following page for consumables, reagents, equipment and tools.

Consumables, Reagents (✓: necessary items)

	Item	Recommended Goods	DNA analysis	RNA analysis	Check
1	Fluorophores	Invitrogen SYBR®: Gold Catalog Number S-11494	✓	(*1)	
2	Fluorophores	Invitrogen SYBR®: Green Catalog Number S-7564	-	✓	
3	TE Buffer	10mM Tris-HCl, 1mM EDTA (pH 8.0) e.g.: nacalai tesque: 32739-31	✓	-	
4	RNA Dilution Buffer	Applied Biosystems: The RNA Storage Solution (50mL) Catalog Number AM7001	-	✓	
5	Formamide	Wako: biochemistry Deionized Catalog Number 066-02301 or Invitrogen: UltraPure® Formamide Catalog Number 15515-026	-	✓	
6	RNaseZAP®	Applied Biosystems: Catalog Number AM9780(250mL) or AM9782(6x250mL)	-	✓	
7	DNA Ladder	DNA-500 invitrogen: 25bp DNA Ladder Catalog Number 10597-011 DNA-1000 Promega: ϕ X174DNA-HaeIII Markers Catalog Number G1761 DNA-2500 Promega: pGEM DNAMarkers Catalog Number G1741	✓	-	
8	RNA Ladder	Applied Biosystems: RNA6000 Ladder Catalog Number AM7152	-	✓	
9	Buffer Bottle Probe Bottle	ASSIST: Centrifuge Tube 5mL 1000-pack Catalog Number 60.558S	✓	✓	
10	Vial	BIO MEDICAL EQUIPMENT: Catalog Number NC-502 PP Tube without Cap 1000-pack	✓	✓	
11	Sample Container	Prepare one by choosing from the following recommended containers. Applied Biosystems: MicroAmp® 96well Reaction Plate Catalog Number N801-0560 MicroAmp® Reaction Tubes Catalog Number N801-0533(1 tube) /N801-0580(8 ream tube) Abgene: 96well PCR Plate Non-skirted Catalog Number AB-0600 Thermo-Strip Tubes Catalog Number AB-0452·AB-0771(8 ream tube) /AB-1112·AB-0847(12 ream tube)	✓	✓	
12	Aluminum Seal	Abgene: Adhesive PCR Foil Seal Catalog Number AB-0626 * Sticking seal to prevent 96 well reaction plate from evaporating. Not suitable for 1 tube, 8 ream tube and 12 ream tube.	✓	✓	
13	Water Bottle	<Recommended goods> P/N038-00124-06,Bottle 42-075-05 or equivalent	✓	✓	
14	Waste Bottle	Empty gallon bottle or approx 3L plastic bottle	✓	✓	
15	Wipes	Recommended : BEMCOT LINTFREE PS-2	✓	✓	

(*1) SYBR Gold is required in installation and periodic maintenance.

Equipments, Tools (✓: necessary items)

	Item	Recommended Goods	DNA analysis	RNA analysis	Check
1	Protective Equipment for Work	Eye shield, Protective mask, disposable gloves	✓	✓	
2	Micro Pipette and Chip	The one from 2 μ L corresponding to volume of 5 mL e.g.: Gilson G-10, G-100, G-1000	✓	✓	
3	Milli-Q water (Millipore Corp.)		✓	✓	
4	Rnase-free water		-	✓	
5	Tube Correspondence Microcentrifuge	3,000rpm or more / 2,500xg or more	✓	✓	
6	Vortex Mixer	For tube	✓	✓	
7	Temperature controlled bath, Ice water	For thermal denaturation Thermal cycler is also available	-	✓	
8	Power Socket	For instrument body, control PC and LCD monitor	✓	✓	

4. PRELIMINARY CHECKLIST

To:

Send to:

The following is a checklist of items described above.
Please fill in yourselves and hand them to your Shimadzu representative.

Your name:

Address:

Telephone No:

DNA-1000 reagent kit used in installation of MCE-202 (MultiNA) contains refrigerated reagent and frozen reagent. Please appoint the delivery date beforehand.

Arrival date of the reagent kit:

Item		Description	Check
1. Installation Space	Space	Width: at least 1015mm Depth: at least 600mm Height: at least 980mm	
	Weight	Table able to support the instrument weighing 43kg.	
	Waste bottle	Should be placed below the main body.	
2. Installation Site Conditions	Temperature	18 to 28°C	
	Relative humidity	40 to 80%RH	
	Others	Sink is provided. Free of corrosive gas Free of dust and dirt Equipment that generate powerful magnetic fields is not nearby Not subject to direct sunlight Free of vibration	
3. Power Supply Facilities	Power-supply voltage	100-120/220-240 V \pm 10%	
	Frequency	50/60Hz	
	Power consumption	300VA	
4. Grounding		Three wire power socket Ground using adaptor earth lead if two wire power socket.	
5. PC		Refer to "2.5 PC" for specification.	
6. Others	Preparation by customer	Refer to 3. Other Preparation	
	Maintenance/ consumable parts	If required	
	Refrigerated / frozen reagent	Refrigerator, Freezer	