

**For Electronic Balances  
Ionizer (Static Remover)  
STABLO-AP  
INSTRUCTION MANUAL**



Read the instruction manual thoroughly before you use the product.  
Keep this instruction manual for future reference.



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# Introduction

Read this Instruction Manual thoroughly before using the product.

Thank you for purchasing this product.

This manual describes the installation and operation for this product. Read this manual thoroughly before using the product and operate the product in accordance with the instructions in this manual.

Keep this manual for future reference.

## IMPORTANT

- If the user or usage location changes, ensure that this Instruction Manual is always kept together with the product.
- If this manual is lost or damaged, immediately contact your Shimadzu representative to request a replacement.
- To ensure safe operation, read "Safety Instructions" thoroughly before using the product.

## ■ Notice



- Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.
- Any errors or omissions which may have occurred in this manual despite the utmost care taken in its production will be corrected as soon as possible, although not necessarily immediately after detection.
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Original version is approved in English.





# Safety Instructions





This instrument is designed and manufactured to assure personal safety. Read these important safety instructions carefully before use and follow all DANGER, WARNING and CAUTION instructions given in this section.













Degree of danger and damage caused by disregarding the descriptions or improper use of the instrument are classified into two main categories as shown below.

Indication	Meaning
 <b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or possibly death.
 <b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury or equipment damage.

Safety icons are used in this manual to bring important information to your attention. Each type of message is identified as shown below.

Indication	Meaning
	Indicate issues that requires your attention.
 <b>Do NOT Disassemble</b>	Indicate actions that needs to be avoided.
 <b>Unplug the Power Cord.</b> 	Indicate actions that needs to be executed.

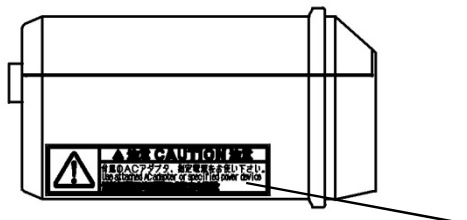
<b>! WARNING</b>	
 Prohibitions	<b>This instrument is <u>not explosion-proof</u>. Do NOT install it in a place where corrosive or flammable gases or solvents are used.</b> There is a risk of <u>ignition or explosion</u> .
 Warning	<b>Do NOT insert objects having electrical conductivity properties, such as a wire or a tool, in the electrode probes zone carelessly.</b> (Described on the front label of the main unit.)
 <b>Do NOT Disassemble</b>	<b>Do NOT dismantle the instrument.</b> It may cause an <u>accident, electric shock, or breakdown</u> .
 Instructions	<b>Be sure to use Shimadzu specified AC adapter for the power source.</b> Using any other adapter may result in a <u>fire, electric shock, or breakdown</u> .

<b>! CAUTION</b>	
 Prohibitions	<p><b><u>This instrument is an ionizer specifically for electronic balances.</u></b>  <b>Do NOT use the instrument for other purposes.</b>  <b>Especially, do not use for electronic parts easily broken by the electrostatic discharge</b></p>
 Prohibitions	<p><b><u>This instrument is a high-voltage product. Do NOT install it in a place with water, oil, high temperature/humidity, or large amounts of dust.</u></b>  <b>Especially avoid areas with condensation.</b></p>
 Unplug the Power Cord.	<p><b>In the event of smoke, a burning smell, the instrument becomes extremely hot, or the Red LED indicator on the front is illuminated, immediately turn OFF the main switch on the back and unplug the AC adapter plug from outlet.</b></p>
 Unplug the Power Cord.	<p><b>If water or foreign matter gets inside the instrument, immediately turn OFF the power switch and unplug the power cord of the handy switch.</b></p>
 Warning	<p><b>Handle the electrode probes and outputs with care because they have high voltage.</b></p>
 Warning	<p><b>Handle and store the instrument with care because it may break when dropped, sustaining strong vibration/shock.</b></p>
 Unplug the Power Cord.	<p><b>Before carrying out any maintenance/cleaning work, be sure to unplug the AC adapter first to avoid getting hurt by an <u>electric shock</u> which may occur.</b></p>
 Warning	<p><b>The instrument generates ozone that is toxic to the human body. Do NOT use it in an airtight space for a long time. Ventilate the work area.</b></p>
 Unplug the Power Cord.	<p><b>When not using the instrument, unplug the power cord of the AC adapter for safety.</b>  <b><u>(When leaving the work site, unplug the power cord.)</u></b></p>
 Prohibitions	<p><b>NEVER handle the ionizer while the hands are wet.</b>  <b>Doing so might induce an <u>electric shock</u> or caused the instrument to malfunction.</b></p>
 Instructions	<p><b>Be sure to perform grounding of this product.</b>  <b>Non-Grounding may cause a degradation of static removal performance, malfunction, or breakdown.</b></p>
 Prohibitions	<p><b>Using the instrument when it is broken may result in <u>short circuit, fire, or electric shock.</u></b></p>

## Warning Labels

In order to ensure safety, warning labels are attached in places requiring caution.

If a warning label is lost or damaged, obtain a new label through your Shimadzu representative and attach it in the correct position.



Use attached AC adapter or specified power device.  
S321-62523-01



# Warranty

Shimadzu provides the following warranty for this product.

1. **Period:** For one year from a purchase day
2. **Description:** Shimadzu will repair the instrument or provide replacement parts free of charge if any malfunction attributable to Shimadzu occurs within the warranty period.
3. **Limitation of Liability:**
  1. In no event will Shimadzu be liable for any loss of revenue, profit or data, or for special, indirect, consequential, incidental or punitive damages, however caused regardless of the theory of liability, arising out of or related to the use of or inability to use the product, even if Shimadzu has been advised of the possibility of such damage.
  2. In no event will Shimadzu's liability to you, whether in contract, tort (including negligence), or otherwise, exceed the amount you paid for the product.
4. **Exceptions:** Failures caused by the following are excluded from the warranty, even if they occur during the warranty period.
  1. The instrument is mishandled.
  2. Repair or alteration is carried out by a party other than Shimadzu.
  3. A malfunction is caused by reasons other than the instrument.
  4. The instrument is used in an environment with high temperatures, humidity, corrosive gases, and/or vibration.
  5. A malfunction is caused by a fire, earthquake, or other unforeseeable natural disasters.
  6. The instrument is dropped or exposed to strong vibration or shock.
  7. Consumable parts or alike

# After-Sales Service and Availability of Replacement Parts

## After-Sales Service

If any problem occurs with this product, perform an inspection and take appropriate corrective action as described in the troubleshooting section of this manual.

If the problem persists, or the symptoms are not covered in the troubleshooting section, contact your Shimadzu representative.

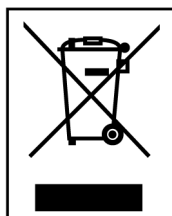
## Replacement Parts Availability

Replacement parts for this product will be available for a period of seven (7) years after the product is discontinued. Thereafter, such parts may cease to be available.

Note, however, that the availability of parts not manufactured by Shimadzu shall be determined by the relevant manufacturers.

## Action for Environment (WEEE)

To all users of Shimadzu equipment in the European Union:



WEEE Mark

Equipment marked with this symbol indicates that it was sold on or after 13th August 2005, which means it should not be disposed of with general household waste. Note that our equipment is for industrial/professional use only.

**Contact Shimadzu service representative when the equipment has reached the end of its life. They will advise you regarding the equipment take-back.**

With your co-operation we are aiming to reduce contamination from waste electronic and electrical equipment and preserve natural resources through re-use and recycling.

Do not hesitate to ask Shimadzu service representative if you require further information.



# Precautions for Use

## < STABLO-AP >

**This instrument is an ionizer designed specifically for electronic balances.**

**The main function of ionizers is to remove static from electrostatically charged samples or containers to achieve the desired consistency in measurements during weighing. Use the instrument following the matters described below.**

- For power source, be sure to use an AC adapter and AC cord supplied by Shimadzu.
- Be sure to use a 3-prong AC electrical socket outlet that provides grounding.
- The instrument is designed to be used indoors only.
- The instrument may become slightly hot during operation. This is not abnormal.
- The instrument is a precision equipment. Handle it with care and avoid dropping it or exposing it to strong vibration or shock.
- Using the instrument with the electrode probes bent lowers static removal performance. If electrode probes become bent, they need to be replaced. Contact your Shimadzu representative.
- Do NOT use the instrument in an airtight space for a long time. Ventilate the work area.
- The ionizer emits a low level of electromagnetic wave during operation. However, when it is close to equipment with no electromagnetic wave shield protection or with poor shielding, such equipment may malfunction. In this event, move the ionizer away from the malfunctioning equipment.
- Insert the plug of the AC adapter's connecting cord into the DC IN connector after checking that the Main switch on the back is turned OFF(○).  
Then, insert the power plug of the AC adapter into an outlet and turn ON( | ) the Main switch.
- Prior to unplugging the AC adapter's connecting cord from the DC IN connector of the instrument, turn OFF the Main switch on the back. Hold the plug when unplugging the cord.
- The meaning color LED status indicators is explained below:  
Green is illuminated = Power switch is ON  
Blue is illuminated = RUN switch is ON  
Red is illuminated = Abnormal operation  
The Red LED (Alarm) should remain OFF at all times. If the Red LED is illuminated, check to see if the problem could be resolved by turning the power switch Off and On again.  
Should the Red LED remained lit after turning the power switch Off/On repeatedly, please contact your Shimadzu representative for repair/replacement of the ionizer.

## < Improvement of Measurement Reliability >

For accurate measurements, static on samples and glass of the weighing chamber needs to be removed. Reducing the effect of dynamic buoyancy caused by temperature changes inside the weighing chamber of the balance is also vital. For large samples and containers, this effect especially hinders stable measurement when there is a temperature difference between them and the weighing chamber.

Prior to static removal using STABLO-AP or after static removal, leave the sample in the weighing chamber for a while so the temperature of the sample and chamber becomes the same for stable measurement.



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# 1. Introduction

Thank you for purchasing our product, STABLO-AP ionizer, designed specifically for use with electronic balances.

The function of STABLO-AP is to remove static on samples and containers in order to achieve the desired consistency in measurements during weighing.

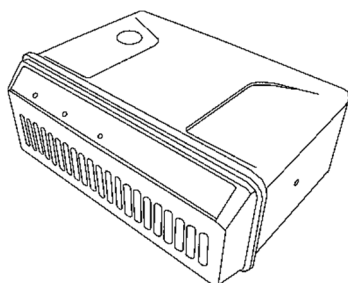
Read the instruction manual thoroughly prior to using the instrument and save it for future reference.

## 2. Unpacking and Inspection

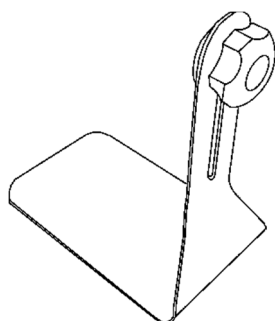
After opening the package, make sure that the components listed below are included.

Name	Quantity	Comment
(1) Ionizer main unit	1	
(2) Stand	1	
(3) AC Adapter	1	
(4) AC Cord	1	
(5) Cleaning brush	1	
(6) Communication cable	1	Use it when installing analytical balance.
(7) Instruction Manual	1	This Leaflet

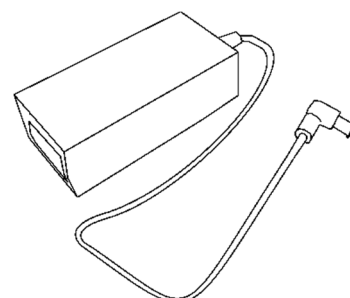
(1) Ionizer main unit



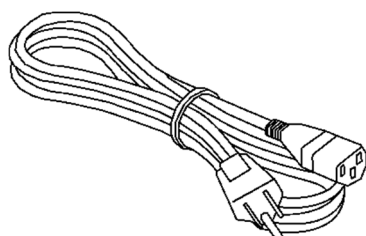
(2) Stand



(3) AC Adapter



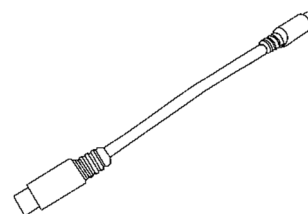
(4) AC Cord



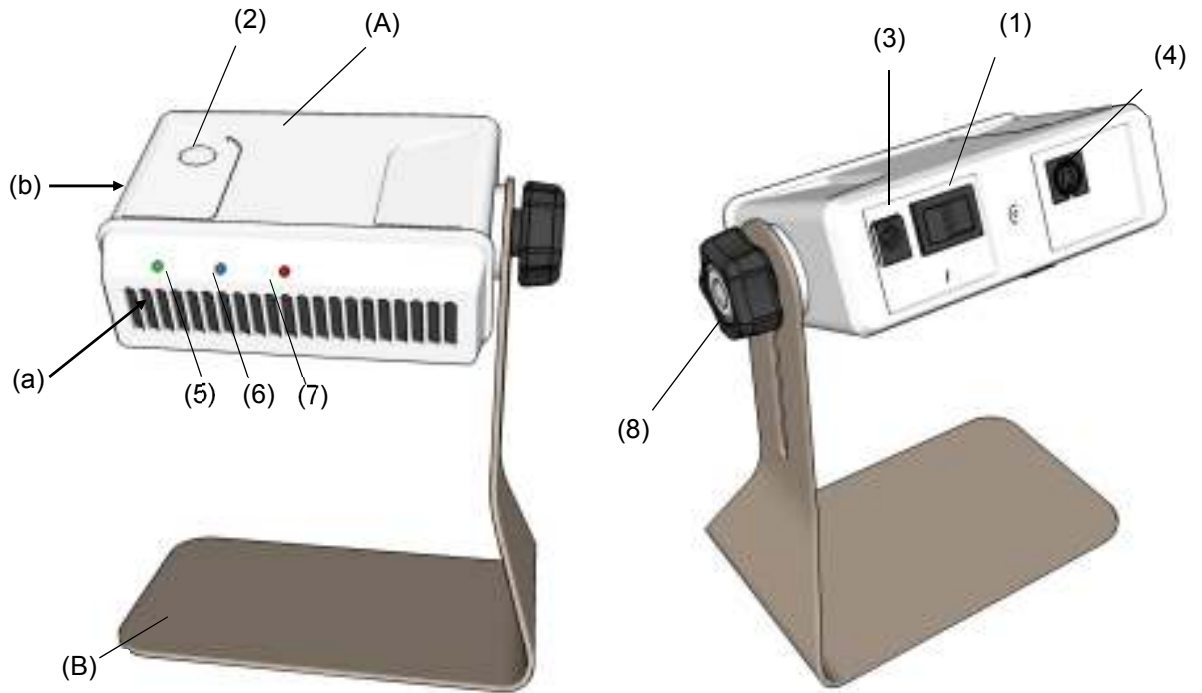
(5) Cleaning brush



(6) Communication cable



### 3. Component Names and Functions



- (A) Ionizer main unit
- (B) Stand (Height and angle are adjustable.)
- (a) Front
- (b) Left side
- (1) Power switch (Switch to ON( | )/OFF(○) (5) illuminates.)
- (2) Run switch (Switch to ON/OFF for run. (6) illuminates.)
- (3) DC IN connector
- (4) Communication connector
- (5) Power LED (Green)
- (6) Run LED (Blue)
- (7) Alarm LED (Red)
- (When this LED illuminates, refer to troubleshooting guide on Page 8.)
- (8) Knob

#### The meanings of the symbols

- — : Direct current
- : OFF
- | : ON

## 4. Installation

### 4.1. Installation site



**For safe and proper operation, avoid installing the ionizer at places where the ionizer will be exposed to the following;**

- Water or oil
- High temperature/humidity, or large amounts of dust
- Corrosive or flammable gases or solvents.

### 4.2. Attaching/detaching the ionizer to/from the stand

Use the locking knob to attach the ionizer to the stand. Adjust the ionizer's height and angle to the desired position, then secure it tightly with the locking knob.



### 4.3. Connecting the AC adapter



#### **Grounding**

Connect the adapter to a 3-prong AC electrical socket outlet that provides grounding.



#### **Turning on the Power**

- 1) Make sure that the Power switch on the back of the ionizer is OFF (○).
- 2) Insert the plug of the AC adapter connecting cord into the DC IN connector
- 3) Insert the AC adapter's power plug into an outlet and turn ON the AC supply.
- 4) Turn the Power switch of the ionizer to ON (| ).

## 5. Operating the Ionizer

### 5.1. Turning on the ionizer

When the Main switch on the back is turned ON( | ), the Green LED on the front of the ionizer will be illuminated.

IF the Red LED illuminates after turning on the ionizer on, turn OFF/ON the power switch again.

#### **ALARM LED on the front of ionizer**

The Red LED (Alarm) should remain OFF at all times. If the Red LED is illuminated, check to see if the problem could be resolved by turning the power switch Off and On again.

Should the Red LED remained lit after turning the power switch Off/On repeatedly, please contact your Shimadzu representative for repair/replacement of the ionizer.

### 5.2. Generating of ion

When the Run switch is turned ON, the Blue LED on the front of the ionizer illuminates to indicate that the instrument is now generating ion for static removal operation. To stop this operation, push the Run switch again and the Blue LED goes off.

#### **Ventilation**

Ventilate the work area well, because ozone occurs.

Especially, ventilate the work area when using the instrument for a long period of time.

#### **Turn OFF the Power switch on the back when the instrument is not used.**

Be sure that all LEDs are OFF.

#### **Caution concerning equipment with insufficient measures for electromagnetic waves**

The ionizer emits a low level of electromagnetic wave during operation. However, when it is close to equipment with no electromagnetic wave shield protection or with poor shielding, such equipment may malfunction. In this event, move the ionizer away from the malfunctioning equipment



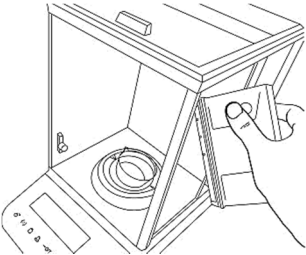

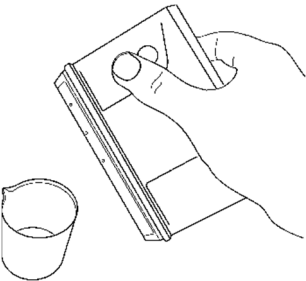
#### **Sound during operation**


Although there is sound of operation during an ion generation, it is not failure.

#### **Operating time**

Generating ion stops at after-operation 15 minutes automatically.

### 5.3. Example of Use

Examples of Use	How to Use	Contents/Comments
<p><b>Example with the Stand</b></p> <p><u>Static electricity removal from samples or containers</u></p>		<p>Electrostatically charged samples or containers may make measurements unstable.</p> <p>Adjust the ionizer's height and angle for samples and containers.</p> <p> Ventilate the work area well because ozone concentration is high.</p>
<p><b>Example of Hand Holding 1</b></p> <p><u>Static electricity removal from weighing chambers (glass) or static removal from samples or containers in a weighing chamber</u></p>		<p>Electrostatically charged glass (glass in front of balance or door glass) may make measurement unstable. Place the ionizer close to the glass in order to achieve consistency in measurements during weighing.</p> <p> Putting your hand in the weighing chamber may induce air currents leading to inconsistency in weighing results.</p> <p>Start measurements 2 or 3 minutes after static removal.</p>
<p><b>Example of Hand Holding 2</b></p> <p><u>Static electricity removal from the inner wall of containers (beakers or conical flasks) (so that powder can reach the bottom of the container)</u></p>		<p>When the inner wall of a container (beaker or conical flask) is electrostatically charged, powder does not drop to the bottom of the container but sticks to the inner wall. This can be prevented by removing static from the inner wall and sample in advance.</p>



【Memo】



## 6. Maintenance

### 6.1. Cleaning (case and holder of the ionizer main unit)

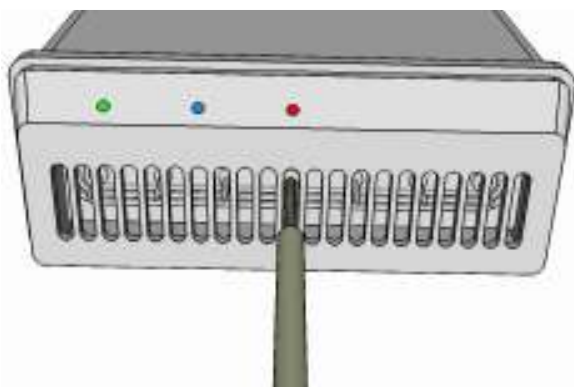
Wipe with a soft cloth that has been lightly saturated with a small amount of neutral detergent. Do NOT use organic solvents, chemical agents, or chemical cloth to prevent damage to the surface coating of the ionizer.

### 6.2. Cleaning the Electrode Probes

Use the supplied cleaning brush

After unplugging the AC adapter, remove the dust etc. which has adhered to the electric discharge electrode as shown in the following figure.

When the internal part of the electric discharge section is dirty, please blow off the dirt inside with an air compressor gun / air duster (dry type, which do not spray cleaning solution while blowing ), etc.



#### WARNING

Do NOT Disassemble.



#### CAUTION

Unplug the Power Cord before Cleaning.



Gently wipe the electrode probes without bending them.

### 6.3. Frequency of maintenance

Be sure to carry out maintenance and cleaning work on a regular basis.

Cleaning of electrode probes: Every 1,000 hours

Replacement of electrode probes: Every 30,000 hours

(Contact your Shimadzu representative.)

# 7. Troubleshooting

Check the following points before calling for servicing.

Symptom	Remedy
POWER LED does not light up.	<ul style="list-style-type: none"><li>• AC adapter is not connected.</li><li>• Power switch is OFF (○) .</li></ul>
ALARM LED lights up.	<ul style="list-style-type: none"><li>• Remove the dust etc. which has adhered to the electric discharge electrode.</li><li>• Try the following process. Step 1: Turn Off the Power switch. Step 2: Turn On the Power switch. Step 3: Push the Run switch. Step 4: Check LED indicator status:<ul style="list-style-type: none"><li>- Blue LED Illuminates – Normal</li><li>- Red LED illuminates – Abnormal (Contact Shimadzu representative)</li></ul></li></ul>

## 8. Specifications and Maintenance Parts

Ion Generation Method	AC corona discharge method	
Ion Balance *1	± 10 V	
Effective Static Removal Range	Approx. 400 mm from the outlet	
Static Elimination Time (approx.) (from ±1000 V to ±100 V) *1	1 seconds (Typical value)	
Ozone Concentration	0.06 ppm or less (at 150 mm from the outlet)	
Electrode Probes	Tungsten (durability: 30,000 hours)	
Operating Temperature and Humidity	0 °C to + 40 °C, 25 % RH to 85 % RH (non-condensing)	
Rated electric power supply	DC 24 V, 1.0 A	
AC adapter (primary)	AC 100 V - 240 V, 0.58 A, 47 - 63 Hz	
Pollution Degree	2	
Overvoltage category	Category II	
Installation Site	Device may only be used indoors	
Weight	Approx. 710 g (Main unit : 395 g, Stand : 315 g)	
Size (unit)	Approx. 124 x 87 x 49 mm	
Service Part	Cleaning brush	(P/N : S321-73711)
	AC Adapter	(P/N : S321-73714)
	AC Cord (for 125V)	(P/N : S321-73778) *2
	AC Cord (for 240V)	(P/N : S071-60825-51) *2
	Communication cable	(P/N : S321-72984-41)
	Caution label.power	(P/N : S321-62523-01)

\*1 : Static electricity elimination features are based on the data using the charged plate monitor (150 x 150 mm, 20 pF). The distance between the outlet of Ionizer and the charged plate monitor is 100mm. (Typical value)

\*2 : The attached AC Code, which is specified in the user's manual, may be substituted for a cord that meets the regulation of each country.



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# Shimadzu Corporation

**SHIMADZU CORPORATION. International Marketing Division**

3. Kanda-Nishikicho 1-chome, Chiyoda-ku, Tokyo 101-8448, Japan  
Phone: 81(3)3219-5641 Fax: 81(3)3219-5710

**SHIMADZU SCIENTIFIC INSTRUMENTS, INC.**

7102 Riverwood Drive, Columbia, Maryland 21046, U.S.A.  
Phone: 1(410)381-1227 Fax: 1(410)381-1222 Toll Free: 1(800)477-1227

**SHIMADZU EUROPA GmbH**

Albert-Hahn-Strasse 6-10, 47269 Duisburg, F.R. Germany  
Phone: 49(203)7687-0 Fax: 49(203)7666-25

**SHIMADZU (ASIA PACIFIC) PTE LTD.**

79 Science Park Drive #02-01/08, Cintech IV Singapore Science Park I, Singapore 118264, Singapore  
Phone: 65-6778-6280 Fax: 65-6779-2935

**SHIMADZU SCIENTIFIC INSTRUMENTS (OCEANIA) PTY. LTD.**

Units F, 10-16 South Street Rydalmere N.S.W. 2116, Australia  
Phone: 61(2)9684-4200 Fax: 61(2)9684-4055

**SHIMADZU DO BRASIL COMÉRCIO LTDA.**

Avenida Marquês de São Vicente, 1771. Barra Funda CEP: 01139-003-São Paulo-SP, Brasil  
Phone: 55(11)2134-1688 Fax: 55(11)3611-2209

**SHIMADZU (HONG KONG) LIMITED**

Suite 1028 Ocean Center, Harbour City, Tsim Sha Tsui, Kowloon HONG KONG  
Phone: (852)2375-4979 Fax: (852)2199-7438

**SHIMADZU INTERNATIONAL TRADING (SHANGHAI) CO., LTD. PUXI BRANCH**

Block E, No.570 West Huaihai Road, Shanghai, 200052 P.R. of China  
Phone: 86(21)2201-3888 Fax: 86(21)2201-3666

**SHIMADZU MIDDLE EAST & AFRICA FZE**

Warehouse No. RA08UC02, Jebel Ali, Dubai, P.O. Box 262081 United Arab Emirates  
Phone: 971(4)883-6668 Fax: 971(4)883-6808

URL <http://www.shimadzu.com>