

# SK Series

Digital Scales

## Instruction Manual

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1162-2A-IE-1997.03.11

SK-1000

SK-1000D

SK-2000

SK-2000D

SK-5000

SK-5000D

SK-10K

SK-10KD

SK-20K

SK-20KD

SK-30K

SK-30KD

# **AND**

**A&D WEIGHING**

*...Clearly a Better Value*

1555 McCandless Drive, Milpitas, CA 95035

Tel: (800) 726-3364 / (408) 263-5333 \* Fax: (408) 263-0119

Fax-on-Demand: (800) 726-7099, Press 2 \* Website: [www.andweighing.com](http://www.andweighing.com)

Email: [scales@andweighing.com](mailto:scales@andweighing.com)

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# SAFETY PRECAUTIONS

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All safety messages are identified by the following the words "**WARNING**" and "**CAUTION**". These words mean the following:

<b>⚠ WARNING</b>	<b><i>Important information to alert you to a situation that might cause serious injury and damage to your property if instructions are not followed.</i></b>
<b>⚠ CAUTION</b>	<b><i>Important information that tells how to prevent damage to equipment .</i></b>

When using the SK, the following safety precautions should always be followed.

**⚠ WARNING**

***Use only the AC adapter which comes with the scale. Other adapter may cause damage. (AC adaptor is optional.)***

***Internal service or adjustment to this product should be performed by a qualified person.***

**⚠ CAUTION**

***Avoid installing the scale in direct sunlight, that may cause discoloration or malfunctions .***

***Do not mix the type of batteries. Replace all other batteries at the same time.***

***If the scale is not to be used for a long period of time, remove all batteries from the battery compartment to avoid leakage which may cause damage to the instrument.***

***Avoid overloading that could cause damage to the scale.  
Avoid using the weighing pan to move the scale, as that could cause damage to the scale.***

# PARTS DESCRIPTION

►REAR

Sprit level

►TOP

Weighing platform

►FRONT

Display

ON/OFF key  
Turns the scale power on/off.

UNITS key  
(only for (k)g-lb version)  
Changes weighing units,  
(k)g or lb.

RE-ZERO key  
Sets display to zero or  
subtracts weight of a container.

►REAR  
Display  
(SK-D only)

►BOTTOM

AC adaptor socket

Batteries.  
\*Batteries are not included

Battery compartment cover

►DISPLAY

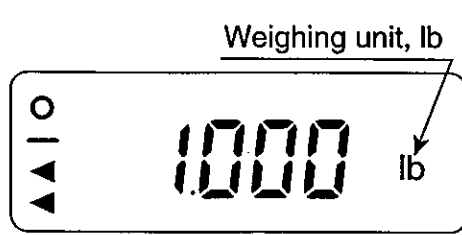
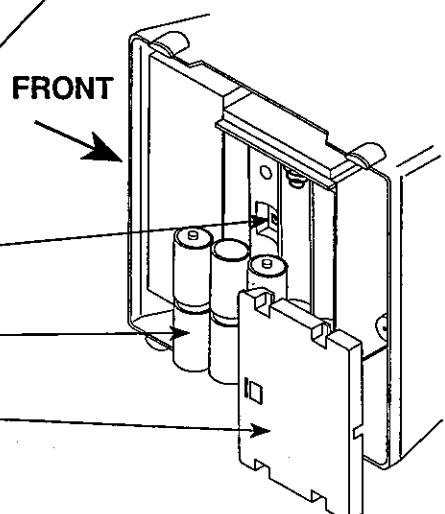
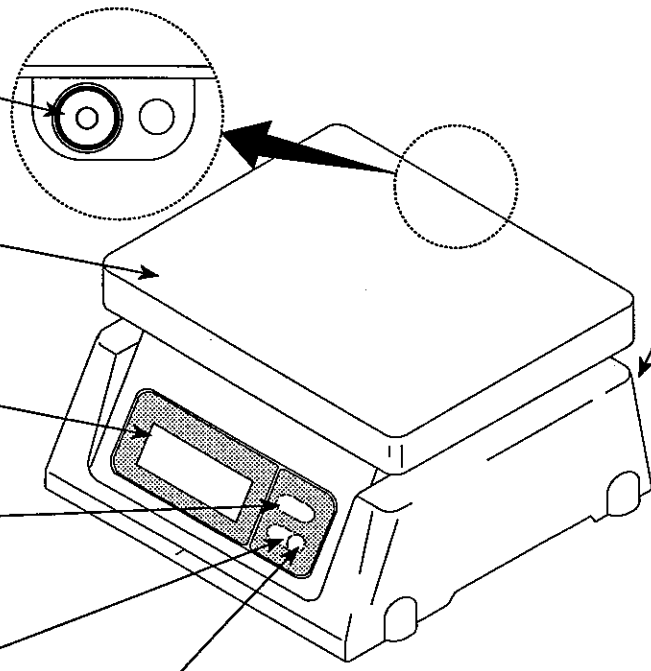
STABLE indicator  
Indicates when the reading  
is stable.

Polarity

NET indicator  
Indicates when NET weight  
is displayed.  
(Tare function is used.)

ZERO indicator  
Indicates when the scale  
zero is correct.

Weighing unit, g



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# PREPARATION

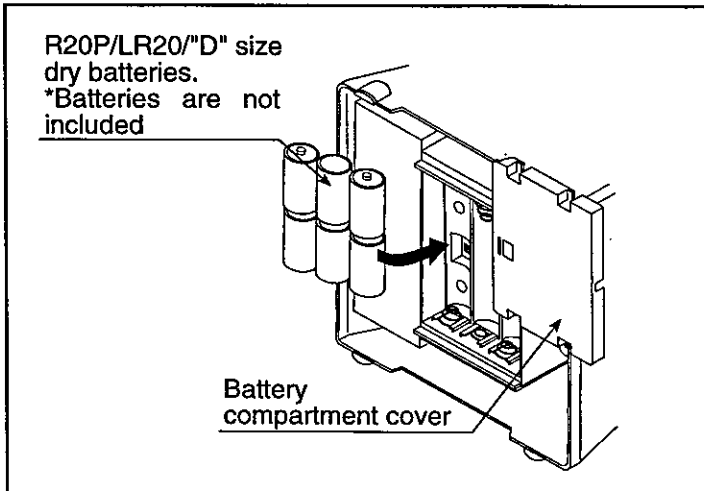
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## 1. Installing batteries / Connecting the AC adaptor

### Batteries

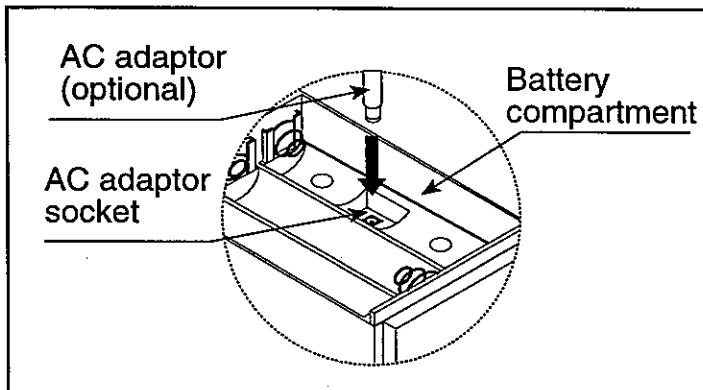
**⚠ CAUTION**

When replacing batteries, be careful not to apply too much force to the weighing pan. An excessive force could damage the scale.



Remove the battery compartment cover and insert six batteries (R20P/LR20/D size) into the battery compartment, taking extreme care that the polarities plus and minus are observed.

### AC adaptor (optional)



Plug the AC adaptor to the AC adaptor socket inside the battery compartment.

The AC input requirement could be 100, 120, 220, 230, or 240Volts (50/60Hz) depending on the area where used, so please verify that the adaptor is correct.

## 2. Setting up the SK

**⚠ CAUTION**

*Avoid installing the scale in direct sunlight, that may cause discoloration or malfunctions. Place your SK on a firm weighing table so that the scale is level. (The scale will not perform accurately when it is not level.)*

Place the SK on the firm surface so that the spirit level shows that the scale is level for an accurate weighing.

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# WEIGHING

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## Before weighing

### Be aware of the Automatic power-off function.

If this unit is left ON and the stable indicator is displayed, an automatic power-off function turns power off after approximately 5 minutes. To disable this function, press [ON/OFF] while pressing [RE-ZERO]. "P-XX" will be displayed and the scale returns to the weighing mode.

### Error messages

E	Overload
----	The scale zero is out of range.
Lb	Low battery

### Calibration may be required before weighing.

Read "CALIBRATION" first and if necessary, calibrate your scale for accurate weighing.

## Weighing procedures

### 1. Press [ON/OFF] to turn on the scale.

When power is turned ON, all display segments appear for a few seconds and "0" will appear on the display.

### Only for the "(k)g-lb" version

### 2. Select the weighing unit with [UNITS].

Press [UNITS] to select a weighing unit either "(k)g" or "lb".  
Once the unit has been selected, the selected unit will be displayed to the right of the weight value .

### 3. Start weighing

#### If you do not use a container for weighing,

Verify the reading is "0". If not, press [RE-ZERO] to display "0".

Place objects on the weighing platform to weigh.

When the reading becomes stable, the stable indicator is displayed.

#### If you use a container for weighing,

Place an empty container on the platform.

Wait for the stability indicator to be displayed and press [RE-ZERO].

Place the objects to be weighed in the container.

When the reading becomes stable, the stable indicator is displayed.

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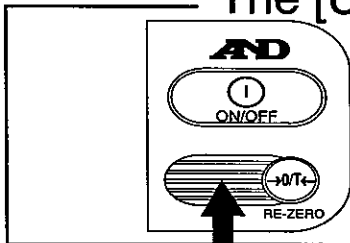
# CALIBRATION

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## When to calibrate

Calibration may be required when it is initially installed, if the scale is moved a substantial distance, or in accordance with local regulations. This is necessary because the weight of a mass in one location is not necessarily the same in another location. Also, with time and use, mechanical deviations can occur.

### The [UNITS] key for "(k)g" only version



"(k)g" only model has no [UNITS] key, but a key is located under the overlay. Press the position shown left for [UNITS].

## Calibration using a calibration weight

Calibrate a scale with calibration weights at capacity.

1000g $\pm$ 0.1g for the SK-1000.	2000g $\pm$ 0.2g for the SK-2000.
5000g $\pm$ 0.5g for the SK-5000.	10kg $\pm$ 1g for the the SK-10K.
20kg $\pm$ 2g for the SK-20K.	30kg $\pm$ 2g for the the SK-30K.

### 1. Enter calibration mode.

Press [ON/OFF] to turn the power off. While pressing both [RE-ZERO] and \*[UNITS], press [ON/OFF]. "CAL" will be displayed.

### 2. Zero calibration

Press [RE-ZERO] to calibrate zero. "CAL 0" will be displayed. Wait for the stable indicator to be displayed and press [RE-ZERO] "CAL F" will be displayed in a few seconds.

### 3. Span calibration

Place the weight at the center of the platform for an accurate calibration. Wait for the stable indicator to be displayed, then press [RE-ZERO]. The display will show "END" and automatically the scale return to the weighing mode.

## Calibration by gravity compensation

*If you have calibration weights at the capacity of the scale, you can calibrate the scale with the weights instead of compensating for acceleration due to gravity.*

The SK is calibrated at 9.798 m/sec<sup>2</sup>. If the acceleration of gravity at your location is not the same, calibrate the scale by compensating the acceleration of gravity. (See page 7 "The Value of Gravity at Various Locations" and page 8 "World Map" and find your location' value.)

### 1. Enter the calibration mode.

Press [ON/OFF] to turn the power off. While pressing both [RE-ZERO] and \*[UNITS], press [ON/OFF]. "CAL" will be displayed.

### 2. Select a digit to be changed.

Press \*[UNITS]. "9.798" will be displayed. Press [RE-ZERO], the decimal point will move and the last digit will be selected.

Select a digit to be changed with [UNITS]. The first digit after decimal point is the selected digit.

### 3. Set value.

Set the value of the digit selected by pressing [RE-ZERO]. (See "The Value of Gravity at Various Locations" and "World Map" and find your location' value.)

### 4. Enter the value in memory.

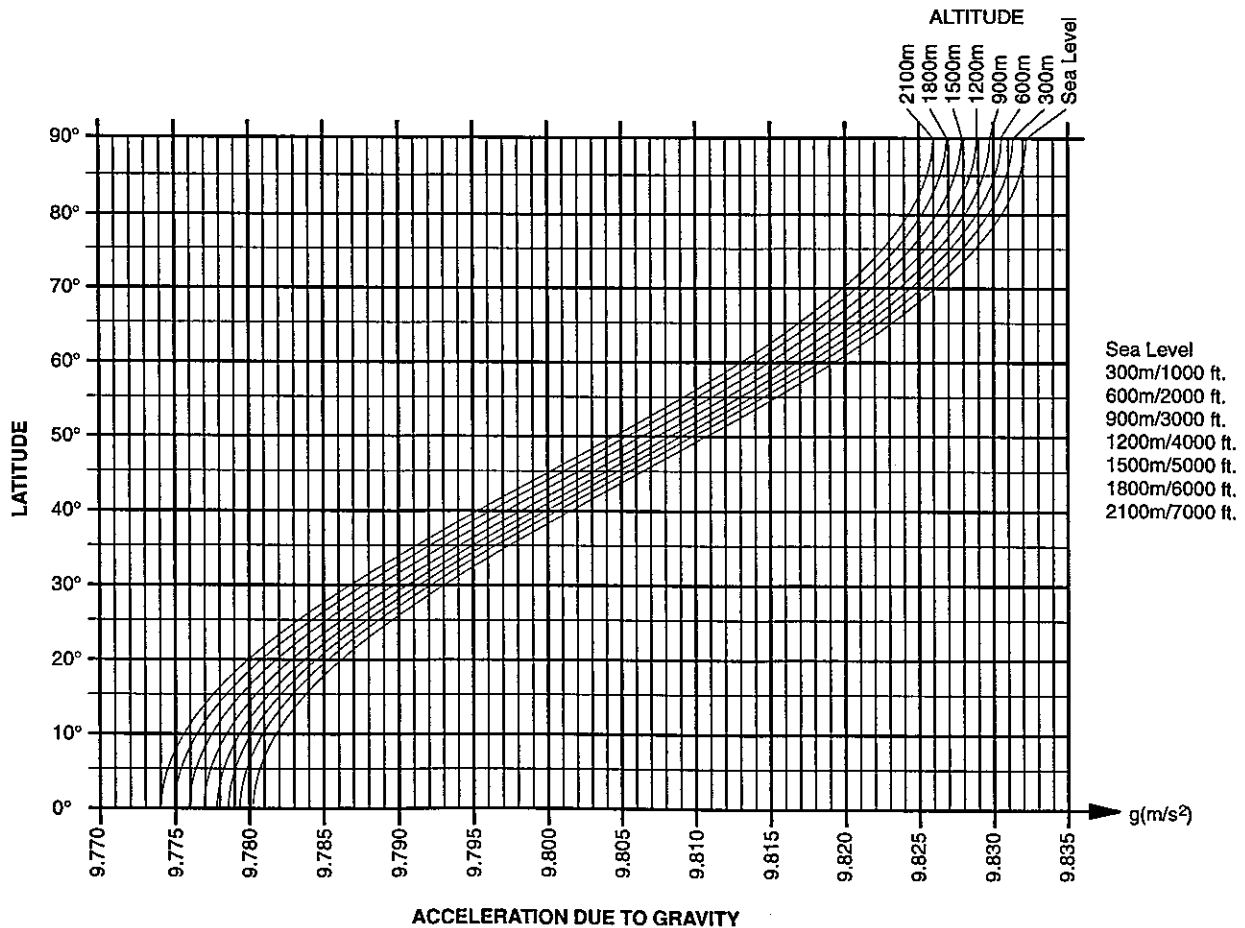
While pressing [UNITS], press [RE-ZERO] to enter the value. "END" will be displayed.

## SPECIFICATIONS

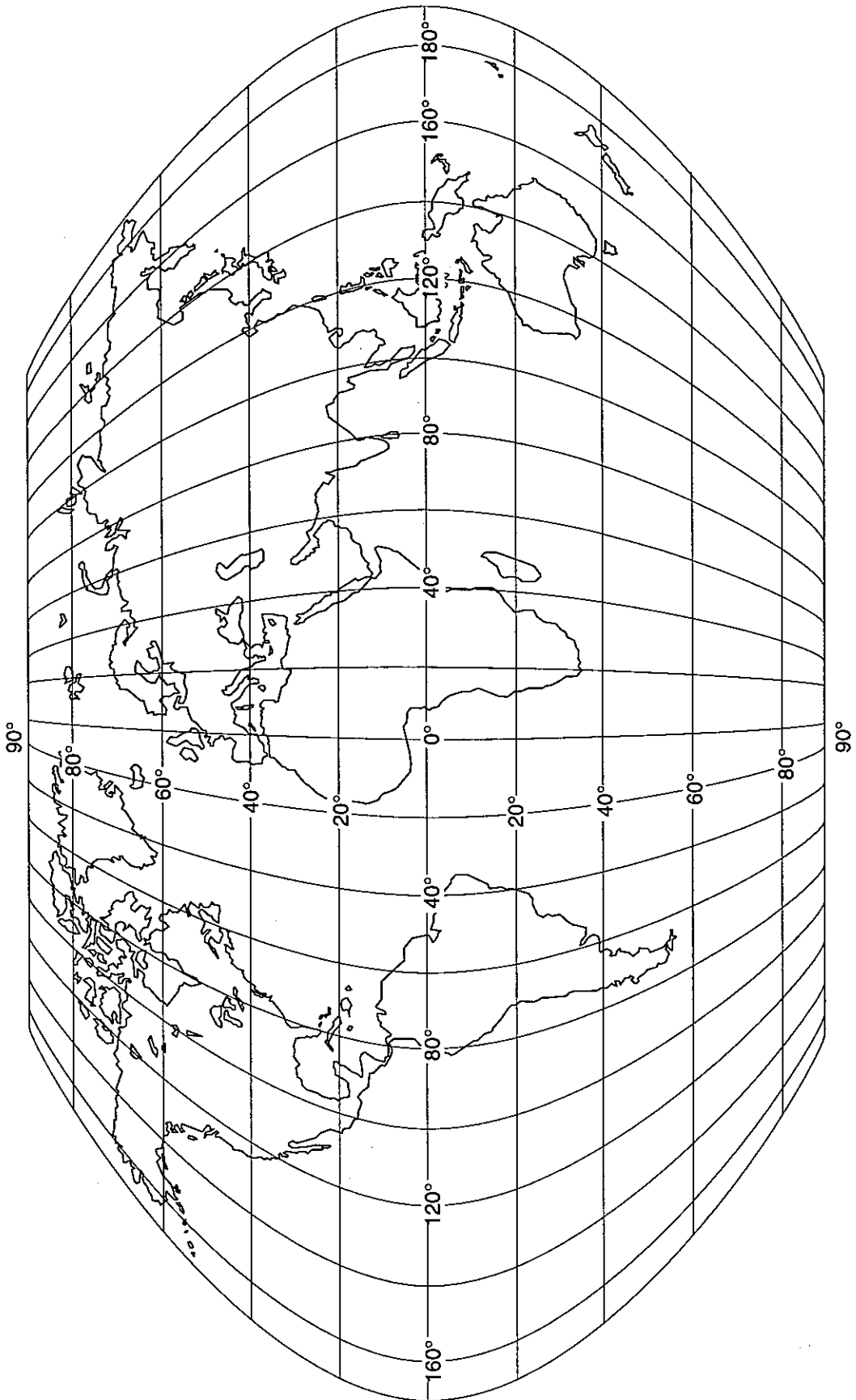
MODEL	SK-1000 SK-1000D	SK-2000 SK-2000D	SK-5000 SK-5000D	SK-10K SK-10KD	SK-20K SK-20KD	SK-30K SK-30KD
Capacity	1000g 2.2lb	2000g 4.4lb	5000g 11lb	10kg 22lb	20kg 44lb	30kg 66lb
Calibration weight	1000g±0.1g	2000g±0.2g	5000g±0.5g	10kg±1g	20kg±2g	30kg±2g
Resolution	0.5g 0.001lb	1g 0.002lb	2g 0.005lb	0.005kg 0.01lb	0.01kg 0.02lb	0.02kg 0.05lb
Non-linearity	±1g	±2g	±4g	±0.01kg	±0.02kg	±0.02kg
Repeatability	±0.5g	±1g	±2g	±0.005kg	±0.01kg	±0.02kg
Span drift	±0.015%/°C TYP (5°C~35°C /41°F~86°F)					
Display	25mm/0.98inch, 7segment liquid crystal display ,Dual display(SK-D)					
Platform size	230mm(W)×190mm(D) / 9.05in(W)×7.48in(D)					
Dimensions	244(W)×232(D)×137(H) mm 9.61(W)×9.13(D)×5.39(H) inches					
Weight (approximately)	1.6kg/3.53lb			1.9kg/4.19lb		
Power	6 × R20P/LR20/ "D" size batteries or AC adaptor					
Battery life cells	Approximately 600 hours with manganese type 1200 hours with alkaline cells at 20°C/68°F					
Operating temp.	-10°C~40°C /14°F~104°F, Less than 85%RH (Non-condensing)					
Accessories	This Manual					
Options	AC Adaptor					

# THE VALUE OF GRAVITY AT VARIOUS LOCATIONS

Amsterdam	9.813 m/s <sup>2</sup>	Manila	9.784 m/s <sup>2</sup>
Athens	9.800 m/s <sup>2</sup>	Melbourne	9.800 m/s <sup>2</sup>
Auckland NZ	9.799 m/s <sup>2</sup>	Mexico City	9.779 m/s <sup>2</sup>
Bangkok	9.783 m/s <sup>2</sup>	Milan	9.806 m/s <sup>2</sup>
Birmingham	9.813 m/s <sup>2</sup>	New York	9.802 m/s <sup>2</sup>
Brussels	9.811 m/s <sup>2</sup>	Oslo	9.819 m/s <sup>2</sup>
Buenos Aires	9.797 m/s <sup>2</sup>	Ottawa	9.806 m/s <sup>2</sup>
Calcutta	9.788 m/s <sup>2</sup>	Paris	9.809 m/s <sup>2</sup>
CapeTown	9.796 m/s <sup>2</sup>	Rio de Janeiro	9.788 m/s <sup>2</sup>
Chicago	9.803 m/s <sup>2</sup>	Rome	9.803 m/s <sup>2</sup>
Copenhagen	9.815 m/s <sup>2</sup>	San Francisco	9.800 m/s <sup>2</sup>
Cyprus	9.797 m/s <sup>2</sup>	Singapore	9.781 m/s <sup>2</sup>
Djakarta	9.781 m/s <sup>2</sup>	Stockholm	9.818 m/s <sup>2</sup>
Frankfurt	9.810 m/s <sup>2</sup>	Sydney	9.797 m/s <sup>2</sup>
Glasgow	9.816 m/s <sup>2</sup>	Taichung	9.789 m/s <sup>2</sup>
Havana	9.788 m/s <sup>2</sup>	Taiwan	9.788 m/s <sup>2</sup>
Helsinki	9.819 m/s <sup>2</sup>	Taipei	9.790 m/s <sup>2</sup>
Kuwait	9.793 m/s <sup>2</sup>	Tokyo	9.798 m/s <sup>2</sup>
Lisbon	9.801 m/s <sup>2</sup>	Vancouver, BC	9.809 m/s <sup>2</sup>
London (Greenwich)	9.812 m/s <sup>2</sup>	Washington DC	9.801 m/s <sup>2</sup>
Los Angeles	9.796 m/s <sup>2</sup>	Wellington NZ	9.803 m/s <sup>2</sup>
Madrid	9.800 m/s <sup>2</sup>	Zurich	9.807 m/s <sup>2</sup>



# WORLD MAP





**A&D Company, Limited**

3-23-14 Higashi-Ikebukuro, Toshima-ku, Tokyo 170 JAPAN  
Telephone: [81] (03) 5391-6132 Fax: [81] (03) 5391-6148

**A&D ENGINEERING, INC.**

1555 McCandless Drive, Milpitas, CA. 95035 U.S.A.  
Telephone: [1] (408) 263-5333 Fax: [1] (408)263-0119

**A&D INSTRUMENTS LTD.**

Abingdon Science Park, Abingdon, Oxford OX14 3YS ENGLAND  
Telephone: [44] (0235) 550420 Fax: [44] (0235) 550485

**<German Sales Office>**

Genfer Strasse 6, Niedereschbach 60437 Frankfurt Main 50 GERMANY  
Telephone: [49] (069) 507-1017 Fax:[49] (069) 507-2054

**A&D MERCURY PTY. LTD.**

32 Dew Street, Thebarton, South Australia 5031 AUSTRALIA  
Telephone: [61] (08) 352-3033 Fax: [61] (08) 352-7409

**A&D KOREA Limited**

Han Bldg. 277-21, Nonhyun-Dong, Kangnam-Gu, Seoul, KOREA  
Telephone: [82] (02) 517-4101 Fax: [82] (02) 546-4264