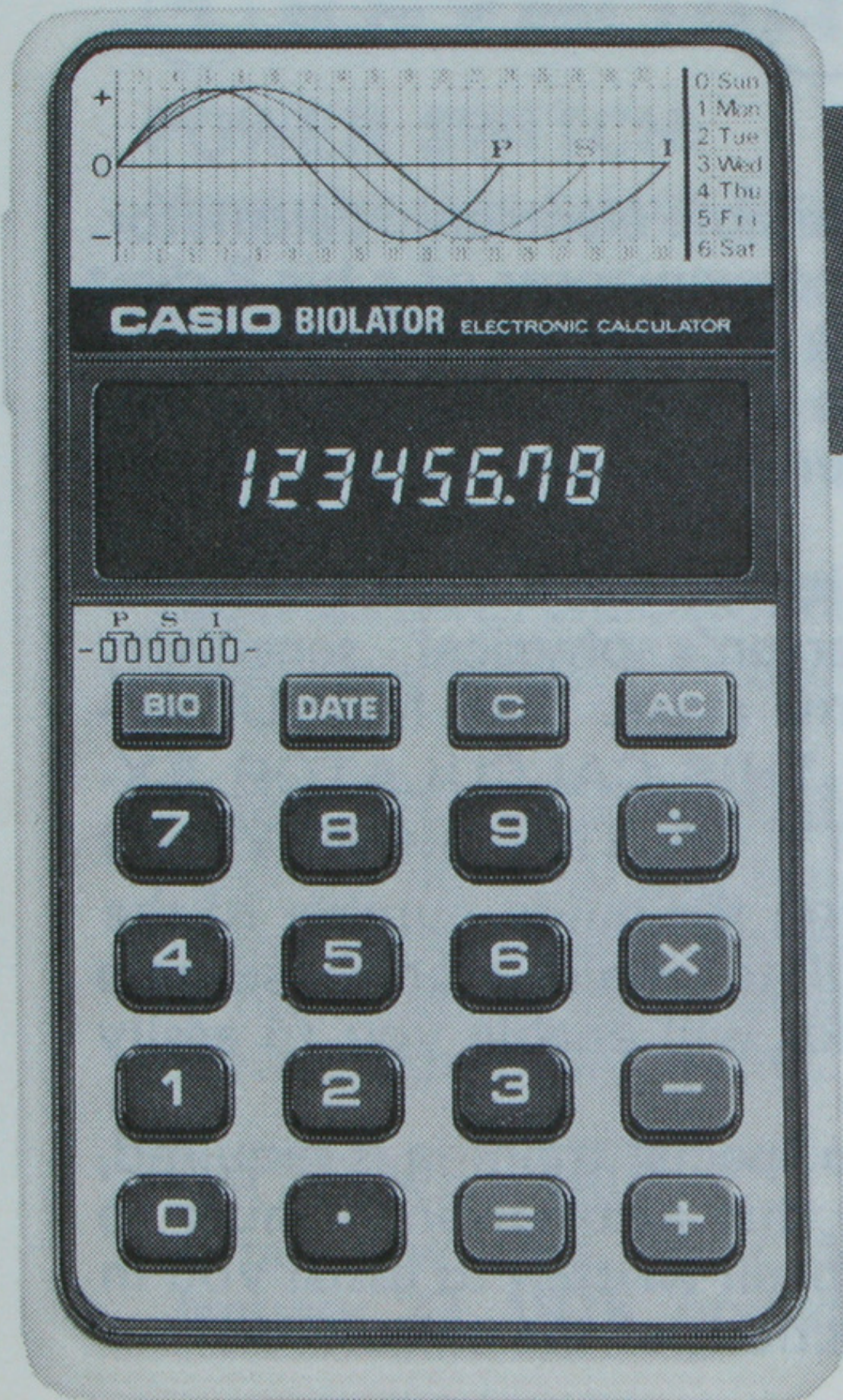


ELECTRONIC CALCULATOR

CASIO BIOLATOR

H-801

**INSTRUCTION
MANUAL**



INTRODUCTION

Dear customer,

Congratulations on your purchase of this pocketable electronic calculator. In addition to giving you the daily calculating conveniences of a big 8-digit capacity, constants in four functions, powers & reciprocals, it also has the special capability of being able to obtain the number of days between dates, and to give the accurate guide number for each rhythm on the "Biorhythm" scale.

Biorhythm is a theory of statistical probability which is claimed by its advocates to be capable of indicating a person's physical, sensitivity (emotional) and intellectual states within a time cycle. THE MANUFACTURER, DISTRIBUTOR AND SELLER OF THIS CALCULATOR EXPRESS NO OPINION AS TO THE VALIDITY OF THE BIORHYTHM THEORY. This calculator, capable of computing the guide number of the rhythm, is the first of its kind in the calculator field. For those who believe in the biorhythm theory, this calculator will enable you to easily calculate your biorhythm guide number.

To utilize the full features of this calculator, no special training is required, but we suggest you take a few minutes with this instruction manual to become familiar with its many abilities. It has been written to assist you in understanding the various control keys and functions of the calculator.

1 KEYBOARD

POWER SWITCH:

Move the side-switch forward to start a calculation.

READ-OUT 0.:

Shows each entry and result through an 8-digit digitron tube panel, suppressing unnecessary 0's (zeroes).

NUMERAL/DECIMAL POINT KEYS 0 ~ 9, .:

Enters numerals. For decimal places, use the . key in its logical sequence.

FUNCTION COMMAND/RESULT KEYS +, -, ×, ÷, =:

Press the numeral and function command keys in the same logical sequence as the formula and the = key obtains the answer.

A full floating decimal and underflow system work in four functions to protect significant digits.

DATE KEY DATE:

Enters the date (Year, Month & Day). To enter the date, for example, January 23, 1976, operate 7 8 DATE 1 DATE 2 3 DATE simultaneously.

BIORHYTHM KEY **BIO** :

Obtains the Biorhythm guide number.

CLEAR KEY **C** :

Clears keyboard entry for correction. To correct the function commands, depress the appropriate function key (**+**, **-**, **x** or **÷**). The last command depressed is effective.

ALL CLEAR KEY **AC** :

Clears the entire machine, and releases the overflow check.

BIORHYTHM GUIDE NUMBER CURVES:

The guide number curves are shown in blue [P, physical], red [S, sensitivity (Emotional)] and green [I, intellectual].

REFERENCE TABLE FOR THE DAY OF THE WEEK:

When the information (Year) **DATE** (Month) **DATE** (Day) **DATE** is entered, the figure in the 1st column corresponds to the day of the week as shown in the reference table.

② DISPOSABLE DRY BATTERY OR AC OPERATION

This calculator operates on either dry batteries or AC with the use of the AC ADAPTOR.

DRY BATTERY OPERATION

With two AA size Manganese dry batteries (SUM-3) it operates for approximately 13 hours continuously.

Even when battery power decreases, the display will merely darken but cause no miscalculation. When you have finished your calculation, be sure to switch off the power to save the battery.

To change batteries, put the power switch off first. Slide open the battery cover and replace batteries.

AC OPERATION

If you are in a 117V area, for instance, use a 117V AC ADAPTOR. When you use an AC ADAPTOR of a different voltage, it may cause damage to both the AC ADAPTOR and calculator. Plug the applicable AC ADAPTOR (100, 117, 220 or 240V) into the AC outlet and the cord into the calculator. When plugged in, battery power supply stops automatically, so battery power is not wasted.

* To prevent damage to the calculator, USE ONLY THE AC ADAPTOR recommended by your dealer.

3 OVERFLOW

Overflow is indicated by an "E." sign and stops further calculation. To release the locked registers caused by the overflow check, depress the **AC** key.

Overflow occurs:

- 1) When an answer, whether intermediate or final, exceeds 8-digit integers (or 7 digits, when the figure is negative).
- 2) When in date or biorhythm calculations, operations other than subtraction are attempted.
- 3) When unreasonable operations are performed on date or biorhythm calculations.

4 BASIC OPERATIONAL EXAMPLES

* There is no need to depress the **AC** or **C** key prior to starting each new calculation.

EXAMPLE	OPERATION	READ-OUT
23+56+89=168	23+56+89	168.

EXAMPLE	OPERATION	READ-OUT
$(12+3-45.6) \times 89 \div 7 = -389.0571$	12+3-45.6x89÷7	-389.0571

Note: To perform a problem commencing with a negative figure, operate **AC** **-** ENTRY in sequence.

$(-40) \times 28 \div 5 = -224$	AC - 40x28÷5	-224.
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* Calculation with a constant is performed as follows:

ENTRY **x** (**÷**, **+** or **-**) ENTRY **=** → To be set as a constant.

EXAMPLE	OPERATION	READ-OUT
$3+1.2=4.2$	3+1.2	4.2
	(1.2 is set as a constant.)	
$6+1.2=7.2$	6	7.2
$4-5.6=-1.6$	4-5.6	-1.6
	(5.6 is set as a constant.)	
$12-5.6=6.4$	12	6.4

EXAMPLE	OPERATION	READ-OUT
$9 \times 23 = 207$	$9 \times 23 \text{ [C]}$ (23 is set as a constant.)	207.
$4.56 \times 23 = 104.88$	$4 \text{ [C]} 56 \text{ [C]}$	104.88
$41 \div 2.5 = 16.4$	$41 \text{ [C]} 2 \text{ [C]} 5 \text{ [C]}$ (2.5 is set as a constant.)	16.4
$52 \div 2.5 = 20.8$	52 [C]	20.8
$7 + 8 + 8 - 3 - 3 = 17$	$7 \text{ [C]} 8 \text{ [C]} 8 \text{ [C]} 3 \text{ [C]} 3 \text{ [C]}$	17.

Performing a new operation clears the previous constant and also sets the new constant in the same manner as the above.

* Power and reciprocal calculations can be performed by the use of the constant capability.

EXAMPLE	OPERATION	READ-OUT
$2.5^2 = 6.25$	$2 \text{ [C]} 5 \text{ [C]} \text{ [x]}$	6.25
$2.5^3 = 15.625$	[C]	15.625
$2.5^4 = 39.0625$	[C]	39.0625

EXAMPLE	OPERATION	READ-OUT
$\frac{1}{(2+3) \times 4.5}$ $= 0.0444444 \dots$	$2 \text{ [C]} 3 \text{ [C]} 4 \text{ [C]} 5 \text{ [C]} \text{ [1/x]}$ [C] [C]	22.5 1. 0.0444444
$\frac{9876}{123+456}$ $= 17.056994 \dots$	$123 \text{ [C]} 456 \text{ [C]} \text{ [1/x]}$ [C] 9876 [C]	579. 1. 17.056994

5 DATE CALCULATION

* The figure displayed in the 1st column indicates the day of the week at the date displayed. ←

Year [DATE] Month [DATE] Day [DATE] [C] Year [DATE] Month [DATE] Day [DATE] [C]
 (A) (B)
 Obtains the number of days between dates (A) and (B).

* Input for date calculation is limited to the perpetual calendar range, i.e., January 1, 1901 through December 31, 1999.

* The calculator computes date calculations by entering only the last 2 digits of the year.

EXAMPLE	OPERATION	READ-OUT
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Find the number of days between December 5, 1975 and August 31, 1974 and also find the day of the week for each date.

75	<input type="text" value="DATE"/>	12	<input type="text" value="DATE"/>	5	<input type="text" value="DATE"/>	<input type="text" value="="/>	75.12.05.-5	(Friday)
74	<input type="text" value="DATE"/>	8	<input type="text" value="DATE"/>	31	<input type="text" value="DATE"/>	<input type="text" value="="/>	74.08.31.-6	(Saturday)
						<input type="text" value="="/>	461.	

* Use the key to clear a wrongly entered number and re-operate correctly from the Year entry. However, when the key has been depressed after making the Day entry, the key does not function.

⑥ BIORHYTHM CALCULATION

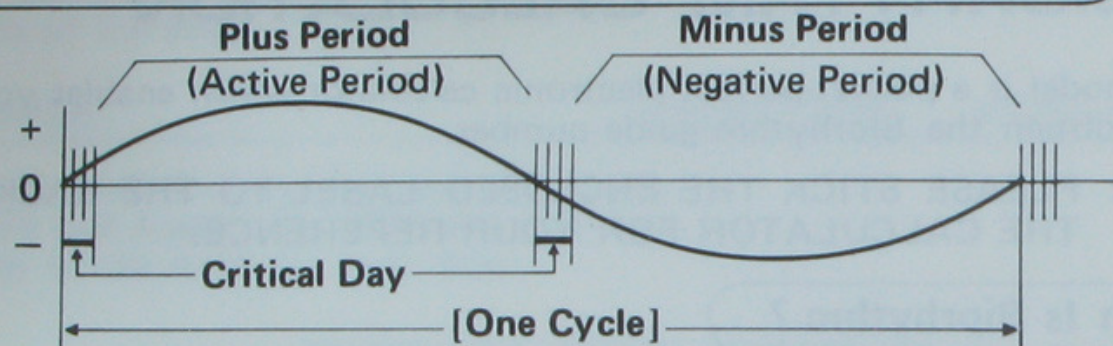
This model is a pocket-perfect electronic calculator which enables you to easily obtain the Biorhythm guide number.

NOTE: PLEASE STICK THE ENCLOSED LABEL TO THE BACK OF THE CALCULATOR FOR YOUR REFERENCE.

What Is Biorhythm ?

Biorhythm, or the "cyclic science of life" was discovered by a German doctor at the beginning of this century. It is based on the following theory: "Man is living on three rhythms with his birthday as the starting point : a physical rhythm of a 23-day cycle, a sensitivity (emotional) rhythm of a 28-day cycle, and an intellectual rhythm of a 33-day cycle. These three rhythms of different cycles mingle with each other to have various effects on human activities every day." It is said that these effects can be traced and act as a barometer of one's condition (well, poor) and luck (good, bad).

One's rhythm takes the following form during a cycle.



The first half of one cycle is called the plus period, the last half the minus period. The day when the rhythm curve intersects the line 0 is called a "critical day".

● **Plus Period**

When the guide number of P [Physical] shows 2 to 11, S [Sensitivity (Emotional)] 2 to 14, and I [Intellectual] 2 to 16, is when one is in active and good condition.

● **Minus Period**

When P [Physical] is 13 to 23, S [Sensitivity (Emotional)] 16 to 28, and I [Intellectual] 18 to 33, is when one needs a rest and is in bad condition.

● **Critical Day**

This is a day when one's rhythm changes from a plus state to a minus state or from minus to plus (zero day). On such a day, it is said at this time that one's condition becomes unstable and stress builds up as some energy suddenly changes one's character. Its advocate's claim that accidents are more likely to occur on the day when P [Physical] and S [Sensitivity (Emotional)] are critical.

If the exact time of one's birth is known, strictly speaking a critical day falls 12 hours before and after that time, or in a 24 hour period. But each day before and after the critical day can be regarded as a "semi-critical day".

[**Guide Number of Critical and Semi-Critical Days**]

Rhythm	Critical Days	Semi-Critical Days
P [Physical]	1 · 12	2 · 11 · 13 · 23
S [Sensitivity (Emotional)]	1 · 15	2 · 14 · 16 · 28
I [Intellectual]	1 · 17	2 · 16 · 18 · 33

If you believe in biorhythm, or merely wish to compute your biorhythm guide number for fun, this calculator will enable you to do so simply.

Before Using Biorhythm

Even those who believe in biorhythm caution that biorhythm should be used with wisdom and not fatalistically. Such thoughts are "Everything will be well during the plus period, but not so during the minus period" or "I will avoid critical days by staying at home.", are not the objectives of biorhythm. As far as biorhythm is concerned, plus and minus contrast each other in much the same way as electrical + and - or the S and N poles of a magnet. The rhythm itself has less effect on the human body than one's "day-and-night rhythm". Also, the "critical day" is not necessarily a day when something dangerous or bad occurs. Rather, it should be considered as a day of "self-control, training and strengthening" to conquer any instability of the mind and body by paying a little more attention to oneself than usual. Any fear or misgivings arising from results of the calculated guide number and calendar are unwarranted. It is also a mistake to consider that biorhythm is the same as autosuggestive fortune-telling. Biorhythm is merely a theory based on statistics, so it does not always apply to everybody nor apply at all times.

Example of biorhythm calculations

The guide numbers of P [Physical], S [Sensitivity (Emotional)] and I [Intel-

lectual] are obtained by depressing the **BIO** key instead of the **DATE** key in the same manner as a date calculation. The biorhythm reading can then be read off from the guide numbers in the display. These guide numbers are displayed from left to right in the sequence as shown at the upper part of the **BIO** key.

EXAMPLE	OPERATION	READ-OUT
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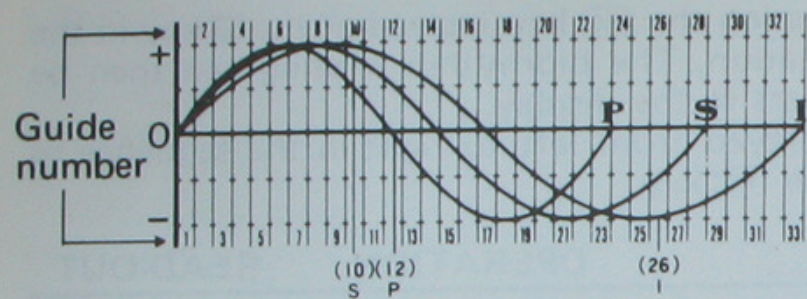
Mr. A was born on June 9, 1947.
What is his biorhythm condition of January 21, 1976 ?

Step (1)	76 DATE 1 DATE 21 DATE DATE	76.01.21.-3
	47 DATE 6 DATE 9 DATE BIO	-12.10.26-

Each guide number is read:	Physical:	12
	Sensitivity (Emotional):	10
	Intellectual:	26

Note: The guide numbers also can be obtained by the operation step of [Date of birth **DATE** Date to be obtained **BIO**].

Step (2) Examine each position from the guide number curves shown in the upper part of the read-out.



* The guide number curves are shown in blue [P (Physical)], red [S (Sensitivity) (Emotional)] and green [I (Intellectual)].

Step (3) Check conditions and references of each rhythm from the table stuck at the back of the calculator.

P (PHYSICAL)	+	2~11	PEAK DAYS	ENDURANCE AND STRENGTH AT HEIGHT
	0	1·12	CRITICAL DAYS	CAUTION = ACCIDENT PRONE
	-	13~23	EBB DAYS	REST = REDUCE ACTIVITIES
S (SENSITIVITY) (EMOTIONAL)	+	2~14	HARMONIOUS DAYS	ENJOY SOCIAL RELATIONSHIPS
	0	1·15	CRITICAL DAYS	CAUTION = UNSTABLE
	-	16~28	STRESS DAYS	MOODINESS = NEGATIVE OUTLOOK
I (INTELLECTUAL)	+	2~16	CREATIVE DAYS	JUDGEMENT AND PERCEPTION KEENEST
	0	1·17	CRITICAL DAYS	CAUTION = ERROR PRONE
	-	18~33	BELOW PAR DAYS	AVOID DECISIONS, NEW PROJECTS

Applications of Biorhythm

Kind of Rhythm	Sphere of Rhythm	Plus Period	Critical Day	Minus Period
P [Physical] 23-day cycle Centering around motor activities	physical strength, stamina, endurance, durability, resisting power, self-confidence, courage, progressive spirit	<u>full of stamina</u> physical buildup training, competition, travel, surgical operation, work that requires physical strength	<u>unstable in physical condition</u> headache, fever, stroke, worsening of condition of disease, drunken sickness, outbreak of accidents	<u>lacking in stamina</u> easy to get tired, infectious to disease, medicines work well.
S [Sensitivity (Emotional)] 28-day cycle Centering around old-cortical activities of the cerebrum (functions without consciousness)	sentiment, cooperativeness, emotion, cheerfulness, art, creative power, moral energy, intuition	<u>full of energy</u> contest, undergoing an examination, public performance, courting, date, job that needs teamwork	<u>unstable in emotion</u> slip of the tongue, irresponsible utterances, quarrel, dispute, worsening of disease, cerebral paralysis, lowering of reaction	<u>lacking in energy</u> take care personal relations, One lives a humdrum life.
I [Intellectual] 33-day cycle Centering around new-cortical activities of the cerebrum (functions with consciousness)	thinking power, understanding, adaptability, calmness, logicity, wit, judgement, concentration	<u>excellent in thinking power</u> study of weak subjects, maing a plan, examination, decision	<u>unstable in intellectual power</u> failure of memory, mistake, error, lowering of ability and attentiveness, outbreak of accidents	<u>lacking in thinking power</u> gathering and adjustment of data, job or study that needs repetition

7 SPECIFICATIONS

OPERATIONS:

Four basic functions, chain and mixed operations, constants in four functions, square/powers, reciprocals, counting the number of days between dates, finding the day of the week, biorhythm calculations, true credit balance and calculations involving decimal places.

CAPACITY:

Entry/display8 digits (7 digits for negatives)
Addition/subtraction8 digits (7 digits for negatives)
Multiplication/division8 digits (7 digits for negatives)
Program of date and biorhythm is set for 1901 ~ 1999.

OPERATING SYSTEM: By 3 working registers.

DECIMAL POINT: Full floating decimal point system with foolproof underflow.

NEGATIVE NUMBER: Indicated by minus (-) sign on the left of the figure.

OVERFLOW CHECK: Indicated by the "E." sign, locking the calculator.

READ-OUT: Zero suppression, digitron tube panel.

MAIN COMPONENT: One chip LSI

POWER CONSUMPTION: 0.2 W

POWER SOURCE:

AC: 100, 117, 220 or 240V ($\pm 10V$), 50/60Hz, with applicable AC Adaptor.

DC: Two AA size manganese dry batteries (SUM-3) operate about 13

hours continuously.

Two AA size alkaline dry batteries (AM-3) operate about 34 hours continuously.

USABLE TEMPERATURE: $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ($32^{\circ}\text{F} \sim 104^{\circ}\text{F}$)

DIMENSIONS: 23mm H x 74mm W x 125mm D
(1" H x 3" W x 5" D)

WEIGHT: 141 g (5 oz) including batteries.

CARE OF YOUR NEW ELECTRONIC CALCULATOR

The calculator is a durable, precision-made instrument which will provide you with years of trouble-free service.

To help ensure this we recommend that the inside of the calculator not be touched. It is also inadvisable to subject the calculator to hard knocks, drops, and unduly strong key pressing.

Extreme cold (below 32 F or 0°C), heat (above 104 F or 40°C) and humidity may also effect the function of the calculator. When you do not use the calculator for a long period, take out the batteries to prevent damage if the batteries leak. Special care should be taken not to leave the dead batteries inside the calculator. Please make sure you switch off the power when you finish your calculations or intend to open the cover to change batteries. Should the calculator need service, take the unit to the store where purchased or to a nearby dealer.

CASIO®

英 Printed in Japan