

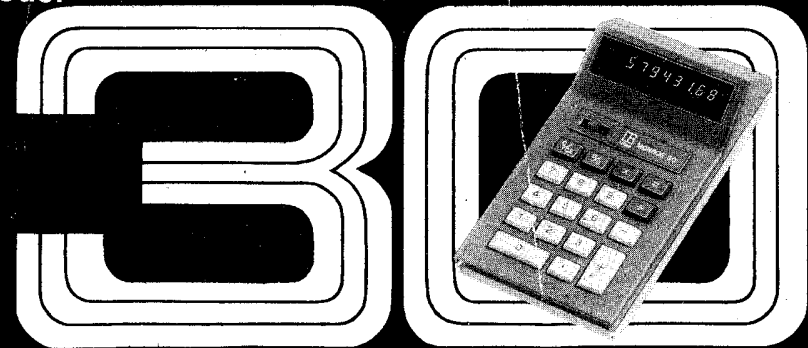
Portable Electronic Display Calculator Model **30**



Monroe, The Calculator Company
Orange, New Jersey, U.S.A. • Toronto, Canada • Zurich, Switzerland
Sales and Service Throughout the World

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Portable
Electronic Display Calculator
Model



Monroe, The Calculator Company

INTRODUCTION

We'd like to extend our congratulations on your discriminating taste in calculators. In buying a Model 30, you have purchased the end result of meticulous quality workmanship backed by Monroe's 60-plus years of solid experience. Your Model 30 full function calculator features an eight-digit display capacity, automatic constant multiplication and division, sequential and percent calculations, floating (F) and + (Add Mode) decimal selection, zero suppression for longer operating time, overflow, underflow, and a bright, large, glare-free planar display. The spacious keyboard and the angle of the display facilitate desk-top as well as hand-held operation. Once you work with Monroe's Model 30, you'll know why we take justifiable pride in this dynamic new product.



Litton

MONROE

Model **30**

Portable Electronic Display Calculator

operating instructions

Monroe, The Calculator Company

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Model 30

GENERAL SPECIFICATIONS

Dimensions: Length 6 in. (15.2 cm); width 3.5 in. (8.9 cm);
height 2 in. (5.1 cm)

Weight: 11 oz. (312 gm)

Primary Components: MOS/LSI

Operating Temperature: 32° F (0° C) to 104° F (40° C)

Operating Controls

ON/OFF DECIMAL SELECTOR SWITCH

When Model 30 is turned on, it is automatically cleared and ready for use. Decimal positions are F (full floating) and + (add-mode).

CLEAR AND CLEAR ENTRY KEY

Clears incorrect entries; a pending multiplication or division operation or an overflow condition.

NUMERIC ENTRY KEYS

Enter numbers and decimal point exactly as you would write them.

PLUS KEY

Adds entry to the add register and displays the sum. Repetitive depressions cause repeat addition. If depressed after a multiplication percentage operation, it adds the result to the multiplicand.

PERCENT KEY

Calculates percentages. Has add-on and discount capabilities.

MULTIPLY KEY

Enters number in display as a multiplicand (first number in a multiplication sequence) or completes a calculation and sets up result as a multiplicand.

EQUALS KEY

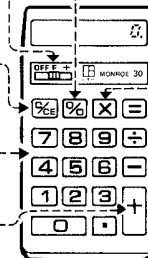
Completes a multiplication or division operation.

DIVIDE KEY

Enters number in display as a dividend (first number in a division sequence) or completes a calculation and sets up result as a dividend.

MINUS KEY

Subtracts entry from add register, displays the difference. Repetitive depressions cause repeat subtraction. If depressed after a multiplication percentage operation, it subtracts result from multiplicand.



OPERATING CHARACTERISTICS AND TECHNIQUES

DECIMAL SYSTEM

Enter numbers and decimal point exactly as you would write them. Entries may contain 8 whole or 7 decimal digits or any combination thereof.

F (FULL FLOATING) The decimal point in results will automatically position itself to allow maximum decimal accuracy within the 8 digit display capacity, without the loss of whole number digits.

Example: $10 \div 3 = 3.3333333$

+ (ADD-MODE) The last two digits in any entry will automatically be displayed as decimals unless the decimal key is depressed. If the result obtained by depressing the $\frac{\square}{\square}$ or $\frac{\square}{\square}$ keys contains more than two decimal places the result will automatically be rounded to two decimal places. This special setting is designed for convenience in working with monetary values.

Example: $\$13.75 + 145.00 = \158.75

Decimal at +

Depress $\frac{\square}{\square}$

Numbers are set as 1375 +, 14500+ and displayed as 13.75, 145.00. If two zeros are not

entered, as in 145.00, the displayed number would be 1.45. An alternate method when entering a whole dollar amount, such as \$145.00, is to depress the decimal point key instead of entering two zeros.

DECIMAL FLEXIBILITY

The decimal setting may be changed between calculations without affecting the accuracy of a number being entered, or a number already stored in the calculator.

CLEAR AND CLEAR ENTRY KEY $\frac{\square}{\square}$

Depression of this key clears the entire calculator unless there is an entry in progress or an overflow condition exists. If there is an entry in progress depression of the $\frac{\square}{\square}$ key clears only the display entry. If an overflow condition exists depression of the $\frac{\square}{\square}$ key clears only the overflow condition without disturbing the constant value or results.

INSIGNIFICANT ZERO SUPPRESSION

Unnecessary zeros to the left of the most significant displayed digit are not displayed.

UNDERFLOW

In results containing a combination of whole and decimal digits in excess of the display capacity of 8, the decimal point will shift to accommodate the 8 most significant digits, not to exceed 8 whole numbers.

Example: $12345.679 \times 27.01 = 333456.78979$

Instructions:

Enter	Depress	Display
12345.679	\times	12345.679
27.01	$=$	333456.78

OVERFLOW

$\overline{\text{E}}$ at the left of the display indicates that the 8-digit display capacity has been exceeded. The calculator must be cleared by depressing the CE key before continuing.

FULLY AUTOMATIC CONSTANTS

The value entered with the MC key or the result obtained with the MC key is automatically retained as a constant factor. The last divisor entered is automatically retained as a constant divisor.

Examples: $2 \times 4 = 8$ $2 \times 6 = 12$ $2 \div 4 = .5$ $12 \div 4 = 3$

Instructions:

Enter	Depress	Display
2	MC	2.
4	$=$	8.
6	$=$	12.
2	\div	2.
4	$=$	0.5
12	$=$	3.

AUTOMATIC 5/4 ROUNDOFF IN + (ADD MODE) SETTING

In all multiplication and division operations the last digit displayed is increased by one if the following digit would have been five or greater.

Example: $12.75 \times 2.3575 = 30.058125$

Instructions:

Decimal at +

Depress $\boxed{\%E}$

Enter	Depress	Display
12.75	$\boxed{\times}$	12.75
2.3575	$\boxed{=}$	30.06

SEQUENTIAL CALCULATION

Multiplication and division calculations are performed on the Model 30 as you would write them. For greater accuracy intermediate results are always carried to maximum capacity.

Example: $10 \div 6 \times 7 = 11.67$

Instructions:

Decimal at F

Depress $\boxed{\%E}$

Enter	Depress	Display
10	$\boxed{\div}$	10.
6	$\boxed{\times}$	1.6666666
7	$\boxed{=}$	11.666666

APPLICATIONS

ADDITION/SUBTRACTION WITH REPETITIVE ENTRIES

EXAMPLE:

1.23
 1.23
 4.56
 -1.39
 -1.39
 -5.89
 -1.65 (credit balance)

INSTRUCTIONS:

Decimal at +

Depress $\frac{\%}{CE}$

Enter	Depress	Display
123	$\frac{+}{+}$	1.23
	$\frac{+}{+}$	2.46
456	$\frac{+}{+}$	7.02
139	$\frac{-}{-}$	5.63
	$\frac{-}{-}$	4.24
589	$\frac{-}{-}$	- 1.65

Negative amounts are always indicated by a (-) minus sign in the left of the display.

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MULTIPLICATION AND DIVISION

EXAMPLE:

$45.67 \times 4.56 = 208.2552$

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
45.67	$\frac{x}{x}$	45.67
4.56	$\frac{=}{=}$	208.2552

EXAMPLE:

$37.55 \div 50.05 = 0.7502497$

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
37.55	$\frac{\div}{\div}$	37.55
50.05	$\frac{=}{=}$	0.7502497

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CONSTANT MULTIPLICATION AND DIVISION

EXAMPLE:

$$1.65 \times 211 = 348.15$$

$$1.65 \times 59 = 97.35$$

$$1.65 \times 67 = 110.55$$

INSTRUCTIONS:

Decimal at F
Depress $\boxed{\%CE}$

Enter	Depress	Display
1.65	$\boxed{\times}$	1.65
211	$\boxed{=}$	348.15
59	$\boxed{=}$	97.35
67	$\boxed{=}$	110.55

EXAMPLE: $48 \div 3$
 $12 \div 3$
 $10 \div 3$

INSTRUCTIONS:

Decimal at F
Depress $\boxed{\%CE}$

Enter	Depress	Display
48	$\boxed{\div}$	48.
3	$\boxed{=}$	16.
12	$\boxed{=}$	4.
10	$\boxed{=}$	3.3333333

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SEQUENTIAL CALCULATIONS

EXAMPLE:

$$7 \div 2 \div 1.6 \times 5 \times 2 = 21.875$$

INSTRUCTIONS:

Decimal at F
Depress $\boxed{\%CE}$

Enter	Depress	Display
7	$\boxed{\div}$	7.
2	$\boxed{\div}$	3.5
1.6	$\boxed{\times}$	2.1875
5	$\boxed{\times}$	10.9375
2	$\boxed{=}$	21.875

RAISING A NUMBER TO A POWER

EXAMPLE: $3^2 = 9$
 $3^3 = 27$
 $3^4 = 81$

INSTRUCTIONS:

Decimal at F
Depress $\boxed{\%CE}$

Enter	Depress	Display
3	$\boxed{\times}$	3.
	$\boxed{=}$	9.
	$\boxed{=}$	27.
	$\boxed{=}$	81.

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PERCENT CALCULATIONS

EXAMPLE: What is 16% of 150?

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
150	$\boxed{\times}$	150.
16	$\boxed{\%}$	24.

EXAMPLE: What % of 150 is 60?

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
60	$\boxed{\div}$	60.
150	$\boxed{\%}$	40.

EXAMPLE:

What is the amount of discount and the cost of an article marked \$30.45 less 12.5%?

INSTRUCTIONS:

Decimal at +

Depress $\frac{\%}{CE}$

Enter	Depress	Display
3045	$\boxed{\times}$	30.45
12.5	$\boxed{\%}$	3.81 (discount)
	$\boxed{-}$	26.64 (cost)

EXAMPLE:

What is the tax and the total cost of an article costing \$25.20? Tax is 4.0%

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INSTRUCTIONS:

Decimal at +

Depress $\frac{\%}{CE}$

Enter	Depress	Display
2520	$\boxed{\times}$	25.20
4.0	$\boxed{\%}$	1.01 (tax)
	$\boxed{+}$	26.21 (total cost)

PERCENTAGE DISTRIBUTION

EXAMPLE:

	Sales	Percent of Total Sales
Detroit	\$ 123,455	9.02
Boston	456,593	33.34
New York	789,325	57.64
	\$1,369,373	100%

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
123455	$\boxed{+}$	123455.
456593	$\boxed{+}$	580048.
789325	$\boxed{+}$	1369373.
	$\boxed{\div}$	1369373.
	$\boxed{=}$	1.00
123455	$\boxed{\%}$	9.01543
456593	$\boxed{\%}$	33.34321
789325	$\boxed{\%}$	57.64134

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CALCULATING SIMPLE INTEREST ON SAVING ACCOUNT

EXAMPLE:

Calculate the simple interest on an account of \$1500 at an interest rate of 7.5% for 160 days using a 360 day year.

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
160	<input type="checkbox"/> $\frac{\%}{CE}$	160.
360	<input type="checkbox"/> $\frac{\%}{CE}$	0.4444444
1500	<input type="checkbox"/> $\frac{\%}{CE}$	666.6666
7.5	<input type="checkbox"/> $\frac{\%}{CE}$	49.999995

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FIGURING A BILL

EXAMPLE: 5 doz. @ \$5.00 a doz.
discount rate = 5%
tax = 4%
freight charge = \$5.00

Find: Gross
Discount Amount
Net
Tax Amount
Gross Billing
Grand Total

INSTRUCTIONS:

Decimal at F

Depress $\frac{\%}{CE}$

Enter	Depress	Display
5	<input type="checkbox"/> $\frac{\%}{CE}$	5.
5	<input type="checkbox"/> $\frac{\%}{CE}$	25. (Gross)
	<input type="checkbox"/> $\frac{\%}{CE}$	25.
5	<input type="checkbox"/> $\frac{\%}{CE}$	1.25 (Discount Amt.)
	<input type="checkbox"/> $\frac{\%}{CE}$	23.75 (Net)
	<input type="checkbox"/> $\frac{\%}{CE}$	23.75
4	<input type="checkbox"/> $\frac{\%}{CE}$	0.95 (Tax Amount)
	<input type="checkbox"/> $\frac{\%}{CE}$	24.70 (Gross Billing)
5	<input type="checkbox"/> $\frac{\%}{CE}$	29.70 (Grand Total)

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GENERAL INFORMATION

Accessories

Four 1.5 v. size AA alkaline batteries
Converter/Charger for operation on household AC current
Nickel Cadmium rechargeable batteries
Soft contoured zippered cover

Battery Life

Alkaline batteries: average operating time 20 hours depending on batteries used*
Nickel Cadmium rechargeable batteries: operating time 11 hours on a full charge

Battery Discharge

When the Model 30 is approaching discharge, the display will flicker and then blank. No erroneous calculation will result when the batteries approach discharge. However, this is your signal to replace or recharge the batteries.

*For longer battery life, replacement batteries such as Mallory MN1500 or Eveready E91 should be used.

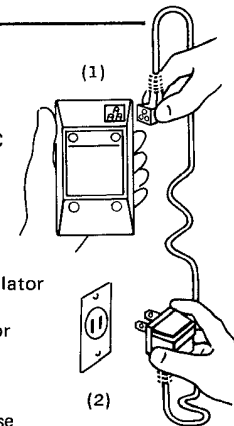
AC Operation with Converter/Charger

Connect the Converter/Charger to your Model 30 making sure the three holes in the plug align with the three prongs in the calculator (illus.1). Then connect Converter to an appropriate AC outlet (illus.2). Operation on AC current can take place with or without batteries in place.

Charging the Model 30

Connect the Converter/Charger to your Model 30 making sure the three holes in the plug align with the three prongs in the calculator (illus.1). Then connect Converter to an appropriate AC outlet (illus.2). Charging time ranges from 12 to 14 hours. The calculator can be used while being recharged.

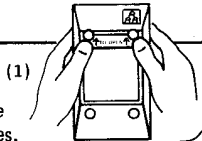
Warning: Never leave the Converter/Charger connected to the calculator when not connected to an AC outlet since this will cause battery discharge.



BATTERY REPLACEMENT

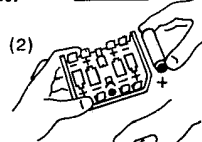
Opening the Calculator

Open the back of the calculator by sliding the two round feet in the direction of the arrows (illus.1). Remove bottom panel and batteries.



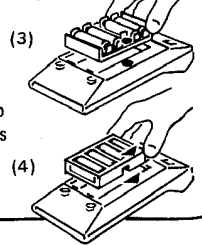
Alkaline Battery Replacement

Remove old batteries and insert new batteries in the battery cartridge making sure that the positive (+) and negative (-) symbols on the batteries correspond to the symbols on the cartridge (illus.2). Insert battery cartridge in calculator making sure that the ● symbol on the cartridge aligns with the ● symbol on the Model 30 case (illus.3).



Rechargeable Battery Replacement

To replace the rechargeable batteries, place the sealed cartridge into the Model 30 making sure that the ► symbol on the cartridge aligns with the ► symbol on the Model 30 case (illus.4).



CARE OF CALCULATOR

The soft zippered cover protects the keyboard and electronic components from dirt and dust when the calculator is not in use. Always be sure the calculator is off before putting it in its cover.

SERVICE

With 1600 factory-trained service personnel in the United States and Canada, Monroe enjoys a well-deserved reputation for prompt and expert service. Technical service, should the need arise, is available through your local Monroe branch office.