National Semiconductor

NS107

OPERATING INSTRUCTIONS

INTRODUCTION

Congratulations on your purchase of an NS107 permanent memory calculator. Besides all of the standard calculator features which allow you to figure interest charges, check bank and charge account statements, balance your budget and so on, the NS107 offers a new way to keep or check your financial records. The conversion memory enables error free and instant monetary conversions, metric conversions or any other type of conversion.

No matter how you use it, enjoy the convenience of safely storing results of important financial figurework in an instant.

IMPORTANT BATTERY INFORMATION

The display will blank out when the batteries need replacing. Changing the batteries is a simple task. Unscrew the battery compartment plate and replace the batteries positive (+) side up. Use G12 sliver oxide batteries such as Mallory 10L124, Rayovac RW44 or Eveready 386.

DISPLAY SPEED

The display speed decreases as the ambient temperature drops. The display does not function properly below 0°C (32°F).

GETTING STARTED

Press ON to turn on the calculator. The display shows AM 0.00 . The "AM" displayed means that the calculator decimal setting is add mode.

ADD MODE AND DS

The AM indicator lights when the decimal system is set in add mode. This means that the decimal point is automatically inserted 2 places to the left of entries made for addition or subtraction. Exception: If you press the decimal point key, • , add mode is overridden and the decimal point is placed at the position you selected.

Add mode is designed for adding or subtracting dollars and cents because the decimal point is always maintained at the proper position for entries and results. You may multiply and divide while add mode is set; however, notice that the first entry made on × or ÷ has the decimal point placed in the add mode position. Subsequent multiplication or division entries have a floating decimal.

Pressing **DS** changes the decimal system from a floating decimal to add mode and vice-versa. A floating decimal system automatically puts the decimal point behind numbers as you key them into the calculator until you press the decimal point key, **•** . When **•** is pressed, the decimal point is fixed at that place and further numbers keyed into the calculator during that entry are entered to the right of the decimal point.

Press **DS** to set the calculator for a floating decimal when performing multiplication, division or when using the percent key. Addition and subtraction may also be performed with a floating decimal.

CE/C , CLEAR KEY

Turning on the calculator clears everything but the memories and the add mode decimal setting. The CE/C is labeled CE, an abbreviation for clear entry and C, abbreviation for clear. Here's how it works. Press CE/C once directly following a mistaken number key depression and the displayed number is erased. Pending calculations and memories are not erased. Press CE/C twice to clear everything in the calculator except the memories. Press CE/C to clear the E symbol which lights in the display to signal an error condition. An error condition is caused by dividing a number by zero or calculating an answer too large for the eight digit display to handle.

OFF **SPECIAL OFF KEY SAVES BATTERY**

If you forget to turn off your calculator, it will automatically turn off after about 9 minutes to conserve energy and extend battery life.

ADD, SUBTRACT, MULTIPLY, DIVIDE

To perform simple addition, subtraction, multiplication, or division, key in the problem, as it is written:

Enter the first number; press **+** , **−** , **×** , or **÷** . Enter the second number; press **=** .

PERCENT KEY

The versatile percent key **%** , works different ways to solve the following range of percentage problems:

1. How much is a given percentage of a number?

Example:

Depress 115.00 × 5 % to find 5% of $115. Answer: $5.75.

2. Find the percentage one number is to another.

   Depress 100.00 ÷ 200 % to find what percent 100 is of 200. Answer: 50 percent.

3. Find the net amount which results from adding on a given percentage of a number to that number.

   Method A: Recommended when you are operating your calculator in add mode.

   Depress 115.00 × 5 % + to find the net amount which results from adding on 5% to $115.00. Answer: $120.75.

   Method B: As you say it.

   Depress 115.00 + 5 % = to find the net amount which results from adding on 5% to $115. Answer: $120.75.

4. Find the net amount which results from discounting a number by given percentage.

   Method A: Recommended when you are operating in add mode. Depress 115.00 [×] 5 [%] [−] to find the net amount which results from discounting $115 by 5%. Answer: $109.25.

   Method B: As you say it.
   Depress 115.00 [−] 5 [%] [=] to find the net amount which results from discounting $115 by 5%. Answer: $109.25.

CALCULATIONS WITH A CONSTANT

The feature is useful when you have repetitive calculations such as:

5 × 2 = 10
5 × 3 = 15
5 × 4 = 20
5 × 5 = 25

Calculations with a constant multiplicand are performed by keying in the constant value only once, pressing [×] and entering variable numbers on [=] as follows:

Example:
Press **DS** to set the floating decimal system. The AM indicator should not be displayed.

Depress: 5 × 2 = (problem performed in standard manner) 3 = 4 = 5 = (variable numbers 3, 4 and 5 are entered on the equals key)

Display shows: 10, 15, 20 and 25

The calculator remembers the number entered on the × key, 5, so that you only need to key it into the calculator once. After that, just key in the other numbers and press =

Calculations with a constant divisor are performed like this:

Key sequence: 20 ÷ 4 = 16 = 12 = 2 =

Display shows: 5, 4, 3, 0.5

The calculator remembers the second number keyed into an addition, subtraction, or division problem as shown in the above example where 4, the divisor, is remembered.

CHANGE SIGN KEY, +/−

The +/− changes the algebraic sign of a number (entry or result) from positive to negative or vice-versa.

'E' IN DISPLAY

The 'E' which lights in the display indicates that an error or invalid key sequence has been performed. The calculator keys will not work until CE/C is pressed to clear the error condition. The following results and operations cause error:

Results greater than 99999999*

Division by zero

*When results are greater than 99999999, the eight most significant digits of the result are displayed with the decimal point placed eight places to the left of its true position.

THREE PERMANENT MEMORIES

		GT		Grand total of memories 1 & 2
CHG	PMT	BAL	1	Two charge account memories
CHG	PMT	BAL	2	
STO	TO	FRM	3	Conversion memory

The memories of your calculator retain data even while the calculator is turned off making it possible, if you like, to keep records a new, electronic way . . . without pen/paper. Or, use the recordkeeping facilities of your calculator as a verification of information recorded on paper. Data is retained in the memory until the batteries need replacing.

CLEARING MEMORIES

The key sequence $\boxed{\text{BAL}_1}$ $\boxed{\text{PMT}_1}$ $\boxed{\text{BAL}_2}$ $\boxed{\text{PMT}_2}$ clears memories 1 and 2.

The key sequence $\boxed{0}$ $\boxed{\text{STO}}$ clears memory 3; however, it is never necessary to clear this memory because when $\boxed{\text{STO}}$ is pressed the number in the display is entered into memory writing over (replacing) previous memory contents.

USING MEMORIES 1 & 2

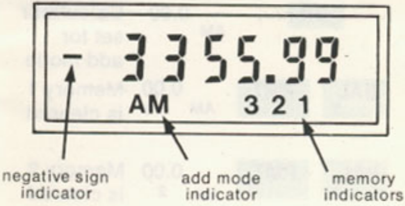
The charge account memories 1 and 2 are designed to keep two sets of records or verification checks of your charge accounts, loan balances or budget records.

- Clear memories by pressing $\boxed{\text{BAL}_1}$ $\boxed{\text{PMT}_1}$ for memory 1 and $\boxed{\text{BAL}_2}$ $\boxed{\text{PMT}_2}$ for memory 2.
- Key in your current balance; press $\boxed{\text{CHG}}$
- Key in payments as you make them, press $\boxed{\text{PMT}}$. Your new balance is displayed.

- If the record you are keeping is of the interest bearing type, you must add the interest each period from your statement to your remaining balance. To do this, key in the interest charge and press the appropriate **CHG** .

When you press a memory key, the related display memory number indicator is displayed. Memory 1 and 2 indicators flash when the balance in the charge account is in your favor, indicating that you have paid more than you owe.

Example display



GT KEY

Press **GT** to see the sum total of memories 1 and 2 displayed.

Example:

Keep a record of your American Express transactions in memory 1. Your charges amount to $111.20. You make a payment of $50.00 and return an airline ticket for which you expect an immediate credit of $63.50. Keep a record of your Master Charge transactions in memory 2: Charges $25.75, $12.20, payments $15.00. Use **GT** to calculate your total debts.

Press	Display	Comments
ON	AM 0.00	Calculator set for add mode
BAL 1 PMT 1	AM 0.00 1	Memory 1 is cleared
BAL 2 PMT 2	AM 0.00 2	Memory 2 is cleared

11120	CHG 1	111.20 AM 1	
5000	PMT 1	61.20 AM 1	
6350	PMT 1	− 2.30 AM 1	1 flashes to indicate that you have paid more than you owe
2575	CHG 2	25.75 AM 2	
1220	CHG 2	37.95 AM 2	
1500	PMT 2	22.95 AM 2	
	GT	20.65 AM 2 1	Total debts. Memory 1 indicator flashes because −2.30, a negative amount, is in memory 1.

Example:
Use memory 1 to keep your checking account records. Current checking account balance: $325.72.

Deposits: $210.00, $50.00
Withdrawals: $ 27.50, $ 5.25

Press	Display	Comments
ON	0.00 AM	Calculator set for add mode
BAL_1 PMT_1	0.00 AM 1	Clears memory 1
21000 CHG_1	210.00 AM 1	Adds deposits
5000 CHG_1	260.00 AM 1	
2750 PMT_1	232.50 AM 1	Subtracts checks written
525 PMT_1	227.25 AM 1	

USING THE CONVERSION MEMORY

STO : Press this key to store the displayed conversion factor in memory 3. This amount is held in memory even when your calculator is turned off.

TO : Press this key to multiply the stored factor and the displayed number. The product is displayed.

FRM : Press this key to divide the displayed number by the stored number. The quotient is displayed.

Example: Metric conversion
There are 0.03937 millimeters in an inch. Store the conversion factor .03937 in memory 3 and use **TO** to convert 55 millimeters to inches. Use **FRM** to convert 4½ inches to millimeters.

Press		Display	Comments
.03937	STO	.03937 3	Stores conversion factor in memory 3
55.	TO	2.17 3	inches in 55mm
4.5	FRM	114.30 3	millimeters in 4½ inches

Example: Monetary conversion
The exchange rate for dollars to pesos is 19.6. How many pesos will you be given in exchange for $225.00? An item in a store window is priced at 5,798 pesos. How much does it cost in dollars?

Press		Display	Comments
19.60	STO	19.60 3	Stores conversion factor in memory 3
225.00	TO	4410.00 3	You get 4410 pesos for $225
5798.00	FRM	295.82 3	It costs $295.82

Example:
Use Memory 1 to keep a record of your gasoline credit card charges. Use Memory 2 to keep track of your mileage and use Memory 3 to store the number of gallons of gas you purchase. You buy 10.7 gallons of gas and are charged $8.20. Your current odometer reading is 20,578. When you get gas again your odometer reads 20,850. Calculate your miles per gallon.

Press	Display	Comments
ON	AM 0.00	Calculator set for add mode
BAL 1 PMT 1	0.00 AM 1	Clears memory 1
BAL 2 PMT 2	0.00 AM 2	Clears memory 2
820 CHG 1	8.20 AM 1	
20578.00 CHG 2	20578.00 AM 2	
10.7 STO	10.70 3	
20850.00 PMT 2	– 272.00 2	You have traveled 272 miles
FRM	– 25.42 3	You have gotten over 25 miles per gallon of gas. (Ignore negative, –, sign)

NSC National Semiconductor Corporation

PRINTED IN TAIWAN
P/N 103173