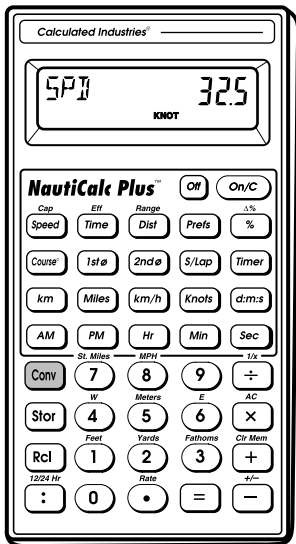


NAUTICALC PLUS™

For the Boat and Airplane Enthusiast



User's Guide



**CALCULATED
INDUSTRIES®**

Putting answers at your fingertips since 1978

TABLE OF CONTENTS

Introducing: NautiCalc Plus	3
Keypad Functions	4
Basic Operations	12
Basic Math	12
Memory Functions	13
Preference Function	16
Using the NautiCalc Plus	19
Entering/Converting Time Values	19
Distance and Speed Calculations	24
Entering and Converting Degrees:Minutes:Seconds	27
Using the Triangulation Function	28
Using Speed, Time and Distance Functions	31
Using Capacity, Efficiency and Range	34
Rate Function	36
Using the Stopwatch/Timer	38
Paperless Tape Feature	41
Appendix	44
Accuracy/Display	44
Errors	44
Battery Information	45
Warranty and Repair	48

INTRODUCING: NAUTICALC PLUS™

Designed primarily for boat and airplane enthusiasts, *NautiCalc Plus* provides the following features:

- ◆ Triangulation solutions
- ◆ Time math operations and conversions
- ◆ Distance calculations and conversions between m, km, nautical miles, statute miles, and fathoms
- ◆ Speed calculations and conversion between km/hr, mph, and knots
- ◆ Timer/stopwatch with split/lap functions
- ◆ And much, much more

KEYPAD FUNCTIONS

Standard Calculator Keys

[On/C] — On/Clear Key

Turns power on. One press clears the last entry. Two presses clear all temporary registers.

[Off] — Off Key

Turns power off and resets all non-permanent storage registers.

[Rcl] — Recall Key

Used to recall stored values.

[Stor] — Storage Key

Used to store values.

[Conv] — Convert Key

Used to convert values from one convention to another or to access special functions.

[0] through [9] and [•]

Keys used to enter digits.

[+] [-] [x] [÷] [=]

Basic arithmetic operation keys.

[%] — Percent Key

Four-function percent key.

[Conv] [%] — Delta Percent

Calculates the percent difference between two numbers.

Dimension Keys

[Hr] — Hour Key

Enters/converts to decimal hour or Hour:Minute:Second (H:M:S) time formats. Repeated presses toggle between formats.

[Min] — Minute Key

Enters/converts to decimal minute or Minute:Second (M:S) time formats. Repeated presses toggle between formats.

[Sec] — Seconds

Enters/converts to seconds.

[:] — Separator Key

Used as a separator when entering time values.

[AM]

Designates a time value entry as AM.

[PM]

Designates a time value entry as PM.

[km] — Kilometers

Enters/converts value to kilometers.

[Miles] — Nautical miles

Enters/converts value to nautical miles.

[Conv] [7] — Statute miles

Enters/converts value to statute miles.

[Conv] [5] — Meters

Enters/converts value to meters.

[Conv] [1] — Feet

Enters/converts value to feet.

[Conv] [2] — Yards

Enters/converts value to yards.

[Conv] [3] — Fathoms

Enters/converts value to fathoms.

[km/h] — Kilometers per hour

Enters/converts value to kilometers per hour.

[Knots] — Knots

Enters/converts value to knots (nautical miles per hour).

[Conv] [8] — Miles per hour

Enters/converts value to statute miles per hour.

[Conv] [4] — West

Defines the entered compass direction as being west.

[Conv] [6] — East

Defines the entered compass direction as being east.

[d:m:s] — Degree:Minute:Second

Enters/converts D:M:S degrees to and from decimal degrees.

Triangulation Keys

[Course°]

Enters/displays the direction of travel.

[1stø] — Bearing 1

Enters/displays the first bearing measurement for triangulation solutions.

[2ndø] — Bearing 2

Enters/displays the second bearing measurement for triangulation solutions.

[Dist] — Distance

Enters, displays, or solves for distance (given speed and time values) with the initial press.

A second successive press displays the current distance from the bearing object.

A third successive press displays the distance Abeam (when the object is 90° from your course direction).

Travel Function Keys

[Speed]

Enters/calculates speed when used with the [Time] and [Dist] keys.

[Time]

Enters/calculates time when used in conjunction with [Speed] and [Dist] keys.

[Conv] [Speed] — Capacity

Enters/calculates fuel capacity.

[Conv] [Time] — Efficiency

Enters/calculates vehicle fuel consumption efficiency.

[Conv] [Dist] — Range

Enters/calculates the distance that can be traveled based on fuel quantity (capacity).

Timer Function Keys

[Timer] — Stopwatch/Timer

Used to access, start and stop the timer.

[S/Lap] — Split/Lap Function

Pauses the timer display without stopping the count. If the S/LP preference is set to “Split,” the total time elapsed from the start of the timer to the moment the [S/Lap] key is pressed displays.

If set to “Lap,” the time elapsed between presses displays. For example, the first press of [S/Lap] displays the time elapsed from the timer’s start point to the time [S/Lap] is pressed. The second press of [S/Lap] continues the time display. A third press displays the time elapsed between the first and third presses. The fourth press continues the time display. The fifth press shows the time elapsed between the third and fifth press.

Note: *Even though the timer display is stopped, the timer continues to count. Therefore, if the second press occurred at 30 seconds, the display at the fourth press will show the cumulative value of 30 plus the time passed between the third and fourth presses.*

Other Functions/Keys

[Conv] [Rcl]—Clear Memory “0”

Clears the value in the cumulative memory cell “0,” without changing the display.

[Conv] [:] — 12 / 24 Hr Toggle

Toggles the displayed time value from decimal format to sexagesimal (24-hour) format and vice versa.

[Conv] [÷] — Inverse Function

Calculates the inverse ($1/x$) of the displayed value. For example, the inverse of 100 is 0.01.

[Conv] [x] — All Clear

Resets calculator to default values and settings.

[Conv] [+] — Clear Memory

Clears all values stored in Memory locations 0 through 9 (See “*Memory Functions*”).

[Conv] [-] — Change Sign

Toggles between the positive and negative sign.

[Rcl] [=] — Paperless Tape

Allows you to verify the last ten entries or operations of a calculation. See “*Paperless Tape*” for more information.

[Conv] [•] — Rate

Allows you to multiply a dimensional value by a number to get an output that is a decimal number.

[Prefs] — Preference Settings

A multi-press key used to access and change the default preferences. Once in the preference setting mode, use the [+] or [-] keys to change preference options.

BASIC OPERATIONS

Basic Math

Your calculator uses standard chaining logic, which means that the calculations are made in the order entered.

3	[+]	2	[=]	5
3	[-]	2	[=]	1
3	[x]	2	[=]	6
3	[÷]	2	[=]	1.5

Percent Calculations

The percent [%] key is used for finding a given percentage of a number or for working percent add-on, discount or division calculations.

355	[x]	15	[%]	53.25
250	[+]	6.5	[%]	266.25
25	[-]	5	[%]	23.75
100	[÷]	50	[%]	200.

Delta Percent

The Delta Percent function finds the percent change between two values. The [=] key must be pressed to complete the calculation.

10 [Conv] [%] 15 [=] **50.**

100 [Conv] [%] 25 [=] **- 75.**

Memory Functions

The *NautiCalc Plus* allows you to store, add, subtract, replace and recall up to 10 separate Memory values. Memory values do not change unless revised or the calculator is reset. Values can be stored in any format.

Note: Memories 1–9 store a single value, while Memory “0” maintains a cumulative total. When adding to Memory “0,” only values of the same convention (i.e., time, distance, etc.) may be added. Otherwise, enter values with no format.

Memory Keystrokes

[Stor] [0] through **[9]**

Used to enter and store a displayed value in one of the Memory registers 0–9. Press **[Stor]** then the number key of the register in which you want the value stored.

[Rcl] [0] through **[9]**

Recalls and displays values stored in Memories 0–9.

[0] [Stor] [1] through **[9]**

Clears the Memory value from an entered Memory number (1–9).

[Conv] [+]

Clears Memory registers 0–9 without clearing the display.

[Conv] [Stor] [0]

Subtracts a value from Memory “0” total.

[Rcl] [Rcl]

Displays then clears Memory “0” total.

[Conv] [Rcl]

Clears Memory “0” without changing the display.

Preference Function

The *NautiCalc Plus* provides a preference function that is used to customize your calculator. To access and set preferences, see “**How to Use the Preference Function.**”

Note: The preference settings do not change until revised or the calculator is reset by pressing **[Conv] [x]**.

Preference Settings and Options

*** indicates the default value.**

1 – TMR (*Timer format*)

0:00:00.0*

0:00:00.00

0:00:00

2 – S/LP (*Split/Lap*)

Split*

LAP

3 – BUZZ (*Timer buzzer*)

On*

Off

4 – SPD (*Speed*)

N MI*

KM

5 – RATE (*Rate format*)

0.00*

0.

0.0000000

6 – SECS (*Seconds*)

Off*

On

7 – BEEP (*Key Beeps*)

Off*

On

Note: *The following exercises assume the NautiCalc Plus is set to its default values unless otherwise stated. If not, press **[Conv] [x]** to “clear all” and reset to defaults.*

How to Use the Preference Function

Step/Keystrokes	Display
-----------------	---------

1. Clear the calculator and access the preference function:

[On/C] [On/C]	0.
[Prefs]	TMR
	00:00.0

2. Scroll to the preference setting you want to change:

[Prefs]	S/LP SPLIT
[Prefs]	BUZZ ON

3. Toggle preference option from "off" to "on" and back again:

[+]	BUZZ OFF
[+]	BUZZ ON

[-]	BUZZ OFF
-----	----------

Note: To Exit the Preference Function, press any key except **[-]**, **[+]** or **[Off]**:

4. Reset the calculator:

[Conv] [x]	0.
------------	----

5. Display the buzzer setting again:

[Prefs] [Prefs] [Prefs]	BUZZ ON
-------------------------	---------

USING THE NAUTICALC PLUS

Entering/Converting Time Values

NautiCalc Plus recognizes two distinct time values:

1. **Points in Time:** 9:22 AM, 5 PM
2. **Time Periods:** 37 Min., 45 Sec.

Time Math Rules

Addition

Period + Period = Period

$$3 \text{ Hrs.} + 22 \text{ Min.} = \mathbf{3 \text{ HR } 22 \text{ MIN}}$$

Point + Period = Point

$$9 \text{ AM} + 22 \text{ Min.} = 9:22 \text{ AM}$$

Point + Point = Error

Subtraction

Period – Period = Period

$$3 \text{ Hrs.} - 22 \text{ Min.} = \mathbf{2 \text{ HR } 38 \text{ MIN}}$$

Point – Period = Point

$$9 \text{ AM} - 22 \text{ Min.} = \mathbf{8:38 \text{ AM}}$$

Point – Point = Period

$$9 \text{ AM} - 8:30 \text{ AM} = \mathbf{30 \text{ MIN}}$$

Note: When subtracting one point in time from another, enter the later time first then subtract the earlier time.

Multiplication

Period x Number = Period

$$9 \text{ Hrs.} \times 3 = \mathbf{27 \text{ HR}}$$

Period x Period = Error

Point x Period = Error

Point x Point = Error

Point x Number = Error

Division

Period ÷ Period = Number

$$9 \text{ Hrs.} \div 9 \text{ Min.} = \mathbf{60}$$

Period ÷ Number = Period

$$9 \text{ Hrs.} \div 60 = \mathbf{9 \text{ MIN}}$$

Period ÷ Point = Error

Point ÷ Period = Error

Point ÷ Number = Error

Point ÷ Point = Error

Entering Time Values

When entering time unit values (Hr., Min. and Sec.), remember to enter the largest time unit first. For example, hour will be entered before minute and minute before second.

The following exercises show how to use the *NautiCalc Plus* to enter, calculate and convert various time values.

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter 3:22: 3 [:] 22 [=]	03:22
3. Enter 17 min 32 sec: 17 [Min] 32 [Sec] [=]	7:32 MIN SEC
4. Enter 423 min: 423 [Min] [=]	423:00 MIN SEC
5. Enter 38.25 sec: 38.25 [Sec] [=]	38.25 SEC

Colon and Designator (Safest)

Time values can also be entered using the [:] key, and the **[AM]** and **[PM]** designators to indicate Points in Time.

Steps/Keystrokes	Display
1. Clear calculator : [On/C] [On/C]	0.
2. Enter 8:05 AM: 8 [:] 05 [AM] [=]	8:05 AM

No Colon and Designator (Fastest)

If entering points in time it is not necessary to use the [:] key. Instead, enter a time value then press [AM] or [PM] (as shown in *step 2*).

Steps/Keystrokes	Display
------------------	---------

- | | |
|---------------------------------------|---------|
| 1. Clear calculator:
[On/C] [On/C] | 0. |
| 2. Enter 8:05 AM:
805 [AM] [=] | 8:05 AM |

Time Conversions

The *NautiCalc Plus* easily converts between time formats by pressing [Conv] then the time format desired.

- 1) Enter: 3 [Hr] 30 [Min]
- 2) Press the following keys to convert to the time formats desired:

Keystrokes	Display
------------	---------

- | | |
|--------------|----------------|
| [Conv] [Hr] | 3.5 HR |
| [Conv] [Min] | 210 MIN |
| [Conv] [Min] | 210:00 MIN SEC |
| [Conv] [Sec] | 12600 SEC |
-

Adding Time Amounts

Total the following time values:

- 33 min 22 sec
- 3 hr 21 min
- 145 sec
- 17 min 12.2 sec
- 33.75 min

Steps/Keystroke	Display
------------------------	----------------

1. Clear calculator:

[On/C] [On/C] **0.**

2. Enter 1st through 5th value:

33 [Min] 22 [Sec] [+] **33:22** MIN SEC

3 [Hr] 21 [Min] [+] **3:54:22** HR MIN SEC

145 [Sec] [+] **3:56:47** HR MIN SEC

17 [Min] 12.2 [Sec] [+]

4:13:59.20 HR MIN SEC

33.75 [Min] [=] **4:47:44.20** HR MIN SEC

Distance and Speed Calculations

The *NautiCalc Plus* can perform math functions using units of speed and distance. Some points to remember while performing these calculations are:

- 1) When adding a list of numbers with the same unit designator (i.e., miles), only the first value entered requires a designator. The same is true when subtracting two numbers.
- 2) Mixing speed and distance units will result in an error due to the difference in dimensions. For example, you cannot mix knots and miles; knots is a speed and miles is a distance.
- 3) Conversion can only be performed within the same types of dimensions. For example, hours can be converted to minutes, minutes to seconds, etc.

Subtracting and Converting Speed Amounts

Subtract 5.6 MPH from 23 knots, then convert the result to all available speed dimensions.

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter 23 knots: 23 [Knots]	23. KNOT
3. Subtract 5.6 MPH: [-] 5.6 [Conv] [8] [=]	18.133733 KNOT
4. Convert to km/h: [Conv] [km/h]	33.583674 KM/H
5. Convert to MPH: [Conv] [8]	20.867927 MI/H
6. Convert to knots: [Conv] [Knots]	18.133733 KNOT

Adding and Converting Distance Amounts

Add 23.5 meters and 3 nautical miles, then convert the result to all available distance dimensions.

Steps/Keystrokes	Display
------------------	---------

- | | |
|--|--|
| 1. Clear calculator:
[On/C] [On/C] | 0. |
| 2. Enter 23.5 meters then add 3 nautical miles:
23.5 [Conv] [5]
[+] 3 [Miles] [=] | 5579.5 M |
| 3. Convert to km, nautical miles, then statute miles:
[Conv] [km]
[Conv] [miles]
[Conv] [7] | 5.5795 KM
3.012689 N MI
3.4669406 MI S |
| 4. Convert to meters, feet, yards, then fathoms:
[Conv] [5]
[Conv] [1]
[Conv] [2]
[Conv] [3] | 5579.5 M
18305.446 FT
6101.8154 Y
3050.9077 F |

Entering and Converting

Degrees:Minute:Seconds

NautiCalc Plus enables you to directly enter and convert between decimal degree and degrees:minutes:seconds format. Successive presses of the **[d:m:s]** key toggle between formats. Improperly formatted entries will redisplay in the correct convention after a math operator key is pressed.

Convert D:M:S Value to Decimal

Enter 22° 14' 26" and convert to decimal degrees.

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter 22° 14' 26": 22 [d:m:s] 14 [d:m:s] 26	DMS 22:14:26 D MIN SEC
3. Convert to decimal format: [Conv] [d:m:s]	22.24056°

Convert Decimal Degree to D:M:S

Enter 38.59° and convert it to D:M:S format.

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter 38.59°: 38.59 [d:m:s]	38.59°
3. Convert to D:M:S: [d:m:s]	DMS 38:35:24 D MIN SEC

Using the Triangulation Function

Triangulation solutions are easy when using *NautiCalc Plus*. By entering your course, bearings and the distance traveled between bearings, you can determine the distance from the object and the distance Abeam.

Course and bearings 1 and 2 may be entered as either decimal degrees or as degree:minute:seconds. The value for “Course” can be entered by entering the value and pressing **[Course°]**. The value is permanent until revised or **[Conv] [x]** is pressed to perform an “All Clear.”

The distance from the bearing object can be found by pressing the **[Dist]** key twice

in succession. To find the distance Abeam, press **[Dist]** a third time.

Triangulation Example 1

Using a lighthouse for positioning, your bearings read 33.75° and 57.10° . If the ship traveled 10 nautical miles between bearing measurements on a $12^\circ 34' 26''$ course, what is your distance from the lighthouse at the second bearing measurement? What is the distance Abeam?

Steps/Keystrokes	Display
-------------------------	----------------

1. Clear calculator:

[On/C][On/C] **0.**

2. Enter course:

12 [d:m:s] 34 [d:m:s] 26 [Course°]
CRSE 12:34:26 D MIN SEC

3. Enter bearing 1 and 2 , then enter distance traveled:

33.75 [1stØ] **BRG 1 33:45:00 D MIN SEC**
57.10 [2ndØ] **BRG 2 57:06:00 D MIN SEC**
10 [Miles] [Dist] **DIST 10. N MI**

4. Find distance from object:

[Dist] [Dist] **DOBJ 9.1141337 N MI**

5. Find distance Abeam:

[Dist] **BEAM 6.548194 N MI**

Triangulation Example 2

On a course of 25.25° you site a buoy and take a bearing of 25.93° . Your second bearing reads 74.27° . If your bearing readings were taken 45 minutes apart, and you were travelling at 25 knots, what is your distance traveled? What is the distance from the object and the distance Abeam? What is the distance Abeam in feet?

Steps/Keystrokes	Display
------------------	---------

- | | |
|---|--|
| 1. Clear calculator:
[On/C] [On/C] | 0. |
| 2. Enter course, then bearing 1 and 2:
25.25 [Course°]
25.93 [1st \emptyset]
74.27 [2nd \emptyset] | CRSE 25.25°
BRG 1 25.93°
BRG 2 74.27° |
| 4. Enter time travelled from bearing 1 to bearing 2:
45 [Min] [Time] | TIME 45:00 MIN SEC |
| 5. Enter speed and find distance travelled between bearing 1 and bearing 2:
25 [Knots] [Speed]
[Dist] | SPD 25. KNOT
TRVL 18.75 N MI |
| 6. Find distance from object:
[Dist] | DOBJ 0.2978497 N MI |
| 7. Find distance Abeam then convert to feet:
[Dist]
[Conv] [1] | BEAM 0.2486118 N MI
1510.5942 FT |
-

Using Speed, Time and Distance Functions

The **[Speed]**, **[Time]** and **[Dist]** keys are used to calculate speed, time and distance. If you know two of the variables, *NautiCalc Plus* can solve for the third.

Speed Calculation Example

Your destination is 152.356 km away. How fast must you travel to reach your destination in 3.5 hours? How fast is this in miles per hour?

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter time, distance and find speed: 3.5 [Hr] [Time] 152.356 [km] [Dist] [Speed]	TIME 3.5 HR DIST 152.356 KM SPD 43.530286 KM/H
3. Convert to MPH: [Conv] [8]	27.048466 M/H

Time Calculation Example

If traveling at 15 knots, how long will it take to reach a destination 300 nautical miles away?

Steps/Keystrokes	Display
-------------------------	----------------

1. Clear calculator:

[On/C] [On/C] **0.**

2. Enter speed, distance and find time:

15 [Knots] [Speed] **SPD 15. KNOT**
300 [Miles] [Dist] **DIST 300. N MI**
[Time] **1200. MIN**

3. Convert to hours:

[Conv][Hr] **20. HR**

Distance Calculation Example

If sailing for 3 hours and 35 minutes at an average speed of 45 knots, how many statute miles were traveled?

<u>Steps/Keystrokes</u>	<u>Display</u>
-------------------------	----------------

1. Clear calculator:

[On/C] [On/C] **0.**

2. Enter time and speed:

3 [Hr] 35 [Min] [Time] **TIME 3:35 HR
MIN**

45 [Knots] [Speed] **SPD 45. KNOT**

3. Find distance and convert to statute miles:

[Dist] **TRVL 161.25 N MI**

[Conv] [7] **185.56319 MI S**

Note: *You can also use speed and time to find the distance traveled when solving triangulation problems. See "Triangulation Example 2."*

Using Capacity, Efficiency and Range

The **[Speed]**, **[Time]** and **[Dist]** keys are also used to calculate Capacity, Efficiency and Range values.

Note: When entering a "Range" value to calculate "Efficiency," always enter the "Range" value first.

Capacity Calculation Example

If a boat engine gets 28 miles per gallon and can travel 300 nautical miles on one tank of fuel, what is the capacity of the boat's fuel tank?

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter range and efficiency: 300 [Miles][Conv][Dist] RANG 28 [Conv] [Time]	300. N MI N MPG 28.
3. Find capacity: [Conv][Speed]	GAL 10.714286 N MI

Efficiency Calculation Example

If a boat's fuel tank holds 12 gallons and can travel 350 statute miles on one tank of fuel, what is the boat's efficiency?

Steps/Keystrokes	Display
1. Clear calculator: [On/C] [On/C]	0.
2. Enter range and capacity: 350 [Conv] [Dist] RANG 350. MI S 12 [Conv] [Speed] GAL 12.	
3. Find efficiency [Conv] [Time] MPG 29.166667 MI S	

Range Calculation Example

If a plane has a tank capacity of 15 gallons and an efficiency of 30 miles per gallon, how far can it travel on one tank of fuel?

Steps	Keystrokes
1. Clear calculator [On/C] [On/C]	0.
2. Enter capacity and efficiency: 15 [Conv] [Speed] GAL 15. 30 [Conv] [Time] MPG 30.	
3. Find range: [Conv] [Dist] RANG 450. MI S	

Rate Function

The rate function allows you to multiply a dimensional value by a “per unit” rate. The result is displayed as a total cost value instead of a dimensional value.

Rate Calculation Example 1

A chartering service charges 10 dollars per hour. What is the charge for 12 hours, 23 minutes, and 30 seconds of service?

Steps/Keystrokes	Display
------------------	---------

1. Clear calculator:

[On/C] [On/C]	0.
---------------	-----------

2. Enter time and multiply by rate:

12 [Hr]	12: HR
---------	---------------

23 [Min]	12:23: HR MIN
----------	----------------------

30 [Secs]	12:23:30: HR MIN SEC
-----------	-----------------------------

[x] 10 [Conv] [•]	RATE 123.92
-------------------	--------------------

Rate Calculation Example 2

Your friend has agreed to take you 250 nautical miles up the coast. If you pay him 25¢ a nautical mile, how much will the trip cost?

Steps/Keystrokes	Display
------------------	---------

1. Clear calculator:

[On/C] [On/C] **0.**

2. Enter distance and multiply by rate:

250 [Miles] **250. N MI**
[x] 0.25 [Conv] [•] **RATE 62.50**

Using the Stopwatch/Timer

NautiCalc Plus includes a stopwatch timer with buzzer and split/ lap functions. When activated, the timer can count up from zero or down from an entered time. The display accuracy can be set to show zero to two decimal points (00:00:00, 00:00:00.0, 00:00:00.00).

While the timer is counting, a clock symbol (⌚) flashes at the bottom of the display. A star (★) symbol appears if the timer buzzer is set to “On.” Timer values can be used in calculations or stored in Memory.

Note: *The display accuracy and timer buzzer can be set via the Preference function.*

[Timer]

Displays, activates, and stops the timer. If a value is entered prior to activating the timer, the timer acts as a countdown timer.

[S/Lap]

Freezes the display. Once the display is frozen, the value displayed may be saved in Memory by pressing [Stor] then the register number. e.g., [Stor] 1.

Note: *Pressing the [Off] key twice stops and exits the stopwatch timer. Press [On/C] to reset the display.*

Split/Lap Function

Use the **[Prefs]** key to determine whether the **[S/Lap]** key acts like a split function or a lap function.

If the “S/LP” preference is set to “Split,” the total time elapsed from the start of the timer to the moment the **[S/Lap]** key is pressed displays.

If set to “Lap,” the time elapsed between presses displays. For example, the first press of **[S/Lap]** displays the time elapsed from the timer’s start point to the time **[S/Lap]** is pressed. The second press of **[S/Lap]** continues the time display. A third press displays the time elapsed between the first and third presses. The fourth press continues the time display. The fifth press shows the time elapsed between the third and fifth press and so on.

Even though the timer display is stopped, the timer continues to count. Therefore, if the second press occurred at 30 seconds, the display at the fourth press will show the cumulative value of 30 plus the time passed between the third and fourth presses.

Note: Every time the **[S/Lap]** key is pressed, the time elapsed is stored as a value in the paperless tape.

Working with Timer Values

<u>Steps/Keystrokes</u>	<u>Display</u>
-------------------------	----------------

1. Start the timer for a 10-minute count down:

[Timer] 1000 [Timer]

TMR 0:10:00 HR MIN SEC

Note: "GO" appears as the count-down begins.

2. Freeze the timer display at 8:39:

[S/Lap] **SPLT 0:08:39** HR MIN SEC

3. Store the value in Memory register 1:

[Stor] 1 **M-1 0:08:39** HR MIN SEC

4. Redisplay timer countdown and freeze the timer at 7:39:

[Timer] [S/Lap] **SPLT 0:07:39** HR MIN SEC

5. Store the value in Memory register 2:

[Stor] 2 **M-2 0:07:39** HR MIN SEC

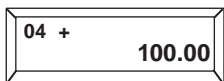
6. Subtract values in registers 1 and 2:

[Rcl] 1

[-] [Rcl] 2 [=] **0:01:00** HR MIN SEC

Paperless Tape Feature

The “Paperless Tape” feature is used to display the last 10 entries. While in this mode, the display looks similar to this:



⇨ ⇨

⇨

A

B

C

A = The sequence number of the entry

B = The math operator (+, -, x, ÷, %)

C = The entered or calculated value

As you scroll through the entries, you will see the designators **TTL** and **SUB**.

SUB indicates a subtotal. **TTL** indicates the final total (all values and subtotals combined).

How to Use the Paperless Tape

Step/Keystrokes	Display
-----------------	---------

1. Clear calculator and enter a string of numbers:

[On/C] [On/C]	0.
4 [Hr] [+]	4:00:00 HR MIN SEC
5 [Hr] [+]	9:00:00 HR MIN SEC
6 [Hr] [+]	15:00:00 HR MIN SEC
7 [Hr] [=]	22:00:00 HR MIN SEC

2. Access the Tape function:

[Rcl] [=] **TTL = 22:00:00** HR MIN SEC

3. Scroll from first value to total using the **[+]** key:

[+]	01	4:00:00 HR MIN SEC
[+]	02+	5:00:00 HR MIN SEC
[+]	03+	6:00:00 HR MIN SEC
[+]	04+	7:00:00 HR MIN SEC
[+]	TTL =	22:00:00 HR MIN SEC

4. Scroll back to the last 2 values using the **[-]** key:

[-]	04+	7:00:00 HR MIN SEC
[-]	03+	6:00:00 HR MIN SEC

5. Exit the Paperless Tape and add to the string:

[=] **TTL = 22:00:00** HR MIN SEC
[+] 2 [Hr] [=] **24:00:00** HR MIN SEC

****Note:** At this point, you may press any key except **[Off]**, **[+]** or **[-]**. When pressing a key to exit the tape, the last value entered is displayed.*

How to Clear the Paperless Tape

1. To clear the paperless tape, do one of the following:
 - ▶ Clear calculator: **[On/C] [On/C]**
 - ▶ Perform an All Clear: **[Conv] [x]**
 - ▶ Press **[=]** to start a new math string
 - ▶ Press the **[Off]** key.

Accuracy/Display

Each calculation is carried out internally to 10 digits and is rounded to an 8-digit standard display. A 5/4 rounding technique is used to add 1 to the least significant digit in the display if the next non-displayed digit is 5 or more. If this digit is less than 5, no rounding occurs.

Errors

An error will occur:

- 1) when an incorrect entry is made.
- 2) if the answer is beyond the range of the calculator.
- 3) if you enter a mathematical impossibility such as division by zero.

To clear an error, press **[On/C]**.

Battery Information

The calculator is powered by a single 3 Volt Lithium CR-2032 battery. This should last up to 1,000 hours of actual use. If the display becomes dim or erratic, replace the battery.



WARNING

Because the batteries contain hazardous chemicals, please use caution when disposing of old batteries. Keep them away from animals and young children.

Auto-Shutoff

The calculator is designed to shut itself off after about 10 minutes of non-use. Values shown on the display will be cleared. A running stopwatch/timer prevents an auto-shutoff.

Notes

Notes

WARRANTY REPAIR SERVICE — USA

Calculated Industries, Inc. ("CII") warrants this product against defects in materials and workmanship for a period of one (1) year from the date of original consumer purchase in the U.S. If a defect exists during the warranty period, CII at its option will either repair (using new or remanufactured parts) or replace (with a new or remanufactured unit) the product at no charge.

THE WARRANTY WILL NOT APPLY TO THE PRODUCT IF IT HAS BEEN DAMAGED BY MISUSE, ABUSE, ALTERATION, ACCIDENT, IMPROPER HANDLING OR OPERATION, OR IF UNAUTHORIZED REPAIRS ARE ATTEMPTED OR MADE. SOME EXAMPLES OF DAMAGES NOT COVERED BY WARRANTY INCLUDE, BUT ARE NOT LIMITED TO, BATTERY LEAKAGE, BENDING, OR VISIBLE CRACKING OF THE LCD WHICH ARE PRESUMED TO BE DAMAGES RESULTING FROM MISUSE OR ABUSE.

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tiguous 48 states, please call CII for return shipping costs.)

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FCC Class B

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC rules.

LOOKING FOR NEW IDEAS

Calculated Industries, a leading manufacturer of special function calculators and digital measuring instruments, is always looking for new product ideas in these areas.

If you have one, or any suggestions for improvements to this product or its User's Guide, please call or write CII's Product Development Department. Thank you.

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