



愛高實業(香港)有限公司

HICO INDUSTRIAL (HK) LIMITED

## PRODUCT SPECIFICATION

# WORLD TIME CALCULATOR WATCH

Product Code:	HCS-T028-0
Version:	1.0 (Preliminary)
Date:	March 6, 2004

### Hong Kong 香港

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*World Time Calculator Watch (HCS-T028-0)*

**DOCUMENT HISTORY**

Date	Product Code	Version	Approved by	Revision Details
Mar. 6, 2004	HCS-T028-0	1.0		Original release



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## *World Time Calculator Watch (HCS-T028-0)*

### GENERAL DESCRIPTION

The device is a single-chip micro-controller that is preprogrammed for digital watch applications. Features include Real Time, World Time, Daily Alarm with snooze function, user-friendly interface calculator, and Currency Converter. It is especially well designed for person who is a frequent traveler.

### FEATURES

- Real Time Clock
  - Hour, Minute, Second
  - 12 or 24 hour display format by user option
  - Hourly chime
  - DST option for each city
- Calculator
  - 8 digits, with operations +, -, ×, ÷, =, M+, M-, MR, C
- World Time Clock
  - 24 cities with abbreviated city name display
- Auto Calendar
  - Year, Month, Day, Day of Week
  - Auto leap year adjustment from 2000 to 2099
  - Auto Day of Week
- Daily Alarms
  - One daily alarm
  - User adjustable Hour, Minute and City
  - Snooze function
- Countdown Timer
  - The timer can be set from 1 minute to 180 minutes in 1-minute step.
- Chronograph
  - Count up to 9 hours 59 minutes 59.99 seconds with 1/100 second resolution
- Currency Converter
  - User can enter amount and two conversion rates to calculate the converted amount



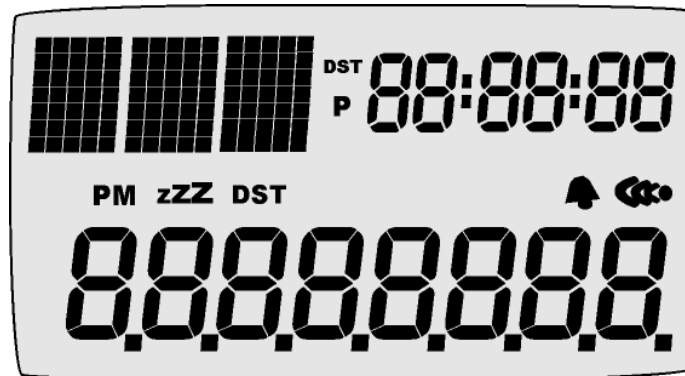
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## World Time Calculator Watch (HCS-T028-0)

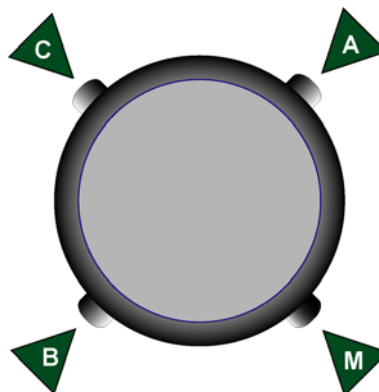
- Operates with 3 volts Lithium battery
- Operates with 4 buttons

## LCD PATTERN



Total segment	222 dots
VLCD	6.0V
Duty ratio	1/8
Bias	¼
View Angle	6 o'clock
Connection	Top and Bottom

## KEYBOARD





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## World Time Calculator Watch (HCS-T028-0)

### FUNCTIONAL DESCRIPTIONS

#### 1. System Defaults

- System Defaults will be initialized upon system startup

MODE	ELEMENT	SETTING
Local Time	Time	12:00:00 AM
	Date	Thursday 2004-01-01
	Display format	12-hour
	Hourly chime	Disabled
	City	UTC
World Time	City	UTC
	DST	All cleared
Daily Alarms	Time	12:00 AM
	City	UTC
	Alert	Off
Chronograph	Total Time	0H 00 minutes 00.00 second
	LAP	All cleared
	Status	Stopped
	Time	60 minutes
Countdown Timer	Status	Stopped
	Auto Reload	Disabled

#### 2. Auto Return

- Normal mode will be resumed in any setting mode if no key operation for 1 minute.

#### 3. Auto Advance

- In any setting mode, press and hold [A] for more than 2 seconds will activate Auto Advance function. Current selected digits will be adjusted at a rate of 5 steps per second until [A] is released.

#### 4. Alert Signals

- Alert signals will be played based on the following order:

TIMER → ALARM → CHIME



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## *World Time Calculator Watch (HCS-T028-0)*

- Duration of alert

TIMER timeout: 10 seconds

ALARM: 20 seconds

CHIME: 1 second

### 5. Cities Included

City Code	City	Country	Time Difference
UTC	Coordinated Universal Time	-----	-----
LON	London	UK	±00:00 UTC
PAR	Paris	France	+01:00 UTC
ROM	Rome	Italy	+01:00 UTC
CAI	Cairo	Egypt	+02:00 UTC
MOW	Moscow	Russia	+03:00 UTC
DXB	Dubai	UAE	+04:00 UTC
KHI	Karachi	Pakistan	+05:00 UTC
DEL	New Delhi	India	+05:30 UTC
DAC	Dhaka	Bangladesh	+06:00 UTC
BKK	Bangkok	Thailand	+07:00 UTC
SIN	Singapore	Singapore	+08:00 UTC
HKG	Hong Kong	China	+08:00 UTC
TYO	Tokyo	Japan	+09:00 UTC
SYD	Sydney	Australia	+10:00 UTC
NOU	Nouméa	New Caledonia	+11:00 UTC
AKL	Auckland	New Zealand	+12:00 UTC
HNL	Honolulu	USA	-10:00 UTC
ANC	Anchorage	USA	-09:00 UTC
LAX	Los Angeles	USA	-08:00 UTC
DEN	Denver	USA	-07:00 UTC
CHI	Chicago	USA	-06:00 UTC
NYC	New York	USA	-05:00 UTC
CCS	Caracas	Venezuela	-04:00 UTC
RIO	Rio De Janeiro	Brazil	-03:00 UTC

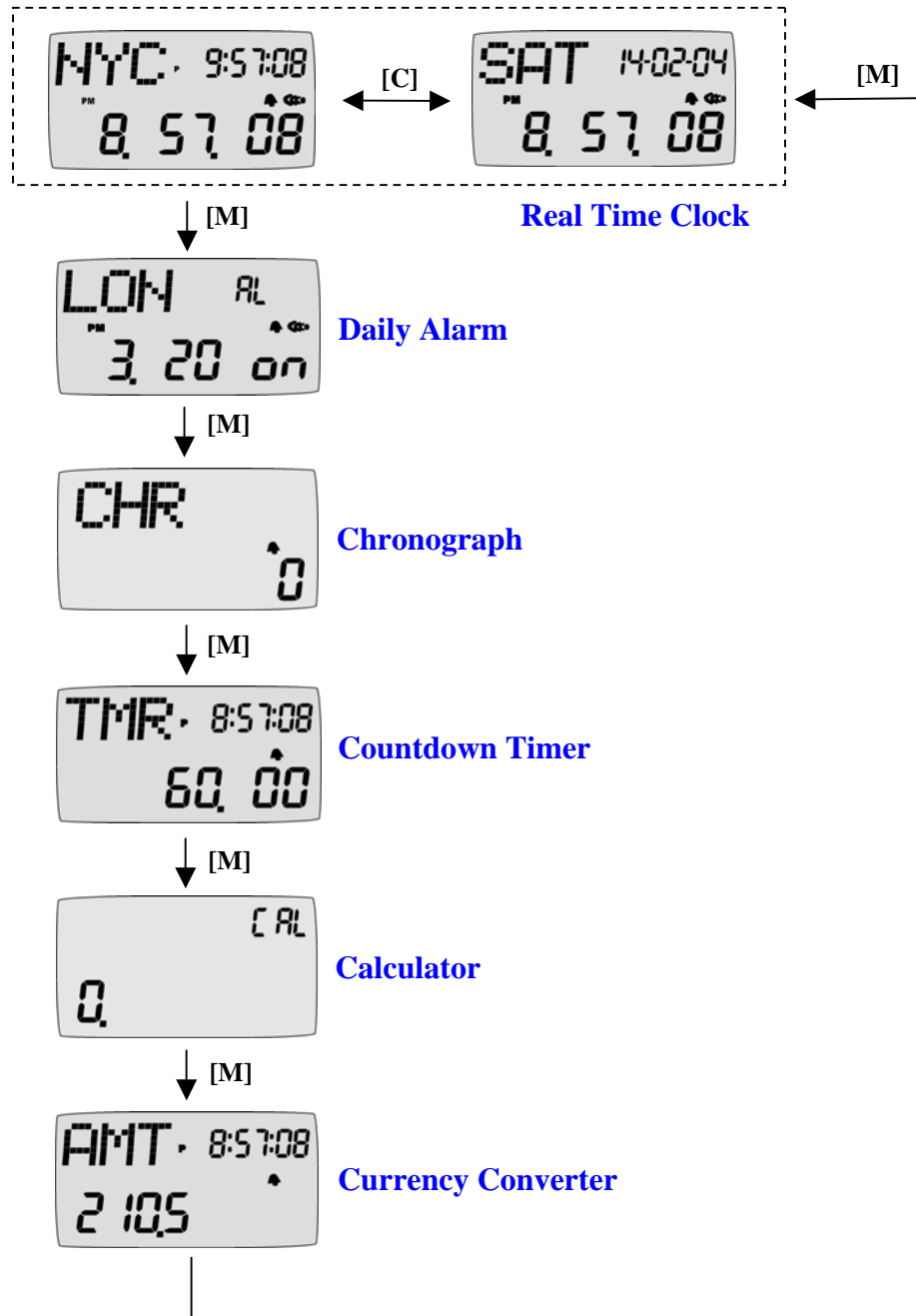


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## World Time Calculator Watch (HCS-T028-0)

### FUNCTIONAL FLOWCHART





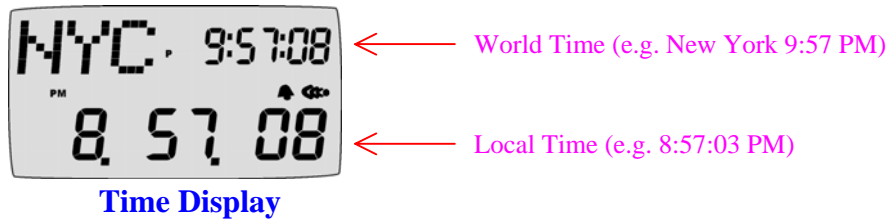
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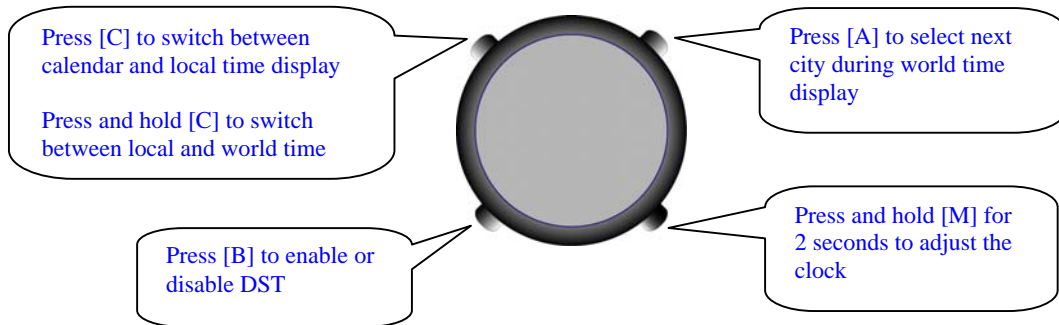
## World Time Calculator Watch (HCS-T028-0)

### FUNCTIONAL DESCRIPTIONS

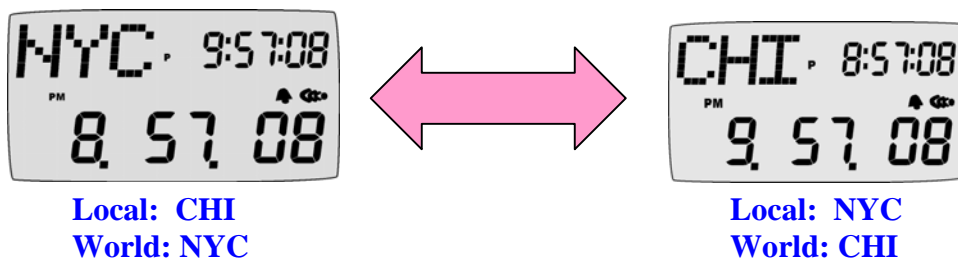
#### 1. Real Time Clock



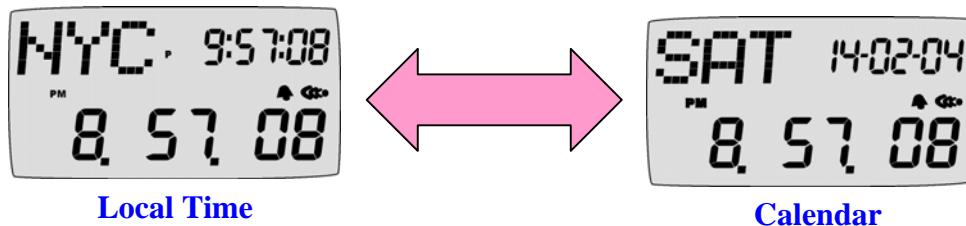
#### ● Basic Operation



- To switch between Local Time and World Time, press and hold [C] for 2 seconds.



- To switch between Calendar and Local Time display, press [C].







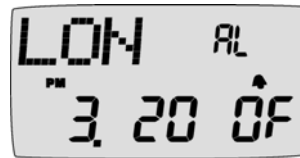
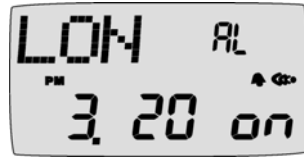


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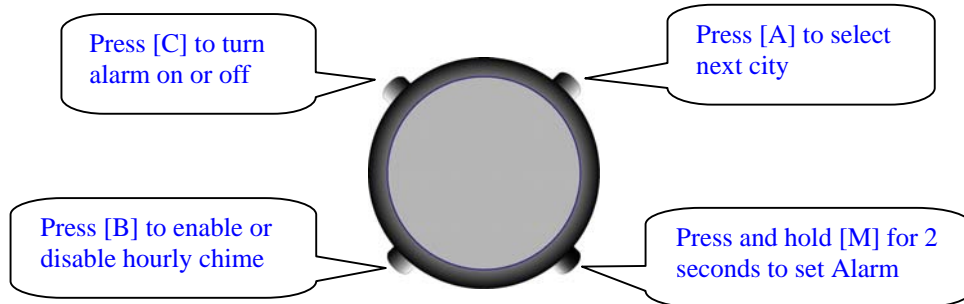
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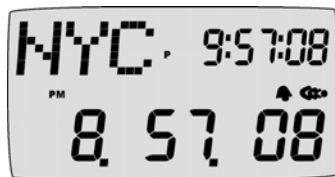
### 2. Daily Alarm



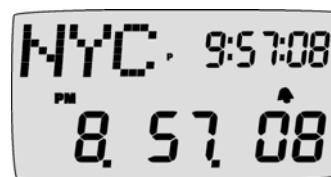
- Once alarm is setup and enabled, alarm alert will be activated at the same time every day until it is disabled.
- Basic Operation



- Press [A] to select the desired city. Alarm time will change automatically according to the time zone.
- When in other modes, alarm alert icon will indicate if alarm is enabled or not.

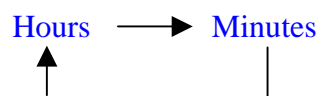


**Alarm is enabled**



**Alarm is disabled**

- Setting the Alarm
  - Press and hold [M] for 2 seconds to set the Alarm.
  - Press [A] to adjust the blinking digits.
  - Press [B] to select digits to blink in the following sequence:



- Press [M] to confirm the setting and to exit alarm setting operation.



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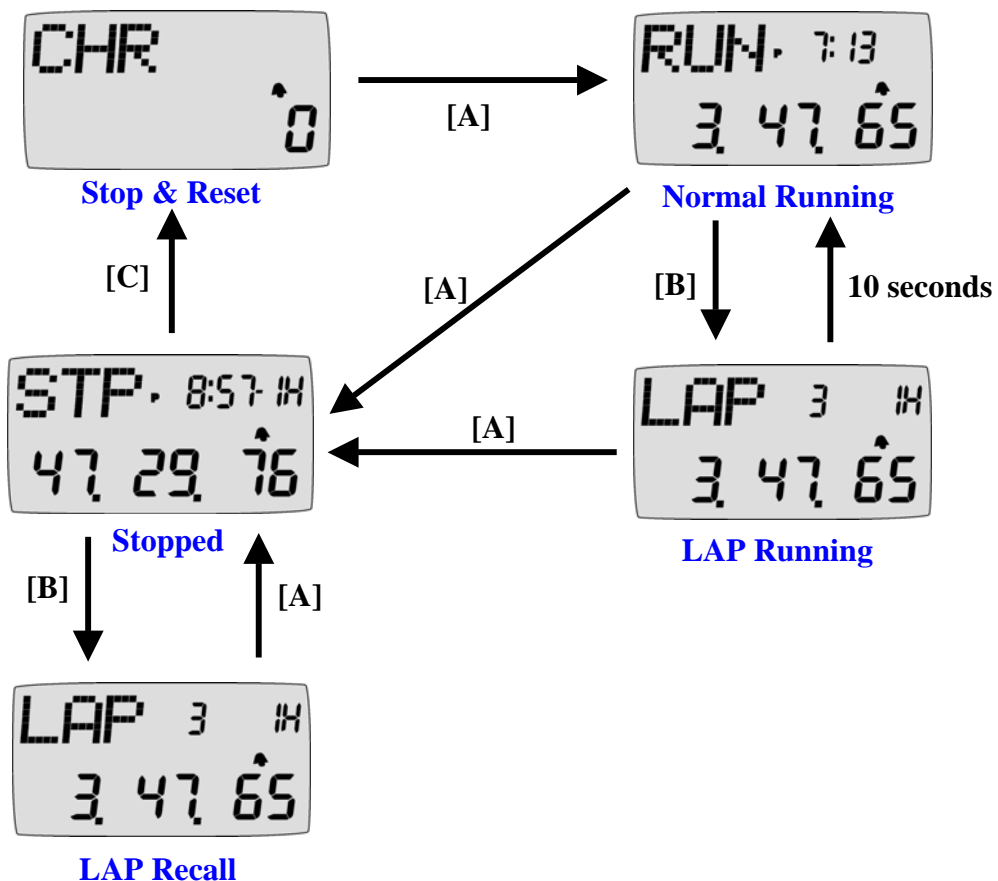
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## World Time Calculator Watch (HCS-T028-0)

- When alarm alert is activated, press one of the four keys to turn it off.
- Snooze
  - When alarm alert is turned off after 20 seconds or by pressing one of the four keys or, snooze function will be enabled.
  - When snooze function is enabled, alarm alert will be turned on for three times more, after the initial alert, with 5 minutes between each alert.

### 3. Chronograph

- Operating the Chronograph



- Maximum count is 9 hours 59 minutes 59.99 seconds. When maximum count is reached, counting will continue with time reset to zero.
- Ten LAP records can be stored in the internal memory. When all the records are occupied, new LAP entry will overwrite the 10<sup>th</sup> record.



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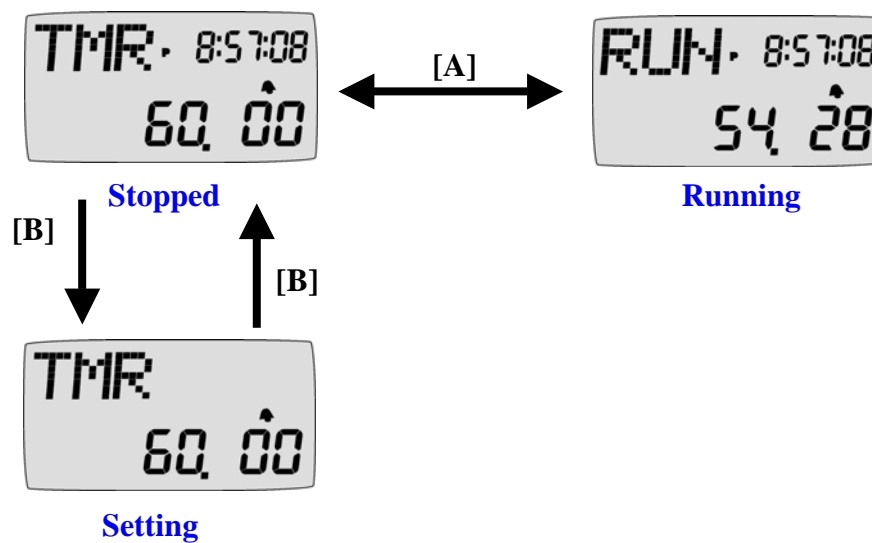
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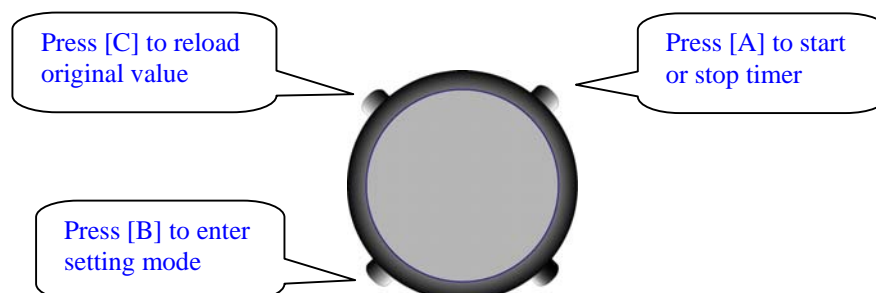
- In LAP Recall, press [B] will retrieve all LAP records sequentially.

### 4. Countdown Timer

- Operating the Countdown Timer



- Basic operation



- Beep reminder will be played when time remains equal to 10, 9, 8, 7, 6, 5, 4, 3, 2, and 1 second.

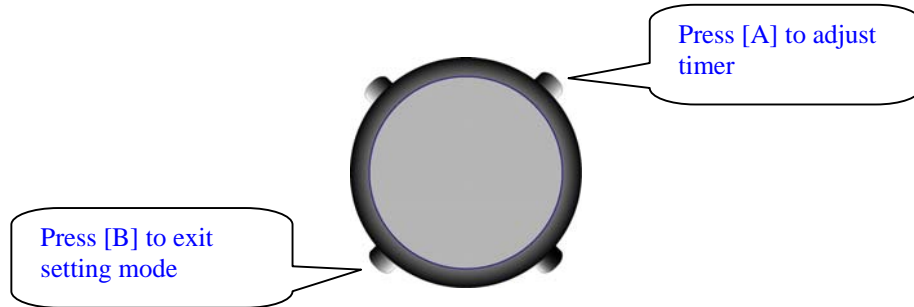


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## World Time Calculator Watch (HCS-T028-0)

- Setting

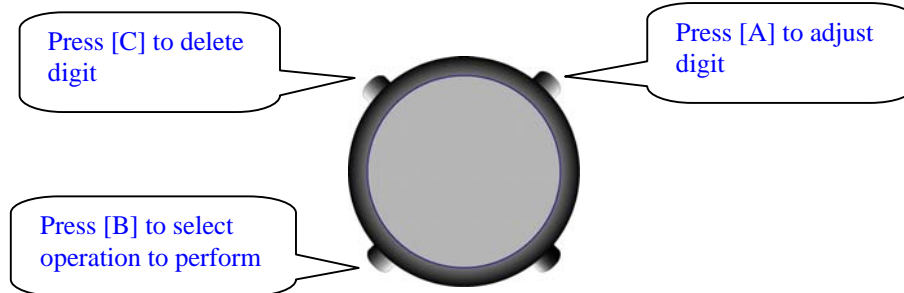


- The timer can be set from 1 minute to 180 minutes in 1-minute step.

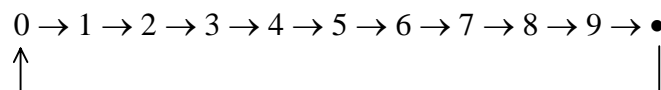
## 5. Calculator



- Basic operation



- Operations include +, -, ×, ÷, =, M+, M-, MR, C
- Press and hold [A] to adjust the blinking digit with the following sequence:





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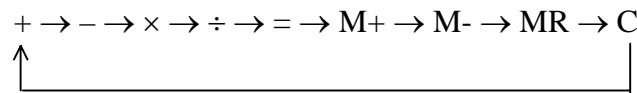
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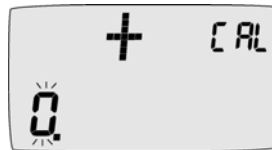
- When [A] is released, a new blinking digit will appear automatically:



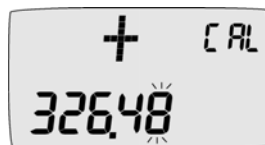
- Press and hold [B] to choose the operation to perform with the following sequence:



- When [B] is released, the display will show the operation chosen and allow to enter the second operand.



- Press [C] to delete blinking digit.



**Before deletion**



**After deletion**



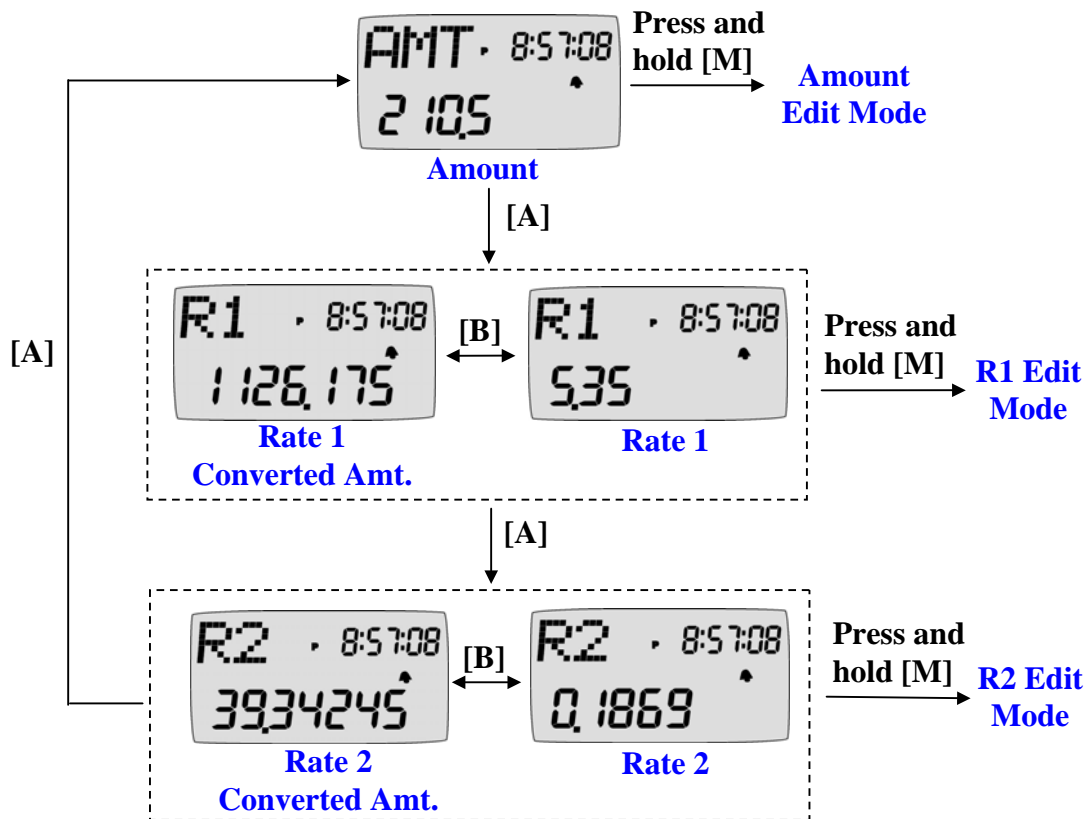
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## World Time Calculator Watch (HCS-T028-0)

### 6. Currency Converter

- Basic operation



- In the above example, when the amount is \$210.5, rate 1 is 5.35, and rate 2 is 0.1869, the converted amount using rate 1 is  $\$210.5 \times 5.35 = \$1126.175$  and the converted amount using rate 2 is  $\$210.5 \times 0.1869 = \$39.34245$ .

- Key Operation in Edit Mode

