



**深圳市晶峰达电子科技有限公司**

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## **DL9301 带指南针的电子表 IC**

# 产 品 说 明 书

## Handheld Digital Compass

Revision	Description	Date (yy/mm/dd)
1	1 <sup>st</sup> Release for customer approval	2006-05-18
1.1	Change the part no. of MCU	2008-05-13
1.2	Compass Calibration Mode is added	2008-06-11

# DL9301

## Introduction:

This is an advanced technology of hand-held Digital Navigation System allow quick, easy access to essential information in one compact package. Wherever you go, you can benefit from having the latest, most accurate information at your fingertips.

## Major Features:

### Main Unit

- Universal Calendar (range 2000 - 2099) with weekday, day and month
- 3 Character (English Character) for weekday
- Alarm function
- Stopwatch
- Compass with cardinal points
- Temperature measurement
- Low battery detection
- Backlight
- Buzzer Output
- 12/24 hour format
- °C / °F selection
- Operating voltage (AAA X 2, 3.0V)

### Main Unit Buttons: (Total 4 pcs)

- MODE
- SET/ ST/ SP
- LIGHT/ RESET
- COMPASS/ UP

MODE/ SET        - A BUTTON  
ST/ SP/ -        - B BUTTON  
LIGHT/ RESET    - C BUTTON  
COMPASS/ +      - D BUTTON

Remark :

- A                    - Press MODE/ SET button
- A\_2                - Press and hold MODE/ SET button for 2 S
- B                    - Press ST/ SP/- button
- B\_2                - Press and hold ST/ SP/- button for 2 S
- C                    - Press LIGHT/ RESET button
- C\_2                - Press and hold LIGHT/ RESET button for 2 S
- D                    - Press COMPASS/ + button
- D\_2                - Press and hold COMPASS/ + button for 2 S

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## Product Specification

### Temperature

Measurable Range : -10 °C to 60 °C

Accuracy :  $\pm 1^{\circ}\text{C}$

Resolution :  $0.1^{\circ}\text{C}$

### Remark:

If the temperature is less than  $-10^{\circ}\text{C}$ , it shows "LLL" °C.

If the temperature is over  $60^{\circ}\text{C}$ , it shows "HHH" °C.

### Compass

Measurable Range :  $0^{\circ}\text{C}$  to  $359^{\circ}$

Accuracy :  $\pm 5^{\circ}$

Resolution :  $0.1^{\circ}$

Clock Accuracy : 30 sec/month

Language on "days of week" in English with 3 characters

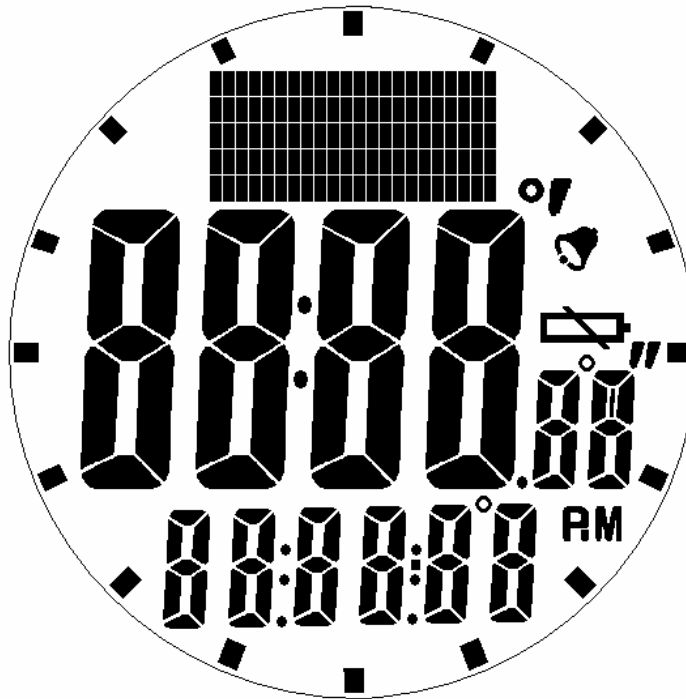
All key have "beep" sound while pressing buttons.

Normal Mode - Normal display hour of time, minutes, second, month, date, day (MON – SUN).

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## LCD Graphic: Main Unit Display

### LCD Full Segment



MODE/ OK

SET/ST/SP/-

LIGHT/ RESET

COMPASS/+

### LCD Specification

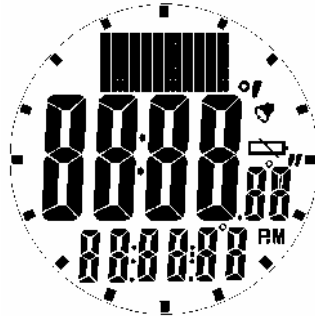
LCD Type	: HTN
Number of segment	: 225 (com 1~9, Seg 1~23, 40~41)
LCD voltage	: 4.5.0V
Duty	: 1/9
Bias	: 1/3
Operating temperature	: -5 ° C to 60 ° C
Storage temerature	: -20 ° C to 70 ° C
Viewing angle	: 6 O'clock
LCD reflector (Rear)	: Trasflective p1
LCD Reflector (Front)	: Transmissive

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## Keyflow of Digital Compass

### Power On Reset

All segment on for 5S



and buzzer beep 3s and EL turn for 2s

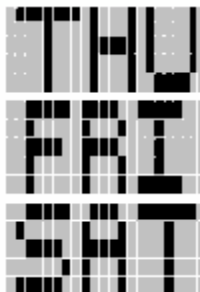
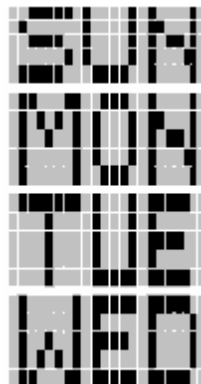


Clock Mode (Default 12:00PM, M-D, 2008/ 1/01)



Remark

The suggested font of Weekday as below:



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## Main Mode of Digital Compass

Clock Mode (Default 12:00AM, M-D, 2008/ 1/01)



Daily Alarm Mode (Default 8:00AM, OFF)



Chronograph Mode  
(0:00'00" as default Value, max 99HR59MIN59S99)



Stopwatch will be started or stopped by pressing **B**  
When Stopwatch is stopped, it can reset by pressing **B\_2**



Clock MODE

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## Daily Alarm Mode

Daily Alarm Mode



↓ B

Alarm Turn On



↓ B

Alarm Turn Off





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## Compass Mode

Clock Mode, Alarm Mode or Stopwatch Mode



Compass with Clock



Press A will back to Clock Mode



Compass with Temperature



Press A will back to Clock Mode



Compass with Clock Mode

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## Clock Setting Mode

Clock Mode

↓ A\_2

Set Second

(Clock icon is flashing and second in running after enter the setting mode)



Press D or B to reset the second to 00

↓ A

Set Minute (0~59)



Press D or B to adjust the value

↓ A

Set Hour(1~12 for 12HR or 0~23 for 24HR)



Press D or B to adjust the value

↓ A

Set Year (DEFAULT 2008, 2000~2099)

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Press **D** or **B** to adjust the value



Set Month



Press **D** or **B** to adjust the value



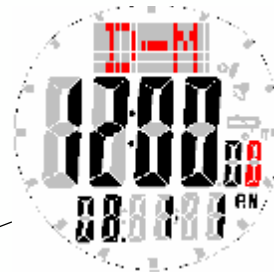
Set Day



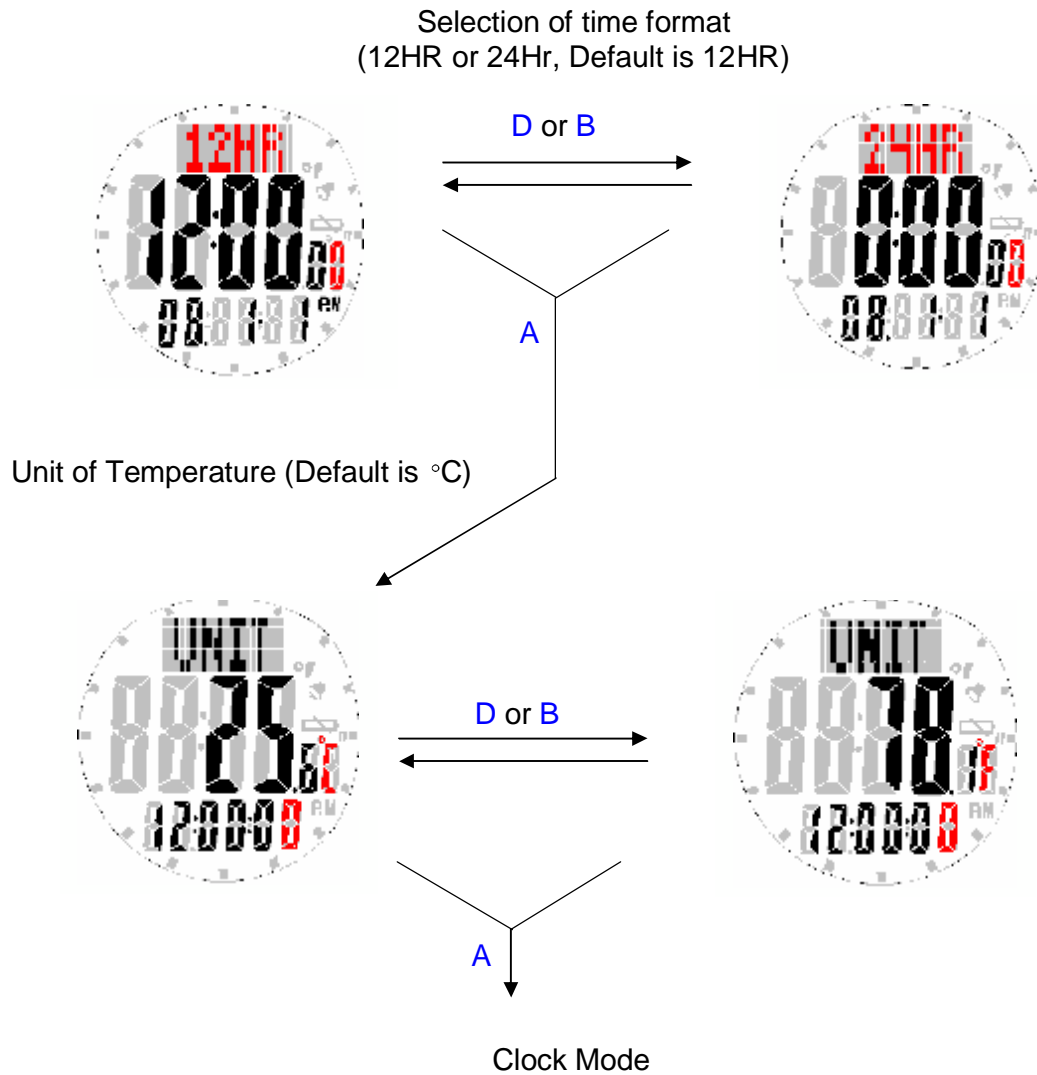
Press **D** or **B** to adjust the value



Selection of M/D or D/M format  
(DEFAULT M/D)



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Remark:

1. In all setting mode, press **D or B** button for 2s for fast advance or reverse.
2. Clock setting mode time out at 60s and all setting before will be kept .

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## Daily Alarm Setting Mode

Daily Alarm Mode (Default 8:00AM, OFF)



A\_2  
↓

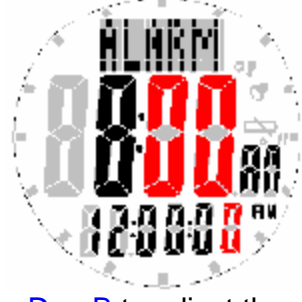
Set Hour



Press D or B to adjust the value

A  
↓

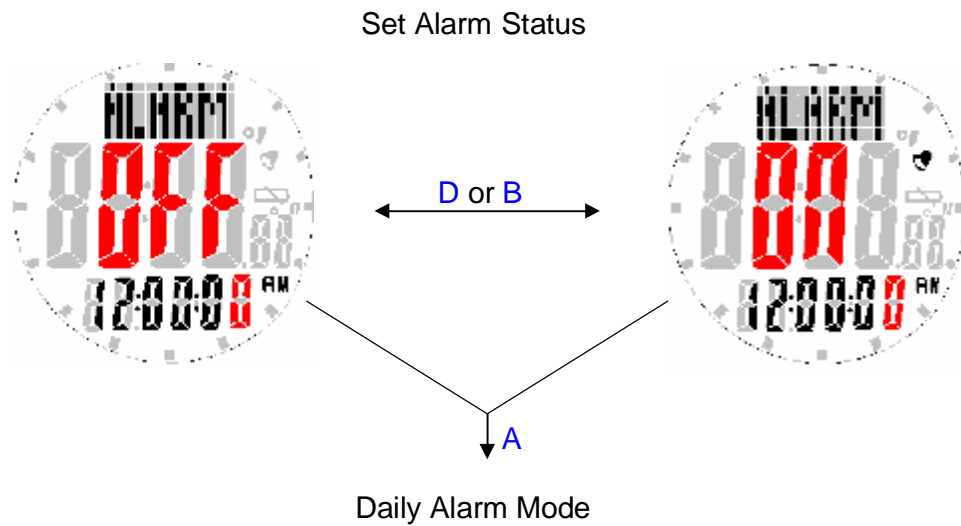
Set Minute



Press D or B to adjust the value

A  
↓

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Remark:

1. In all setting mode, press **D or B** button for 2s for fast advance or reverse.
2. Daily alarm setting mode time out at 60s and all setting before will be kept .
3. Daily alarm will be enabled automatically when the setting is being changed.

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## Compass Calibration Mode

Compass with Clock Mode or Compass with Temperature Mode

↓ A\_2

Compass Calibration Start



↓ After turned 2 rounds

Calibration Completed and Succeed



Otherwise, Calibration Fail



↓

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Set Magnetic Declination



Press **D** or **B** to adjust the value



Compass Mode

Remark:

1. In all setting mode, press **D** or **B** button for 2s for fast advance or reverse.
2. Compass Calibration mode time out at 60s and all setting before will be kept .



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## PRODUCT REQUIRMENTS

### MATERIALS

#### Casing:

Material:	ABS
Anti-UV:	Yes. Should not have de-coloring effect under sun light
Marking:	Anti-scratch
Cosmetic:	May have the flexibility as follows: 1. Original plastic color 2. Color paint with UV coating 3. Rubber paint
Finishing:	No sharp edge Easy battery

#### ▪ Lens:

Material:	Acrylic
Anti-glare:	Yes
Hardness:	H4 or greater

#### ▪ LCD:

Type:	HTN Positive
Viewing Direction:	6 o'clock
Viewing Angle:	≥ 60°

# **DL9301**

## **POWER SOURCE**

- AAA x 2 (3.0V)

## **BATTERY LIFE TIME**

- At least, 1 months shipment & storage period plus 1 year normal operation @ the following scenario:
  - Standard temperature conditions: 5°C to 40°C.
  - EL back light activates 4 times per day
  - 1 time alarm per day & 30 sec duration per alarm.
  - 3 times compass operation per day
  - 1 hour Stopwatch operation per day
  - 20 key-press with key tone per day

## **WATER PROOF/RESISTANCE**

- The unit should be splash proof.

## **SHOCK RESISTANCE**

- The unit should be withstand 4 feet drop test

## **TEMPERATURE REQUIREMENT**

- Operation environment requirement should be -10°C to 60°C at ≤ 85%RH
- Storage environment requirement should be -20.0°C to 70.0°C at ≤ 95%RH

## **HARDWARE REQUIREMENT**

- EL back light brightness should be at least 2.5 Lux @ lens surface
- Key tone should have at least 70db @5cm from the front side

## **APPROVAL**

- CE

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INDUSTRIAL DESIGN (for reference only)

