

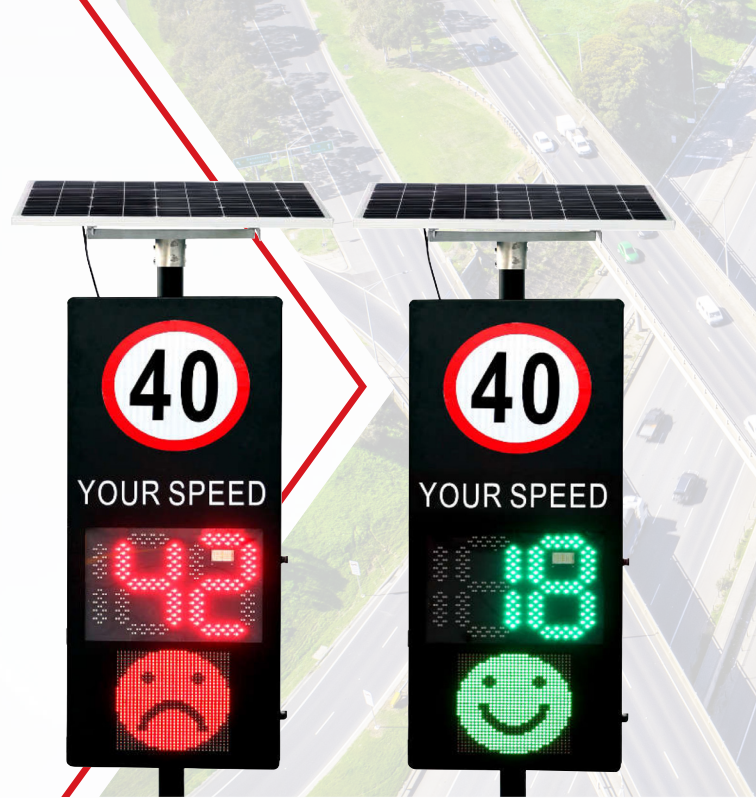


**ACCUMAX**  
S A F E T Y

# Solar Radar Speed Sign

## User Manual

Product Code: MAX-SRS01



## Solar Radar Speed Sign with Smile/Sad Face Feedback User Manual

### Introduction

The Solar Radar Speed Sign with Smile/Sad Face Feedback is a radar speed sign equipped with a 24GHz German Doppler radar, an embedded smart microcontroller, a high-brightness LED display screen to show smile/sad face and a user LCD screen as programming interface. The front speed limit panel is covered by 3M diamond-grade reflective film, increasing the visual distance range up to 300 meters.

The product can process the speed information provided from the radar, and will transfer the data to the LED display together with a happy or sad face in less of 0.1 sec. The use of microwave sensor inside the algorithm formula makes the system stable all day (including nighttime) measuring results with high level of accuracy.

Radar speed detection mainly utilises Doppler principle, when a radar beam with a certain frequency is emitted to the moving target. The target velocity information carried by its reflective frequency is different from transmitting

frequency. The difference between the two was named after Doppler Frequency. The Doppler Frequency is proportional to the moving speed of the target, on this account; we can detect the vehicle speed.

In the traffic ways, so many road sections need to restrict the speed. This product will show a sad face if a vehicle passed over the limits; in the other situation, a happy face will reflect that the speed of the current vehicle is below the established limit. Remind drivers of controlling speed when a car passes through radar coverage area. It is usually used in accident black spots and speed-limited sections, effectively telling drivers their speed on the alert.

The solar radar speed signs are suitable for a range of uses and sectors including but not limited to civil construction, roadworks, mining, manufacturing, commercial and community areas.



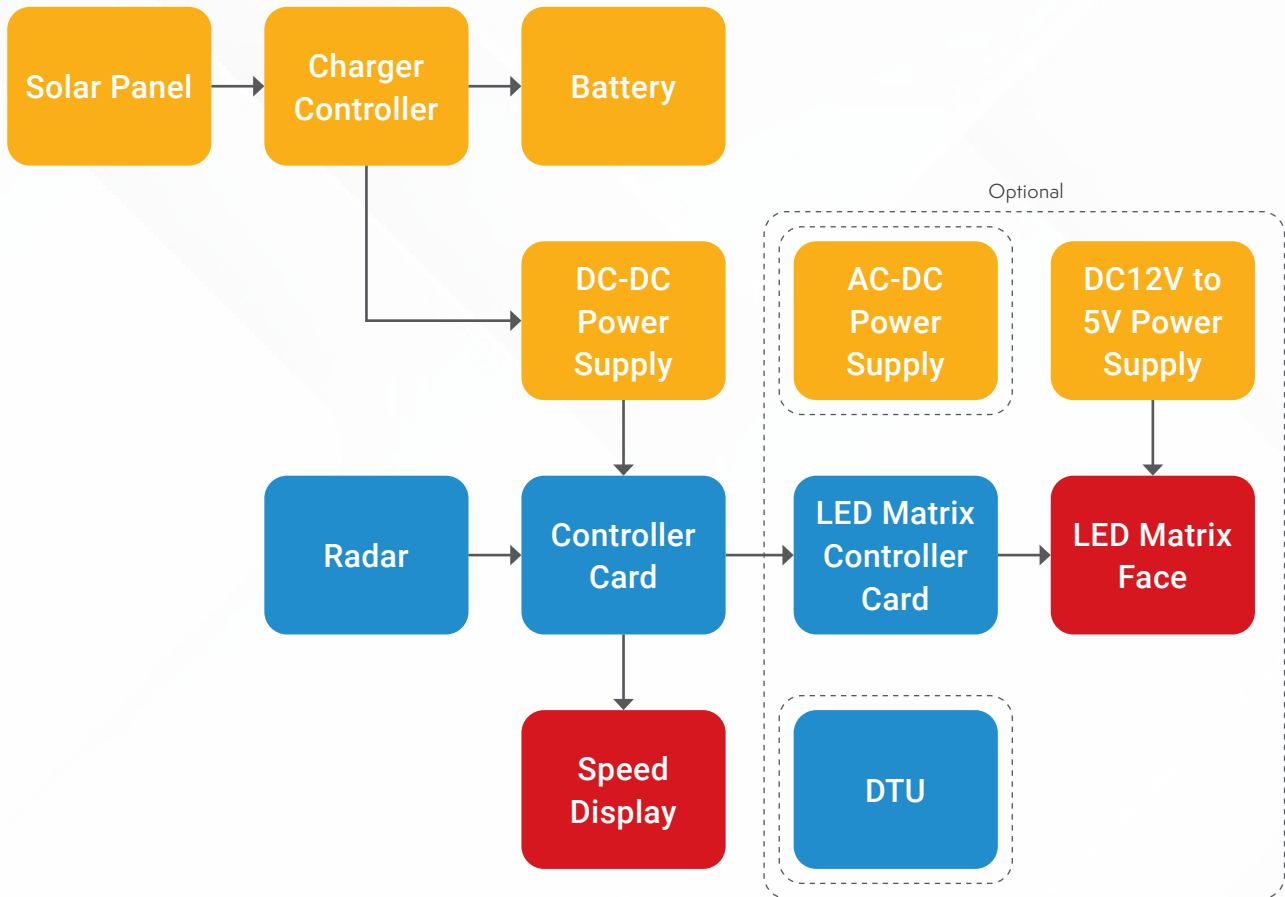
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# Solar Radar Speed Sign with Smile/Sad Face Feedback

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### 1 Diagram of the System



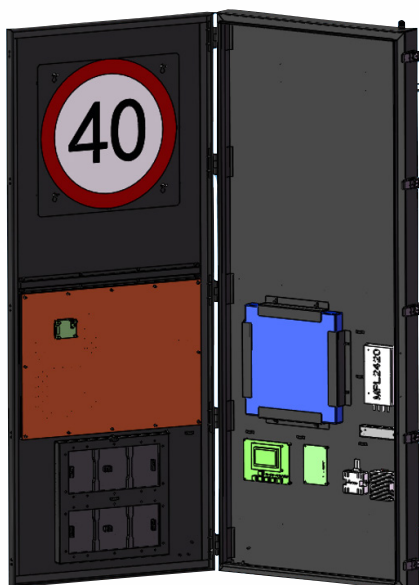
### 2 Main Features

- Built-in German doppler traffic radar, strong anti-interference, high accuracy,  $\pm 1\text{Km}$  in allowable error, sensitivity of radar can be set according to the situation of traffic and vehicle.
- Able to detect the fastest vehicle in a lane or target vehicle's speed nearest from radar speed sign. Better in pertinence, efficiently suppress the interference from the other vehicles, presenting more effective speed value to drivers.
- Working time setting (on/off time setting) based on weekday/weekend.
- Continuous display time for target vehicle speed can be customized (0.4~10s).
- Varieties of power supply (Solar power, AC, DC, Storage battery), Ultra-low power, 50AH standard battery, 100W solar panel, working time in cloudy weather for 8 to 10 days (the solar panel and battery depend the user location).
- Visual double-colour LED display, red screen when speeding, Green screen within safe value, clearly visible at 300m distance.
- Built-in LCD display for radar setting device, convenient operation, simple and elegant UI.
- Easily change max-limit through LCD display and navigation menu.
- Portable bracket, standing pole mounted, vehicle mounted for different situations, all handle screw, built-in battery, no digging required for installation. Use friendly
- 3M diamond-level reflective film as the front speed-limit panel.

# Solar Radar Speed Sign with Smile/Sad Face Feedback

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### 3 Technical Specs



Specifications	
Display Mode:	Max displaying speed: 199
Input Voltage:	Solar powered, DC12/24V
Speed Display:	360mm H x 500mm W Red: 208pcs Green: 208pcs
Light Luminous:	≥ 8000 cd/m <sup>2</sup>
Viewing Angle:	± 30°
Face Display:	P10 Module - 320 x 320mm Pixel Pitch: P10mm, red and green color
Solar Panel:	100W mono Solar panel
Battery:	50Ah lithium battery
Working Frequency of Radar:	24.125GHZ
Detected Speed Range:	10-250km/h
Detecting Distance:	Within 200m
Variable Speed Labels:	20, 30, 40, 50, 60, 70, 80, 90 with Aluminum Plates
Reflective Film:	3M sticker
Material of Housing:	Aluminium with outdoor powder coating
Product Size:	1500mm x 600mm x 70mm

# Solar Radar Speed Sign with Smile/Sad Face Feedback

## User Manual

### 4 Installation Guide

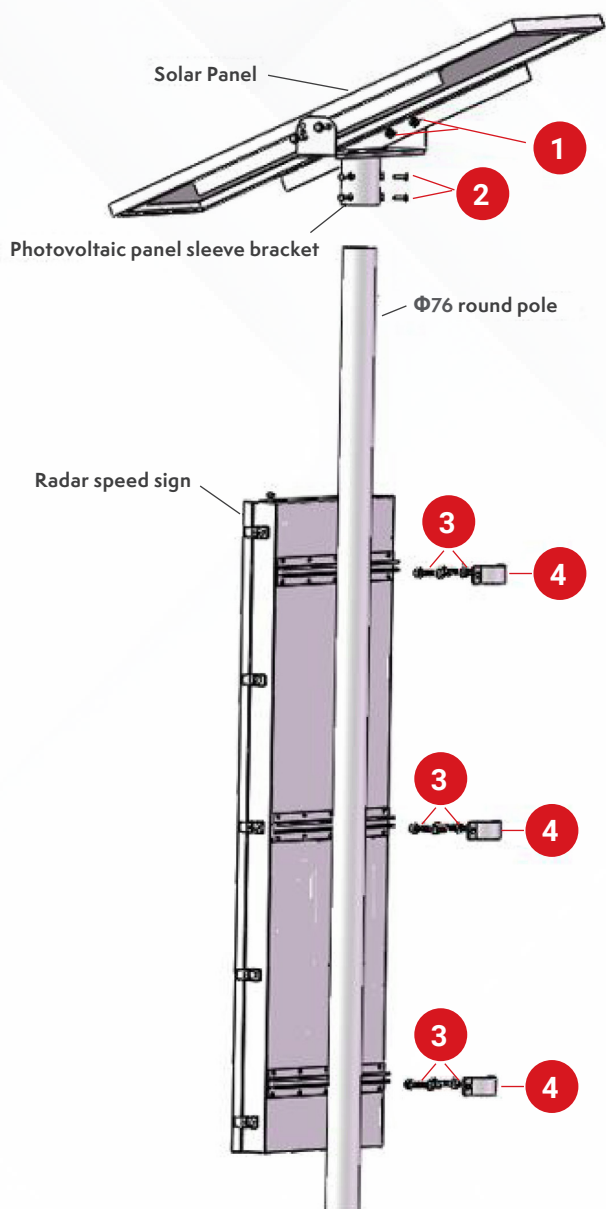
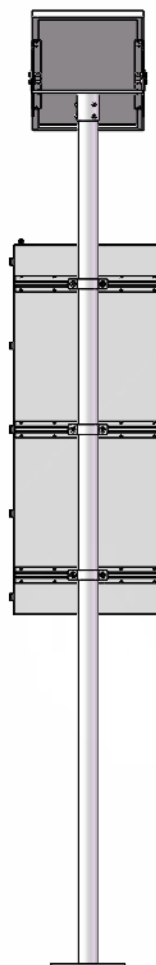


Figure 1 Overall view of solar radar speed sign installation

No.	Name	Total Qty
1	Hex Bolt, M12*20	5pcs
2	Bracket, 380*68.5*40mm	1pcs
3	Bracket, 160*35*40mm	3pcs
4	Hex Bolt, M10*80	6pcs
5	Hex Bol, M10*35	2pcs
6	Nut- M10	8pcs
7	Spring Washer - M10	6pcs
8	Flat Washer - M10	16pcs



# Solar Radar Speed Sign with Smile/Sad Face Feedback User Manual

## 4 Installation Guide

- Step 1:** Use M10 \* 40 external hexagonal screws and double-sided flat pads to fix and connect the photovoltaic panel and the photovoltaic panel sleeve bracket (as shown in Figure 2)
- Step 2:** Fix the photovoltaic panel sleeve bracket onto the rod using M8 \* 25 external hexagonal screws (as shown in Figure 2)

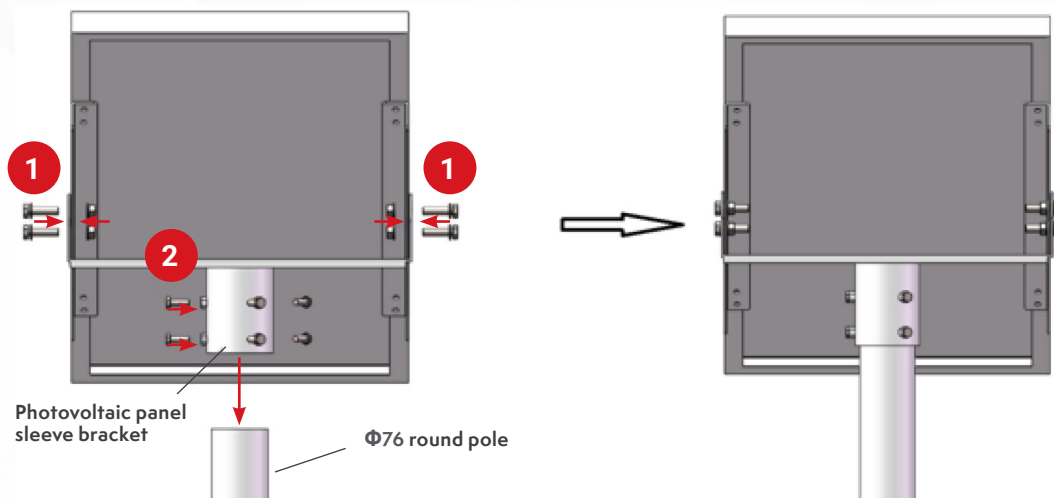


Figure 2 Installation of photovoltaic panels

- Step 3:** Use M10 \* 80 external hexagonal screw, double-sided flat washer, single-sided spring washer, and retaining ring to fix the radar speed sign to the round pole (as shown in Figure 3)

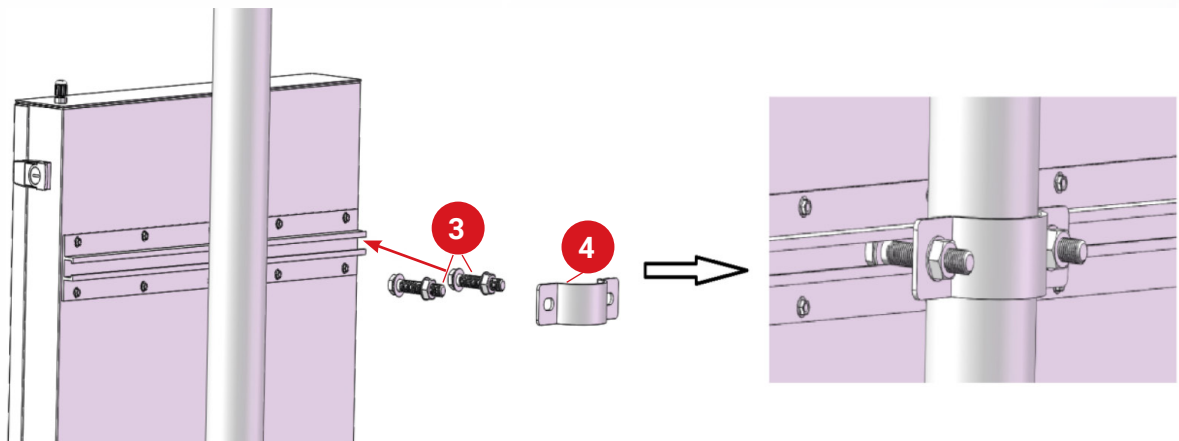
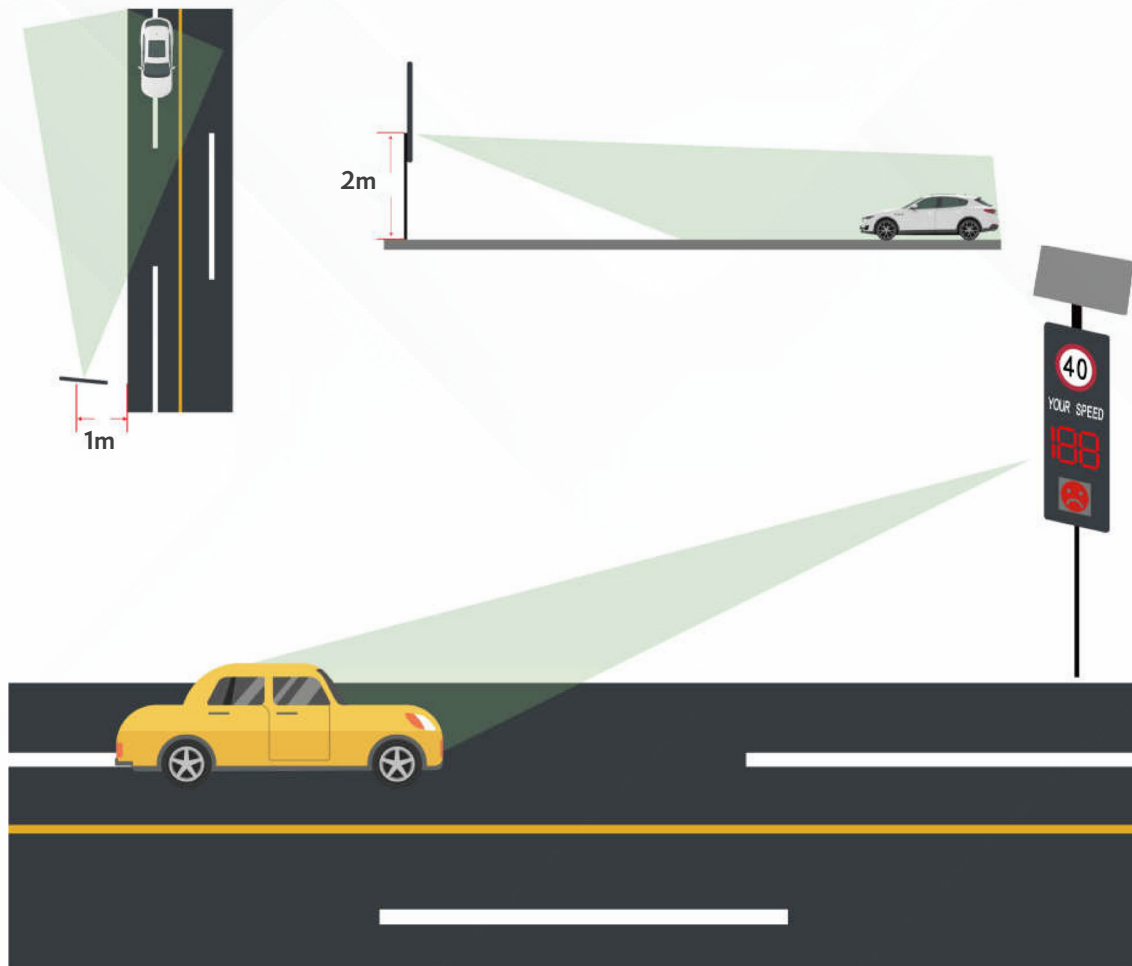


Figure 3 Install radar speed sign

- Step 4:** Install completed solar radar speed sign.

# Solar Radar Speed Sign with Smile/Sad Face Feedback User Manual

## 4 Installation Guide



Before installation, please note:

- The sign fixed on the road is left or right, or just above the road, so that the direction of the radar port is to the car, the tilt angle is not more than 10 degrees.
- The radar speed sign bottom installation height: 1.5 - 3m from the ground.
- Installation position: About 1 metre aside of the road, left or right is optional.
- Detection angle: 2° to the road surface, this degree can be adjusted according to the actual surface of the road.
- Smile face: Adjust against the view angle of the driver.
- At the same time, the higher the distance between the radar and the ground, the farther away the radar works. Generally, the distance from the ground to radar in 2.5-3m is better.

# Solar Radar Speed Sign with Smile/Sad Face Feedback User Manual

## 5 Project Case



An example of the solar radar speed sign being utilised at one of our customer's mine sites. In this case, the sign is being used to communicate and monitor speeds on the main site haul road where there is high traffic on entry and exit and risk of serious injury or death.

## 6 Common Problems

ISSUE	METHODS OF SOLUTION
The display is always OFF	<ol style="list-style-type: none"> <li>1. Power supply circuit:               <ol style="list-style-type: none"> <li>a. Check if the input voltage is normal.</li> <li>b. Check if the solar panel connector is loose.</li> <li>c. Check if the solar panel is blocked by an object and cannot receive sunlight.</li> <li>d. Check if the battery is damaged.</li> </ol> </li> <li>2. Check if the data cable in the PCB is loose.</li> </ol>
The display is bright during the day but not at night.	<ol style="list-style-type: none"> <li>1. Check whether the solar panel is blocked.</li> <li>2. Check if the surface area is grey (covered with dust).</li> <li>3. Check if the joint connector is loose.</li> </ol>
System time is incorrect	<ol style="list-style-type: none"> <li>1. Reset the time</li> <li>2. Replace the system clock battery, model: CR1220</li> </ol>

# Solar Radar Speed Sign with Smile/Sad Face Feedback User Manual

## 7 Control Card Operating Instructions

### 7.1 COMPONENTS

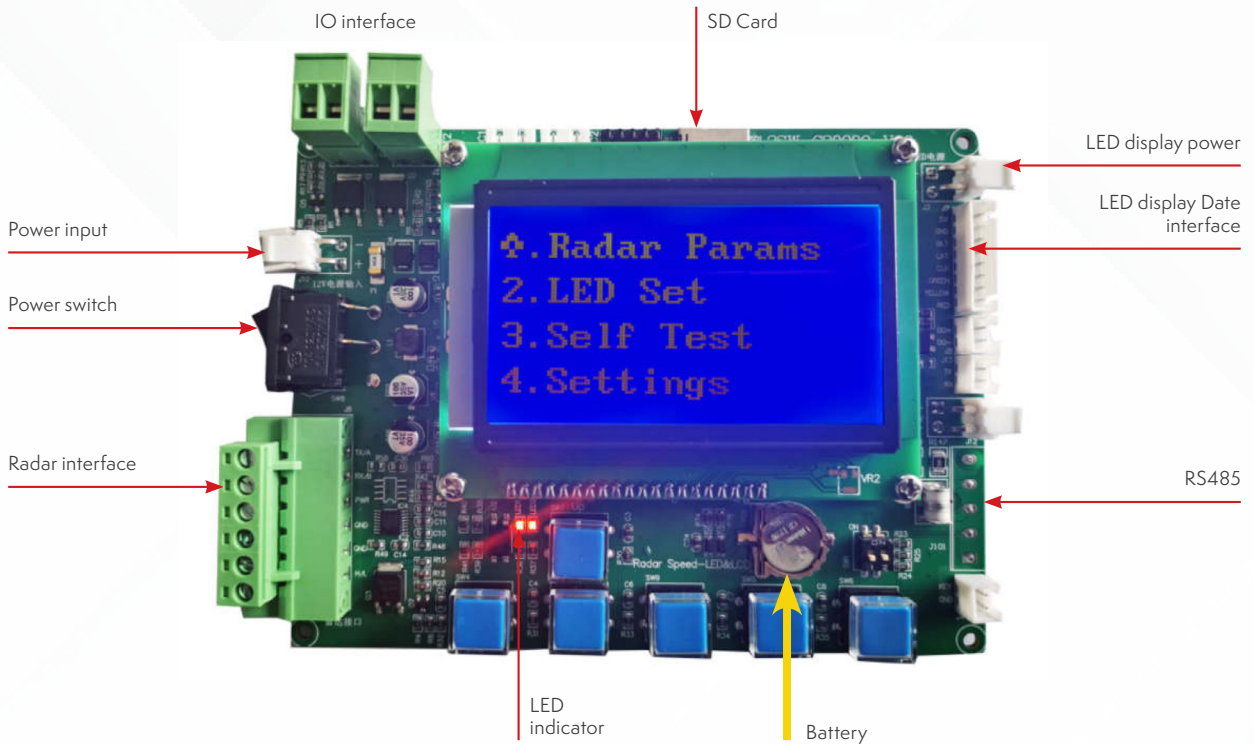


Figure 1

### 7.2 RADAR BOARD OPERATING GUIDELINES

Control Card powered on, and after startup, the LCD screen displays the main screen of *Figure 2*.

There are four main function options on the LCD display interface. Use the buttons to select related options:

- Radar parameter setting (no need to configure for the end user)
- LED Set
- Self-Test
- Settings

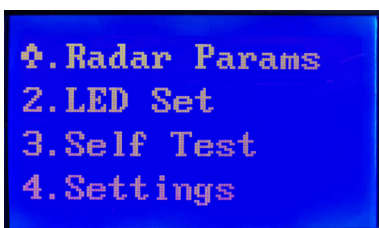


Figure 2

### 7.3 RADAR PARAMETER SETTINGS

No need to configure for the end user (only for manufacturer).

# Solar Radar Speed Sign with Smile/Sad Face Feedback

## User Manual

### 7 Control Card Operating Instructions



Figure 3



Figure 4

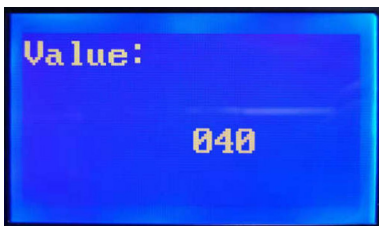


Figure 5

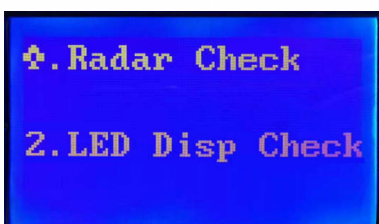


Figure 6

#### 7.4 LED SET

See Figure 3.

**Note:** When the vehicle speed is "0", the display does not display any characters.

When system time is outside the period of working time periods set by user, both the LED display and the speedometer are turned off by system.

##### 7.4.1 RADAR SIGN OPENING DATE SET

See Figure 4.

- After entering this option and exiting, it is to cancel the setting of the start date and time, the device is always in working state.
- You can choose weekday display or weekend display. After you select a weekday or weekend option, press the confirm key. Set the corresponding working time period by press up, down, left and right buttons to adjust, and press the confirm button after completion. The screen working date and time setting is completed.
- The factory default is 7 x 24 hours working mode.

##### 7.4.2 OVERSPEED THRESHOLD VALUE SET

When the measured vehicle speed exceeds the set speed, the LED display shows the red vehicle speed value and sad face (if with LED screen for face feedback displaying).

When it is not exceeded, the LED display shows the green speed value and smile face (if with LED screen for face feedback displaying). Threshold value setting as shown in Figure 5.

##### 7.4.3 LED DISPLAY FIXATION SHOWS "123"

Check whether the hardware and communication of the LED display are normal by set it to show "123". If the LED display screen shows 123, it means the hardware and communication are fine.

#### 7.5 SELF TEST:

See Figure 6.

##### 7.5.1 RADAR CHECK

It is used to detect whether the communication between the radar speedometer and the control board is normal. It will enter communication detection mode after selecting ENT. The system restarts after the normal test is completed.

# Solar Radar Speed Sign with Smile/Sad Face Feedback

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### 7 Control Card Operating Instructions

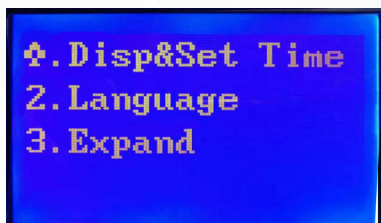


Figure 7

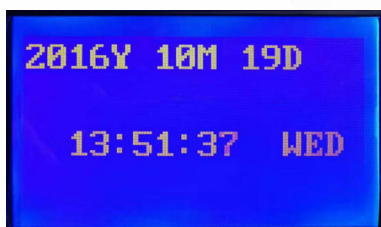


Figure 8

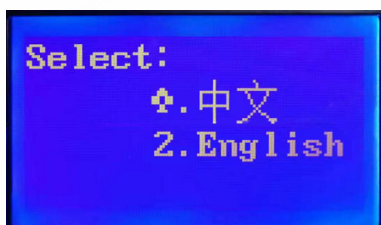


Figure 9

#### 7.5.2 LED DISPLAY CHECK:

Automatically switch 0~9 character in the speed display, check whether the LED display is displayed normally.

### 7.6 SETTINGS

See Figure 7.

#### 7.6.1 SYSTEM TIME SET

Enter the time display interface, press the confirm button to enter the time modification mode, you can use the up, down, left and right buttons to operate, modify Change to the time you need to set, press the ENT button to complete the system time modification, see Figure 8.

#### 7.6.2 LANGUAGE

The system supports Chinese and English language selection, see Figure 9.

