Economy Radar Speed Sign

Specifications and manual

Principle of Operation

This speed sign uses (Radar) Doppler effect to accurately measure vehicle speed over a wide range of surfaces including roads, rails e.t.c.
In case of power loss or during the night if you use it with solar panel only, the speed sign will operate by using it's internal battery. An internal controller measures the battery charge. It automatically switches off the speed sign if the battery voltage goes below 10,5 VDC and it will switch on again when the voltage goes above 12.5 VDC (after some charging).

1. Specification:

1.1 Operational:

Display Brightness Control: Auto adjust to light conditions

1.2 Dimensions

Driver Feed Back Sign Housing: 370x420x90 mm
Height of letters : 60 mm
LED Display Characters: 2 digits, 10" (250 mm) high Super Bright red/green LEDs

1.3 Weight

5 kg with battery

1.3 Components

Circuit Breaker: Multi-circuit, 5 amp fuses
Power Supply: 240VAC and optional 12 VDC (7 Ah) Batteriy with solar panel
Power Consumption: < 0.2 amps (2 W) in active mode, idle mode < 0.6 watt
LEDs: Super Bright red and green LEDs with 8000 mcd each (life up to 100,000 hours)

1.4 Radar Unit

Type: K Band, directional Doppler radar, FCC part 15 compliant
Sensor Range: Ordinary sensor range up to 50-70 m (option: long range sensor up to 150 m)
(note: the distance of radar sensor sensitivity depends on a lot of circumstances, it is working with doppler effect)
Beam Width: ordinary 30/40 degrees, +/- 2 degrees (option: long range has 12/20 degrees)
Operating Frequency: 24.125 GHz, +/- 50 MHz
Accuracy: +/- 1.5 kph
Speed Detection Range: 0 - 199 kph

1.6 Housing
Composition & Finish: PVC case
Temperature Ranges: -10 C to +60 C
Humidity Maximum: 100%
Weatherproof: Conforms to NEMA 4R level design, non-sealed & ventilated
Makrolon Display Cover: 4 mm thick, shatter resistant, protects LEDs

1.7 Pole Mounting Hardware

Hardware Available For 2,5" (76 mm) round poles as standard and 60 or 89 mm is available for option

1.8 Solar Power

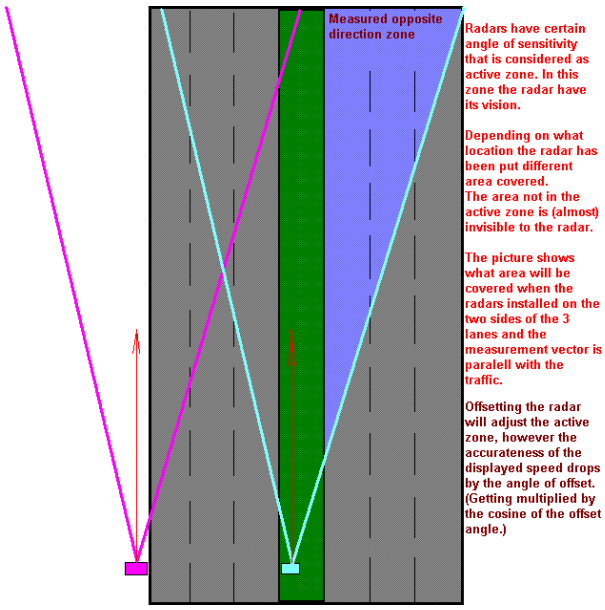
Solar Panel Output: 40 watt, Voltage at Pmax = 17.4V, Current at Pmax = 3.11 Amps
Pole Mount: Side pole mount with 35°angle bracket for effective solar charging

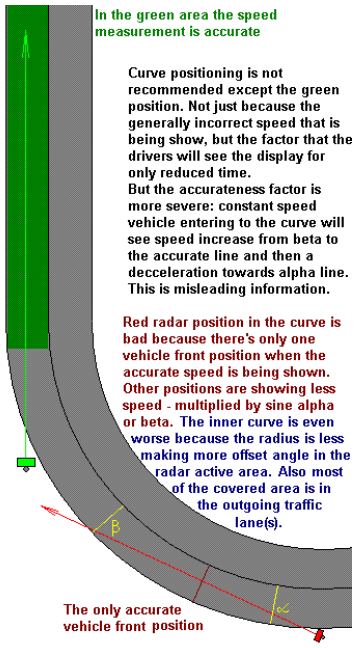
1.9 Warranty
Basics: Parts and Labor: 1 year

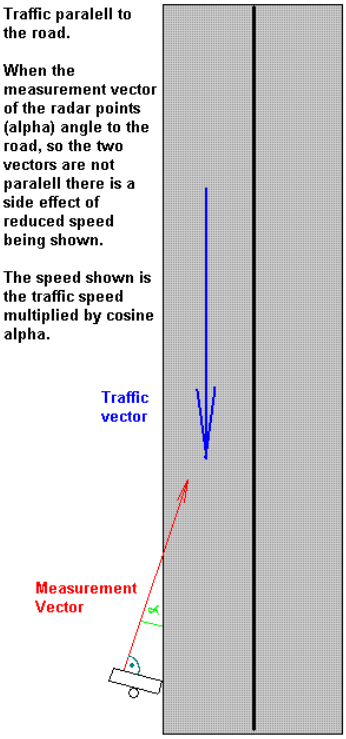
2. Installation

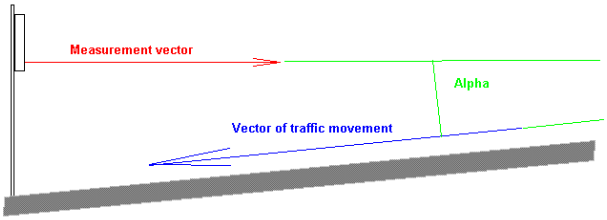
2.1 Identifying a suitable location:

To mount the speed sign on a pole, select an existing pole that allows the preferred mounting height of 210-240 cm (7-8 feet) for the center of the display. Make sure the location is close enough to the roadway to align the sign to that it faces the incoming traffic as directly as possible, similar to the diagram (for left side driving countries). This will maximize the accuracy of the radar.



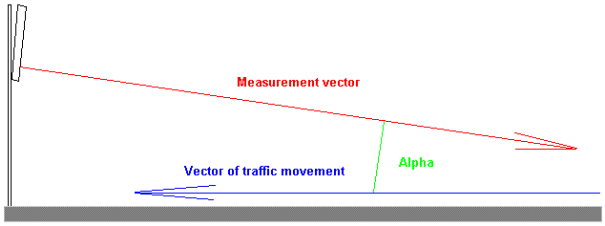






When the street is a slope or the radar is tilted, so the measurement vector is not paralell to the traffic vector, the sensed speed is less than the actual vehicle speed.

Sensed/displayed speed = vehicle speed * cosine(alpha)



2.2 Fasten the Mounting bracket:

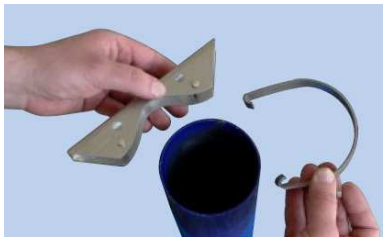
Special mounting brackets are provided by the supplier. The pole diameter can be 60, 76, 89 mm. Standard mounting is 76 mm, others are options. This bracket will be used for the mounting of solar panel as well.
If there is any special shape of pole (such as conic ligthing pole), a special flexible mounting clamp will be provided as option.

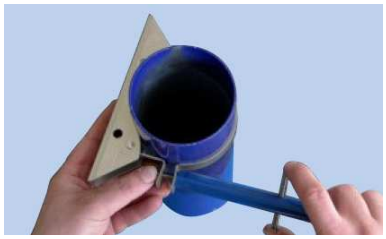
Standard mounting

For tightening, only commercially available tools are required.

1. Please install the aluminum brackets on the back side of speed sign with the provided hexagonal nuts and bolts (4 pcs M8x16) as pic shows.
2. 

3. Please install the clamp in the following steps as pics show





4. Rotate Infospeed horizontally such that the radiated beam lies over the carriageway to be monitored. The maximum horizontal angle of rotation should be below 10 degree.
5. Tighten the joints. If necessary secure the Infospeed from slipping by a clamp on the fixing pole or a transverse bolt. In the case of a longer set-up time (after approx. 2 days) tighten the bolts again.

Special mounting

In that case if the pole has special shape (such as conic, hexagonal or concrete e.t.c) or the diameter is too big, a special clamp can be provided. It is made from stainless steel. This clamp is available in any length.

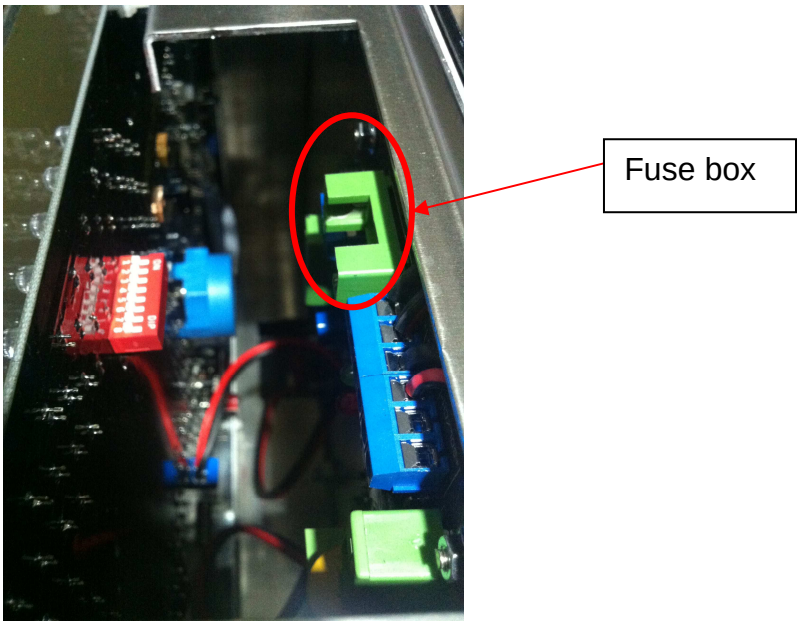
In case of conic pole (such as popular lighting pole), 2 pcs 5 mm thick plastic spacer is provided to install them ont he top bracket to adjust the vertical level.

3. System Start-Up

Once the speed sign is securely positioned, and then it can be start-up as you see in the start-up chapter.

1. Please open the case as the top will be taken away.

Please put the fuse in the fuse box.



4 Connecting power

- Connecting to the solar panel:

Please connect the connector on the backside to the solar panel and it is ready to work.

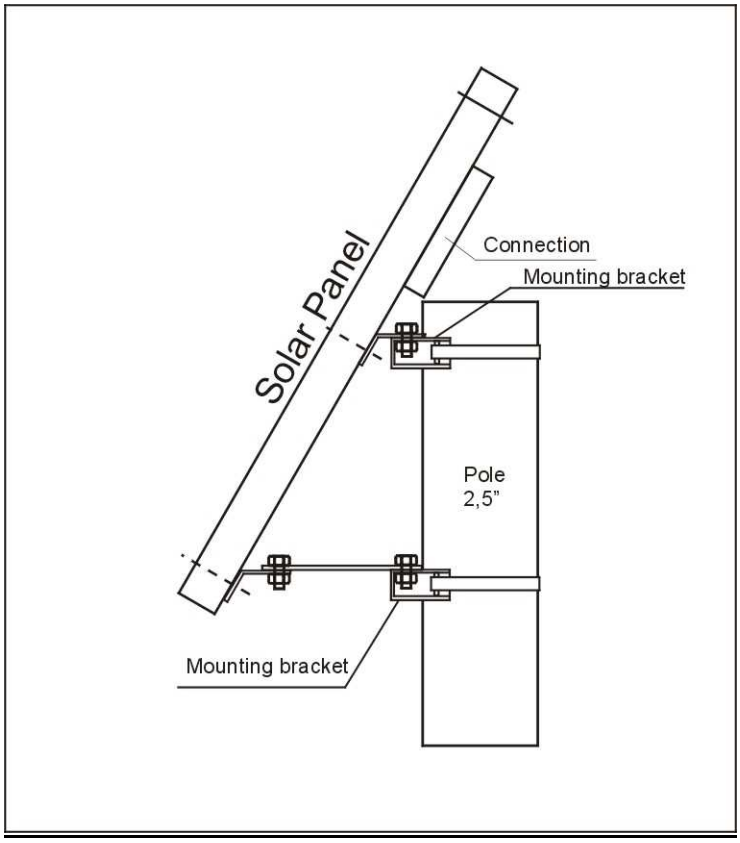
- Connecting to the 230 VAC

Please connect the connector on the backside to the speed sign and it is ready to work. Connection is the following for power supply:

No1. is LINE (L)
No2. is NEUTRAL(N)
GND is GROUND

5. Installing the solar panel

If you use solar panel you have to use 350 cm (+ 50 cm in the ground) pole. The pole is 2.5".
The solar can be mounted by aluminium brackets. The panel is fixed in 70^{o} degrees (this degree is the best solution for high voltage).



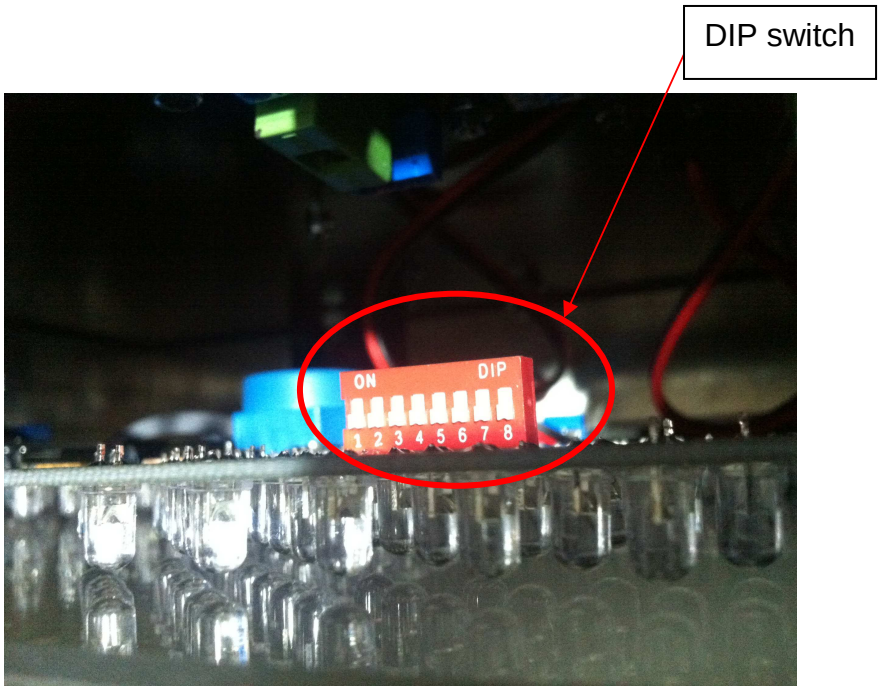
Note: The solar panel should be directed to South. If there is no possibility to do this and the solar panel is directed to North, you will loose at least 60-70 % power of solar panel.

Setting of SPEED SIGN (mono and bi-color)

The display can be set in different function. Please follow the next steps:

Jumpers:

J1: Speed limit setting. Please switch on No.1. and the speed limit setting will run automatically from 15-80. As you reached the requested speed limit please switch it off.
J2: No function
J3: Test function
J4: No function
J5: the refresh time can be set. Off – 1200 msec and On – 400 msec
J6: Off- there will be no display above speed limit+40 kph, On – there will be display always
J7: On – there will be no display below the speed limit, Off – there will be display below the speed limit
J8: On – there will be no display above 100 kph.



Note: speed limit setting „50" as factory setup and all SWITCH is OFF.

7. Maintenance

The internal battery used is maintenance free and it can be stored in any position. If the batteries are going to be stored for an extended period of time, they should be fully charged before being stored.