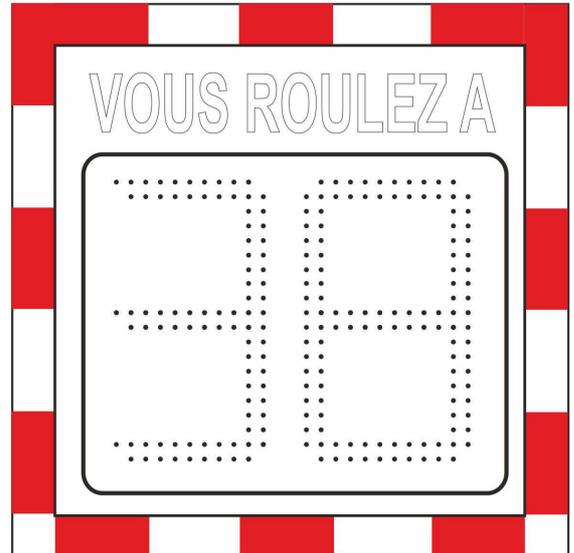
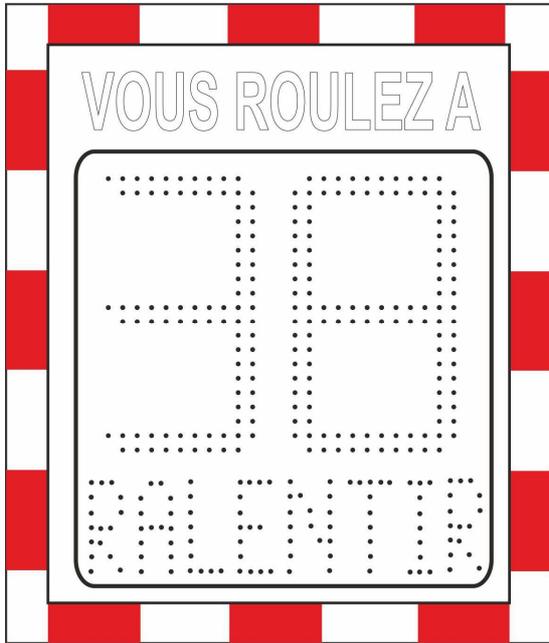


## Radars Speed Sign 2 digits (DMC LUX)

### Specifications and manual

V3.0



### 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 normal conditions the display is blinking slowly under operation and for every flash (approx 1/sec) it will refresh your speed. The last measured speed is being shown for four additional flashes.

In case of power loss or during the night if you use it with solar panel only, the speed sign will operate by using its internal battery. An internal controller measures the battery charge. It automatically switches off the speed sign if the battery voltage goes below 11,5V and it will switch on again when the voltage goes above 12.5 V (after some charging).

## **1. Specification:**

### **1.1 Operational:**

Display Brightness Control: Auto adjust to light conditions

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### **1.2 Dimensions**

Driver Feed Back Sign Housing: 540x560x120 mm (without text 'RALENTIR) and 540 x 710 x 120 (with text 'RALENTIR)

Height of letters : 100 mm

Reflective red and white interior border width: 40 mm

LED Display Characters: 2 digits, 12,5" high Super Bright red/green LEDs

Text 'RALENTIR': red leds with 100 mm character height

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### **1.3 Weight**

15 kg with battery

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### **1.4 Components**

Circuit Breaker: Multi-circuit, 4 amp fuses

Power Supply: 240VAC and optional 12 VDC (20 Ah) Battery with solar panel

Power Consumption: < 0.2 amps (2,4w) in active mode, idle mode < 1 watt

LEDs: Super Bright LEDs with 4500-8500 mcd each (life up to 100,000 hours)

Color: Red/Green

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### **1.5 Radar Unit**

Type: K Band, directional Doppler radar, FCC part 15 compliant

Sensor Range: Sensor range up to 50-80 m (long range sensor up to 120-150 m optional)

Beam Width: 30/40 degrees, +/- 2 degrees (long range has 12/10 degrees)

Operating Frequency: 24.125 GHz, +/- 50 MHz

Accuracy: +/- 1.5 kph

Speed Detection Range: 0 - 199 kph

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### **1.6 Housing**

Composition & Finish: Aluminum with black powder coat finish, vandal and fire resistant

Thickness: 2 mm - provides maximum protection from elements & vandalism

Temperature Ranges: A/C model: -20 C to +60 C; Solar & Battery models: -10 C to +60 C

Humidity Maximum: 100%

Weatherproof: Conforms to NEMA 4R level design, non-sealed & ventilated

Polycarbonate Display Cover: 4 mm thick, shatter resistant, protects LEDs

Color of case: RAL 7032

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### **1.7 Pole Mounting Hardware**

Hardware Available For 2,5" (76 mm) round poles (2" (60 mm) and 3" (90 mm) is available for option)

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### **1.8 Solar Power**

Solar Panel Output: 100 watt, Voltage at Pmax = 21.4V, Current at Pmax = 5.7 Amps

Batteries: 1 pc 12V 20amp hour deep cell, spill proof long life batteries

Battery Controller: Manages flow of solar energy input (up to 100w) from solar panel to battery

Pole Mount: Side pole mount with 20° angle bracket for effective solar charging

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### **1.9 Warranty**

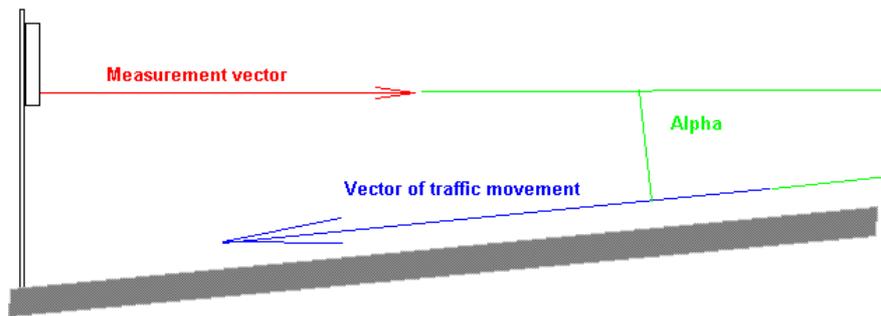
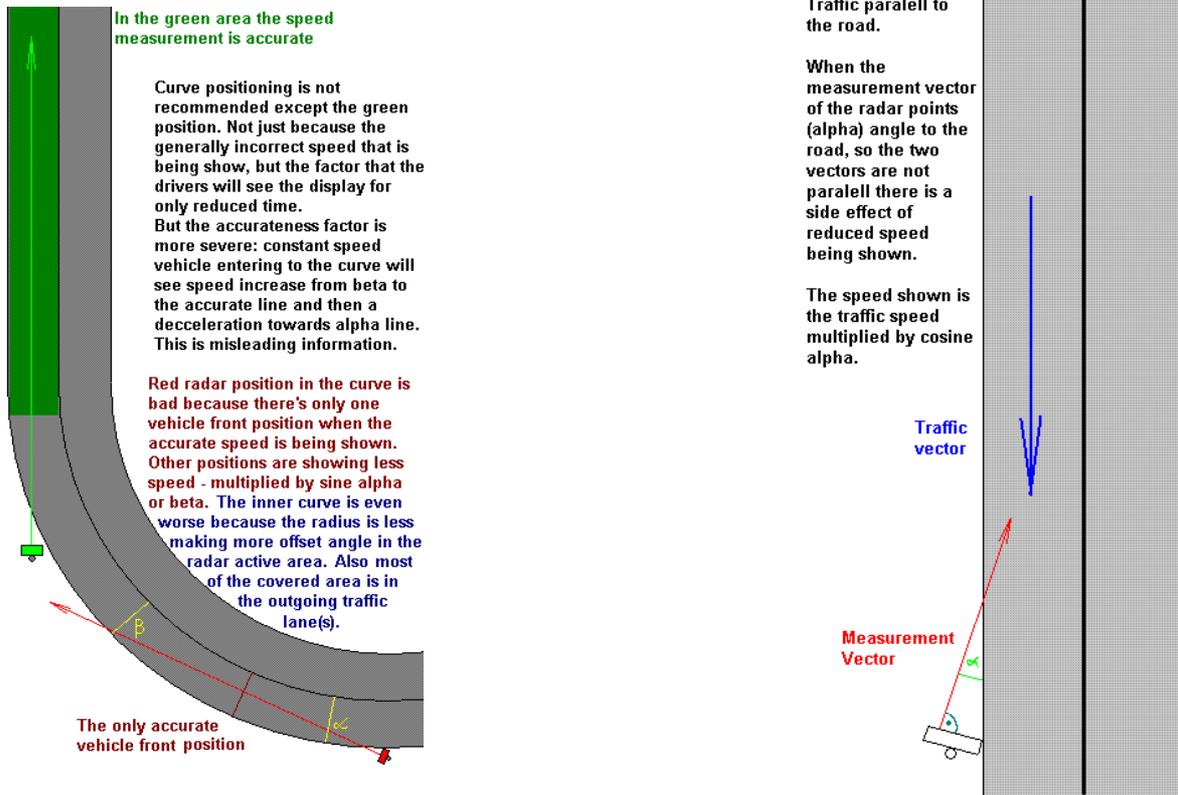
Basics: Parts and Labor: 1 year

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## 2. Installation

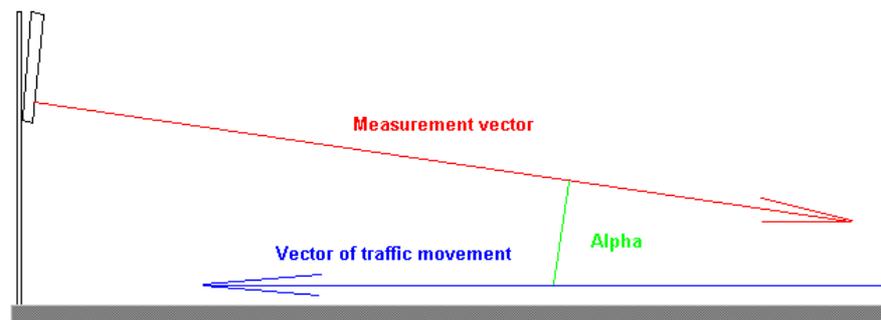
### 2.1 Identifying a suitable location:

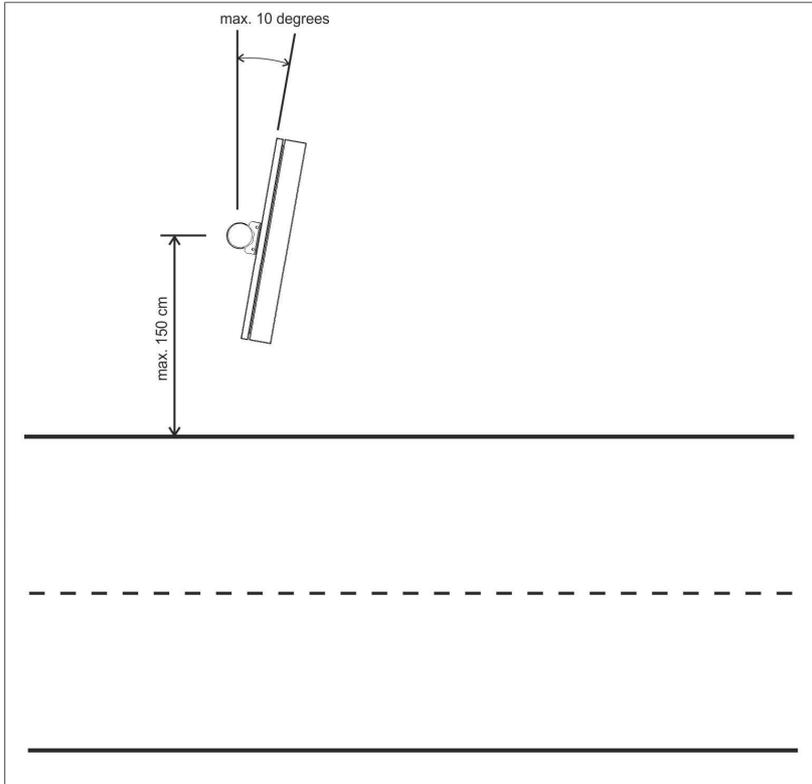
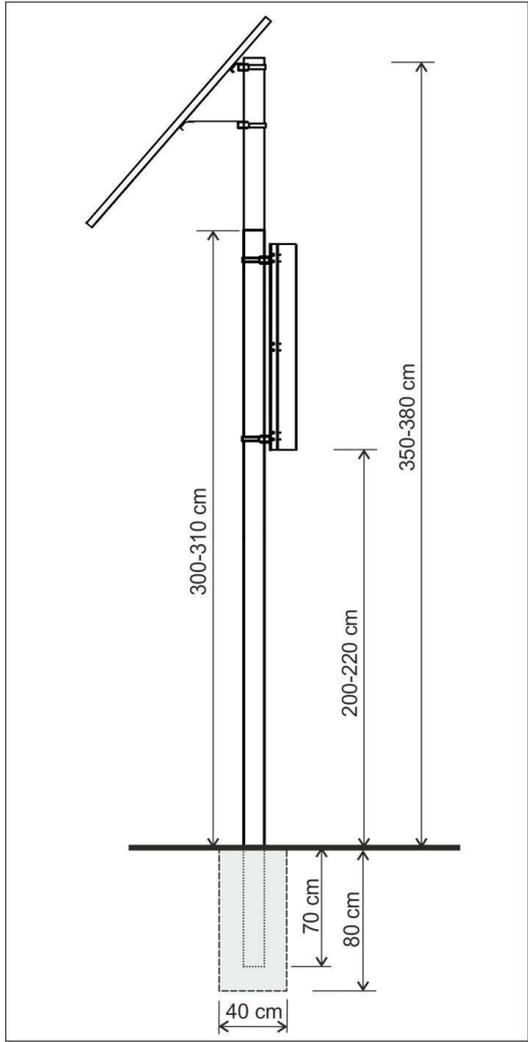
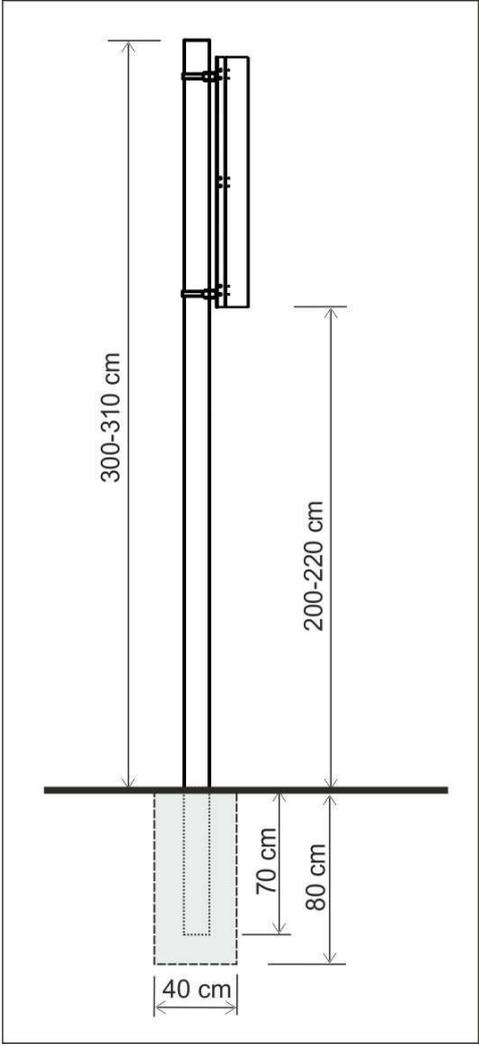
To mount the speed sign on a pole, select an existing pole that allows the preferred mounting height of 230-250 cm for the center of the display. Make sure the location is close enough to the roadway to align the sign to that it faces the incoming traffic as directly as possible, similar to the diagram (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 parallell to the traffic vector, the sensed speed is less than the actual vehicle speed.

$$\text{Sensed/displayed speed} = \text{vehicle speed} * \cos(\text{alpha})$$





## 2.2 Fasten the Mounting bracket:

The mounting bracket comes with fixture for a 2.5" (76 mm) or 2" (60 mm) pole. The radar can be mounted with stainless steel screws.

Special mounting brackets are provided by the supplier. The pole diameter can be 60, 76, 89. 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 lighting 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. Please install the clamp in the following steps as pics show



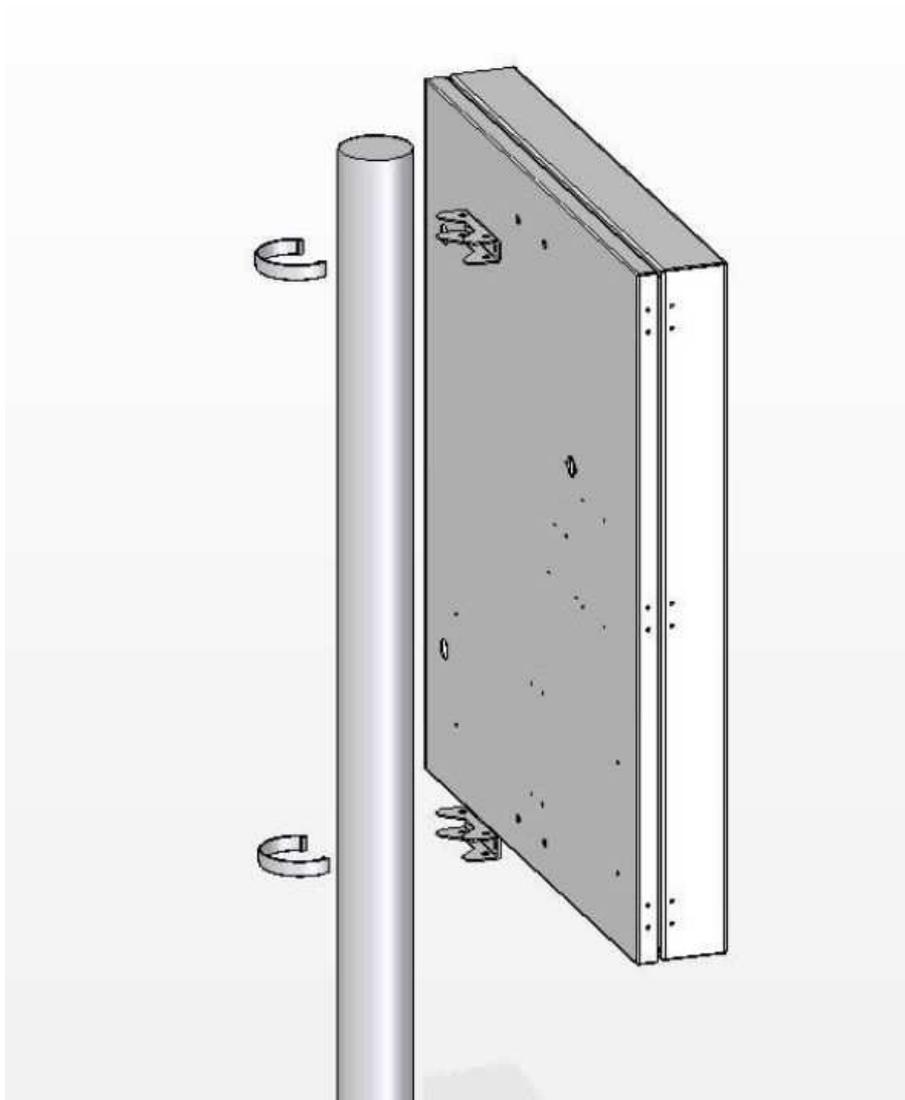
3. Rotate Infospeed horizontally such that the radiated beam lies over the carriageway to be monitored. The maximum horizontal angle of rotation should be below 10 degree.
4. Tighten the joints. If necessary secure the Infospeed from slipping by a clamp on the fixing pole or a transverse bolt. In the 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.



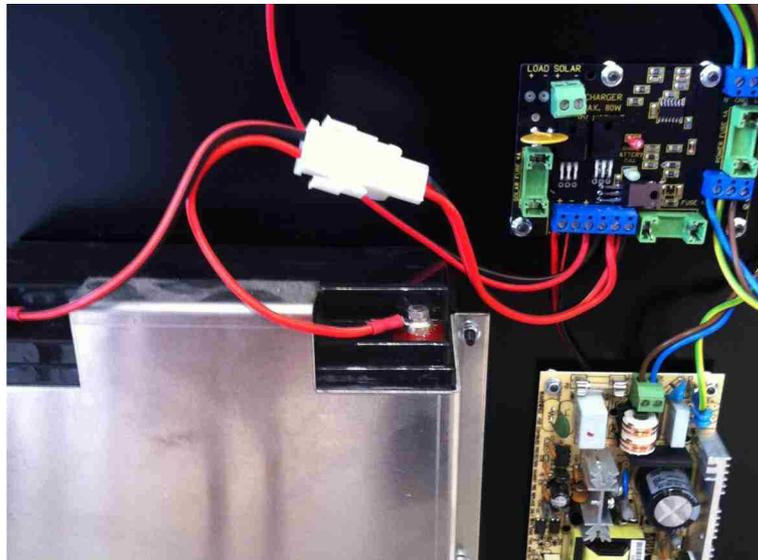
In case of conic pole (such as popular lighting pole), 2 pcs 5 mm thick plastic spacer is provided to install them on the top bracket to adjust the vertical level.



### 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.

Please open the case with the key (turn it to anti-clockwise) and connect the battery cable (white quick-connector)



### 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.

Connection points:

No3. Positive solar

GND: negative solar



- 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)

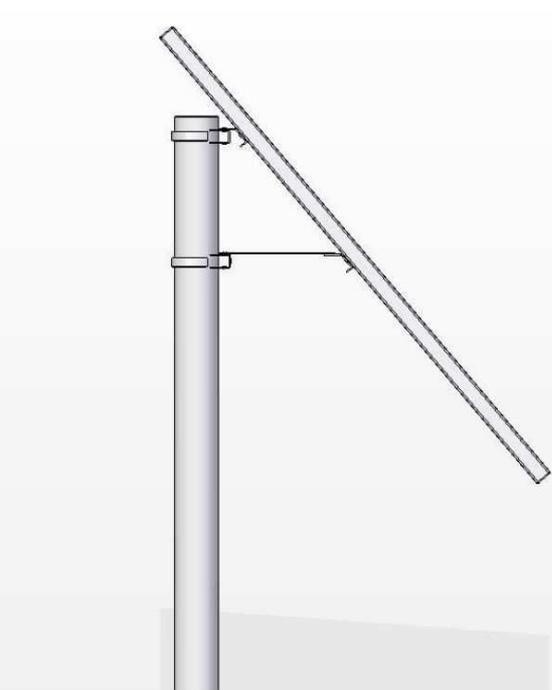
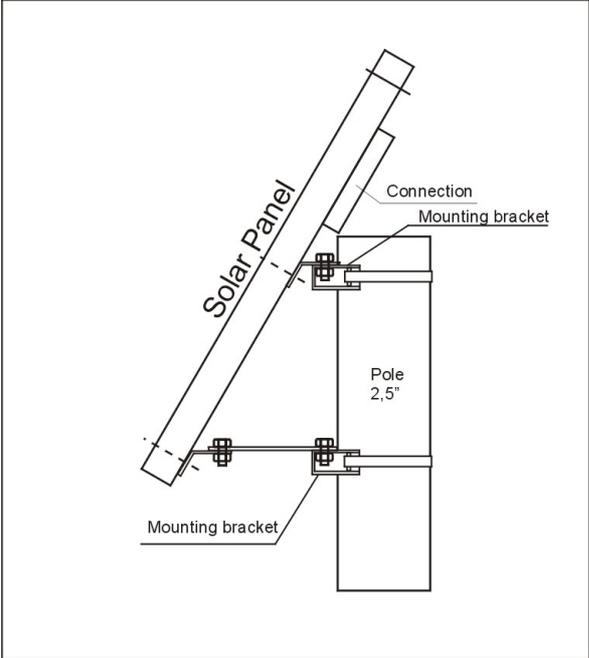
No2. is NEUTRAL (N)

GND is GROUND

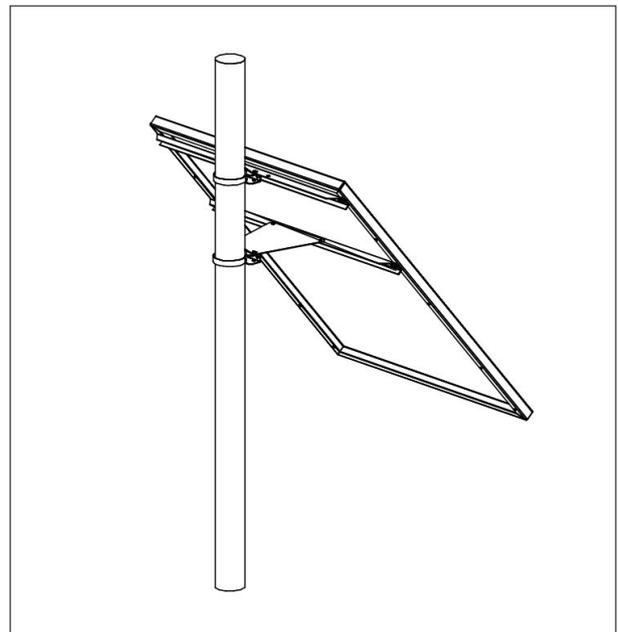
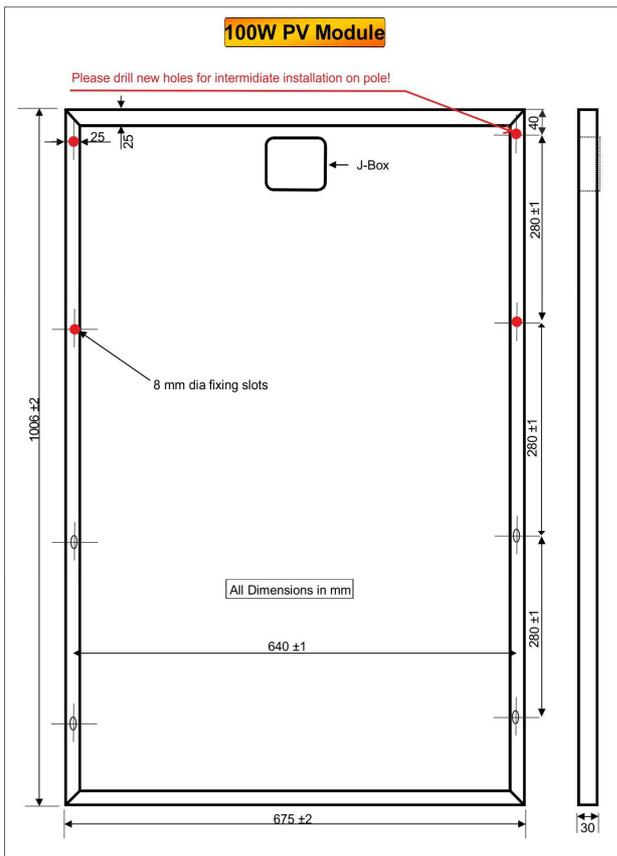
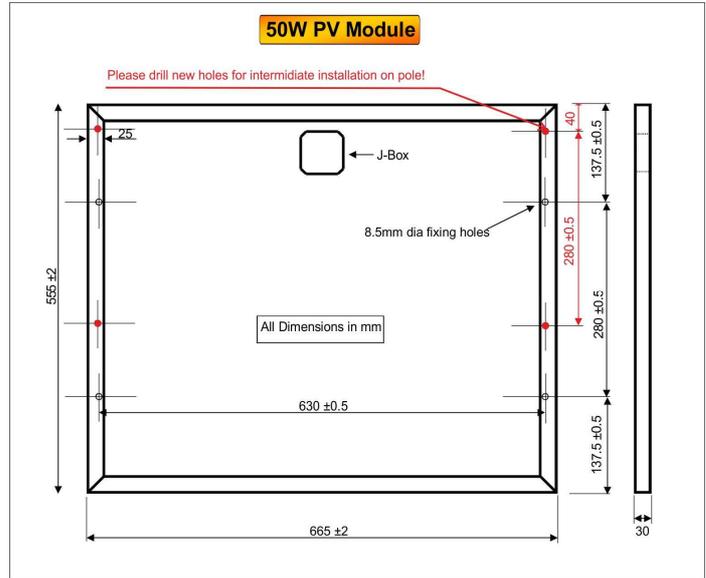
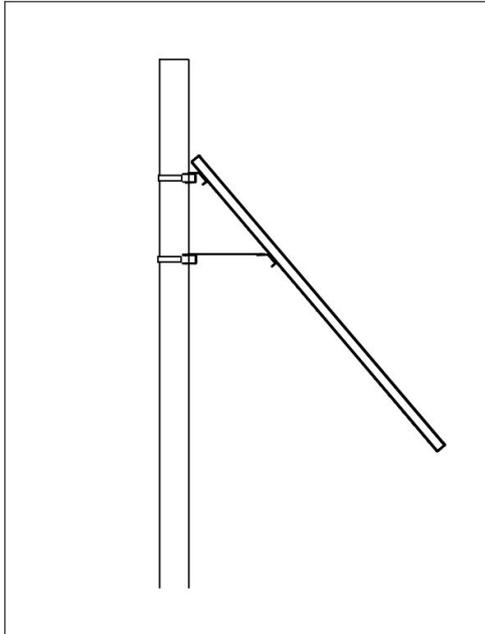


**5. Installing the solar panel**

If you use solar panel you have to use 380 cm (+ 70 cm in the ground) pole. The pole is 2.5". The solar can be mounted by aluminium brackets. The panel is fixed in 70° degrees (this degree is the best solution for high voltage).



## 5.2 Intermediate installation of solar panel



**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 lose at least 60-70 % power of solar panel.

## 6. Setting of SPEED SIGN (mono-color and bi-color)



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

1. Open the case, where you can find DIP switches and push-button on the mainboard.
2. Please push the push-button and the speed limit setting will run automatically from 5-130. As you reached the requested speed limit please release the push button.

No.1. – speed limits setting (the same function as yellow push-button): OF, 5-130 in one step (Please switch ON and the speed limit setting will run automatically . As you reached the requested speed limit please release it (OFF) Or you can use the big round yellow or red push button as well.

OF= no speed limit

No.2. MPH (if ON), otherwise KPH (OFF)

No.3. TEST (ON)

No.4. – Stealth mode (all value is disabled to display, but data logger is working) (ON)

No.5. Low filter settings (from 1-speed limit) No display below this speed value!

No.6. refresh time is 800 msec or 1200 msec (OFF- 1200 msec and ON – 800 msec)

No.7. - High filter settings (1-199) No display above this speed value!

No.8. – No Function

Factory setup:

speed limit: 50 kph

low filter setting: 10 kph

high filter setting: 90 kph

Note: all setting is running permanently in circle

## **8. 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.