

## Operating Instructions

# SpeedVisor

### Version RLUK0001 Release C (July 2006)

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## 1 General



**SpeedVisor** has been developed to display and store the speed of passing vehicles.

**SpeedVisor** combines the radar sensor, a 2½ digit 7 segment LED display, the controlling electronics as well as the power supply.

**SpeedVisor** has been designed for universal operation and stands out due to its ease of handling and low weight.

**SpeedVisor** can be operated with rechargeable batteries for a number of days (depending on number of batteries used) without having to be connected to the mains electricity. If the rechargeable batteries are replaced or recharged via a solar panel, the operating duration can be extended as required.

**SpeedVisor** has 480 (2½- digit) high performance LED's with automatic brightness control which display the speed without blinding the drivers at night and yet also with extreme brightness in the sunshine. A photo sensor (here seen in the middle of the photograph) automatically adapts the LED's intensity to suit the prevailing light.



**SpeedVisor** stores the vehicle records on a replaceable memory stick. The storage capacity is 2 megabyte; sufficient space for nearly 270,000 vehicles. Every vehicle is stored with speed, date and time.

**SpeedVisor** data can be evaluated via PC or Laptop based software. For further information, please refer to the software manual.

**SpeedVisor** enables the user to transmit the recorded data in a number of ways to a PC:

- Removal of the memory stick and reading information via a special device connected to the PC at the workplace.
- Connection to a laptop on-site.
- Use of a GSM modem (space has been provided in the device). Data can be easily retrieved whilst you are at your desk. All device status' can be controlled at any time.

**SpeedVisor** enables two operating times to be set to increase the duration of use of the rechargeable batteries. The device only uses a very small amount of energy in standby mode.

## 2 Installation instruction

### 2.1 Fitting the mast clamp

Tools required: Torque wrench with socket 17mm




The mast clamp consists of two parts. These are placed around the pole and connected to each other using the enclosed bolts (M10). The mast clamp must be aligned in the direction of travel and it should be positioned approximately 3 metres above the ground. If the angle to the road is less than 8°, any error is less than 1 km/h.

Please ensure that the bolts are tightened evenly only to a torque of 15Nm. The thread must be screwed into the sleeve by at least 8mm to ensure that the display can be hung in position safely. If the bolts are too long, select shorter ones in compliance with the list below.

Bolt length for the mast clamp:

Pole-Ø / mm			Bolt length / mm
70	-	90	65
100	-	120	100
130	-	130	130
160	-	160	160



Delivery also includes a set of bolts for the pole diameter preferred by the client.

## 2.2 Fixing the SpeedVisor

Now hang the device into the two protruding socket headed screws (Allen screws) on the mast clamp. Before letting go please make sure that the device is fixed securely. If that is the case, the mast clamp is flush with the bracket on the SpeedVisor.



Now open the device the two rear doors and secure the sign to the clamp using the two star bolts included in delivery. The sign is now protected against theft.



### 3 Battery Installation

The rechargeable batteries are positioned inside the device and plug directly into the sockets provided.



Up to three batteries can be used. The batteries are supplied with connecting cables and plugs.

## 4 Configuration



The device is switched on using the switch next to the LCD and touch buttons.

The panel has four buttons and a small LC display which is used to configure the device.



If the display does not respond, the device may be switched off because it is not within its operating time period (see 4.9 page 12). In this case you can switch **SpeedVisor** on using the **ON** button.

## 4.1 Display

The display shows the following:



## 4.2 Keyboard

UP  
ON                      MENU  
DOWN

UP:                      LED test  
All LEDs are illuminated for approximately 3 seconds

DOWN: Memory stick

**This key must be depressed before the memory stick is removed!**

MENU:                Depressing the MENU button accesses the configuration menus. To page through the menus available continue by pressing the UP key. To select a menu, again press the MENU key. The opening screen displays END MENU

A:                      SETTINGS

- RANGE
- DIRECTION
- SPEED LIMIT
- MIN SPEED
- MAX SPEED
- RELAY SP.
- BLINKMODE
- POWER ON TIME
- POWER OFF TIME
- 2nd POWER ON TIME
- 2nd POWER OFF TIME
- MODEM ON TIME
- MODEM OFF TIME
- SPEED UNIT
- DISPLAY IS MOBILE
- ONLINE MODE
- SERIAL MODE
- DEVICE ADDRESS
- BAUDRATE
- DELETE MEMORY

B:                      TIME DATE

C:                      CONTRAST

D:                      LANGUAGE

Please adjust the settings using the UP and DOWN keys.

### 4.3 RANGE

The radar range may be limited. The range can be adjusted between 1 and 100. (The maximum theoretical range at 100 is approximately 150mts. The minimum theoretical range at 1 is approximately 40mts)

```
--- RANGE ---  
    100  
CHOICE: ↑↓ OK: MENU
```

This adjustment may be considered if only a small radar detection area is desired.

### 4.4 DIRECTION

The desired detection direction may be selected "IN – OUT – BOTH"

```
--- DIRECTION ---  
    IN  
CHOICE: ↑↓ OK: MENU
```

### 4.5 SPEED LIMIT

In this case the speed is not displayed until the vehicle exceeds the set speed by more than 10%. The set speed represents the basic value for the calculations from which the device is to detect vehicles. Speeds between 10 and 199 can be entered.

```
ENTER SPEED LIMIT  
    50  
CHOICE: ↑↓ OK: MENU
```

If this function is to be inactive, please set the speed to be greater than 199km/h or less than 10km/h.

```
ENTER SPEED LIMIT  
DISABLED  
CHOICE: ↑↓ OK: MENU
```

### 4.6 MIN SPEED

By selecting this menu item you can set the lower speed limit at which the device is to detect passing vehicles. You can set this limit to be within the range between 10 and 199.

```
- ENTER MIN SPEED -  
    20  
CHOICE: ↑↓ OK: MENU
```

#### 4.7 MAX SPEED

By selecting this menu item you can set the upper speed limit up until which the device is to detect passing cars. You can set this limit to be within the range between 10 and 199.

- ENTER MAX SPEED -  
120  
CHOICE: ↑↓ OK: MENU

This maximum value must be greater than the minimum value.

#### 4.8 RELAY SP.

By selecting this menu item you can set the lower speed limit at which the device is to detect passing cars and also switch a relay. This function is only active if the value is between the **Minimum speed** and the **Maximum speed** . You can set this limit to be within the range between 10 and 198.

- ENTER RELAY SP. -  
60  
CHOICE: ↑↓ OK: MENU

If a vehicle has been detected, the relay switches for as long the speed is above the set value. A potential free contact is switched. This is positioned on the socket fitted on the rear. For further information please refer to -> *External connection*.

If this function is to be inactive, please set the speed limit to 199.

- ENTER RELAY SP. -  
DISABLED  
CHOICE: ↑↓ OK: MENU

#### 4.9 BLINKMODE

By selecting this menu item, you can set the flashing frequency of the speed display.

- ENTER BLINKMODE -  
 NORMAL  
 CHOICE: ↑↓ OK: MENU

Possible flash speeds are:

	CONTINUOUS
SLOW	(approx. 1,7Hz)
NORMAL	(approx. 4,5Hz)
FAST	(approx. 17,7Hz)

#### 4.10 POWER ON TIME

To save battery power the, **SpeedVisor** can be switched on for specified periods of time.

By selecting this menu item you can change the switching on time.

ENTER POWER ON TIME  
 22h - 23h  
 CHOICE: ↑↓ OK: MENU

i.e. **SpeedVisor** will become operational at 22:00 hrs.

To ensure that the device is on **permanently**, set the power on time and power off time to be identical.

ENTER POWER ON TIME  
 ALLWAYS ON  
 CHOICE: ↑↓ OK: MENU

If you have entered different times in this menu item, the program provides you with the option of entering a second operating period after the power off time has been entered.

#### 4.11 POWER OFF TIME

You can change the switching off time in this menu item.

ENTER POWER OFF TIME  
 22h - 23h  
 CHOICE: ↑↓ OK: MENU

To ensure that the device is operating **permanently** please set the power on time and the power off time to be identical.

ENTER POWER ON TIME  
 ALLWAYS ON  
 CHOICE: ↑↓ OK: MENU

If you have entered different times in this menu item, the program provides you with the option of entering a second operating period.

#### **4.12 2nd POWER ON TIME**

You can change the second power on time in this menu item.

ENTER POWER ON TIME  
22h - 23h  
CHOICE: ↑↓ **OK: MENU**

If the 2<sup>nd</sup> operating period is not to be used, please set the switching on and switching off times to be identical.

ENTER POWER ON TIME  
DISABLED  
CHOICE: ↑↓ **OK: MENU**

#### **4.13 2nd POWER OFF TIME**

You can change the power off time in this menu item.

ENTER POWER OFF TIME  
22h - 23h  
CHOICE: ↑↓ **OK: MENU**

If the 2<sup>nd</sup> operating period is not to be used, please set the switching on and switching off times to be identical.

ENTER POWER ON TIME  
DISABLE  
CHOICE: ↑↓ **OK: MENU**

#### 4.14 MODEM ON TIME

Use this menu item to set the time at which the modem is to be switched on.

ENTER MODEM ON TIME  
12h - 13h  
CHOICE: ↑↓ **OK: MENU**

*To ensure that the modem is on permanently, please set the power on and power off times to be identical but not equal than ZERO.*

4.14.1.1.1 ENTER MODEM ON TIME  
ALLWAYS ON  
CHOICE: ↑↓ **OK: MENU**

If a modem is not to be used, please set both times to ZERO (00.hrs)!

ENTER MODEM ON TIME  
NO MODEM  
CHOICE: ↑↓ **OK: MENU**

#### 4.15 MODEM OFF TIME

Use this menu item to set the time at which the modem is to be switched off.

ENTER MODEM OFF TIME  
12h - 13h  
CHOICE: ↑↓ **OK: MENU**

To ensure that the modem is off permanently, please set the power on and power off times to be identical but not equal than ZERO.

4.15.1.1.1 ENTER MODEM OFF TIME  
ALLWAYS ON  
CHOICE: ↑↓ **OK: MENU**

If a modem is not to be used, please set both times to 0h!

ENTER MODEM OFF TIME  
NO MODEM  
CHOICE: ↑↓ **OK: MENU**

#### 4.16 SPEED UNIT

Using this menu item you can select to display the speed in km/h or mph.

ENTER SPEED UNIT  
Km/h  
CHOICE: ↑↓ **OK: MENU**

#### 4.17 DISPLAY IS MOBILE

Special operation for use with a second detection radar “YES- NO”

DISPLAY IS MOBILE  
YES  
CHOICE: ↑↓ **OK: MENU**

#### 4.18 ONLINE MODE

ENTER ONLINE MODE  
OFFLINE  
CHOICE: ↑↓ **OK: MENU**

No speed is input or output.

If you select “Output” in this menu item, the current speed is output to the interface.

ENTER ONLINE MODE  
ONLINE OUT  
CHOICE: ↑↓ **OK: MENU**

If you select “Input” in this menu item, an external speed can be displayed via the interface.

If you have selected input or output you can also choose between the interface protocols RS232 and RS485.

ENTER ONLINE MODE  
RS232  
CHOICE: ↑↓ **OK: MENU**

In the case of serial mode “RS485” you cannot call up data from a laptop!  
No modem operation is possible!  
In this case you must select the RS232 interface.

Protocol for data input or output

0x1B	ESC
0x21	!
0x20	SPACE
0x30 ... 0x39	Hundreds, tens, units in ASCII
0x0D	CR

#### 4.19 DEVICE ADDRESS

If you wish to operate a number of **SpeedVisor** – devices in a network you can connect up to 128 devices into one network. If the **SpeedVisor** is not used in a network the device address must be set to 1

ENTER DEVICE ADDRESS  
 1  
 CHOICE: ↑↓ OK: MENU

#### 4.20 BAUDRATE

The speed of data transmission to a PC can be set between 9600Bd and 115kBd .

ENTER BAUDRATE  
 9600 Bd  
 CHOICE: ↑↓ OK: MENU

The basic factory setting is 9600Bd.

#### 4.21 DELETE MEMORY

Using this menu item you can delete the stored vehicle data from the memory stick.

DELETE MEMORY  
 YES  
 CHOICE: ↑↓ OK: MENU

If you confirm YES, the following message is displayed

DELETING  
 ■■■■■■■■■■ ...

The system is ready for operation once the deletion process has been completed.

#### 4.22 TIME DATE

You can use this menu item to set the time and date.

Setting the hours:

```
--- ENTER HOUR  --  
    12  
CHOICE: ↑↓ OK: MENU
```

Setting the minutes:

```
--- ENTER MINUTE ---  
    46  
CHOICE: ↑↓ OK: MENU
```

Setting the day:

```
---- ENTER DATE ----  
    12  
CHOICE: ↑↓ OK: MENU
```

Setting the month:

```
--- ENTER MONTH  ---  
    01  
CHOICE: ↑↓ OK: MENU
```

Setting the year:

```
--- ENTER YEAR  ---  
    2001  
CHOICE: ↑↓ OK: MENU
```

After entering these settings, the system is operational again.

#### **4.23 CONTRAST**

You can alter the contrast of the LC-display using this menu item. In the case of low outside temperatures it may be necessary to adapt the contrast so that the display can be read better.

```
-- ENTER CONTRAST --  
32  
CHOICE: ↑↓ OK: MENU
```

The ex-factory setting for the contrast is 32.

#### **4.24 LANGUAGE**

You can select the language in which the texts are to be displayed using this menu item.

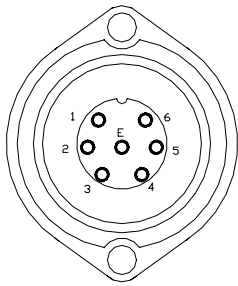
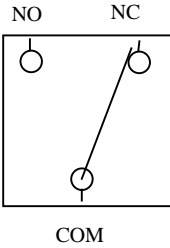
```
-- ENTER LANGUAGE --  
ENGLISH  
CHOICE: ↑↓ OK: MENU
```

## 5 External Connection Possibilities

Using the sockets on the rear of the device it is possible to connect an, a flashlight etc. .  
On-line operation is possible using the 9D RS232/485 interface.



Assignment:

1	+12V, switched		
2	0V		
3	TxD/B		
4	RxD/A		
5	NC		
6	NO		
E	COM		

## 6 Memory Stick Reader (optional)

The integrated memory stick can be removed from the device for the purpose of retrieving the stored data. For this operation, an optional reading device is available. For further information please refer to the reader's operating instructions.



### 6.1 Removal of the memory stick:

Operate the DOWN key and the display shows the following message:

STICK IS  
FREE

The memory stick (at the top of the picture) may only be removed once this message has been displayed!

### 6.2 Plugging in the memory stick

Please position the memory stick into the bracket in such a way that you can see the contacts. Once it is secure in its holder, acknowledge this by pressing the DOWN key.

## 7 Batteries

Using a fully charged set of three batteries, the device can be used for approximately 14 days. When the voltage of the batteries sinks below 10.5V, the display will be switched into economy mode. In this mode it is not possible for the device to display the speed. The data stored on the memory is retained.

In general, lead rechargeable batteries should only be stored if they are if not the lead plates may be destroyed.

The service life of the batteries is approximately 300 charging cycles this may be increased (up to 500 cycles) if they are recharged when they are only 50% discharged or by regular and early recharging. If they are in storage for more than 3 months, the batteries must be recharged before use.

If you are operating the device with a number of batteries, please make sure that all of them are in the same state of charging. Otherwise the batteries discharge each other which reduces the duration of operation considerably.

To charge the batteries, the plug is connected with the charging device.

The charging device is plugged into a 240V socket and the batteries (depending of their state of discharge) are charged for up to 14 hours.

Should the case arise that all the batteries need to be replaced, the entire set must always be replaced.

## 8 Charging device

An automatic microprocessor controlled battery charger is available from Radarlux Radar Systems (UK) Limited. Specifications may from time to time change.

### 8.1 General charging advice

#### Charging maintenance free lead batteries.

- Before using for the first time, the batteries must be charged for 12 hours.
- After every discharge, or even partial discharge, the batteries must be recharged.
- The batteries may never be stored in a discharged state.
- A completely discharged battery needs to be charged for at least 16 hours.
- If the battery is charged for less than 16 hours, it must be charged for at least 24 hours no later than after 3 days.
- The ambient temperature should be between 10°C and 30°C.

#### Before longer breaks in operation (2 possibilities)

- Disconnect your battery from the charging device and store it in a fully charged state. Attention! If it has not been used for more than 3 months it must be charged for at least 36 hours, or
- You can continue to charge your batteries for an unlimited period of time when the charging device is switched on (conservation charge). We recommend that the batteries are stored in a cool room.

#### High temperatures

It is not recommended to charge the batteries at ambient temperatures of more than 30°C. The factory setting of the charging voltage has been set for an ambient temperature of 20°C.

#### Low temperatures

It is not recommended to charge the batteries at temperatures below 10°C as the capacity available in the batteries is lower.

#### Total discharges

Please avoid total discharges. If the battery has been totally discharged please charge the battery as soon as possible over a period of 24 hours.

## 9 Classification radar (optional)

Refer to Radarlux Radar System (UK) Limited for further information.

## 10 Data retrieval (local optional)

To retrieve the stored data, a serial data cable is to be connected with the D sub socket (shown at the bottom of the picture).



The 9 contact D sub plug must be plugged into the COM1 or the COM2 interface of a PC or laptop. Now the data can be called up.

The data cable must be removed from the device after the user has finished retrieving the data.

If you want to retrieve the data outside the specified operating times, it is necessary to make the device operational by pressing the ON key.

## 11 Special accessories

### 11.1 Tripod (Option)

A lightweight yet stable tripod and a pole is available if the system to make the system fully portable and independent.



#### Dimensions and weights

##### Tripod

about 15,3kg  
about 115cm x 38cm x 15cm (folded)  
about 105cm x Ø 130cm (set up)

##### Mast

about 9,6kg  
about 225cm x Ø 7,6cm

### 11.2 Solar Panel

To make semi permanent operation with batteries possible, a solar panel is also available for those interested. It is fitted to the pole above the **SpeedVisor** with a mast clamp. Contact is made via the socket on the rear. For further information please contact Radarlux Radar Systems (UK) Limited or refer to the relevant user guide.



### 11.3 Transport Case

A transport case is available to ensure that the **SpeedVisor** is transported safely. It provides space for a **SpeedVisor** and the mast clamp.

**Dimensions and weight:** (case without contents)  
approx. 918mm x 652mm x 250mm;  
approx. 9,5kg



## 11.4 GSM Modem



### Technical Data

#### Electronic

Operating frequency	24.125GHz
Antenna model	Horn lens
Transmission power	5mW
Range	150m
Display	7 segment, red or yellow
Digit height	480 (2½-Digit) high performance-LED's in 3-row arrangement
Measuring range	280mm
Operating voltage	10 ... 199 mph
Current consumption (stand by) approx.	12V DC
Operating permanence	140mA
	5 – 14 days
	(depending on attitude, number of batteries and traffic density.)
Operating temperature range	-20°C ... +50°C

#### Mechanics

Housing type of protection	IP54
Dimensions (WxHxD)	860mm x 580mm x 150mm
Weight	approx. 21,8kg (without batteries)

## 12 Type approval

CE 0682



## Terms of Warranty United Kingdom & Eire

### 1.1.1.1 New Systems and Components

***RADARLUX Radar Systems (UK) Ltd., undertake to replace or repair, at our discretion, any defective components supplied by RADARLUX Radar Systems (UK) Ltd., within 12 calendar months of the date of the dispatch of such an item.***

#### Service Exchange Components

***RADARLUX Radar Systems (UK) Ltd., undertake to replace or repair, at our discretion, any defective components supplied by RADARLUX Radar Systems (UK) Ltd., within 90 days of the date of dispatch of such an item.***

#### Repairs

***RADARLUX Radar Systems (UK) Ltd., undertake to replace or repair, at our discretion, any defective components supplied by RADARLUX Radar Systems (UK) Ltd., within 90 days of the date of dispatch of such an item.***

***All warranties will be respected under a "Return to Base" format. RADARLUX Radar Systems (UK) Ltd. will not be responsible for consequential losses or damages, freight and or other incidental expenses howsoever caused.***

***Any item supplied by RADARLUX Radar Systems (UK) Ltd. which has been manufactured by a third party, will carry only the warranty as issued by that third party.***

***Our warranty statement is issued as an addition to your statutory and other legal rights***

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