

## **Operating Instructions**

# **RadarCLASS** CRM

## **Version RLUK0003 Release A1**

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## 1 Introduction

**RadarClass CRM** is a radar counter classifier, which detects the date, time, speed, type, class and direction of the passing traffic.

**RadarClass CRM** captures the above data to an internal memory capable of registering approximately 270,000 vehicles. This enables the data to be retrieved and statistically evaluated at a later date.

**RadarClass CRM** is housed in an unobtrusive rugged steel anti-vandal housing, which may be located on any suitable item of roadside furniture.

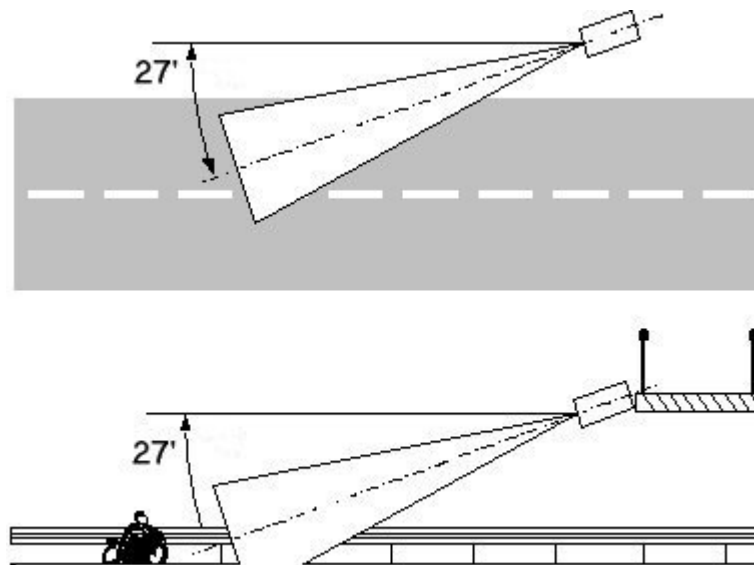


## 2 Field Deployment

### Notes on measurement set up

The radar device measures the speed of vehicles when it is set up at an angle of exactly 27° in the direction of travel, either to the side or from above the road.

The specified measurement tolerance for the device can only be guaranteed if this angle is strictly adhered to.



**Figure 1: Radar measurement geometry**

There is a systematic measurement error of approximately 1 percent if there is a deviation of 1 degree in relation to the required 27°. It is therefore recommended that measurements should not be made on corners or bends but on straight stretches of road.

Non standard use:-

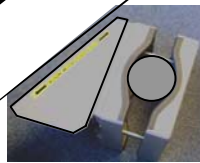
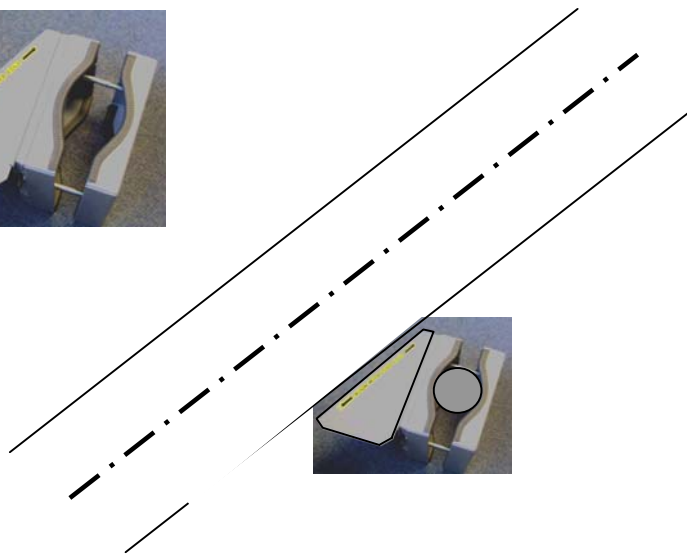
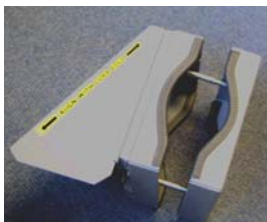
The radar signature does not have a symmetrical radiation characteristic. It is therefore necessary to ensure the correct orientation of the device during traffic data measurement. I.e. if the measurements are to be taken from above the road, the device must be standing upright, conversely when the measurements are taken from the side of the road, the device must be orientated through 90°. This is the case when the device is deployed as pictured on page 3.

Install the RadarClass mounting bracket and lightly tighten the securing bolts.



Align the bracket and observe the 27° angle.

Option:- attach the bracket alignment tool aligning the arrow with the traffic flow.



Correctly tighten the securing bolts, remove the alignment tool and install the RadarClass and cabinet. Fix the internal security bolt. Install the battery.



### 3 Communication Set-up

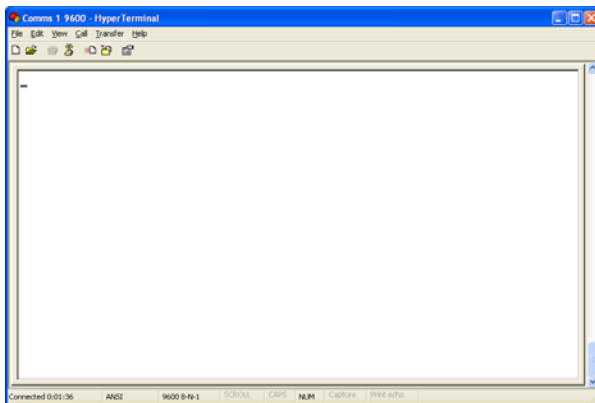
Connect the communication cable between the RadarClass connector below the battery connection and the communications port of your computer.

Start Windows Hyper Terminal or other such terminal program.  
 A predefined Hyper Terminal session was recorded onto your software CD-Rom.  
 This can be copied onto any computer and run directly from the Desk Top.  
 The session is configured as follows.

- direct connection to the RS232 input of the computer (COM 1)
- baud rate 9600
- one start bit, 8 data bits, one stop bit
- no parity bit
- no handshake

Start the session with a double click

A window inside HyperTerminal will open showing a flashing cursor.



To initiate the communication between the RadarClass and the computer carry out the following key sequence.



Press and hold the “Shift & (1)”  
 Keys for approx. 3 seconds.

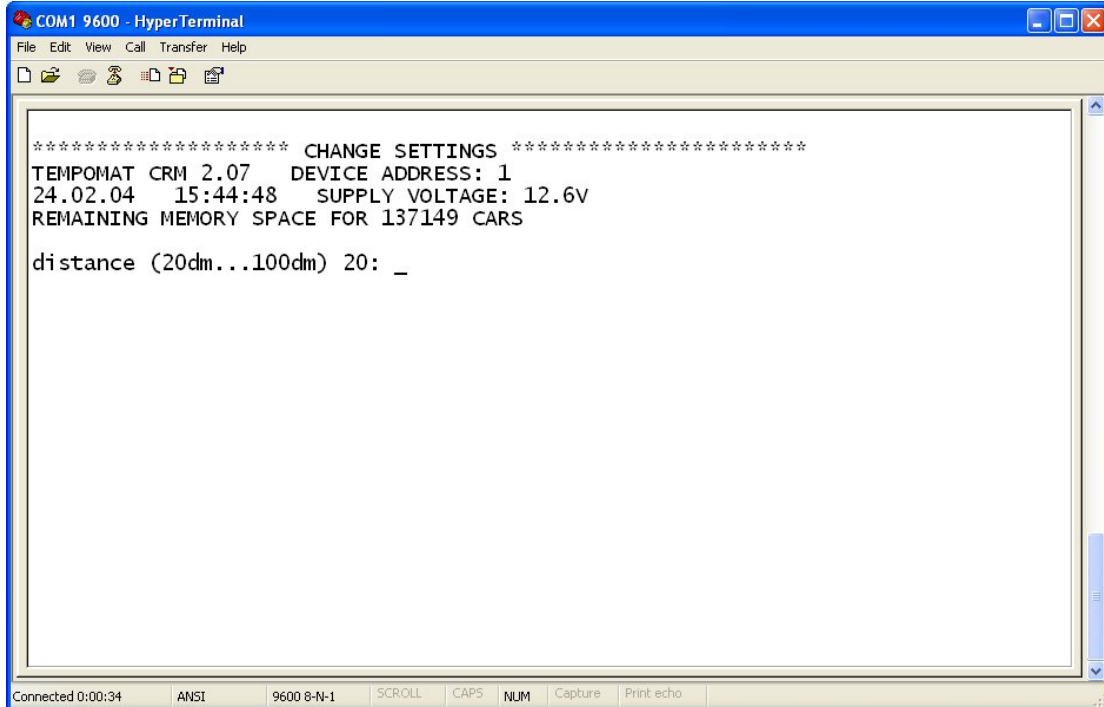


Release both keys.  
 Press and release  
 the (1) key

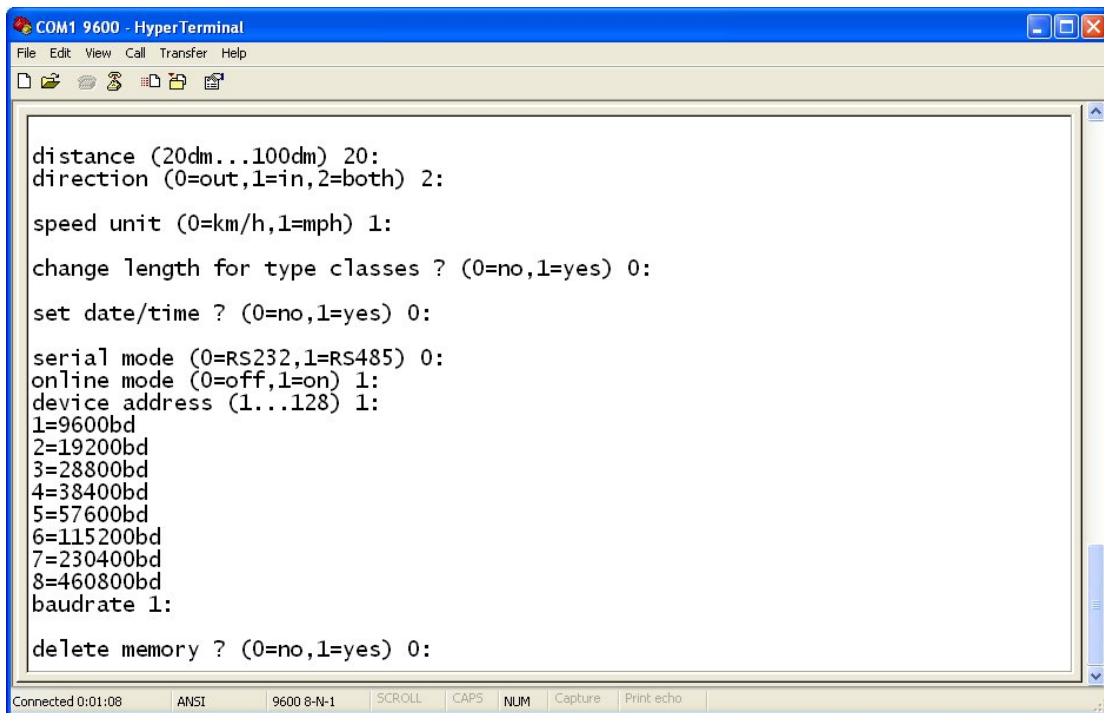


Press and release the  
 “Enter or “Return” key

The Hyper Terminal session will now be active and the screen will be displaying the information produced by the RdarClass. Starting at the “CHANGE SETTINGS” screen



Pressing the “Enter or “Return” key will page through the operational settings



## 4 Settings

### 4.1 *Setting the measurement distance (distance)*

Enter the distance between the radar device and the outer most lane that you wish to measure:

The entry is made in decimetres. (10 decimetre = 1 metre)

### 4.2 *Setting the direction of recording (direction)*

Enter the required direction:

“0”, if you wish to measure the traffic that is moving away from the radar device,

“1”, if you wish to measure the traffic coming towards the radar device.

### 4.3 *Setting speed units*

Enter the required speed unit:

“0”, if you wish to collect data in kph

“1”, if you wish to collect data in mph

### 4.4 *Setting the length bin assignments*

Enter the required length bin assignments:

“0”, if you wish not to view or change the settings,

“1”, if you wish view or change the settings

After entering “1” the lowest bin, upper length is displayed, e.g. (25) pressing return then displays the upper length for the second bin and so on. The lengths are calculated in decimetres.

Example

(25) = length bin 1 (Vehicles from 0.0mts to 2.5mts)

(55) = length bin 1 (Vehicles from 2.6mts to 5.5mts)

(80) = length bin 3 (Vehicles from 5.6mts to 8.0mts)

length bin 4 (Vehicle in excess of 8.1mts)

If a precise classification is required the length bins should be inspected and adjusted locally on each particular site.

The entry is made in decimetres. (10 decimetre = 1 metre)

### 4.5 *Setting the date and time (set date/time?)*

If the internal clock has to be set, please enter a “1” here.

Now an additional menu is opened to set the date and time.

An integrated rechargeable capacitor retains data for up to 2 months if the device is not connected to a power supply, battery.

#### **4.6 Setting the serial interface mode (serial mode)**

Enter the required mode of the serial interface:

“0”, if you require RS232 mode,

“1”, if you require RS485 mode.

RS232 and RS485 are interface modes with identical protocols, but different output levels. During standard operations RS232 should be selected. If you have selected the RS485 mode, you will no longer be able to configure the device using the RS 232 interface of a PC and the keyboard inputs will have no effect on the RadarClass or PC screen

If you have selected this mode unintentionally, please switch the device off.

After a short time switch it on again and reconnect as in “Communication Set-up Page 6”.

Note:- If a parameter is set unintentionally which inhibits the PC communication i.e. RS interface, as described above, or the baud rate, the device can always be reached with the settings 9600 baud in RS232 mode within the first 20 seconds after it has been switched on. Any unintentional keystrokes can then be addressed.

#### **4.7 Setting the on-line mode (online mode)**

After each measurement is taken, the device sends a spontaneous data stream of the vehicle data via the serial interface. During standard operations this should be set de-activated.

(Enter “0”).

#### 4.8 *Setting the device address (device address)*

Enter the required device address between 1 and 128:

During standard this should be set to "1"

The setting is required if you operate more than one device on an RS485 bus. The RS232 standard does not permit operation with a bus with a number of devices.

If you have forgotten the address number or the address number was changed unintentionally the "Communication Set-up Page 6" will not function correctly. This is because the key press of "1" before the final "Enter or Return" refers to the device address. Therefore at the Window inside HyperTerminal showing the flashing cursor, press the key "a" for approximately two seconds and release. The device will display the set address for example

**TEMPOMAT CRM 2.07 DEVICE ADDRESS: 34**

During the "Communication Set-up Page 6" substitute this number for the key press of "1" before the final "Enter or Return" page through the menu and correct the setting back to "1" i.e.

**device address (1...128) 34: 1**

#### 4.9 *Setting the baud rate (baud rate)*

Enter the required baud rate:

A table is shown indicating which keystroke is to be entered for which baud rate.

If you have selected a rate unintentionally, please switch the device off.

After a short time switch it on again and reconnect as in "Communication Set-up Page 6".

Note:- If a parameter is set unintentionally which inhibits the PC communication i.e. baud rate, as described above, or the RS interface, the device can always be reached with the settings 9600 baud in RS232 mode within the first 20 seconds after it has been switched on. Any unintentional keystrokes can then be addressed.

#### 4.10 *Deleting the memory (delete memory?)*

Enter a "1" here if you wish to begin a new series of measurements and you are no longer interested in the measurements retained in the memory. The number of the memory slots still available is always displayed when you enter the "Settings" menu.

\*\*\*\*\* CHANGE SETTINGS \*\*\*\*\*

**TEMPOMAT CRM 2.07 DEVICE ADDRESS: 1  
24.02.04 16:36:26 SUPPLY VOLTAGE: 12.6V  
REMAINING MEMORY SPACE FOR 270009 CARS**

#### **4.11 Demo Mode**

If you wish to check the function of the device on site without special software, start the terminal program to the Window inside HyperTerminal showing the flashing cursor. Press the key “d” for approximately two seconds and release. The device will display the text

##### **DEMO ON**

Vehicles that are detected will be displayed as lines of text, for example

##### **DEMO ON**

```
24.02.04 16:45:23 speed: 32mph type: 1 in
24.02.04 16:45:47 speed: 33mph type: 1 in
24.02.04 16:46:12 speed: 33mph type: 1 out
24.02.04 16:46:28 speed: 35mph type: 2 in
24.02.04 16:45:31 speed: 32mph type: 3 out
24.02.04 16:45:34 speed: 34mph type: 1 in
```

To turn the “DEMO” mode off press the key “e” for approximately two seconds and release. The device will display the text

##### **DEMO OFF**

## 5 Technical data

Radar transmission frequency:	24,125 GHz
Radar transmitting power:	< 5mW
Operating voltage:	10,5... 30 VDC
Energy uptake:	approx. 1W
Serial interface	RS232 or RS485
Baud rates:	9.600Bd, 19.200Bd, 28.800Bd, 38.400Bd, 56.600Bd, 115.200Bd, 230.400Bd, 460.800Bd
Speed measuring range :	10 ... 250km/h
Range:	Up to 10m vertically to the middle of the lane
Direction recognition:	Traffic moving away or moving towards the device
Accuracy:	+/- 2km/h under 100km/h +/- 2% above 100km/h
Vehicle groups:	4 x User definable
Operating temperature range:	-20°C ... +70°C
Dimensions without housing	160mm x 105mm x 140mm (LxWxH)
Weight without housing	1,5kg

## 6 Operating permit



## 7 Data

The data stored in the RadarClass may be downloaded, analysed and exported via our software. The DataManager program is supplied in two formats.

- 1) Interface support (FOC)
  - a. Set up new sites
  - b. Download data
  - c. Export data
  - d. Import data
  - e. Configure device
  
- 2) Licensed package
  - a. Set up new sites
  - b. Download data
  - c. Export data
  - d. Import data
  - e. Configure device
  - f. Analyse data
  - g. Print Reports (Graphical and Text)
  - h. Communicate via GSM modem

Full details of the software functionality can be found in the user manual.



## 8 Notes

If at the initial Window in HyperTerminal, the screen displays characters when vehicles are passing the most probable cause is the setting for item “4 .8 Online Mode on Page 8” has been set to “ON”. Open the “CHANGE SETTINGS” screen and return the setting to “OFF”

The DataManager software when viewing live traffic will also activate this setting.

