

# DVS90

# Installation Manual

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## GETTING STARTED

The central unit is not pre-programmed when shipped from the factory. This means that it has to be programmed with car specific software by the installer before it can be used.

To do this you will need:

1. PC.
2. DEFA Express (PC application)
3. DEFA DVS90 (Central Unit)
4. USB-Cable (to connect the central unit to the computer).

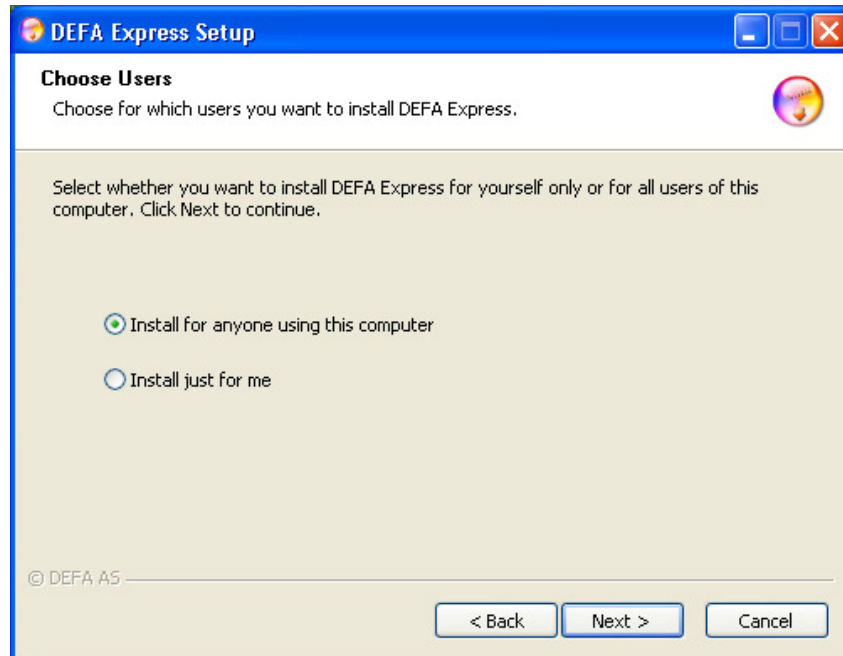
Note! DEFA Express must be downloaded from the internet.

Note! The USB Cable is a standard USB A to USB mini B cable. This can be bought in computer and electronics stores or from your local DEFA dealer.



## DOWNLOADING AND INSTALLING DEFA EXPRESS

- Make sure the computer is connected to the internet.
  - Make sure the computer has a USB port.
1. Follow the link received from DEFA and install the application. Follow the on screen instructions.



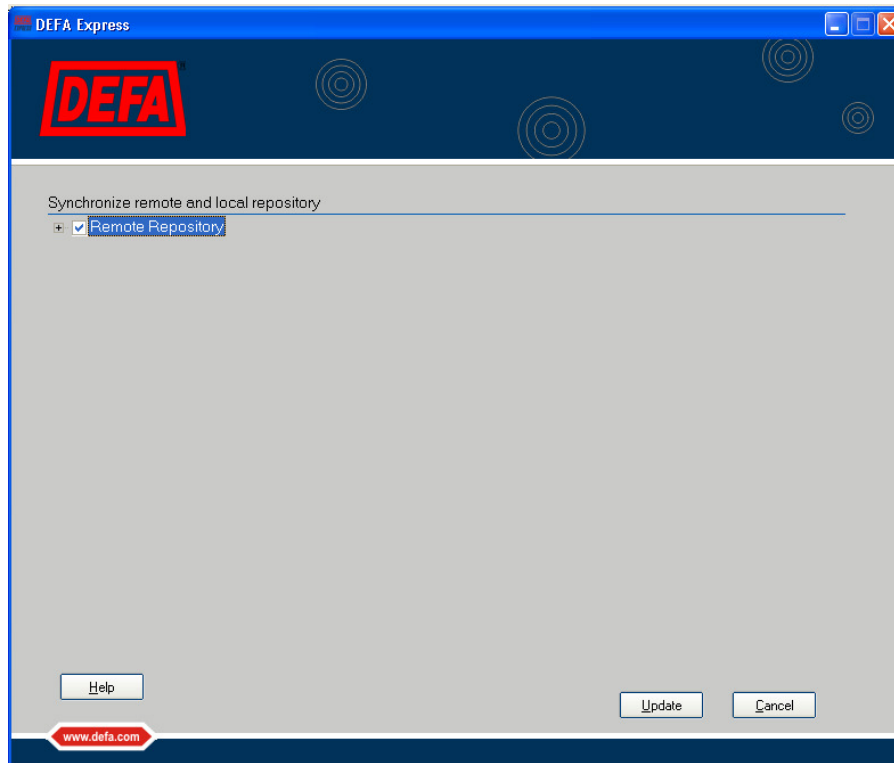
2. If there is more than one user, be sure to install for everyone

## DOWNLOADING CAR SPESIFIC SOFTWARE AND INSTALLATION GUIDES

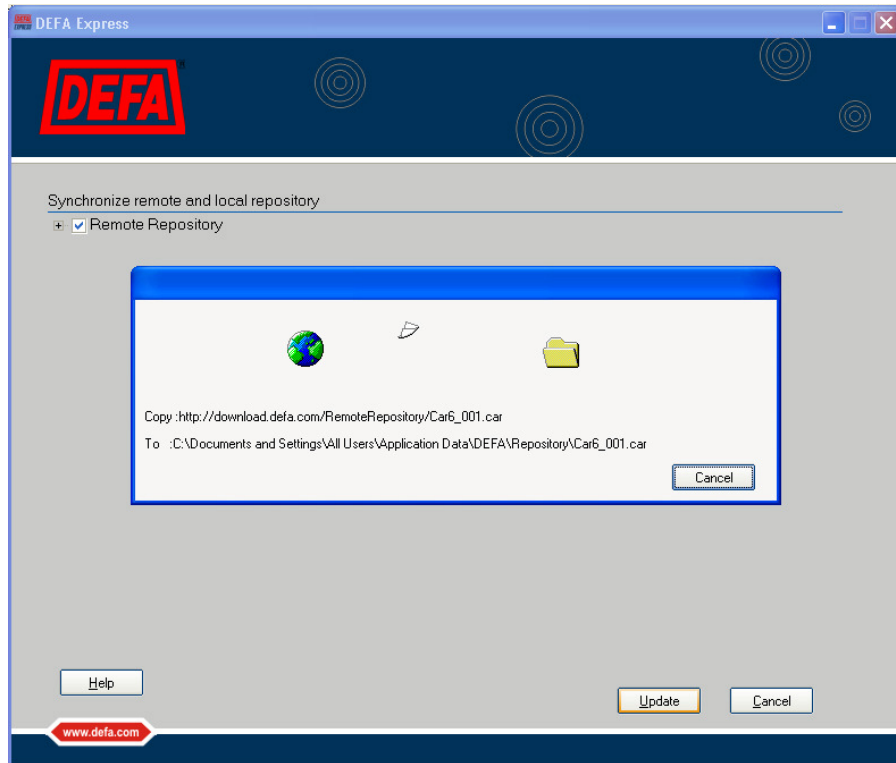
The computer must be connected to the internet.



1. Press the "Check for updates"- button



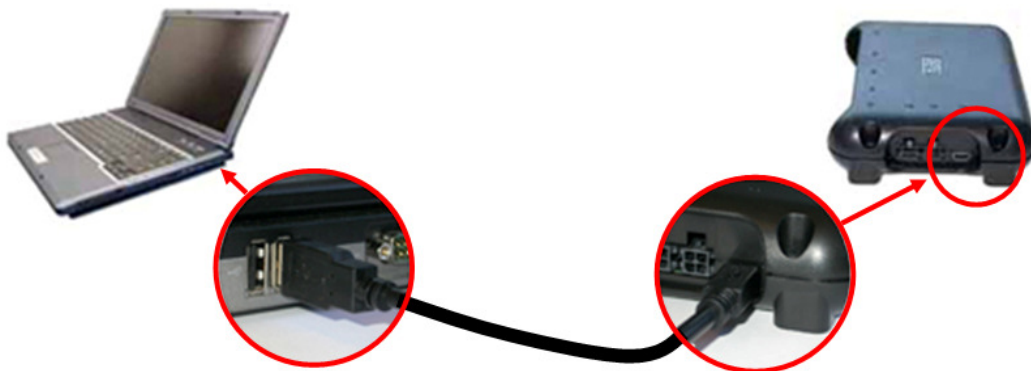
2. All updates will be listed, press the "Update"-button



3. All selected updates are being downloaded

## PROGRAMMING THE CENTRAL UNIT

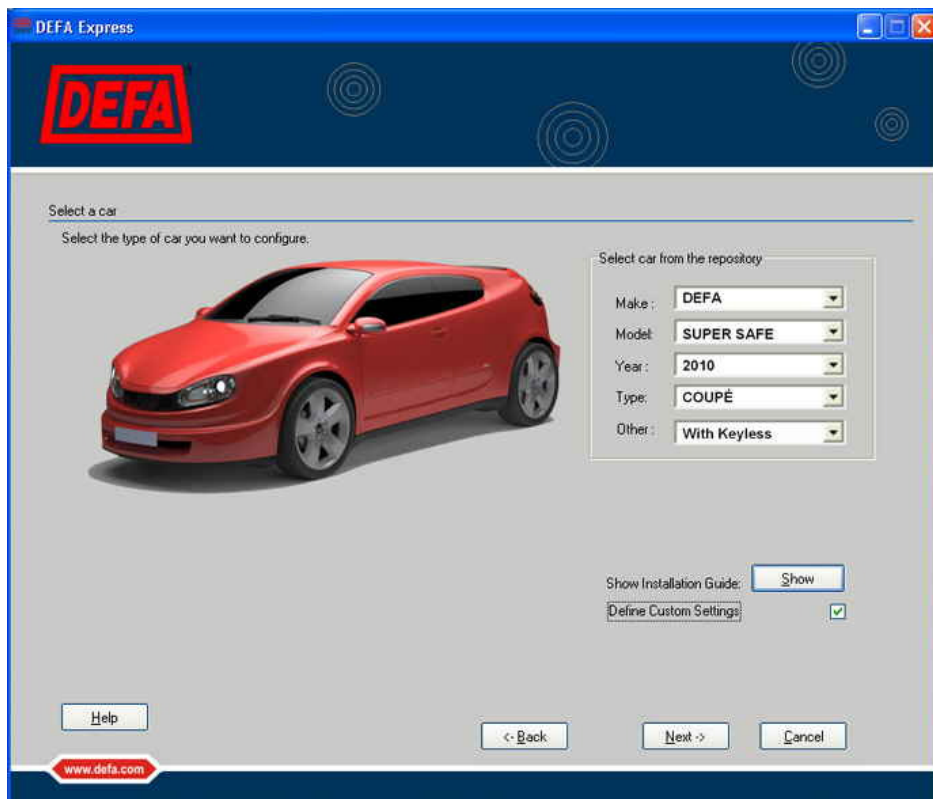
Before installation the central unit must be programmed with car-specific software.



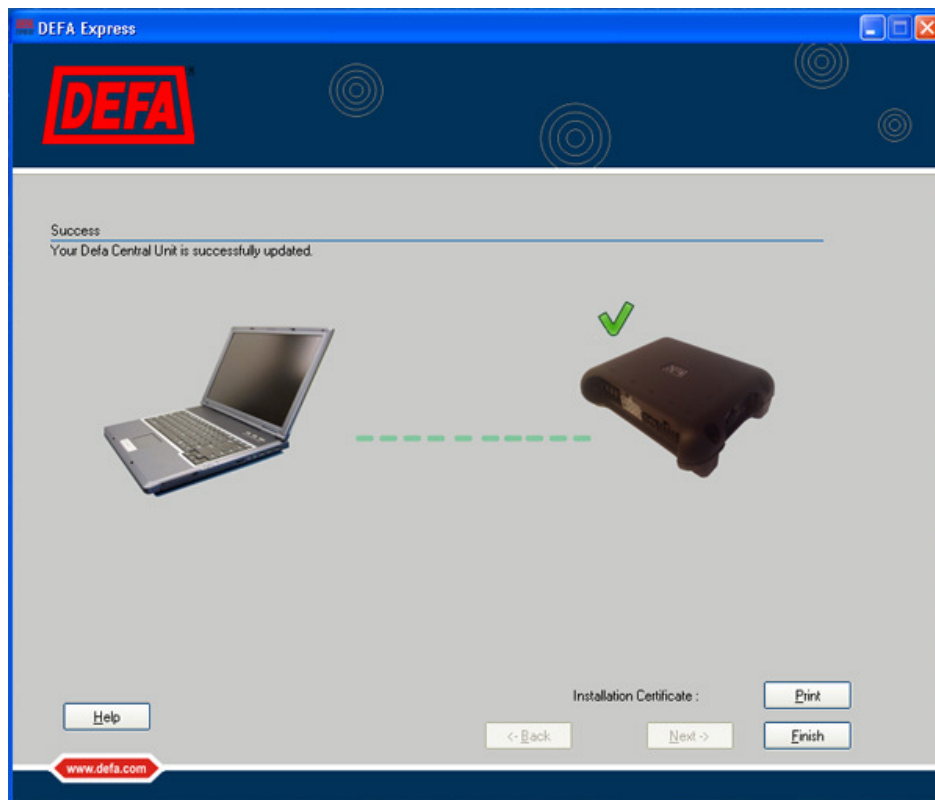
1. Connect the central unit to the computer using a USB cable (USB A to USB mini B)
2. Double-click the DEFA Express icon on the desktop



3. Press the "Configure a new car"-button



4. Choose car Make, Model, year, type and other. When all the choices have been made the "Show"-button is accessible. Pressing this button will show the installation guide for the chosen car, which can be printed if necessary



5. The programming will only take a few seconds, and the central unit is now ready for installation. The central unit will only work in the specific car type that it was programmed to, and needs to be re-programmed if it is to be used in another car type.

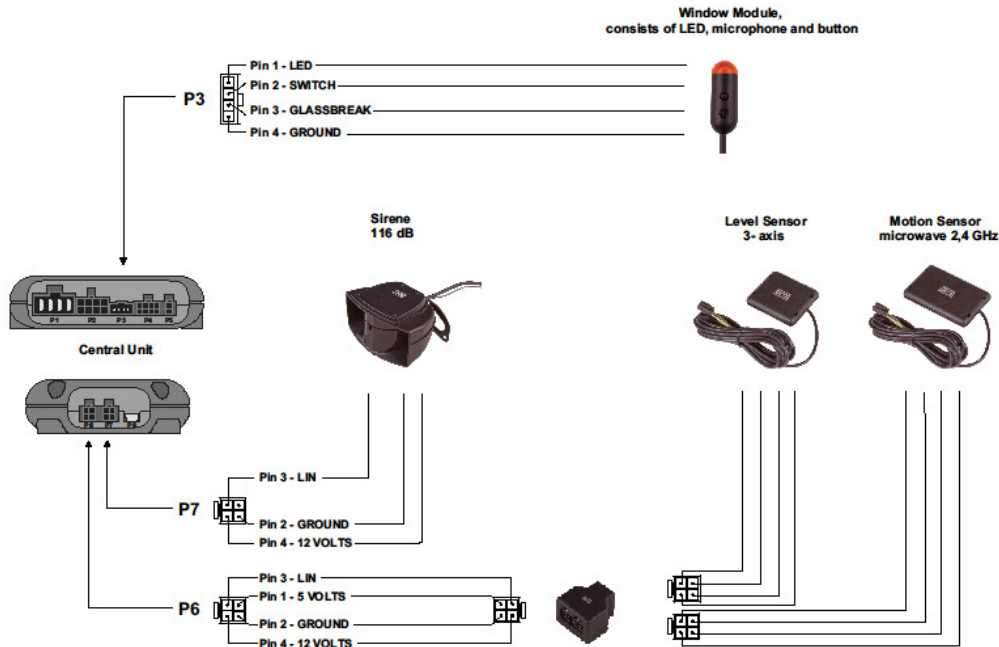


## VERSIONS

The alarm system can be equipped with DEFA remote controls, or be used with the vehicle's original remote control.

There are also options regarding the sensor setup. The alarm system can be equipped with any combination of a level sensor monitoring jacking of the vehicle, a motion sensor monitoring interior motion, a glass breakage sensor etc.

The installer uses DEFA's programming system to setup the alarm system to fit each vehicle. See the installation notes for your system's setup.



### Base Components

1. Central Unit
2. Window Module
3. Siren
4. Wire Harness
5. Hood Switch with switch guard enclosure
6. Window Stickers
7. User and Installation Manual

### Optional Components

1. Motion Sensor
2. Level Sensor
3. Remote Control

## **BEFORE YOU START**

Check the contents. If anything is missing, contact your local dealer immediately. Note that the package contents can differ, depending on market.

Carefully read the installation instructions before installing the alarm!

Disconnect the battery before starting to install to prevent short circuiting.

Be careful with wires, connectors and ground connection. Be aware of that moisture in connectors easily can cause corrosion. To guarantee the alarm functions the alarm wiring should be tested yearly.

Where needed, a separate fuse must be installed, if no existing can be used. Neglecting this can cause fire in the harness if a wire get squeezed or damaged. Document your installation to simplify the service of the alarm system in the future.

The DEFA alarm system has an advanced PC configuration tool for adoption to different cars. This installation manual only covers the standard installation for the system. Car specific installation guides comes with the configuration tool.

### ***Stickers***

Mount the enclosed (3 pcs.) stickers on the inside of the front door windows and the rear window.

### ***Placing the Alarm Unit***

The alarm unit should be placed in a concealed location in the compartment of the car. (Free from moisture!).

## **WINDOW MODULE/GLASS BREAK SENSOR**

Mount the window module on the inside of the windshield. The window module includes a built-in glass break sensor.

1. Mount the window module sticker (enclosed in kit) on the inside of the windshield.
2. Mount the window module to the sticker with the adhesive tape
3. Connect the 4-pin connector to P3 on the alarm control unit.

## **CONNECTIONS**

Note: All inputs and outputs are programmable. Check the specific car installation guide for changes to these connections.

### ***Power Wires (P1)***

#### **Red wire (pin 1):**

Powers the alarm unit and the power outputs. Connect to a separate fuse (25A) with permanent +12V source.

#### **Blk wire (pin 3):**

Chassis ground to alarm unit. Connect to ground terminal.

## **Turn Signal Indication (P2)**

Depending on the car, there are two ways of connecting the lights.\*

### Connecting to left and right turn signal lights.

Connect Gry/Red (Pin 4) and Gry/Blk (Pin 8) on P2 to the wires going to the left and right turn signal lights.

### Connecting to the Hazard switch

Connect the General Purpose output used for controlling the hazard switch. This is car dependent, normally Grn (Pin 2) or Blu/Red (Pin 7) on P2 is used.

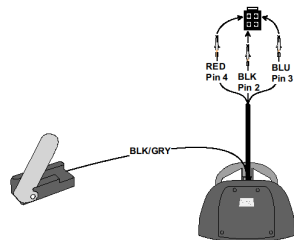
\* See the car specific installation guide for further details.

## **Siren**

Install the siren in the engine compartment, exposed as little as possible to spray water and heat from exhaust or turbocharger components (minimum distance 30 cm). The Siren aperture must face downwards to prevent water accumulating in it.

The Siren must not be accessible from the underside of the car.

Pull the Red, Blk and Blu wires through the cowl and connect the wire to the enclosed connector housing as follows:



Connect the wire to the LIN bus connector (P6 or P7) on the alarm unit. Do not use a LIN bus splitter to the siren.

Leave the Blk/Gry wire in the engine compartment for connection of the hood switch.

Important: Never install the Siren with the aperture facing upwards.

## **Hood Switch**

The hood switch is connected to the LIN bus via the siren using the Blk/Gry wire.

This input is normally open (NO) and triggers the alarm when connected to ground, i.e. when the hood is opened.

Install DEFA Hood Switch. This should be installed in such a position as to make it inaccessible from either the underside or the front of the car. The switch should be placed in the switch guard enclosure to prevent manipulation of the switch.

### ***CAN-bus (P5)***

If the car incorporates a CAN-bus system it is possible to connect most parts of the alarm system using this bus. It is then possible to omit separate door, hood, boot and ignition connections. In most cases the original remote control can be read using this bus as well.

The system has to be programmed using the DEFA Express PC program to take advantage of the CAN-bus, since every car is individually adapted to the alarm system.

The connection point in the car is referred in the car specific installation guide.

### ***Control Inputs (P4)***

On cars with original remote controls that lacks CAN-bus, or where the CAN-bus can not be used for reading the remote control data, these inputs can be used to control the alarm system using the original remote controls.

The system has to be programmed using the DEFA Express PC program to take advantage of the control inputs, since every car is individually adapted to the alarm system.

The connection point in the car is referred in the car specific installation guide.

### ***Outputs (P2)***

There are 7 different outputs signals which can be configured individually.

- 2 active low ( ground , max 1,5 A )
- 2 active high ( same as input voltage, max 1A )
- 2 active high ( same as input voltage, max 10A )
- 1 relay ( max 25A )

To control the output signals there are 13 different functions.

These are:

- Hazard** – to control the direction lights using the hazard switch
- Sound** – to control a different sound unit than the original DEFA sirene
- Pager** – a 30 second pulse when the alarm is triggered
- Light pattern** – to control the direction lights when using DEFA remote
- Start Relay** – active or not active, most often used to control the relay (see “Starter Kill” chapter)
- Ignition** – active signal when the ignition is on
- Lock** – a pulse when the alarm changes from disarmed to armed status
- Unlock** – a pulse when the alarm changes from armed to disarmed status
- Lock/Unlock pattern** – to create pulse(s) when the alarm changes from armed to disarmed and from disarmed to armed
- Arming pulse** – a pulse which is triggered each time the arming signal is received
- Disarming pulse** – a pulse which is triggered each time the disarming signal is received
- Armed status** – active signal when the alarm is armed
- Disarmed status** – active signal when the alarm is disarmed

These functions can have individual settings to control timing etc.

### ***Starter Kill (P1)***

**In some countries this connection is mandatory. Contact your local reseller for information.**

Cut the wire from the ignition lock to the starter solenoid. Connect the Red/Blk (pin 2) wire to the ignition lock side of the wire and then Wht/Grn (pin 4) wire to the solenoid side.

This relay can be controlled to act as either Starter Kill or Immobilizer.

The Starter Kill function disables the connection between the two cables when the alarm is armed and connects them when the alarm disarms.

The immobilizer function disables the connection between the cables a predefined time after the ignition is turned off. If no door on the vehicle is opened the connection between the cables will be enabled as soon as the ignition is turned on again, but if a door is opened the alarm has to receive a disarm signal to enable the connection again.

### **USB (P8)**

This connection is only used when programming the alarm unit with the specific car or peripheral settings. Read the instructions that accompanied the DEFA Express system.

### **Peripherals on the LIN bus**

All peripherals are connected to the alarm unit on the LIN bus (P6 & P7). If more than two devices are to be connected, a DEFA LIN splitter can be used.

The devices on the LIN bus are automatically paired with the alarm upon first power up of the alarm unit and stored in the alarm unit's LIN device table.\*

If the device table has to be erased and a resynchronization has to be done, do as follows:

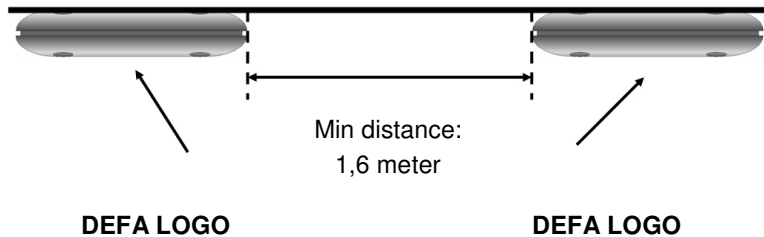
1. Connect all units to the LIN bus
2. Deactivate the alarm.
3. Turn the ignition on.
4. Press the window module button for 10 seconds.
5. The alarm unit confirms erased table and resynchronization with flashing LED.
6. Turn the ignition off.

\* If new peripherals are connected to an already paired LIN bus, or if the settings for a device on the bus is changed using DEFA Express, a new synchronization has to be done.

### ***Motion Sensor***

Place the motion sensor above the rear mirror with the sensor facing the interior of the car.

In some cargo vans one might install more than one motion sensor, usually one in the driver's cabin and one in the cargo room. If there is a metal wall dividing the two compartments the sensors can be placed close to each other. However, if there is no metal wall dividing them, the two sensors must be placed a minimum of 1,6 meters apart. (See figure).



Connect the sensor to the LIN bus (P6 or P7)

The sensor sensitivity can be adjusted using the DEFA Express program. If the installation is following a specific car installation guide, the sensitivity is already set to the right value for that car.

### ***Level Sensor***

The level sensor can be placed in any direction. The sensor stores its position when the alarm is activated.

The level sensor should be mounted firmly to a solid part of the car under the dashboard, preventing it to move out of place.

Connect the sensor to the LIN bus (P6 or P7)

Normally the sensor sensitivity does not need any adjustments, but if the car is fitted with sport suspension the sensitivity might have to be adjusted using the DEFA Express program.

### **ENTERING PIN-CODE**

1. Turn the ignition on.
2. Press the button on the Window Module as many times as the first digit.
3. Wait (approx. 1 second) for the LED to blink once. This indicates that the digit is stored.
4. Repeat steps 2 and 3 with the remaining digits. When the last digit is stored the LED will flash rapidly to indicate that the correct PIN is entered.
5. If at any point you enter a wrong digit you may start over from step 2 as many times as required.

## DIAGNOSTIC MODE

The alarm has a diagnostic function with three different modes. The first diagnostic mode is accessed by entering PIN-code 2-2-2-2-2. The LED will flash and the siren will beep once. The alarm is now in diagnostic mode 1. If the button on the window module is pushed in mode 1 the alarm enters mode 2 and the siren beeps two times, and another push on the button enters mode 3 with the siren beeping three times. If the button is pushed in mode 3 the alarm returns to the first mode again. Diagnostic mode is exited by turning of the ignition.

- Mode 1
  - Open Door Indication – The LED will start flashing when a door, trunk or hood is opened. When the door, trunk or hood is closed or left open for more than 10 seconds the LED will turn off.
- Mode 2
  - Alarm Log Indication – The LED will indicate the last ten alarm triggers starting with the most recent trigger. There is a 5 second interval between each trigger indication. If there are no triggers in the alarm log the LED will flash to indicate this.
    - 1 blink – Level Sensor Warning
    - 2 blinks – Level Sensor
    - 3 blinks – Door
    - 4 blinks – Hood
    - 5 blinks – Trunk
    - 6 blinks – Ignition
    - 7 blinks – Aux
    - 8 blinks – Motion sensor
    - 9 blinks – Glass Break Sensor
    - 10 blinks – Glass Break Sensor Warning
- Mode 3
  - Motion Sensor Sensitivity Test – The LED will stay on for 20 seconds when the Motion Sensor is being armed. When the LED turns off the motion sensor is ready to be triggered. When movement is detected the LED will flash briefly and the siren will indicate the current motion sensor sensitivity. The sensor is ready to be triggered again 1 second after the last beep.

## REMOTE CONTROL

The alarm system can be operated by DEFA remotes. To add remote controls to the central unit follow the procedure for entering PIN-code. After the correct PIN is entered press both buttons on the remote at the same time. The siren will chirp and the led and lights will flash to confirm that the remote is stored. If you wish to store more than one remote, both buttons must be pushed on the second as soon as the first remote is stored. You may store up to 4 remotes in the central unit.

## TROUBLESHOOTING:

The alarm is meant to operate without need of any kind of servicing. If service after all is needed;  
Read the fault finding procedure below before contacting authorized DEFA-dealer.

When the alarm has been triggered during the last activation period, it will respond with 5 short sound and light signals when deactivated. The LED indicates which input or sensor that triggered the alarm by blinking in sequence.

Alarm system not responding in any way.	Alarm fuse defect.	Replace broken fuse with new one.
	Vehicle out of battery.	Charge battery of the car.
Alarm activated. Alarm is not triggered when door is opened.	Door switch out of order.	Check functionality of door switch; 1. Get into vehicle, close all doors. 2. Wait until dome light fades out. 3. Open door. Dome light illuminates if door switch is working. Be sure that the dome light switch is in door position. Contact car dealer for door switch exchange if needed.
Remote control not functioning	Remote control out of battery	Replace old battery with new one.



**TECHNICAL DATA**

<b>System</b>	Supply voltage	8-32V
	Current consumption	20 mA
	Operating temperature	-40 - +85°C
<b>Inputs</b>	CAN-bus	High Speed, Fault tolerant and Single wire
	Analogue inputs	10
<b>Outputs</b>	Lights	2 x 10A
	Aux. output (Hi side switch)	2 x 1A
	Aux. output (Low side switch)	2 x 1,5A
	Immobilizer	1 x 25A
<b>LED Status</b>	Armed system	Flashing LED 0.5 Hz
	Alarm Memory indication (after disarming)	1-9 flashes in LED
<b>Lights</b>	Arming / Disarming	Depending on vehicle
	Alarm	2 min
<b>Siren</b>	Alarm sound	116 dB / 30 sec.