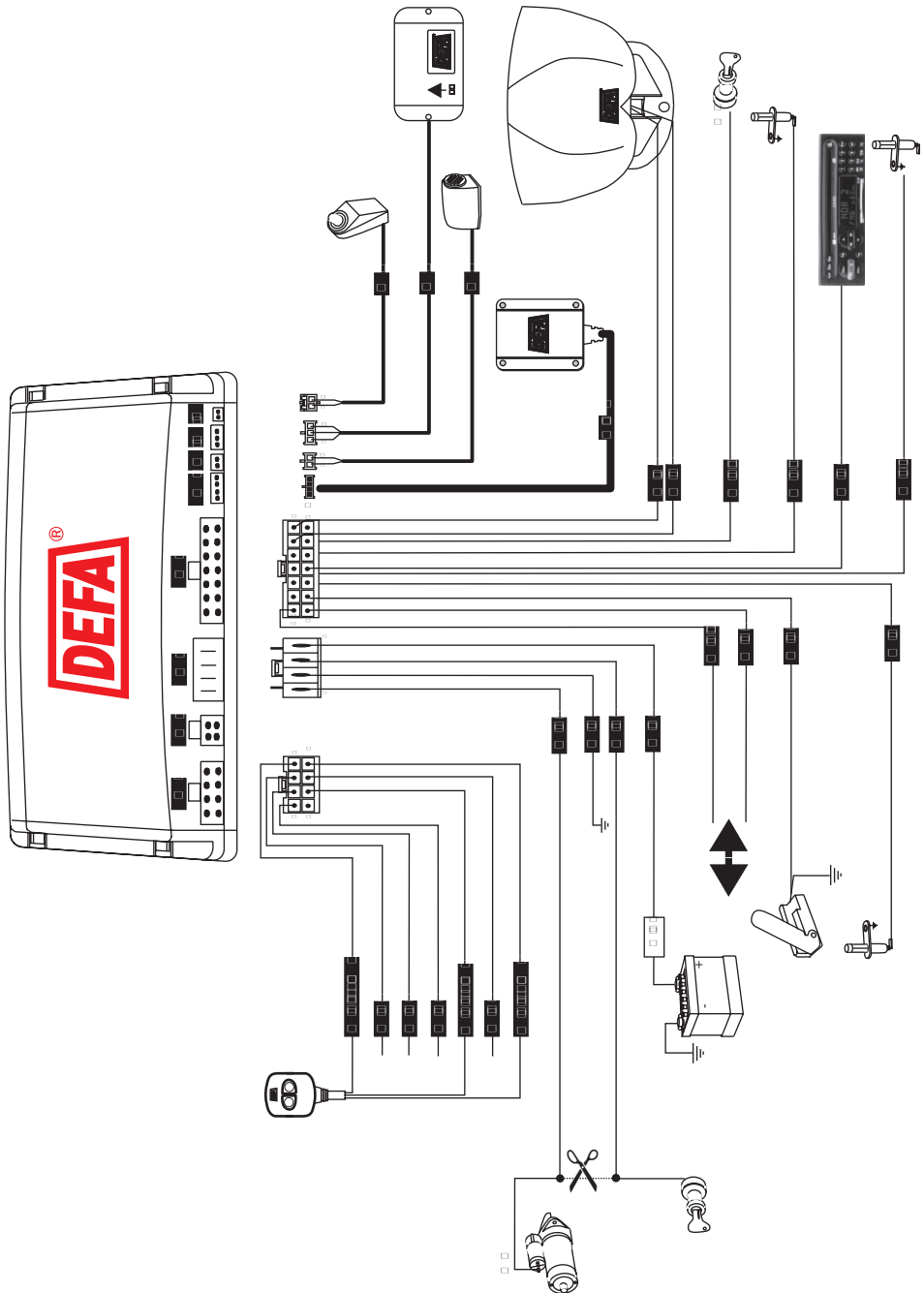


400 - Alarm



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Instructions for wiring diagram

P-1

Control signals for arming/disarming and Code Panel. cf page 11.

P-2

Multiplug, Backup Alarm, Immobilizer Module and Pager (auxiliary equipment).

This is the connection for auxiliary equipment such as the DEFA Backup Alarm, the DEFA Immobilizer Module or the Pager (remote alarm). Cf separate assembly instructions.

P-3.1

Current supply, red lead. To be connected to a distributor via a 25 fuse (fuse box).

P-3.2

Input, starter kill, red/black lead (only applies to 401 models). Separate control current lead from the ignition lock to the starter (connection 50) near the ignition lock. Connect the lead end coming from the starter with P-3.2 red/black lead.

P-3.3

Ground, black lead. Connect directly to the vehicle body.

Important: lead must not be extended.

P-3.4

Output, starter kill, white/green lead (only applies to 401 models). The other lead end (50) leading to the starter is connected to P-3.4 white/green lead.

P-4.4

Auxiliary equipment, white/red lead

This alarm loop protects integrated auxiliary equipment in the car such as radio/cassette players or similar equipment. The circuit is normally closed (NC) and will trigger the alarm when circuit is opened..

P-4.5

Door trigger, 1, grey lead. This input is normally open (NO) triggers the alarm when a contact to ground is made. Connect to the existing door switch circuit of the car. If the car has two separate circuits from the front and rear interior illumination, door trigger 2 (P-4.12) can be used for the rear doors, and input P-4.5 can be used for the front doors.

P-4.6

Bonnet trigger, black/grey lead. This input is normally open (NO) and triggers the alarm when connected to ground, i.e. when the bonnet is opened. Install DEFA Bonnet Switch. This should be installed in such a position as to make it inaccessible from either the underside or the front of the car.

P-4.7

Light output 1, grey/red lead. Connected directly to the right turn signal lamp circuit in the car. Maximum load 7,5 amp. (90 watt). Fused with automatic circuit breaker.

P-4.8

Siren. See P-4.9

P-4.9

Siren. Output to Siren. Connect the two Siren leads to P4.8 and P4.9.

P-4.10

Ignition signal, white/brown lead. Connect lead to ignition output of ignition switch.

P-4.11

Luggage compartment trigger, white lead. Connect to the normal luggage compartment switch if switching to ground. If it is switched to positive, a DEFA Polarity Inverter must be used.

P-4.12

Door trigger 2, grey/white lead. This input is normally open (NO), and triggers the alarm when contacted to ground. This is an additional door switch input for NEGATIVE switches and is used particularly when there are separate circuits for the front and rear doors.

P-4.14

Light output 2, grey/black lead. Connected directly to the left turn signal lamp circuit in the car. Maximum load: 7,5 amp. (90 watt). Fused with automatic circuit breaker.

P-5

Plug for Auxiliary Sensors. Cf. separate assembly instructions.

P-6

Plug for Glass Breakage Sensor. Standard for all models with the letter G in the model designation. If a window is broken, the Glass Breakage Microphone triggers the alarm.

P-7

Plug for Microwave Sensor. Standard for all models with the letter M in the model designation. If the sensor detects motion in the vehicle interior, the alarm is triggered.

P-8

Plug for LED. Universal LED bracket: The LED can be installed on the instrument panel, on the A-pillar, the windscreen or at any other position desired. Embedded LED bracket: Use an 8.0 mm drill if the bracket is to be embedded in the metal plates, a 7.5-8.0 mm drill for plastic material and a 7.0 mm drill for padding material.

Preparations for installation

The workshop always holds complete responsibility for performing all necessary safety measures on installation of the DEFA Auto Security Alarm System. Observe any instructions issued by the car manufacturer. Before making any connections, use a voltmeter/multimeter to check the connection points. Always ensure that the connection points are well insulated by using, for example, shrinkdown plastic tubing or insulation tape. Avoid installing connection points or installation components in the immediate vicinity of airbag modules or other safety systems. Assembly instructions for most specific vehicle types are prepared by DEFA. Vehicle lists with the corresponding control signals (circuit diagrams) are likewise available.

The alarm can act on all petrol and diesel cars having a 12V power source.

Important: DEFA Auto Security Alarm Modules, series 400 (without DEFA Immobilizer), may only be installed in vehicles with approved original Immobilizers; if this is not the case, the alarm will not be subject to type approval. A list of recognised original Immobilizer systems is available from DEFA or the DEFA representative in your country.

DEFA AUTO SECURITY with programmable memory (FLASH)

In contrast to earlier models of 400- and CAN series alarm, this Central Unit has a reprogrammable processor memory (FLASH). This means that the Central Unit can easily be reprogrammed in the field to contain the latest software for new car models if required (see notes). To perform the downloading of program files and programming of the unit, a special tool kit is required. The Programming Kit can be purchased from DEFA or local distributor on Article No. 600624.

The kit contains a comprehensive user-/ installation manual, an installation CD and a programming unit. For downloading of new program files, please contact the DEFAs home site. www.defa.com

All installation documents for the different car models have a reference to a *minimum revision character* printed on a label fixed to the back cover of the Central Unit. By the introduction of the “Flash” units the work shop can easily update the internal stock to reflect the latest version of software. After programming, the revision character must be updated accordingly.

Notes !

All Central Unit delivered from factory contains the latest software revision available by the time of production. The unit also contains all previous releases of software.

Example: Rev D also covers -, A, B and C releases.

Downloading of new software is therefore only necessary if actual car model require a higher revision character than printed on the label. For example if car model require Central Unit of revision D, revisions – A, B, and C can not be used but higher revision like E, F etc. will work. Remember always to update the revision character on Central Unit if reprogrammed.

All Central Units of the 400-/CAN model from revision F are all “FLASH” centrals.

Positioning of the Alarm units

Central Unit

Attach the Central Unit below the instrument panel or at a suitable point in the vehicle interior using plastic fastening strips. The Central Unit should not be visible, and should be as inaccessible as possible.

Important: The Central Unit must be installed with its plugs facing downwards to ensure that condensation water cannot run along the cables into the unit.

Main fuse

The main fuse (25 amp.) should be attached in the vicinity of the current power source.

Siren

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

Glass Breakage Sensor

The Glass Breakage Microphone is installed on the instrument panel or in the centre console. Clean the installation surface with a grease dissolving agent and then fasten the Glass Breakage Sensor with the enclosed double-sided adhesive tape.

LED

Install in instrument panel using the embedded bracket or fasten to the instrument panel/ windscreen using a universal bracket or double-sided adhesive tape. The LED must be clearly visible from outside.

Microwave Sensor

The preferred location is at the centre of the car roof, 40 cm from the windscreen, under the roof lining. If this is not possible, it can be installed in the centre console. The sensor can be installed behind plastic covers but not behind metal covers, as these would block the waves from the sensor. Please note that some cars have a thin metal film in the roof lining. In these cases, the sensor must not be installed behind this lining.

If the sensor is attached to the inside of the roof, the arrow with the mark UP is usually located on the underside of the sensor and points towards the rear of the car interior. If the sensor is attached to the centre console, the arrow with the mark UP is usually located on the side of the sensor facing the interior. The sensitivity of the sensor must be checked and, if necessary, adjusted after installation. Important: Loose metal objects such as keys, coins, etc., can trigger the alarm if they are too close to the sensor.

How to use your DEFA Auto Security Alarm Module

Your DEFA Auto Security Alarm Module is controlled using your car's original remote control unit. The Alarm Module is activated when you use the original remote control unit to lock the car and deactivated when the car is unlocked.

Important: The Alarm Module is not deactivated when the car is unlocked using the key in the lock. There is no DEFA Remote Control for this Alarm Module.

Alarm ON (arm)

Use the original remote control unit to lock the vehicle. The Alarm Module is activated. The turn signal lamps flash once to confirm that the Alarm Module is armed. The LED illuminates for 20 seconds and then starts to flash, to confirm that the alarm and the Glass Breakage/Microwave Sensor are activated.

Temporary deactivation of Sensors:

You can also set the Alarm Module to ON without activating the Sensors for motion in the interior or impact against the screen. This can be necessary if, for example, a pet is left in the vehicle. Switch the ignition OFF and briefly press the A button on the Code Panel twice (maximum 30 seconds between pressing). Exit the vehicle and lock the car within 30 seconds using the remote control. The turn signal lamps illuminate for approx. 1 second. The Sensors are reactivated when you switch on the Alarm Module the next time.

Alarm OFF (disarm)

Use the original remote control to unlock the vehicle. This deactivates the Alarm: "Module. The turn signal lamps flash twice to confirm that the Alarm Module is OFF. The LED stops flashing.

If the Alarm Module was triggered during your absence, the turn signal lamps flash five times and the Siren emits a 'click' five times when the Alarm Module is disarmed. The LED now flashes to indicate which sensor had triggered the Alarm Module.

Emergency disarming

If the remote control is broken or lost, disarm the Alarm Module as follows:

- A. Consult your Card with the PIN Code and locate your five-digit PIN Code.
- B. Follow the instructions on the Emergency Code Card.

Important: If you make a mistake, you can repeat the procedure from 3. Onwards as often as required.
Important: Don't forget - keep your PIN Code on your person.
Do not leave it in the car!

Your Emergency Code is:

DEFA 401-MG
S/N: 1234567

PIN-Code: X- X- X- X- X-

1. Unlock and open the car door.
The Alarm is activated!
 2. Turn the ignition ON and OFF five times in a row.
The Led "flickers"
 3. When you turn ON the ignition once again, the LED will blink. Let the Led blink as many times as the first digit of your PIN-code, and turn OFF the ignition.
 4. Turn ON the ignition and repeat the procedure (3) until you have gone through every digit in your PIN-code. The alarm is now disarmed. If you make a mistake, start over again at step 3.
- Start the car immediately!

Control signals for arming/disarming

P-1 Multiplug, control signals and Code Panel.

The system must be connected in such a way that the Alarm Module can only be armed and disarmed using the car's original remote control.

To achieve this, the control signal plug P-1 must be prepared (configured) and adapted for the car in question. The standard connections are shown in the following page. If the function of the original remote control is unclear, the original circuit diagram for the car must be consulted. Always check with a voltmeter/multimeter before making any connections. The leads in the P-1 plug which are not used must be disconnected or insulated. Assembly instructions for most specific vehicle types are prepared by DEFA. Vehicle lists with the corresponding control signals (circuit diagrams) are likewise available.

Important: In some cars, the control signals for function 6 have to be programmed. Cf. technical manual. The programming panel is connected to plug P-1, cf. assembly sketch on the cover.

P-1 Plug	Function	Colour
P1.1	Code Panel	Green
P1.2	Unlock-	Brown/Yellow
P1.3	Code Panel	Black
P1.4		
P1.5	Code Panel	Red
P1.6	Unlock+	Red/Yellow
P1.7	Lock+	Red/White
P1.8	Lock-	Brown/White

Programming the Alarm Module

The Alarm Module contains a register that allows various functions to be programmed or altered using the Code Panel and the ignition key.

Please read the detailed function description on the following pages. Definition of pressing and holding programming buttons on Code Panel:

Press means:
Press for a maximum of 1 second
Hold means:
Press for at least 2 seconds.

Function	Description
1	Cause of alarm trigger
2	Not in use
3	Alarm sounds
4	Passive arming
5	The sensitivity of the Microwave Sensor
6	Selection of car model/control signals
7	Confirmation signal via turn signal lamps
8	Not in use
9	Starter kill/Immobilizer
10	Not in use
11	Not in use
12	Factory settings
13	Entry of PIN code for Immobilizer

Procedure for programming

- A) Switch the ignition ON and OFF five times. The LED flashes rapidly.
- B) Switch the ignition ON again, allow the LED to flash twice and switch the ignition OFF again. Repeat 5 times. After the fifth time, the LED will flash rapidly when the ignition is switched OFF again.
- C) Switch the ignition ON. Press button A to activate function 1. The function that is active is indicated by the number of sound signals.
- D) Pressing button A again activates the next function. Hold button A to return to the previous function.
- E) Once you have reached the desired function, you can program or alter the function as described on pages 12, 13, 14, and 15.
- F) If you want to program some more functions, press button A. You can then select the function by either pressing or holding button A.
- G) Once you have completed programming, switch the ignition OFF.

Function 1: Cause of alarm trigger

Press button B to obtain information about the cause of the alarm last triggered. Press button B for information about the alarm triggered previously. Hold button B to return to the previous alarm. Hold buttons A and B simultaneously to delete the trigger cause memory. The Central Unit can store up to 10 alarm events.

Alarm triggered by:	Number of flashes:
Auxiliary Sensor 1	2
Open door	3
Open bonnet	4
Open luggage compartment lid	5
Ignition	6
Attempt to remove secured object (stereo, ski box, etc.)	7
Microwave Sensor	8
Glass Breakage Sensor	9
Auxiliary Sensor 2	10

Function 2: Not in use

Function 3: Alarm sounds

Press button B to activate the set alarm sound for 5 seconds. Press button B again to select the next alarm sound and hold button B to return to the previous sound. A total of 6 different sounds are available.

Function 4: Passive arming

Passive arming means that the Alarm Module is switched on 12 seconds after the ignition is switched off and the doors are closed.

Press button B to indicate:

- 1 flash if active arming is selected
- 2 flashes if active arming is selected regardless of the opened door.
- 3 flashes if passive arming is selected.

Press button B again to select the next function. The number of confirmation sounds indicates the status currently set.

Function 5: The sensitivity of the Microwave Sensor

For Control purposes the sensitivity level of the detector is indicated by a number (1- 8) of short signals in the LED .The lowest level is 1, the highest is 8. Factory setting is 3. Press button B to indicate the valid sensitivity level. Press button B to increases the sensitivity level while holding button B reduces the level. The number of flashes in the LED indicates the level. Selected sensitivity level is confirmed by releasing the detector. Last chosen step will be the selected sensitivity level.

Function 6: Selection of car model/control signals

In some vehicles, in addition to the connection of control signals for arming and disarming, the alarm system has to be reprogrammed for the specific model.

Press button B to indicate the current setting.

- 6.1...1 flash =** Standard Positive or Negative arming and disarming signals are selected (standard).
- 6.2....2 flashes =** Positive arming and disarming with POSITIVE blocking signal.
- 6.3....3 flashes =** Positive arming and disarming signals with Negative blocking signal.
- 6.4...4 flashes =** Positive lock/unlock signals with Positive verification (VOLVO V40/S40)
- 6.5....5 flashes =** Positive lock/unlock signals with pulsating verification (OPEL VECTRA 1996-)
- 6.6...6 flashes =** Negative lock, Negative pulsating unlock (MERCEDES E- CLASS, 1995-97.3)
- 6.7....7 flashes =** 3 Positive lock pulses, 1 positiv unlock pulse (MERCEDES C97.05-, E97.03)
- 6.8...8 flashes =** Turn light interface no. 1 (Citroen 1 blink=lock, 10 blink=unlock)
- 6.9....9 flashes=** Turn light interface no. 2 (Audi, Volvo, 1 blink=lock, 2 blink=unlock)
- 6.10..10 flashes=** Turn light interface no. 3 (Nissan, 1 blink=lock, 2 blink=unlock)
- 611..11 flashes=** Positive lock/unlock signals with positive verification.
- 612..12 flashes=** Positive lock/unlock signals with negative verification.
- 613..13 flashes=** Positive lock/unlock signals with positive control signal.

Press button B to select the next setting, hold button B to select the previous one. The number of confirmation sounds indicates the current status.

Function 7: Confirmation signal via turn signal lamps

For some cars with original remote control unit, you must disable the function controlling the turn signal lamp confirmation signals on arming and disarming, as the car already possesses this function.

Press button B to indicate the current setting.

- 1 flash = Confirmation lamps ON is selected (standard)
- 2 flashes = Confirmation lamps OFF is selected

Press button B again to select the next setting. The number of confirmation signals indicates the current status.

Function 8: Not in use

Function 9: Starter kill/immobilizer

Press button **B** to indicate the current setting.

Starter kill: The lock function is switched on at the same time as the Alarm Module is armed and is deactivated as soon as the alarm is switched off again.

Immobilizer: This locking function is activated automatically 30 seconds after the ignition is switched off and a door is opened. The Immobilizer is deactivated when you switch off the Alarm Module. If you do not start the car within 30 seconds after opening the doors, the Immobilizer is activated again.

1 flash = Immobilizer is selected (standard on 403)

2 flashes = Starter kill is selected (standard on 401)

Press button **B** again to select the Immobilizer, hold button **B** to select the starter kill. The number of confirmation signals indicates the current status.

Function 10: Not in use

Function 11: Not in use

Function 12: Factory settings

The following settings are provided ex works:

Function 3: Alarm sound no. 1

Function 4: Active arming

Function 6: Standard POSITIVE or NEGATIVE arming and disarming signals

Function 7: Confirmation lamps ON

Function 9: Immobilizer selected (403) Starter kill selected (401).

If the actual settings differ from the factory settings, they can be reset to the above settings by pressing button B.

Function 13: Entry of PIN code for Immobilizer Unit

If an Immobilizer module is retrofitted or replaced, the PIN code must be entered into the alarm to allow the vehicle to be started.

1. Press button **B**
2. Switch ignition OFF
3. Switch ignition ON, allow LED to flash the same number of time as the first digit of the Immobilizer PIN code

- 4. Switch ignition OFF
- 5. Repeat points 3 and 4 until you have entered all of the digits of your PIN code. When the ignition is switched off for the last time, the LED will flash rapidly. This means that you have completed the coding.

If you make a mistake, you will have to restart the procedure from the beginning.

Technical data

Central Unit, 400 series

Operating voltage: 9-15 V d.c.
Operating temperature: -40°C to +85 °C
Exterior dimensions: 159 x 80 x 34 mm

Power consumption

	Armed	Disarmed
400/401-G:	10mA	10mA
400/401-M:	16mA	10mA
400/401-MG:	16mA	10mA
400/401-MG BACKUP	26mA	27mA
403-MG:	16mA	10mA

Approval

The EEC approval mark will be affixed on a label that is placed on the rear side of all units approved.