

3 INSTALLATION

3.1 PREPARATIONS FOR INSTALLATION 400/800 SERIES

The workshop always holds complete responsibility for performing all necessary safety precautions on installation of the alarm system. Certain security demands have to be fulfilled when working in the engine compartment and the interior of the car. Below is a list of important checkpoints. However, this does not relieve the mechanic from the responsibility to take other necessary steps in order to ensure a safe installation.

During assembly and testing the car is to be placed on a level surface with the handbrake applied and the gear lever in neutral. Cars with automatic gears are set to "N" or "P".

Disconnect the negative battery pole before starting the assembly. If the negative battery pole can not be disconnected, make sure all parts of the electrical system affected by the installation are turned off.



Observe any instructions with regard to equipment such as AIRBAG or the RADIO SECURITY CODE issued by the car manufacturer, before the battery is disconnected.



Make sure the correct tools are used in order to obtain a certified and high quality installation.



Always check the connection points with a voltage-/multimeter before connecting. Avoid placing connection points or units near airbag modules or other safety systems.

Connections are made by one of these two methods.

1. The existing wire in the car is cut and the alarm wires connected with an extension casing that is properly sealed with an appropriate pincher.
2. The best result is obtained by soldering the connections. Always make sure the connection points are well insulated by using shrinking plastic tubing or insulation tape.



Connecting material of the «conductance thief» type must not be used. If «conductance thieves» are used, the installation of the alarm system is not correctly performed and thus not approved.

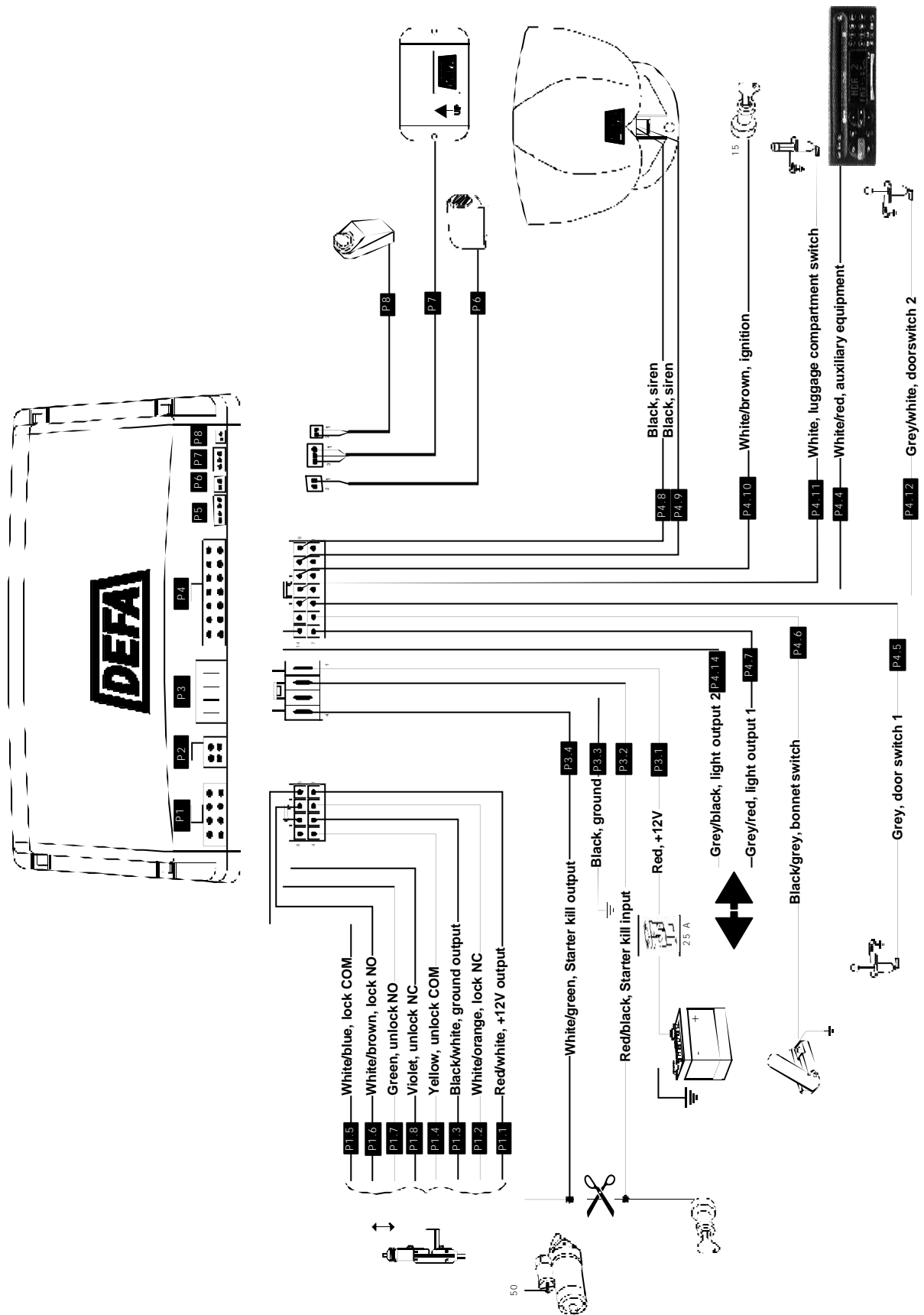
Due to extensive usage of electronic components in modern cars, regular «old» testlights must not be used, as they might cause damage to expensive electronic components. Preferably LED indicators or voltmeters should be used. Be aware that not all conductive wires in today's cars are supplying 12V. There are also electronic components operating at 5V. Under these operating conditions a LED indicator should not be used.

3.1.1 Useful tools:

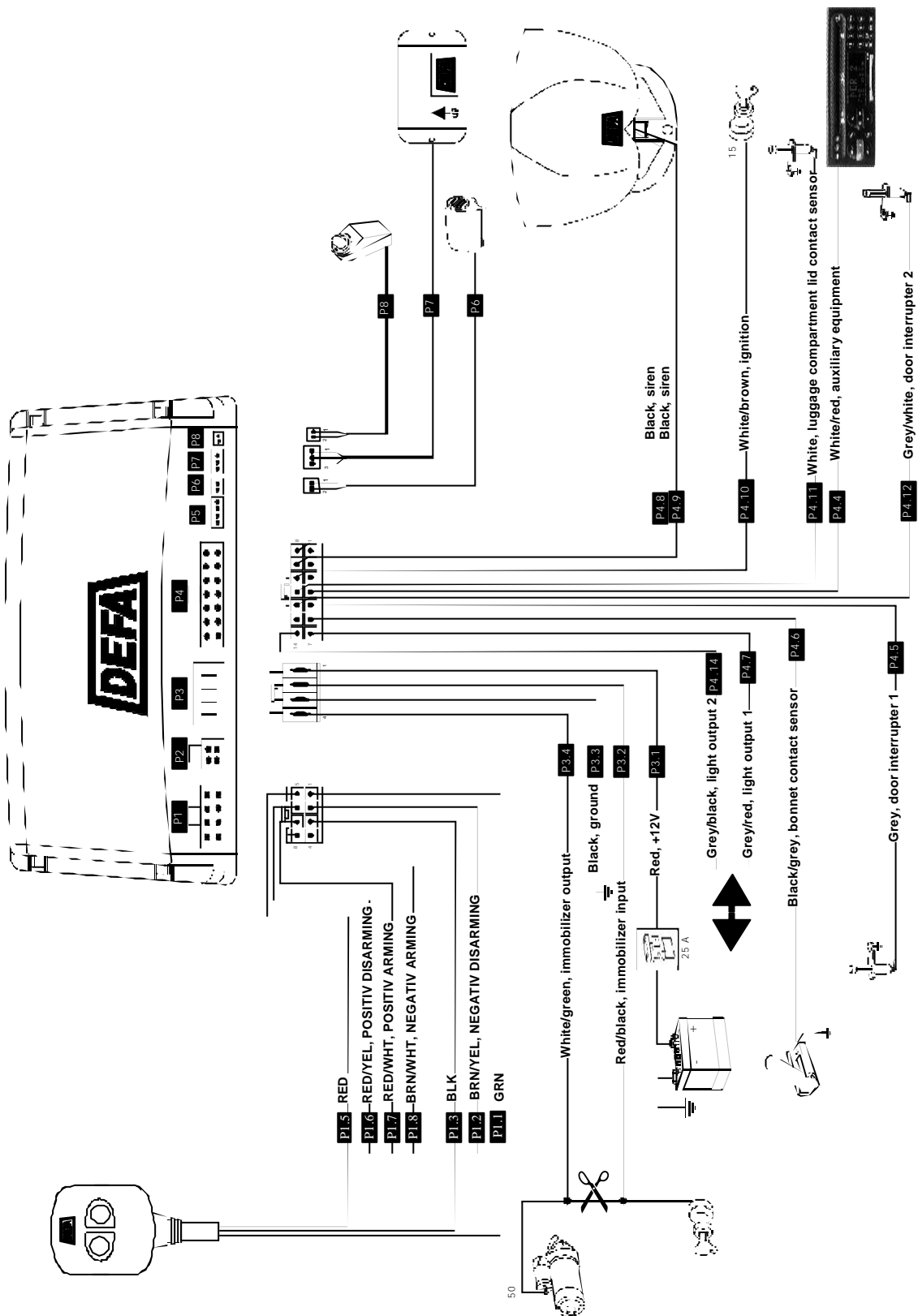
Peel tool for plugs P1, P2 and P4. The tool can be ordered through retailers, DEFA Art. No. 600 525



3.2 MAIN WIRING DIAGRAM 800 SERIES (821X- MG)



3.3 MAIN WIRING DIAGRAM 400 SERIES (401- MG)



3.3.1 Differences in the main wiring diagram on the 400/800 series

The differences in connections between the 800 and 400 series alarms are to be found on the P1 connector. The 800 series uses the P1 for connections to the central locking, while the 400 series uses P1 for control signals from the car and for connecting the Programming panel.

3.4 POSITIONING OF UNITS - QUICK GUIDE

3.4.1 Central unit

Attach the central unit below the instrument panel or at another suitable point in the vehicle interior using plastic fastening strips. The central unit should not be visible.



The central unit must be installed with its plugs facing downwards to ensure that condensed water cannot run along the cables into the unit.

3.4.2 Main fuse

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

3.4.3 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 must face downwards in order to prevent water accumulating in it. The siren must not be accessible from underneath the car.



Never install the siren facing upwards.

3.4.4 Glass breakage sensor

The glass breakage sensor 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 double-sided adhesive tape.

3.4.5 LED

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

3.4.6 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 behind plastic covers but never 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. If this is the case, the sensor can not be installed behind the lining. If the sensor is attached to the inside of the roof, the arrow with the mark UP is usually located at the bottom 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 at the side of the sensor facing the interior. After installation the sensitivity of the sensor must be checked and, if necessary, adjusted after installation, read the section covering programming.



Loose metal objects such as keys, coins etc. can trigger the alarm if they are too close to the sensor.

3.4.7 Antenna cord

The active part of the antenna (white) must be installed as highly and freely as possible and not in the vicinity of metal or other wires. How the antenna is installed will greatly affect the radio range.

3.4.8 Alarm decals (stickers)

DEFA Auto Security (3 stickers) are attached to the front side windows; the last one can be attached either to the windscreen or the rear window.



The decals must not obscure the driver's line of sight.

The decal with details of the alarm model is attached in the glove compartment. The relevant model is checked.

3.5 CONNECTING - QUICK GUIDE.

P-1 [800]

Central locking connection

Cf. detailed description.

P-1 [400]

Guide signals/Programming panel

Cf. sections «Installing the programming panel 400 series» and «Installing the guide signals 400 series».

P-2

Multiplug, Backup Alarm, Immobiliser and Pager (auxiliary equipment)

This is the connection for auxiliary equipment such as the DEFA Backup Alarm, the DEFA Immobiliser module and the Pager (remote warning). Cf. separate assembly instructions.

P-3.1

Current supply, RED wire

To be connected to a distributor (fuse box) via a 25A fuse.

P-3.2

Start lock line-in, RED/BLACK wire (only applies to 821X and 401 models)

Cut the control current wire from the ignition lock to the starter (connection 50) near the ignition lock. Connect the wire end coming from the starter with P-3.2 RED/BLACK wire.

P-3.3

Ground, BLACK wire

Connect directly to the vehicle body.



Earthwire must not be extended.

P-3.4

Start lock lineout, WHITE/GREEN wire. (only applies to 821X and 401 models)

The other end of the control current wire (50) leading to the starter is connected to P-3.4 WHITE/GREEN wire.

P-4.1 [800]

Channel 3

Line-out for remote control of the DEFA Car Heating System. When activated this line will deliver +12V until the function is turned off. Maximums load 350 mA.

P-4.1 [400]

No connection

P-4.2 [800]

Channel 2

When activated this output will be ground connected as long as the button is depressed. Usage is optional. Maximum load 350 mA.

P-4.2 [400]

No connection

P-4.3 [800]

Channel 1

Line-out for electrical luggage compartment opener. When activated the line will connect to ground for 1 second. This function is only available when the alarm is deactivated. Maximum load 350 mA.

P-4.3 [400]

No connection

P-4.4

Auxiliary equipment, WHITE/RED wire

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

P-4.5

Door switch 1, GREY wire

This input is normally open (NO) and 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 for the front and the rear interior light, door switch 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 switch, BLACK/GREY wire

This input is normally open (NO) and triggers the alarm when connected to ground, i.e. when the bonnet is opened. Retrofit DEFA Bonnet switch.

P - 4.7

Light line-out 1, GREY/RED wire

To be connected directly to the car's right turn blinker circuit. Maximum load: 7,5 Amp (90 watt). Fused with an automatic circuit breaker.

P - 4.8

Siren

Output to loudspeaker siren.
Connect the two siren wires to P-4.8 and P-4.9.

P - 4.9

Siren

Output to loudspeaker siren.

Connect the two siren wires to P-4.8 and P-4.9.

P - 4.10

Ignition signal, WHITE/BROWN wire

Connect the wire to ignition output on the ignition lock (15?).

P - 4.11

Luggage compartment lid switch, WHITE wire

Connect to the normal luggage compartment lid switch if it is ground connected. If it is connected to positive, a DEFA Polarity converter must be used.

P-4.12

Door switch 2, GREY/WHITE wire

This input is normally open (NO) and triggers the alarm when a contact to ground is made.

This is an additional door switch input for NEGATIVE door switches and is used particularly when there are separate circuits for the front and the rear doors.

P - 4.13

DEFA-net

This output controls the DEFA Power Module.

P - 4.14

Light line-out 2, GREY/BLACK wire

To be connected directly to the car's left turn blinker circuit. Maximum load: 7,5 Amp (90 watt).

Fused with an 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 sensor 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

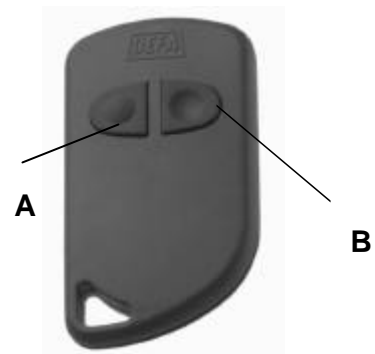
Universal diode bracket: The LED can be installed on the instrument panel, on the A-pillar, the windscreen or any other desired position. Embedded diode bracket: Use an 8.0 mm drill if the bracket is to be embedded in metal plates, a 7,5 - 8,0 mm drill for plastic material and a 7,0 mm drill for padding material.

3.6 REMOTE CONTROL 1:1 – 800 SERIES

Description:

The 800 series alarms are supplied with two 1:1 Remote controls. Pressure buttons A and B are used when operating the alarm and the comfort functions, and also for programming of the alarm functions.

In order to separate the buttons from one another physically, the A button has been designed with a distinct elevation in the middle while the B button has a similar depression.



The remote control is operated at a radio frequency of 433.92 MHz and is able to store more than 4 billion codes. Every code is made up of 64 bits changing randomly with every transmission, thus obtaining a very high level of code security and also preventing unauthorised bypassing of the alarm.

The implementation of CMOS technology provides low current consumption and long lasting batteries. The Remote control has been equipped with a microprocessor and SAW technology has been applied in order to obtain a stable frequency control in all conditions.

3.6.1 Replacing the battery

The Remote control uses two **Lithium 3 volt CR 2016** batteries. The following procedure is recommended when replacing the batteries:

1. Remove the key ring and unscrew the small screw underneath the Remote control. Split the remote control by carefully inserting a thin flat object into the slot by the key attachment.
2. Replace the old batteries with new ones and make sure the + sign is turned up towards the hoop.
3. Press together the two halves of the remote control and screw them together again.

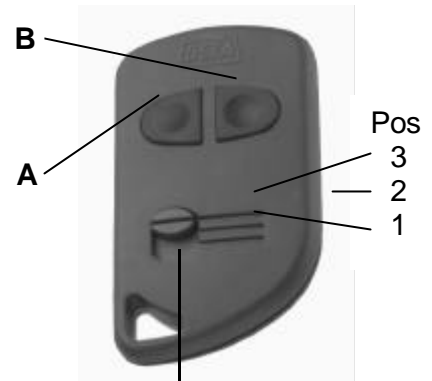


Normally the batteries have a life time of 1 year. Used batteries of this type are not regarded as hazardous to the environment and can be disposed of together with the everyday garbage.

3.7 REMOTE CONTROL 3:1- 800 SERIES (ADDITIONAL)

Description:

Same description as for the Remote control 1:1, but this unit also has a slide switch with 3 positions, allowing for the possibility of controlling 3 different alarm systems through the same remote control without experiencing operating disturbances. The slide switch can also be applied in controlling comfort functions such as electrical windows, sunroofs, luggage compartment lid openers, car heating systems etc. (Cf. separate paragraph on programming the Remote control 3:1).



3 Pos. Slide switch

3.7.1 Replacing the battery:

As for the Remote control 1:1.

3.8 INSTALLING THE CENTRAL UNIT 400/800 SERIES

Description 800:

The Central unit consists of an advanced microprocessor system receiving information from the different trigger- and sensor inputs. The system receives commands from the user via a radioreceiver (RF). The Microprocessor interpretes all information according to a fixed program and acts on the basis of preset conditions, experience and programmed information. DEFA Auto Security alarm systems are based on decentralised processing, i.e. some of the units in the system have their own microprocessor equipped to perform specific functions. The «brain» of the system is the Central unit which communicates frequently with the other «intelligent» system components.



Advanced digital- and analog technique have been applied in designing the Central unit. The Central unit has been designed to be protected against electrical disturbance on input signals and well protected against short voltage peaks. All relay-outputs have varistor-protection ensuring an effective 2-way noise reduction. The Central's power supply is protected against wrong polarity and most line-in and line-out connections have electronic overload protection. The battery voltage is monitored continuously and when it is too low the microprocessor automatically shut down parts of the alarm system. In case all battery power is lost, all important functions like alarm status, remote control codes and programmed functions are stored in the EEPROM memory circuit of the Central unit and remain permanently intact.



Please note that models with Backup Alarm (B) can not be connected to Standard siren.

Description 400:

Same description as for Central unit 800, except the unit is not able to receive commands directly from the remote control. The Central interprets information from the original remote control of the car through control signals in the car. The system thus does not include a radio receiver in the car, and the Central unit does not have any comfort outputs, central lock control or interior light control.



! *Please note that P1 on the Central unit is white (natural) and not black as on the 800 series. This is to make it easier to identify which system has been installed.*

Positioning 400/800:

Attach the central unit below the instrument panel or another suitable position in the vehicle interior using plastic fastening strips. The central unit should not be visible.

+ *The central unit must be installed with its plugs facing downwards to ensure that condensated 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.

Positioning of the antenna 800 series:

How the antenna is installed will greatly affect it's range. The antenna should be installed as highly and freely as possible in the car. Preferably the antenna should be attached along the windscreen of the car. This will cause less direction oriented communication. Positioning of the antenna whip next to conductive wires or the car body will reduce it's range. Installation in «A» post will also cause reduction in range and direction oriented communication.

! *Keep in mind that it is only the white insulated part of the center conductor on the antenna wire that is referred to by antenna in this context (ca. 17cm long).*

Connecting :

P-3.1

Current supply, RED wire

To be connected to a distributor (fuse box) in the main current supply or the ignition lock via an 25Amp fuse. There are two reasons to avoid installing the fuse in the engine compartment:

1. Over time the engine compartment environment will cause corrosion and subsequent deterioration of contact between fuse and fuse bracket.
2. Trespassers may disconnect the alarm via a main fuse installed close to the battery.

P-3.2

Start lock line-in, RED/BLACK wire (only applies to 821X and 401 models)

Cut the control current wire from the ignition lock to the starter (connection 50) near the ignition lock. Connect the wire end coming from the starter with P-3.2 RED/BLACK wire. Maximum load: 30 Amp.

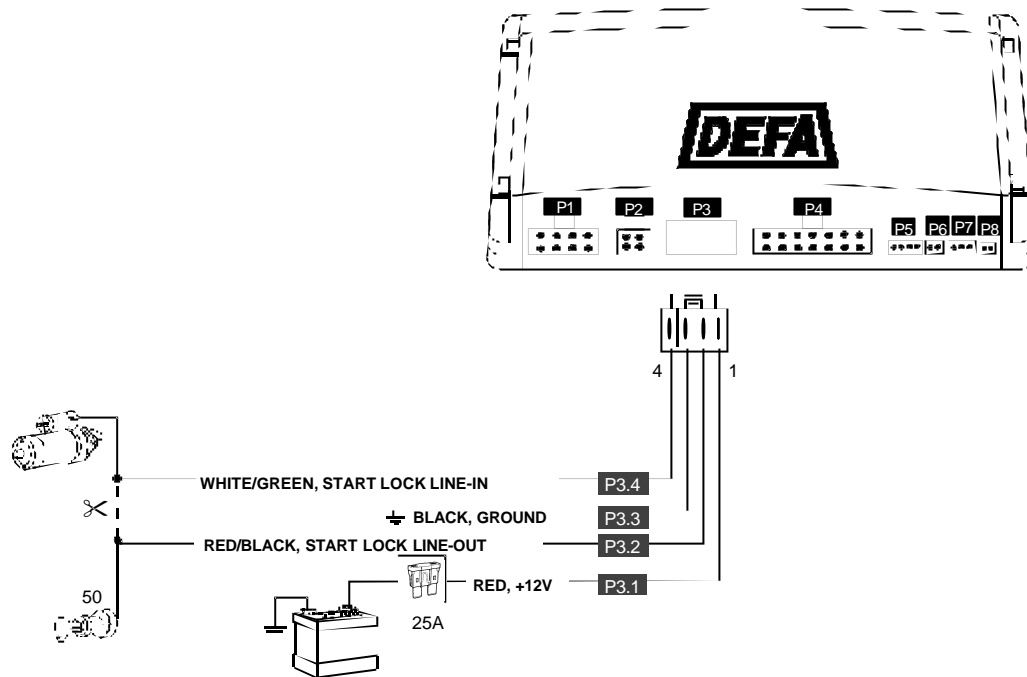
P-3.3

Ground, BLACK wire

Connect directly to the vehicle body, by using the supplied ring cable shoes, toothed washer and car-body screw. Original ground connection point may also be used.



Ground wire must not be extended.



P-3.4

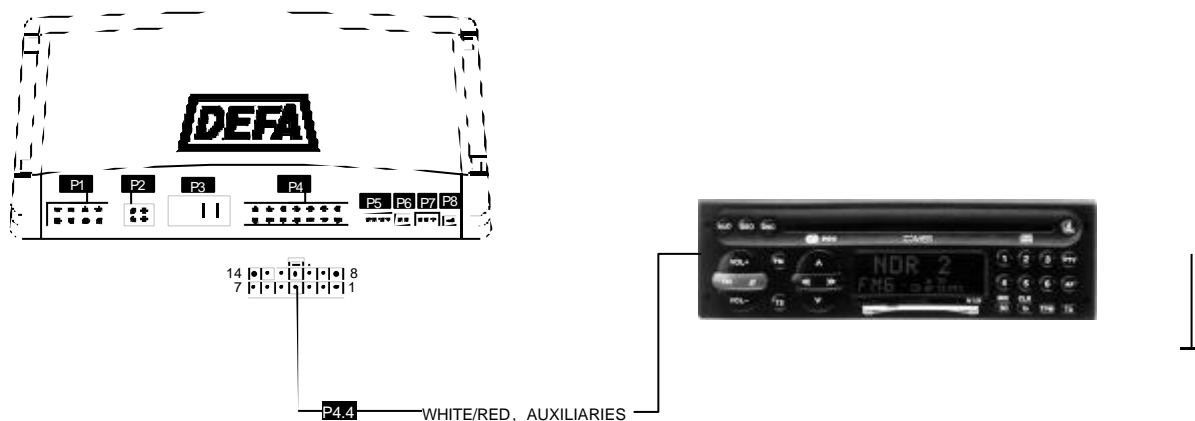
Start lock line-out, WHITE/GREEN wire (only applies to 821x and 401 models)

The other end of the control current wire (50) leading to the starter is connected to P-3.4 WHITE/GREEN wire. Maximum load: 30 Amp. The circuit is disconnected when the alarm is activated and when the alarm has no current supply.

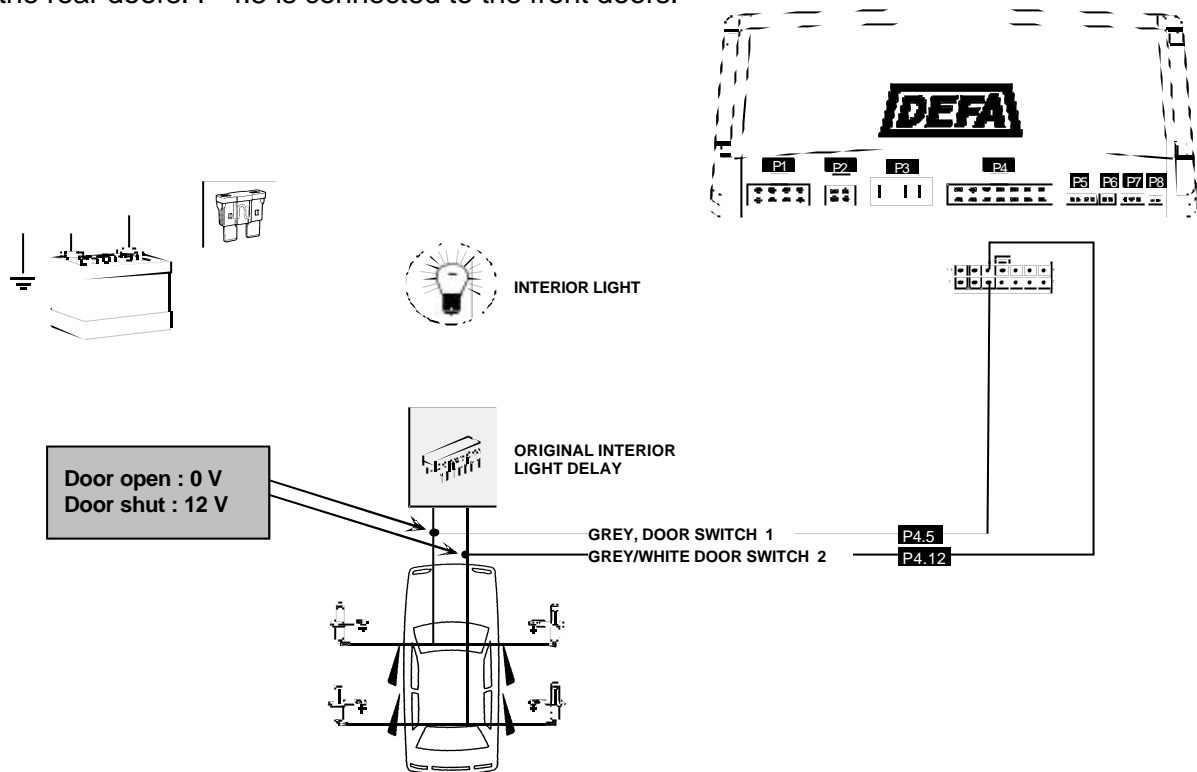
P-4.4

Auxiliary equipment, WHITE/RED wire

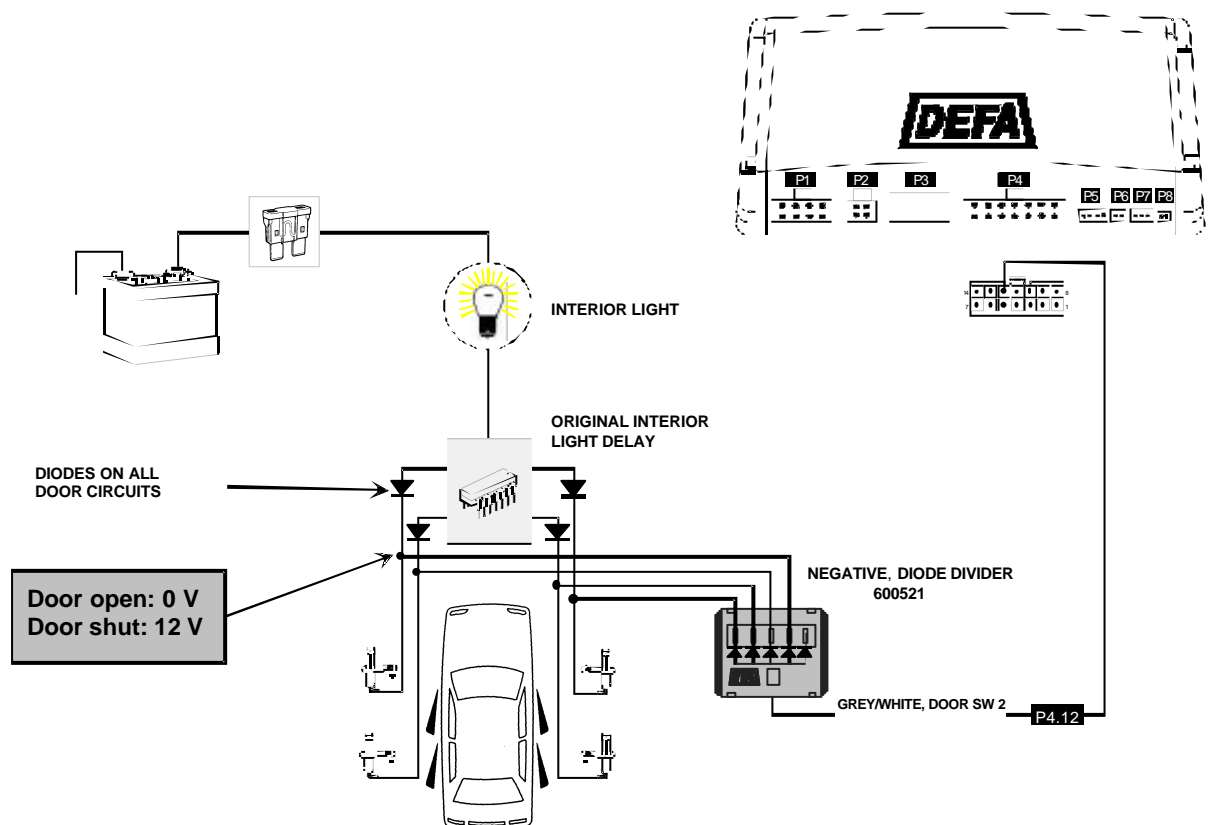
This alarm circuit protects integrated auxiliary equipment in the car such as radio/cassette players or similar equipment. The circuit is normally closed (NC) and triggers the alarm when interrupted.



Wiring diagram 2: 2 separate circuits for front and rear interior lights. P-4.12 is connected to the rear doors. P-4.5 is connected to the front doors.



Wiring diagram 3: 4 door switches in separate circuits, original interior light delay. Connected to P-4.12. Use DEFA Diode divider (E.g. Chrysler Stratus).



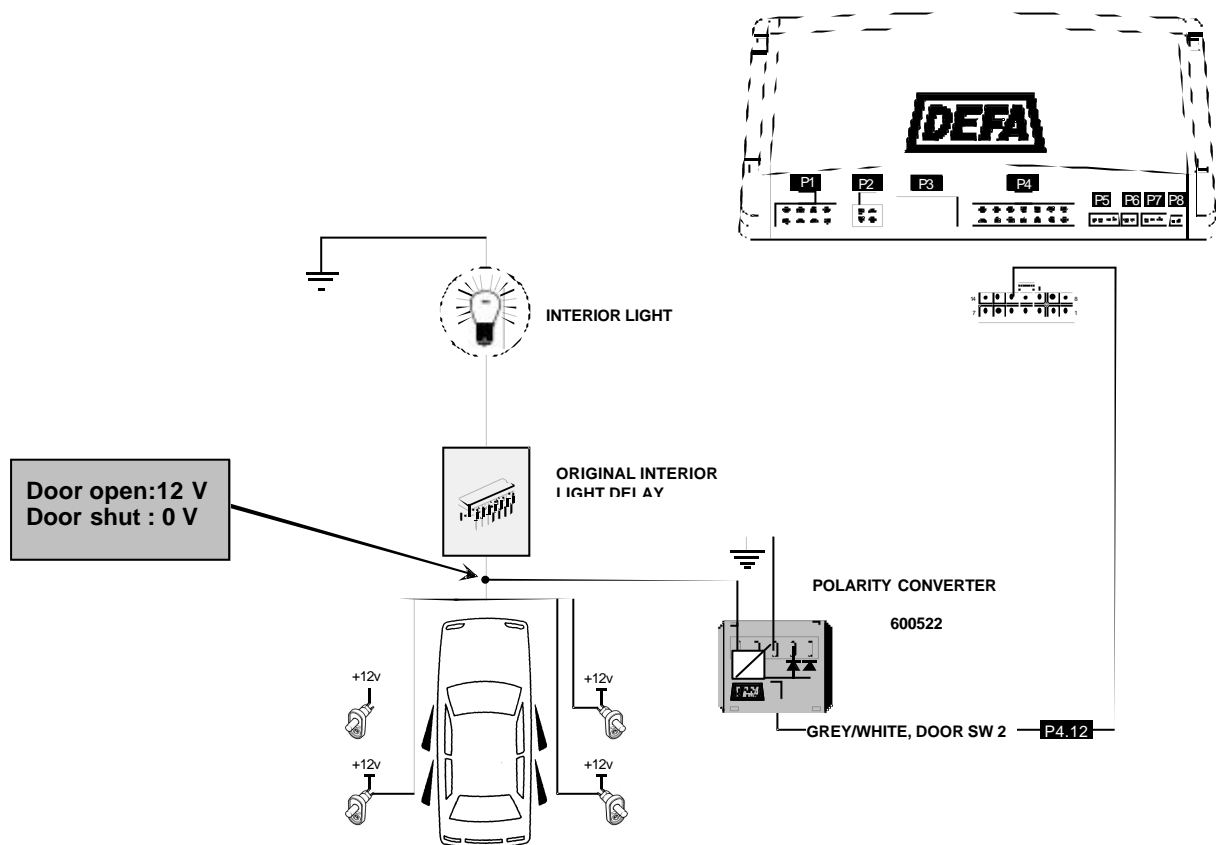
Wiring diagram 3 - comments:

Some cars are equipped with electronics that control interior lights, central locking etc. The electronic system have been designed in such a way that it minimises current consumption when the car is parked. The system normally monitors the door switches and registers any activity in these. If there has been no activity on the doors or other hatches for a set period of time, the electronic unit enters a «sleeping mode» (current saving function). In «sleeping mode» the system often induces a pulsating negative signal on the door circuit. **This signal will set off the alarm.** Bar diodes will have to be installed in series with the existing door circuit wires, in order to prevent this signal from setting off the alarm. As there is only two door inputs on the alarm, a diode divider will have to be used to keep the door circuits separate.



Make sure circuits are not connected together in such a way that the original functions of the car are disturbed when the alarm is installed. It may cause the current saving operation from functioning.

Wiring diagram: Positive door circuit. DEFA Polarity converter (example US Ford).



Wiring diagram 4 - comments:

Some cars are equipped with a positive door switch circuit (US Ford). The alarm has no direct input connection points for positive signals. A Polarity converter (Item nr. 600522) will therefore have to be used in order to switch the signal from positive to negative. The Polarity converter can also be used as a diode divider for two circuits.

3.8.1 Polarity converter

Description:

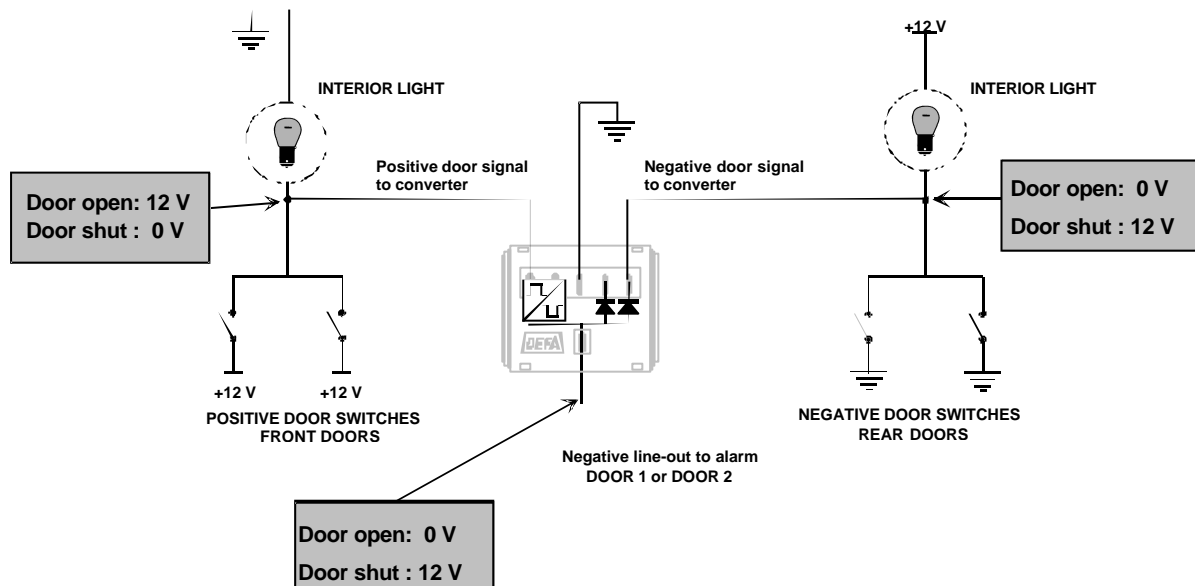
This unit has 2 positive line-in connections, 2 negative line-in connections and 1 common line-out connection.

Some cars are equipped with a positive door switch circuit (US Ford) The 400/800 series alarms have no direct input connection points for positive signals. A Polarity converter will therefore have to be used in order to switch the signal from positive to negative.



The Polarity converter can also be used as a diode divider for two circuits. Positive and negative input connections can be used at the same time.

POLARITY CONVERTER 600522



3.8.2 Bonnet switch

Description:

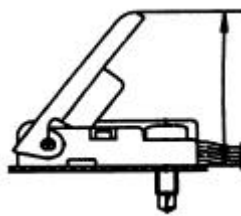
Most cars are not fitted with a bonnet switch Retrofit DEFA Bonnet switch The switch are well sealed and protected against water, salt solution, temperature and mechanical disturbances.



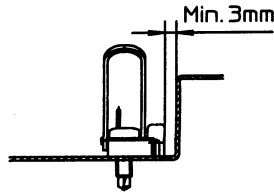
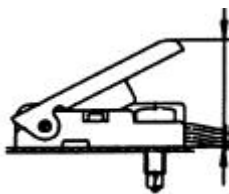
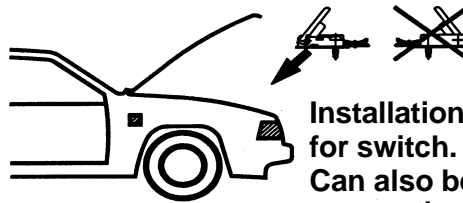
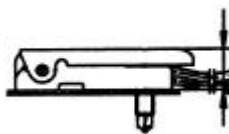
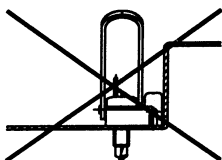
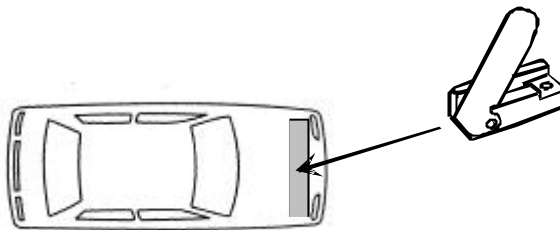
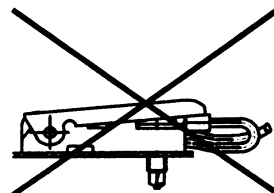
The switch has been designed for alarm signals only and can not be exposed to currents exceeding 50 mA Connection to other circuits such as the cars interior lights or other substantial load must be avoided.



DEFA Bonnet Switch 600523



Full height

Minimum distance
from metal edge to
switch is 3 mmContact at 22 mm
height when the
bonnet is openedInstallation direction
for switch.
Can also be installed
across the car directionMinimum height
10 mmDo NOT install the
switch close to
a metal edgeDo NOT install the
ground wire onto
the locking screw

Positioning:



The switch contains magnetic components Avoid using magnetic tools on installation Use the enclosed screw in stainless steel.

The switch may cease to function if exposed to a magnetic field After installation the magnetic influence will gradually be diverted and decrease through the car body After a few hours the switch usually is operational again.

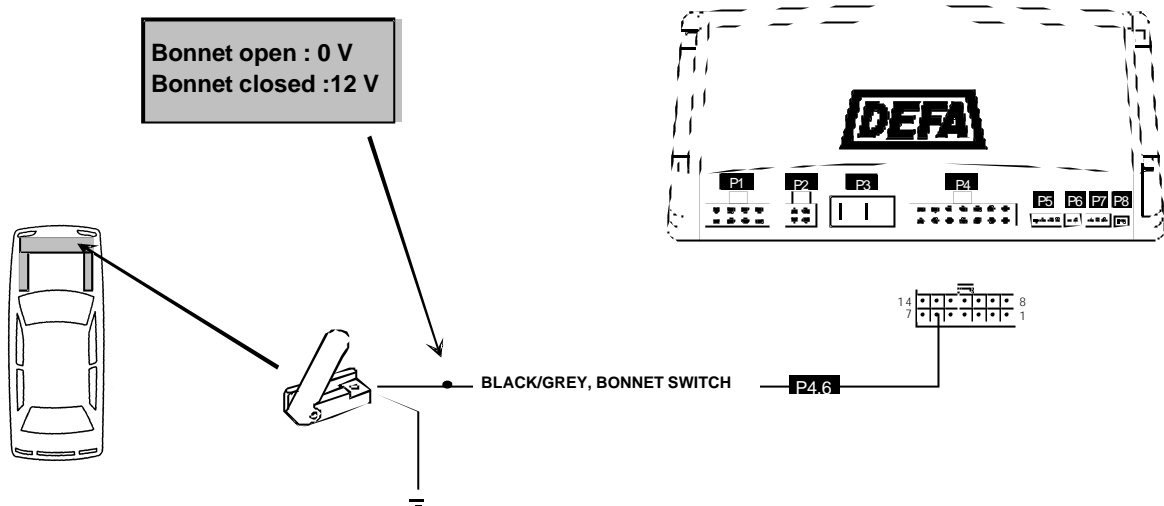
Avoid installing the switch at the limit of its operating height Check also the contact gap. As time passes soft materials have a tendency to be compressed and the distance between the two connection points is altered. For instance insulation attached underneath the bonnet. Avoid installing the switch with the gap facing towards the engine compartment, as this may restrict the switch lever from moving freely and mechanically destroy the switch.

P - 4.6

Bonnet switch, BLACK/GREY wire

This input is normally open (NO) and triggers the alarm when the bonnet is opened and connected to ground.

Wiring diagram 1: Standard connection.

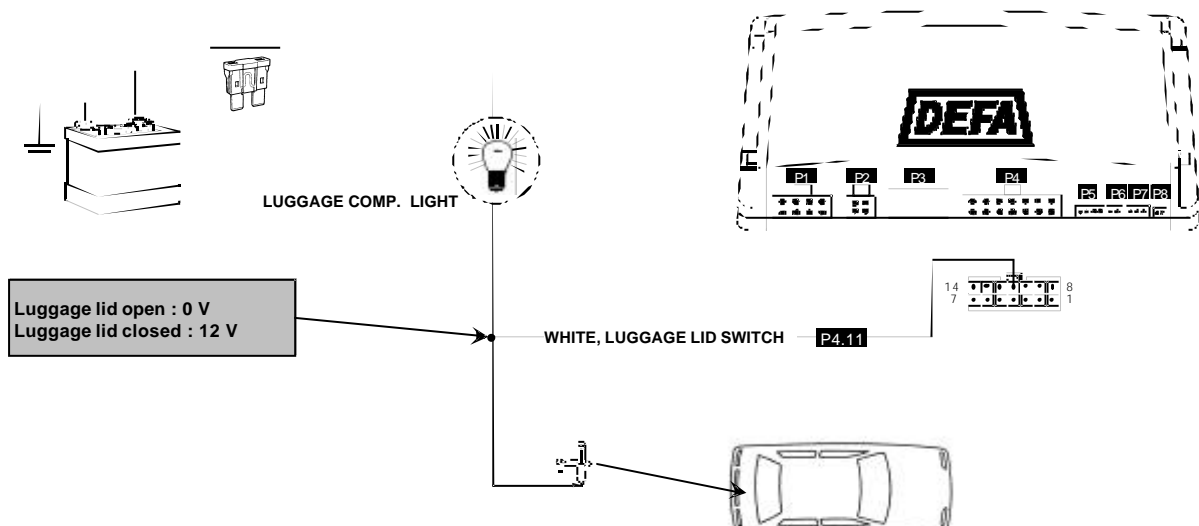


P - 4.11

Luggage compartment lid switch, WHITE wire

Connect to the normal luggage compartment lid switch if it is ground connected. If it is connected to positive, a DEFA Polarity converter must be used.

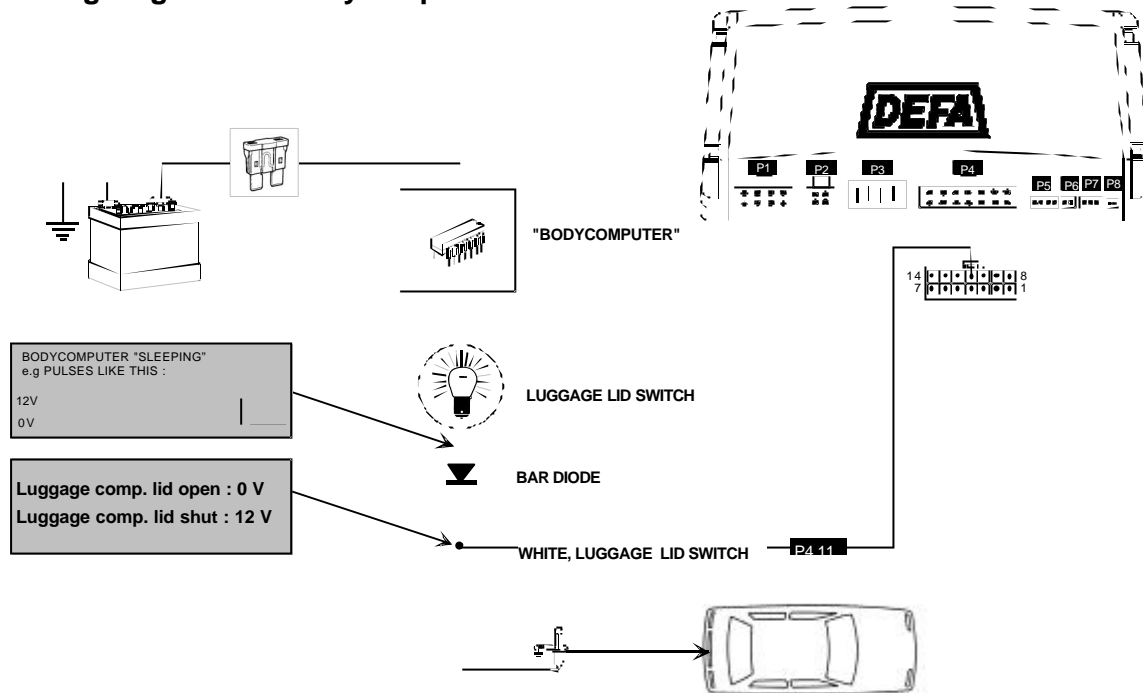
Wiring diagram 1: Standard connection.



Wiring diagram 1 - comments:

The luggage compartment light has a constant current supply when the ignition is turned off. The switch sends out a negative signal when the compartment lid is opened.

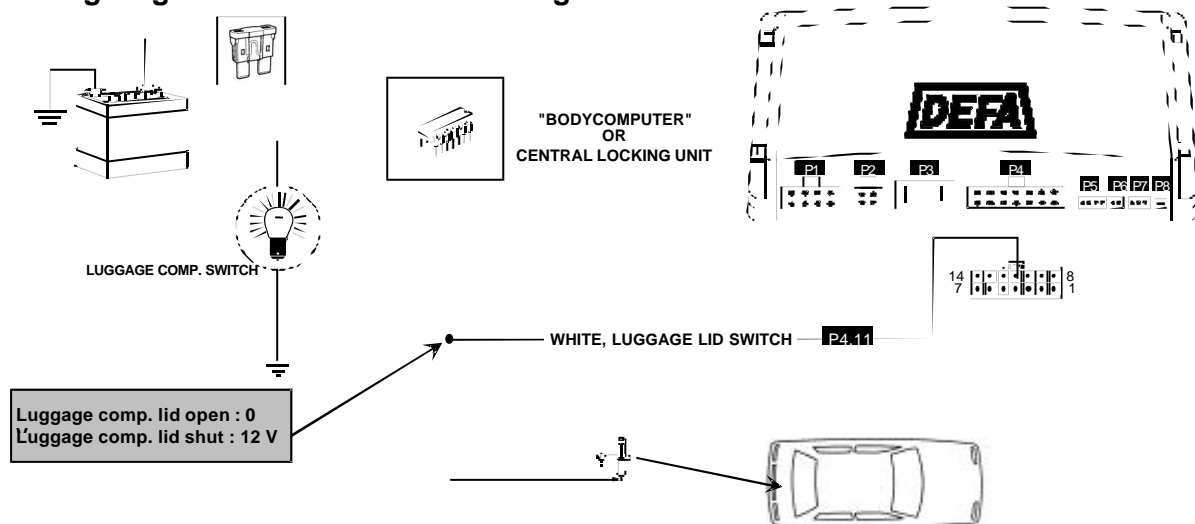
Wiring diagram 2: «Bodycomputer»



Wiring diagram 2 - comments:

If the current supply for the luggage compartment light is controlled from a «bodycomputer» through a current saving function, a bar diode will have to be installed in the circuit. This prevents signals (ground) from the car «bodycomputer» to get through to the switch and the alarm. If the current supply for the luggage compartment light is connected to the parking lights or the ignition, a bar diode will have to be installed in the circuit. This prevents ground signals «leaking» through to the switch. Otherwise the alarm will have no way of registering if the switch is ground connected and the luggage compartment will remain unsecured.

Wiring diagram 3: Positive control of lights



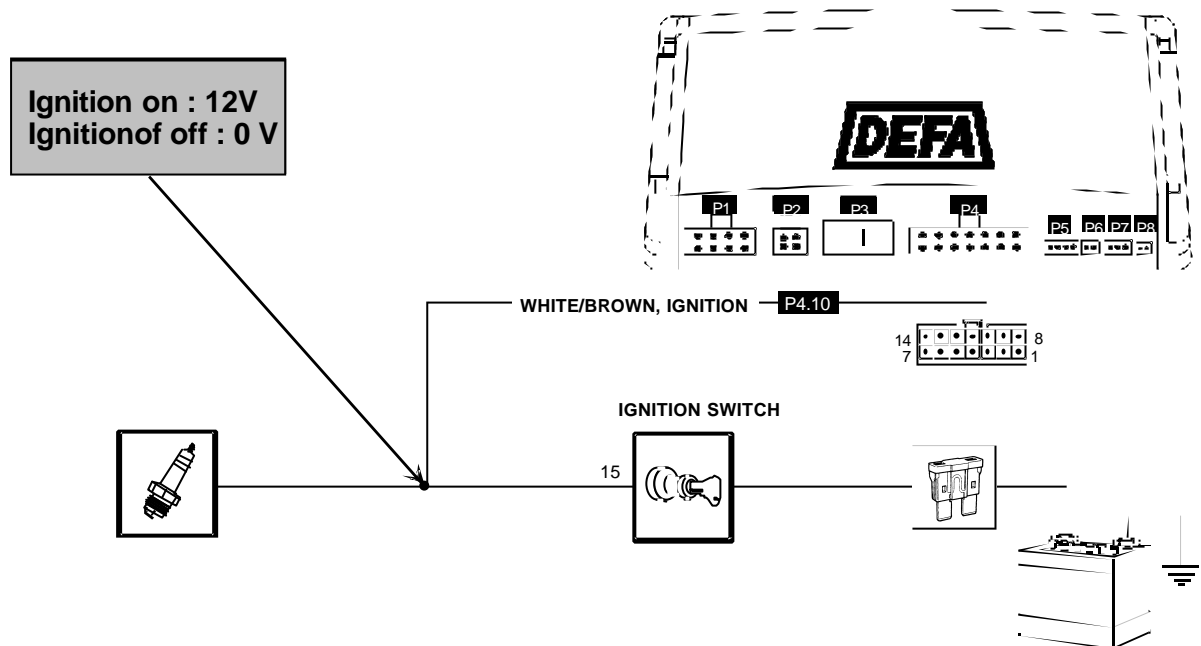
Wiring diagram 3 - comments:

Some cars have positive control of the luggage compartment light but the switch sends a negative signal (Example Audi A3 and A4).

Ignition signal, WHITE/BROWN wire

Connect wire to ignition output on ignition lock.

Connect to terminal 15 on the ignition lock (Ignition ON). May also be connected to ACC but this may cause problems. Some radios have a remnant voltage on the ACC after the ignition key has been removed from the ignition lock, making it impossible to activate the alarm before the electronics in the radio have emptied the remnant voltage (Capasitor). The alarm also uses the ignition signal in this cable for programming and emergency activation.



P - 4.7

Light Line-out 1, GREY/RED wire

To be connected directly to the right turn blinker circuit. Maximum load: 7,5 Amp (90W). Fused with an automatic circuit breaker.

P - 4.14

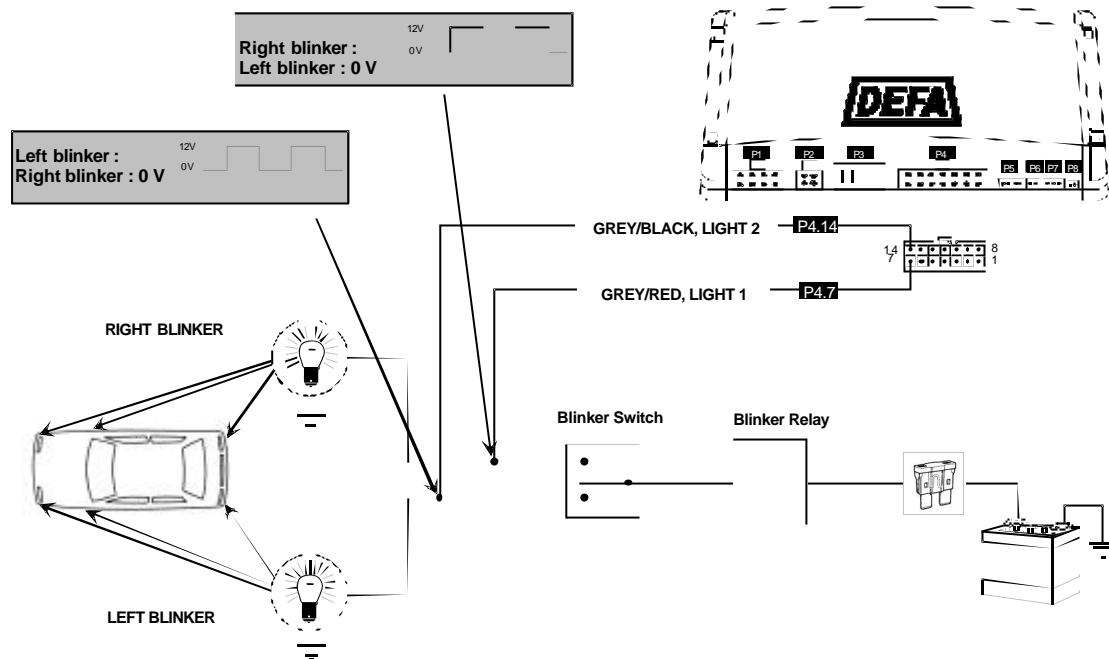
Light Line-out 2, GREY/BLACK wire

To be connected directly to the left turn blinker circuit. Maximum load: 7,5 Amp (90 W). Fused with an automatic circuit breaker.



The outputs are electronically protected against overload and short circuits, i.e. no fuses are destroyed if an overload or short circuit should occur. When the short circuit is removed the outputs will restore their normal functions..

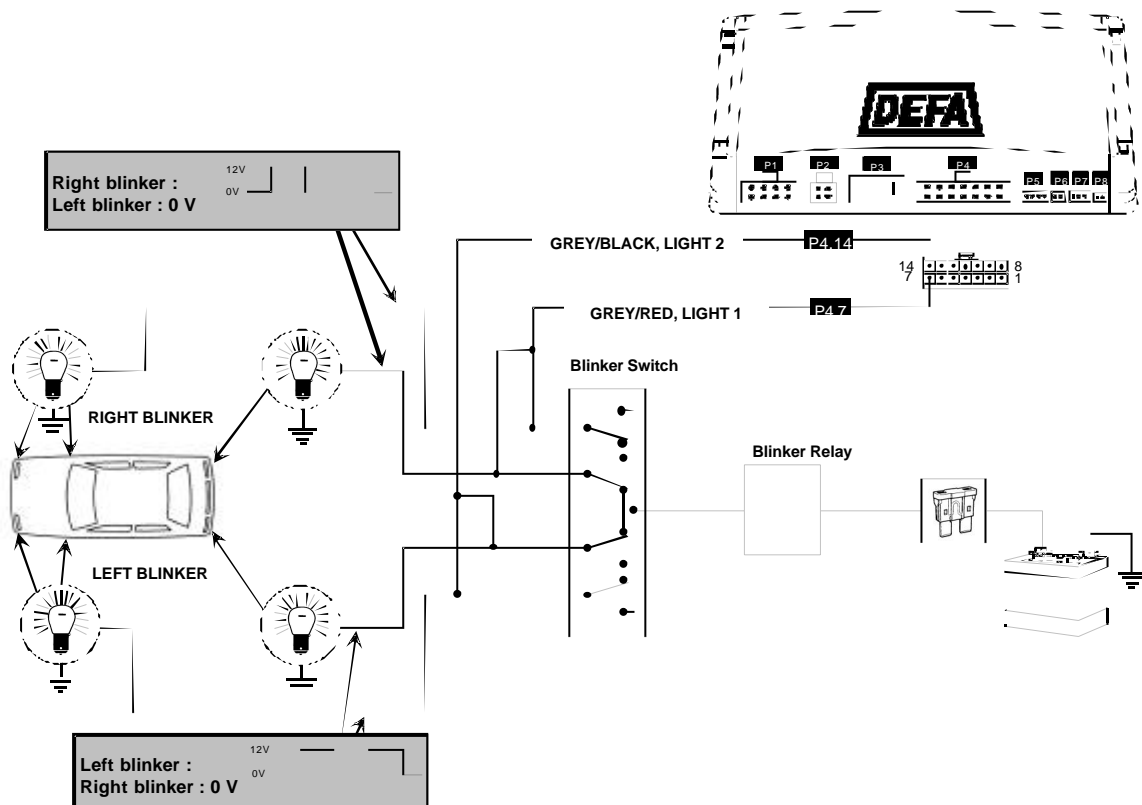
Wiring diagram 1: Standard connection.



Wiring diagram 1 - Comments

The diagram shows the most common blinker circuit. There are also cars where the original blinker relay is positioned between the blinker switch and the lights. In this case a connection will have to be made between the original blinker relay and the blinkers.

Wiring diagram 2: Separate blinker circuits (American cars).



Wiring diagram 2 – comments:

Most American cars are equipped with this type of blinker circuit where the front and rear circuits are separate. Rear blinkers and stop light are to be found in the same light. When using this system every blinker must be connected through separate wires. In order to connect all blinkers to the alarm, the front and rear wires on both sides have to be interconnected. These connections should be made at the blinker switch outputs.

3.9 INSTALLING THE STANDARD SIREN 400/800 SERIES

Description:

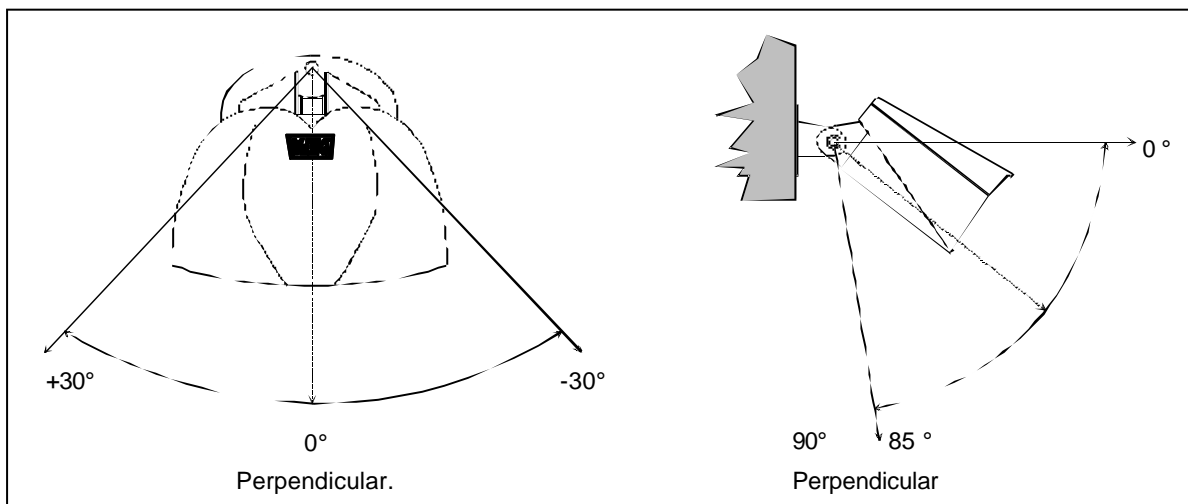
The siren consists of a 30 W speaker only and there are no electronics installed in the siren housing. All necessary electronics for operation of the siren have been installed in the central unit. Two siren wires are therefore all that needs to be connected to the central unit.



Positioning:

Positioning of the siren should be as protected as possible in order to avoid mud spray and heat from exhaust pipes or turbo charger. Minimum distance is 30 cm. The siren must not be accessible from the underside of the car.

ASSEMBLY ANGLES FOR SIREN



Connecting:

P - 4.8

Siren

Output to loudspeaker siren.

Connect the two siren wires to P-4.8 and P-4.9.

P - 4.9

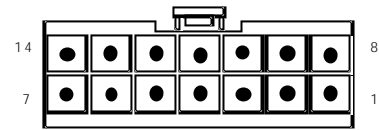
Siren

Output to loudspeaker siren.

Connect the two siren wires to P-4.8 and P-4.9.

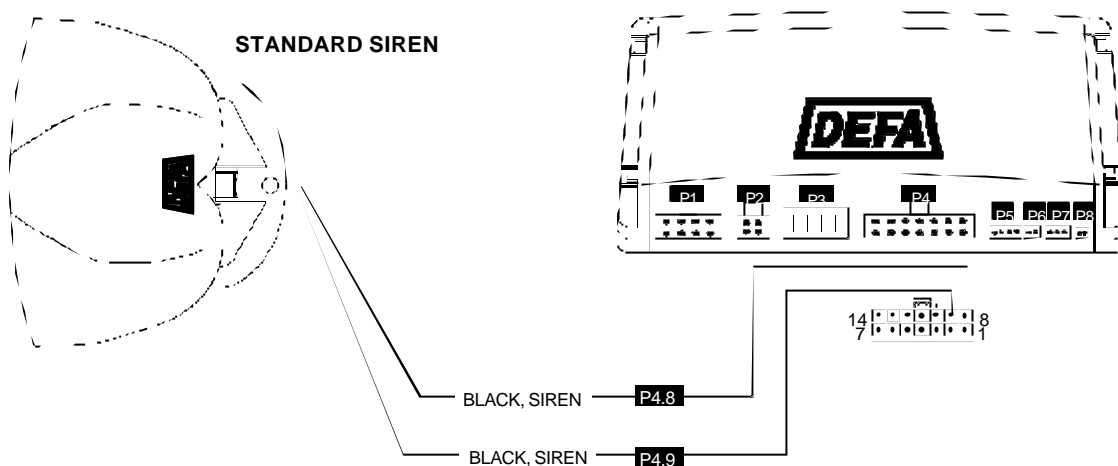
The plug at the wire-ends of the siren has been removed in order to provide easier access from the engine compartment to the car interior.

1. After insertion the wires are attached to P4 at connection pins 8 and 9.



HOUSING FOR P4

2. The plug is attached to the P4 socket in the 400/800 Central unit.



The wires from the siren are not polarised and it is therefore irrelevant which wire is connected in connection points 8 and 9.

3.10 INSTALLING THE BACKUP ALARM 400/800 SERIES

Description :

The Back-up Alarm siren is equipped with the same functions as the DEFA standard siren, but is also protected against sabotage against the cars alarm or power supply. The Backup Alarm is activated together with a 30 second long acoustic alarm if:

1. One of the Backup Alarm wires are cut or disconnected.
2. The Central unit is disconnected.
3. The power supply from the car battery is lost.

After one alarm sequence has been triggered, the shock sensor is activated and triggers up to 10 new alarm sequences lasting 30 seconds, if the car is exposed to shocks or vibrations.

The Backup Alarm has built in batteries charged through the electrical system of the car.



If for some reason the battery or the Backup Alarm needs to be disconnected from the Central unit this must be done when the alarm is deactivated (turned OFF), otherwise the alarm will be triggered.

The Backup Alarm is not triggered by gradual loss of battery power, for instance if the car is left with the headlights on.

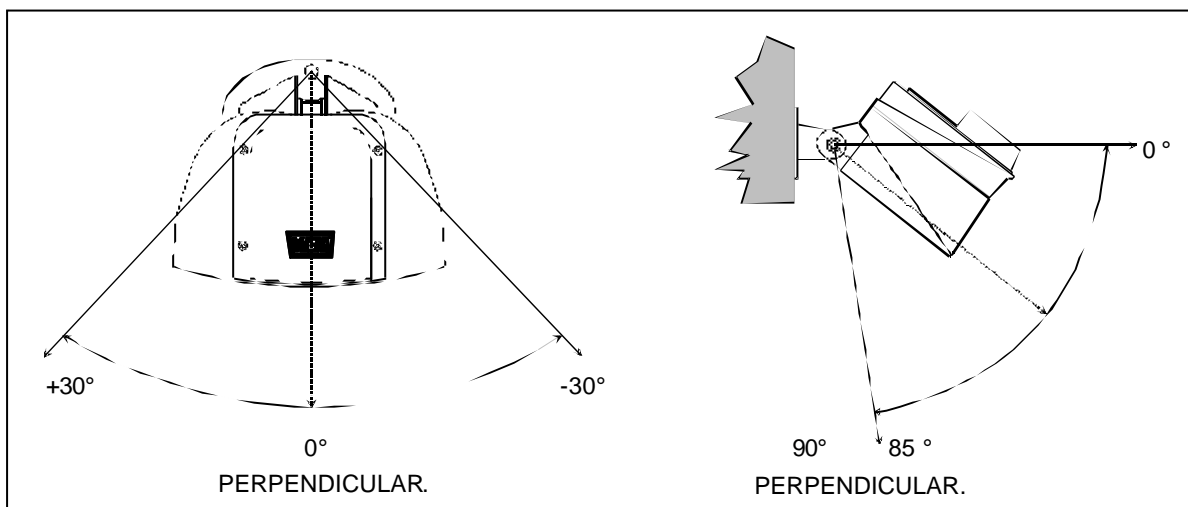
The battery package is replaceable and is situated in the lid. The batteries are charged with 17 mA when the alarm is deactivated and 10 mA when the alarm is activated. The Backup Alarm is equipped with a separate charge regulator.

Positioning:

Attach the Backup Alarm with screws directly to the car body in the engine compartment. Positioning of the Backup Alarm should be as protected as possible in order to avoid mud spray and heat from exhaust pipes or turbo charger. Minimum distance is 30 cm. The Backup Alarm must not be accessible from underneath the car.

Attach the Backup Alarm within these angles:

ASSEMBLY ANGLES FOR BACKUP ALARM



P-2 Multiplug

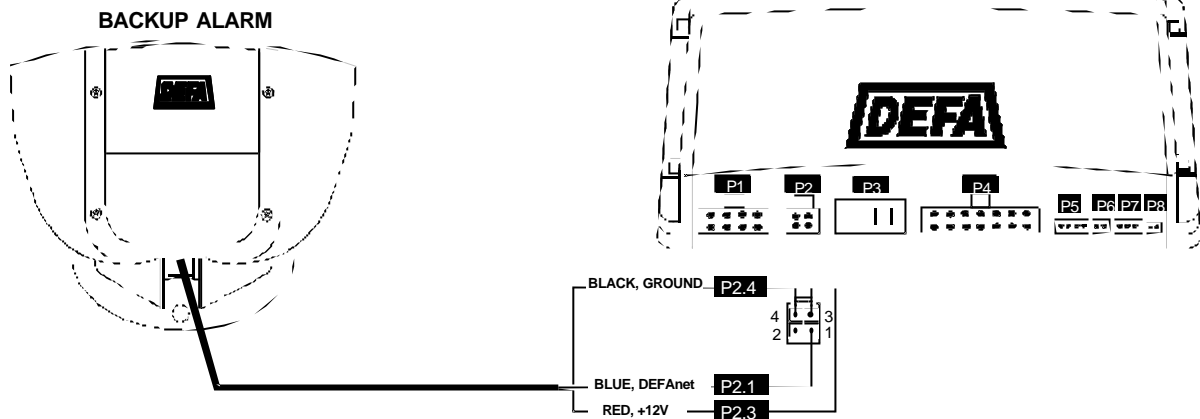
Multiplug, Back-up Alarm, Immobiliser and Pager (auxiliary equipment)

This is the connection for auxiliary equipment such as the DEFA Back-up Alarm, the DEFA Immobiliser module and Pager (remote warning). Cf. separate assembly instructions.

Connecting:

The plug at the wire-end of the Backup Alarm has been removed in order to provide easier access from the engine compartment to the car interior.

1. After insertion the wires are attached to P2 at connection pins 1, 3 and 4.
2. The plug is attached to the P2 socket in the 400/800 Central unit.



The Backup Alarm includes a 7,2 volt NiCd battery package which needs to be charged before it is put into use. The Backup Alarm needs to be installed for 24 hours before it can be tested. Testing the backup function of the Backup Alarm before the batteries are fully charged may result in reduced battery life.

3.11 INSTALLING THE GLASS BREAKAGE SENSOR 400/800 SERIES

Description:

The Glass breakage sensor detects the sound «picture» of the interior. The sensor unit consist of a sensitive «electret» microphone capsule. The microphone signal is interpreted through electronic filters and the sound «picture» is analysed by the Central unit. The sensor interprets signals at two different levels:

1. The «Watch Dog» function detects blows against the windows when they are not broken. The siren and blinkers give three signals (Scare function for burglar attempts)
2. The Glass breakage function detects the sound of glass breaking. Breaking windows will trigger an alarm sequence immediately.

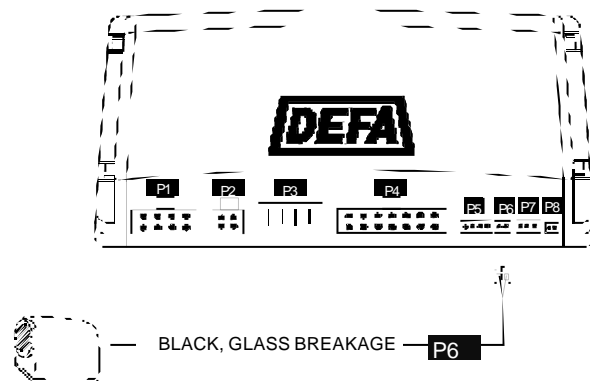
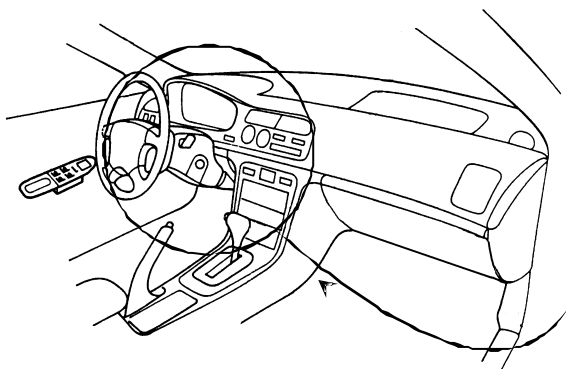


Positioning:

Attach the Glass breakage sensor with double-sided adhesive tape. Clean the installation surface with a grease dissolving agent.



Chemicals like TRI, Acetone, Brake-Clean etc. will damage PVC and plastic. Careful use of ACRYSQL is recommended. The Glass breakage sensor should be installed on the centre console and as low in the car as possible. This will ensure the best coverage of all windows.





The Glass breakage sensor should not be installed along the sides of the dashboard, as this might cause the sensor to detect windows breaking only at the front door where it is installed.

Test:

The sensor can be tested by applying a relatively hard blow to the windows with the side of a coin. The «watch Dog» function will then be triggered.

Connecting:

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 sensor triggers the alarm.

3.12 INSTALLING THE MICROWAVE SENSOR 400/800 SERIES

Description:

The sensor transmits very weak radio signals in the microwave area at a frequency of 2,45 GHz. Reflections from the transmitted signal are detected by the sensor. Immobile objects give reflections that are ignored by the sensor while moving objects are detected immediately by the receiving element (Doppler effect). This means the sensor will trigger an alarm as soon as there is enough movement within the reach of its receiving circuits...



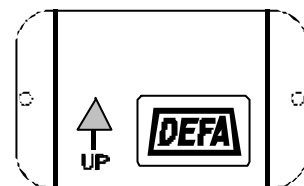
The sensitivity of the sensor can be electronically adjusted within the levels 1 to 8. (cf. section on adjustment and programming)



The adjustment only changes the sensitivity of the receiving circuits and not the strength of the transmitted microwave signal !

Positioning:

1. Is preferably placed in the ceiling ca 40 cm away from the windscreen in the middle of the car behind the roof lining. When fitted in the ceiling the left sun visor and the upholstery on the A-pillar must be removed. The wire is placed under the roof lining along the upper edge of the windscreen and in a cable guide along the A-pillar.. The sensor is attached with double sided adhesive tape against the steel plate of the roof or on the inside of the roof lining. Make sure the sensor is fitted so that the mark UP is visible and pointing to the rear of the compartment.
2. The sensor can also be placed on the B-pillar. Make sure the front is facing the receiving area and is pointing approx. 45 degrees downwards.
3. If, for some reason, it is not possible to fit the sensor in the roof it may be placed in the **centre console**. When fitted in the front part of the console the sensor should be placed vertically (standing up), the DEFA logo facing the receiving area and | pointing upwards. If the sensor is fitted further back in the centre console (behind the back rests of the front seat) the front of the sensor must be facing the dash board. | shall point upwards.



! *The sensor can be fitted behind a plastic cover but never behind metal as this will interfere with the waves from the sensor. Note that some cars have a thin metal film in the roof lining. Loose objects such as keys, coins, etc. may activate the alarm if they are closer than approx. 25 cm from the sensor.*

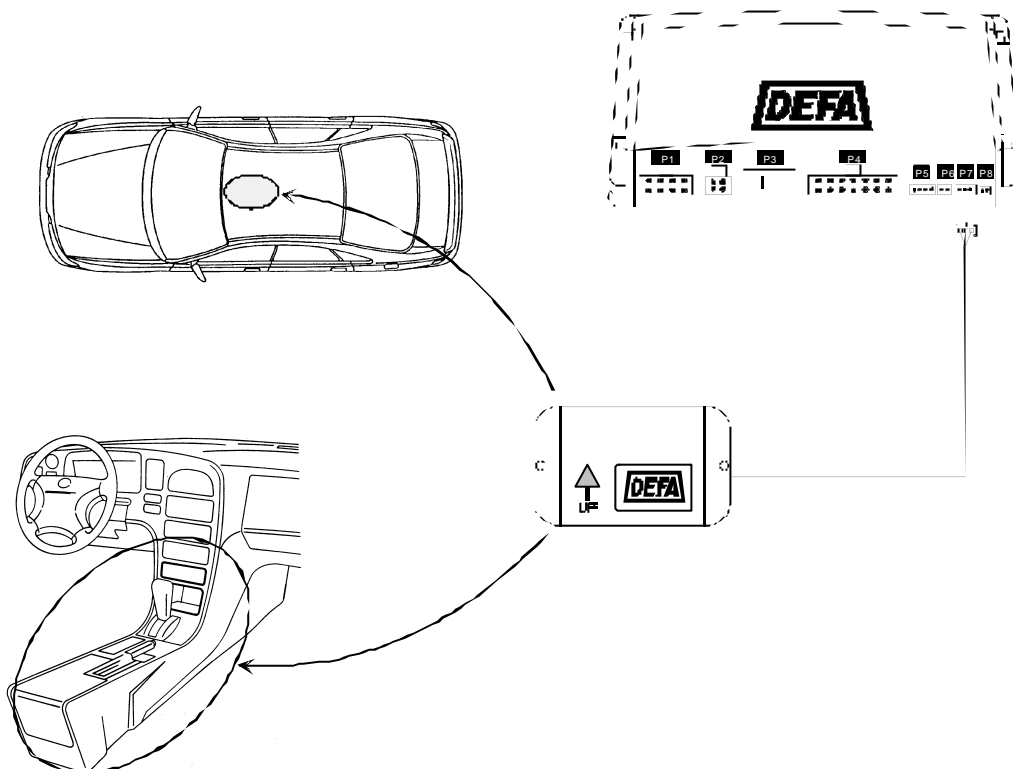
Connection:

P-7

Plug for Microwave sensor

Microwave sensor is connected to P7.

! *Surplus wire is fastened in long loops. If the wire has a small kink this may, on rare occasions, cause interference. Depending on interference conditions it may in some cars lead to a false alarm. If there is surplus wire, fasten it in long loops.*



Sensitivity test:

The microwave sensor registers movement in the interior of the car. **The following movements inside the car shall trigger an alarm.:**

1. Put a hand through a front side window and down to the middle of the front seat and back out again within a time frame of 5 seconds.
2. Make sure that movement close to the outside of the windows does not trigger an alarm.

Adjustment:

For adjustment of the sensitivity of the microwave sensor see the section regarding programming the alarm.

3.13 INSTALLING the LED 400/800 series

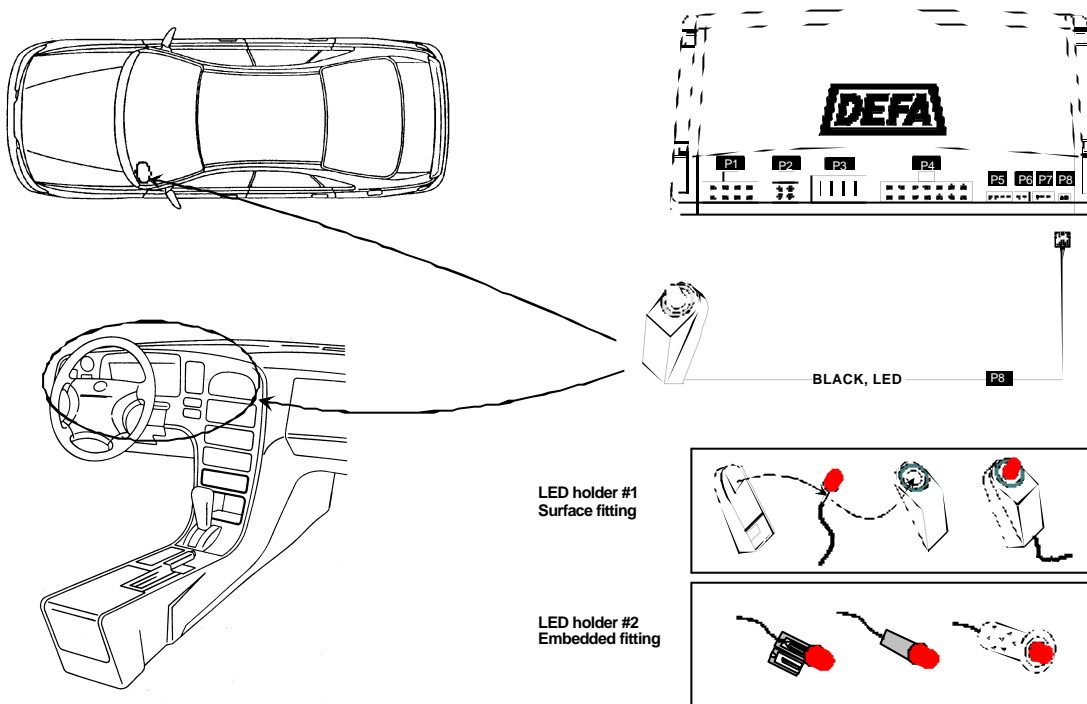
Description:

The light diode flashes with a red light. The various light signals give the user information on activation and deactivation, when the alarm has been triggered and when programming the system. When the alarm is activated the diode flashes with a frequency of twice a second. When the alarm is activated the diode will glow continuously for about 20 seconds and then start to flash. If the system is activated while the microwave sensor has been temporarily disconnected the diode will flash immediately after the activation has taken place.



Positioning:

The light diode is delivered with two different mounting brackets. Bracket 1 is for surface mounting and number 2 is for fitting in the console. (See drawing for bracket assembly)



1 The LED is attached to the lower left corner of the wind screen. Clean the glass thoroughly using a window cleaning detergent. Use the enclosed black alarm decal and attach the bracket to this in such a way that only the diode indicator light can be seen from the outside. Use the enclosed double sided adhesive tape. When fitted in this fashion the light diode can be well seen from all sides of the vehicle.

2 The light diode fitted in the dashboard of the car. It is important that the diode is fitted where it is well visible from the outside regardless on which side of the vehicle you are standing.



Do not drill holes in the dashboard without seeking the owners approval.

When built in, drill holes as follows:

Metal plate	Plastic material	Padding
8,0 mm	7,5 mm	7,0 mm

Connecting:

P-8

Plug for LED

3.14 INSTALLING THE PROGRAMMING PANEL 400 SERIES

Description:

The 400 series is not using DEFA Remote control. The programming panel is partly a substitute for the switch functions on the remote control. The panel has two buttons A and B. The buttons are easy to separate from each other as the A- button has a marked elevation and the B-button a corresponding recess. The panel is used for programming the 400-alarms and for temporary disconnection of sensors.



Positioning:

If required the programming panel can be hidden but should be readily accessible to be fitted to the dashboard, centre console or in the glove compartment. Use the enclosed adhesive tape. Clean the surfaces thoroughly. Careful use of Acrysol is recommended.

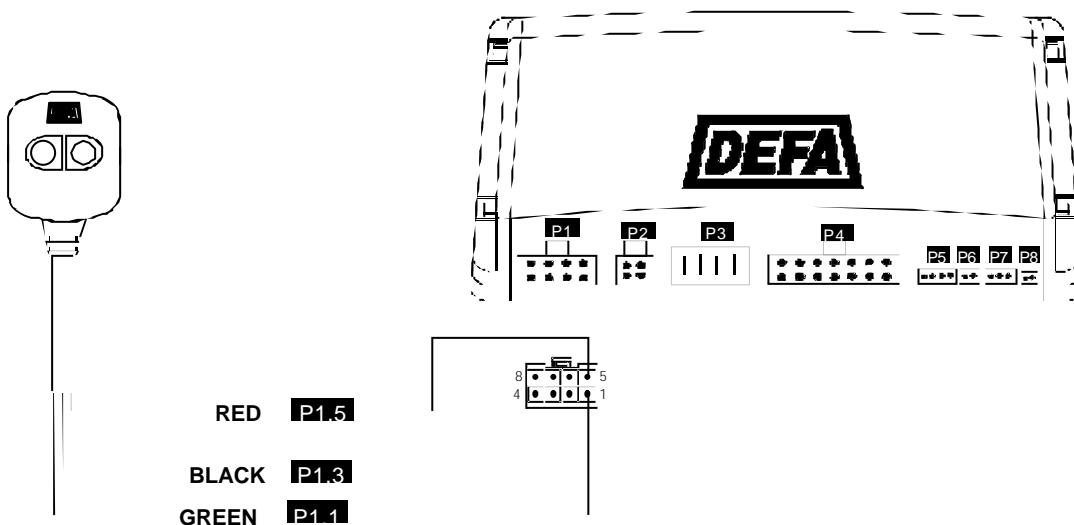
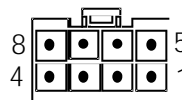
Connecting:

P-1 [400]

Control signals- Programming panel

The three wires with attachment from the Programming panel are connected to the P1 plug housing:

Red wire Pin 5
Black wire Pin 3
Green wire Pin 1



3.15 INSTALLING AUXILIARY / COMFORT FUNCTIONS 800 SERIES

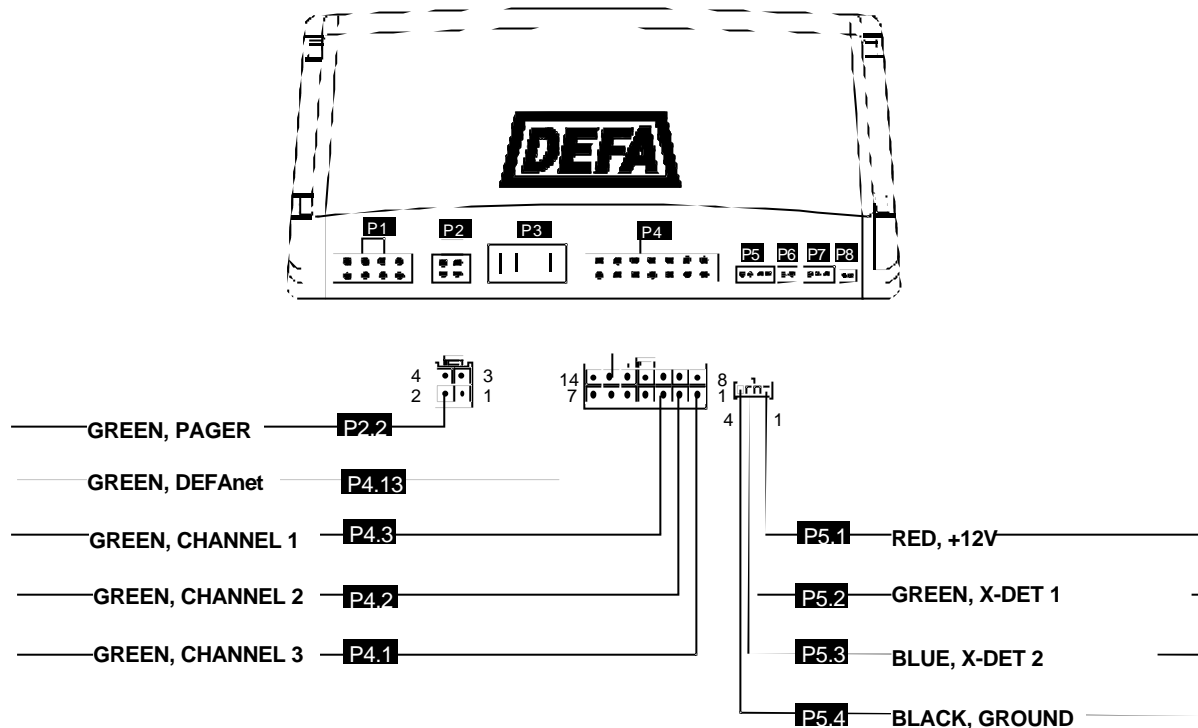
Description:

In addition to alarm functions the 800 series alarms can also guide a pager and activate 3 different out lines controlling comfort functions.



The wiring for these comfort lines is not included in the original kit but can be ordered separately.

Main chart: Auxiliary functions/comfort functions, directly controlled by the alarm Central Unit.



P-2.2

Multiplug, Backup Alarm, Immobiliser and Pager (additional equipment)

This is the connection for additional equipment such as DEFA Backup Alarm, DEFA Immobiliser and **Pager (remote warning)**.

Description:

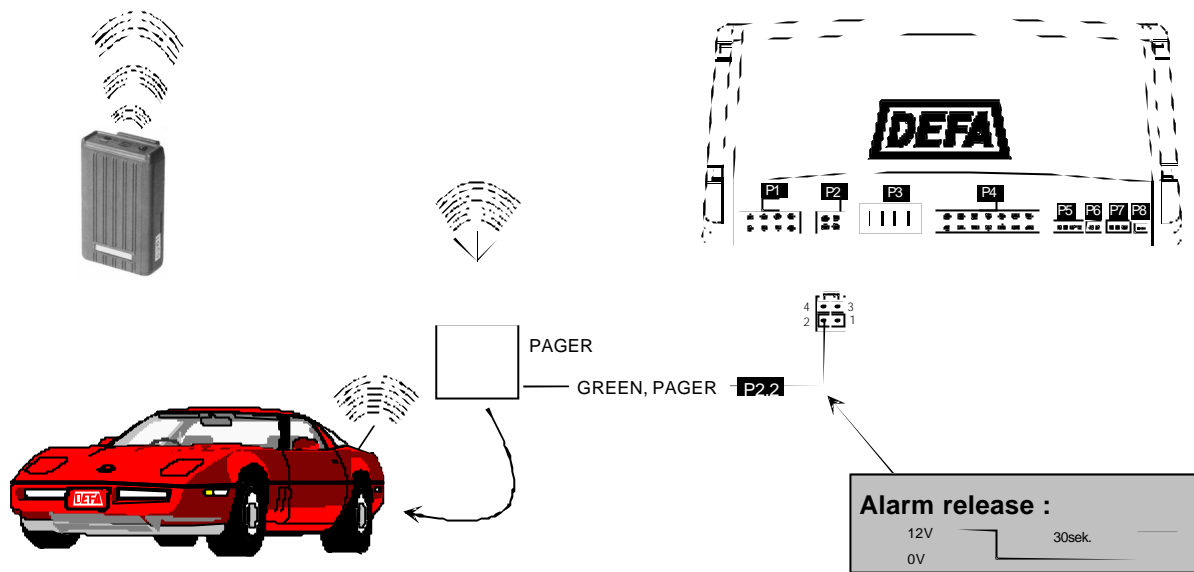
The Pager is used for remote warning. The signal is normally open (NO), but connects to minus (ground) when the siren is active. (30 sec.)

Maximum load for the line is 350 mA. The line out is protected against overload but can not carry heavier load than prescribed. If the line is going to control modules requiring more than 350 mA, an additional relay must be fitted.



Pager equipment is not included in DEFA's product portfolio. Such equipment can be delivered through a retailer in communication equipment.

Wiring diagram : Connecting Pager equipment.



P-4.1

Channel 3

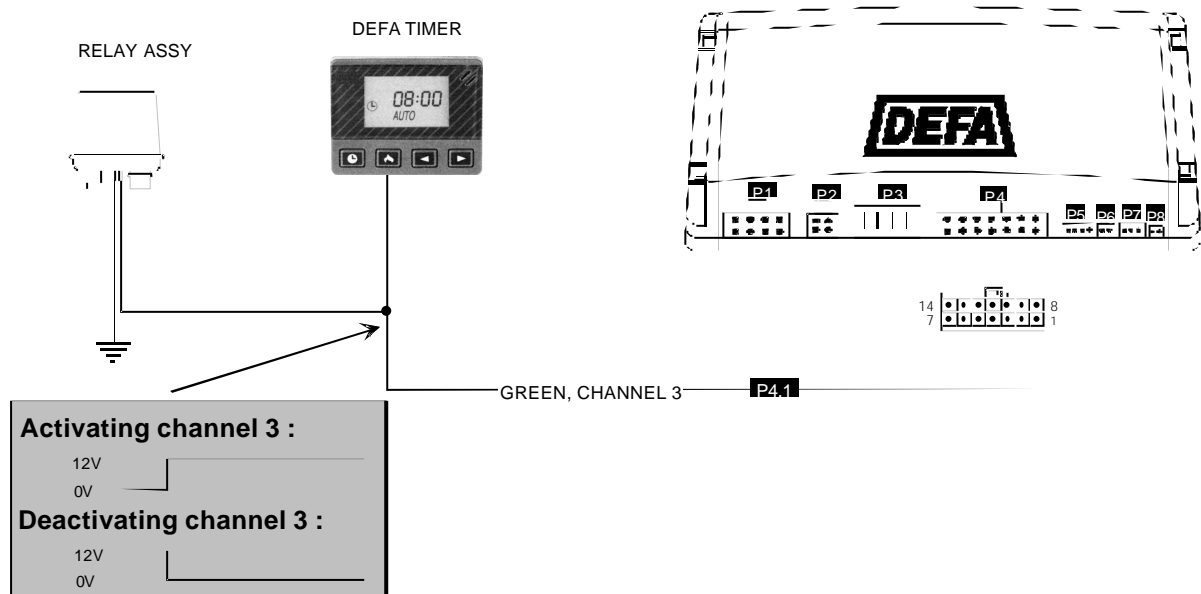
Line out for remote control of DEFA car heating system.

Description:

Channel 3 is used to remote control DEFA car heating system. When activated the line delivers +12V until the function is disconnected again. Maximum load 350 mA. The line is protected against overload. Use an additional relay at higher load.

The line is activated by a long press on button A. deactivated by a long press on button B and when the ignition is switched on. Works only with remote control with slide switch in position 3. (see chapter 3.7)

Wiring diagram : Remote control of DEFA car heating.



P-4.2

Channel 2

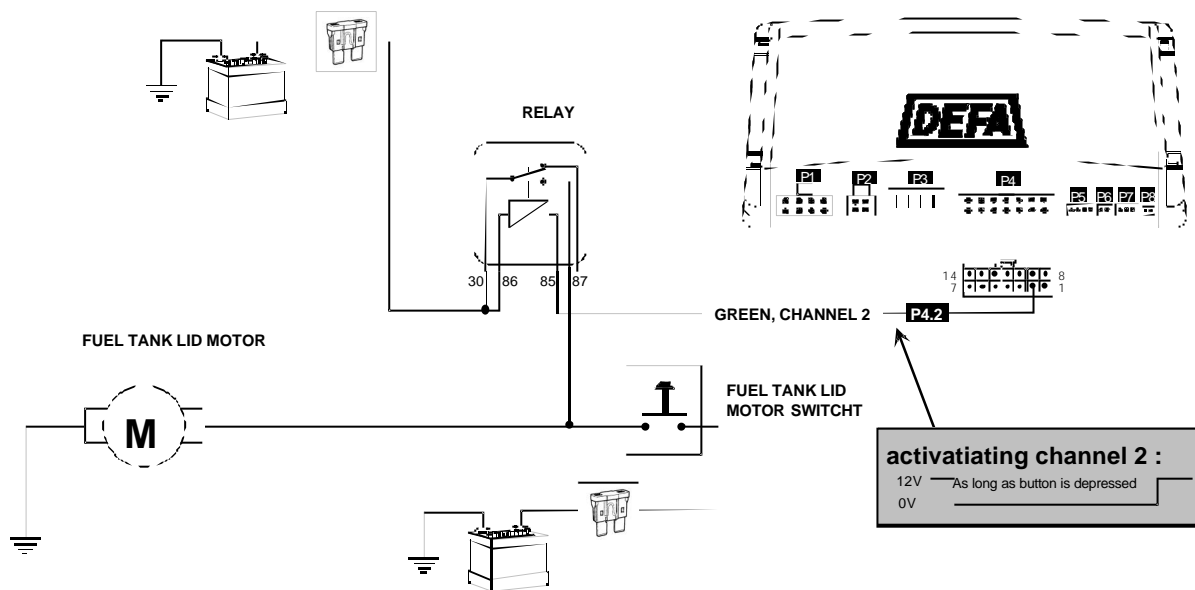
When activated the line is grounded as long as the button is pressed in. Optional use.

Description:

Channel 2, negative (ground) relay control 350mA. The line is activated by a long press on the A-button and remains activated as long as the button is pressed in.. **Works only with remote control 3:1 with slide switch in position 2.**

Is intended for remote control of for instance electrical fuel tank lid opener.. Max. load 350 mA. The line is protected against overload. Use an additional relay at higher loads.

Wiring diagram : Channel 2 applied for control of electrical fuel tank lid.



P-4.3

Channel 1

Line out for electrical luggage compartment opener.

Description:

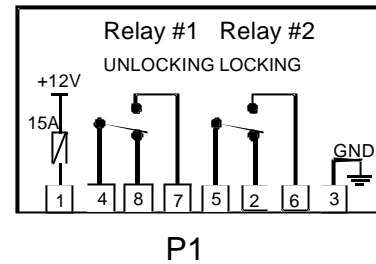
Channel 1, negative (ground) relay control 350mA. The line is activated by a long press on the B-button, remains activated 1 sec. **Works only with remote control 3:1 with slide switch in position 2.** This line operates only when the alarm is deactivated.

Is intended for remote control of electrical luggage compartment opener. Maximum load 350 mA. The line is protected against overload. Use an additional relay at higher loads than prescribed.

3.16 INSTALLATION OF CENTRAL LOCKING CONNECTION 800 SERIES

Description:

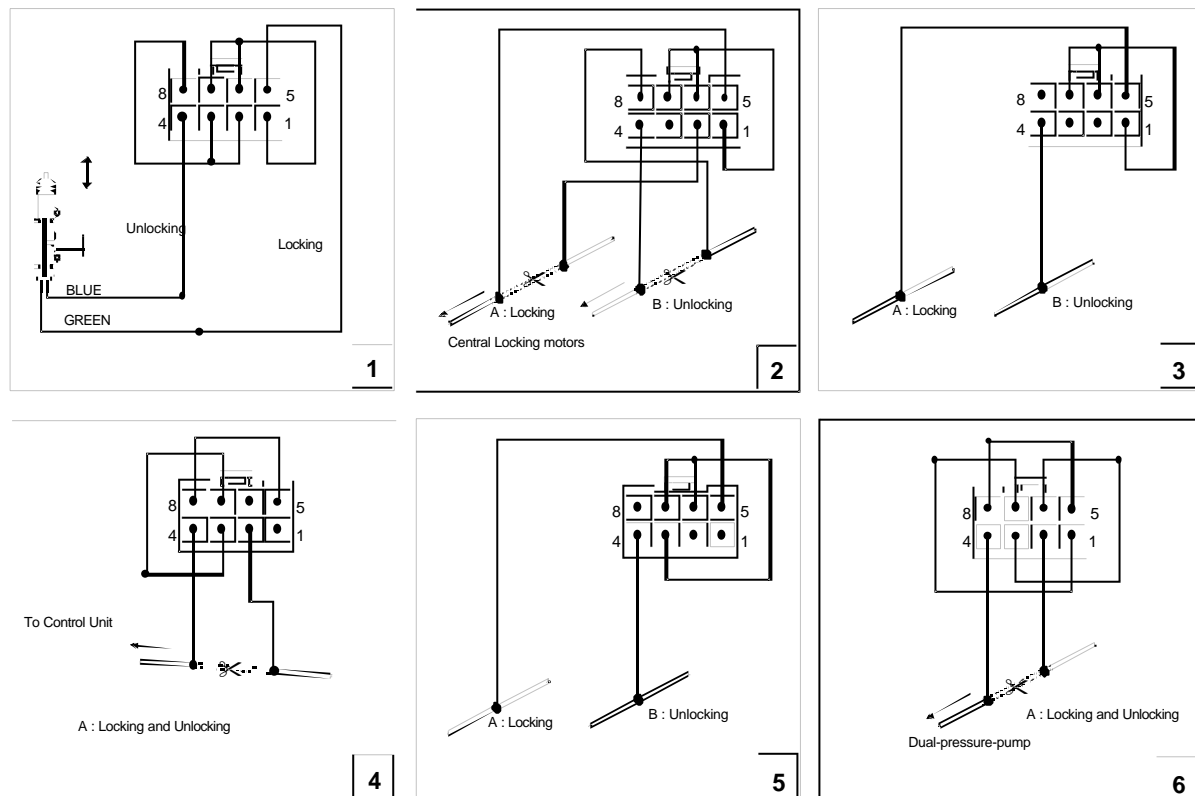
Double relay function in the 800 series central unit. Activation of relay #2 is performed through short presses on the A-button. (lock) and relay #1 by short presses on the B-button (unlock). Power supply is fused with an automatic circuit breaker (15A). The colour coding of the P1 plug wires is identical to previous coding. This means that the earlier central locking list composed to connect DEFA SPECTRA and DEFA CAR ALARM 300/500/700 can be used for all models.



Connection:

Main diagram for 6 basic connections referred to as diagram 1-6.

Central locking connections- 800 series



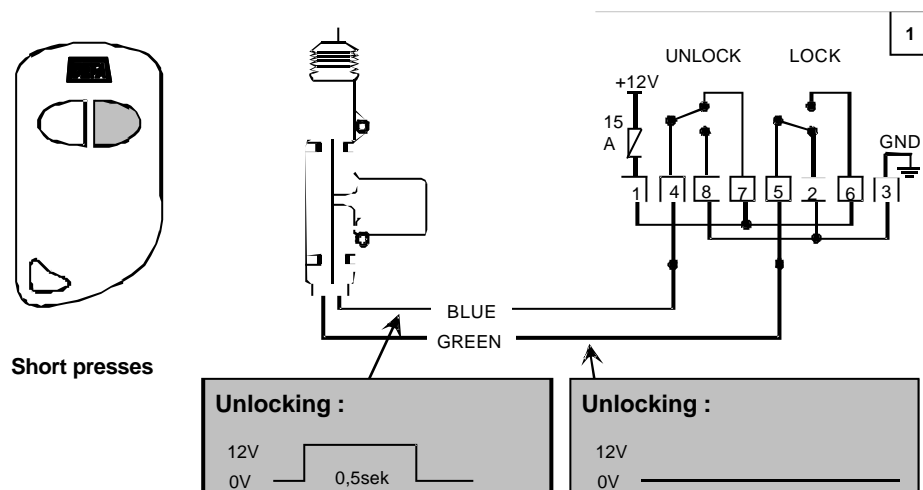
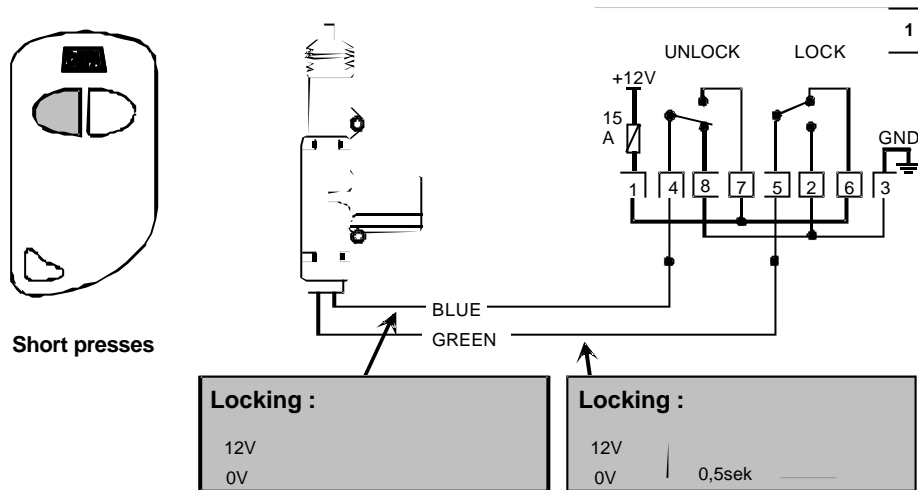
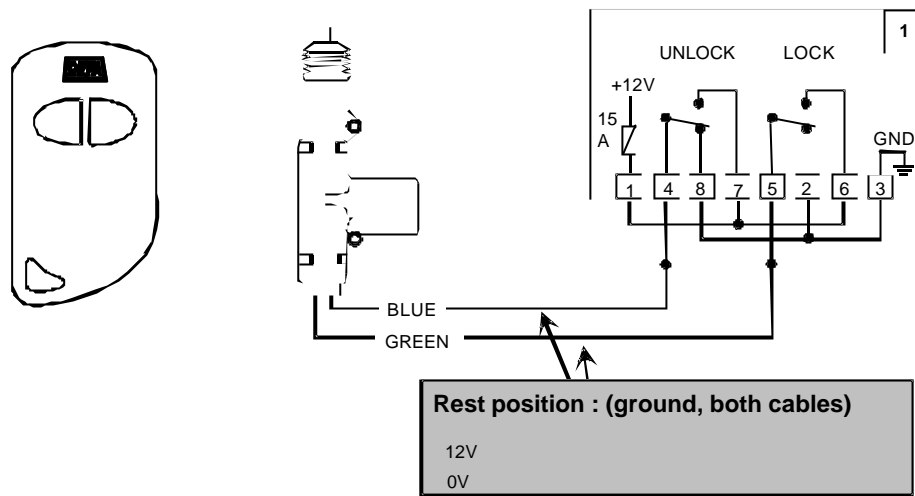
Connection:

P-1

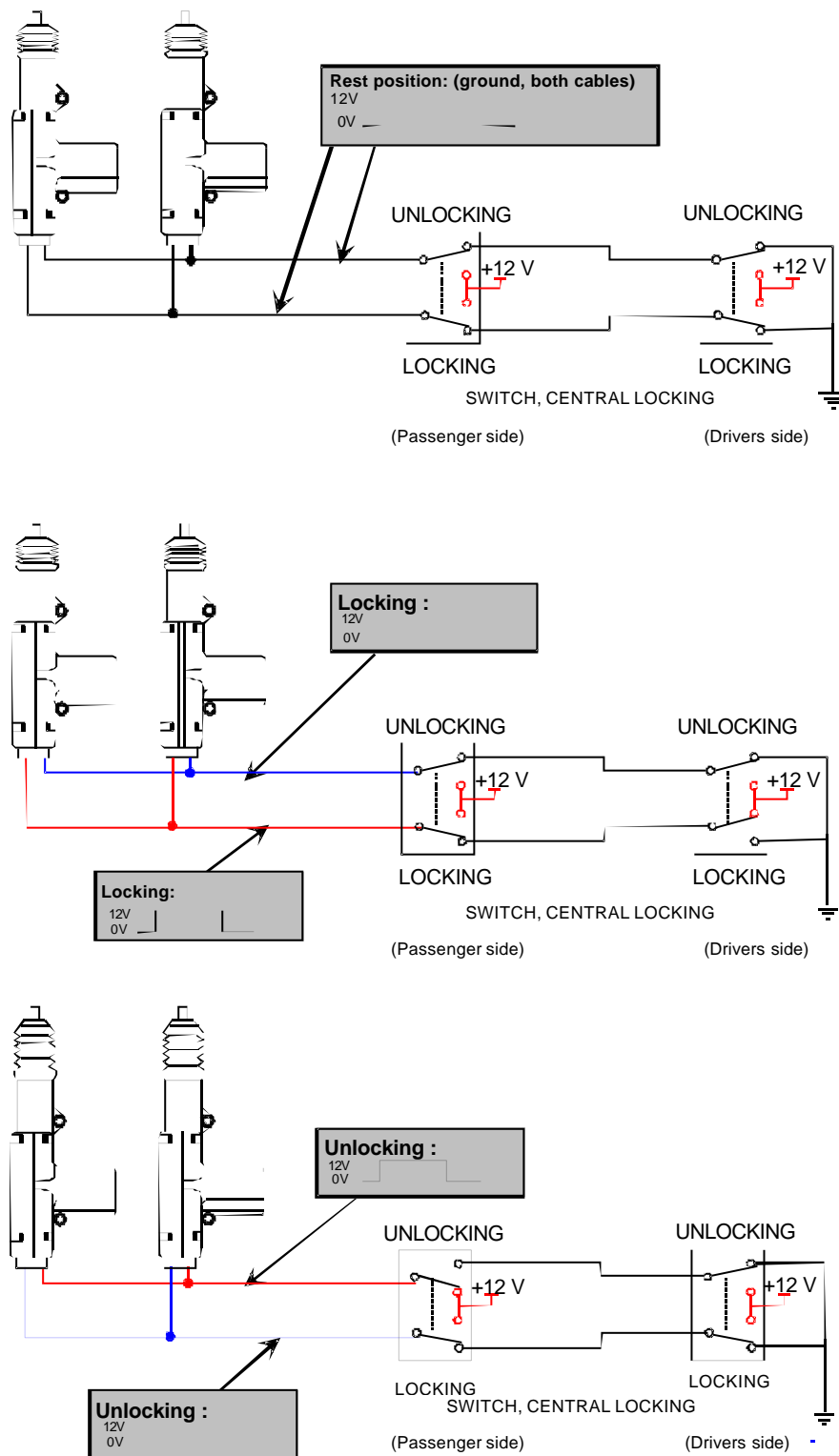
Connecting central locking

PLUG	FUNCTION	COLOUR
P1.1	BATT.+ (BATT. +)	Red/white
P1.2	LOCK NC (LOCK NC)	White/orange
P1.3	GROUND (GROUND)	Black/white
P1.4	UNLOCK COM (UNLOCK COM)	Yellow
P1.5	LOCK COM (LOCK COM)	White/blue
P1.6	LOCK NO (LOCK NO)	White/brown
P1.7	UNLOCK NO (UNLOCK NO)	Green
P1.8	UNLOCK NC (UNLOCK NC)	Mauve

Ref. diagram 1: Connection of retro fitted locking motors.



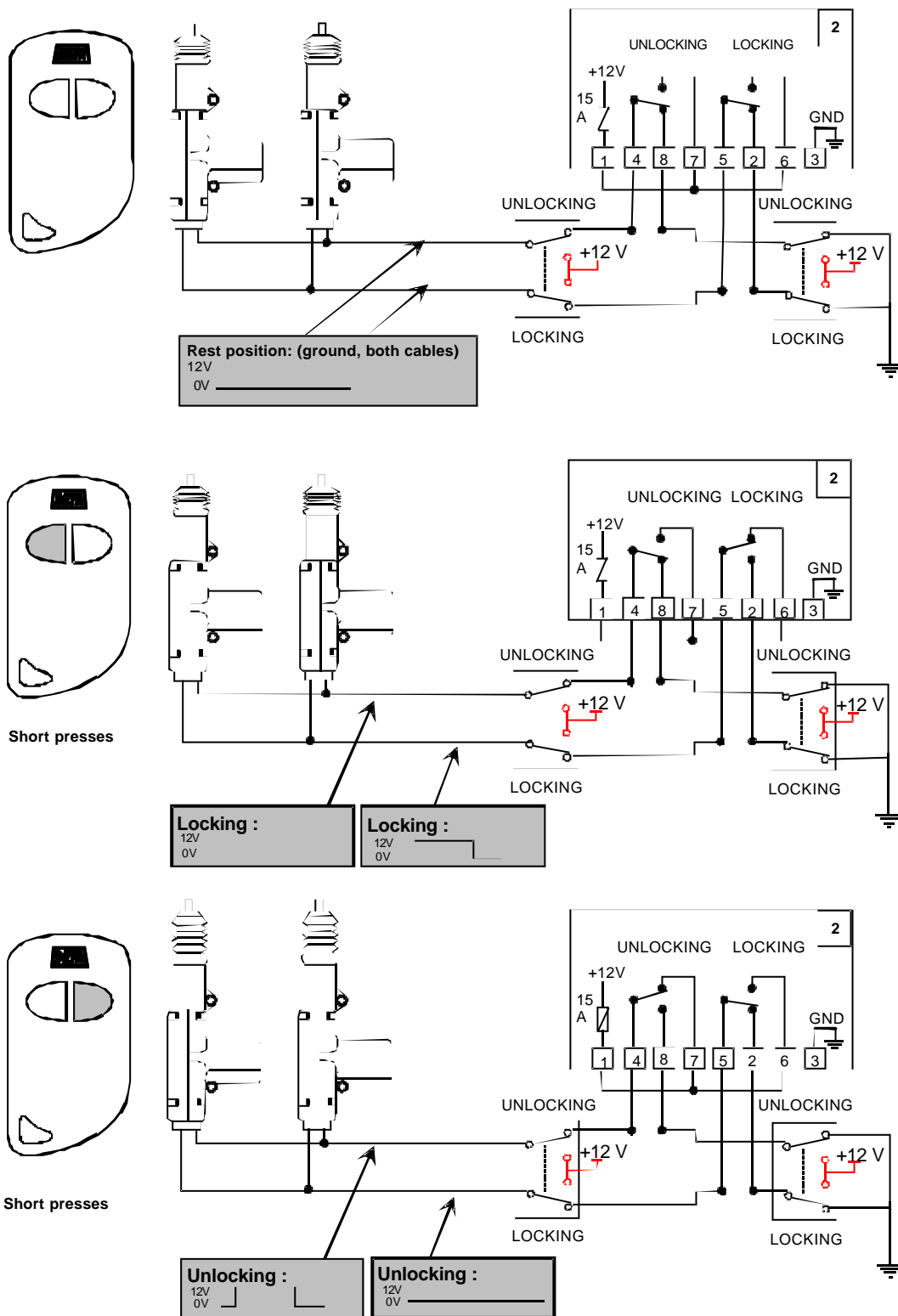
Ref. diagram 2: Function- original locking system



Description:

The system is originally operating without the use of electronics. The current to the central locking system goes directly from supply to central locking motors. The system is inactive in minus position. Most often used on American cars.

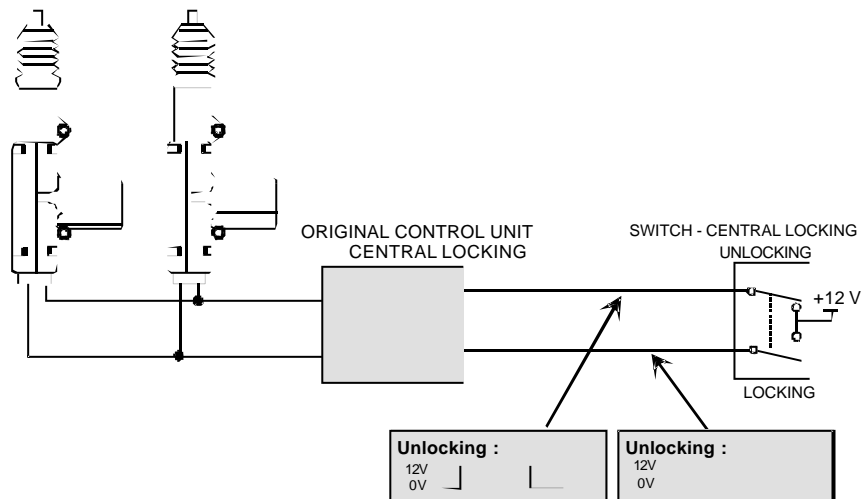
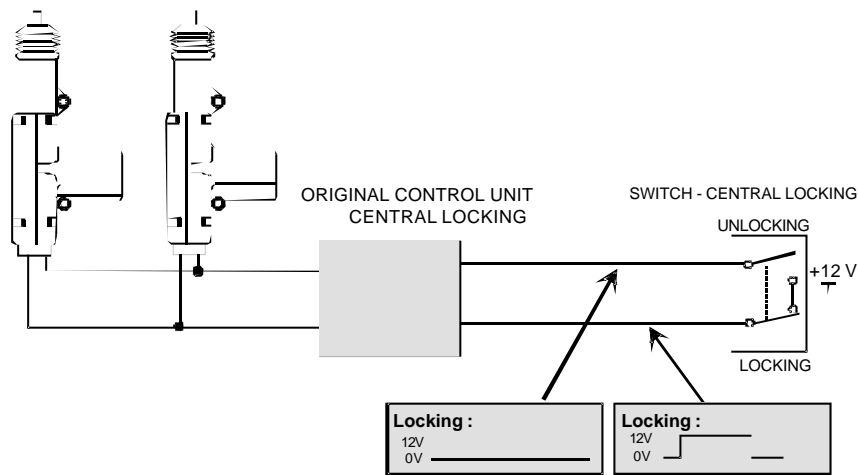
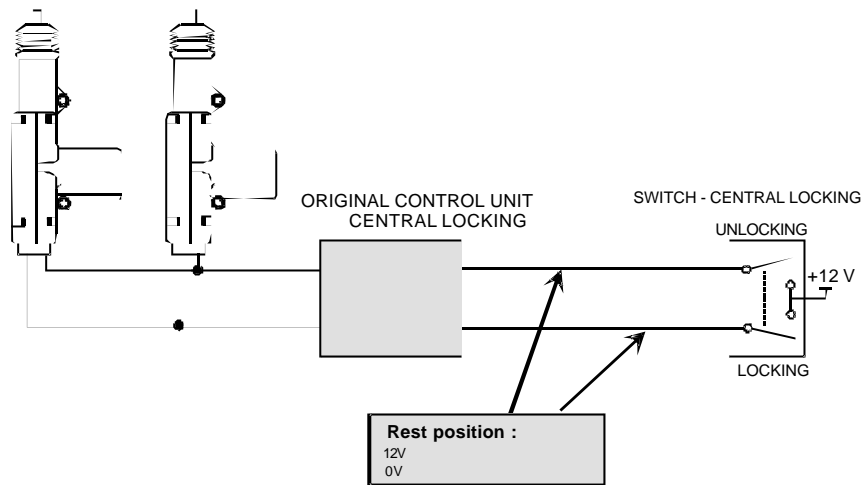
Ref. diagram 2: Connection by original locking system.



Connection:

Connected by cutting the original circuit wires and inserting through the plug connection of the central unit.

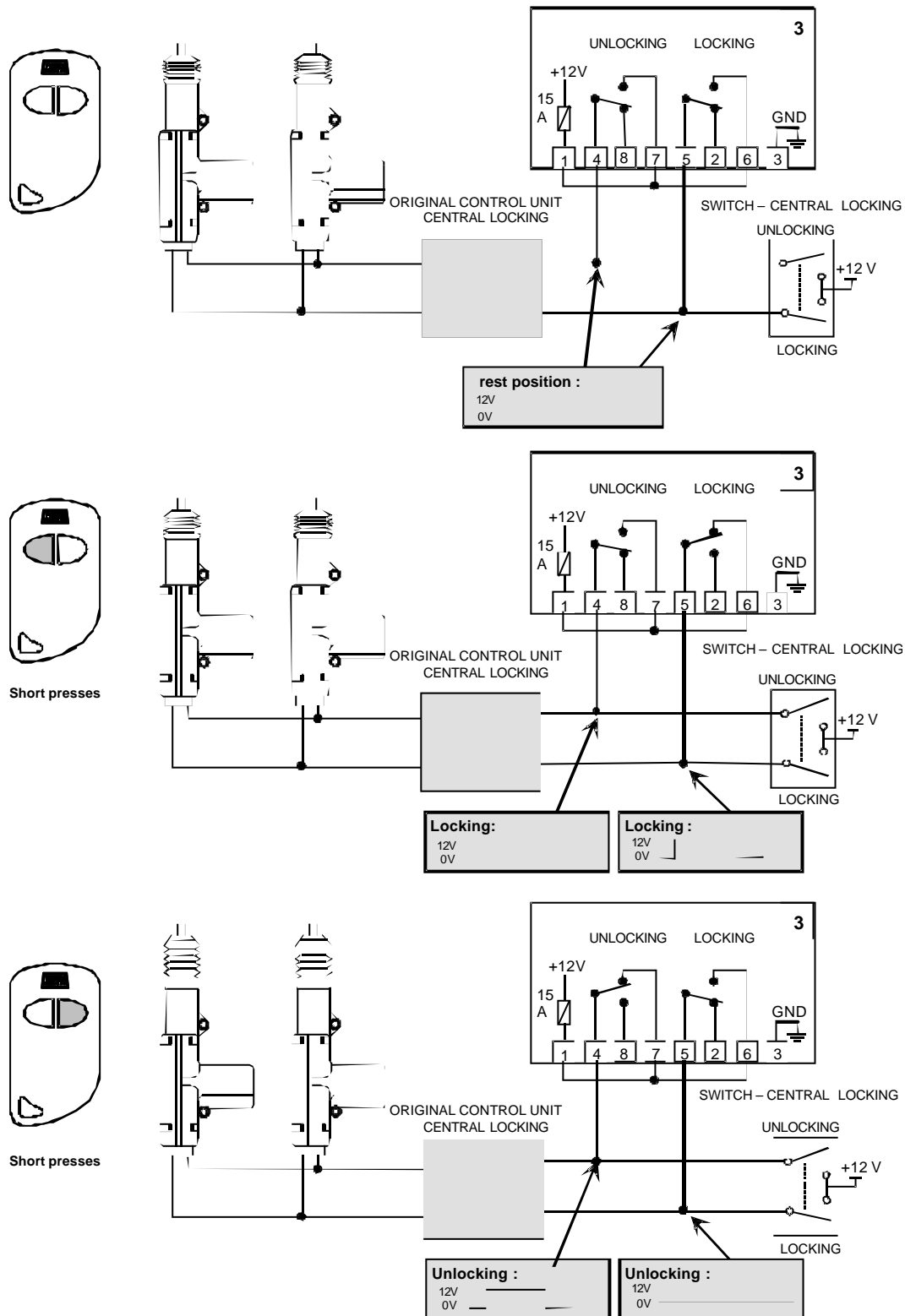
Ref. diagram 3: Function original locking system - electronics-plus-controlled.



Description:

The central locking system is controlled by the original electronics. Plus-controlled. Is today used on a few German car models (FORD).

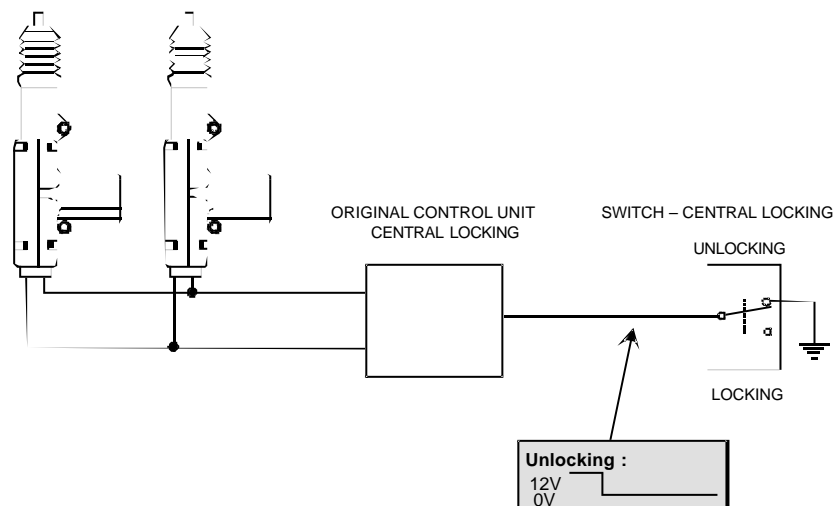
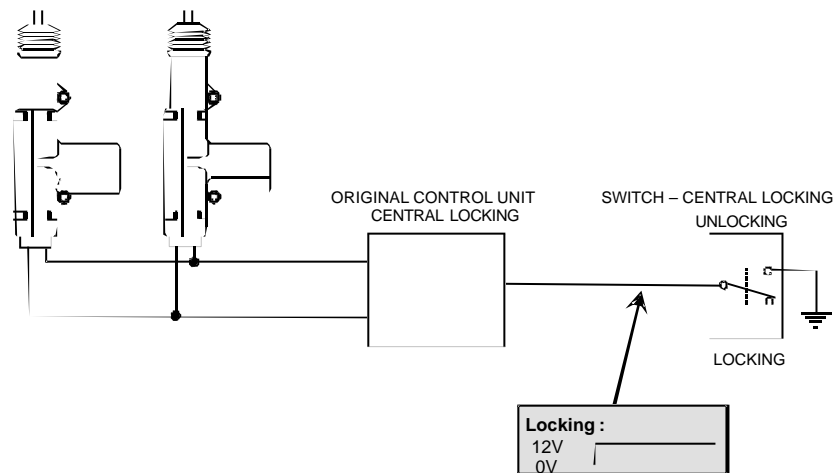
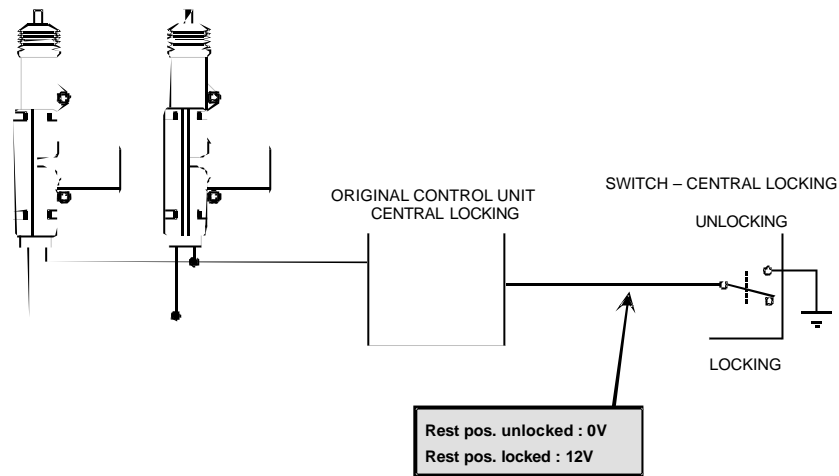
Ref. diagram 3: Connection by original locking system - electronics-plus-controlled.



Connection:

Can be connected directly without cutting the original central locking wires connected directly to the original control wires between original central locking switch and electronics.

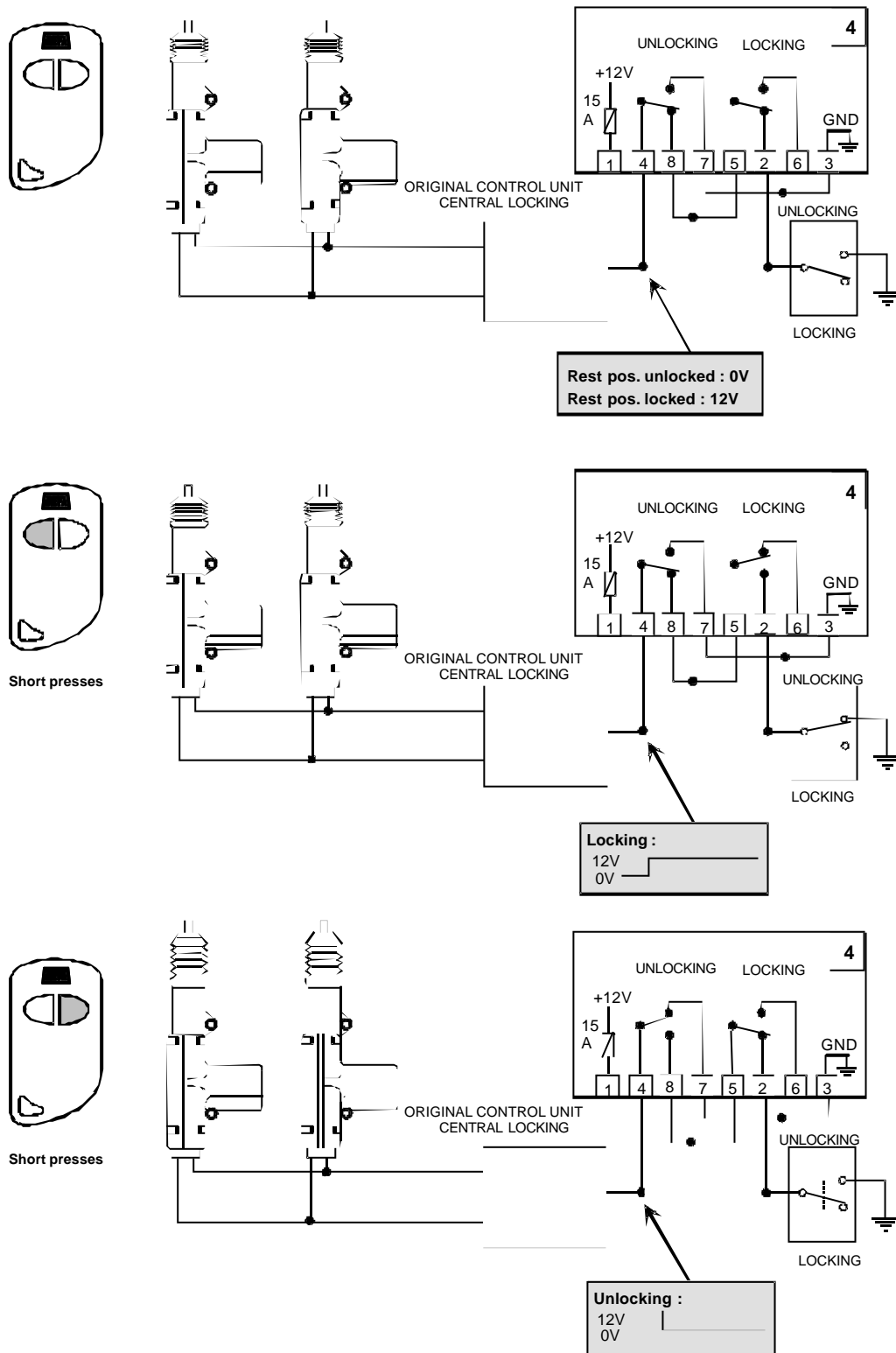
Ref. diagram 4: Function by original locking system – electronics - Minus/open



Description:

The system is controlled by the original electronics and operates between minus and open. When the circuit receives a minus signal, the central locking unlocks. The circuit remains in minus until it is interrupted and the central locking locks.

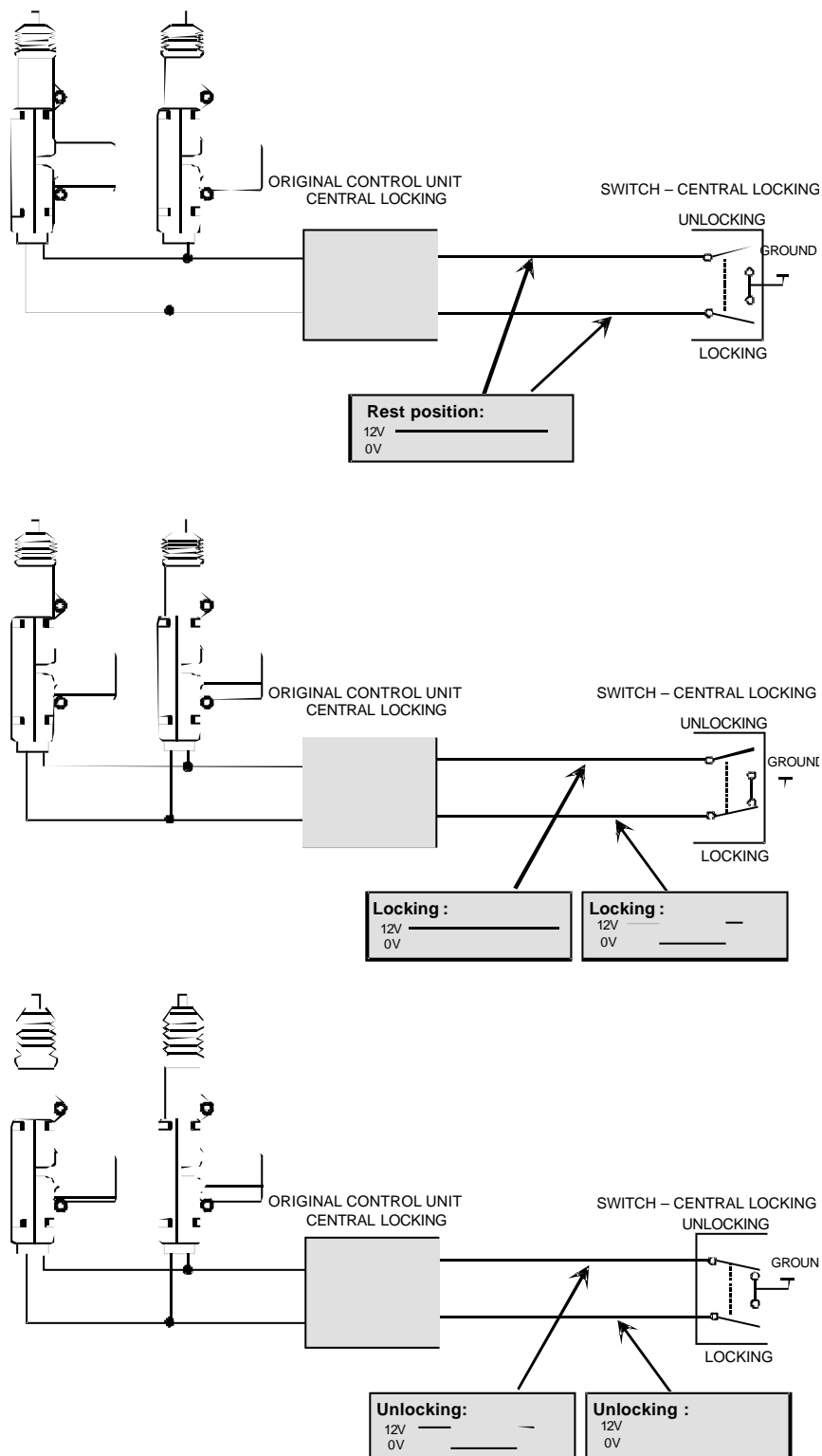
Ref. Diagram 4: Connection by original locking system – electronics - minus/open.



Connection:

Only one wire in the cars original circuit is cut and connected.

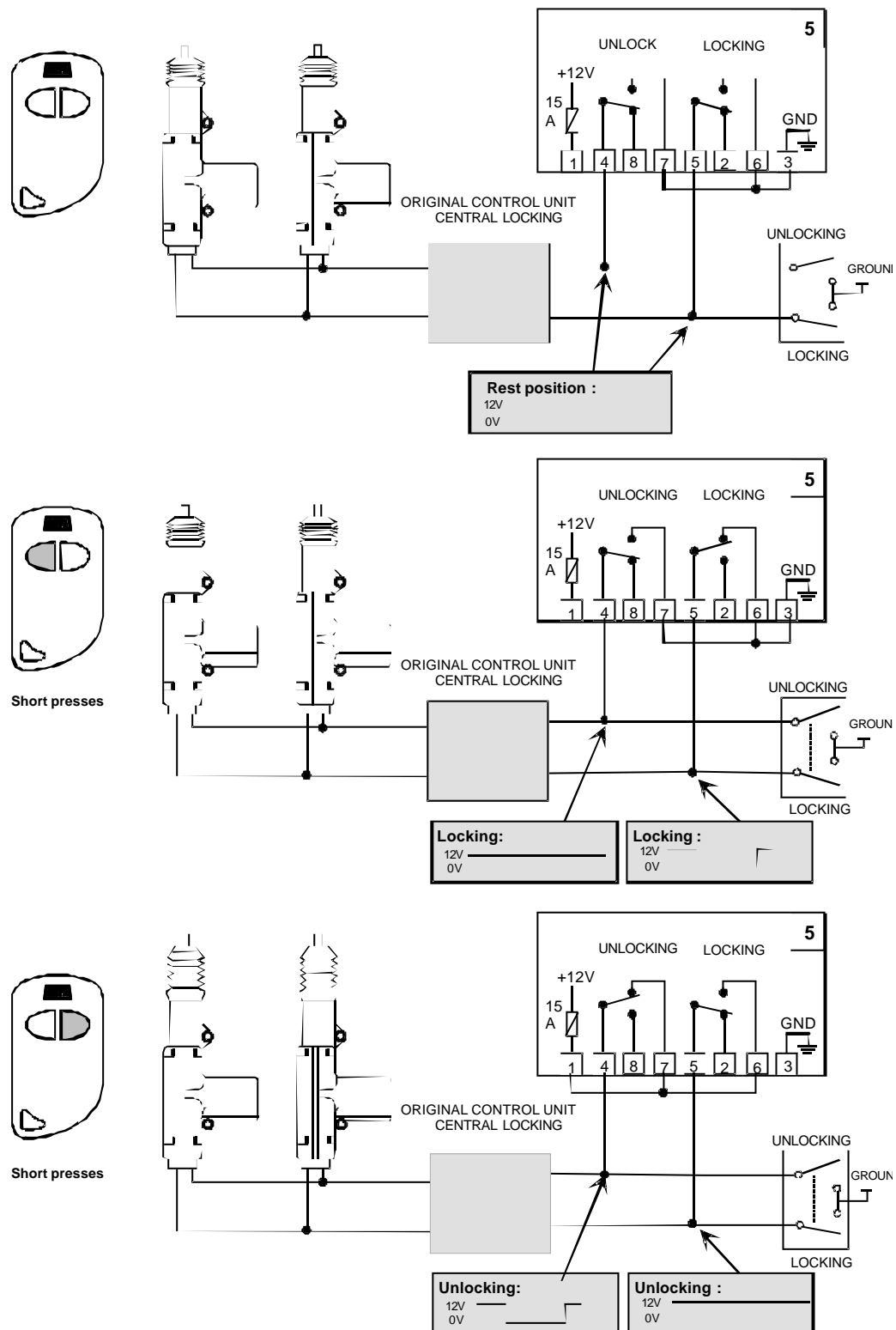
Ref. diagram 5: Function by original locking system – electronics – minus-control.



Description:

The central locking system is controlled by the original electronics. Minus-controlled. Is today used on French and Japanese vehicles.

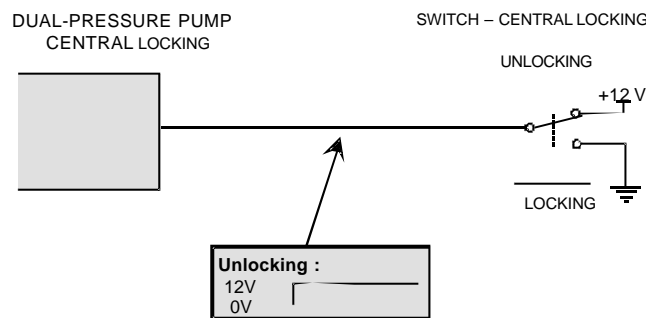
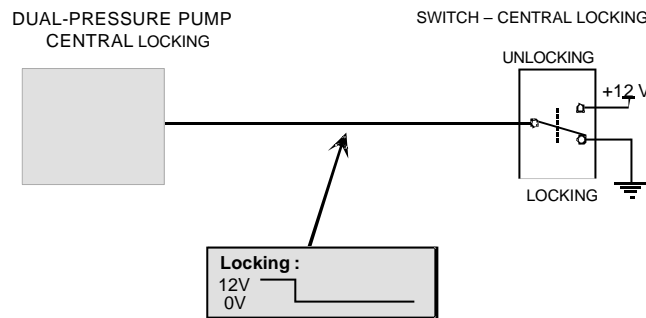
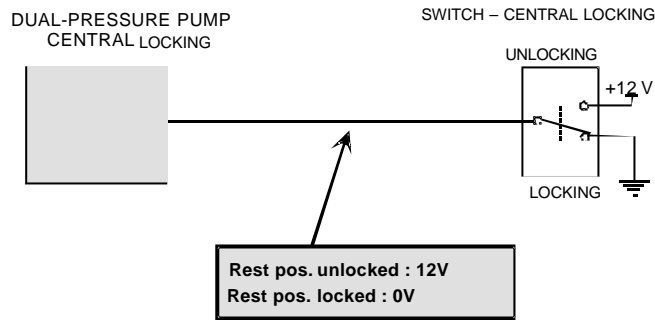
Ref. diagram 5: Connection by original locking system - electronics – minus-controlled.



Connection:

Can be connected directly without cutting the original central locking wires. Connect directly to the original control wires between central locking switch and original electronics.

Ref. diagram 6: Function by original locking system - electric-pneumatic.

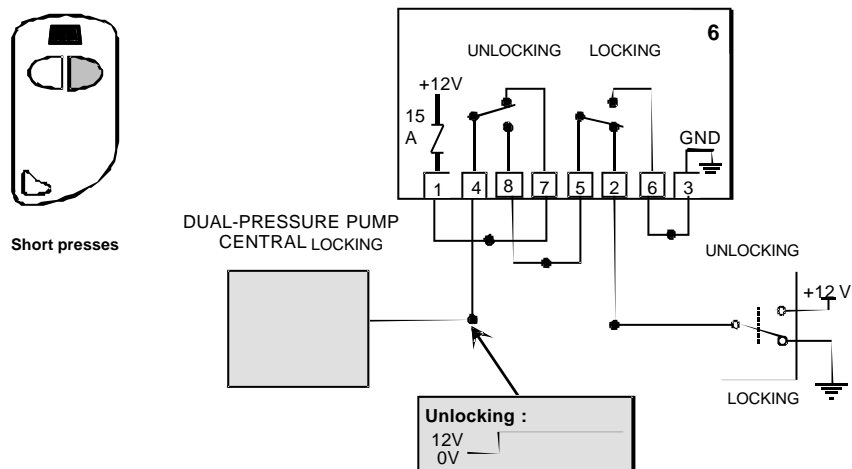
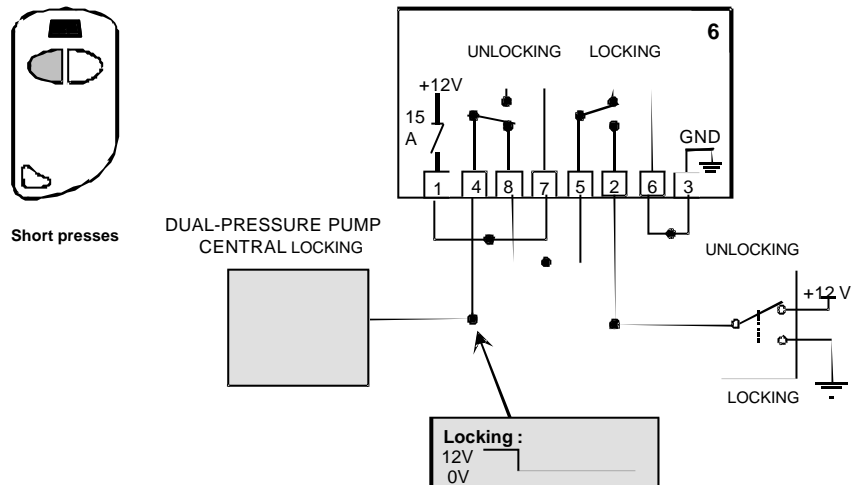
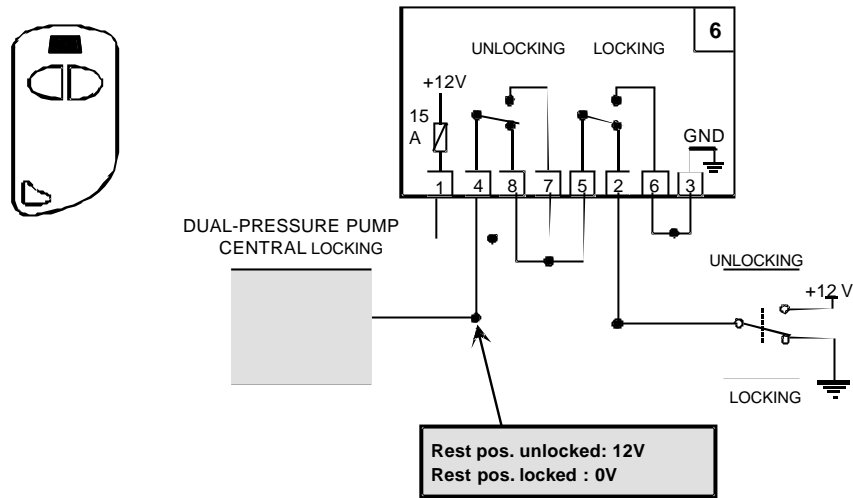


Description:

The system is exclusively used for electric-pneumatic central locking systems. (Dual-pressure/vacuum). The system uses an air pump which supplies pressure/vacuum when the central locking locks/unlocks. Air hoses from the central locking pump supplies the driving devices in each door. For the system to function when the car is a few years old, the central locking signal from the central unit must be programmed for a pulse of 4 seconds. The system is used on older Mercedes, VW and Audi.

For later models of these marks it is also possible to use chart 3 or 5. This is preferable, if the car is equipped with original comfort closing, we can, in a simple fashion, service this. Char 6 will not work well in this configuration.

Ref. diagram 6: Connection by original locking system - Electro-pneumatic.



Connection:

The wire to the pump motor is cut and connected.

3.17 INSTALLATION OF CONTROL SIGNALS FOR THE 400 SERIE

Description:

The 400 serie has no remote control and is intended to use the original remote control of the car. It must therefore be connected in such a manner that **only** the original remote control can activate or deactivate the alarm. Using the key in the door lock or using a door button may **not** influence the deactivation of the alarm. In many cases it is the original central locking control which is applied for controlling the alarm. Sometimes using bar diodes.

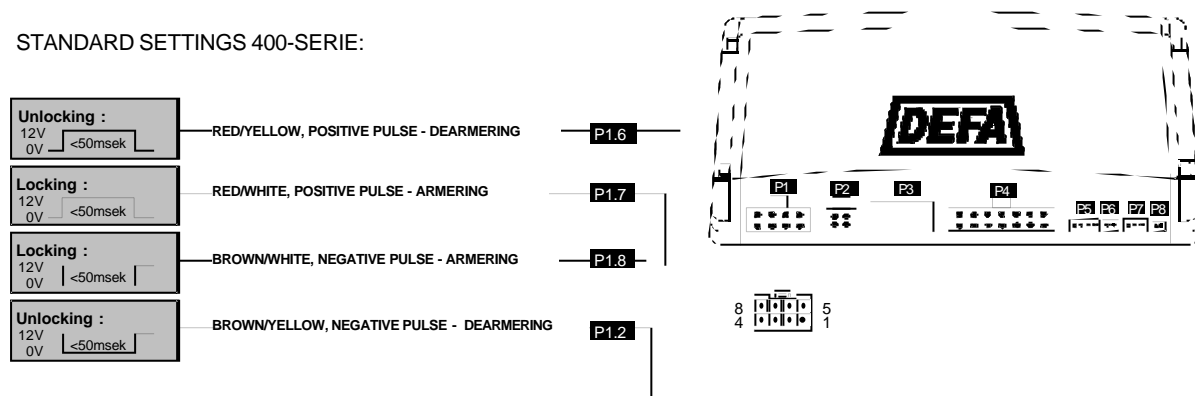
DEFA composes lists in tabular form covering car models-configurations for the P1 plug and connection points in the car with colour coding. The lists are continuously updated as new models and solutions appear.

Connection:

Prior to connection the P1 plug must be adapted to fit the car in question. If it is unclear how the original control system in the car is functioning, the original wiring diagram must be used. Always check with a voltmeter/multimeter before you connect. Wiring not being used must be isolated or removed.

Plug	Function	Colour
P1.2	Unlock -	BROWN/YELLOW
P1.6	Unlock+	RED/YELLOW
P1.7	Lock+	RED/WHITE
P1.8	Lock -	BROWN/WHITE

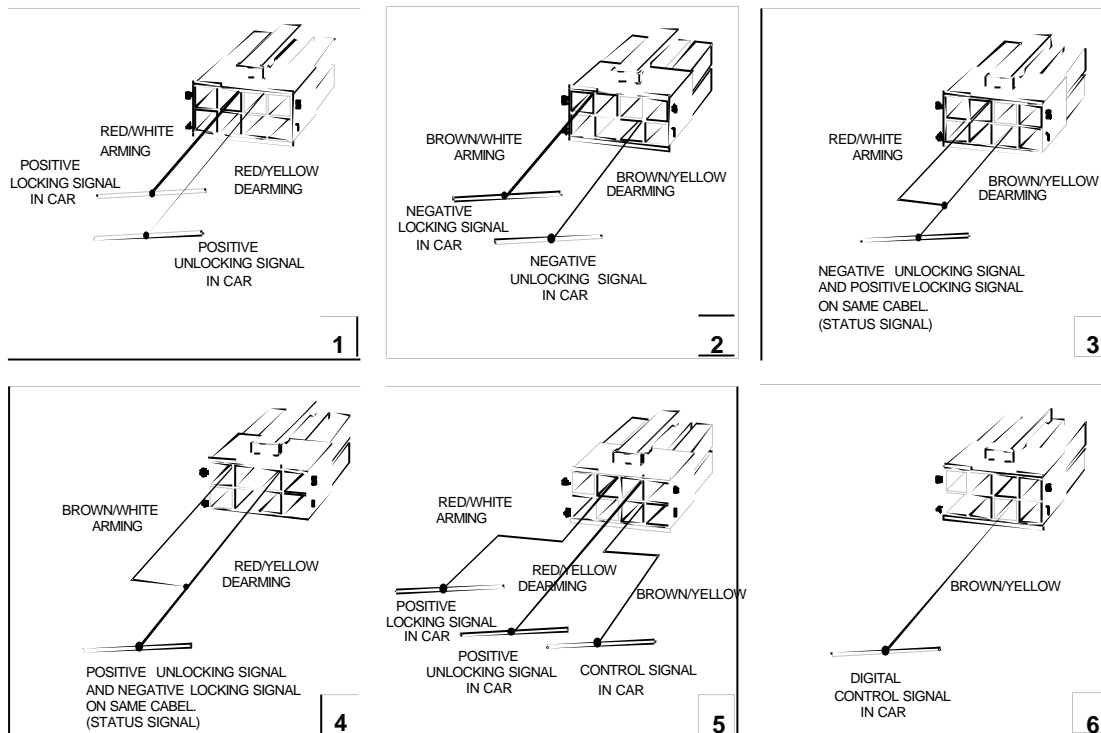
STANDARD SETTINGS 400-SERIE:



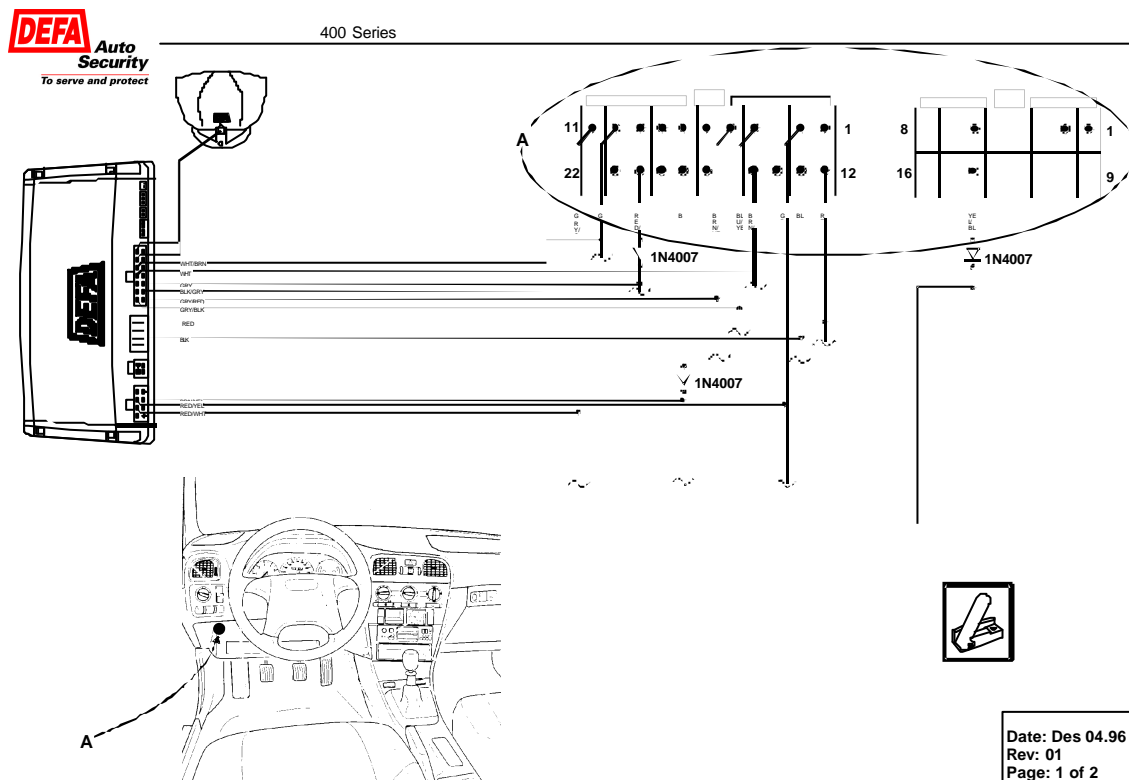
Depending on the control system in the car there are 6 different wiring diagrams. Remember, the central unit must be programmed to control the system installed in the car.

All 6 systems are built in to the central unit of the 400 serie and as new electrical systems appear on the market the central unit will be upgraded accordingly.

Wiring diagram for P1- P6 variations:



Wiring diagram 7: Car specific installation instruction with bar diodes



Wiring diagram 7- Description:

In some cases connection has to be made directly to the control wires from the doorlocks. To prevent the locking and unlocking through the door locks from also activating/deactivating the alarm it is necessary to install bar diodes on these wires.

3.18 DEFA IMMOBILISER MODULE**Description :**

DEFA Auto Security Immobiliser is an additional unit to DEFA Auto Security 400 and 800 series. This is a 3 circuit driving lock intended for fitting in cars without originally fitted starting lock. The Immobiliser is controlled by the 400/800 alarms via a coded computer signal. The unit has a separate connection for Backup alarm.



When installing the DEFA Immobiliser at a later stage it has to be programmed in to the central unit function 13. See chapter on programming.

Positioning:

Place the Immobiliser module under the dashboard or other suitable place in the interior and attach it with plastic strips. ***The Immobiliser module should be well hidden and difficult to get access to. The wiring from the module must be taped together in minimum lengths of 15 cm for the installation to be approved.*** Suggested positions are in the centre console, under a heater, behind a car radio etc.



In order to prevent water (condensation) from running along the wires in to the module, it must be fitted with the plug and wire insertion facing downwards..

Connection:

The bar circuits should be well spread in the interior of the car. The wiring shall be as well hidden as possible in order to make it as difficult as possible to bypass the system.

P-1

Multiplug for Backup alarm.

P-2

Multi connection for DEFA car alarm. It supplies the Immobiliser with + 12V ground control signals (DEFAnet).

1

Immobiliser circuit 1. Max. load 30 A. The circuit is applied for fusing the starter switch.



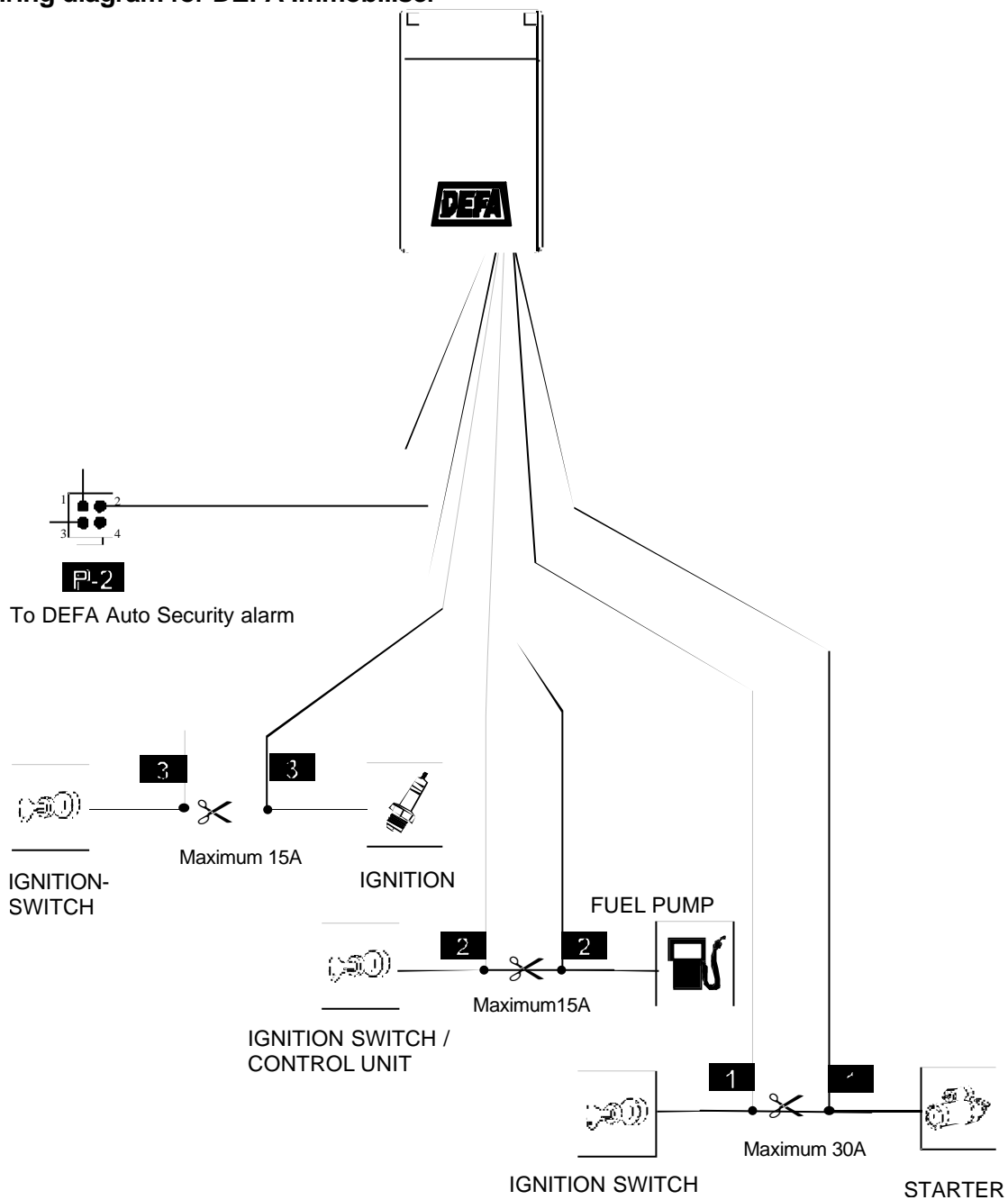
If an alarm with start lock is installed earlier this must be disconnected.

2

Immobiliser circuit 2. Max. load 15 A. The circuit is used for fusing the electrical fuel pump.

- 3** Immobiliser circuit 3. Max. load 15 A. The circuit is used for fusing the ignition.

Wiring diagram for DEFA Immobiliser

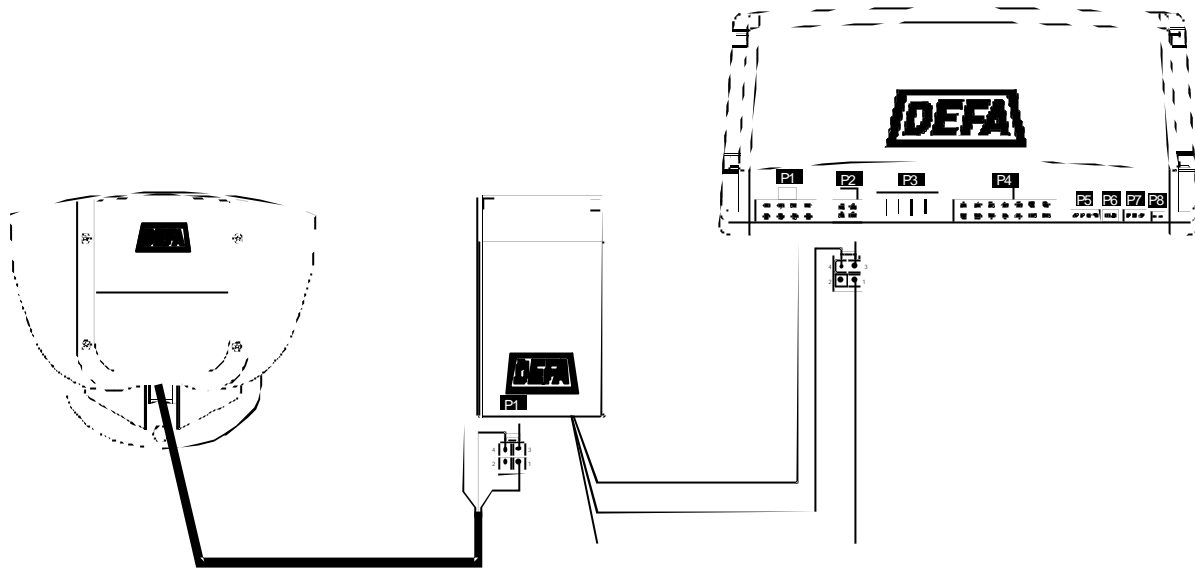


3.18.1 Connecting the Backup alarm to the Immobiliser module.

Description:

The Backup alarm is controlled from the same central unit plug as the Immobiliser. If there is a backup alarm in the car the Central unit plug is disconnected. The Immobilisers DEFA net wire is connected to the Central unit of the alarm. The Backup alarm is connected to an available plug on the Immobiliser.

WIRING DIAGRAM FOR BACKUP ALARM AND DEFA IMMOBILISER



3.19 INSTALLATION OF POWER MODULE - 800 SERIE

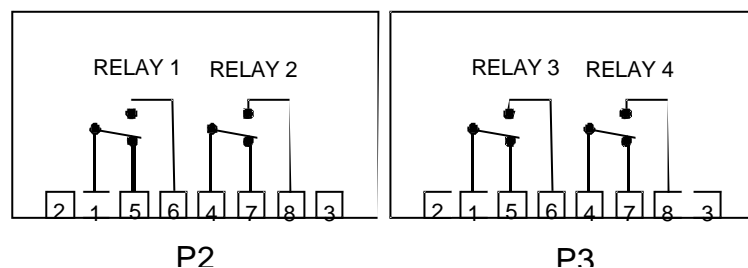
Description:

The power module is an intelligent relay control consisting of 4 relays, each capable of operating one function. The module is applied to operate a number of additional comfort functions. The relays work in pairs, one relay for opening and one for closing. The power module can for instance be applied to control opening and closing of the cars 2 electrical windows.



It is also possible to divide the functions of a power module, so that one relay pair controls opening and closing of one electrical window and the other relay pair controls opening and closing of an electrical sun roof.

The power module is connected to the central unit of the alarm via P4- 13, DEFAnet. This is a digital network transmitting commands from the alarm remote control through the receiver in the central unit to the power module. The original remote control (without slide switch) can be applied to serve the power module with the same functions on both relay pairs, for instance opening and closing of electrical windows. If more than one function is to be operated by a remote control, a remote control with slide switch must be used. A maximum of three different comfort functions can be operated via a remote control with slide switch, one function in each slide switch position. See the section: selecting comfort functions.



A power module can operate the following functions

- Remote control of the electrical windows of the car. Opening and closing.
- Remote control of the tilt function of the sun roof. Opening and closing
- Remote control of the slide function of the sun roof. Opening and closing.
- Controlling the central locking system of the car when additional relays are needed.

3.19.1 Installation of DIP switch:

Before positioning and fitting can take place the power module must be programmed to control the selected comfort functions by selecting positions on the slide switches on the DIP switch located on the underside of the power module.

Programming switch 1, 2 and 3 decides which functions the power module will perform. Switch number 4 has its own function controlling the built in motor safeguard. If the power consumption over the relay switches of the module becomes too high, the power supply from the module to the motor will automatically be cut off.



DIP switch position 4 is the power limiting function of the power module.

It has two positions:

- | | |
|--------|-----------------------------------|
| 1. ON | Power limiting ON - Max. load 16A |
| 2. OFF | Power limiting OFF - Max load 8 A |



Max. current over each relay switch is 16 A. The motor safeguard in ON position may only be used when current really exceeds 8 A.

Comments:

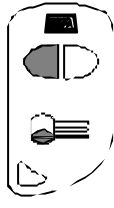
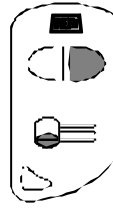
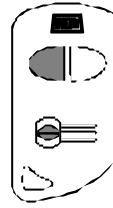
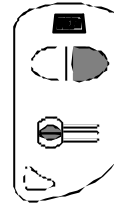
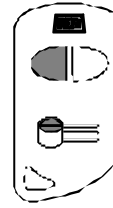
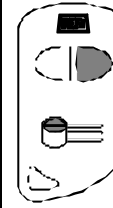
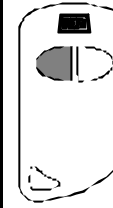

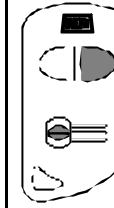
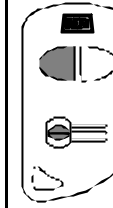
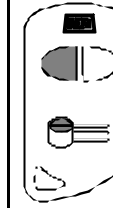
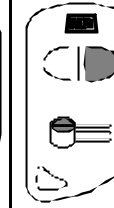
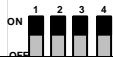
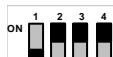





A power module programmed to operate electrical windows or sun roof open/close/tilt has a maximum operating time of 60 seconds or stops when the motors come to a mechanical stop.

When connecting electrical windows diagram 2 is commonly used. The original power supply wires to the electrical windows are cut and connected via the relays in the module. This means the current from the original switches passes through the power module.

To ensure the necessary safety if something should be jammed when the windows are operated through a remote control, the power limitation of the power module must control the power supply to the power module. In most cases the module will function without connection with power limitation in position OFF.

In some larger American cars the current to power windows exceeds 8A. In these cases the DIP switch position 4 must be set to ON.

3.19.2 Table 1: Programming alternatives for the Power Module

Function	Window up	Window down	Sun roof slide forward	Sun roof slide back	Sun roof tilt down	Sun roof tilt up	Central lock locking	Central lock unlocking	Channel 1	Channel 2	Channel 3 ON	Channel 3 OFF	Pager
DIP switch:	Long A 	Long B 	Long A 	Long B 	Long A 	Long B 	Short A 	Short B 	Long B 	Long A 	Long A 	Long B 	Alarm release
	Relay 1 Relay 3	Relay 2 Relay 4											
			Relay 1 Relay 3	Relay 2 Relay 4									
					Relay 1 Relay 3	Relay 2 Relay 4							
			Relay 1	Relay 2	Relay 3	Relay 4							
	Relay 1	Relay 2	Relay 3	Relay 4									
	Relay 1	Relay 2					Relay 3	Relay 4					
									Relay 1	Relay 2	Relay 3 ON	Relay 3 OFF	Relay 4

Position:

The power module should be placed in the immediate vicinity of the electrical motor. When controlling electrical windows with the original switch positioned in the drivers door panel, it is easiest to place the module in the door.



The power module may NOT be placed on the outside of the damp barrier in the door. It is always positioned with the wire inserts facing downwards.

When connecting to an electrical sunroof the power module can be placed in the roof lining in the vicinity of the operating switch for the sunroof.

Safety:

The power module is fused via two separate automatic circuit breakers built in to the modul. If it has been wrongly connected, there is an overload or something should be jammed in between when windows or sun roof are operated the circuit breakers will disconnect the power module until the fault has been corrected or the overload has been removed.

Connection:**P1 switch**

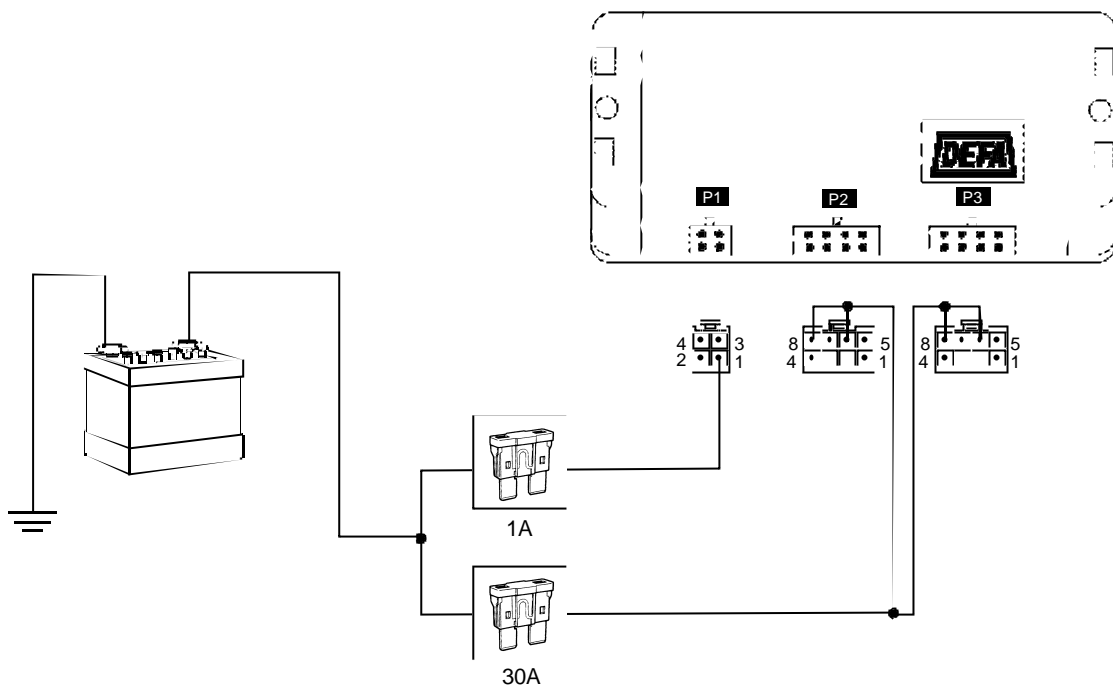
Wire colour:	Connection
P1.1 + 12 V, RED	Power supply to power module (electronics)
P1.2 Chassis, BLACK	Connected straight to the car chassis with the shortest possible wire. Make sure there is good ground contact.
P1.3 DEFAnet, GREEN	Connected to P2.1 on the central unit
P1.4 Power ON BROWN/WHITE	This is a negative relay control signal, max load 200 mA. The signal is activated when the power module receives a valid command from the remote control. When the original control of the sun roof or the windows is not functioning, if the car ignition is not on, this is because the functions are controlled by the original control electronics. To be able to operate electrical windows and sun roof via the power module without the ignition being on, we have to supply the original control electronics 12V. A relay simulating "ignition on" controlled by P1.4 must therefore be fitted.

P2 og P3 Multi switch**Connection:**

P2.3 and P3.3 red wires are normally the power module current connection for power supply to the electrical motors via the relay switches. Double circuits are used to ensure a stable power supply.

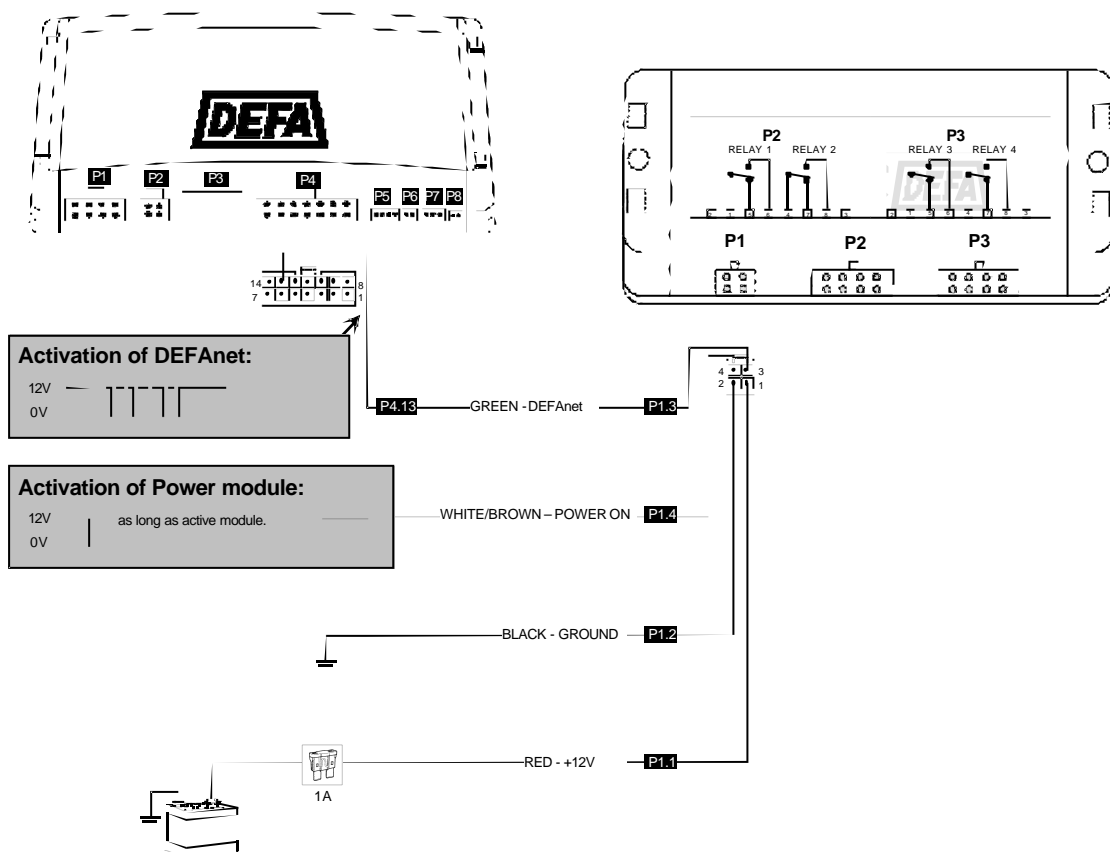
Connect P2.3 and P3.3 to a good connecting point for B+. The wires must be fused in the vicinity of the connection point using the enclosed 30 A fuse.

Wiring diagram for current connection: Applied with wiring diagram 2 or 3.

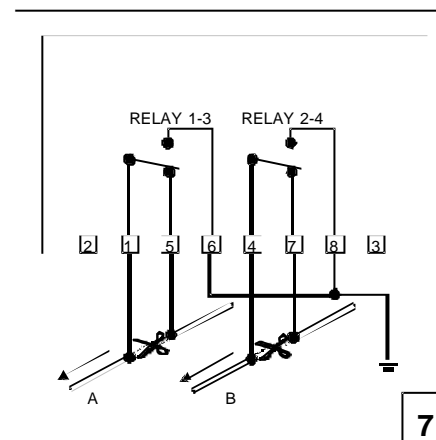
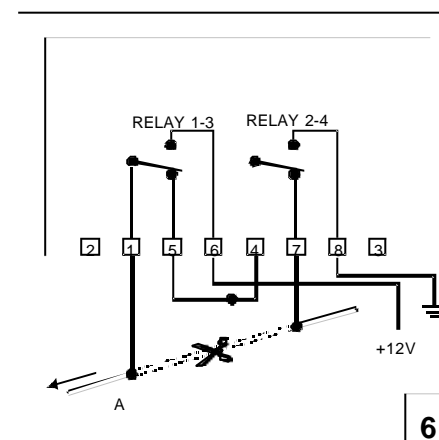
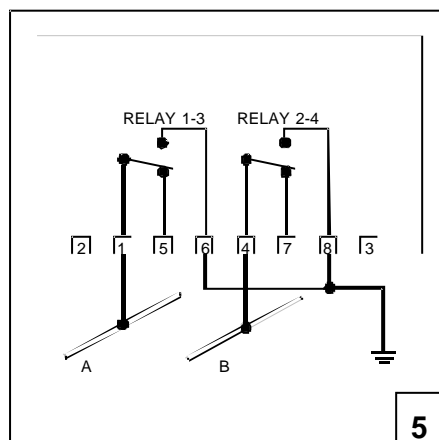
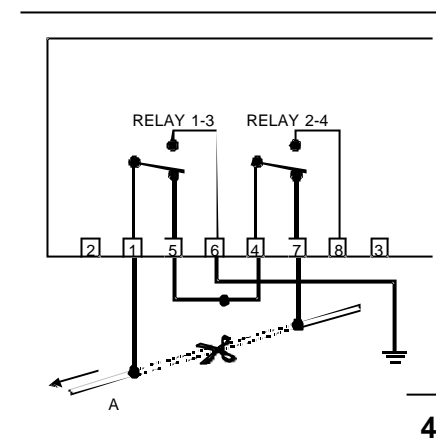
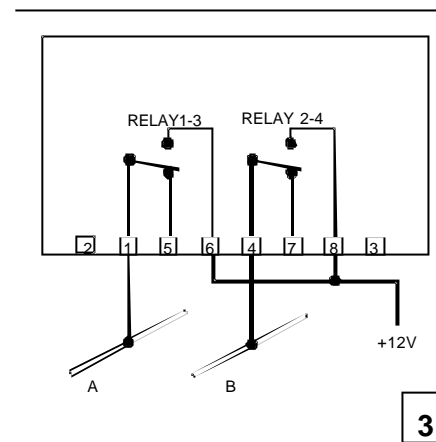
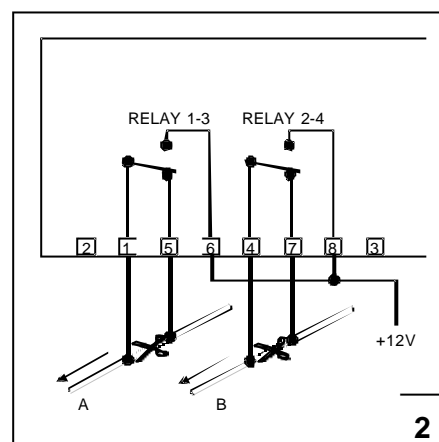
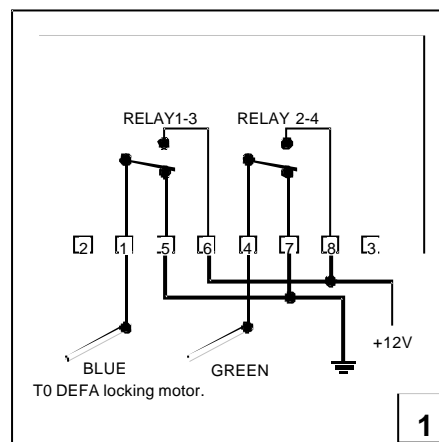


Current supply must be fused close to the B+ connection point via a 30 A fuse. The supply wire must be connected to a point able to handle this current..

Diagram: Power module connected to the Central unit through P1 to P4



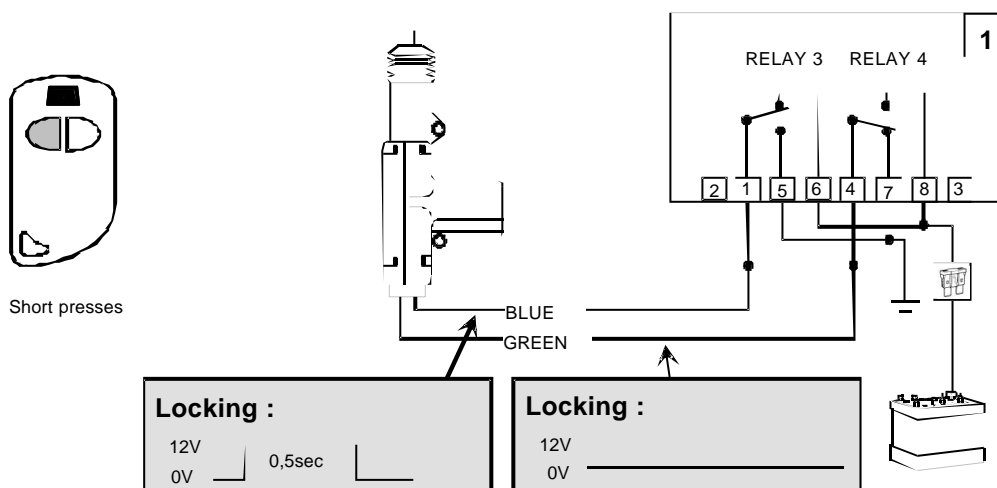
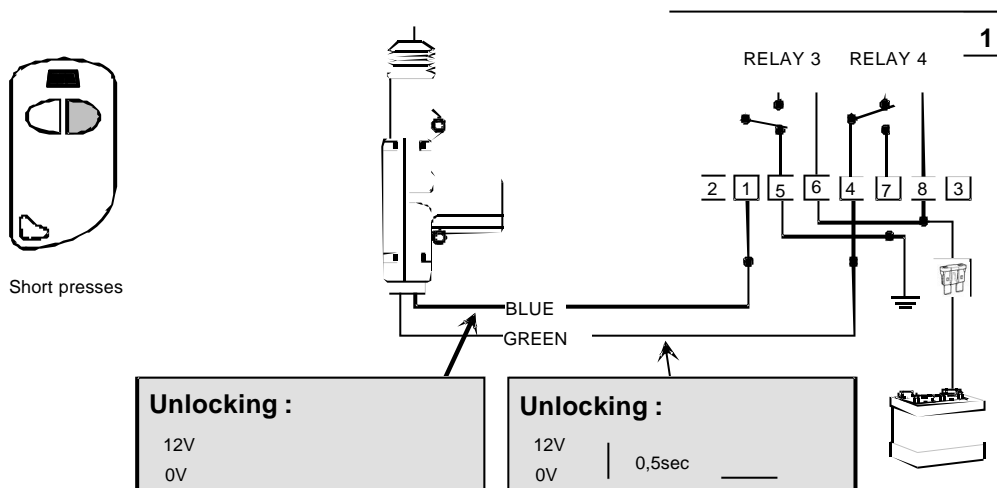
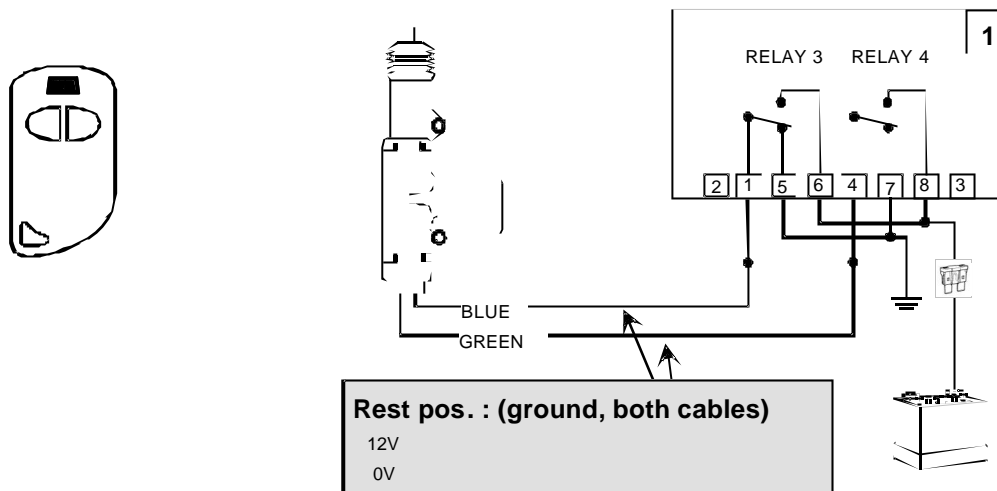
WIRING DIAGRAM FOR POWER MODULE



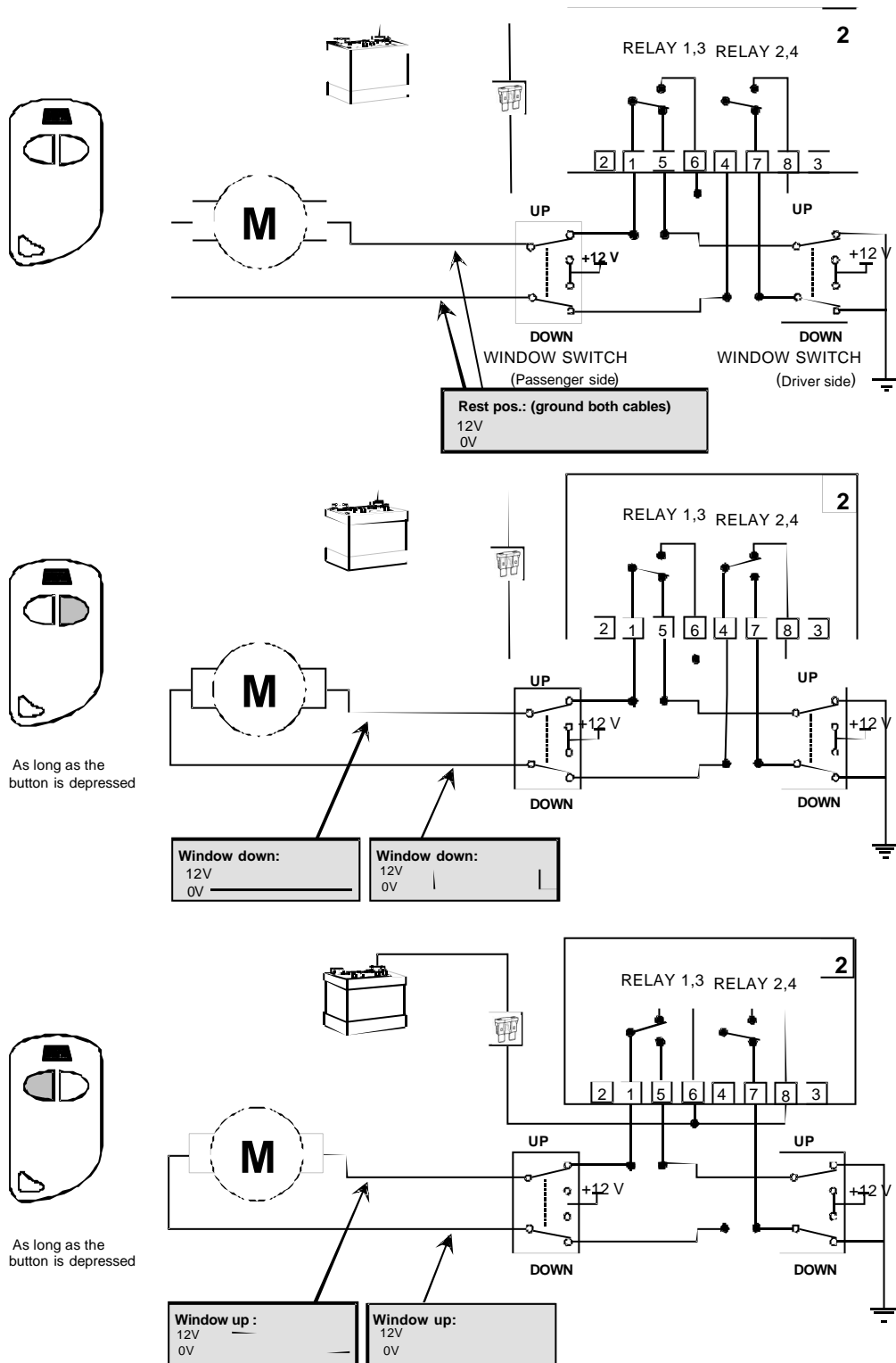
RELAY 1 AND 3 CAN BE PROGRAMMED TO FOLLOWING FUNCTIONS :
 CENTRAL LOCKING : LOCKING
 WINDOW: CLOSE
 SUNROOF : SLIDE, CLOSE
 SUNROOF: TILT, CLOSE

RELAY 2 AND 4 CAN BE PROGRAMMED TO THESE FUNCTIONS :
 CENTRAL LOCKING : UNLOCKING
 WINDOW: OPEN
 SUNROOF : SLIDE, OPEN
 SUNROOF: TILT, OPEN

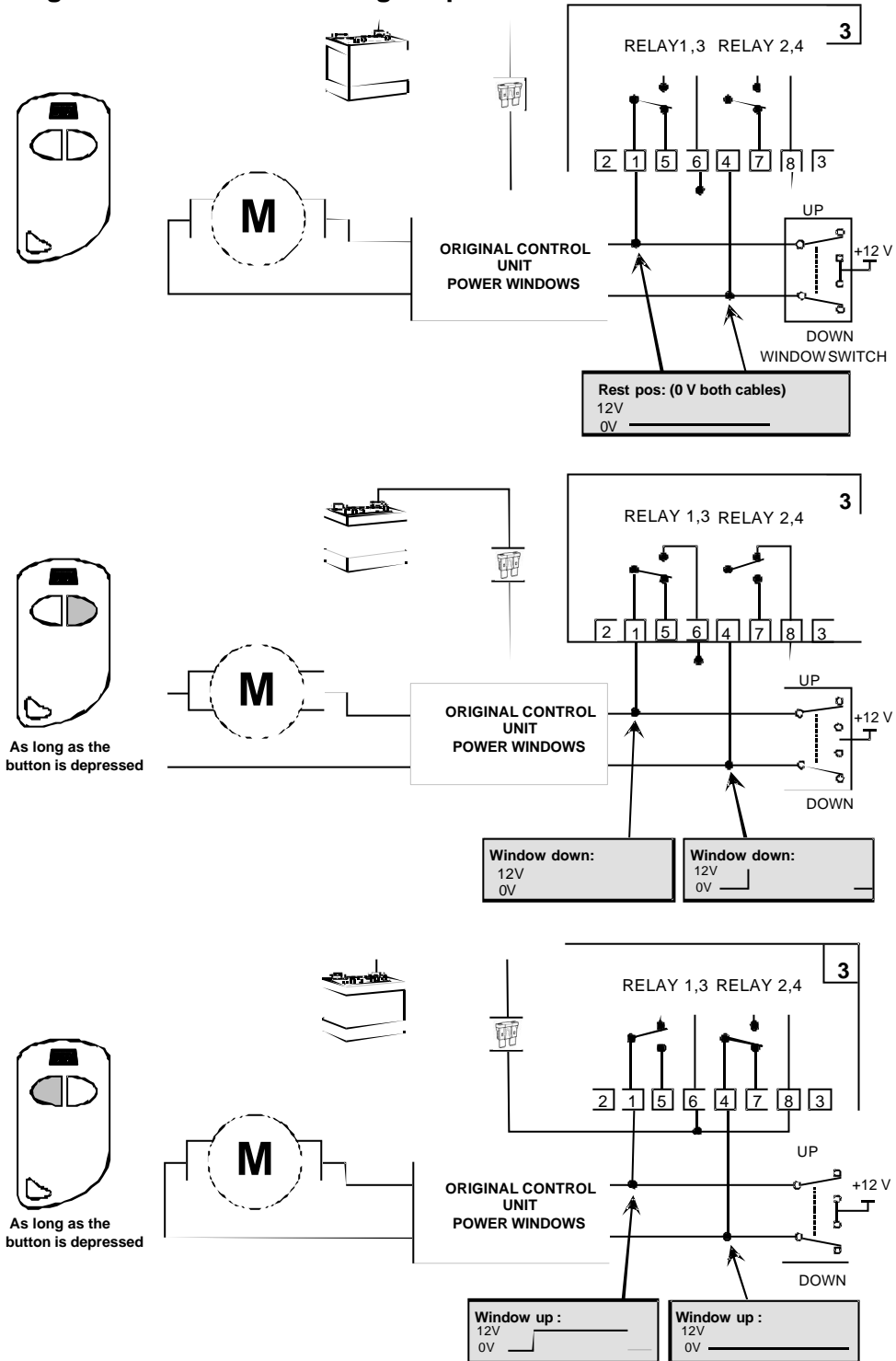
Ref. diagram 1: Connection of central locking



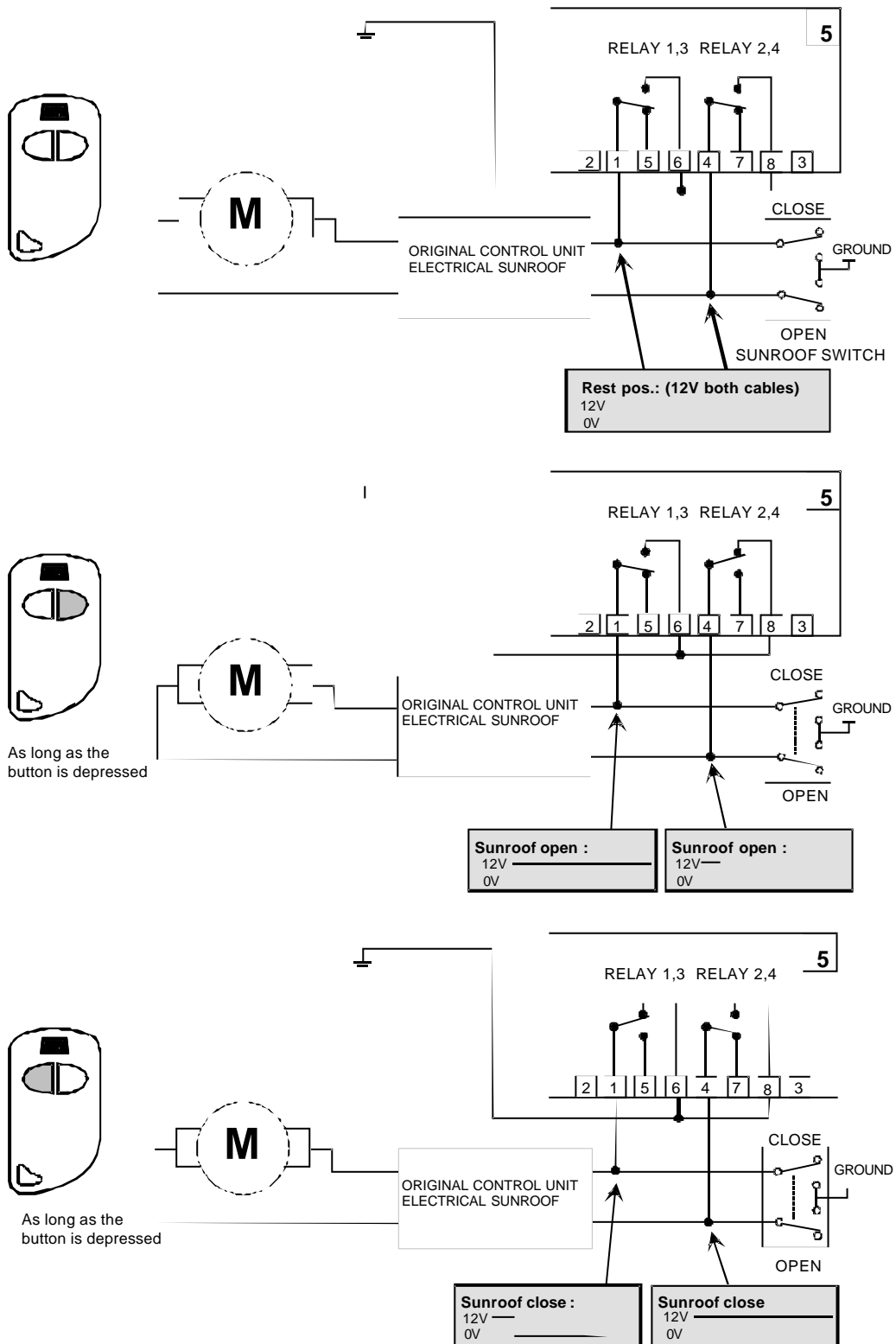
Ref. diagram 2: Connection of original power windows.



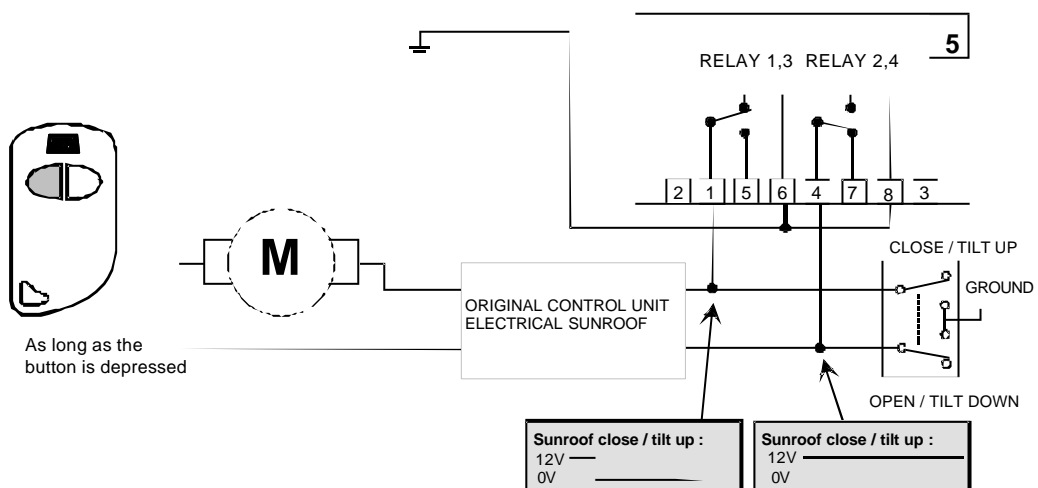
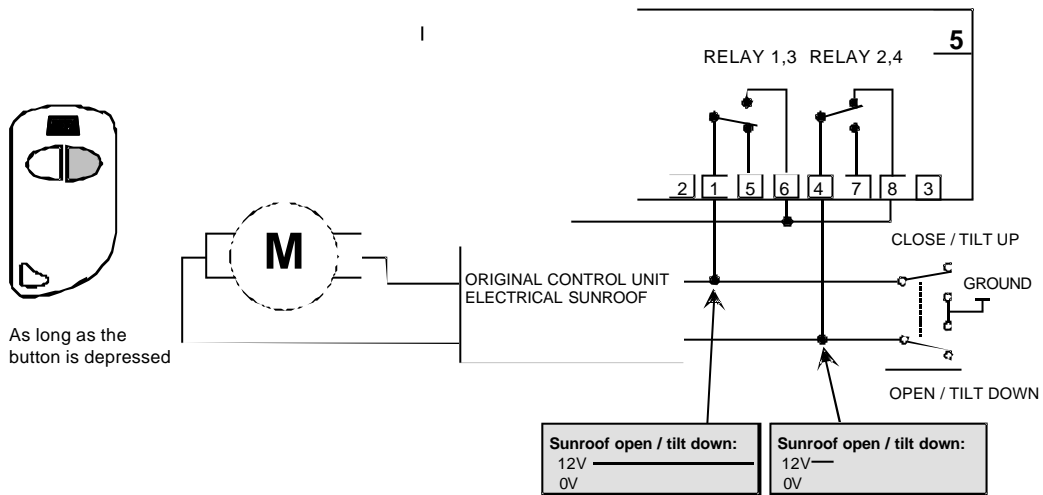
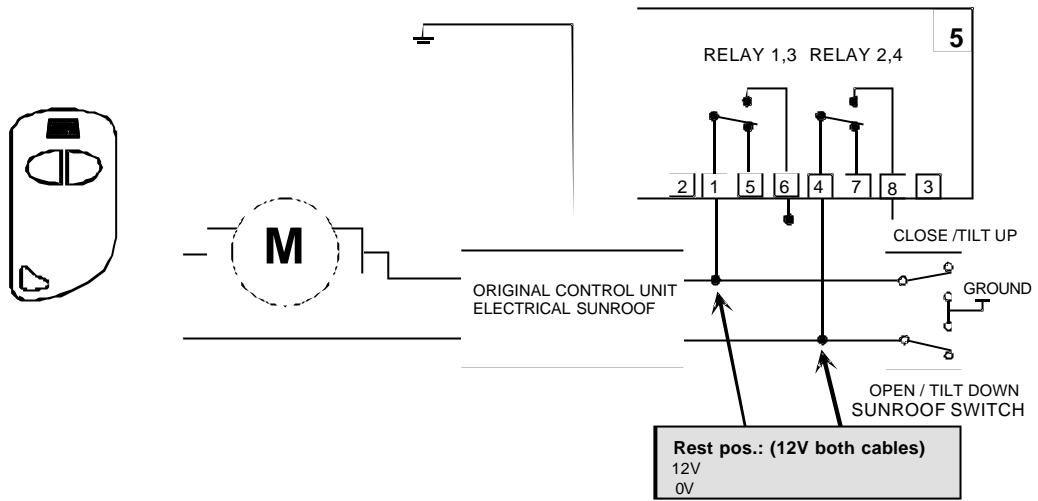
Ref. diagram 3: Connection of original power windows with electronic control.



Ref. diagram 5: Connection of sunroof control- Open/close



Ref. diagram 5: Connection of sunroof control- Open/close- Tilt up/tilt down



3.19.3 Selection of comfort functions:

The power module is operated via the Remote control. To control other functions beside opening and closing of electrical windows, a Remote control with slide switch must be used. When connecting and operating all the possible options for opening and closing windows, electrical sunroof slide and electrical sun roof tilt, the comfort line out channel 1, 2 and 3 on the Central unit can not be used, as these are controlled by the same commands from the remote control as the control of windows and sun roof. You must in this case choose between functions to be applied.

3.19.4 Coding the remote control with slide switch (3:1).

- A. Short press on button B on the remote control to deactivate the alarm and Immobiliser if connected. Emergency cut out may also be used.
- B. Switch the ignition on and off 5 times consecutively. The LED flashes rapidly.
- C. When you switch on the ignition again the LED shall flash. Count the flashes and let the LED flash as many times as the first digit in the PIN-code of the alarm and turn off the ignition (The LED stops flashing).
- D. Switch on the ignition again and repeat the procedure until you have completed all the digits in the PIN-code.
- E. The LED flashes rapidly. If you make a mistake you can start again from C. with the first digit.
- F. Switch on the ignition again and press button A and B at the same time on the remote control to be coded (one remote control at the time). Keep the buttons depressed until you have had both light and sound response. The car should normally be coded in position 1. Remember to also code one of the original remote controls. (Maximum 4 totally).
- G. Switch off the ignition when all remote controls are coded.



Note! When coding of remote controls takes place, all previous coding are erased. A maximum of 4 remote controls can be coded, 3 positions on remote control 3:1 and 1 position on remote control 1:1.

When remote control 3:1 is coded, functions for this remote control must be selected. This is done in register 6.

If any of the functions to be operated by the remote control is also among the built-in functions of the central unit, for instance start and stop of car heating- open electrical luggage lid- open electrical fuel tank lid, selecting those functions is at the expense of comfort function controlled by the Power module. Channel 1, 2 and 3 can only be operated with the slide switch in the determined position.

If the comfort functions of the central unit **or** the power module controlled functions are to be used and the remote control is **not** to be applied towards another car the alarm is programmed in slide switch position 1. In this position a choice of functions in slide switch position 1 and 2 can be served.

The slide switch position 3 can here be used to control the alarm on another car. In slide switch position 3 only the function in this position can be operated, and slide switch position 2 and 3 can be used to control the alarms on two other cars.



If the remote control is to be used to operate functions connected to the power module, the number of functions controlled by the power module is reduced by each of the central unit comfort functions (channel 1, 2 and 3) that is chosen.

It is possible to "move" functions controlled by the power module in the register, if this means that a combination between channel 1, 2 and 3 and power module controlled functions is not in accord with the functions to be used.

Example:

If we want to apply channel 1 and 2, sun roof slide and sun roof tilt, this can be solved in the following manner:

When Remote control 3:1 has been programmed to the central unit of the alarm in slide switch position 1, the remote control function is programmed in slide switch position 3 (factory setting). Slide switch position 1 of the remote control is defined as sunroof slide open and close instead of window open and close. The slide switches at the back of the power module are set as windows even though the module is connected to the sunroof.




Slide switch position 2 is used to operate channel 1 and 2.

Slide switch position 3 is used to operate sunroof tilt open and close.



We can change the definition of power module controlled functions by moving them under the slide switch position required.

3.19.5 Table 1. Power module controlled functions with remote control 3:1

Slide switch position	Short A	Long A	Short B	Long B	Programming
1 	Alarm ON	Close window	Alarm OFF	Open window	Position 1 <u>1 flash</u>
2 	Alarm OFF	Sunroof slide close or channel 2. Opening Lugg. Com- partment	Alarm OFF	Sunroof slide open or channel 1. Opening fuel tank lid	Position 2 <u>2 flashes.</u>
3 	Alarm ON	Sunroof tilt close or channel 3. Start of car heating	Alarm OFF	Sunroof tilt open or channel 3. Turning off car heating	Position 3 <u>3 flashes</u> (Factory setting)



If only the electrical windows of the car are to be controlled, this can be achieved by using an original remote control 1:1 with long presses on the A and B buttons. A remote control 1:1 has the same functions as a remote control 3:1 programmed in the lower position (1).

3.20 ALARM DECALS (STICKERS)

The alarm kit contains 3 DEFA Auto Security alarm decals and 1 decal for marking the model designation.

The sticker showing the model designation is to be fitted in the glove compartment. At installation the valid alarm model is ticked off.

MODEL	M	G	BACKUP
400			
401			
403			
820X			
821X			
823X			

Glove comp. decal

DEFA Auto Security decals are placed on the left and right front side window. One set can be placed either on the front or the rear window.



Window decal



The position of the decals may not interfere with the drivers line of sight.

