



ENGLISH

# **LASER**

CAR ALARMS SYSTEMS



## **INSTALLATION GUIDE**

### **mod. 996 kit**

cod. IS 996E

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## INSTALLATION GUIDE

LOOK THE CAR'S HANDBOOK UP BEFORE DISCONNECTING BATTERY NEGATIVE POLE, PAYING PARTICULAR ATTENTION TO THE AIR-BAG DEVICE AND AUDIO EQUIPMENT CODES. HANDLE THE CENTRAL UNIT WITH CARE.

- **YELLOW WIRES:** Connect one YELLOW wire to the right direction indicator and the other one to left direction indicator circuits.
- **LIGHT BLUE WIRE:** Connect to the existing interior door contact earth switches, via diodes if necessary (see INSTANTANEOUS BUTTONS SELF TEST FEATURES).
- **ORANGE WIRE:** Optional for acoustic signal.
- **BROWN WIRE:** This is a positive output during the alarm condition (3A max) which can be connected to an additional siren (ref. 904 LASERLINE) **DO NOT CONNECT TO HORNS OF VEHICLE !**
- **WHITE WIRE:** Accessory output for controlling modules 811,824,828 LASERLINE. Connect to white wire of these modules.
- **GREY WIRE:** Connect to the earth contact switch fitted on the bonnet.
- **J4 WIRE:** Connect to an ignition (not accessory) positive.
- **J1-J2-J3-J7-J8-J9 WIRES:** use for the engine stop .  
**ATTENTION ! TO FIT THE ENGINE IMMOBILISATION , YOU MUST CUT A WIRE COMING FROM IGNITION SWITCH ,WHICH IS ALWAYS POSITIVE WHEN THE ENGINE IS ON.**
- **J17 WIRES:** connect to quality ground.
- **J18-J24 WIRES :** Connect to the main permanent supply to the ignition switch or fusebox.
- **ULTRASONICS:** Connect the wire coming from the alarm to one side of the ultrasonic module and ultrasonic heads plugs (see mounting diagram). Fix ultrasonic sensor AT THE TOP of the right and left "A" pillars as far as possible from ventilation system.

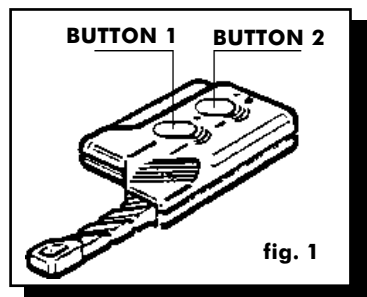
WHEN CONNECTIONS ARE COMPLETED, RECONNECT BATTERY NEGATIVE POLE AND TURN THE OVERRIDE KEY TO THE ON POSITION. FOR CENTRAL LOCKING CONNECTIONS SEE RELEVANT PAGES.

### VERY IMPORTANT INSTALLER NOTICE

- Route wires as far as possible from interference sources (high tension coil, spark-plug wires).
- Fix ultrasonic sensors AT THE TOP of the right and left 'A' pillars as far as possible from ventilation system.
- Adjust ultrasonics sensor sensitivity as carefully as possible in order to avoid false alarms.
- **The LIGHT BLUE WIRE must ALWAYS BE CONNECTED. Otherwise accidental alarming and door locking may occur, leaving your keys inside. In this event LASERLINE declines all responsibility.**
- For vehicle fitted with a catalytic exhaust we advise to install the engine immobilisation on the fuel pump and starter solenoid.
- Do not shorten or lengthen shielded wires on ultrasonic detectors or the aerial wire.
- Normally, replace remote battery every 6 - 12 months.
- All electric connections must be made so as to guarantee quality and reliability (wires soldered).
- Electric isolation and mechanical strength must be guaranteed by the use of high quality materials (heat shrink sheathing and black insulating tape).
- **Do not use "quick couple" connections since they do not guarantee good quality electrical connections.**

### OPERATING INSTRUCTIONS

**ALARM ARMED:** Push button 1 of the remote control. Arming is signalled by two flashes of the direction lights and two acoustic signals (if ref. 904 has been connected to orange wire). When the alarm has armed, the LED fitted in the dashboard flashes.



**ALARM DISARMED:** Push button 1 of the remote control; disarming is signalled by one flash of the direction lights and one acoustic signal (if ref. 904 has been connected to orange wire). If no alarm occurred, during arming, LED dies out.

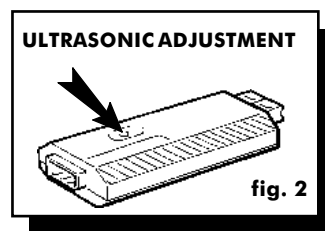
**ARMING/DISARMING** occurs when a random encrypted transmission is sent by the radio-control from a distance of up to 10 metres from the vehicle. Locking and unlocking of the doors will occur where applicable.

**SECURITY ELECTRONIC KEY:** Electronic key is used as security key in two cases :  
**(1)** when it is not possible to use the remote control for arming/disarming **(2)** when the alarm previously armed by remote needs to be disconnected after a damage of the remote.  
**1)** when the electronic key is used for alarm arming instead of remote, should plug it in and extract from proper socket. In this case INSTANTANEOUS PUSH BUTTONS will delay 40" to enable the driver to go out the car. Any attempt to start the car will cause instantaneous alarm. Doors should be locked by hand. Also to disarm the alarm there is a 10" delay of the ULTRASONIC and INSTANTANEOUS PUSH BUTTONS.  
**2)** If you need to disarm the alarm previously armed by remote, you have to open doors by hands. Siren will sound. Plug in and extract the electronic key. Siren will stop its sound and the alarm will disarm itself.

### TESTING AND SENSITIVITY ADJUSTMENT FOR THE FIRST 40" AFTER ARMING

#### ULTRASONIC TESTING:

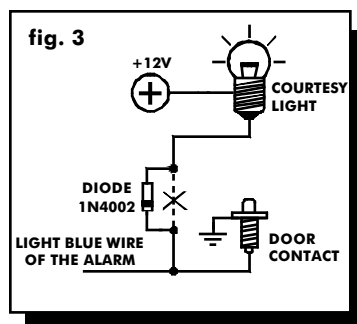
Lower one of the front windows of about 20 cm. Adjust the sensitivity to centre position. Switch the alarm ON by remote control. Introduce an arm and move it. Three LED flashes and three short acoustic signals will show that the arm movement has been noted. If this doesn't happen, increase the sensitivity and repeat the test. **Do not set too high, as false alarm may result.**



- clockwise: maximum sensitivity.
- anti clockwise: minimum sensitivity.
- anti clockwise until the end : sensor excluded.

#### INSTANTANEOUS BUTTONS SELF TEST FEATURES:

Three LED flashes and three short acoustic signals will indicate the opening of protected doors/boot/bonnet. **BEWARE:** On cars equipped with internal courtesy light connect according to the diagram on the fig. 3 one diode 1N4002 (or any others similar with at least 2 A)



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### SELF DIAGNOSTIC LED FUNCTIONS

This function lets you verify the cause of an alarm condition. When the alarm is disarmed by radio control, observing the LED will allow you to identify the cause of the alarm condition.

- LED OFF:** no alarm occurred
- 2 FLASHES/PAUSE:** an alarm caused by ULTRASONIC has occurred
- 3 FLASHES/PAUSE:** an alarm caused by INSTANTANEOUS push button bonnet, boot has occurred
- 5 FLASHES/PAUSE:** an alarm caused by IGNITION KEY sensor has occurred

Turning the ignition key on or re-arming the alarm system by remote will re-set the diagnostic memory.

### FUNCTIONS ACTIVATED IMMEDIATELY AFTER ARMING

- SELF POWER:** Any attempt to cut the power wires will cause the alarm.
- IGNITION KEY:** Any attempt to start the car will cause the alarm.

### FUNCTIONS ACTIVATED 40" AFTER ARMING (PRE-ALARM TIME)

When the alarm is armed remote (during the first 40"), BOOT, BONNET, DOORS, ULTRASONICS detection is signalled by three LED flashes and three acoustic signals. After the pre-alarm time the sensors will cause an alarm condition.

- BOOT/BONNET/DOORS BUTTONS:** Opening of protected areas will cause an alarm condition.
- ULTRASONICS:** Appropriate movement inside the vehicle will cause an alarm condition. In alarm condition the piezo-electronic siren sounds and the direction lights flash for 30 seconds.

### SPECIAL FUNCTIONS

**PANIC:** Pressing button 2 of the remote control will activate the siren for 10 seconds. If you wish to stop it during this time push it again.

**CASUAL RE-ARMING:** If the alarm is casually disarmed it will re-arm itself if the driver side door is not opened within 40" from alarm disarming .  
*This function can be excluded to set the dip-switch n°4 in ON position (see dip switch coding table)*

**PASSIVE ARMING:** Alarm will insert itself (without locking doors) 10" after driver side door closure, without using remote.  
*This function can be excluded to set the dip-switch n°6 in ON position (see dip switch coding table)*

**AUTOMATIC ENGINE STOP:** 20" after the ignition is switched OFF, PASSIVE ENGINE immobilisation becomes effective. Within 20" you can reset the time turning the ignition key ON. When the functions are activated, the LED is constantly ON and it is not possible to start the engine. To cancel the passive engine immobilisation turn ignition key ON and push central button.  
*This function can be excluded to set the dip-switch n°5 in ON position (see dip switch coding table)*

### ANTI-CODE GRABBING WITH VARIABLE CODE ENCRYPTION

Today's criminals are shifting from code scanning to a new, much more efficient method of electronic thievery: "code-grabbing."  
When you use a car alarm remote control, it transmits a digital code to your alarm. A thief with a code-grabber can record that code right off the air from hundreds of feet away, then play it back when you're gone to disarm the alarm and unlock the doors.  
Within seconds, your car is just another theft statistic. Fortunately, LASERLINE Anti-Code Grabbing randomly changes the transmitted code every time you press any of the remote control buttons. The system's microprocessor randomly generates each code. The remote control NEVER sends the same code twice, and the system control unit NEVER accepts the same code twice. That makes code-grabbing utterly useless against LASERLINE alarm systems.



### **RESYNCRONISATION PROCEDURE**

After certain activities (i.e. battery change) it may be necessary to push middle button of the remote until the LED is extinguished. Depressing the same button a second time, the remote will start again usual working.

### **SELF CODING REMOTE CONTROL AND ELECTRONIC KEYS HANDSETS**

In case you lose a remote or need to code a new one your installer will be able to quickly re-code and replace it in the following way:

- 1) Ensure alarm is disarmed with the original remote handset.
- 2) Turn ignition to on position.
- 3) Move DIP switch No. 3 to ON position (see DIP SWITCH CODING TABLE).
- 4) Plug the electronic key in and extract it from proper socket, or push button 1 of the remote control; The LED on the dashboard will now light on constantly.
- 5) Within 30 seconds of constant LED illumination, press arm/disarm button on the new remote, and plug all the new electronic keys in and extract them from proper socket until facia LED 'blinks'. They are now coded.
- 6) Reposition DIP switch No. 3 to its original position, turn off ignition switch and test remote operation.

### **PAY ATTENTION:**

- **IF DIP SWITCH NUMBER 3 HAS NOT BEEN REPLACED IN OFF POSITION, ALL REMOTE CONTROLS AND ELECTRONIC KEYS CAN BE DELETED.**
- You can add a maximum of 4 remotes and 4 electronic keys. Coding can only occurs when LED is on in constant way; from coding of one remote to the other one can't pass more than 30".
- If you code a new remote or a new key, you have to code the old ones. Trough the procedure before explained, if you lose a remote or an electronic key you can make them useless.

### **ULTRASONICS AND WINDOWS CLOSER EXCLUSION**

- Arm the alarm by remote button n° 1;
- Within 30" push button n° 2. Exclusion of ultrasonics and windows closer will be signalled by 1 flash of indicator lights and 1 acoustic signal.
- Functions will be automatically restored when alarm will be disarmed.

### **SIREN EXCLUSION THROUGH REMOTE CONTROL**

Turn the ignition key ON.

Push the button n° 2 on the remote handset (see fig 1).

The red LED will flash once. This means that the SIREN function has been excluded.

**These functions will be automatically restored when alarm will be disarmed.**

## DIP SWITCH CODING TABLE

SWITCH n°	POSITION	FUNCTION
<b>1</b>	OFF	TOTAL CLOSURE FUNCTION (COMFORT CLOSING time 25'') DEACTIVATED
	ON	TOTAL CLOSURE FUNCTION (COMFORT CLOSING time 25'') ACTIVATED
<b>2</b>	OFF	ELECTRIC CENTRAL LOCKING PULSE TIME (1'')
	ON	PNEUMATIC CENTRAL LOCKING PULSE TIME (3'')
<b>3</b>	OFF	AUTO-CODE FUNCTION DEACTIVATED
	ON	AUTO-CODE FUNCTION ACTIVATED
<b>4</b>	OFF	CASUAL RE-ARMING ACTIVATED
	ON	CASUAL RE-ARMING DEACTIVATED
<b>5</b>	OFF	PASSIVE ENGINE KILL ACTIVATED
	ON	PASSIVE ENGINE KILL DEACTIVATED
<b>6</b>	OFF	PASSIVE ARMING ACTIVATED
	ON	PASSIVE ARMING DEACTIVATED

### ATTENTION



- When the alarm is disarmed NO function is activated.
- When ignition key is ON it is not possible to arm the alarm.
- If there are three consecutive alarm conditions caused by the same detector (ULTRASONIC SENSOR/PUSH BUTTONS), after the third cycle of siren sound, that detector is excluded but it is not possible to start car engine.

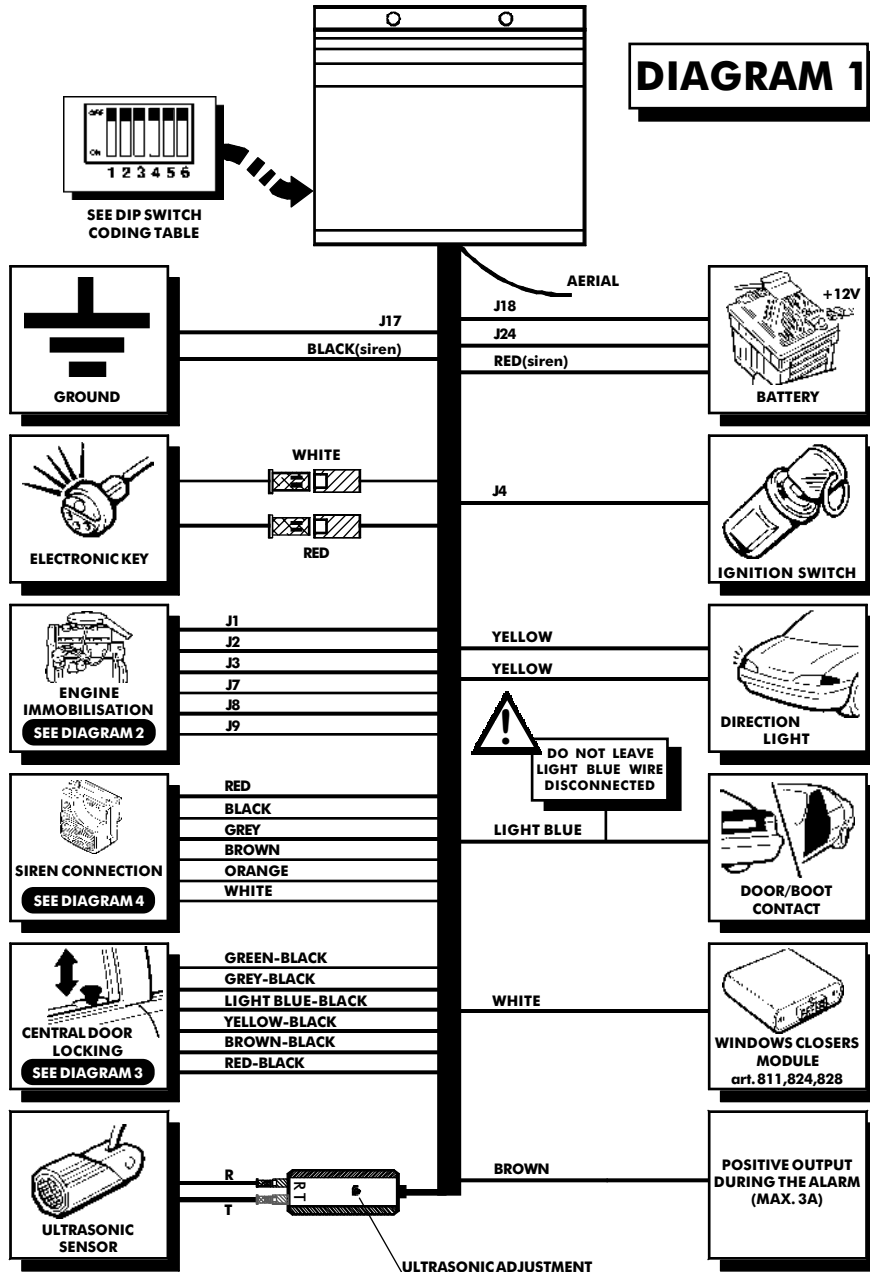
### TECHNICAL DATA

POWER SUPPLY: ..... 12V DC  
 CURRENT DRAW WITH ALARM ON ..... 23 mA  
 CURRENT DRAW WITH ALARM OFF ..... 13 mA  
 EXIT DELAY: ..... 40 seconds  
 MAX. ALARM CYCLE DURATION: ..... 30 seconds  
 ULTRASONIC SENSOR FREQUENCY: ..... 40 Khz  
 MAX. BLINKER RELAY CONTACT CAPACITY ..... 5+5 Ampere  
 MAX. FUEL PUMP STOP ENGINE RELAY CONTACTS CAPACITY: ..... 10 Ampere  
 MAX. STARTER SOLENOID STOP ENGINE RELAY CONTACTS CAPACITY: ... 30 Ampere

### NOTE

Manufacturer declines any responsibility for damage or malfunction of the alarm and the vehicle electrical system due to WRONG INSTALLATION OR TAMPERING. Alarms are only a deterrent against any theft from or of the vehicle.  
 LASERLINE RESERVES THE RIGHT TO EFFECT CHANGES OF THE PRODUCT WITHOUT FURTHER NOTICE.

## DIAGRAM 1

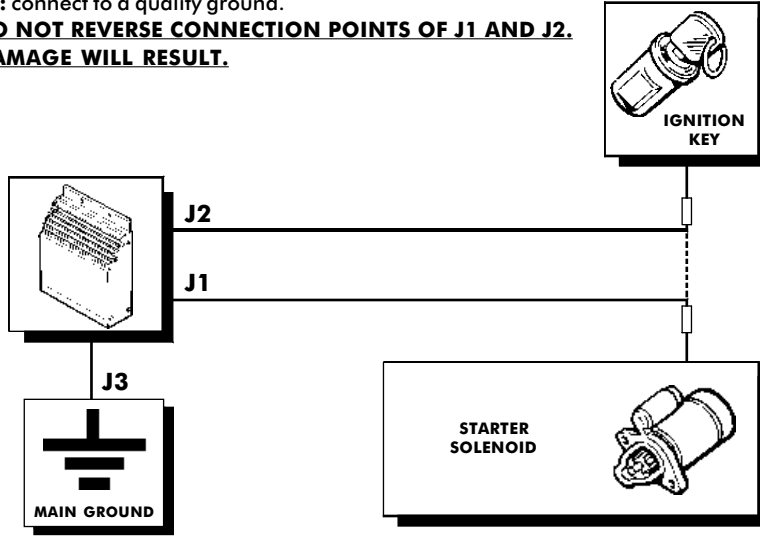


## DIAGRAM 2 STOP ENGINE CONNECTIONS

**J1-J2:** use for the **FIRST** engine stop. Locate supply to starter solenoid or crank relay. Cut this wire. Connect **J2** to the supply side of the cut wire and connect **J1** to the load side of the cut wire. Solder and insulate joints carefully.

**J3:** connect to a quality ground.

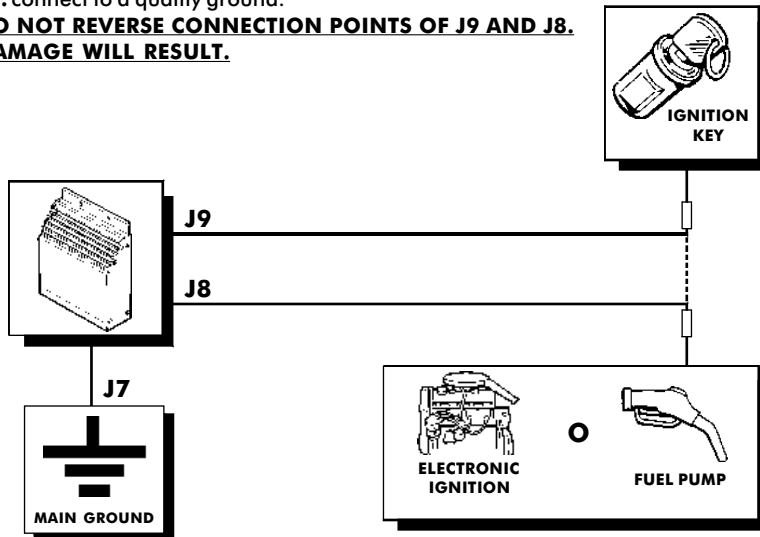
**DO NOT REVERSE CONNECTION POINTS OF J1 AND J2.  
DAMAGE WILL RESULT.**



**J8-J9:** use for the **SECOND** engine stop. Locate supply to coil, fuel pump or electronic ignition module. Cut this wire. Connect **J9** to the supply side of the cut wire and connect **J8** to the load side of the cut wire. Solder and insulate joints carefully.

**J7:** connect to a quality ground.

**DO NOT REVERSE CONNECTION POINTS OF J9 AND J8.  
DAMAGE WILL RESULT.**







## CENTRAL DOOR LOCKING CONNECTION

### **DIAGRAM "3/A"**

FOR VEHICLES WITH MULTI POINT CENTRALISED  
DOOR LOCKS (NEGATIVE POLE TYPE)

GREEN/BLACK- YELLOW/BLACK: connect to ground  
GREY/BLACK: negative impulse for closing  
BROWN/BLACK: negative impulse for opening  
LIGHT BLUE/BLACK - RED/BLACK: not used

### **DIAGRAM "3/B"**

FOR VEHICLES WITH MULTI POINT CENTRALISED DOOR  
LOCKS (POSITIVE POLE TYPE)

GREEN/BLACK - YELLOW/BLACK: connect to a fused positive supply  
GREY/BLACK: positive impulse for closing  
BROWN/BLACK: positive impulse for opening  
LIGHT BLUE/BLACK - RED/BLACK: not used

### **DIAGRAM "3/C"**

FOR VEHICLES WITH SINGLE POINT CENTRALISED DOOR LOCKS  
(CONTROL ONLY FROM ONE POSITION)

LIGHT BLUE/BLACK - RED/BLACK: connect to ground  
GREEN/BLACK - YELLOW/BLACK: connect to a fused positive supply  
GREY/BLACK: connect to the blue wire of the central locking motor  
BROWN/BLACK: connect to the red wire of the central locking motor

### **DIAGRAM "3/D"**

FOR VEHICLES WITH MULTIPOINT VACUUM CONTROLLED CENTRAL LOCKING

GREEN/BLACK: connect to the ground  
YELLOW/BLACK: connect to a fused positive supply  
GREY/BLACK - RED/BLACK: connect to each other

Locate the wire coming from the driver's or passenger's side front door which controls the CDL pump operation. Cut it and connect the wire coming from the pump to the BROWN/BLACK wire. Connect the wire coming from the door to the LIGHT BLUE/BLACK wire.

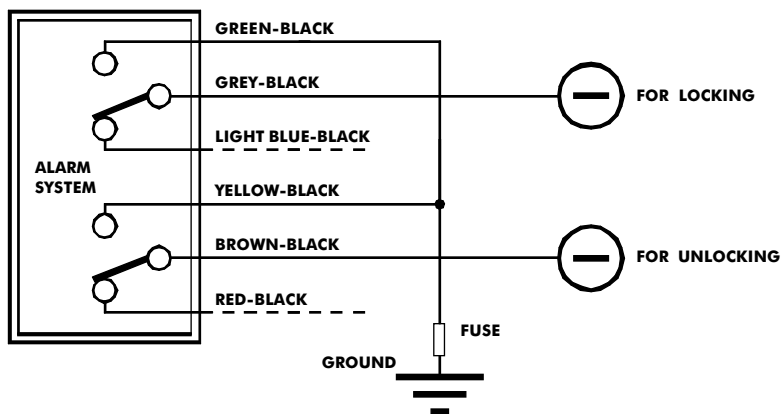
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# DIAGRAM 3 CENTRAL DOOR LOCKING

## DIAGRAM "3/A" NEGATIVE POLE TYPE

PLACE DIP SWITCHES BEFORE MAKING CONNECTIONS

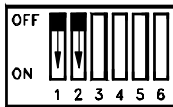
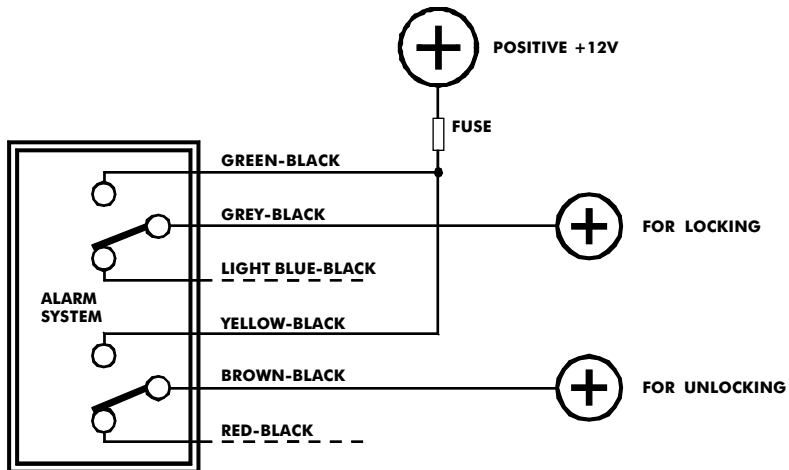


DIP SWITCH NO. 2 OFF: 1 SECOND PULSE  
 DIP SWITCH NO. 2 ON: 3 SECONDS PULSE  
 DIP SWITCH NO. 1 ON: 25 SECONDS PULSE (lock only)

**DO NOT USE LIGHT BLUE/BLACK AND RED/BLACK WIRES**

## DIAGRAM "3/B" POSITIVE POLE TYPE

PLACE DIP SWITCHES BEFORE MAKING CONNECTIONS



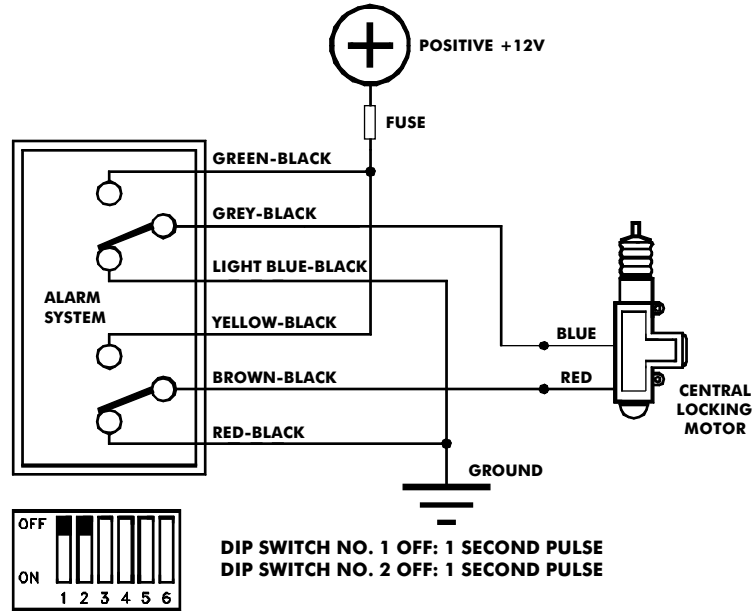
DIP SWITCH NO. 2 OFF: 1 SECOND PULSE  
 DIP SWITCH NO. 2 ON: 3 SECONDS PULSE  
 DIP SWITCH NO. 1 ON: 25 SECONDS PULSE (lock only)

**DO NOT USE LIGHT BLUE/BLACK AND RED/BLACK WIRES**



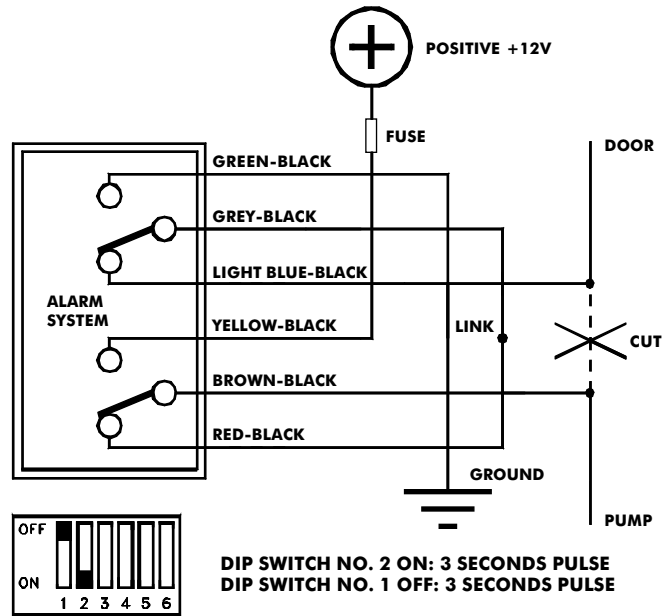
### DIAGRAM "3/C" CONTROL ONLY FROM ONE POSITION

PLACE DIP SWITCHES ACCORDING TO THE DIAGRAM BEFORE MAKING CONNECTIONS



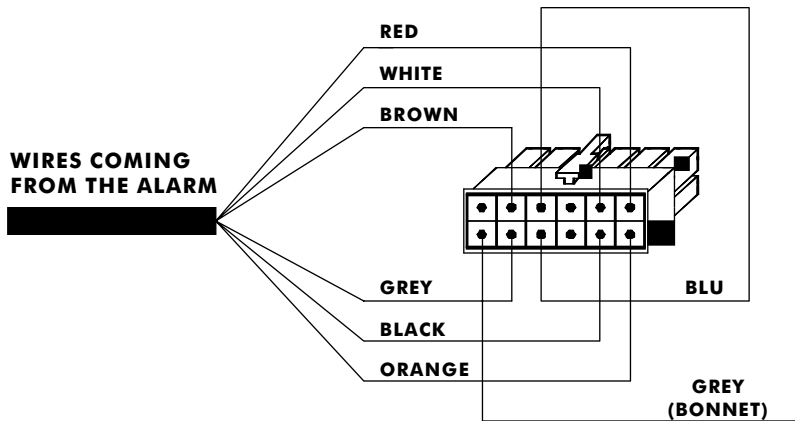
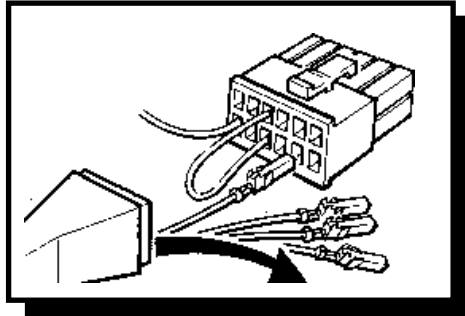
### DIAGRAM "3/D" CONTROL FOR ELECTRO-PNEUMATIC MOTOR

PLACE DIP SWITCHES ACCORDING TO THE DIAGRAM BEFORE MAKING CONNECTIONS



## DIAGRAM 4 ELECTRICAL CONNECTION OF 904 SIREN

**INSERT THE WIRE COMING FROM THE ALARM AS SHOWN IN THE PICTURE BELOW**



### IMPORTANT

The recommended position of the siren in the vehicle under bonnet area is usually given on the vehicle information sheet.

Do not locate in area subject to excess water ingress, or in area of excess heat, exhaust manifold, turbo, etc...

Self powered siren (904) are fitted with an automatic system for internal battery power supply. Full charge of the internal siren happens during first **24 hours** of the operation. Furtherly, the battery power charge is automatically controlled and maintained.

Before disconnecting car battery, you have to wait for 60" after alarm disarming by remote control or electronic key.

### TECHNICAL DATA SIREN 904

POWER SUPPLY .....	12 V DC
CURRENT DRAW (during the first 24h = 10 mA) .....	4 mA
SOUND POWER .....	123 dBm

996kit meet the requirements of the 89/336 directive concerning the Electromagnetic Compatibility (EMC) and ETS 300/220 rule concerning the radio frequency device.

