ENGLISH

LASERLINE

CAR ALARMS SYSTEMS

FITTING INSTRUCTION
COMPACT ALARM

989E - 988E
989EES with siren exclusion
975E- 974E without ultrasonic

ENGLISH

INSTALLATION GUIDE

DISCONNECT BATTERY NEGATIVE POLE AFTER ENSURING AVAILABILITY OF AUDIO EQUIPMENT CODES. HANDLE THE CENTRAL UNIT WITH CARE.

- **BLACK:** connect to quality ground.
- **GREEN AND YELLOW-GREEN** use for the engine stop (8 AMP).
  Cut the supply to (depending on the type of vehicle) the coil, the electronic ignition, the fuel pump, the electro-valve (on diesel vehicle) or the starter solenoid. Connect supply side of the cut wire to the **GREEN** wire and the load side of the cut wire to the **YELLOW-GREEN** wire (see diagram 2). Solder and insulate joints carefully.
- **YELLOW WIRES:** connect one YELLOW wire to the right direction indicator and the other one to left direction indicator circuits.
- **GREY WIRE:** connect to the earth contact switch fitted on the bonnet.
- **VIOLET WIRE:** Connect to an ignition (not accessory) positive.
- **WHITE WIRE:** Accessory output for controlling modules 824, 811LASERLINE.
  Connect to white wire of these modules.
- **LIGHT BLUE WIRE:** Connect to the existing interior door contact earth switches (via diodes if necessary!)
- **BLUE WIRE:** Connect to the black wire of LED, then connect the LED red wire to a fused positive (+12V).
- **BROWN WIRE:** This is a positive output during the alarm condition (3A max) which can be connected to an additional siren (ref. 904, 900 LASERLINE) **DO NOT CONNECT TO HORNS OF VEHICLE !**
- **RED WIRE:** Connect to the main permanent supply to the ignition switch or fusebox .

WHEN CONNECTIONS ARE COMPLETED, 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 and shock 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 responsability.
- 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.
- **Place the alarm in the engine compartment ensuring maximum practical protection from excess heat (85° C max) . Where it is possible fit the unit in vertical position permitting reasonable access to the emergency override swich.**
- Normally, replace remote battery every 6 - 12 months.

ELECTRIC CONNECTIONS

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).
Splices between two or more wires should be done by stripping them, soldering the joint and covering it with heat-shrink sheathing or black insulating tape.
Do not use "quick couple" connections since they do not guarantee good quality electrical connections.

RE SYNCRONISATION 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.

OPERATING INSTRUCTIONS

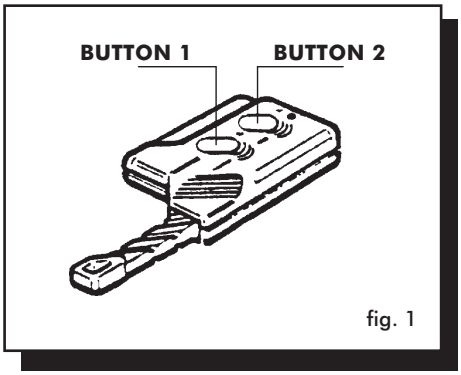

fig. 1

ALARM ARMED: It is signalled by two flashes of the direction lights and two acoustic signals.
ALARM DISARMED: It is signalled by one flash of the direction lights and one acoustic signal. **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.
PANIC: Pressing the upper button will activate the siren for 10 seconds. If you wish to stop it during this time push it again.

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.**

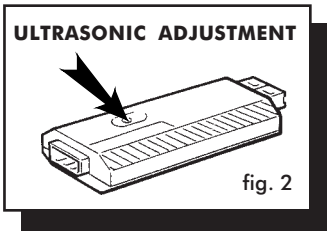

fig. 2

- 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)

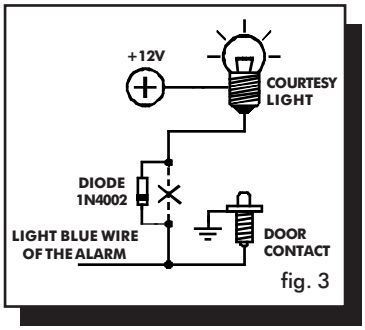

fig. 3

SHOCK SENSOR:
- Adjust sensitivity potentiometer to centre position;
- Apply appropriate impact to vehicle body

Three short acoustic signals indicate the impact 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.

FUNCTION ACTIVATED IMMEDIATELY AFTER ARMING

SELF POWER: Any attempt to cut the power wires will cause the alarm (989-975 only).
IGNITION KEY: Any attempt to start the car will cause the alarm.

IMPORTANT : self powered siren (989-975 only) are fitted with an automatic system for internal battery power supply. Full charge of the internal siren happens during first**15 hours** of the operation. Furtherly, the battery power charge is automatically controlled and mantained.

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

When the alarm is armed remote (during the first 40"), **SHOCK SENSOR/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.
SHOCK SENSOR: Appropriate impact to the vehicle 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.
DROP IN VOLTAGE (bulb lighting): instantaneous alarm
In alarm condition the piezo-electronic siren sounds and the direction lights flash for 30 seconds.

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 (ULTRASONICS SENSOR/PUSH BUTTONS), after the third cicle of siren sound, that detector is excluded but it is not possible to start car engine.

SECURITY KEY: in OFF position it excludes all the alarm functions and restores the connection of the engine immobilisation circuit. This ensures the vehicle may be driven until any fault is rectified.

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 occured*
1 FLASH/PAUSE: *an alarm caused by a VOLTAGE DROP has occured*
2 FLASHES/PAUSE: *an alarm caused by ULTRASONIC has occured*
3 FLASHES/PAUSE: *an alarm caused by INSTANTANEOUS push button bonnet, boot has occured*
4 FLASHES/PAUSE: *an alarm caused by SHOCK sensor has occured*
5 FLASHES/PAUSE: *an alarm caused by IGNITION KEY sensor has occured*
6 FLASHES/PAUSE: *an alarm casued by CUTTING SUPPLY WIRES has occured*

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

SPECIAL FUNCTIONS

PANIC: Pressing the upper button 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)

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°4 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.

SELF CODING REMOTE HANDSETS
In case you loose 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:
I) Ensure alarm is disarmed with the original remote handset.
2) Turn ignition to on position.
3) Open bonnet and remove access plate on rear of siren.
4) Move DIP switch No. 1 to ON position. 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 until facia LED 'blinks'. New remote is now coded.
6) Again within 30 seconds code original remote as above (5).
7) Reposition DIP switch No. 1 to its original position and refit access plate on rear of siren.
8) Turn off ignition and test remote operation.
You can add a maximum of 4 remotes

ULTRASONIC EXCLUSION THROUGH REMOTE CONTROL
- Open the driver side door and turn the ignition key ON.
- Push the button n° 1 on the remote handset.
The LED will flash once. This means that the ULTRASONIC function has been excluded. Re-establishment will happen automatically on switching the ignition key ON.

ULTRASONIC AND WINDOW CLOUSURE EXCLUSION
- Open the driver side door and turn the ignition key ON.
- Push the button n° 2 (panic) on the remote handset.
The LED will flash twice. This means that the ULTRASONIC AND WINDOW closure have been excluded. The re-establishment will happen automatically on switching the ignition key ON.

ULTRASONICS AND WINDOWS CLOSER EXCLUSION (only 989EES)
Arm the alarm by remote button n° 1 and within 30" depress 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 (only 989EES)
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.

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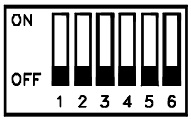
DIP SWITCH CODING TABLE



Dip-switch n°	Position	Function
1	OFF	AUTO-CODE FUNCTION **DEACTIVATED**
	ON	AUTO-CODE FUNCTION **ACTIVATED**
2	OFF	VOLT DROP SENSING **ACTIVATE**
	ON	VOLT DROP SENSING **DEACTIVATED**
3	OFF	ACOUSTIC TONE **ACTIVATED**
	ON	ACOUSTIC TONE **DEACTIVATED**
4	OFF	CASUAL RE-ARMING AND AUTOMATIC STOP ENGINE **ACTIVATED**
	ON	CASUAL RE-ARMING AND AUTOMATIC STOP ENGINE **DEACTIVATED**
5	OFF	CLOSURE FUNCTION **(COMFORT CLOSING time 1")**
	ON	CLOSURE FUNCTION **(COMFORT CLOSING ONLY time 25")**
6	OFF	ELECTRIC CENTRAL LOCKING **(pulse time 1 sec.)**
	ON	PNEUMATIC CENTRAL LOCKING **(pulse time 2 sec.)**

TECHNICAL DATA

POWER SUPPLY: ..... 12V DC
CURRENT DRAW WITH ALARM ON (989-989EES-988): ..... 23 mA
CURRENT DRAW WITH ALARM ON (975-974): ..... 16 mA
CURRENT DRAW WITH ALARM OFF (989-989EES-988): ..... 13 mA
CURRENT DRAW WITH ALARM OFF (975-974): ..... 13 mA
EXIT DELAY: ..... 40 seconds
MAX. ALARM CYCLE DURATION: ..... 30 seconds
TIME BETWEEN CONSECUTIVE ALARMS ..... 5 seconds
ULTRASONIC SENSOR FREQUENCY: ..... 40 Khz
MAX. BLINKER RELAY CONTACT CAPACITY ..... 5+5 Ampere
MAX. STOP ENGINE RELAY CONTACTS CAPACITY: ..... 8 Ampere

989 range of products meets the requirements of the EEC 95/54 directive concerning the Electromagnetic Compatibility (EMC) and the EEC 95/56 directive concerning protection device against unauthorised use of motorvehicle and ETS norms applied in this case

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LASER LINE

DIAGRAM 1

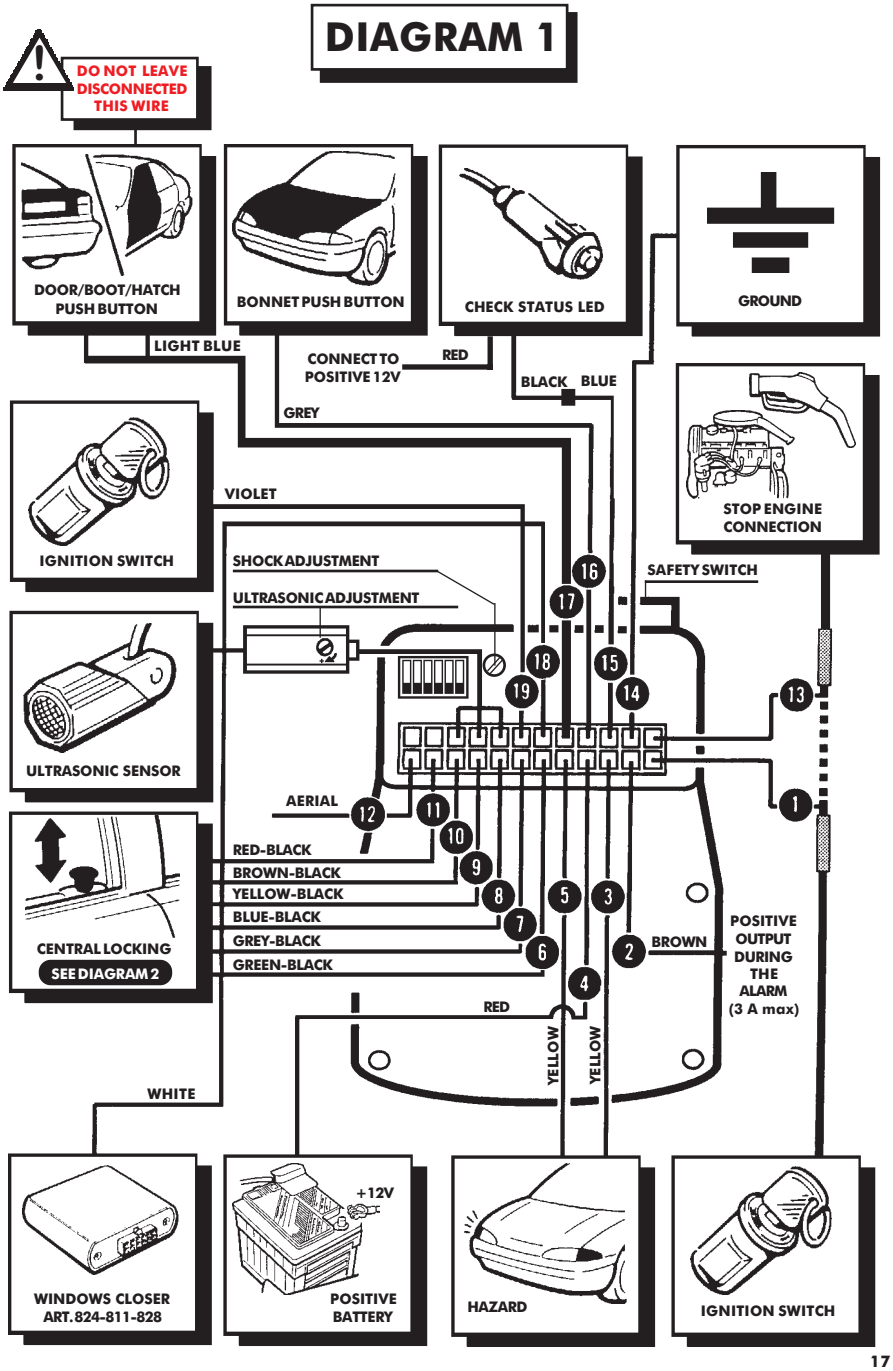

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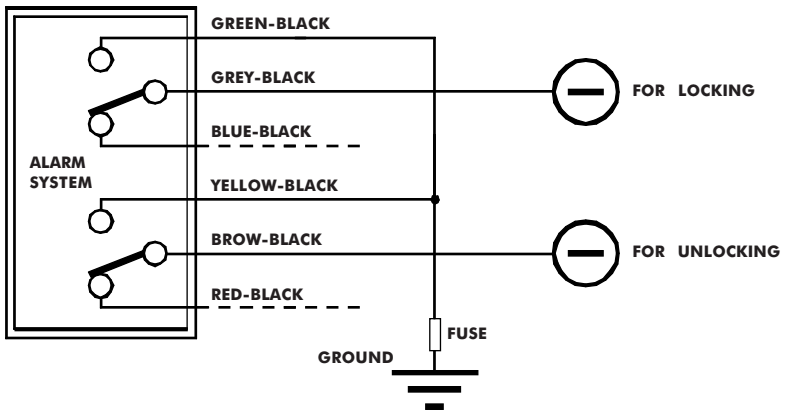
DIAGRAM 2
CENTRAL DOOR LOCKING

DIAGRAM "2/A"
NEGATIVE POLE TYPE

PLACE DIP SWITCHES BEFORE MAKING CONNECTIONS

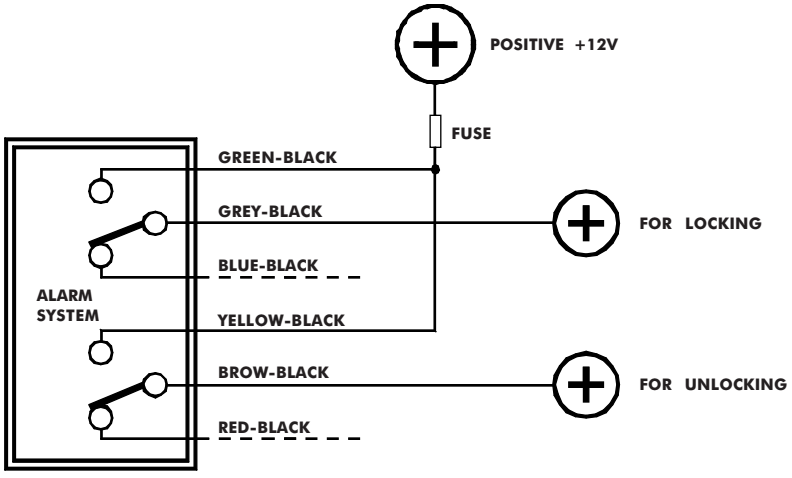


DIP SWITCH NO. 6 OFF: 1 SECOND PULSE
DIP SWITCH NO. 6 ON: 3 SECONDS PULSE
DIP SWITCH NO. 5 ON: 25 SECONDS PULSE (lock only)

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

DIAGRAM "2/B"
POSITIVE POLE TYPE

PLACE DIP SWITCHES BEFORE MAKING CONNECTIONS

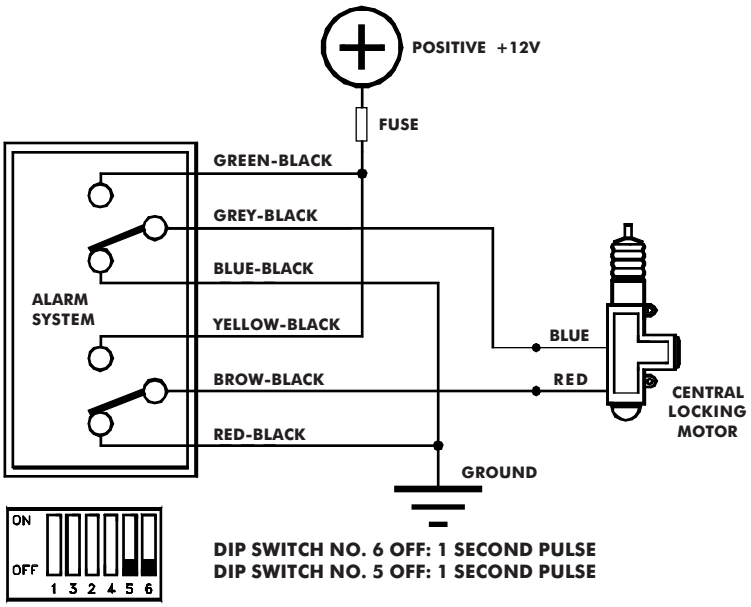


DIP SWITCH NO. 6 OFF: 1 SECOND PULSE
DIP SWITCH NO. 6 ON: 3 SECONDS PULSE
DIP SWITCH NO. 5 ON: 25 SECONDS PULSE (lock only)

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

DIAGRAM "2/C"
CONTROL ONLY FROM ONE POSITION

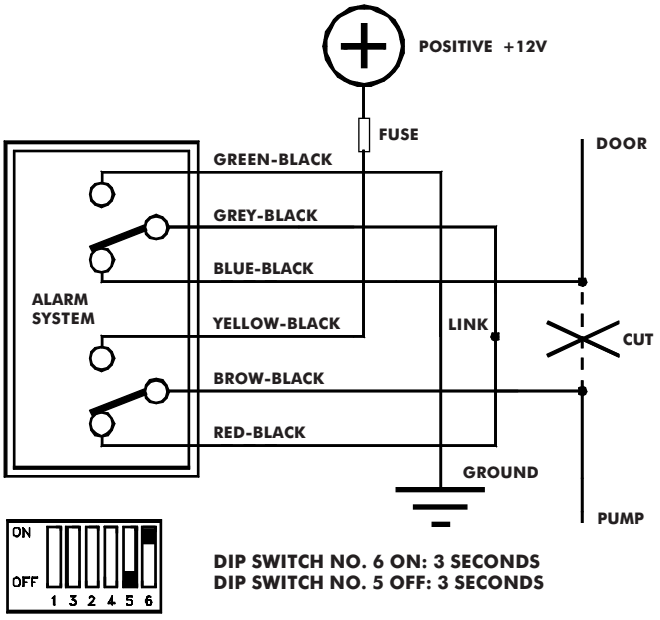
PLACE DIP SWITCHES ACCORDING TO THE DIAGRAM BEFORE MAKING CONNECTIONS



DIP SWITCH NO. 6 OFF: 1 SECOND PULSE
DIP SWITCH NO. 5 OFF: 1 SECOND PULSE

DIAGRAM "2/D"
CONTROL FOR ELECTRO-PNEUMATIC MOTOR

PLACE DIP SWITCHES ACCORDING TO THE DIAGRAM BEFORE MAKING CONNECTIONS



DIP SWITCH NO. 6 ON: 3 SECONDS
DIP SWITCH NO. 5 OFF: 3 SECONDS

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CENTRAL DOOR LOCKING CONNECTION

DIAGRAM "2/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
RED/BLACK - BLUE/BLACK: not used

DIAGRAM"2/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
RED/BLACK - BLUE/BLACK: not used

DIAGRAM"2/C"

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

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"2/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 BLUE/BLACK wire.

NOTE

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

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