GEMINI®
ALARM SYSTEMS

931T MH

INSTALLATION AND USE MANUAL

UK

CE

Made in Italy

AC2910 Rev. 00 - 03/13

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1.0 - PRELIMINARY ADVICE

Dear Customer,

Thank you for choosing a GEMINI product. This new 931T MH CAN BUS alarm system has been designed and manufactured in Italy specifically for recreational vehicles. Please read the present manual carefully to familiarize yourself fully with the alarm system features and operating procedures and do keep it handy for future reference.

NB: Optional Gemini remote controls (product codes 938 and 848) are available to operate the alarm system and the CDL, only where negative CDL connection is available (see par. 5.0 PINOUT TABLES).

The following signs, intended for the user and the installer, indicate particular functions or connections:

For the user.
This sign highlights useful information.

For the installer.
This sign indicates that the system will work according to the connections and the programming selected or it simply provides useful installation tips.

USER MANUAL

2.0 - OPERATING DESCRIPTION

2.1 - COMPLETE SYSTEM ARMING

Press the lock button on the vehicle original remote control or button 1 on optional Gemini remote control; system arming is confirmed by a beep and a flash of the turn indicators (if features are enabled).
The system has a 30" pre-arming "neutral time" (arming delay) during which the LED is ON steady.

2.2 - SYSTEM ARMING WITH SENSOR EXCLUSION

The system can be armed without activating internal volumetric protection (wireless infrared or wireless hyperfrequency) while keeping perimeter protection. To do so proceed as follows:

- Make sure the system is disarmed and ignition key is "OFF";
- Insert the electronic key into its receptacle*; the LED will give a quick flash;
- Close vehicle doors and press the lock button on the vehicle original remote control*;
- System activation is confirmed by a beep and a flash of the turn indicators (if features are enabled).

NB:* With the optional Gemini remotes, simply press Button 3 once all doors are closed.

Sensor exclusion is bound to each single arming cycle.

2.3 - PASSIVE ARMING

If programmed to passively arm, the system will do so approx. 60" after ignition is switched OFF and after the last door is opened and closed. A beep and a flash of the turn indicators will confirm the armed state (if features are enabled).

If passive arming is enabled, internal sensors are excluded.
Opening a door 60" before the system is armed causes the procedure to interrupt; it will resume once the door is closed.

2.4 - ARMING DELAY

There is a 30” delay from the time the system is armed to allow you to leave the vehicle without triggering any alarm; it is signaled by the LED turned ON steady.

2.5 - SYSTEM ARMED

After the delay time the system is armed and ready to detect any alarm condition. The LED will start flashing when the system is fully armed.

2.6 - ALARM, INHIBIT TIME BETWEEN ALARMS AND ALARM CYCLES

Alarm conditions are signaled by optical signals.
Once the alarm ceases, there is a 5” time-interval before another alarm goes off. Each alarm event generates 10 alarm cycles of 30” each, for each input and for each arming cycle. During an alarm event, the system can be disarmed via the remote controls.

2.7 - SYSTEM DISARMING

Press the unlock button on the vehicle original remote control or button 2 on the optional Gemini remote. System disarming is confirmed by 2 beeps and 2 flashes of the turn indicators (if features are enabled).

Five beeps and five flashes of the turn indicators, when the system is disarmed (if features are enabled), warn there has been an alarm condition prior to disarming. Alarm causes and relative LED signals are listed in par. 2.9 .

2.8 - EMERGENCY DISARMING BY ELECTRONIC KEY

This disarming mode is used for “EMERGENCY DISARMING” and “TOTAL DISARMING”.

To restore normal operation, touch electronic key to its receptacle.
A high pitched beep and a flash of the status LED will confirm that the system is back to normal mode.

2.9 - ALARM MEMORY STATUS

Five beeps and five flashes of the turn indicators, when the system is disarmed (if features are enabled), warn there has been an alarm condition prior to disarming. To identify the last cause of alarm, turn ignition key “ON” and count the number of flashes of the status LED; they will indicate the last alarm detected. Optical signals are repeated 3 times in a row; to interrupt, turn ignition key “OFF”.

The table below lists the various alarm causes and relative number of LED flashes.

LED FLASHES	ALARM CAUSES	ALARM CYCLES
✷✷●✷✷	Ignition attempt (+15/54)	10
✷✷✷●✷✷✷	Door opening	10
✷✷✷✷●✷✷✷✷	Bonnet opening	10
✷✷✷✷✷●✷✷✷✷✷	Boot opening	10
✷✷✷✷✷✷●✷✷✷✷✷✷	Volumetric or external sensor	10
✷✷✷✷✷✷✷✷●✷✷✷✷✷✷✷✷	Wireless magnetic contacts or opening detectors	10
✷✷✷✷✷✷✷✷✷●✷✷✷✷✷✷✷✷✷	Wireless infrared sensors (PIR) or wireless hyperfrequency sensors	10
● LED OFF (2 seconds) ✷ LED ON (1 second)		

3.0 - WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) DIRECTIVE

The present device does not fall within the scope of Directive 2002/96EC on Waste Electrical and Electronic Equipment (WEEE) as specified in art. 2.1 of L. D. No. 151 of 25/07/2005.

4.0 - TECHNICAL SPECIFICATIONS

Power supply	**12 Vdc**
Current absorption @ 12Vdc with system armed and LED flashing	**15 mA**
Working temperature range	**From -30°C to +70°C**
Turn signals relay contact capacity	**8 A at 20°C**
Alarm cycle duration	**30 sec.**
Maximum positive current output - system armed (+A)	**700 mA**

5.0 - PINOUT TABLES

5.1 - 20-WAY CONNECTOR

POSITION	WIRE FUNCTION	WIRE COLOUR
- 1 -	-----	-----
- 2 -	System arming signal	YELLOW-BLUE
- 3 -	System disarming signal	GREEN-BLUE
- 4 -	-----	-----
- 5 -	Inhibit input (par. 11.7)	GREEN-BROWN
- 6 -	Electronic key receptacle input	GREEN
- 7 -	Electronic key receptacle negative ground	BROWN
- 8 -	LED negative output	BLACK
- 9 -	LED positive output	RED
- 10 -	Positive under key	BLACK marked “G”
- 11 -	CAN BUS signal (CAN-H)	LIGHT BLUE-GREY
- 12 -	CAN BUS signal (CAN-L)	LIGHT BLUE
- 13 -	Positive output when system is armed (+A)	PINK
- 14 -	External sensors input	GREEN-BLACK
- 15 -	Bonnet switch negative input	GREEN
- 16 -	Hazard lights (Optical pulse signal)	BLUE
- 17 -	Lock command (1,5” negative pulse when pressing optional Gemini remote control button 1 or 3)	WHITE-BLACK
- 18 -	Codified self-powered siren	YELLOW-BLACK
- 19 -	Antenna	BLACK
- 20 -	Input - Self-learning and system arming/disarming by turn indicators	WHITE-ORANGE

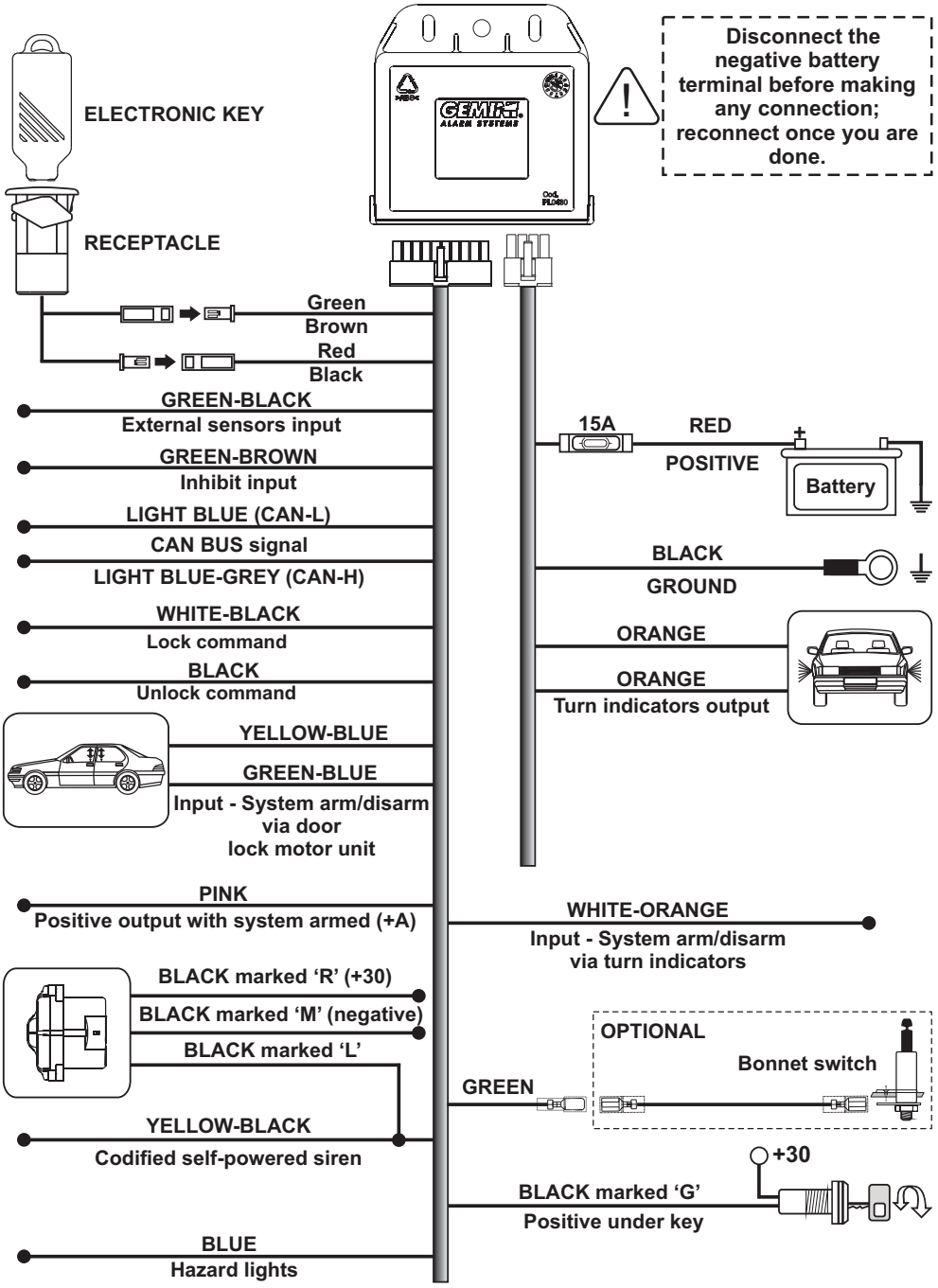
WHITE-ORANGE wire must ALWAYS be connected if system is to arm/disarm via the turn indicators.

5.2 - 8-WAY CONNECTOR

POSITION	WIRE FUNCTION	WIRE COLOUR
- 1 -	Ground	BLACK
- 2 -	-----	-----
- 3 -	Positive power supply	RED
- 4 -	Turn indicators positive output	ORANGE
- 5 -	-----	
- 6 -	-----	-----
- 7 -	Unlock command (1,5” negative pulse when pressing optional Gemini remote control button 2)	BLACK
- 8 -	Turn indicators positive output	ORANGE

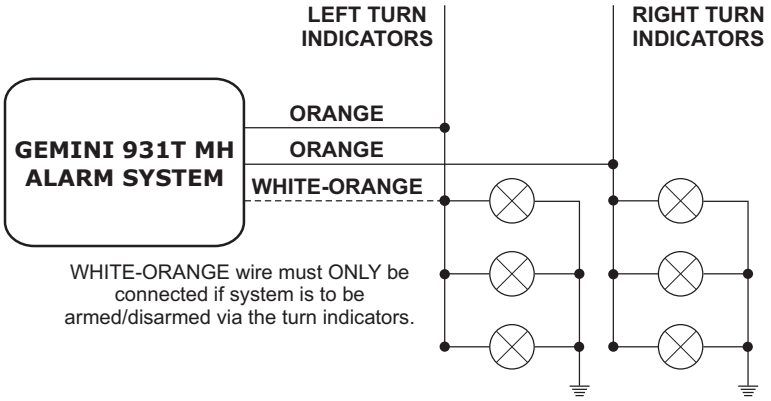
For complete information regarding connections, please refer to your vehicle wiring diagram.

6.0 - WIRING DIAGRAM

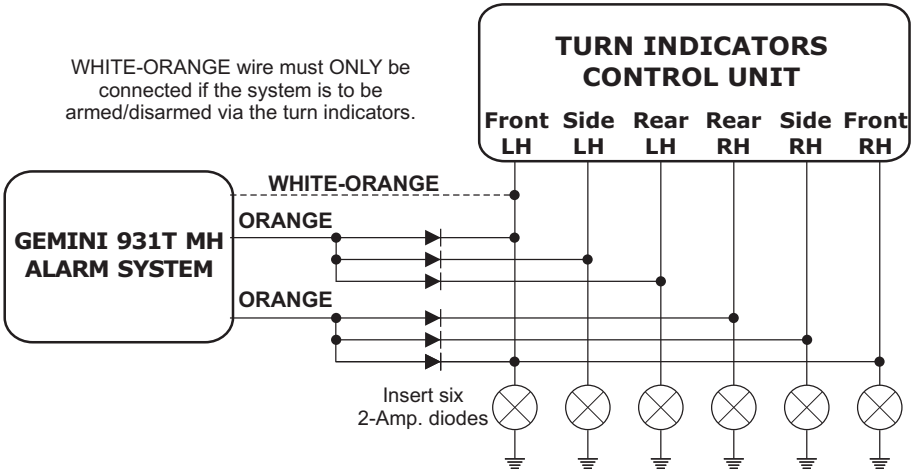


7.0 - TURN INDICATOR WIRING DIAGRAMS

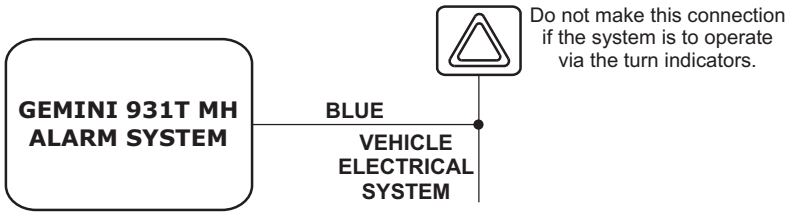
7.1 - STANDARD CONNECTIONS



7.2 - CONNECTIONS FOR VEHICLES WITH SEPARATE LINES



7.3 - CONNECTION TO HAZARD SWITCH



8.0 - CENTRAL DOOR LOCK CONNECTIONS TO ARM/DISARM THE SYSTEM

The 931TMH system can operate in various modes according to the vehicle on which it is installed and the connections made.
CAN-BUS connections enable the system to be managed via the CAN-BUS line and operate in combination with the CAN signals, with the turn indicators flashes and/or the door lock motor unit. The system automatically manages the different arming/disarming signals. For details on connections, refer to vehicle specific installation sheets.
The next paragraphs deal with the different types of connections; the arming modes are the following:

- Arming via CAN-BUS line;
- Arming via door lock motor unit;
- Arming via self-learning of turn indicators flashes;
- Arming via turn indicators flashes and door lock motor unit;
- Arming via turn indicators flashes, door lock motor unit and CAN-BUS line.

8.1 - CONNECTIONS AND MANAGEMENT BY CAN-BUS LINE

System arming/disarming and alarm are managed through CAN-BUS line. Therefore only connect the alarm system CAN BUS line to the vehicle CAN line wires (for available diagrams go to: www.gemini-alarm.com).

8.2 - CONNECTIONS TO DOOR LOCK MOTOR UNIT

System arming/disarming connections must be made to the vehicle door lock motor unit (polarity inversion).

8.3 - CONNECTIONS TO TURN INDICATORS

If turn indicators flashes are identical on locking and unlocking, connect door lock motor unit.

If the turn indicators flash when unlocking with the car mechanical key, do not make this connection.

To arm/disarm the system, connect the WHITE-ORANGE wire to one of the turn indicators wires.

8.4 - “MIXED” CONNECTION OPTION

This type of connection allows the system to operate through the CAN BUS line with the turn indicators or the door lock motor unit or both.
The system automatically manages the different lock/unlock signals according to the programming and the connections made.

9.0 - VEHICLE CODE PROGRAMMING

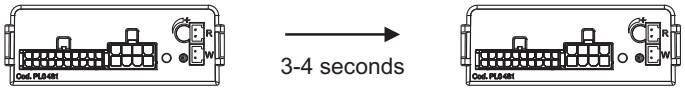
If the system works via CAN-BUS line, the alarm system needs to be configured according to the vehicle on which it is installed.
To help you understand the coding procedure, here below is an example illustrating the configuration procedure. In this case the code used is 1-0-3 which hypothetically corresponds to a "FIAT XXXXX".

A separate leaflet, included in the alarm packaging, lists available vehicles (codes are updated at packaging time).
Up-to-date information on supported vehicle models can be found in our website private area www.gemini-alarm.com

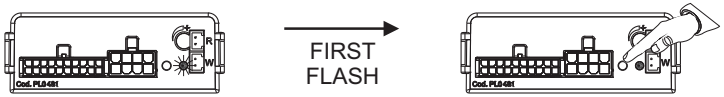
The system has an indicator LED that signals any wrong vehicle code inserted.
The code must range between 100 and 235 otherwise the LED on the unit blinks repeatedly and the procedure is interrupted.
The previously inserted code will remain stored.
The procedure is also invalidated if the LED blinks more than 10 times. In this case there are no optical warnings, the procedure is simply interrupted.
In either case, repeat the whole procedure.

Connect the 20-way wiring harness connector to the 20-way system connector.
Press and hold the button shown below until the LED lights up.

Release the button, the LED switches off.



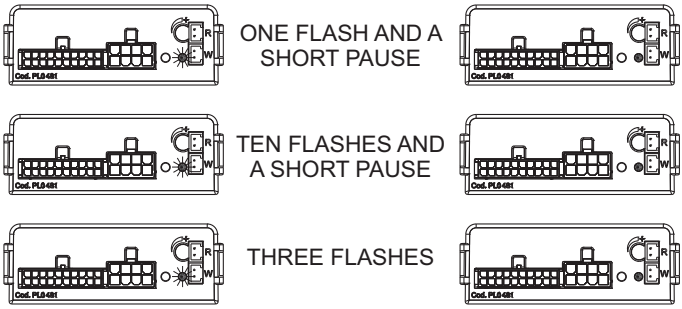
After 3 to 4 seconds, the LED starts flashing; count the flashes.
Press the button at the 1st flash which corresponds to digit "1".



After another 4 seconds, there is a second sequence of flashes.
Press the button at the 10th flash which corresponds to digit "0".

After 4 more seconds, the LED will flash the third sequence.
Press the button at the 3rd flash which corresponds to digit "3".

When the last digit is entered, the alarm system “repeats” the entered code.



Press the remote controls lock/unlock buttons to make sure the alarm system works properly. Eventually disconnect the 20-way connector and reconnect it after few seconds.

10.0 - SELF-LEARNING OF TURN INDICATORS FLASHES

In order to arm/disarm via the turn indicators, the system must learn the vehicle locking (arming) and unlocking (disarming) flashes.

Connect the WHITE-ORANGE wire to the turn indicators and then proceed as follows:

- Disconnect the 8-way wiring connector from the 8-way system connector.
- Turn ignition key “ON”.
- Connect the 8-way wiring connector to the 8-way system connector; the LED turns on steady.
- Turn ignition key “OFF”.
- Close all doors and press the lock button on the original remote control or the Gemini optional remote.
- When the turn indicators stop flashing, the LED turns OFF for 1 sec.
- Press the unlock button on the original remote control or on the Gemini optional remote.
- When the turn indicators stop flashing, the LED turns OFF.
- This completes the procedure.

To cancel programming of turn indicators, reset the system (see chapter 17.0).

11.0 - SYSTEM PROGRAMMING

The table below applies to the system programmed in “standard configuration”.
Every time you enter the programming procedure, the alarm resets to the default settings.

FUNCTION	STATUS	LED FLASHES
Exclusion of arming/disarming optical signals	Disabled	✷
Exclusion of arming/disarming audio signals	Enabled	✷✷
System passive arming	Disabled	✷✷✷
Self-powered coded siren	Enabled	✷✷✷✷
For Gemini only - Turn ignition key	Disabled	✷✷✷✷✷
For Gemini only - Turn ignition key	Disabled	✷✷✷✷✷✷
Double pulse unlock	Disabled	✷✷✷✷✷✷✷

Procedure must be carried out entirely. To move from one function to another either turn the key to disable it or use the electronic key to enable it (see par. 12.0).

NB: A lack of power during electrical system maintenance, will not affect the programming.

Below is a brief description of the programmable functions.

11.1 - OPTICAL SIGNALS

By disabling this function, the turn indicators will flash when the system is armed (1) and disarmed (2).

If the vehicle already has optical locking/unlocking signals, turn indicator alarm flashes should be deactivated.

11.2 - AUDIO SIGNALS

By disabling this function, audio signals will indicate when the system is armed (1) and disarmed (2).

11.3 - PASSIVE ARMING

With this function enabled, the system arms 60” after ignition is switched off and the last door is opened and closed. If a door is opened during this lapse of time, the procedure is interrupted; it will resume when the door is closed.

11.4 - ENABLING OF SIREN (ART. 7725T) OUTPUT

This function enables the codified comunication from the alarm system to the self-powered coded siren (art. 7725T).

11.5 - DOUBLE PULSE UNLOCK

If this feature is enabled, 2 unlocking pulses will be supplied to unlock all doors including the habitation door. This is useful in case separate actions are required to open the driver door and then the other doors. When this feature is turned ON, the lock/unlock pulse time is 0,5 sec. instead of 1,5 sec.

11.6 - INHIBIT INPUT

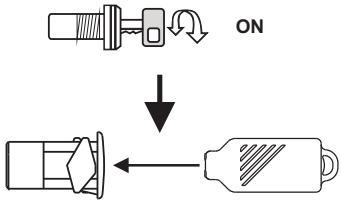
If input is active (GND), alarm disarming is inhibited for 3 seconds.

12.0 - SYSTEM PROGRAMMING EXAMPLE

The following examples illustrate the steps to follow to modify the programmable functions.

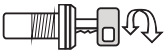
As mentioned before, turning the key OFF-ON disables a function while using the electronic key enables it. To confirm the operation, a high or low pitched signal will sound and the LED will flash as indicated in the 'System Programming Table', chap. 11.0.

With the alarm system disarmed, turn ignition key "ON" and touch the electronic key to its receptacle.



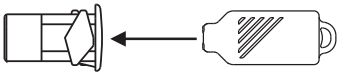
Two audio signals (a high and a low-pitched sound) and two flashes of the turn indicators will indicate that the system has entered the programming procedure.

Each and every function must either be disabled or enabled as follows:



To keep the first function disabled simply turn ignition "OFF" and then back "ON".
A low-pitched audio signal will confirm the operation.
The LED will flash according to the selected function (from 1 to 7).

OR



To activate it, insert the electronic key once in its receptacle.
A high-pitched audio signal will confirm the operation.
The LED will flash according to the selected function (from 1 to 7).

In both cases, the system will move on to the next function. Repeat the above steps to enable or disable all the other functions.

When the last function is configured (either with the electronic key or the ignition key), in addition to the confirmation tone, the system gives 2 low-pitched and 1 high-pitched audio signals and the turn indicators flash twice.

These last two signals indicate the end of the programming procedure.

13.0 - ADDING NEW DEVICES

To carry out the operation successfully, make sure the required electrical connections (bonnet push-button and positive under key) are complete.

To activate the code-learning mode proceed as follows:

- With system disarmed, open the bonnet and leave it open.

The following operations must be carried out within 4 seconds otherwise the procedure is invalidated.

- Turn ignition key “ON-OFF”-“ON-OFF”-“ON-OFF”-“ON”; at the 4th turn, leave it “ON”.
- To confirm it has entered in the self-learning mode, the system gives 2 audio signals (one high and one low-pitched), the turn indicators flash once and the LED turns ON.

Do not close the bonnet otherwise all previously programmed devices will be erased as described in the next paragraph.

The system is ready to receive the device codes.

- Depending on which device is to be learned, either press one of the remote control buttons, insert the electronic key into its receptacle, make the magnetic contact transmit (bring contact and magnet together and then move apart), press the opening detector button, make the infrared sensor or the hyper-frequency sensor transmit (see sensor instructions).
- A short beep confirms learning.
- Repeat this procedure to learn other devices.
- Turn ignition key “OFF”; a low-pitched signal and a flash of the turn indicators will confirm the end of the procedure. The status LED will turn OFF.

Storing memory is for 55 devices.
Saving an extra device will automatically delete the first device.

14.0 - DELETING PROGRAMMED DEVICES

To carry out the operation successfully, make sure the required electrical connections (bonnet push-button and positive under key) are complete.

Any previously programmed device can be deleted as follows:

- With the system disarmed, open the bonnet and leave it open.

The following ON-OFF operations must be carried out within 4 seconds otherwise the procedure is invalidated.

- Turn ignition key “ON-OFF”-“ON-OFF”-“ON-OFF”-“ON”; at the 4th turn, leave it “ON”.
- Two audio signals (a high and a low-pitched sound) and a flash of the turn indicators confirm the system has entered in the delete mode. The LED will turn ON.
- To clear the memory, close the bonnet and keep it closed for at least 8 sec.

If the bonnet is opened before 8 seconds, devices will not be deleted.

- The status LED turns OFF when the devices have been deleted; turn ignition key “OFF”.
- A long low-pitched audio signal confirms the end of the clearing procedure.

15.0 - ULTRASONIC VOLUMETRIC PROTECTION

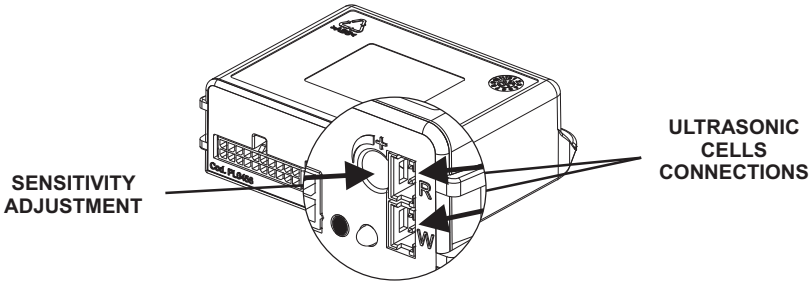
15.1 - CONNECTIONS AND POSITIONING

Insert the WHITE connector in the “W” marked socket and the RED connector in the “R” marked socket (see picture below).
Install the transducers of the ultrasonic sensors on the top part of the windshield internal pillars, away from the air vents and orient them towards the center of the rear window.

15.2 - SENSOR ADJUSTMENT

To check sensor sensitivity level proceed as follows:

- With the alarm system disarmed, roll down the front window about 20 cm.
- Set the trimmer to an intermediate position (medium sensitivity).
- Close all doors, bonnet and boot and arm the system.
- During the system inhibit arming time introduce an object in the cabin through the window and move it around; the status LED will turn off to signal a presence.
- If sensitivity level is too high or too low, readjust the trimmer and repeat the above procedure.



16.0 - SYSTEM RESET

By activating the following procedure, the system returns to the factory default setting. This procedure must therefore only be used in case of need, before programming the system or auto-learning the turn indicators flashes.

To reset the system proceed as follows:

- Disarm the system, wait 4 min. and then disconnect the codified siren (7725D);
- Disconnect the system;
- Short-circuit the RED and BLACK wires of the 2-way LED connector;
- Connect the system; connection is confirmed by 4 flashes of the turn indicators;
- Remove the previously created short-circuit; the status LED will light up steady;
- Turn ignition key “ON”; the turn indicators turn ON for 4 sec. to confirm reset (if the Orange wires are connected);
- Turn ignition key “OFF”; the LED will turn OFF. There will be no audio signals.

Gemini permanently fitted aftermarket equipment must be installed by qualified and authorised installers.
Thatcham recommends to its insurer members that the installations of certified products within the aftermarket are registered with an independent installation registration system which can be accessed by insurance companies.
Thatcham administers the Thatcham Recognised Installer scheme, on behalf of the British motor insurance industry, providing independent registration of installations to vehicle owners.
Details of the Thatcham Recognised Installer scheme can be found at www.thatcham.org.
To ensure consumers insurance cover is not adversely affected it is highly recommended that all installations are carried out by Thatcham recognised installers and that all installs are registered providing the vehicle owner with a Thatcham recognition of installation for presentation to insurers.

Thatcham recommends to its insurer members that the installations of certified products within the aftermarket are registered with an independent installation registration system which can be accessed by insurance companies.
If seeking insurer recognition for the fitment of this product it is likely that the installation will have to be carried out by a Thatcham recognised installer.
A full list of Thatcham recognised installers is available at www.thatcham.org.

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