



Maxx¹

Installation Guide

driven to excel
Directed[®]
ELECTRONICS, INC.

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Important Information

IMPORTANT! The Avital Maxx¹ system is designed to be installed in any petrol powered vehicle with a 12 volt battery.

system components

One Avital Maxx¹ Control Unit with Metal Enclosure
One Prewired 18-Pin Connector Harness
One Prewired 10-Pin Connector Harness
One Prewired 4-Pin Pigtail Connector Harness
One Prewired Valet Switch
One Prewired Status LED
One 2-Button 10-Channel Remote Control
One 2-Button 3-Channel Remote Control
Two Ultrasonic Transducers
One Battery Back-up Siren with Mounting Bracket
One Hardware Pack
One Owner's Guide
One Certificate of Installation
Two Avital Window Decals

required installation tools

Voltmeter
Wire Strippers/cutters
Electric Drill & Bits
Phillips Screwdriver
Convuluted Tubing *
Soldering Iron
Wire Crimpers
Shrink Tube or Electrical Tape

* Optional

recommended procedures

1. Test all circuits with a voltmeter.
2. Make all wiring connections using solder and heatshrink using the procedure below. Do **NOT** twist wires or use scotch-lock connectors.
 - Strip half an inch of insulation from the wires you are going to solder and slide a piece of shrink tubing over one of them.
 - Join the wires together, then heat the wires with a soldering iron whilst touching solder to the wires until the solder melts.
 - Pull the wires to test the solder joint, then position the loose shrink tube over the solder joint and gently heat with a hot air gun so that it tightly seals and insulates.
3. Keep extensions as short as possible. Use the same gauge wires for short extensions and larger gauge wires for longer extensions.
4. Before installing, discuss the placement of the LED indicator and Valet switch with the vehicle's owner.
5. Turn off interior light(s) or remove interior light fuse to prevent battery drain.

Installation Procedures

Control Unit

CAUTION: *The Avital Maxx¹ control unit must be installed inside the vehicle. Under no circumstances should the unit be installed under the bonnet or other similarly hostile environment.*

1. Select a location under the dash that will allow you to use the screws to securely fasten the control unit.
2. Mount the control unit as high as possible to ensure maximum range.
3. Do not mount the control unit near moving parts.
4. Avoid areas that are in the direct path of air blowing from the heater vents.
5. Route wires from this point, leaving slack for ease of service.

Antenna

1. Do not shorten or lengthen the antenna.
2. Route the antenna away from the control unit.
3. Keep the antenna as far away from metal and wire harnesses as possible to optimise range.

Valet Switch

1. Discuss placement with the vehicle's owner.
2. **Choose a location for the Valet switch that is convenient for the owner to access.**
3. Drill a 7mm hole and mount the switch.

LED Indicator

1. Discuss placement with the vehicle's owner.
2. Choose a location that is visible from both sides of the vehicle.
3. Drill a 7mm hole.
4. Insert the LED into the black mounting collar.
5. Push the LED and collar into the 7mm hole.

Siren

1. Choose a location in the engine compartment away from high temperature engine components, moving parts and direct exposure to water.
2. Make sure the siren and siren wires cannot be seen or reached from below the vehicle.
3. Mount the siren with the two self-tapping screws to a solid metal surface.
4. Route the siren cable through the firewall into the passenger compartment.
5. Make the wire connection as per the diagram on page 20.

Ultrasonic Sensors

1. Choose a location at the top of the A-pillar on both driver and passenger sides.
2. Mount the sensors using the screws provided or by inserting the mounting tabs between the dashboard and windscreen pillar.
3. Angle the sensors towards the top centre of the rear window. If mounted at the top of the A-pillars make sure the ultrasonic position does not affect use of the sunvisor.
4. Route the sensor cables to the control module and plug-in.

Ultrasonic Sensitivity Adjustment

1. Follow the instructions for entering program mode on page 16. Enter program branch number 19 on page 17 listed as "Ultrasonic Sensor Test and Adjustment Mode."
2. Once in this mode the system LED will flash ON and the siren will chirp if movement is detected inside the vehicle.
3. The sensitivity adjuster is found on the side of the main Alarm/Immobiliser Control Unit. Insert a small screw-driver into the adjustment hole and turn the screw clockwise to increase sensitivity or anti-clockwise to decrease sensitivity.
4. Move your arm through an open window on the vehicle as if attempting to remove an item from the seat. The LED should illuminate and the siren should chirp to detect the movement. If it does not, then increase the sensitivity in small increments until the optimum position is reached and the sensors do pick up the movement. Do not over adjust the sensors as the system will false alarm. The sensitivity level should be left at the minimum setting where the sensors pick up movement in the rear seating position.
5. When satisfied with the final sensitivity setting, you may exit Installer Ultrasonic setup mode by either turning off the ignition or by pressing any remote control button. Program mode exit will be confirmed by two siren chirps (one short and one long chirp).

Pin Connector Charts

18-Pin Connector (P1)

Pin Number	Wire Colour	Description
1		Not used.
2		
3		
4		
5	BROWN	Coded Link for Siren
6	RED/WHITE	Channel 2 Accessory (-) Pulsed for Boot Release
7		Pre-Wired to Ultrasonic Sensors
8		
9		
10	WHITE	Indicator Light Output
11	BLACK with WHITE TAG	Indicator Light Polarity (+) or (-) Input Select
12	WHITE	Indicator Light Output
13	BLUE/BLACK	Unlock (-) Output
14		Not used.
15		
16		
17		
18	GREEN/BLACK	Lock (-) Output

BROWN Coded Link for Siren (P1/5)

The BROWN wire is the siren's data connection. This wire controls whether the siren should chirp or sound, etc. Connect the BROWN wire to the BROWN siren wire.

NOTE: Do not connect anything other than the system siren to this wire or damage may occur.

RED/WHITE (P1/6)

The RED/WHITE wire provides a 0.75 second ground (-) output when the alarm is disarmed only. This is ideal for boot release. If the remote control button is continuously pressed, the signal will stay at ground for as long as the button is held.

NOTE: Most boot releases are switched positive and require an additional relay.

2 BLACK Screened Wires Pre-Wired to Ultrasonic Sensors (P1/7, 8, & 9)

These wires are to be plugged into the two ultrasonic sensors.

2 WHITE & BLACK with WHITE TAG Indicator Lights (P1/10, 11, & 12)

1. If the indicator lights are positive trigger, connect the BLACK wire with WHITE tag to the constant positive (+) battery terminal through the 20 amp fuse provided.

NOTE: Do not connect the BLACK wire with WHITE tag to the control unit BLACK wire with RED tag.

2. If the indicator lights are negative (-) trigger, connect the BLACK wire with WHITE tag to the control unit BLACK wire with GREEN tag.
3. Connect the WHITE wires to the left and right indicator light wires on the vehicle.

Low Current (-) Door Lock Outputs (P1/13 & P1/18)

For installation instructions, see Door Lock Diagrams beginning on page 12.

10-Pin Connector (P2)

Pin Number	Wire Colour	Description
1	NOT USED	Not Used
2	BLUE/WHITE	Boot Trigger (-) Input
3	BLACK with ORANGE TAG	Ignition Sense (+) Input
4	BLACK/WHITE	Normally Closed (-) Trigger Input
5	GREY	Prewired To Valet Switch
6	ORANGE	Armed (-) Output
7	BLUE	Bonnet Trigger (-) Input
8	GREEN	(-) Door Trigger Input, Interior Light Illumination (-) Output
9	BLACK with GREEN TAG	12 volt (-) Input x2
10	BLACK with RED TAG	12 volt (+) Input

BLUE/WHITE Boot Trigger (-) Input (P2/2)

1. Locate the vehicle boot pin switch that shows ground when the boot is opened.
2. Connect the BLUE/WHITE wire to the vehicle boot switch wire.
3. If the vehicle does not have a boot switch, install a pin switch and connect it to the BLUE/WHITE wire.

BLACK with ORANGE TAG Ignition Sense (+) Input (P2/3)

1. Use a voltmeter to locate the one wire that shows 12 volts when the ignition key is in the ON, CRANK and RUN positions, and 0 volts when the ignition key is in the OFF position.
2. Connect the BLACK wire with the ORANGE tag to the vehicle ignition wire.

NOTE: Remove tag from wire after connection.

BLACK/WHITE Normally Closed (-) Trigger Input (P2/4)

The BLACK/WHITE wire is a normally closed input as opposed to the systems sensor, door, & boot/bonnet inputs which are normally open. Some vehicles are factory fitted with normally closed bonnet pin switches which can be connected to this wire. Or alternatively, it can be connected to ground after being looped through external ancillary equipment such as mountain bikes, spot lamps, spare wheels, in-dash CD players, etc. The input can also be used for connection to a heated rear window switched wire. This last option is especially useful as if the rear windscreen was removed whilst the alarm was armed the alarm would trigger.

NOTE: *If you are not going to use this Input then it must be grounded or the system will report a malfunction.*

GREY Prewired to Valet Switch (P2/5)

The GREY wire is switched to ground whenever the valet switch is pressed.

ORANGE Armed (-) Output (P2/6)

The ORANGE wire will provide a ground (-) output for as long as the alarm is Armed. It does not provide a ground when the system is Passive Immobilised or Disarmed.

BLUE Bonnet Trigger Input (P2/7)

1. Locate the vehicle bonnet pin switch that shows ground when the bonnet is opened.
2. Connect the BLUE wire to the BLUE siren wire. Connect the bonnet switch to the BLUE wire exiting the siren harness at the siren.
3. If the vehicle does not have a bonnet switch, install a pin switch and connect it to the BLUE wire exiting the siren harness at the siren.

GREEN Door Trigger (P2/8)

The system has a negative door trigger input. If the vehicle door trigger is negative (-) switching, connect the alarm GREEN wire to the vehicle door trigger wire. For vehicles that have a positive door trigger, a relay will need to be added to provide the GREEN wire with a negative when the door is open.

BLACK with GREEN TAG, BLACK with RED TAG Power and Ground Connections (P2/9 & 10)

CAUTION: *Do not plug in the system fuses until the final step below.*

1. Connect the BLACK wire with RED tag to one of the supplied fuse assemblies.
2. Connect the BLACK wires with GREEN tags to separate chassis ground locations.
3. Connect the empty fuse assembly(s) to the positive battery post.

NOTE: *This wire must be a minimum of 14 gauge.*

4-Pin Pigtail Connector (P3)

Pin Number	Wire Colour	Description
1	BLACK with WHITE TAG No. 1	Immobiliser Circuit No.1
2	BLACK with WHITE TAG No. 2	Immobiliser Circuit No.1
3	BLACK with WHITE TAG No. 3	Immobiliser Circuit No.2
4	BLACK with WHITE TAG No. 4	Immobiliser Circuit No.2

NOTE: The current rating for each of the two onboard immobilisation circuits is 20 amps continuous/30 amps peak.

Immobilisation Connections

Make sure the four black pigtail connector wires are solidly connected. The ignition and starter circuit may draw very high current.

Ignition Disable

1. Locate the ignition switch loom under the dashboard.
2. Use a voltmeter to locate the one wire that shows 12 volts when the ignition key is in the ON, CRANK, and RUN positions and 0 volts when the ignition key is in the OFF position.
3. Cut this wire in half. Test by attempting to start the engine with the ignition key. The starter should crank but the engine should not start.
4. Connect the control unit BLACK wire marked 1 to the vehicle ignition switch side.
5. Connect the control unit BLACK wire marked 2 to the vehicle coil side.

NOTE: Remove all tags from wires after connection.

Starter Disable

1. Locate the ignition switch wireloom under the dashboard.
2. Use a voltmeter to find the one wire that will show 12 volts while the ignition key is in the CRANK position only. This should be the starter solenoid wire.
3. Cut the starter solenoid wire. Test by trying to crank the starter with the ignition key. If it does not crank, you have the correct wire.
4. Connect the control unit BLACK wire marked 3 to the key side.
5. Connect the control unit BLACK wire marked 4 to the starter side.

NOTE: Remove all tags from wires after connection.

Final Wiring Connections

1. Inspect all alarm wiring. Make sure all wires are connected.
2. Install the 5 amp fuse in the BLACK wire with RED tag fuse assembly.
3. Install the 20 amp fuse in the BLACK wire with WHITE tag fuse assembly (if the vehicle indicator lights are positive).

NOTE: Remove tags from wires after connection.

System Status/Diagnostic Charts

LED System Status Indicator

LED	Status
Off	System is disarmed.
On	In Valet mode.
Slow Flash	Passive Immobilised only.
Double Flash	System is armed and Immobilised.
Triple Flash	More than three consecutive incorrect Valet codes have been entered (system ignores Valet switch for two minutes).
Flashing in Cycles	See "Specific Zone Intrusion Identification" chart below.
Rapid Flash	Passive arming countdown.

Specific Zone Intrusion Identification

If the alarm has been triggered, the siren will chirp three times upon remote disarm. Turn the ignition ON and count the LED flashes. Each flash cycle is repeated two more times giving three cycles in total.

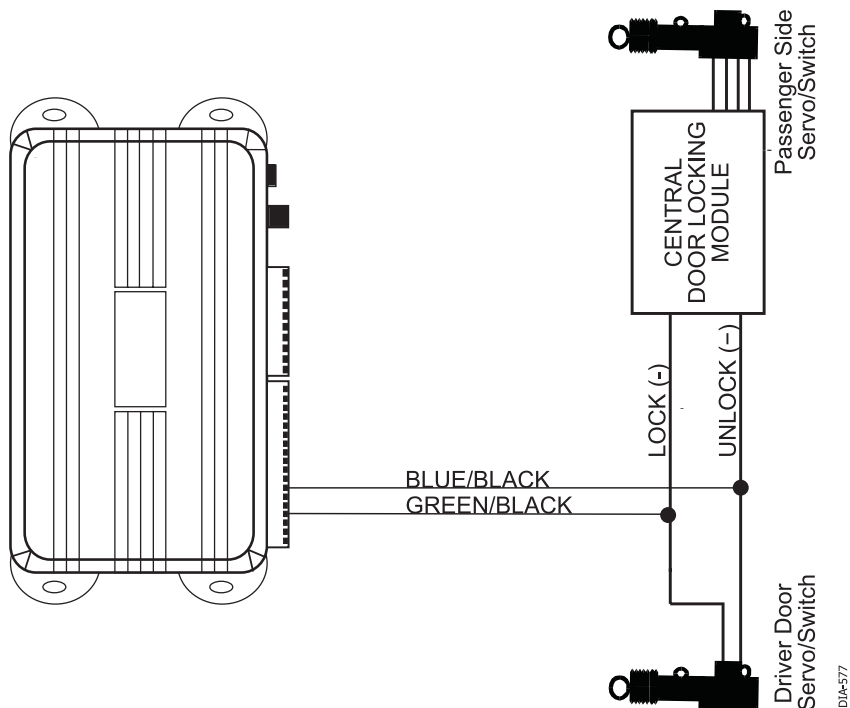
LED	Zone	Input Description
Three Flashes	Optional Sensor 2	Dual Zone 4-pin
Four Flashes	Door Trigger Input (-)	P2 Pin 8 GREEN
Five Flashes	Boot/Bonnet Trigger	P2 Pin 2 BLUE/WHITE or Pin 7 BLUE
Six Flashes	Normally Closed Trigger Input (-)	P2 Pin 4 BLACK/WHITE
Seven Flashes	Ultrasonic Sensor	P1 Pin7/8/9 Ultrasonic sensors
Eight Flashes	Ignition Trigger	P2 Pin 3 BLACK with ORANGE Tab

Chirp/Indicator Light Flash Interpretation

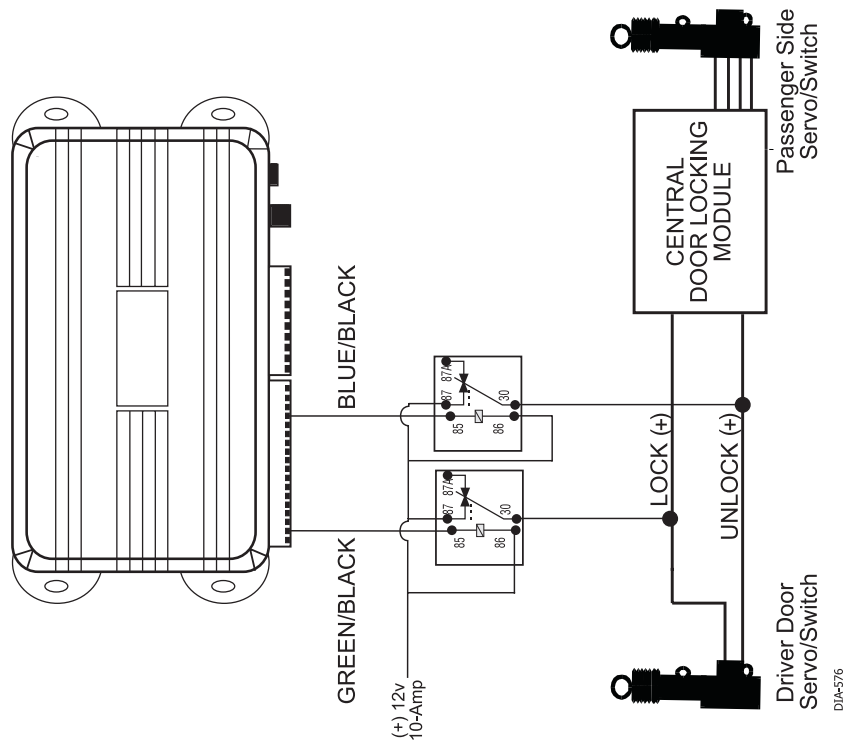
When you press the remote buttons, the system will respond with chirps and indicator light flashes. This is to indicate the system status and to alert you to any active trigger or sensor input.

Number of chirps and flashes	Explanation
1 chirp, 1 flash	Disarming of the alarm.
2 chirps, 2 flashes	Arming of the alarm.
3 chirps, 3 flashes	Disarmed and there was an intrusion attempt.
2 chirps and flashes, then 3 more chirps and flashes	Armed and a door is ajar.
2 chirps and flashes, then 4 more chirps and flashes	Armed and there is a sensor input active (automatically bypassed).
2 chirps and flashes, then 5 more chirps and flashes	Armed and there is a boot, bonnet, or normally closed trigger input active (automatically bypassed).

Negative Trigger Door Locks

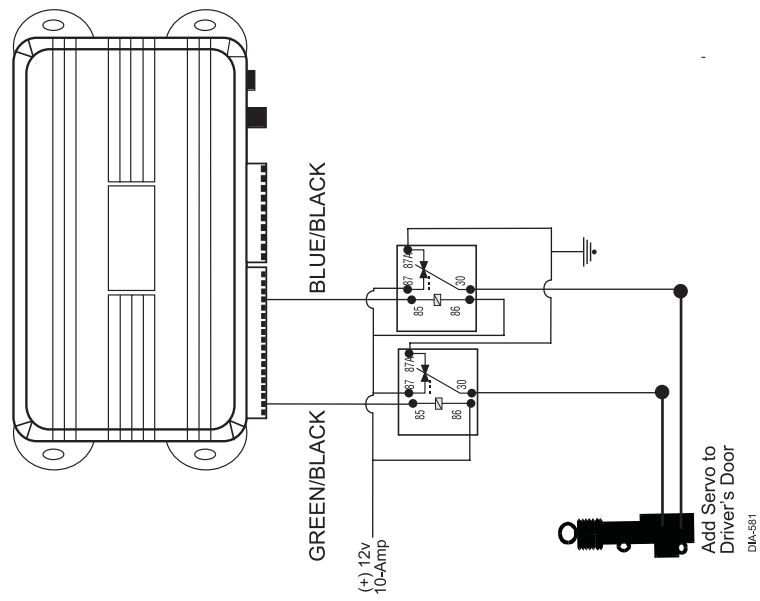


Positive Trigger Door Locks

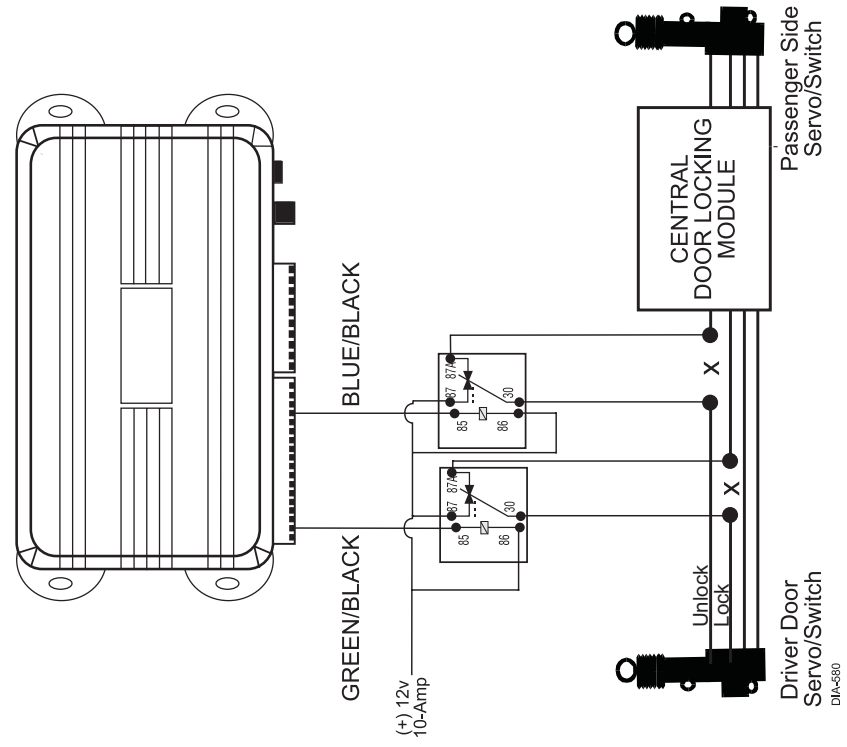


NOTE: Doorlock circuit must be low-current (250 mA or less) switching. If high current, a 451M Door lock module or relays must be added.

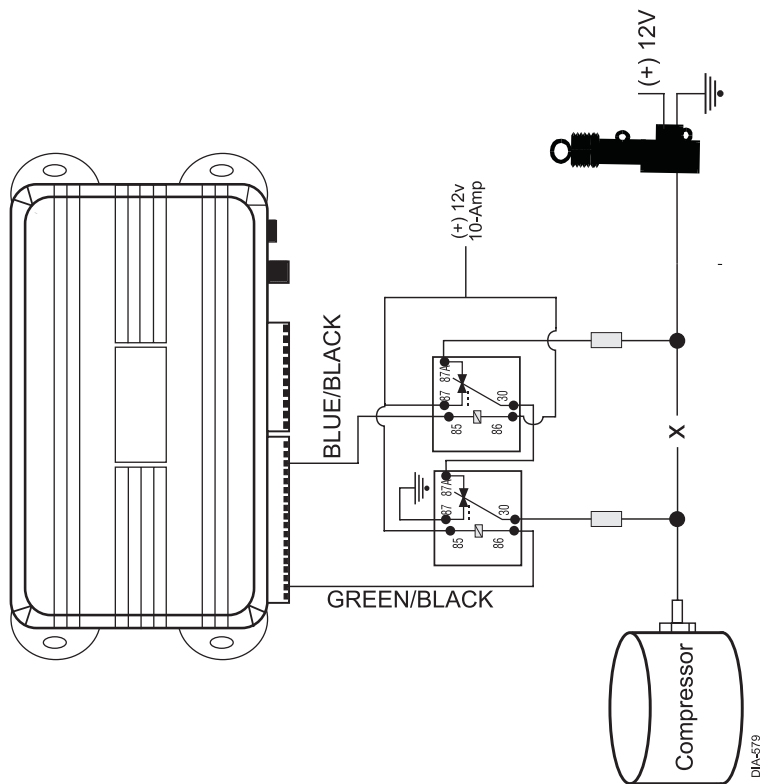
Adding Servos



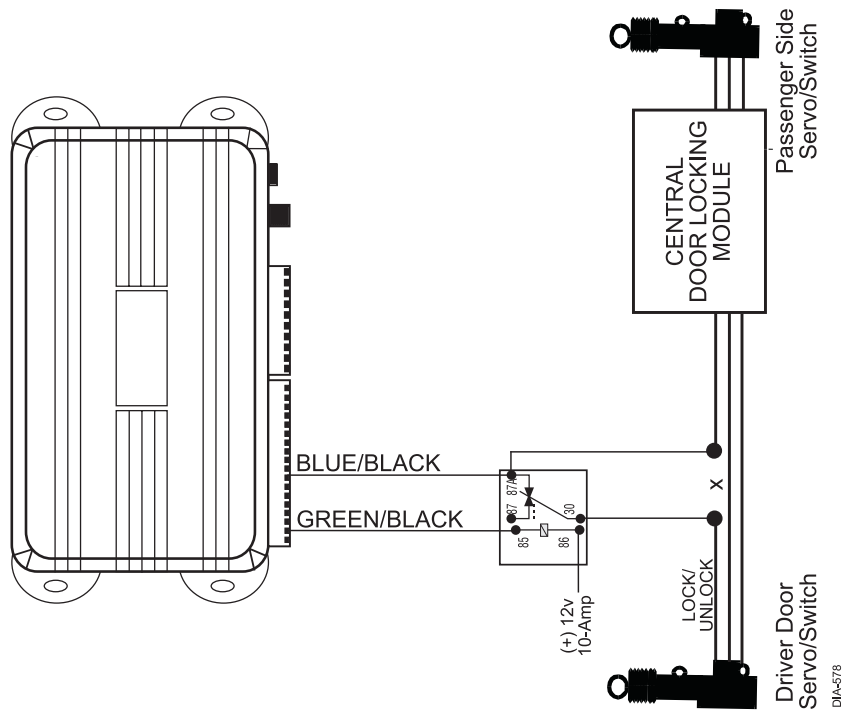
Reverse Polarity



Mercedes Benz/Audi One-Wire Lock/Unlock



One-Wire Lock/Unlock Cut-to-Lock/Ground-to-Unlock



NOTE: For 1989 and older vehicles, the system must be programmed for a three-second pulse.

Personal Identification Number (PIN)

Each system has an individual four-digit PIN. In order to access Valet mode or any of the programmable features, you must first enter the PIN, one number at a time.

NOTE: To enter a zero, simply turn the ignition on and then off without pressing the Valet switch.

Entering Your PIN

1. Turn the ignition key to the ON position.
2. Enter the first number in your PIN. Press and release the Valet switch the same number of times as the first digit in your PIN. Example: If your PIN is **2345**, press the Valet switch **two** times.
3. Turn the ignition key OFF.
4. Turn the ignition key to the ON position.
5. Enter the second number in your PIN. Press and release the Valet switch the same number of times as the second digit in your PIN. Example: If your PIN is **2345**, press the Valet switch **three** times.
6. Turn the ignition key OFF.
7. Turn the ignition key to the ON position.
8. Enter the third number in your PIN. Press and release the Valet switch the same number of times as the third digit in your PIN. Example: If your PIN is **2345**, press the Valet switch **four** times.
9. Turn the ignition key OFF.
10. Turn the ignition key to the ON position.
11. Enter the last number in your PIN. Press and release the Valet switch the same number of times as the last digit in your PIN. Example: If your PIN is **2345**, press the Valet switch **five** times.
12. Turn the ignition key OFF. If you have entered the correct code you will hear two chirps (one short and one long). Should you hear five rapid chirps, the correct code has not been entered. Begin entering your PIN from the beginning.
13. To enter Valet mode, now turn the ignition on and press and hold the Valet switch for three seconds until the LED illuminates constantly. The system will automatically exit Valet mode the next time the ignition is switched ON.

Programmable Features

All system features and remote control features are accomplished by entering your Personal Identification Number (PIN) by following steps 1-12 on page 15, then pressing the Valet switch a preset number of times to access the feature you wish to program.















The system also allows you to add new remote controls in one step and delete lost or stolen remote controls.

1. Programming cannot be accessed while the system is in Valet mode indicated by the LED permanently lit. Remove the system from Valet mode by turning on the ignition. The LED should turn off automatically.
2. Select the feature you wish to program from the *Programming Table for System Features* or the *Programming Table for Remote Controls* sections of this guide. Note the number of chirps associated with that feature.
3. Follow steps 1-12 in the *Entering Your Pin* section of this guide.
4. Begin to press and release the Valet switch. The siren will chirp once each time you press and release the Valet switch.
5. Continue pressing and releasing the Valet switch, counting the siren chirps.





NOTE: Stop when you reach the number of chirps associated with your chosen feature. The system LED will give confirmation of the feature status. If the LED is ON, the feature is ON. If the LED is OFF, the feature is OFF.

6. Follow the "Secondary Action" listed in the programming table. You will hear one or two chips and the system LED will give you confirmation that you have changed the feature.
7. After you have programmed the feature you have chosen, you can exit programming by turning the ignition key OFF. You will hear two chirps to confirm exit of program mode. If you wish to program additional features, leave the ignition ON and press the Valet switch again. The system will advance to the next feature. Continue pressing and releasing the Valet switch until you have reached your next chosen feature.

Programming Table for System Features

Feature	Factory Setting	No. of Chirps	Secondary Action
Passive Arming	ON	2	Press  button. The siren will chirp once for OFF, twice for ON.
Passive Arm with Door Lock	OFF	3	Press  button. The siren will chirp once for OFF, twice for ON.
Auto Rearm and Door Lock	ON	4	Press  button. The siren will chirp once for OFF, twice for ON.
Door Lock/Unlock Duration (1-3 second)	1 Second	7	Press  button. The siren will chirp once for 3 seconds, twice for 1 second.
Arm/Disarm Siren Chirps	ON	8	Press  button. The siren will chirp once for OFF, twice for ON.
Indicator Light Flash Confirmation	ON	12	Press  button. The siren will chirp once for OFF, twice for ON.
Door Ajar Indication	ON	13	Press  button. The siren will chirp once for OFF, twice for ON.
Dual Sensor trigger Mode	Single	14	Press  button. The siren will chirp once for Single, twice for Dual.
Double Lock Pulse	Single Pulse	15	Press  button. The siren will chirp once for Single Pulse, twice for Double Pulse.
Double Unlock Pulse	Single Pulse	16	Press  button. The siren will chirp once for Single Pulse, twice for Double Pulse.
Pin Code Digits 1 and 2	Factory Selected	17	Press  button, 1 to 9 times to set first digit of PIN code. Press * button, 1 to 9 times to set the second digit of PIN code. If you require a 00 (zero, zero) in the PIN code, press  + * buttons at the same time.
Pin Code Digits 3 and 4	Factory Selected	18	Press  button, 1 to 9 times to set third digit of PIN code. Press * button, 1 to 9 times to set fourth digit of PIN code. If you require a 00 (zero, zero) in the PIN code, press  + * buttons at the same time.
Ultrasonic Sensor Test and Adjustment Mode	—	19	See Explanation on Page 5.









Programming Table for Remote Controls

Feature	Factory Setting	No. of Chirps	Secondary Action
Arm/Disarm/Panic	 Button Channel 1	20	Press any remote button(s). The siren will chirp once for confirmation.
Accessory(-) Output for Boot Release (disarmed only)	* Button Channel 2	21	Press any remote button(s). The siren will chirp twice for confirmation.
Silent Arm/Disarm	 Button* Channel 3	22	Press any remote button(s). The siren will chirp 3 times for confirmation.
Remote Sensor Bypass	 + * Button Channel 6	25	Press any remote button(s). The siren will chirp 6 times for confirmation.
All Channel Learn	—	26	Press  button. The siren will chirp once to confirm factory preset order.
Instant Code Deletion	—	27	Wait 3 seconds. The siren will chirp twice. All remotes are erased from memory.

* Standard configuration if using the optional four-button remote control.

NOTE: When assigning channels to different buttons from factory you must "All Channel Learn" a transmitter and then change the individual assignments with feature number 20 to 25 as required.

Final Testing Checklist

- In the "Recommended Procedures" section on page 3, you removed the interior light fuse. You must now replace it, shut the vehicles doors, boot and bonnet and arm the alarm by pressing the  button (indicated by LED double flash sequence). If you connected the alarm to the vehicles central locking the doors should lock, the siren should chirp twice and the indicators should flash twice.
- Unlock and open a door. The alarm should sound and indicators should flash. Press the  button to reset the siren. Follow this procedure for every trigger point (all doors, boot/tailgate and bonnet). When all trigger points have been tested disarm the alarm fully by pressing the  or  button twice.
- Open a window. Arm the alarm system, wait at least 20 seconds and then reach inside the car to trigger the Ultrasonic sensors. The alarm should sound. Press the  button to reset the siren and turn the ignition on. Again, the alarm should sound. Fully disarm the system.
- Wait 30 seconds for the LED to flash slowly (Passive Auto Immobilisation). Try to start the car. The car should not start. With the ignition ON press the  button. Try to start the car. It should start.
- Test the Valet PIN code is working by entering Valet mode. Turn the ignition on. The LED should turn off and the system will exit Valet mode automatically.
- Test the remote control range. Stand approximately 50 feet from the car and press the  or  button. The alarm should arm/disarm.

Certificate of Installation

After Installation and testing you must fill out the certificate of installation. Once you have filled out all information on the certificate the customer must sign and date it. Distribute the copies as follows:

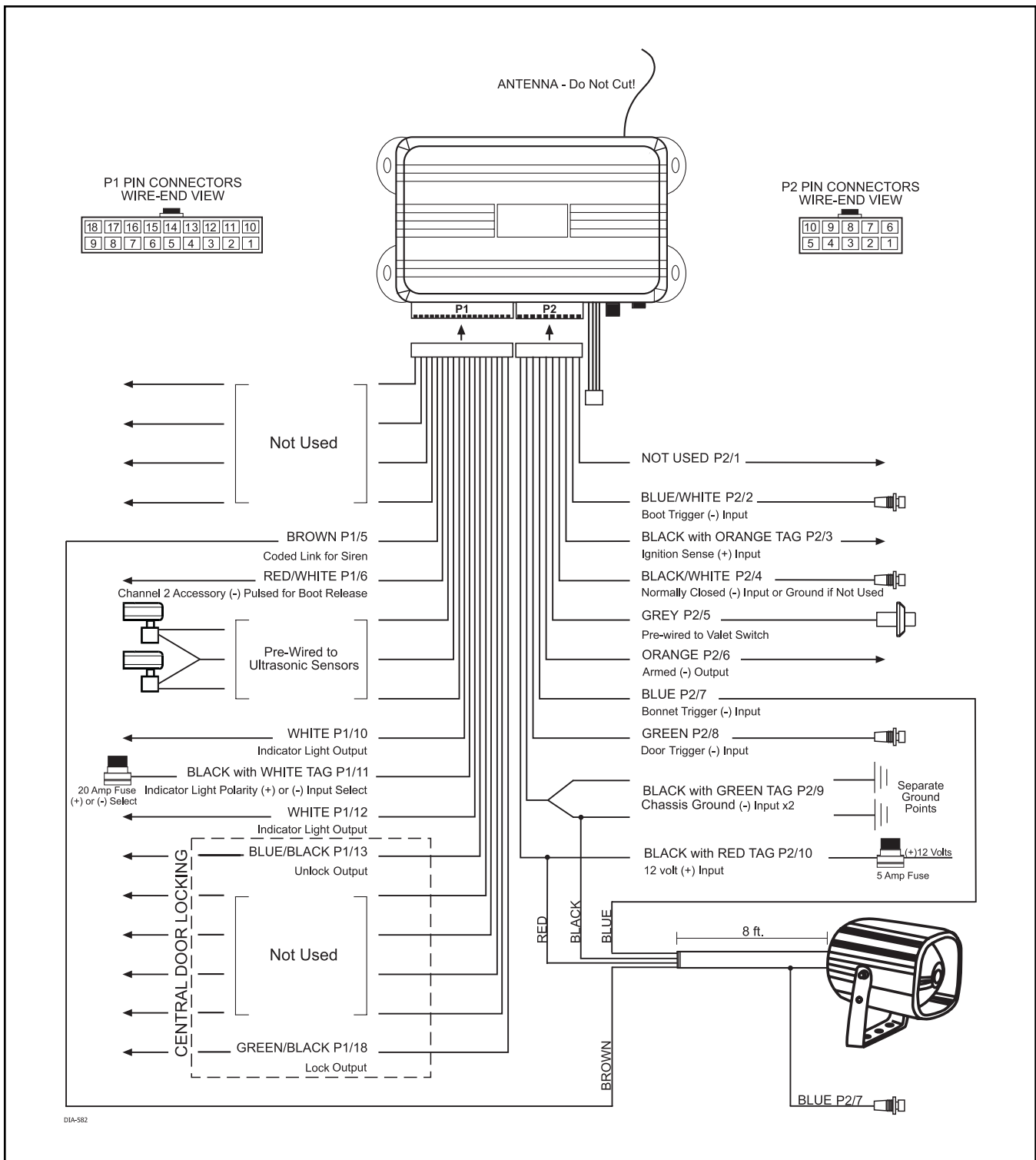
White (top) copy - Customer

Blue copy - Customer's insurance broker

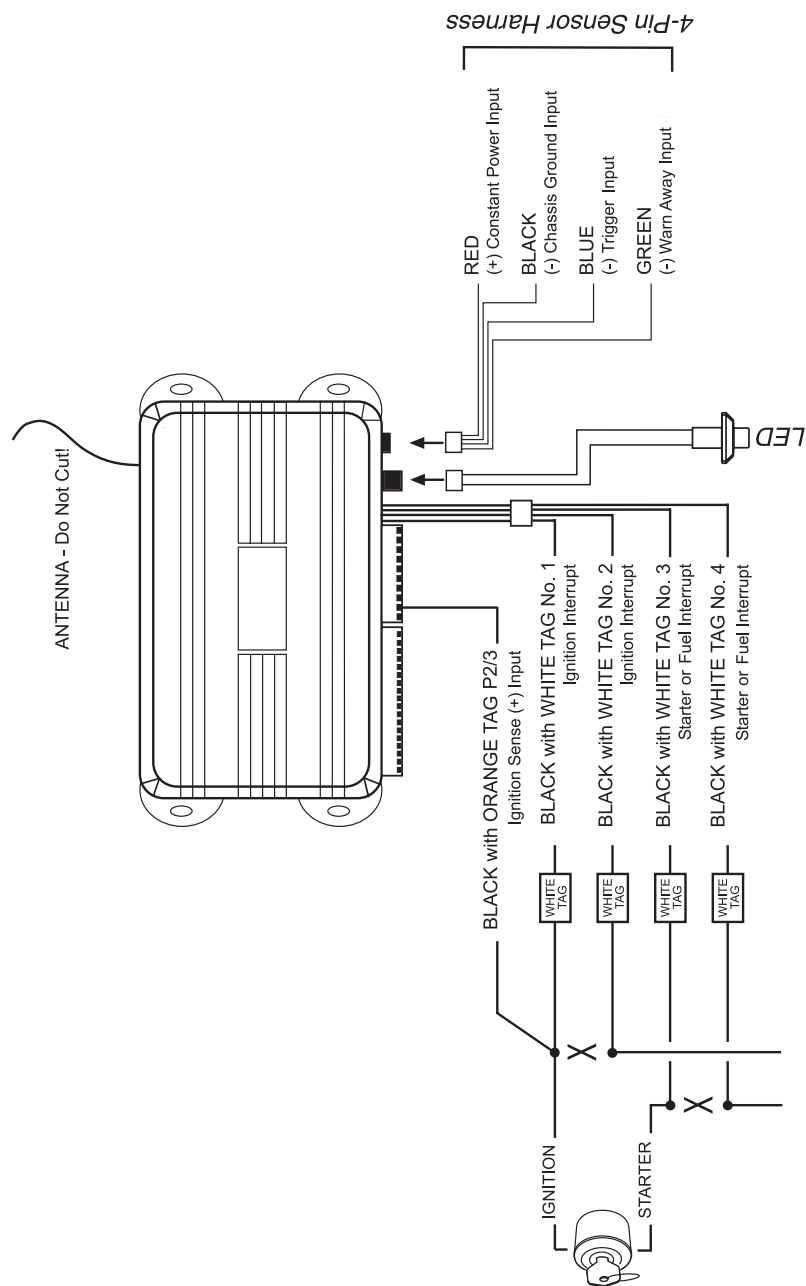
Pink copy - Directed Electronics UK Office

Green Copy - Installing Dealer

Wiring Diagrams



NOTE: The current draw for the entire security system when in the armed state is 20mA. Power supply voltage range is 9 volts to 15 volts.



NOTE: Remove all tags from wires after connection.

This image shows a blank sheet of white paper with horizontal ruling lines. At the top, there is a dashed line followed by a solid line, creating a header space. Below this, the page is filled with evenly spaced solid horizontal lines for writing. The lines are black and extend across the width of the page. There are no margins or other markings on the paper.

