



RS-120-DP

Deluxe Add-on Remote Start

Back Cover

Color cover is in a
separate file.

Installation Guide

Temporary cover. Color cover is in a separate file.

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Installer Programmable Features (cont'd)

Feature #7 Turbo Timer

Off (press the brake pedal 1 time to program) - **DEFAULT**
Run 1 Minute (press the brake pedal 2 times to program)
Run 2 Minutes (press the brake pedal 3 times to program)
Run 3 Minutes (press the brake pedal 4 times to program)
This feature when turned on configures the system to automatically keep the engine running briefly after it is turned off. This operation is designed specifically for vehicles having turbocharged engines. This feature should only be programmed by the installer, and the operation of this feature depends on the correct connection of the neutral safety wire to the vehicle's parking brake. Please refer to the "Black/White wire" in the installation manual for the proper connection of this important wire.

Programmable Features Matrix

User Feature Programming: Ignition on, off, press valet 5 times				
# Feature	Brake x 1	Brake x 2	Brake x 3	Brake x 4
1 Engine Run Time	10 min	5 min	15 min	20 min
2 Steady/Flashing lights for RS	Steady	Flashing		
Installer Feature Programming: Ignition on, off, press valet 10 times				
1 RS Activation	1 pulses	2 pulses	3 pulses	4 pulses
2 Engine Detection	Tachless Hi	Tachless Lo	Tach Wire	Datatach
	Crank Only (Brake x 5)			
3 Gas or Diesel Engine	Gas	Diesel		
4 Sat. Port Green Wire	Starter	Pulse After Start	Ign/Status	Accessory
5 Crank Time	0.7 Sec	1.00 Sec	1.5 Sec	2.25 Sec
6 N/A				
7 Turbo Timer	OFF	1 min	2 min	3 min

Installer Programmable Features (cont'd)

Feature #3 Gasoline Or Diesel Engine

Gasoline (press the brake pedal 1 time to program) - **DEFAULT**

Diesel (press the brake pedal 2 times to program)

This feature changes the system's timing of the ignition and starter output sequence for remotely starting vehicles with gas or diesel engines. When set for gasoline, the starter output will occur 3 seconds after the ignitions turn on. Also, when the system is in "Tachless" mode, the engine running status will be determined 10 seconds after cranking. When set for diesel, the starter output will occur 20 seconds after the ignitions turn on to allow for glow plug warming. Also, when the system is running in "Tachless" mode, the engine running status will be determined 40 seconds after cranking. This allows the vehicle battery(s) to recharge properly and show normal voltage levels due to the heavy drain diesel engines have on the electrical system during cranking.

Feature #4 Satellite Relay Port Green Wire Function

Starter

(press the brake pedal 1 time to program) - **DEFAULT**

Pulse After Engine Start

(press the brake pedal 2 times to program)

Ignition/Status Output

(press the brake pedal 3 times to program)

Accessory

(press the brake pedal 4 times to program)

This feature changes the operation of the Green wire (negative) on the satellite relay port. This gives you the flexibility to accommodate certain vehicles that require any out-of-the-ordinary pulses or remote start timing.

Starter setting operates as a secondary START output. This will have the same pulse timing as the large Violet wire on the main harness.

Pulse After Start setting will give a 0.8 second pulse immediately after the engine starts and is running.

Ignition/Status Output setting will behave like the ignition output except it turns on 1.5 seconds earlier than the primary ignition output.

Accessory setting operates as a secondary ACCESSORY output. This will have the same operation as the large Orange wire on the main harness.

Feature #5 Extended Starter Cranking Time

0.7 Second (press the brake pedal 1 time to program) - **DEFAULT**

1.00 Second (press the brake pedal 2 times to program)

1.5 Seconds (press the brake pedal 3 times to program)

2.25 Seconds (press the brake pedal 4 times to program)

This feature determines the crank time of the 1st start attempt when in "Tachless" mode. If the engine doesn't start on the first attempt, it will retry up to 3 more times extending the crank time by an additional 0.2 second with each attempt.

Installation Considerations

PLEASE CAREFULLY READ THIS ENTIRE MANUAL TO FAMILIARIZE YOURSELF WITH THE REQUIREMENTS OF THIS SYSTEM BEFORE BEGINNING THE INSTALLATION. THE VERSATILITY OF THIS SYSTEM AND NUMEROUS POSSIBLE CONFIGURATIONS MAKE PRE-PLANNING VERY CRITICAL.

THE HOOD PIN CONNECTION IS REQUIRED IN ALL INSTALLATIONS.

REMOTE START SHOULD NOT BE USED IN AN ENCLOSED STRUCTURE. BE SURE TO TEST THE SYSTEM WITH PLENTY OF VENTILATION OR OUTSIDE TO PREVENT THE INGESTION OF DANGEROUS FUMES.

MAKE ALL WIRING CONNECTIONS BEFORE PLUGGING THE HARNESES INTO THE MODULE.

ALL OPERATIONAL INSTRUCTIONS, INCLUDING PROGRAMMING TRANSMITTERS CAN BE FOUND IN THE OPERATION MANUAL.

SYSTEM COMPONENTS

Mounting The Control Module: Always mount the control module in the vehicle's interior compartment. It should be in a secure location that is not easily accessible and away from any moving parts of the vehicle. Also be sure that vibration, moisture, and temperature extremes are avoided. Typical mounting locations are behind the driver's dash, the glove box, or other interior panels.

Status Light and Valet Switch: Carefully select locations in which the valet switch may be easily reached and the status light may be easily seen. The status light's location will need clear space behind the panel in which it is mounted for proper routing of the wire harness. The status light requires a 9/32" hole to be drilled for proper mounting. The valet switch has a double stick pad that can be utilized. a 1/4" hole can be drilled to hide and route the wire harness underneath the valet switch. Optionally, there is a black plastic mounting disc included with the system that provides a clean secure surface for the valet switch. It can be mounted to the dash with the included mounting screw. After mounting these components in the vehicle, route their harnesses to the main module and plug them into the appropriate ports.

Main 6-Wire Wiring Harness

Most of the main wiring harness connections are high amperage circuits so high reliability connections must be made. It is recommended to solder and adequately insulate each connection. Many of these connections are made at the vehicle's ignition switch so be sure to properly route the harness away from steering wheel tilt mechanisms or anything that could compromise the wire insulation. Remember, the goal is for this system to mimic the ignition switch. Keep this in mind when deciding which ignition & accessory circuits to power. Most, if not all will be required.

RED & RED/WHITE WIRES (CONSTANT POWER)

REQUIRED. These wires provide the constant positive 12v power supply for the system's operation. **CONNECTION:** Be sure to connect these to a supply with sufficient amperage for remote starting. Typically, the constant power supply to the ignition switch is ideal. Some vehicle's have low amperage ignition switches in which case you would need to find a power supply at a fuse block or at the vehicle's battery. Be sure these wires are fused within 6 inches of the connection to the vehicle. The two 30AMP fuses in the harness are to protect the system module, NOT THE VEHICLE. Their use is REQUIRED. It is ideal to have a separate supply for each wire but, if the chosen supply is sufficient enough, you can combine both the RED & RED/WHITE wires at the same point.

PINK WIRE (IGNITION #1 INPUT/OUTPUT)

REQUIRED. This connection is required and is critical to the operation of the system. It is an "IGNITION ON" input when the ignition key is turned on. It is also the primary ignition output for remote start operation. It turns on when remote start is activated and stays on during engine cranking for the entire remote start sequence. **CONNECTION:** The vehicle's primary ignition circuit is typically found at the ignition switch. The proper circuit will show +12v when the ignition key is in the ON/RUN and START positions.

ORANGE WIRE (ACCESSORY OUTPUT)

This connection is designed to drive accessory circuits for functions like climate control, etc.. It turns on when remote start is activated (slightly earlier than the primary ignition output) and turns off only during engine cranking. It will turn back on for the remainder of the remote start sequence.

CONNECTION: An accessory circuit is typically found at the ignition switch. The proper circuit will show +12v when the ignition key is in the ON/RUN position but not in the START position.

VIOLET WIRE (START OUTPUT)

REQUIRED. This output supplies positive voltage to the vehicle's starter circuit. If using a starter interrupt circuit for anti-grind, be sure this is connected on the starter side of the interrupt.

CONNECTION: The starter circuit is typically found at the ignition switch. The proper circuit will show +12v only when the ignition key is in the START position.

User Programmable Features (cont'd)

Feature #2_ Steady/Flashing Lights During Remote Start

Steady (press the brake pedal 1 time to program) - **DEFAULT**
Flashing (press the brake pedal 2 times to program)

This Feature configures the operation of the vehicle's parking lights during the remote start operation. The default setting turns on the parking lights during remote start; the other setting flashes the parking lights on and off during remote start.

Installer Programmable Features

This group of Installer Programmable Features are all accessed as a group in the second level of features' programming. These features have a direct affect upon the system's operations related to the installation and vehicle type **AND SHOULD ONLY BE CHANGED BY THE INSTALLER!!!**

Feature #1_ Remote Start Activation

- 1 button pulses** (press the brake pedal 1 time to program)
- 2 button pulses** (press the brake pedal 2 times to program) - **DEFAULT**
- 3 button pulses** (press the brake pedal 3 times to program)
- 4 button pulses** (press the brake pedal 4 times to program)

This feature allows you to choose the number of button presses AND pulses required on the White/Blue activation wire to activate the remote start feature. All of the settings must occur within a 5 second window of the previous pulse.

Feature #2_ Engine Detection Method

- Tachless Hi** (press the brake pedal 1 time to program) - **DEFAULT**
- Tachless Lo** (press the brake pedal 2 times to program)
- Tach Wire** (press the brake pedal 3 times to program)
- Data Tach** (press the brake pedal 4 times to program)
- Crank Only** (press the brake pedal 5 times to program)

This feature selects the method in which the remote start monitors the engine's running condition in remote start mode.

"Tachless Hi" sensitivity mode has an associated base starter output time duration (see installer feature #5) and monitors the vehicle's voltage level to determine if the engine is running. This setting looks for a voltage increase of 0.3v after cranking.

"Tachless Lo" sensitivity mode operates like the "Tachless Hi" setting but looks for a voltage increase of 0.5v after cranking.

"Tach Wire" Before this setting is programmed, refer to the "Violet/White wire" section of the installation manual for proper wiring connection and the Tach Learn Procedure. It will crank the engine for up to 3 seconds or until a tach signal is detected.

"Data Tach" mode operates just like the "Tach Wire" setting except it takes its reading from the D2D data port instead of using the Violet/White wire. Before using, make sure this function is supported by the Databus Interface module.

"Crank Only" AKA "blind start" is similar to the "Tachless" settings however, it only makes one start attempt and does not monitor engine running conditions. This is useful for many "push-to-start" vehicles.

Secondary 14-Wire Harness

BLACK WIRE (GROUND) **REQUIRED.** This input supplies negative ground for all system operations. **CON-**

NECTION: Use an appropriately sized crimp-on ring terminal to connect this wire to the metal frame of the vehicle preferably using an existing bolt or fastener. Make sure that the mounting point is free of grease, dirt, and paint for a good metal-to-metal contact. A poor ground is the cause of many performance issues and can be difficult to diagnose so keep this in mind.

sure that the mounting point is free of grease, dirt, and paint for a good metal-to-metal contact. A poor ground is the cause of many performance issues and can be difficult to diagnose so keep this in mind.

This output supplies negative ground during remote start for the anti-grind feature. An optional starter interrupt relay socket is required to utilize this feature. Additionally, this wire can be used as a "STATUS" output for interface modules. It turns on 1.5 seconds before the primary ignition output and stays on during the entire remote start operation. **CONNECTION:** For anti-grind, it would be connected directly to the starter interrupt relay and the relay would be connected to the vehicle's starter wire. See the diagram below.

Starter Disable And Starter Output Connections

Starter Disable And Starter Output Connections

14-Pin

Orange

Starter Disable Red
Relay
wire to the Ignition
wire

Switch side of the
Optional
Starter
Socket
Orange
wire

Starter Output **Violet** wire

Starter Disable **White** Starter

ΠΡΟΛΟΓΟΣ

AFTER the cut
the con-
verter Output
wires to the
Starter Solenoid
side of the cut

Interrupt wire Starter

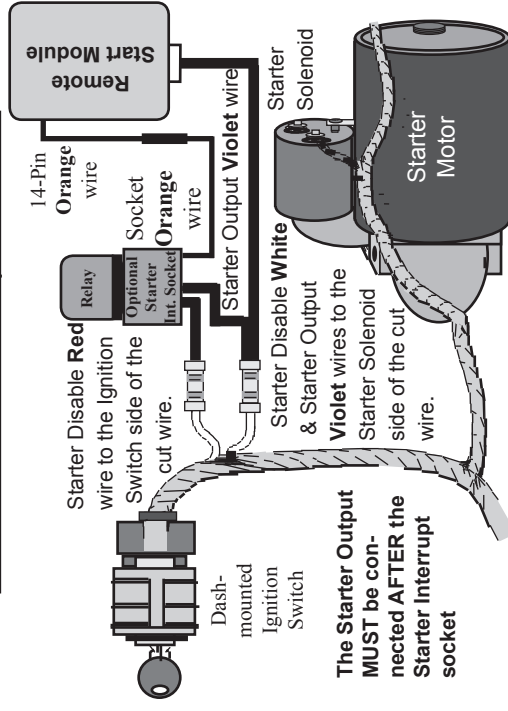
Motor



Avoid the Airbag circuit! Especially avoid any harness or wires

in Yellow or Red tubing or sleeves. Do not use a standard test light, employ an airbag or damage on-board computers and sensors if the circuits are probed. A Digital Multi-meter (DMM) should be used.

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CAUTION! Avoid the Airbag circuit! Especially avoid any harness or wires encased in Yellow or Red tubing or sleeves. Do not use a standard test light, as it can deploy an airbag or damage on-board computers and sensors if the wrong circuits are probed. A Digital Multi-meter (DMM) should be used.

Secondary 14-Wire Harness (cont'd)

BROWN/RED WIRE (BRAKE INPUT)

REQUIRED. This input is a critical safety circuit that disables the remote start operations whenever the brake pedal is pressed. It also prevents potential theft during remote start mode. **CONNECTION:** Find the vehicle's brake wire. Typically found at the brake pedal switch, this wire will show +12v when the brake pedal is pressed. Keep in mind that some brake circuits are only powered when the ignition is on.

NOTE: This function is supported via the system's data port. This connection is not required if you are using an integration module that also supports it.

BLACK/WHITE WIRE (SAFETY INPUT)

REQUIRED. This input is a critical safety circuit that disables the remote start operations. Its connection depends on whether you are using the turbo timer and/or manual transmission features. **STANDARD CONNECTION:** Connect this wire to the vehicle's neutral safety circuit. The target wire will show ground when the gear selector is in park or neutral. Some vehicles do not have a "grounding type" of neutral safety switch. These vehicles simply use a switch to open the starter circuit. In these situations, this wire should be connected to the parking brake or chassis ground.

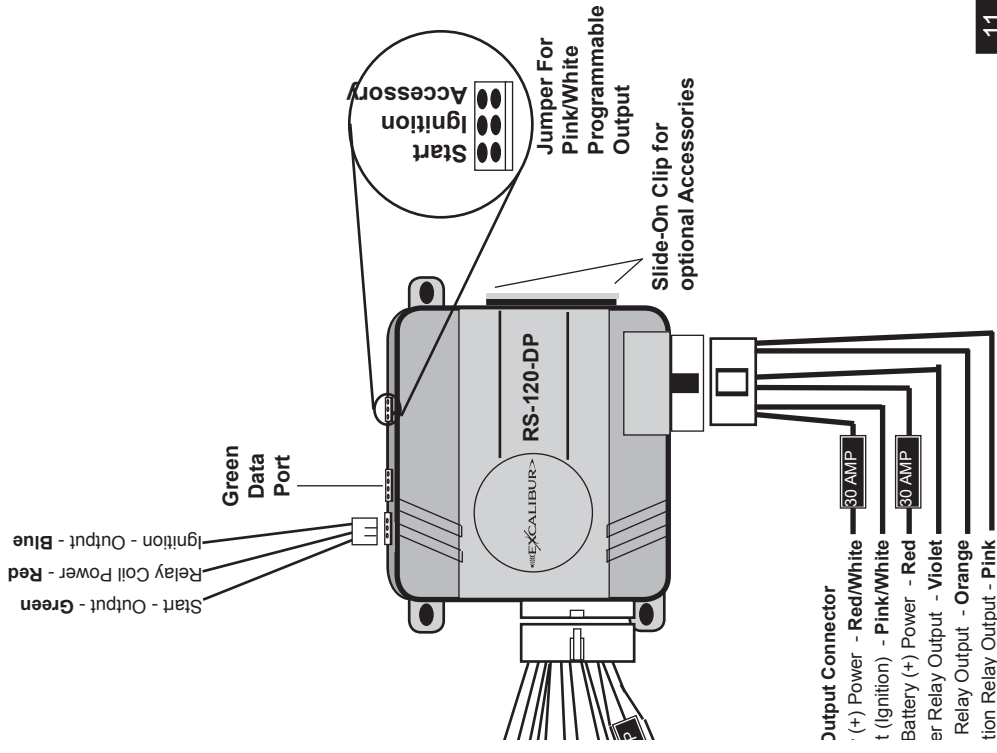
TURBO TIMER/MANUAL TRANSMISSION CONNECTION: When using either of these features, it is required to connect the Black/White wire to the parking brake. The target wire will show ground when the parking brake is engaged.

GRAY WIRE (HOOD PIN INPUT)

REQUIRED. This input is a critical safety circuit that disables the remote start operations when the hood is opened. Its connection depends on whether you are using the manual transmission feature or not. **STANDARD CONNECTION:** If there is an existing hood pin switch, you can connect to its output. It will show ground only when the hood is opened. Otherwise, the included pin switch can be used.

MANUAL TRANSMISSION CONNECTION: When using this feature, the Gray wire has a dual purpose. It's primary function is still to act as a hood pin safety input. But, with manual transmission remote starting, it also serves as a negative door pin input (must see all doors) which is required to perform the "manual transmission setup procedure" (see the operation guide for more info). In this situation, you would need to diode isolate the hood input from the door input. To do this, you would use two 1 or 2 amp diodes to create a "Y" from the Gray wire. Face the cathodes (stripes) towards the vehicle wires, connect one leg of your "Y" to the hood pin wire, and the other leg to the negative door pin input. If the door pin wire in the vehicle is positive, you must invert the signal with a relay. **NOTE: These functions (hood and door) are supported via the system's data port. This connection is not required if you are using an integration module that also supports it.**

Red Remote Start Satellite Relay Port



Wiring Overview

Secondary Wiring Harness Connector

- (-) Remote Start Activation Input - White/Blue
- (-) Starter Interrupt Output - Orange
- (+) Alarm ACC Control Output - Yellow
- (-) Parking Light Output - White/Black
- (-) OEM Alarm Arm Output - Lt. Green/Red
- (-) System Ground - Black
- (-) OEM Alarm Disarm Output - Lt. Green/Black
- (-) Hood/Door Pin Input - Gray
- (+) Brake Input - Brown/Red
- Tach Wire Input - Violet/White
- (+) Parking Light Output - White
- (-) Neutral Safety Input (NO) - Black/White

Main Power & C

- To Battery
- Programmable Relay Output
- To Ignition
- Start
- Accessory
- Ignition

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Secondary 14-Wire Harness (cont'd)

VIOLET/WHITE WIRE (TACH INPUT)

This input reads the engine speed via ignition or fuel injector pulses to determine whether the engine is running and how long to crank the engine. It is only needed if installer feature #2 is programmed for "tach wire". **CONNECTION:** Find the vehicle's tach wire. Typically found at the vehicle's tachometer or ignition coil. The wire will show 1-8 volts AC at idle and increase with the engine RPM. It can also be connected to a fuel injector's signal wire. Out of 2 wires, it will be the one that does NOT show +12v when the ignition is on. Once connected, you must perform the tach learn routine as described below. **NOTE: This function is supported via the system's data port. This connection is not required if you are using an integration module that also supports it. See installer feature #2 for more info.**

TACH LEARNING PROCEDURE

Once the installation is complete utilizing the tach wire, perform this procedure.

- Step 1:** Turn the ignition key "ON"
- Step 2:** Within 5 seconds, press the brake pedal 5 times. (horn honks 5 times)
- Step 3:** Start the engine. The status light will turn on to indicate it has learned the current tach signal.

- Step 4:** If the engine has a high idle at startup, it may be necessary to allow the idle to "settle" to around 700 RPM. If needed, you can press the valet switch 1 time to resample the tach signal. The status light will flash off then back on once the signal has been resampled.
- Step 5:** Turn the ignition key "OFF".

WHITE WIRE (POS. FLASHING LIGHT OUTPUT)

This output will flash the vehicle's parking lights to provide a 360 degree visual confirmation of the systems' operations. **CONNECTION:** Connect this to the vehicle's POSITIVE parking light circuit. It can usually be found at the headlight switch or in the body harness running to the rear of the vehicle. Some vehicles have split systems (left & right for example). In this case you would need to use two relays or two 6 amp diodes (stripe towards vehicle wires) to isolate each circuit and maintain OEM functionality. If the vehicle has a negative parking light circuit, use the WHITE/BLACK wire described in the next section.

WHITE/BLACK WIRE (NEG. FLASHING LIGHT OUTPUT)

This output has the exact same operation as the White wire except the output is negative with a 250mA capacity. **CONNECTION:** Connect this to the vehicle's NEGATIVE parking light circuit. It can usually be found at the headlight switch.

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Secondary 14-Wire Harness (cont'd)

L.T. GREEN/BLACK WIRE (OEM ALARM DISARM OUTPUT)

This wire produces a Negative pulse output whenever the system is unlocked or remotely starts the engine. This output may be used to disarm a factory-installed alarm, if the vehicle is so equipped. **CONNECTION:** Connect this wire to the vehicle's factory disarm wire. Most commonly, the desired wire will show Negative polarity when a key is held in the "unlock" position in the door key cylinder. This wire can usually be located in either kick panel, in the wiring harness from the door, as it is routed between the door key cylinder and the factory alarm.

NOTE: This function is supported via the system's data port. This connection is not required if you are using an integration module that also supports it.

L.T. GREEN/RED WIRE (OEM ALARM ARM OUTPUT)

This wire produces a Negative pulse output whenever the system is locked or turns off the engine after having been remotely started. This output may be used to arm a factory-installed alarm, or, if the vehicle is equipped with a Retained Accessory Power circuit, this output can be used to "spike" the door pin switch wire, which will turn off the Retained Accessory Power circuit. **CONNECTION:** To arm a factory alarm after remote start engine run stops, connect the Yellow/Red wire to the vehicle's factory arm wire. This wire will show Negative polarity when a key is held in the "lock" position in the door key cylinder. This wire can usually be located in either kick panel, in the wiring harness from the door, as it is routed between the door key cylinder and the factory alarm.

To use this wire to turn off Retained Accessory Power, locate a vehicle wire within the door or doorjamb which shows Negative when the door is open. Should such a wire be found which is positive, a relay is needed to reverse the Yellow/Red wire's Negative output to Positive.

NOTE: This function is supported via the system's data port. This connection is not required if you are using an integration module that also supports it.

WHITE/BLUE WIRE (REMOTE START ACTIVATION INPUT)

If this wire receives a Negative pulse the remote start operation will be activated. Even if this wire is used to activate remote starting, the transmitter or transceiver's normal button assignment will also operate remote starting. The number of pulses to activate this circuit are determined by installer feature #1. **CONNECTION:** Connect the White/Blue wire directly to any output which gives a Negative pulse.

YELLOW WIRE (EXTERNAL ALARM IGN. CONTROL OUTPUT)

This wire is a (+) 12V output which will directly supply a host remote keyless entry or security system's Ignition input circuit. This circuit has voltage whenever the Ignition switch is on, but not when the system is in remote start mode. Connection is needed on keyless entry systems and security systems which cannot be operated if the Ignition switch is on. If this circuit is not used on such a system, the alarm's transmitter, after remote start activation, would not be able to disarm/unlock or turn off the remote start. **CONNECTION:** Connect the Yellow wire directly to the host unit's Ignition /ACC input wire.

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Satellite Relay Port

This port provides for even more Ignition and Starter outputs, for remote starting use. These outputs are Negative 250mA, and the second pin is +12 Volts for the optional relay coils. A short non-terminated harness is included, to access the port, and available as an optional service part is a socket and two relays (part # RS-RP) that converts these outputs into high-ampage Positive voltage. Omega plug-in OEM anti-theft bypasses can also utilize the Red port.

Blue Wire - (Negative Ignition Output): The Blue wire is a 250mA negative output that behaves exactly like the large Pink Ignition output on the main power harness. It can be used to drive relays for extra Ignition outputs or to activate bypass kits via the GWR (Ground When Running) input.

Red Wire - (Constant +12V Output): The Red wire is a constant +12v, 250mA output provided to supply relays or low current devices.

Green Wire - (Negative Programmable Output): The Green wire is a 250mA negative output that is defaulted to behave exactly like the large Violet Start output on the main power harness. It can be used to drive relays for extra start outputs. This output can be programmed to give a pulse after cranking, a GWR/Status output, or to behave as a negative Accessory output. Please refer to installer programmable feature #4 for more details.

Data Port

Omega data bus interface modules, and remote start bypass modules, are available as analog-operated, and as direct data-to-data (D2D) devices. The former may be operated by connection to the system's door lock/unlock port, or to its Satellite Relay Port. The latter are the OmegaLink & IntelliKit data bus interface modules and bypass kits, which simply plug into this green port. Either type of Omega accessory module includes its own vehicle-specific instructions. Please refer to the Omega website, www.caralarm.com for the latest vehicle-specific application guide.

NOTE: Although other brands of data bus modules may physically plug into the system's data port, only genuine Omega modules offer the highest consistent quality and dependable operation. Always choose Omega databus product for use with this port.

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