DIRECTED®

Responder LCD, LED
and 1-way Models:
4706, 4806, 4606 and 4816
Keyless Entry and Remote Start
Installation Guide

This product is intended for installation by a professional installer only! Attempts to install this product by a person other than a trained professional may result in severe damage to a vehicle's electrical system and components.

The Bitwriter® (P/N 998U) requires chip version 2.7 or newer to program this unit.

Bitwriters with a date code of 6A or older require an IC upgrade (P/N 998M). Some Bitwriters with a date code of 6B do not require the IC upgrade, refer to *Tech Tip #1112* for more information.

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Warning! Safety First

⚠️ The following safety warnings must be observed at all times:
- Due to the complexity of this system, installation of this product must only be performed by an authorized Directed dealer.
- When properly installed, this system can start the vehicle via a command signal from the remote control. Therefore, never operate the system in an area that does not have adequate ventilation.

The following precautions are the sole responsibility of the user; however, authorized Directed dealers should:
- Never use a test light or logic probe when installing this unit. Always use a multimeter.
- Never operate the system in an enclosed or partially enclosed area without ventilation (such as a garage).
- When parking in an enclosed or partially enclosed area or when having the vehicle serviced, the remote start system must be disabled using the installed toggle switch. It is the user's sole responsibility to properly handle and keep out of reach from children all remote controls to assure that the system does not unintentionally remote start the vehicle.
- USER MUST INSTALL A CARBON MONOXIDE DETECTOR IN OR ABOUT THE LIVING AREA ADJACENT TO THE VEHICLE. ALL DOORS LEADING FROM ADJACENT LIVING AREAS TO THE ENCLOSED OR PARTIALLY ENCLOSED VEHICLE STORAGE AREA MUST REMAIN CLOSED AT ALL TIMES.

Use of this product in a manner contrary to its intended mode of operation may result in property damage, personal injury, or death. Except when performing the Safety Check outlined in this installation guide, (1) Never remotely start the vehicle with the vehicle in gear, and (2) Never remotely start the vehicle with the keys in the ignition. The user is responsible for having the neutral safety feature of the vehicle periodically checked, wherein the vehicle must not remotely start while the car is in gear. This testing should be performed by an authorized Directed dealer in accordance with the Safety Check outlined in this product installation guide. If the vehicle starts in gear, cease remote start operation immediately and consult with the user to fix the problem immediately.
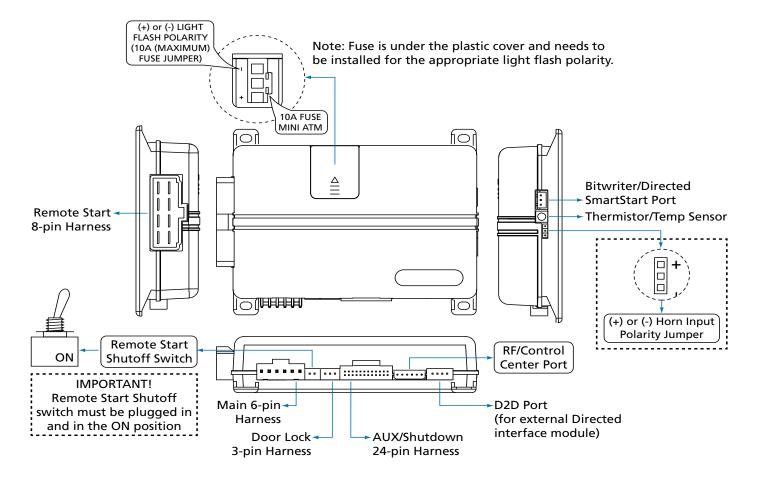
After the remote start module has been installed, test the remote start module in accordance with the Safety Check outlined in this installation guide. If the vehicle starts when performing the Neutral Safety Shutdown Circuit test, the remote start unit has not been properly installed. The remote start module must be removed or properly reinstalled so that the vehicle does not start in gear. All installations must be performed by an authorized Directed dealer.

OPERATION OF THE REMOTE START MODULE IF THE VEHICLE STARTS IN GEAR IS CONTRARY TO ITS INTENDED MODE OF OPERATION. OPERATING THE REMOTE START SYSTEM UNDER THESE CONDITIONS MAY RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY. IMMEDIATELY CEASE THE USE OF THE UNIT AND REPAIR OR DISCONNECT THE INSTALLED REMOTE START MODULE. DIRECTED WILL NOT BE HELD RESPONSIBLE OR PAY FOR INSTALLATION OR REINSTALLATION COSTS.

Remote starters for manual transmission pose significant risks if not properly installed and operated. When testing to ensure the installation is working properly, only remote start the vehicle in neutral gear, on a flat surface and with a functional, fully engaged parking brake. Do not allow anyone to stand in front of or behind the vehicle.

This product should **not** be installed in any convertible vehicles, soft or hard top with a manual transmission. Installation in such vehicles may pose certain risk.

Wiring Diagram

(+) or (-) LIGHT
FLASH POLARITY
(10A (MAXIMUM)
FUSE JUMPER)

Note: Fuse is under the plastic cover and needs to be installed for the appropriate light flash polarity.

10A FUSE
MINI ATM

Remote Start
8-pin Harness

Bitwriter/Directed
SmartStart Port

Thermistor/Temp Sensor

(+) or (-) Horn Input
Polarity Jumper

ON

Remote Start
Shutoff Switch

IMPORTANT!
Remote Start Shutoff
switch must be plugged in
and in the ON position

Main 6-pin
Harness

Door Lock
3-pin Harness

AUX/Shutdown
24-pin Harness

RF/Control
Center Port

D2D Port
(for external Directed
interface module)

Wiring Connections

Main Harness, White 6-pin connector

1	RED	(+)12V DC CONSTANT INPUT
2	BLACK	(-) CHASSIS GROUND
3	BROWN	(-) 200mA HORN HONK OUTPUT
4	WHITE/BROWN	PARKING LIGHT ISOLATION WIRE - #87a NORMALLY CLOSED of onboard relay
5	WHITE	PARKING LIGHT OUTPUT- #30 COMMON of onboard relay
6	ORANGE	(-) 500 mA (GWA) GROUND WHEN ARMED OUTPUT

PINK/WHITE —— 1 2 3   12—VIOLET/WHITE

BLACK/WHITE—13   24—GREEN/WHITE

INSERTION/WIRE SIDE

Auxiliary/Shutdown Harness, White 24-pin connector

1	PINK/WHITE	(-) 200mA IGNITION 2/FLEX RELAY OUTPUT
2	BLUE/WHITE	(-) 200mA 2ND STATUS/REAR DEFOGGER OUTPUT
3	RED/WHITE	(-) 200mA TRUNK RELEASE OUTPUT
4	BLACK/YELLOW	(-) 200mA DOME LIGHT OUTPUT
5	DARK BLUE	(-) 200mA STATUS OUTPUT
6	WHITE/BLACK	(-) 200mA AUX 3 OUTPUT
7	WHITE/VIOLET	(-) 200mA AUX 1 OUTPUT
8	ORANGE/BLACK	(-) 200mA AUX 4 OUTPUT
9	GRAY	(-) HOOD PIN INPUT (N/O or N/C)
10	BLUE*	(+) or (-) FACTORY HORN INPUT (Use Jumper to set polarity)
11	WHITE/BLUE	ACTIVATION INPUT
12	VIOLET/WHITE**	TACHOMETER INPUT
13	BLACK/WHITE***	(-) PARKING BRAKE/E-BRAKE INPUT
14	GREEN/BLACK	(-) 200mA FACTORY ALARM DISARM OUTPUT
15	GREEN**	(-) DOOR INPUT (N/O or N/C)
16	EMPTY	————————
17	PINK	(-) 200mA IGNITION 1 OUTPUT
18	VIOLET**	(+) DOOR INPUT
19	VIOLET/BLACK	(-) 200mA AUX 2 OUTPUT
20	BROWN	(+) BRAKE SHUTDOWN INPUT
21	VIOLET/YELLOW	(-) 200mA STARTER OUTPUT
22	GRAY/BLACK	(-) DIESEL WAIT TO START INPUT
23	ORANGE	(-) 200mA ACCESSORY OUTPUT
24	GREEN/WHITE	(-) 200mA FACTORY ALARM ARM OUTPUT

*   This optional input can be connected to the horn circuit (+ or -) in vehicles with factory alarm. When this wire receives input for a minimum of 5 seconds, the system reports a trigger on the 2-way remote.

**   Required connection for manual transmission vehicles.

***Connect this wire to the (-) Parking Brake wire in the vehicle (see *Owners Guide* for manual transmission procedure).

Important: NEVER connect 200mA low current outputs directly to a motor or high current device WITHOUT a relay.

Remote Start, White 8-pin connector

1	RED/BLACK	(+) FUSED 12V ACCESSORY/STARTER INPUT
2	PINK/BLACK	(+) FLEX RELAY INPUT #87a key side (if required) of FLEX RELAY
3	PINK/WHITE	(+) IGNITION 2/FLEX RELAY OUTPUT #30 of FLEX RELAY
4	RED	(+) FUSED 12V IGNITION 1 INPUT
5	VIOLET	(+) STARTER OUTPUT
6	ORANGE	(+) ACCESSORY OUTPUT
7	RED/WHITE	(+) FUSED 12V IGNITION 2 / FLEX RELAY INPUT #87
8	PINK	(+) IGNITION 1 INPUT/OUTPUT

Door Lock, 3-pin connector

1	BLUE	(-) 500mA UNLOCK OUTPUT
2	EMPTY	NOT USED
3	GREEN	(-) 500mA LOCK OUTPUT

D2D Harness, Red 4-pin connector

1	BLUE	D2D - TX
2	BLACK	(-) GROUND
3	GREEN	D2d - RX
4	RED	(+) 12V

Bitwriter/Directed SmartStart Harness, Black 3-pin connector

1	RED	(+) 12V
2	ORANGE	ESP 2 - RX/TX
3	BLACK	(+) 12V

Wire Descriptions

Main Harness, 6-pin connector

Red: (+) 12V CONSTANT INPUT
This wire supplies power to the unit's micro-controller. Remove the supplied fuse before connecting to the (+) terminal of the battery or another constant +12V supply. Make sure to replace the fuse when all connections have been made.
Note: Always use a fuse within 12 inches of the point from which you obtain (+) 12V. Do not use the 15A fuse in the harness for this purpose. This fuse protects the module only.
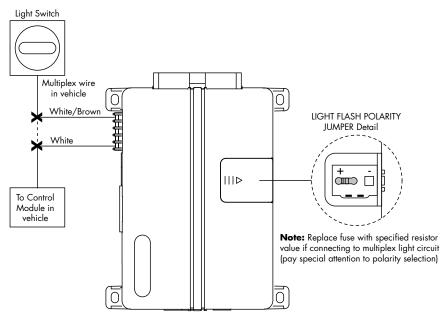
Black: (-) CHASSIS GROUND
This wire is the unit's source of ground. DO NOT connect this wire to any factory ground points; they can cause noise and/or voltage drops which can affect system performance. Ground the unit and any accessories to the same point in the vehicle (preferably the kick panel). Scrape away any paint and make your own ground with a screw and a star washer.

Brown (-) 200mA HORN HONK OUTPUT
This wire supplies a (-) 200 mA output that can be used to honk the vehicle horn. It can be programmed to output a single pulse when locking the doors with the remote, and two pulses when unlocking with the remote (see *Horn Function* in Feature Menus for more details). This wire also outputs pulses for 30 seconds when Panic Mode is activated. If the vehicle has a (+) horn circuit P/N 8617 or a standard automotive SPDT relay must be used on the horn output wire. (see *Horn Function* in Feature Menus for more details).
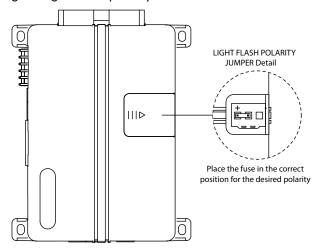
White/Brown: PARKING LIGHTS FLASH ISOLATION WIRE (#87a of onboard relay)
This wire is a parking lights flash input from the vehicle light switch which connects to #87a of the onboard lights flash relay. It is used for vehicles requiring light switch isolation during parking lights flash output. For vehicles with multiplex light circuits which require a resistor, the onboard lights flash fuse can be replaced with the specified resistor value (pay attention to appropriate circuit polarity). See the following diagram for wiring information.

Note: Replace fuse with specified resistor value if connecting to multiplex light circuit (pay special attention to polarity selection)

White: (+) or (-) PARKING LIGHTS OUTPUT
This wire should be connected to the parking lights wire in the vehicle. It activates when the system is locked/unlocked, remote started, and is also used for certain diagnostics. It can be set for a (-) or (+) output. See the following diagram for setting the lights flash polarity.

Place the fuse in the correct position for the desired polarity

Note: Any parking lights circuit which draws 10 amperes or more must use P/N 8617 (or a standard automotive SPDT relay) to drive the circuit in the vehicle.

Orange: (-) GWA (GROUND WHEN ARMED OUTPUT)
This wire supplies a (-) 500mA ground output as long as the system is locked/armed and while the remote start is active. This output ceases as soon as the system is unlocked/disarmed or remote start disengages. The GWA can be hooked up to a voice module or any accessory which requires a ground when armed.
Note: The Ground When Armed during remote start feature can be programmed OFF (See *Anti-grind Output* in Feature Menus for more details).

Auxiliary/Shutdown Harness, 24-pin connector

Important: Never connect the 200mA low current outputs directly to a motor or high current device WITHOUT a relay.

Pink/White: (-) IGNITION 2/FLEX OUTPUT
This (-) 200mA output wire works in conjunction with the (+) Pink/White wire in the heavy gauge harness. It comes factory set as Ignition 2 and can be programmed for an Accessory or Starter output. It is typically used to activate a relay for an additional (+) Ignition, Accessory or Starter wire in the vehicle (see *Flex Relay Function* in Feature Menus for more details).
Note: Programming this wire also affects the timing of the heavy gauge (+) Pink/White wire.

Blue/White: (-) 2ND STATUS/REAR DEFOGGER OUTPUT
This (-) 200mA output is default for status output and will activate as soon as the remote start process begins and will stay active while the remote start is ON, it is typically used to activate a module or any accessory which requires a ground during the remote start sequence. This wire can also be programmed to activate a defogger circuit in the vehicle (see *Status 2 Output* in Feature Menus for more details).

Red/White: (-) AUX/TRUNK RELEASE OUTPUT
This (-) 200mA output is often used to operate a trunk/hatch release or other relay-driven functions. When the system receives the command controlling trunk release (for longer than 1.5 seconds) the Red/White wire will supply an output as long as the transmission continues. This output can also be programmed as a 2nd Unlock output when driver's priority unlock is desired (see *Aux/Trunk Output* Type in Feature Menus for more details).

Black/Yellow: (-) DOME LIGHT OUTPUT
This (-) 200mA output is used to drive the dome light circuit in the vehicle. This output activates when unlocking the system and when turning the ignition OFF (ignition controlled Dome Light is programmable ON/OFF). (see *Ign-controlled Dome Light* in Feature Menus for more details).

Dark Blue: (-) STATUS OUTPUT
This (-) 200mA output will activate as soon as the remote start process begins and will stay active while the remote start is ON, it is typically used to activate an interface module or any accessory which requires a ground during the remote start sequence.

White/Black: (-) AUXILIARY 3 OUTPUT
This (-) 200mA output is used for controlling any auxiliary function such as fuel door release or a window module. This output can be programmed for different applications. (see the *AUX 3 Output* options in Feature Menus for more details).

White/Violet: (-) AUXILIARY 1 OUTPUT
This (-) 200mA output is used for controlling any auxiliary function such as fuel door release or a window module. This output can be programmed for different applications. (see the *AUX 1 Output* options in Feature Menus for more details).

Orange/Black: (-) AUXILIARY 4 OUTPUT
This (-) 200mA output is used for controlling any auxiliary function such as fuel door release or a window module. This output can be programmed for different applications. (see the *AUX 4 Output* options in Feature Menus for more details).

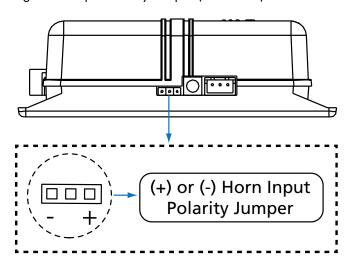Gray: HOOD TRIGGER INPUT (N/O OR N/C)
This input wire is used to prevent the remote start from activating if the hood is open. This wire can also be programmed for a N/O (Normally Open) or N/C (Normally Closed) circuit.
N/O = rests at ground when the hood is OPEN, N/C = rests at ground when the hood is CLOSED. (see *Hood Switch Type* in Feature Menus for more details).

Blue: (+) or (-) FACTORY HORN INPUT
This optional input can be wired to the factory horn honk output of the vehicle. When the system is in the "locked" state and this wire receives an input (programmable for (-) or (+) for a minimum of 0.5 seconds, the system will send a trigger message to the 2-way remote(s) only. This is useful on vehicles that have a factory security system.
Note: If the factory alarm is triggered while the system is in the "locked" state the only indication will be from a 2-way remote (if equipped) when receiving a signal. There will be no trigger confirmations when unlocking the system with the aftermarket remote. The system can receive a (-) or (+) input from the vehicle and is programmable through Horn Input Polarity Jumper (see below).

(+) or (-) Horn Input Polarity Jumper

White/Blue: (-) REMOTE START ACTIVATION INPUT
This input wire is used to manually activate/deactivate the remote start sequence by pulsing it to ground (programmable for single or double pulse activation/deactivation). It can also be used to activate the Turbo Mode feature of the system if attached to a ground through an optional momentary switch and the Timer Mode feature is enabled (see *Activation Pulse Count* or *Turbo Mode* in Feature Menus for more details). Additionally it can be used to activate Manual Transmission Ready Mode when connected to ground through an optional momentary switch.

Violet/White: TACHOMETER INPUT
This input wire connects to a tachometer signal in the vehicle. It provides the system with information about the engine's RPMs. This is a required connection when installing the system in a manual transmission vehicle.

Black/White: (-) PARKING BRAKE/E-BRAKE INPUT
This input wire connects to the parking brake/e-brake wire in the vehicle. This wire must have a ground and the Remote Start ShutOFF Switch must be plugged in and turned ON for the remote start to operate. This is a required connection when installing the system in a manual transmission vehicle.

Green/Black: (-) FACTORY ALARM DISARM OUTPUT
This 200mA output is used to disarm the factory alarm and triggers when remote start is activated, when the system is disarmed and when activating the trunk release output. It typically connects to the Factory Alarm Disarm wire in the vehicle. This output can be programmed to activates with unlock, trunk release and for a single or double pulse output (see *OEM Alarm Disarm* options in Feature Menus for more details).

Green: (-) DOOR TRIGGER INPUT (N/O OR N/C)
This input wire comes factory set for use in vehicles with (-) door trigger circuit. This wire is used to monitor the door trigger(s) when entering manual transmission mode. This wire (or the Violet (+) Door Trigger input) is a required connection when installing the system in a manual transmission vehicle. This wire can also be programmed for a N/O (Normally Open) or N/C (Normally Closed) circuit.

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N/O = rests at power or ground when the door is OPEN, N/C = rests at ground when the door is CLOSED, (see *Door Switch Type* in Feature Menus for more details).
Note: This wire can only monitor one door when used in a Normally Closed door trigger circuit. To interface with more than one N/C door trigger use an interface or *Tech Tip #1921*.

Empty Pin: NO CONNECTION

Violet: (+) DOOR TRIGGER INPUT
This input wire is used in vehicles with (+) door trigger circuit. This wire is used to monitor the door trigger(s) when entering manual transmission mode. This wire (or the Green (-) Door Trigger input) is a required connection when installing the system in a manual transmission vehicle.

Violet/Black: (-) AUXILIARY 2 OUTPUT
This (-) 200mA output is used for controlling any auxiliary function such as a fuel door release or a window module. This output can be programmed for different applications. (see the *AUX 2* options in Feature Menus for more details).

Brown: (+) BRAKE SHUTDOWN INPUT
This input wire connects to the (+) foot brake wire in the vehicle. When connected the remote start will be disabled or shutdown anytime the foot brake pedal is depressed.

Violet/Yellow: (-) STARTER OUTPUT
This (-) 200mA output wire works in conjunction with the Violet wire in the heavy gauge harness. It is typically used to activate a relay for an additional Starter wire in the vehicle.

Gray/Black: (-) DIESEL WTS (WAIT-TO-START) INPUT
This input wire connects to the (-) Wait-To-Start wire in a diesel-engine vehicle and will keep the Starter output from engaging while this wire is receiving a ground.

Orange: (-) ACCESSORY OUTPUT
This (-) 200mA output wire works in conjunction with the Orange wire in the heavy gauge harness. It is typically used to activate a relay for an additional Accessory wire in the vehicle.

Green/White: (-) FACTORY ALARM ARM OUTPUT
This 200mA output is used to arm the factory alarm and outputs when the system is locked and 4 seconds after the remote start deactivates. It typically connects to the Factory Alarm Arm wire in the vehicle.
Note: The Factory Alarm Arm wire will not output a pulse when the remote start deactivates if the heavy gauge Pink wire has +12V.

Important: Never connect the 200mA low current outputs directly to a motor or high current device WITHOUT a relay.

Remote Start Heavy Gauge Harness, 8-pin connector

Red/Black: (+) 12V INPUT
This wire connects to a (+) 12V source and is the power feed for the onboard Accessory and Starter relays.

Pink/Black: FLEX RELAY INPUT
This wire is #87a of the onboard 2nd Ignition/Flex Relay. This wire prevents having to use additional relays in vehicles which require *Tech Tip #1077*.
Note: This wire will only be used in special situations when the ignition switch needs to be isolated during the remote start sequence and is not used in most installations.

Pink/White: IGNITION 2/FLEX RELAY OUTPUT
This wire typically is connected to the Ignition 2 circuit in the vehicle. If the vehicle does not have a 2nd Ignition but does have a 2nd accessory or a 2nd starter, it can be programmed to be used to power additional Accessory or Starter circuits in the vehicle (see *Flex Relay Function* in Feature Menus for more details).

Red: (+) 12V INPUT
This wire connects to a (+) 12V source and is the power feed for the onboard Ignition relay.

Violet: STARTER OUTPUT
This wire connects to the Starter wire in the vehicle.
Note: Some newer vehicles may not have a Starter wire at the ignition switch, therefore it may not need to be connected to the vehicle.

Orange: ACCESSORY OUTPUT
This wire connects to the Accessory circuit in the vehicle and operates as the Accessory wire at the ignition switch. When the remote start is activated this wire will activate, deactivate during the cranking cycle of the remote start, and will re-activate after the cranking cycle is done.

Red/White: (+) 12V INPUT
This wire connects to a (+) 12V source and is the power feed for the onboard Ignition 2/Flex Relay.

Pink: IGNITION INPUT/OUTPUT
This wire connects to the main Ignition circuit in the vehicle. It will supply voltage to the Ignition circuit in the vehicle during the remote start sequence and is also the Ignition input to the unit while the remote start is not activated.

Door Lock, 3-pin connector

Blue: (-) UNLOCK OUTPUT
This (-) 500mA output connects to the (-) unlock wire in the vehicle or to a relay for vehicle specific applications. This wire will output a pulse when unlocking the system. It can be programmed to unlock the vehicle when the ignition is turned OFF, for a double pulse output and for output duration (see *Ign-controlled Locks, Door Lock Pulses* or *Door Lock Duration* in Feature Menus for more details).

Empty Pin: N/A
Although this connector is not populated with a wire in this position, the pin on the unit supplies a low current (+) 12V output and is utilized when using P/N 451M Door Lock Relay Module.

Green: (-) LOCK OUTPUT
This (-) 500mA output connects to the (-) lock wire in the vehicle or to a relay for vehicle specific applications. This wire will output a pulse when locking the system. It can be programmed to lock the vehicle when the ignition is turned ON, for a double pulse output and for the output duration. Additionally this output may be used for Comfort Closure for vehicles which can close the windows (and in some cases the sunroof) while holding the key to the lock position in the door key cylinder (see *Ign-controlled Locks, Door Lock Pulses, Door Lock Duration* or *Comfort Closure* in Feature Menus for more details).
Note: If the door trigger input is connected, the doors of the vehicle must be closed when turning the ignition ON for the Ign-controlled Door Locks, feature to work.

Initializing Virtual Tach (not needed w/hardwire and data tach inputs)

To program Virtual Tach:
1. After the install is complete, remote start the engine. The programming operation may require 3 cranks of the starter before the engine starts and runs. Do not turn OFF the remote start if this happens, it is a normal programming operation.
2. Once the engine begins running, let it run for at least 30 seconds.
3. Using the Remote, send the Remote start command to turn remote start OFF. Virtual Tach is programmed. (To reset Virtual Tach, see the *Reset and Deletion* section of this guide). Virtual Tach cannot be reset with the Bitwriter.

Note: Virtual Tach cannot be used in MTS (Manual Transmission Mode). It is also not recommended for diesel vehicles.

Virtual Tach handles disengaging the starter motor during remote starting – it does not address over-rev. If the customer wants to have the over-rev protection capability, the tach wire must be connected.

> **Important:** After successfully learning Virtual Tach, a small minority of vehicle starters may over or under crank during remote start. The Bitwriter can be used fine tune the starter output time in 50 millisecond increments to compensate for such an occurrence.

Learning Hardwired or Data Tach (not needed with Virtual Tach)

To learn the tach signal:
1. **Start** the vehicle with the key. Within 5 seconds, **press** and **hold** the Control Center button.
2. After 3 seconds the status LED on the Control Center lights solid when the tach signal is learned.
3. **Release** the Control Center button.

Note: When the tachometer is programmed, the main unit automatically enters the Tachometer Engine Checking Mode.

Important: After successfully learning Tach, a small minority of vehicle starters may over crank or under crank during remote start. If such an occurrence is encountered you can fine tune the starter output time by programming manually (see *Starter Release Fine Tune* in Features Programming). Note this feature is programmable only with a Bitwriter.

Remote Start Shutdown/Startup Diagnostics

Shutdown diagnostics: If the remote start activates but fails to stay running, the remote start module has the ability to inform you of what may have caused the remote start failure. Before performing shutdown diagnostics it is important that you let the remote start shut OFF on its own i.e., let it attempt to start 3 times then shut down, if this is not done the unit will report the shutdown last used to shut OFF the remote start.

Note: Shutdown diagnostics does not report if the vehicles factory immobilizer is causing the problem.

To Perform Shutdown Diagnostics:
1. With the ignition OFF, **press** and **hold** the Control Center button.
2. **Turn** the ignition ON and then back OFF while holding the Control Center button.
3. **Release** the Control Center button.
4. **Press** and **release** the Control Center button one time.

The status LED flashes to report the last shutdown for one minute or until the ignition is turned ON, as shown in the following table:

Status LED Flashes	Shutdown Mode
1 flash	Runtime expired
2 flashes	Over-rev shutdown
3 flashes	Low or no RPM
4 flashes	Transmitter shutdown (or optional push button)
5 flashes	(+) Brake shutdown
6 flashes	(-) Hood shutdown
7 flashes	Timer mode/Turbo mode/Manual mode error*
8 flashes	Neutral safety shutdown
9 flashes	Low battery (voltage mode)
11 flashes	Wait-to-start input timed out

*   Timer Mode error: Ignition is ON or shutdown input is active when activating Timer Mode.
Turbo Mode error: Turbo Mode is programmed OFF, engine is not ON or shutdown input is active.
Manual mode error: MTS mode not enabled.

Startup Diagnostics: If the vehicle fails to activate the remote start, the remote start module will notify you via 2-way remote control and will flash the parking lights on the vehicle to notify you of what caused the no-start situation.

Parking Light Flashes:

5 flashes	Brake wire is active
6 flashes	Hood pin wire is active
7 flashes	Manual transmission mode is enabled and not initialized
8 flashes	Neutral safety wire has no ground or the neutral safety switch is OFF

Programming System Features

The System Features Learn Routine dictates how the unit operates. It is possible to access and change most of the feature settings using the Control Center button.
1. **Turn** the ignition ON, then OFF.
2. Select a Menu. **Press** and **hold** the Control Center button. The number of LED flashes and horn honks indicates the Menu number. 1 LED flash and honk indicates Menu 1, 2 LED flashes and honks - Menu 2 and 3 LED flashes and honks for Menu 3.
3. When the desired Menu LED flashes and honks are observed, **release** the Control Center button.
4. Select a Feature. **Press** and **release** the Control Center button the number of times corresponding to the feature desired to change. Then **press** and **hold** one more time to select the features. **Do not release** the Control Center button.
5. Program the Feature. While **holding** the Control Center button, you can program the feature using the remote control.

The Control Center LED will flash and the horn will honk the number of times equal to the option chosen.

For features with only two options; 🔒 = option 1, while 🔓 = option 2.
For features with more than two options; 🔒 selects the options in ascending order, while 🔓 selects them in descending order.
Note: Pressing ⚙ button resets the feature to the factory default.

Once a feature is programmed:
1. Other features can be programmed within the same Menu.
2. Another Menu can be selected.
3. The Learn Routine can be exited if programming is complete.

To access another feature in the same Menu:
1. **Press** and **release** the Control Center button the number of times necessary to advance from the feature just programmed to the next one desired to program.
2. Then **press** the Control Center button once more and **hold** it.

To select another Menu:
1. **Press** and **hold** the Control Center button.
2. After 3 seconds, the unit advances to the next Menu, the LED flashes and the horn honks, indicating which Menu has been accessed.

The learn routine exits if any of the following occurs:
- The ignition is turned ON.
- There is no activity for 30 seconds.
- The Control Center button is pressed too many times.

Feature Menus

Default settings are Opt. 1 (in **bold** type).

Menu 1 - Vehicle Integration

Item	Feature	**Opt. 1**	Opt. 2	Opt. 3	Opt.4	Opt. 5+
1	System Locking Mode	**Active Locking**	Passive Locking	Auto Re-locking		
2	Panic Mode *	**ON**	Ign. OFF only	OFF		
3	Horn Function (milliseconds)	**Confirmation Honk (20 ms) & Panic**	Confirmation Honk (30 ms) & Panic	Confirmation Honk (40 ms) & Panic	Confirmation Honk (50 ms) & Panic	Confirmation Honk OFF - Panic Only (Pulsed)
4	Ign-controlled Locks	**No Ign-locking**	Lock & Unlock	Lock Only	Unlock Only	
5	Door Lock Pulses	**Single**	Double Unlock Only	Double Lock Only	Double Lock & Unlock	
6	Door Lock output duration (seconds)	**0.8 sec.**	3.5 sec.	0.4 sec.		
7	Ignition Controlled 2nd Unlock	**Delayed 2nd Unlock ON/ Ign-control after first Unlock**	Immediate 2nd Unlock ON/ Ign-control with first Unlock			
8	Comfort Closure *	**No Comfort Closure**	Comfort Closure 1	Comfort Closure 2		
9	Hood Switch Type	**Normally Open**	Normally Closed			
10	Door Switch Type	**Normally Open**	Normally Closed			
11	Remote Button unlock (Ign OFF)**	**ON**	OFF			

* Not available with the 1-button remote control.

** Not available with the 1-way remote control.

1. System Locking mode
    1. Active: the transmitter must be used to lock the system.
    2. Passive Locking: after exiting the vehicle the system will automatically lock the doors.
    3. Auto re-locking: if the vehicle is not entered after receiving a unlock command, the system will automatically re-lock the doors.

2. Panic Mode
    1. On: the Panic output can be activated at any time.
    2. Ign. OFF Only: the Panic output can be activated only when the ignition is OFF.
    3. OFF: the Panic output is defeated.

3. Horn Duration
    1. Options 1-4: Confirmation Honks when locking/unlocking are turned ON with selectable horn honk output timing to compensate for OEM horn efficiency.
    2. Option 5: Confirmation Honks when locking/unlocking are turned OFF while the panic mode horn honk output is still active.

4. Ign-controlled Locks
    1. No Ign-locking: the door lock/unlock outputs will not activate when ignition is turned ON/OFF.
    2. Lock & Unlock: the door lock & unlock output will activate when ignition is turned ON & OFF.
    3. Lock Only: the door lock output will activate when ignition is turned ON.
    4. Unlock Only: the door unlock output will activate when ignition is turned OFF.

5. Door Lock Pulses
    1. Single: the door lock & unlock outputs will pulse once.
    2. Double Unlock only: the unlock output only will pulse twice.
    3. Double Lock Only: the lock output only will pulse twice.
    4. Double Lock & Unlock: the lock & unlock outputs will pulse twice.

6. Door Lock Output Duration
    1. 0.8 sec.: the door lock/unlock output pulses will be 800 milliseconds in duration.
    2. 3.5 sec.: the door lock/unlock pulses will be 3.5 seconds in duration.
    3. 0.4 sec.: the door lock/unlock pulses will be 400 milliseconds in duration.

7. Ignition Controlled 2nd Unlock
    1. Delayed: for Ign-controlled unlocking, the 2nd Unlock will activate 800 milliseconds after the first (driver door) unlock.
    2. Immediate: for Ign-controlled unlocking, the 2nd Unlock will activate at the same time as the first (driver door) unlock.

8. Comfort Closure
    1. No comfort Closure: Comfort Closure is defeated when locking.
    2. Comfort Closure 1: When locking the door lock pulse (or 2nd pulse for double pulses) will remain ON for 20 seconds.
    3. Comfort Closure 2: When locking 800 milliseconds following last door lock pulse (or 2nd pulse for double pulses); the door lock output will turn ON again for 20 seconds.

9. Hood Switch Type
    1. Normally Open: for vehicles with a hood switch that rests at power or ground when the hood is OPEN.
    2. Normally Closed: for vehicles with a hood switch that rests at power or ground when the hood is CLOSED.

10. Door Switch Type
    1. Normally Open: for vehicles with door switches that rest at power or ground when the door is OPEN.
    2. Normally Closed: for vehicles with door switches that rest at power or ground when the door is CLOSED.

11. Remote Button Unlock (Ign. OFF)
    1. On: a message telling the 2-way remote control to unlock the keypad is sent each time the vehicle ignition is turned OFF.
    2. OFF: no message is sent.
    Note: This feature works in conjunction with the keypad lock feature of the remote control.

Menu 2 - Convenience

Item	Feature	**Opt. 1**	Opt. 2	Opt. 3	Opt.4	Opt. 5+
1	One-time Bypass	**One-time bypass OFF**	One-time bypass ON			
2	Override Pulse Count	**1**	2	3	4	5
3	Door Open Error Chirp*	**ON**	OFF			
4	OEM Alarm Disarm with AUX/trunk	**ON**	OFF			
5	OEM Alarm Disarm Output	**With Unlock**	Before Unlock	Remote Start Only		
6	OEM Alarm Disarm Pulses	**1**	2			
7	AUX 1 Output Type**	**Validity**	Latch	Latch/reset/ign.	Timed	OFF (5)/2nd Unlock (6)
8	AUX 1 Linking	**No Linking**	Link to Lock	Link to Unlock	Link to Lock/ Unlock	Link to Remote Start only
9	AUX 2 Output Type**	**Validity**	Latch	Latch reset/ign	Timed	OFF (5)/2nd Unlock (6)
10	AUX 2 Linking	**No Linking**	Link to Lock	Link to Unlock	Link to Lock/ Unlock	Link to Remote Start only
11	AUX 3 Output Type**	**Validity**	Latch	Latch reset/Ign	Timed	OFF (5)/2nd Unlock (6)
12	AUX 3 Linking	**No Linking**	Link to Lock	Link to Unlock	Link to Lock/ Unlock	Smart Key Control (Link to Remote Start OFF)*
13	AUX 4 Output Type**	**Validity**	Latch	Latch reset/Ign.	Timed	OFF (5)/2nd Unlock (6)
14	AUX 4 Linking	**No linking**	Link to Lock	Link to Unlock	Link to Lock/ Unlock	Link to Remote Start Only
15	Aux/Trunk Output Type	**Validity**	OFF	2nd Unlock		

*   Only applicable if the door triggers are connected as well as the horn honk output.

** AUX channels with the 1-button remote can only be accessed with channel linking to unlock or remote start.

1. One-time Bypass
    1. OFF: One-Time Bypass is not available.
    2. ON: the One-Time Bypass feature will defeat Passive Locking once and, if Locked by remote control, will defeat Comfort Closure and AUX outputs linked to Locking.

2. Override Pulse Count
    • 1-5: sets the number of presses (1-5) on the Control Center button required to disengage the Ground When Armed output from the system if a remote is damaged or not available.

3. Door Open Error Chirp
    1. ON: if the door trigger is active when locking, the horn will emit a honk and a message will be sent to the 2-way remote control as an alert.
    2. OFF: an active door trigger when locking will not create an alert output.

4. OEM Alarm Disarm with Aux/Trunk (Green/Black wire, 24-pin harness)
    1. ON: the OEM Alarm Disarm wire will pulse as programmed when the Aux/Trunk output is activated.
    2. OFF: the OEM Alarm Disarm wire will not pulse when the Aux/Trunk output is activated.

5. OEM Alarm Disarm Output (Green/Black wire, 24-pin harness)
    1. With Unlock: the OEM Alarm Disarm wire will pulse as programmed at the same time as the unlock (Blue) wire.
    2. Before Unlock: the OEM Alarm Disarm wire will pulse as programmed before the unlock wire.
    3. Remote start only: the OEM Alarm Disarm wire will pulse as programmed during remote start only.

6. OEM Alarm Disarm Pulses (Green/Black wire, 24 pin harness).
    1. The OEM Alarm Disarm wire will pulse once per operation.
    2. The OEM Alarm Disarm wire will pulse twice per operation.

7. AUX 1 Output Type (White/Violet wire, 24-pin harness)
    1. Validity: when the AUX command is received the output will turn ON and remain ON until the command ceases.
    2. Latch: when the AUX command is received the output will turn ON and remain ON until the command is received again.
    3. Latch/reset/Ignition: when the AUX command is received the output will turn ON and remain ON until the command is received again or the ignition is turned ON/OFF.
    4. Timed: when the AUX command is received the output will turn ON for the programmed time duration (default 30sec.).
    5. OFF: the output will not activate for a remote control command, use this option when the AUX command controls an external device such as a garage door module.
    6. 2nd Unlock: this output will operate as 2nd Unlock and will not activate for remote control commands.

8. AUX 1 Linking
    1. No Linking: the AUX output will operate normally with the remote control.
    2. Link to Lock: the AUX output will activate for the Lock command.
    3. Link to Unlock: the AUX output will activate for the Unlock command.
    4. Link to Lock/Unlock: the AUX output will activate for the Lock & Unlock commands.
    5. Link to Remote Start: the AUX output will activate for any Remote Start activation.
    Note: The auxiliary output can still be activated independently with the remote when linked to a command.

9. AUX 2 Output Type
   • Refer to AUX 1 Output Type descriptions.

10. AUX 2 Linking
    • Refer to AUX 1 Linking descriptions.

11. AUX 3 Output Type
    • Refer to AUX 1 Output Type descriptions.

12. AUX 3 Linking
    1. Options 1-4: Refer to AUX 1 Linking descriptions.
    2. Option 5: SmartKey Control (Link to Remote Start OFF): The AUX output will pulse once following Remote Start shut down for vehicles with push button engine stop operations. During runtime, if any door is opened the remote start will shut down immediately and pulse the output.

13. AUX 4 Output Type
    • Refer to AUX 1 Output Type descriptions.

14. AUX 4 Linking
    • Refer to AUX 1 Linking descriptions.

15. Aux/Trunk Output Type
    • Refer to AUX 1 Output Type descriptions.

Menu 3 - Remote start

Item	Feature	**Opt. 1**	Opt. 2	Opt. 3	Opt.4	Opt. 5+
1	Transmission Mode	**Manual**	Automatic			
2	Engine Checking Mode	**Virtual Tach**	Voltage	OFF	Tachometer	
3	Cranking Time (seconds)	**0.6 sec.**	0.8 sec.	1.0 sec.	1.2 sec.	1.4 (5)/ 1.6 (6)/ 1.8 (7) 2.0 (8)/ 4.0 (9)
4	Remote Start Runtime (minutes)	**12 min.**	24 min.	60 min.		
5	Activation Pulse Count	**1**	2			
6	Turbo Mode (minutes)	**No Turbo Mode**	On-1 min.	On-3 min.	On-5 min.	On- 10 min.
7	Timer Mode Runtime	**12 min.**	3 min.	6 min.	9 min.	
8	Flex Relay Function	**Ignition 2**	Accessory 2	Starter 2		
9	Diesel Start Delay (seconds)	**Wait-to Start input**	Timed 15 sec.	Timed 30 sec.	Timed 45 sec.	
10	Accessory during Diesel Start Delay	**On**	OFF			
11	Status 2 Output	**Status**	Latch Rear Defogger	Pulse Rear Defogger		
12	Parking Light Output	**Constant**	Pulsed	OFF		
13	Anti-grind Output	**ON**	OFF			
14	Tach Mode Starter Release	**Normal**	Increase	Decrease		
15	Vehicle Temp Auto Report*	**OFF**	On			
16	Remote Start Safelock	**OFF**	On			

* Not available with with the 1-way remote control.

1. Transmission Mode
    1. Manual: requires 'Tachometer' for the Engine Checking Mode, and requires the user to successfully perform a procedure when parking the vehicle before remote starter will engage.
    2. Automatic: uses any of the Engine Checking Modes and does not require any special procedures when parking.

2. Engine Checking Mode
    1. Virtual Tach: battery voltage drop/rise during cranking determines when the starter output is released. During runtime, constant voltage level is monitored to determine if the engine is running.
    2. Voltage: starter output during cranking is a programmed duration (Set in Cranking Time). During runtime, constant voltage level is monitored to determine if the engine is running.
    3. OFF: starter output during cranking is a programmed duration (Set in Cranking Time). The remote start will keep the ignition/accessories active for the programmed runtime whether the engine is running or not.
    4. Tachometer: tachometer input signal during cranking and runtime to determine when the starter output is released and if the engine is running.

3. Cranking Time
    • 0.6/0.8/1.0/1.2/1.4/1.6/1.8/2.0/4.0 seconds: determines the starter output duration during cranking for the 'Voltage' and the 'OFF' Engine Checking Mode options.

4. Remote Start Runtime
    • 12/24/60 minutes: sets engine runtime during normal remote start operations.

5. Activation Pulse Count
    • 1/ 2 pulses: sets the number of remote control commands received or Activation Input required to activate and de-activate remote start.

6. Turbo Mode
    1. No Turbo Mode: Turbo Mode is not available.
    2. ON – 1/3/5/10 minutes: Turbo Mode is available and, when activated, the engine will run for the duration set per the selected option.

7. Timer Mode Runtime
    • 12/3/6/9 minutes: sets the runtime when the engine is started by the Timer Mode and SmartStart features.

8. Ignition 2/Flex Relay Function
    1. Ignition 2: the relay will emulate the Ignition 1 output during remote start.
    2. Accessory 2: the relay will emulate the Accessory 1 output during remote start.
    3. Starter 2: the relay will emulate the Starter output during remote start.
    Note: Changing this feature not only affects the Pink/White heavy gauge wire 10 pin harness (high current) it will also affect the (-) Ign. 2 Pink/White wire in the 24-pin harness.

9. Diesel Start Delay
    1. WTS (Wait-to-start) input: (-) input on the Gray/Black WTS wire (24-pin harness) will delay the starter output until the ground ceases.
    2. Timed 15/30/45 seconds: delays the starter output per the selected time, the WTS wire does not function.

10. Accessory During Diesel Start Delay
    1. ON: the Accessory outputs (Orange wire 10-pin harness (high current) and (-) Accessory Orange wire 24-pin harness (low current)) will be ON during diesel start delay.
    2. OFF: the Accessory outputs (Orange wire 10-pin harness (high current) and (-) Accessory Orange wire 24-pin harness (low current)) will be OFF during diesel start delay.

11. Status 2 Output (Blue/White wire on 24-pin harness)
    1. Status: the output will activate before the ignition outputs turns ON, and de-activates after they turn OFF during remote start.
    2. Latch rear defogger: the output activates 10 seconds after start if the temperature at the remote start main unit is below 55°F. It turns OFF after 10 minutes or upon remote start OFF.
    3. Pulse rear defogger: the output activates (for 800 ms) 10 seconds after start if the temperature at the remote start main unit is below 55°F.
    Note: If the rear defogger feature is programmed ON, the customer can still enable/disable the output with the remote.

12. Parking Light Output
    1. Constant: the parking lights will turn ON solid during remote start.
    2. Pulsed: the parking lights will pulse ON/OFF during remote start.
    3. OFF: the parking lights will be OFF during remote start.
    Note: If the parking lights have been programmed to be OFF during the remote start runtime, the parking lights will still flash upon activation of the remote start and during startup diagnostics.

13. Anti-grind Output (Orange wire on 6-pin harness)
    1. ON: the Orange Ground When Armed output will be activated for an optional anti-grind relay during remote start as anti-grind protection.
    2. OFF: the Orange Ground When Armed output will not be activated during remote start, no anti-grind protection is available.
    Note: The Ground When Armed output will still activate/deactivate when the system is Locked/Unlocked if the remote start is active.

14. Tach Mode Starter Release
    1. Normal: the starter output will release normally during cranking (50% of the learned tachometer value).
    2. Increase: the starter output will release later during cranking (at 35% of the learned tachometer value).
    3. Decrease: the starter output will release sooner during cranking (at 35% of the learned tachometer value).

15. Vehicle Temp Auto Report
    1. OFF: the report during remote start is defeated.
    2. ON: the report is sent every 2 minutes during remote start if the temperature has changed (+/-) 1 degree since the last report.

16. Remote Start Safelock
    1. OFF: the Door lock output will maintain the current status (locked/unlocked) during remote start and after shut down.
    2. On: the Door lock output will arm/lock the vehicle after the crank output from the remote start and once again after the remote start shuts OFF.

Bitwriter - Only Options

If programming with the Bitwriter or XKLoader 3, the Learn Routine can be locked or unlocked. If the Learn Routine has previously been locked, it must be unlocked with Bitwriter - this cannot be done manually with the Control Center button.

The Bitwriter or XKLoader 3 gives you access to a wider range of system options. These features and the adjustments that may be programmed are described in the table below.

Item	Feature	Default	Opt. 2	Opt. 3	Opt.4	Opt. 5+
1	Aux/Trunk Icon Type*	**Trunk**	Window	Sunroof	Audio	Lights/Left dr/Right dr/Rear Hatch
2	AUX 1 Timed Output (seconds)	**30 sec.**	Options: 1 to 90 sec.			
3	AUX 1 Remote Icon Type*	**Pulsed**	Trunk	Window	Sunroof	Audio/Lights/Left dr/Right dr/Rear Hatch/Timed/Latched
4	AUX 2 Timed Output (seconds)	**30 sec.**	Options: 1 to 90 sec.			
5	AUX 2 Icon Type*	**Pulsed**	Trunk	Window	Sunroof	Audio/Lights/Left dr/Right dr/Rear Hatch/Timed/Latched
6	AUX 3 Timed Output	**30 sec.**	Options: 1 to 90 sec.			
7	AUX 3 Icon Type*	**Pulsed**	Trunk	Window	Sunroof	Audio/Lights/Left dr/Right dr/Rear Hatch/Timed/Latched
8	AUX 4 Timed Output (seconds)	**30 sec.**	Options: 1 to 90 sec.			
9	Remote Start Runtime (minutes)	**12 min.**	Options: 1 to 60 min.			
10	Timer Mode Runtime (minutes)	**12 min.**	Options: 1 to 16 min.			
11	Timer Mode Starts	**6 starts**	Options: 1/2/3/4 to 24 (Starts) in increments of 2			
12	Timer mode intervals (hours)	**3 hr.**	Options: 1/2/3/4 to 24 in 2 hour increments			
13	Smart start low temp (Fahrenheit)	**0° (F)**	Options: OFF, -20° to 70° in 10° increments			
14	Smart start high temp (Fahrenheit)	**100° (F)**	Options: OFF, 40° to 130° in 10° increments			
15	Smart start low battery (volts)	**10.5V**	Options: OFF, 9V to 12.5V in 0.5V increments			
16	Diesel Start Delay type (seconds)	**15 sec.**	Options: 1 to 90 sec.			
17	Starter Release Fine Tune	**6 (normal)**	Options: 0 to 20 in increments of 1			
18	Virtual Tach Fine Tune (milliseconds)	**Not Initialized**	Options: Not initialized, 0 to 1000 in 50 millisecond increments			
19	Transmitter Programming	**Unlocked**	Locked			
20	Feature Programming	**Unlocked**	Locked			

* Feature only available for the LCD 2-way remote control with display screens.

Note: The Bitwriter is a hand held Feature Programming tool that can be used to fine tune and access certain features that are not accessible with manual programming. The Bitwriter plugs into the black 3-pin plug on the system. The black 3-pin port will also be utilized by the optional Smartstart module when applicable.

1. Aux/Trunk Icon Type: sets the name to be displayed in the Text Field when the Aux/Trunk output is activated/de-activated.
2. AUX 1 Timed Output: sets the output duration in 1 second intervals up to 90 seconds for AUX 1.
3. AUX 1 Icon Type: sets the name to be displayed in the Text Field when the AUX 1 output is activated/de-activated.
4. AUX 2 Timed Output: sets the AUX 2 "Timed" output in 1 second intervals up to 90 seconds.
5. AUX 2 Icon Type: sets the name to be displayed in the Text Field when the AUX 2 output is activated/de-activated.
6. AUX 3 Timed Output: sets the AUX 3 "Timed" output in 1 second intervals up to 90 seconds.
7. AUX 3 Icon Type: sets the name to be displayed in the Text Field when the AUX 3 output is activated/de-activated.
8. AUX 4 Timed Output: sets the AUX 4 "Timed" output in 1 second intervals up to 90 seconds.
9. Remote Start Runtime: sets the duration of runtime when the engine is started by remote command.
10. Timer Mode Runtime: sets the duration of runtime when the engine is started by the Timer Mode and Smart Start features.
11. Timer Mode Starts: sets the number of times the engine will be started by the Timer Mode and Smart Start features.
12. Timer mode Intervals: sets the number of hours between engine starts by the Timer Mode and Smart Start features.
13. Smart Start Low Temperature: sets the low temperature threshold required for Smart Start to start the engine.
14. Smart Start High Temperature: sets the high temperature threshold required for Smart Start to start the engine.
15. Smart Start Low battery (Volts): sets the low battery level threshold required for Smart Start to start the engine.
16. Diesel Start Delay Timer: sets the delay before engine crank in 1 second intervals up to 90 seconds for diesel engine vehicles.
17. Starter Release Fine Tune: adds or subtracts crank time in Tachometer mode in order to overcome engine types that short crank or over-crank on the first start attempt.
18. Virtual Tach Fine Tune: adds or subtracts crank time in Virtual Tach mode in order to overcome engine types that short crank or over-crank on the first start attempt.
19. Transmitter Programming: locks and unlocks the user's ability to enter the remote control/Reset Menu and manually change any functions using the Control Center.
20. Feature Programming: locks and unlocks the user's ability to enter the Feature Menus and manually change the main unit programming using the Control Center.

Pairing a Remote Control

Pairing a remote control is a process whereby the remote control and the system in the vehicle learn each other's encrypted identification, securing their communication from intruders. Please note the remote control(s) come already paired from the factory. These instructions can be used if reprogramming or adding a new remote control to the system. The following instructions steps you through pairing the 2-way and 1-way remote control(s).

Note: Both the remote control and the vehicle need to be setup to pair a remote to the system and the remote must be set to the desired Car1 or Car2 mode. (see *Owners Manual* for more details about selecting vehicles).

LCD 2-Way Remote Control:
1. **Press** and **hold** the *f* button on the remote for 8 seconds, the remote beeps once, ⟨ Main Menu ⟩ is displayed on the screen. **Release** the *f* button.
2. **Press** and **release** the (AUX) button or the ⟨⟩ button until ⟨ Remote Pair ⟩ is displayed on the screen.
3. **Press** and **hold** the *f* button until the remote beeps 3 times then **release** the *f* button. The remote is now ready to pair with the system.

    Vehicle Setup for Pairing:
    *   **Turn** ON the vehicles ignition to the RUN position.
    *   Within 5 seconds **press** and **release** the Control Center button on the Control Center one time then **press** it once more and **hold** it.
    *   The Control Center LED begins flashing in a single flash pattern and the horn will sound once to confirm the system is in pairing mode.
    *   Now **release** the Control Center button.

4. With both the remote and system in pairing mode, **press** the 🔒 button on the remote.
5. The siren chirps to indicate the system has learned the remote ID and is sending its ID to the 2-way remote.
6. The LCD remote control will indicate a ⟨ Successful ⟩ or ⟨ Failed ⟩ pairing. If pairing fails, the remote will go back to the ⟨ Remote Pair ⟩ screen, **press** the 🔒 button on the remote again to attempt another pairing. Once the remote has paired to the system ⟨ Successful ⟩ will display on the remote screen and it will also emit several tones to confirm.
7. Once the pairing is completed **turn** OFF the ignition in the vehicle, the siren will sound to confirm exiting.
8. When both the system and remote have exited the Pairing mode, you may now test for functionality.

    To exit Pairing Mode on the remote:
    *   Wait 30 seconds without pressing a button on the remote.
    *   **Press** and **release** the 🔓 button on the remote.

    To exit Pairing Mode on the system:
    *   **Turn** OFF the ignition.
    *   Wait 60 seconds for the system to automatically exit.
    *   The horn (if connected) will sound to confirm exiting.

LED 2-way or 1-way Remote Control:
1. **Press** and **hold** the *f* button on the remote for 8 seconds. The transmit LED on the remote will come on solid, **release** the *f* button.
2. **Press** and **hold** the ⟨⟩ button on the remote until the transmit LED flashes 3 times then comes on solid. The remote is now ready to pair with the system.

Vehicle Setup for Pairing:
- **Turn** ON the vehicles ignition to the RUN position.
- Within 5 seconds **press** and **release** the Control Center button on the Control Center one time then **press** it once more and **hold** it.
- The Control Center LED will begins flashing in a single flash pattern and the horn (if connected) will sound once to confirm the system is in pairing mode. You may now **release** the Control Center button.

3. With both the remote and system in pairing mode, **press** the 🔒 button on the remote. The siren chirps to indicate the system has learned the remote ID and is sending its ID to the 2-way remote (the 2-way remote will emit several tones to indicate the remote has learned the system ID, the 1-way remote does not offer confirmations).
4. If pairing fails, **press** the 🔒 button on the remote again to attempt another pairing.
5. Once the pairing is completed **turn** OFF the ignition in the vehicle, the horn (if connected) will sound to confirm exiting. When both the system and remote have exited the Pairing mode, test for functionality.

To exit Pairing Mode on the remote:
- Wait 30 seconds without pressing a button on the remote.
- **Press** and **release** the 🔑 button on the remote.

To exit Pairing Mode on the system:
- **Turn** OFF the ignition.
- Wait 60 seconds for the system to automatically exit.
- The horn (if connected) will sound to confirm exiting.

1 Button 2-way or 1-way Remote Control:
1. **Press** the button on the remote control twice and then **hold** on the third press. The transmit LED will come on solid, continue to **hold** the button until the transmit LED changes its pattern. **Release** the button and the transmit LED will begin flashing as an indication that the remote has entered the pairing mode.

Vehicle Setup for Pairing:
- **Turn** ON the vehicles ignition to the RUN position.
- Within 5 seconds **press** and **release** the Control Center button on the Control Center one time then **press** it once more and **hold** it.
- The Control Center LED will begins flashing in a single flash pattern and the horn (if connected) will sound once to confirm the system is in pairing mode.
- You may now **release** the Control Center Button.

2. With both the remote and system in pairing mode, **press** and **hold** the button on the remote. The horn sounds to indicate the system has learned the remote ID and is sending its ID to the 2-way remote (the 2-way remote will emit several tones to indicate the remote has learned the system ID, the 1-way remote does not offer confirmations)
3. If pairing fails, **press** the button on the remote again to attempt another pairing.
4. Once the pairing is completed **turn** OFF the ignition in the vehicle, the horn (if connected) will sound to confirm exiting. When both the system and remote have exited the Pairing mode, test for functionality.

To exit Pairing Mode on the remote:
- Wait 30 seconds without pressing a button on the remote.

To exit Pairing Mode on the system:
- **Turn** OFF the ignition.
- The horn (if connected) will sound to confirm exiting.

Basic Remote Functions

5-Button Remote Control

Level / Button	Direct Access	*ƒ* x 1	*ƒ* x 2	*ƒ* x 3	*ƒ* x 4
🔒	Lock	Silent Mode Lock			
🔓	Unlock	Silent Mode Unlock	Remote Valet	Car Finder	
🌀	Remote Start	Runtime Reset	Timer Mode	Smart Start	Rear Defogger
AUX	Trunk Release	AUX 1	AUX 2	AUX 3	AUX 4
ƒ	Function Shift	Cabin Temperature Request (2-Way only)	Runtime Check (2-Way only)		

Note: See *Owner's Guide* of your specific model for exact functionality. The above table reflects the LCD model but is also applicable to the LED and Companion remote controls (however, some f button functions may differ).

Important: If the Control Center) has been replaced, all remote controls must be re-paired with the system. See *Remote Pairing* for details.

Reset and Deletion

If a feature/Virtual Tach needs to be reset or the remote controls need to be deleted, use the following procedure.
1. **Turn** the ignition to the ON position (The heavy gauge pink wire must be connected).
2. Within 10 seconds, **press** and **release** the Control Center button 2 times if you want to delete remote controls, 3 times to reset features or 4 times to reset Virtual Tach.. These function steps are described next.

   • **Step 2:** Delete remotes: This feature erases all remote controls from the memory of the keyless entry system. This is useful in cases when a customer's remote is lost or stolen.
   Note: This does not reset the programmed features of the keyless entry system or reset the Virtual Tach setting.

   • **Step 3:** Reset Features: This resets all features of the keyless entry system to the factory default settings.
   Note: This feature does not delete the remote controls from the keyless entry system or reset the Virtual Tach setting

   • **Step 4:** Virtual Tach Reset: Deletes all previously learned values for Virtual Tach, and on the next remote start sequence the unit begins Virtual Tach initialization.
   Note: The "Zap" feature on the Bitwriter does not reset the Virtual Tach setting.

3. Once you have selected the function step, **press** the Control Center button once more and **hold** it. The LED flashes and the horn honks to confirm the selected functional step. **Do not release** the Control Center button.
4. While holding the Control Center button, **press** the 🔒 button on a programmed remote control. The unit honks to confirm that the remote controls have successfully been deleted or the features have been reset.
5. Once the feature is reset, the Control Center button can be released.

Troubleshooting: Keyless Entry

System does not Auto re-lock:
1. Is Auto re-locking programmed ON?
2. Are the door inputs connected? Either the 24-pin harness Green or Violet door trigger wires should be connected.

Door locks operate backwards.
- This unit has easily-reversed lock/unlock outputs. Recheck wire connections to see if you have reversed these.

Troubleshooting: Remote Start

The remote will not activate the remote start.
1. Check remote startup diagnostics.
2. Is the remote start shut OFF switch plugged in and turned ON?
3. If the vehicle has an automatic transmission, make sure the remote start is programmed for Automatic Transmission mode.
4. Is the remote programmed to the system?
5. Can the remote start be activated manually by applying a ground pulse to the 24-pin harness White/Blue activation input?
6. Check the harnesses and their connections. Make sure that the harnesses are completely plugged into the remote start module. Make sure there are good connections to the vehicle wiring.
7. Check voltage and fuses on the main 6-pin harness and on the heavy gauge remote start harness.

The remote start will activate, but the starter never engages.
1. Check for voltage on the Violet starter wire two seconds after the remote start becomes active. If there is voltage present, skip to Step 8. If there is not voltage present, advance to Step 2.
2. Check the 30A fuses.
3. If the Gray/Black wait-to-start wire is detecting ground upon activation, the starter will not crank.
4. Is the tach wire connected? If so disconnect it and remote start the vehicle to see if the Violet wire sends out voltage. If you get voltage you will need to go to an alternate tach source, the tach wire you are currently on has a voltage spike upon ignition power up which can cause the remote start to not send out the crank voltage.
5. Is the vehicle a Chrysler or GM with a multiplexed starter wire? The vehicle will not crank if the resistance is incorrect on the multiplexed accessory/starter wire.
6. Is the vehicle a GM? If so the Brown accessory needs to be powered up on some of the vehicles for the vehicle to crank.
7. If this is a manual transmission vehicle, the clutch will need to be bypassed (see *Tech Tip # 10000* at www.directechs.com)
8. Make sure the Violet starter wire is connected on the starter side of the optional starter disable/anti-grind relay.
9. Does the vehicle have an immobilizer? Some immobilizer systems will not allow the vehicle to crank if active.
10. Check connections. The heavy gauge remote start input wires on the heavy gauge 10-pin connector should have a solid connection.

The vehicle starts, but immediately dies.
1. Does the vehicle have an immobilizer? The vehicle's immobilizer can cut the fuel and/or spark during unauthorized starting attempts.
2. Is the remote start programmed for Virtual Tach or voltage sense? If so, the crank time may not be set long enough. Voltage sense will not work on some vehicles.
3. Is the remote start in tach mode? If so has the tach been programmed to the system?
4. Check diagnostics. Sometimes a shutdown will become active during cranking or just after cranking.

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The vehicle starts, but the starter keeps running.
1. Is the system programmed for Engine Checking OFF, Virtual Tach or voltage sense? When programmed for either of these features, the engine cranks for the pre-programmed crank time regardless of how long it takes for the vehicle to actually start. Adjust to a lower cranking time.
2. Was the Tach Learn successful? The LED must light solid and bright to indicate a successful learn.
3. Make sure that there is a tach signal at the Violet/White tach input wire of the remote start. If there is not a tach signal, recheck the connection to the vehicle's tach wire and make sure the wire is not broken or shorted to ground leading to the remote start.
4. Is an ignition or accessory output wire connected to the starter wire of the vehicle? Verify the color of the starter wire in the vehicle and confirm that the remote starters ignition or an accessory output is not connected to that wire.

The vehicle starts, but will only run for 10 seconds.
1. Is the remote start programmed for voltage sense? If this does not work, a tach wire should be used.
2. Check shutdown diagnostics.

The climate control system does not work while the unit is operating the vehicle.
1. Either the wrong accessory wire is being energized or more than one ignition or accessory wire must be energized in order to operate the climate control system.
2. If the vehicle has an electronic climate control system some will reset when the key is turned OFF and then back ON, unfortunately this is a function of the vehicle and cannot be bypassed.

MTS (Manual Transmission Start) diagnostics

When enabling MTS, if you get a failure notification from the remote or the vehicle fails to remain started check for following:
- Tachometer not connected or programmed.
- E-brake not connected to the remote start unit. The 24-pin harness Black/White parking brake input wire must have a ground when the parking brake is set.
- Foot must be OFF the brake when activating the MTS mode on the remote.
- Is the door open when enabling the MTS mode? If so this would cause the unit to enter Pit Stop Mode and the remote start will continue to run when arming/locking the system.
- Is the door input connected? The system needs to see a door open then close after initiating the remote start.
- Does the vehicle have a delayed dome light? If you are connected to the dome light wire and the dome light is staying ON after arming/locking the system, the system can exit the MTS mode.
- Make sure the remote start shut OFF switch is plugged in and turned ON.

MTS mode exiting diagnostics

If the remote start has entered the MTS mode but exits the mode after the system is armed/locked. Check these for possible causes.
- The vehicle door has been opened in your absence.
- Does the vehicle have a delayed dome light circuit or does the dome light come ON when the ignition is shut OFF? If so you may need to go to the independent door inputs of the vehicle
- If you are connected to the dome light wire in the vehicle and cannot connect the system to the individual door inputs of the vehicle due to it having normally closed door inputs, you can use *Tech Tip # 1921* at www.directechs.com to interface with these types of circuits.
- The E-brake wire connected to the parking brake input of the system loses ground when ignition is turned OFF or after a certain amount of time, with these vehicles unfortunately there is no workaround.
- The E-brake wire connected to the parking brake input of the system has a poor ground. Clean the contacts on the switch or replace the switch.