



Installation Manual

By Firstech LLC, Version: 1.0

Applicable to the following remote start system:

CM-900 – Auto Only Starter Control Module

This device complies with Part 15 of the FCC rules. Operation is subject to the following conditions;

(1) This device may not cause harmful interference.

(2) This device may accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.

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Introduction

Thank you for purchasing a Firstech remote start system for your vehicle. The following installation manual is intended for experienced and authorized remote start technicians. This is not a tutorial on how to install. We highly recommend that you contact your local Firstech dealer and seek professional installation.

Call 888-820-3690 or visit our website at www.compustar.com to locate your nearest dealer.



Caution: The Manufacturer's warranty will be void if this product is installed by anyone other than an authorized dealer. Firstech reserves installation support services to authorized dealers only.

Kit Contents

The CM-900 Series Kits include all your basic components for basic install.

- Starter Only Control Module CM-900
- 1 x Hood Pin
- Pack of Wiring Harnesses

Installation Basics

If you are new to installing Firstech remote start units, we highly recommended that you review this manual in its entirety prior to installing your first unit.

Key Points to Consider Before Installation:

- The two remotes are preprogrammed to the unit*** Page 5
This system is designed for ease of installation and the two included remotes are preprogrammed. In the event you may need to program new remotes cycle the ignition ON / OFF five times within seven seconds and tap the Lock button (half second) on the first remote, and then tap the Lock button (half second) on the second remote.

- This system is only compatible with Automatic transmission vehicles***
Unlike other Firstech remote start systems the CM-900 is only compatible with Automatic transmission vehicles. Manual transmissions are not supported by this unit.

- New Valet Procedure*** Page 6
To place the system into Valet, you must hold the foot brake and cycle the ignition 5 times. To place the system into Valet using the remote you must turn the ignition on and then tap the Lock and Trunk buttons.

- System comes in Tachless Sensing Mode***
The CM-900 comes preprogrammed in Tachless Sensing Mode. You do not need to connect the Yellow/Black Tach/Alternator sensing wire to remote start the vehicle.

- Tach learning procedure*** Page 6
To Learn Tach:
STEP 1. Start the vehicle with the key and allow it to idle down
STEP 2. Press and hold the foot brake
STEP 3. While holding the foot brake, hold the remote start button on the remote for 3 seconds
One parking light flash indicates that the vehicle tachometer signal has been successfully learned. Three parking light flashes indicate that the control module failed to learn the tachometer signal

- New Option Menus*** Page 13
The new option menu differs completely from other Firstech systems. It is important to familiarize yourself with these as it will save time in most applications.

- Option Programmer (OP500)*** Page 16
Most options on this unit can be programmed with the remote(s) as well as the Option Programmer (OP500). Please note the system must be disarmed before connecting the OP500. Otherwise, an "ERROR" message will show on the display of your OP500.

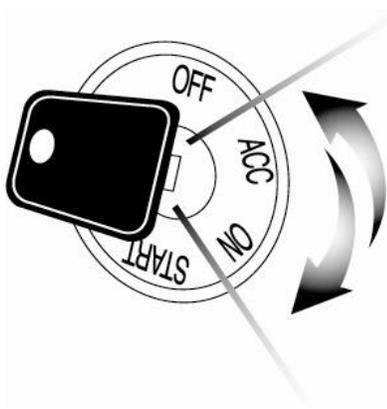
Remote Code Routine(s)

IMPORTANT: The remotes are preprogrammed to the control module. If you need to program the remotes, follow the instructions below.

Programming the Remote

STEP 1: Activate Programming mode by turning the ignition key *on* and *off* (between the Acc & On positions) five times within 10 seconds. The vehicle's parking lights will flash once with the successful completion of this step.

STEP 2: Within a second after cycling the ignition the 5th time, tap the Lock button on the **remote** for a half second. The parking lights will flash once to confirm the transmitter has been coded.



Programming Multiple Remotes: After the confirmation flash given in STEP 2, you can code additional remotes by tapping the Lock button on the **remote(s)**. The parking lights will flash once confirming each additional remote. **The CM-900 can store up to three remotes.**

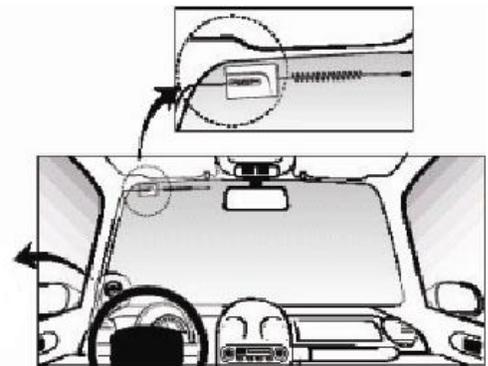
Exiting Programming: Programming is a timed sequence. The parking lights will flash twice signaling the end of programming mode.

Placement and Use of Components

IMPORTANT: The placement and use of components are critical to the performance of this system.

Antenna and Cable

Firstech antennas are calibrated for horizontal installation at the top of the windshield. It does not have to be mounted in the top left corner as shown to the left. The cable that connects the antenna to the brain must be free from any pinches or kinks. Installing the antenna in areas other than the windshield may adversely affect the effective transmitting distance of the remotes.



Hood Pin

The hood pin is an important safety feature that prevents the remote start from engaging while the hood is open. This is also to prevent accidental injury in the event that the vehicle is in service.

Common Procedures

Valet Mode

When servicing or loaning your vehicle to others, your remote start system should be placed in Valet Mode. Valet Mode prevents the system from remote starting and disables all alarm functions.

IMPORTANT: While in Valet mode the remote start will still lock and unlock power lock systems.

The system can be put into valet one of two ways:

1. Turn the vehicle's key to the ignition "on" position and tap the Lock and Trunk buttons simultaneously for a half second. The parking lights will flash once to confirm the system is in Valet Mode. Repeat this process to take the system out of Valet Mode. Ignition does not have to be on. Upon tapping the same buttons again the parking lights will flash twice to confirm the system is out of Valet Mode.
2. You can put the system into Valet by holding the foot brake and then turning the ignition key "on" and then "off" five times within 10 seconds. The parking lights will flash once to confirm the system is in Valet Mode.



Jumper Settings

Caution: Jumper settings affect the polarity and use of certain outputs. If these jumpers are used incorrectly, damage to the vehicle and control module may occur.

Jumper 1 (2nd Ignition / 2nd Starter / 2nd Accessory Relay)

This jumper determines the behavior of the large blue wire on Connector 1. This wire is powered by an internal relay in the control module. In the default position the jumper is set to 2nd Ignition. 2nd Ignition is common on GM and Toyota vehicles and will need powering. You can change the behavior of the wire to act as a 2nd Starter or 2nd Accessory to power up those wires common on newer Toyotas and Nissans.

Tachless Sensing – Default Setting on Option 2-10

Tachless sensing is an alternative engine sensing mode. Tachless sensing does not require a connection to the vehicle other than the main ignition harness. **IMPORTANT:** All wiring connections must be made before attempting remote starting.

STEP 1: Connect all necessary wires.

STEP 2: Process complete – there is no further programming required other than adjusting crank time when necessary (see below).

Adjusting Crank Time: To adjust the crank times, refer to Option 2-12. To ensure successful start, the system will automatically add additional crank time to the 2nd and 3rd start attempts. In addition, there is a built in "Smart Resting Mode". Traditional tach sensing is highly recommended for colder climates.

Tach Sensing – Option 2-10 Setting 2

Tach sensing mode requires a connection made with the yellow/black wire on Connector 3. Firstech recommends using an injector, coil or other tach source for tachometer sense. **IMPORTANT:** The tach must be programmed before remote starting.

STEP 1: Start the vehicle with the key. Allow time for the engine to idle down.

STEP 2: Test wire and make connection. With the vehicle off the wire should test 0 Volts AC. At idle the tach wire should test between 1 to 5 Volts AC. As the vehicle RPM's increase the voltage on the meter will also increase. Always solder tach connections.

STEP 3: Learn tach. While the vehicle is at idle, hold the foot brake and press and hold the remote start button on the remote control for 3 seconds.

The parking lights will flash once to confirm a good tach signal. The parking lights will flash three times to indicate the tach did not learn. Two seconds following the three flashes, the number of parking light flashes will indicate the cause of the error;

| Number of Parking Light Flashes | Tach Error |
|---------------------------------|---|
| 1 | Option 2-10 is not on setting 2 |
| 2 | Key is in the off position |
| 3 | Bad tach signal. Find a different wire. |

Alternator Sensing – Option 2-10 Setting 3

Alternator sense is an optional method the control module can use to verify if the engine is running. This is different than tachless sensing so the yellow/black wire connection must be made. **IMPORTANT:** No other option programming is required.

STEP 1: Change *Option 2-10 to setting 3 - Alternator Sensing.*

STEP 2: Test wire and make connection. The stator wire is found at the vehicle's alternator. Change your meter to DC before testing for this wire.

- A. At rest, with the ignition off, the stator wire should test 0V DC.
- B. Turn the ignition to the run position. The stator wire should now test between 1 – 6V DC.
- C. Start the vehicle with the key. The stator wire should now test between 12 – 14V DC at idle.

STEP 3: Process complete – no further programming required.

Assumed Timed Crank – Option 2-10 Setting 4

Assumed Time Crank is the last feature of Option 2-10 for remote starting. This is intended for vehicles with built-in anti-grind feature or that do not have a +12V Positive starter wire at the ignition harness. This option will send a 3 second crank signal to the vehicle. This option can be used on vehicles with built in anti-grind systems.

Automatic Transmission Remote Start Function

Hold the  button for 3 seconds to remote start an automatic transmission vehicle. If you are in range and the vehicle is ready to remote start, the parking lights will flash once.

If you are in range and the parking lights flash three times followed by a certain number after that, there is a remote start error. Refer to the “remote start error diagnostic” table under the Troubleshooting section of this manual for details.

Upon confirmation that your vehicle is running, the parking lights will light solid. The remote start run time can be set for 3, 15, 25, or 45 minutes. Option 3-01 will adjust the remote start run time. This should be

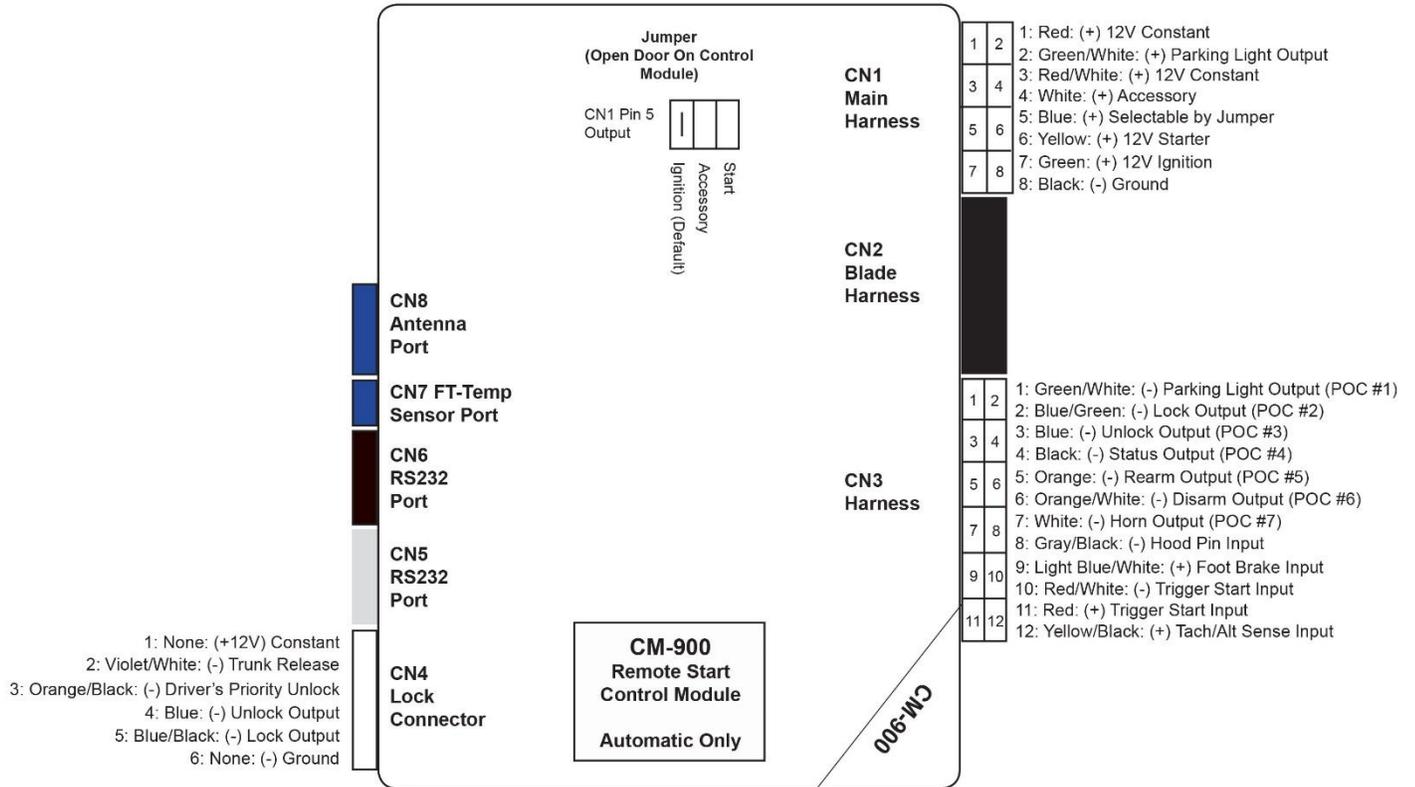
set at the time of installation.

IMPORTANT: The vehicle's key must be inserted into the ignition and turned to the "on" position prior to driving your vehicle. If the foot brake is depressed prior to inserting the key and turning to the "on" position, the vehicle will shut off.

Diesel Timer

The CM-900 module has a built in Diesel Timer to allow the vehicle's glow plug wire to heat up. There are multiple time settings on this unit, 3 to 99 seconds. This will allow the ignition to power up and then crank once the time has expired and glow plugs have properly heated up.

CM-900 Wiring Schematic (Remote Start)



Connector 1 (CN1), 8-Pin Ignition Harness

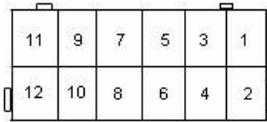
| | | | |
|---|---|---|---|
| 7 | 5 | 3 | 1 |
| 8 | 6 | 4 | 2 |

- Pin 1 **Red** - Constant 12V positive (+) power input. This wire must be connected. The proper vehicle wire will test (+) 12V at all times - while the key is in the off position, the on position and during crank.
- Pin 2 **Green/White** – This is the positive (+) parking light wire that triggers when you lock and unlock the doors and remote start the vehicle.
- Pin 3 **Red/White** - Constant 12V positive (+) power input. This wire must be connected. The proper vehicle wire will test (+) 12V at all times - while the key is in the off position, the on position and during crank.
- Pin 4 **White** - Accessory 12V positive (+) output. This wire must be connected to the vehicle accessory / HVAC blower motor wire. The proper wire will test 0V with the key in the off position, (+) 12V while key is in the on position, 0V while cranking and back to (+) 12V when the key is returned to the on position.
- Pin 5 **Blue** - Positive 12V (+) output that powers up during remote start. The behavior of this wire is selectable by a jumper inside the control module. By default this wire powers up as a 2nd Ignition trigger. It is changeable to a 2nd Starter or 2nd Accessory.
- Pin 6 **Yellow** - Starter 12V positive (+) output. This wire must be connected for remote start. The proper wire will test 0V with the key in the off position, 0V while the key is in the on position and (+) 12V during crank.
- Pin 7 **Green** – Ignition 12V positive (+) output and input. This wire must be connected to the vehicles' ignition for remote start and valet / remote programming. The proper wire will test 0V with the key in the off position, 12 V (+) while the key is in the on position and 12V (+) during crank.
- Pin 8 **Black** - Ground negative (-) input. This wire must be connected to the vehicle's ground.

Connector 2 (CN2) Blade Connector and Cartridge

The CM-900 slot gives you the ability to use the Blade-AL and Blade-TB modules from Firstech and ADS. With these modules you can virtually eliminate all wire connections between your control module and bypass module. You only need to connect the main ignition harness and needed from the Black 20 pin Blade connector that may be required according to the vehicle specific Blade installation guide. For more information on how to program and wire the Blade, please visit compustar.idatalink.com for the specific wiring diagram for that vehicle.

Connector 3 (CN3), 12-Pin Harness



- Pin 1 **Green/White** - [Programmable Output 1] Parking light 250mA negative (-) output. The proper wire will test (-) when the parking light switch is in the on position. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 2 **Blue/Green** – [Programmable Output 2] Lock 250mA negative (-) output. This output can be used to trigger the lock wire on the vehicle. This output can also be used to trigger a relay if you need a positive (+) lock output. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 3 **Blue** - [Programmable Output 3] Unlock 250mA negative (-) output. This output can be used to trigger the unlock wire on the vehicle. This output can also be used to trigger a relay if you need a positive (+) unlock output. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 4 **Black** – [Programmable Output 4] Status/Ground while running 250mA negative (-) output. This is an optional output that will provide a negative (-) output before the ignition cranks and stay on throughout the remote start duration. This wire is most commonly used to trigger bypass / transponder modules. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 5 **Orange** – [Programmable Output 5] Factory Arm 250mA negative (-) output. This is an optional output that will provide a (-) pulse during lock, after crank and again after the ignition shuts down. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 6 **Orange/White** – [Programmable Output 6] Factory Disarm 250mA negative (-) output. This is an optional output that will provide a (-) pulse during unlock and prior to the ignition turning on. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 7 **White** - [Programmable Output 7] Horn honk 250mA negative (-) output. This is an optional output that will pulse the factory horn. The proper wire will show ground (-) while the horn is sounding. This wire can also be programmed through Special Option Group #2 as 1 of 19 different outputs.
- Pin 8 **Gray/Black** – Hood Pin negative (-) input. This input is a safety shut down and alarm trigger. It prevents the vehicle from remote starting while the hood is open and triggers the alarm if the hood is opened while the alarm is armed. You can connect this wire to the hood pin supplied with this kit, or to a wire in the vehicle that shows (-) only while the hood is open.
- Pin 9 **Light Blue/White** - Brake 12V positive (+) input. This input must be connected as it provides a shut down for the remote start. The proper wire will test (+) 12V while the foot brake is pressed.
- Pin 10 **Red/White** – This wire requires a negative (-) pulse input for triggering the remote start sequence. This wire allows you to use the CM-900 as a slave remote starter that can be controlled by a factory OEM remote.

Pin 11 **Red** - This wire requires a (+) pulse input for triggering the remote start sequence. This wire allows you to use the CM-900 as a slave remote starter that can be controlled by a factory OEM remote.

Pin 12 **Yellow/Black** - Engine sensing input. This wire is connected to the vehicle's Tach or Alternator wire and is required if you are not using the tachless sense setting. **IMPORTANT: To change engine-sensing modes, you must change Option 2-10:**

Connector 4 (CN4), 6-Pin (Optional)



Pin 1 **Not used**

Pin 2 **Violet/White** - Trunk release 250mA negative (-) output. This is an optional output that will release the trunk. System will unlock doors and disarm alarm prior to trunk release.

Pin 3 **Orange/Black** – 2nd Pulse Unlock wire. This wire is used to provide the customer with a driver's priority unlock feature with option 1-04. With the option on the unlock (blue) wire will pulse first and then orange/black will pulse if the unlock button is pressed again within 3 seconds.

Pin 4 **Blue** - Unlock 250mA negative (-) output. This is an optional output that will provide a (-) pulse for unlocking doors. System will unlock doors. **IMPORTANT: You must use relays to reverse polarity for (+) trigger door lock systems.**

Pin 5 **Blue/Black** - Lock 250mA (-) negative output. This is an optional output that will provide a (-) pulse for locking doors. System will lock doors. **IMPORTANT: You must use relays to reverse polarity for (+) trigger door lock systems.**

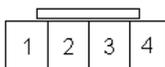
Pin 6 **Not used**

Connector 5 (CN5), 4-Pin (Grey RS232 Port)



This port provides simple connectivity to DroneMobile devices and Fortin bypass modules.

Connector 6 (CN6), 4-Pin (Black RS232 Port)



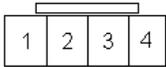
This port provides simple connectivity to iDatalink bypass modules. **This port supports 2-Way iDatalink protocol.**

Connector 7 (CN7), 2-Pin (FT-Temp Sensor)



This port is for FT-Temp Sensors only. FT-Temp Sensor is formally known as Thermister.

Connector 8 (CN8), 4-Pin (Pre-wired Antenna Cable)



Pin 1 **Yellow** - RX input. This wire receives the signal from remote.

Pin 2 **White** - TX output. This wire transmits the signal to remote.

Pin 3 **Red** – Constant 12V positive (+) output.

Pin 4 **Black** – Negative (-) ground.

Option Programming Tables

| | Feature | Default Setting - I | Optional Setting - II | Optional Setting - III | Optional Setting - IV |
|------|---|--|---------------------------------------|------------------------------------|---|
| 1-01 | Unlock Before, Lock After Starting | OFF | ON | Lock After Start Only | Lock After Shutdown Only |
| 1-02 | Lock / Unlock Pulse Duration | 0.8 sec | 2.5 sec | 0.125 sec | 3.5 sec |
| 1-03 | Driver's Priority Unlock | OFF | ON | | |
| 1-04 | Double Pulse Unlock | OFF | Unlock | Lock | Both Lock and Unlock |
| 1-05 | Rearm Output | First Lock, After Start and After Shutdown | First Lock and After Shutdown | After Start Only | After Shutdown Only |
| 1-07 | Unlock/Disarm With Trunk Release | Unlock, Factory Disarm, and Trunk Release | Factory Disarm, Trunk Release Only | Trunk Release Only | |
| 1-09 | Ignition Controlled Door Locks* | OFF | ON | RPM Locks (Tach Sensing Mode Only) | |
| 1-11 | Ignition / Accessory Out Upon Unlock | OFF | Ignition Pulse at same time as Disarm | Accessory at same time as Disarm | Ignition and Accessory at same time as Disarm |
| 1-12 | Arm and Disarm Remote Paging by Datalink Module | ON | OFF | | |
| 1-13 | Double Pulse Disarm | Standard | Double Pulse | | |
| 1-15 | Trunk Output Timing | 1 sec | 2 sec | 3 sec | 4 sec |
| 1-16 | Horn Mute Control via Remote* | Disabled | Enabled | | |

| | Feature | Default Setting - I | Optional Setting - II | Optional Setting - III | Optional Setting - IV |
|------|---|---|---|----------------------------|--|
| 2-01 | Tach Sensing Type | Optimal Tach Threshold | Previous Tach Method | | |
| 2-03 | Diesel Timer | OFF | 3-99 sec (12 sec Default) | 7 sec | GM Ignition Delay |
| 2-04 | Trigger Start | OFF | Single Pulse | Double Pulse | Triple Pulse |
| 2-05 | Cold or Hot Start With FT-Temp Sensor* | OFF | Cold Start Only | Hot Start Only | Cold and Hot Start |
| 2-06 | Timer Start or Minimum Interval Between Cold Starts | 3 Hour (4 Minute Runtime, Double for Diesels) | 2 Hour Repeat with Cold Starting of 2-08 (Runtime 2-07) | Reservation (Runtime 2-07) | 24 Hour Repeat With Cold Starting of 2-08 (Runtime 2-07) |
| 2-07 | Remote Start Runtime | 15 minutes | 25 minutes | 45 minutes | 3 minutes |
| 2-08 | Temperature of Cold Starting | -10° C / 14° F | -20° C / -4° F | -5° C / 23° F | -15° C / 5° F |
| 2-09 | Temperature of Hot Starting | 25° C / 77° F | 30° C / 86° F | 35° C / 95° F | 40° C / 104° F |
| 2-10 | Engine Sensing | | Tach | Alternator | No Connection (3.0 sec Start-Assume) |

| | | | | | |
|------|--------------------|---|----------------------------|------------------------|---------------------------------------|
| | | Tachless (Voltage Sensing, Automatic Transmission Only) | | | Running, Automatic Transmission Only) |
| 2-11 | Advanced Tachless | OFF | ON | | |
| 2-12 | Minimum Crank Time | Standard | +0.2 Seconds to Crank Time | +0.6 Sec to Crank Time | Standard – MIN(0.2sec) |
| 2-13 | Timer Mode | OFF | ON | | |

| | Feature | Default Setting - I | Optional Setting - II | Optional Setting - III | Optional Setting - IV |
|------|-----------------------------|---|--|-----------------------------------|---|
| 3-01 | Parking Light Output | Constant Output While Remote Started | Flashing Output While Remote Started | Off While Remote Started | Off During Lock and Unlock Only |
| 3-02 | Confirmation Chrips | Medium (30 mS) | Short (15 mS) | Normal (60 mS) | |
| 3-04 | Starter Kill Relay | Anti-Grind + Starter Kill | Anti-Grind | Anti-Grind + Passive Starter Kill | |
| 3-08 | Horn Output | On Double Lock Only | On Lock and Unlock | On Lock, Unlock, and Start | On Double Lock and Start |
| 3-10 | Valet Mode | Key 5 times with Foot Brake Trigger or Remote (Lock + Trunk) while Ignition is On | Key 5 times with Foot Brake Trigger or Remote (Lock + Trunk) | | |
| 3-13 | Defrost Temperature Control | Standard | Only Below 32 Degrees F / 0 C | Only Below 42 Degrees F / 5.56 C | |
| 3-14 | Defrost Output Time | 0.5 sec pulse | 3 min latch | 7 min latch | Constant Output Until Remote Start Shuts Down |

| | Feature | Default Setting - I | Optional Setting - II | Optional Setting - III | Optional Setting - IV |
|------|---|-------------------------|---|---|---------------------------------|
| 4-01 | Aux 1 Output | 0.5 sec | Latch | 0.5 sec Pulse + Program | Program |
| 4-02 | Aux 2 Output | 0.5 sec | Latch | 0.5 sec Pulse + Program | Program |
| 4-03 | Aux 1 Output Control | By Remote | Arm | Disarm | Negative (-) out w/ign shutdown |
| 4-04 | Aux 2 Output Control | By Remote | Arm | Disarm | Start |
| 4-05 | Secure Auxiliary Output (1 and 2 Only) | ON | OFF | On While Armed | |
| 4-08 | Aux 1 and Aux 2 Control for iDataLink Modules (Sliding Doors) | OFF | Unlock, Factory Disarm and Sliding Door Control | Factor Disarm and Sliding Door Control Only | |
| 4-10 | (+) Trigger Start Input | (+) Trigger Start Input | (+) Ignition (Input Only Installs) | (+) Keysense Input | (+) Glow Plug Input |
| 4-11 | RS232 Port (Grey Plug) Protocol | Drone (Grey 4 Pin) | Fortin (Grey 4 Pin) | | |
| 4-14 | Low Battery Warning | OFF | ON (At 11.7 Volts) | Low Battery Start (11.7 Volts) | |

Special Option Group #1

| | Feature | Value (Seconds) |
|---|-------------------|--|
| 1 | Diesel Timer | 3-99 Seconds |
| 2 | Aux 1 Output Time | 1-99 Seconds, "LA" Latch, 1-15 Minutes |
| 3 | Aux 2 Output Time | 1-99 Seconds, "LA" Latch, 1-15 Minutes |

Special Option Group #2

| | Feature | Value (Seconds) |
|---|---------------------------|--|
| 1 | POC #1 (Default : Light) | 2nd LIGHT [1] 2nd START [2] 2nd IGN1 [3] 2nd ACC [4] STATUS [5] REARM [6] DISARM [7] HORN [8] DOME LIGHT [9] AUX 1 [10] AUX 2 [11] DEFROST [17] GWA [18] DEFROST 2 [21] LOCK [25] UNLOCK [26] PRIORITY UNLOCK [27] TRUNK RELEASE [28] STARTER KILL [29] |
| 2 | POC #2 (Default : Lock) | |
| 3 | POC #3 (Default : Unlock) | |
| 4 | POC #4 (Default : Status) | |
| 5 | POC #5 (Default : Rearm) | |
| 6 | POC #6 (Default : Disarm) | |
| 7 | POC #7 (Default : Horn) | |

IMPORTANT: System must be unlocked before you can set options with the OP500 or remotes.

***Once programmed, this feature requires activation from the remote. Please refer to the remote user manual or the option description below.**

Option Menu Descriptions

1-01 Unlock Before, Lock After Starting: FO1 - Off

FO2 - On: Sends an unlock command as soon as the remote start sequence is triggered then send a relock command as soon as the CM-900 has confirmed remote start success.

FO3 - Lock after start only: Sends a lock command after the CM-900 has confirmed remote start success.

FO4 - Lock after shutdown only: will send a lock command only after the CM-900 has successfully shut down. **Note: It will not provide an output if the CM-900 is shut down with an emergency override input. (i.e. hood pin, or foot brake input)**

1-02 Lock / Unlock Pulse Duration: This does not affect the behavior of the factory arm output (orange wire) or factory alarm disarm output (orange/white wire).

FO1 - 0.8 seconds: (-) Negative lock and unlock output time.

FO2 - 2.5 seconds: (-) Negative lock and unlock output time.

FO3 - 0.125 seconds: (-) Negative lock and unlock output time. This option may be helpful when using lock/unlock to arm/disarm vehicles that may roll windows down with factory Arm/Disarm wires when the standard output is too long.

FO4- 3.5 seconds: (-) Negative lock and unlock output time.

1-03 Driver's Priority Unlock: FO1 - Off: (default)

FO2 - On: This feature will allow the user to unlock the driver's door first. If the unlock button is pressed again within 4 seconds, the other doors will unlock. The driver's door unlock must be isolated from the other doors and use the blue (-) unlock. The Orange/Black (-) 2nd unlock (POC setting) is used to provide unlock output to unlock all other doors.1-04

1-04 Double Pulse Unlock: FO1 - Off: (default)

FO2 - Unlock: This option will provide a double pulse output **only** for unlock each time the CM-900 executes the unlock command. (Length of output time will be based on feature 1-02 option settings.)

FO3 - Lock: This option will provide a double pulse lock output **only** for lock each time the CM-900 executes the lock command. (Length of output time will be based on feature 1-02 option settings.)

FO4 - Lock and unlock: This option will provide a double pulse lock output for both lock and unlock each time the CM-900 executes lock or unlock commands. (Length of output time will be based on feature 1-02 option settings.)

1-05 Rearm Output: FO1 - After start, after shutdown, after first lock: This option triggers the FAA after every successful remote start, every successful remote start shut down, and with every first lock command. (First lock command is the first arm/lock command sent after the CM-900 has been disarmed or unlocked.)

FO2 - After shut down only and first lock: This option triggers the FAA after every successful remote start shut down, and with every first lock command. (First lock command is the first arm/lock command sent after the CM-900 has been disarmed or unlocked.)

FO3 - After Start only: This option triggers FAA after every successful remote start.

FO4 - After shutdown only: This option triggers the FAA after every successful remote start shut

1-07 Unlock/Disarm With Trunk Release: FO1 - Unlock, Factory Alarm Disarm (FAD) trunk

releas: This option will send unlock and FAD outputs prior to sending the Trunk release output. This applies to analog and data to data situations.

FO2 - Factory Alarm Disarm (FAD) with trunk release: This option will send the FAD output prior to sending the trunk release output. This applies to analog and data to data situations.

FO3 - Trunk release only: This option will only send the trunk release output when triggered. This applies to analog and data to data situations.

1-09 Ignition Controlled Locks: When FO 2-4 are selected, the user can activate the "drive lock" or ignition controlled door locking feature using a Firstech remote or Drone. ***(Please check specific remote user's manual for steps to activate Drive lock.)***

FO1 - Off: (default)

FO2 - On: This option (when activated with the Firstech remote or Drone) will provide a door lock output when the foot brake is applied or 12 Volts is applied to the foot brake input on the CM-900.

The CM-900 will also provide a door unlock output as soon as the key is turned off or 12v ignition is removed from the CM-900.

FO3 - RPM locking: (*Tach input is required for this option to operate properly.*) This option will provide a door lock output at approximately 20% RPM over the programmed idle tach output. (i.e. program tach at 1000 rpm and doors will lock at a sustained 1200 rpm when moving.) The CM-900 will also provide a door unlock output as soon as the key is turned off or 12v ignition is removed from the CM-900.

1-11 Ignition + Accessory Pulse with Disarm: FO1 - Off: (default)

FO2 - Ignition (+) and (-) pulse output with disarm: This option will pulse both (+) and (-) ignition wires upon unlock/disarm. *Most new Ford vehicles require ignition pulsed + immobilizer with unlock to disarm the factory alarm.*

FO3 - Accessory (+) and (-) pulse output with disarm: This option will pulse both (+) and (-) accessory wires upon unlock/disarm.

FO4 - Ignition (+) and (-) pulse and Accessory (+) and (-) pulse output with disarm: This option will pulse both (+) and (-) ignition and accessory wires upon unlock/disarm. *Some new Ford vehicles require ignition and accessory pulsed + immobilizer with unlock to disarm the factory alarm.* Important: Also used in cases where the vehicle's radio may turn on and stay on until the door is opened when accessory is pulsed.

1-12 Arm and Disarm Remote Paging by Datalink Module: This feature disables the arming, disarming, and remote start confirmation updates to any Firstech 2 Way LCD when using an OEM remote. **FO1 - On:** (default)

FO2 - Off: This feature disables the page back update to the 2 Way Firstech remote when your interface module provides OEM remote status updates to the CM-900.

1-13 Double Pulse Disarm: This feature enables the FAD output. It will pulse 2 times with a single disarm command. **FO1 - Off (default):** Standard single pulse output on the FAD wire.

(orange/white by default)

FO2 - On: This feature will generate a double pulse output on the FAD wire. (orange/white by default)

1-15 Trunk Output Timing: This feature determines the length of output time for the (+) or (-) analog trunk release wire.

FO1 - 1 Second: (default) Will provide a 250mA (-) negative output for 1 second on any POC that is programmed for trunk release or setting 28.

FO2 - 2 Seconds: FO1- 1 Second: (default) will provide a 250mA (-) negative output for 2 seconds on any POC that is programmed for trunk release or setting 28.

FO3 - 3 Seconds: FO1- 1 Second: (default) will provide a 250mA (-) negative output for 3 seconds on any POC that is programmed for trunk release or setting 28.

FO4 - 4 Seconds: FO1- 1 Second: (default) will provide a 250mA (-) negative output for 4 seconds on any POC that is programmed for trunk release or setting 28.

1-16 Siren/Horn mute control: this feature allows the installer to enable or disable the siren/horn mute control. The mute feature will silence the siren or horn during arm, disarm, and start from the Firstech remote.

FO1 - Disabled: (default) will not allow for the Firstech remote to mute the siren or horn output.

FO2 - Enabled: this feature will allow the end user to activate or deactivate the siren or horn mute control.

2-01 Tach Sensing Method: This feature will determine the point at which the CM-900 releases the starter based on the sampled tach method.

FO1 - Optimal Tach reading: This option will allow the CM-900 to sample the tach signal several times during tach programming and select the optimal tach voltage at which to release the starter.

FO2 - Previous tach reading: This option will set the CM-900 to record the idle voltage which it is being programmed. The CM-900 will release the starter once the idle tach voltage is met.

2-03 Diesel Timer: *Note: OP500 required to adjust time from any of the default settings, will show up as DISL on the top line of text when option 2 or 3 are enabled.* This feature provides a timed alternative solution to a hard wired glow plug input to enable the CM-900 to wait to start.

FO1 - Wire: (default) This option will allow the CM-900 to read input on brown/white wire. (PIC3) It may be connected to a wait to start indicator on a diesel vehicle. When the CM-900 sees (-) negative input, it will delay the crank output for 99 seconds or until negative signal has been removed.

FO2 - Program (3-99 seconds): default setting is 12 seconds. This option allows the installer to adjust the time in 1 second increments that the CM-900 waits before cranking the starter.

FO3 - 7 seconds: This option offers a fixed 7 second delay before providing starter output.

FO4 - GM Ignition delay: This option is designed to delay the ignition output 250mS during the remote start procedure. This allows for the accessory to output first, then ignition, to simulate normal key starting. There are some vehicle models that may require this additional delay in order for it to remote start properly.

2-04 Trigger Start: This feature changes the number of pulsed inputs (min of 60mS per pulse) on the trigger start input wires. (red or red/white wires CN3). **Note: If option 3 is selected and OEM remote control feature is available through data, the Control Module will accept 3 OEM lock commands to activate the start sequence.** **FO1 - Off:** (default)

FO2 - Single pulse: This option will trigger the remote start sequence with a single pulsed input to the trigger start wire. This is ideal when adding accessories that can trigger the CM-900.

FO3 - Double pulse: This option will trigger the remote start sequence with 2 pulses to the trigger start input wire. This can be used when integrating with an OEM keyless entry remote.

FO4 - Triple pulse: This option will trigger the start sequence with 3 pulses to the trigger start input wire. This is ideal when trying to integrate the OEM keyless entry remote. Note: this option will also allow the CM-900 to accept a 3 pulse input from OEM remote commands through data.

2-05 Cold or Hot Start: *Note: the Firstech Thermister (FT-TEMP SENSOR) temp sensor must be connected to the CM-900 in order to use these options.* This feature turns on the cold/hot Timer start features. **FO1 - Off:** (default)

FO2 - Cold start: This option enables the thermister when using Timer Start Mode. It will start the car at the preset cold temperature (see feature 2-08) according to the selected timer start option (see feature 2-06)

FO3 - Hot Start: This option enables the thermister when using Timer Start Mode. It will start the car at the preset hot temperature (see feature 2-09) according to the selected timer start option. (see feature 2-06)

2-06 Timer Start: This feature is designed to allow the user to have the CM-900 automatically remote start at the end of a selected timed cycle. It also be controlled by the thermister so it will start at a specified temperature at the end of the timed cycle.

FO1 - 3 hour cycle: (4 minute runtime, 8 minute runtime for diesel) Once Timer Mode is enabled (see feature 2-13) the CM-900 will wait 3 hours, remote start and run for 4 minutes unless the cold start feature is enabled. If this is the case, the CM-900 will check the temperature once every 3 hours. If it is at or below the selected temperature, (see feature 2-08) it will start and run for 4 minutes. The same procedure will apply to the hot start feature. If there is any interaction with the CM-900 after timer mode has been activated using the Firstech remote or accessory, timer mode will be cancelled and must be re-started in order to start a new timed cycle.

FO2 - 2 hour repeat with cold starting: (runtime based on feature 2-07 option setting and cold start setting based on feature 2-08) Note: 2 way LCD remote required. This option is designed to monitor the temperature 2 hrs. After timer mode is set and start if it is at or below the preset cold start temperature (see feature 2-08). This process will continue until the user manually starts or remote starts the vehicle.

FO3 - Reserve runtime: (runtime based on feature 2-07 option setting) Note: 2 way LCD remote required. This option will allow the user to set a predetermined time to remote start on the 2 way LCD remote. Once the timer mode is activated it will start the countdown timer on the CM-900 based on the difference of time between what the remote clock is set to and the timer mode time is set to. I.e. remote time reads 7:00pm and timer mode time is set to 7:00 am the CM-900 will activate the timer mode to go for 12hours before it starts. Note: it is important that the remote time is as accurate as possible when activating the timer mode to ensure that it will start at the desired time. If there is any interaction with the vehicle or system after timer mode has been activated it will cancel the timer.

FO4 - 24 hour repeat with cold starting: (runtime based on feature 2-07 option setting and cold start setting based on feature 2-08) Note: 2 way LCD remote required. This option is designed to monitor the temperature 24 hrs. After timer mode is set and start if it is at or below the preset cold start temperature (see feature 2-08). This process will continue until the user manually starts or remote starts the vehicle.

2-07 Remote Start Runtime: This feature consists of four different settings for the remote start run time.

FO1 - 15 minutes (default)

FO2 - 25 minutes

FO3 - 45 minutes

FO4 - 3 minute runtime: to comply with any local idle laws prohibiting extended idle times.

2-08 Cold start Temperature: This feature allows the user 4 different temperature settings for cold start operation **FO1 - 14°F/-10°C:** will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or below this temperature.

FO2 - -4°F/-20°C: will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or below this temperature.

FO3 - 23° F/-5° C: will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or below this temperature.

FO4 - 5° F/-15° C: will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or below this temperature.

2-09 Hot Start Temperature: This feature allows the user 4 different settings for hot start operation

FO1 - 77° F/25° C: will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or above this temperature.

FO2 - 86° F/30° C: will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or above this temperature.

FO3 - 95° F/35° C: will activate the start sequence at the end of the time cycle (set by feature 2-06 option setting) if temperature is at or above this temperature.

FO4 - 104° F/40° C: will activate the start sequence at the end of the time cycle (set by feature 206 option setting) if temperature is at or above this temperature.

2-10 Engine Sensing: This feature provides 4 options for engine sensing methods. Every CM-900 is shipped in manual transmission mode. Tach sensing is our default engine sense option.

FO1 - Tach: This option uses a hard wired input (yellow/black CN3 gray connector) to read the vehicles RPM's in order to release the starter during the remote start process and determine that the engine is running.

FO2 - Alternator: This option uses the hardwired tach input (yellow/black CN3 gray connector) to read the voltage output from the vehicles stator wire in order to release the starter during the remote start process and determine that the engine is running. Note: with late model computer controlled alternators, the peak charging voltage may not be reached for several seconds after the vehicle is running. This may make this option inconsistent when the battery is low or very cold.

FO3 - No connection Tachless sensing: (aka "voltage sensing") Note: can only be used with automatic transmission. This option uses the voltage readings on the power input at the main CN1 connector to monitor the voltage before, during, and after crank, to determine when to release the starter and consider the vehicle running. Note: with late model computer controlled alternators, the peak charging voltage may not be reached for several seconds after the vehicle is running. This may make this option inconsistent when the battery is low or very cold.

FO4 - No connection Assumed running: (aka engine sense off) Note: can only be used with automatic transmission. This option provides a 3 second starter output, leave the rest of the CM-900 ignition and accessory outputs on and consider the vehicle running. Note: This is a good option for (PTS) Push To Start applications and Hybrid vehicles (except manual transmission).

2-11 Advanced Tachless: This feature when used in conjunction with feature 2-10 option 3 will provide an enhanced Tachless engine sensing mode. **FO1 - Off:** (default)

FO2 - On: this option will enable the advanced algorithm to monitor battery voltage before, during, and after crank to allow the CM-900 to release the starter and consider the vehicle running. This option is better suited for late model computer controlled vehicles or older vehicles with poor battery conditions. **Note:** feature 2-10 must be set to option 3 in order for it to work properly. If there is tach signal input to the CM-900 either analog or data interface module, this option will not operate consistently.

2-12 Crank Time: This feature allows the user to add or remove crank time to the selected option for feature 2-10 (engine sense).

FO1 - Standard: (default crank time no change).

FO2 - +200mS: To standard crank time of option selected on feature 2-10.

FO3 - +600mS: Adds 600 milliseconds to standard crank time of option selected on feature 2-10.

FO4 - (-)200mS: releases the starter output 200 Milliseconds earlier than standard crank time of option selected on feature 2-10.

- 2-13 Timer Mode:** (Note: Must be set to on in order to operate timer mode). This feature enables the user to activate and deactivate Timer Mode (see option 2-06) using the Firstech remote or accessory (see the user manual for that remote for instructions).
- FO1 - Off:** (default)
- FO2 - On:** user must still activate timer mode using their Firstech remote or accessory.
- 3-01 Parking Lights while Remote Started:** This feature changes the parking light behavior during remote start.
- FO1 - Constant output:** This option will keep the parking light output (+ and -) on steady throughout the entire runtime (runtime based on feature 2-07 selection)
- FO2 - Flashing output:** This option will flash the parking light output (+ and -) throughout the entire runtime (runtime based on feature 2-07 selection)
- FO3 - Off:** This option turns the parking lights off while the vehicle is remote started.
- FO4 - Off with lock and unlock only:** This feature is designed to eliminate redundant parking light flash with lock/unlock when interface module flashes the parking lights controlling the Factory security.
- 3-02 Confirmation Chirps:** This feature will allow the user to select a shorter siren output time to simulate a quieter arm/disarm/start output.
- FO1 - 30mS:** This is a 30 milliseconds siren output with arm, disarm, and start confirmation chirps. It will produce a “medium” volume sound. (Softer than the standard 60mS output)
- FO2 - 15mS:** This is a 15 millisecond siren output with arm, disarm, and start confirmation chirps. It will produce a “short” or quiet volume of sound. (Significantly softer than the standard 60mS output)
- FO3 - 60mS:** This is a standard 60 millisecond siren output with arm, disarm, and start confirmation chirps.
- 3-04 Starter-Kill:** This option determines the operation of the GWA wire (Any POC on CN3) **Must be programmed on Special Option Group #2.**
- FO1 - Anti grind + Starter interrupt:** this option will allow the GWA to provide a negative output when the system is armed or remote started. This will enable a starter interrupt to prevent the vehicle from being started with the key when in an armed state.
- FO2 - Anti Grind only:** This option will allow GWA to provide a negative output when the system is armed. This will enable starter interrupt and prevent the user from grinding the starter during the takeover procedure.
- FO3 - Anti Grind and passive starter interrupt:** This option will allow for GWA to provide a negative output when the system is remote started or the passive starter interrupt is engaged. This will prevent the user from grinding the starter during the takeover procedure and enable starter interrupt 45 seconds after the ignition has been turned off.
- 3-08 Horn Output:** This feature controls the horn output behavior during Arm, Disarm, and Remote Start. (POC setting #8)
- FO1 - On double lock only:** (default) this option is designed to simulate a factory keyless entry system by providing a horn output pulse (based on the option selection of feature 3-02) each time the lock command is sent a second time within 8 seconds of the first lock command.

FO2 - On lock and Unlock only: this option will provide a horn output pulse (based on the option selection of feature 3-02) with each lock or unlock confirmation.

FO3 - On lock, Unlock, and Start: this option will provide a horn output pulse (based on the option selection of feature 3-02) with each lock, unlock, remote start command and remote started confirmation.

FO4 - On double lock and Start: this option is designed to simulate a factory keyless entry system by providing a horn output pulse (based on the option selection of feature 3-02) each time the lock command is sent a second time within 8 seconds of the first. It will also provide a horn output pulse with remote start command and remote start confirmation.

3-10 Valet Mode: This feature will change the enter/exit valet mode procedure based on the option selected.

FO1 - Key 5 times with Foot Brake Trigger or Remote (Lock + Trunk) while Ignition is on: This option allows the user to enter valet mode using either method described. **Note: the user may exit valet mode with their Firstech remote (please check users guide for each remote for valet mode exit procedure), or with the key to ignition or "on" position and press the foot brake 10 times within 10 seconds.**

FO2 - Key 5 times with Foot Brake Trigger or Remote (Lock + Trunk): This option allows the user to enter valet mode using either method described. **Note: the user may exit valet mode with their Firstech remote (please check users guide for each remote for valet mode exit procedure), or with the key to ignition or "on" position and press the foot brake 10 times within 10 seconds.**

3-13 Defrost Output Temp Control: This feature will determine the temperature at which the CM-900 will provide an output on any POC programmed with setting 17 or 21 (defrost and defrost 2).

FO1 - Standard: (Default) this option will provide an output (length of output based on feature 3-13 option settings) on any POC programmed with setting 17 (defrost) or 21 (defrost 2) every time with remote start confirmation.

FO2 - 32°F: (FT-TEMP SENSOR required) this option will provide an output on any POC programmed with setting 17 (defrost) or 21 (defrost 2) with remote start confirmation on. This will happen if the temp reading is at or below 32°F. (Length of output based on feature 3-13 option settings)

FO3 - 42°F: (FT-TEMP SENSOR required) this option will provide an output on any POC programmed with setting 17 (defrost) or 21 (defrost 2) with remote start confirmation on. This will happen if the temp reading is at or below 42°F. (Length of output based on feature 3-13 option settings)

3-14 Defrost Output Timing: This feature controls the output timing of POC setting 17, defrost. **Note: POC setting 21 defrost 2 is has a fixed pulsed output and is NOT affected by this feature.**

FO1 - 500mS Pulse: This option will provide a 500 Millisecond pulsed output on any POC programmed with setting 17 (Defrost) with timing based off of feature 3-12 option setting.

FO2 - 3 minute latched: This option will provide a 3 minute latched output on any POC programmed with setting 17 (Defrost) with timing based off of feature 3-12 option setting. (This would be good for any rear view mirror defrost that may need a short latched output time.)

FO3 - 7 minute latched: This option will provide a 7 minute latched output on any POC programmed with setting 17 (Defrost) with timing based off of feature 3-12 option settings. (This

would be good for many front, rear, or rear view mirror defrost functions that may need a longer latched output time.)

FO4 - Latched for Entire Runtime: (Remote start runtime based off of feature 2-07 option setting) This feature will provide a latched output for the entire remote start runtime on any POC programmed with setting 17 (defrost) with timing based off of feature 3-12 option settings. Caution: make sure not to latch rear defrost functions on for too long as it may cause damage to the heating elements in the window.

4-01 Aux 1 Output: This feature determines the duration of the auxiliary 1 output. (Option 4 allows the output duration to be set for a specific length of time 1-99 sec. and 1-15 min (with OP500 update only) ***(Specific time setting only available when using the OP500)***)

FO1 - 500mS: This option will provide a (-) negative output for 500 milliseconds (Half second) output on any POC programmed with setting 10 (AUX 1)

FO2 - Latched: This option will provide a latched (-) negative output on any POC programmed with setting 10 (AUX 1). **Note: This will stay latched until AUX 1 command is sent again to shut it off.**

FO3 - 500mS pulse + programmable timed output: This option will provide a (-) negative output for 500 milliseconds (0.5 seconds) output on any POC programmed with setting 10 (AUX 1). It will pause for 250 milliseconds then provide a timed output (based off of feature 4-01 option 4). Note: in order to program the timed output the user must change feature 4-01 to option 4, then adjust AU1 (AUX programmable output time) to desired time. To complete the programming steps feature 4-01 must be changed to option 3. I.e. 0.5 second pulse...pause...10 second pulse, this option can be used to roll windows up or down on a vehicle that requires a similar action using the driver's door key cylinder.

FO4 - Program: This option allow the AUX output time to be programmed for a duration between 1-99 seconds. Note: with an OP500 update there will be additional time duration between 1-15 minutes available.

4-02 Aux 2 Output: This feature determines the duration of the auxiliary 2 output. (Option 4 allows the output duration to be set for a specific length of time 1-99 sec. and 1-15 min (with OP500 update only) only available when using the OP500)

FO1 - 500mS: This option will provide a (-) negative output for 500 milliseconds (0.5 seconds) output on any POC programmed with setting 11 (AUX 2)

FO2 - Latched: This option will provide a latched (-) negative output on any POC programmed with setting 11 (AUX 2). **Note: This latched output will reset when ignition is turned on.**

FO3 - 500mS pulse + programmable timed output: This option will provide a (-) negative output for 500 milliseconds (0.5 seconds) output on any POC programmed with setting 11 (AUX 2). It will pause for 250 milliseconds then provide a timed output (based off of feature 4-02 option 4). Note: in order to program the timed output the user must change feature 4-02 to option 4, then adjust AU2 (AUX programmable output time) to desired time. To complete the programming steps feature 4-01 must be changed to option 3. (i.e. half second pulse...pause...10 second pulse) ***This option can be used to roll windows up or down on a vehicle that requires a similar action using the driver's door key cylinder.***

FO4 - Program: This option allows the AUX output time to be programmed for a duration between 1-99 seconds. **Note: The OP500 must be updated for additional time duration settings. (1-15 minutes available)**

- 4-03 Aux 1 Output Control:** This feature allows the user to configure the method of which Auxiliary 1 can be activated.
- FO1 - Remote:** (default) This option allows AUX 1 (output time based on feature 4-01) to be triggered by any 4 button Firstech remote or drone.
- FO2 - With Arm:** This option will trigger AUX 1 (output time based on feature 4-01) any time the CM-900 is locked/armed the first time (i.e. if you send a second lock/arm command it will not trigger again)
- FO3 - With Disarm:** This option will trigger AUX 1 (output time based on feature 4-01) any time the CM-900 is unlocked/disarmed. **Note: the system has to be in the armed state when disarming in order to trigger AUX 1. (I.e. if the vehicle is already in the unlocked/disarmed state and you send a second unlock/disarm command it will not trigger the output)**
- FO4 - With ignition removed:** This option will trigger AUX 1 (output time based on feature 4-01) as soon as Ignition input is removed from the CM-900. (I.e. this feature can be used with a manual transmission vehicle to open the door input circuit on the CM-900 for a set period of time when reservation mode is complete in order to prevent the dome light from cancelling reservation mode.)
- 4-04 Aux 2 Output Control:** This feature allows the user to configure the method of which Auxiliary 2 can be activated.
- FO1 - Remote:** (default) This option allows AUX 2 (output time based on feature 4-02) to be triggered by any 4 button Firstech remote or drone.
- FO2 - With Arm:** this option will trigger AUX 2 (output time based on feature 4-02) any time the CM-900 is locked/armed the first time (I.e. if you send a second lock/arm command it will not trigger again)
- FO3 - With Disarm:** This option will trigger AUX 2 (output time based on feature 4-02) any time the CM-900 is unlocked/disarmed. Note: the system has to be in the armed state when disarming in order to trigger AUX 1. (I.e. if the vehicle is already in the unlocked/disarmed state and you send a second unlock/disarm command it will not trigger the output)
- FO4 - With Start:** This option will trigger the AUX 2 (output time based on feature 4-02) when the remote start sequence is initiated. It will trigger at the same time as GWR (ground when running)
- 4-05 Secure Aux Output:** This feature is designed to prevent accidental activation of the AUX outputs by requiring an additional step when using any 4 button or 2 way LCD Firstech remote.
- FO1- On:** (default) this option will require the user to perform an additional step before activating AUX output using any Firstech 4 button or 2 way LCD remote (2way remotes with Roman numeral buttons will require a 0.5 second tap of button IV before activating any of the AUX outputs. 2Way LCD remotes with lock/unlock/trunk/start icons on the buttons use the start button for the same. 1way remotes require the user to hold trunk + start buttons for 3 seconds before activating AUX outputs.)
- FO2- Off:** This option will disable the additional step required by the user to activate the AUX outputs.
- *NEW* FO3- On while armed:** This feature will only require the user to perform the additional override step to activate Aux outputs **ONLY WHEN** the CM-900 is **ARMED**. While the system is disarmed or unlocked this step is not required.

- 4-08 Sliding Door Control For Datalink:** (must be enabled to allow data to data sliding door control)
This feature will provide an Unlock or Factory Alarm Disarm (FAD) output when triggering the AUX control using iDatalink Modules (Sliding Doors)
- FO1 - Off:** (default) This option does not provide an unlock or a FAD output when activating AUX output control using the iDatalink modules.
- FO2 - Unlock and FAD:** This option will provide unlock and a FAD output when activating AUX output control using iDatalink modules.
- FO3 - FAD only:** This option will only provide a FAD (factory alarm disarm) output when activating AUX output control using iDatalink modules.
- 4-10 Trigger Start Input:** this feature will determine the input function of the positive red wire on CN3.
- FO1 - Trigger Start Input:** This option will enable the (+) trigger start wire to be used as a trigger for activating the remote start function using a (+) pulse input on the red wire CN3
- FO2 - Closed Loop:** This option will enable the (+) trigger start wire to be used as a positive Ignition Input Wire. This input should see +12V when the key is on and whenever it is running. This wire does not send a +12V output from the control module.
- FO3 - (+) Keysense Input:** this option will operate as a key sense INPUT to the CM. When used with manual transmission, keysense input will keep the CM from completing reservation mode as long as the input is present. In addition the keysense input will keep the system from passively arming or EZGO proximity locking as long as the input is present.
- FO4 - (+) Glow Plug Input:** This option will let you use this wire as a wait to start input. It requires a (+) trigger from the vehicle's glow plug wire.
- 4-11 Grey UART Port Protocol:** This feature will determine the communication protocol of the gray UART port.
- FO1 - Drone:** (default) This option sets the grey UART port to communicate using the Drone data protocol.
- FO2 - Fortin:** This option sets the grey UART port to communicate using the Fortin data protocol. Note: there is no longer an "auto detect" feature with the Fortin protocol it must be changed manually.
- 4-14 Low Battery:** This feature offers low battery options to help alert the user of a low battery in the vehicle.
- FO1 - Off:** (default) This option does not provide a low battery indication.
- FO2 - On:** This option will provide an alert to any Firstech 2 Way LCD remote or Drone when the vehicle's battery voltage (at the CM-900 power connector) drops to 11.7volts. **Note: the Firstech 2 way LCD remote must be within range of the vehicle to receive the low battery alert and this option must be set in order to receive low battery alerts to Drone.**
- FO3 - On + Start:** This option will provide an alert to any Firstech 2 Way LCD remote or Drone when the vehicles battery voltage (at the CM-900 power connector) drops to 11.7 volts. In addition to the alert the user can active the Timer mode (please refer to this manual for timer mode feature description) to enable the low battery start function. Once the timer mode is active the CM-900 will adhere to the timer mode feature options selected but also monitor the vehicle battery voltage which will override the timer mode and start at 11.7 volts.

Special Option Groups 1 and 2

IMPORTANT: The OP500 is required to change settings in Special Option Groups 1 and 2.

Special Option Group 1

FO1- Diesel Timer: (Option 2-03 must first be set to setting 2.) This special option allows a specific wait to start time (in seconds) to be programmed. This prevents the need for a timer relay and eliminates a connection to the “wait to start” wire.

FO2 - Aux 1 Output Timing: (Option 4-01 must first be set to setting 4.) This special option allows a specific output duration for Aux 1 to be programmed 1-99 seconds. **Note with OP500 update, latched output time 1-15 minutes are available for programming in addition to the standard 1-99 seconds.**

FO3 - Aux 2 Output Timing: (Option 4-02 must first be set to setting 4.) This special option allows a specific output duration for Aux 2 to be programmed 1-99 seconds. **Note with OP500 update, latched output time 1-15 minutes are available for programming in addition to the standard 1-99 seconds.**

Special Option Group 2

This special option group allows you to determine the output type of the POC wire. For example, if you want to set POC #5 (default setting status out) to Aux 1, you will need change special option 5 to number 10. This must be done with the OP500.

POC 1 – Green/White • Negative Parking Light Output: (default setting) This channel will provide a 250mA (-) negative output when the CM-900 is armed **(function also POC setting 1)**

POC 2 – Blue/Green • Lock: (default setting) This channel will provide a 250mA output with the lock/arm command. **(function also POC setting 25)**

POC 3 - Blue • Unlock: (default setting) This channel will provide a 250mA output with the unlock/disarm command. **(function also POC setting 26)**

POC 4 - Black • GWR (ground when running aka status output): (default setting) This channel will provide a 250mA output with the remote start activation command and continue to provide output until 100mS after the remote start process has shut own. **(function also POC setting 5)**

POC 5 - Orange • FAA (Factory Alarm Ream): (default setting) This channel will provide a 250mA output with the lock/arm command. Note: the CM-900 will provide this output approx. 100mS before the unlock output. **(function also POC setting 6)**

POC 6 - Orange/White • FAD (Factory Alarm Disarm): (default setting) This channel will provide a 250mA output with the unlock/disarm command. **Note: the CM-900 will provide this output approx. 100mS before the unlock output. (function also POC setting 7)**

POC 7 - White • Horn: (default setting) This channel will provide a 250mA output when Horn is triggered. **(function also POC setting 8)**

Option Programming

How to Program Options

There are two ways to set options on the CM-900 control modules. You can use the FT-OP500 or most Firstech remotes. The remotes include 4 or 5 button 1 and 2 Way remotes.

Option Programming Using the FT-OP500

The OP500 can be used to change anything in the Option Tables. It is required to change settings in the Special Option Group.

STEP 1: Make sure system is unlocked/disarmed. Connect the antenna cable to the 4 or 6 pin port on the top of the OP500. Once connected, the OP500 will power up as long as CN1 on the control module is connected properly.

STEP 2: Use the left or right arrow keys on the OP500 to select option. Use the up or down arrow buttons to select the option setting. “1” is the default setting, “2”, “3”, and “4” are the optional settings.

Special Option Group 1: Change the timed output of Auxiliary 1 and 2.

STEP 3: Hold the “W” (Write) button for 3 seconds. This finalize option changes to the control module. Wait until OP500 displays “Success” before disconnecting.

To reset the options, hold the “R” (Reset) button and “W” (Write) buttons for 3 seconds. Then hold the “W” button for 3 seconds.

Option Programming Using Compatible Remotes

Using a remote is a timed process so review this section before beginning. Options cannot be programmed with 1 button remotes. **IMPORTANT:** Special Option Groups cannot be programmed with remotes – OP500 must be used.

STEP 1: Select the option you wish to program. Use the correct remote table below:

| How to Program Options With 2 Way Remotes with Separate Lock and Unlock Buttons | | | | | | | |
|---|--|---|---|-----------------|-------------------|---------------------------------|------------------|
| | Wait for chirp between each tap | Scroll Through Menu (Wait for flash between each tap) | Wait for corresponding parking light flash and/or siren chirp before selecting option | Select Option 1 | Select Option 2 | Select Option 3 | Select Option 4 |
| Option Menu 1 | Lock + Unlock for 3 seconds then Lock + Unlock for 3 seconds | Tap Key Button | | Tap Lock Button | Tap Unlock Button | Hold Trunk Button for 3 seconds | Tap Start Button |
| Option Menu 2 | Lock + Unlock for 3 seconds then Lock + Key for 3 seconds | Tap Key Button | | Tap Lock Button | Tap Unlock Button | Hold Trunk Button for 3 seconds | Tap Start Button |
| Option Menu 3 | Lock + Key for 3 seconds then Lock + Unlock for 3 seconds | Tap Key Button | | Tap Lock Button | Tap Unlock Button | Hold Trunk Button for 3 seconds | Tap Start Button |

| How to Program Options With 1 Way 4 Button Remotes | | | | | | | |
|--|--|---|---|-----------------|-------------------|-----------------|------------------------------------|
| | Wait for chirp between each tap | Scroll Through Menu (Wait for flash between each tap) | Wait for corresponding parking light flash and/or siren chirp before selecting option | Select Option 1 | Select Option 2 | Select Option 3 | Select Option 4 |
| Option Menu 1 | Lock + Unlock for 3 seconds then Lock + Unlock for 3 seconds | Hold Trunk + Key for 3 seconds | | Tap Lock Button | Tap Unlock Button | Tap Key Button | Hold Trunk and Start for 3 seconds |
| Option Menu 2 | Lock + Unlock for 3 seconds then Lock + Key for 3 seconds | Hold Trunk + Key for 3 seconds | | Tap Lock Button | Tap Unlock Button | Tap Key Button | Hold Trunk and Start for 3 seconds |
| Option Menu 3 | Lock + Key for 3 seconds then Lock + Unlock for 3 seconds | Hold Trunk + Key for 3 seconds | | Tap Lock Button | Tap Unlock Button | Tap Key Button | Hold Trunk and Start for 3 seconds |

STEP 2: Scroll through menu waiting for 1 parking light flash and/or siren chirp per line.

STEP 3: Once finished scrolling through menu, wait for the parking lights and/or siren chirp to confirm the option number. i.e. option 2-04 will flash and/or chirp 4 times. Select your option using the Lock, Unlock, Trunk, or Start buttons.

Resetting to Factory Defaults: To reset the options in a particular menu, enter the menu using your remote. To reset options with a 2 Way remote tap the Trunk button 3 three times. To reset options with a 1 Way remote tap the Start button 3 times. Wait for parking lights to flash and/or siren chirp between each tap. After the third tap, the menu will reset back to default. This must be done for each option menu that must be reset.

Troubleshooting

Remote Start Error Codes

If the remote start fails to start the vehicle, the parking lights will flash three times immediately. Following those three flashes the parking lights will flash again corresponding to the error table;

| Number of Parking Light Flashes | Remote Start Error |
|---------------------------------|--|
| 1 | Motor running or must program tach before 1 st remote start |
| 2 | Ignition on or foot brake on |
| 6 | Hood open |
| 10 | System is in Valet Mode |

Frequently Asked Questions

I have everything hooked up and the system will not respond.

A: Check all your wires to the control module. Next check your fuses and ground. If the system does not respond after that then try programming the remotes. Please see the “Common Procedure” section of this manual for remote programming instructions.

Can I use any other Firstech remotes with this system?

A: Yes, the CM-900 control module is designed to only work with 4 Pin antennas and compatible remotes. It does not work with 6 to 6 Pin antennas.

I am trying to program options with the OP500 Option Programmer and it flashes “ER 01” when I plug it in to the antenna cable. What should I do?

A: First, make sure all connections are made to the control module. Second, make sure that the system is not locked. The last thing to check is the antenna cable or antenna extension cable – make sure this is not damaged. If you need to, try another cable. When the OP500 is working properly, it will read “Success Good.”

Is the CM-900 compatible with Manual Transmission vehicles?

A: No, the CM-900 remote start system is compatible with Automatic Transmission vehicles only.

What is the thick blue wire on CN1 and the jumper in the control module?

A: This wire is ran to an internal relay on the control module. This wire can be used to power up a 2nd Ignition, 2nd Starter, or 2nd Accessory wire on the vehicle. The behavior of the wire is changed by the internal jumper in the control module.

How do I set the auxiliaries?

A: The auxiliary outputs on this unit can be triggered via two analog POC wires or through a supported bypass module.

All my connections are made, how do I program the tach?

A: Start the vehicle with the key. Hold the foot brake down. While holding the foot brake down hold the Start button down for 3 seconds. If the system flashes the parking lights once then the tach is programmed. If it flashes three times, pause and then a certain amount please review the “Common Procedures” section of this manual.

The vehicle starts and shuts down 3 times in a row.

A: This usually means that the engine sensing mode is not working correctly. If you are using a coil, change to an injector or try alternator mode. If you are using the tachless sensing mode and it does not start check the two power wire on the control module. If it does not remote start you may try setting 4 assume start otherwise the only alternative is finding a tach or alternator sense wire.

The vehicle will lock and unlock, but will not remote start or flash the parking lights.

A: The system is in Valet Mode. Tap the Lock and Trunk Buttons and the same time for a half second to exit Valet Mode. If that does not work try reprogramming the remotes again.

Do the door locks flip-flop in polarity?

A: No. You can use the FT-DM-700 (relay pack) for high current positive (+) locks, or the FT-DM-600 harness used for low current 600mA positive (+) locks. If those are not available you must use two SPDT relays to invert the polarity.

Technical Support Contacts

Firstech technical support is reserved for authorized dealers only.

Monday - Friday **888-820-3690**
(8:00 am – 5:00 pm Pacific Standard Time)

Web **firstechdata.com**

Wiring Diagrams

Go to www.firstechdata.com to access technical info. If you are an authorized dealer and unable to access this site, please contact your out sales representative. You can also call us call 888-820-3690 Monday through Friday, 8 am to 5 pm Pacific Standard Time.