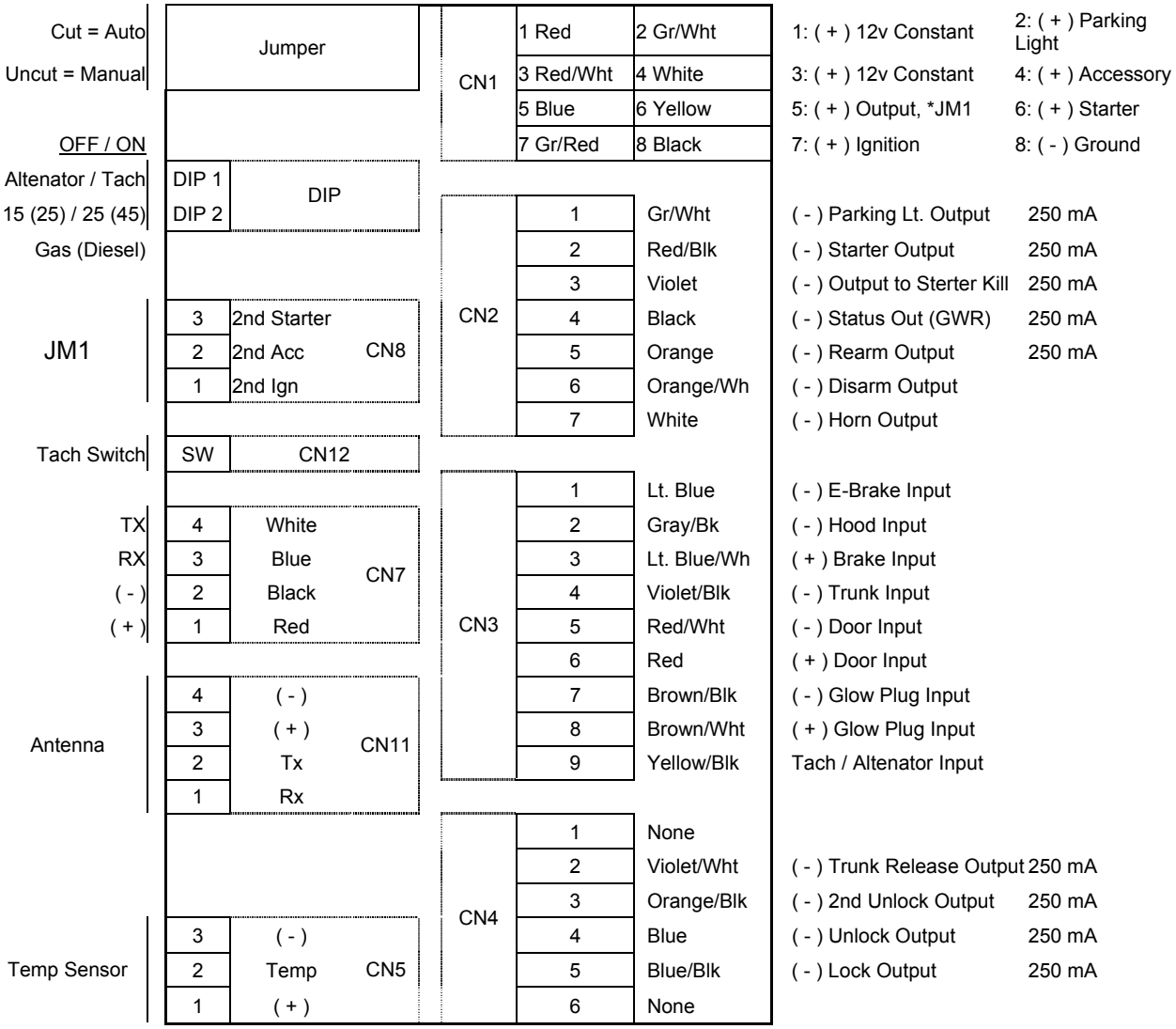
S Controller
INSTALLATION GUIDE
CM4200

Wiring Diagram



* Output of Pin 5 of CN1 is determined by the placement of Jumper JM1.

Connector 1

Pin #1: Red - This wire is used as the (+) Constant Power input for the unit. This wire must be connected for the unit to function correctly.

Pin #2: Green/White - This wire is the (+) Positive Parking light output. Connect this wire directly to the (+) trigger wire generally off the parking light switch or found at or behind the fuse box.

Pin #3: Red/ White - This wire is used as the (+) Constant Power input for Starter and 2nd Ignition.

Pin #4: White - This wire is used to power the (+) Accessory, which activates the blower motor for the heater or A/C.

Pin #5: Blue - This wire will power (+) 2nd Starter, (+) 2nd Accessory or (+) 2nd Ignition depending on the jumper selection at JM1.

Pin #6: Yellow - This wire is the (+) Starter Output.

Pin #7: Green/ Red - This wire is used to power the (+) Ignition. This wire is also an input for the CM4200 used to monitor the status of vehicle and for programming.

Pin #8: Black - This wire needs to be connected to a chassis (-) Ground It is very important to make sure you have a good ground or the unit will not function correctly.

Connector 2

Pin #1: Green/ White - This is the low voltage (-) Parking light output 200mA. Some newer vehicles require a (-) parking light output instead of the standard (+) output (reference connector #1) such as the new Jeeps and even some Fords.

Pin #2: Red/ Black - This wire is a (-) 2nd Starter 200mA output. Normally the only vehicle this would be used on Nissan's and older Ford's. You may connect this wire to the purple pigtail of the additional relay on CN #1. This will result in a (+) trigger output for the 2nd starter on the blue wire of the same relay.

Pin #3: Violet - This wire is the (-) Negative when armed out. It will provide a (-) output anytime the unit is armed or remote started. This wire is pre-wired into the starter-kill. This wire could be used for adding window roll-up.

Pin #4: Black - This is the (-) Status Out wire (Ground when running). It provides you with a (-) 200mA output as soon as the remote start is activated. This is the wire you would connect to a Transponder Module or maybe a VATS module.

Pin #5: Orange - This is the Rearm wire. It provides you with a (-) pulse when armed, after remote start and then again one second after remote start shuts down.

Pin #6: Orange/White - This is the Disarm wire. It provides you with a (-) pulse when disarmed and before remote start.

Pin #7: White - This is the (-) 250mA horn honk output wire.

Connector 3

Pin #1: Light Blue - This needs to be connected to the parking brake. This wire requires a (-) input to activate. This wire serves two functions:

1. To engage Reservation Mode for manual transmissions, reference the users or install guide.
2. To activate the Turbo Timer, reference the users or install guide.

Pin #2: Gray/Black - This is the (-) shutdown for the Hood Trigger. This wire serves two functions:

1. It prevents the remote start from activating while the hood is open
2. It will trigger a full alarm if the hood is opened when the alarm has been armed.

Pin #3: Light Blue/White - This is the (+) shutdown for the foot brake. This wire will shut down the remote start if the foot brake is pressed.

Pin #4: Violet/Black - This wire is the (-) trigger input, which may be connected to a trunk pin or trunk trigger as a buyer option.

Pin #5: Red/White - This wire is the (-) trigger input for the door trigger. You would connect this to the trigger that shows (-) when the door is opened.

Pin #6: Red - This wire is the (+) input for the door trigger. You would connect this to the trigger that shows (+) when the door is opened.

Pin #7: Brown/Black - This is the trigger input for a (-) glow plug wire.

Pin #8: Brown/White - This is the trigger input for a (+) glow plug wire.

Pin #9: Yellow/Black - This wire serves as the Tachometer input or the Alternator input. Either way you use it, it is for engine sensing. This wire tells the CM4200 when to quit cranking the starter of the vehicle. There are a couple of ways to find the correct voltage for either type of sensing. Please review the following tips on the next page.

Tachometer Sensing

1. You will need an Auto Ranging Digital Meter to test for the correct tach.
2. Most tach wires are located at the (-) side of the ignition coil. In some cases you may have to go to the ECU or Coil pack.
3. The Voltage will read (AC), so you will need to set you meter accordingly.
4. With the vehicle off the voltage should read 0.00 AC.
5. Start the vehicle and at this time the voltage should fluctuate between 1 and 8 volts AC.
6. Connect the tachometer wire to the yellow/black.
7. Make sure that the Dipswitch #1 is set to the ON position.
8. While the vehicle is running press the small black button on the side of the brain, Parking Lights will flash once if you have the correct Tach wire.
9. If the cars parking lights flash 3 times, there is a problem with the tachometer learning. Wait for 2 seconds and the cause for the error will be indicated by the number of times the parking lights flash.
10. Diagnosing Tach Learning Error

If the cars parking lights flash 3 times, there is a problem with the tachometer learning. Wait for 2 seconds and the cause for the error will be indicated by the number of times the parking lights flash.

Error Number (# of times parking lights flash)	Tach Learning Error Diagnosis
1	Dipswitch #1 is on alternator sensing.
2	Key is in the off position.
3	No signal, or the signal is not fast enough. Find a different wire

Alternator Sensing

1. Just like with Tachometer sensing you will need a Auto Ranging Digital Meter to test for the correct wire.
2. Set your meter to DC voltage for this type of sensing, compared to AC voltage for the Tach sensing.
3. To find this wire you will need to locate the alternator. Look for the Stator wire, which is always located somewhere on the alternator. It will usually be a smaller gauge wire and generally by itself.
4. With the vehicle in the OFF position the voltage should read 0.00
5. Turn the key to Ignition and the voltage should read anywhere from 1 to 6 volts DC.
6. Next, start the vehicle. The voltage should now read between 9 to 14 volts DC.
7. If this is the case you have found the Alternator wire, connect this to the Yellow/Black on CN 3

8. Set dipswitch #1 to the OFF position. Please note, you will not need to press the small black button on the side of the brain, it is automatic.

Connector 4

Pin #1: No Connection

Pin #2: Violet/ White - This wire is the (-) 200mA trunk release. The following sequence takes place each time the trunk release output is triggered :

1. CM4200 disarms alarm and unlocks doors
2. Trunk output is triggered

Pin #3: Orange/Black - This wire provides you with the capability of adding driver's door priority unlock similar to factory keyless entry systems. Please note that this feature requires more advanced installation. Please call Technical Support for details.

Pin #4: Blue - This wire is a (-) 200mA Unlock Output.

Pin #5: Blue/Black - This wire is a (-) 200mA Lock Output.

Pin #6: No Connection

Connector 5

This is the plug in for temperature sensor input. This sensor will monitor the internal temperature of the vehicle and be programmable for timed engine starts.

Connector 6

This is the plug for the antenna cable.

Connector 7

The is the data line to interface with telematics devices or interface modules.

Tach Learning Switch

This is the small black button on the side of the brain used to program tach. Once you have found the correct wire simply press this button while the vehicle is running and the parking light will flash once to confirm that the tach is learned. If the parking lights flash three times the tach source is not valid.

Jumper Selection – JM1

Pin #5 wire of CN1 will power the (+) 2nd Starter, (+) 2nd Accessory or (+) 2nd Ignition depending on the jumper selection at JM1.

Dipswitches

Switch #1: This is used to set either Tach or Alternator mode. If the switch is set to the ON position the unit is set to Tach. If the switch is set to the OFF position then the unit is set for Alternator sensing.

Switch #2: This is used for setting run time. If the switch is set to the OFF position then the run time is set for 15 min for gas engines or 25 min for diesel engines. If set to the ON position then the run time is set to 25 min for gas engines or 45 min for diesel engines.

Jumper Wire: This jumper is connected when you receive the brain. While the jumper is connected the module is set for manual transmission mode. When installing on automatic transmissions the jumper must be cut. Please note:

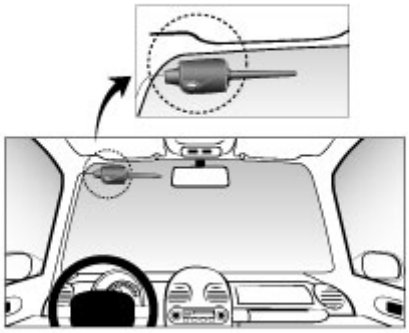
If a unit with a cut jumper is installed on a manual transmission the warranty will be void and Robert Thibert / Firstech will have no liability.

Dip Switch	Jumper Wire	# 1	# 2
On	Uncut: Manual Transmission	Tach Sensing	25 min run time (45 min diesel)
Off	Cut: Automatic Transmission	Alternator Sensing	25 min run time (45 min diesel)

Important!
Once you cut the Jumper Wire, you are not allowed to reconnect the wire. The reconnection will completely void warranty. A trace of reconnection of this wire will prevent you from any claim whatsoever pertaining to the manual transmission mode.

Installation of FM or SS Antennas

Installation of FM or SS Antennas: The antennas have been calibrated for horizontal installation at the left-top corner of the windshield. Different installation may adversely affect the transmitting distance.



Option Programming for Four Button Remotes

Step1: For Programming menu 1: Press Buttons (I+II) for 2 seconds. For Programming menu 2: Press Buttons (I+IV) for 2 seconds. The car will chirp once indicating that you are in programming mode.

Step2: Within a 2 seconds after pressing (I+II) or (I+IV), press Button IV the number of times to go to the option number you want to change. You have to hear a chirp and see the parking light flash each time when you press Button IV.

Step3: Wait a few seconds. You will hear a number of chirps and see a number of parking light flashes corresponding to the option number want to change. If the number of chirps or flashes is not what you want, go back to Step 1.

Step4: Press Button I for the default factory settings and your car will respond by one chirp and one flash. Press Button II for the optional and your car will respond by two chirps and two parking flashes.

- If you hear a long chirp, you are going out of programming mode, please go back to Step1.
- If you want to change more options, go back to Step1.

Resetting all of Menu #1 or Menu #2 of Programming Options to the factory default settings:

If you are not sure about current programming, change everything to the factory settings and start again.

1. Resetting all of **Menu #1** to the factory setting:

Step1: Press buttons (I+II) simultaneously for 2 seconds. This will be confirmed by a siren chirp and a one-time flashing of the parking lights.

Step2: Press button III once. This will be confirmed by a car chirp and parking light flash. Press button III again. You will be confirmed by a car chirp and parking light flash again. Press button III third time. You will be confirmed by a car chirp and parking light flash third time. A few second later, your car will chirp and parking light flash three times rapidly to confirm the resetting.

2. Resetting all of **Menu #2** to the factory setting:
Follow the same steps above except that you press buttons (I+IV) for 2 seconds at Step 1 instead of buttons (I+II).

Option Programming for Six Button (ONE WAY) Remotes

The procedures will be same as the 4 button remotes, except the use of different buttons.

Programming	6 Button Remote	4 Button Remote
Programming Menu 1	(Trunk+Start)-	(I + II)-
Programming Menu 2	(Trunk+Stop)-	(I + IV)-
Option Selection	(Stop)-	(IV)
Factory Setting	Lock	(I)
Option Selection	Unlock	(II)
Default Setting Selection	(Start)-	(III)

Programming Menu Options
Programming Menu #1 (Auto-Start and Door Lock Options)

	Feature	Factory Default Setting - Button I	Optional Setting - Button II
1-1	Unlock before, lock after starting	Off	On
1-2	Door lock / unlock pulse duration	0.8 sec	2.5 sec
1-3	Min crank time for alternator sensing	0.8 sec	1.0 sec
1-4	Driver's priority unlock	Off	On
1-5	Double pulse unlock	Off	On
1-6			
1-7	Turbo	Off	On
1-8	Diesel Timer	Glow Plug wire	18 sec
1-9	Short Pulse lock/unlock	Off	0.125 sec
1-10	Starter Kill relay	Anti-Grinding only	Anti-Grinding+Starter Kill
1-11	Manual Transmission Lock	Lock upon Reservation	Active Lock upon Reservation

Note:

1-1 Some vehicles such as Mercedes-Benz and the Lexus ES300 require you to unlock the car to disarm the factory alarm before remote starting the vehicle. Activating this feature will unlock the vehicle for a brief second in order to disarm the factory alarm before auto-starting the vehicle remotely then after starting.

1-4 This feature unlocks the driver's side door lock with the first unlock pulse. A second unlock pulse is need to unlock the rest of the car doors.

Important!

In order for this feature to operate, the installer must use the 2nd Unlock Wire (Or/Bk wire of Connector 4). Isolate the driver's door actuator from the rest of the other doors. Call us for the technical support if you are not sure about this.

1-7 Turbo mode requires the connection of the emergency brake wire for either automatic or manual transmission vehicles. With this mode, the engine will continue running for two minutes after the key is turned off if the emergency brake was set before the key was turned off and the foot brake was not being pressed when the key was turned off.

1-8 Use this feature if you do not use the glow plug wire. With the Option Programmer, you can program between 3-99 seconds.

1-9 This option will not be available if you chose 2.5 sec pulse under 1-2.

1-11 This is only of the manual transmission vehicle. With this option, you have to actively lock the vehicle after the manual transmission reservation.

Programming Menu #2 (Security Options)

	Feature	Factory Default Setting - Button I	Optional Setting - Button II
2-1	Cold Start with Temp Sensor	Off	On
2-2	Timer Start, or, minimum interval between Cold Starts	3 Hour	1.5 Hour
2-3			
2-4			
2-5	Ignition controlled door locks	Off	On

Note:

2-1 Cold start mode requires installation of the optional temperature sensor. In the default factory setting, Cold Sensor input works as Remote Start Activation Input. A Ground pulse to this wire will start the vehicle.

2-5 This programmable option enables your vehicle to automatically lock the doors when the brake pedal is pressed after starting the vehicle with a key. In addition, the vehicle will automatically unlock the doors upon pulling the key out from the ignition. However, if the emergency brake wire was installed, the vehicle will unlock upon the emergency brake is set if the engine is still running with the key. The option must be chosen at the time of installation.

Diagnosing Problems with Auto-Start

If there is a problem in auto-starting your car, you will see three flashes of the parking lights when you attempt to auto-start the car. Wait for 2 seconds and the cause for the error, will be indicated by the number of times the parking lights flash.

Error Number (# of times parking lights flash)	Error Reason
1	Engine On
2	Key On
3	Door Open
4	Trunk Open
5	Brake On
6	Hood Open
7	Reservation Off (Manual Transmission Only)