

REMOTE CONTROL ENGINE STARTER WITH BUILT-IN ALARM SYSTEM

MODEL RS-304

Designed for use in all automatic transmission, gasoline or diesel powered, fuel injected vehicles (Carburetor or throttle-assisted engines require an optional solenoid kit). **Do not install in vehicles equipped with a manual transmission**

Thank you for choosing the ASTROSTART™ Remote control Engine Starter. Your ASTROSTART™ is the product of extensive research by a company specializing in the design of high quality electronic equipment for automotive vehicles. ASTROSTART™ is designed to provide years of reliable, trouble-free service. Its advanced microprocessor circuitry incorporates billions of possible access codes to prevent interaction with other remote controlled vehicles. ASTROSTART's safe and convenient features will make your life easier.

Please take time to read these instructions carefully. Some features may not be installed or applicable to your vehicle.

Safety Precautions!

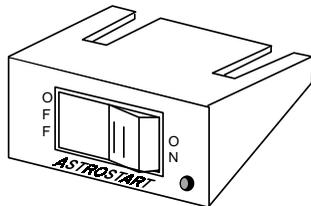
- Always turn OFF the main switch when parking your vehicle in a closed, non-ventilated garage or when the vehicle is being serviced.
- Always turn OFF the main switch when ASTROSTART™ is not being used for extended periods of time.
- Keep the transmitter away from children's reach.
- For proper ASTROSTART™ operation, regular engine tune-ups are recommended.
- Always turn OFF the wiper switch before leaving vehicle.
- Test your hood pin switch regularly to ensure safe operation. This switch stops the engine when hood is open.
- Check for any local legislation that would prohibit leaving a running vehicle unattended on public streets.
- Always advise service personnel that your vehicle is equipped with ASTROSTART™.
- A yearly check up of your Remote Starter is strongly recommended. Contact the ASTROSTART™ dealer in your area.

BEFORE YOU USE YOUR TROSTART™

- Select the desired setting for the heater/AC system (when ASTROSTART™ starts the vehicle the heating / AC system will resume operation).
- Make sure that the vehicle is in the PARK position.

USING THE MAIN SWITCH

The astrostart™ main switch should be mounted under the dash. It includes an ON-OFF rocker switch and a small LED indicator light. Turning OFF this switch prevents using remote start functions. Optional features remain active. The LED indicator flashes user information codes.



Made in Canada by:
ASTROFLEX Inc.

Patents Pending
U.S. 4,345,554
CDN 1,130,426

THE REMOTE TRANSMITTER

A small 12 Volt alkaline battery (GP23A) powers your remote. Under normal use, it should last approximately 6 months. Range may be affected by a weak battery or by location (ie. crowded parking lot, metal structures, hydro poles, etc.). Using microprocessor-controlled **CODE LEARNING**, up to 3 additional ASTROSTART™ transmitters can be added at any time (for a total of 4). See your ASTROSTART™ dealer.

USING YOUR REMOTE CONTROL 1, 2 or 3 Button Transmitter

Press on the desired button for 2 second. While pressing, the LED will flash and stay on for 1 second while your command is being transmitted. Commands will not be transmitted when the button is not pressed for long enough (LED does not stay on).

Example: Start - Push and hold the "A" button until the LED shuts off.

4 BUTTON TRANSMITTER

Your remote control has four buttons and four LED indicators. Each LED represents a separate group of functions. To select the desired group, press the "P" button as many times as required to light up the LED corresponding to the group of functions you wish to access.

Push "P" Once ➤ First LED lights up (**RED**) selecting the first group of functions.

Push "P" Twice ➤ Second LED lights up (**ORANGE**) selecting the second group of functions.

Push "P" Three times ➤ Third LED lights up (**YELLOW**) selecting the third group of functions.

Push "P" Four times ➤ Fourth LED lights up (**GREEN**) selecting the fourth group of

Example: To transmit "Start" function, the reference card instructs you to:

- Push "P" once, RED LED flashes.
- Push "A" once, engine will start.

To transmit "Stop", repeat the same commands.

UNDERSTANDING THE COMMANDS

To simplify reading, remote control commands are abbreviated. All commands in this manual will be listed in the following manner: eg.

Command	Procedure
• 1 A	Push "P" once (1), Push "A" once (1)
• 3 B,C	Push "P" three (3) times, Push "B" once (1), then "C" once (1)
• 3 A & B	Push "P" three (3) times, Push "A" & "B" simultaneously.

COMMAND ACKNOWLEDGEMENT

To confirm most transmitted commands, the ASTROSTART™ system will flash the parking lights and / or honk the horn. These confirmations are coded to provide system status information to the user.

eg. Code	Description
(horn 1, parking 2)	Horn will honk once (1), Parking lights will flash twice (2).

THE REFERENCE CARD

A reference card is enclosed with the manual. This card lists all available functions and the corresponding button sequence to use. Keep this card on your person when using your ASTROSTART™ system.

RS-304 COMMAND CODES

PRESS DESCRIPTION	ACKNOWLEDGE
1A Start or stop vehicle (continuous mode)	park lights flash
1B Lock & arm without siren chirp (dome light OFF)	park lights flash
1C Unlock & disarm without siren chirp (dome light ON)	park lights flash
2A Start /only with horn acknowledge (continuous mode)	park lights flash,(horn)
2B Lock without arming (dome light OFF)	park lights flash
2C Release trunk Unlock and disarm (dome light ON)	park lights flash, (siren)
3B Lock and arm with siren chirp	park lights flash, (siren)
3C Unlock and disarm with siren chirp	park lights flash, (siren)
3AA Horn joke	horn 7 honk
3B&A Temporarily disable internal shock sensor & supplementary sensor	park lights flash (4 times)
3BC Auxilliary output Toggle	
4C Activate/deactivate low temperature mode without horn acknowledge	park lights flash
4AA Car Finder , toggle horn ON/OFF without arming or disarming alarm	park lights flash, horn
4CC Activate/deactivate low temperature mode with horn acknowledge	park lights flash, horn

COMMANDS

START OR STOP (1A)

This is the most common command. To start the engine by remote, enter 1A (horn: 0, parking lights: 1). The ASTROSTART™ automatically adjusts the cranking cycle to match your vehicle requirements. Proper operation is acknowledged by (horn: 0, parking lights: 2).

TO STOP the engine, enter same sequence again (1 A).

START WITH A HORN ACKNOWLEDGMENT (2 A)

This command is used when you can not see the vehicle, the vehicle horn will sound when the engine has been successfully started. Enter 2 A, the system will confirm receiving the command (horn: 1 parking lights: 1). The ASTROSTART™ will start the engine.To confirm that the engine is running, another acknowledgment signal follows (horn: 2, parking lights: 2).

ENGINE RUN TIME

The engine will shut off automatically after the chosen run time has expired. The parking lights will remain lit while the engine is running by remote.

Note: Run time is programmable (the factory preset is 15 minutes). See the User Programming section.

WHEN YOU GET IN YOUR VEHICLE...

When entering your vehicle, do not touch brake pedal (this will shut the engine off). Turn the ignition key to the RUN position. Drive away as usual ASTROSTART™ will shut OFF by itself. The optional starter kill connection (see your dealer) prevents accidental starter grinding if key turned to **START** position while the engine is already runnin by remote control.

WHAT STOPS THE ENGINE?

For your safety, the engine will stop and/or will not start if:

- The transmitter sends the STOP (1A) command.
- The hood is opened.
- The brake pedal is depressed.
- The transmission is shifted out of the PARK or NEUTRAL positions.
- The engine over-rev's.
- The main switch is OFF.
- The optional high temp/low oil pressure sensor is triggered.
- The optional alarm system has been triggered.

IF ENGINE DOES NOT START....

If your ASROSTART™ is not successful in starting the engine on the first try it will wait a few seconds and try again (up to two more times, as set by the dealer). If the engine does not start after several attempts the system will shut off and wait for the next command. If starting the engine remains unsuccessful, the main LED flashes to show the “Start Fail Code Description” by repeating double blinks.

RS-304 MAIN SWITCH RESPONSE CODES

BLINKS	REASON FOR FAILURE TO START
1	Stopped by transmitter
2	Stopped when brake pedal was pressed
3	Stopped when ASTROSTART™ alarm tripped
4	Stopped due to low or undetectable engine RPM
5	Hood is open
6	Transmission not in park/neutral
7	Ignition key is in the ON position
8	ASTROSTART™ disable switch is in the OFF position
9	Engine run time has ended
10	Engine cranked but refused to start
11	Tach signal is present; engine is probably already running
12	Engine RPM was too high (over 3000 RPM)
13	Engine refused to start after all attempt
17	Problem detected on (high engine temperature) input
18	Diesel glow plug failed to turn off within 30 seconds (Diesel only)
19	Module internal error

CONTINUOUS MODE

(1 A, WHEN ENGINE RUNS MANUALLY)

In the Continuous Mode you are able to leave your engine running after removing the key from the ignition (only when the vehicle has been started using the ignition key). This is a convenience feature that allows you to leave the vehicle for short periods of time while the climate controls and engine remain active. Enter 1A while engine is running. The parking lights will turn ON, the engine will keep running for the chosen run time. Remove the ignition key, exit your vehicle and lock all doors.The steering column will remain locked and all security features remain active .

LOW TEMPERATURE MODE (SENTINEL)

The Low Temperature mode enables ASTROSTART™ to run the engine **AUTOMATICALLY** for the programmed run time when the engine block temperature falls below -15°C (5° F)*. All normal shut off devices (brake pedal, hood, etc...) will shut the vehicle off. Turning the ignition key to RUN, depressing the brake pedal, or starting by remote deactivates the Low Temperature Mode.

* Activation temperature is programmable (the factory preset is -15°C). See the “User Programming” section.

LOW TEMPERATURE MODE WITHOUT HORN ACKNOWLEDGMENT (4 C)

- To activate, enter 4 C (horn: 0, parking lights: 1).
- To deactivate, enter 4 C again (horn: 0, parking lights: 2).

The ASTROSTART™ will acknowledge (horn: 0, parking lights: 3) if for some reason this command cannot be executed (ie. hood left open). If this is the case, check which code the main switch LED is displaying and refer to “Start Fail Code Description”.

LOW TEMPERATURE MODE WITH HORN ACKNOWLEDGE (4 C, C)

- To activate, enter 4 C, C (horn: 1, parking lights: 1).
- To deactivate, enter 4 C, C again (horn: 2, parking lights: 2).

The ASTROSTART™ will acknowledge (horn:3, parking lights:3) if for some reason this command cannot be executed (ie. hood left open). If this is the case, check which code the main switch LED is displaying and refer to “Start Fail Code Description”.

CAR FINDER (4 A,A)

When this command is entered (4 A,A) the system will react by sounding the vehicle horn and flashing the parking lights. This feature is used to locate your vehicle (in a busy parking lot etc..) To stop the Car Finder mode press (4 A,A) again. The alarm will remain armed.

Note: The duration of this feature is programmable (factory preset is 60 seconds). See the “User Programming” section.

(HORN JOKE, 3 A, A)

The horn will give 7 short honk.

OPTIONAL COMMANDS

THE ASTROSTART™ ALARM SYSTEM

The ASTROSTART™ RS-304 alarm system protects your vehicle and its content by monitoring all doors, the hood and the ignition. Optional sensors can be added for better protection (eg. shock sensor, see your ASTROSTART™ dealer).

WHEN THE ALARM IS TRIGGERED IT WILL:

- Stop the engine and prevent it from starting until the system is disarmed.
- Flash the parking lights.
- Flash the vehicle horn.
- Sound the siren.

After the alarm duration the system will rearm automatically. If any of the protected zones remain violated (door left open, etc....) the alarm will arm and bypass the zone.

ARMING / DISARMING METHODS

There are two different ways to operate the alarm system: The active and passive modes differ in the way you can arm and disarm the alarm.

In the **ACTIVE MODE**, only the remote transmitter can arm or disarm the alarm.

In the **PASSIVE MODE**, the system arms and disarms automatically after an exit or entry delay. Arming and disarming by remote is also possible in this mode, doing so disable entry and exit delays.

Note: This feature is programmable (the factory preset is “Active”). See the “Users Programming”section.

ACTIVE MODE

Lock Doors And Arm With Siren Acknowledge (3 B)

(horn: 0, parking lights: 1, siren: 1)

Lock Doors And Arm Without Siren Acknowledge (1 B)

(horn: 0, parking lights: 1, siren: 0)

This command locks all doors (optional interface) and arms the alarm. The main switch LED will flash “code 1” to indicate armed status. When arming, the ASTROSTART™ also bypasses any zone that shows a violation (ex.:hood left open). The horn and parking lights will acknowledge (horn: 1, parking lights: 1, optional siren: 0).

To identify the zone violation, Check the code displayed on the main switch LED.

Once corrected (ie. hood closed), the ASTROSTART™ will acknowledge (horn: 1, parking lights: 1, optional siren: 1).

UNLOCK DOORS AND DISARM WITH SIREN ACKNOWLEDGE (3 C)

(horn: 0, parking lights: 2, siren: 2)

UNLOCK DOORS AND DISARM WITHOUT SIREN ACKNOWLEDGE (1 C)

(horn: 0, parking lights: 2, siren: 0)

This command will unlock all doors (optional interface), and disarms the alarm. The LED stops flashing.

If the alarm is triggered during your absence, the ASTROSTART™ will acknowledge by (horn: 2) when you disarm the alarm. If you wish to know the nature of the violation, check the code displayed on the main switch LED.

PASSIVE MODE

TO ARM PASSIVELY

The system automatically arms when you turn OFF the ignition key and leave your vehicle as you would normally. The system will arm 20 seconds after last door is closed. There is no confirmation by the ASTROSTART™ (parking lights 0, horn 0). The LED will flash code 1 to indicate armed status. Opening any door during the exit delay restarts the delay after the door is closed again. When arming passively, the ASTROSTART™ will bypass any zone that shows a violation (ex. hood left open). The horn and parking lights will acknowledge five (5) seconds after last door is closed (horn: 1, parking lights: 1, optional siren:0)

TO DISARM PASSIVELY

When the alarm has been armed passively, disarm by turning ignition key to the RUN position before the end of a 30 second entry delay (or 15 seconds, dealer programmable). If the ignition key is not put in the RUN position within 30 seconds (or 15 seconds) of opening the first door, the alarm will trigger (horn: 1, parking lights:1, optional siren:1). If this happens shut the alarm off by turning the ignition key to the RUN position or entering (1 C) on the transmitter.

* Entry delay time is programmable (the factory preset is 30 seconds). Refer to the “User Programming” section.”

TO ARM ACTIVELY BY REMOTE (1 B, OR 3 B)

Arming by remote in the passive mode is possible. Entry and Exit delays are cancelled and alarm operation is the same as when in active mode. Disarming by remote is then necessary (for further details, refer to “Active mode” section). The following combinations are possible in passive mode:

- arm and disarm passively
- arm passively and disarm actively (with the transmitter)
- arm and disarm actively (with the transmitter)

AUTOMATIC RE-ARMING

Your ASTROSTART™ alarm system includes an Automatic Re-arming feature. If the system is triggered while you are away from the vehicle it will automatically re-arm after going through the alarm cycle.

LOST OR BROKEN REMOTE CONTROL

If you have lost or broken your remote control and the alarm system is armed:

- In less than 30 seconds, Get into your vehicle (the alarm will sound) turn ignition key to “ON” position (not “START”) leave your vehicle and close all doors.
- Patiently wait TWO minutes without disturbing the vehicle, until the alarm is silent.
- The ASTROSTART™ switches into passive mode. From now on, only the ignition key is required to arm/disarm the system. See the section on “PASSIVE MODE” for more information.

Ask your ASTROSTART™ dealer to repair or replace your transmitter as soon as possible.

WHAT TRIGGERED THE ALARM?

The alarm will store the last zone which triggered the alarm. Refer to the Infraction Code Description” chart for proper zone description.

RS-304 ALARM INFRACTION CODES

BLINKS	ALARM CONDITION
1	Normal operation. Alarm is armed.
2	Door was opened
3	Hood was opened
4	Internal shock sensor was tripped
5	Ignition key was ON (only in active arming mode)
6	Other sensor input was tripped.

DOOR LOCKING AND UNLOCKING

This optional interface allows you to control by remote several vehicle electrical system options. This interface is optional and will require the purchase of additional equipment (see your dealer). The following systems can be controlled:

- Electronic door lock system.
- Electronic trunk/hatch release.

COMMANDS

LOCK AND ARM WITH SIREN ACKNOWLEDGE (3 B)

This command locks all doors and arms the ASTROSTART™ alarm. (horn:0, parking lights:1, siren:1).

LOCK AND ARM, WITHOUT SIREN ACKNOWLEDGE (1 B)

This command locks all doors and arms the ASTROSTART™ alarm. The alarm siren remains silent. (horn:0 , parking lights: 1, siren: 0).

UNLOCK AND DISARM WITH SIREN ACKNOWLEDGE (3 C)

To unlock all doors and disarm the ASTROSTART™ alarm. (horn: 0, parking lights: 2, siren: 2).

UNLOCK AND DISARM, WITHOUT SIREN ACKNOWLEDGE (1 C)

This command unlocks all doors and disarms the ASTROSTART™ alarm. The optional alarm siren remains silent. (horn:0, parking lights:2, siren:0).

LOCK, WITHOUT ARMING (2 B)

To lock all doors without arming the alarm. (horn:0 , parking lights: 1, siren:0)

OPEN TRUNK, UNLOCK AND DISARM WITH SIREN ACKNOWLEDGE (2 C)

This command unlocks all doors, disarms the ASTROSTART™, and releases the trunk with a siren acknowledge (horn: 0, parking lights: 2, siren: 2)

AUXILIARY OUTPUT (3BC)

Connection of this output is optional and is highly flexible to adapt to various needs.Consult your local ASTROSTART™ dealer for typical applications.

TEMPORARILY DISEABLE SHOCK SENSORS (3B&A)

This command disable all shock sensors. (horn: 0, parking light: 4, siren: 0). The shock sensors will be re-enable when pressing the brake pedal.

USER PROGRAMMING

Your ASTROSTART™ system is designed to provide the ultimate convenience and flexibility. There are several options that you as the owner have in controlling how your system works. These options are selected in the “User Programming Mode”. Refer to the “User Programming Codes” for a listing of all options and factory pre-sets. If you wish to change any parameters, follow this procedure in entering and exiting the “User Programming Mode”

1) TO ENABLE THE TRANSMITTERS PROGRAMMING MODE

Push “P” four (4) times	The GREEN LED illuminates
Push “A,B,C” simultaneously	The RED LED should now be flashing rapidly, the system will remain in the “User Programming Mode” for five (5) minutes.

2) TO ENABLE THE MODULES PROGRAMMING MODE (UNIT INSTALLED IN VEHICLE)

- Turn the main system switch OFF.
- Turn the ignition key to the ON position. Do not start the engine.
- Turn the main system switch ON.
- Turn the ignition OFF.

The parking lights will flash four times to acknowledge. Programming commands can now be entered through the remote control (refer to the programming chart below). Exit the programming mode by depressing the brake pedal.

Push “P” four (4) times	The GREEN LED illuminates
Push “A, B, C” simultaneously again	RED LED will flash slowly and turn off).

RS-304 USER PROGRAMMING CODES

LED	PRESS	DESCRIPTION
1,1	1AA	Enable siren chirps when arming or disarming the ASTROSTART™ alarm with the optional siren
1,2	1AB	Disable siren chirps
1,3	1AC	Set the ASTROSTART™ alarm in active mode (alarm option)
1,4	1BA	Set the ASTROSTART™ alarm in passive mode (alarm option)
1,5	1BB	Set entry delay to 30 sec when the alarm is in passive mode
1,6	1BC	Set entry delay to 15 sec when the alarm is in passive mode
2,1	2AA	Set Autolock option to OFF
2,2	2AB	Set Autolock 1 ON; lock doors when engine running with key and brake pedal is depressed. Doors unlock when engine is stopped or when continuous mode is activated.
2,3	2AC	Set Autolock 2 ON; lock doors when transmission is out of park/neutral position and engine speed is over 1200 RPM. Doors unlock when transmission is in park or neutral position.
2,4	2BA	Set Autolock 3 ON; lock doors when transmission is out of park/neutral position and engine speed is over 2000 RPM. Doors unlock when transmission is in park or neutral position.
3,1	3AA	Engine run time set at 15 minutes
3,2	3AB	Engine run time set at 20 minutes
3,3	3AC	Engine run time set at 10 minutes
3,4	3BA	Engine run time set at 5 minutes
3,5	3BB	Sentinel starts engine at -15°C
3,6	3BC	Sentinel starts engine at -10°C
3,7	3CA	Sentinel starts engine at -5°C
3,8	3CB	Sentinel starts engine at 0°C
3,9	3A&B	Engine run time set at 30 minutes (DIESEL ONLY)
3,10	3A&C	Engine run time set at 40 minutes (DIESEL ONLY)
0,0	4AA	View next programmed function via the LEDflashes
	4AB	View previous programmed function via the LED
0,0	4CB	Main switch LED display mode
0,0	4CC	Main switch LED tach test. Use this command for visual tach test

After programming all of the necessary parameters, refer to the section on Exiting the Programming Mode.

LIMITED ONE YEAR WARRANTY

The product manufactured by ASTROFLEX Inc. is warranted to the original consumer purchaser to be free from defects in workmanship and material within one (1) year of the date of purchase. ASTROFLEX shall repair or replace the product or any part of the product which ASTROFLEX agrees is defective without charge provided the product is returned to ASTROFLEX freight prepaid and accompanied by a copy of the purchase receipt. This warranty does not cover damages resulting from accident, physical or electrical misuse or abuse, improper installation, alteration, any use contrary to its intended function, unauthorized service by anyone other than ASTROFLEX or its authorized service personnel. ASTROFLEX shall not be responsible for removal and/or reinstallation charges, damage to or theft of the vehicle or its contents, or any incidental or consequential damages caused by any failure of the product to function properly.

The sole remedy for breach of this warranty and the sole obligation of ASTROFLEX hereunder is the repair or replacement of the defective product as ASTROFLEX's option. ASTROFLEX shall have no liability whatsoever at any time for any personal injury or property damages or for any special, indirect or consequential damages of any kind howsoever arising.

This warranty is strictly limited to its terms and is in lieu of any kind and other warranties and conditions, written or oral, whether express or implied.

WARNING

Changes or Modifications not expressly approved by ASTROFLEX could void the User's authority to operate the equipment.

DOC DOCUMENT:

This device complies with the requirements of the Department of Communications (DOC), Canada, as specified in document RSS0-210. The device is permitted only on a no-interference no-protection bases, that is, it must cease operation when it is determined that it causes harmful interference to services authorized by DOC. Also, the operator must accept any radio interference received, including interference that causes undesired operation of the device. DOC Certification No: 1854 K1066

FCC Document:

This device complies with Part 15 of the FCC rules.

Operation is the subject to the following conditions:

- (1) this device may not cause harmful interference and
- (2) this device must accept interference that may cause undesired operation.

NOTE

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to the receiver is connected
- Consult the dealer or an experienced radio / T.V. technician for help

FCC APPROVAL No. J5FRS-3R

Due to continuing product improvement, specifications and design are subject to change without notice.