

# **Exhibit E**

# **User's Manual**

**TECH-CAST MFG. CORP.**

**FCC ID.:JSYTC2720**

**Car Alarm (Receiver)**

# Model 2720 Operation Manual

## 1. Remote Control Transmitter:

This remote control transmitter provides 2 billions of digital codes with an operative range up to 100 feet. (The operative range will be shorten when system is interrupted or out of power) and also contains Anti-Copy & Anti-Scanning which is the most secure tool

## 2. Micro-code learning:

Please follow the below procedures of code learning, when renew or add more transmitters --

- Turn the car key to the "ON" position.
- Turn the override switch to the "ON" position then switch to "OFF" (in 3 seconds)
- Siren waits 3 times, LED light flashes rapidly. (means into code learning mode)
- Press any button on transmitter 2 times in 10 seconds, when siren chirps once means the 1st code learning is done. After that, press another transmitter any button 2 times in 10 seconds, when siren chirps twice means the 2nd code learning is done. Following the same procedure, it can learned 6 different transmitters' code
- If the transmitter doesn't receive any input in 10 seconds, LED will turn off, system will quit the code learning mode automatically

## 3. Arming:

Press transmitter big button, arming mode is set when press the button and finds --

- Siren waits once.
- Indicator(parking) light blinks once.
- Central door locks locked.
- LED light flashes slowly (refer to point 25)
- If security system is connected to the power window control module, all the open windows will be closed automatically

## 4. Disarming:

Press transmitter big button, disarming mode is set when pressing the button and finds --

- Siren waits twice.
- Indicator(parking) light flashes twice
- Central door locks unlock
- LED light turns off. (refer to point 25)

## 5. Silent arming:

Press tran

- Indicator(parking) light blinks once.
- Central door locks locked.
- LED light flashes slowly(refer to point 25)
- If security system is connected to power window control module, all the open windows will be closed automatically.

## 6. Silent disarm:

Press transmitter small button, when pressing the button and finds --

- Indicator(parking) light blinks twice.
- Central door locks unlock.
- LED light turns off. (refer to point 25)

\*Pls notice Sound/Silent arming & disarming can be chosen by the car users

## 7. Car searching/Panic:

Under the arming mode, hold transmitter big button continuously for 3 seconds, siren keeps wailing and indicator(parking) light blinks constantly for 30 seconds then automatically stop. Press big button again for early quitting of this mode

## 8. Passive arming (refer to point 27 optional feature)

When car key is switched from "ON" to "OFF" position, door is opened and then all the doors are closed, indicator(parking) light blinks 30 seconds later, system is automatically into arming mode. If any of the doors is opened during this 30 seconds countdown, the countdown stops. As all doors are closed and remain close for 30 seconds, the system is into arming mode and door locked automatically or unlocked depend on setting of J3

## 9. Passive Anti-robbery: (refer to point 27 optional feature)

When the car key is at "ON" position, and robbery happens, open the door and then close the door, system will be in Passive Anti-robbery mode automatically. If there is no further movement after 90 seconds, siren will keep wailing and indicator(parking) light will flash constantly for 30 seconds to warn the robbery. If ignition cut-off module (optional accessory) is installed as point 22 (b)or(c), car will have problem to move normally for about 40 seconds, and then system will disconnect power(fuel) automatically. To delete the Passive Anti-robbery, the car key must be at "ON" position, and then turn the override switch to the "ON" position

\*Pls notice the car user should be very careful to avoid the mis-touched and then caused the disconnection of power(fuel).

**10. Remote Anti-robbery: (refer to point 27 optional feature)**

When the car key is at "ON" position, and robbery happens right in front of car owner and it's "within remote distance", the car owner may hold the transmitter continuously for 3 seconds, siren keeps waiting and indicator(parking) light blinks constantly to attract people's attention. If ignition cut-off module (optional accessory) is installed, the system will automatically disconnect power after siren waits 30 seconds (refer to point 22 for ignition cut-off module installation). To delete the anti-robbery by pressing transmitter big & small button at the same time

**11. Automatic rearming:**

When disarming, door is not opened for 30 seconds, system is into arming mode again automatically and central door locks locked.

**12. Automatically siren shuts down and rearm:**

When the alarm system is triggered, 120dB siren waits, if system return to the normal function, siren automatically shuts down after 30 seconds and the system rearms at the same time. If system hasn't returned to the normal function, siren will automatically shuts down after 90 seconds and the system rearms at the same time.

**13. 2 stage disarm:**

When alarm system is triggered, siren waits and indicator(parking) light blinks, press any button on transmitter, the siren and light will be shut down. The system will stay in arming mode until car owner press any button on transmitter to disarm.

**14. Automatically doors unlock when engine is turned off:**

When engine is turned off, central door locking system automatically unlock for passenger's convenience.

**15. Remote opening trunk:**

Press transmitter small button for 3 seconds, trunk will open automatically, indicator(parking) light blinks constantly, indicator(parking) light stops blinking when trunk is closed. This function will not disturb arming mode.

**16. Remote central door locks:**

When car key is at "ON" position, press transmitter big button or small can remote the central door locks function, and system will not be in arming mode.

**17. Tamper alert with memory:**

When the alarm system is tampered during arming mode, the system will automatically memorize the record. LED indicator will show the record when disarming (refer to point 25 & 26).

**18. Self-diagnostics:**

When arming is set, siren waits once, indicator(parking) light blinks once. The system automatically detects all defective points when arming mode is selected. When any defective point from doors or hood is not functioning normally, 3 seconds later, siren waits 4 times, indicator(parking) light blinks 4 times. If the shock sensor or trunk is not working normally, 5 seconds later, siren waits 6 times, indicator(parking) light blinks 6 times.

**19. Auto By Pass:**

The system automatically by passes defective point which is not working normally while remaining points are still executing until the defective point is repaired.

**20. Door/trunk not being closed properly warning:**

If doors remain open during arming mode, 3 seconds later, siren waits 4 times, indicator(parking) light blinks 4 times. If trunk is not closed properly during arming mode, 5 seconds later, siren waits 6 times, indicator(parking) light blinks 6 times.

**21. 500mA Grounded output for optional starter killer relay:**

- a) This system that reserves 500mA negative output control wires to work with ignition cut-off module (optional feature) except built-in killer relay.
- b) As ignition cut-off module (optional feature) is installed in a car, car can not be started in arming/anti-robbery mode. To re-start the car, disarm the system.

**22. Installation for ignition cut-off:**

- a) To fail starting engine, connect ignition cut-off module to the engine starter. However this can not turn off an active engine.
- b) Connect ignition cut-off module to the negative side of ignition coil can stop a moving vehicle and fail to start engine. (This is a more dangerous way also ignition cut-off module's life will be shorter).
- c) Connect ignition cut-off module to the power control wire from fuel pump will stop a moving vehicle by cutting off fuel supplying system of fail to start engine.

**23. Alarm trigger when battery or 12 Volts is first applied:**

As system is installed and first plug into 12V power, siren waits and indicator(parking) lights blink as a system confirmation. 30 seconds later, they automatically stop and system is armed. Transmitter can be used to disarm. If it can not achieve, please check whether the valet/override switch keep at "OFF" position. If not, turn it off then appeared.

**24. Valet/Override function:**

To set up override mode, turn the ignition key at "ON" position, and the override switch at "ON" position, siren waits once, LED light solids on. To delete override mode, turn the override switch at "OFF" position, indicator(parking) light blinks 3 times.

25. LED indicator:

STATUS	LED INDICATOR	EXPLANATION
Armed	Blinks slowly	System is armed and your car is under protection
Disarmed	Off	System is disarmed with no triggering during arming mode
Trigger	Blinks rapidly	If the system is triggered during arming mode, LED indicator flashes rapidly when disarm. Turn the car key to the "ON" position, LED indicator is reset
Enter code learning mode	Flash rapidly	LED flash faster than when system has been triggered. (pls Refer to 2 Micro code learning function)
Valet	Steady on	When valet switch is set.

26. Meaning of numbers that siren wails & indicator(parking) lights flash:

NO. OF WAIL & FLASH	MEANING
wails 3 times	Code learning is done
wails & flashes once	Arming
wails & flashes twice	Disarming
wails & flashes 3 times	When deleting arming mode, system has been triggered during arming
wails & flashes 4 times	When setting arming mode, door functions or hook is not working normally
wails & flashes 6 times	When setting arming mode, shock sensor or trunk is not working normally
flashes once	Silent arming
flashes twice	Silent disarming
flashes 30 seconds	Passive arming
wails & flashes 30 sec	Alarm triggered - car searching - anti-robbery system installed confirmation
wails & flashes 90 sec	Alarm triggered, system has not returned to the normal function
flashes constantly	Remote opening trunk
wails once	Override switch "ON"
flashes 3 times	Override switch "OFF"
flash & wail synchronously	+12V first applied valet switch keep at "ON"

27. Optional features set up:

NUMBER	POSITION	FEATURE
J1	SHORT	Active arming
J1	OPEN	Passive arming
J2	SHORT	Passive anti-robbery
J2	OPEN	Remote anti-robbery
J3	SHORT	Passive arming with passive door locked
J3	OPEN	Passive arming with active door locked
J4	SHORT	Central door lock trigger time 0.4 sec
J4	OPEN	Central door lock trigger time 6 sec

\*PS: SHORT → plug OPEN → unplug

28. Electronic specification :

A. Main module :

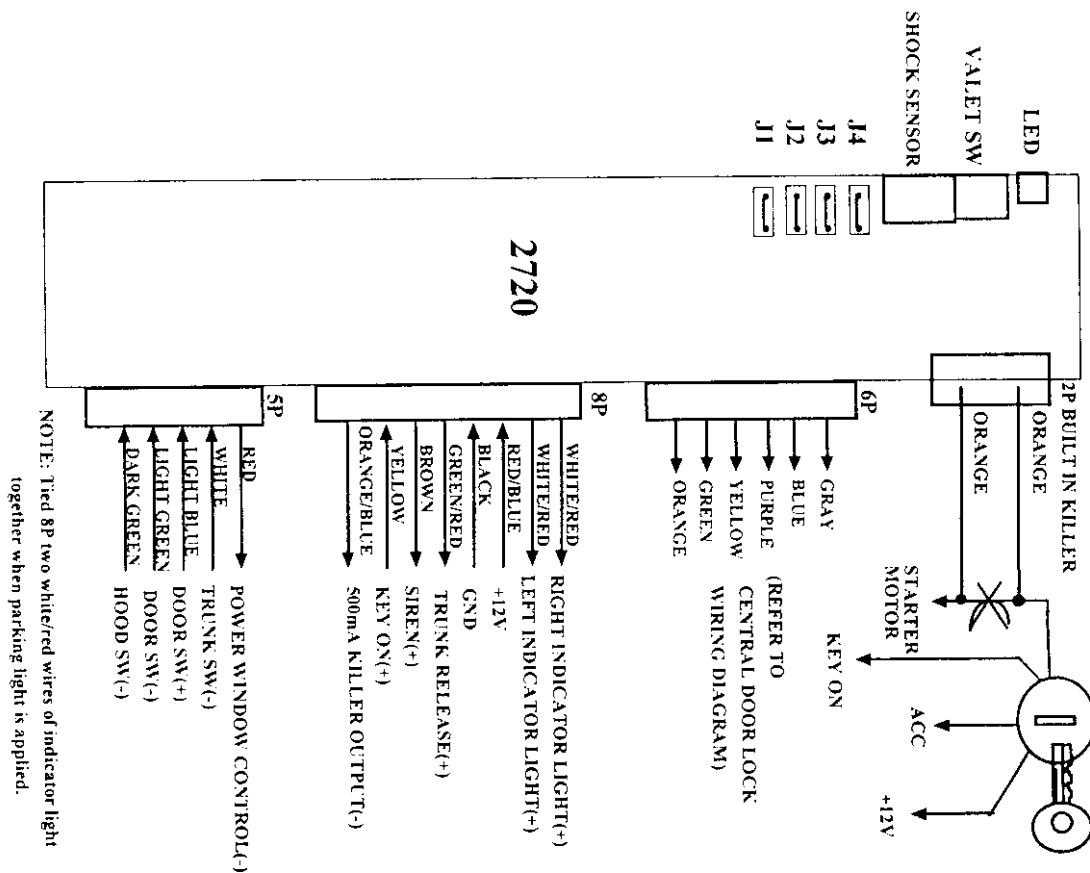
Operation voltage : 12V ± 2V  
 Operation temperature : -30 ~ +85 °C  
 Stand by current : 7.4 mA (LED & Sensor excluded)  
 LED current : 3.2 mA  
 Sensor current : 2 mA for Electromagnetic shock sensor  
 : 0.2 mA for rolling-ball shock sensor  
 Power Consumption (Max) : 10A for parking light, siren & trunk  
 Operation frequency : 315 ± 5 Mhz

B. Transmitter:

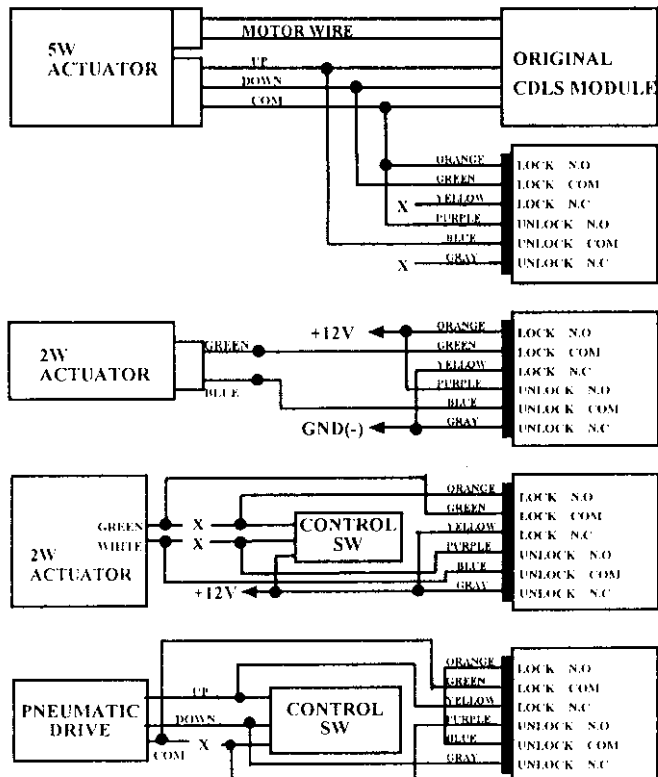
Operation voltage : 12V  
 Operation temperature : -30 ~ +85 °C  
 Stand by current : 0 mA  
 Power Consumption (Max) : 11 mA  
 Operation frequency : 315 ± 5 Mhz  
 Code arrangement : code hopping  
 Effective range : 30 M or above (depends on battery voltage & parking situation)  
 Battery specification : GP23A 12V

Notice: The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

## MODEL 2720 WIRING DIAGRAM



## CENTRAL DOOR LOCK WIRING DIAGRAM



1. If Central Door Locking System is the car standard accessory, there is a 5 wire actuator inside the driver seat door panel to control 4 doors lock & unlock. Selecting the left drawing for correct wiring connection upon acknowledged positive or negative trigger is used in the car (for positive trigger: orange & purple wires connect to +12V; for negative trigger: orange & purple wires connect to ground, green to close, blue to open) -  
For example : HONDA, TOYOTA, RENAULT, GM, etc..

2. If Central Door Locking System is the car standard accessory, there is only a switch in the driver seat door panel to control 4 doors lock & unlock, it is necessary to add a 2 wire actuator to drive the connecting rod and switch. Please refer to left drawing for wiring connection.  
For example : FORD, MITSUBISHI, MAZDA, NISSAN, etc..

3. If Central Door Locking System is the car standard accessory the door panel has been installed an electronic locking switch, please refer to left drawing for wiring connection.  
For example : CHRYSLER, etc..

4. If Central Door Locking System is the car standard accessory and it is triggered by pneumatic drive for controlling 4 doors lock & unlock, please refer to left drawing for wiring connection and pull out the J3 jump wire from the main module function options.  
For example : BENZ, VW, AUDI, etc..