This manual assumes that you are familiar with typical automotive systems, and basic service and repair procedures. Do not attempt to carry out the operations shown in this manual unless these assumptions are correct. Always have access to a Factory Repair Manual. To avoid injury, follow the safety precautions contained in the factory repair manual.

This manual indicates items that require careful attention in order to install this product safely, and lists precautions to avoid any possible damage and/or accidents.

For any lost, defective and/or damaged parts, contact your retailer/dealer to order.

This product was designed for and tested on a factory-spec vehicle or parts to avoid any damage to the vehicle.

Do not modify, disassemble, and/or repair the product and supplied parts.

Do not connect the black ground wire to the power supply wires and/or connectors and can lead to shorts.

Do not operate the Turbo Timer while driving. Always operate the Turbo Timer while the vehicle is parked in a safe location.

When the Turbo Timer is operational (Timer countdown is with the ignition off), do not leave the vehicle until after the Engine has been turned off.

Make sure the parking brake is applied, and the gear selector is in neutral (for MT) or in the Park (P) position (for AT), prior to starting the Engine.

Do not operate the Turbo Timer indoors or in poorly-ventilated areas to prevent carbon monoxide poisoning from exhaust gases.

If any unusual noises, scents, and/or vibrations are noticed while driving, stop using this product and consult your HKS Authorized Dealer immediately.

Battery Voltage display / Peak Voltage Hold display function
• Will display the current battery voltage (10 – 16V) and peak hold warning if the voltage is less than 10V.

VEHICLE SPECIFIC WIRING DIAGRAM

1. NOTICE
This manual provides the Ultimate in Engine Performance and Efficiency. Pursuing the Ultimate in Engine Performance and Efficiency.

REMARKS

Pursuing the Ultimate in Engine Performance and Efficiency.

Caution Sheet

Tie Wrap

Parking Brake Wire

Latch

Control Unit

Display Unit

Key Switch Connector

Vehicle Side Harness

display, the Turbo Timer will automatically shut off. Do not attempt to drive the vehicle in this state.

DC12V

This product operates only on DC12V negative ground vehicles. Do not install on 24V vehicles.

The Turbo Timer function
• Will display the current speed (0 - 248 [mph]).

For proper wiring, use the universal application harness available separately.

(1) Remove the cable from the negative terminal of the battery.

(2) Refer to the below diagram: Remove the key switch connector as shown in the illustration; connect the Turbo Timer harness in between the key switch connector. Note: If no Turbo Timer harness is available, connect the key switch harness behind the main ignition switch:

Red – 12V constant
Green – 12V ignition
Blue – ground wire

(3) Connect the 3 pin connector to the Turbo Timer.

(4) Connect the<br>Vehicle Side Harness (positive terminal of the battery).  A good chassis ground. To ensure a good ground, make sure there is no paint below the mounting surface (sand if necessary).

(5) Connect the display unit connector to the control unit.

5. PARTS LIST

No. Description Or Remarks
1 Display Unit 1
2 Parking Brake Wire 1
3 RPM Signal Lead Wire 1
4 Speed Signal Lead Wire 1
5 Clock Connector 1
6 Tie Wrap 100mm
7 Caution Sheet 1
8 Instruction Manual 1
9 Universal Application Harness Manual 1
10 Vehicle Specific Wiring Diagram 1

6. INSTALLATION

To install this product, pliers and a screwdriver are required.

The safety circuit wiring must be performed as the Turbo Timer will not work without it.

After completing the installation, confirm the safety circuit functions properly.

Do not connect the black ground wire to the power supply wires (voltage 24V, 48V, and/or ACC). It may cause damage to the Turbo Timer.

1. Connect the gray wire from the Turbo Timer to the supplied gray parking brake wire.
2. Turn the key switch on. (Do not start the Engine.)
3. Using a multi-meter, find the wire that reads 0V when the parking brake switch is engaged.
4. Using the supplied splice connector, connect the gray parking brake wire to the vehicle's parking brake wire found in (3)

6-1. How to use the splice connector

(1) Place the vehicle-side wire onto side A (without stopper).

(2) Insert the signal detection wire until it reaches the stopper.

(3) Fold side A using pliers to ensure the snap is securely fastened.

(4) Gently pull on the wire to verify the splice connector is completely tight.

6-2. Key Switch Connector Position

Remove the steering column cover (depicted in the illustration).

Keep the removed screws for reuse.

Depending on the vehicle, the key switch connector may be directly connected to the key switch.

6-3. Wiring

For proper wiring, use the vehicle specific harness (available separately).

If the vehicle specific harness is not available for your vehicle, use the universal application harness available separately.

(1) Remove the cable from the negative terminal of the battery.

(2) Refer to the below diagram: Remove the key switch connector as shown in the illustration; connect the Turbo Timer harness in between the key switch connector. Note: If no Turbo Timer harness is available, connect the key switch harness behind the main ignition switch:

Red – 12V constant
Green – 12V ignition
Blue – ground wire

(3) Connect the 3 pin connector to the Turbo Timer.

(4) Connect the Vehicle Side Harness (negative terminal of the battery).

(5) Connect the display unit connector to the control unit.

If there are two Parking Brake Wires:

(1) Connect the wire from the Turbo Timer to the supplied gray parking brake wire.

(2) Turn the key switch on. (Do not start the Engine.)

(3) Using a multi-meter, find the wire that reads 0V when the parking brake switch is engaged.

(4) Using the supplied splice connector, connect the gray parking brake wire to the vehicle's parking brake wire found in (3)

6-4. Signal Circuit Wiring Connection

(1) Connect the gray wire from the Turbo Timer to the supplied gray parking brake wire.

(2) Using the supplied splice connector, connect the gray parking brake wire to the vehicle's parking brake wire found in (3)
6-7. Mounting the Display Unit and the Control Unit

**Warning**
- When mounting the display unit and the control unit, make sure the harness and connectors are not damaged, stretched, bent, or coming into contact with other vehicle parts. It may cause a malfunction that can damage the vehicle or become a distraction while driving.
- Do not touch the TSi dot or the adhesive surface of the double-sided tape. Do not apply the tape onto wooden or curved surfaces, as well as on fabric. Reuse of the tape will degrade the seal so that it may hold the mounted unit. Dropping the unit may cause a malfunction of the unit and/or damage to the vehicle.

**Caution**
- Install the unit away from areas of excessive heat, water/moisture, or uneven surfaces to avoid possible malfunction, damage to the Engine, and/or deformation of the case.
- Wipe off dust, water, or oil on the mounting surface using a mild detergent, then dry with a dry cloth.
- Use the supplied double-sided tape to mount the unit.
- Do not use the supplied double-sided tape in areas with high humidity or temperature, as it may cause the tape to degrade and the unit to fall off.

6-8. After Installation

1. Reinstall all removed parts back to their original positions.
2. Reconnect the negative cable onto the battery.

7. After Installation

**Caution**
- Prior to confirming operation, make sure the foot brake is applied, and the immediate area around the vehicle is clear.

7-1. Check the following before starting the Engine

- Make sure all bolts and nuts are tightened.
- Make sure all harness connectors and harness do not come in contact with other parts.
- Make sure all harnesses are secured tightly.
- Make sure connectors and harnesses and routing are connected properly.
- Make sure this product is mounted securely in an area that will not distract the driver while driving.
- Make sure the negative cable terminal is securely attached to the battery.

7-2. Start the Engine and check the following

- Let it idle and warm up to standard operating temperature.
- Make sure the intake duct or the TSi dot or the adhesive surface of the double-sided tape is not coming into contact with other vehicle parts.
- Make sure there is no excessive stress on harnesses.
- Make sure there are no loose bolts or connectors after turning off the Engine. Re-tighten if necessary.

7-3. Safety Circuit Function

Check the following to confirm the Turbo Timer function and the safety circuit operation:

1. Start the Engine. Make sure the ignition key is on.
2. Set the manual timer to 30 seconds or longer.
3. Make sure the parking brake is applied, and step on the foot brake.
4. Turn the ignition key off. Verify the Turbo Timer is working.
5. After approx. 10 seconds, release the parking brake.
6. If the Turbo Timer shuts off immediately and the Engine stops when the parking brake is released, the Turbo Timer is installed correctly.

8. NAMES AND FUNCTIONS

8-1. Check the following after the installation process is complete:

1. Reinstall all removed parts back to their original positions.
2. Use the supplied double-sided tape to mount the unit.
3. Secure harness using tie wraps in various locations.

8-2. Setting the Ignition Countdown Timer

Under the timer mode, press and hold the [center key] to move to Setup Mode. Then, set the countdown time by pressing the [up key] or the [down key] while on the display. (There might be a slight difference than the stock RPM.)

- **Manual Mode 1**
  - Press the [center key] twice to switch to Manual Mode 1. The RPM will light up on the display. To set the countdown time, press and hold the [center key] while on the display. (There might be a slight difference than the stock RPM.)
  - **Manual Mode 2**
    - Press the [center key] twice to switch to Manual Mode 2. The RPM will light up on the display. To set the countdown time, press and hold the [center key] while on the display. (There might be a slight difference than the stock RPM.)
  - **Auto Mode**
    - Press the [center key] twice to switch to Auto Mode. The RPM will light up on the display. To set the countdown time, press and hold the [center key] while on the display. (There might be a slight difference than the stock RPM.)

9-1. Timer Mode

This mode displays the idle countdown timer. Press the (1) or (2) key to select the timer mode. RPM will light up on the display. Press the [up key] to select from Manual Mode 1, Manual Mode 2, and Auto Mode. When selecting Auto Mode, the RPM will light up on the display.

- **Auto Mode**
  - By pressing the engine RPM idle countdown time is automatically determined between 0-5 min according to operating conditions of the Engine. (If the RPM is below 2000[r/min], the auto time will stay at 0:00.)
  - The auto-time will light up on the display.
  - **Manual Mode**
    - **Manual Mode 1**
      - Press the (1) or (2) key to select the timer mode. RPM will light up on the display. To set the countdown time, press and hold the [center key] while on the display. (There might be a slight difference than the stock RPM.)
    - **Manual Mode 2**
      - Press the [center key] twice to switch to Manual Mode 2. The RPM will light up on the display. To set the countdown time, press and hold the [center key] while on the display. (There might be a slight difference than the stock RPM.)
    - **Auto Mode**
      - Press the [center key] twice to switch to Auto Mode. The RPM will light up on the display. To set the countdown time, press and hold the [center key] while on the display. (There might be a slight difference than the stock RPM.)

- **Warning Mode**
  - If the [center key] is pressed and held while the warning function is active, the warning timer will turn OFF.

**Warning**
- The Turbo Timer has an idle RPM setting while in Warning Mode. If the IDLE SET button is pressed and held down, the setting will turn OFF.

**Important**
- **Speed Display Mode**
  - Press the (2) key to display the Engine RPM. The RPM will light up on the display. Press and hold the (2) key to move to Speed Mode. Press the (2) key to select the Speed Display Mode. RPM will light up on the display. Press and hold the (2) key to display the Engine RPM.

- **Speed Warning Mode**
  - Press and hold the (2) key to display to Move to Setup Mode. Press the (2) key to turn on or off while in this mode.

- **Engine RPM Display Mode**
  - Press and hold the (2) key to display to Move to Setup Mode. Press the (2) key to turn on or off while in this mode.
-9- Battery Voltage Display Mode

This mode displays the current battery voltage and the battery voltage peak hold value. Further, the battery voltage warning value can be set, and the voltage display will turn off if the voltage of the battery drops below the selected voltage. The voltage display and the Battery Voltage Peak Hold setting can be changed in the Battery Voltage Display Mode.

1. Press the (left or right key) to select the Battery Voltage Display Mode. * will illuminate on the display, and the current battery voltage will be displayed.

2. Battery Voltage Peak Value Display

Press the (up or down key) to switch the Battery Voltage Peak Hold Value Display to the Peak Value Display, and vice versa. * will illuminate when the Battery Voltage Peak Hold Value Display is selected, and press and hold the [up or down key] while the peak voltage value is displayed. The peak hold value is reset to the current battery voltage. * Voltage Peak Value Display

-9- 5. Quarter-Mile Time Mode

This mode will measure a quarter mile time.

1. Press the (left or right key) to select the Quarter-Mile Time Mode.

2. Hold the (left or right key) to display the following modes:

- SPEED UNIT : mph
- SPEED UNIT : km/h

3. Start and end time measurement.

- SPEED UNIT : mph
- 0-60 (mph) 0-60 mph
- 0-100 (mph) 0-100 mph
- 0-150 (mph) 0-150 mph
- 0-200 (mph) 0-200 mph

- SPEED UNIT : km/h
- 0-10 (km/h) 0-10 km/h
- 0-20 (km/h) 0-20 km/h
- 0-30 (km/h) 0-30 km/h
- 0-40 (km/h) 0-40 km/h

When the vehicle is at a complete stop, blinking numbers and a beep will indicate that the Timer is ready to measure the run. Then the display will change to show the seconds, and switch back and forth. The following example shows 8 min 12.48 sec.

- The maximum range for the display is 100 km/h. If the run exceeds 100 km/h, then the display will show *.

- If the measured time is over 60 sec, it will show the minute first and then the seconds, and after 99 min, it will change to show the seconds and switch back and forth. The following example shows 8 min 12.48 sec.

- Press and hold the [up or down key] to reset the measured time after each run. You can restart the measurement by repeating step 3.

- Displaying the previous measurement.

- If the voltage was exceeded 2000[m/min], it will display up to a hundredth of a second.

- The previous measured time for 2 seconds.

- Press the (left or right key) to select the StopWatch mode. * will be displayed on the display.

- Time measurement.

- Start Measurement

Press the [center key] to start the stopwatch.

- Stop Measurement

Press the [center key] to stop the stopwatch.

- Continue / Reset Measurement

Press the [center key] and the stopwatch is stopped to restart timer measurement. Press and hold the [up key] to reset the values. After resetting, repeat the stopwatch procedure for another measurement.

- Lap Time measurement

- Press the [center key] to start the first time measurement. The measured time is displayed in the same manner as the time measurement above.

- 1st & 2nd Lap time measurements

Press the [up key] during the time measurement to stop the 1st lap time measurement and start the 2nd run. The 1st measured time is displayed during the 2nd run, and will blink. * 3rd, 4th, 5th etc.

- Time measurement.

- Press the [center key] during the time measurement to end lap time. The time measured when the [center key] is pressed will be displayed.

- Time measurement and lap time measurement will display when it exceeds 10 min.

- Warning 1 sets the lowest voltage value. The set value will only be saved if it is lower than the Warning 2 setting value. * Default: 10[V]

- Warning 2 sets the highest voltage value. For the Warning 2 setting value, refer to the following before contacting your dealer.

- Operating Voltage: DC 10-16V
- Operating Temperature: 0°C ~ 45°C
- Maximum Stand-by Voltage: Less than 10 mA
- Unit Size: Display Unit: 225 x 89.5 x 13.0 mm
- Control Unit: 210 x 8.0 x 69.0 mm
- 12. FOR SUBSEQUENT OWNERS

If this product is passed on to a new owner, make sure this instruction manual is included along with the product. Do not uninstall this product by yourself.

- 13. PRODUCT SPECIFICATIONS

- Voltage Requirement: DC 10-16V
- Operating Temperature: 0°C ~ 45°C
- Maximum Stand-by Voltage: Less than 10 mA
- Unit Size: Display Unit: 225 x 89.5 x 13.0 mm
- Control Unit: 210 x 8.0 x 69.0 mm

- 14. INSTRUCTION MANUAL REVISION HISTORY

- 3rd Edition
- 3rd Edition
- 2nd Edition
- 1st Edition

- 10. OPTIONAL PARTS LIST

- A vehicle-specific harness may be available for your vehicle. Please refer to the HKS website for more information.

- 11. TROUBLESHOOTING

- If the troubleshooting guide is not successful, make sure all the wiring and connections are correct. Then contact your dealer for further assistance.

- Symptoms

- Cause

- Countermeasure

- Display does not show the diagnosis message.

- OFF Mode is selected.

- Turn on the ignition, and then press the (left or right key) to deactivate OFF Mode.

- Improper harness connection.

- Improper ground connection.

- Improper ground connection.

- Improper ground connection.

- Improper ground connection.

- Improper ground connection.
VEHICLE SPECIFIC WIRING DIAGRAM

The following diagrams may differ slightly depending on vehicle year, or model (California or Federal). Confirm that the diagram shown corresponds to your vehicle by referencing the factory repair manual.

Locate the engine control unit (ECU) using the diagram below.

**CHART EXPLANATION**
- B - 12 volt ignition
- U - 12 volt battery
- E - ECU Ground
- P - Pressure sensor, Air flow signal
- I - RPM signal
- S - Speed Sensor
- T - Throttle Position Sensor
- # - Injector Signal

*ALL DIAGRAMS ARE SHOWN FROM THE WIRE SIDE OF THE HARNESS*

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- ECU LOCATION - 4
- S2000 ECU LOCATION - 4 (Driver Side) Pressure Sensor Type

**RX-8 2004-2007**
- 13B-MSP
  - Hot Wire (0-5V) Type

**INFINITI G35C 2003-2005**
- VQ35DE Hot Wire (0-5V) Type

**RX-8 2004-2007**
- 13B-MSP
  - Hot Wire (0-5V) Type

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**FORD**

- FOCUS ZX3 2000-2003
  - 2.0L ZETEC (DOHC)
  - ECU LOCATION - 4

**INFINITI**

- G35C 2003-2005
  - VO35DE Hot Wire (0-5V) Type

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**MITSUBISHI ECLIPSE**

- EAGLE TALON
  - CHRYSLER LASER
  - 1989-1994
  - 4G63
  - ECU LOCATION - 2
  - Karmen Vortex Type

**MITSUBISHI LANCER EVOLUTION IX MR**

- 2006 (MT)

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**MITSUBISHI ECLIPSE**

- EAGLE TALON
  - CHRYSLER LASER
  - 1989-1994
  - 4G63
  - ECU LOCATION - 2
  - Karmen Vortex Type

**MITSUBISHI STARION ES/ESIR**

- PLYMOUTH CONQUEST TSI
  - 1985-1989
  - G54BT
  - ECU LOCATION - 4
  - Karmen Vortex Type

**RPM Signal (I) requires Analog to Digital Converter (p/n4299-RA004)**

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**MITSUBISHI LANCER EVOLUTION VII / VIII**

- Base Model Only
  - (MANUAL TRANSMISSION ONLY)
  - ECU LOCATION - 3
  - MITSUBISHI LANCER EVOLUTION IV / V / VI
  - 1996-2001
  - ECU LOCATION - 4
  - Karmen Vortex Type

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**MITSUBISHI LANCER EVOLUTION VII / VIII**

- Base Model Only
  - (MANUAL TRANSMISSION ONLY)
  - ECU LOCATION - 3
  - MITSUBISHI LANCER EVOLUTION IV / V / VI
  - 1996-2001
  - ECU LOCATION - 4
  - Karmen Vortex Type

**RPM Signal (I) requires Analog to Digital Converter (p/n4299-RA004)**