



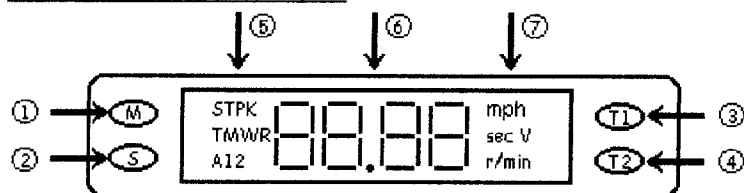
Turbo Timer Type-1 Black (U.S. Standard)
Part # 4101-EX001
Users Manual

Preface

The HKS Turbo Timer Type-1 is designed to extend turbocharger life by allowing the engine to idle down for a preset amount of time after the ignition key is removed. This permits the engine oil to circulate through the turbocharger bearing housing, drawing heat out of the bearings and impeller shaft in order to bring the temperature down to a safe level before the engine shuts off. Because of the Type-1's full measurement functions, this unit can also be used with naturally aspirated vehicles.

- Turbo Timer function
 - Manual Mode: can be set in increments of 30 seconds from 0 – 10min.
 - Memory Mode: It will let you select from MEMORY 1 (1 min.) or MEMORY 2 (3 min.) with a push of a button.
 - Auto Mode: Will determine the engine's condition through engine rpm and automatically set a time between 0 – 5 min.
- Speed / Speed Peak Hold display function
 - Will display the current speed (0 ~ 250 mph). It also can display the peak speed.
- Speed Warning function
 - Will set the warning speed (10 ~ 240 mph).
- Engine RPM / RPM Peak Hold display function
 - Will display the current rpm (100 [r/min] ~ 9900 [r/min]). It also can display the peak rpm.
- Engine RPM Warning (shift up indicator, red zone indicator) function
 - Will set the warning rpm (1000 [r/min] ~ 9900 [r/min]).
- Measurement Functions
 - 0-60 (0-60 foot time)
 - 0-.12 (0-1/8 mile)
 - 0-.25 (0-1/4 mile)
 - 60 (0-60 mph)
- Stopwatch function
 - Interval measurement and lap time can be measured.
- Battery Voltage display / Voltage Warning function
 - Will help prevent a dead battery with the battery voltage display and warning function.
 - The fixed minimum warning voltage is 10.0[V] and the maximum is 16.0[V].
- Large LCD screen panel display
 - The backlight in the normal state is a blue LED, but when the timer or warning function is activated, the display will turn red.
- Safety Circuit function
 - If the vehicle is driven after the Turbo Timer has started to count down, the engine will automatically shut off.
- 12V exclusive
 - This product is exclusively designed for DC12V negative ground vehicles. (Operating voltage range: DC9V ~ DC16V)

Names and functions of various parts



1. [M] switch
 - When the timer is off, it will switch modes.
 - When the timer is counting down, it will shut the unit off (use when you want to stop the engine while the timer is counting down.)
2. [S] switch
 - Use to set and select in each mode.
3. [T1] switch: Will be used for the following.
 - Memory Timer
 - Clearing the speed display mode and speed peak level
 - Reset the ¼ mile time
 - Increase set number
 - Clearing the rpm peak level during the engine rpm display mode
 - Start the lap time calculation
4. [T2] switch: Will be used for the following.
 - Memory Timer 2
 - Start and end speed learn mode
 - ¼ mile manual start
 - Start and end stopwatch
 - Decrease set number
 - Display the previous ¼ mile time
 - Start and end rpm learn mode
 - End lap time
5. Mode display section: Displays the mode
6. Number display section: Displays the numbers
7. Unit display section: Displays the variables
8. Turbo Timer Reset: Use when the unit is not functioning properly.
 1. Hold down the [S] and [T2] switch for more than 2 seconds.
 2. Will return to the default in manual timer mode.

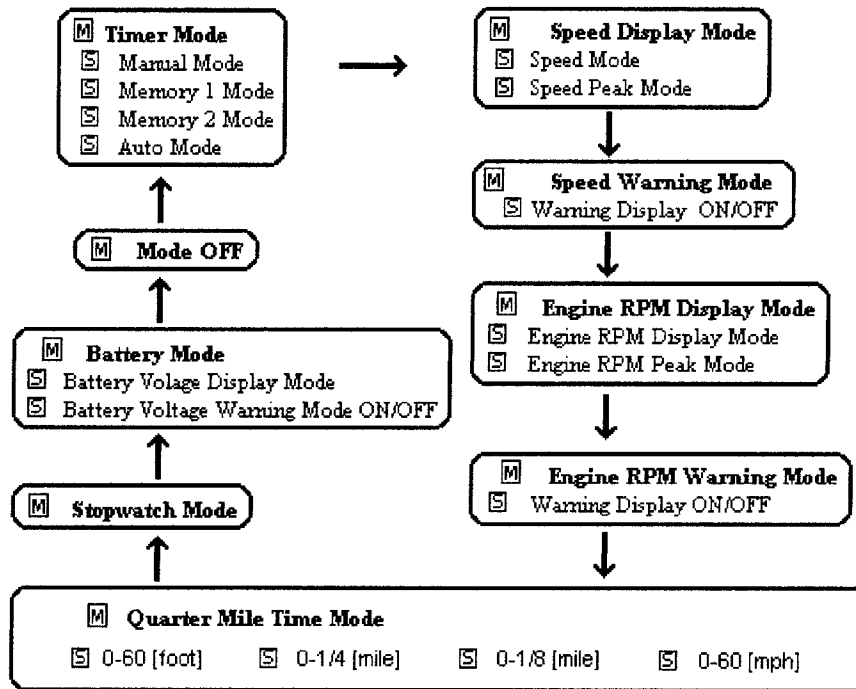
Control instructions

All the controls are to be done when the ignition is ON.

1. Mode select

There are 9 main modes to the turbo timer, which are shown below and in each of those there are sub modes. To change between main modes, press the [M] switch when the timer is not in effect. And to change sub modes, press the [S] switch.

([M]:Main Mode [S]:Sub Mode)



2. Timer Mode

When the [S] switch is pressed during Timer Mode, it will switch sub modes.

Sub Mode settings

- (1) Manual Mode: [TM] will flash. The setup can be made between 0~10min. The timer setting can be made using the [T1] switch (up) and [T2] switch (down). (The setting interval is in increments of 30 sec.)
- (2) Memory 1 Mode: [TM1] will flash. The timer setting is fixed at 1 minute. If you press the [T2] switch, it will change to memory 2, which is fixed at 3 minutes.
- (3) Memory 2 Mode: [TM2] will flash. The timer setting is fixed at 3 minutes. If you press the [T1] switch, it will change to memory 1, which is fixed at 1 minute.
- (4) Auto Mode: [TMA] will flash. The rpm signal will automatically set the timer between 0~5min depending on the driving condition of the engine.
 - The auto setting time changes due to the actual rpm reading (if the rpm is below 1500[r/min], the auto time will stay at 0.00).
 - Turn the ignition ON and if [A] is blinking, then it means that the auto setting is ready.
 - After turning on the engine, if the Turbo Timer detects the rpm, [A] will flash.
 - If you change to auto mode while the engine is running, [A] will flash and displays the auto time.
 - [A] may flash when slowing down extremely quick, but this is normal.

Timer Activation

- When the ignition is turned OFF, the Turbo Timer will countdown according to the set time.
- The countdown occurs in 1-second intervals, along with the flashing backlight and beeping taking place simultaneously.
- When the display numbers hit 0.00 the engine will shut off along with the display.
- Timer OFF function
 - If the [M] switch is pressed during the countdown, the countdown will stop and the Timer will turn OFF (the next time the ignition is turned ON, the Turbo Timer will automatically turn ON and goes back to the normal setup.)
- Switching from Auto Timer to Memory Mode
 - If the [T1] switch is pressed while the auto timer is in effect, it will switch to Memory 1 Mode. And if the [T2] switch is pressed, it will switch to Memory 2 Mode.
- Revising the setting time while Manual Mode is in effect
 - While the Manual Mode is in effect, press [T1] (up) or [T2] (down) to change the time in 30-second intervals (after the engine shuts down, the timer will return to its previous Manual Mode time).
- Timer function in other mode conditions
 - When the ignition is turned OFF in modes other than the Timer Mode (excludes OFF Mode), it will automatically go to the previous set Timer Mode and begin to countdown.

3. Speed Display Mode

This function allows you to display either the current speed or peak speed.

- (1) Press the [M] switch to change to the Speed Display Mode. [mph] will light up. The speed will be displayed once the vehicle starts moving.
- (2) Press the [S] switch to change to the Peak Speed Display Mode. [PK] will light up. Press [T1] during peak display to clear the peak speed level.

- Speed learn mode

If there is a variance between the Turbo Timer and the vehicles speedometer, there is a need for the Timer to learn the speed sensor pulse.

How to learn: (For safety reasons, the driver should not perform the following.)

- (1) Press [T2] during Speed Display Mode to switch to learn mode. 30[mph] will flash.
 - (2) Slowly test run the vehicle until the factory speedometer hits 30[mph], and press [T2]. You will hear a beep and the learn mode is complete.
 - (3) After completing the learn mode, the Timer will return to the Speed Display Mode.
- ❖ Learn error: Once the learn mode is started, if [T2] is not pressed within a 2 minute period, the flashing 30[mph] display will turn into a [—], and the backlight will flash and beep. After 5 seconds, the Timer will go back to the Speed Display Mode.

4. Speed Warning Mode

Press the [M] switch to get into the Speed Warning Mode.

It will display the current set warning values. (Initial value is 40[mph])

- Press [T1] (up) or [T2] (down) to set the warning values (speed settings are in increments of 10[mph]).
- Press [S] to switch from warning ON / OFF.
- 5 seconds after a setting is made, the Timer will return to the Speed Display Mode and will display the current vehicle speed.
- When [WR] is displayed, the warning level is ON.
- If the vehicle exceeds the set warning value the backlight will start flashing red and a warning buzzer will sound.
- If the [S] switch is pressed while the warning is in effect, the warning function will turn OFF.

5. Engine RPM Display Mode

This mode will display the rpm or peak rpm of the vehicle.

- (1) Press the [M] switch to change to the Engine RPM Display Mode. [r/min] will flash. The current rpm will be on display once the engine starts.
- (2) Press the [S] switch to change over to the peak rpm value and back. When the peak rpm value is displayed, [PK] will flash. To clear the peak rpm press [T1].

- RPM learn mode

If there is a variance between the Turbo Timer and the vehicles tachometer, there is a need for the Timer to learn the rpm sensor pulse.

How to learn: (For safety reasons, the driver should not perform the following.)

- (1) Press [T2] during RPM Display Mode to switch to learn mode. 2000[r/min] will flash.
 - (2) Test run the vehicle until the factory tachometer hits 2000[r/min], and press [T2]. You will hear a beep and learn mode is complete.
 - (3) After completing the learn mode, the Timer will return to the RPM Display Mode.
- ❖ Learn error: Once the learn mode is started, if [T2] is not pressed within a 2 minute period, the flashing 2000[r/min] display will turn into a [—], and the backlight will flash and beep. After 5 seconds, the Timer will go back to the RPM Display Mode.

6. Engine RPM Warning Mode

- (1) Press the [M] switch to get into the Engine RPM Warning Mode.

- (2) Press the [S] switch to select from Warning 1, Warning 2, or Warning OFF (Initial warning setting is on OFF). Warning 1 ([WR1] lights up) is the shift up indicator. (Initial value is 5000[r/min]) Warning 2 ([WR2] lights up) is the red zone indicator. (initial value is 8000[r/min])

- When [WR1] or [WR2] are flashing, press [T1] (up) or [T2] (down) to set the warning values (rpm settings are in increments of 100[r/min]).
- If [WR1] and [WR2] are flashing together the warning will turn OFF.
- 5 seconds after a setting is made, the Timer will return to the Engine RPM Display Mode and will display the current rpm.
- When [WR] is displayed, the warning levels are ON.
- When the engine rpm goes over the set value of Warning 1, the backlight will flash red and you will hear short beeps to indicate shift timing.
- When the engine rpm goes over the set value of Warning 2, the backlight will turn red and you will hear a long beep to indicate the rpm warning.
- The setting value for Warning 1 cannot exceed the setting value for Warning 2.
- If the [S] switch is pressed while the warning function is in effect, the warning function will turn OFF.

7. Quarter Mile Time Mode

- (1) Press the [M] switch to get into the Quarter Mile Time Mode.

- (2) Selecting modes

Press the [S] switch to choose from the following modes.

0-60 (0-60[foot]), 0-.12 (0-1/8[mile]), 0-.25 (0-1/4[mile]), 60 (0-60[mph])

- (3) Start and end time measurement.

1. Pull the vehicle to a complete stop (if the vehicle is not at a complete stop the numbers on the timer will flash and the time measurement cannot be made).
2. When the vehicle comes to a complete stop, a beep will indicate that the timer is ready to measure the run.
3. When measuring a run, you can choose between Auto Start and Manual Start. If the [T2] switch is pressed when [0.00] is lit up, it will change to Manual Start, and if the switch is not pressed, it will be set to Auto Start.

Auto Start:

- The timer will automatically start as soon as the vehicle starts to move.
- When the set distance or speed is obtained, the timer will automatically end and emit an audible beep.

Manual Start:

- Press the [T2] switch to start a 3, 2, 1... countdown. A beep will sound as the timer starts.
- When the set distance or speed is obtained, the timer will automatically end and emit an audible beep.

(4) Measured time display

- If the measured time is under 60 seconds, the Timer will display up to a tenth of a second.
- If the measured time is over 60 seconds, the Timer will display the minute first and then change over to show the seconds.
- The maximum range for the display is 10min. If the run exceeds 10min, then the display will show a [—].

(5) Reset / Restart

- Press the [T1] switch to reset the measured time after each run. You can restart the measurement by repeating step (3).

- ❖ By pressing the [T2] switch after a current run, the Timer will display the trap speed in mph for 2 seconds.

8. Stopwatch Mode

Time measurement and lap time measurement can be made.

- (1) Press the [M] switch to change to the Stopwatch Mode. [ST] will flash.

(2) Time measurement

- Press [T2] to start and stop the stopwatch.
- Press the [T1] switch to reset the values.

(3) Lap time measurement

1. Time measurement
 - Press the [T2] switch to start the time measurement.
2. Lap time measurement
 - Press the [T1] switch during the time measurement to change to the lap time measurement.
 - The display will save the value when [T1] is pressed, and the backlight will change to red. At the same time it will start timing the 2nd run.
 - Press the [T1] switch to display each current lap and the next one will start simultaneously.
3. Finish
 - Press [T2] to end lap time.

- ❖ Time measurement and lap time measurement will display [—] when it exceeds 10 min.

9. Battery Voltage Mode

- (1) Press the [M] switch to change to the Battery Voltage Mode. [V] will display.

- (2) Press the [S] switch to change between voltage display, warning value, and warning ON / OFF. (initial setting is at warning OFF)
The battery voltage warning 1 is a set value of 16[V].
The battery voltage warning 2 is a set value of 10[V].

- When the warning is on, [WR] will stay on. When the warning is off, [WR] will flash for 5 seconds and turn off.
- During warning ON, if the voltage were to exceed 16[V] or go below 10[V], the backlight will turn red and warn the driver with a long beep.
- If the [S] switch is pressed while the warning is in effect, the warning function will turn OFF.

10. OFF Mode

- All the displays will turn off.
- The Turbo Timer is not active.
- Ignition ON/OFF does not matter.

11. Parking Brake

- If the ignition is turned off without the parking brake up, the Turbo Timer will not countdown and the engine will shut off.
- If the parking brake is disabled during the countdown of the Turbo Timer, the countdown will stop and the engine will shut off.