QUESTIONS:

If after completely reading these instructions you have questions regarding the operation or installation of your instrument(s), please contact Auto Meter Technical Service at **815-899-0801.**
You may also email us at **service@autometer.com.**
Additional information can also be found at **http://www.autometer.com/tech_faq.aspx**

Introduction

The Single Channel Ultimate Playback Tach uses a menu system for configuration. Use the arrows (▲ ▼) to scroll up and down the menu. When you reach the bottom or top of the menu you will automatically jump to the other end of the menu.

To select a menu option press the ENTER button. If at any time you want to exit the menu you are currently in, press the CANCEL button. The CANCEL button will take you back to the TACH display and will not store the entries you have made.

Press the ENTER key to store the settings you have entered. After pressing ENTER, the only way to return to the original settings is to re-enter them.

When a display indicates a run (for example: run2), the number will not be shown in this instruction. It will not be shown because any of the four runs could be displayed and we do not know which run you have selected/displayed. In this example, the instruction would show run .

SERVICE

For service send your product to Auto Meter in a well packed shipping carton. Please include a note explaining what the problem is along with your phone number. Please specify when you need the product back. If you need it back immediately mark the outside of the box "RUSH REPAIR," and Auto Meter will service product within two days after receiving it. ($10.00 charge will be added to the cost of "RUSH REPAIR.") If you are sending product back for Warranty adjustment, you must include a copy (or original) of your sales receipt from the place of purchase.

12 MONTH LIMITED WARRANTY

FOR SERVICE SEND TO: AUTO METER PRODUCTS, INC.
413 W. Elm St., Sycamore, IL 60178 USA (815) 899-0801
Email us at service@autometer.com

Notes:

Contents

Notes:

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1. Wiring Diagrams
A. Tach Wiring

+ 12V BATTERY −

Good Engine Ground

Green   OR.

COIL

Electronic Ignition:
On electronic ignitions, such as GM, HEI or MSD, connect to tach terminal.

Standard ignition:
On standard ignitions GREEN wire attaches to coil negative (-).

* RS232 Connector for download to computer.

**You may connect the red wire to the battery through a seperate switch from the ignition. This allows the tach to operate after the engine has been turned off.

Grommet in Firewall

12V Dash Lighting

** 12V Ignition Switch (+)

See pages 4 - 7 for Blue wire wiring options

White

Red

FUSE
(See caution below)

Blue

Black

Green

*P5

P1

P3

Shift-Lite connector must be plugged in prior to operation. It has been left disconnected for shipping purposes.

NOTE: The tach pointer may not always rest at zero. This is a natural characteristic of the High Performance air-core meter movement used in this tachometer. When the engine is started, the pointer will position on the correct RPM.

NOTE: **When the tach is receiving input from the ignition, it will not playback a recording.**

CAUTION!!!

As a safety precaution, the +12V terminal of this product should be fused before connecting it to the 12V ignition switch. We recommend using a 4 Amp, 3 AG fast-acting type cartridge fuse (Littlefuse® # 312 004 or an equivalent).

B. Blue "Trigger" Wire Options

NOTE: Playback tachs, and Playback boxes must have 12 volts applied to the blue wire. Recording will begin when 12 volts is removed.

1. Momentary Switch
· No arming switch required.
· Activate the switch after you and your competitor have STAGED, or you may run out of recording time.

ADVANTAGES: · Quick and easy hook-up.
DISADVANTAGES: · Changes your starting line procedure by having to activate the momentary switch.
· Chance of activating recording too early, or too late.

Blue wire — "Trigger" momentary switch — Any 12v source

*No arming switch required.

2. Transbrake Switch (not legal in all classes)
· An "arm" switch may be needed to avoid early activation.
· If an "arm" switch is used, turn on prior to staging.
· Recording will begin with the release of the transbrake switch (trigger).
· After the run, return the "arm" switch to the OFF position.

ADVANTAGES: · Accurate start of the recording process.
DISADVANTAGES: · Not legal in all classes.
· Slight change in starting line procedure having to activate the "arm" switch.

Note: Trigger wire must be installed on the 12 volt positive pole of the transbrake.
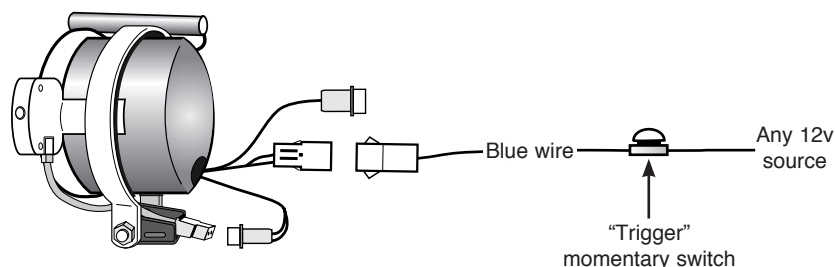

"Arm" switch ON/OFF toggle (optional)

Blue wire — "Trigger" transbrake switch — 12 v Transbrake feed

To transbrake
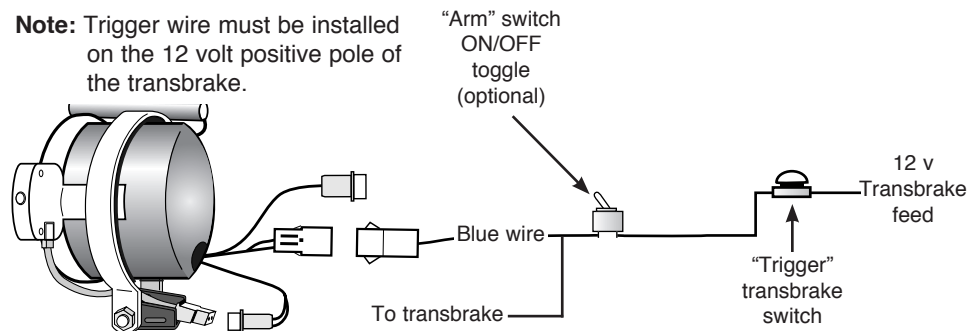
L. PLSP - Playback Speed Setting
Toggles playback speed between full speed and half speed.
1. Press ENTER, the current speed will be displayed.
2. Press the up or down arrow to change the speed.
3. Press ENTER to store playback speed and return to the Main Menu.
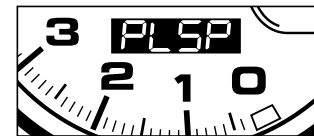
M. PrSP - Printer Interface Speed Setting
Toggles the playback speed between full speed and half speed. This should normally be set to half speed.
1. Press ENTER, the current speed will be displayed.
2. Press the up or down arrow to change the speed.
3. Press ENTER to store the setting and return to the Main Menu.

N. PPr - Pulse Per Revolution
Sets the Pulse Per Revolution Setting.
1. Press ENTER to display the current pulse per revolution setting.
2. Press the ▲ / ▼ arrows to change the .

PPR Table
2PPR = 4 Cy 4 STR
3PPR = 6 Cy 4 STR
4PPR = 8 Cy 4 STR
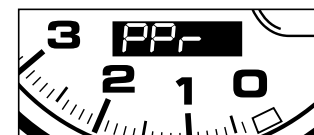
3. Press ENTER to store the setpoint and return to the Main Menu.

O. TYPE - Displays the Tachs Model Number
1. Press ENTER to display the model number.
2. Press ENTER to return to the Main Menu.

P. SOFt - Displays the Current Software Revision
1. Press ENTER to display the software reversion number.
2. Press ENTER to return to the Main Menu.

Q. SErL - Displays the Serial Number
1. Press ENTER to display the current serial number.
2. Press ENTER to return to the Main Menu.

H. Prn - Printer Interface Download

1. Press ENTER to enter printer interface download mode.
   a. burn will be displayed.
   b. The initial rpm will be displayed.
   c. Playback will pause.
2. Press ENTER to start burnout download.
3. If the burnout printout is not needed it can be skipped by pressing ENTER again. Any Playback print can be skipped by pressing ENTER.
4. All playbacks can be printed from this mode. They will appear in the following order:
   Burnout (burn)
   Prerace (PrE)
   Channel 1 / Race (CH 1)
   5. Press ENTER to return to the Main Menu.
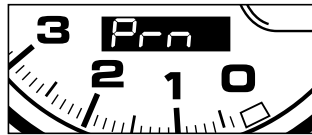
> **NOTE:** When downloading to a PC, a 9 pin serial connector (male to female extention) will be required. This may be purchased at any electronics store where computers are sold.

I.   - Set shift point #1 and "Hold Set Point 1" Delay

1. Press ENTER, the current setpoint will be displayed.
2. Adjust Shift Setpoint 1 as follows;
   a. Press and hold the ▲ / ▼ arrow.
     • The displayed RPM will change.
     • Continue holding ▲ / ▼ and the RPM display will increase in speed.
     NOTE: The RPM value increases in 13 RPM increments. The display shows the RPM value in decimal form (RPM x 1000). The decimal point represents a comma (Example: 07.99=7,990).
   b. When the desired reading is displayed, press ENTER.
   c. The word dELY will now be displayed, press ENTER to continue.
   d. The Hold Setpoint 1 Delay is now displayed. The tach reads a profile of RPM increase and decrease as a shiftpoint. The delay feature prevents inadvertently advancing to shift point 2 due to wheel spin or inconsistent throttle off the launch.
   e. Set the delay time slightly before your known first shiftpoint with the ▲ / ▼ arrows. The Delay can be set from .1 to .9 seconds.
3. Press ENTER to store the setpoint and return to the Main Menu.
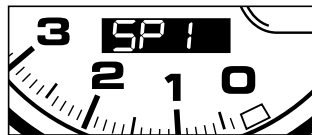
J . SP2 , SP3 & SP4 - Set Shift Setpoint #2, 3 & 4

1. Press ENTER, the current setpoint will be displayed.
2. Adjust the Shift Setpoints as follows;
   a. Press and hold the ▲ / ▼ arrow.
     • The display RPM will change one count.
     • Continue holding ▲ / ▼ and the RPM display will increase in speed.
3. When the desired reading is displayed, press ENTER and return to the Main Menu.
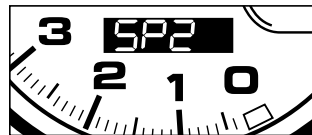
K. dELY - Burnout Setpoint

When the burnout RPM goes above/below this RPM, the burnout recording will start/stop.
1. Press ENTER, the current setpoint will be displayed.
2. Adjust Shift Setpoint 1 as follows;
   a. Press and hold the up or down arrow.
     • The pointer will move one count at a time.
     • Continue holding ENTER and the pointer will start to move slowly.
     • Continue holding ENTER and the pointer will start to move faster.
   b. When the desired reading is indicated, press ENTER.
   c. Press ENTER to store the setpoint and return to the Main Menu.
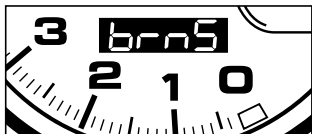
3. Line Lock Switch With "Arm" Switch

   • An "arm" switch is required when using a line lock, and not recording the burnout.
   • A line lock switch needs an "arm" switch (ON/OFF toggle) to avoid early activation.
   • Turn the "arm" switch ON after you have STAGED the vehicle.
   • Recording will begin with the release of the line lock switch.
   • After the run, return the "arm" switch to the OFF position.

   ADVANTAGES: • Accurate start of the recording process.
   DISADVANTAGES: • Slight change in starting line procedure having to activate the "arm" switch.
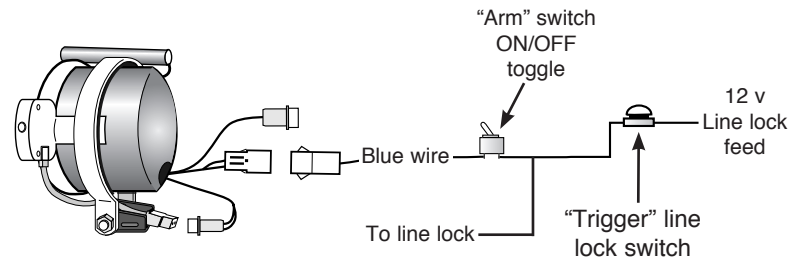
4. Line Lock Switch Without "Arm" Switch

   • USE THIS METHOD IF LINE LOCK IS USED AT LAUNCH ONLY.
   • Once the vehicle is STAGED, activate the line lock as normal. This will also "arm" the tach.
   • The tach will begin recording with release of the line lock switch.

   ADVANTAGES: • Accurate start of the recording process.
                            • Does not change starting line procedure.
   DISADVANTAGES: • None
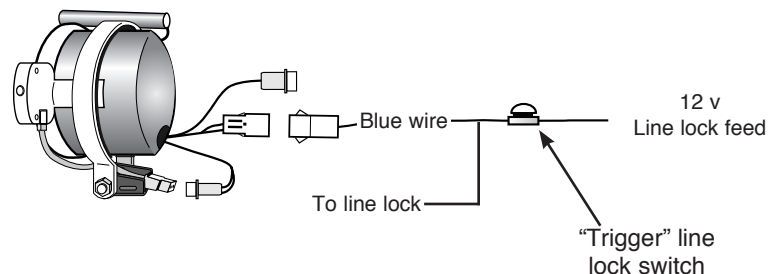
5. Brake Light Switch

• A brake light switch needs an "arm" switch (ON/OFF toggle) to avoid early activation.
• Place the "arm" switch in the ON position after you have PRESTAGED the vehicle. Then pull forward with the brakes applied lightly to STAGE, or after you have STAGED the vehicle, place the "arm" switch in the ON position.
• When the brake pedal (trigger) is released, recording will begin.
• After the run, return the "arm" switch to the OFF position.

ADVANTAGES: •Accurate start of the recording process.
DISADVANTAGES: •Slight change in starting line procedure having to activate the "arm" switch.

"Arm" switch ON/OFF toggle

12 v Brake light feed

Blue wire

To brake light

"Trigger" brake light switch

Note: "Arm" switch is needed.

6. Clutch Switch

• A clutch switch needs an "arm" switch (ON/OFF toggle) to avoid early activation.
• Place the "arm" switch in the ON position when you have STAGED the vehicle.
• Recording will begin when the clutch pedal (trigger) is released.
• After the run return the "arm" switch to the OFF position.

ADVANTAGES: • Accurate start of the recording process.
DISADVANTAGES: • Slight change in starting line procedure having to activate the "arm" switch.

"Arm" switch ON/OFF toggle

12 v Clutch switch feed

Blue wire
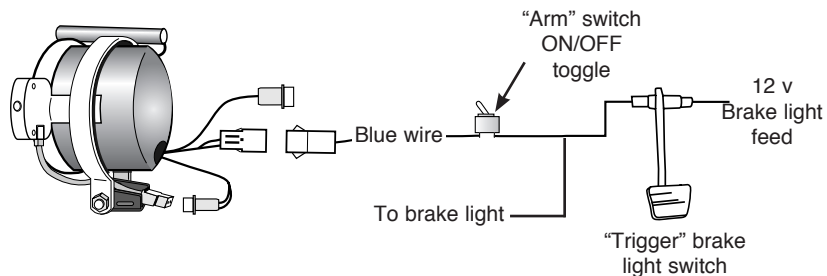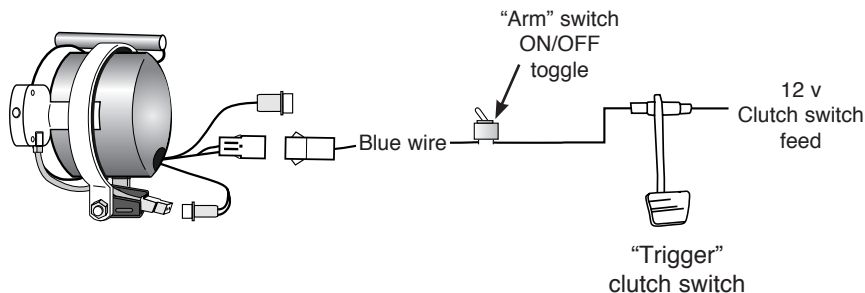
"Trigger" clutch switch

D. run - Run Select (Select the run number to play, download or record to)

1. Press ENTER to select the Run Select Mode. The display will read run .
2. Press the up and down arrows to select the new run.
3. Press ENTER when the desired run is displayed.
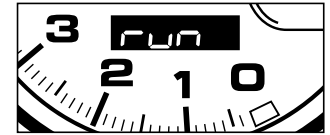
E. PLE - Playback Engine Recording (shows burnout, pre-race, and race)

1. Press ENTER to select engine playback.
2. burn will be displayed (press ENTER to continue).
3. Burnout will playback.
4. When burnout is complete, the burnout time will be displayed.
5. Press ENTER to move to Prerace playback. PrE will display.
6. Press ENTER to start Prerace playback. The display will count down from 2 seconds to 0 (launch).
7. When Prerace is complete: CH 1 will appear on the display. The pointer will move to the starting RPM (this is the start of the engine race recording).
8. Press ENTER to start engine race playback.
9. Playback can be paused at any time.
10. When playback stops the LED will display the time the recording stopped.
11. Press ENTER to return to the Main Menu.
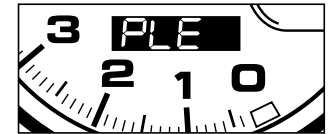
F. PLP - Playback Peak / Valley

1. Press ENTER to select Peak / Valley playback.
2. While dELY is displayed the tach is computing the Peaks and Valleys.
3. Peak / Valley is ready to run: CH 1 will appear on the LED. The pointer will move to the starting RPM.
4. Press ENTER to start playback.
5. The playback will pause at the first peak.
6. During any Peak / Valley pause; The RPM value and time of the pause will be displayed. Press ENTER to continue.
7. When playback stops, the LED will show the time the recording stopped.
8. Press ENTER to return to the Main Menu.

G. dPC - Download to Computer

1. Press ENTER to enable the download to the computer (PC). The tach will display rdY and wait for a signal from the computer's software indicating it is ready to receive data. When the tach receives the signal it will display SEnd and send the data.
2. When all the data has been downloaded, the tach will display dOnE.
3. Press ENTER to return to the Main Menu.
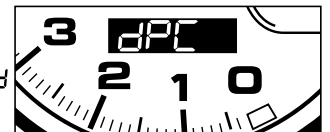
3. Main Menu Options

A. ⊓ACH - Tach Mode

In Tach Mode, the Tach operates as a standard tach. It displays RPM and operates the shift light. All 4 shift points are active only when the blue wire is used. When the blue wire is not used, only the first shift point is active. When the tach RPM is less than 3,000 RPM the tach will return to shiftpoint 1, and hold shiftpoint 1, and the delay timer will be reset. Timer will not start again until blue wire is activated. The shift-lite will not light after the fourth shift and will be displayed. The shift-lite will not operate when the blue wire is connected to a +12V source or when the hold setpoint delay is running. Momentary 12 volts will activate the delay and shift sequence. The tachometer is constantly monitoring the engine rpm to determine when each shift occurs. When it sees a drop of 450 rpm or more, the tachometer marks that point as a gear shift and dOnE automatically advances to the next shift point. If for any reason you shift any gear before the engine rpm reached the shift point setting for that gear, the tachometer will advance to the next gear change.
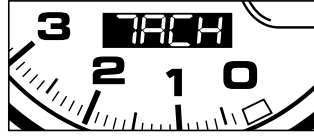
B. ⌐EC - Record Mode (Records Burnout, Pre-race, and Race)

1. Press Enter to Activate Record Mode.
   a. The display reads ⌐dY (Ready), indicating the tach is ready for operation.
   b. To skip the burnout recording and go directly to prerace, press enter.
   c. The shift light will use setpoint 1 until the tach enters the race record mode.
2. When the Engine rev's above the Burnout Setpoint, Burnout recording will begin.
   a. The display will read bu⌐n, indicating the tach is in Burnout mode.
   b. The Burnout mode will record for 20 seconds. If engine rpm drops below the burnout setpoint before 20 seconds is reached, recording will stop.
   c. If the engine rpm does not stay above the burnout setpoint for more than 2 seconds, burnout mode will not be entered and the display will read ⌐dY   again.
3. After the minimum 2 second burnout recording, the tach will go to the prerace record mode and read P⌐E   .
   a. The prerace mode will continue until triggered by your launch.
   b. The prerace mode has a floating 2 second recording window. When you launch, the tach will store 2 seconds of recording prior to the launch.
4. Race recording will start when:
   a. The tach receives a trigger signal (12V is applied and removed).
5. Race recording will stop when:
   a. 20 seconds has elapsed.
   b. The Cancel button is pressed.
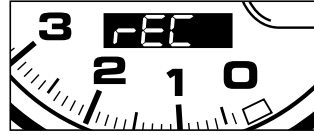
C. PEAc - Peak Recall

1. Press ENTER, the current peak RPM value will be displayed and a LED on the right side of the display will light up.
2. Press ENTER to return to the MAIN Menu or press ▼ to clear the Peak Recall value. The display will change to CL⌐ . Press ENTER and the peak will be cleared.

7. Throttle Activated Switch

   • A throttle activated switch may need an "arm" switch (ON/OFF toggle) to avoid early activation.
   • Place the "arm" switch in the ON position when burnout is complete.
   • A (normally closed) momentary switch is needed (see schematic).
   • Recording will begin upon W.O.T. (trigger).
   • After the run, return the "arm" switch to the OFF position.

   ADVANTAGES: • Works better that a manually operated momentary switch.
                        • Consistent from one run to the next.
   DISADVANTAGES: • Slight change in starting line procedure having to activate the "arm" switch (if used).

"Arm" switch ON/OFF toggle

Blue wire

Any 12v source

"Trigger" throttle activated switch
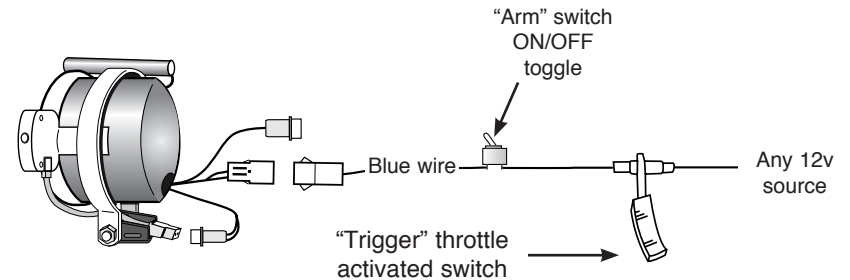
2. Operational Flowchart

Start

After tachometer installation is complete.

↓

How is the blue trigger wire activated? →

Note: 1 (See attached schematics)

1. Momentary ON/OFF switch on steering wheel or shifter
2. Transbrake (Not legal in all classes)
3. Line lock
4. Brake light switch
5. Clutch switch
6. Throttle activated switch

Turn ignition on- Do not start engine.

↓

Set shift points per instructions. ↔

Note: 2

After setting shift point 1, "Delay" will be displayed on the LED screen. The delay feature prevents inadvertently advancing to shift point 2 due to wheel spin or inconsistent throttle off the launch. Set the delay to .1 or .2 seconds less than the elapsed time between launch & 1-2 shift. Example: 1-2 shift occurs 1.2 seconds into the run. Set delay at maximum .9.

↓

Set burnout threshold per instructions.

↓

Select run number per instructions.

↓

Go to tach mode per instructions.

↓

In the staging lane, press the ◯ button once. Tach will be in REC 1, 2, 3, or 4 mode.

Record the burnout?

Yes → Press the (ENTER) button once, and the tach will display "Rdy". The engine RPM must go past your set threshold to begin recording the burnout. "BRN" will be displayed during the burnout.

→ After the burnout is completed, the tach will be in "PRE" mode.

No → Press the (ENTER) button twice, "PRE" will be displayed.

Pre Stage the car
Note: "Arm" the blue wire now. (Arming will depend on what your trigger is, see Note 1).

↓

Stage the car
Note: Do not trigger the blue wire too soon, the tach has 20 seconds of record time. You want to "trigger" the blue wire as close to the actual launch as possible. Actual point of recording will depend on what your arm/trigger is.

Launch, Race, Have Fun!
Recording will stop after 20 seconds or when cancel button is pressed.

↓

ULTIMATE & ULTIMATE II TACHS can be downloaded to a PC. See our website for complete details and updated downloading Tech Tips.