VTAC Operation - Please save these instructions

1. **Automatic Startup:**
   Your VTAC starts when you start your engine; you don't have to turn it on or off. It will always SHOW Rpm if engine is turning.
   .

2. **RPM Readings:**
   Your VTAC is built for Oval Track Racing, and will automatically record your Max RPM and Best Lap, PLUS 2 high and 2 low RPM levels for every lap - up to 100 laps!

   - While you are on the track, your VTAC **DISPLAYS RPM.**

   - Once you reach 4000 RPM (or >5500 for Minisprints) with a 500+ RPM difference between the high and low, your **VTAC begins recording. Your VTAC records your 2 high and 2 low RPMs per lap.**

   - Yellow flag laps are ignored (we store only the first lap of the yellow)

   - After racing your VTAC will display **0000**. This means you have recorded laps in memory that you can look at any time (until you clear the memory – either by pushing the "hidden key" behind the VTAC logo or by restarting your motor)

   - One great way to use this is to remove your VTAC after the feature and record your results in comfort at your Pit. (It also mean your VTAC is out of car when washing the car – another great feature!) .

3. **To See Your Max RPM & Best Lap**

   - **Hold the RECALL button in for 3 seconds**

   - **The top line shows MAX rpm & BEST lap.**
   The second line shows the BEST LAP RPMs (the lap with the highest highs & highest lows.)

4. **To See <u>All</u> Your Recorded Laps:**
   - **Press and release the RECALL button to scroll through each lap** of your race (from 1 to 100 laps).The top line stays the same, and the second line will show each lap in turn.

5. **Sleep Mode:**
   To save your battery **your VTAC will go into SLEEP mode after one minute of inactivity**. Push RECALL once to return to the results.

6. **Clear Memory**: Your race results are kept in memory until you restart your motor (or manually clear them out).

To manually clear recorded results from memory -
Push the "VTAC" logo (hidden key) between the Recall & Light keys

7. **Light:**

   The backlight will come on for **30 seconds** when you push the LIGHT button.

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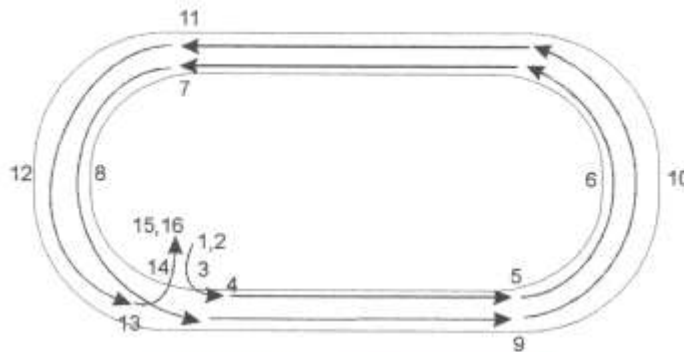VTAC Toll Free number 1-877-474-4144

8. Helpful Hints:

- **Reviewing Lap results-** for instance for 2 qualifying laps. Please keep in mind where lap timing starts versus where your car was pushed off, to tie the VTAC results back to the correct lap.

Example: Position on track vs VTAC readings for 2 qualifying laps.

1) Rpm = 0,   Engine is not running, nothing shows on VTAC
2) Rpm = 900 ,   Engine is running, RPM is displayed from now on.
3) Rpm = 1500   Idling, the car enters the track
4) Rpm = 2000   Qualifying starts
_____
5) Rpm = 6000   End of 1st front straight , entering 1st turn
                        (1st Hi of 1st Lap)
6) Rpm = 5500   1st turn . Rpm drops 500 , VTAC records 6000
                         as 1st Hi, and 5500 as 1st Low
7) RPM = 6800,   End of back straight. 2nd Hi
8) RPM = 5800,   2nd turn – 2nd Low,(Begin the 2nd Lap of Qualifying)
9) RPM = 7400   End of front straight away 1st Hi on Lap 2
10) RPM = 5600   1st Turn= 1st Low, 2nd lap
11) RPM = 6900   End of back straight = 2nd Hi, 2nd Lap
12) RPM = 5800   2nd Turn = 2nd Low, 2nd Lap
_____

13 to 16) – RPM drops and no new Hi is reached, so 2 laps total are recorded.

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- **The VTAC is water resistant, but <u>not</u> WATER PROOF.**
  Be sure to remove your VTAC when washing your car – *high-pressure water may damage the electronics inside the tach.*
  - ❑ Simply unplug the cable from the back,
  - ❑ Pull & turn the knob on the front of the bracket
  - ❑ Slide your VTAC out the back
  - ❑ Store your VTAC in the original box or other protected container.
  - ❑ Store your VTAC away from extremes of heat and moisture.

- **A 9-volt battery powers your VTAC.** You may use ANY standard size 9- volt battery - either Alkaline or Lithium. To replace the battery remove the 4 Allen head screws on the back cover. BE VERY CAREFUL WHEN REPLACING BATTERIES so the wires do not get pinched between edges of housing.

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9. SETUP:

Your VTAC is pre-set for an 8-cylinder engine with magneto ignition. If you run something different, you can easily change the VTAC setting. If using a DISTRIBUTOR, select "Non MAG".

To See the Current Setting:
- Press the RECALL button for **15 seconds**.

To change the setting   (for example if you run a Minisprint, or use a Distributor ("non mag") instead of a Magneto)

- Press the RECALL button for **15 seconds,** until the current setting displays.
  - o Then release the RECALL button.

- In 3 seconds, you will see "**SETUP**" appear at the top right.
  .
- Immediately **press and hold the RECALL button to scroll through the settings until your choice appears.**
- Release the RECALL button to lock in the new setting.

*NOTE: If you have a Midget **4-Cylinder with MSD Ignition** use:*
  ### 4 Cyl   Magneto

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Note – Some Cables may have silver wire in addition to white and black.
– If yours does - BOTH black & silver are grounds, white is signal input.

Magneto	**MALLORY MAGNETO**	Use **MAG Connector** on VTAC White Wire • Attach to Orange wire on positive post on magneto. *(Do NOT connect to Yellow wire on mag)* • Attach Black wire (& Silver wire) to cylinder head on **ENGINE BLOCK**
	VERTEX EXTERNAL COIL	Use **MAG Connector** on VTAC White Wire • Attach to positive post on Coil. • Attach Black wire (& Silver) to CYLINDER HEAD/ **ENGINE BLOCK.**
	MSD PRO MAG (8105 /8106 etc.)	Use **MAG Connector or VERTEX connector** (if too much resistance with **MAG Connector) on VTAC white wire** • **Attach** to Positive on kill switch. • *(If VTAC does not read, switch MAG Connector to lower resistance VERTEX connector)* • Attach Black wire (& Silver) to cylinder head on **ENGINE BLOCK**
	VERTEX INTERNAL COIL	Use **VERTEX Connector** on VTAC White Wire • Attach to positive post on magneto. • Attach Black wire (& Silver) to cylinder head on **ENGINE BLOCK**
Distributor	**MSD 6 series (6A…6T)**	Use **PLAIN RING CONNECTOR** (not Vertex or Mag) • Attach VTAC White wire to MSD Tach output • *Note: on some MSD ignitions the TACH output signal drops off if over 6500 rpm. If that occurs – connect VTAC white to the MSD Ignition MAUVE wire* • Attach Black wire (&Silver) to cylinder head on **ENGINE BLOCK.**
	GM HEI or Any Factory /Aftermarket Distributor	Use **PLAIN RING CONNECTOR** (not Vertex or Mag) • Attach VTAC White wire to TACH (Negative) terminal on Distributor. • Attach Black wire (& Silver) to cylinder head on **ENGINE BLOCK**
Mini Sprint	**MINI SPRINT**	Use **PLAIN RING CONNECTOR** (not Vertex or Mag) • Attach VTAC White wire to factory tach wire • Attach Black wire (& Silver) to cylinder head on **ENGINE BLOCK**
Midget	**4 Cylinder / MSD ignition**	Use **4 Cylinder MAGNETO setting on VTAC** Use **PLAIN RING CONNECTOR** (not Vertex or Mag) • Attach VTAC White wire to MSD Tach output (Or MSD Mauve wire) • Attach Black wire (&Silver) to cylinder head on **ENGINE BLOCK**

10. Troubleshooting:

I) "RPM is reading too low"
Check SETUP is correct for your car (see previous section).
Your VTAC works for 8 & 4 cylinder race cars, and EITHER magnetos or distributors, so if the rpm is off, the settings may be off.
(*See prior page of this guide to change the setting.)*
Check GROUND is secure – solder connectors to wire.

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II) "The Screen is Blank"

More than likely, this is a dead battery, so change the 9-Volt battery first. Remove the 4 screws from the VTAC back with an ALLEN wrench. Ease the back off. (TIP – use a flat screwdriver in the slot or thin blade to get it started). *Please do not let the back hang from the wires to the board.* **Check for damage - such as corrosion due to water**. If you do not spot damage, just replace the battery. Carefully replace the back so the wires are not pinched.

_____

III) "Scrambled Characters" or "Gibberish" appears, and then clears. Generally this is due to ELECTRICAL INTERFERENCE

Check Your VTAC Wire Connections.

> Keep VTAC wires away from ALL high voltage wires and cables.
> **DO NOT Bundle VTAC wires to other cables or wires.**

- Check the wires and connectors are firmly attached. SOLDERED connections are highly recommended.
- **CHECK GROUNDS** – Cars without Batteries- the **Black wire (GROUND), and Silver (Shielded Ground) must be attached to a cylinder head on your Engine Block** - *NOT the frame or kill switch*. If your car has a BATTERY, use that for ground attachment instead of the engine block.
- Also – if you have a MAG, ensure the MAG SWITCH IS GROUND TO CYLINDER HEAD ON ENGINE BLOCK – not the frame or kill switch.
- Be sure you have right connector on the **White wire – especially Mag** and Vertex ignitions - see chart on previous page.
- Check that the connector on the VTAC white (input wire) is not broken inside – check for electrical conductivity through the connector.

_____

IV) " RPM drops off." Or "VTAC doesn't read"
- Check for SOLID connections. SOLDER connections for best signal.
- Check all areas in section III) (Above) ESPECIALLY CHECK FOR SOLID CONNECTIONS FOR GROUNDS!

_____

V)) "RPM is off" . - Check Your System for Sources of Interference:
- VTAC wiring too close (or BUNDLED) to high voltage components, wires or cables **– The #1 reason for faulty readings**
- Cracked Mag cap
- Loose or cracked plug wire
- Arcing plug wires
- Bad points in Magneto

For further assistance - please contact your dealer or info@vtacracing.com

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