

## MULTI-RECALL DIGITAL TACHOMETER



# TEL TAC

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## INSTALLATION WIRING PROGRAMMING MAINTENANCE

**Description** The TEL TAC OTP is an LCD digital readout tachometer with 'Multi-Recall' memory readings. It can be used with most engines and ignitions including magnetos and battery powered systems. The tach will turn on automatically when the engine is started and read RPM in hundreds while the engine is operating from 500 to over 12,000 RPM on V/8 engines and to 18,000 RPM on smaller engines. Examples of readings in hundreds: '08' is 800 RPM; '82' is 8,200 RPM; '137' is 13,700 RPM. See 'Operation' sheet for details on readings. Tach is powered by a 9 volt alkaline battery which can last hundreds of hours.

**Mounting** The TEL TAC should be securely mounted in the cockpit but should not interfere with the driver, steering or other controls. Do not mount next to a coil or ignition box with a coil. Four 10-24 NC tapped holes are provided on the back of the unit to attach to a dash or to the mounting brackets. Mounting brackets for dzus button or hose clamp attachment are supplied. A template is provided to locate mounting holes. Cable receptacle requires a 1" hole to clear retaining nut. **Do not loosen the plastic nut or mount to it. Do not use the cover screws for mounting.**

**Wiring** The tach cable provided connects to the receptacle on the back of the tach and is retained by rotating the wingnut until it 'clicks'. The **white wire** picks up signal pulses from the primary of ignition coils and magnetos or from the tach signal output of electronic ignitions when available. The **isolator** attaches to the end of the white wire and **must be used with ALL magnetos**. The isolator must NOT be used with electronic ignitions with a tach output. The white wire can be shortened or extended if necessary. The **black wire** should be securely bolted to the chassis. It should remain short, grounding near the tach mounting if possible and should not connect to the cutoff switch, coil, ignition unit or other ground wires. NEVER connect the black wire to a 12V power source. Be sure paint or coating is removed from all system grounding points. **See back page for wiring information on each application.**

**Important** All PRIMARY WIRING to tach, switch, magneto, coil, ignition system, trigger, car battery, etc. **MUST BE SEPARATED FROM PLUG WIRES and HIGH VOLTAGE COIL WIRE.** Be sure to ground ignition box or mag coil (-) terminal to engine or chassis. This reduces the electrical interference from the spark plugs that might affect tach operation and RPM readings.

**Maintenance** The TEL TAC is built to be waterproof if seals are intact, and unit is properly assembled. Avoid use of high pressure spray or solvent cleaners which may degrade front overlay adhesive. Front window and overlay are scratch resistant, but dirt should be cleaned with window or household type spray to avoid marring the finish. Cold temperature (like rinsing with cold water) may create a vacuum inside drawing moisture through any damaged seal. Removing the tach during car washing is always safest.

**Important** Tach should be opened and checked periodically for signs of moisture. If moisture or humidity gets inside tach it can't escape unless the cover is removed. Allowing moisture to remain inside the tach will fade and destroy the readout and may damage other components. If the window clouds or other signs of moisture are noticed, remove the cover and disconnect the battery. Dry tach thoroughly with dry air or a **mild** heat source. Check the battery and it's connector for corrosion. Clean dirt from the o-ring and it's mating surface. **ALWAYS CHECK O-RING PLACEMENT AND CONDITION BEFORE INSTALLING COVER.** O-ring is a standard -042 size. Be sure plastic nut on cable receptacle is snug. Be sure both cable connector and receptacle are dry before mating.

**Battery** The TEL TAC will show 'LO BAT' in upper left corner of the display when the battery is getting low. If the battery has not been damaged by vibration, impact or heat it can last hundreds of hours. The tach will read correctly for many hours after the 'LO BAT' warning first shows. The battery can be changed while maintaining the car, allowing for careful inspection and cleaning of the tach.

**Duracell™ 9 volt alkaline batteries are highly recommended.** Experience has proven they are superior for this application. Other brands may not withstand the stress of racing and could damage the tach. Avoid generic types ('heavy duty', non-alkaline, store brands, made in x--x, etc.) Although a battery can last more than one season, discarding it at the end of each season and installing a fresh Duracell™ before racing is cheap insurance against a damaged battery leaking and causing damage to the tach.

**Accuracy** The TEL TAC uses digital calculation and a quartz timebase to determine RPM. Other than the jumper setting, there are no calibration adjustments. Loose connections, improper grounding or faulty ignition components (points, plugs, wires, etc.) can cause incorrect readings. Engine problems like weak valve springs, track conditions, and driving styles can all affect the RPM attained. Tach may read 2-300 RPM less than a rev limiter chip or setting due to timing scatter or not enough time at the limit RPM to get a reading.

**Error Codes** The tach may flash an error code after the engine is stopped along with the RPM reading (reading may not be correct).

**E 1** This indicates the tach did not follow it's normal sequence and had to restart itself. This code may rarely appear if the engine is started at the exact instant the tach was shutting off (the reading would still be correct).

**E 2** This indicates the memory was corrupted

Either of these codes could be caused by interference from plug wires, improper grounding, loose battery snaps or a defective battery. Relocate tach, ground connection and wiring away from ignition components. Check continuity and insulation on plug wires. Unplug tach and check continuity from outer receptacle pin on the back to a case screw with an ohmmeter (ground connection is made through left circuit board mounting screw). Be sure tach is dry inside. Test or replace battery and inspect connector snaps.

**E 3** This indicates the programming jumper is not making contact or was removed while the tach was operating. Inspect jumper and pin alignment. Move jumper up and down on the pins to clean contacts and restore a good connection.

Error codes will continue to show until tach turns itself off or the battery is disconnected for a few seconds.