

# P-1000 Electronic Digital Engine Tachometer



Horizon Instruments uses patented software technologies to bring to the aviation instrument panel an **Electronic Digital Engine Tachometer**. The **P-1000** is light-weight, accurate under all operating conditions, easy to install and maintain, and easy to view. Additionally, it provides diagnostic and performance information about the aircraft engine and ignition system not normally available with current mechanical or electrical/electronic tachometers.

The P-1000 eliminates problems resulting from inaccurate tachometers: engine operation outside of allowable RPM ranges, reduced engine life, reduced fuel economy, reduced power, or propeller overspeeding—all of which can

result in hazardous flying conditions.

## P-1000

The P-1000 integrates two independently operating tachometers via an on-board microprocessor. The microprocessor continuously computes RPM from timing signals derived directly from the magneto's "P-lead" or primary coil grounding leads. No external probes or sensors are required, thus eliminating critical components from the hostile engine environment and providing additional reliability.

Eliminated are the traditional aircraft tachometer problems using mechanical cables or tach-generators, which can exhibit undesirable features: excess weight, oil seal failures, excessive maintenance and repair costs, and inaccuracy.

The use of two "P-lead" signals provides greater security of continued tachometer operation. If either magneto fails or operates erratically, the P-1000 will continue to deliver RPM using timing information supplied from the remaining magneto.

Continuous comparison of the left magneto's RPM and the right magneto's RPM will yield an error indication if a difference is found. This feature provides early indication of worn malfunctioning magneto points, floating points, or low power output from the magneto coils.

The P-1000 detects the total loss of either magneto signal and turns on an error indicator to inform the pilot. This feature also provides indication of a possible "Hot-Mag" or grounded magneto conditions.

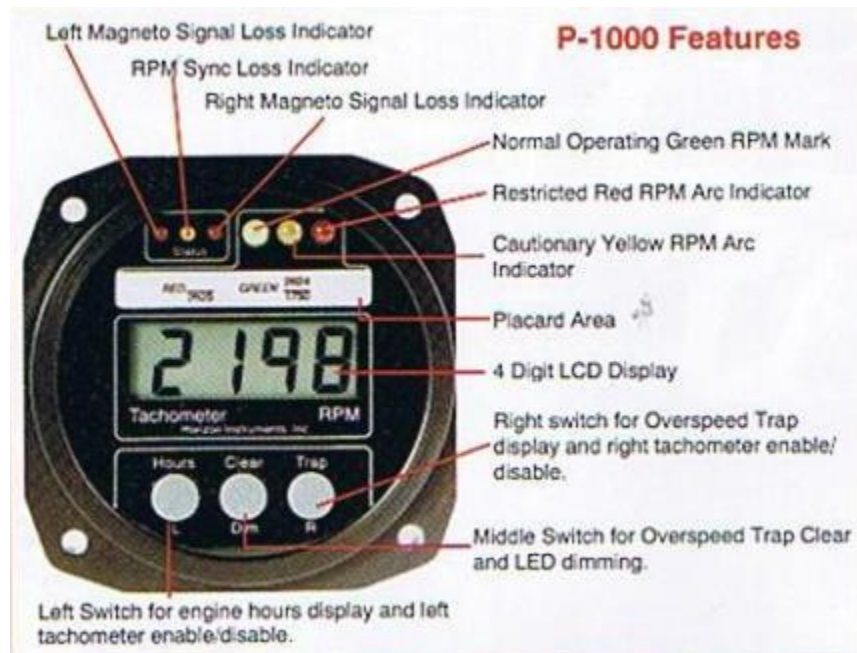
Once a faulty magneto is located it can be "masked" from the P-1000 display with a button depression "May-Drop" is calculated automatically for each magneto and displayed by the P-1000.

Large 1/2 inch Liquid Crystal Display (LCD) characters make the instrument easy to read from all angles. The digital display eliminates problems with lack of resolution, parallax and guess-work associated with analog displays. No interpolation of analog dial markings is needed. The P-1000 provides smooth display operation uncommon in digital tachometers. The display is back-lit with a soft, long-life electroluminescent lamp for easy reading at night.

The P-1000 also contains easy to see indicators for Restricted (Red Line), Warning, and Normal Operation RPM ranges. These indicators are accurate and programmable at the factory for multiple RPM ranges. Light Emitting Diode (LED) indicators are dimmable for minimal distraction during night flying, yet bright enough to overcome daylight conditions. An extra thick polycarbonate coated tachometer face is scratch resistant and long-lived.

Also incorporated into the P-1000 is a highly accurate engine hours clock, and an RPM Trap memory that recalls the highest RPM achieved by the engine. Both features are enabled with a touch of a button.

The P-1000 is housed in a rugged, light-weight aluminum standard 3-1/8 inch "MS" style case. Installation is simple. Only four wires are connected, *all of which are located under the panel!*



The P-1000 is the ideal aircraft tachometer, for upgrades or new designs, providing the conscientious pilot with high reliability, accurate RPM reading, and valuable diagnostic information.