

# Model 3800 Tachometer Tester

## Product Description

The King Nutronics Model 3800 is a compact, lightweight and quiet tachometer tester designed specifically for calibrating and troubleshooting aircraft and helicopter tachometer indicators and generator/ alternator systems on the flight line and in the workshop. The Model 3800 exceeds current U.S. Navy specifications.

The Model 3800 is accurate to within  $\pm 0.02\%$  of the set point value throughout its operating range of 1 through 6,500 RPM in 1 RPM increments.

Calibration can be performed in the clockwise or counter-clockwise directions using RPM units, or as a percentage of full scale from 1% to 120% (42 to 5040 RPM) in 1% increments for jet engine tachometers.

Needle fluctuations and erratic readings are quickly isolated using the manual Adjust mode. The AND 20005 drive pad allows the unit to be used with all standard aircraft tachometer generators and alternators.

Simple, intuitive front panel controls make tachometer testing efficient and convenient and shorten the learning curve for inexperienced operators.

Target speeds and system status information are available at a glance on the vacuum fluorescent front panel display.

A standard SAE cable adapter is included with the test set for convenient testing of cable-driven tachometers. Internal switch-selectable Wye-connected and delta-connected load banks are also included to facilitate voltage output testing of 3-phase tachometer generators under load.



## Features

- Calibrates 2 and 4-pole generators, as well as RPM and % indicators
- Calibrates optical tachometers from 500 to 65,000 RPM with the (optional) Optical Tachomete Kit
- Calibrates jet engine tachometers as percentage of full scale from 1% to 120%
- Calibrates electrical and cable-driven tachometers
- Accurate to within  $\pm 0.02\%$  of set point value
- Normal operating range from 1 to 6,500 RPM
- Intuitive front panel controls for efficient testing
- Manual Adjust mode for easy tachometer troubleshooting
- Standard AND 20005 drive pad
- Internal Wye-connected and delta-connected load banks
- Quiet operation
- Stores up to 4 user-programmable test scenarios for both Tacho-Gen and Tacho-Indicator (in addition to the standard scenario)



## Product Description

### Continued

Microprocessor controlled, synthesized 3-phase sinusoidal output enables very precise testing of indicators using the MS3102A14S-5S 5-pin electrical interface which can be adapted using provided cable connectors for use with most aircraft tachometer-generators or indicators. Two of the pins are energized with 5VDC for testing indicator illumination lamps.

3-phase output is selectable between 3 settings. Voltages and frequency appear on-screen using the built-in VM, or use available test points and a commercial DMM and frequency counter (via BNC connector).

### Acceleration

Tachometer-generator and Tachometer-indicator acceleration can be set to Normal (high), Medium, or Low. Medium and low acceleration rates are useful when troubleshooting to identify gauge needle fluctuations and erratic readings or points where the needle appears to stick.

### Optical Tachometers

The optional optical tachometer kit contains a polygon mirror disk, an opto beam mask, and a vice head assembly. Use of these accessories simplifies testing of handheld instruments.

Using the included mirror disk, the accuracy of optical tachometers can also be tested within a range of 500 to 65,000 RPM in 10 RPM increments with an accuracy of  $\pm 0.01\%$  of the set point value.

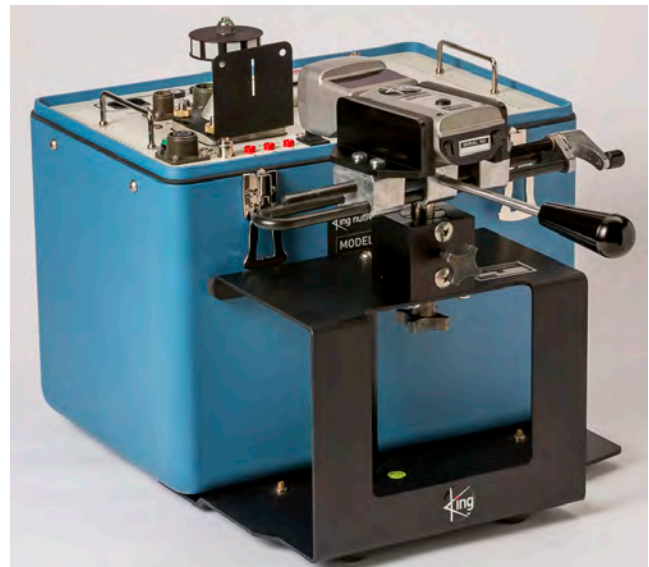
### Standard Accessories

Included with the 3800 Tester are these accessories:

- Power cable
- SAE Cable Drive Adapter
- 3-pin Indicator Test Cable
- 2-pole Load Test Cable



Tachometer Tester with Standard Accessories



Tachometer Tester Setup with Optional Optical Tach Test Accessories

# Specifications

Accuracy	±0.02% of the set point value in all operating modes
Resolution	1% or 1 RPM (10 RPM in 10:1 multiplier mode)
Setpoint stability	±0.01% IV throughout operating range
Operating range: RPM mode % (percent) mode Optical mode	1 to 6,500 RPM in 1 RPM increments 1 to 120 % in 1% increments 500 to 65,000 RPM in 10 RPM increments
Response time: RPM or % (percent) setting Acceleration mode setting	Reaches rated accuracy in 2 seconds or less for any speed change <b>Tacho-Gen mode:</b> Fast 1200 RPM, Med 420 RPM, Slow 120 RPM/Sec. <b>Indicator mode:</b> Fast 1300, Med 325, Slow 65 RPM/Sec
Display type Display Units	128 x 64 graphic vacuum fluorescent display RPM or %
Rotation mode – RPM or % OPTICAL	Menu-select: Revolutions per minute Percent (210 to 5040 RPM) 10:1 multiplier mode
Direction of rotation	Clockwise (FWD) or counter-clockwise (REV)
Tachometer drive pad type	Standard 1/4-inch square female coupling in accordance with AND 20005, Type XV-B
Drive torque:	40 oz-in. continuous torque up to 6500 RPM
Tachometer generator: Military specification Mounting Electrical receptacles Phase Rating	MIL-G-26611D, MIL-DTL-9398D, MIL-T-26219A, ANSI/ISA S82.02.01-1999 Standard AND 20005 Type XV-B 2-pin Y, 3-pin delta, 5-pin 3-phase with “C” grounded to generator frame Continuous duty
Tachometer indicator: Military specification Output types: Power output Amplitude	MIL-I-22596C, MIL-I-25623B RPM or % 13 Watts Sinusoidal 3-ph 0 to 30V
Input power: Voltage Current (max.) Fuse type (2 required)	120 (or 220) ±10% VAC, 50 to 60 Hz 4 Amps 1 Amp and 5 Amps
Operating temperature Storage temperature Humidity (operating)	0° to +50°C -40° to +71°C 5 to 95% RH, from 10° to 30°C
Case dimensions	13.25 in. (L) x 9.2 in. (W) x 11.5 in. (H) / 33.7 cm (L) x 23.4 cm (W) x 29.21 cm (H)
Weight	19 lbs. / 8.62 kg. (lightweight)
Case type/construction	Ruggedized aluminum case with removable cover , (BLUE color)

