

DELIVERING EXCELLENCE

## Torque Sensors for Turboprop and Turboshaft Engines

### FEATURES

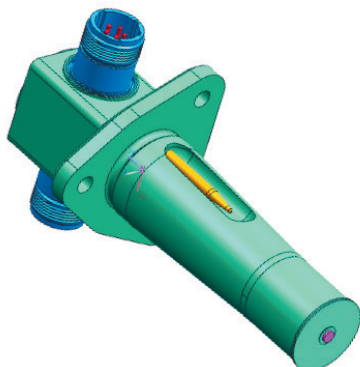
- OEM Qualified/Certified
- Variable reluctance sensor
- Passive
- Multi or Single channel
- Output via mounts points
- Typically hermetically sealed

### BENEFITS

- Over 40 million flying hours
- High accuracy
- Light weight design
- Reliable and long life
- Proven technology with over 40 years of pedigree

### APPLICATIONS

- Shaft Torque Measurement
- P&WC
- Rolls-Royce



■ Auxitrol Weston's torque sensors are passive, using variable reluctance technology, and require the sensor to work in conjunction with specialised intermeshed phonic wheels which are typically an integral part of the power transmission shaft connecting the gas turbine to the gearbox that drives the propeller/rotor. This family of metal bodied torque sensors are typically Line Replaceable Units (LRU's), as they are externally mounted on the drive shaft. The sensing tip projects inside the engine casing in close proximity to the shaft being monitored for torque. RTDs can be incorporated into the sensor in order to provide at-source temperature measurement. Auxitrol Weston has been designing and manufacturing steel bodied speed sensors for over 40 years. These sensors have been qualified and used on Engine accumulating over 40 million flying hours.

■ These sensors use a stainless steel body which is typically CNC machined. Output is via a hermetic connector which is welded to the sensor. The sensor configuration, mounting flange, sealing arrangement, number of channels (typically one to 3 channels) and connectors are designed in conjunction with the customer and many configurations are possible. The design often provides a firewall at the sensor flange. This construction provides a lightweight, reliable, robust and cost-effective speed sensor design.

■ The signal generated is sinusoidal with the sensor output frequency being the same as the phonic wheel tooth passing frequency and directly proportional to the shaft speed. Output characteristics can be customized to customer requirements by modifying the sensor's coil and magnetic circuit.



### Typical Performance Specification

Temperature	-65 to +210°C
Technology	Passive Variable Reluctance
Vibration	Up to 40g input
Repeatability	+/- 0.025% typical
Life	>50,000 Operating Hours
Reliability	>2,000,000 Flight Hours (MTTF)
Weight	>1000 grammes typical

The sizes and dimensions for these types of sensor tend to be very specific to each application and are governed by the engine envelope:

- Lengths may be from 75mm to 300mm long
- Intrusive diameters from 14mm to 25mm
- Various head configurations supporting from 1 to 3 connectors

Featuring AUXITROL, WESTON & NORWICH products

Examples shown above are for information, dimensions can be modified to meet unique installations

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