GAPS & HAPS SERIES

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Issue 1

Aerospace Proximity Sensors

DESCRIPTION

Honeywell has over 30 years' experience designing and delivering accurate and reliable proximity sensors that are currently used in a variety of military and commercial aircraft.

Honeywell has two new platforms of proximity sensors: **General A**erospace **P**roximity **S**ensors (GAPS) and **Harsh A**erospace **P**roximity **S**ensors (HAPS), formerly known as the IHM Series. Both platforms incorporate Honeywell's patented Integrated Health Monitoring functionality, however the products have some technical differences that allow them to be used in various aerospace applications. GAPS can be used in less harsh areas of application with some differences of electrical and environmental characteristics when compared to HAPS. Whilst, HAPS Aerospace Proximity Sensors are configurable, non-contact, hermetically sealed devices designed to sense the presence or absence of a target in harsh-duty aircraft applications.

The GAPS and HAPS platforms provide on/off outputs and can be configured with an optional health monitoring output to the host system. The sensing mechanism is based on the familiar Eddy Current Killed Oscillator (ECKO) principles; however, Honeywell has designed and implemented the patented FAVCO (Fixed Amplitude Variable Current Oscillator) technology which enables the Honeywell sensors to have the health monitoring (IHM) features. See Figure 5 to compare the ECKO and FAVCO technologies. The GAPS and HAPS Series helps to reduce downtime and maintenance costs due to a unique circuit that can detect any internal failures and display a fault output instead of a false positive or false negative. For the customer, this delivers the best performance with a lower overall cost over the life of the aircraft.

FEATURES

- Industry-leading indirect lightning and dielectric ruggedness: Meets the increased requirements of today's composite aircraft and most challenging applications including landing gear, thrust reversers, and flight controls
- Enhanced vibration ruggedness: Capable of withstanding extremely high vibration applications
- Environmentally rugged: Fully hermetic packages provide long-term reliability in very harsh environments by eliminating the potential for contamination of the sensor from the application environment. In addition, Honeywell has developed an innovative method to environmentally seal wire-lead (pigtail) configurations
- Integral Health Monitoring Capability: Optional third output state to indicate the health of the sensor (whether it is healthy or failed). Reduces maintenance time, reduces delayed flights, and lowers overall maintenance cost across the life of the aircraft
- Non-contact design: Utilizes non-contact technology to sense the presence or absence of a target regardless of the dirty, harsh environment in which it is placed, eliminating mechanical failure mechanisms, reducing wear, minimizing downtime, increasing durability, and increasing reliability

VALUE TO CUSTOMERS

- Enhanced vibration and EMI specifications help to increase revenue (flight hours) and reduce cost to serve (system maintenance)
- Hermetic sealing helps increase revenue (flight hours), reduce cost to serve (maintenance), & reduce cost of goods (spares)
- Platform approach helps to increase revenue and reduce cost to serve
- Health monitoring helps to increase revenue, reduce cost to serve, and reduce cost of goods
- Supplier stability helps to reduce cost to serve (troubleshoot with original supplier)
- Current install base helps to reduce cost to serve (proven performance and MTBF)

PORTFOLIO

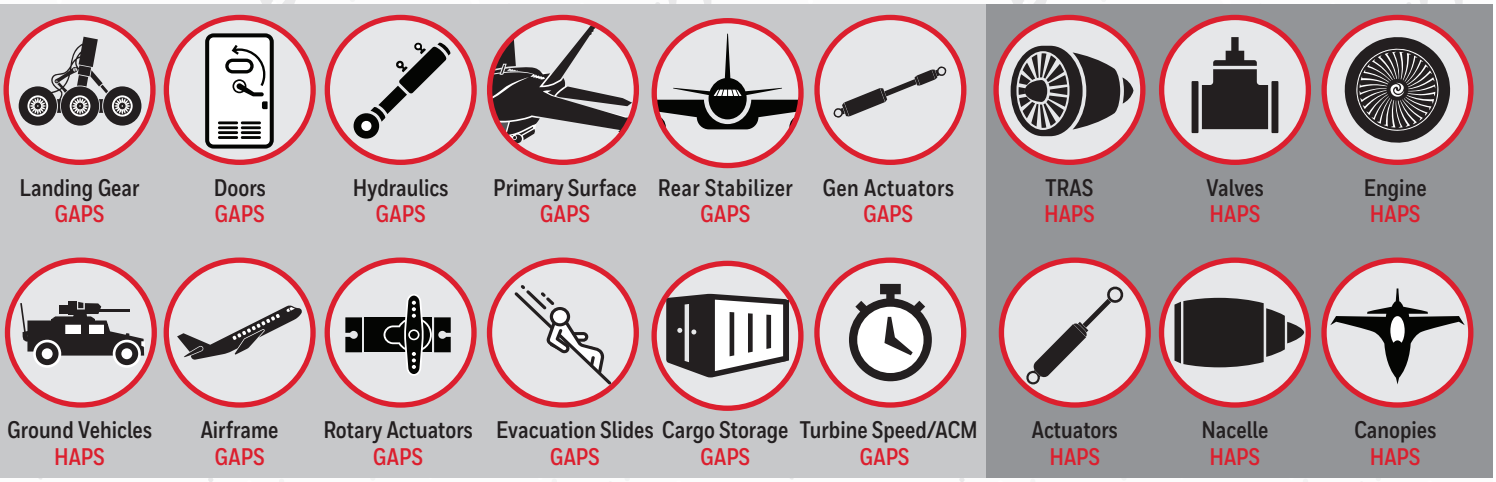
Honeywell's GAPS and HAPS Series is part of a comprehensive line of aerospace sensors, switches, and value-added solutions. To view Honeywell's complete product offering, click here.

Honeywell

AEROSPACE PROXIMITY SENSORS, GAPS & HAPS SERIES

GAPS | GENERAL Aerospace Proximity Sensor

HAPS | HARSH Application Proximity Sensor



GAPS	DIFFERENTIATORS	HAPS
500,000	MTBF > FLIGHT HOURS	500,000
	MECHANICAL CHARACTERISTICS	
115°C	OPERATING TEMPERATURE	115°C
20 G	VIBRATION	20 G*
40 G	OPERATING SHOCK	20 G
	ELECTRICAL CHARACTERISTICS	
150 mA Level W	RADIO FREQUENCY CONDUCTED SUSCEPTIBILITY	300 mA Level Y
100 V/m CAT F	RADIO FREQUENCY RADIATED SUSCEPTIBILITY	200 V/m CAT G
Level 3	LIGHTNING INDUCED TRANSIENT SUSCEPTIBILITY	Level 3
ON/OFF 20 mA	OUTPUT TYPE	IHM ON/OFF 250 mA
1000 Vdc/750 Vac	DIELECTRIC/IR	500 Vdc/500 Vac

** HAPS has a Q factor of 4. Contact Honeywell for more information.*