



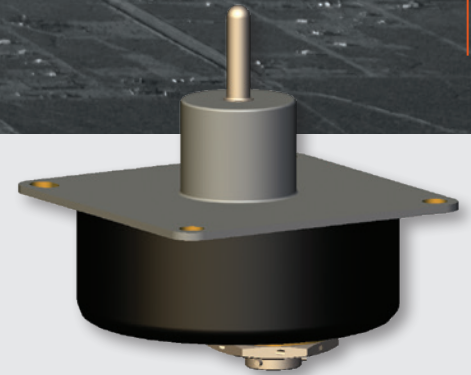
0871MD SERIES ICE DETECTORS

UAV ICE DETECTION: AN ONBOARD GUARDIAN

An ice detector from Collins Aerospace is essential equipment for any unmanned aerial vehicle (UAV) that may encounter icing. Piloting the vehicle remotely, a UAV operator can often find it difficult to notice when the vehicle is flying in icing conditions. Our ice detectors automate that function, constantly checking for ice regardless of workload or lighting conditions.

The Collins 0871MD Series of ice detectors is designed to be the most economical choice for UAVs. With over 50 years of ice detection experience and innovation, Collins Aerospace continues to be at the forefront of icing technology.

Flexible, robust designs detect ice in a wide range of icing environments and have demonstrated their success around the world on thousands of aircraft, ranging from commercial and business jets to military fighters and helicopters. With the 0871MD Series, we've leveraged our proven experience on these platforms to develop a smaller, lower-power solution for UAVs.



KEY FEATURES AND BENEFITS

- Lower power consumption resulting from use of unheated strut
- Lighter weight
- Smaller package size, offering greater flexibility for mounting and installation
- Proven core technology
- Same robust design/construction of other 0871 Series ice detectors
- Built-in test capability to verify internal electronics are functioning properly
- Compatible with aluminum or composite skin

GENERAL SPECIFICATIONS

Power consumption	
Sensing mode	5 watts max. at 28 VDC
De-icing mode	42 watts max. at 28 VDC
Discrete inputs/outputs:	
Ice	Open/ground
Fail	Open/ground
Test	Open/ground
Weight	0.7 lbs. max./0.32 kg
Serial output	RS-485 (RS-232 available with line level converter)

THEORY OF OPERATION

Collins ice detectors use a magnetostrictive technology to drive the sensing probe to resonate at its natural frequency. As ice accretes on the probe, a shift in resonant frequency occurs. When the resonant frequency reaches the set point, an ice signal is activated and the probe de-ices.

The heaters remain on for a predetermined time once ice has debonded from the probe to ensure the ice is removed. De-icing takes approximately 6 seconds. Once the heaters deactivate, the probe quickly cools down to begin sensing again.

Based on operational experience, once the ice signal is activated, it is latched in the "on" configuration for approximately 60 seconds to avoid nuisance on/off indications in intermittent icing conditions.

OPERATIONAL CONSIDERATIONS

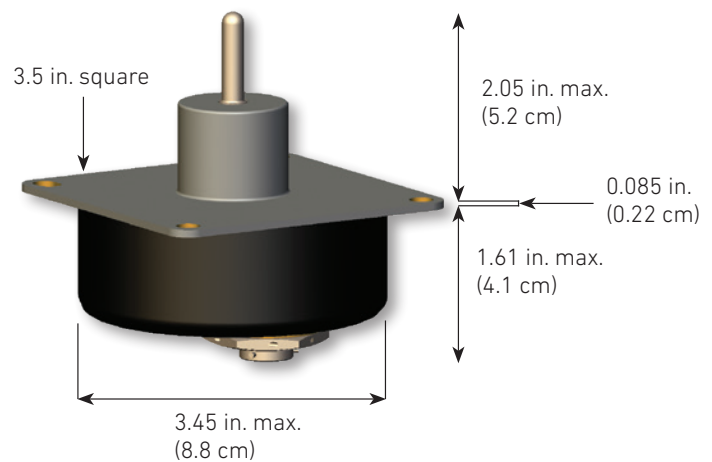
We designed our ice detectors to meet the demanding aerospace requirements of RTCA DO-160 for environmental conditions. Software development and verification follows the RTCA DO-178 process for Design Assurance Level A devices. In addition, system design process assurance follows SAE ARP4754.

ICE DETECTION SENSITIVITY

- Sensitive to less than 0.001 inches (0.00254 cm) of ice
- Indicates detection at 0.020 inches (0.0508 cm)

INSTALLATION

The 0871MD Series is designed for inside-out mounting on the vehicle.



Specifications subject to change without notice.



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