



Photo courtesy Embraer

Ice Detectors

0871ND Series

UTC Aerospace Systems ice detectors do more than just detect the presence of ice—they can be used to calculate ice accretion rate and liquid water content (LWC).

With over 50 years of ice detection experience and innovation, UTC Aerospace Systems 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 both aircraft and ground-based applications.



Benefits & Features

- Frequency data allows multiple calculations to be performed
- Heated strut and probe provide robust de-icing capability
- Small size offers greater flexibility for mounting and installation
- Built-in test capability verifies internal electronics are functioning properly
- Diagnostic information available to aid failure troubleshooting via serial communications
- Compatible with aluminum or composite skin
- Customer-selectable configuration of ice outputs



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General Specifications

| | |
|---|---|
| Connector | D38999 / 24FD97PN |
| Power Consumption | |
| Sensing Mode | 5 Watts max. at 28 VDC |
| De-icing Mode | 330 Watts max. at 28 VDC |
| Discrete Outputs: Customer-selectable output configuration | |
| Ice | Open / Ground |
| Status | Open / Ground |
| Size | |
| Weight | 1.0 lbs. max. |
| Serial Ports (converter) | RS-485 (RS-232 available with line level converter) |

Theory of Operation

UTC Aerospace Systems 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 resonance frequency occurs. When the resonance frequency reaches the set point, an ice signal is activated and the strut and probe de-ice. The heaters remain on for a predetermined time once ice has debonded from the probe to ensure the ice is removed.

Operational Considerations

UTC Aerospace Systems ice detectors are designed to meet the demanding aerospace requirements of RTCA DO-160 for environmental conditions. These factors, as well as droplet impingement and unit orientation, should be considered with each installation. Software meets DO-178B, Level A requirements. Hardware development follows DO-254, Level A standards. The unit complies with SAE AS5498.

Ice Detection Sensitivity

- Sensitive to less than 0.001 inches of ice
- Customer-selectable ice signal threshold (typically 0.020 inches)

Icing Measurements

The rate of ice accretion on ice detectors and monitored surfaces—for example, wing, tail, engine nacelle, etc.—depends on a complex heat transfer balance dependent on many atmospheric and aircraft parameters. By understanding these relationships, ice detector output can be used to activate ice protection and stall protection. It can also be used to calculate ice accretion rate and liquid water content (LWC).

This document does not contain any export controlled technical data.

For additional information:

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