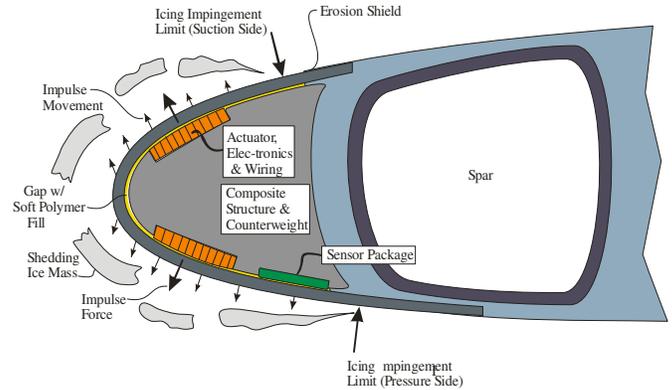


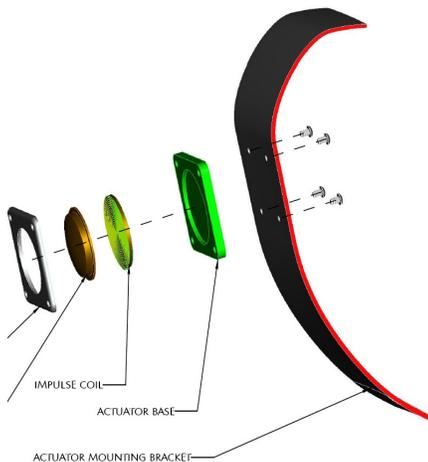


ELECTRIC PULSE ICE PROTECTION SYSTEM (EPIPS)



Features

- Low-power non-thermal electric pulse deicing system
- Complete ice removal in a few seconds
- Can operate through thick-skinned composite and metal structures
- Solid state actuators weigh only ounces
- Modular system architecture
- Low voltage, low current wiring bus
- Non-intrusive integrated design
- Optional Ice Sensor



Actuator Module

Overview

EPIPS is an acceleration based de-icer for ice protection on ships and aircraft. This system provides an efficient low power solution for both metal and composite applications where sufficient electrical power is not available. IDI developed the system in collaboration with NASA Glenn and DARPA's SBIR program.

The de-icer features a series of eddy current actuator coils and electronics packaged into an integrated actuator assembly. Actuator coils are strategically placed behind the leading edge to apply impulsive loads directly to the outer surface material. The rapid acceleration de-bonds and sheds ice into the airstream in a very efficient manner (ice layers can be shed as thin as .050").

The main components of the de-icing system are the De-Icing Control Unit (DCU), the Actuator Electronics Module (AEM), and the Leading Edge Assembly Module (LEM). An optional Ice Sensor provides automatic deicing control when a threshold ice thickness is detected.

Specifications

De-Icing Control Unit (DCU):

- Control function to AEMs
- 400 MHz MPC 5200 PowerPC processor
- 12 bit, 100ksps/channel A/D converter
- CAN bus interface circuitry
- Fault detection and reporting circuitry
- Power regulation and circuit protection
- Ice Detection Logic (option)
- Low power - less than 15 watts
- DCU 6"L x 4.5"W x 4.5"H

Actuator Electronics Module (AEM):

- Small wing mount unit contains capacitor, SCR, and trigger circuitry
- Uses distributed controllers with CAN bus to DCU
- Controls up to 8 actuators
- Mechanical 4"L x 4"W x 4"H

Leading Edge Assembly Module (LEM):

- Support bracket for actuators and AEM

Ice Sensor:

- Flush mount piezoelectric sensor with integrated preamplifier (option)