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WHEN MEASUREMENTS MATTER

0871LH1
Freezing-Rain Sensor

Warns of Ice Danger

Protects roads, power lines, aircraft, wind turbines

Overview

The 0871LH1, manufactured by Goodrich, is a sensor that detects the presence of icing conditions so that appropriate actions can be taken to prevent damage to power and communication lines, to warn of road hazards, or to keep ice off wind turbine blades or a plane's wings.

Benefits and Features

- Can be used to help prevent damage to power lines, and to warn of icy road hazards, ice on planes' wings, and ice on wind turbine blades
- Automatically defrosts itself when ice accumulation reaches 0.5 mm

Technical Description

The 0871LH1 uses resonant frequencies to determine the presence of icing conditions. Its main component is a nickel alloy rod that has a natural resonant frequency of 40 kHz. As ice collects on the rod, the added mass causes the resonant frequency to decrease. When the frequency decreases to 130 Hz (or 0.02-in. layer of ice), an internal heater automatically defrosts the sensor.

Specifications

Measurement Description	Ice detected/no ice detected
Range	State dependent (ICE = 1, NO ICE = 0)
Set Point	Ice signal activates when probe ice thickness exceeds 0.5 mm ±0.13 mm (0.02 in. ±0.006 in.)
Output Format	RS-422 output operates at 9600 bps.
Operating Temperature Range	-55° to +71°C
Storage Temperature Range	-65° to +90°C
Random Vibration	7.9 grms (DO-160C, Category E)
Shock	DO-160C
Operating Voltage	18 to 29.5 Vdc
Base Diameter	7.32 cm (2.88 in.)
Base Height	3.81 cm (1.5 in.)
Strut Diameter	3.10 cm (1.22 in.)
Strut Height	2.54 cm (1.0 in.)

Plate Dimensions	7.37 x 7.37 x 0.22 cm (2.9 x 2.9 x 0.085 in.)
Rod Diameter	0.64 cm (0.25 in.)
Rod Height	2.54 cm (1.0 in.)
Weight	0.3 kg (0.7 lb)

Power Draw @ 24 Vdc

Sensing Mode	5 W (maximum)
Deicing Mode	27 W (maximum)

Operating Modes

Sensing	Operating with no ice or with probe ice thickness below the set point
Deicing	Operating with probe ice thickness exceeding the set point

Discrete Output Signals

Ice Signal (No Icing)	Open
Ice Signal (Icing Detected)	Ground
Status Signal (Operating Correctly)	Ground
Status Signal (Failure Detected)	Open

RS-422 Output Signals

Ice Signal	0 = No Ice 1 = Ice
Fail State	1 = Fail 0 = No Fail (OK)

Built-in Test (BIT)

Commanded	Performed at initial power-up. If a failure is detected and verified, the ice detector stops detecting and annunciating icing conditions, the heaters are disabled, and a failure is annunciated.
Continuous	Hardware and software BIT verifies that internal electronics are functioning properly.

Electrical Connectors

Mechanical	MS27474T10B199PN
Mating	MS27474T10B199SN

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