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WHEN MEASUREMENTS MATTER

0872F1
Ice Detector

Advanced Technology

Real time automated icing data

Overview

The 0872F1 Ice Detector measures precipitation transitions between liquid and solid states. The sensor is designed to measure the intensity and duration of ice storms and differentiates rain from freezing rain as temperatures approach freezing. Ice accumulations as low as 0.13 mm (0.0005 inches) are detected.

The sensor is currently in use in weather research production programs such as the United States National Weather Service Automated Surface Observing System (ASOS), the Canadian Atmospheric Environmental Service automated weather station program, and various test programs in North America, Europe, and Asia.

Technical Description

The 0872F1 detects ice accumulation on an ultrasonic axially vibrating tube and communicates the associated frequency changes through an RS-232 or digital current loop data link.

The 0872F1 is mounted on a pole and is designed to operate continuoulsy in an outdoor environment. The 0872F1 requires only periodic recalibration; no other maintenance is normally required. The 0872F1 consists of four functional assemblies: a Main circuit card assembly (CCA), and Output Interface CCA, a Filter assembly, and a Strut and Probe assembly. The CCAs and all electrical connections are countained within the 0872F1 housing.

Benefits and Features

- Real time automated icing data
- Advanced probe deisgn collects icing water droplets regardless of wind velocity or location of droplet on the probe (360° sensitivity)
- Proven in the most severe environmental conditions
- Sensing technology eliminates false signals
- Self de-icing/water shedding capability
- Continuous built-in test verifies sensor functions

Specifications

Power Consumption

- Power Requirements: 115 VAC, ±10%, 50 to 60 Hz
- Sensing Mode: 10 Watts (0.087 Amps)
- De-icing Mode: 385 Watts (3.35 Amps)
- Output Format: RS-232, or RS232 Current Loop (2400 BAUD)

RS232 Configuration

- 8 Data Bits, 1 Stop Bit, No Parity, Full Duplex, Configured as Data Terminal Equipment (DTE)
- Measurement Range: 0 - 2.5 mm (0 - 0.10 ") of Ice
- Minimum Measurement Threshold: 0.13 mm (0.005 ") of Ice
- Resolution: ±4 Hz

Environmental Limitations

- Operating Temperature: -50°C to +50°C
- Operating Humidity Limits: 74 %RH @ 35°C to 100%RH @ 25°C
- Wind: Steady - up to 55.5 km (30 knots), Gust - up to 85.2 km (46 knots)
- Rain: 76.2 mm (3") per hour with 55.5 km (30 knots) wind
- Freezing Rain: Ice accretion to 25.4 mm (1 ") with a 37 km (20 knot) wind, at a rate of 12.7 mm (1/2 ") per hour
- Ingress Protection: IPX4
- Maximum Cable Length: 30 m
- Mating Connectors: Connector 1 (J1): PT06J-12-13S Connector 2 (J2): PT06J-12-10S

Cable Type

- 0872E3CBL1-L (J1): 3 conductor, 16 AWG, Super Vu-Tron III jacket
- 0872E3CBL2-L (J2): Multiconductor, 2-pair, 22 AWG, Shielded, Santoprene jacket

Weight and Dimensions

- Weight: 5.7 kg (12.55 lbs)
- Electrical Housing: 230 mm x 200 mm x 110 mm (L x W x D); Sensing Element and Jeat Sink: 164 mm x 173 mm x 110 mm (overall L x W x D)

General

- CE and TUV (C/US) Compliant