Protective Vent Prevents Condensation in AntennAware Attitude Sensor

Sunsight Instruments has joined with GORE Protective Vents to eliminate condensation in its AntennAware Attitude Sensor (AAS), a permanently mounted or fully integrated monitoring sensor to ensure the ongoing correct alignment of antennae. Sunsight Instruments of Orlando, Florida, provides Antenna Alignment Solutions and monitoring systems to the telecommunications industry.

The AntennAware uses time of day, latitude and longitude information to determine solar positioning, which is used to measure azimuth to +/-2? of accuracy. High-sensitivity accelerometers measure down-tilt and antenna plumb to within +/-.25? accuracy. The AntennAware's ability to conduct accurate climbless audits and to provide alerts of misalignment conditions saves thousands of dollars for telecom operators and enhances the safety of their operations. In addition, operators have accurate alignment information for planning, ensuring efficient market coverage.

The measurements made by the AntennAware are non-relative. They reference two constant sources of orientation— the force of gravity and the orbit of the earth around the sun. Obviously, this requires that the instrument be able to track the movement of the sun across the sky without any obstruction or distortion through the protective clear dome that covers it.

Exposure to the elements puts the AntennAware at risk for condensation within the clear dome, which heats up in the sun and then cools rapidly when hit by rain or snow. This creates a vacuum within the enclosure that can stress the seals and draw moisture inside. Typical seals can begin to draw in moisture and contaminants at about 1.0 psig.

Condensation formation within the dome has the potential to obstruct sunlight entering the clear dome, resulting in fewer azimuth measurements being provided to Sunsight's clients. Moisture within the dome can also corrode the sensitive electronic instrumentation that is being protected.
To prevent condensation and ensure accurate readings, Sunsight incorporates a membrane vent within each AntennAware protective enclosure. This GORE® Protective Vent equalizes pressure within the dome by allowing air to pass in and out of the enclosure. It provides a barrier to prevent liquid, dirt, dust, salt and other contaminants from entering while it also reduces condensation.

GORE Protective Vents employ membrane technology that has been engineered for more than 15 years to provide venting solutions to industries ranging from telecom equipment, lighting enclosure and portable electronic devices to medical devices and chemical packaging. These vents are made of expanded polytetrafluoroethlylene (ePTFE). Their porous microstructure allows air to flow freely, thereby quickly reducing condensation. Their extremely low surface tension causes them to rapidly shed water and other liquids, including acid rain, cleaning agents and oils.

According to Sunsight CEO Tony Wattwood, "Our products are completely exposed to all weather conditions 24 hours a day, seven days a week from Anchorage, AK to Miami, FL. With these widely varying environments, the Gore devices provide the assurance that our products maintain their IP68 rating during rapid thermal/pressure changes from shipping to installation to operation."
The reliability of GORE Protective Vents has been proven in widespread use throughout the telecom industry on equipment including TMAs, Combiners, Repeaters and Remote Radio Units. The Sunsight Instruments AntennAware Attitude Sensor, incorporating GORE Protective Vents, offers a simple, economical, reliable and long-lasting method of tower-top alignment monitoring for 3G and 4G sites.

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