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How To...

Verify Compliance with Safety Standards After Wireless Sensor Installation

Revision No. 01

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About this Task

Compliance with various safety standards is required when installing wireless Watchman Air sensors in a hazardous rated location. These standards specify that the sensor body must have an electrical resistance to earth ground of less than 1 Gigaohm. This requirement helps to ensure that a static charge does not accumulate on the sensor body, which could then serve as an ignition source. This procedure demonstrates how to verify that an installed sensor meets this requirement.

Hardware Requirements

The following components are required to verify compliance with safety standards:

- A megohmmeter with a test voltage of 500 volts and the required test leads.
  Note: This procedure uses AEMC® Megohmmeter model 6528. You can use a different brand and model of instrument as long as it meets the criteria for 500 volt test voltage and has a minimum operating range of 1 Gigaohm.
- 1 Gigaohm verification resistor
  Note: This procedure uses a 1G Ohm, 5 Watt, 1% Tolerance, Axial Lead, High voltage glass glazed wire-wound resistor.

Before You Begin

- Make sure that the Watchman AIR Sensors are already installed. For more information on the safety precautions that you must take while installing the sensors, refer to the Watchman AIR user guide on the SAII Resource Center.
  - For sensor installation, use the smallest amount of adhesive possible. Thick layers of adhesive not only increase electrical resistance, but also cause poor mechanical attachment and reduce vibration sensor frequency response.
- Ensure that the paint on the machine's surface is ground away to expose the bare metal.
- Before applying touch-up paint around the sensor installation location, perform an installation resistance test.
- Make sure that the machine frame ground reference point is clean and that the clamp probe has a good electrical connection.

Procedure

IMPORTANT! When using the high voltage source Megohmmeter, follow all safety procedures available in the Manufacturer's manual. Read the instructions in the manual carefully before you perform the procedure.

WARNING! Failure to comply with safety instructions can result in electric shock, fire, and explosion, as well as the destruction of the instrument or nearby installations.

1. Using the 1 Gigaohm verification resistor, verify that the instrument is operating correctly.
   a. Connect the Megohmmeter to the verification resistor.
   b. Turn the rotary switch to 500 V.
   c. Press the **TEST** button and observe the resistance reading.
      CAUTION! Be cautious when using the instrument. This turns on the high voltage source.
   d. Make sure that the following reading is displayed on the Megohmmeter: 1 Giga-ohm +/- 1% (between 990 and 1010 MOhms)

   NOTE: You must perform this verification at least once before beginning your workday. When an instrument has been set aside for an hour or more or has been used by others, it is recommended that a verification test be performed.
   e. If the instrument verification test is successful, perform the next steps.
2. Test installed sensor resistance to earth ground.
   a. Locate the earth ground reference point on the machine frame.
   b. Attach clip-lead probe to earth ground reference point.
   c. Place a pin-point probe on the outer silver metallic surface of the sensor node, preferably at the point where the smooth round body of the sensor meets the sensor base. DO NOT place the probe on the rating label or the black top cap.

d. Turn the rotary switch to 500 V.
e. Press and hold the **TEST** button until measurement stabilizes.
   CAUTION! Be cautious when using the instrument. This turns on the high voltage source.
f. If the measurement is less than 1 Gigaohm (1000 MOhm), the installation meets safety standards.
   NOTE: A reading of ".LO" for the specific AEMC Megohmmeter used for this procedure indicates that the resistance is too low to measure. This indicates that the installation meets safety standards.

Additional Documentation

The technical support team at SymphonyAI Industrial can assist you with any questions you have about Watchman AIR.

Email: support@symphonyindustrial.ai
Phone: (+1) 206-316-8918, option 2 for technical support between 9am and 7pm Eastern Time, Monday through Friday.

For additional help, frequently asked questions, videos & tutorials, visit SymphonyAI Industrial Resource Center at https://knowledge.symphonyindustrial.ai.