



Product Specification

Air Gap Sensor - EQ 2431-A3

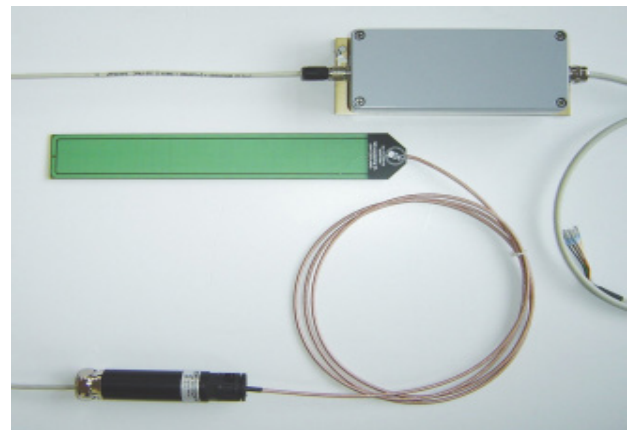
Measuring Range: 20 to 50mm

The EQ 2431-A3 is used for monitoring air gap in large turbogenerators, hydrogenerators and electrical motors for detecting changes in the rotor profile and stator core relative movement. The flat, small size of the sensor makes it easy to install on the stator wall, often without the need to remove rotor poles. The temperature compensated components give excellent accuracy in strong magnetic fields. The sensor is immune to deposits and stator vibrations.

Description

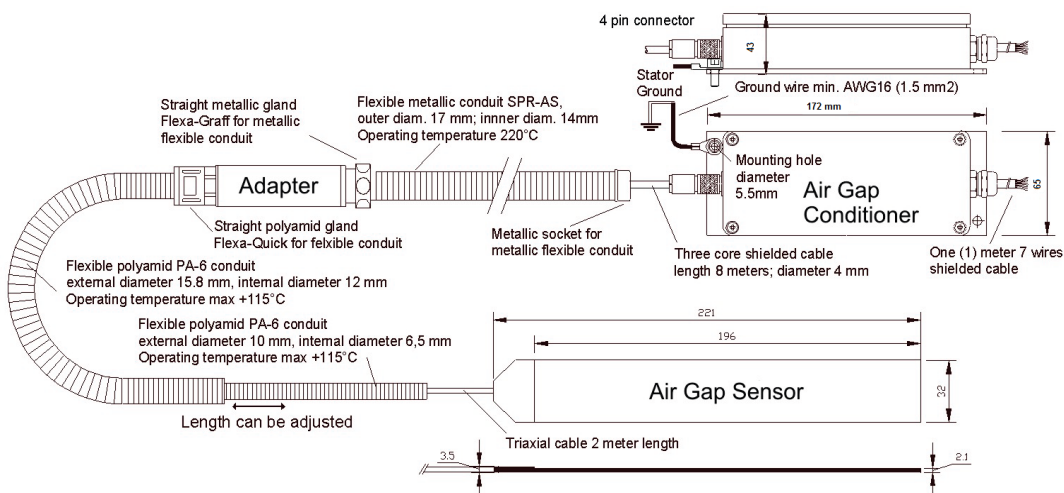
The EQ 2431-A3 Air Gap Sensor is a high accuracy, high linearity and high stability non-contacting measuring transducer system. Thanks to its very low profile design, the sensor can be mounted on the stator wall of generator and electrical motor having an air gap in the range of 20 to 50mm. The stator-mounted sensor measures the distance between its surface and a target using the capacitive measuring principle. This novel transducer design entirely eliminates the influences of signal cable.

The transducer system consists of a sensor with integral flexible triaxial cable of 2m terminated by a small size coaxial connector. The 2m triaxial cable is protected on its entire length by a flexible polyamid conduit plugged to an adapter module terminated by integral three-core shielded cable (8m length) with a 4-pole connector. A flexible metallic conduit protects the signal cable for its entire length.



The conditioner provides two types of output as follows: Pole profile and Minimum gap. Current and voltage outputs are provided for signal transmission.

Physical Dimensions



Product Specification – Air Gap Sensor - EQ 2431-3A3

Specifications

Electrical

Linear measuring range..... 20 to 50mm (0.8 to 2in.)

Outputs

Output voltage – Pole profile 2 to 10V
Sensitivity to distance 0.267 V/mm
Output resistance <100Ω
Output voltage – Minimum gap..... 2 to 10V
Residual ripple Depends on rotor speed
Linearity of outputs in measuring range <2% of reading
Output current – Pole profile or Min. gap..... 4 to 20mA, selectable by jumper
Current loop resistance Max 500 ohms
Temp. coefficient of sensitivity..... Typical 500 ppm/°C
Output noise (peak) <1% of reading
Typical frequency response..... (-3dB) 1kHz
Interchangeability tolerance..... <3% of reading

Environmental

Temperature range

Operation Sensor -15°C to +125°C (+5 to +259°F)
 Conditioner -15°C to +55°C (+5 to +131°F)

Non destructive Sensor -40°C to + 150°C (-40 to+302°F)
 Conditioner -20°C to + 70°C (-5 to+212°F)

Humidity Resistant to 95% RH

Vibration IEC 68 2.27 standard, 5g peak, 10Hz to 150Hz

Shock IEC 68 2.27 standard, 15g peak, 11ms

EMC Probe withstands 1.5Tesla in a 50 or 60Hz magnetic field

Fluid compatibility Withstand contact with water, oil, solvents, acids without degradation

Mechanical

Sensor dimensions 38 W x 263.5 L x 2.1 D mm – 3.5mm at cable entry

Sensor Cable permanently connected to 2m triaxial cable terminated with a 5mm diameter coaxial connector to plug to adapter module. Delivered with polyamid flexible conduit.

Adapter module Sensor input via coaxial connector and output via shielded three-core cable of 8m terminated with a 4-pole connector diameter 11.5mm. Delivered with 8 meters metallic flexible conduit.

Conditioner module..... Silver painted, color RAL 7001, aluminum case AlSi12 65 W x 172 L x 43 H mm with 3mm anodized mounting plate, stuffing gland and 4-pole input connector

Case protection class IP66, EN60529

Power

Voltage..... +24VDC nominal, ±10%

Current consumption Approx. 125mA

Brüel & Kjær Vibro reserves the right to change specifications without notice

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