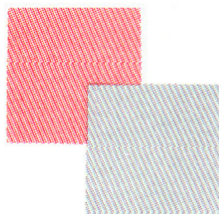
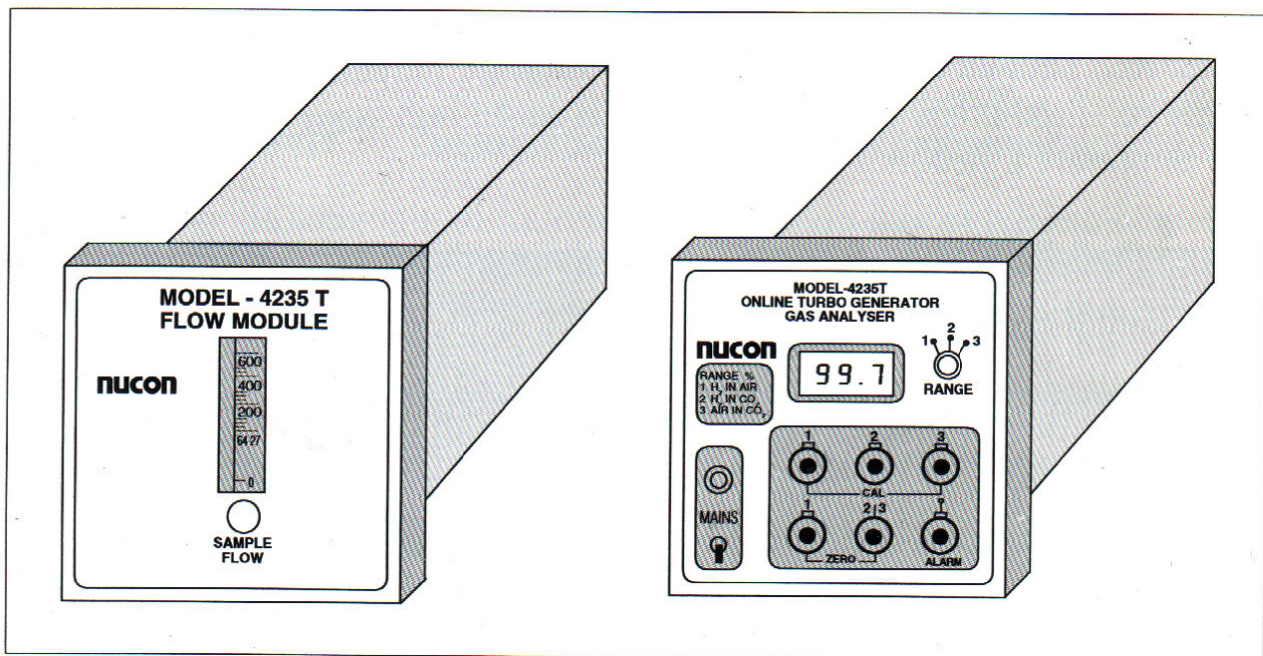


MODEL 4235 T



ONLINE GAS ANALYSER FOR TURBO GENERATORS

Nucon Online Gas Analyser Model 4235 T has been designed to Monitor Cooling Gas Hydrogen and Purge Gases for Turbo Generators to ensure Efficient and Safe Operation. It is based on the principle of Thermal Conductivity and has three switch selectable ranges:



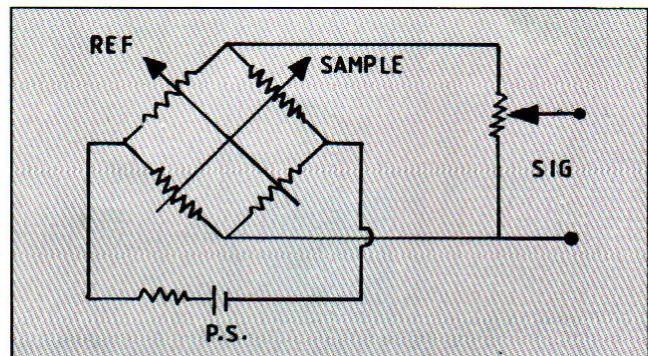
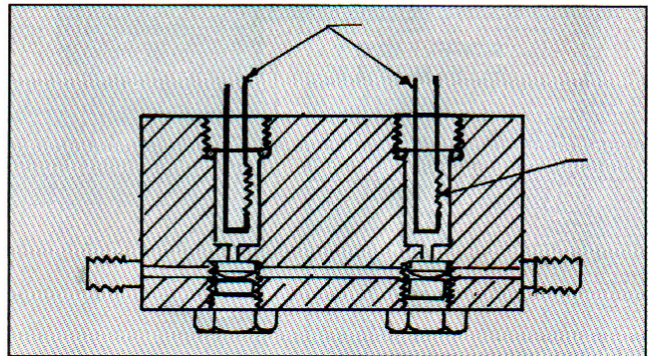
- ◆ 85-100% Hydrogen in Air for Spot Check of Hydrogen Purity during normal generator operation
- ◆ 0-100% Hydrogen in CO₂ and 0-100% Air in CO₂ for purge gas composition during maintenance purging
- ◆ Option of Panel Mounting or Wall Mounting versions

BACKGROUND AND PRINCIPLE

Nucon is a speciality Analytical Instruments company with very wide experience in the field of Analysis. For Turbo generators we offer Portable and Online Gas Analysers based on the principle of Thermal Conductivity which is a basic property of gas related to ability to conduct heat. At one end are gases like Hydrogen and Helium that are good conductors; at other end are Nitrogen, Argon and Carbon Dioxide that do not conduct well. In the Reference Channel a pure gas is introduced while the sample Channel carries the Sample. The signal produced is proportional to the difference in Thermal Conductivity between the two Channels. It is possible to carry out Gas purity Checks, Mixtures composition and also safety monitoring. These analysers use this basic property of gases and measure the concentration of the components of gas mixtures in turbine generators by comparing the sample to Reference in a sealed air reference. Stainless Steel Detector Block and Gow Mac, U.S.A. TCD Filaments are used in a high sensitivity Four Filament Wheatstone Bridge configuration followed by Precision High Gain Amplifier. An advanced design ensures virtually no effect of flow rate changes. State-of-the-Art technology is used to achieve Ease of operation, Accuracy and Reliability.

FEATURES

- ◆ Reliable TCD Design
- ◆ Fixed Reference; does not require reference gas
- ◆ Use leads to Efficiency, Safety and Cost Effectiveness
- ◆ No consumables used
- ◆ Three ranges in one instrument
- ◆ Flame Proof/Ex. Proof Housing for Detector for Continuous Online use



APPLICATION INFORMATION AND IMPORTANCE OF GAS ANALYSIS FOR TURBINE GENERATORS

Efficient Operation, Safety and Lower Cost are achieved by monitoring the Cooling and Changeover gases used in Turbine Generators.

EFFICIENCY ■

Hydrogen is a good turbine generator cooling gas because it is a good conductor of heat and also because it has a low viscosity. This helps improve efficiency by reducing load on rotors. However, air leaks and other sources of gas contamination increase the viscosity of the hydrogen cooling gas. This increases drag on rotors, thus reducing efficiency and increasing heat generated for the same load. Monitoring and control of the purity of hydrogen cooling gas is therefore important for assuring optimum operating efficiency. Energy losses due to friction and heat build-up are also minimized.

SAFETY ■

When the generator is in normal operation, it is important to be immediately alerted by air contamination in the hydrogen cooling gas. That is because hydrogen/air mixtures are potentially explosive. On line monitoring of air in the cooling gas helps in assuring safe operation.

During maintenance also Safety is important. A 2-step purge cycle is typically employed just prior to performing generator maintenance that involves: (1) purging out the hydrogen (H_2) cooling gas with CO_2 , and (2) purging out the CO_2 with air. This purge method avoids the explosive hazard of H_2 /air mixture and also prevents the respiratory effects of H_2 or CO_2 affecting the people around.

COST ■

Analyzing the changing purge gas mixtures makes it possible to minimize purge time and reduce maintenance downtime. This helps minimize turbine generator downtime and enhances the cost effectiveness of using hydrogen cooling gas. Minimizing purge time also saves money by minimizing expensive CO_2 usage. Also, by monitoring the purity of hydrogen cooling gas important information is obtained for timely action on sources of contamination.

SPECIFICATIONS:

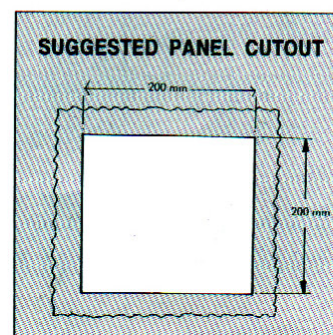
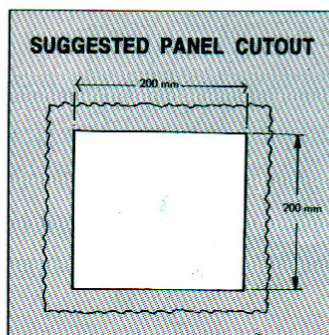
MEASUREMENT RANGES	: 85-100% H ₂ in Air, 0-100% H ₂ in CO ₂ 0-100% Air in CO ₂
TYPE	: Online Continuous use type
PRINCIPLE	: Thermal Conductivity
DETECTOR	: Solid Stainless Steel Construction, Four Filament Configuration and Gow Mac, U.S.A. Filaments. Sealed Air Reference. Precision Signal Amplifier. Unique design ensures virtually no effect of flow rate changes.
DETECTOR HOUSING	: Flame Proof/Explosive Proof
ACCURACY	: ± 2% of full scale or better
RESPONSE TIME	: 90% in 45 seconds
SAMPLE FLOW RATE	: 100 to 600 ml/min.
SIGNAL OUTPUT	: 0 to 1V DC/ 4 to 20 mA optional
OPTIONAL REMOTE DISPLAY	: It operates on 220V A.C. can be cable conected to signal output by 2 core shielded cable.
READOUT	: Digital Meter provided
ALARM	: Provided on Preset Ten Turn Dial Reading Pot, LED Indication and 1P2W Relay output C, NO, NC contacts.
OPERATING TEMPERATURE	: 0 to 55 degree C
POWER	: 220 V AC, 50 Hz

PANEL CUTOUT

200 x 200mm for both Analyser and Flow Module. Two cut outs required.

OPTION

Wall Mounting version Model 4235TW for above



Manufactured by :



NUCON ENGINEERS

S-18, Electronics Estate, Okhla Industrial Area Phase II, New Delhi-110 020. India.
Telephone : 6911088, 6841013, 6823818 Telex : 031 75377 NUON IN Fax : 6910815