



High-Performance Multi Gas Online DGA

PNX-DGA-07

The PNX-DGA-07 is a laboratory-grade, permanently installed online monitoring system designed for the precise analysis of dissolved gases in transformer oil. Utilizing advanced chromatography and a high performance vacuum-ultrasonic degassing method, it provides real-time detection of critical fault gases. This system is engineered for maintenance-free operation in ultra-high voltage (750 kV and above) substations, converter stations, and critical power infrastructure, ensuring operational safety through early fault diagnosis.



Key Features

- **High-Sensitivity Detection:** Superior acetylene (C_2H_2) measurement performance, exceeding standard industrial requirements for high-voltage asset monitoring.
- **Maintenance-Free Design:** Features a built-in carrier gas source module using filtered ambient air, eliminating the need for external gas cylinder replacements.
- **Advanced Degassing Technology:** Employs a combination of vacuum, stirring, and ultrasonic techniques to ensure high-efficiency gas extraction without "dead oil" zones.
- **Modular Architecture:** The system is divided into functional modules (Degassing, Chromatography, Control, Gas Source) for simplified maintenance and field upgrades.
- **Remote Management:** Supports immediate sampling, remote cycle modification, and real-time status monitoring via a secure web-based interface.

Communication & Integration

- **Interfaces:** Ethernet (RJ45), RS 485.
- **Protocols:** Supports standard industrial protocols (MODBUS, IEC 61850 optional) for integration into SCADA and plant monitoring systems.
- **Web Platform:** Integrated web server access for data visualization, historical trend analysis, and PDF/Excel data export.
- **Security:** Multi-level user authentication ("User" for monitoring, "Engineer" for configuration).

Installation Requirements

- **Mounting:** Base-mounted via expansion bolts on concrete foundations or wall-mount options.
- **Piping:** High-durability copper oil pipes with flexible conduit protection; "Bottom-In, Top-Out" circulation principle.

- **Flange Support:** Compatible with DN25 and DN50 transformer valves using provided sealing ferrules and custom adapters.

Dissolved Gas Analysis (DGA) Specifications

The PNX-DGA-07 is a laboratory-grade monitoring system designed for high-sensitivity detection of seven key fault gases. The following measurement ranges and error limits are based on the latest technical specifications:

Detection Parameter	Detection Range	Measurement Error Limit
CH ₄ (Methane)	0.5 ~ 10 µL/L	±0.5 µL/L OR ±30% whichever is greater
	10 ~ 1000 µL/L	±30%
C ₂ H ₆ (Ethane)	0.5 ~ 10 µL/L	±0.5 µL/L OR ±30% whichever is greater
	10 ~ 1000 µL/L	±30%
C ₂ H ₄ (Ethylene)	0.5 ~ 10 µL/L	±0.5 µL/L OR ±30% whichever is greater
	10 ~ 1000 µL/L	±30%
C ₂ H ₂ (Acetylene)	0.1 ~ 5 µL/L	±0.2 µL/L OR ±30% whichever is greater
	5 ~ 10 µL/L	±30%
	10 ~ 1000 µL/L	±20%
H ₂ (Hydrogen)	2 ~ 20 µL/L	±2 µL/L OR ±30% whichever is greater
	20 ~ 2000 µL/L	±30%
CO (Carbon Monoxide)	10 ~ 100 µL/L	±20 µL/L OR ±30% whichever is greater
	100 ~ 5000 µL/L	±30%
CO ₂ (Carbon Dioxide)	25 ~ 100 µL/L	±25 µL/L OR ±30% whichever is greater
	100 ~ 15000 µL/L	±30%
Total	2 ~ 10 µL/L	±2 µL/L OR ±30% whichever is greater
Hydrocarbons	10 ~ 150 µL/L	±30%
	150 ~ 4000 µL/L	±20%

Performance Characteristics

- **Measurement Repeatability:** The system maintains a Relative Standard Deviation (RSD) of ≤ 3%.
- **Minimum Detection Limit:** Specifically optimized for UHV requirements, the minimum detection concentration for Acetylene reaches ≤ 0.1 µL/L.
- **Detection Cycle:** The cycle is fully configurable with a minimum interval of 2 hours.