

PTDGAH2 iDGA (Hydrogen) Online Dissolved Gas and Analysis System

Product Overview

The iDGA-PTDGAH2 is a compact online monitoring device engineered for continuous, 24-hour detection of dissolved hydrogen (H_2) in the insulating oil of high-voltage power equipment, such as oil-immersed main transformers and reactors. Utilizing advanced resistive palladium-alloy technology, it directly monitors hydrogen concentrations in real-time without requiring carrier gases, high-pressure gas cylinders, or frequent consumable replacements, resulting in significantly lower O&M costs.

Built-in algorithms automatically identify insulation defects, including incipient low-temperature overheating, high-temperature overheating, partial discharge, and arcing short circuits.

System Architecture



Applications

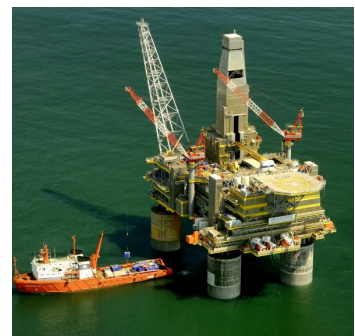
Substations



Industrial



Oil & Gases



Key Diagnostic and Monitoring Capabilities

Continuous Hydrogen Detection: The device provides 24-hour real-time monitoring of dissolved hydrogen (H₂) concentrations in insulating oil, with user-configurable measurement cycles ranging from a minimum of 5 minutes to a maximum of 24 hours.

Intelligent Fault Diagnosis: Built-in algorithms utilize the DL/T oil chromatography fault diagnosis methods (including the three-ratio method and David's triangle method). The system automatically classifies insulation status into five categories: normal, low-temperature overheating, high-temperature overheating, partial discharge, and arcing short circuit.

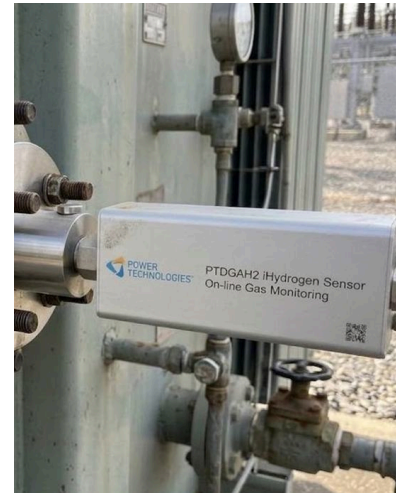
Consumable-Free Sensor Technology: By leveraging resistive palladium-alloy sensors, the system directly measures gas content without requiring carrier gases (like nitrogen), high-pressure gas cylinders, or frequent reagent replacements.

Fully Automated Operational Logic: The equipment autonomously executes the entire monitoring cycle: periodic oil sampling, oil-gas separation, gas spectroscopic analysis, data processing, and alarm triggering.

Self-Calibration & Stability: A patented self-calibration technology is incorporated to eliminate signal drift and remove the need for periodic manual calibration, ensuring long-term continuous operation.

Tiered Alarm Management: The system automatically triggers tiered audible and visual alarms locally, and pushes remote alerts to the monitoring system whenever gas concentrations exceed configured national standard thresholds. Pending alarms and historical alarm lists can be filtered by time and gas type.

Data Storage and Archiving: Real-time concentration data is stored locally in a rolling buffer. The host computer software supports generating standardized Excel test reports containing timestamps, concentrations, operational status, and alarm flags for condition-based maintenance archiving.



Operation Advantages

Cost Reduction: Drastically lowers O&M overhead by replacing labor-intensive manual testing.

Risk Mitigation: Removes field technicians from hazardous manual oil sampling environments.

Proactive Protection: Extends the lifespan of critical power equipment through immediate detection of developing insulation faults.

Measurement Performance

Parameter	Detection Range (μL/L)	Permissible Measurement Error
Hydrogen (H ₂)	0 – 2,000	±3μL/L or ±10% (greater value applies)

Specifications

Power Supply	220 V AC ±10%, 50 / 60 Hz	Communication Protocol	TCP/IP, Modbus, IEC61850
Working Environment	-40~55°C, ≤95% RH	Altitude	≤5000m
Weight	< 10kg	Overvoltage Class	IV
Dimension	50mm(H)*50mm (W)*120mm(D)	Ingress Protection	IP55
Measurement cycle	Minimum 5 minutes, maximum 24 hours.	Insulation Rating Of The External Circuit	≥100MΩ
Control method	Automatic, Menu Settings, Manual Control	Compliance	IEC 60599, IEEE Std C57.104, DL/T 722
Communication method	RJ45 or RS485 or Fiber Optic		

