

# NVSDGM

Online Dissolved Gas Monitoring System



Your Trustworthy Partner for  
Electrical Diagnostic System

## 1. System Overview and Technical Specification

The dissolved gas monitoring device measures gas concentrations and moisture (H<sub>2</sub>O) in oil-immersed transformers and provides real-time condition monitoring for early fault detection.

### ➤ BENEFITS

#### ▪ PAS (Photo Acoustic Spectroscopy)

- Extended equipment lifecycle
- Easy & affordable maintenance
- No need for carrier gas
- Minimized spare parts
- Simple design with high accuracy and reduced failure rate
- Stabilized with wide measuring range

**PAS (Photo Acoustic Spectroscopy) :** A cutting-edge method that detects gases based on acoustic signals generated by absorbed light energy.

#### ▪ Intelligent Dissolved Gas Monitoring System

- Local software enables data acquisition and fault analysis
- Operation settings, graphics and data management
- Configurable diagnostic criteria

#### ▪ Configurable Specifications

- Select up to 7 gases (+2 optional gases)
- Gas selection considering transformer capacity,
- Faults to be detected and types of insulation oil
- Transformer capacity: 1 gas type, 3~7 gases type, multi-tank type
- Fault gases detected: H<sub>2</sub> / C<sub>2</sub>H<sub>2</sub> / C<sub>n</sub>H<sub>m</sub> type, etc.
- Insulation oil(vegetable oil, non-flammable oil): H<sub>2</sub> / C<sub>2</sub>H<sub>6</sub> type, etc.

#### ▪ Total Dissolved Gas Monitoring System

- Online DGA allows monitoring and remote control in real-time
- Compatible with online electrical asset monitoring systems

## ➤ NVSDGM 3,4,5,7 and 9 Gases

### ▪ FEATURES

- Measuring gases:  $H_2$ ,  $CH_4$ ,  $C_2H_6$ ,  $C_2H_4$ ,  $C_2H_2$ ,  $CO$ ,  $CO_2$  ( $H_2O$ ) – Optional  $O_2$ ,  $N_2$
- Measuring method: PAS, Semiconductor sensor
- Optional 7-inch LCD display: operational data, test & diagnosis result
- LED indicators: Power / Device Error / Gas Alarm
- Settings: Operating time, measurement cycle, and diagnostic criteria
- Minimum measuring cycle: 1 hour
- Diagnosis of transformer fault based on gas concentration & trend

## NVSDGM 3T

### ▪ FEATURES

- Integrated 3-tank design for compact installation
- Ensures contamination-free gas measurement
- LCD (7.0" as an optional): operational data, test
- LED : Power / Device Error / Phase A, B, C Gas Alarm
- Measuring cycle: Minimum 3 hr.
- Applicable to 3 phase transformers



➤ **Online DGA Monitoring Software - Optional**

- Remote monitoring in real-time
- Remote control of operational data & settings
- Displays gas concentration trends with status classification (Normal / Abnormal / Warning)
- Evaluates degradation via CO & CO<sub>2</sub>
- Creates a report on diagnosis results
- Event alerts based on transformer diagnostics
- Integrated diagnostic methods: IEC, IEEE, and Duval Triangle analysis
- Analyze faults in transformers (PD, thermal degradation, arcing, etc.)

Category	Test
IEC 61000-4-3: 2020	Radiated Electromagnetic Hi Frequency Field Immunity Test
IEC 61000-4-5: 2017	Surge Immunity Test (Table Top Equipment)
IEC 61000-4-2: 2008	Immunity to Electrostatic Discharges
IEC 61000-4-6: 2023	Conducted Disturbance Induced by RF Fields
IEC 61000-4-8: 2009	Power Frequency Magnetic Field Test
IEC 61000-4-4: 2012	Electrical Fast Transient/Burst Immunity Test
IEC 61000-4-5: 2017	Surge Immunity Test (Electrical & Electronics Equipment)
IEC 61000-4-11: 2020	AC Voltage Dips & Interruption Test

## TECHNICAL SPECIFICATIONS

Measuring Gases	H <sub>2</sub> (Hydrogen)	5 ~ 5,000 ppm
	CH <sub>4</sub> (Methane)	1 ~ 5,000 ppm
	C <sub>2</sub> H <sub>6</sub> (Ethane)	1 ~ 5,000 ppm
	C <sub>2</sub> H <sub>4</sub> (Ethylene)	1-5,000 ppm
	C <sub>2</sub> H <sub>2</sub> (Acetylene)	0.1~ 5,000 ppm
	CO (Carbon monoxide)	1 ~ 10,000 ppm
	CO <sub>2</sub> (Carbon dioxide)	0 ~ 10,000 ppm
	O <sub>2</sub> (Oxygen), N <sub>2</sub> (Nitrogen) - Optional	
	H <sub>2</sub> O (Moisture)	
Measuring Range	Min.~ Max. (full range calibration) / H <sub>2</sub> O : 0~100 % (Relative Humidity) (in ppm)	
Measuring Cycle	User selectable - Minimum 1 hour	
Dimensions/	700mm x 615mm x 485mm	
Weight	78 Kg	
LED Alert -	Three front End LEDs Alarms Green - Power On, Yellow - Measurement and Red - Maintenance	
Enclosure	SS 304 Enclosure Embedded, SS316 Optional	
LCD Display	Screen with 6 function keys, 7inch LCD optional	
Measuring Method	Photoacoustic Spectroscopy (PAS), Semiconductor Sensor	
Accuracy	Less ±5 % or LDL (Repeatability: 1%)	
Operating Temperature	- 4 °C to 60 °C	
Oil Temperature	- 40 °C to 100 °C	
Relays	Optional up to 8 relays	
Port	RJ45 Ethernet	
Protocols	Optional - IEC 61850, Modbus TCP, DNP3.0, RS485	
Optional Accessories	Mounting stand	

## 2. System Dimension Overview:

