

SPECIFICATION FOR ON LINE DISSOLVED GAS ANALYSER

The specification covers for online dissolved gas analyser for detecting dissolved Hydrogen (H₂), CO, CH₄, C₂H₂, C₂H₄, C₂H₆ and moisture in transformer oil with standard accessories, software, essential spares, 4-20mA output.

General :

1) **Environmental Requirements:** The device and its components are for outdoor application and should satisfy the following:

Ambient Temperature : -10°C to + 50°C

Humidity : up to 95% RH

The device shall be weather proof. The device shall be of outdoor type and should withstand all weather conditions as illustrated above, rain and other adverse weather conditions. The materials should be corrosion proof and complying with min IP-55.

(2) **Accessories:** The system shall be complete with all essential accessories, software and essential spares which are required for its successful operation.

(3) **Power Supply to system :** 230 V 50 Hz Ac.

(4) The system shall be suitable for oil temperature of -20°C to 100°C and oil inlet pressure of upto 50 psi. The system shall be suitable for all kinds of transformer oil.

(5) Oil sampling shall be continuous and gas analysis intervals shall be user-selectable from 2 hrs to 12 hrs.

(6) Data upto min. 2 years is to be stored in memory.

(7) System shall contain suitable pc interface and shall be RS232/RS485 compliant and also suitable for Ethernet/TCP-IP protocols

(8) The system should be protected against over voltage, surges and all other likely abnormal conditions.

(9) The instrument should give necessary alert messages, which should contain historical and detailed information

(10) The necessary data / parameter should be displayed at the device and means must be provided for displaying these parameter at the control room which may be at a distance of 500m from the Transformer by cables/fibre optics. It is the responsibility of the device manufacturer to ensure that the values from the DGA are received in the control room and plant SCADA system. The alerts from the devices should be displayed in the control panel of the control room.

(11) The **alarm/alerts** for each device should be user selectable and user settable.

(12) **Test Certificate:** The test certificates in triplicate for the materials furnishing the results of the tests shall be forwarded along with inspection report

(13) Supplier shall give all necessary information about **calibration methodology** to be adopted for calibration time to time

(13) The performance certificate from the end user shall be furnished along with offer, if available.

Specifications:

On-line DGA and Moisture Monitoring System :

To measure, display and continuously monitor dissolved Hydrogen and water content in the Transformer oil.

H₂:

Detection range : H₂ (5 to 2000 ppm)
Accuracy : ±15% or 20ppm whichever is low
Resolution : H₂ : 1 ppm min

Water content (H₂O) in oil:

Detection range : 0- 100% RS (given in ppm).
Accuracy : ±5%
Resolution : 1 ppm min, 1% for RS or better.

- Supplier to inform the detection range, Accuracy and resolution for CO, CH₄, C₂H₂, C₂H₄ and C₂H₆ in their offer. **Online spectroscopy shall be used to determine dissolved gas content of CH₄, C₂H₂, C₂H₄ and C₂H₆.**

Installation and commissioning

Installation and commissioning of the equipment at site along with all necessary material required for installation shall be in scope of supplier.

Clause wise compliance to all above clauses shall be clearly given along with the technical offer.

GUARANTEE :

The supplier shall guarantee the performance of devices of for a period of not less than 12 months from the date of operational acceptance.

(Signature)
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