

SPECIFICATION FOR ONLINE DGA & MOISTURE MONITORING SYSTEM

The supplier shall supply, install and commission at site the online GA & moisture monitoring system complete in all respect to measure, display & continuously monitor dissolved hydrogen and carbon monoxide gases and dissolved water content in the transformer oil.

Sl.No.	Parameters	Detection limit
1	H ₂	5 ppm to >10000 ppm
2	CO	50ppm to >10000ppm
3	H ₂ O	5ppm to saturation 2-100%RS
4	Accuracy	Very high accuracy
5	Repeatability	Very good repeatability
6	Resolution	1% or less for gases 1% or better for RS

The equipment shall use detector technology and shall not use the sensor technology. If required, the equipment may be shifted to another transformer for monitoring for a period. Supplier shall extend support for the same.

The equipment initialization time shall be less than 4 hours after putting into service. The online DGA device should be fitted to a dedicated valve in the transformer without any tubing/extension inside the transformer.

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

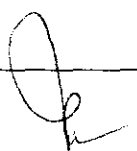
Ambient Temperature : 10 deg C to +50 deg C.

Humidity : up to 95%.

The devices shall be weather proof. The devices shall be of outdoor type and should withstand all weather conditions like ambient temperatures up to 50 deg C, rain and other adverse weather conditions. The materials should be corrosion proof and complying with required IP class.

(2) Accessories: The system shall incorporate all essential accessories and spares that are required for proper functioning.

- (3) Calibration: The factory and site calibration details shall be stated.
- (4) Test Certificate: The test certificates in triplicate for the materials furnishing the results of the tests shall be forwarded and got approved before the materials are dispatched. In addition to the tests called for in the specification, the purchaser reserves the right of having such tests as he desires carried out to satisfy himself that the materials conform to the requirement of this specification. The materials may be rejected if the test results are not satisfactory.
- (5) Power Supply to system: 240 V 50 Hz AC.
- (6) The system shall comply with all other standard requirements.
- (7) The sensitivity and accuracy of the system should be demonstrated with appropriate reference standards during the installation and later as per requirements.
- (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 installation of the devices should be straight forward requiring no special tooling or training.
- (11) The system/instrumentation should be easy to configure.
- (12) The system should possess a control panel for user interface that could display alerts. Also dedicated P.C. is required to access the data through RS232 port/ other interfaces should be made available. 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 about 500m from the transformer by cables/fibre optics. It is the responsibility of the



• Device/Transformer manufacturer to ensure that the values from the OLCMS devices are received in the PC (supplied along with the device) provided in the control room. Sufficient number of ports shall be made available in the PC to ensure receipt and display of signals/parameters from each of the on-line devices simultaneously. The transformer manufacturer may co-ordinate with the device supplier to ensure this.

(13) The alerts from the devices should be displayed in the control panel of the control room in addition to the connection to PC.

(14) The system should have the following communication modes:

(1) Local Access:

Serial port for connection to a PC for the purpose of configuration and data retrieval shall be provided.

(2) Remote Communication:

The following remote communication options should be available.

RS232: The data should be remotely accessible via RS232 port using ASCII protocol. Necessary protocol commands etc should be made available in the user manual and demonstrated at the time of commissioning.

- Ethernet TCP/IP
- Supervisory input/output

The supervisory input/output should offer a SCADA interface for the system.

(15) The product to be supplied should have been demonstrated to R&D.

(16) Necessary approval may be obtained from R&D wing by the transformer manufacturer, before placing order for the OLCMS.

In addition to the above the following are the device specific specifications:


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