



31.000 **SPECIFICATION OF 'ON LINE DISSOLVED HYDROGEN AND MOISTURE CONTENT MONITOR':** (ANNEXURE - A)

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KIO.-71965A17400 P.I. No. - 140670598

1. The Monitor shall be a microprocessor based Intelligent Electronic Device (IED), designed to continuously detect and measure dissolved Hydrogen and Water content, even at very low concentrations, in Transformer Oil. It should be easy to install.
2. The monitor shall be designed for permanent outdoor use in high voltage sub-station environments, for ambient temperatures of -20°C to 55°C and oil temperatures of -20°C to 105°C .
3. The monitor shall be suitable to detect and measure dissolved Hydrogen in ppm, without significant interference from other fault and atmospheric gases. The monitor shall also be suitable to detect Water Content measured in ppm or % RS (Relative Saturation).
4. The Hydrogen sensors shall have long lifetime in oil. The sensors shall be able to withstand pressure from vacuum to 14 psi or the maximum design pressure of the main tank of the transformer.
5. Technical Parameters:

Sr. No.	Parameters	Requirements
a)	The measurement range / Output:	
	Hydrogen Dissolved in oil	20 to 2000 ppm, with 4 – 20 mA output
	Water Dissolved in oil	0 to 95% RS, with 4 – 20 mA output
b)	Alarm / Indication	
	Hydrogen	Programmable Relays with contacts



	Water	Programmable Relays with contacts
c)	Environment	
	Operating Ambient Temperature	- 20 to + 55 °C
	Operating Oil Temperature	- 20 to + 105 °C
d)	Pressure Withstand (Oil side)	Full Vacuum to 14 psi or the maximum design pressure of the main tank of the transformer.
e)	Exterior enclosure and components	Shall be made of corrosion proof material & conforming to IP-55
f)	Communications	RS-232/485 ports and suitable for Ethernet connectivity

6. The alarm & values of H₂ & Moisture shall be displayed at RTCC for which accessories required at RTCC shall be supplied by the successful bidder. However interconnecting cable to carry the signal from local monitor to RTCC will be in the scope of Purchaser.
7. The Monitor shall work on station auxiliary supply. In case other supply is required for the equipment, then suitable converter shall be included. All necessary cable, accessories shall be provided by the supplier.
8. The Monitor shall be complete with necessary software (if any) for its configuration, downloading of its data & its interpretation along with operation & maintenance manual.
9. Factory acceptance tests of the Transformer will be carried out with the "On line Dissolved Hydrogen & Moisture content Monitor" fitted at the body of the transformer along with its functional check.
10. The relevant tests & certifications from reputed independent Test Labs must be furnished during detail engineering along-with the GTP.
11. Installation & commissioning at site by manufacturer's representative shall be done free of cost.

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