QUALITROL DGA 150/250/400

Dissolved Gas Analysis

Retrofits easily into existing transformers

- Enables real-time monitoring of hydrogen (H_2), an early indicator of transformer fault conditions
- Accurately measures hydrogen without interference from other fault gases
- Integrates with existing monitoring equipment and utilizes available transformer installation points
- Integrated oil sampling valve with Luer fitting for easy sample collection

Product Summary

Description Hydrogen is generated under most fault conditions that occur in power transformers and is an early indication of larger problems in the transformer's lifecycle. Real time monitoring of hydrogen provides an economical method for maintaining the overall health of the transformer.

Application Qualitrol's DGA series enables online monitoring of dissolved hydrogen in a variety of transformers including conservator, air and nitrogen blanketed models. Sensors can be easily mounted directly in the insulating oil or in the gas headspace, providing multiple mounting options. Additionally, Qualitrol has integrated hydrogen sensing capabilities in its latest Rapid Pressure Rise Relief (RPRR) design (optional).

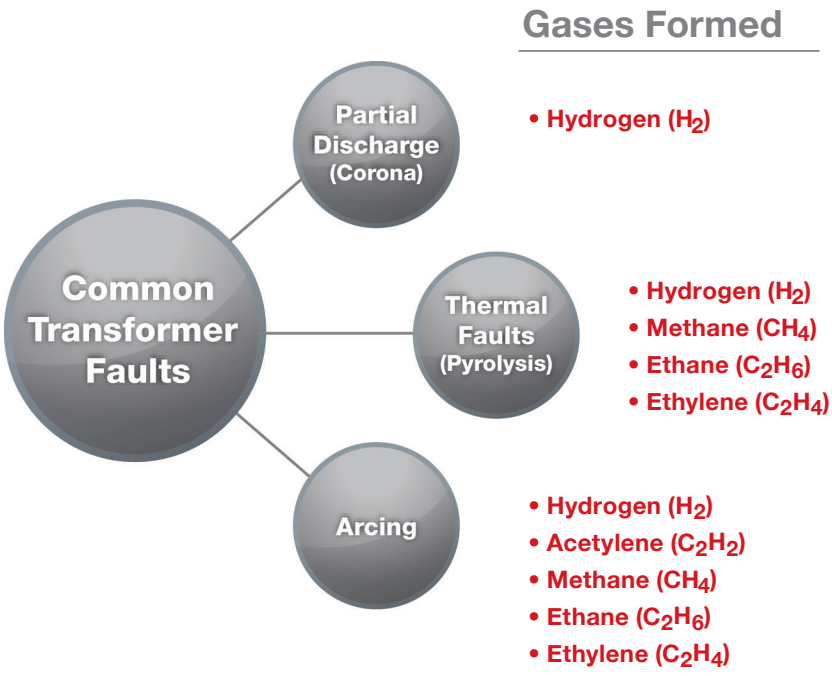
QUALITROL®
Defining Reliability

Enables real-time monitoring of hydrogen, an early indicator of transformer fault conditions	Early detection is crucial when dealing with a fault situation in a transformer. Reduce diagnostic time through the use of online monitoring. Track hydrogen trends without waiting for oil sampling data.
Accurately measures hydrogen without interference from other fault gases	The DGA series uses a metal alloy that accurately responds to hydrogen, even in the presence of other common fault gases (methane, ethane, ethylene, and acetylene). The sensor materials are intrinsically selective toward hydrogen, so while other gases are being generated from the fault, they do not interfere with the hydrogen reading on the sensor.
Integrates with existing monitoring equipment (including Qualitrol 507/509) and utilizes existing transformer installation points	The DGA series mounts directly in the existing transformer valves and is available in a 1.5-inch NPT union fitting or in a RPRR replacement configuration. Units are pressure tested to ensure leak-free operation.
Integrated oil sampling valve with Luer fitting for easy sample collection	Sampling is easy with a Luer style port located on the sensor housing. The unique design offers a quick sample port that is accessible without the use of additional tools yet easily seals to keep oil from escaping the system. Hand tightening is all that is required, no more dealing with cumbersome wrenches in the field.

Why Hydrogen?

Fault conditions in a transformer can have serious consequences due to the degradation of the dielectric and chemical properties of the insulating oil. Hydrogen is an important gas to monitor in a transformer as it is the lightest gas generated in abundance by most major fault situations including partial discharge (Corona), thermal faults, and arcing.

Online monitoring of hydrogen can save crucial time in diagnosing problems and preserving the health of the transformer.



TECHNICAL SPECIFICATIONS

Mounting Options	DGA 150 - Drain valve (Thread Mount)	1.5” - 11.5 NPT union fitting
	DGA 250 - RPRR (Thread Mount)	2.5” - 8 NPT union fitting
	DGA 400 - RPRR (Flange Mount)	Four 0.5” diameter bolt slots equally spaced on a 4” bolt circle
Range	In oil with air headspace	50-5,000 PPM
	In oil with inert headspace	25-5,000 PPM
	In gas with air headspace	1000 PPM to 100,000 PPM
	In gas with inert headspace	500 PPM to 100,000 PPM
Accuracy	In oil	± 25 PPM or ± 20% of measurement
	In gas	± 500 PPM or ± 20% of measurement
Resolution of Measurement	In oil	1 PPM
	In gas	20 PPM
Repeatability	In oil	± 15 PPM or ± 10% of measurement
	In gas	± 300 PPM or ± 10% of measurement
Recommended Lab Data Correlation		Annual
Materials	Housing	Thermosetting powder coated aluminim (ANSI #70 gray)
	Sensor Probe	Stainless steel
	Sampling Valve	Stainless steel
	Valve Cap	Nickel plated brass or Stainless steel
	Mounting Flange/Spin Nut	Aluminum
	Seals	Nitrile/Viton/Neoprene
Required Power Supply		10-26 VDC @ 2 amps min
Output Parameters	Remote analog	4-20 mA @ maximum of 500 Ohms
	Pressure scale	0-30 PSIG
	Data communication	USB serial communications port locally, RS485 (4 wire)
Immunity	Dielectric isolation	2500 VAC for 60 seconds to ground
	Surge withstand capability	IEEE C37.90.1
	Conducted/radiated emmissions	IEC 61000-6-1 (EN61326-2-3)
	Conducted/radiated radio frequency immunity	IEC 61000-6-2 (EN61326-2-3)
	Safety	IEC 61010-1
Environmental	Oil temperature	-20 ºC to +60 ºC
	Operating temperature (ambient)	-20 ºC to +55 ºC
	Storage temperature	-40 ºC to +85 ºC
	Vibration	50/60 Hz @ 0.016” displacement
	Weatherproof enclosure	IP55
Cross Sensitivity to other Gases		<1%

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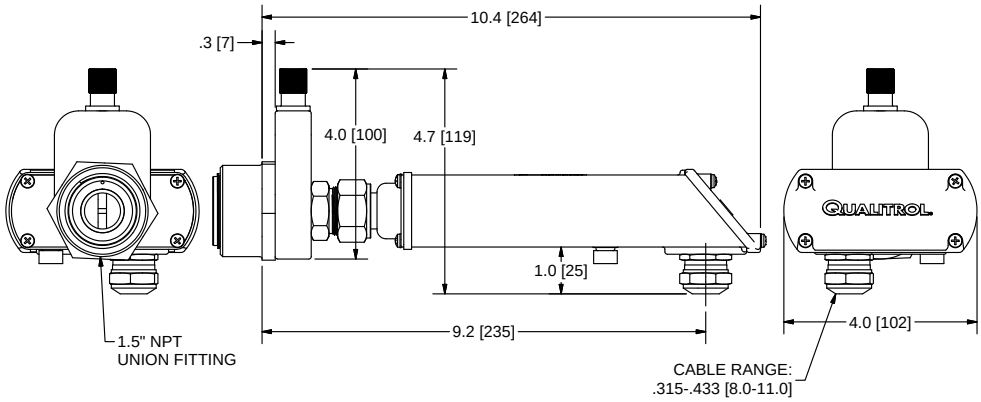
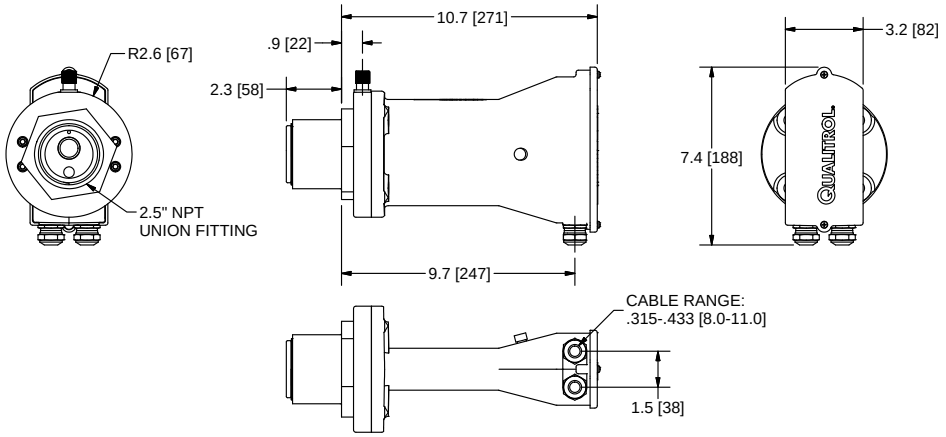
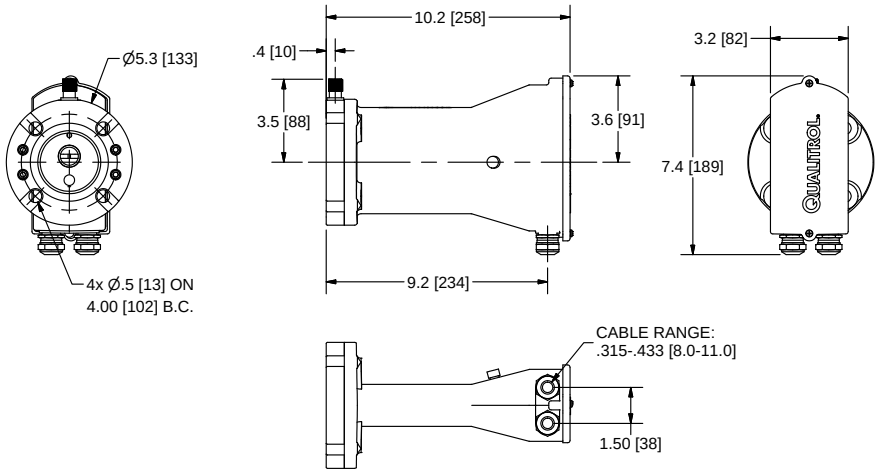
DGA 150- Drain Valve



DGA 250 - Rapid Pressure Rise Relay with DGA (thread mount)



DGA 400- Rapid Pressure Rise Relay with DGA (flange mount)



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