

LDS 6 - Laser O₂ measurement in flare systems

LDS 6 Analyzer Application Note

Flare systems are used for safe disposal of excess quantities of waste combustibles from oil-wells, refineries, and other chemical or petrochemical plants. Distinction is made between flares with continuous operation and others that are used only in case of emergencies. Flare systems are often equipped with accessories such as steam generators for smoke suppression or additional heaters for burning lean gases. Infiltration of air into the flare stack through leaks or the stack exit is critical because it may lead to a flame flash-back resulting in a destructive detonation in the system. The oxygen level is measured and monitored in the flare drum for safety.

Historically paramagnetic O₂ analyzers have been used to measure O₂ in flare systems for safety. The problem with the

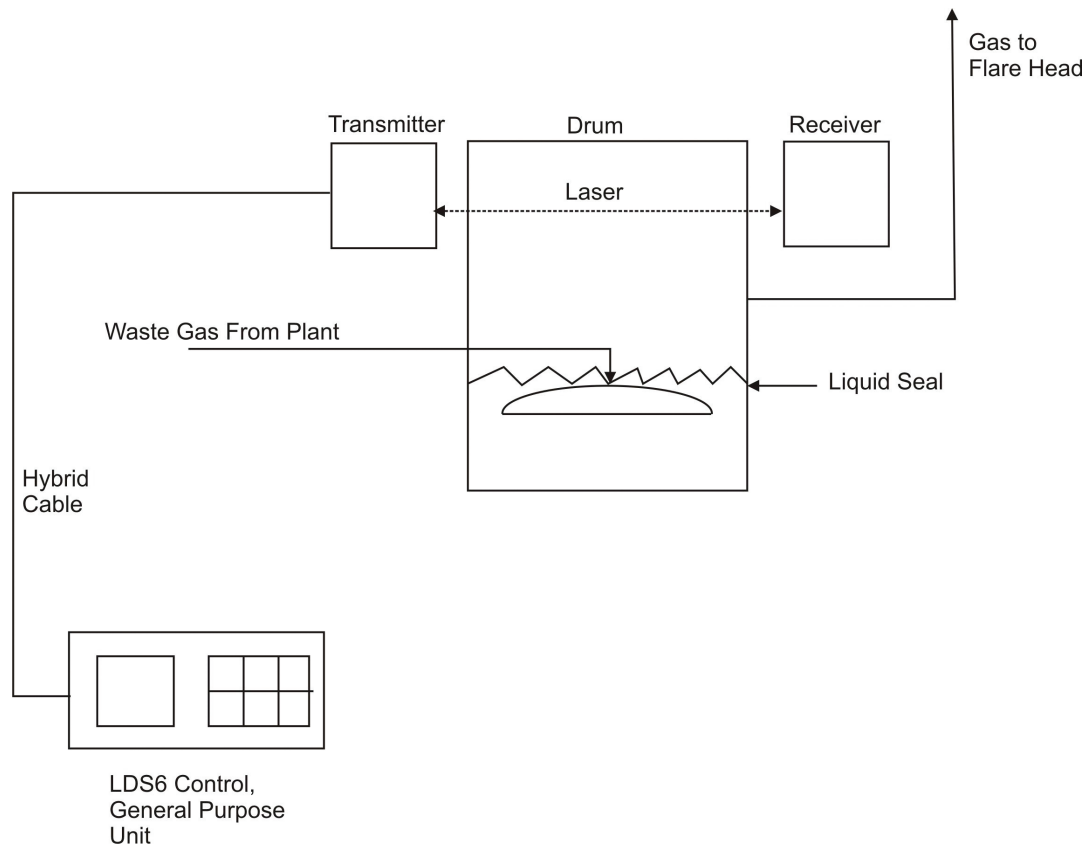
paramagnetic O₂ measurement technique is that the large amount of hydrocarbons interferes with the O₂ measurement. This interference cannot be calibrated out or otherwise corrected in many cases because the amount and type of hydrocarbon varies over time.

The analytical solution for interference free O₂ measurement in flares is the Siemens Insitu Tunable Diode Laser (TDL). The TDL is not affected by varying hydrocarbons in the flare feed stream. The analyzer has no moving parts and the sensors are intrinsically safe for Class 1, Division 2 installations. Since the LDS 6 is an insitu type analyzer it has no sample system, reducing initial capital cost and long term cost of ownership due to extremely low maintenance.



Siemens LDS6 Analyzer

Flare Systems



Application Parameters

Path: >1 meter
Temp: <150°C
Pressure: 40 psig max
Range: 0-10% O₂
Dust Load: Very Low
Interference: No interference to O₂ measurement
by widely varying hydrocarbons
Hybrid Cable: Max distance 1000 meters
Loop Cable: Max distance 1000 meters
Control Unit: General Purpose
Sensors: IS, Class I, Div 2, Rated for 16 Bar pressure

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