
OpreX™ Analyzers

# Extractive Tunable Diode Laser Spectrometer

TDLS8220

BU-P-20240112-01

# The best just got better

Yokogawa’s new extractive TDLS, the drop-in solution for legacy technology.

- Built upon Yokogawa's second generation TDLS platform with improved reliability, quick response time and reduced overall maintenence
- Analyzer with integrated flow cell, heat trace, insulation, pressure & temperature compensation, and purge control all pre-packaged for drop-in replacement of legacy components
- On-board diagnostics with 50 days of data and spectra storage


## Process and limiting oxygen concentration for process monitoring, control, and safety.

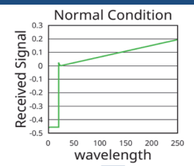
Yokogawa's extractive TDLS $O_2$ solution achieves:

- Reduced overall maintenance by utilizing a non-contacting measurement isolating sensitive components from the process stream.
- Built with solid-state electronics removing routine calibration requirements with zero appreciable drift over the lifetime of the analyzer.
- Interference free analysis using Yokogawa's TruePeak measurement technology

## System Configuration

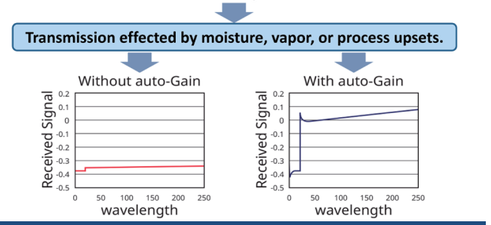
### ■ No Routine Calibration

- Calibration not required as the analyzer utilizes solid-state electronics with negligible drift.
- Automated validations and/or zero and span executed manually, remotely, or automatically.




### ■ Auto-gain

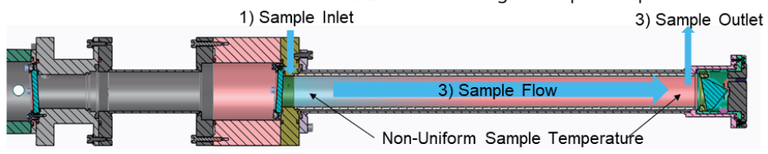
- Auto-gain automatically adjust the gain and retain a good signal-to-noise ratio in dynamic processes.



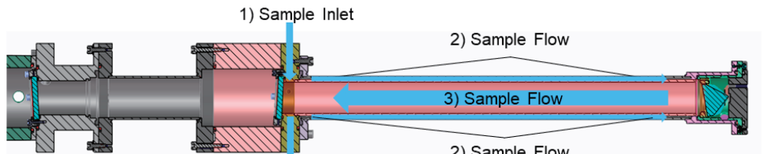

## Measurement Stability

### ■ Shell-and-Tube Flow Cell

- Traditional single tube flow cells can experience non-uniform sample temperature directly affecting measurement accuracy. The dual wall flow cell featured on the TDLS allows for tight sample temperature control.




**Single Tube Flow Cell**




**Dual Wall Flow Cell**

## High Reliability

### ■ Interference free

- Interference free auto-gain ensures wide signal ranges to maintain measurements during dynamic process events

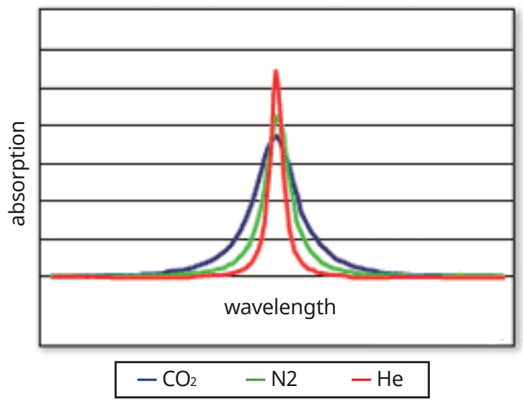
### ■ Reference cell

- Internal reference cell in the laser module ensures peak locking to maintain reliable measurements

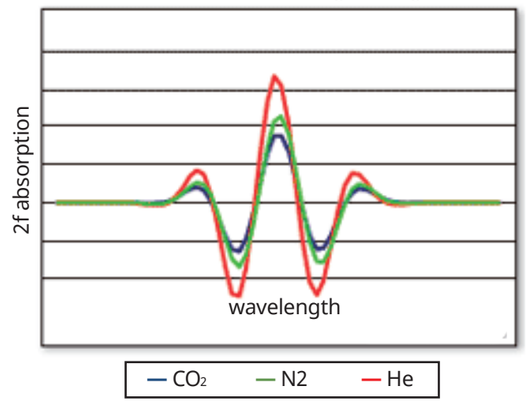
### ■ TruePeak Spectra

- Yokogawa's TruePeak can measure the area of the absorbance peak. This eliminates effects from changing background gases, allowing for simple pressure and temperature compensation.

TruePeak Spectra
(10% $O_2$ in different background gases)




Traditional TDL Spectra
(10% $O_2$ in different background gases)



## Specifications

### TDLS8220

**STANDARD SPECIFICATIONS**

| | | | |
|---|---|---|---|
| **Measurement object** | TDLS8220 $O_2$, | | |
| Measured component | | Min. range | Max. range |
| $O_2$ | | 0-1% | 0-25% |
| **Performance** | Repeatability: +/- 1% reading or +/- 0.01 %$O_2$, whichever is greater<br>Linearity: +/- 1% F.S.<br>Measurement Conditions:<br>Gas Temperature; 25°C,<br>Gas Pressure; 0.1MPa,<br>Optical Path Length; 1.0m. | | |
| **Analog output** | 2 points, 4 to 20 mA DC<br>Output types: Gas concentration, Transmission, Process gas temperature, Process gas pressure | | |
| **Analog input** | 2 points, 4 to 20 mA DC with selectable powered/unpowered<br>Input types: Process gas temperature, Process gas pressure | | |
| **Digital communication** | HART (AO-1), Ethernet, Modbus/TCP | | |
| **Digital output** | 2 points, contact rating 24 V DC, 1 A<br>DO: Function: Activate during Warning / Calibration / Validation / Warm up / Maintenance conditions<br>Fault: Function: Activate during fault condition or when the system power is off | | |
| **Digital output** | 2 points, contact rating 24 V DC, 1 A<br>Function: External Alarm/Calibration Start/Validation or Stream Switching (valve control) | | |
| **Power supply** | 24 V DC ±10% | | |
| **Protection degree** | IP65 | | |
| **Hazardous area classifications** | Designed with components for installation in Class 1, Division 2, Groups A, B, C, D components with Purge System | | |
| **Installation condition** | Ambient operating temperature: -20 to +55°C<br>Storage temperature: -30 to +70°C<br>Humidity: 0 to 95%RH at 40°C (non-condensing) | | |

| YH8000 | |
|---|---|
| **Display** | Touchscreen 7.5 inch TFT color LCD panel, 640 x 480 |
| **Communication** | Ethernet: RJ-45 connector |
| **Protection degree of enclosure** | IP65, NEMA Type 4X |
| **Weight** | Approx. 4 kg |
| **Mounting** | Analyzer mount with tilt function, pipe mount, panel mount, or remote mount |
| **Cable Entries** | 1/2NPT or M20 x 1.25 mm, 2 Total |
| **Installation conditions** | Ambient operating temperature: -20 to +55°C<br>Storage temperature: -30 to +70°C<br>Humidity: 0 to 95%RH at 40°C (Non-condensing) |
| **Power supply** | 24 V DC ±10% |
| **Hazardous area classifications** | Division 2, Zone 2: Explosion-proof FM (US, Canada) |

OpreX™ Through the comprehensive OpreX portfolio of products, services, and solutions, Yokogawa enables operational excellence across the enterprise.

YOKOGAWA CORPORATION OF AMERICA
2 Dart Road. Newnan, Georgia 30265 U.S.A.
Phone: 1-770-254-0400, Fax: 1-770-254-0928
https://www.yokogawa.com/us/

YOKOGAWA ELECTRIC CORPORATION
World Headquarters
9-32, Nakacho 2-chome, Musashino-shi, Tokyo 180-8750 Japan
https://www.yokogawa.com/an/

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