

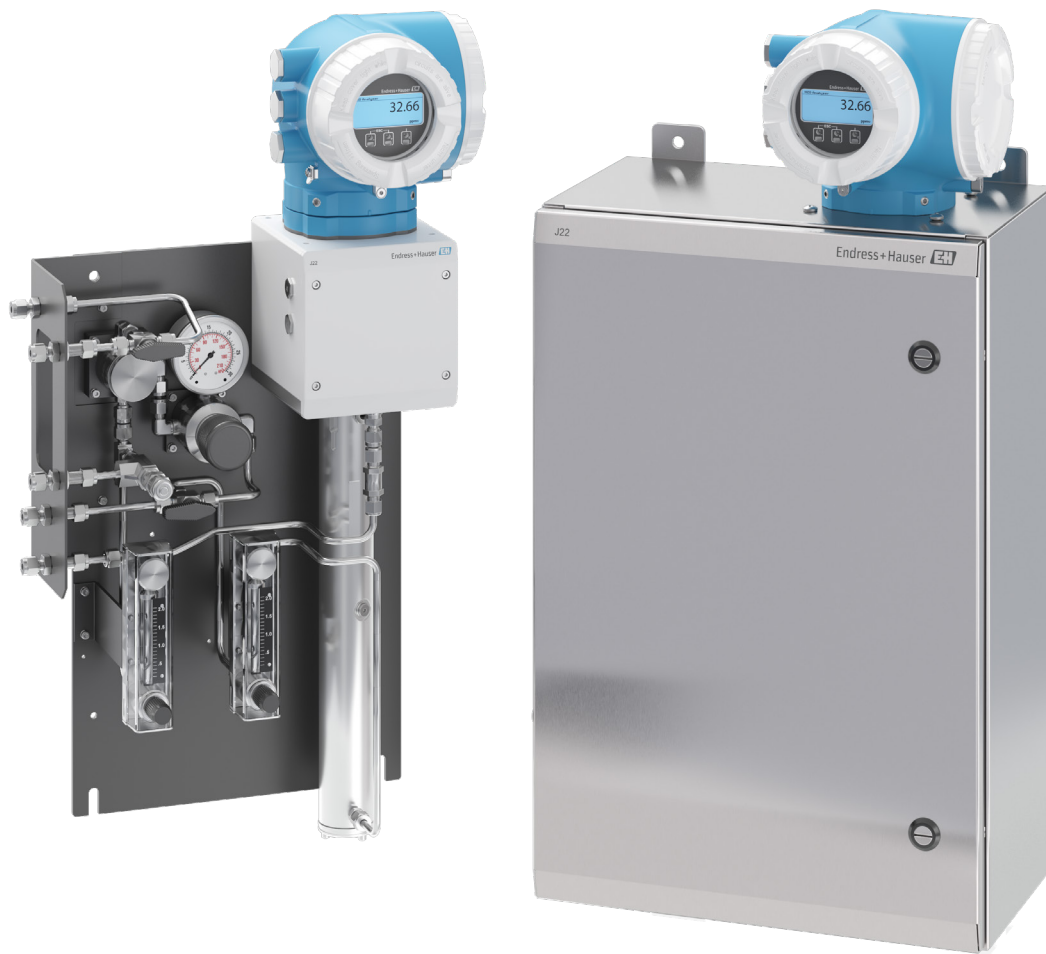
# J22 TDLAS gas analyzer

## Reliable H<sub>2</sub>O measurements

### For safety, quality and productivity in natural gas applications

- Laser-based H<sub>2</sub>O measurement to meet natural gas quality specifications
- Accurate and reliable analysis to ensure safety and asset integrity
- NIST-traceable calibration with superior accuracy and repeatability
- Robust design for easy installation, commissioning and repair
- Field serviceable components and modules for minimal downtime
- User-friendly interface with intuitive menu and web server software
- Heartbeat Technology™ for diagnostics and verification reporting
- Automatically stored historical data and spectrum logging
- Unsurpassed performance to safeguard downstream gas transmission from delivery interruptions





The J22 offers configuration flexibility with a variety of features to suit any application

## Our expertise, your reliable measurement

Expectations for natural gas production measuring instruments are constantly increasing to meet the highest levels of process and product quality, coupled with low maintenance and low total cost of ownership. From this requirement, the J22 tunable diode absorption spectroscopy (TDLAS) gas analyzer was created. The highly developed algorithms of the TDLAS measurement, plus the sophisticated diagnostics, monitoring, and verification concept of Endress+Hauser Heartbeat Technology, offer a comprehensive process monitoring that cannot be found anywhere else. Fewer failures, lower operating costs and improved reliability provide the user with a sustainable competitive advantage, ensuring continuous and reliable measurements.

For over 20 years, Endress+Hauser has provided customers with world-class TDLAS gas measurements for the natural gas industry. The extractive TDLAS H<sub>2</sub>O analyzer systems, powered by SpectraSensors TDLAS technology, provide continuous measurements to ensure operational safety

and high plant availability. These high-quality analyzers are best-in-class for meeting gas quality specifications. In doing so, J22 TDLAS gas analyzers increase human safety and asset integrity by helping to prevent pipeline corrosion, hydrate formation, and risk of explosion.

Endress+Hauser experts are strategically located worldwide, ensuring an active local presence anywhere. Our dedicated team is always on hand to provide additional support.

### Approvals and certificates

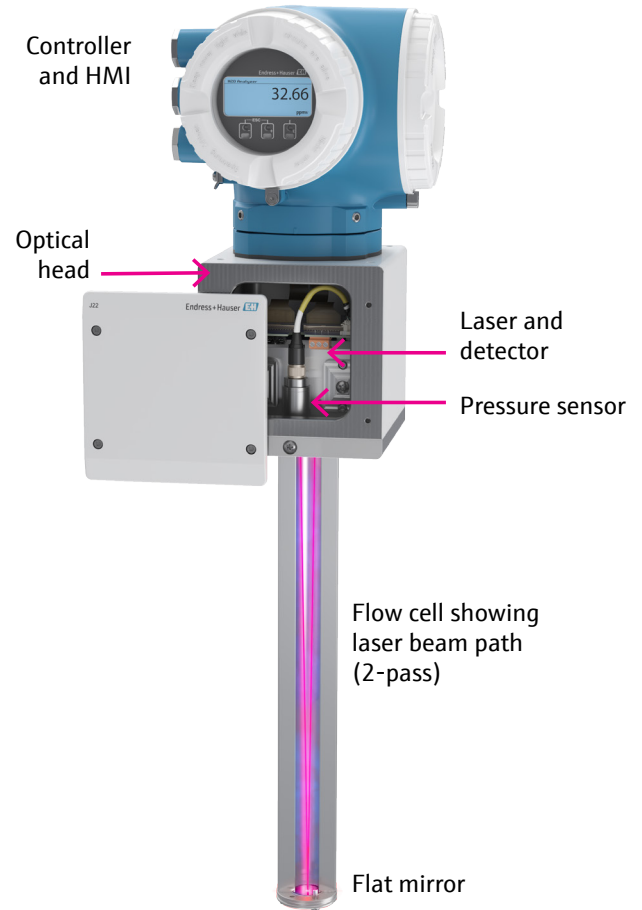


# Principle technology of the analyzer

Recognized as the leader in TDLAS technology, Endress+Hauser pioneered the use of tunable diode lasers for on-line, real-time measurements of H<sub>2</sub>O in hydrocarbon gas streams. Advanced diagnostics and superior measurement algorithms differentiate the J22 analyzer, providing the highest analyzer availability.

The heart of the TDLAS measurement lies in the gas sample cell where the laser and signal detector are isolated from process contaminants, eliminating contamination and measurement errors.

State-of-art gas mixing technology is used during factory calibration for measurement confirmation. This ensures leading-edge metrology for superior measurement performance, safeguarding downstream gas transmission for uninterrupted delivery.



# Seamless integration

The J22 gas analyzer can be integrated seamlessly into any plant asset management system, providing reliable information for optimizing gas production measurement processes. The analyzer platform offers versatile operating options using a standardized Endress+Hauser concept. The user-friendly J22 TDLAS gas analyzer ensures natural gas quality and enables pipeline processes to be securely controlled with confidence.



## Heartbeat Technology

- Diagnostic capabilities for reduced maintenance and quick resolution
- Permanent self-monitoring
- On-demand PDF verification reporting
- Alarm categories per NAMUR 107



## Superior metrology

- Excellent linearity and accuracy traceable to NIST references
- Extremely good repeatability and reproducibility
- Very low sensitivity to changes in ambient and stream conditions



## HistoROM

- Automatic data storage ensures maximum plant safety
- Simple data restoration enables quick exchange of components
- Event logbook and data logger provides for quick failure analysis



## Simple operation (HMI)

- Optimal usability with user-friendly interface
- User-specified menu structures and device access



## Web server

- Time-saving local operation without additional software
- Comprehensive access to device, diagnostics, and process information
- Fast data upload/download for maintenance and service



## Your benefits close-up

Proven technology for accurate and reliable measurement of H<sub>2</sub>O in natural gas

The J22 TDLAS gas analyzer provides an exceptionally reliable measurement. It is tailored for natural gas pipeline operators and natural gas suppliers who want to meet gas quality specifications, prevent pipeline corrosion, stop hydrate formation, and minimize the risk of explosion to ensure human safety and asset integrity. TDLAS was introduced to the natural gas industry by Endress+Hauser, establishing the rugged nature of the laser-based analyzers. TDLAS analyzer technology has been used for decades in natural gas pipelines with very little maintenance. There are no interferences or detrimental effects from compressor oil, glycol, methanol, amine, H<sub>2</sub>S, or moisture slugs.

**Maximize high-quality throughput and availability, while minimizing operational costs**

- Proven reliability and real-time moisture measurement guarantees continuous gas deliveries and eliminates disputes
- Highest analyzer availability and low maintenance significantly reduces operational costs
- Diagnostics supported by Heartbeat Technology enables reliable automation of natural gas quality control

**J22 TDLAS  
gas analyzer  
awards**





# J22 for the finest process monitoring and control



## Safety in the pipeline

The J22 analyzer helps natural gas pipeline operators prevent pipeline corrosion and minimize the risk of explosion, ensuring human safety and asset integrity.



## Optimized productivity

The J22 analyzer optimizes productivity and is supported by Heartbeat Technology with advanced diagnostics and measurement algorithms.



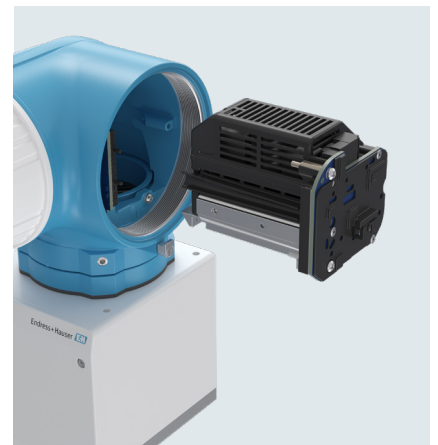
## High plant availability

The J22 analyzer performs continuous, real-time measurements with proven metrology to avoid shut-in, flaring, and interrupted gas delivery incidents.

# Convenient on-site analyzer upkeep

## Ease of service for minimal downtime

The J22 TDLAS analyzer's easy-to-replace components minimize downtime for the most efficient continuous analysis. Components are easily accessible and field-serviceable, allowing for quick replacements or upgrades. The simple-to-remove gas sample cells are designed to allow convenient cleaning and servicing.

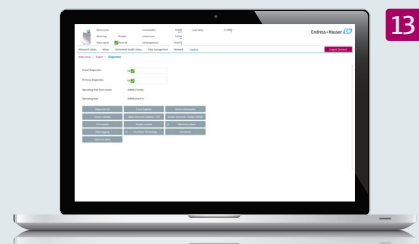
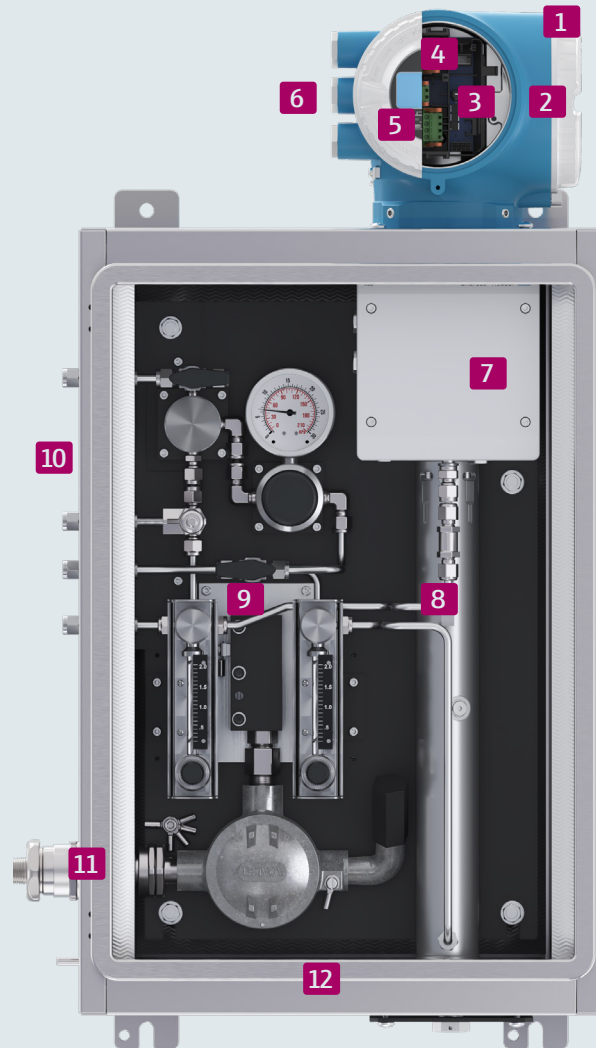


# The J22 TDLAS analyzer system

The J22 TDLAS gas analyzer design exceeds industry expectations and provides optimum accessibility for all user interfaces via easy access to electronics, optics, and sample conditioning components.

## Features at a glance

1. **Electronics housing** – industry optimized using a robust housing design
2. **Two-chamber housing** – securely separated, modular electronics design for quick-access serviceability
3. **Web server connection** – easy to connect and configure in the field using a laptop computer
4. **HistoRom** – memory to keep all device information; data management concept for back-up, duplication, and electronic board exchange
5. **Display operation** – secure HMI with intuitive menu
6. **Inputs/outputs** – freely configurable for optimized communications
7. **Optical enclosure** – the heart of the measurement using proven laser technology
8. **Sample cell** – continuous gas flow for real-time measurements
9. **Sample conditioning system** – enhances measurement integrity with selectable components for safe optimization of incoming gas streams
10. **Gas connections** – all gas connections located on one side with optional heat-traced gas entry, safety purge, and pressure relief
11. **Electrical** – connection for heater
12. **Enclosure** – with optional heater and insulation for cold weather
13. **Web server interface** – measured values, diagnostic information, and historical records at your fingertips



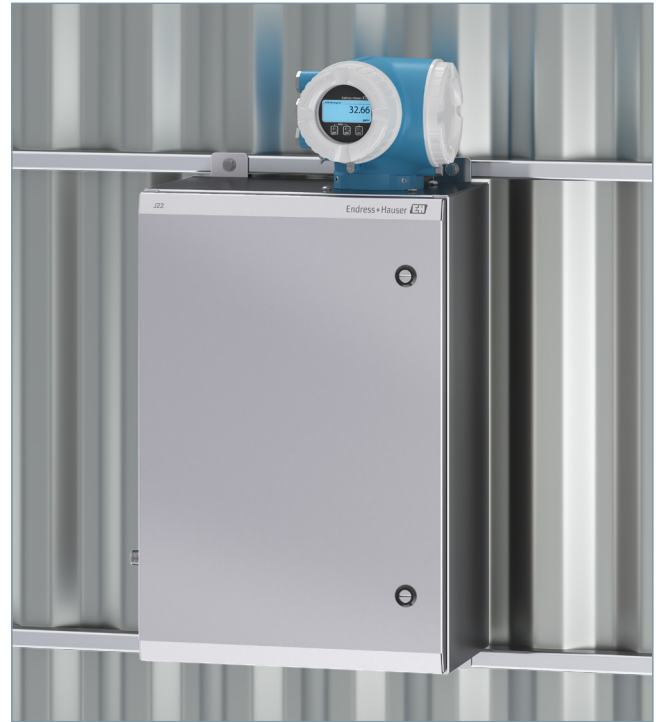
# Systems for diverse installation requirements

## Configurations to suit varying environments and gas conditions

A variety of system options allow the J22 TDLAS gas analyzer to integrate perfectly into any number of natural gas application locations. Configuration flexibility makes it the most versatile H<sub>2</sub>O analyzer on the market!



J22 on panel with sample conditioning system, pole mounted using pole mount kit



J22 in heated enclosure with sample conditioning system, wall mounted using integral mounting bracket

## Analyzer systems designed for natural gas production installations

J22 TDLAS gas analyzer systems are available in multiple mounting configurations suitable for various locations:

- Panel mounted sample conditioning system for installation in shelters or in temperate locations
- Heated enclosure for use in outdoor settings or locations with harsh environmental conditions
- Filtration, with or without bypass to remove particulates or liquids in gas stream, assuring uninterrupted measurement
- Pressure regulation with or without pressure relief valve to ensure a steady gas flow into the analyzer for consistent and continuous measurement
- Flowmeter choices suitable for different area classifications, plus additional flow switch to ensure gas flow detection
- Rugged brackets for wall, rack, or pipe mount for effortless installation

# Technical specifications

## Measurement data

Target measurement	H <sub>2</sub> O (moisture)
Gas streams	Natural gas. H <sub>2</sub> also available upon request.
Principle of measurement	Tunable diode laser absorption spectroscopy (TDLAS)
Measurement ranges	H <sub>2</sub> O: 0-500 to 0-6000 ppm (0-24 to 0-284 lb/mm scf) Dewpoint: moisture dewpoint calculations using selectable ASTM D1142 or ISO 18453 methods
Repeatability	±1 ppmv or ±1% of reading (whichever is greater)
Accuracy	±2 ppmv plus 2% of reading

## Electrical & communications

Controller display	4-line backlit display with touch control
Controller operation	Configuration via display or web servers
Controller housing materials	Coated copper-free aluminum
Outputs & communication	I/O 1: Modbus RTU over RS485 or Modbus TCP over Ethernet I/O2 and I/O3: software configurable; set as relay output, analog input (4-20 mA), analog output (4-20 mA) or digital/status output
Power supply	Controller: 24 VDC ±20% or 100-240 VAC ±10%, 50/60 Hz, 10W Optional Heater: 100-240 VAC ±10%, 50/60 Hz, 80W
Ingress protection	IP66, Type 4X

## Sample conditioning system

Panel and enclosure materials	Sample panel: anodized aluminum Sample conditioning enclosure: 304 stainless steel
Inlet pressure range	140-310 kPa (20-45 psi)
Sample cell operating pressure range	800-1200 mbara (atmosphere) or 800-1700 mbara (flare)
Flow rate	0.5-1.0 slpm (1-2 scfh)
Wetted materials including sample measurement cell	316L stainless steel, FKM O-Rings
Sample conditioning components	Includes verification port and options for filtration, pressure regulation, flow meters, flow switch, and safety purge

## Certifications and marks



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