

Factory acceptance test (FAT) information

For TDLAS and QF analyzers



Endress+Hauser offers a variety of Factory Acceptance Tests (FATs) for our tunable diode laser absorption spectroscopy (TDLAS) analyzers, including those designed to measure moisture (H_2O), carbon dioxide (CO_2), and hydrogen sulfide (H_2S). Our quenched fluorescence (QF) optical oxygen (O_2) analyzers are also included in the FAT offering.

All FATs for TDLAS and QF analyzers are performed at our product center in Rancho Cucamonga, California, USA. Our FAT offering serves most industry requirements and ensures that the product quality and performance are satisfactory according to customer expectations.

The FAT plan is comprised of four categories:

- comprehensive document review
- analyzer functional check(s)
- measurement check(s)
- analyzer visual inspection



Customers can select non-witnessed, witnessed, or remote video inspection FATs. Also, customers have the option to extend repeatability testing for either 8- or 24-hours. Customer-specific requirements should be identified during the proposal stage and prior to order acceptance.

The four categories of a FAT plan, ordered as JFAT1 (70159650), are explained in more detail below:

1. Documentation review:

- Calibration certificate and performance data to confirm compliance to analyzer performance specifications
- Production documentation, including drawings, to review completion of production sequences and verification of a pressure leak test of the analyzer system(s)
- Test station NIST traceable calibration certifications for equipment and/or blended gas mixtures utilized in calibration and the FAT procedure

2. Analyzer functional test:

- Confirmation of all 4-20 mA current outputs
- Confirmation of output relays for the assignable alarm, general fault alarm, and validation fail alarm (as applicable)
- Other testing (dependent upon analyzer system build), including flow switches and/or pumps

3. Analyzer measurement check:

- Measurement check for requested analyte(s) in the process gas blend* to verify proper measurement repeatability performance
- Measurement check for analyte(s) in validation gas when applicable

4. Analyzer visual inspections:

- Nameplates and tag plates
- Wiring interconnection points
- Sample system plumbing and components
- Review latest revision of Endress+Hauser drawing against final build



Standard analyzer testing includes a 30-minute zero, one-hour nominal, and one-hour high range test. Extended repeatability testing for all analytes (except O₂) are available. For H₂O measurements greater than 50 ppm, factory review is required.

Prior to a witnessed or video FAT, Endress+Hauser will complete full testing and calibration of the analyzer using established procedures and testing equipment in the factory. These procedures are proprietary for both production and product testing and will only be available for review at the factory.

Customer-specific requests are reviewed on a case-by-case basis for additional document review or calibration requirements. Project-specific documents and special calibration gasses must be determined between customer and factory during proposal stage and prior to order acceptance.

For further clarification on a specific test plan, please contact your local sales office.

*The analyzer is calibrated against a background of blended reference gases; this blend is spectroscopically representative of the process stream.