



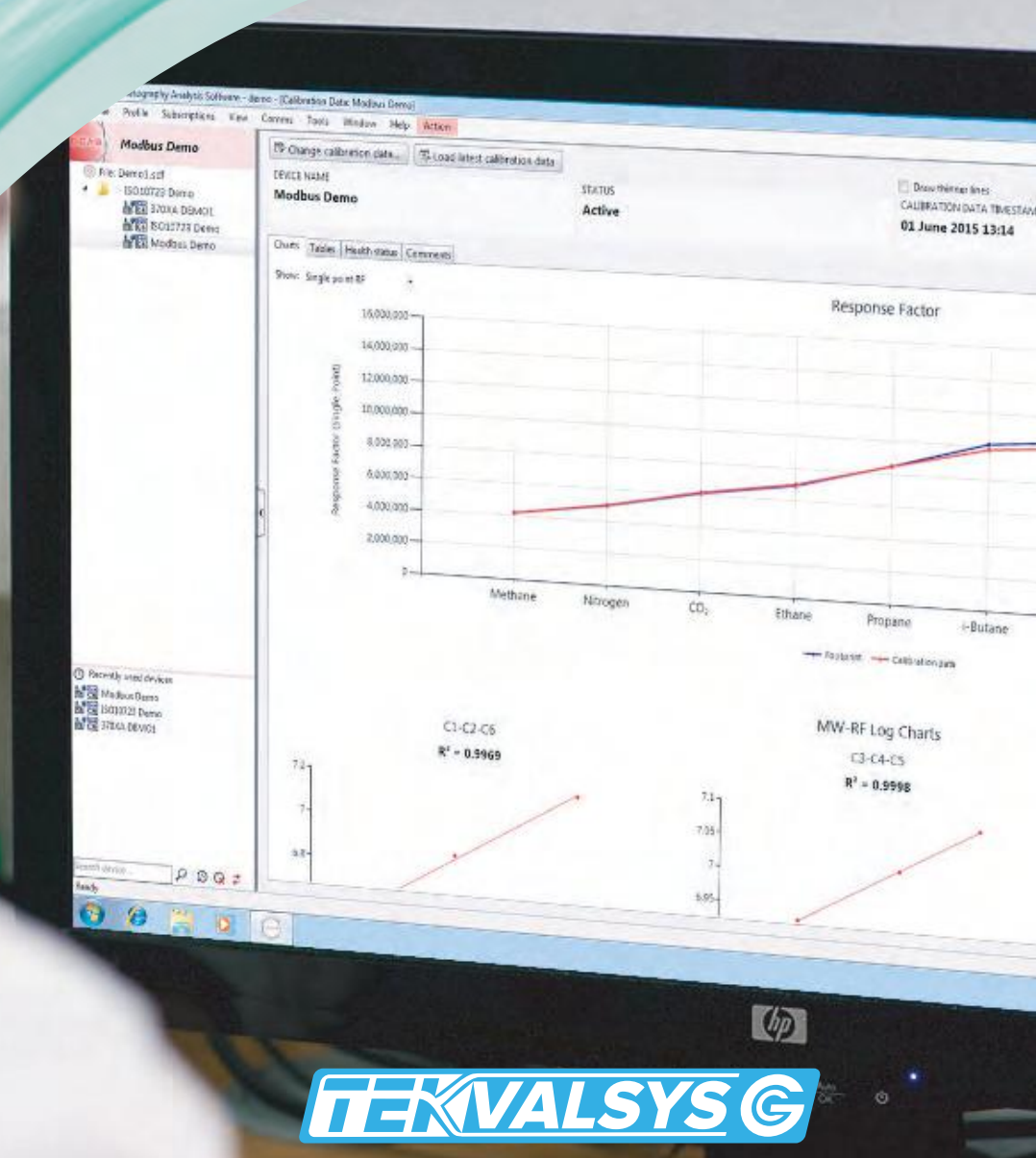
Technology Solutions

TekValSys GC

Enabling Higher Confidence in Gas Chromatographs



TEKVALSYS



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Flow | Level | Temperature | Pressure | Valves | Analyzers | Accessories | TekValSys

Introduction

TekValSys GC is a unique and comprehensive condition-based validation software package for gas chromatographs (GCs), comprising GCAS software and Panel PC for hazardous or safe areas. TekValSys GC automatically captures routine calibration data, as well as online analysis result to assess the health status of the gas chromatograph and calculate live uncertainty. This data is presented in clear graphical and tabular formats, giving operators confidence in the gas chromatograph's performance and provides benefit of early failure detection.

In its simplest form, TekValSys GC summarizes the health of your gas chromatograph to simple green or red status indicator similar to a traffic signal. A green light indicates a stable, repeatable and healthy gas chromatograph with no manual intervention required. Where further investigation is required, TekValSys GC provides the most comprehensive data analysis features to assist with fast troubleshooting.

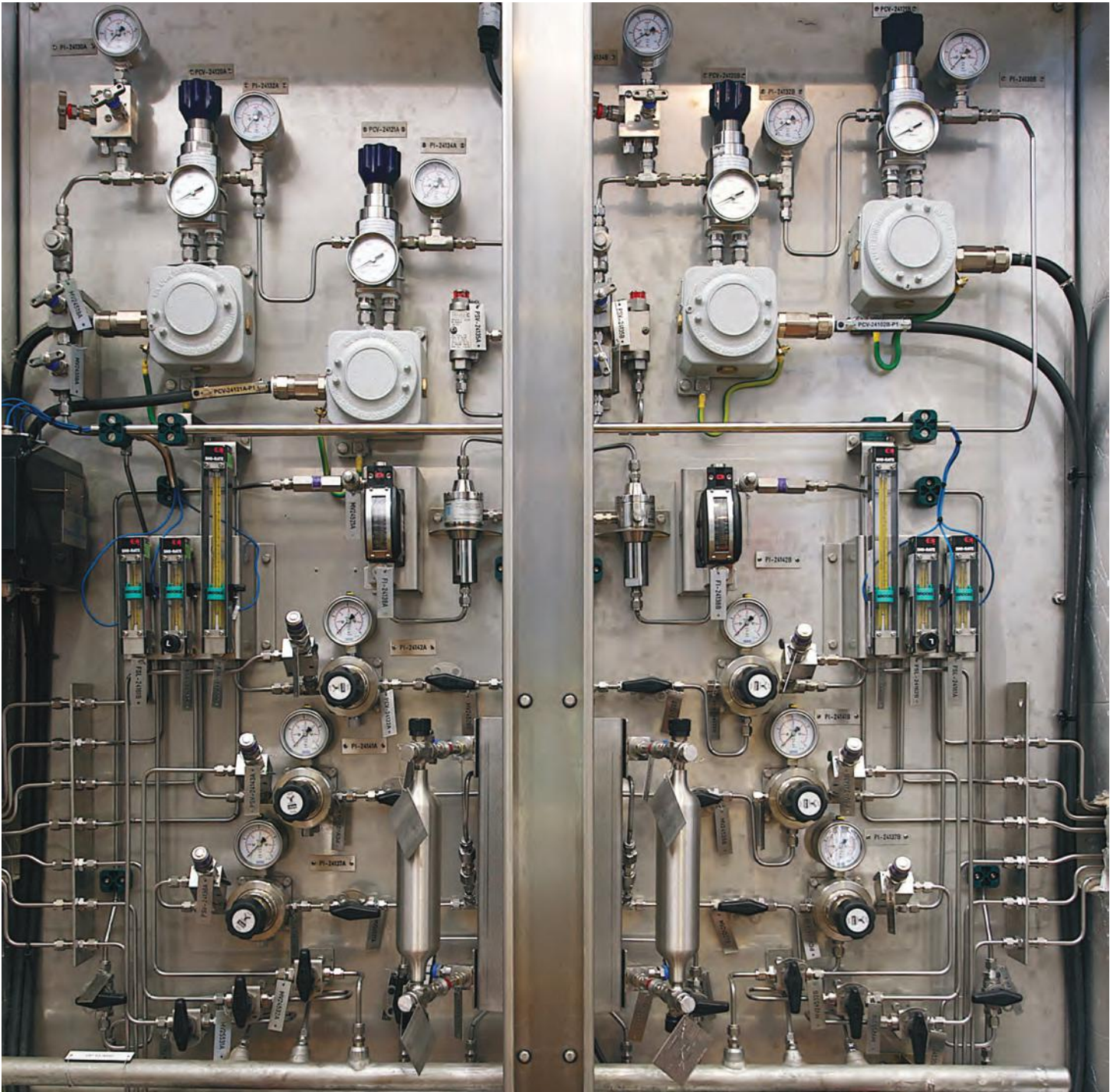


Operation

When TekValSys GC is first installed, it takes an accurate 'footprint' of your gas chromatograph to use as a healthy set of reference conditions. Existing issues would be detected during this initial installation process. After the 'footprint' is set up, TekValSys GC monitors calibration gas analysis data (ideally via Modbus) to confirm accuracy and error-free performance. TekValSys GC can analyze the gas chromatograph's calibration data automatically with no manual intervention required by an onsite technician. TekValSys GC captures response factor and retention time data following each calibration and plots correlation charts to illustrate the gas chromatograph's current performance. All calibration data is historically stored, and this can be referred to by the technician, operator, and regulator for auditing and validation purposes. TekValSys GC can be installed by the end user and doesn't require you to call a GC specialist. TekValSys GC is a Windows application and is therefore compatible with most standard desktop and laptop PCs.

What is Live Uncertainty?

With its unique method for analyzing reproducibility, TekValSys GC is able to give you live uncertainty calculations after routine calibrations. Until recently, this could only be achieved with laboratory analysis. For fiscal applications, TekValSys GC can apply these values to international standard ISO6976 to routinely calculate uncertainties for Calorific Value, Molecular Weight, Wobbe Index, Relative and Standard Density.



Benefits

- Live uncertainty for Calorific Value, Wobbe Index, Molecular Weight, Relative and Standard Density
- Historical uncertainty trend
- Combined response factor
- Mole compositions trends and comparison
- Conversion between multilevel calibration and single-point response factor
- No manual intervention required

Application

Validates the gas chromatograph's performance by detecting:

- Calibration gas errors
- Gas chromatograph leakage
- Column deterioration
- Diaphragm leakage
- Valve timing issues
- Poor handling procedure
- Heavy end drop out
- Fault in repeatability test interpretation
- Fault in control chart interpretation
- Fault in composition comparison
- Spot sampling procedure errors



Performance Verification

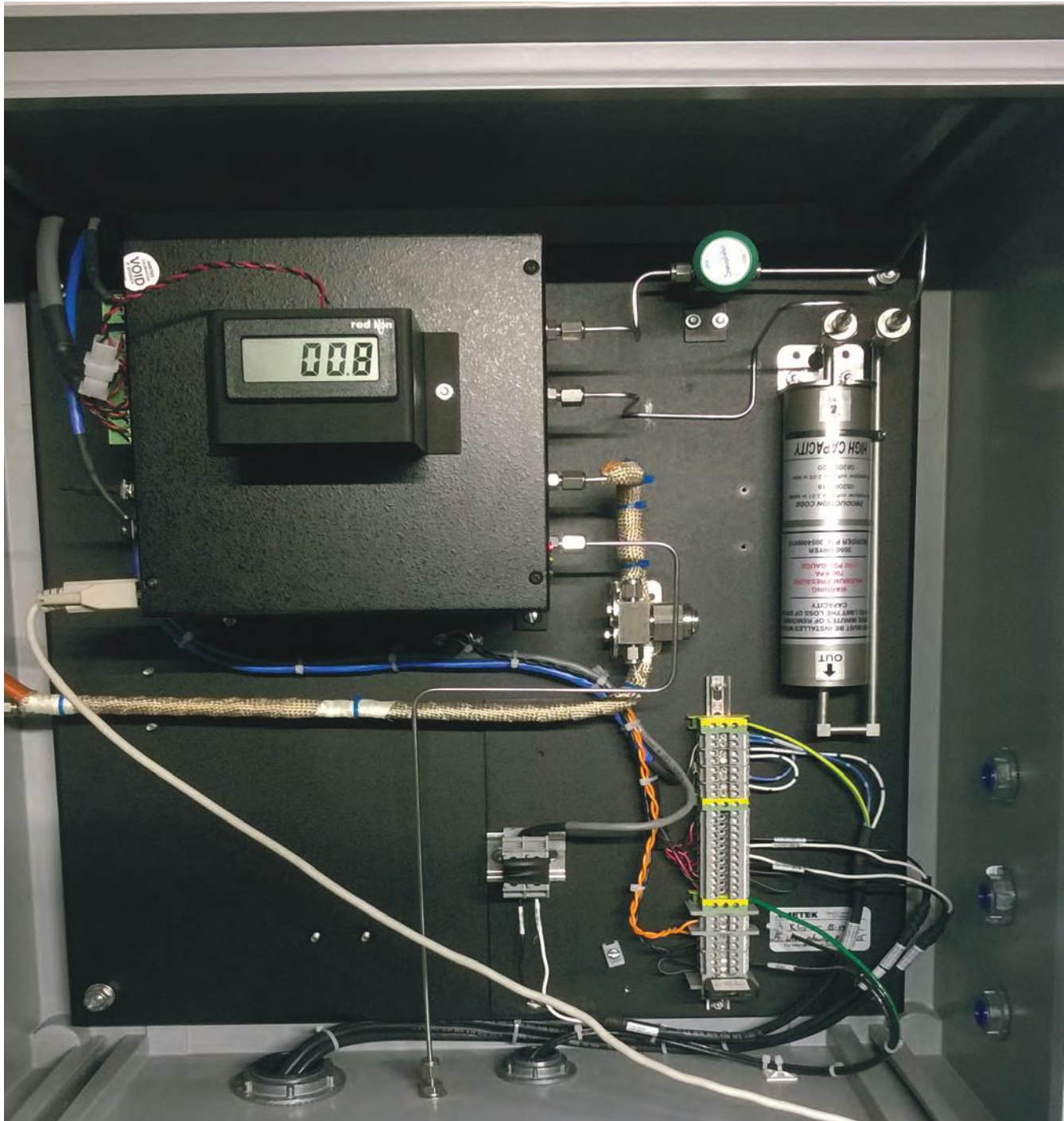
TekValSys GC data can be stored offline either on a field mounted unit (TekValSys GC in a box), on any PC available on-site, on any company network, or hosted by Tek-Trol in the central TekValSys GC database.

Traditional manual control charts, even if well maintained and completed correctly, can often give false alarms and do not necessarily ensure optimum performance of the gas chromatograph. With TekValSys GC, this validation process is automated routinely, with no chance of human error. One of the key diagnostics of TekValSys GC is that it indicates performance issues, which go undetected in standard control charts. TekValSys GC gives the GC operators complete confidence by providing easily accessible and auditable evidence of the gas chromatograph's performance over time, and allowing data to be stored in a secure and controlled environment. Technicians gain a better understanding of their gas chromatograph's performance using TekValSys GC as compared to traditional validation methods.

With TekValSys GC installed on-site, technicians can easily diagnose and resolve issues without the need to contract a GC specialist for site maintenance. This saves downtime, as well as unnecessary OPEX costs.

Dual Level Calibration (DLC)

Every year many gas measurement sites carry out an annual performance evaluation as per ISO10723, using seven different gas compositions, to determine the linearity and repeatability of the gas chromatograph. This approach is costly as it requires an external specialist accredited to ISO17025, including their mobilization to a site. Where the gas chromatograph fails on any criteria, a second test has to be completed, at additional cost.



Using just two calibration gases, a Dual Level Calibration (DLC) can be performed on-site at any time, and a linear analysis function can be applied to the gas chromatograph covering the process gas range. The DLC method has been proven in multiple case studies to provide similar results to a multilevel calibration, hence significantly reducing the gas chromatograph bias due to detector non-linearity.

With one gas used as the routine calibration gas, the second 'spare' calibration gas can be used to validate the DLC on-site on a regular (for example, monthly) basis at no additional cost. Adopting the DLC method saves unnecessary OPEX and effectively means that the gas chromatograph's performance evaluation test can be performed as often as required. By combining TekValSys GC software for online condition-based monitoring with dual-level calibrations, GC operators can achieve a higher level of confidence in the ongoing performance of their gas measurement systems.

Customer Service and Support



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DOC # TEK/AK/171114/TEKVALSYS/6
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