

# FuelCon

Tomorrow's energy. We make it work.

## TestWork

Intuitive operating software for Evaluator test systems

- Intuitive operation with task-oriented organization of all features
- Fully automated, unattended operation of single test stations or complete test fields
- Multi-level user access for controlling operation configuration rights
- Dynamic sampling rates
- Data export manager for conversion into CSV, XLS, XLSX, XML or MDF
- Real-time trend chart of parameter readings, polarization curves and impedance plots
- Multi-level Alarm Monitor with complete status reporting
- Multi-screen operation for convenient test station and test field control
- Open interfaces allow integration of third party hardware and software



**TestWork** is FuelCon's ergonomic software for operating automated complex test stations of the Evaluator series. The graphical user interface has been developed in closed consultation with our customers, providing a clear structure and intuitive operation for all daily tasks. Therefore we offer various modules with different functionality (Remote, Standard, Professional, Enterprise).

**TestWork** is based on a modern server-client-architecture that fulfils the high requirements of operating complex test systems or test fields.

The **TestWork Client** allows to create and manage extensive test runs. With the innovative architecture both, single test stations as well as complete test fields with central data logging can be controlled. The integration of the real-time level devices is also optimally supported.

Please feel free to download the latest information available at our website [www.fuelcon.com](http://www.fuelcon.com). If you have any questions, please do not hesitate to contact us. We will be happy to support you and discuss your testing requirements!

## Graphical user interface

Intuitive operation with task-oriented organization of all features

Multiscreen operation for a convenient work environment

Easy monitoring of set point and actual tag values on the Cockpit (simplified test stand P&ID)

All key tags are manually changeable on the Cockpit

Several Designer tools for task oriented adaption of the GUI

## Test runs

Various automated test programs with several break-off conditions, loops and predefined procedures

Unlimited control of all test station components via script programming in Visual Basic Script

Easy-to-use Script Designer allows operator to quickly create main and multiple subroutines

Simulation mode allows pre-test run script testing

Creation of test reports

## Trend Diagram

Optimal support of trend chart evaluation including axis scaling and various tools

Provides monitoring real-time data or historical data of previous test runs

Real-time views of polarization curves, voltammograms and Nyquist plots during test runs

## Remote interface

Automation interface for remote controlling a FuelCon test station from across computers/different programmes

Open interface for 3rd party hardware

Reading historical data from the TestWork database

HIL testing

Connection with customer-own devices

Automated maintenance within a test field

## Test Item and User Manager

Test Item Manager provides easy database management of all test items, designs, test runs performed and results

Definition of customized test item parameters to configure e. g. alarm values at test run start

User Manager for safe access to operator levels allowing modification of alarm, calibration & control loop parameters

## Designer tools

Cockpit Designer to create new or adapt existing Cockpits to new testing requirements

GUI Designer for task oriented adaption of the GUI to user needs and/or personal preferences

Script Designer to create and edit scripts directly within the software

Modern Sequence Designer for step by step creation of test runs including templates and import functions

## Integration of external CAN devices

Import .dbc files of CAN devices directly with DBC Designer

Integration of CAN messages in all tools and features of TestWork

Norm Tag Manager for customized nomenclature of CAN messages

## Data Management

Process data management within a SQL data base for defined data access and flexible data mining algorithms

Continuous data logging with flexible sampling rates and smart data reduction algorithms

Various export functions, supporting different file formats like XML, XLS, XLSX, CSV, MDF

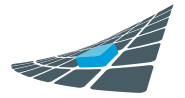
Database server for increased data safety

## Support

Several customer training programs and webinars

Optional remote training and support service via modem or internet

Optional test program development



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## TestWork Upgrade

Modern and powerful operating software for Evaluator test systems

- Integration of CAN networks within TestWork tools
- Powerful and scalable data collection of all measurable test station values
- Default configuration for „ready to use“ functionality
- Easy device management, including random designation
- Templates for test programs, trend, interface design and export
- Modular, flexible structure and software design
- Import and logging of CAN networks
- Adaptable operation software and Graphic User Interface
- Data management within Microsoft SQL Database



TestWork is FuelCon's ergonomic software for automated operation, the visualization of complex battery or fuel cell test stations and assembly systems of our Evaluator product line. The powerful software allows the user to plan, execute, and evaluate tests on test items of various technologies, regardless of using an individual test place or an entire test field.

FuelCon is continuously working on software developments to satisfy the latest needs and requirements of customer's. Thereby the integration of new tools is just as important as the consistent advancement of existing features. With the latest TestWork version, for example the improved integration and communication of CAN signals via DBC Designer and CAN Network Manager, complete

the scope of tools and features.

Furthermore the visualization of process monitoring extended within the latest updates and causes a more powerful and more dynamic Trend Diagram.

Due to our trustful cooperation with customers, the performance permanently increases and makes the daily work much easier. The advantages of an upgrade are worthy of consideration.

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## Data Management

- Extensive and adaptable test item management
- Editable database handling
- Powerful export manager for versatile connectivity
- Data management with powerful Microsoft SQL database

## Software Handling

- Intuitive and easy to handle software architecture
- Powerful performance for extensive test operation
- Task oriented organization of all features
- Highest reliability for fully automated, unattended operation

## CAN Communication

- Management of complex CAN networks
- DBC import for easy integration of CAN configurations
- Usage of customized signal names in all automation processes
- Logging and export of CAN signals

## Visualization

- New trend diagram and cell voltage diagram
- Extended cell voltage diagram functionalities for integration of external customer CVM devices

## Test Program Handling

- Easy Sequence Designer functionalities
- Creation and management of test scripts
- Transparent management of several test places
- Monitoring of scripts and sequences (live and historic)
- Improved management of built in EIS and CYV testing
- Control and visualization of test stations and test fields

## Graphical User Interface

- Easy cockpit adjustment for unique customer design
- Intuitive and practical cockpit design process
- Management of customized (user) cockpits
- Extensive GUI adaption
- Access to different configurations (e.g. trend, export)

## Upgrade Requirements

- New computer hardware for TestWork server
- Hardware update for TrueData-LOAD controller and SPS
- PLC firmware update
- 3 to 5 days on site commissioning required