

FLUKE®

COMPASS® for molbox™

Calibration



Calibration assistance software for molbloc/molbox™ users

Features

- Usable on any IBM-PC or compatible computer with an available COM port and running Windows 95 or higher.
- Supports both molbox1 and molbox RFM.
- A true Windows® application following Windows protocol for file management, menu and message formatting, graphics and editing. Other applications can be run without interrupting test execution.
- Complete online Help facility with Tool Tips.
- Customizable user interface with scalable windows.
- Calibrate and test a wide variety of devices including: MFCs, MFMs, rotometers, turbine meters, bubble meters and others.
- Fully automated testing of both analog and digital MFCs.
- Automated flow control support for testing flow measure only devices.
- Flow corrections with automated ambient pressure and temperature entry for density dependent DUTs.
- Log extra data from the DUT during the test with user defined commands.
- Open hardware configuration allows simple integration of third party acquisition, control, and pressure and temperature measurement hardware.
- Sets up and maintains DUT database with unique DUT characteristics, test scripts and histories.
- Process gas editing tool includes complete gas conversion factors for most major MFC manufacturers and automatically calculates conversion factors for missing relationships and blends.
- Produces standard, delimited test data files which easily import into other software programs if desired.
- Test data files stored in user definable directory structure.
- 100% customizable test report generation tool with preformatted templates.
- Extensive on-board plotting function to create a variety of test date plots.

Why COMPASS for molbox

The DHI molbloc/molbox is a unique gas flow standard offering state of the art metrology from <1 sccm to several thousand slm with a wide variety of gases and real time measurement capability. COMPASS for molbox software works with molbloc/molbox to create a full function calibration system. The result is the optimal flow calibration system combining the outstanding performance of molbloc/molbox with the power, versatility and features of a modern PC based application.

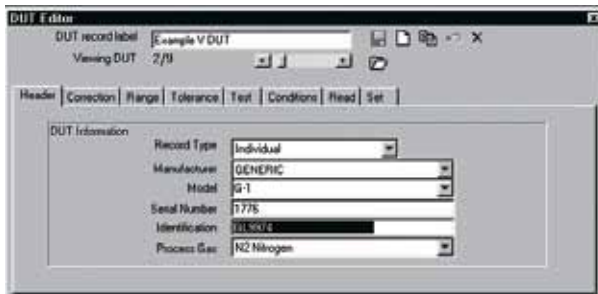
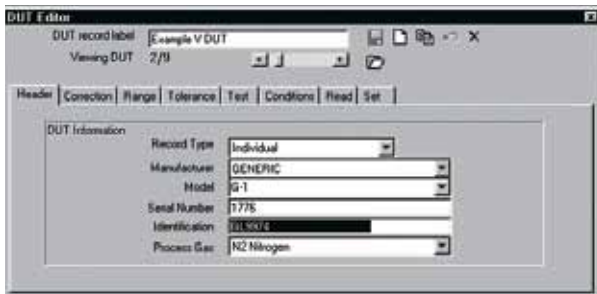
Setting up devices to be tested (DUTs)

Individual device under test (DUT) profiles are defined and stored in the DUT database. The DUT profile identifies the test device and specifies all of its operating characteristics. For density dependent devices such as rotameters and turbine meters, the normal operating conditions are specified.

Manufacturer specific gas conversion factor tables are automatically

searched to suggest the appropriate surrogate gas for calibration and a gas conversion factor for use with MFCs and MFMs.

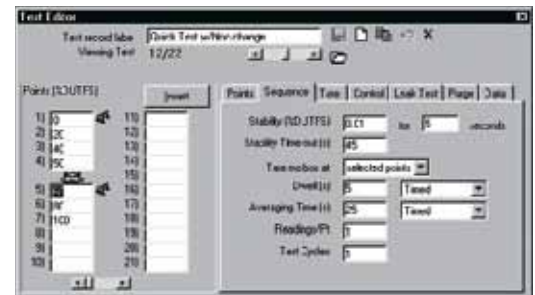
A test script from the test database (see below) is specified in the DUT profile assuring that when the DUT to be tested is selected, the correct test sequence and parameters are used.



Setting up test definitions

Test scripts are defined and stored in the test database. The test array specifies the test increments to be run and can be filled in automatically. Other user specified test parameters include:

- Run gas purge sequence before the first test point
- Run leak test of system plumbing before the first test point
- Tare molbox at specified test points
- Change molblobs between test points
- Manual or automated flow control
- Flow stability required to take data
- Dwell time at each point prior to taking data
- Time of averaging period over which to take data or user triggered start/stop
- Number of independent readings to take at each point
- Number of complete test cycles to run





Running tests

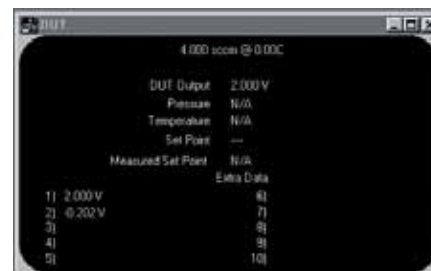
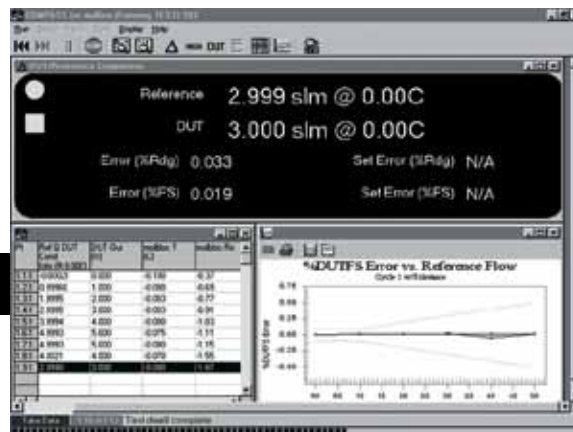
COMPASS can run predefined test scripts or under direct operator control.

Running a test script starts by selecting a DUT to be tested. Once the DUT is selected, the user may elect to run the test script associated with that DUT or another test selected from the test script database. After initialization, test execution begins. In executing the test, COMPASS supports the maximum level of automation the data acquisition and control hardware and the DUT will allow. When running DUTs that do not control flow (such as rotometers or turbine meters), an independent mass flow controller (MFC) can be interfaced with COMPASS to automate flow control.

While running a test, complete operating information is available through six display windows that can be turned on/off and scaled at will. These include real time readings from the molbox and the DUT, calculated errors and deviations, error plotting and a point by point data grid. The current test definition and DUT profile can be accessed by clicking icons.

A status bar continuously indicates the current activity of test program.

After the last test point, the flow is set to zero and a comment field is presented for entering comments specific to the test. The comments are stored with the test data file.



Data handling and report generation

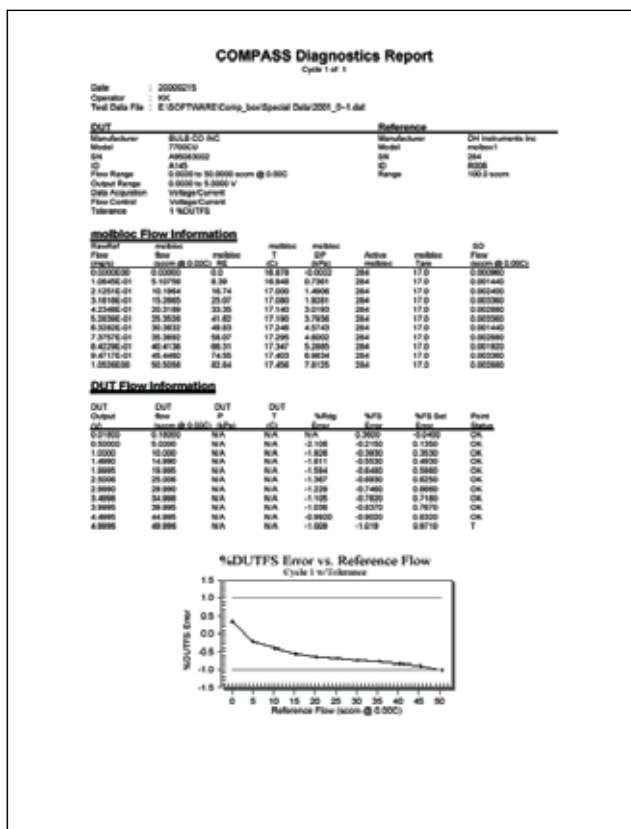
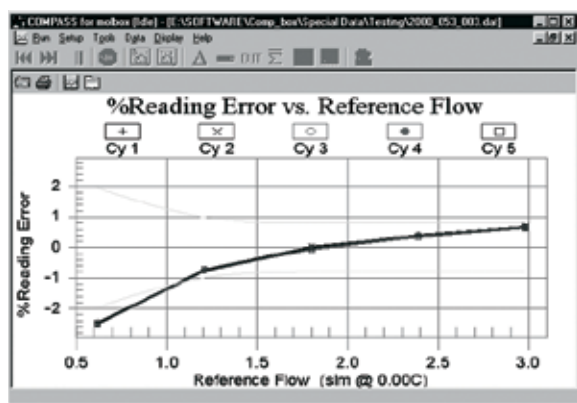
For each test a data file is automatically created and named. The data files are stored following the user specified path to a single directory or to subdirectories by DUT serial or ID number. This gives the user complete control over data file storage including storing to a LAN or intranet if desired.

The data file contains exhaustive information and data from the test. This includes complete DUT, calibration standard and test sequence information as well as all of the raw and calculated data collected during test execution. The data file is delimited (by comma, tab or semi-colon) so that it can easily be imported into third party applications for further analysis, manipulation or storage.

Setting up devices to be tested (DUTs)

COMPASS includes a Report Editor to allow final, formatted test reports to be produced within the COMPASS environment. The Report Editor is template based. Several standard templates are included. Custom templates can be created from scratch or by editing existing templates. All the data file variables as well as COMPASS plots can be embedded into the template.

A PLOT function is also included to generate a variety of detailed error plots from data files. Extensive customization is supported. The plots can be created, viewed and printed.



Electronic interfaces supported by COMPASS®

- | | |
|--|------------------------|
| molbox and auxiliary device interfaces: | DUT interfaces: |
| RS-232 | RS-232 |
| IEEE488 ¹ | RS485 ² |
| | IEEE488 ¹ |
| | DEVICENET ³ |

¹ National Instruments or CEC interface hardware required.
² Requires RS485 to RS-232 converter
³ National Instruments or SST interface hardware required.

Ordering information

Model
COMPASS for molbox Flow calibration software

Includes: COMPASS for molbox for Windows is delivered on CD with a user's manual. An install/uninstall tool is included.

System requirements: Recommended system configuration to run COMPASS for molbox is: IBM PC compatible computer, 200 MHz, 32 Mb RAM, running Windows 95 or higher (32 bit) with available COM port; Access to CD drive to load COMPASS for molbox; molbox1 or molbox RFM based mass flow standard.

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