

REETEC[®] MSAnalyst EVALUATION SYSTEM

1. Minimum System requirements

- **WINDOWS 98SE, NT, XP or 2000**
- **5Mb** disk space for the software plus **1MB** for each spreadsheet created
- **128MB RAM**
- Minimum screen resolution **800 x 600**
- **MICROSOFT EXCEL 97, 2000, 2002or 2003**
- **Colour printer** (preferably)
- **Adobe Acrobat Reader** (ADOBE ACROBAT READER version 6 setup program is included on the CD in a separate folder and may be installed. Additional information on ADOBE ACROBAT products can be found on the ADOBE website at www.adobe.com)

2. Introduction

MSAnalyst is a spreadsheet-based statistical analysis system for users requiring computerised procedures for QS9000 gauge studies and EMP studies.

The system uses MICROSOFT EXCEL spreadsheets with detailed analysis and graphical output in full colour. It contains procedures for the main elements of measurement systems analysis (MSA) based on those described in QS9000 MSA (Editions 2 and 3) And The Well-Known Published Reference 'Evaluating The Measurement Process' (D J Wheeler, R W Lyday, SPC Press 1989).

The EMP (Evaluating The Measurement Process) published by Wheeler and Lyday is included because:

- Many references are made to this method throughout the MSA Reference Manual
- It uses the same method of data collection and recording as the R&R study
- It overcomes the inherent mistakes in the R&R calculations
- The results give a better indication as to the acceptability/non-acceptability of the gauge, than the R&R%
- It indicates whether the difference in Bias and Test-retest error (repeatability) is significantly different between operators

The software produces worksheets for:

- Repeatability and reproducibility studies (R&R) using the long method
- Evaluation of the measurement process (EMP)
- Linearity studies
- Attribute gauge studies
- Gauge capability (Type 1) studies - average and range method
- Gauge capability (Type 1) studies - individual and moving range method
- Bias studies with t-tests
- Stability studies - average and range chart
- Stability studies - individuals and moving range chart

All the results and charts can be printed.

An ADOBE PDF file writer is also included to enable users to store electronic file copies of the results and charts ready for email and read-only access purposes.

All the formulae in the spreadsheets are protected so that a company-wide standard can be applied and site licences are available.

The spreadsheets are self-explanatory, but the software is backed up by our specialist consultant who provides training in MSA and EMP methodology and applications.

3. INSTALLATION

Place the CD in the CD-ROM drive and if the auto run does not operate then run the INSTALLCD.EXE program in the CD root folder. Left-click the MSAlyst INSTALL button. Accept the installation defaults to install the system in the folder 'c:\Program Folders\Reetec\MSA'.

Install with full administration rights and run the program at least once to install the REETEC PDF WRITER in the printer list. The program can then be run without full administration rights. However, in our experience, problems arising when another user logs in to use MSAlyst or the PDF Writer are invariably due to inadequate permissions being given for the program folder and other folders where files are read and written, including the PDF Writer files. Note that the MSAlyst EXCEL spreadsheets contain macros and will not function correctly unless these are enabled for the user.

The program will time-out after a few weeks.

PDF file output will be in a folder of your choice.

The program will be added to your program menu. If you wish to create a short-cut for your desktop then create a shortcut for 'c:\Program Files\Reetec\MSA\msademo.exe'.

4. SYSTEM MANAGEMENT

The system comprises 4 components:

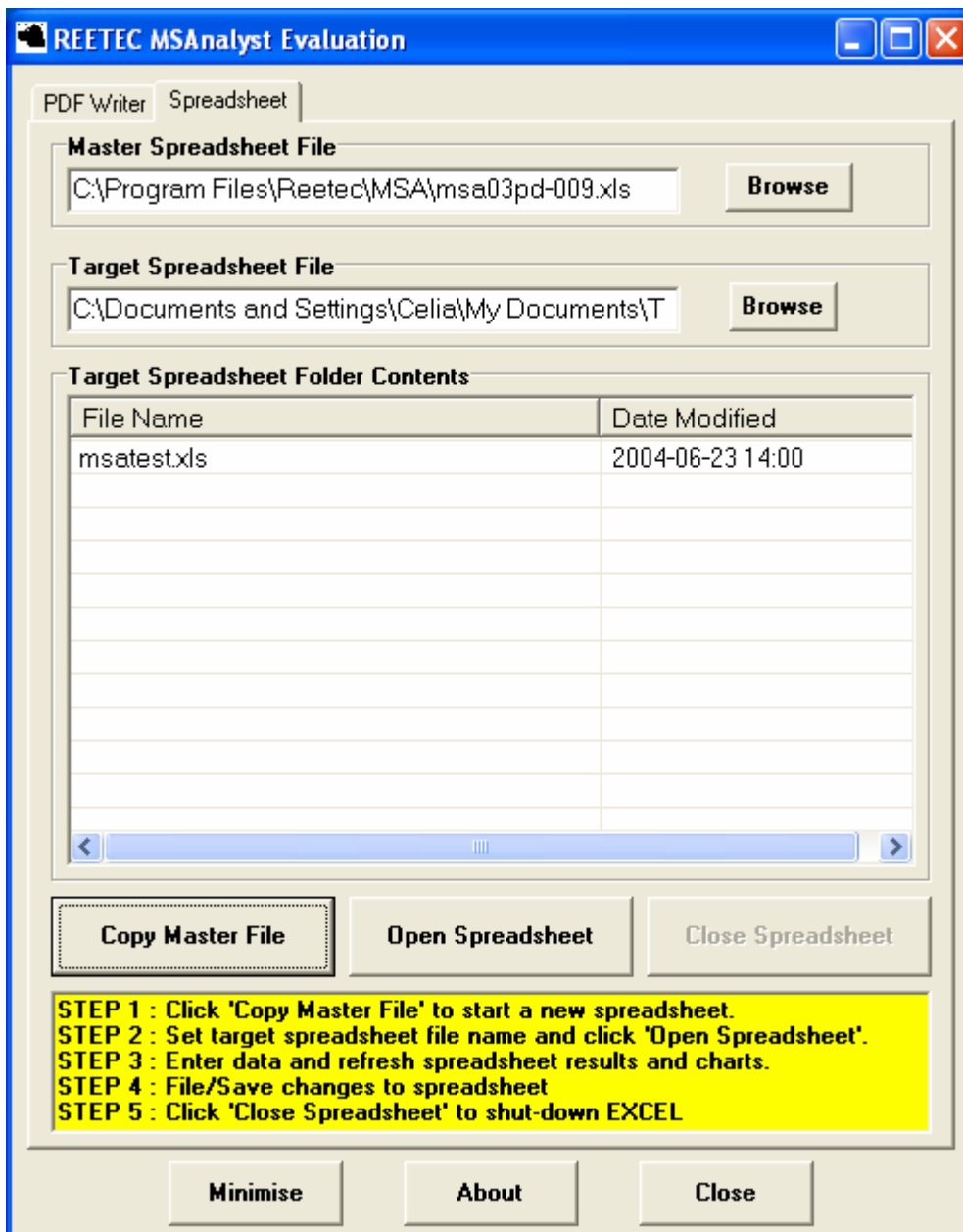
- MSAlyst program **msademo.exe**
- MSAlyst DLL **msadll02.dll**
- Master MSAlyst EXCEL spreadsheet file **msa03pd-009.xls** which is read-only
- User MSAlyst EXCEL spreadsheet files

We recommend that you create a folder to store all your MSAlyst spreadsheets and devise a file naming system for easy identification. Back up copies should be made at regular intervals to ensure security of your data.

If you prefer not to use the MSAlyst management program to copy and organise your spreadsheets and control EXCEL then you can simply open an MSAlyst spreadsheet whilst running EXCEL. Indeed, the older EXCEL 97 version does not always start when requested to do so by MSAlyst, in which case you have no option but to start EXCEL first and then open the spreadsheets as required.

5. RUNNING THE MANAGEMENT SOFTWARE

- Start the MSAlyst program to display the MSAlyst console window. This allows you to make copies of the master spreadsheet ready for use.
- Create a folder to store all your MSAlyst spreadsheets and set this as the target folder.



- To create a new spreadsheet ready for use with new studies, ensure that the MASTER SPREADSHEET FILE path and filename is set correctly – normally to 'C:\Program Files\Reetec\MSA\msa03pd-009.xls'. Use the BROWSE button to locate it.
- Set the TARGET SPREADSHEET FILE to the relevant path and filename and click the - COPY MASTER FILE button to create a spreadsheet with the target name in the specified folder, ready for use.
- To use a target spreadsheet, set it as the target file and click the OPEN SPREADSHEET button – this will start EXCEL and display the spreadsheet ready for use.
- To close the spreadsheet, after saving the contents with the EXCEL file command, click the CLOSE SPREADSHEET button. MSAlyst does NOT save any changes made to target spreadsheets. If you close the spreadsheet using the EXCEL FILE CLOSE or EXIT command then when you click the CLOSE SPREADSHEET button an error message will be displayed – ignore it.

Some of the cells are locked in read-only mode in the evaluation spreadsheet.

6. EXCEL SPREADSHEETS

The MSAAnalyst EXCEL spreadsheets contain 14 worksheets containing detailed statistical charts and computations. These are based upon QS9000 and other reference material. Contact Retriever Technology if you wish to discuss the technical content.

All the spreadsheets contain macros and will not operate correctly unless macros are fully enabled.

Several of the worksheets contain a COMPUTE button. When you change any of the data in a worksheet you must click the COMPUTE button to recalculate all the formulae and update the charts on that worksheet. A visual warning, taking the form of the word 'PRESS', appears adjacent to the COMPUTE button(s).

The CTRL-C key combination will update all calculations and charts on ALL worksheets.

Note that the display flips through the spreadsheets when computations take place – this confirms a successful 'button click'.

Most of the sheets in the master copy are populated with data for illustration purposes. Some sheets contain a CLEAR button which clears all the user input boxes

Do NOT forget to save your spreadsheet contents before closing the spreadsheet – you will be prompted to do so by MSAAnalyst.

All the normal EXCEL functions for display adjustment and print preview are available. You can also reformat some of the numeric cells and adjust the chart scales, but proceed with care.

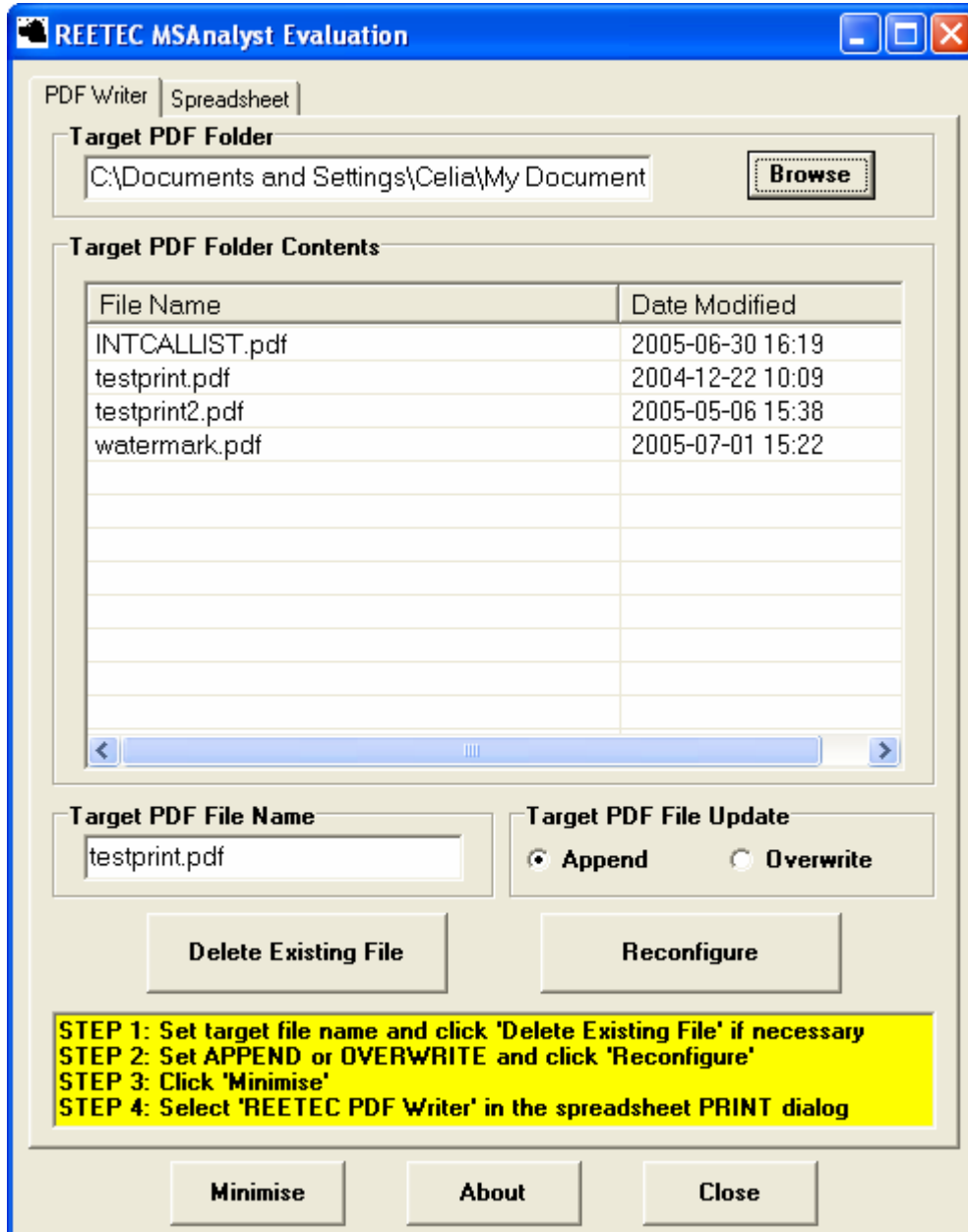
You can only process one spreadsheet at a time.

MSAnalyst evaluation system spreadsheets are NOT compatible with the fully licensed version of MSAAnalyst. Any data collected in evaluation system spreadsheets required for use in the fully licensed version has to be transferred manually.

7. PDF WRITER

The PDF Writer program uses a 'printer' named 'REETEC PDF Writer' in your printer list. If you select this 'printer' in any program and 'print' a document or spreadsheet then the output is not hardcopy, but is written to an ADOBE ACROBAT '.pdf' file. The name and location of this file is specified in the MSAlyst console PDF Writer tab.

Start MSAlyst and display the PDF Writer console.



Specify the target folder and PDF file name.

The **Target PDF File Update** item must be set appropriately – **Append** results in each print operation adding documents (e.g. spreadsheet worksheets) to the end of the target file. If you amend any of the settings then you must click the **Reconfigure** button to update the PDF WRITER settings.

We recommend that when using MICROSOFT EXCEL with the REETEC PDF WRITER you 'print' each worksheet separately in 'APPEND' mode, otherwise some sheets may be omitted.

Using ACROBAT READER you can display and print a .PDF file at any time. PDF files can be transmitted by email for use by any recipient possessing ACROBAT READER. The CD contains an ACROBAT reader installation folder with a set-up file.