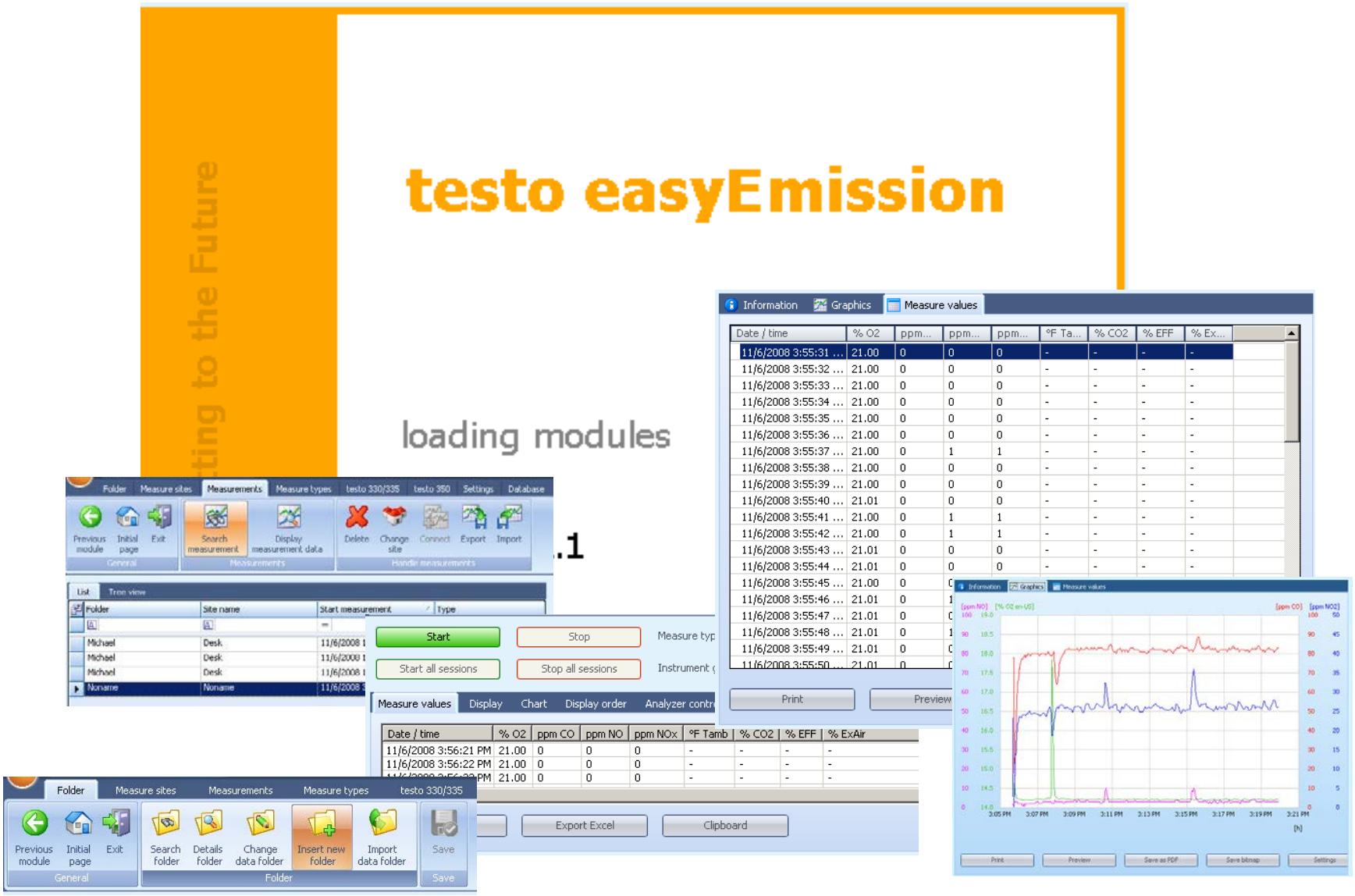
easyEmission - 1st Steps & Overview



Go straight to the tasks you want to do with easyEmission!

Just CLICK on the field to open the chapters!

Getting Started…

- Connect analyzer / PC
  - Serial connection
  - Bluetooth® 2.0
  - Testo-Bus connection
- Create NEW folders & locations
- Download measurements from the analyzer
- First real time measurement
- Analyze your measurements
- Export data
  - Print out measurements
  - Export to other programs
  - Export easyEmission files

Advanced…

- Using more than one analyzer
  - Setup system
  - Realtime measurement
- Import Testo templates
- Create reports for customized printouts
- Measure types and related functions
- Change instrument settings

Connect analyzer with easyEmission

Start

Serial Connection

Connect Analyzer – PC

Connection via serial interface

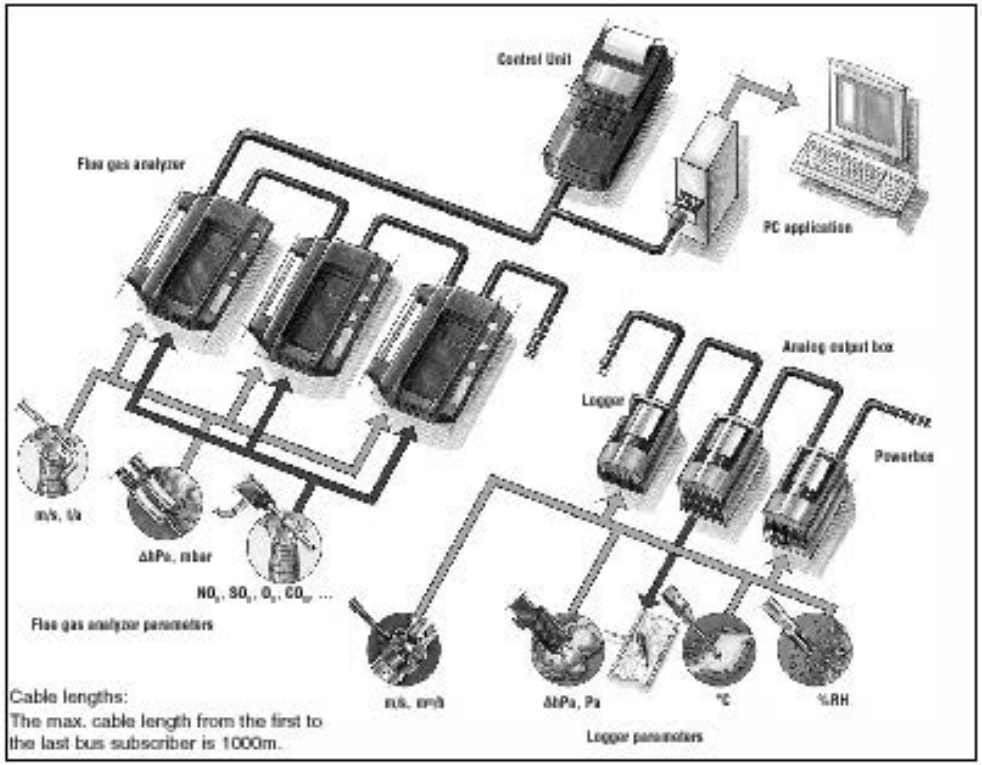
- Serial connection is set up using a testo 350 Control Unit. Only one Control Unit can be connected to the measurement system!
- For serial connection of testo 350 to a PC, the “PC connection cable/0409 0178 instrument” is required.
- **Cable connection**
  - Connect connection cable to a serial connection socket in the PC
  - Connect connection cable to the RS232 socket of the ControlUnit
  - Switch on measuring instrument

Connect Analyzer – PC

Connection via serial interface

- The measuring instrument switches to the Slave Mode while data is being exchanged, the control buttons in the measuring instrument are blocked in this mode. If data is not being exchanged, the Slave Mode is stopped and the measuring instrument can be controlled normally via control buttons.
- If the connection is interrupted without stopping the software, testo 350 remains in Slave Mode.

  - Do the following to deactivate
  - Slave Mode:



Connect analyzer to easyEmission

Start

Bluetooth connection

testo Bluetooth connection

- Plug in the analyzerbox **without** Control Unit
- Use your specific *Bluetooth*® 2.0 program on your computer and search / connect the testo 350-S/-XL analyzer with your computer → add the analyzer as a new device → the Bluetooth Security Code is **1234** (default) → pair the analyzer
- Check which “virtual” serial comport is used for the analyzer-Bluetooth connection
- Start easyEmission → Connect the analyzer with easyEmission

testo Bluetooth connection

Connection limits

- The data transfer technology is only Bluetooth® 2.0 or higher
- Operating distance (free field) max. 320 ft
- Interference sources can impact the connection, e.g. high voltage sources, microwaves, cordless phones, electrical radio devices …

Connect analyzer with easyEmission

Start

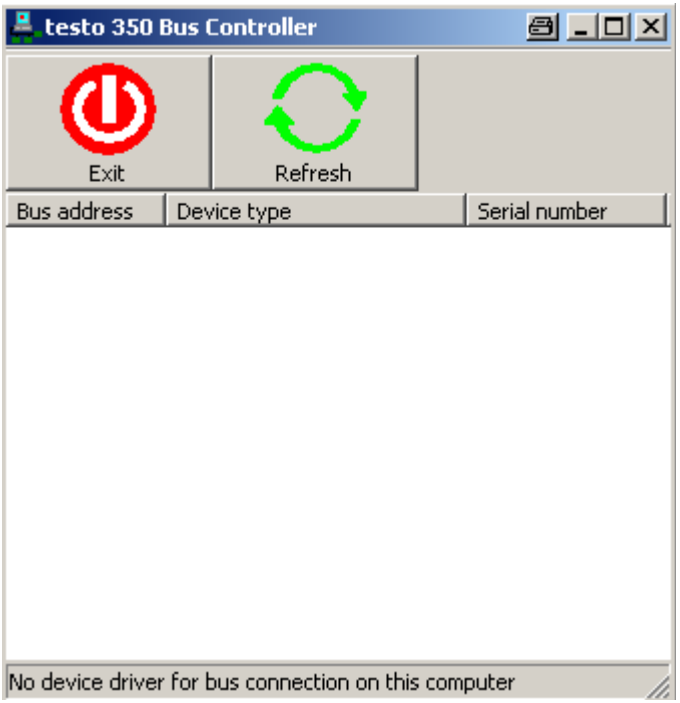
testo data bus

Software easyEmission - Connection

Connection via USB data bus controller

- USB connection is set up directly to the flue gas analysers via the data bus controller. No Control Unit has to be connected to the measurement system!
- The USB data bus controller is a High Power instrument, an additional USB Hub maybe required
- Connecting the flue gas analyser to the data bus controller: Connect the instrument plug of the cable to the DATA socket of the testo 350 analyser box and connect the serial connection plug of the cable to the Channel 1 socket in data bus controller.
- Connect the USB data bus controller to PC: Connect the USB plug (Type B)of the cable to the USB socket in data bus controller, connect the other USB plug (Type A) to a USB socket of the PC.
- Connect the power plug with the analyser box
- Start first the Program testo 350 CAN Controller and then easyEmission

Software easyEmission - Connection

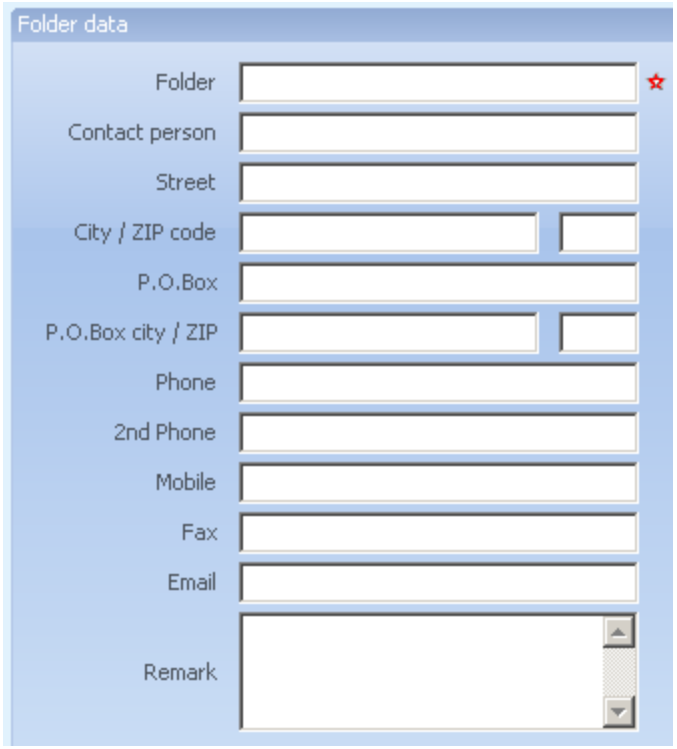


- Start first the program testo 350 CAN Controller (connection between CANCase and Computer) and then easyEmission

Create new folders and new locations

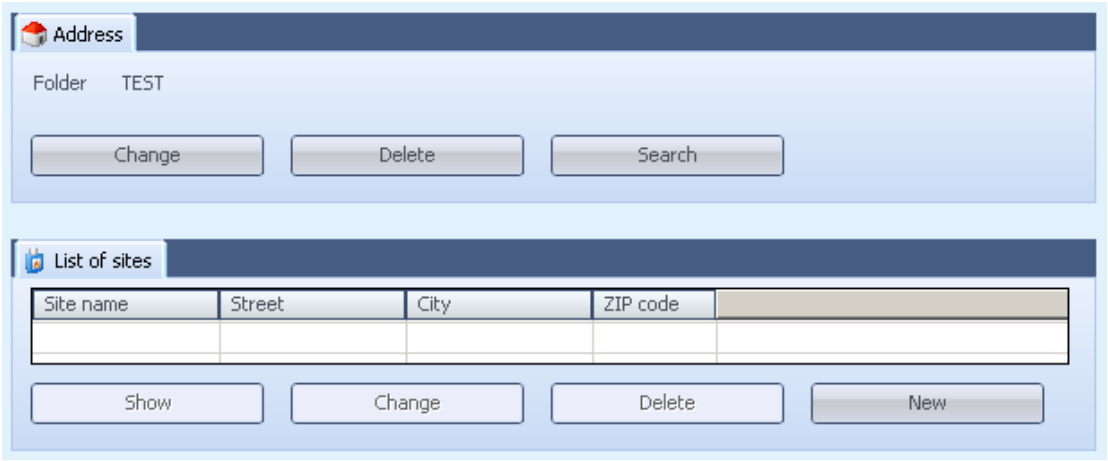
Start

Create new folders / new locations

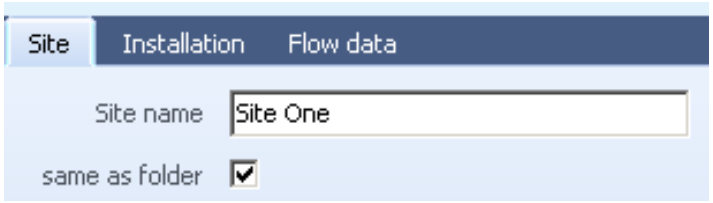


- Insert Folder name TEST and

- Insert a site name to specify a measurement site



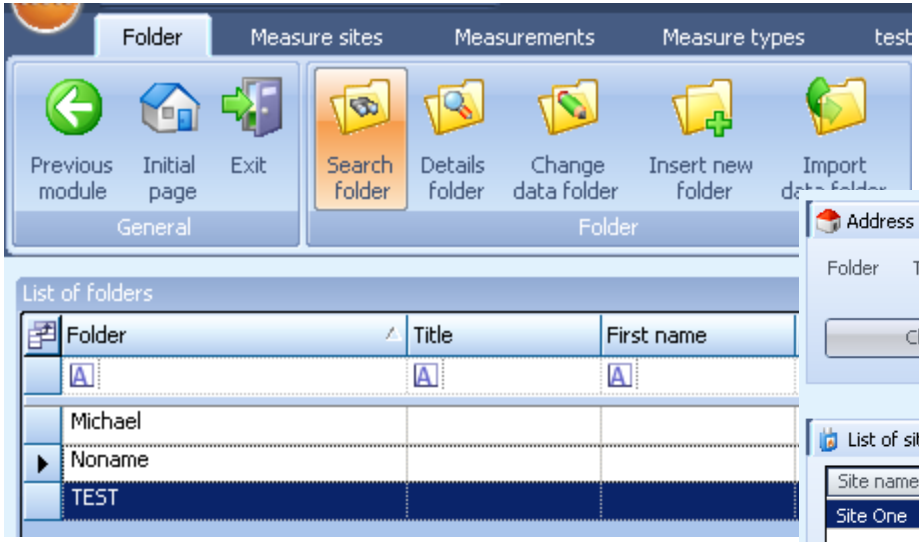
Create new folders / new locations

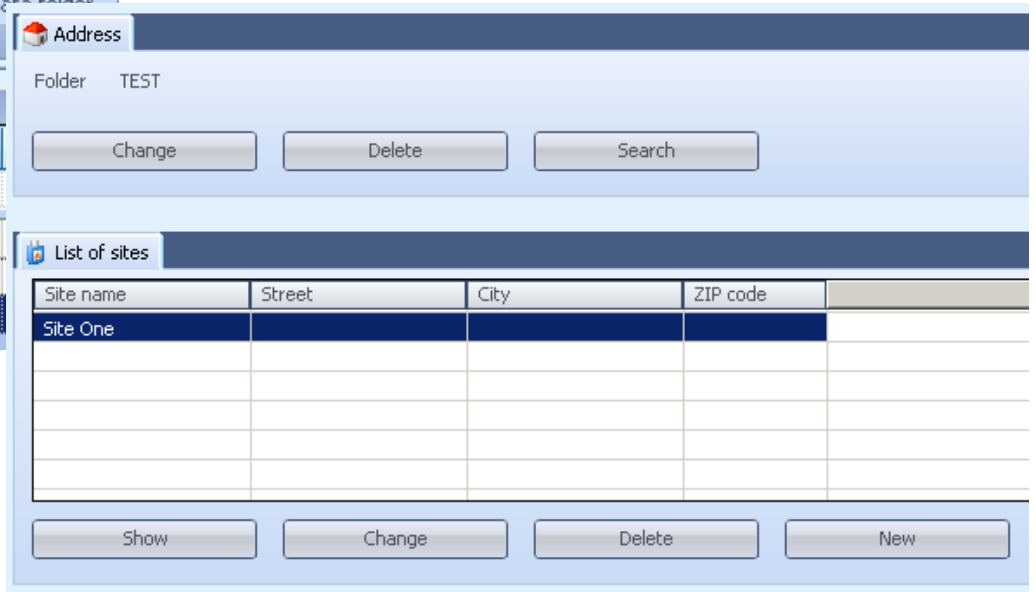


- Insert a site with the name Site One and

- Use the flag folder and double-click on it …

… to see the site name “Site One” in this folder



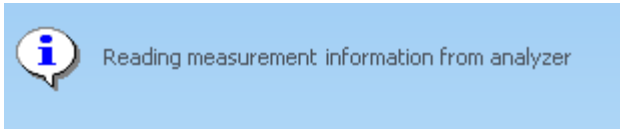


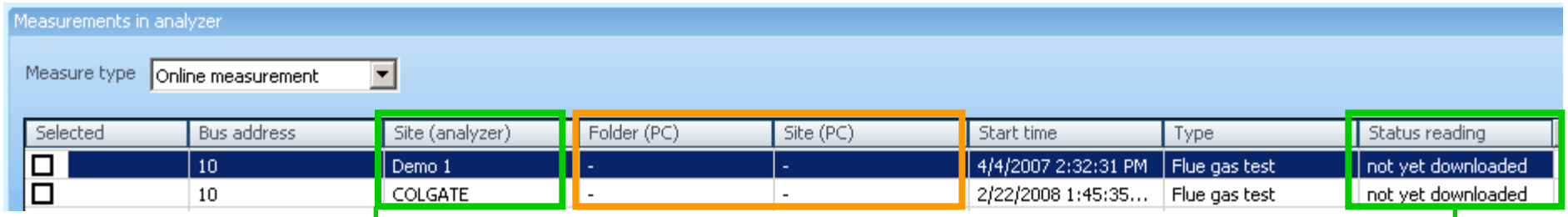
Start

Get your measurements from the analyzer to the computer

Get your measurements from the analyzer to the computer

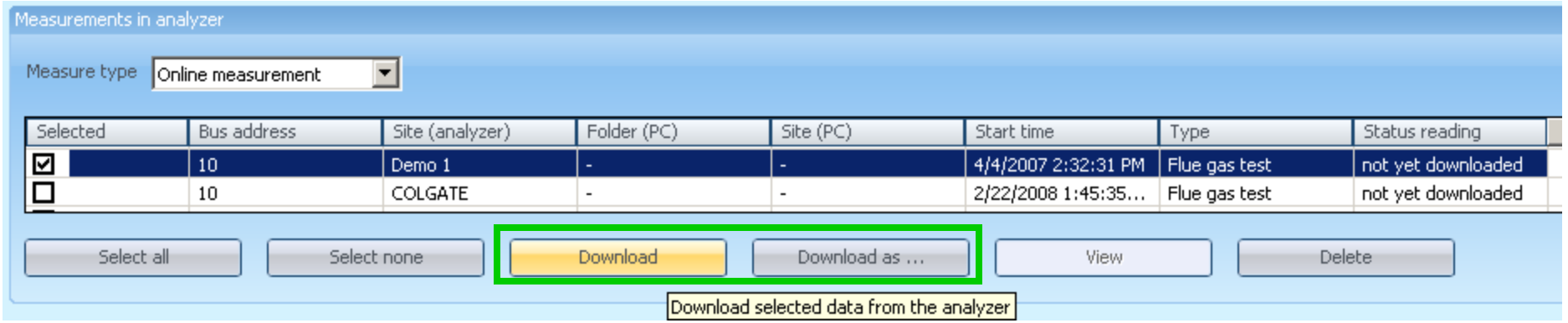
- Download measurement data
- Shows you measurements which are only in the analyzer.



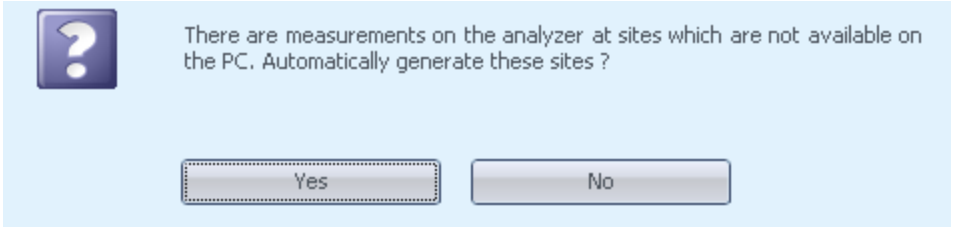


Measurements in the analyzer
Status: Not yet downloaded

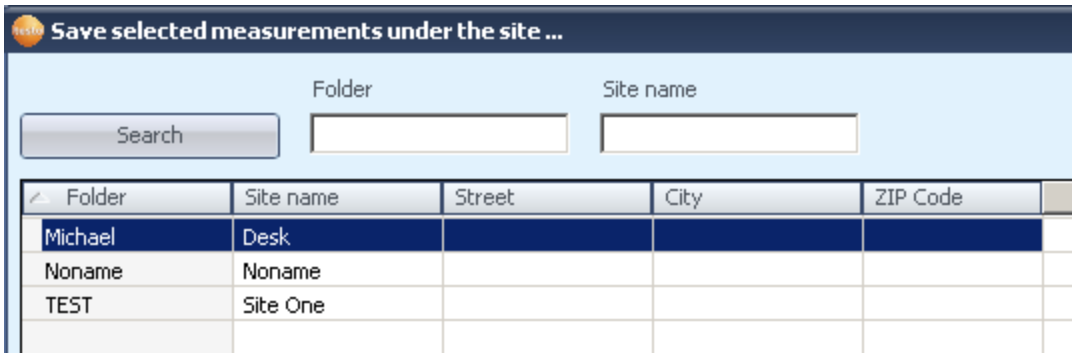
Get your measurements from the analyzer to the computer



- Download -> the data will be saved under the same folders like in the analyzer

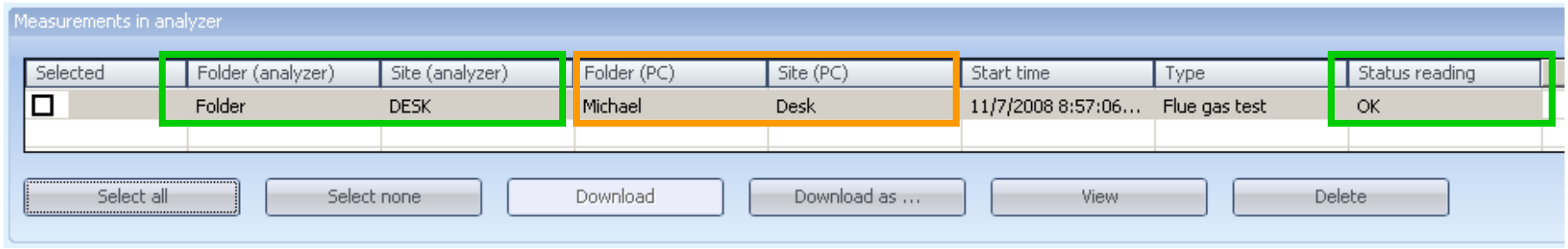


- Download as > Choose an existing folder / site in easyEmission to save your data in the marked folder

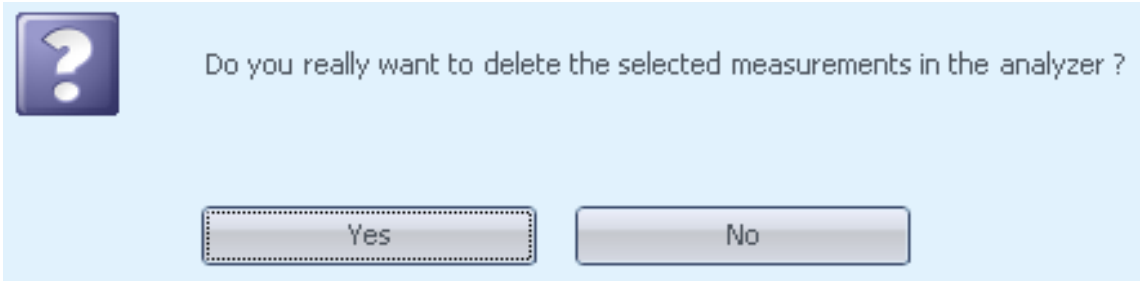


Get your measurements from the analyzer to the computer

- After “Download as” -> the data is saved under existing folders in easyEmission

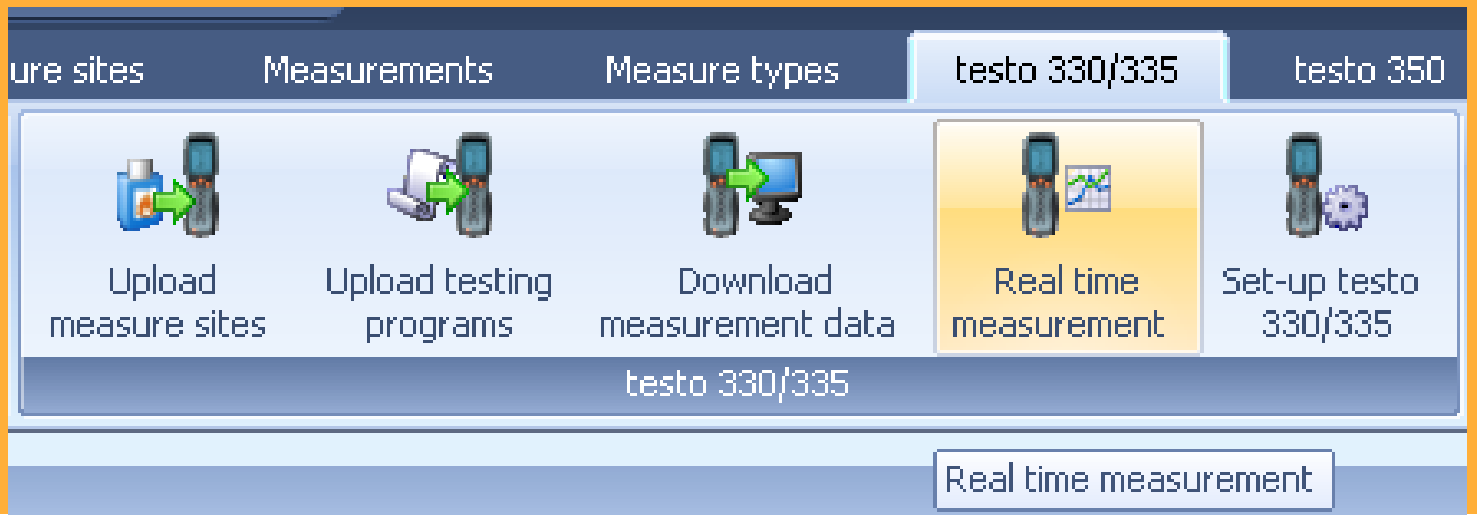


- After “Download as” -> the data is saved under existing folders in easyEmission
- You can now delete the data from the analyser

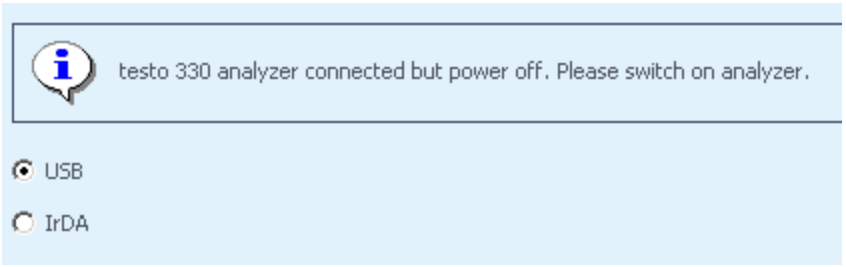


Real time measurement

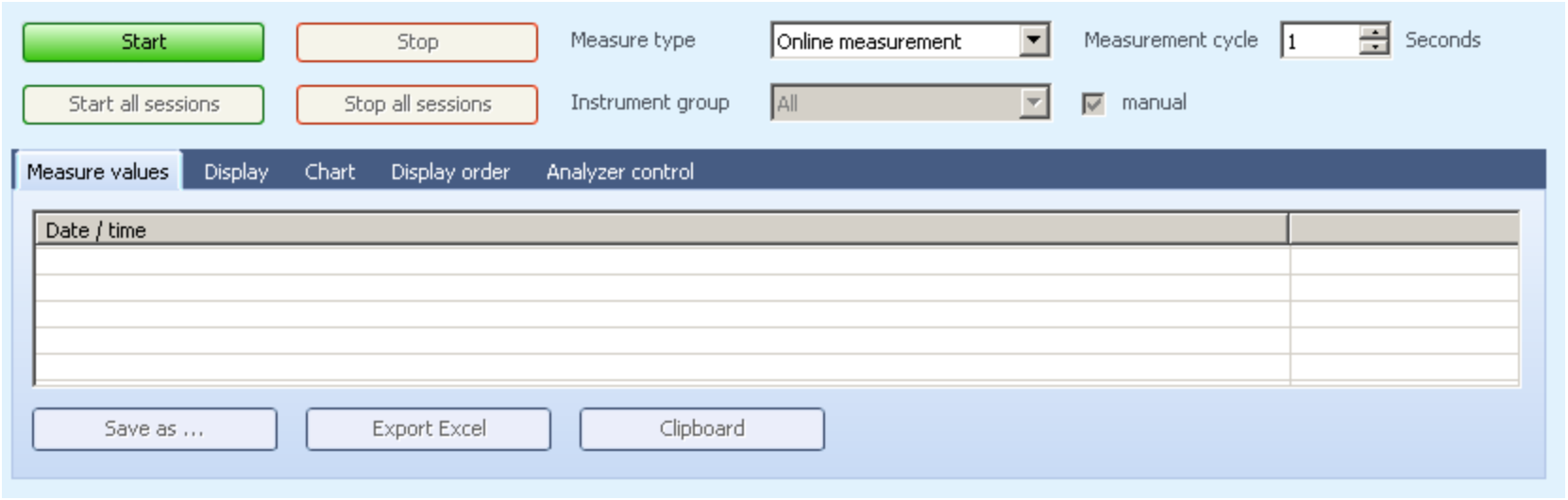
Start



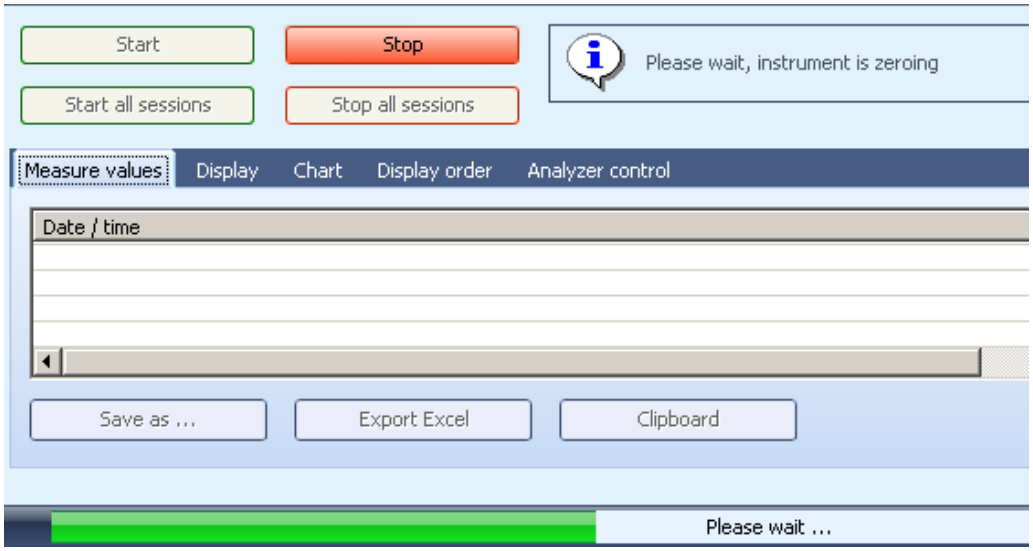
Real time measurement



- If needed choose out connection
- **Start** measurement

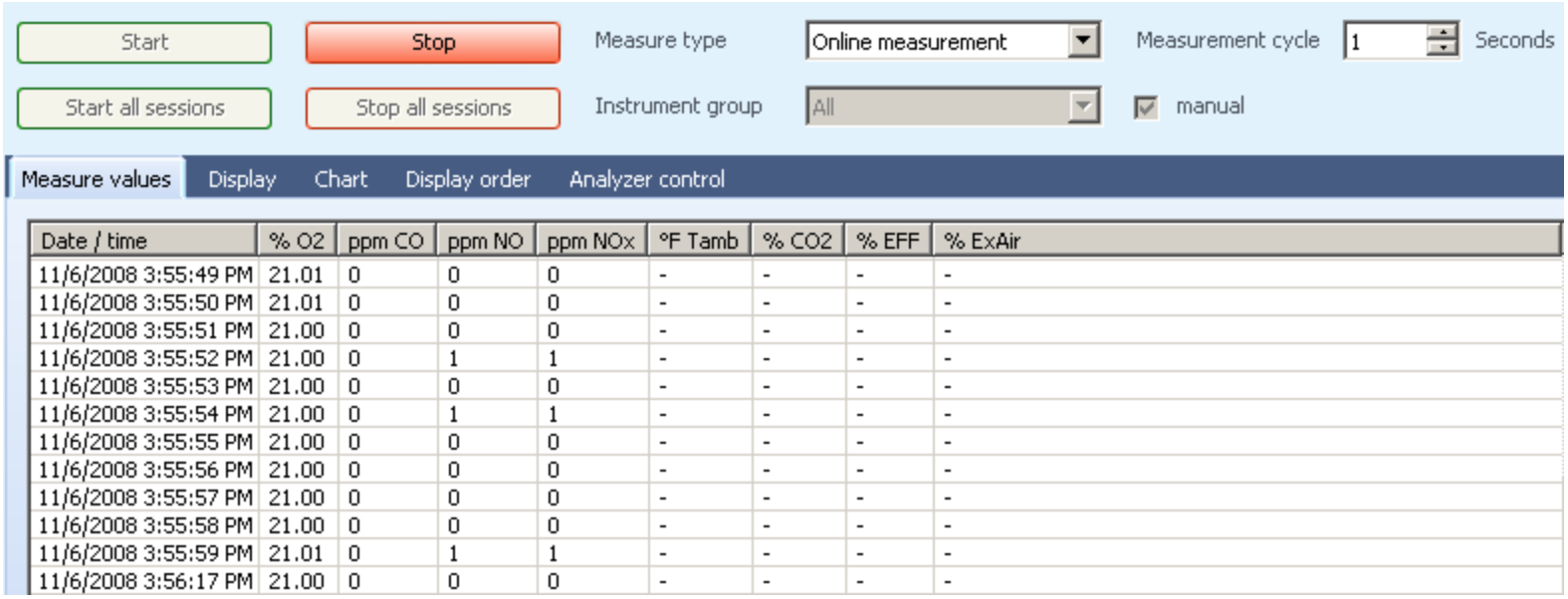


Real time measurement



- Instrument is zeroing first
- Measurement starts
- Readings in a 1 second cycle

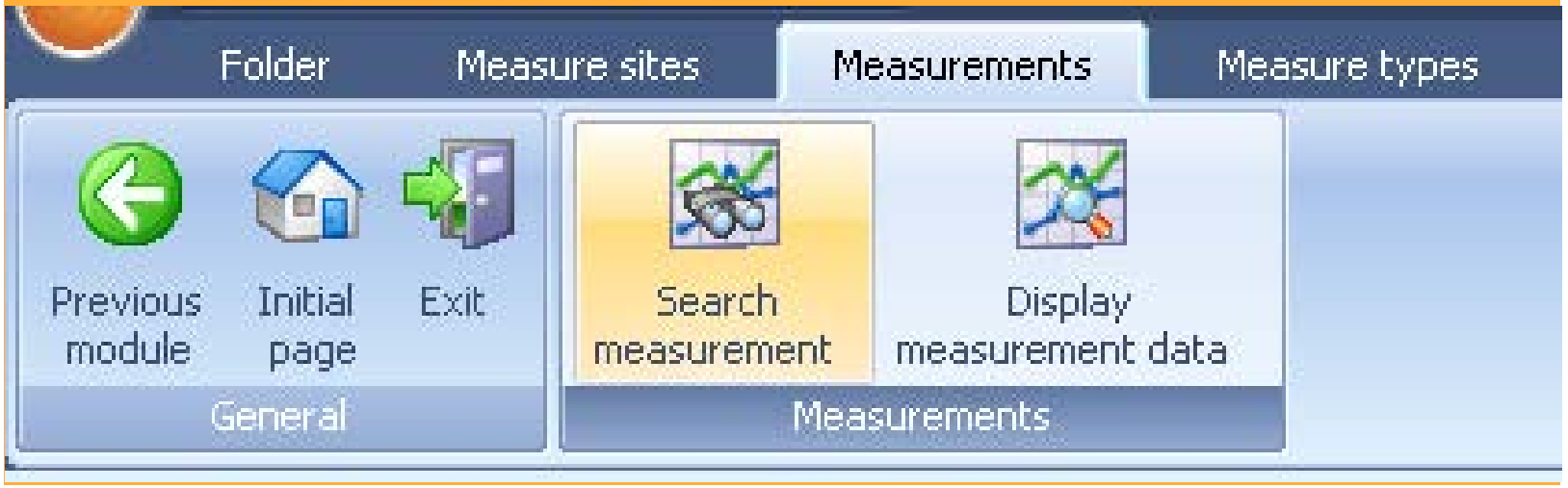
  → you can change the cycle while measuring … test it!
- **Stop** measurement



Date / time	% O2	ppm CO	ppm NO	ppm NOx	°F Tamb	% CO2	% EFF	% ExAir
11/6/2008 3:55:49 PM	21.01	0	0	0	-	-	-	-
11/6/2008 3:55:50 PM	21.01	0	0	0	-	-	-	-
11/6/2008 3:55:51 PM	21.00	0	0	0	-	-	-	-
11/6/2008 3:55:52 PM	21.00	0	1	1	-	-	-	-
11/6/2008 3:55:53 PM	21.00	0	0	0	-	-	-	-
11/6/2008 3:55:54 PM	21.00	0	1	1	-	-	-	-
11/6/2008 3:55:55 PM	21.00	0	0	0	-	-	-	-
11/6/2008 3:55:56 PM	21.00	0	0	0	-	-	-	-
11/6/2008 3:55:57 PM	21.00	0	0	0	-	-	-	-
11/6/2008 3:55:58 PM	21.00	0	0	0	-	-	-	-
11/6/2008 3:55:59 PM	21.01	0	1	1	-	-	-	-
11/6/2008 3:56:17 PM	21.00	0	0	0	-	-	-	-

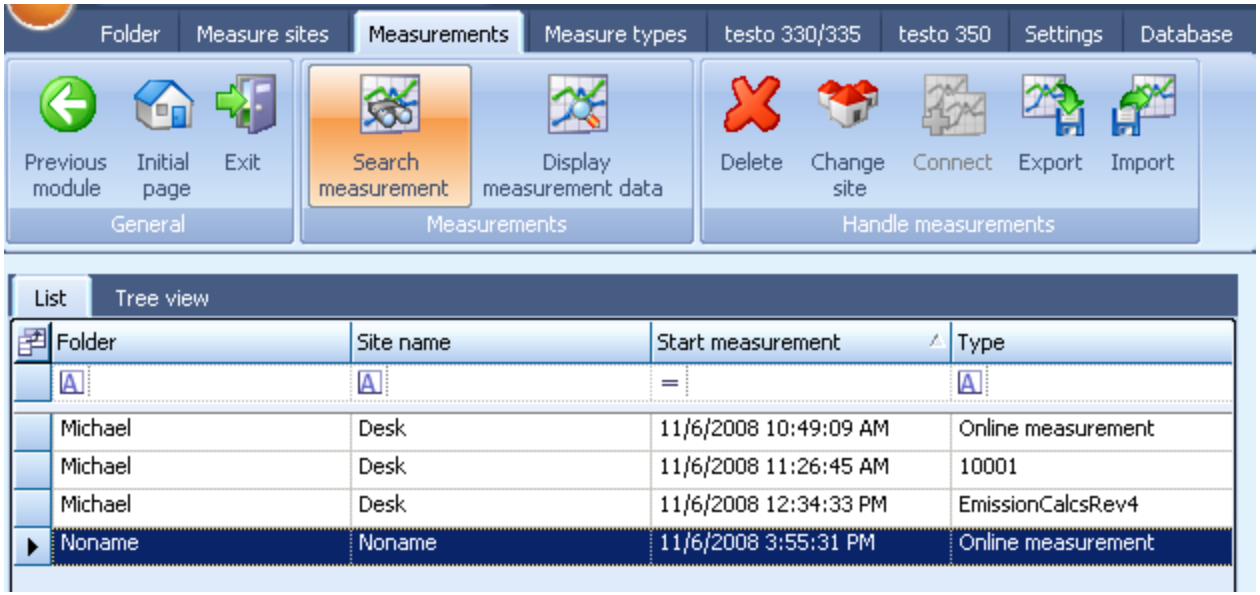
Start

Analyze your measurements

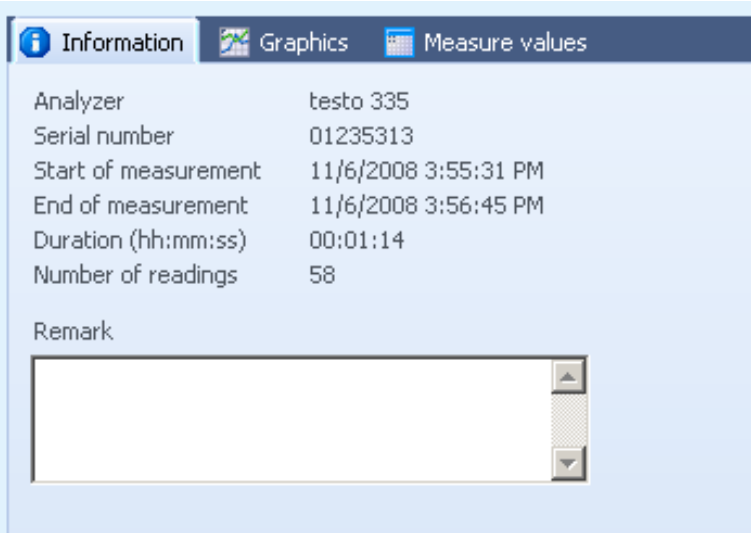


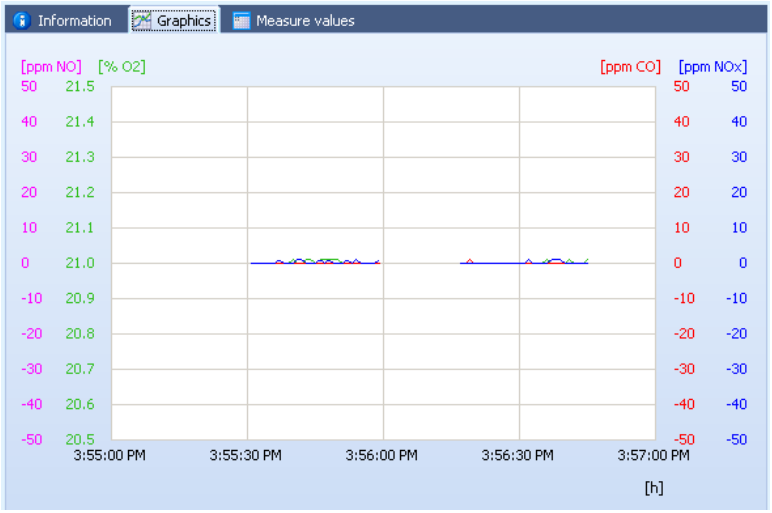
Analyze your measurements

- Use the “measurement flag” with the “Search measurement” function
- Double click on “Noname” folder

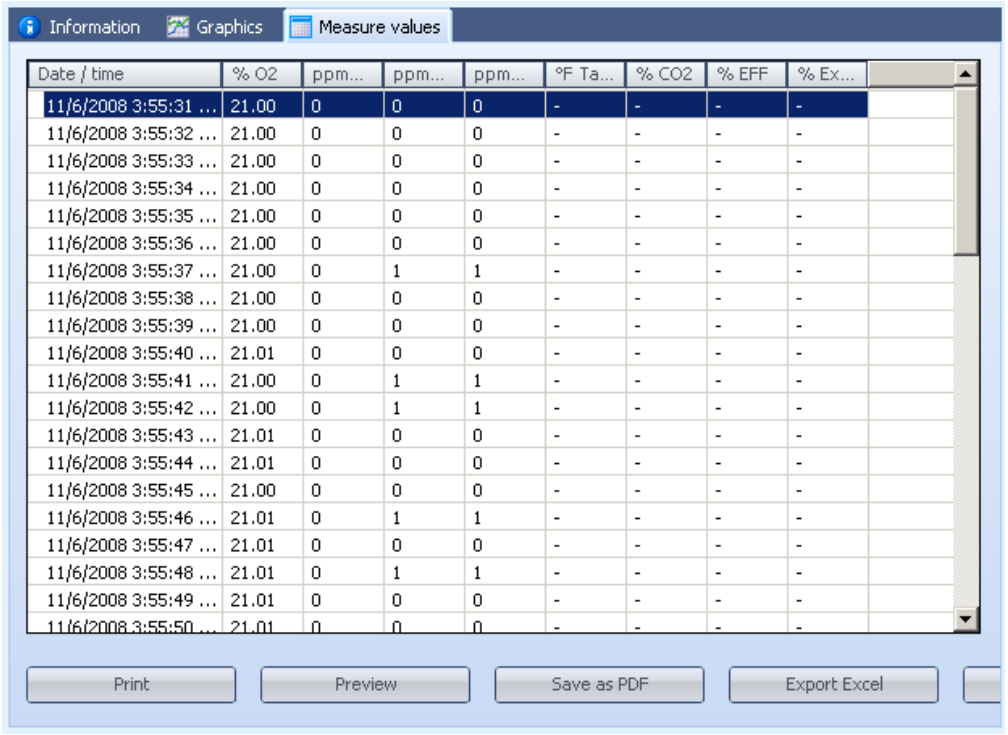


Analyze your measurements

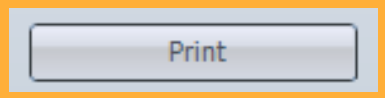


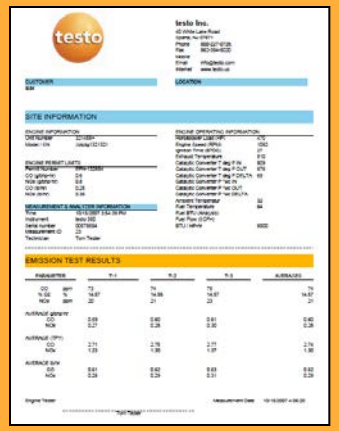


- Get information about the measurement and the used analyzer
- Show the readings in a graph
- Show the readings in a table



Print out measurement data

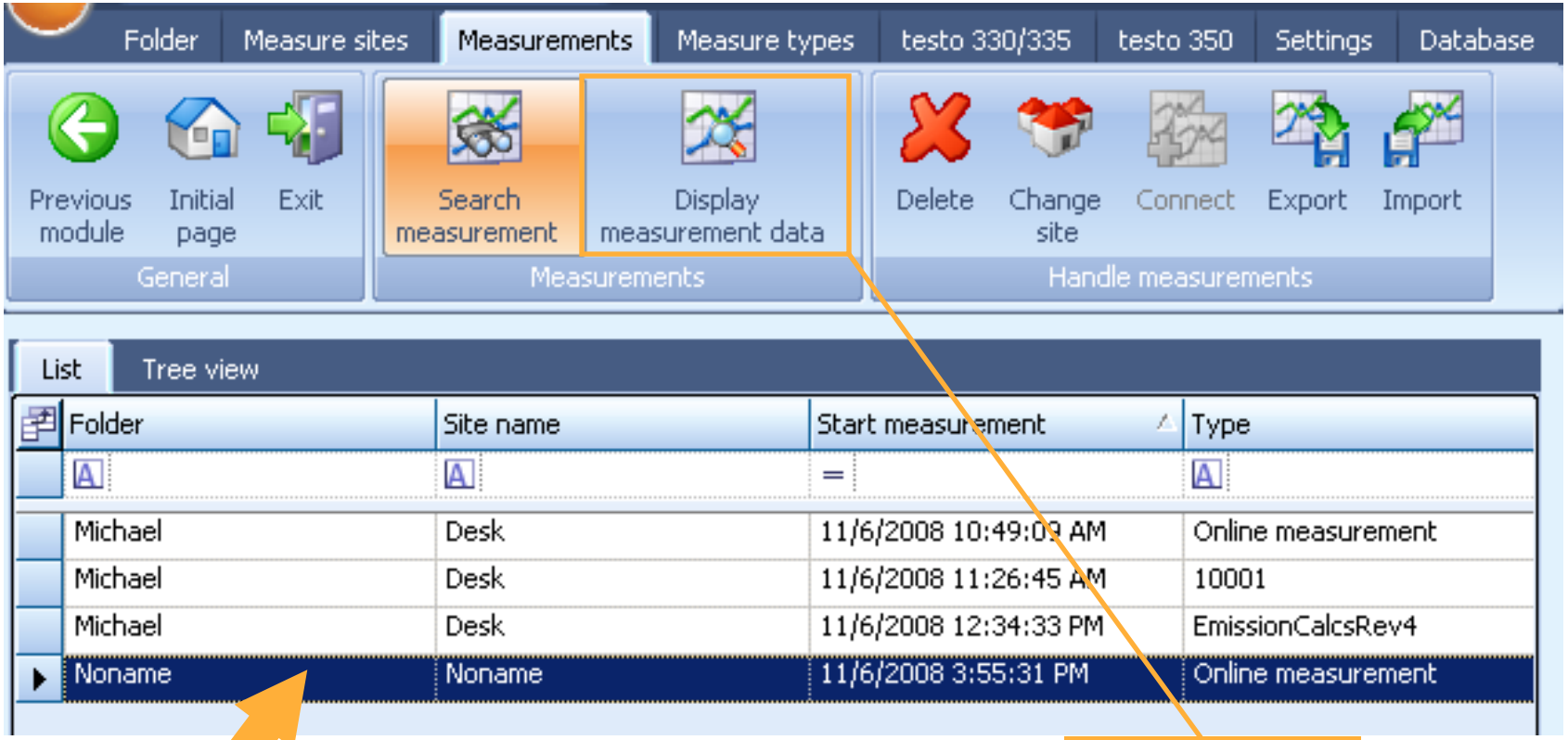




Start

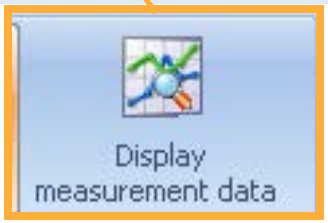
Print out measurement data

- Open measurement data

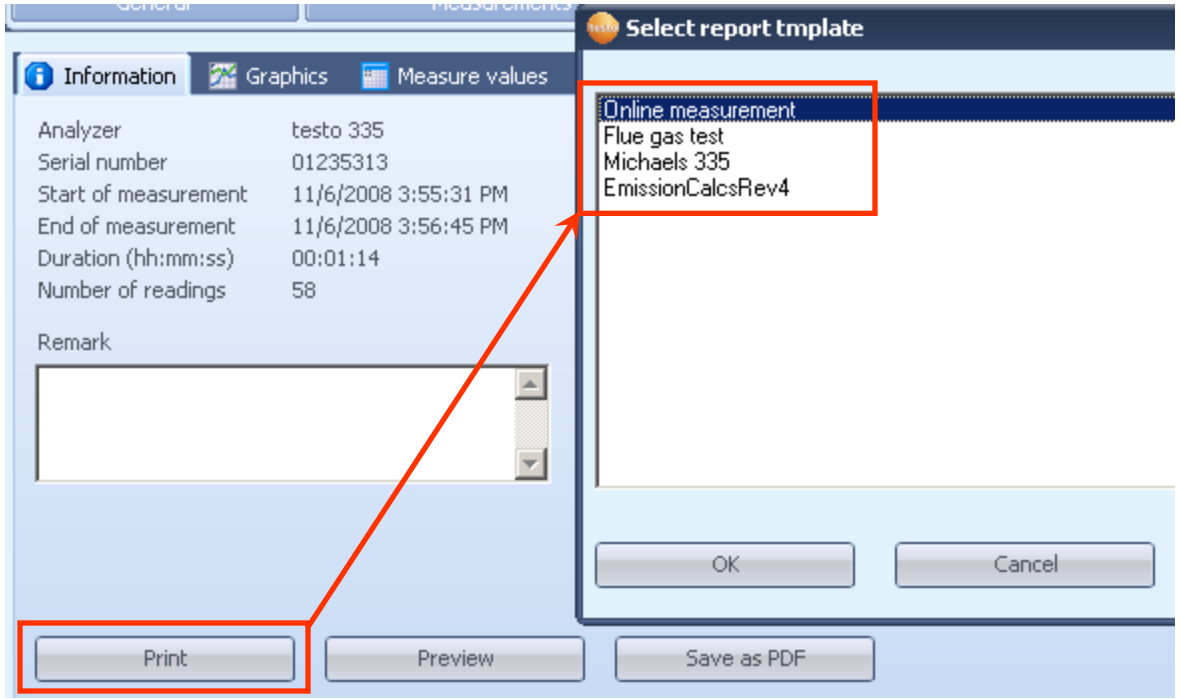


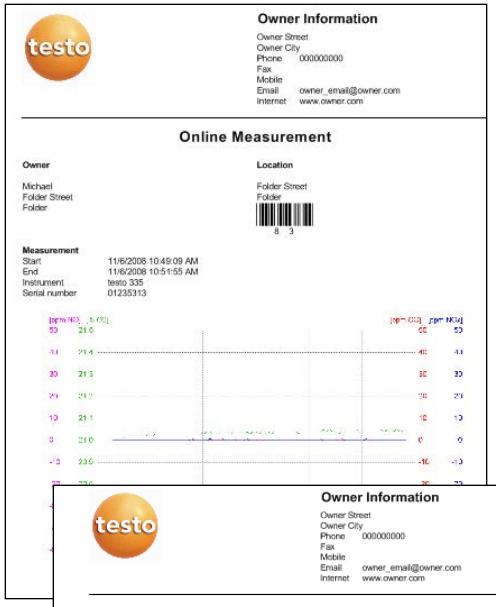
Double click ….

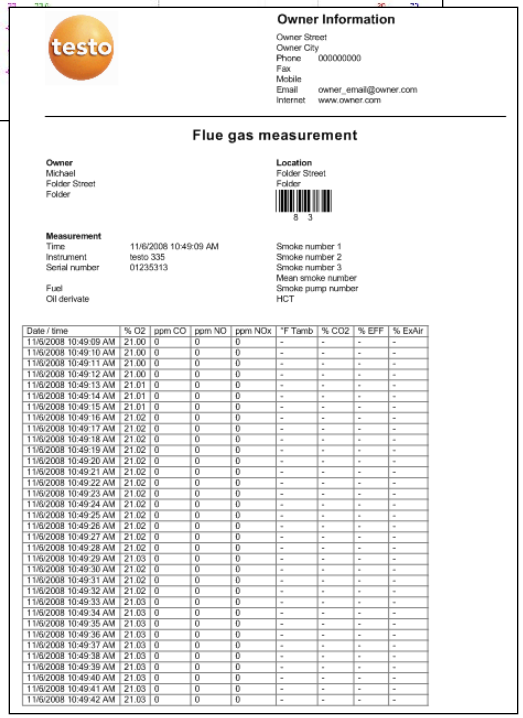
… or mark the measurement and use the button



Printout measurement data



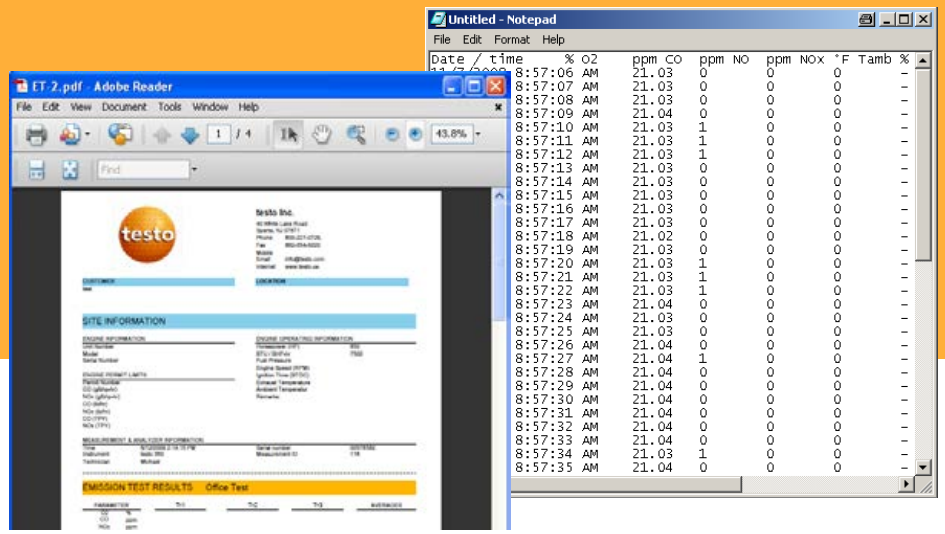




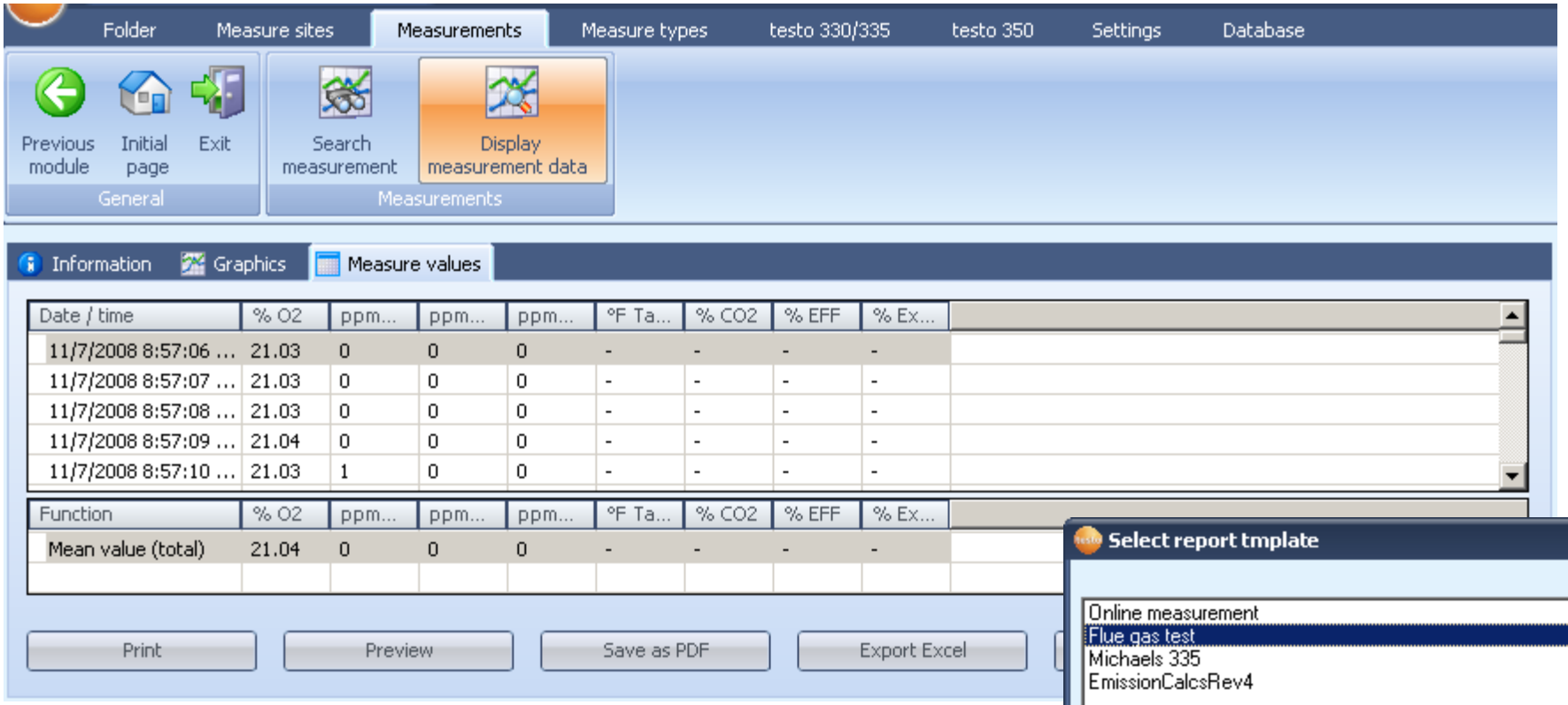
- Print
- Choose out one of the given report-templates e.g. “Online measurement” or “Flue gas measurement” both are default reports in easyEmission
- Use your specific printer to print out the measurements

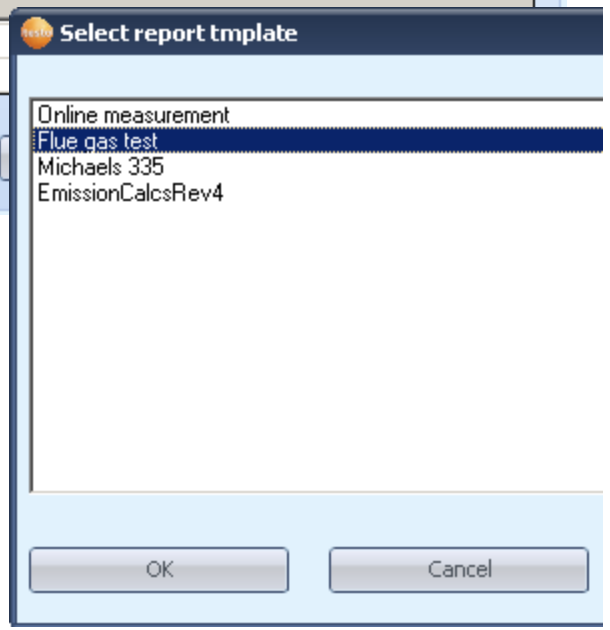
Export measurement data from easyEmission “Copy – Paste” / pdf

Start



Export measurement data

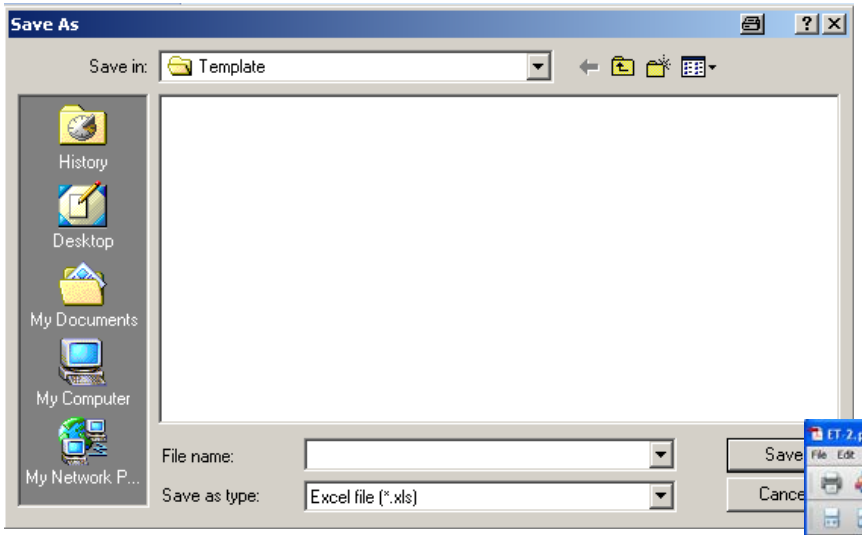


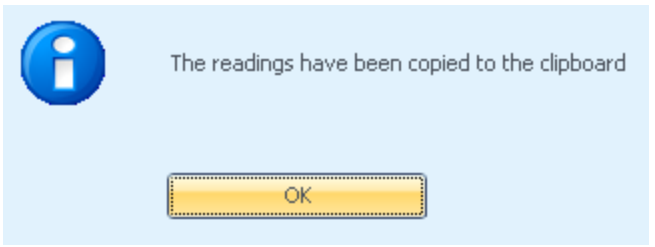


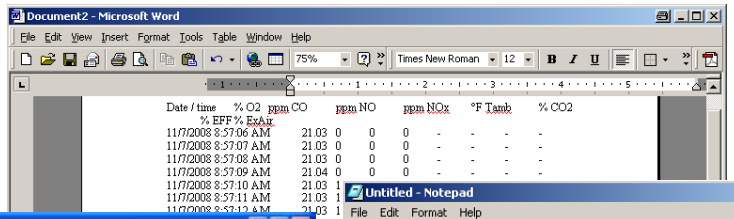
- Print out -> Print out your data with the given reports (use the Preview function to see how it looks like)
- Save as PDF -> Choose out a report and save your data in a not-changeable document

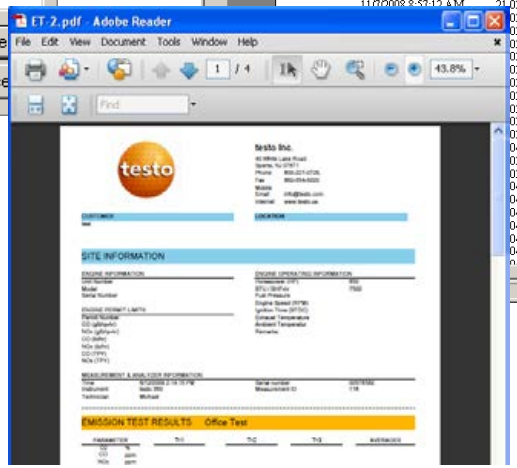
Export measurement data

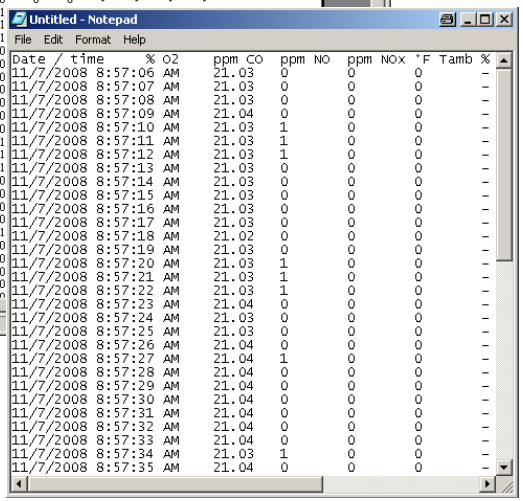
- Save your measurements as an MS Excel-file







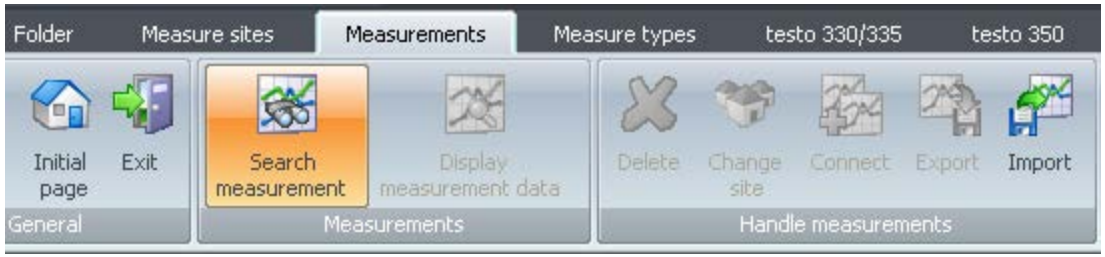




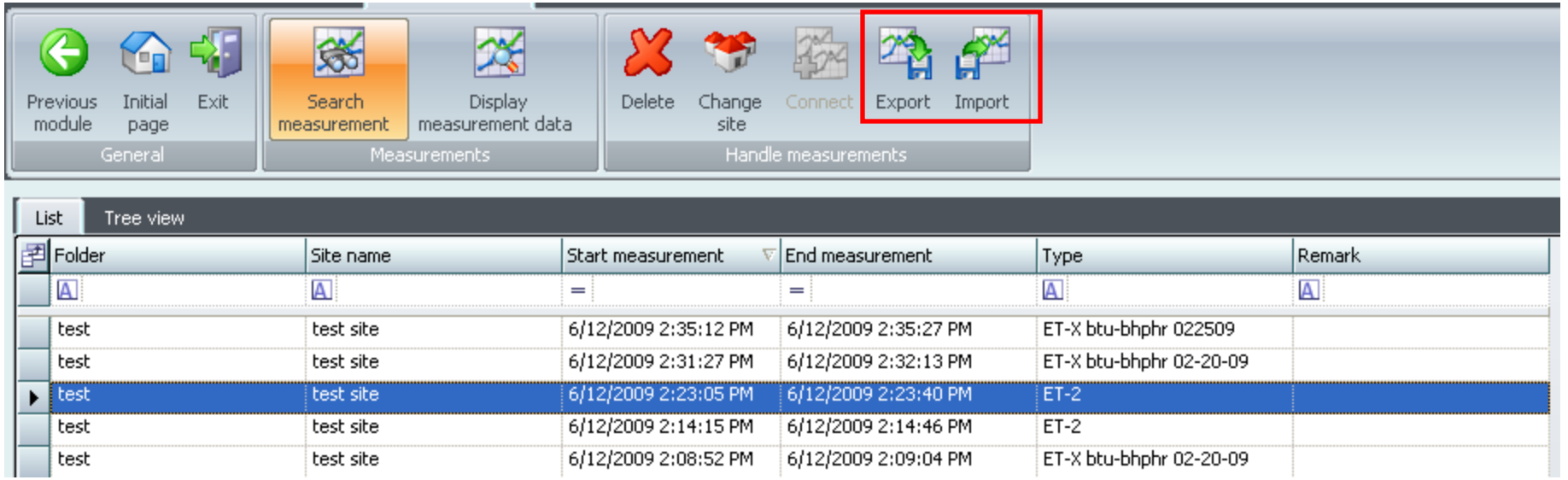
Export measurement easyEmission measurement files

Start

Export easyEmission measurement files

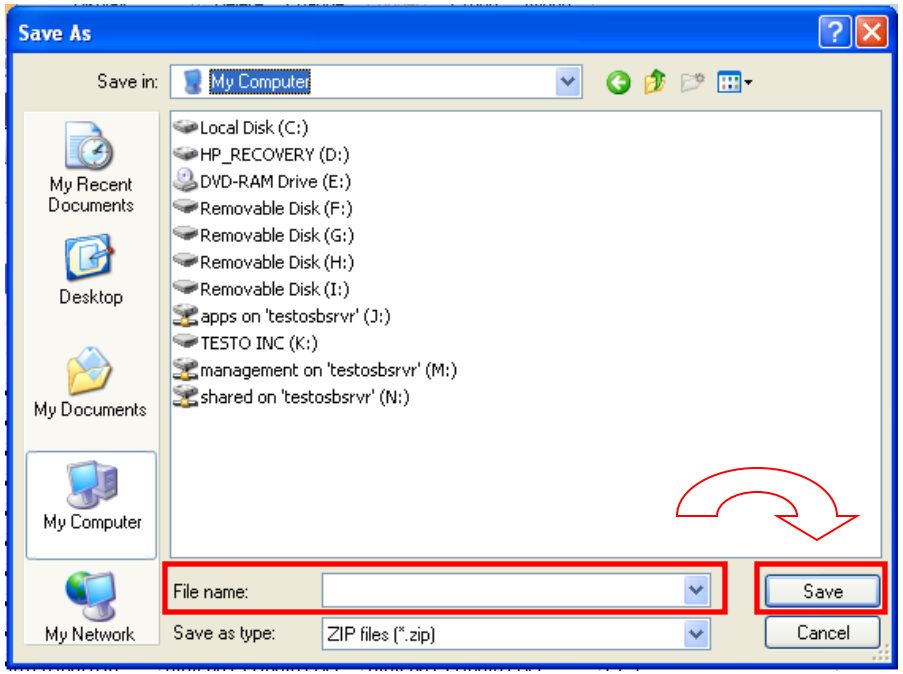


- Mark the desired measurement



- Use the import / export function → it will create a zip-file with all the measurement information and the data

Export easyEmission measurement files



- Fill in a file-name and save it on your computer
- To use this files DON'T unzip it
- easyEmission can only work with the files in the .zip format

Using more than one analyzer

testo data bus

Start

testo data bus connection

- Connect the instruments with the data bus cables

Control Unit testo 350 XL or further testo 350 analyzer

testo data bus connection

- Connect the instruments with the data bus cables
- Ideally, connect the cables when the system is switched off.
- Ensure that the individual components have different bus addresses

  If not : Click the Control Unit (CU) on the analyzer → Press OK for the menu → choose out the analyzer → Menu “Ops Info” → set the bus address

Connection limits

- Max. 50 m with power supply to the components through the databus
- Several hundred metres without power supply to the components through the databus (all analyzers in the system with own power supply)
- When routing the cables, ensure that they are not laid beside three-phase power or similar cables. This could impair the function

testo data bus connection – at a glance

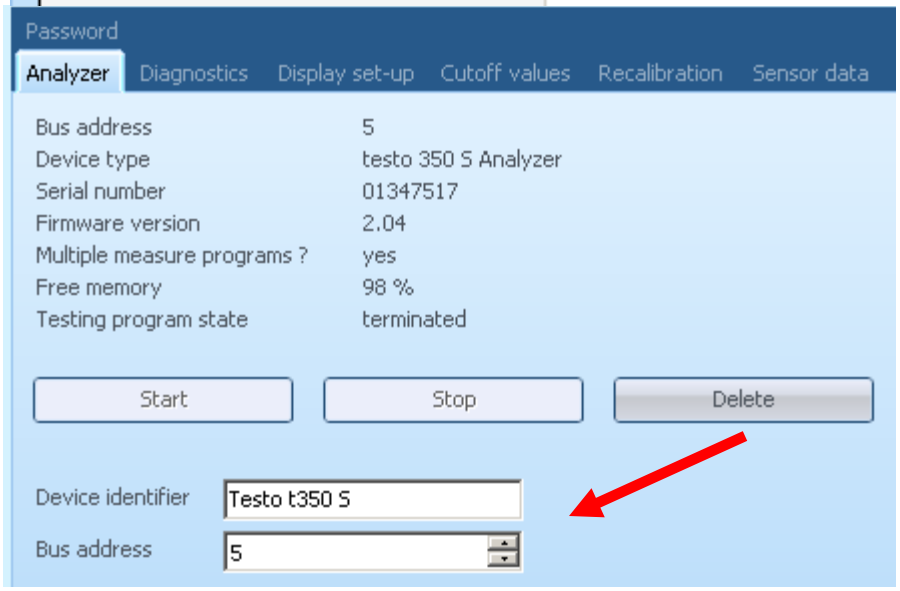
- Please use Testo data bus cables only.
- When routing the cables, ensure that they are not laid beside three-phase power or similar cables. This could impair the function!
- Ideally, connect the cables when the system is switched off. So-called “Hot-Plugging” is possible, although is may be necessary to switch the entire system off and on depending on the combination.
- Ensure that the individual components have different bus addresses (BUS ID)
- The maximum cable length from the first to last bus subscriber is 3000 ft
- The data connection is linear in structure. The beginning of the line is the Control Unit. The terminal plug must be used for the loggers at the last instrument on the data bus.This ensures a defined electrical state.

Set up the data bus connection with easyEmission

- See all bus subscribers in the overview
- Change different settings e.g. change the device identifier for the subscribers in the system

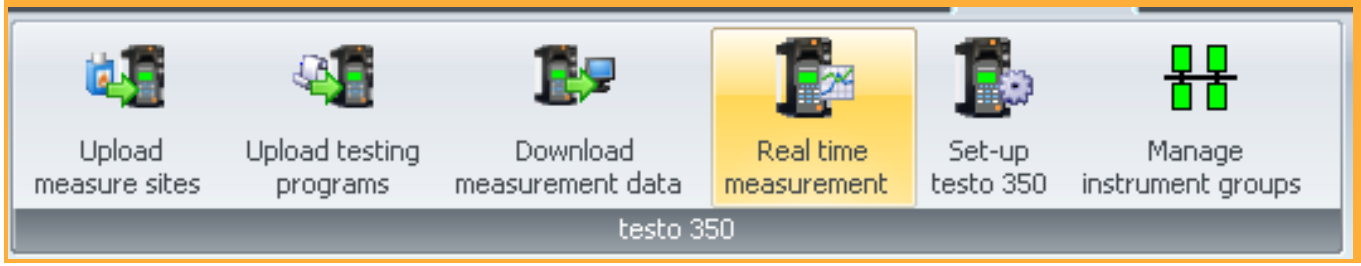
Analyzers

Bus address	Device type	Serial number	Name
1	testo 350 Control Unit	00584981	ETA Associates
5	testo 350 S Analyzer	01347517	Testo t350 S
10	testo 350 XL Analyzer	00690904	DEMO UNIT #2



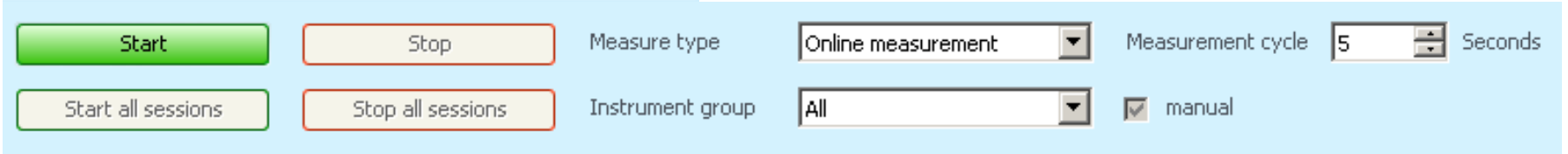
Real time measurement with instrument groups

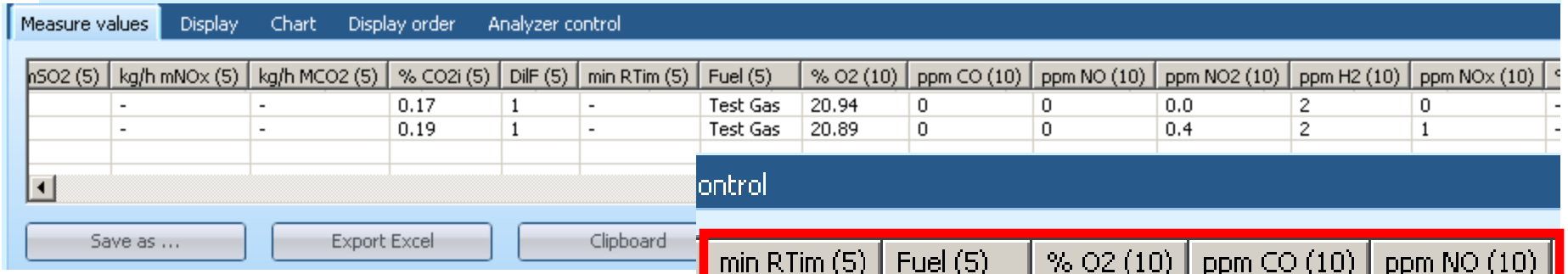
Start

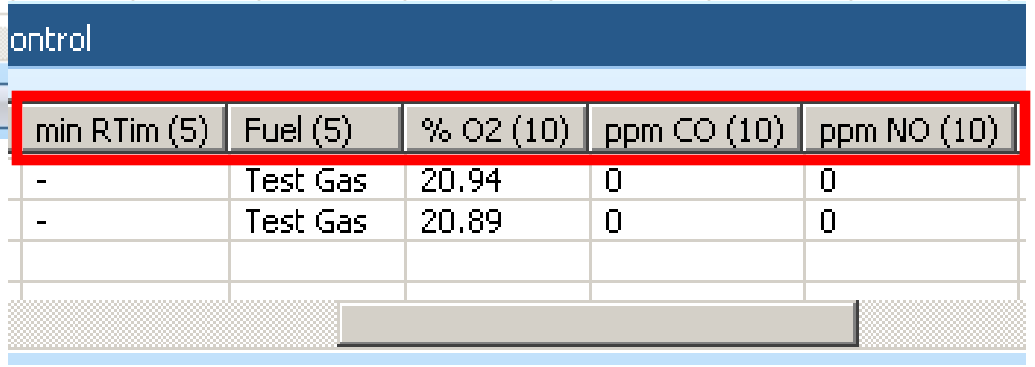


Real time measurement with instrument groups

- Set measure type
- Set instrument group
- Set measurement cycle
- **Start** measurement



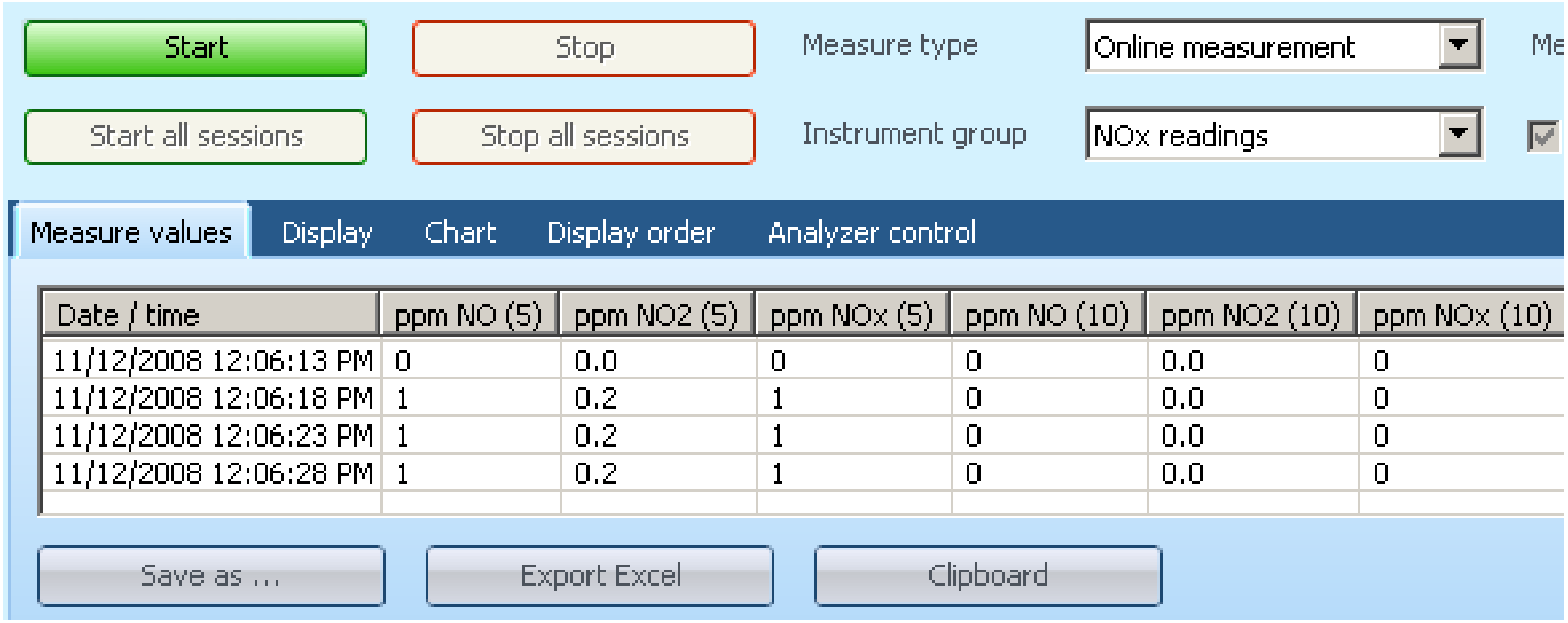




- See the readings, signed with the analyzer bus address e.g. % O2 (10) from analyzer with the bus address 10

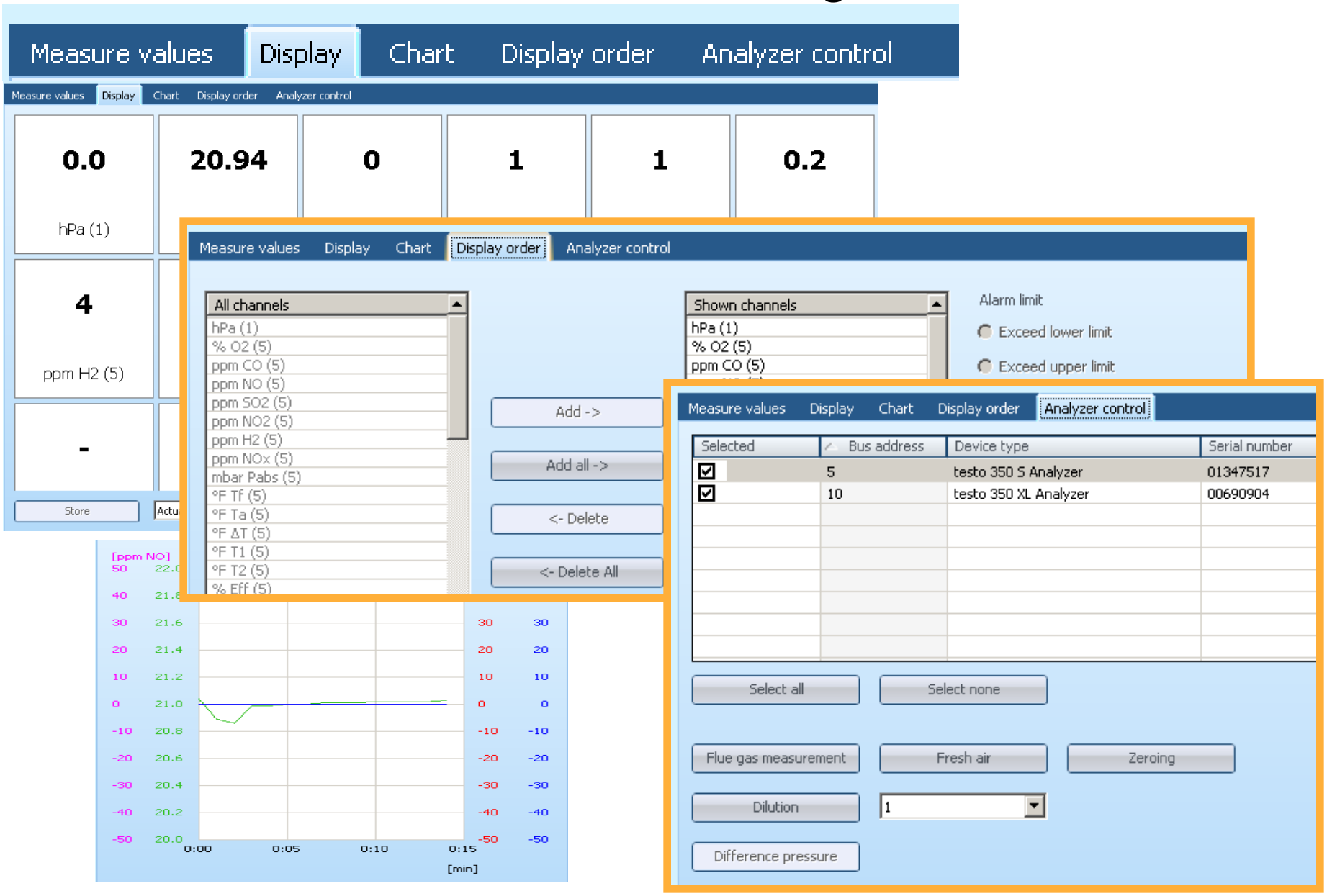
Real time measurement with instrument groups

- If you don't want to see all readings set the instrument group e.g. only NOx readings

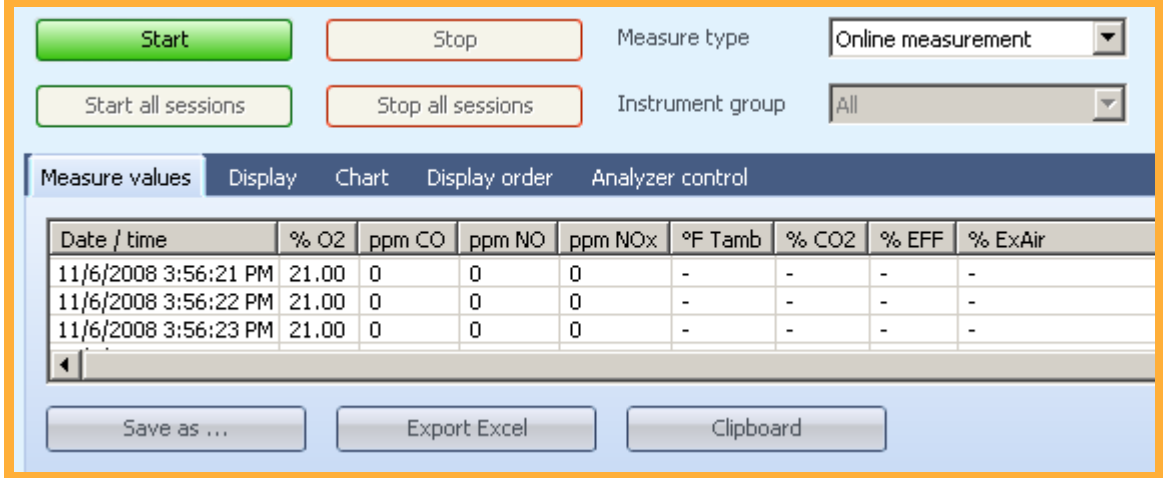


Date / time	ppm NO (5)	ppm NO2 (5)	ppm NOx (5)	ppm NO (10)	ppm NO2 (10)	ppm NOx (10)
11/12/2008 12:06:13 PM	0	0.0	0	0	0.0	0
11/12/2008 12:06:18 PM	1	0.2	1	0	0.0	0
11/12/2008 12:06:23 PM	1	0.2	1	0	0.0	0
11/12/2008 12:06:28 PM	1	0.2	1	0	0.0	0

Real time measurement settings

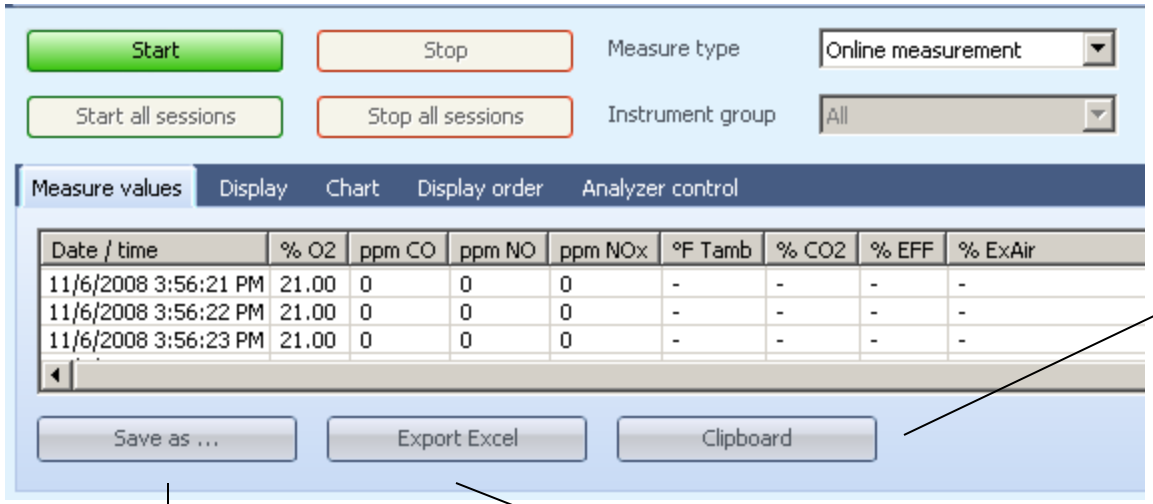


Save real time readings



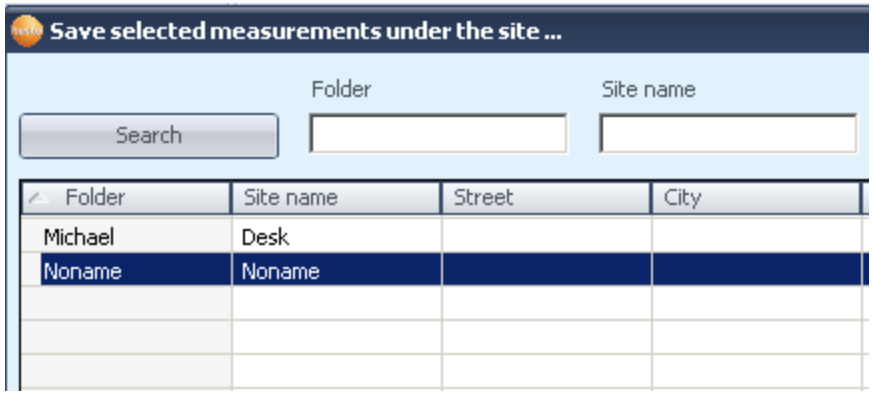
Start

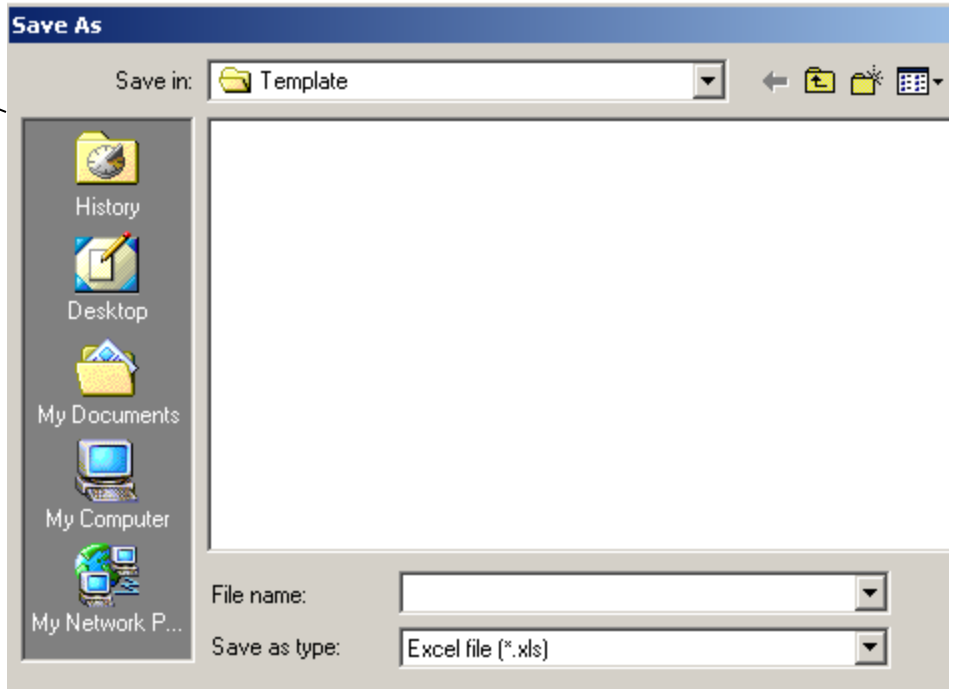
Save real time readings



“Copy” & Paste:
Transfer all readings into the buffer memory and paste it into other programs.
Click Clipboard -> past in the other program

- Save your readings in easyEmission





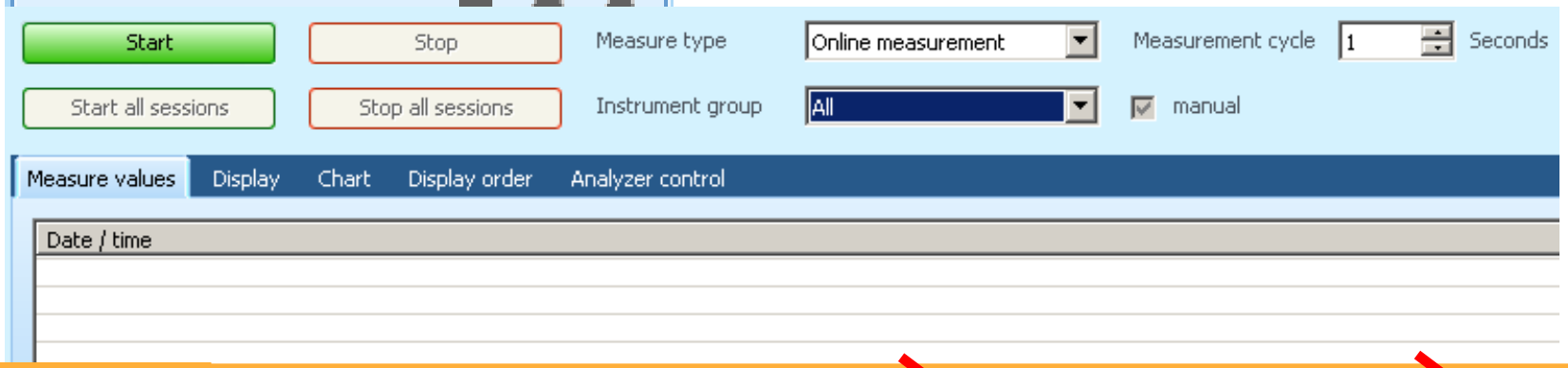
Start

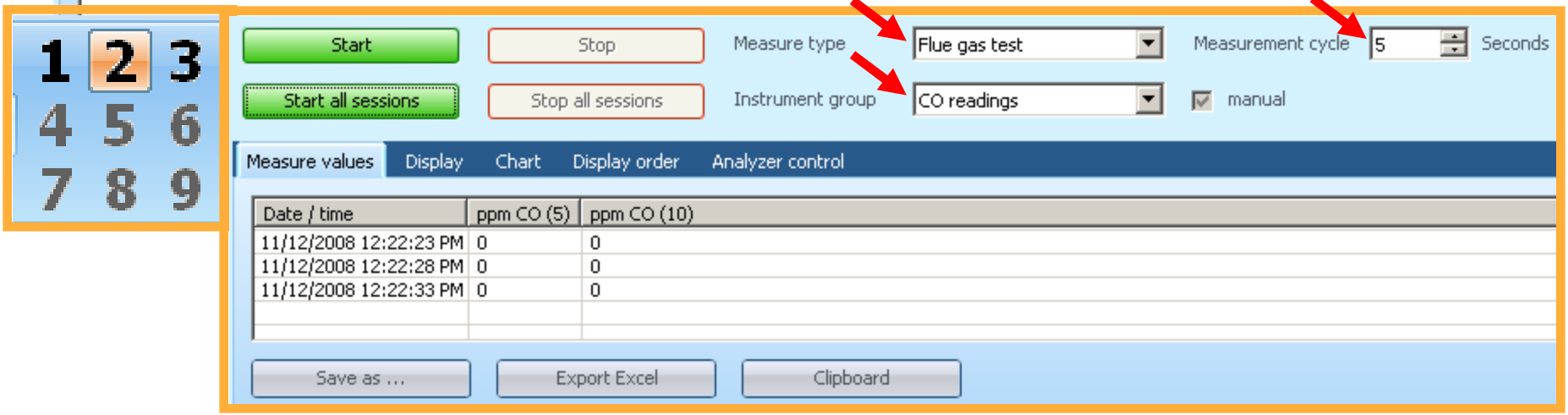
Parallel Sessions
Use more than one window

Use more than one window – Parallel sessions

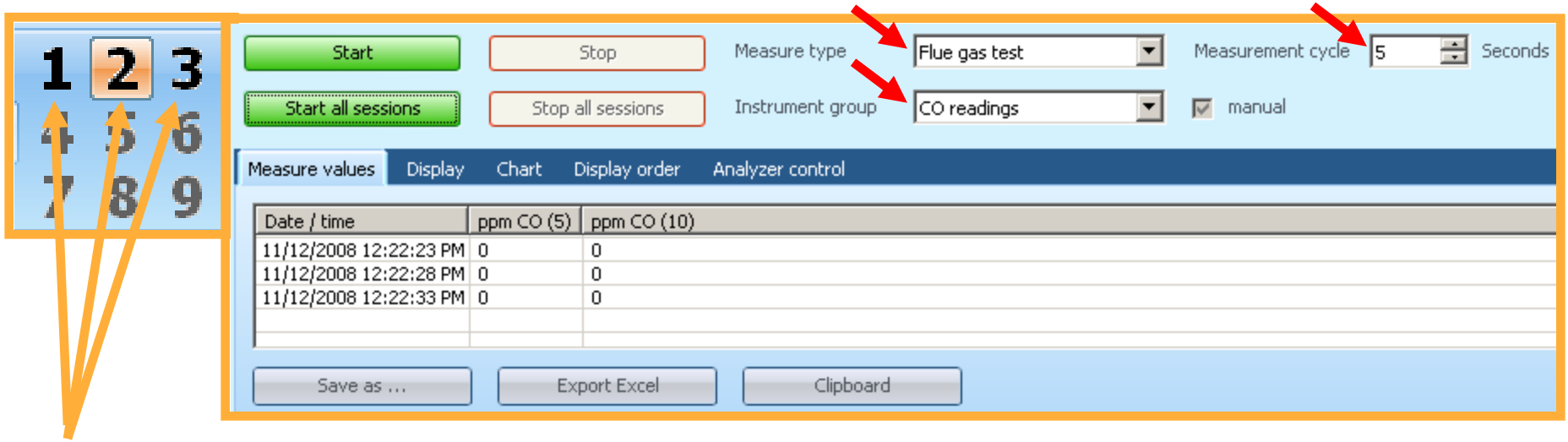
- Use different session with different settings and save / store it in different measurements

- Change the number of parallel sessions





Use more than one window – Parallel sessions



- You can switch between the windows while the online-measurement
- Use different settings for the different windows (see red arrows)

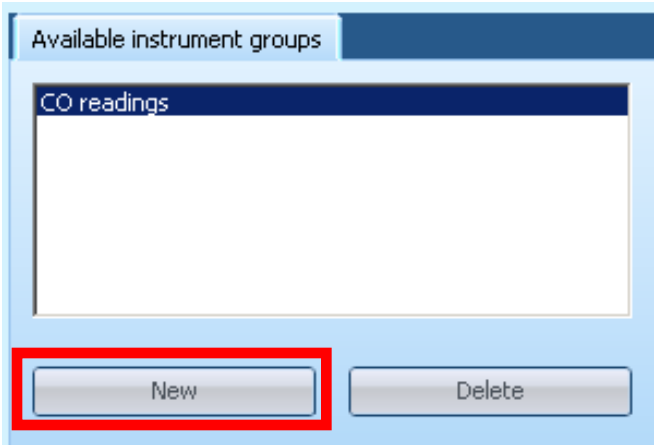
- Use different session with different settings and save / store it in different measurements

Manage Instrument Groups

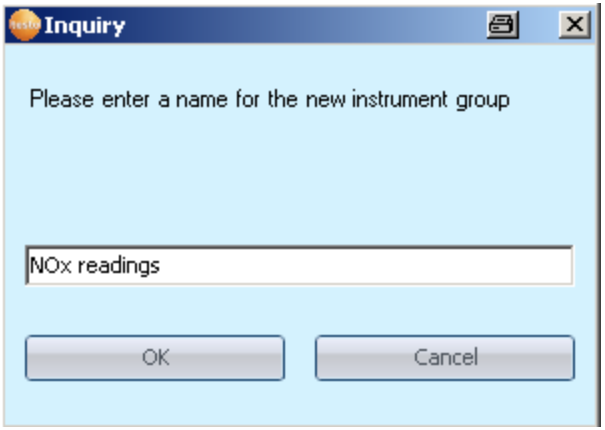
Start

Manage instrument groups easyEmission

- Several flue gas analysers can be pooled to form an instrument group for online measurements. Each instrument or individual measurement channels in the instrument can then be allocated to several instrument groups.

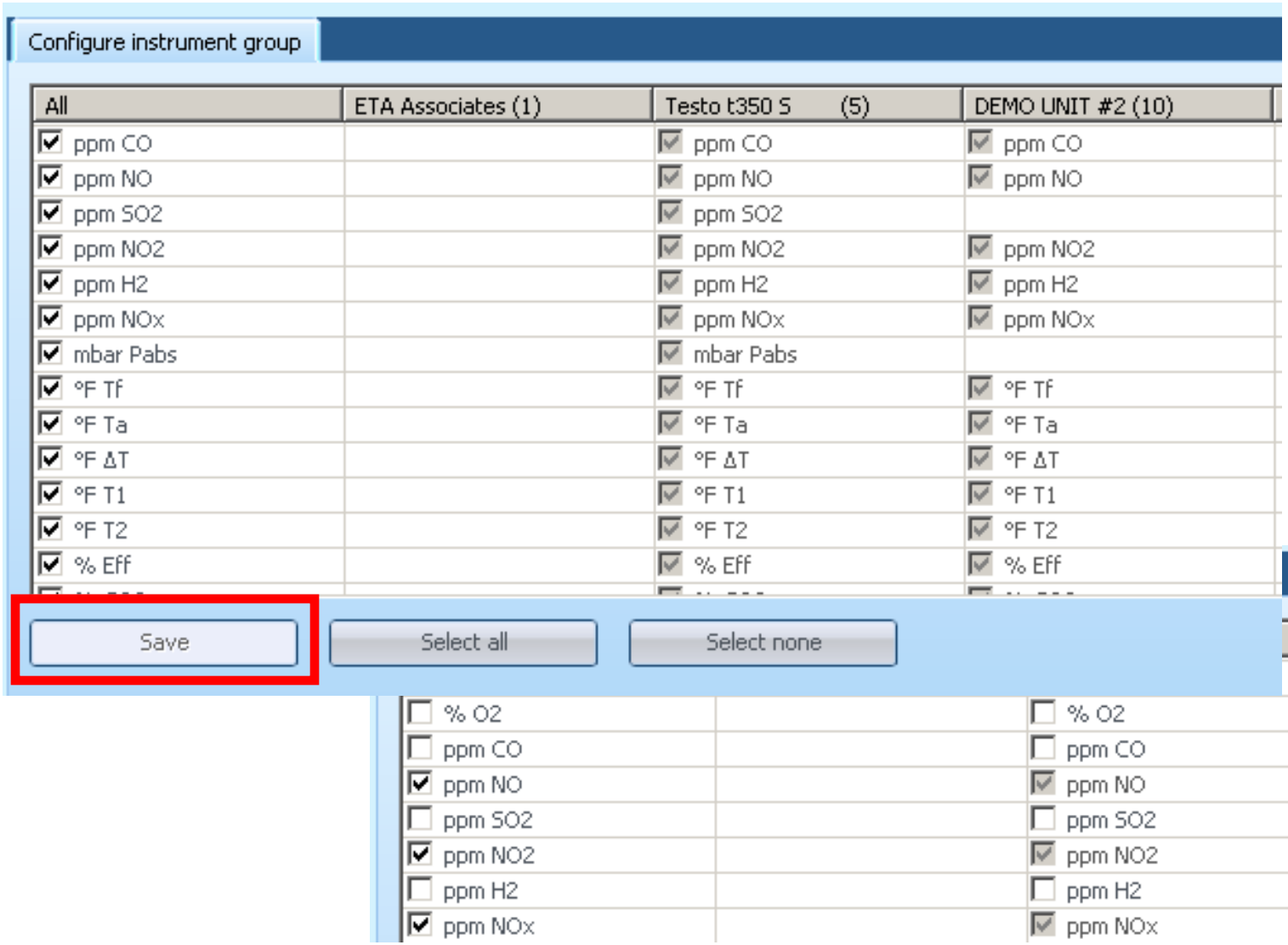


- Define a new instrument group
  e.g. NOx readings



Manage instrument groups easyEmission

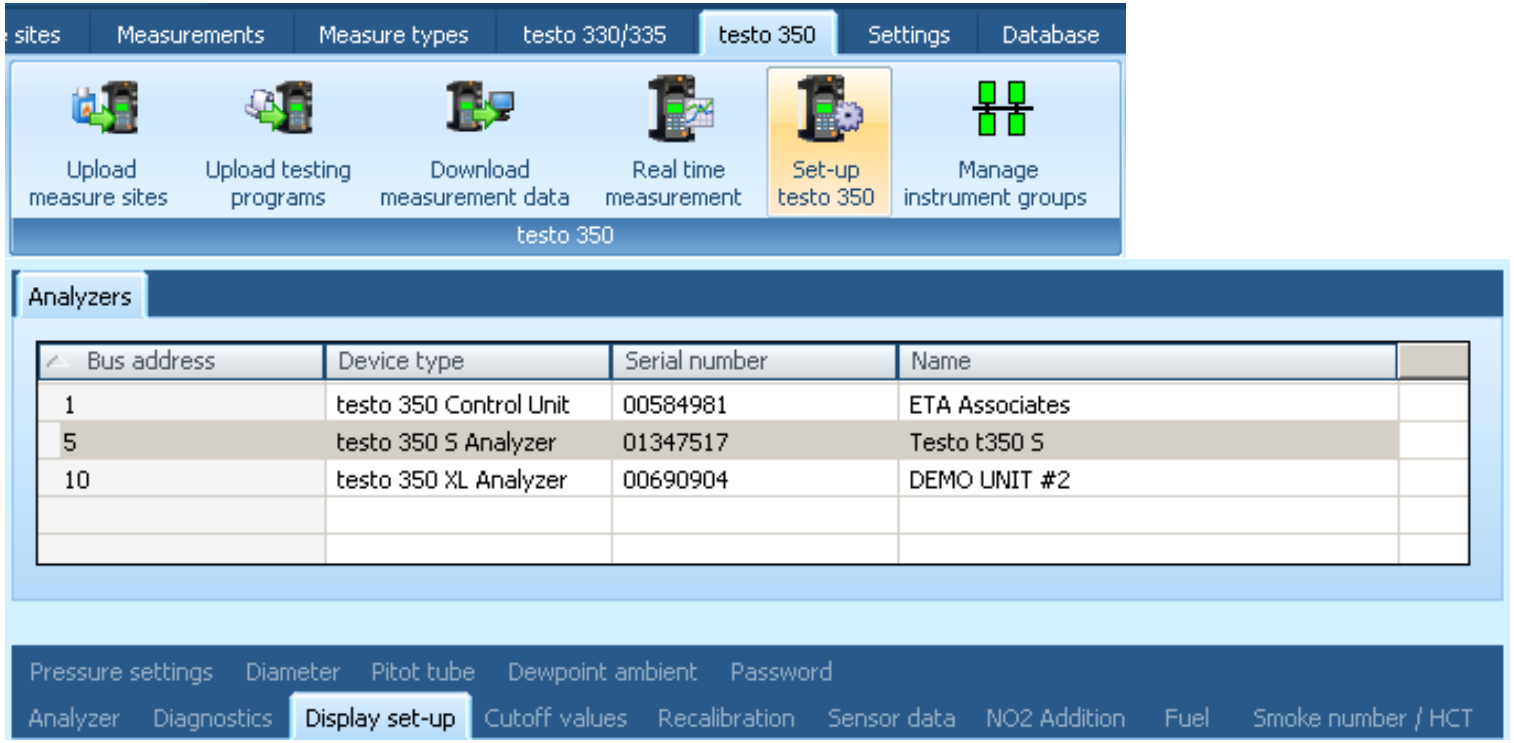
- Activate measurement channels of all instruments or certain instruments or deactivate



Start

Change instrument settings with the software

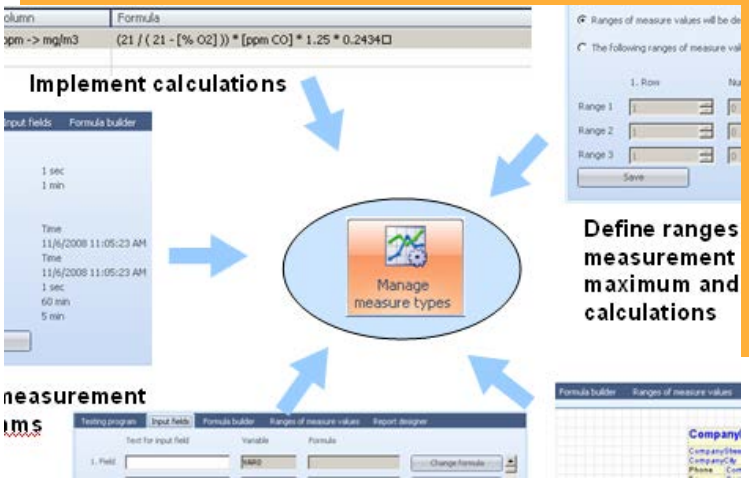
Change instrument settings by the software



- Pressure settings
- Diameter parameters (mass flow calculation)
- Pitot tube parameters
- Analyzer information (serial no., …)
- Diagnostics
- Cut off values for the gas sensors
- Recalibration settings
- Sensor data (e.g. last adjustment date
- NO2 addition (percentage)
- Fuel parameters / User specific fuels
- Display set up (values & units)

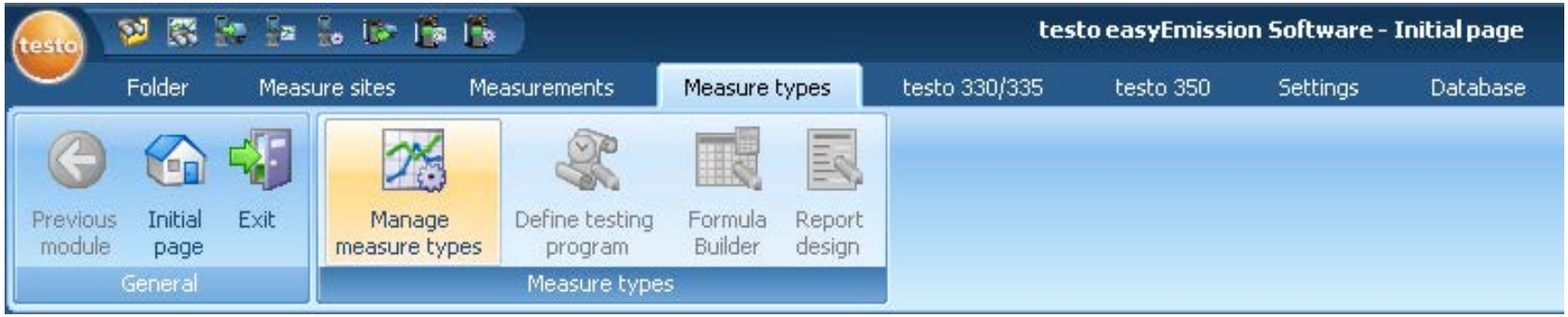
OVERVIEW
Functions related to the measurement type

Start



What are measurement types?

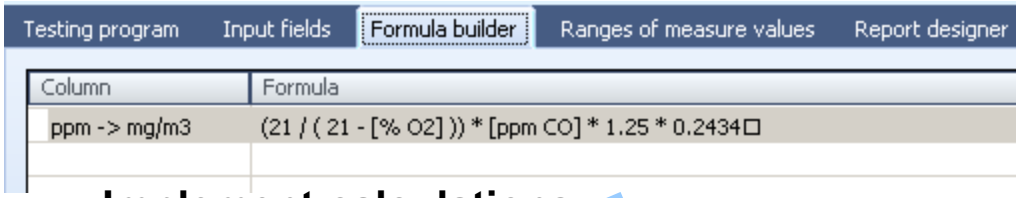
- Measure types serve to repeatedly carry out measurements in a predefined way. Measurement programs (logger programs), formulae to calculate additional values (formula editor) and the layout for printing measurement data (form designer) can be stored in a measure type.



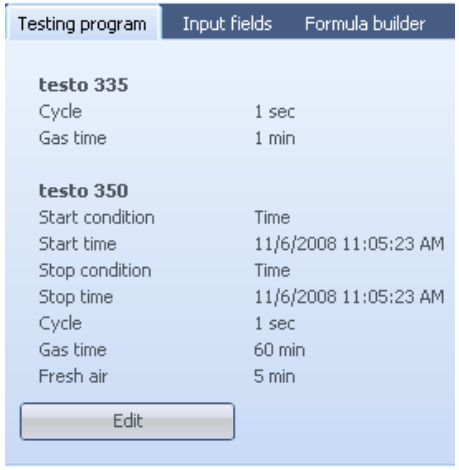
See on the next page a graphical overview of all functions related to the measurement type!

Click

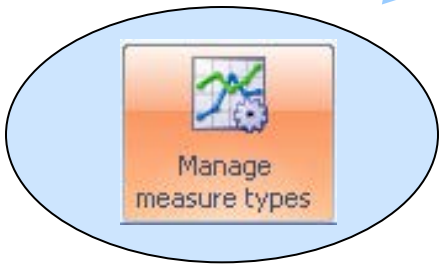
Functions related to the measurement type

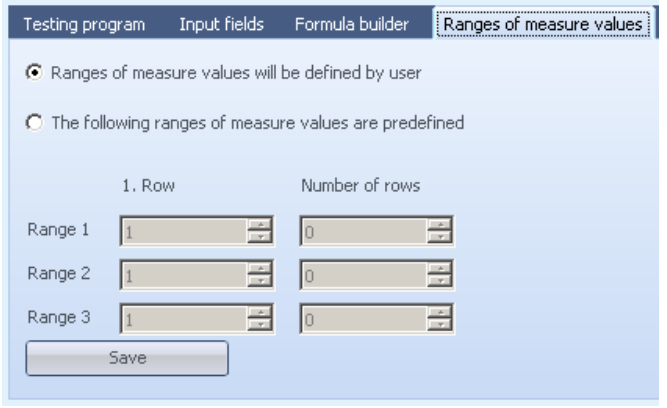


Implement calculations

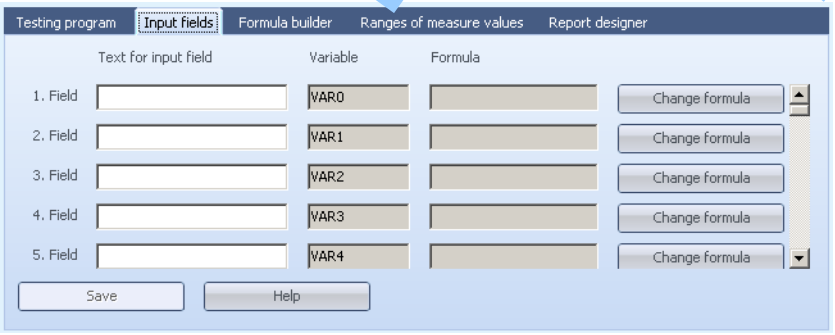


Define measurement programms

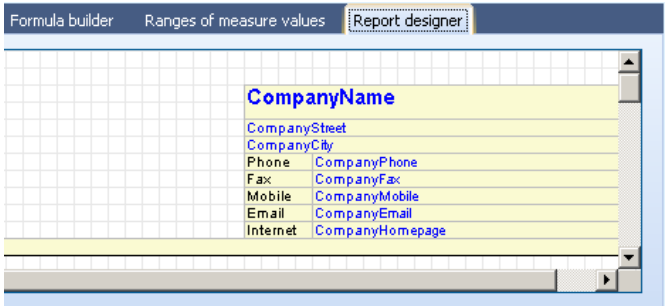




Define ranges in your measurement for minimum, maximum and average calculations

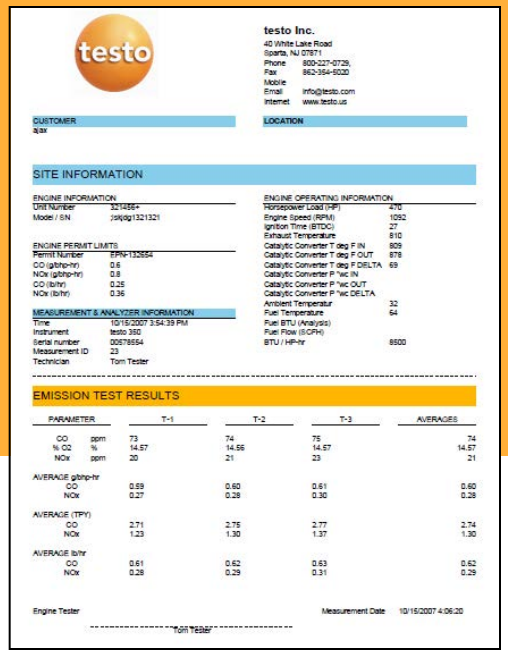


Define user specific input-fields



Define specific reports for your printaouts

Create your own report



testo Inc.
40 White Lake Road
Sparta, NJ 07871
Phone 800-227-0729,
Fax 862-364-6020
Mobile
Email info@testo.com
Internet www.testo.us

CUSTOMER
ajax

LOCATION

SITE INFORMATION

ENGINE INFORMATION
Unit Number 321456+
Model / SN /sk/qg132132

ENGINE PERMIT LIMITS
Permit Number EPN-132564
CO (g/bhp-hr) 0.6
NOx (g/bhp-hr) 0.8
CO (lb/hr) 0.25
NOx (lb/hr) 0.36

MEASUREMENT & ANALYZER INFORMATION
Time 10/15/2007 3:54:39 PM
Instrument testo 350
Serial number 00678554
Measurement ID 23
Technician Tom Tester

ENGINE OPERATING INFORMATION
Horsepower Load (HP) 470
Engine Speed (RPM) 1092
Ignition Time (BTDC) 27
Exhaust Temperature 810
Catalytic Converter T deg F IN 809
Catalytic Converter T deg F OUT 878
Catalytic Converter T deg F DELTA 69
Catalytic Converter P "wc IN
Catalytic Converter P "wc OUT
Catalytic Converter P "wc DELTA
Ambient Temperatur 32
Fuel Temperature 64
Fuel BTU (Analysis)
Fuel Flow (lb/PH)
BTU / HP-hr 8500

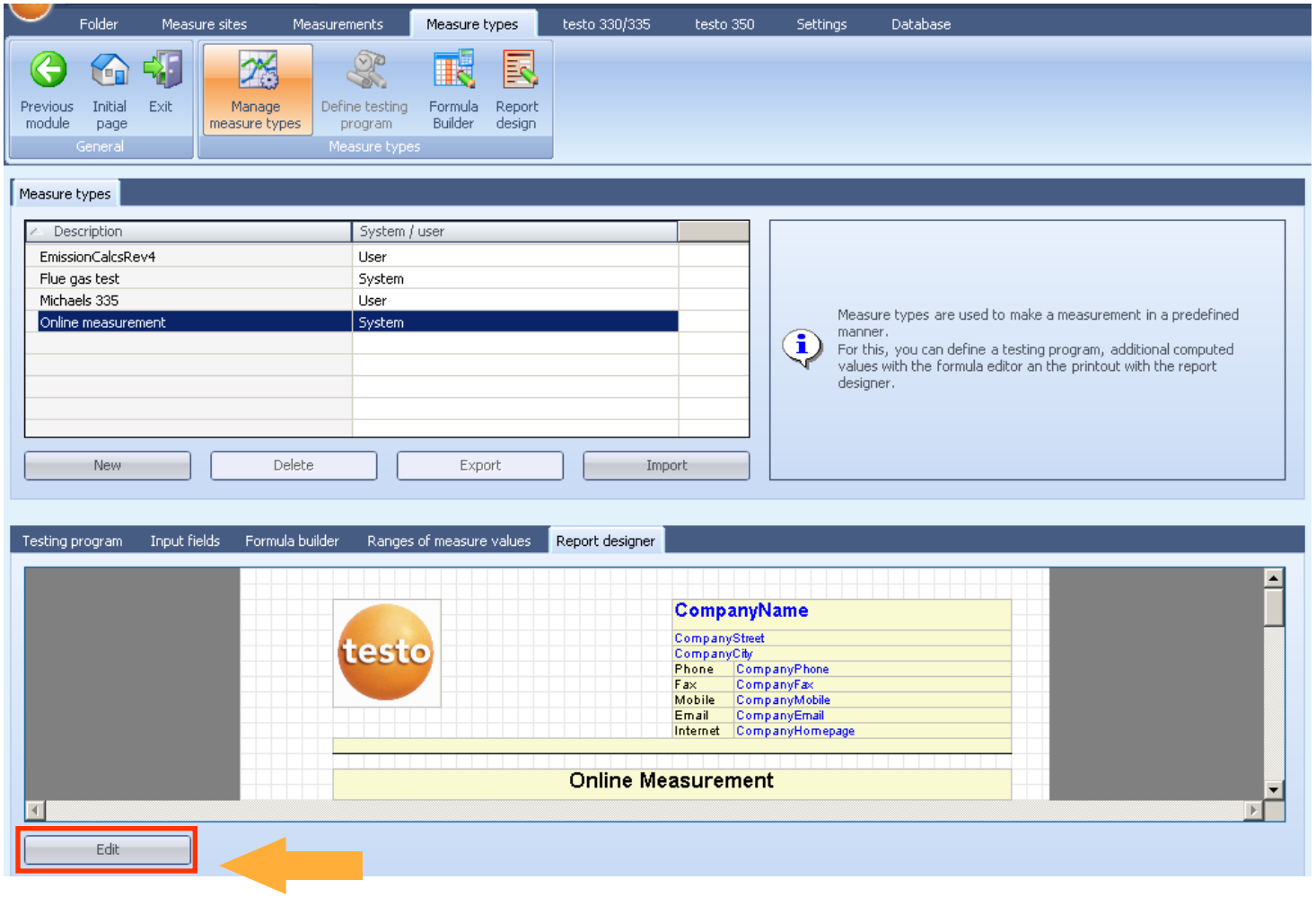
EMISSION TEST RESULTS

PARAMETER		T-1	T-2	T-3	AVERAGES
CO	ppm	73	74	75	74
% O2	%	14.57	14.56	14.57	14.57
NOx	ppm	20	21	23	21
AVERAGE g/bhp-hr					
CO		0.59	0.60	0.61	0.60
NOx		0.27	0.28	0.30	0.28
AVERAGE (TPY)					
CO		2.71	2.75	2.77	2.74
NOx		1.23	1.30	1.37	1.30
AVERAGE lb/hr					
CO		0.61	0.62	0.63	0.62
NOx		0.28	0.29	0.31	0.29

Engine Tester
Measurement Date 10/15/2007 4:06:20
Tom Tester

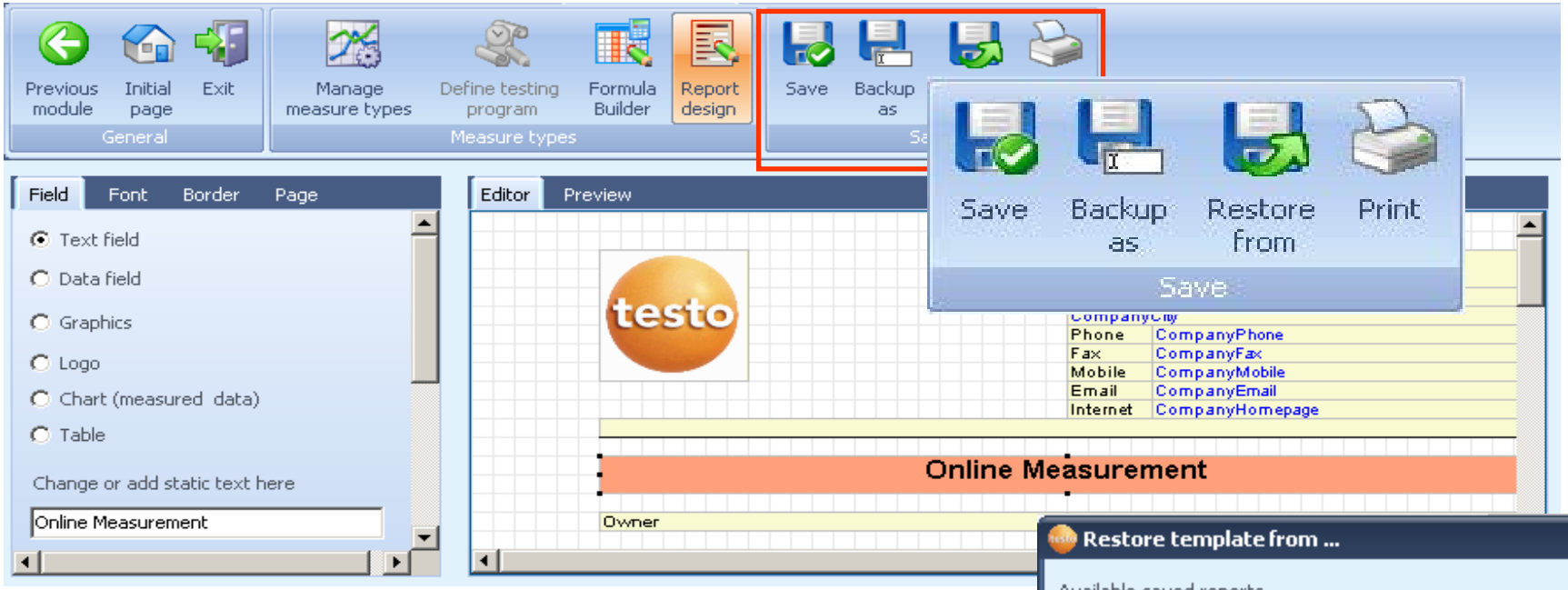
Start

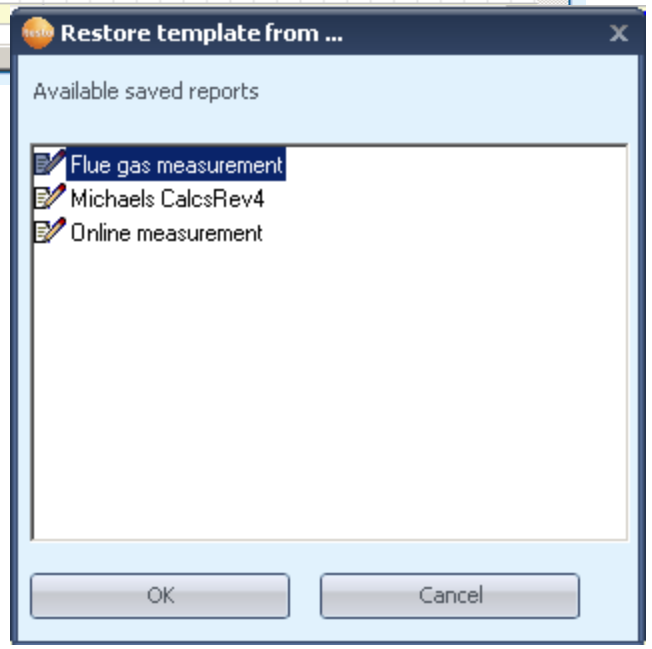
Create your own report



- To print out the measurement data, the measure types can be allocated to reports or user defined reports can be created.

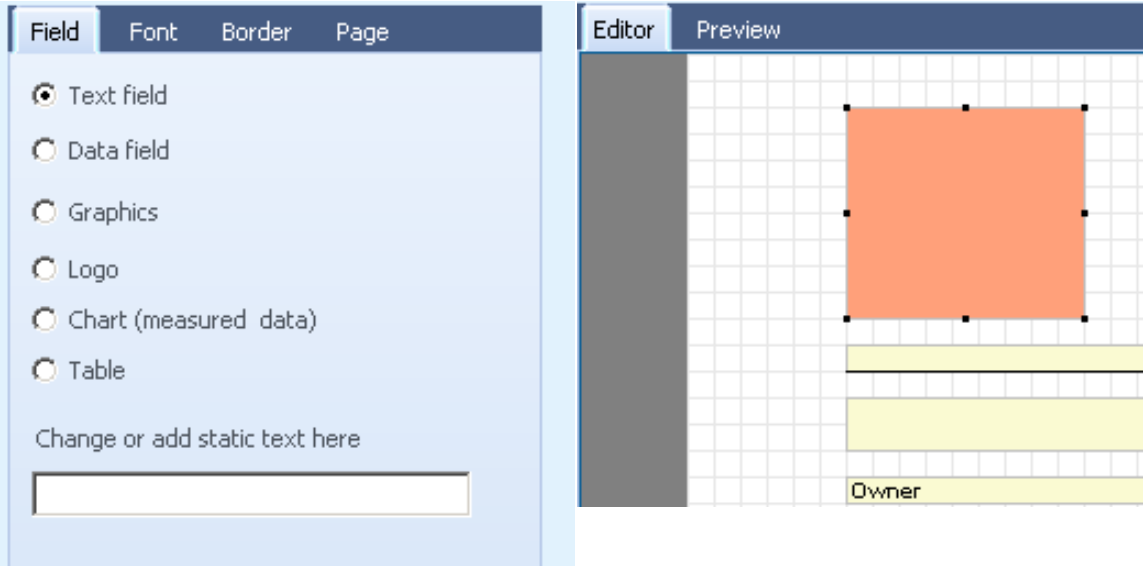
Create your own report





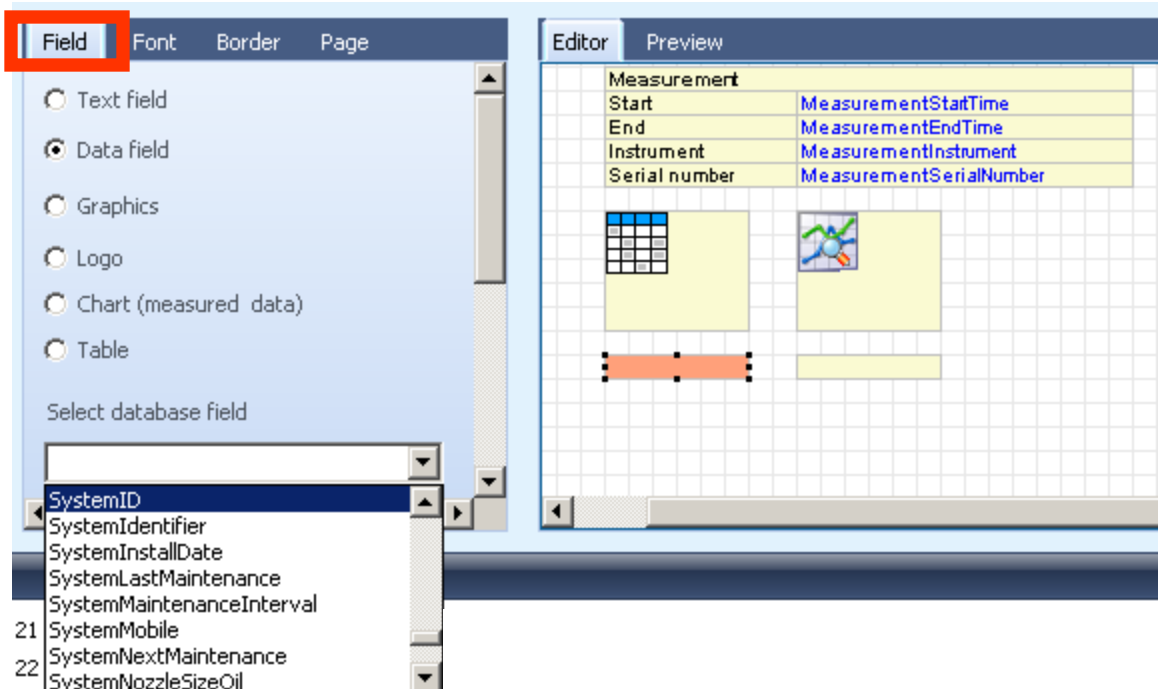
- **Save** changes (the default reports cannot be changed, but they can be used as a base for new user-defined reports
- **Save as** .. -> Save report with another name
- **Restore from** -> Restor saved templates (allocate to other reports)
- **Print** -> Print the report (no measured values!)

Create your own report – Create new fields



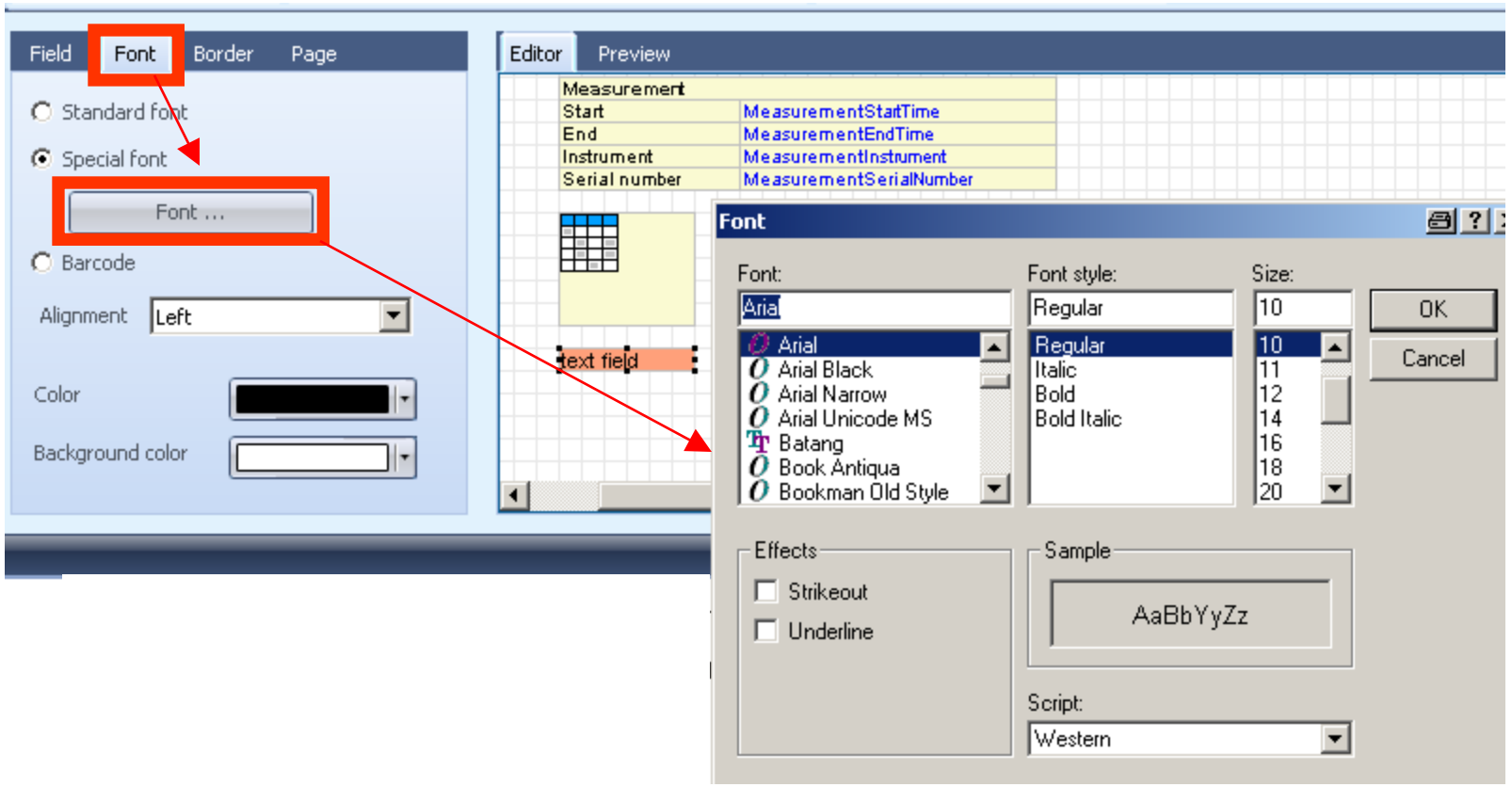
- Create new field: Determine the size of the field with the mouse pointer
- Mark the desired type of field (Textfield, data field, graphics, chart, table, ...)
- Mark field (click on the created field)

Create your own report – Create new fields



- Certain displays of measured values can be selected in data fields or textfields can be defined. Only if measurements were allocated to the measure types, it is possible to select measured values.
- Graphics: e.g. to upload logos.
- Charts and tables are labelled with symbols in the editor

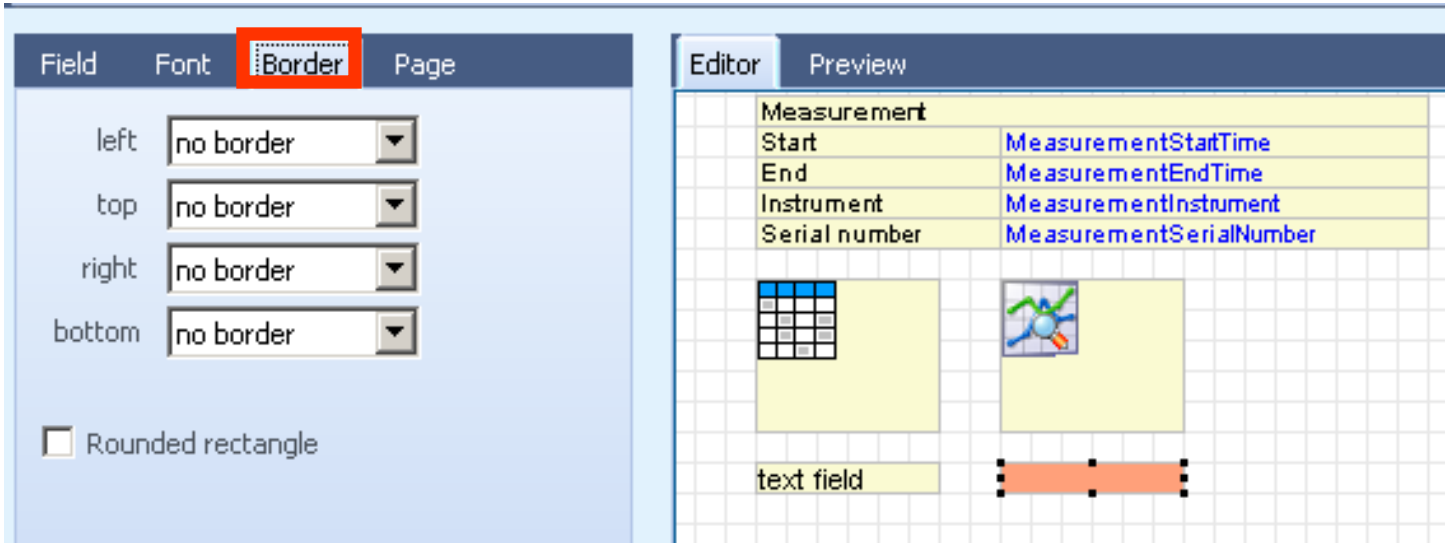
Create your own report – Create new fields



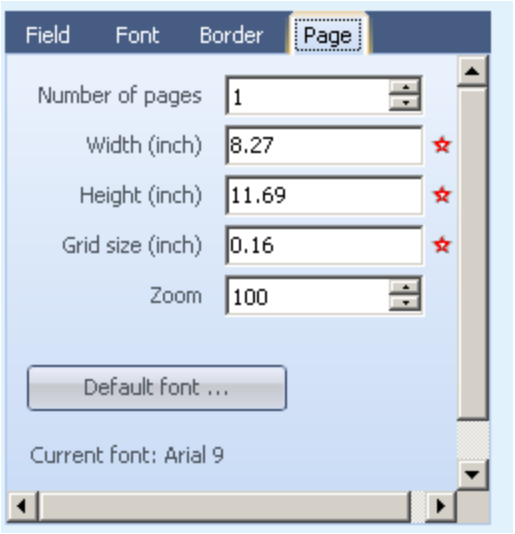
- Textfields can be edited (click “Font“)
- Change the size, design etc. of font in the button “font“ (see picture)

Create your own report – Create new fields

- Border marked fields

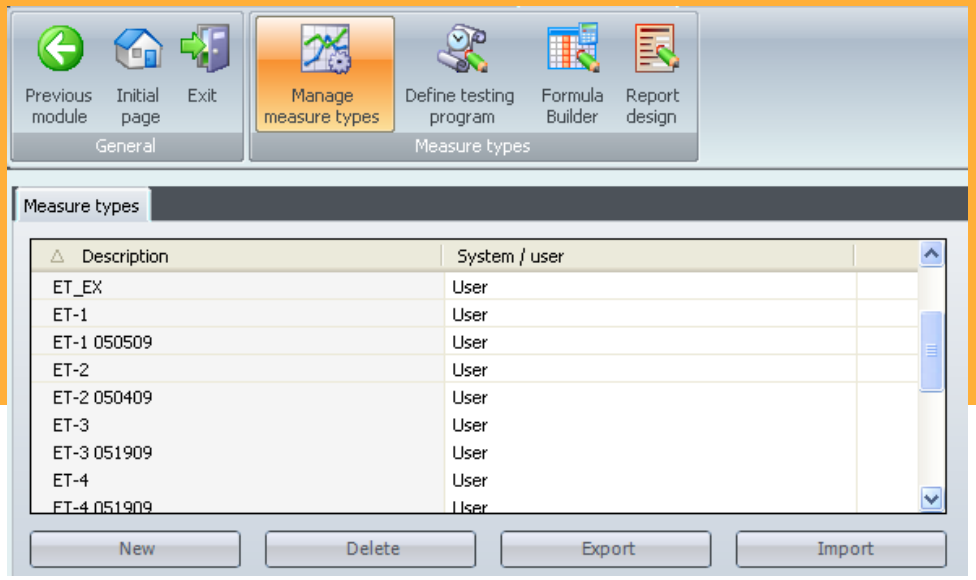


- Page settings



Import testo templates for your application

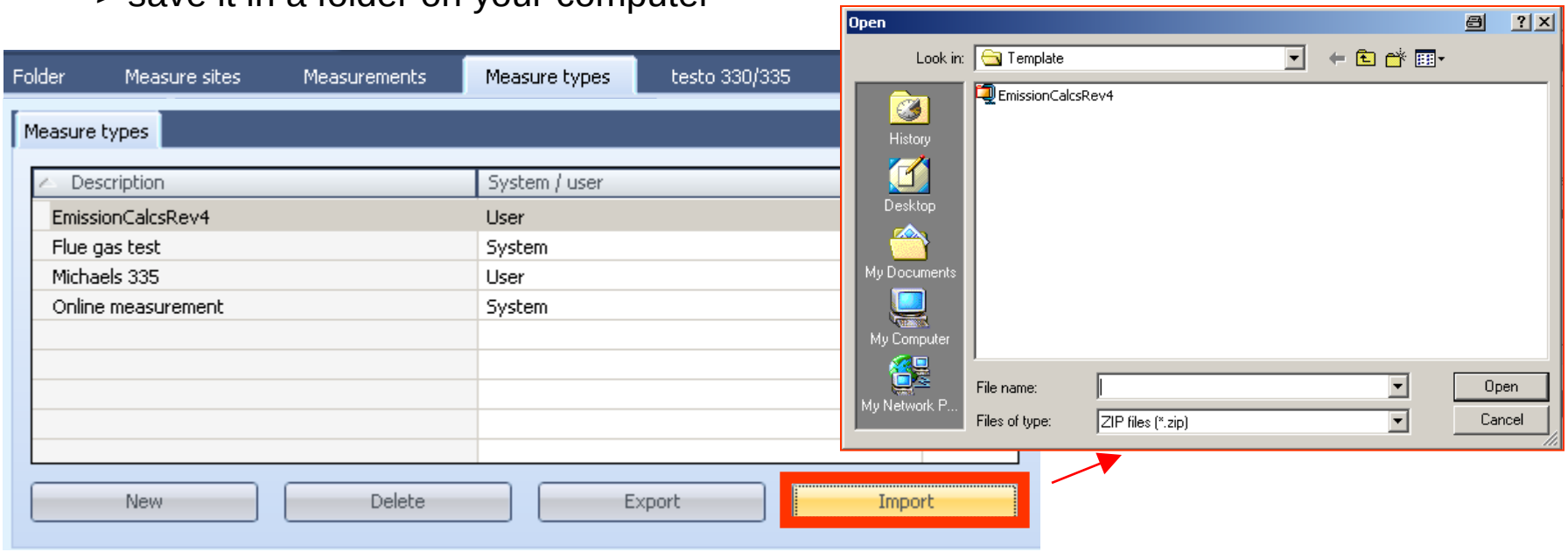
Start



Import testo templates for your application

- Get a testo easyEmission template e.g. by mail

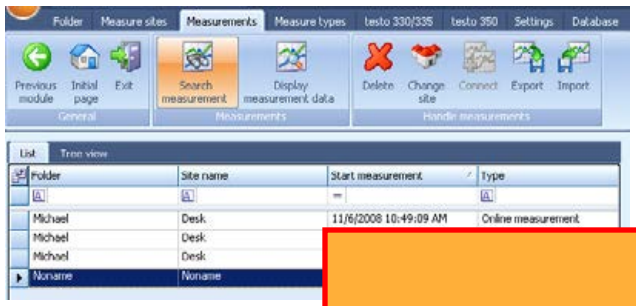
  -> save it in a folder on your computer



- Get a testo easyEmission template e.g. by mail

  -> save it in a folder on your computer

What is a measure type, how can I use it? Click!



End of presentation!
Back to Start?