# airleader Measuring- and Simulation Server (MSS)

# Version 2.1

**Handbook dated 30.01.2015**

## System Requirements:

Hardware:
PC at least Dual Core,
2 GB minimum RAM, 4 GB RAM, 50 GB hard drive or larger.
Operating system:
Windows XP, Windows Vista, Windows 7, Windows Server 2008, Linux (separate setup)

Browser client side:
Internet Explorer 9 or higher, Firefox 15 or higher, Google Chrome
Browser must support HTML5 Canvas.
Popup blockers must be disabled.
Caching mechanism must be disabled (see Web Browser Settings)
Miscellaneous:
Micosoft Silverlight client side

## Installation:

Log in as system administrator.
Under Win 7, Vista and Server 2008, it is necessary to shut down the User Account Control.
Start the installation program:
Airleader Simulation Server Setup V - ??. Exe and follow the instructions.
After successful simulation your internet browser starts with the start mask.
Click on a free session to start the application.
License:
The server comes with a session license. Additional session licenses can be reordered at any time. The maximum number of sessions is limited only by the hardware.
Without a license, the program can be used for 14 days.
The program can then be reactivated with a license key

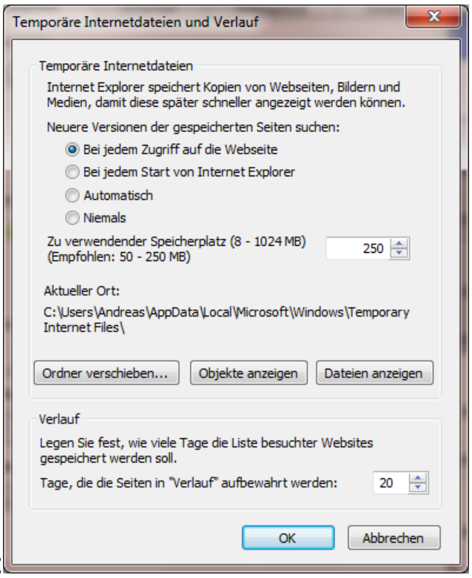
## Registration:

With your CD, you will receive a program number and a code that you need to unlock the full version.
To register the software, click on the "Register" link on the right side of the footer of the start screen.
Enter the program number and the code in the following dialog and click on the button to confirm.
After that, the full version is unlocked.

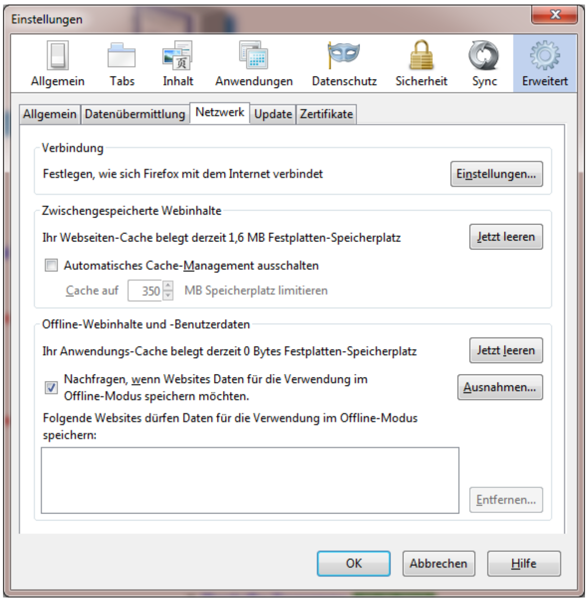
# Web Browser Settings:

For the software it is necessary to deactivate the caching of the web browser.
You can do this at the Internet explorer by setting the option:
"Temporary Internet Files: New Versions Each Time You Access the Website".

see grafic:

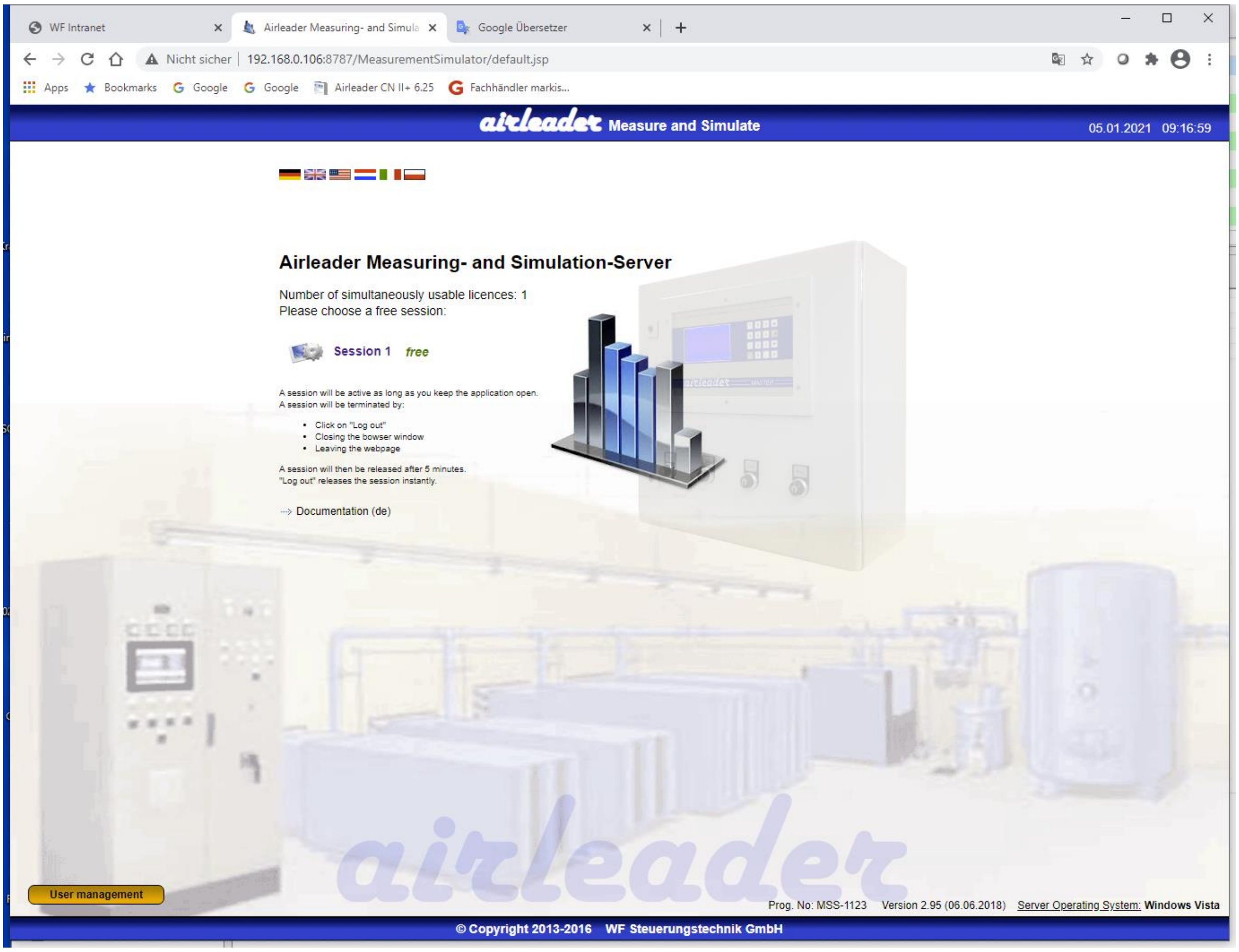



This dialog can be found in the Internet Options -> Browser Settings.
In Firefox you will find this option under "Settings-> Advanced-> Network"
Turn on the option "Ask if website has data for offline mode".



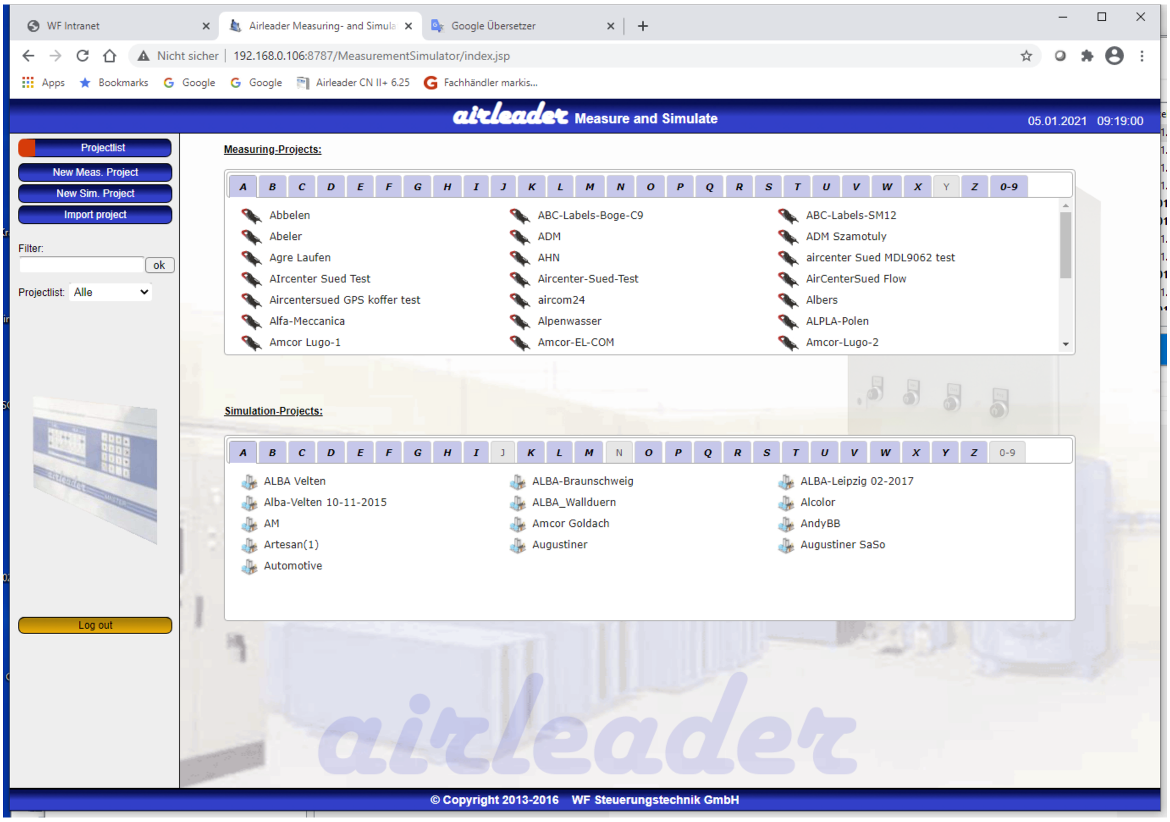
## Start Screen:

Double-click on the configured desktop icon to start your internet browser and open the start page of the measurement and simulation server named MSS. Because it is a web application, it is available throughout the network. For this, only the IP address or the name of the server computer must be known.
A call to http: // server-ip: 8787 will take you to the homepage.




A click on a free session brings you to the project overview.

# Project-overview:




The project overview is divided into:

- Measurement projects
- Simulation projects

You have the following options in the project overview:
- Selection of a measurement or simulation project

Click on the project name to go to the respective project.
- Creation of a new measurement or simulation project

Give your new project a name

All projects are managed in an alphabetically arranged tab system.

Create new project:


**Measurement project:**

A measurement project represents the evaluation of a measurement using the AIRLEADER analog measurement case.

The MSS allows evaluations of simultaneous measurements with up to 4 analog measuring cases.

The following options are available to you in an evaluation:

• Upload the measurement data (separately for each measurement case) or directly from the measurement case via the network

• Reading and organizing the channels

• Evaluation of the data

• Definition of the load, idle standstill limits of compressors

• Printing the evaluation

• Creation of an AIRLEADER simulation

Advantages compared to the previous PC evaluation program:

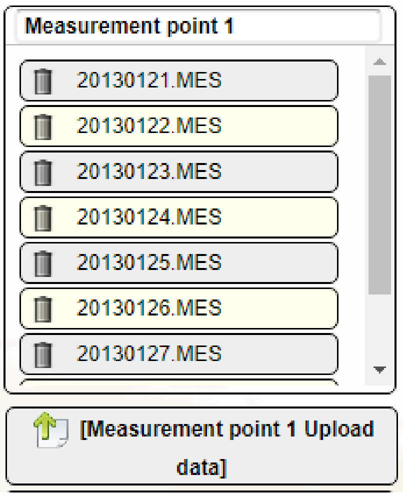
• Greater accuracy

• Direct effect of the total consumption curve

• Joint data management

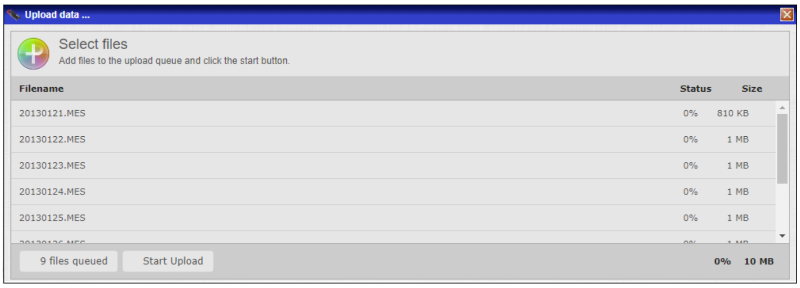
• Generation of simulations without further configuration work

## Upload of measurement data:




Click on the link "Upload data" below the desired measuring point.
(e.g. from USB stick)

If the measuring case is connected via a network cable, the data can also be loaded directly from the measuring case.




Select the measurement data on your hard drive or USB stick and confirm this with the "Upload" button.

After a successful upload, the uploaded data will be listed in the measuring point.

Repeat this process for each measuring point if you have used several analog measuring cases for your measurement.

## Read measuring data

Reading in serves to organize the connected sensors:

The channels of the current clamps (compressors) are sensibly assigned to the customer's compressor numbering.

After the data has been uploaded, it must be read in.

The fixed channels 1-8 of the measuring case are assigned to the virtual channels,

The compressors are assigned to channels 1-16 and the sensors to channels 17-32.

**<u>A channel can only be used once within a measurement.</u>**


AE1 = Analoginput 1 ……8

Select **„K“** for Compressors on channel 1….16

Select **„S“** for Sensor on channel 17….32

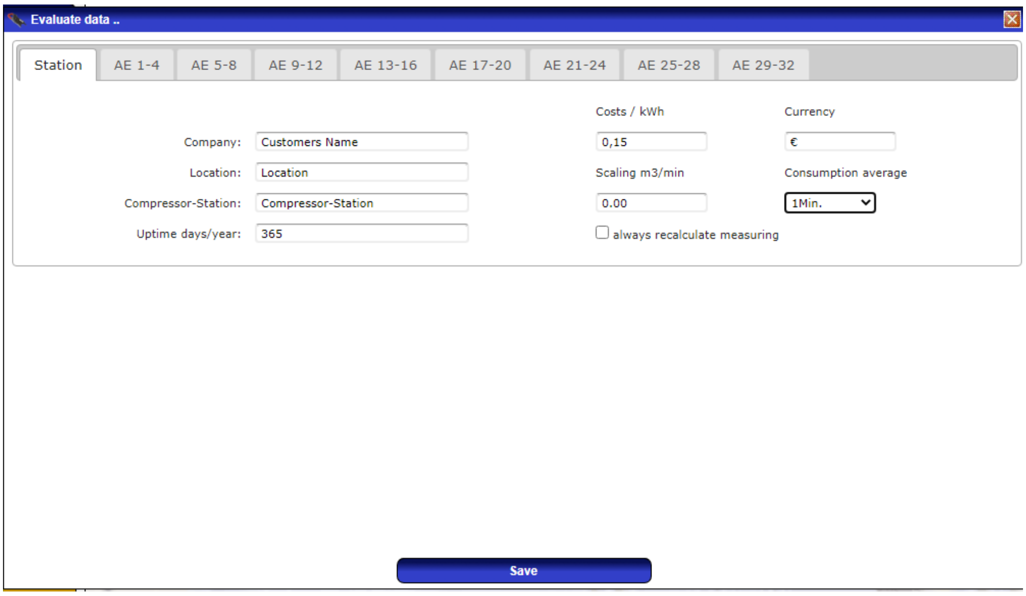
**Evaluate:**

When evaluating, the technical data of the measured components are given.

Basic parameters such as electricity price, measuring cycle and scaling are also specified here.

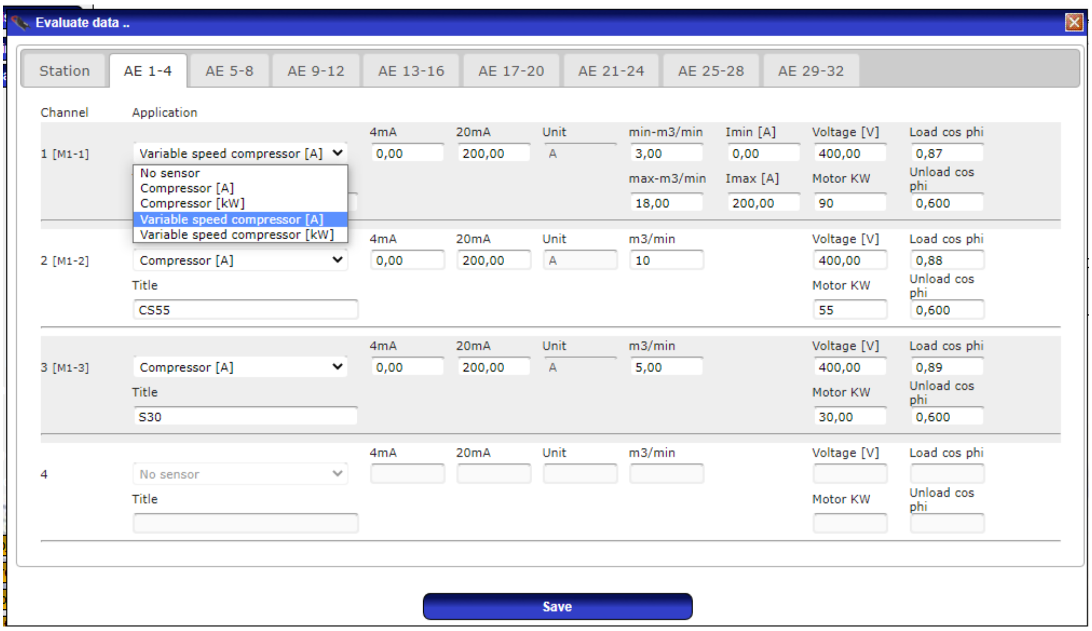
Basic parameters:

Input of all project data such as costs, location, total amount (default = total of all connected compressors + 10%), etc.



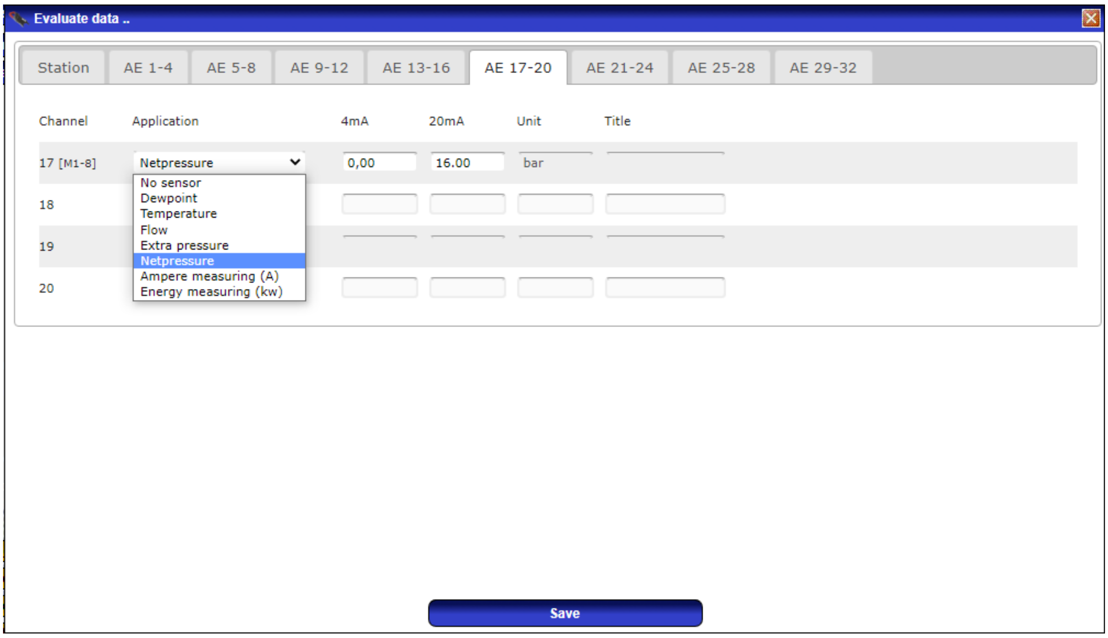
## <u>Compressor data:</u>

***Enter the compressor configuration data and measuring ranges***




## <u>Sensor data:</u>

Enter the type and measuring ranges of the additional sensors, such as pressure, dew point, flow, etc

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Please first parameterize all sensors in all relevant tabs, only then click on "Save".Saving immediately generates a raw evaluation and, depending on the amount of data, can take some time.

After successful evaluation, the data in the "Evaluated files" field are available for viewing and further processing, because:

In the following, the limit values for the ampere or kW measurements must be specified, for which at least one load-idle cycle is required for each compressor.

To do this, click on a suitable day of the analyzed files.

The generated raw evaluation diagram is displayed and additional navigation points for all sensors and current clamps involved in the measurement appear on the left.

By selecting an ampere measurement on the compressor, you get the following diagram,

in which you have to define the limit values for load / idling and standstill.

When measuring a frequency converter compressor, there are two green border lines for min load and max load.

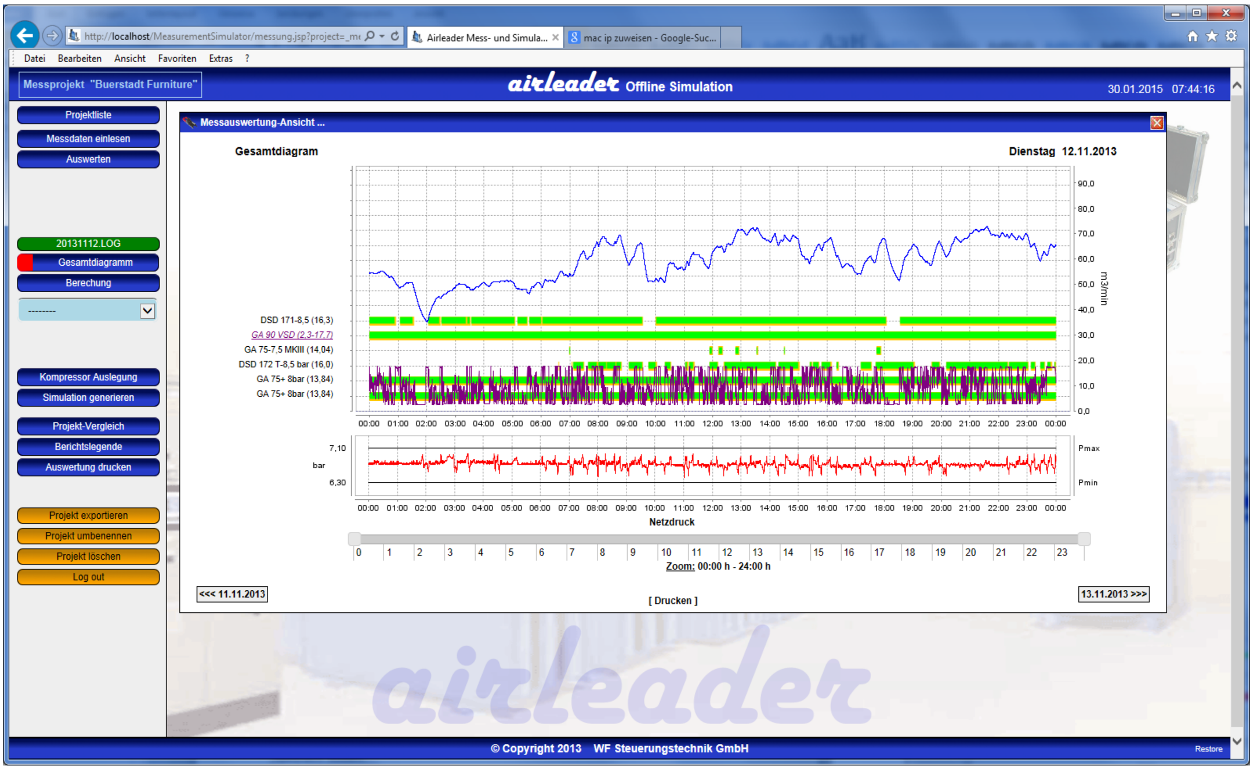
Please set the limit values accordingly. (Please bring the min-max load manually during installation so that the appropriate settings are possible)

Once the settings have been made for one day, click on "Data correction".

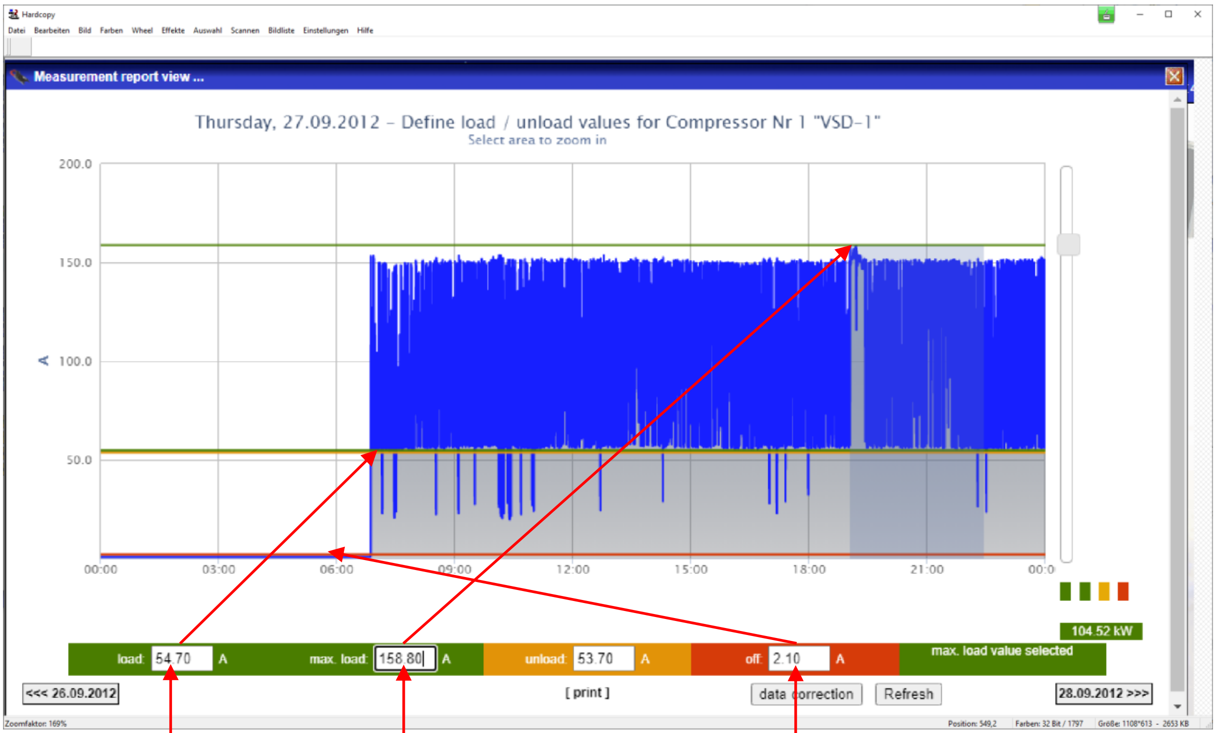
This means that all settings are adopted for all further measuring days.

Then check other days on a random basis and check the set limit values there as well. Correct the settings if necessary. (Don't forget to click "data correction")

**Evaluation-Diagram:**



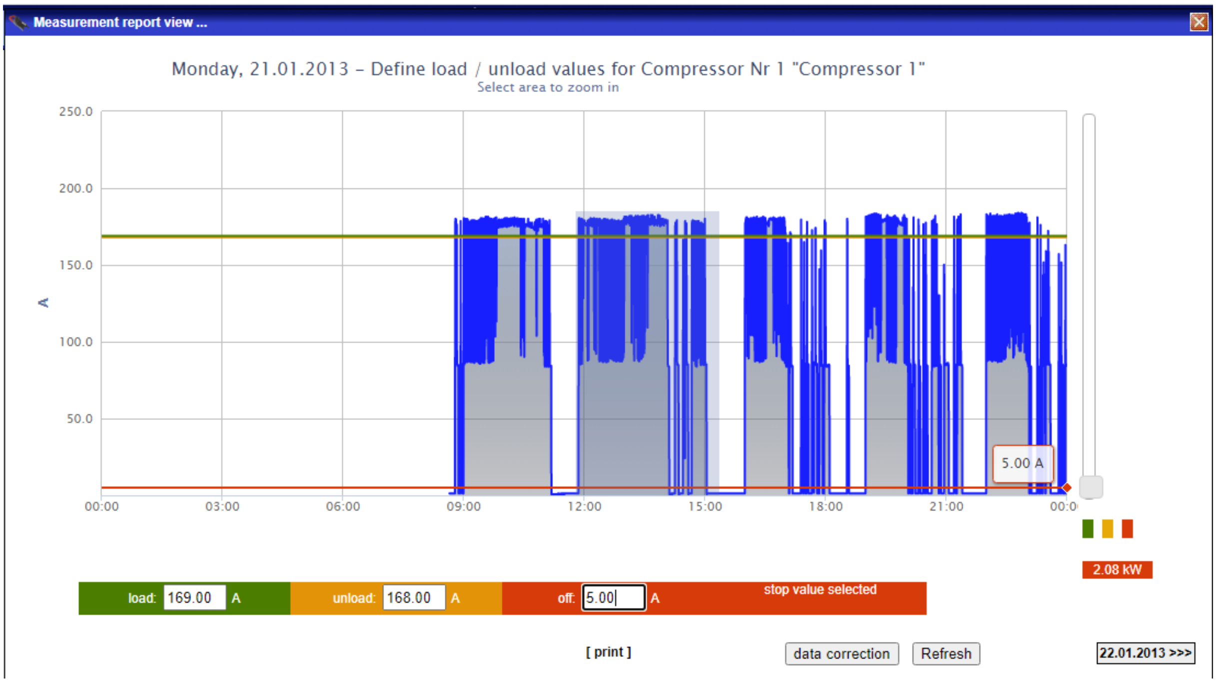
## Set load / idle and stop limit values for variable speed compressors:




Min load setting max load setting stop value selected

If energy is in still standig mode higher

Than 0,0 A do setting 2 A higher as it is

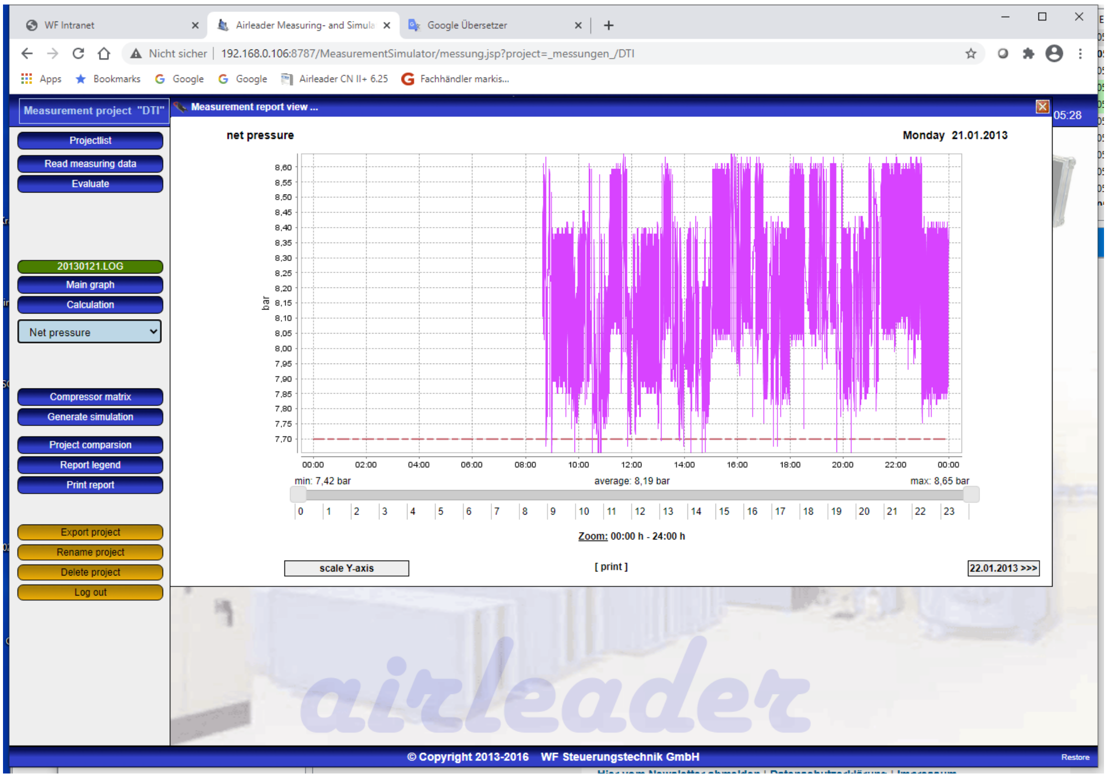



## Set load / idle and stop limit values for load/unload compressors:

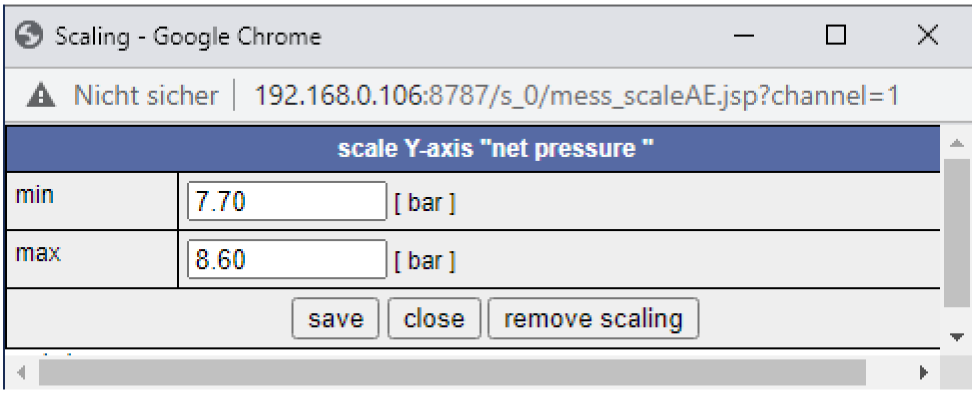
If a pressure transducer has been defined as a network pressure, the diagram of the pressure curve can be viewed via the navigation point "Network pressure", and then click on a

the format corresponding to the measurement.

**Network pressure diagram:**



**Network pressure scaling:**



A simulation of the measured station with an AIRLEADER master can be generated immediately from the measurement via the menu item "Generate simulation".

The complete measurement can be separated into diagrams, calculation value tables or can be printed out completely.

From version 1.2:

If no compressors were measured during a measurement, but only a flow measurement was made, this measurement can be taken over as consumption for the simulation.

The data are averaged over 5 minutes.

## Simulation:

You have two options for creating a new simulation:

1. Via "New simulation project" in the navigation of the overview
2. From a measurement via "Generate simulation"

In the second case, the consumption data that were calculated in the measurement evaluation are used as

The basis for the consumption data has already been copied.

All data already generated in the measurement evaluation are also adopted

(Pressure band, electricity price, compressor data, etc.).

**Base data:**

All master data can be entered in the basic mask of the simulation.

- receiver volume

The existing network volume can be entered here

- pMin, pMax

minimum and maximum value of the pressure band

- Start pressure

Pressure value at which the simulation starts

- Electricity price Price per kWh

**Scaling**

Maximum scaling of the consumption diagram

- Operating time per year

Basis for the overall report when extrapolating to the year

**Consumption data:**

Consumption data is required for a simulation. These can be evaluated data from the

previous measurement case program, as well as their CSV exports, data from the AIRLEADER online visualization, or directly generated consumption curves. This can be done via the

Button "Consumption Generate data ".average of consumption data:

In addition, consumption data can subsequently be averaged over 5, 10 or 15 minutes.


Consumption data change: Consumption data can subsequently be increased by a fixed amount or percentage or decreased.