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by Schaller Messtechnik

User manual
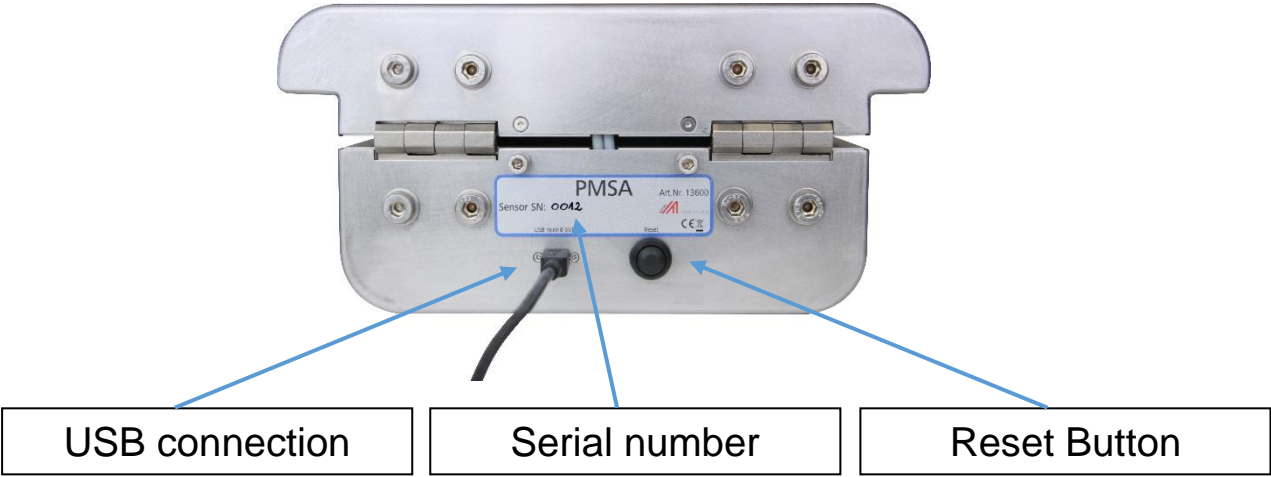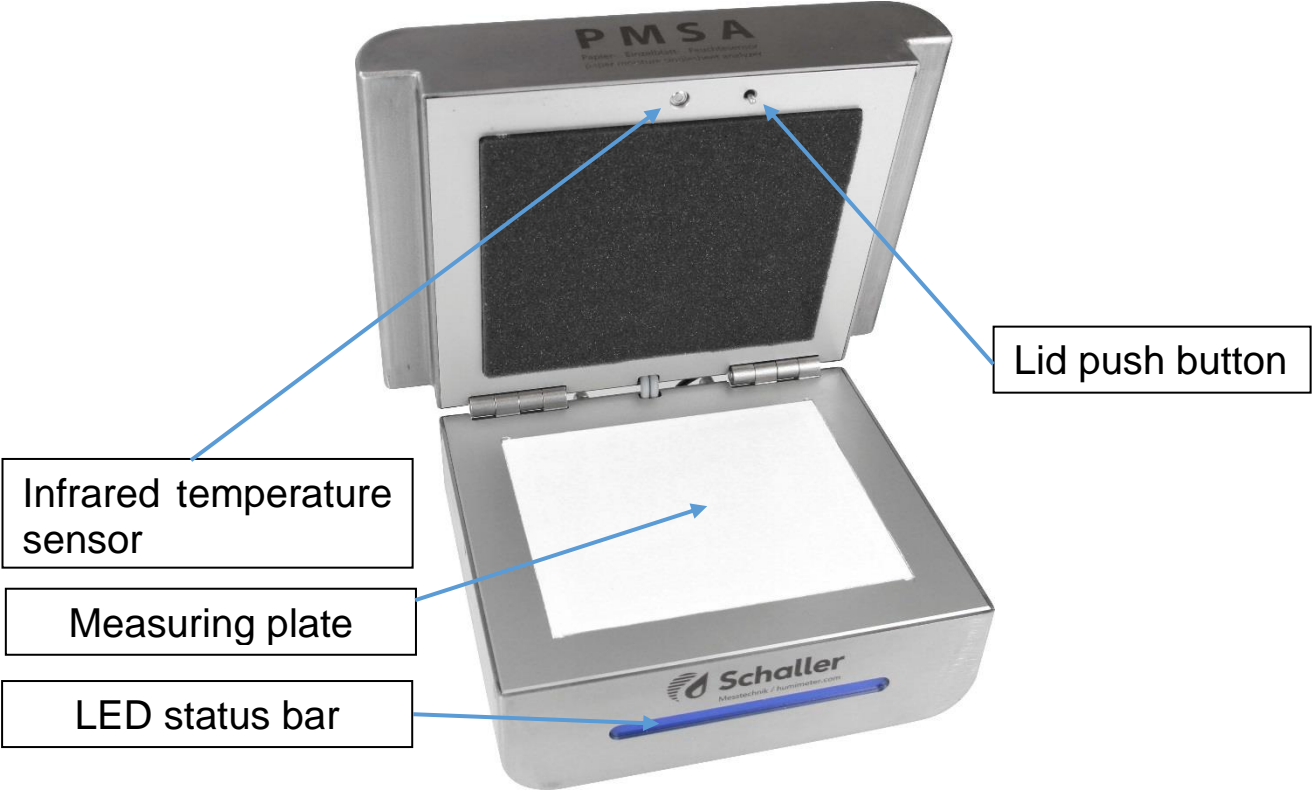

Moisture analyser for single paper sheets

PMSA

version 1.2_en

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2017

Design of device

Lid push button

Infrared temperature sensor

Measuring plate

LED status bar

USB connection

Serial number

Reset Button

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General information

The PMSA (paper moisture single sheet analyzer) is a measuring system for determining the water content of single sheets of paper. The system consists of a moisture sensor and an analyzing software for a PC.

Software start-up

The delivery contains an USB flash drive with the analysing software PMSA. By double-clicking the file „PMSA_setup.exe" the installer is started. With the installation, the USB driver (FTDI) is installed automatically. Your PC needs that driver for PMSA connection. After that the software can be started.

Hardware start-up

The measuring device has to be connected to your PC via USB mini B connector. The driver for the virtual COM port has been installed together with the software and should be ready for use.

Setting the correct COM port

Clicking on the button „Settings" (USB connector symbol), a window for selecting the COM port opens.
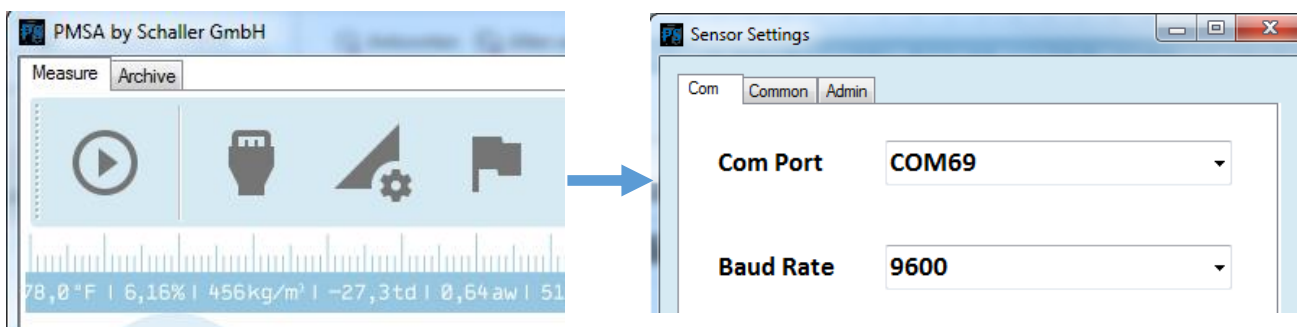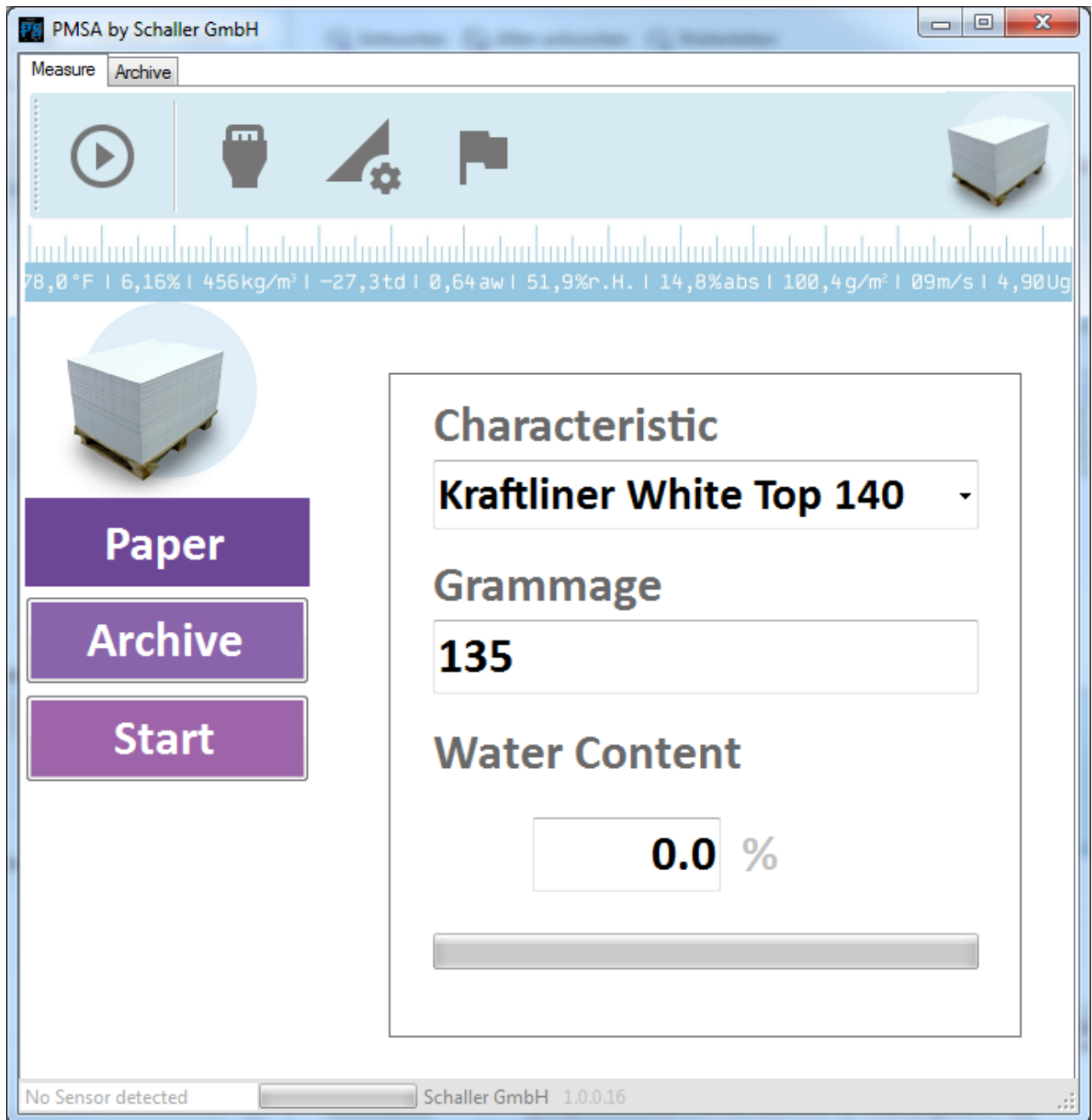

After choosing the correct COM port, the connection between hardware and software can be tested by clicking the button „Test". If the test was successful, this is shown by a popup window and by the LED status bar shining in blue. Then click the "Save" button.

Measuring procedure

After the connection has been established as described, the measurement can be started.


First of all choose the corresponding characteristic curve for the paper to measure. Clicking the arrow in the field Characteristic, a list with all available calibration curves opens. Select the desired curve by clicking on it.

For creating a new characteristic curve for your paper there is another manual available.

Now press the button Start. The device effects a blank measurement, executing a self-check and adjusting to the surrounding
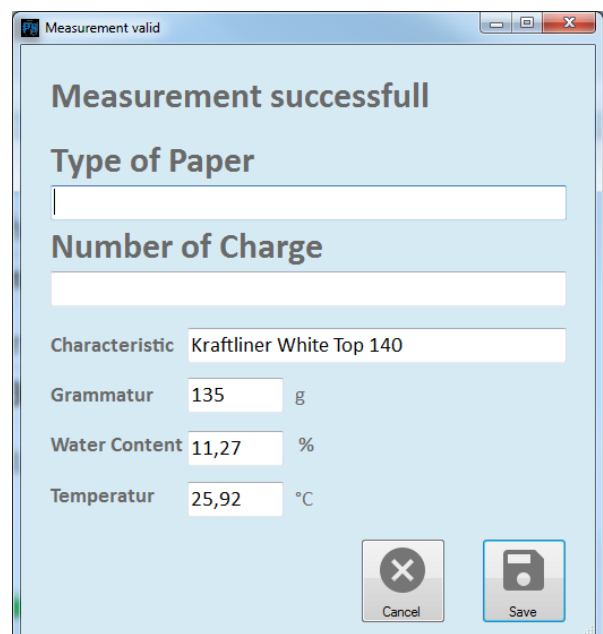
conditions. This procedure ensures long-time stable measurement values. For this blank measurement, no paper sheet must be situated in the device!

Status of Measurement

Tare!
Please remove all paper and close the cover of the device.

Cancel   OK
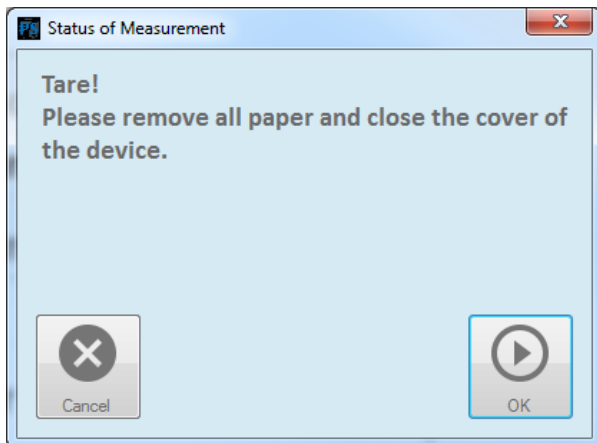
Upon successful completion of the blank measurement, put the paper sheet into the device and press OK.

Status of Measurement

Measurement!
Please put in the paper and close the cover of the device.

Cancel   OK
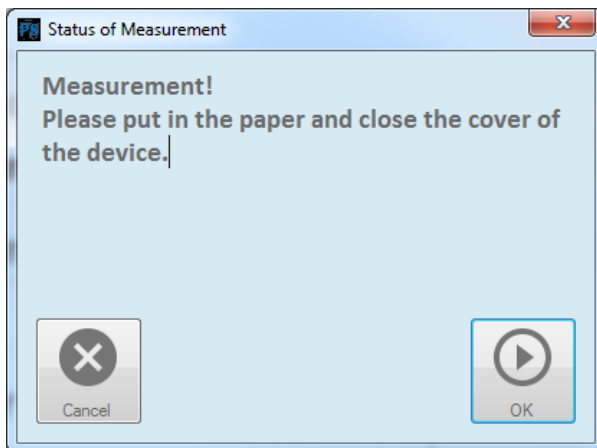
Now the measuring procedure is started. The ongoing measurement is shown by the blue LED blinking. When the measurement is completed, a window with the measuring results appears, offering the possibility of adding additional information for measured paper.
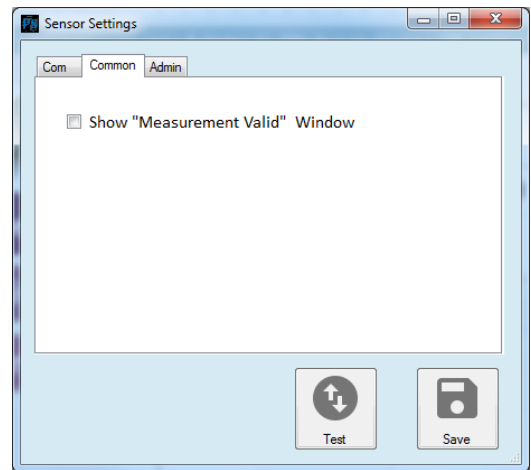
Measurement valid

Measurement successfull

Type of Paper

Number of Charge

Characteristic   Kraftliner White Top 140

Grammatur   135   g

Water Content   11,27   %

Temperatur   25,92   °C

Cancel   Save

If desired, the popup window „Measurement successful" can be hidden.
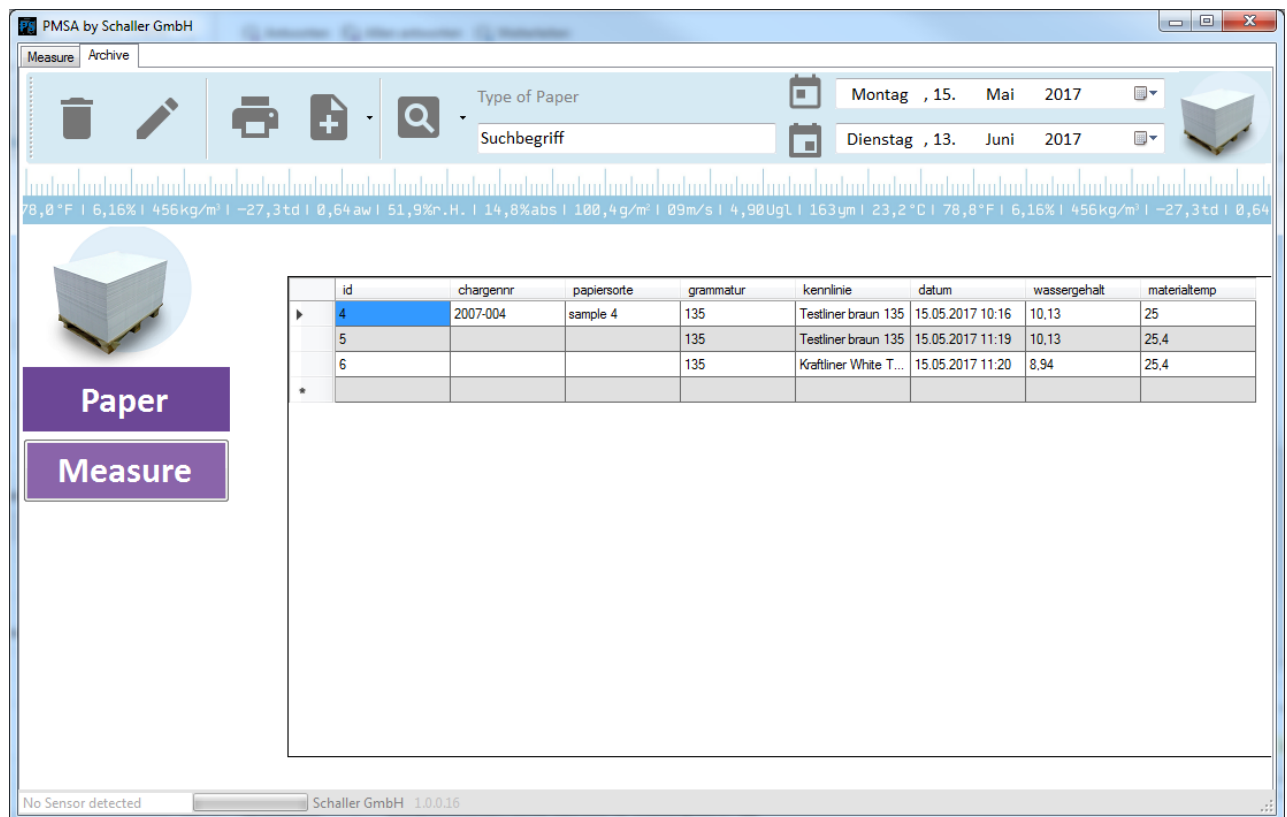
For that, remove the respective tick in the tab „Common" of the sensor settings.

NOTE:
In this mode the measuring data is <u>NOT SAVED</u> in the archive!!

Database / Archive

In this window all saved measuring values are viewed. For each measurement a separate identification number is allocated.
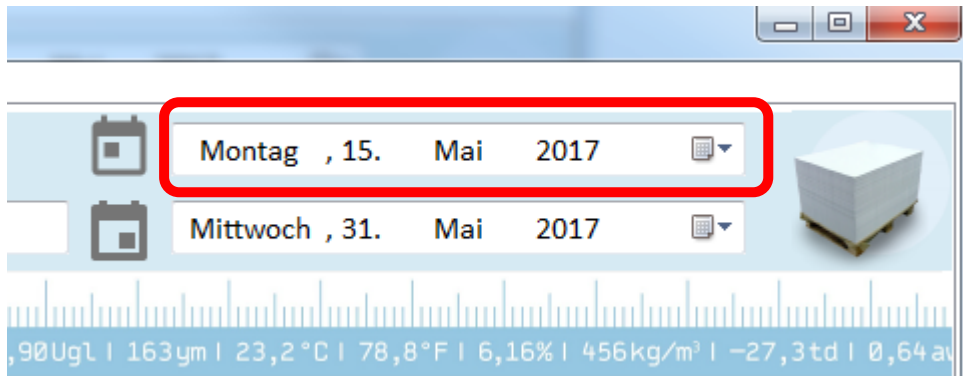
Filter

The filter functions allow an easy retrieval of measurements in the database. If you leave archive, all filters will be reset.
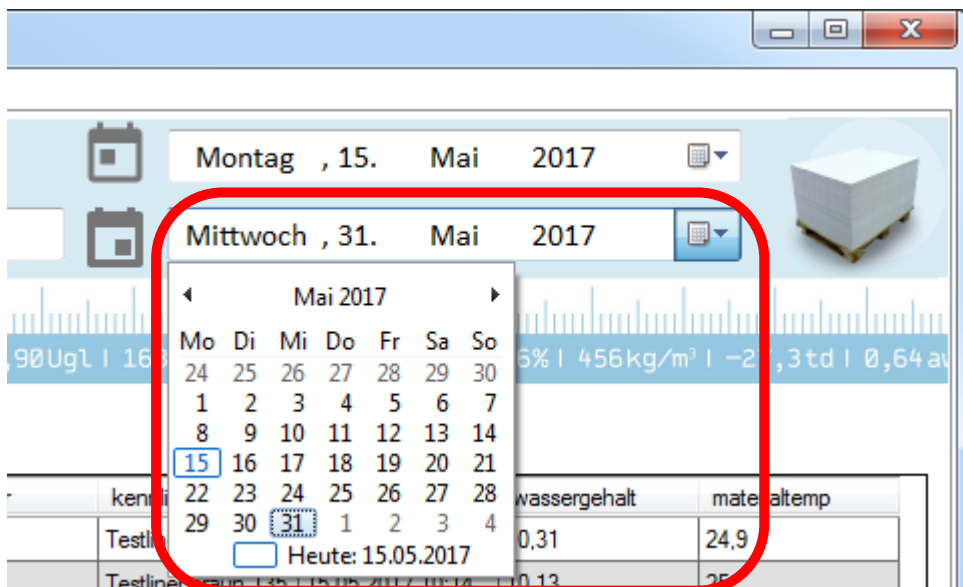
Date filter:

With that function you can chose a period. All saved measured in that period will be shown.

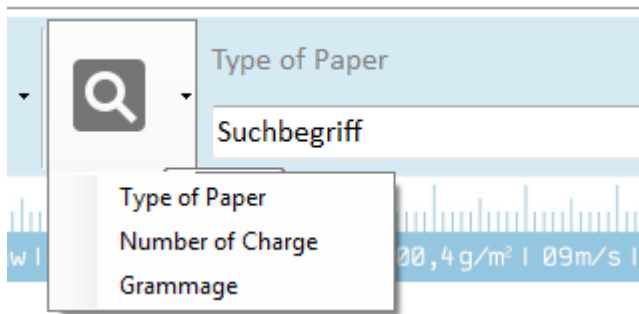For selection of that time, you have to use two arrays:

In the first field enter the start date.

In the second field the end date is entered.

Filter by entered data:

Additionally, the filter by specific data like entered paper type, charge number or grammage is possible. For that, click the button with the magnifying glass, select one of the filter functions and enter the desired search term.

The date filter and filter by entered data can also be combined.

By clicking on the fields ID, charge number ecc., the list is sorted in ascending or descending order.
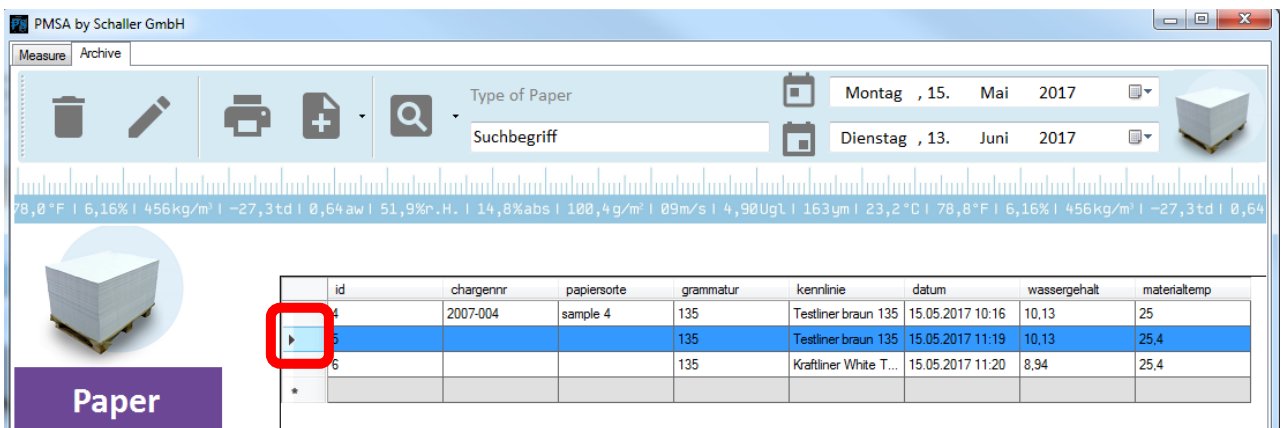
Further database functions

All data in the database can be deleted, edited or exported.

Delete measurements:

Clicking the waste bin button, the selected data series are deleted irretrievably.

The selection functions are the same as in Excel. For selecting a measuring series, click the arrow field in front of the field ID, for selecting a certain sector, keep the Shift button pressed. For the selection of single measuring series, keep the Strg button pressed.

Editing measuring data:

Using the pencil button, saved measurements can be modified. Just select the desired measuring series and click the pencil button.
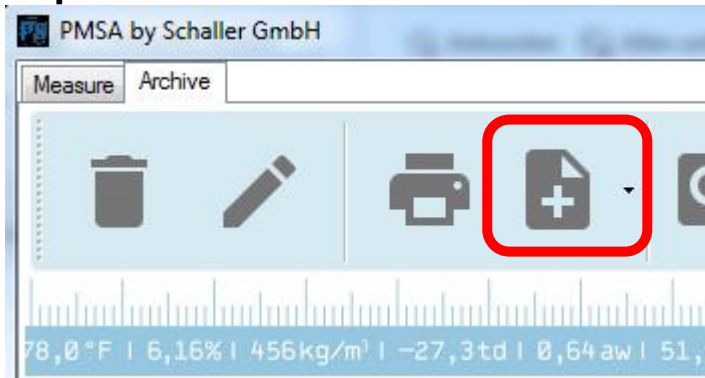

Now paper type and charge number can be modified. Confirm by clicking the Save button.

Print measurements:
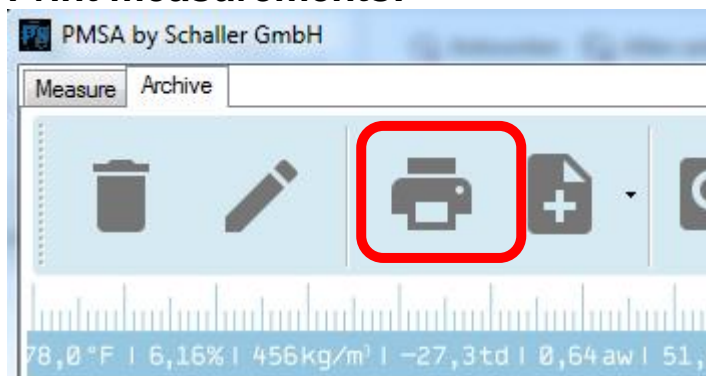
Clicking on the printer symbol, all measuring series shown in the list below are printed out. If a filter is set, only the filtered data is printed.

Export measurements:

Clicking the Export button, the export of CSV, HTML or XML formats is possible. All measuring data shown in the list below is exported. If a filter is set, only the filtered data is exported.

Determination of reference water content

The PMSA determines the water content, which means that it calculates the moisture referred to the total mass (EN ISO 287).

$$\%WG = \frac{Mn - Mt}{Mn} \times 100$$

Mn: Mass of the sample before drying
Mt: Mass of the dried sample
%WG: Calculated water content

Exemption from liability

For misreading's and wrong measurements and of this resulting damage we refuse any liability. This is a device for quick determination of moisture. The moisture depends on multiple conditions and multiple materials. Therefore we recommend a plausibility check of the measuring results. Each device includes a serial number and the guarantee stamp. If those are broken, no claims for guarantee can be made. In case of a faulty device, please contact Schaller GmbH (www.humimeter.com) or your dealer.

Device maintenance instructions

- Please note that the moisture sensor is a sensitive measuring instrument and handle it with care.

- The white sensor plate (measuring plate) most not be exposed to mechanical stress. Heavy mechanical load may cause the breaking of the sensor plate. In this case, return the sensor to Schaller GmbH. The breaking of the sensor plate is not subject to warranty.

- If the device is transported, secure the lid to prevent unintentional opening.

- We recommend to regularly save all measuring data in the database.

- Furthermore we recommend to regularly save the database with eventual added or modified calibration curves.

Technical data

Grammage range	30 to 800 g/m²
Paper size	minimum 180x180mm
Paper thickness	up to 0.8mm (higher range on request)
Resolution	0.01% water content; 0.1°C temperature
Measuring range	1 to 20 % water content (depending of characteristics curve)
Operating temperature	0°C to 50°C / 32°F to 122°F
Storage temperature	-20°C to +60°C / -4°F to 140°F
Temperature compensation	automatic
Menu languages	English, German
Power supply	Power supply via PC 5VDC (USB connector)
Dimensions	280 x 200 x 135 mm
Weight	4.8 kg
Protection class	IP 30
Scope of supply	moisture sensor, PC analysing software, USB connection cable for PC

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