mLog enhanced

Data Management of the Next Generation

Quality made
in Germany

TEXTILE NONWOVEN COATING &
CONVERTING PAPER EXTRUSION

Functions > Interactive analysis of historical data
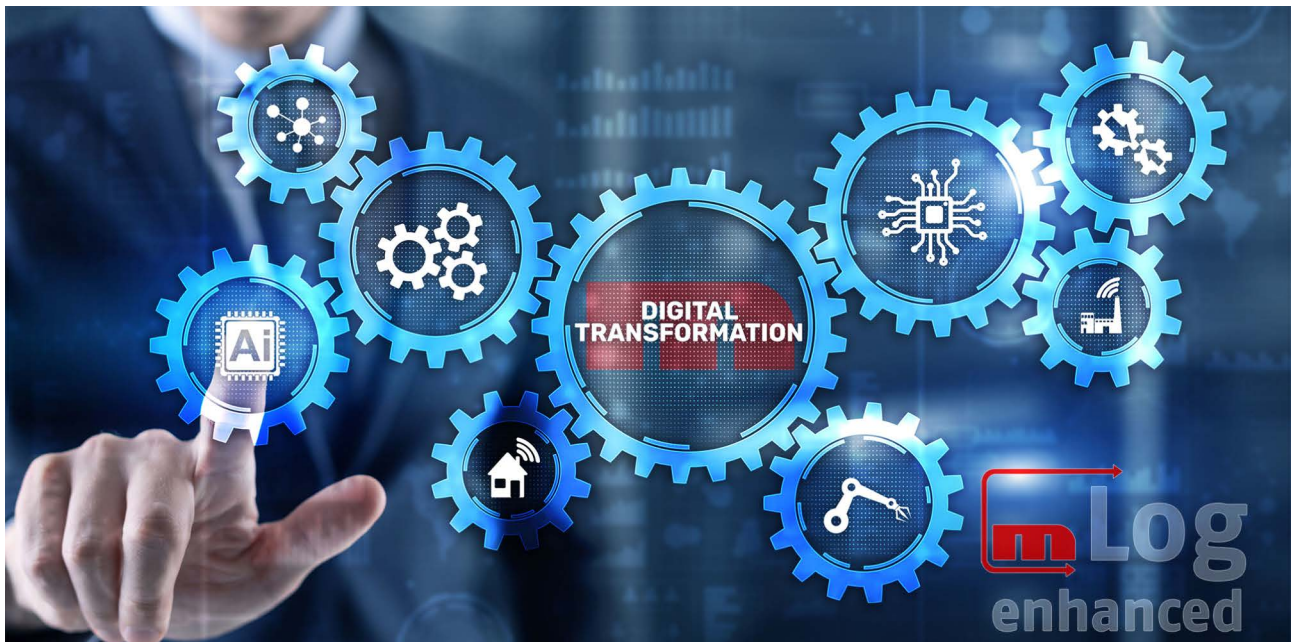
MLOG ENHANCED

Data analysis of the new generation

Transparency and data exchange are the cornerstones of the Industry 4.0 philosophy. The concept mLog enhanced follows precisely this claim.

An optimised user interface with an excellent "look and feel" makes data transfer a breeze. The additional storage capacity also ensures that relevant data can still be available decades later.

Functions

Interactive analysis of historical data

Optimal transparency: All essential product features available at a glance

All data can be viewed and analysed on an interactive user interface (GUI). Scrolling, zooming, fine comparison, data picker and other functions are available to allow the user a thorough and comfortable analysis of his process. Clear PDF reports can be created at any time from the desired sections for documentation purposes. An interface to ERP or other EDP systems for further processing of the data is also possible.

Digital Twin

Heatmap

Some sensors support the heat map visualization function. The visualization creates so-called "digital twins" of the web. All measured parameters (thickness, weight, moisture ...) are highlighted in color according to their nominal values.

Digital Twin: Thanks to the heat map, the quality profile of the goods can be analyzed to the centimeter.

The heat map uses a color coding system to display different values. Red means the measured value is above the set tolerance for the setpoint. Blue is below the tolerance and green marks the setpoint. All values in between are displayed in corresponding color shades.

This creates an exact map of the quality properties of the web. Thus, precise analyses are possible in case of changes in these properties. For example, the data picker can be used to select a value that is too high. The associated events in the event track then reveal more about the current process (e.g. controller off or on, shift change, etc.).

Permanent data recording

mLog enhanced stores the collected data in a database on the so-called Edge Server in the Mahlo device network. The Mahlo GUI is connected to this via the customer network. Recording will continue even in the event of malfunctions. This means that logs can always be called up from any point in time. If, for example, quality defects occur, the user can check retrospectively whether an alarm may have been present at the time.

Secure: Permanent logging in RAID-1 database

mLog enhanced stores the data on its own server in the Mahlo device network. Two independent hard disks ensure that no information is lost... not even in a power outage. This means that production logs can always be called up from any point in time. Possible quality deficiencies can thus be made transparent and analysed. Consistent and reliable! As you would expect from a Mahlo product.

Features

- Permanent recording of all process data within the Mahlo machine network
- Recording duration varies depending on the recording interval, but at least 1.5 years
- RAID-1 function ensures high data security

Optimised search function

Search hit list

Suggestions from existing records are displayed as soon as something is entered in the search field. A single click on a search hit in the results list opens the detail information of the report. This allows the user to quickly verify if this is the requested data.
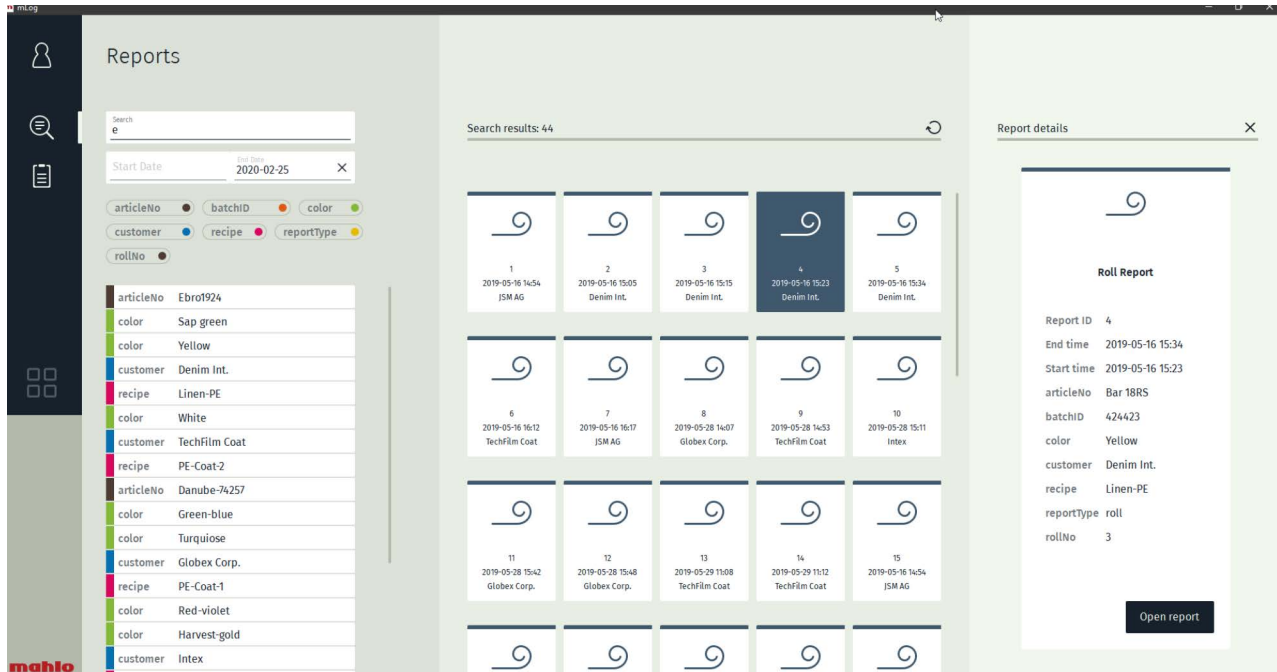
*Find it quickly: Hit list already at the first character in the search*

Customer benefits

✓ *Secure data logging of the entire production line*

✓ *Fast detection of error sources in the production line*

✓ *Quickly finding logs searched for*

✓ *Simple data exchange and further data processing*

✓ *High data security even in case of network problems*

mLog enhanced

Functions > Optimised search function

Search filters

The search can be narrowed down further with special filters. Filters can be removed at any time. Searches for start and end date are also possible.
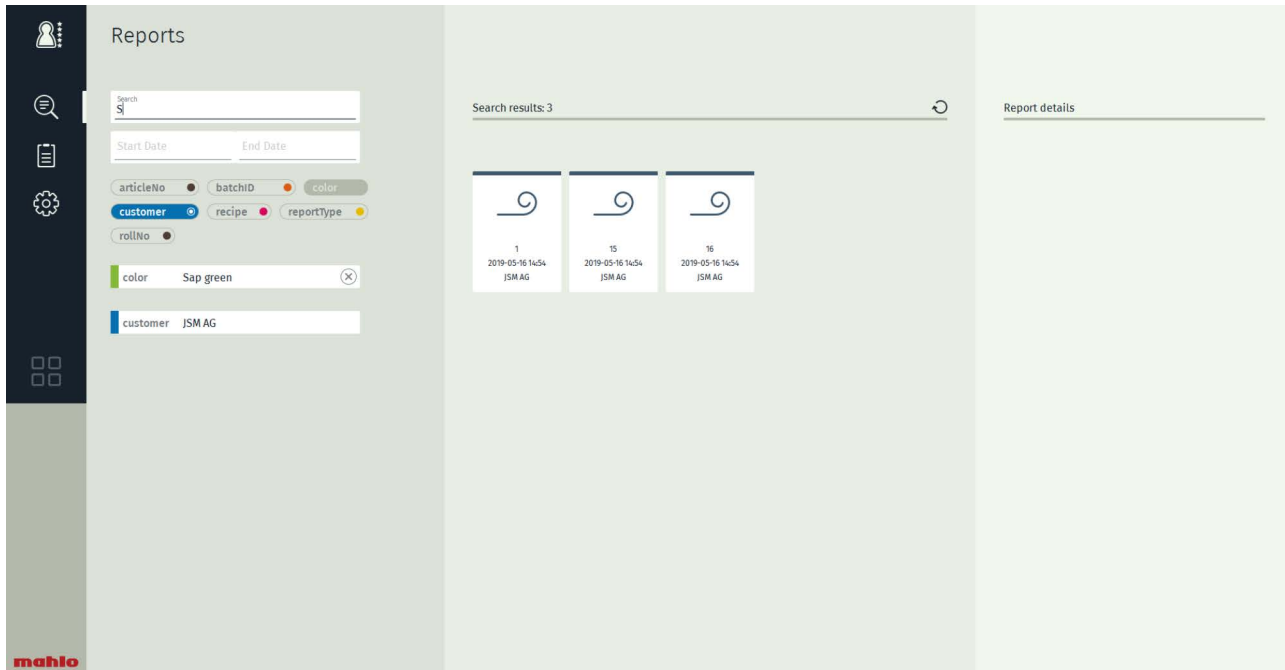
*Narrow down quickly: Refine search with search parameters*

Product highlights
✓ *Continuous recording within the Mahlo LAN*
✓ *Protocol generation based on historical data*
✓ *Optimised search function*
✓ *Interactive data analysis on the PC and logs of historical data*
✓ *Interface to customer systems (ERP, MES, SCADA)*

Report layout configuration

Report layout configuration

Here the report layout can be configured, an existing view selected or a new one created. This template contains the elements that are logged and displayed in a PDF file. Several reports can be generated simultaneously.
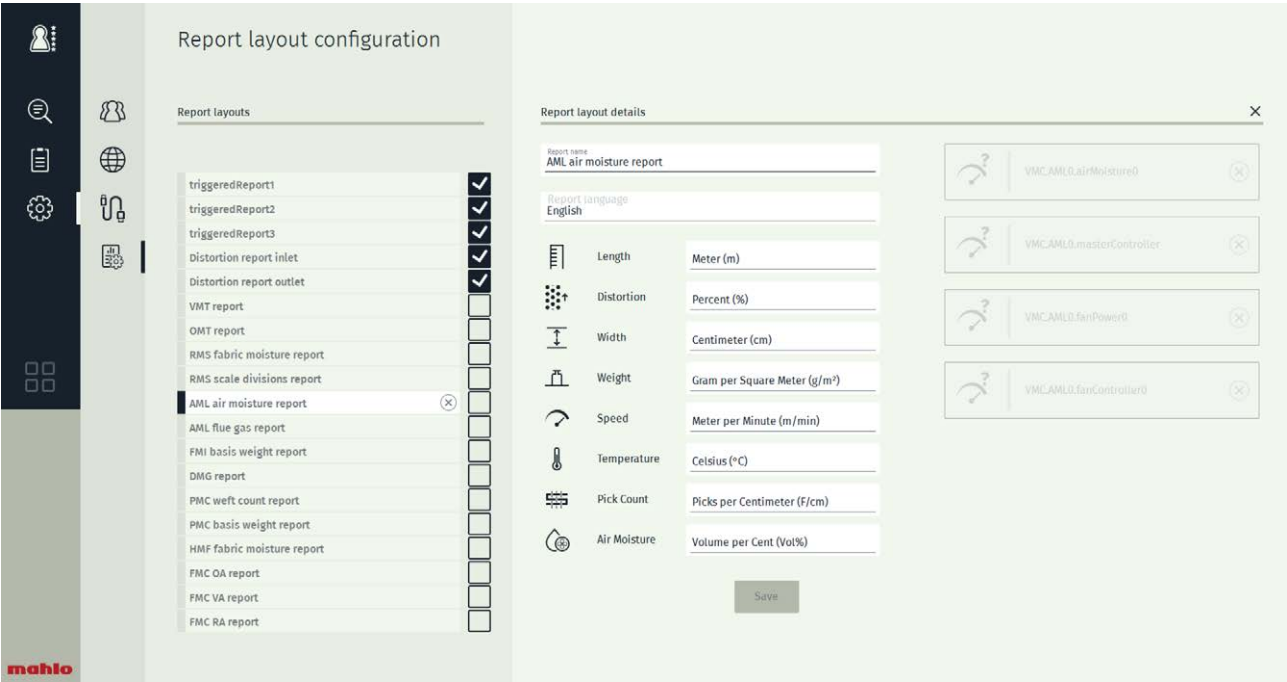
Individual: Configure your own protocols

The user also has the option of creating identical reports in different languages, for example, if a different language is required for the customer than for his own documentation. The user defines which logs are currently actively recorded.

PDF reports

Practical: Enter log data directly on the Mahlo device
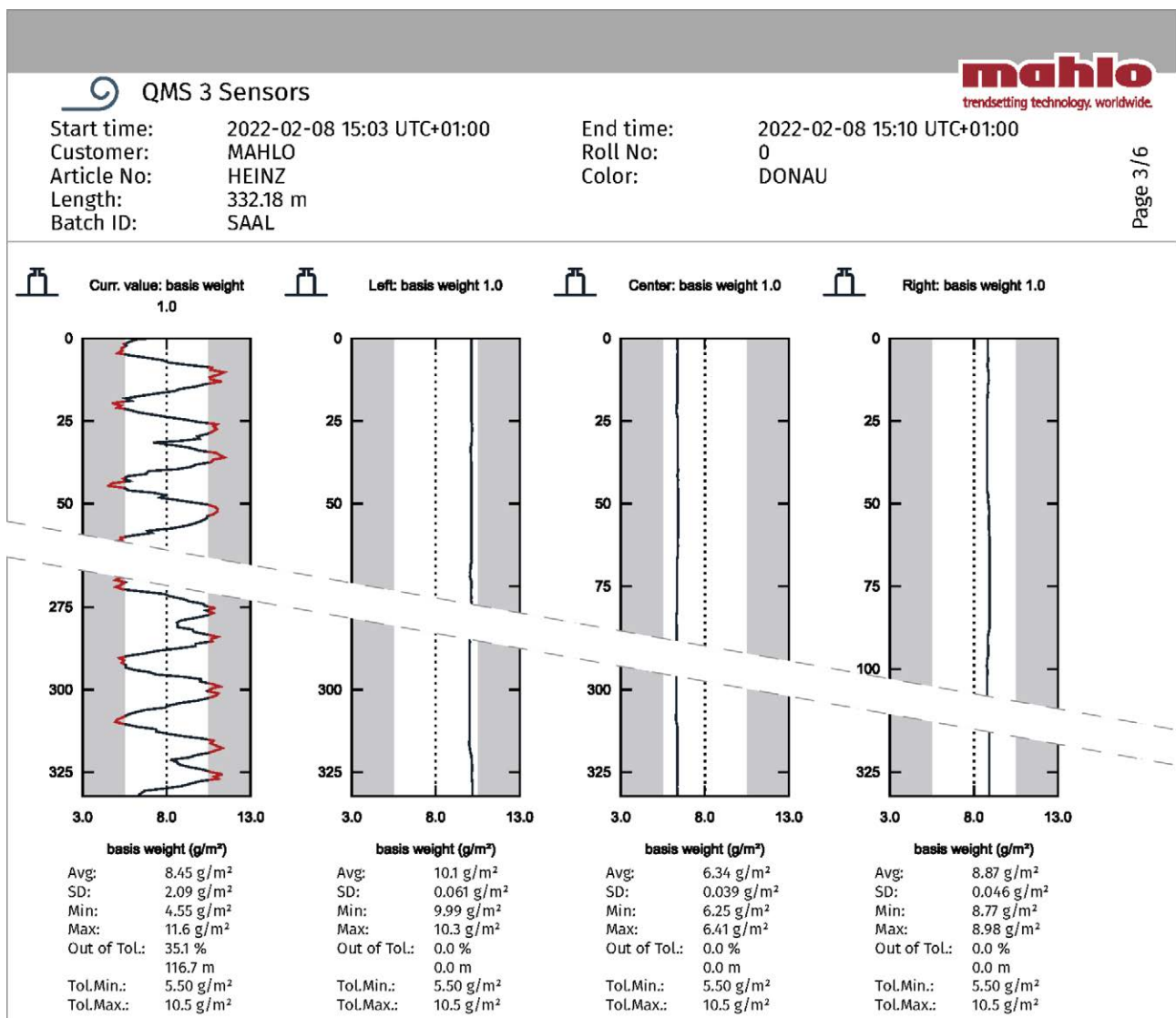
Clear, individually configured PDF reports can be created for forwarding and documentation. These can be triggered manually, by the display and operating station of the Mahlo device or automatically preset by events. The logs can be displayed in the user interface, saved, printed or immediately sent by e-mail.

Clearly arranged: All important data in the PDF report (Example Basis weight)

Performance features

User interface

GUI on customer PC

- **Quick: Optimised search function**
  Display of search hits already from the first character, simple narrowing down of the hit selection
- **Efficient: Data analysis functions**
  Analysis tools such as scrolling, zooming, fine comparison, data picker etc. are available
- **Clearly arranged: PDF Viewer function (View + Export)**
  The reports with all key information items are displayed in PDF format allowing them to be saved or sent.
- **Secure: Report generation based on historical data**
  The user selects individual data for a report afterwards and specifies settings such as language or units.
- **Convenient: High degree of automation**
  The user sets when a report is generated automatically. For example, after every 200 m of product run, roll change, recipe change, etc.
- **Versatile: Expanded report settings**
  Amongst others, the user can design his own sequence of process variables.
- **Individual: Configuration of the report type**
  The user can configure different report types individually in advance (batch, shift, daily logs,...)
- **Practical: Predefined report templates**
  A wide range of frequently used reports are available as templates
- **Reliable: Monitoring and maintenance of the Edge Server**
  The status and condition of the database server can be monitored directly from the software.
- **Future-proof: Works on Linux and Windows systems (Win 7 and later)**

Edge-Server

Database

- **Continuous recording of all process data**
  As soon as the production line is running, the data is automatically and securely recorded within the Mahlo LAN
- **Recording duration min. 1.5 years**
  Depending on the number and equipment of the Mahlo units in a line
- **RAID 1 for data security**
  Continuous mirroring of the hard disks ensures high data security
- **Linux with file system protection**
  File Security System protects the operating system from threats
- **Interface to mLog GUI via customer LAN**
  The data is transferred to the desktop software via the existing customer network
- **Interface to customer systems (ERP, MES, SCADA, etc.)**
  Custom adaptations to existing EDP solutions are possible

mLog enhanced

Mahlo device connection

GUI on Mahlo control and display station

Switch to the mLog dialog on the user interface of the Mahlo device
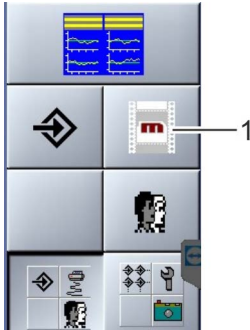
1 mLog switch button

■ **User Interface for maintaining and managing report data**
Here users can enter important information such as customer name, item number or batch. Later this information will contribute to the search.

■ **Interface to different Mahlo devices (e.g. Orthopac FMC, Optipac VMC, Qualiscan QMS, etc.)**
Various Mahlo devices of a production line can be coupled to the mLog.

Secure your advantages now!
✓ *Increased transparency*
✓ *Improved internal and external communication*
✓ *Professional data management*
✓ *Optimised quality management*

System requirements customer PC

The customer PC must meet the following system requirements for the Mahlo software:

Tab. 1: System requirements

	Minimum equipment	**Recommended equipment**
Operating system	Windows 7	Windows 10
Processor	Intel Core i3	min. equipment or better
RAM	4 GB	8 GB or more
Flash memory	SSD or M.2 (with 128 GB)	min. equipment or better
Graphic card	onBoard graphic card	onBoard graphic card
Graphic driver	OpenGL 2.0	OpenGL 2.0 or higher
Resolution	1920 x 1080	1920 x 1080
Connections	4 x USB 2 x LAN	4 x USB 3 x LAN

Additional requirements:

- The operating system must be pre-installed.
- Created user accounts and corresponding passwords must be documented.

Additional information:

- 2 LAN ports for Mahlo LAN and customer LAN.
- The IP address for the Mahlo LAN is assigned by Mahlo.
- 3 LAN port for a possible additional network.

Monitoring and control systems, automation

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