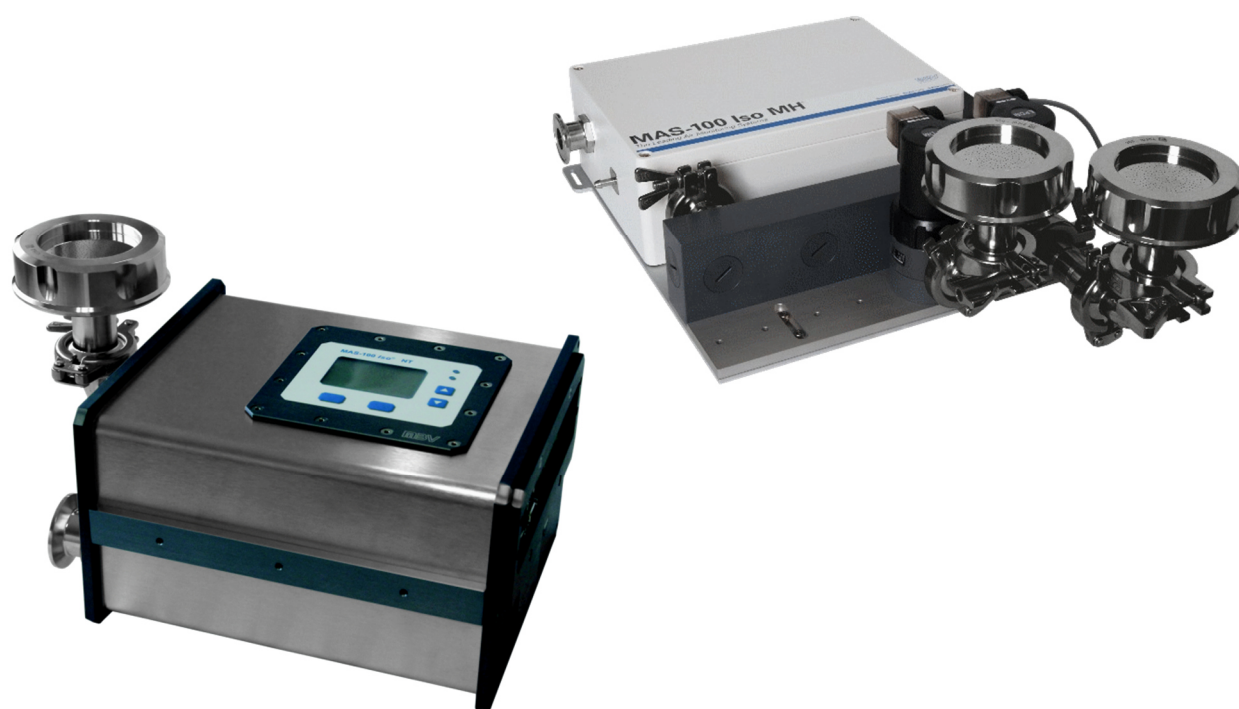


MAS-100 Iso NT/MH[®] Microbiological Air Sampler

Software Manual



The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada.

THANK YOU VERY MUCH!

Dear customer

congratulations and thank you very much for choosing a product from MBV AG. We are pleased to make a contribution to your success.



MBV AG develops and produces precision microbial air samplers for more than 20 years. Our uncompromising quest for the best possible quality has convinced globally leading companies to rely on our solutions for their most demanding applications. Our superior product quality is backed by global availability of application and service support.

For best performance of your product please read this instruction manual carefully. The manual will provide you with the necessary information for correct and safe use of your new instrument.

If you need additional technical or application information, do not hesitate to contact us at welcome@mbv.ch or find more information on www.mbv.ch.

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Note

Up-to-date product information – such as Service Information Letters (SIL) – are available in the [Customer Center](#) area of the MBV AG website www.mbv.ch.

There, important product after-sales information about changes, issues, instructions and news is provided to customers.

DOCUMENT HISTORY

Version	Released	History
5.0	06.08.2020	- Reverence to safety data sheet included - CICD & Trademarks updated
4.0	15.03.2018	- Page 2: Introduced new «Customer Center» on MBV AG website and removed RSS feed - Chapter 1.4: Removed mention of product CD - Chapter 2.1: Transferred Operating system requirements to chapter 3.1 - Chapter 3.1: Whole new chapter «PC requirements» - Chapter 4.1: Reformatted this chapter - Chapter 4.2: Removed «Service» password - Included new MBV AG logo Minor typo and format corrections.
3.0	20.12.2016	- Harmonized the wording of all warning indications to be consistent throughout all MBV AG user manuals. - Added chapter 1.2.4 («Dual-Use» statement). - Added EAC to chapter 1.4. Various typo corrections.
2.0	18.04.2016	Update due to Declaration of Conformity
1.0	04.02.2015	First edition

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MAS-100 VF®	Switzerland and other countries
MAS-100 NT®	Switzerland and other countries
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MAS-100 Iso NT®	Switzerland and other countries
MAS-100 Iso MH®	Switzerland and other countries
MAS-100 CG Ex®	Switzerland
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DA-100®	Switzerland and other countries
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Abbreviations

The microbiological air samplers **MAS-100 Iso NT/MH** are designated hereafter as «Instrument».

The **Software MAS-100 Iso NT Air Sampler - C&C** (communication and calibration) is designated hereafter as «PC Software».

Applicability

The information in this manual is valid for the following configurations:

Component	Component designation	Revision from
Hardware	Main PCB MAS-100 Iso NT	≥V6
	Main PCB MAS-100 Iso MH	≥V6
Firmware	Firmware MAS-100 Iso NT	≥V2.7
	Firmware MAS-100 Iso MH	≥V1.0
Software	Software MAS-100 Iso NT Air Sampler - C&C	≥V3.0
	Software MAS-100 Iso NT and MH Air Sampler - C&C	≥V3.1.14

	The PC Software works for these instruments: ▪ MAS-100 Iso MH ▪ MAS-100 Iso NT (Standard and RABS)
	The instrument will communicate its type and firmware version to the PC Software. The PC Software will interact with the instrument accordingly.

Related user manuals

The following user manuals provide additional essential information:

Document designation	Document scope
User Manual MAS-100 NT User Manual MAS-100 MH	Describes hardware related topics
Installation Manual MAS-100 NT	Describes the installation options. Contains technical information and the installation checklist.
Communication Manual MAS-100 Iso NT&MH	Describes the communication protocol used to communicate with the instrument via all available interfaces, e.g. Ethernet, Profibus and RS-232
User Manual DA-100 NT	Describes the adjustment and calibration procedures
Pressure Test Manual MAS-100 Iso NT&MH	Describes how to operate the pressure test kit

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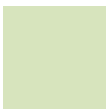
1 General information

This chapter provides information of general interest regarding the instrument.

1.1 Safety information

	IT IS IMPORTANT TO READ THESE INSTRUCTIONS BEFORE USING THIS INSTRUMENT. Please read the safety data sheet and the instrument-specific safety information in this manual carefully before using the instrument and/or any accessory supplied with this product. Keep this notice and all other manuals on the USB flash drive for future reference.
---	--

1.1.1 Severity levels

	Warning! Symbols in red boxes indicate hazardous situations which could result in danger to life and/or serious injury and/or irreparable damage to the instrument.
	Attention! Symbols in yellow boxes indicate critical situations which could result in light injuries and/or damage to the equipment and/or unreliable air sampling results.
	Note Symbols in green boxes indicate information which may be of major interest for the user.

1.1.2 Specific safety information for the instrument

	Hazard of dangerous voltage inside the power supply. Do not open the power supply. Always keep the areas of electric parts dry (e.g. USB plugs).
	Hazard of explosion and/or fire. The instrument contains a Lithium-Ion battery which might catch fire if damaged.
	Hazard of explosion and/or fire. The instrument is not explosion protected; never use it in explosion hazard areas.
	Hazard of serious injury and/or death. The used decontamination gas may be toxic, corrosive, flammable or explosive. Ensure the safety according to the safety data sheet of the used decontamination gas.
	Hazard of injury and/or damage to the instrument. Make sure that the equipment does not drop on the floor. Always ensure secure hold and stability.

	Hazard of damage to the instrument. Read the instructions in this user manual carefully before any usage of the instrument and pay attention to all warnings. Keep this manual in a designated place, accessible for all users for future reference. Ensure that all personnel have read and understood the content of this manual.
	Hazard of damage to the instrument. Do not spill liquids into the electric/electronic connections or through the sampling heads.
	Hazard of damage to the instrument. Do not perform any intervention inside the instrument. Only trained, qualified and authorized technicians are allowed to perform repair and maintenance activities.
	Hazard of damage to the equipment. The system power cord must be easily accessible at all times. Pull the plug rather than the cord to disconnect the system from any electrical outlet. Keep the power cord off the passage; make sure it is not pinched at the plug, electrical outlets, and the point from which it is connected to the system.
	Hazard of damage to the instrument. The piping downstream of the decontamination outlet must be unblocked and free of obstructions. Otherwise an excessive backpressure could build up and release decontamination fluid into the instrument.
	Hazard of damage to the instrument and/or wrong air sampling results. The instrument is a precision device for industrial and laboratory use. The instrument shall only be operated by trained, qualified and authorized personnel as stated in chapter 1.2.1.
	Hazard of damage to the equipment and/or wrong air sampling results. Any application other than the intended use is not covered by warranty. For additional information, please consult chapter 1.2.2 and chapter 1.3.
	Hazard of wrong air sampling results. Using the instrument with the «Easy-Clean» base requires additional considerations during adjustment and calibration: Always perform calibrations and adjustments with the MAS-100 Family Calibration Disk with 85mm diameter or a Petri dish inside the sampling head.
	Hazard of wrong air sampling results. An adequate handling of the Petri dish and of the instrument are essential. Always follow good cleanroom practices to make sure that the Petri dish and sampling head do not get contaminated.

	Hazard of wrong air sampling results. The manufacturer declines any responsibility for misuse of the PC Software and for entering wrong results. It is the sole responsibility of the user to fill-in the correct values. This system was not developed to meet the technical requirements from 21CFR part 11 and international regulations regarding GxP regulated records. If data generated by this system in a GxP regulated environment is needed, ensure to maintain paper recording in accordance with GxP procedures.
	Hazard of cross contamination. The FDA considers the separation of penicillin production from other drug products for human use as a GMP requirement (21CFR211.46(d)), therefore we recommend that you take any precaution for installing and handling your MAS system accordingly.

1.2 General Provisions

1.2.1 Personnel qualification

The instrument is a precision device for industrial and laboratory use. Its use should be restricted to trained, qualified and authorized personnel only.

1.2.2 Intended product use

The instrument is intended solely for the collection of air samples at ambient pressure onto a microbiological culture medium to monitor the microbiological air quality in contamination-controlled areas, such as cleanrooms, isolators, operating theatres, flow hoods, etc.

1.2.3 Operating conditions

The instrument must be calibrated and operated in similar environmental conditions. Please consult the operating conditions in chapter «Technical specifications» of the respective instruments User Manual.

1.2.4 «Dual-Use» statement

The MAS-100 Iso NT/MH is an instrument designed solely for civilian purposes and is excluded in the scope of the European «Dual-Use» regulation EC 428/2009.

1.3 Warranty

1.3.1 General

This chapter informs about the warranty of the instrument and the procedures to follow if the instrument is not working as described in the user manuals.

For products listed in this publication purchased via Merck KGaA the applicable warranty terms may be found at: www.millipore.com/terms (within the «Terms and Conditions of Sale» applicable to your purchase transaction).

For products listed in this publication purchased directly from MBV AG the applicable warranty may be found at: <https://www.mbv.ch/about-us/gtc>.

1.3.2 Quality statement

The instrument has been designed and manufactured to the highest quality levels as described in our ISO 9001 processes.

The manufacturer guarantees the instrument's performance to specifications for a period of 24 months (starting from shipping date) and for spare and replacement parts for a period of 3 months after repair or service.

1.3.3 Contact

In case of warranty claim please contact your instrument supplier:

MBV AG	Worldwide:	www.mbv.ch/service
Merck KGaA	USA:	Call 1-800-MILLIPORE (1-800-645-5476)
	Rest of the world:	www.millipore.com/techservice

1.3.4 Exclusion clauses

The warranty covers exclusively material and manufacturing defects which occurred during the above described periods of time. The warranty does not cover the natural wear and tear of parts or any damage caused by improper handling, negligence, or non-observance of the user manuals or the Service Information Letters. The warranty expires immediately if any of the following conditions are infringed:

- The instrument shall only be serviced or repaired by qualified, trained and authorized technicians
- The instrument shall only be serviced or repaired as described in the service manual
- The instrument shall only be serviced or repaired using original MBV AG spare parts
- The instrument shall only be operated according to the defined intended use
- The instrument shall only be operated and updated with original firmware from MBV AG
- The instrument shall not be modified physically in any way.

	Hazard of damage to the instrument. There are no user-serviceable parts inside the instrument.
	Risk of warranty loss. Every instrument is secured internally with an anti-tamper seal. Disassembling the instrument will break the seal and render the warranty void.

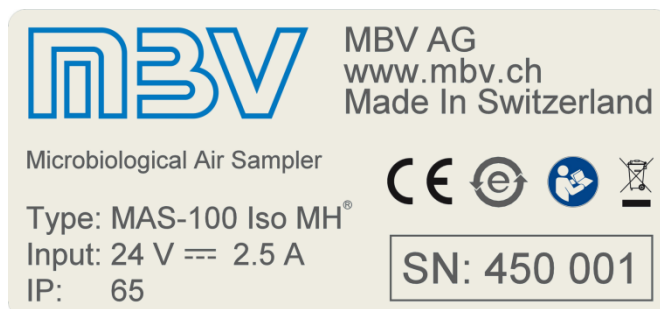
1.4 Product labeling

The label on the electrical connection side of the instrument identifies the instrument and its manufacturer.

The information on the label includes:

- Manufacturer's name
- Instrument type
- Serial number (SN)
- DC supply data
- IP class (MH only)

Example: Product Label of MAS-100 Iso MH



The EAC conformity is witnessed with a dedicated sticker label:



Significance of the pictograms

	With the CE symbol the manufacturer declares conformity with the relevant directives of the European Union as stated in the «Declaration of Conformity» which can be found on the USB key delivered with the instrument.
	With the EAC symbol the manufacturer declares conformity with the relevant directives of the Eurasian Trade Union as stated in the «Declaration of Conformity» which can be found on the USB key delivered with the instrument.
	This symbol indicates that this electronic information product does not contain any toxic or hazardous substances or elements above the maximum concentration value established by the Chinese standard SJ/T11363-2006 as stated in chapter «Additional regulatory information» of the respective instruments' User Manual and can be recycled after being discarded and should not be casually discarded.
	Read the instructions before using the instrument.
	With this symbol the manufacturer declares conformity with the WEEE directive as described in the «Declaration of Conformity» which can be found on the USB key delivered with the instrument. It should not be disposed of as household waste at the end of its life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this instrument from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Users should either send the instrument back to the supplier or dispose it locally in accordance with the applicable local waste legislations.

2 Instrument description

2.1 General

The PC Software is designed as terminal software that works as an interface to the instrument and can configure and control the instrument.

The PC Software is designed to be operated via a touch-panel PC.

Please consider the limitations of the PC Software as described in [chapter 2.4](#).

2.2 MAS-100 Iso MH specific functions

Most functions described in this user manual are applicable for the MAS-100 Iso NT.

The functions that will only work with the MAS-100 Iso MH will be marked with this symbol:

2.3 Main features of the PC Software

- Delivered as freeware with the instrument
- Language selection: English, French and German
- Access to almost all hardware functions
- Automatic calibration with DA-100 NT
- Main screen: All devices menu is designed for touch screen

2.4 Limitations of the PC Software

The electronic log records are informational only. The instrument has the capacity to record electronically a maximum of 100 event logs. Additional event logs will obscure the previously recorded electronic records which do not allow to use these electronic records to support GxP operations, as they do not meet requirements of 21CFR11.10(e). All records can be printed systematically by using the recommended printer and printing option. Please consult the respective instrument's User Manual for printers compatible with the instrument. To keep track of records supporting GxP processes, direct printing of each log record it is recommended to ensure the integrity of primary data. Each printed report has a unique incremental number, allowing identifying a missing report.

MAS-100 Iso NT only:

The head position or address of the device (A1 – C3) must be set on the hardware in the device menu.

Proceed for this setting as described in the [Installation Manual MAS-100 Iso NT](#).

Up to nine instruments can be displayed and managed with the PC Software.

MAS-100 Iso MH only:

One MAS-100 Iso MH can be displayed and managed with the PC Software at a time. It does not work in combination with MAS-100 Iso NT instruments.

3 PC Software and USB driver installation

3.1 PC requirements

3.1.1 Hardware

Make sure that the computer on which the PC software must be installed meets the following minimum requirements:

Processor	32- or 64-bit architecture
RAM	Min. 2 GB
Display	Resolution at least 1024×768 pixels
Interface	1 free USB 2.0 port

3.1.2 Operating system

The PC software works in conjunction with the following PC operating systems:

- Windows 7 (32/64-bit architecture)
- Windows 8 (32/64-bit architecture)
- Windows 10 (32/64-bit architecture)

	Windows installation. When using a Windows® operating systems, ensure that «Enterprise» or «Professional» edition is installed. Lesser installations – e.g. «Home edition» – may not work properly.
	Windows administrator. To install the PC software Windows administrator access rights are required. Make sure to have access to a corresponding user account.

3.1.3 .NET Framework

To run the PC software, installation of the Microsoft .NET 4.0 (or later) Framework is necessary. During SW installation of the PC software, checking for the presence of a sufficient version of the .NET Framework is performed automatically. In case this is missing, the installer will prompt the user to download and install the Framework from the Microsoft webpage.

When prompted to install .NET, follow the instructions on the screen.

	Internet access required. In case the .NET Framework needs to be updated, an internet connection with a sufficient bandwidth is required.
---	---

3.1.4 Presence of older PC software versions

	Hazard of wrong air sampling results. The PC software may suffer malfunctions due to the presence of older SW versions. Prior to installing the PC software, make sure to completely uninstall former versions of the PC software from the computer.
---	---

3.2 PC Software installation

The instrument must be disconnected from the PC prior installation of the PC Software. Insert the CD-ROM or the USB stick into your PC or download the PC Software from our website www.mbv.ch.

If the automatic installation doesn't start, run the «MAS-100 Iso NT Air Sampler.exe» file manually and follow the on-screen instructions.

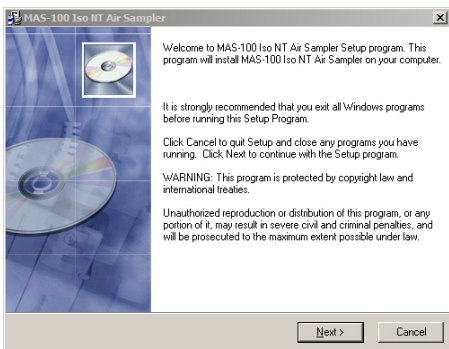
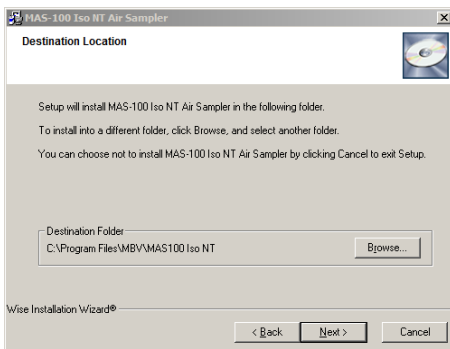
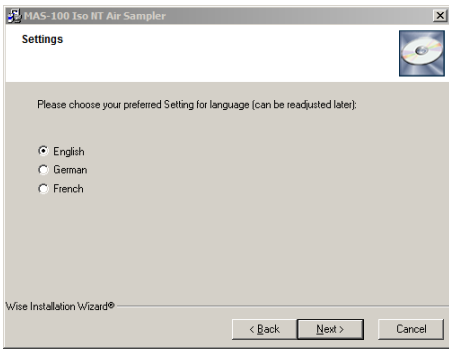
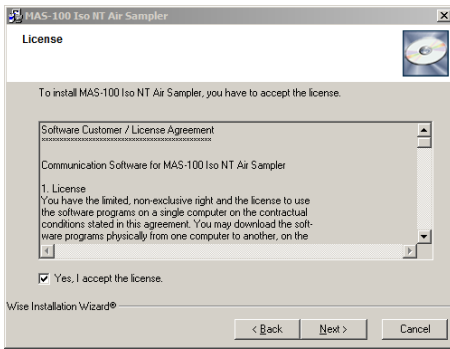


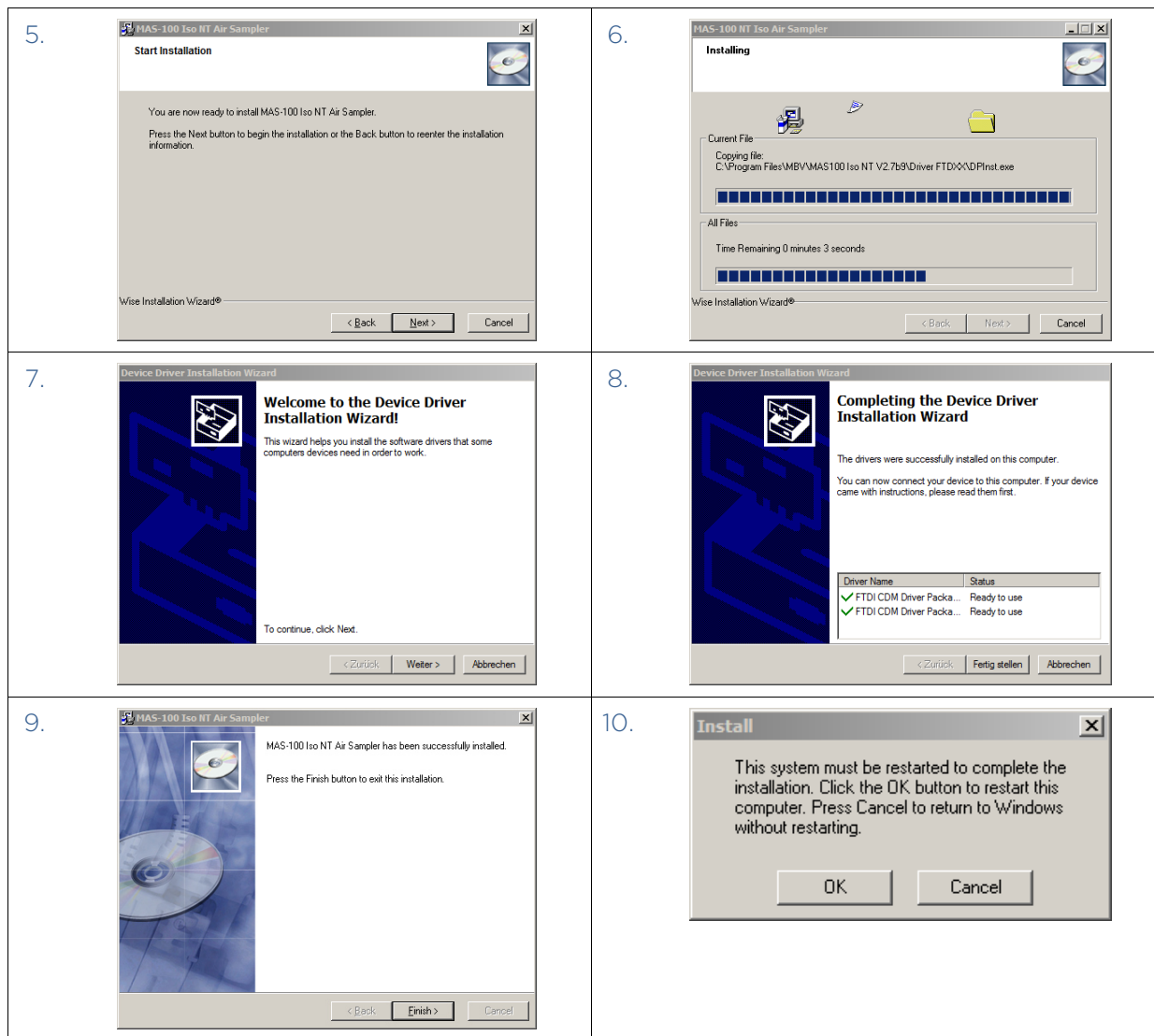
The Microsoft.Net framework is a software technology that is available with several Microsoft Windows operating systems. It is a key Microsoft offering and is intended to be used by most new applications created for the Windows platform. The MAS-100 Iso NT setup checks if the .Net framework 2.0 is already installed on the computer. If it is missing the setup automatically installs the necessary components. This operation may take several minutes (at least 10 to 15 minutes) depending on your computer's speed and should not be aborted. When the installation of the .Net framework has finished, the setup of the PC Software will continue.

Select the preferred language during the installation procedure and follow the steps below.



Security warnings of the PC's operating system might occur during the installation process of the USB driver. These warnings must be acknowledged.

1. 	2. 
3. 	4. 



3.3 USB driver installation of the MAS-100 Iso MH

Read the Service Information Letter [6 2013](#) for 64-bit operating systems (click hyperlink for download).

In Windows 7/8, the driver should be installed automatically. At the end of installation, this short message will appear: «The device has been installed and is ready for use» (only the first time a new MAS-100 Iso MH is connected to the PC).

Proceed following the steps below. In step 3, «Install the software automatically» should be selected and then step 4 is omitted. The manual installation (steps 3 and 4) should be only being chosen if problems occur when connecting the instrument to the PC.



Security warnings of the PC's operating system might occur during the installation process of the USB driver. These warnings must be acknowledged.

1.

Found New Hardware Wizard



Welcome to the Found New Hardware Wizard

Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
[Read our privacy policy](#)

Can Windows connect to Windows Update to search for software?

☐ Yes, this time only
☐ Yes, now and every time I connect a device
☒ No, not this time

Click Next to continue.

< Back

Next >

Cancel

2.

Found New Hardware Wizard



Welcome to the Found New Hardware Wizard

Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
[Read our privacy policy](#)

Can Windows connect to Windows Update to search for software?

☐ Yes, this time only
☐ Yes, now and every time I connect a device
☒ No, not this time

Click Next to continue.

< Back

Next >

Cancel

3.

Found New Hardware Wizard



This wizard helps you install software for:

FTDI FT8U2XX Device

 **If your hardware came with an installation CD or floppy disk, insert it now.**

What do you want the wizard to do?

☐ Install the software automatically (Recommended)
☒ Install from a list or specific location (Advanced)

Click Next to continue.

< Back

Next >

Cancel

4.

Found New Hardware Wizard



Please choose your search and installation options.

☒ Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.

☐ Search removable media (floppy, CD-ROM...)
☒ Include this location in the search:
F:\MAS-100 Iso NT\Utility\Driver FTD\XX Browse

☐ Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.

< Back

Next >

Cancel

5.

Found New Hardware Wizard



Completing the Found New Hardware Wizard

The wizard has finished installing the software for:

 FTDI FT8U2XX Device

Click Finish to close the wizard.

< Back

Finish

Cancel

6.

Press «Finish» to continue.

4 Start PC Software

4.1 Preliminary steps

1. Connect the instrument with a USB cable to the PC
2. When connecting the first time, a USB driver will be installed automatically

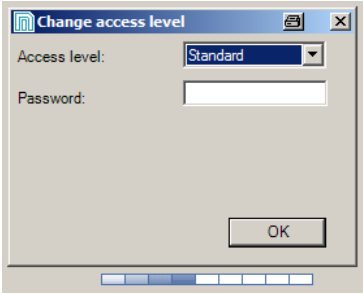
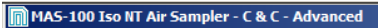


If the automatic installation fails, run the installer .exe found on the PC's «Program Install» folder.

3. In Windows, select the  Menu
 - ↳ All programs
 - ↳ MAS-100 Iso NT and MH Air Sampler
 - ↳ MAS-100 Iso NT and MH Air Sampler - C & C
4. The PC Software opens
5. If an instrument is connected via USB to your computer, it will display the window «Change access level»
6. Follow the description in the next chapter.

4.2 Access levels and password

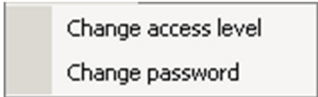
Choose the access level (also named «User» in this manual), then enter the according password listed in the following table.

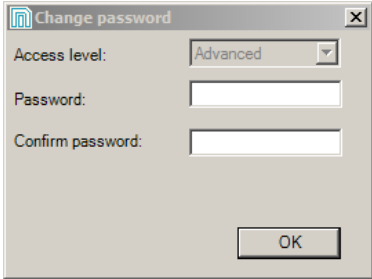
	Access Level	Password
	Standard	(none)
	Advanced	advanced
	Service User	N/A
	Factory User	N/A
	Calibrator	mascal
	The PC Software window header shows the current logged-in access level. In this example: «Advanced» level.	



The passwords given in the table above are independent from the language activated on the instrument

4.3 Change password

	Access the level with the passwords indicated in chapter 4.2 ▪ Select the menu «Access level» ▪ Choose «Change password»
---	--

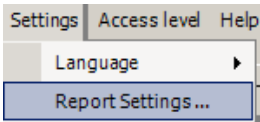
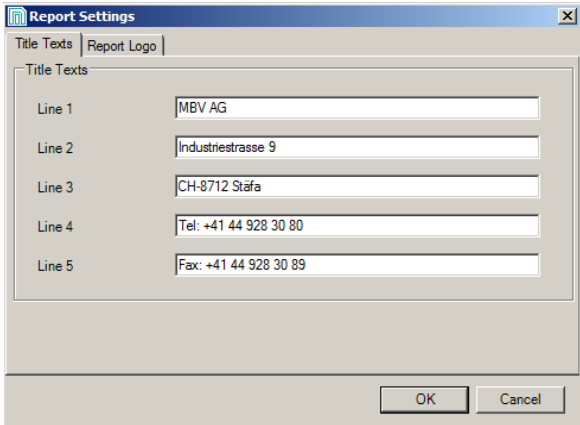
	Enter an own «Password» and confirm it with «OK».
---	---

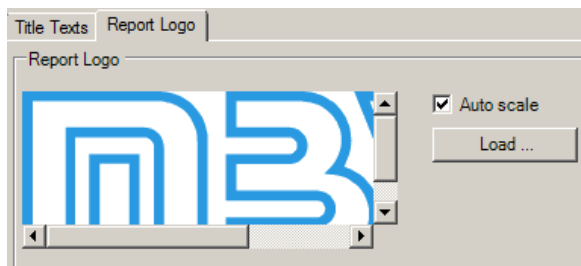
	Protect passwords from third parties and keep them secret. Lost passwords cannot be retrieved.
---	---

4.4 Select language

With PC Software the «Report Settings» can be changed to define individual headers for all reports that can be created in the «Service» menu.

	The «Standard» user cannot change any of the settings in this menu. Login with any other access level than «Standard».
---	---

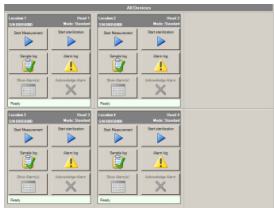
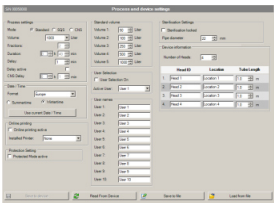
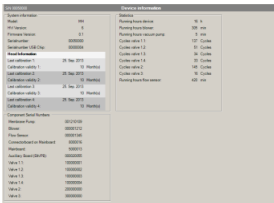
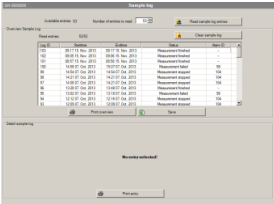
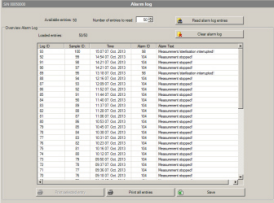
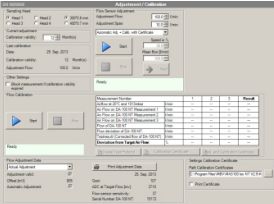
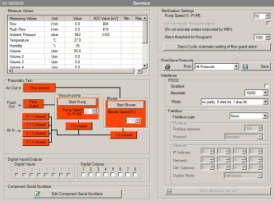
	Open «Settings» tab and select «Report Settings»
	There are five lines for entering data, such as individual addresses and information required by some customers. It is not mandatory to fill all the lines.



An individual «Report Logo» can be defined.

Use the «Auto scale» function to adjust the logo size automatically to the header.

5 Overview of all menus

 All Devices		This menu is used to start a measurement or a decontamination cycle for the selected head. For details proceed to chapter 6.
 Process and device settings		This menu is used to configure the process and device settings of the instrument. For details proceed to chapter 7.
 Device information		This menu is used to visualize the device information of the instrument. For details proceed to chapter 8.
 Sample log		This menu is used to visualize the sample log of the instrument. For details proceed to chapter 9.
 Alarm log		This menu is used to visualize the Alarm log of the instrument. For details proceed to chapter 10.
 Adjustment / Calibration		This menu is used to adjust and calibrate the instrument. For details proceed to chapter 11.
 Service		This menu is used to provide access to service functions and visualize sensor values. For details proceed to chapter 12.
 Reports		This menu is used to create an .xml report of the instrument. For details proceed to chapter 13.

6 Menu «All Devices»

6.1 General

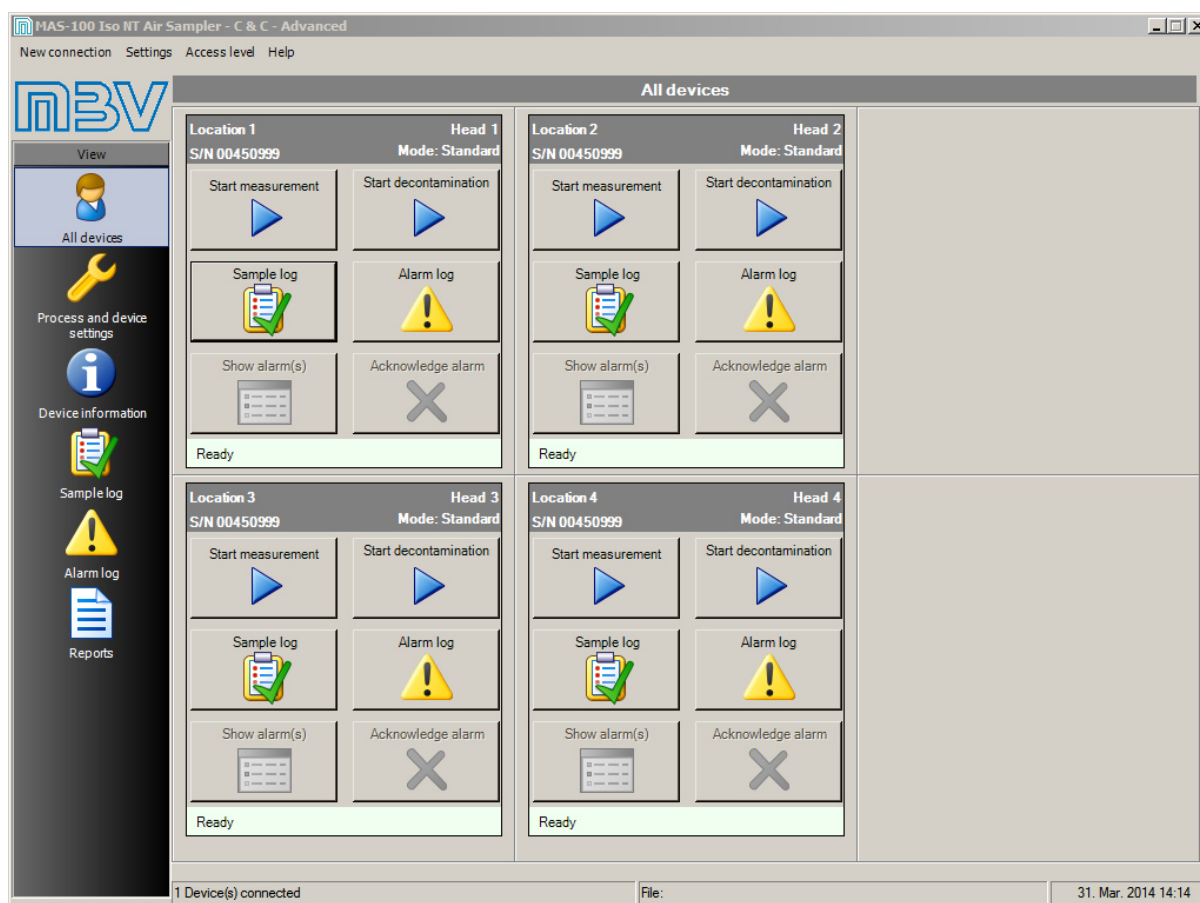
This menu has the following functionalities:

- Visualize all installed sampling heads
- Start a measurement
- Start a decontamination cycle
- Direct link to the sample log
- Direct link to the alarm log.

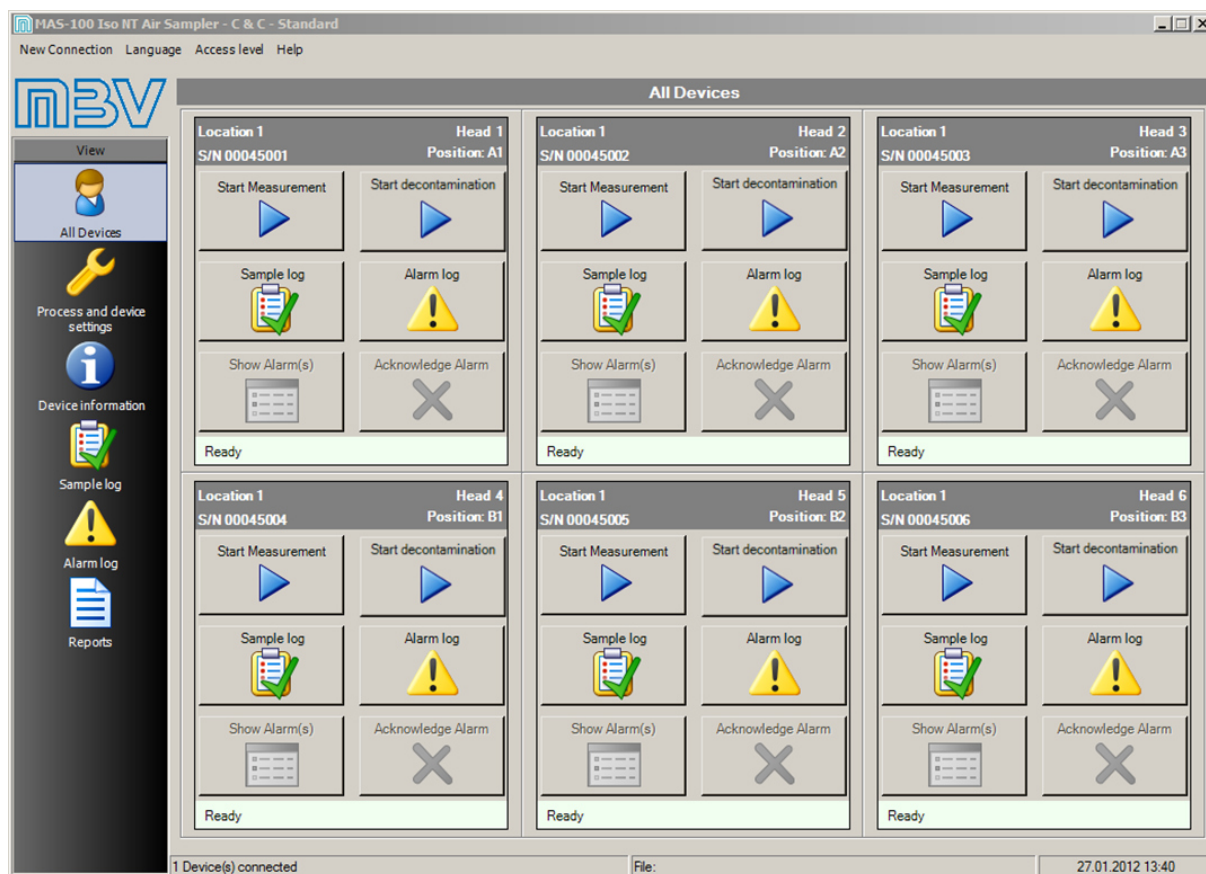
6.2 Screen layout

The screen shows all sampling heads connected to the instrument.

Example №1: MAS-100 Iso MH with four sampling heads



Example №2: Six MAS-100 Iso NT controlled by one PC



The specific example shown above features six MAS-100 Iso NT instruments simultaneously on the screen.

Each displayed sampling head represents one instrument.

The head position or address of the device (A1 – C3) must be set on the hardware in the device menu.

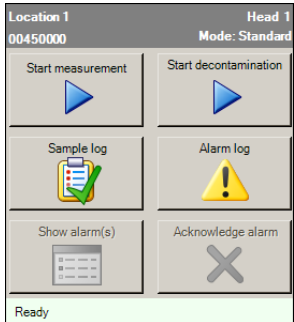
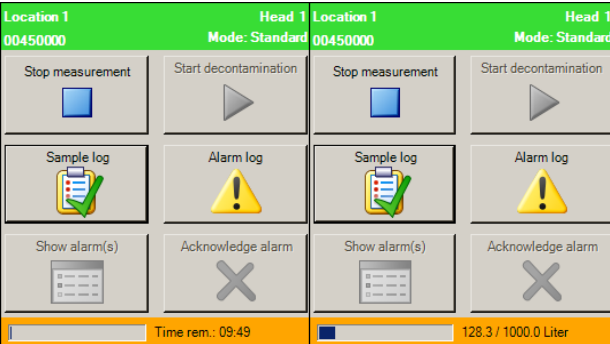
Proceed for this setting as described in the [Installation Manual MAS-100 Iso NT](#)

6.3 Functional overview

Example: MAS-100 Iso MH, sampling head №1

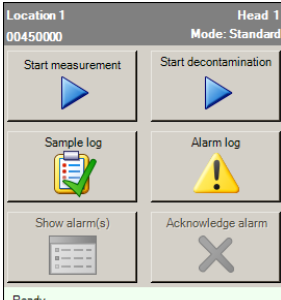
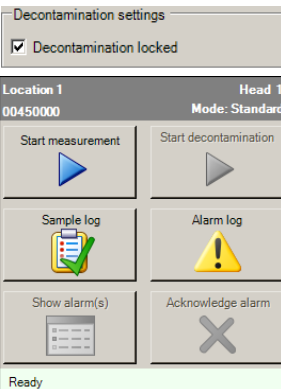
Location of head № 1		Head ID of head № 1
Serial № of the instrument		Process mode
Start/Stop a measurement. See chapter 6.4		Start/stop a decontamination See chapter 6.5
Link to the sample log menu. See chapter 9		Link to the alarm log menu. See chapter 10
Shows pending alarms with their ID-№		Acknowledges active alarms
Instrument state field		Shows instrument states

6.4 Start measurement

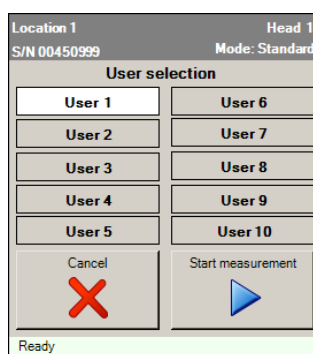
	To start a sampling press the button «Start measurement»
	The measurement is running, and the window will alternately display: - Remaining time («Time rem») - Already «Sampled volume» (x) vs. «Total Volume to sample» (y) in Liter To abort a measurement, press the button «Stop measurement». This will trigger the alarm 104. This must be acknowledged by pressing the button «Acknowledge alarm».

	For safety reasons it's not possible to start a measurement during decontamination.
---	--

6.5 Start decontamination

	The decontamination cycle is activated by pressing the button «Start decontamination».
	The user is not allowed to start a decontamination cycle if the option «Decontamination locked» is activated in «Process and device settings». The «Start decontamination» button will remain grey (inactive).

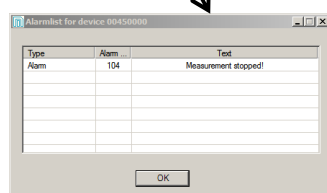
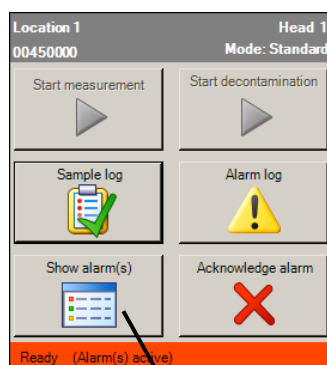
6.6 User selection



If «User selection» has been activated in the «Process and device settings» menu (see [chapter 7.5](#)), the «User selection» window opens each time prior a measurement is started.

Choose the corresponding «User» and press the «Start measurement» button.

6.7 Alarm



An alarm will occur, if the instrument does not work properly or a measurement is aborted. The instrument issues an audible alarm.

Display the alarm by pressing the «Show alarm(s)» button. The audible alarm does not cease.

Stop the alarm by pressing the «Acknowledge alarm» button. The audible alarm will cease.

For detailed information about the reason of the alarm please consult the [chapter «Alarms ID's and description»](#) in the respective [User Manual](#).

An alarm will be displayed during the alarm period as shown in the window by pressing the «Show alarm(s)» button.

The «Sample log» button leads directly to the «Sample log» menu.

The «Alarm log» button leads directly to the «Alarm log» menu.

7 Menu «Process and device settings»

7.1 General

This menu has the following functionalities:

- Set all parameters necessary to run a measurement
- Edit settings
- Change the access level via the «Access level» menu to status «Advanced» (see chapter 4.2)

7.2 Main screen

Continue reading the following chapters to get more information about the setting options.

Example: MAS-100 Iso MH with four sampling heads

Location 1 / Head 1

S/N 00450999

Process and device settings

Process settings

Mode: ☐ Standard ☐ SQS ☒ CNS

Volume: 1000 Liter

Fractions: 5

Duration: 4 h 0 min

Delay: 1 min

Delay active: ☒

CNS delay: 0 h 1 min

Date / time

Format: Europe

☒ Summertime ☐ Wintertime

Use current date / time

Online printing

☒ Online printing active

Installed printer: Epson TM-U220

Standard volume

Volume 1: 50 Liter

Volume 2: 100 Liter

Volume 3: 250 Liter

Volume 4: 500 Liter

Volume 5: 1000 Liter

Decontamination settings

☐ Decontamination locked

Device information

Tube inner diameter: 24 mm

Tube length between valve and instrument: 0.0 m

Number of sampling heads: 4

Head ID	Location	Tube Length
1. Head 1	Location 1	10.0 m
2. Head 2	Location 2	1.0 m
3. Head 3	Location 3	1.0 m
4. Head 4	Location 4	4.4 m

User selection

☒ User selection on

Active user: User 1

User names

User 1: User 1

User 2: User 2

User 3: User 3

User 4: User 4

User 5: User 5

User 6: User 6

User 7: User 7

User 8: User 8

User 9: User 9

User 10: User 10

Save to device Read from device Save to file Load from file

1 Device(s) connected File: 31. Mar. 2014 16:43

7.3 Lower buttons

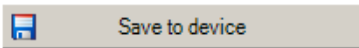
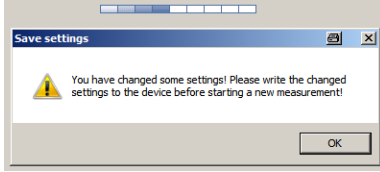
The following buttons are available:

Save to device Read from device Save to file Load from file

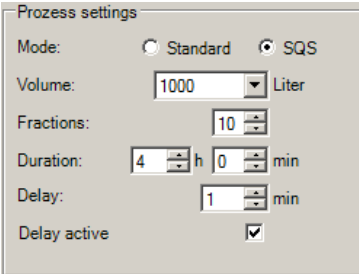
The table below explains the functions of the lower buttons. The settings be copied to another instrument by reading from device «A», saving to file «A.mcp», loading from file «A.mcp» and saving to device «B».

Save to device	Stores the settings to the instrument
Read from device	Reads the settings from the instrument
Save to file	Stores the settings of the instrument to a file with the
Load from file	Reads the settings stored in a *.mcp file

7.4 Save to device

	After any change in the «Process and device settings» menu, this button must be pressed. When switching to a different menu without saving the changes, the message below will appear.
	After that proceed now as follows: ■ Go back to the «Process and device settings» menu ■ Press «Save to device» (even when the changes were reset)

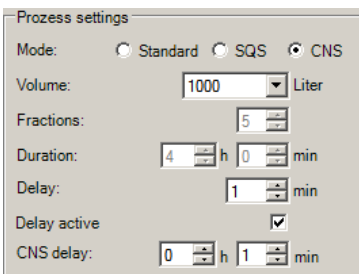
7.5 Process settings

	SQS (Sequential Sampling mode) If «Standard» mode is selected choose the «Volume» to sample. The volume can be chosen between 1 and 2'000 liter. If «SQS» is selected, choose the total sampled «Volume», «Fractions» and «Duration» of the sampling period. Choose «Delay» time and activate it if a delayed start is desired. Press «Save to device» to store the settings in the instrument.
--	--

	The minimal sampling volume per fraction is 20 liter. The «Volume», «Fraction» and «Duration» settings must be set with a reasonable value or an alarm will be displayed by starting a measurement.
	For additional information about the SQS sampling mode please consult the User Manual MAS-100 NT or User Manual MAS-100 MH respectively.

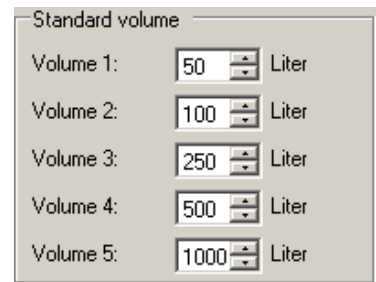


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	CNS (Consecutive Sampling Mode) Activate «CNS» and select its «Delay» time of at least 1 minute. The delay cannot be disabled. Only the editable parameters have an effect on the selected measurement mode. Press «Save to device» to store the settings in the instrument.
---	--

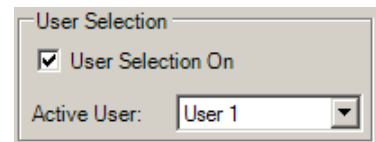
	For additional information about the SQS sampling mode please consult the User Manual MAS-100 MH.
---	--

7.6 Standard volume

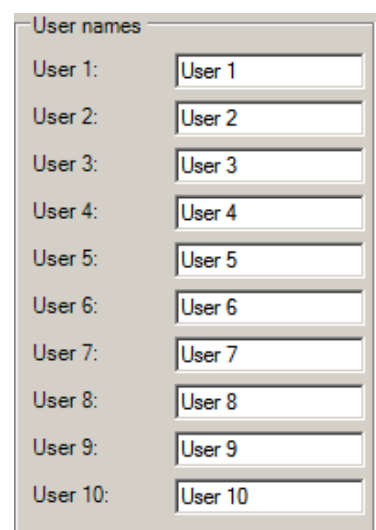
	Five preset «Volumes» are selectable. The values can be changed between 1 and 2'000 liter. Press «Save to device» to store the settings in the instrument.
---	---

	If the value of 0 (zero) liter is entered, the volume will no longer appear in the volume selection.
---	---

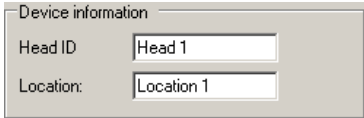
7.7 User selection

	Up to ten users can be programmed with an individual name if the option «User Selection» is activated. The users can be selected before starting a measurement. The «Active User» shown is the last user which started a measurement or a decontamination cycle. Press «Save to device» to store the settings in the instrument.
--	---

7.8 User names

	Enter up to ten users with individual names. The string can contain up to 15 characters. Press «Save to device» to store the settings in the instrument.
---	--

7.9 Device information



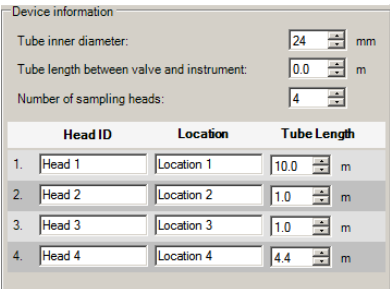
The «Head ID» and «Location» can be renamed (e.g. with actual production or installation descriptions). The string length is limited to 15 characters.

These names will appear on printouts and on the header lines of the PC Software menus.

Press «Save to device» to store the settings in the instrument.



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	Head ID	Location	Tube Length
1.	Head 1	Location 1	10.0 m
2.	Head 2	Location 2	1.0 m
3.	Head 3	Location 3	1.0 m
4.	Head 4	Location 4	4.4 m

This menu serves as input form for all pneumatic relevant parameters. These parameters are used by the instrument to calculate automatically the decontamination time for each sampling head.

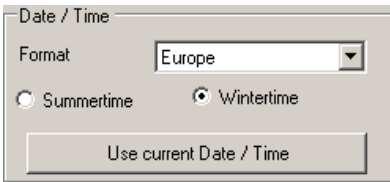
Each «Head ID» and «Location» can be renamed (e.g. with actual production or installation descriptions). The string length is limited to 19 characters.

These names will appear on printouts and on the header lines of the PC Software menus.

An Exception is the «Tube length»: For each installed tube belonging to the corresponding head, the individual tube length must be set. The length is an important parameter in the decontamination process.

Press «Save to device» to store the settings in the instrument.

7.10 Date and time



- Select format of the «Date» among the options:
 - Europe: DD.MM.YYYY
 - USA: MM/DD/YYYY
 - Japan: YYYY.MM.DD
- Select Time among the options:
 - «Summertime»
 - «Wintertime»
- Press «Save to device» to store the settings in the instrument.
- Press «Use current Date / Time» to transfer the PC's system date/time to the PC Software.



These device parameters are applicable for the instrument only. They are independent from the settings of the PC Software which are taken from the PC's operating system.

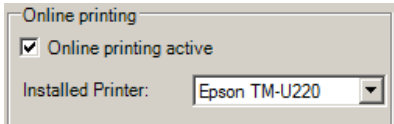


After changing «Summertime»/«Wintertime» and pressing «Save to device», continue by pressing the button «Use current Date» / «Time again».

7.11 Online printing

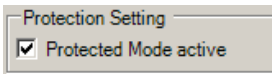
This function allows the PC Software to print directly to a printer connected to the instrument.

If a printer has been selected and the «Online printing» function is activated the values are printed after each measurement.

	Activate «Online printing» and select the pre-installed printer: ▪ Epson TM-U220 ▪ Samsung SRP-275 Press «Save to device» to store the settings in the instrument.
---	--

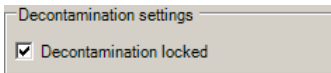
	For additional information about the configuration of printers please consult the Installation Manual MAS-100 NT or Installation Manual MAS-100 Iso MH respectively.
---	---

7.12 Protection setting

	The hardware user interface on the instrument can be locked by activating the «Protected Mode Active» option. The deactivation of this option can only be done via PC Software. Press «Save to device» to store the settings in the instrument.
---	--

	This function is only applicable for the MAS-100 Iso NT. The MAS-100 Iso MH has no hardware user interface.
---	---

7.13 Decontamination settings

	By setting «Decontamination locked» the instrument is prevented from activating a decontamination cycle in the «All devices» menu (see chapter 6).
---	---

8 Menu «Device information»

8.1 General

This menu visualizes information about the instrument, such as:

- System information
- Statistics
- Component serial numbers

8.2 Main screen

The main screen shows the following settings:

Example: MAS-100 Iso MH with four sampling heads

Location 1 / Head 1

S/N 00450999

System information	
Model:	MH
HW Version:	6
Firmware version:	1.0
Serial number:	00450999
Serialnumber USB chip:	00000004

Head information	
Last calibration 1:	19. Mar. 2014
Calibration validity 1:	4 Month(s)
Last calibration 2:	18. Mar. 2014
Calibration validity 2:	4 Month(s)
Last calibration 3:	18. Mar. 2014
Calibration validity 3:	4 Month(s)
Last calibration 4:	19. Mar. 2014
Calibration validity 4:	4 Month(s)

Statistics	
Running hours device:	74 h
Running hours blower:	1 h
Running hours vacuum pump:	0 h
Cycles valve 1.1:	69 Cycles
Cycles valve 1.2:	53 Cycles
Cycles valve 1.3:	46 Cycles
Cycles valve 1.4:	54 Cycles
Cycles valve 2:	190 Cycles
Cycles valve 3:	11 Cycles
Running hours flow sensor:	5 h

Component serial numbers	
Membrane pump:	001311103
Blower:	048826232
Flow sensor:	000961130
Connectorboard on mainboard:	8064826
Mainboard:	5077531
Auxiliary board (Eth/PB):	000023450
Valve 1.1:	624116024
Valve 1.2:	624116004
Valve 1.3:	624116022
Valve 1.4:	624116038
Valve 2:	624194529
Valve 3:	000000201

8.3 System information

Model:	Standard	«Model» (Standard / RABS / MH)
HW Version:	6	«HW version» of main PCB
Firmware version:	2.7	«Firmware version» of the main PCB
Serial number:	00045678	«Serial number» of the instrument
Serialnumber USB chip:	1340139	«Serial number USB chip»
Last calibration	25. Mar. 2014	«Last calibration» date
Calibration validity:	10 Month(s)	«Calibration validity»



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Model:	MH	«Model» (Standard / RABS / MH)
HW Version:	6	«HW version» of main PCB
Firmware version:	1.0	«Firmware version» of the main PCB
Serial number:	00450999	«Serial number» of the instrument
Serialnumber USB chip:	00000004	«Serial number USB chip»
Head information		
Last calibration 1:	19. Mar. 2014	«Last calibration» date
Calibration validity 1:	4 Month(s)	«Calibration validity» of each head
Last calibration 2:	18. Mar. 2014	
Calibration validity 2:	4 Month(s)	
Last calibration 3:	18. Mar. 2014	
Calibration validity 3:	4 Month(s)	
Last calibration 4:	19. Mar. 2014	
Calibration validity 4:	4 Month(s)	

8.4 Statistics

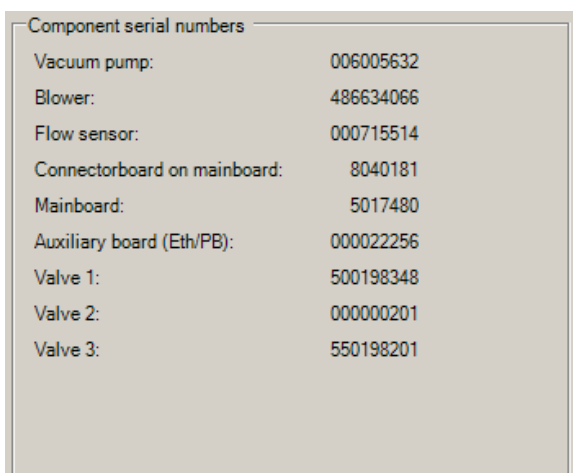
<table> <tr> <td colspan="2">Statistics</td></tr> <tr> <td>Running hours device:</td><td>124 h</td></tr> <tr> <td>Running hours blower:</td><td>0 h</td></tr> <tr> <td>Running hours vacuum pump:</td><td>0 h</td></tr> <tr> <td>Cycles valve 1:</td><td>23 Cycles</td></tr> <tr> <td>Cycles valve 2:</td><td>21 Cycles</td></tr> <tr> <td>Cycles valve 3:</td><td>4 Cycles</td></tr> <tr> <td>Running hours flow sensor:</td><td>4 h</td></tr> </table>	Statistics		Running hours device:	124 h	Running hours blower:	0 h	Running hours vacuum pump:	0 h	Cycles valve 1:	23 Cycles	Cycles valve 2:	21 Cycles	Cycles valve 3:	4 Cycles	Running hours flow sensor:	4 h	Shows the running hours and the valve cycles for each component separately: 0 h = less than 0.5 h 1 h = more than 0.5 h and less than 1.5 h 1 cycle = 1× «ON», 1× «OFF» To see the valves position, change to «Service Menu».
Statistics																	
Running hours device:	124 h																
Running hours blower:	0 h																
Running hours vacuum pump:	0 h																
Cycles valve 1:	23 Cycles																
Cycles valve 2:	21 Cycles																
Cycles valve 3:	4 Cycles																
Running hours flow sensor:	4 h																



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<table> <tr> <td colspan="2">Statistics</td></tr> <tr> <td>Running hours device:</td><td>74 h</td></tr> <tr> <td>Running hours blower:</td><td>1 h</td></tr> <tr> <td>Running hours vacuum pump:</td><td>0 h</td></tr> <tr> <td>Cycles valve 1.1:</td><td>69 Cycles</td></tr> <tr> <td>Cycles valve 1.2:</td><td>53 Cycles</td></tr> <tr> <td>Cycles valve 1.3:</td><td>46 Cycles</td></tr> <tr> <td>Cycles valve 1.4:</td><td>54 Cycles</td></tr> <tr> <td>Cycles valve 2:</td><td>190 Cycles</td></tr> <tr> <td>Cycles valve 3:</td><td>11 Cycles</td></tr> <tr> <td>Running hours flow sensor:</td><td>5 h</td></tr> </table>	Statistics		Running hours device:	74 h	Running hours blower:	1 h	Running hours vacuum pump:	0 h	Cycles valve 1.1:	69 Cycles	Cycles valve 1.2:	53 Cycles	Cycles valve 1.3:	46 Cycles	Cycles valve 1.4:	54 Cycles	Cycles valve 2:	190 Cycles	Cycles valve 3:	11 Cycles	Running hours flow sensor:	5 h	Shows the running hours and the valve cycles for each component separately: 0 h = less than 0.5 h 1 h = more than 0.5 h and less than 1.5 h 1 cycle = 1× «ON», 1× «OFF» To see the valves position, change to «Service Menu».
Statistics																							
Running hours device:	74 h																						
Running hours blower:	1 h																						
Running hours vacuum pump:	0 h																						
Cycles valve 1.1:	69 Cycles																						
Cycles valve 1.2:	53 Cycles																						
Cycles valve 1.3:	46 Cycles																						
Cycles valve 1.4:	54 Cycles																						
Cycles valve 2:	190 Cycles																						
Cycles valve 3:	11 Cycles																						
Running hours flow sensor:	5 h																						

8.5 Component serial numbers

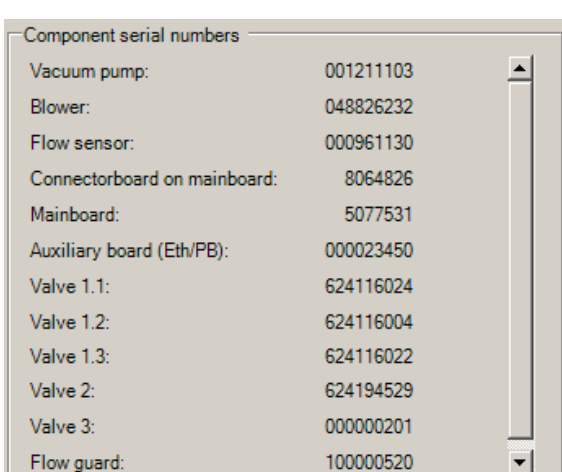


Component serial numbers	
Vacuum pump:	006005632
Blower:	486634066
Flow sensor:	000715514
Connectorboard on mainboard:	8040181
Mainboard:	5017480
Auxiliary board (Eth/PB):	000022256
Valve 1:	500198348
Valve 2:	000000201
Valve 3:	550198201

Shows the «Component Serial Numbers».



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Component serial numbers	
Vacuum pump:	001211103
Blower:	048826232
Flow sensor:	000961130
Connectorboard on mainboard:	8064826
Mainboard:	5077531
Auxiliary board (Eth/PB):	000023450
Valve 1.1:	624116024
Valve 1.2:	624116004
Valve 1.3:	624116022
Valve 2:	624194529
Valve 3:	000000201
Flow guard:	100000520

Shows the Component Serial Numbers».

Scroll down to display the serial number of the «Flow guard».

9 Menu «Sample log»

9.1 General

- «Available entries» shows the number of still available entries in the «Sample log»
- Set the «Number of entries to read» from 0 to the number of available entries (maximum = 100)
- Press the button «Read sample log entries» to read the «Sample log» from the instrument
- Up to 100 entries are stored in the instrument
- The «Sample ID» can count to more than 10'000'000
- More than 100 entries: The latest 100 entries are displayed, the «Sample ID» is continuously incremented
- Press the button «Clear sample log» to delete all displayed entries (does not reset the «Sample ID»)
- Highlight an entry to show the «Detail sample log», then press the button «Print entry» to print out or save
- Decontamination cycles are not registered in the «Sample log»

Example: MAS-100 Iso MH with four sampling heads

Location 1 / Head 1

S/N 00450999

Sample log

Available entries: 95 Number of entries to read: 95 Read sample log entries

Overview sample log

Read entries: 95/95 Clear sample log

Sample ID	Starttime	Endtime	Status	Alarm ID
95	13:12 31. Mar. 2014	13:12 31. Mar. 2014	Measurement stopped	104
94	11:48 28. Mar. 2014	11:48 28. Mar. 2014	Measurement failed	111
93	11:48 28. Mar. 2014	11:48 28. Mar. 2014	Measurement failed	111
92	16:39 27. Mar. 2014	16:45 27. Mar. 2014	Measurement finished	–
91	16:36 27. Mar. 2014	16:39 27. Mar. 2014	Measurement failed	94
90	16:36 27. Mar. 2014	16:36 27. Mar. 2014	Measurement stopped	104
89	16:35 27. Mar. 2014	16:35 27. Mar. 2014	Measurement failed	94
88	16:22 27. Mar. 2014	16:22 27. Mar. 2014	Measurement stopped	104
87	16:22 27. Mar. 2014	16:22 27. Mar. 2014	Measurement stopped	104
86	16:21 27. Mar. 2014	16:22 27. Mar. 2014	Measurement stopped	104
85	16:21 27. Mar. 2014	16:21 27. Mar. 2014	Measurement stooood	104

Print overview Save

Detail sample log

Sample ID: 91 Starttime: 27. Mar. 2014 16:36 Endtime: 27. Mar. 2014 16:39

User: Volume: 50 Liter

Mode: SQS Status: Measurement failed Alarm ID: 94

Number of sampling: 4 Alarmtext: Target flow not reached!

Fractions: 2

Delay active: False

Delay: 0 min

CNS delay: 0 min

Print entry

Sampled volume [L]		Current fraction
Head 1	50	2
Head 2	50	2
Head 3	50	2
Head 4	42	2

9.2 Print entries

This function prints up to 100 entries to a printer (including virtual PDF-printers).

Single entry details are not displayed.

9.3 Save

This saves the data to a *.CSV file which can be edited with Excel or in any other table editing software.

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MBV

MAS-100 Iso NT Sample log

Device information

Serialnumber: 00012345
Head ID: Head 1
Location: Location 1

Log ID	Starttime	Endtime	Status	Alarm ID
3	13:00 10. Jan. 2013	13:00 10. Jan. 2013	Measurement stopped	104
2	11:29 03. Jan. 2013	11:29 03. Jan. 2013	Measurement stopped	104
1	11:28 03. Jan. 2013	11:28 03. Jan. 2013	Measurement finished	–

10 Menu «Alarm log»

10.1 General

- «Available entries» shows the number of still available entries in the «Alarm log»
- Set the «Number of entries to read» from 0 to the number of available entries (maximum = 100)
- Press the button «Read sample log entries» to read the «Alarm log» from the instrument
- Up to 100 entries are stored in the instrument
- The «Log ID» can count to more than 10.000.000
- More than 100 entries: The latest 100 entries are displayed, the «Log ID» is continuously incremented
- Press the button «Clear alarm log» to delete all displayed entries (does not reset the «Log ID»)
- Highlight an entry and press button «Print selected entry» to print out or save
- Problems with decontamination cycles are registered in the «Alarm log», In such cases the «Sample ID» will be replaced with «--»
- The «Alarm text» corresponds to the «Alarm ID»

S/N 00450999

Alarm log

Available entries: 82 Number of entries to read: 82

Read alarm log entries

Overview alarm log

Loaded entries: 82/82

Clear alarm log

Log ID	Sample ID	Time	Alarm ID	Alarm text
82	95	13:12 31. Mar. 2014	104	Measurement stopped!
81	94	11:48 28. Mar. 2014	111	Sampling head error!
80	93	11:48 28. Mar. 2014	111	Sampling head error!
79	91	16:39 27. Mar. 2014	94	Target flow not reached!
78	90	16:36 27. Mar. 2014	104	Measurement stopped!
77	89	16:35 27. Mar. 2014	94	Target flow not reached!
76	88	16:22 27. Mar. 2014	104	Measurement stopped!
75	87	16:22 27. Mar. 2014	104	Measurement stopped!
74	86	16:22 27. Mar. 2014	104	Measurement stopped!
73	85	16:21 27. Mar. 2014	104	Measurement stopped!
72	84	16:21 27. Mar. 2014	104	Measurement stopped!
71	83	16:20 27. Mar. 2014	104	Measurement stopped!
70	82	16:14 27. Mar. 2014	104	Measurement stopped!
69	81	16:14 27. Mar. 2014	104	Measurement stopped!
68	80	16:14 27. Mar. 2014	104	Measurement stopped!
67	79	16:14 27. Mar. 2014	104	Measurement stopped!
66	78	16:13 27. Mar. 2014	104	Measurement stopped!
65	77	16:13 27. Mar. 2014	104	Measurement stopped!
64	76	16:12 27. Mar. 2014	104	Measurement stopped!
63	75	16:12 27. Mar. 2014	104	Measurement stopped!
62	73	14:28 27. Mar. 2014	104	Measurement stopped!
61	72	14:27 27. Mar. 2014	104	Measurement stopped!
60	70	14:23 27. Mar. 2014	94	Target flow not reached!
59	68	13:59 27. Mar. 2014	104	Measurement stopped!

Print selected entry Print all entries Save

10.2 Print entries

This function prints up to 100 entries to a printer (including virtual PDF-printers).

Single entry details are not displayed.

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MAS-100 Iso NT Sample log

Device information

Serialnumber:	00012345
Head ID:	Head 1
Location:	Location 1

Log ID	Starttime	Endtime	Status	Alarm ID
3	13:00 10. Jan. 2013	13:00 10. Jan. 2013	Measurement stopped	104
2	11:29 03. Jan. 2013	11:29 03. Jan. 2013	Measurement stopped	104
1	11:28 03. Jan. 2013	11:28 03. Jan. 2013	Measurement finished	--

10.3 Save

This saves the data to a *.CSV file which can be edited with Excel or in any other table editing software.

11 Menu «Adjustment / Calibration»

This menu has the following functionalities:

- Adjust the instrument
- Calibrate the instrument



Detailed proceedings of adjustment and calibration are described in [User Manual DA-100 NT](#)

The main screen shows the following settings:

Example: MAS-100 Iso MH with four sampling heads

Location 1 / Head 1

S/N 00450999

Adjustment / calibration

Sampling head

☒ Head 1 ☐ Head 2 ☐ Head 3 ☐ Head 4

☒ 300*0.6 mm ☐ 400*0.7 mm

Current adjustment

Calibration validity: 12 Month(s)

Disable calibration validity

Last calibration

Date: 19. Mar. 2014

Calibration validity: 5 Month(s)

Adjustment flow: 101.0 SLPM

Other settings

☒ Block measurement if calibration validity expired

Flow sensor adjustment

Adjustment flow: 100.0 SLPM

Adjustment span: 10.0 SLPM

Automatic adj. + calib. with certificate

Start

Speed in %: 30.0

Mean flow [SLPM]: 100.0

Stop

Next

Ready

Flow calibration

Maximum allowable deviation: 5.0

Start

Stop

Ready

Measurement number	1	2	3	Result
Target air flow	[SLPM]	--	--	--
Air flow on DA-100 NT measurement 1	[SLPM]	--	--	--
Air flow on DA-100 NT measurement 2	[SLPM]	--	--	--
Air flow on DA-100 NT measurement 3	[SLPM]	--	--	--
Air flow on DA-100 NT	[SLPM]	--	--	--
Flow deviation of DA-100 NT	[l/min]	--	--	--
Testresult (corr. air flow of DA-100 NT)	[SLPM]	--	--	--
Deviation from target air flow	[%]	--	--	--

Create test protocol Calibration certificate Adj. and calibration certificate

Flow adjustment data

Actual adjustment

Adjustment valid: ☒

Offset [mV]: 805

Automatic adjustment: ☒

Print adjustment data

19. Mar. 2014

Gain: 110

ADC at target flow [mv]: 3610

Flow sensor sensitivity: 37

Serial number DA-100 NT: 15856

Settings calibration certificate

Path calibration certificates: C:\MBV

☐ Print certificate

In the «Flow adjustment data» window chapter the user gets technical information about the last and the current adjustment of the flow sensor. Choose «Actual» or «Last adjustment» and make a printout with the button «Print adjustment data».

In the «Settings calibration certificate» window chapter the user defines a storage location for the adjustment and calibration certificates. Furthermore, by activating «Print certificate» the certificate will be printed automatically on the default printer of the PC. This works only if the adjustment option «Automatic adj. + calib. with certificate» is selected. The calibration validity can be activated at a later moment.



It is possible to block any measurement if the calibration date has expired. Activate the apposite check box to disable measurements after expiration of calibration date.

12 Menu «Service»

12.1 General

The «Service» menu is a tool for service engineers, which allows them to:

- Control all functions
- Have additional information on the status of the instrument
- Automatically set the «Alarm threshold for flow guard».

This menu can be accessed during a measurement or a decontamination cycle.

12.2 Main Menu

Location 1 / Head 1
S/N 00450021

Service

Measure values

Measuring values	Unit	Value	ADC-value [mV]	Min.	Max.
Flow	l/min	0.0	808		
Decontamination flow	l/min	0.0	821		
Ambient pressure	mbar	950	3014		
Temperature	°C	NA			
Humidity	%	NA			
Volume 1	Liter	0.0			
Volume 2	Liter	0.0			
Volume 3	Liter	0.0			

Pneumatic test

Air Out <- Flow sensor

Flush Out <- Flow guard

V.1.1 closed

V.1.2 closed

Air In -> V.1.3 closed

V.1.4 closed

Vacuum pump

Start pump

Pump speed 20

Blower

Start blower

Blower speed [%] 12.1

V.3 closed

V.2 closed

Digital inputs/outputs

Digital inputs: 1 2 3 4 5 6 7 8

Digital outputs: 1 2 3 4 5 6 7 8

Component serial numbers

Edit component serial numbers

Nonvolatile memory

Read from device

Save to device

Decontamination settings

Pump speed [% PWM]: 60

Activate digital flow guard signal: ☐

(Do not activate unless instructed by MBV)

Alarm threshold for flow guard: 2047

Deco-Cycle: Automatic setting of flow guard alarm

Print/save protocols

Print All protocols Save

Interfaces

RS232

Enabled: ☐

Baudrate: 19200

Mode: no parity, 8 data bit, 1 stop bit

Fieldbus

Fieldbus type: None

Profibus

Profibus address: 126

Protocol: Standard

Ethernet

IP Address: 0 0 0 0

Netmask: 0 0 0 0

Def. Gateway: 0 0 0 0

Duplex mode: Half-duplex

Save settings to device

1 Device(s) connected File: 02. Feb. 2015 13:17



Whenever the «Service» menu is displayed, the flow sensor will be activated. Therefore, the sensors' active time is recorded and added constantly in the menu chapter «Statistics» of the «Device Information» menu. The «Running hours flow sensor» shows the full operating time of the flow sensor.



Hazard of damage to the equipment.

In the «Service» menu all safety features are disabled. If the valves are closed or the air path is blocked the blower and the vacuum pump can be seriously damaged if they are running.

12.3 Measure values

Measure values					
Measuring values	Unit	Value	ADC-value [mV]	Min.	Max. ▲
Flow	l/min	0.0	804		
Decontamination flow	l/min	0.0	817		
Ambient pressure	mbar	953	3066		
Temperature	°C	NA			
Humidity	%	NA			
Volume 1	Liter	0.0			
Volume 2	Liter	0.0			
Volume 3	Liter	0.0			
Volume 4	Liter	0.0			

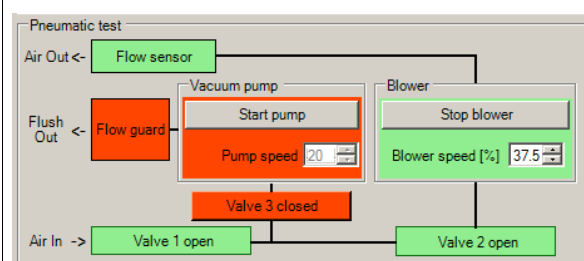
This window shows the values processed by the ADC (Analog to Digital Converter). Service engineers can access this data during a measurement or a decontamination cycle.

This window is also used for IQ/OQ testing.

12.4 Pneumatic test

This chapter describes the manual pneumatic tests.

Flow test



«Valve 1», «Valve 2» and the «Blower» may be activated by pressing on the respective buttons.

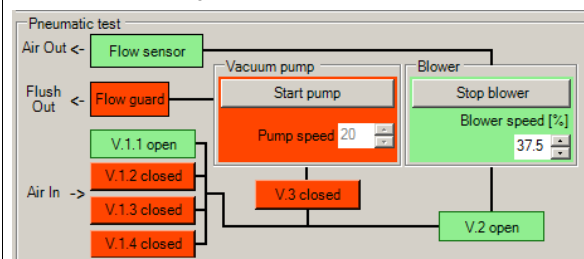
The «Blower speed» can be regulated from 30% to 80%.

Green = Open

Red = Closed / Inactive

Check the flow «ADC-value» in the «Measure values »window.

 MH only



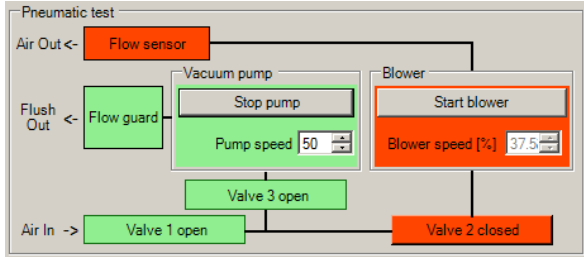
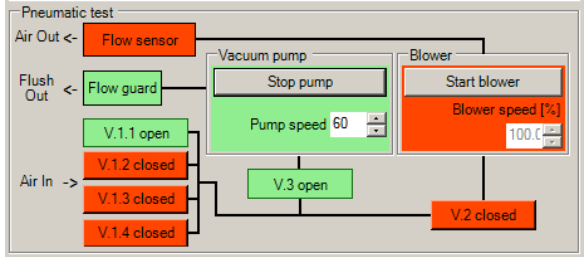
All valves – except «V.3» – and «Blower» may be activated by pressing the respective buttons.

The «Blower speed» can be regulated from 12.1% to 100%.

Green = Open

Red = Closed / Inactive

Check the «ADC-values» in the «Measure values» window.

Decontamination test	
	«Valve 1», «Valve 3» and «Vacuum pump» may be activated by pressing on the respective buttons. The «Pump speed» can be regulated from 20% to 100%. Green = Open Red = Closed / Inactive Check the «ADC-values» in the «Measure values» window.
	All valves – except «V.2» – and the «Vacuum pump» may be activated by pressing the respective buttons. The «Pump speed »can be regulated from 20% to 100% Green = Open Red = Closed / Inactive Check the «ADC-values» in the «Measure values» window.

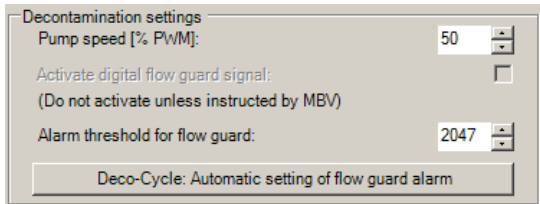
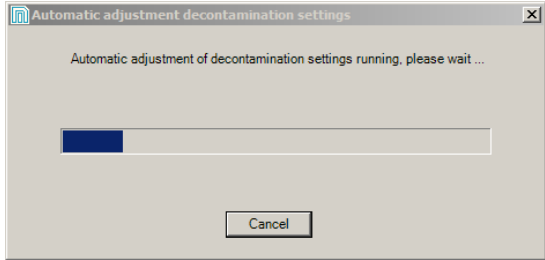
12.5 Automatic Deco-Cycle / setting of flow guard alarm

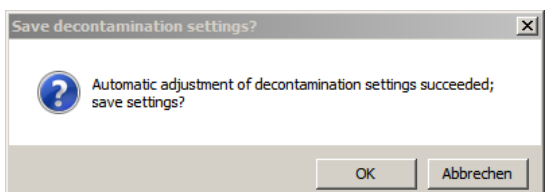
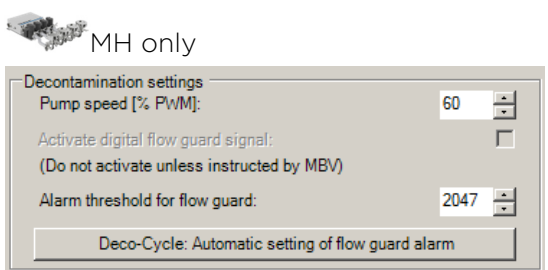
This chapter describes the automatic decontamination cycle.



Hazard of wrong sampling results.

The instrument must be powered-on 45 minutes prior to decontamination (the flow guard sensor must warm up)

	The «Pump speed» must be set to 50 % PWM. Don't enable «Activate digital flow guard signal», unless instructed by MBV AG. In the «Decontamination settings» menu, click «Deco-Cycle: «Automatic setting of flow guard alarm»».
	The automatic adjustment takes about 45 seconds. During this time, the «Vacuum pump» is running and «Valve 1» and «Valve 3» are open, «Valve 2» is closed. At the same time the flow guard signal is measured permanently. At the end of the cycle, the last measured value is taken. From this value, 300 mV are deducted. The calculated value is stored internally in the parameter «Alarm threshold for flow guard. »

	At the end of the automatic adjustment, the setting must be confirmed with «OK» and the measured value is saved. The «Activate digital flow guard signal» setting will be disabled automatically, if not already done manually.
	The «Pump speed» is set to a PWM of 60%. The «Digital flow guard signal» can neither be activated, nor deactivated. The automatic adjustment is running only with the «Valve 1.1» to «Valve 1.4» that has the longest configured tube length. Do not activate any of valves «Valve 1.1» to «Valve 1.4» in the pneumatic test chapter before starting the automatic setting. In the «Decontamination settings» menu, click «Deco-Cycle: «Automatic setting of flow guard alarm»».

12.6 Manual setting of «Alarm threshold for flow guard»

This chapter describes how to determine manually the settings for the decontamination cycle.

	Hazard of wrong sampling results. The instrument must be powered-on 45 minutes prior to decontamination (the flow guard sensor must warm up)
	It is strongly recommended to use the automatic procedure for setting the decontamination parameter «Alarm threshold for flow guard», as described in chapter 12.5.

Pneumatic test

```

    graph LR
      AirIn[Air In ->] --> Valve1[Valve 1 open]
      Valve1 --> Junction1(( ))
      Junction1 --> Valve2[Valve 2 closed]
      Junction1 --> Valve3[Valve 3 open]
      Valve3 --> Pump[Vacuum pump: Stop pump, Pump speed 50]
      Pump --> Junction2(( ))
      Junction2 --> Valve3
      Junction2 --> Blower[Blower: Start blower, Blower speed 37.5]
      Blower --> AirOut[Air Out]
      FlowGuard[Flow guard] -- Flush Out --> Junction2
      FlowSensor[Flow sensor] --> AirOut
  
```

- Open «Valve 1 »and «Valve 3»
- Start «Vacuum pump»
- Set PWM to 50%.

Green = Open

Red = Closed / Inactive

Measure values

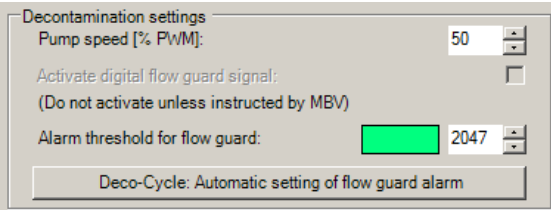
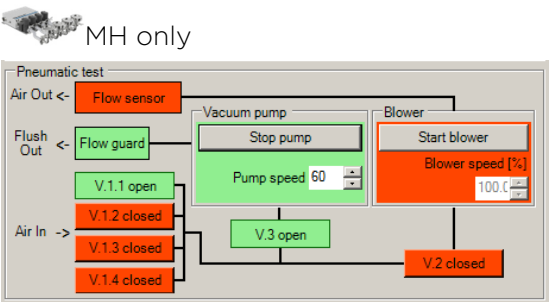
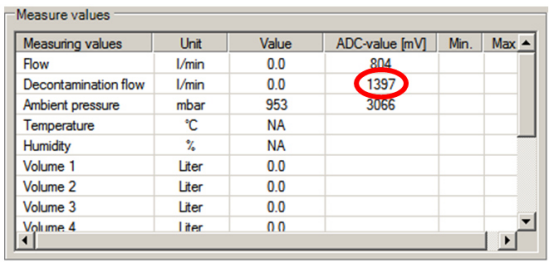
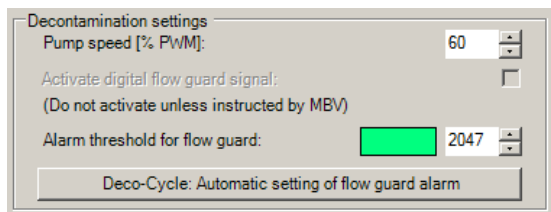
Measuring values	Unit	Value	ADC-value [mV]	Min.	Max.
Flow	l/min	0.0	760		
Decontamination flow	l/min	>1.5	993		
Ambient pressure	mbar	958	3052		
Temperature	°C	28.2			
Humidity	%	37			
Volume	Liter	0.0			
Time remaining	(hh:mm:ss)	00:00			
Blower current			1		
Mainboard temperat			1754	600	190

Read the «ADC-value» and note this value down (if OQ is done, this value must be noted).

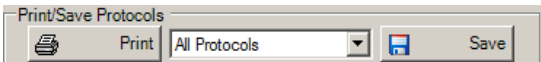
Deduct 300mV (Iso MH: 1000 mV) from the noted value and set the «Alarm threshold for flow guard» in the next window.

Example for Iso NT

Set «Vacuum pump» PWM to 50% and read «ADC-value»: 993 mV

	Calculate «Alarm threshold for flow guard»: 993 - 300 mV = 693 mV
	Don't enable «Activate digital flow guard signal», unless instructed by MBV AG. Green bar = Flow ok Red bar = Not enough flow (the PC Software will issue error 95 «Decontamination flow too low» or at the end of the cycle an error 96 «Valves do not close»
	▪ Determine which of «Valve 1.1» to «Valve 1.4» is attached to the longest tube and open this valve ▪ Open «Valve 3» ▪ Start «Vacuum pump» ▪ Set PWM to 60%. Green = Open Red = Closed / Inactive
	Read the «ADC-value» and note this value down (if OQ is done, this value must be noted). Deduct 300 mV from the noted value and set the «Alarm threshold for flow guard» in the next window. Example Set «Vacuum pump »PWM to 60% and read «ADC-value»: 1397 mV Calculate «Alarm threshold for flow guard»: 1397 - 300 mV = 1097 mV
	The «Digital flow guard signal » can neither be activated, nor deactivated. Green bar = Flow ok Red bar = Not enough flow (the PC Software will issue error 95 «Decontamination flow too low» or at the end of the cycle an error 96 «Valves do not close».

12.7 Print / save protocols

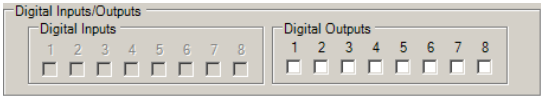
	Use this menu to «Print» or «Save» protocols.
---	---

First, select the protocol. Second, select «Print» or «Save». If «Print» is selected, choose printer driver or «Save», give the .csv-file a name and save it to a specific location. If a PDF-printer driver is installed, the protocols can be printed directly to a PDF file.

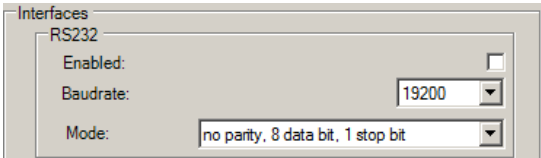
All Protocols	Includes all protocols (see in this table below)
Device Information	Includes all information from the menu «Device Information»
Sample Log	Includes all entries of the menu «Sample Log»
Alarm Log	Includes all entries of the menu «Alarm Log»
Adjustment Data	Includes the adjustment data from the last and the actual/current adjustment
Service Data	Includes the decontamination and interface settings from the menu «Service»

12.8 Interfaces

12.8.1 Digital inputs / outputs

	This field shows which digital inputs / outputs are active or can be activated for testing purposes (also control system testing).
---	--

12.8.2 RS-232

	To activate the «RS-232» interface: ▪ Activate option «Enable» ▪ Choose the «Baud rate» and «Mode».
---	--

	The option «Enable» must not be activated to work with the DA-100 NT anemometer
---	---

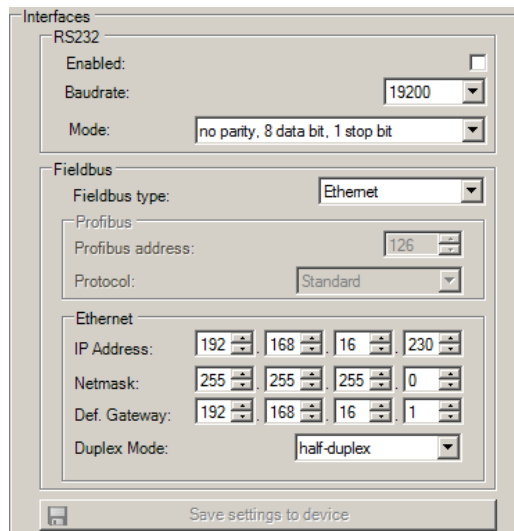
12.8.3 Ethernet

12.8.3.1 Preparative actions

The instrument can be operated via the Ethernet network.
The required additional hardware is an optional purchase feature.



The configuration of the Ethernet network parameters is best done by an authorized IT specialist

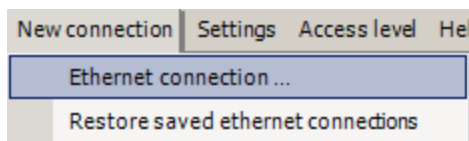


To access the instruments via ethernet it needs to be configured via USB cable first.
The default «Duplex mode» should be set to «Half-duplex».
Each instrument needs its own «IP address»
To connect the instrument via ethernet to the PC Software, please refer to [chapter 12.8.3.2](#).

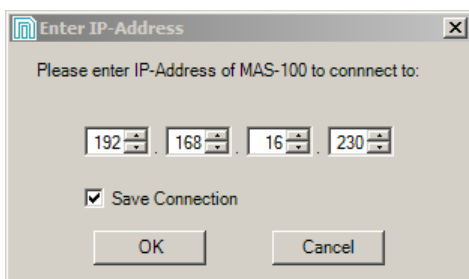


Please consult the [Installation Manual MAS-100 Iso MH/NT](#) for additional information

12.8.3.2 Connect instrument to PC Software via ethernet

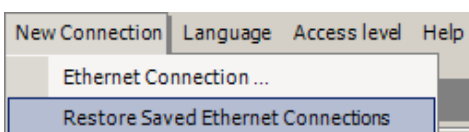


- Start the PC Software
- Select «New connection» in the main menu



Enter the «IP address» of the instrument configured before. Only one instrument can be connected at a time.

The IP can be saved by activating «Save Connection».



Once a connection has been established successfully, the IP is saved and can be restored when the PC Software is started the next time.

12.8.4 Profibus

The instrument can be operated via the Profibus network.

The required additional hardware is an optional purchase feature.



The configuration of the Profibus network parameters is best done by an authorized IT specialist

To access the instruments via Profibus it needs to be configured via USB cable first:

- Set the «Profibus address» from 0 up to 126.
- Choose for «Protocol» between the options «Standard» or «SPS».



Please consult the [Installation Manual MAS-100 Iso MH/NT](#) for additional information

13 Menu «Reports»

This menu allows creating reports which contain all information regarding the device parameters of the instrument. This functionality is of major importance for diagnose purposes during service and repair activities.



The customers' privacy is respected and taken very seriously by MBV AG. Absolutely no customer-related information will be collected or transmitted. The report file contains device parameters only. The report file uses the open XML format, whose content can be viewed with any ordinary internet browser.

To create a report, please proceed as follows:

- Press the button «Create XML Report»
- Save the report to a folder selected by the user