

# Mouldflo

## USER MANUAL - MOULDFLO SOFTWARE (GUI)

**MOULDFLO A/S**

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## Contents

1. Introduction.....	4
1.1 Symbols Used in the Graphical User Interface.....	4
2. Home Screen .....	4
3. Plot screen .....	5
4. Trend screen.....	8
5. Manifold Settings .....	9
5.1 Manifold Configuration Section .....	9
5.2 Channel Limits Section .....	9
5.3 Hardware Configuration Section.....	10
6. Reports of Data & Settings.....	10
7. Log Settings .....	13
7.1 System Status Screen .....	13
7.2 Log Screen .....	13
8. Settings Screen.....	15
8.1 System Settings.....	15
8.1.1 Virtual Keyboard.....	15
8.1.2 Display Units .....	15
8.1.3 Date & Time .....	15
8.1.4 System Idle.....	16
8.2 Network Settings .....	16
8.2.1 Configure IPv4 – DHCP .....	16
8.2.2 Configure IPv4 – Static.....	16
8.3 Files & Configuration .....	17
8.3.1 Mould Config .....	17
8.3.1.1 Save Mould Config .....	17
8.3.1.2 Load Mould Config.....	18
8.4 Note on usage of dialogs .....	19

- 9. Customization.....19
  - 9.1 On-Screen Keyboard.....19
  - 9.2 Language.....20
    - 9.2.1 Language .....20
    - 9.2.2 Import Language .....20
- 10. Software Update.....20
- 11. Troubleshooting .....21
  - 11.1 No response from MFIO.....21
  - 11.2 Manifold Connection Lost.....21
  - 11.3 Unidentified problem .....22
  - 11.4 Contact us .....22

# 1. Introduction

This user guide serves as a reference for the operator of a Mouldflo Manifold system. It describes the configuration and operation of the Mouldflo software.

## 1.1 Symbols Used in the Graphical User Interface

Below is a table of all relevant buttons found in the Mouldflo Software, as well as their meaning.

	Normal operation indicator		Manifold configuration
	Warning indicator		Restart of the software
	Alarm indicator		Activity Log
	Dismiss Warning/Alarm		Overview of selected manifold status
	Home Screen		Trend plots for current manifold
	Software Settings		

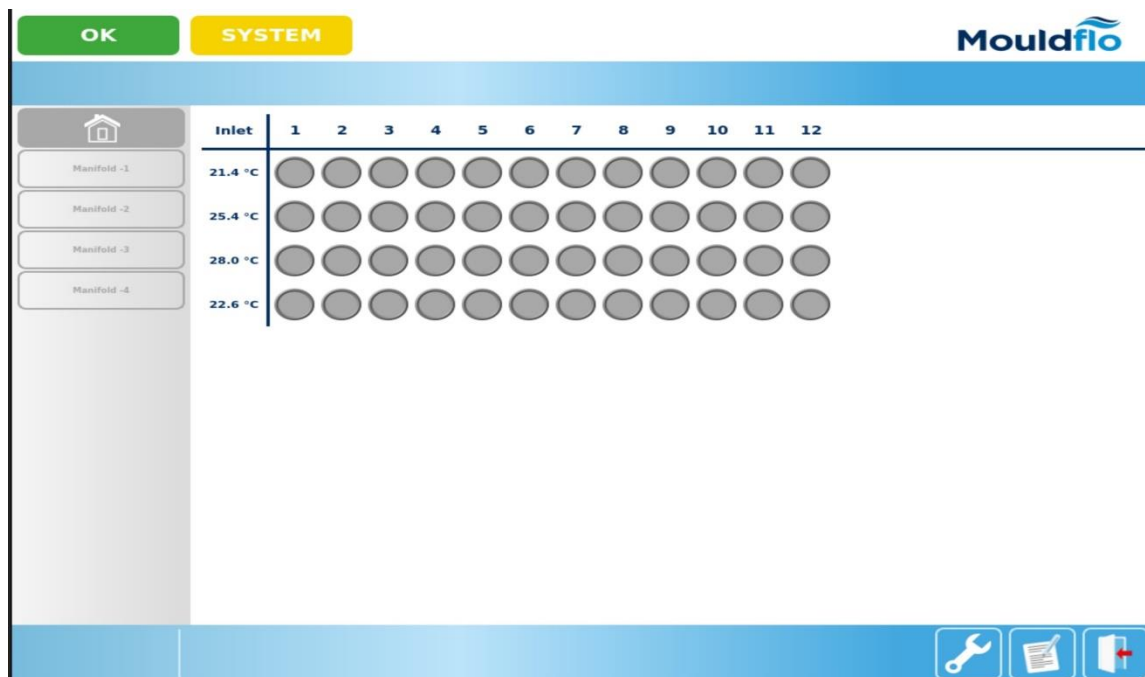
## 2. Home Screen

The Mouldflo Software starts-up in the Home Screen which provides a snapshot of the status of all measurement channels on connected manifolds. The home screen can always be accessed by pressing on the **Home** button.

The navigation menu on the left hand side of the screen enables access to detailed views of each of the manifolds, just by pressing on the manifold name.

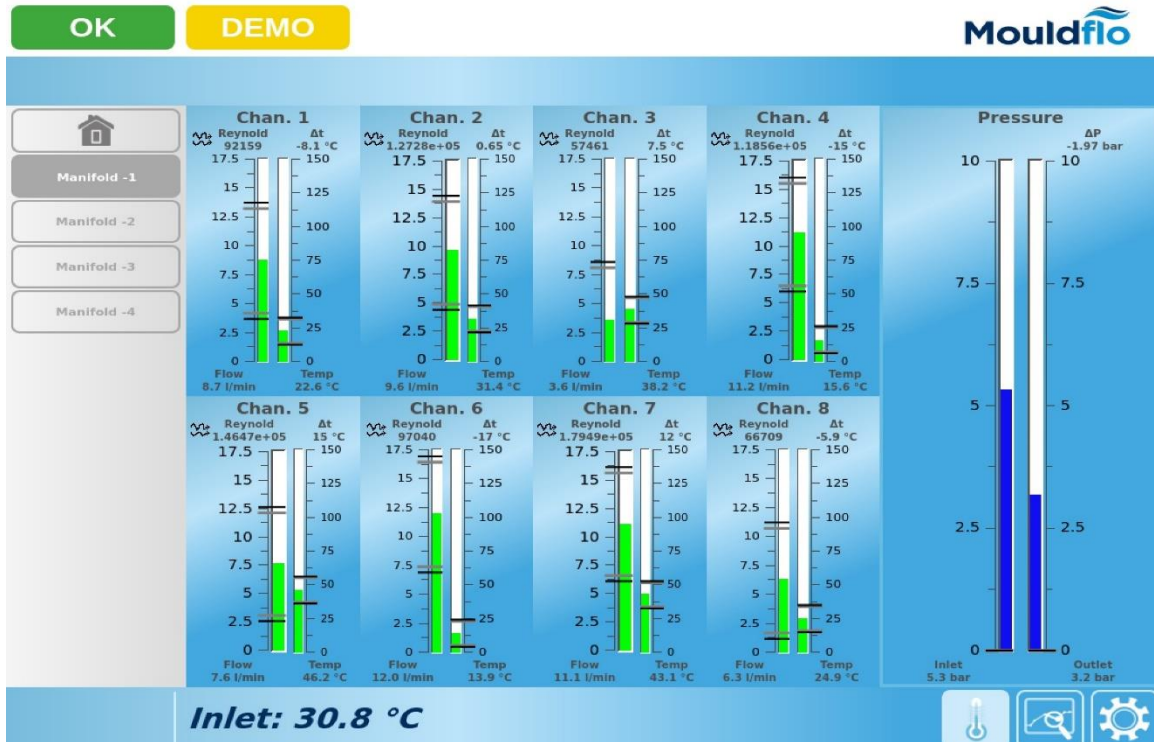
The operating status of each channel is indicated using colors:

<b>Green</b>	Normal operation
<b>Yellow</b>	Warning indicator
<b>Red</b>	Alarm indicator
<b>Grey</b>	Warnings and errors are ignored



### 3. Plot screen

The plot screen is used for monitoring the current status of the manifold channels of a selected manifold. This screen can be accessed by clicking on the button which corresponds to a specific manifold in the menu on the left hand side of the screen, followed by clicking on the temperature icon in the bottom right corner of the screen:



The screenshot above shows the plot screen for an 8 zone manifold with pressure sensors. The temperature of the inlet water is shown in the bottom left corner of the screen.

Each channel is represented by two bars indicating the flow and return temperature of the coolant.

The <b>black</b> horizontal lines indicate configured flow limits.
The <b>grey</b> horizontal lines indicate the warning limits.
A <b>green</b> flow bar indicates that the flow is within the configured limits.
A <b>yellow</b> flow bar indicates that the flow is outside of the warning limits, but within the alarm limits.
A <b>red</b> flow bar indicates that the flow is outside of the alarm limits.




If pressure sensors are mounted on the manifold, then the inlet and the outlet pressures are shown on the right hand side of the screen.

The  $\Delta t$ , shows the temperature difference from the specific channel with the inlet temperature.

The  $\Delta p$ , shows the pressure difference between the outlet and inlet pressures.

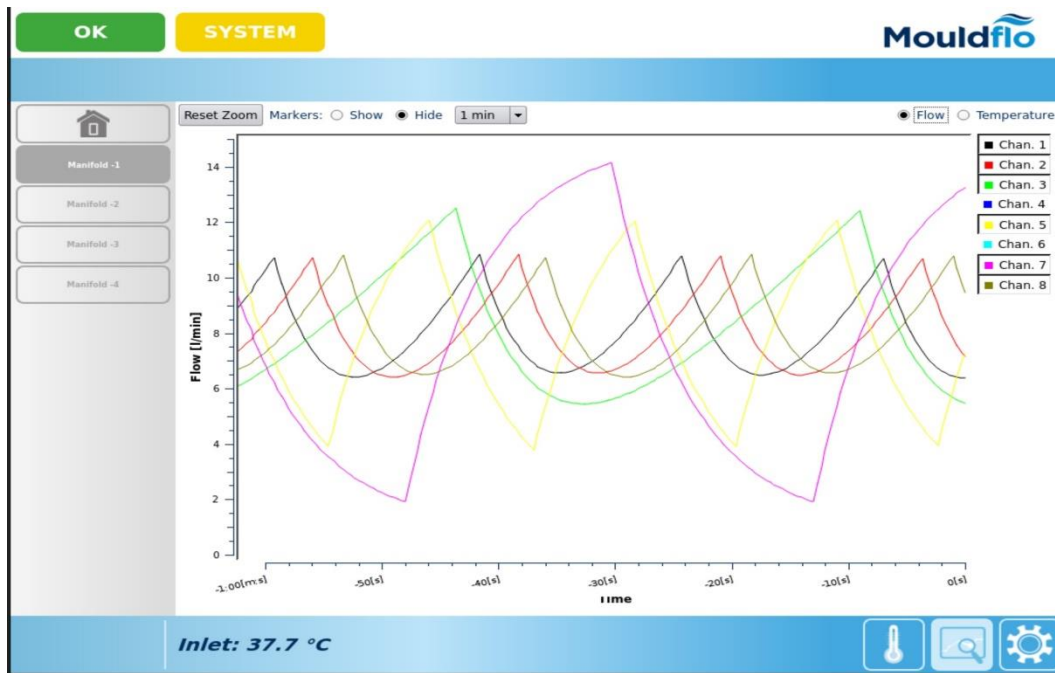
## Reynolds number:

The Reynolds number differs for different types of flow in the channel. The icons depicting the different flow types are given in the table below:

Icon	Flow type
	Laminar
	Transitional
	Turbulent

## 4. Trend screen

The trend screen is designed to show the status of channels in a given manifold over time. As such, it is useful for finding trends. It is accessed by clicking on the relevant Manifold's name in the panel on the left hand side of the screen, followed by clicking on the icon highlighted in the bottom right. Also, select the time period to show the trend for a specific time.



There are a few options to use:

- **Zoom:** It is possible to zoom in on the screen by clicking and dragging on it. We recommend to use the pen that comes with the Mouldflo screen.
- **Reset Zoom:** Resets zoom if any is used.
- **Show/Hide Markers:** These markers are used to point out important events in time (errors mostly).
- **Flow/Temperature:** Choose whether to display flow or temperature.
- **Channel 1-8 On/Off:** The labels on the right are clickable and are used to toggle channels on/off on the plot.

Furthermore, the time seen in the bottom will automatically try to adjust as time goes on.

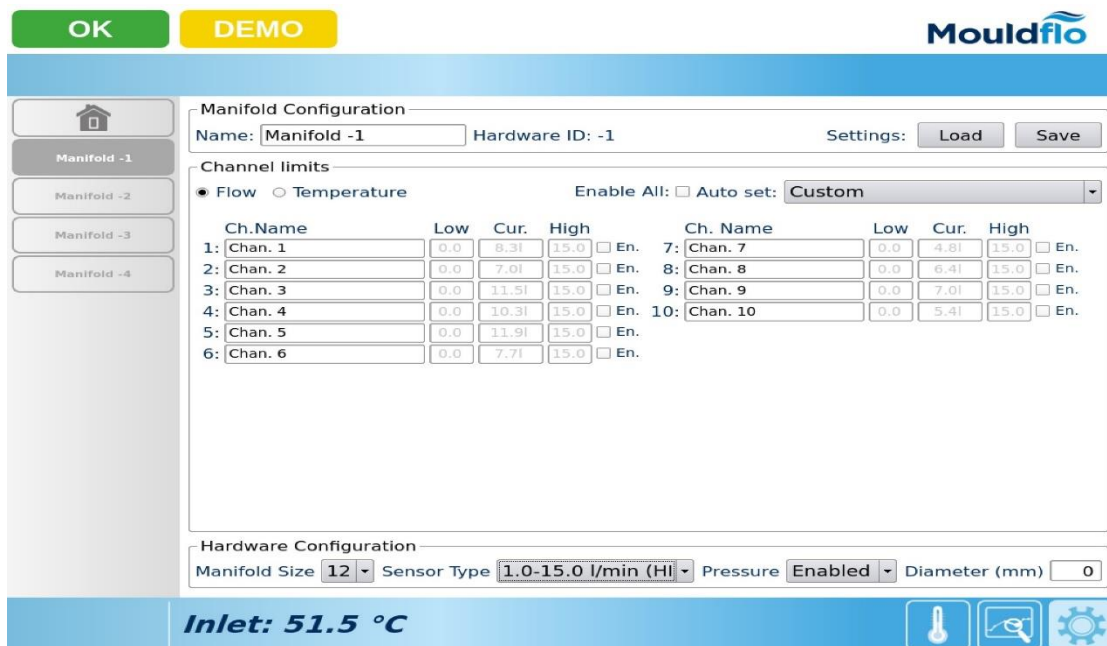


## 5. Manifold Settings

The Manifold Settings screen is used for configuring each Manifold.

The settings screen for a specific manifold is accessed by clicking on the manifold name in the menu on the left side of the screen, under the **Home** icon. Thereafter, click on the **Settings** icon in the lower right corner of the screen.

The **Settings** screen comprises of three sections namely: manifold configuration, channel limits, and hardware configuration.



**Manifold Configuration**  
 Name:  Hardware ID:  Settings:

**Channel limits**  
 Flow  Temperature Enable All:  Auto set:

Ch. Name	Low	Cur.	High	En.	Ch. Name	Low	Cur.	High	En.
1: Chan. 1	0.0	8.3l	15.0	<input type="checkbox"/>	7: Chan. 7	0.0	4.8l	15.0	<input type="checkbox"/>
2: Chan. 2	0.0	7.0l	15.0	<input type="checkbox"/>	8: Chan. 8	0.0	6.4l	15.0	<input type="checkbox"/>
3: Chan. 3	0.0	11.5l	15.0	<input type="checkbox"/>	9: Chan. 9	0.0	7.0l	15.0	<input type="checkbox"/>
4: Chan. 4	0.0	10.3l	15.0	<input type="checkbox"/>	10: Chan. 10	0.0	5.4l	15.0	<input type="checkbox"/>
5: Chan. 5	0.0	11.9l	15.0	<input type="checkbox"/>					
6: Chan. 6	0.0	7.7l	15.0	<input type="checkbox"/>					

**Hardware Configuration**  
 Manifold Size:  Sensor Type:  Pressure:  Diameter (mm):

**Inlet: 51.5 °C**

### 5.1 Manifold Configuration Section

The functionalities of the manifold configuration section is highlighted below:

- Manifold "Name" can be used to edit the manifold identifier.
- Load/Save settings – The Load / Save button can be "clicked" by the user to Load / Save manifold settings data onto an .ini file.

### 5.2 Channel Limits Section

The channel limits section consists of two views that can be switched between by selecting either flow or temperature in the top left corner of the screen.

The physical location of the channel is shown by a number from 1-12. Each channel can be described with a custom identifier or channel name.

The flow view makes it possible to configure the low and high flow limits for each channel. The currently measured flow is shown in the “Cur.” field. Monitoring of the flow in each channel can be enabled or disabled.

The temperature view makes it possible to configure the low and high limits for the return temperature of each channel. The currently measured return temperature is shown in the “Cur.” field.

It is also possible to enable/disable the monitoring of all channels by checking/un-checking the checkbox.

The auto-set dropdown box can be used to quickly configure the limits based on the currently measured flow and return temperatures of the selected channels.

### 5.3 Hardware Configuration Section

In this section the manifold size, flow sensor range and pipe diameter can be configured.

The manifold size can be configured to be either 4, 8 or 12 zones by selecting the appropriate value from the “Manifold Size” dropdown box.

The flow sensor range can be configured by selecting the appropriate flow ranges from the “Sensor Type” drop down box.

If the manifold is fitted with pressure sensors, these are accessed by selecting **Enabled** in the “Pressure” drop down box.

The diameter of the pipe can be provided in **mm** in the “Diameter” edit field (Max diameter value can be upto 99.99 mm). The pipe diameter value is used to compute the flow by means of the Reynolds number.

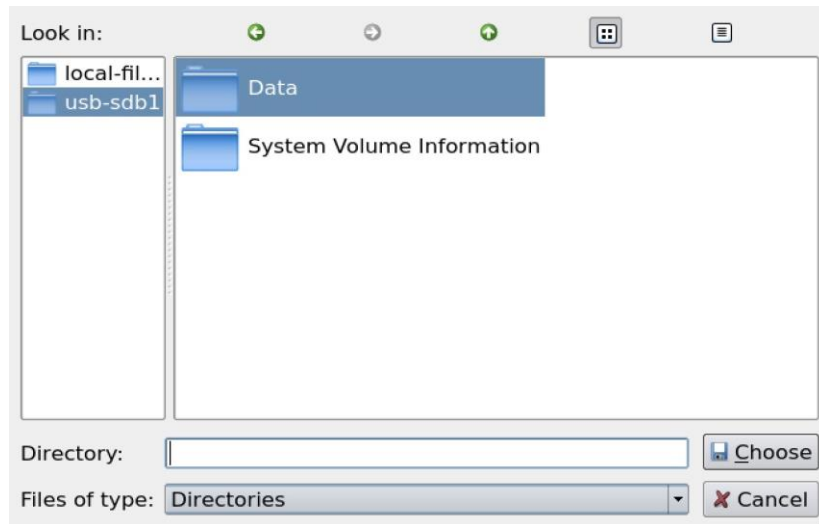
## 6. Reports of Data & Settings

The reports of data and settings can be accessed by means of an export dialog through the “Settings” Screen, by clicking the “Export” button under “Files & Configuration”.

The export dialog is designed to export data recorded by the Mouldflo Computer to a USB pendrive.

In the export dialog you're asked to select a directory. The data is stored in multiple slk files, and as such, we ask for a directory to place them in, instead of simply a file name.

You should enter the directory where you want to store the slk (Symbolic Link) files / ini (Configuration) files. After that, click "Choose". The Export dialog should be displayed as shown below:



After selecting the destination folder in the USB drive, a pop-up dialog with the following message is displayed:

*"Settings data has been successfully exported. Do you want to delete local settings files?"*

Select one of the below mentioned options in the pop-up dialog:

- No** All data and settings backup files are left untouched
- Yes** All data and settings files will be deleted from the local storage

Thereafter, select the start date and time for the series that you want to export together with the duration of the time along with the data you want to export such as Limits, Idle and Marker and click on "OK".

After the export process is finished the following files will be created in the directory:

Symbolic link files: slk files are created under **log** subdirectory

Manifold Configuration files: ini files are created under **settings** subdirectory

For each channel on a manifold the following measurements are available in the slk files:

- raw data
- statistical data
- limits (upper and lower, temp and flow)
- alarms (if limits are past)
- MFIO idle marker 1
- MFIO marker 2

Raw data

- Current temperature of channel
- Flow of channel

Statistical data

- Temperature data consisting of min, max and average.
- Flow data consisting of min, max and average.

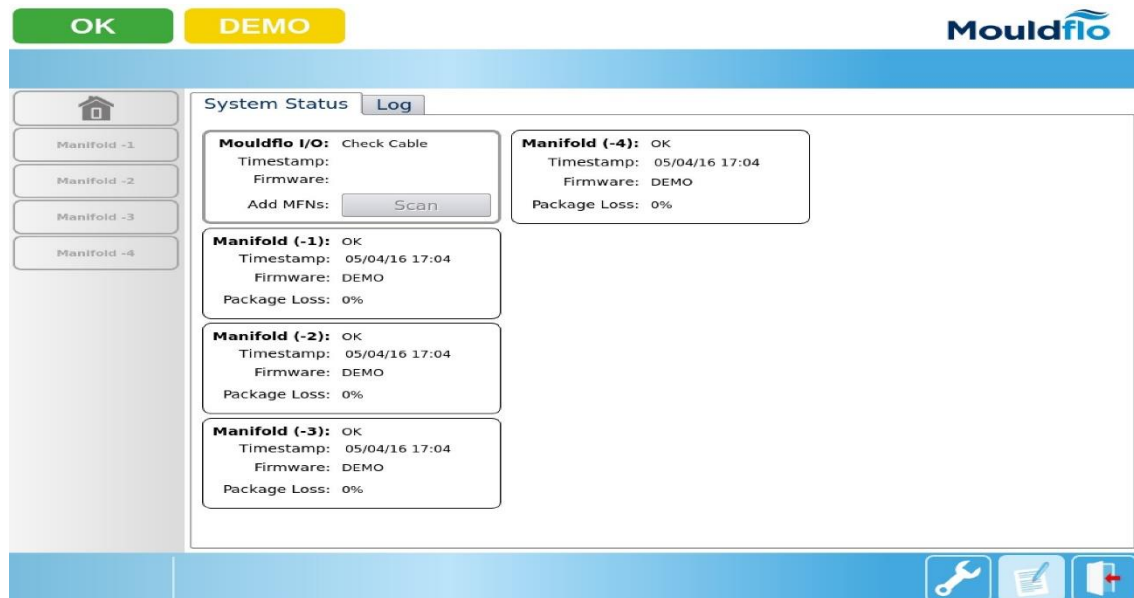
The main series data are logged whenever the system is running and may quickly use up a lot of disk space. To prevent filling the disk too quickly a data retention policy system is used in cooperation with continuous queries to down sample the data. The retention policies are defined as follows:

- Raw - one hour lifetime: Used for main series data when the raw data points are logged.
- 1day - one day lifetime: Used for main series data down sampled to 30 second intervals.
- 30day - 30 days lifetime: Used for main series data down sampled to 5 minutes intervals.

## 7. Log Settings

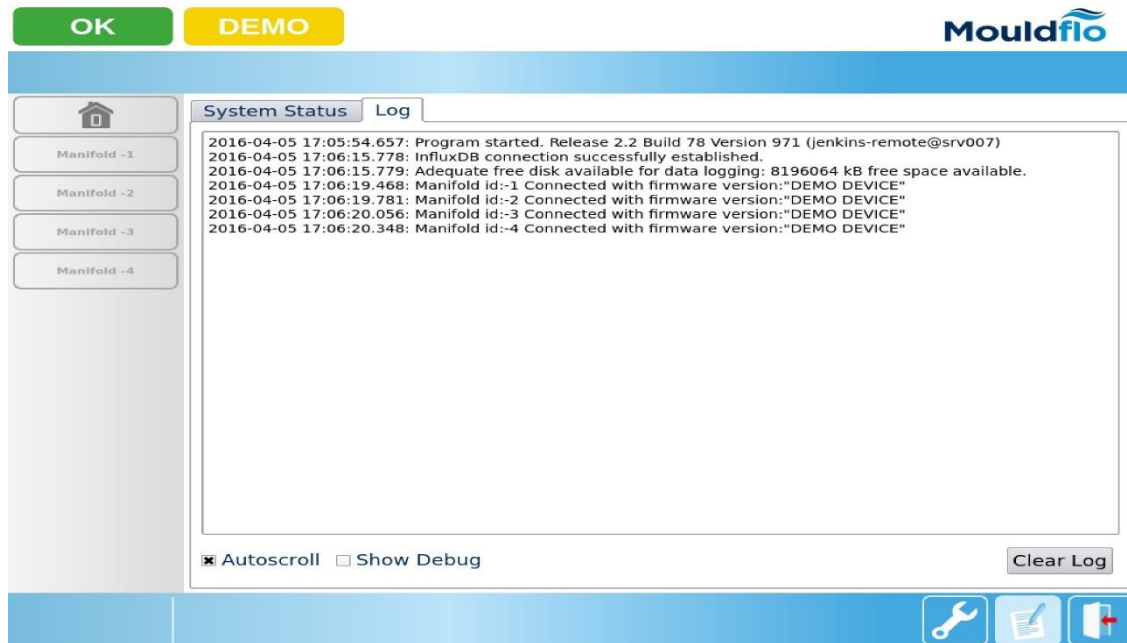
### 7.1 System Status Screen

The system status screen displays the status of all the connected manifolds to the user.



### 7.2 Log Screen

The log screen is designed to present the user with all relevant logs from the Mouldflo software. These include alarms, warnings and, changes to settings; basically a complete record of any changes that the user needs to be aware of. It is identified by the log icon, as highlighted in the bottom right.



Options in here include:

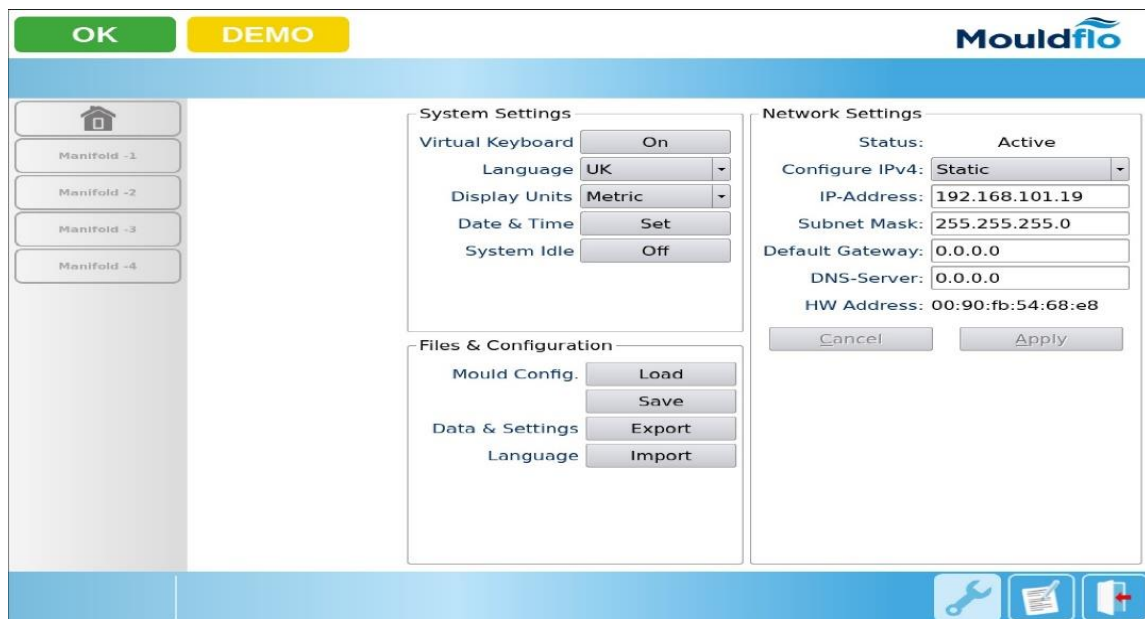
- **Auto-scroll:** Should be set off if you want to scroll in the log.
- **Show Debug:** Additional messages, mostly to identify possible bugs in the software, should be left off.
- **Clear Log:** Clears the log.

## 8. Settings Screen

The settings screen is accessed by pressing on the **Settings** icon in the bottom right corner. This screen is used to set the general settings for the system:

### 8.1 System Settings

The basic overview of the system settings screen is displayed below:



#### 8.1.1 Virtual Keyboard

Toggles the virtual keyboard to On/Off

#### 8.1.2 Display Units

Sets the units used for measurements. Can be set to either Metric (SI units) or Imperial (the software must be restarted in order for the change to take effect).

#### 8.1.3 Date & Time

The date dialog is used in case the Mouldflo Computer for some reason, is not set to the correct date. All Mouldflo machines are checked to be set correctly before being shipped, but we cannot be accountable for local time zones.

The Date Dialog is accessed through the Settings Screen, by clicking "set date"

Set Date/Time

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	26	27	28	29	30	1	2
27	3	4	5	6	7	8	9
Year 28	10	11	12	13	14	15	16
29	17	18	19	20	21	22	23
30	24	25	26	27	28	29	30
31	31	1	2	3	4	5	6

2016 Jul Time 13 21 13

OK Cancel

Pressing “Ok” will set the date as selected.

### 8.1.4 System Idle

Toggles the system idle state to On/Off.

## 8.2 Network Settings

The Network settings can be set either automatically or manually by changing the “Configure IPv4” list box to static or DHCP. **Note:** *The MFS should be connected to a local network/computer using an Ethernet cable.*

### 8.2.1 Configure IPv4 – DHCP

- Select “DHCP” option under the Configure IPv4 drop-down list box.
- Make sure that the necessary network details are populated automatically in the text fields of IP Address/Subnet Mask.
- Click on the “Apply” button.

*Note: For the DHCP settings to work, the MFS/Shuttle PC should be connected to a local network by means of an Ethernet cable.*

### 8.2.2 Configure IPv4 – Static

- Select “Static” option under the Configure IPv4 drop-down list box.
- Make sure that the necessary network details are populated manually in the text fields of IP Address/Subnet Mask.
  - Default IP Address: 192.168.101.15
  - Default Subnet Mask: 255.255.255.0
- Click on the “Apply” button.



Note: The default IP address and subnet mask are set out of the box to the above mentioned values.

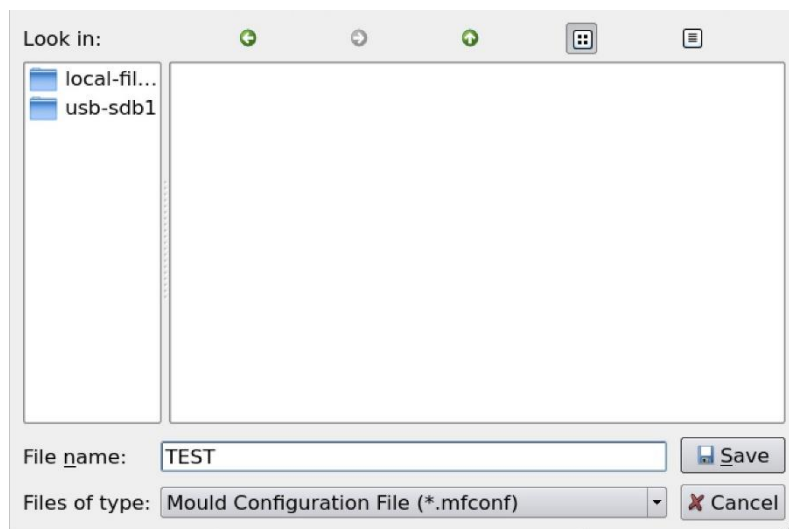
## 8.3 Files & Configuration

### 8.3.1 Mould Config

The Mould configurations can be saved / loaded using the Save/Load dialogs. A detailed description of saving / loading the *.mfconf* files is illustrated below:

#### 8.3.1.1 Save Mould Config

This dialog is accessible through the **Settings** Screen, by clicking “Save” under “Files & Configuration -> Mould Config”. Doing so will result in a dialog appearing as shown in the screenshot below:



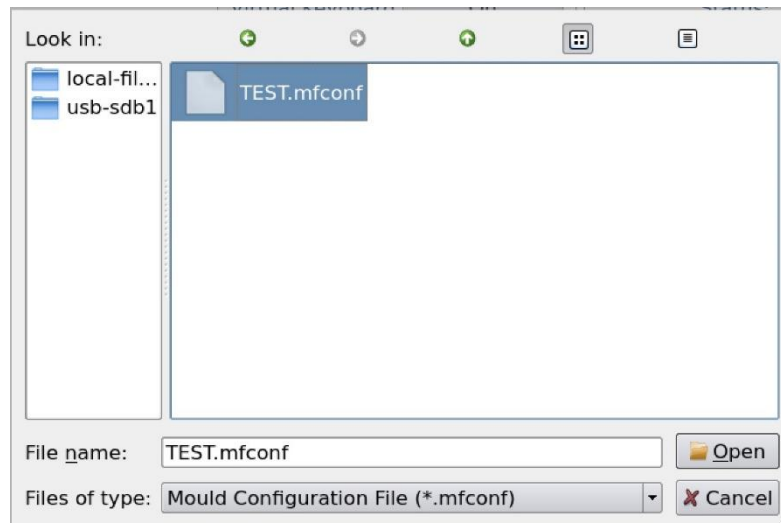
In the dialog, all attached USB pendrives will be shown with their name in the panel in the left part of the dialog. Furthermore, it is guaranteed that there will always be a folder named “local files” here. The “local files” folder represents local storage on the Mouldflo Computer.

All Manifold files are in *.mfconf* format. This is easily human readable, and can be opened in a text editor (notepad on windows), but we recommend to leave this to the Mouldflo Software.

Pressing “Save” will save the file in the currently selected directory.

### 8.3.1.2 Load Mould Config

This dialog is accessible through the **Settings** Screen, by clicking “**Load**” under “Files & Configuration -> Mould Config”. Doing so will result in a dialog appearing as shown in the screenshot below:

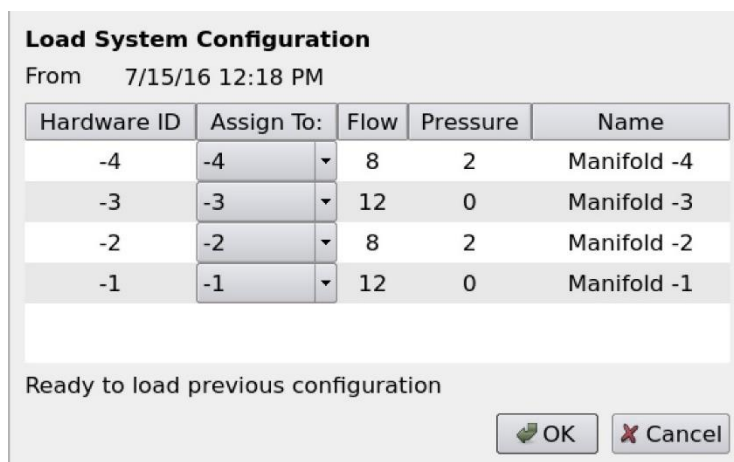


In the dialog, all attached USB pendrives are listed, together with their names in the panel on the left part of the dialog. Furthermore, it is guaranteed that there will always be a folder named “local files” here. The “local files” folder represents local storage on the Mouldflo Computer.

All Manifold files are in *.mfconf* format. This is easily human readable, and can be opened in a text editor (notepad on windows), but we recommend to leave this to the Mouldflo Software operators.

Pressing “Load” will load the file in the currently selected directory.

After the Mould data is loaded, a Mould mapping screen is displayed as below:



Assign the Hardware IDs to the appropriate IDs under the “Assign To:” drop down list box. The Manifolds are loaded based on the order specified in the “Assign To:” drop down list box.

## 8.4 Note on usage of dialogs

The dialogs that are displayed in the Mouldflo software have the following properties:

- Clicking anywhere outside of the dialogs makes the dialogs disappear.
- The file dialogs is modified to be touch friendly. A folder is opened with a single click, no double clicking is required.
- Furthermore, in the left panes of a file dialog, all USB pendrives will appear by name, as well as “local files” which is used for local storage on the Mouldflo Computer.

## 9. Customization

### 9.1 On-Screen Keyboard

The on-screen keyboard is designed to be easy to use. It is used throughout the entire Mouldflo Software instead of a physical keyboard. Please note that physical keyboards might not work alongside the on-screen keyboard.



It is possible to change between the normal version and the num-pad version by pressing “SWITCH”

The key feature of the onscreen keyboard is that it should appear whenever the user presses on textbox or any similar field that requires user input.

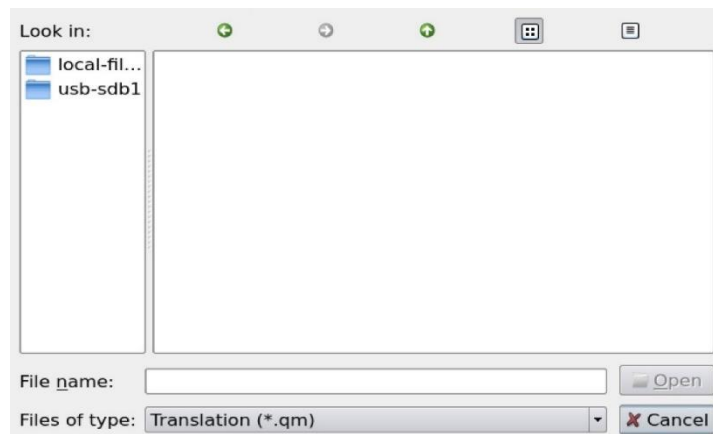
## 9.2 Language

### 9.2.1 Language

In order to set the desired language, go to “Settings -> System Settings” and select the desired language under the “Language” drop down list box. (The software must be restarted, in order for the language change to take effect)

### 9.2.2 Import Language

New language files can be imported into the Mouldflo software using the import language dialog. The import language dialog can be accessed by clicking the “Import” button under “Files & Configuration -> Language”. This dialog is used to import translated language files with an extension *.qm* to the Mouldflo software. The snapshot of the dialog is displayed below:



After selecting the appropriate *.qm* file, click on “Open”. Restart the Mouldflo software to view the newly

imported language file in the language drop-down list box.

## 10. Software Update

The Mouldflo software is updated by using a USB drive. The update process is illustrated below:

1. Create a folder with this exact name: **Mouldflo\_Upgrades**

(first letters must be upper case)

2. Copy the software update file (Mouldflo\_XXX.deb) to the newly created folder on the USB drive.
3. Safely remove the USB drive.
4. Insert the USB drive in the Mouldflo Computer and re-start the software by pressing on the restart button in the lower right corner of the Mouldflo Computer.
5. The software update process starts-up automatically if it detects the USB drive on the Mouldflo Computer. The computer will reboot a couple of times during the automatic update process.
6. When the update is completed, remove the USB drive from the Mouldflo Computer.  
Important! It is a good idea to delete the folder from the USB drive.

## 11. Troubleshooting

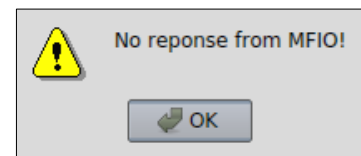
A troubleshooting guide for various scenarios is provided below. Please start troubleshooting by following this guide first, before contacting support.

### 11.1 No response from MFIO

This error occurs if the Mouldflo Computer is unable to communicate with the MFIO.

Possible causes:

- Faulty or disconnected USB cable: Ensure that the cable is installed correctly. Try another USB cable.
- The MFIO has lost power:  
Verify that one of the LED's on the MFIO is turned on.

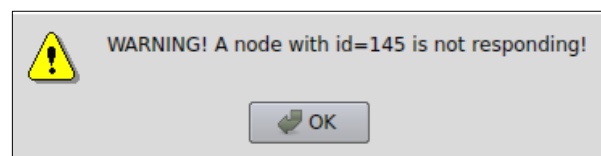


### 11.2 Manifold Connection Lost

This error occurs when the MFIO is unable to communicate with a Manifold.

Possible Causes:

- The cable connecting the Manifold on the MFIO is disconnected, or is not connected correctly. Check whether the cable is connected correctly.



### 11.3 Unidentified problem

To debug, please start out by checking the above list. If the Mouldflo software does not resume, we advise that you restart (exit) the Mouldflo software. Please change the Manifold connection to another slot on the MFIO if there is still no connection. Request for support if none of the above actions help.

### 11.4 Contact us

For further information you can contact us via email or telephone:

**Email:** [support@mouldflo.com](mailto:support@mouldflo.com)

**Tel:** +45 70203131

**Address:**

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Revision	Author	Date	Comments
2R	JP	08-07-14	Updated the manual with document identifier. Removed non-gui related information. Restructuring of the manual.
3D	JP	09-09-14	Added missing sections to the manual.
4	MR	17-05-16	Updated the manual with software changes of 2.2 & 2.3
5	SC	19-05-16	Wording and setup
6	MR	21-05-16	Incorporated the suggested changes