

OPERATING MANUAL

MicroFlow TOUCH/LOG

101-10051/101-171001001

Operating Manual

2018-07-09 EN

From Serial No. 9328.2294



Fremco A/S
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ORIGINAL



Best Warranty in the Business

We offer a unique 36-months warranty on all fiber blowing machines resulting in a great cost-benefit.



When purchasing a Fremco fiber blowing machine you automatically get our 12-months warranty. Hereafter, you claim your additional 24-months warranty within the first quarter obtaining the best cost-beneficial warranty in the business.

To maintain your 36-months warranty, you have to accommodate the given service and maintenance requirements for each machine as described in the operating manual.

Get the best factory warranty in the business today!



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Technical Specifications

These specifications cover MicroFlow TOUCH and MicroFlow LOG as well as the control unit and the adaptor plates belonging to it. The adaptor plates are replaceable and must fit the actual size of fiber cable and microduct to be used.

Manufacturer

Fremco A/S
Ellehammervej 14
9900 Frederikshavn
Denmark

Item No.	101-10051(Touch) / 101-171001001 (LOG)
Fiber cable diameter	0.8-6.5 mm
Microduct diameter	4-16 mm
Blowing speed	Up to 90 m/min. (295 ft/min.)
Maximum air pressure	16 bar (230Psi)
Maximum air temperature.....	40°C (104°F)
Recommended air pressure and flow ¹ :	8-16 bar (120-230 psi), 200-500 l/min. (7.1-17.7 cfm)
Power Supply	24V DC. Can be connected to 100-240V AC, 50/60 Hz with the included transformer. 100-240V AC power supply must be stable and at least 2A.
Weight.....	9.7 kg (21.4 lbs)
Length.....	250 mm (9.8")
Width.....	150 mm (5.9")
Height	220 mm (8.7")
Control unit weight.....	1.9 kg (4.2 lbs)
Control unit length	200 mm (7.9")
Control unit width.....	150 mm (5.9")
Control unit height	80 mm (3.1")
MicroFlow in carrying case, weight/dimension	23 kg (50.7 lbs) 600x400x350 mm (23.6"x15.7"x13.8")

¹ Cooled and dried compressed air

Safety Instructions

- Read and understand this operating manual before operating the MicroFlow. Follow all safety instructions. Failure to follow the instructions may lead to damage on the machine and mild to severe personal injury.
- All operators must have relevant technical training, or have undergone thorough training by an experienced operator.
- Always use protective eye wear.
- Always wear safety shoes.
- Never wear loose clothing.
- Make sure to disconnect the machine from the air compressor and the power supply, before any kind of adjustment and maintenance takes place.
- The air pressure should never exceed the recommendations from the suppliers of microducts and fiber. The pressure may never exceed machine maximum pressure: 16 bar, which is the maximum pressure for the MicroFlow blowing machine.



WARNING: Exceeding max pressure may lead to machine damage and mild to severe personal injury.

- Open lid: Do not operate the machine with an open lid due to risk of getting in contact with moving parts.



WARNING: Operation with an open lid may lead to personal injury.

- Protective covers: Do not remove the protective covers of the machine for daily use. Protective covers must only be removed by authorized personnel for service and maintenance, and only if power

and compressed air supply is disconnected. After all kind of service and maintenance, protective covers must be put back in place and secured properly with all screws before operating.



WARNING: Operation without protective covers may lead to machine damage and personal injury.

- Pressurised components must be undamaged and intended for use within the machine's pressure and temperature range. Daily visual inspection is necessary to avoid failure.



WARNING: Use of damaged pressurised components (e.g. hoses, pipes, ducts, connectors) may lead to machine damage and mild to severe personal injury. Daily visual inspection is necessary to avoid failure.

- Electronic components must be undamaged. Daily visual inspection is necessary to avoid damaged electronic components.



WARNING: Use of damaged electronic components (wiring, enclosures) may lead to personal injury.

- Exhaust of dust and particles: The operator must ensure that neither operator nor spectators are exposed to the danger of exhaust of dust and particles, and the operator must ensure that the duct is fastened correctly.



WARNING: Exhaust air can contain objects, dust and particles that may be ejected from duct and machine during the blowing process. This may lead to eye and personal injury. Always use protective eye wear.

- Ejection of pressurised components: The operator must ensure that duct and other pressurised components and utilities are fastened correctly.



WARNING: Insufficient fastening/connections of ducts or other pressurised components may lead to ejection of parts, which may lead to personal injury.

- Always place the machine on a stable foundation, to secure it from falling during operation.



WARNING: Loss of stability: If machine is not placed on stable foundation, machine can lose its stability and fall, causing damage to machine and mild to severe personal injury. Always use safety shoes.

- Make sure that the fiber and duct are placed correctly in the machine.
- Make sure you do not touch the fiber too close to the machine because you risk getting your fingers injured, and make sure the fiber does not make loops that might be dangerous to persons around the machine.
- Never wear loose clothing



WARNING: Loose clothing may become entangled in the machine.

- Use hearing protection, if the air compressor is placed nearby.
- The operator must make sure that no other persons are close to the machine and cable drums in a way that could be dangerous when the machine is started.
- It is always a clear advantage to be well prepared so that you can run the blowing without interruptions. Pausing in the middle of blowing creates a risk of being unable to start again.
- Make sure the working environment is clean and tidy to avoid injuries due to stumbling over fiber and equipment.

Intended/Unintended Use

The machine is intended for installation of fiber optic cables into ducts by blowing with compressed air and nothing else. Do not use the machine for other purposes.

Examples of unintended use may be:

- Exceeding max pressure may lead to machine damage and mild to severe personal injury.
- Use of other media than compressed atmospheric air for the blowing process can lead to machine damage or personal injury.
- Use of machine outside its specifications (eg. use for fibers or ducts larger/smaller than specified) may lead to a poor job performance or machine damage.
- Use of wrong size fiber/duct adaptor can lead to ducts under pressure being blown out of machine, which may cause personal injury and machine damage.



WARNING: Unintended use of machinery may lead to personal injury or machine failure and damage.

- Noise: necessary measures must be taken to reduce noise at the workplace to an acceptable level. The discharge of compressed air from the machine may cause noise level to increase. This can be reduced by using the correct gasket size. Wear on gaskets can also result in increased noise level. In addition to noise generated by the Microflow machine, consideration must also be given to additional process equipment (e.g. compressors). If machine is used correctly, the noise level should not exceed the allowed noise level, but if the noise level is above permitted limit value (EU Limit Value 80 db), hearing protection should be used.



WARNING: Noise above limit values may cause permanent damage to hearing.

- External cleaning: Cleaning of the machine should be done on a daily basis. Do not clean the machine while the machine is running.
- Internal cleaning, service and repair: Service and repair must only be done by qualified technicians, and only if power and compressed air supply is disconnected. Do not removed the protective covers of the machine for daily use. Protectives covers must only be removed by authorized personnel for service and maintenance. After all kind of service and maintenance protective covers must be put back in place and secured properly with all screws before operating.



WARNING: Operation without protective covers may lead to machine damage and personal injury.

- If an accident occurs, do as follows: Stop the accident by turning off power and compressed air supply. Find the necessary help.

Maintenance

The MicroFlow does not require much maintenance if the following recommendations are followed:

Compressed air must be clean and dry. Use air filter and water separator.

NB: Humid and polluted air may influence machine life and performance and may result in increased wear.

Clean the wheels on a regular basis, at least once a day when the machine is in use.

Make sure the sensor arms are clean and can move freely.



Check gaskets and rubber belts on wheels for wear and tear on a daily basis, and replace if necessary.

NB: Failure to maintain and clean the machine may affect machine reliability.

Machine service is required annually or every 350 km depending on what comes first.

NB: To maintain your 36-months warranty, you have to meet the given service requirements.

Identification

These instructions have been made to support the users of the fiber blowing machine MicroFlow TOUCH and MicroFlow LOG. The machine type can be identified by the type plate on the machine. The type plate provides information about serial number, year of production and name and address of the manufacturer.

It is recommended to read this instruction carefully and become familiar with the functionality and maintenance of the fiber blowing machine before use.

Application

The fiber blowing machines MicroFlow TOUCH and MicroFlow LOG are constructed for blowing fiber optic cables with a diameter of 0.8 to 6.5 mm into microducts with an outer diameter of 5-16 mm.

We do not recommend use for other applications.

Always use adaptor plates designed for the actual diameter of cable and duct.

It is very important to use the correct adaptor plates. If the adaptor plates do not fit the duct, dangerous situations may occur.

The machine comes in a carrying case. When the machine is not in use or during transportation, always store it in the carrying case.

Mounting and Preparations

Make sure to place the machine on a stable foundation and to fasten it to withstand the forces, which occur during use.

The adaptor plates in the machine must fit the actual size of the fiber cable and the microduct the cable is to be blown into.

The supply of fiber cable from a cable drum or similar must be set up in a way where the fiber cable is supplied to the machine evenly and with the lowest force possible.

The microduct that the cable is blown into, should be without sharp corners or bends. Before blowing it is recommended to blow a foam plug through the duct. This ensures that the fiber cable can get all the way through the duct without getting stuck.

Supply of Compressed Air and Electricity

It is very important that the quality and volume of compressed air for blowing is correct and meets specifications. If there is water in the compressed air or too low pressure and volume of compressed air, it will create insufficient results. The compressed air must be filtered, cooled and dried to avoid moisture and dirt in the microduct.

MicroFlow TOUCH and MicroFlow LOG uses 24V DC and can be connected to 100-240V AC, 50/60 Hz with the included transformer. The 100-240V AC power supply must be stable and at least 2A.

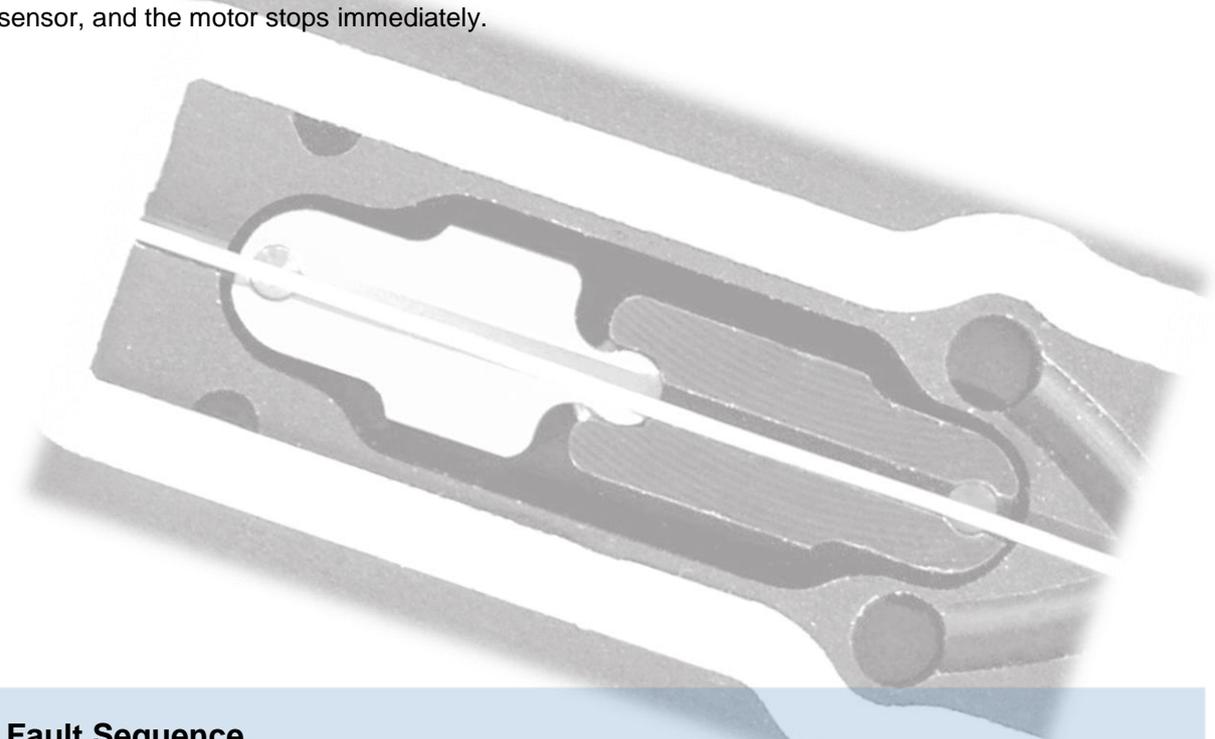
Fiber Protection Technology

MicroFlow TOUCH and MicroFlow LOG has a unique protection technology securing that there is no damage to the fiber cable. The protection technology stops the machine if the fiber cable meets an obstacle.

The stop occurs because the cable gets bent inside the fiber blowing machine as the fiber cable meets an obstacle. This is registered by a sensor, and the motor stops immediately.

The machine will also stop automatically if the motor exceeds the pre-set maximum torque level (see section about Torque Off-Set for the minimum effect needed depending on the speed).

In both cases of protection the machine stops immediately so the fiber cable does not get damaged.



Fault Sequence

When the protection technology is activated, the machine starts the following fault sequence:

- The motor stops immediately.
- Short break.
- The machine pulls the fiber slightly backwards until the fiber is straight in the blowing junction block.
- The motor starts and accelerates to the preset maximum speed.
- If the protection technology is activated 3 times, the machine will come to a full stop, and an error message is shown in the display.

MicroFlow Touch Controller

If you have the MicroFlow Touch Controller as displayed below the following instructions apply.



If you have the MicroFlow Log Controller please proceed to page 17 "MicroFlow Log Controller"

Display Symbols

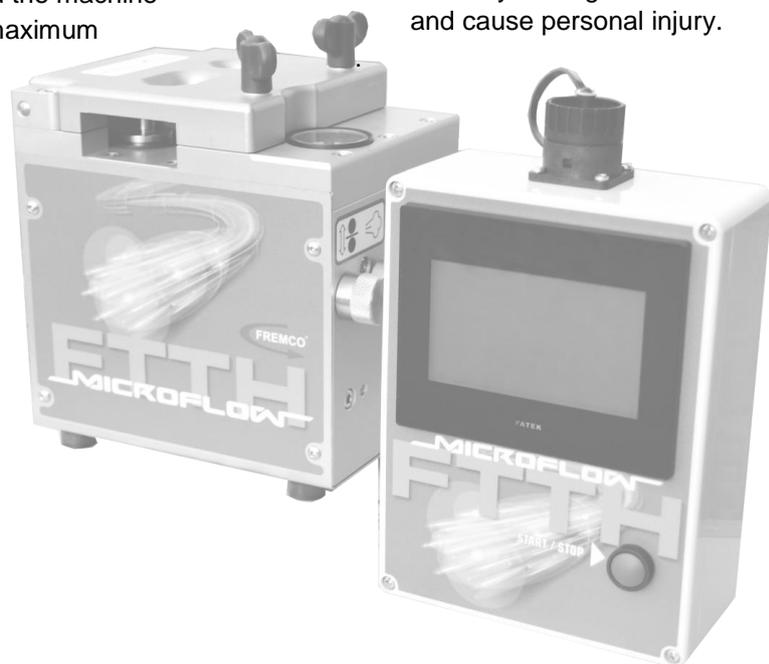
	<i>Start</i>	Indicates machine is running		<i>Book-service</i>	Info: it is time to book an authorized service check
	<i>Forward</i>	Motor direction, press to toggle between forward and reverse		<i>Set</i>	Press to go to setup page
	<i>Reverse</i>	Motor direction, press to toggle between forward and reverse		<i>Setup</i>	Press to set stop length. Not active if value is "0"
	<i>Speedometer</i>	Motor speed		<i>Confirm</i>	Press to confirm info and return to main page
	<i>Torque</i>	Motor torque		<i>Torque overload</i>	Info when machine is stopped by the torque overload system
	<i>Meters</i>	Actual values for length, speed and torque		<i>Fiber protection</i>	Info when machine is stopped by the fiber protection system
	<i>Pre-set</i>	Pre-set values for length, speed and torque		<i>Stop</i>	Info when machine is stopped, e.g. fiber or torque stop
	<i>Ramps</i>	Motor acceleration/ deceleration ramp functions		<i>Reset</i>	Resets meter counter
	<i>Home</i>	Press to return to main window		<i>Login</i>	Log in to a service info page (login is required, and only for service personnel)
	<i>Maintenance</i>	Info: it is time for maintenance		<i>Close page</i>	Press close service info and return to main window

Running the Fiber Blowing Machine

- Prepare the fiber cable and place it inside the fiber blowing machine. Adjust the drive wheels until they are tight around the fiber cable
- Place the microduct, which the fiber cable is to be blown into, in the blowing junction block
- Close the lid and tighten the screws on top
- On the TOUCH screen:
 - Set the desired speed (m/min)
 - Set the torque level to the desired maximum
 - OPTIONAL: The pre-set meter counter can be used to stop the machine after a given distance (set to "0" and the machine will continue indefinitely)
- Press the ON/OFF button, and the machine will accelerate to the pre-set maximum speed
- After 10-20 meters, turn on air. Gradually increase air supply as the blowing is proceeding.
- The blowing is now running automatically
- If the machine stops unintentionally, there are two adjustable parameters:
 - increase air supply
 - or reduce speed if there is no more air pressure
- Stop the machine, either manually or when reaching the pre-set distance
- Turn off air
- The lid can be opened when the air pressure gauge is at "0" bar/psi

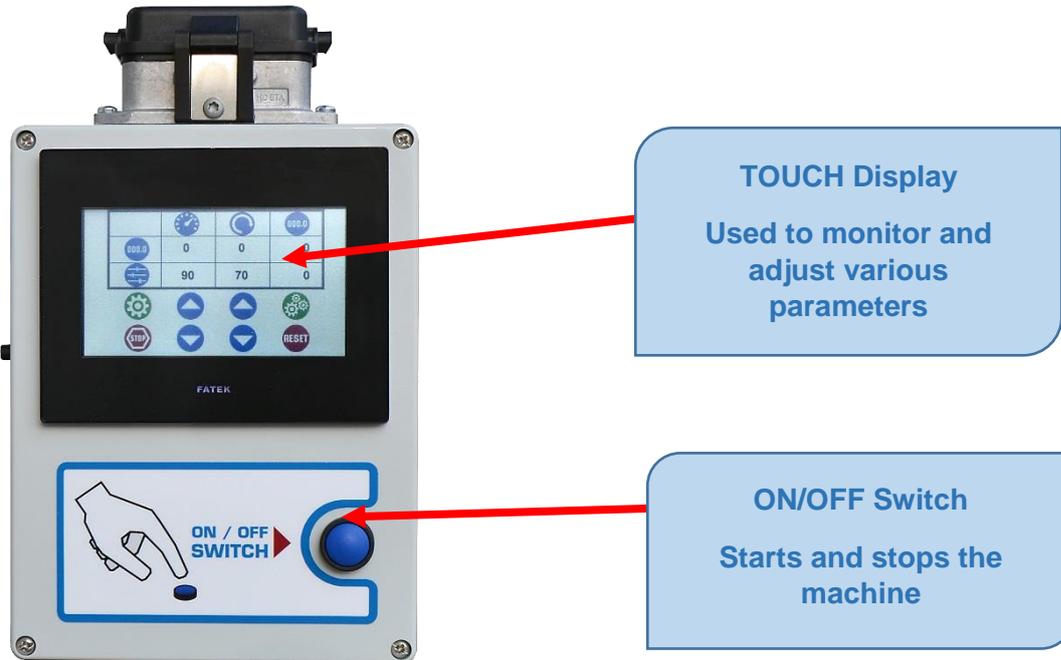


WARNING: Do not open the machine while under pressure, as this may damage the machine and cause personal injury.



Use of “Touch” Control Unit

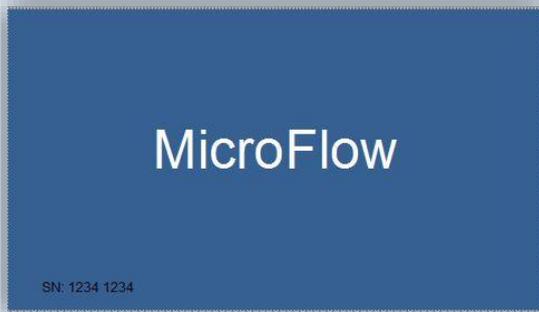
The control unit is used for operating the fiber blowing machine as well as adjusting the different parameters, for instance speed and torque level.



Adjustable Parameters

ADJUST Torque Level 	To avoid overload of the fiber cable, it is possible to adjust the maximum torque level. If this maximum torque level is exceeded during blowing, the protection technology stops the machine so that the fiber cable does not get damaged. The torque level can be adjusted from 10 to 100% of the motor's maximum effect.
ADJUST Counter 	Here you can choose a distance that the cable should be blown. When the pre-set distance has been reached, the machine will stop automatically. If the counter is set at “0”, the machine will continue indefinitely.
ADJUST Speed 	Here the speed of the machine can be adjusted in meter per minute.
ADJUST Acceleration Ramp 	Adjusts the acceleration when the machine starts. It can be adjusted between 5 and 100, with 100 being the fastest acceleration. Recommend value: 5
ADJUST Deceleration Ramp 	Adjusts the deceleration when the machine stops. It can be adjusted between 5 and 100, with 100 being the fastest deceleration. Recommend value: 100

TOUCH Display Screen Overview



Startup/Pause Window

Shown during startup, or when machine has been inactive for some time.

Tab to activate main screen.

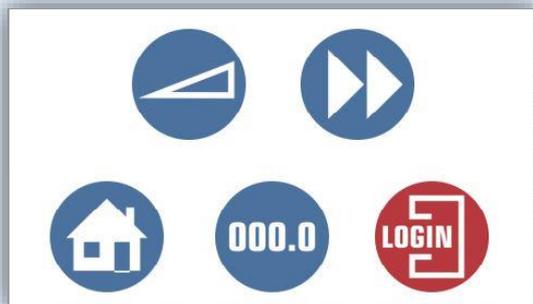


Main Window

This window is shown during machine operation.

On this screen it is possible to:

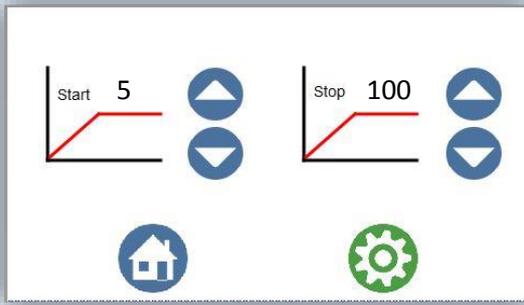
- Set and reset stop length, by pressing to set length, and to reset (set to 0 disables the length stop function)
- Increase/decrease both speed and torque, by pressing
- Access setup window,
- See machine status, running or stopped
- Actual speed, torque and length
- Preset speed, torque and length



Setup Window

From this window it is possible to:

- Access motor ramp window
- Log in to a service info page (login is required, and only for service personnel)
- Toggle motor direction
- Press to go back to main window

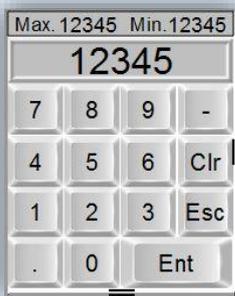


Motor Ramp Setup

In this window the acceleration/deceleration ramps during motor start/stop, can be increased/decreased by pressing .

Press to go back to setup window

Press to go back to main window



Keypad

For entering length stop



Fiber Protection Warning

Popup window when fiber protection monitor is activated.

Press to confirm and go to main window



Motor Torque Warning

Popup window when motor torque exceeds torque setting.

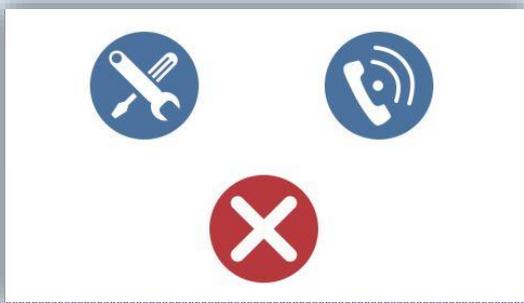
Press to confirm and go to main window



Fiber Protection and Motor Torque Warning

Popup window when a combination of fiber protection and motor torque occur during automatic restart cycle.

Press  to confirm and go to main window



Service Reminder

Info window shows during startup when it is time for a service check of the machine.

Press  to confirm and go to main window

MicroFlow Log Controller

If you have the MicroFlow Log Controller as displayed below the following instructions apply.



If you have the MicroFlow Touch Controller please proceed to page 10 “MicroFlow Touch Controller”

Display Symbols

	<i>Get pdf</i>	Press to get report as pdf		<i>Submit</i>	Submit content of page
	<i>Home</i>	Press to return to the select job type screen		<i>Setup</i>	Press to set stop length. Not active if value is "0"
	<i>Logout</i>	Log out of MicroFlow LOG		<i>Complete</i>	Press to confirm manual job complete return select job type screen
	<i>Select Wifi</i>	Go to controller wifi selection setup		<i>Download Report</i>	Press to download report and confirm job complete on a report job
	<i>Delete user</i>	Delete current user from controller		<i>Normal</i>	Indicates that the machine runs forward Press to reverse (only available in manual mode)
	<i>Update controller</i>	Update software on controller		<i>Reverse</i>	Indicates that the machine pulls the fiber out of the duct. Press to forward (only available in manual mode)
	<i>Speedometer</i>	Motor speed		<i>Torque overload</i>	Info when job has been interrupted by a possible torque issue
	<i>Torque</i>	Motor torque		<i>Fiber protection</i>	Info when job has been interrupted by a possible fiber protection issue
	<i>Meters</i>	Actual values for length, speed and torque		<i>Torque overload</i>	Info when machine is stopped by the torque overload system
	<i>Pre-set</i>	Pre-set values for length, speed and torque		<i>Fiber protection</i>	Info when machine is stopped by the fiber protection system
	<i>Pressure</i>	Air pressure		<i>Stop</i>	Info when machine is stopped, e.g. fiber or torque stop
	<i>Ramps</i>	Motor acceleration ramp		<i>Shortcut to reports folder</i>	Press to gain access to pdf reports already generated
	<i>Refresh</i>	Refresh page		<i>Shortcut to MicroFlow LOG</i>	Press to access MicroFlow LOG

Running the Fiber Blowing Machine

- Turn on the controller by switching power button to 1. (located at the back, in top left corner of the controller)



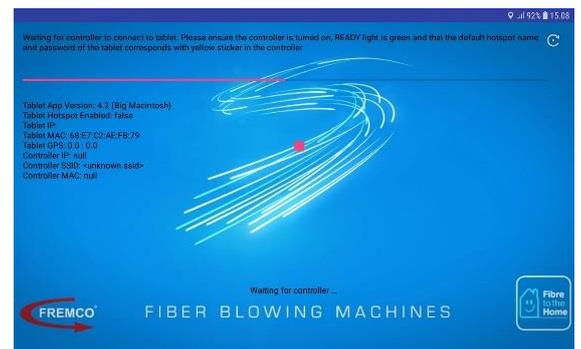
- Prepare the fiber cable and place it inside the fiber blowing machine. Adjust the drive wheels until they are tight around the fiber cable
- Place the microduct, which the fiber cable is to be blown into, in the blowing junction block
- Close the lid and tighten the screws on top
 - On the Controller:
 - Wait for green light in "READY" and make sure that stop button is not pressed



- OPTIONAL: Turn on the tablet in top left corner and press the Fremco Microflow LOG shortcut on the tablet start screen.



- Wait for controller to connect



- Login with username and password



- Choose mode



- If report mode has been selected:
 - Select report type



- Fill in form values
- "Press continue"



- Set the desired start speed (m/min)
- Set the torque level to the desired maximum
- The pre-set meter counter can be used to stop the machine after a given distance (set to "0" and the machine will continue indefinitely)
- Press submit button



- Press the Start/stop button on the physical controller, and the machine will accelerate to the pre-set maximum speed



- After 10-20 meters, turn on air. Gradually increase air supply as the blowing is proceeding.
- The blowing is now running automatically
- If the machine stops unintentionally, there are two adjustable parameters:
 - increase air supply
 - or reduce speed if there is no more air pressure
- Stop the machine, either manually or when reaching the pre-set distance
- Turn off air
- The lid can be opened when the air pressure gauge is at "0" bar/psi



WARNING: Do not open the machine while under pressure, as this may damage the machine and cause personal injury.

Use of "LOG" Control Unit

The control unit is used for operating the fiber blowing machine as well as adjusting the different parameters, for instance speed and torque level.

The control unit is an embedded controller build into the casing. A dedicated Samsung tablet is as standard included that is used for report input as well as a display for jobs and reports.

Please note: That only the control unit is required for controlling the Microflow, meaning a simple job can be done without even turning on the tablet. The tablet is only needed for pre-set of job parameters, report parameters, feedback from the machine, and for report jobs.

Please note: If the operator want to use the tablet for sending the reports via email or put them to a shared folder like dropbox or google drive. The tablet must be setup with the appropriate accounts.



Adjustable Parameters

<p>ADJUST Torque Level</p> 	<p>To avoid overload of the fiber cable, it is possible to adjust the maximum torque level. If this maximum torque level is exceeded during blowing, the protection technology stops the machine so that the fiber cable does not get damaged. The torque level can be adjusted from 10 to 100% of the motor's maximum effect.</p> <p>Can be adjusted from the tablet initially and from the controller during operation.</p>
<p>ADJUST Counter</p> 	<p>Here you can choose a distance that the cable should be blown. When the pre-set distance has been reached, the machine will stop automatically. If the counter is set at "0", the machine will continue indefinitely. Can be adjusted from the tablet initially as well as during operation.</p>
<p>ADJUST Speed</p> 	<p>Here the speed of the machine can be adjusted in meter per minute. Can be adjusted from the tablet initially and from the controller during operation.</p>
<p>ADJUST Acceleration Ramp</p> 	<p>Adjusts the acceleration when the machine starts. It can be adjusted between 0.5 and 3 sec, recommended value is 1 sec</p> <p>Can be adjusted from the tablet initially.</p>

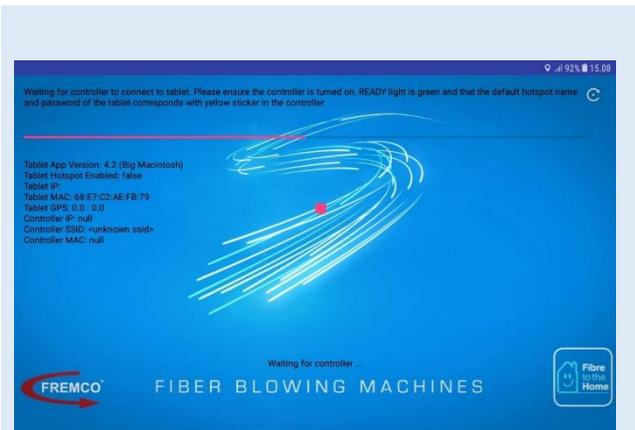
LOG Display Screen Overview



Start screen

As soon as the controller is turned up, the tablet will boot into the start screen where one can access the MicroFlow log as well as the report folder.

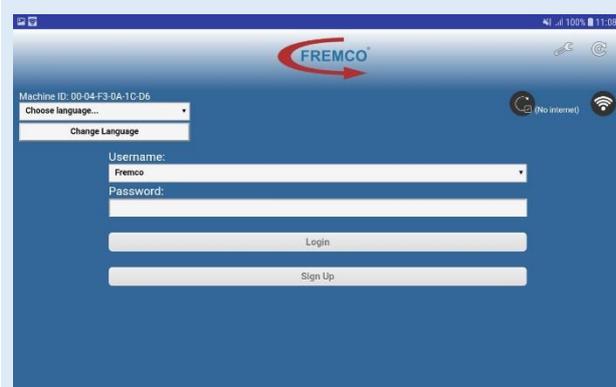
Please note: If the tablet does not start press the tablet power button on the top left edge on the tablet.



Connection Screen

This screen is shown when the controller and the tablet is not yet connected. This should only last for a couple of minutes, if it stays for longer, please:

- ensure that the controller is turned on and there is green light in ready
- Verify that the hotspot name on the tablet corresponds with the name on the yellow label in the controller (press home button -> swipe up -> press settings -> connections -> mobile hotspot and tethering -> mobile hotspot : here verify the hotspot name and passwords are correct.)



Login Screen

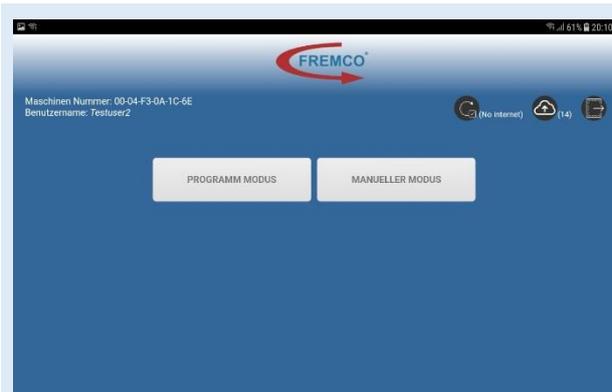
Either login with an existing user or create a new user.

Please note: If the page for some reason is not displayed properly, it can be refreshed by the refresh button at top right on the display with a finger



Create User

A new user can be created by filling out the new user form and press submit, the user need to agree to Fremco GDPR statement.



Select Job Type Screen

To start a job without reporting, choose manual. To start a report job, press program.



Job Report Form Screen

(Only in report/program mode)

Fill in job report and press submit, most parameters will be auto filled from latest job.



Job Pre-set Screen

This window is shown prior to job execution. On this screen it is possible to:

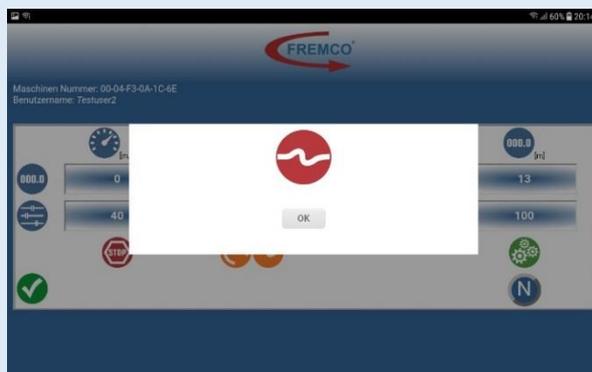
-  Set start speed
-  Set start torque
-  Set start ramp time
-  Set number of meter to run, 0 means infinite
-  When set press to get to job screen



Job Running Screen

From this screen it is possible to:

- Follow the job in real time
-  Change direction
-  End job (only manual mode)
-  End job and download report (only report mode)
-  Change pre-set meters
- **Please note:** That the actual start, stop and parameter changes are handled on the keypad of the controller, not the tablet



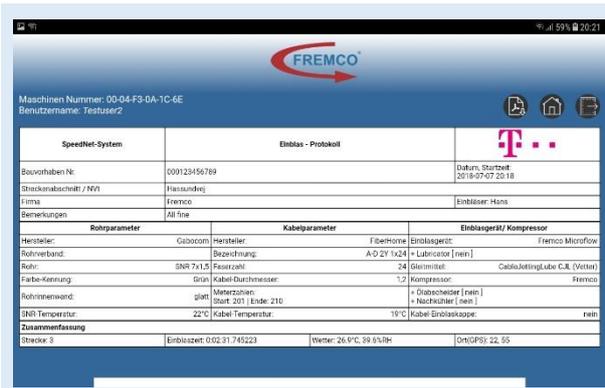
Machine Stopped due to Error

To restart press ok on the screen and start the job again by pressing start at the keypad of the controller.



Job finished Form

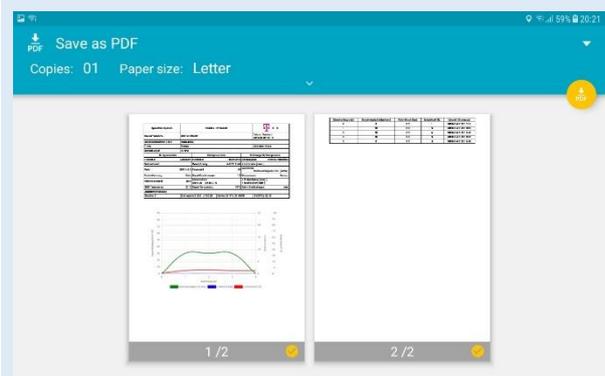
In report/program mode the end meter indicator on the fiber as well as a note related to how the job went is put in by the user. If the controller or the tablet does not have GPS signal these coordinates have to be put in manually.



Show Report Screen

Here the report can be inspected before it can be converted to pdf.

-  Download report as pdf
-  Go to select new job page
-  Logout



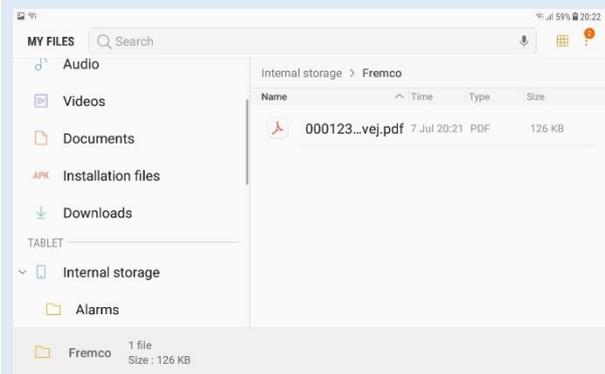
Download PDF and Send PDF

The pdf can be downloaded to the tablet by pressing the yellow button.

- Save it to internal storage -> Fremco folder



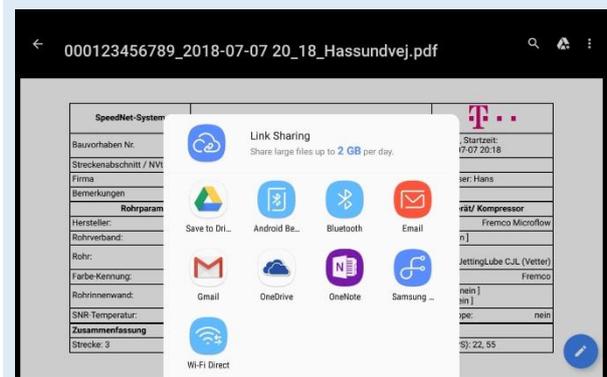
- Go to home screen by pressing the middle black physical button on the tablet
-  Pres Fremco on the home screen



- Open the report



- Press the triple button icon in top right corner and choose send file



- Send the file by using your favourite email client,
Please note that an email address has to have been setup on the tablet prior to this step.
If the tablet is online the report is sent immediately or else it will be sent next time the tablet is online

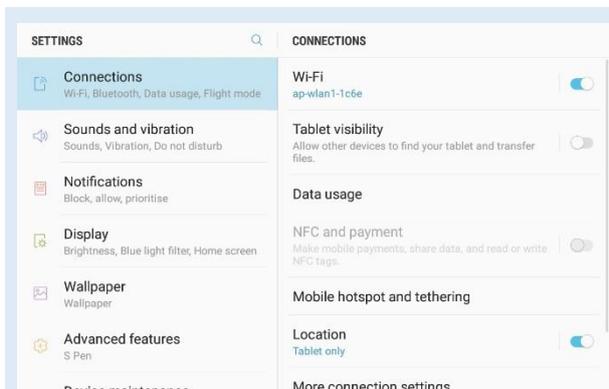
Configuration and update of Tablet and Controller

A Samsung Tablet is included in the controller and is setup from factory to function with the Controller in normal mode: The tablet setup a Hotspot and the controller connects to this, in offline mode, the tablet connect to the controllers AP instead.

Normally this is handled automatically by the Fremco App, but if this for some reason does not work, one can setup the controller to bypass the app, and run in the normal chrome browser (or on another android device).

To get the most out of the controller, the end user must setup the tablet and controller for their specific needs and environment.

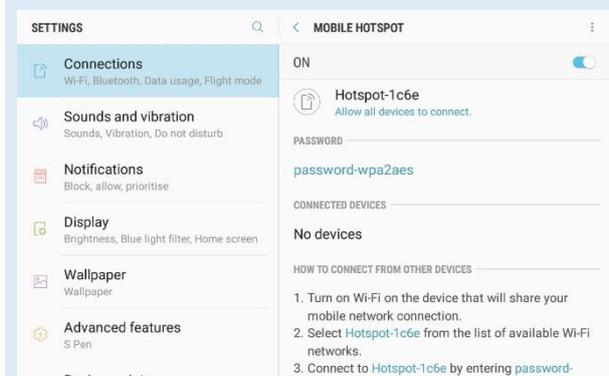
The tablet uses the Android operating system. An arbitrary Android devices, such as a modern smart phone or tablet, should be able to function as well.



Setup Wi-Fi on Tablet

To setup a connection to the controller (factory default).

- SSID / Password of controller, the specific values can be found on the yellow label on the control unit under the tablet.
- At office, set SSID / Password of an access point with internet connection where the controller will be when not in use.



Normal Mode

In normal mode, the controller connects to the tablet.

Enable hotspot on the tablet.

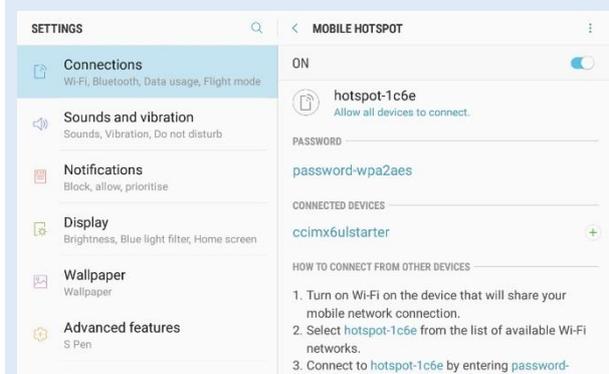
Please note: some android devices will only allow hotspot mode when there is a sim-card in the device.

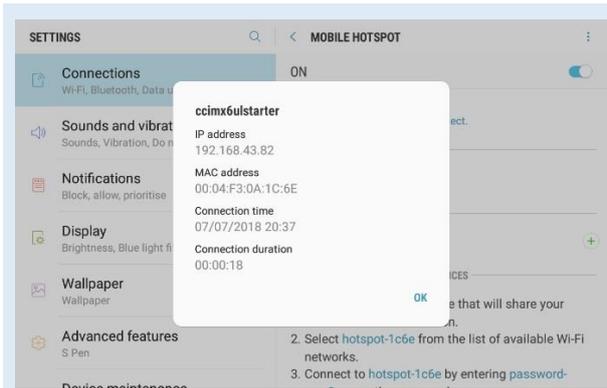
Ensure controller is on and ready. set:

- Hotspot SSID = "hotspot-XXXX" where XXXX is the 4 last digits of the controllers mac address.
- Hotspot Password = "password-wpa2aes"

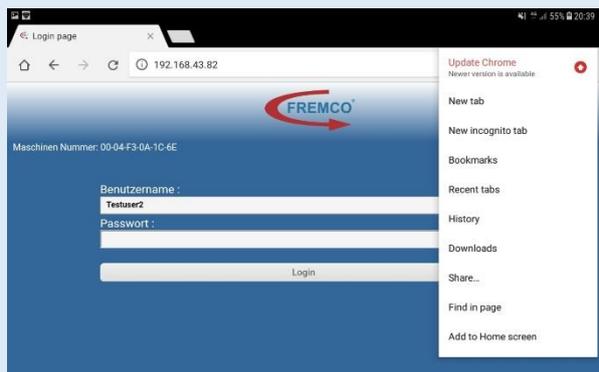
Find the specifics on the yellow label on the controller under the tablet.

Please note: that the MicroFlow Log app will always use normal mode, but it will not set the hotspot SSID and password, if these for some reason has been changed on the tablet, you need to set back to the values of the yellow label on the controller.

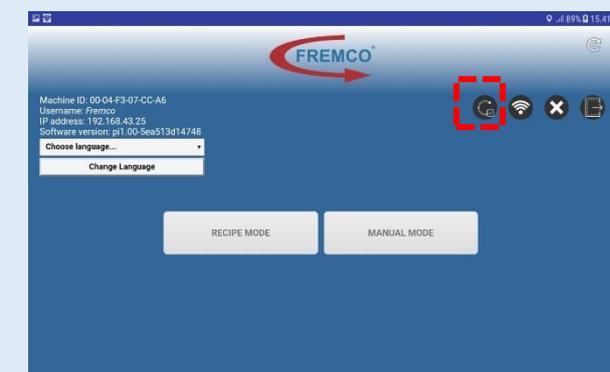




- Wait until **ccimx6ulstarter** connects
- Press **ccimx6ulstarter** under connected devices
- Note the ip-address for ccimx6ulstarter



- Open Chrome browser and enter the ip-address
- When page has loaded click button on top right site of browser and select add to home screen
- Write name e.g. "MicroFlow Hotspot"
- A new shortcut is now available at the home screen that can be used in hotspot mode



Software update of controller

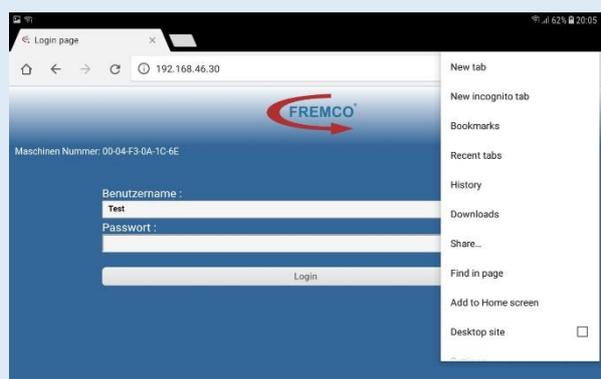
If there is a number greater than 0 besides the update button, a new controller software is available.



WARNING: Do never turn off the controller during a software update, make sure to use a stable power supply and a sim-card in the tablet with good internet connection.

- The update will use approx. 50 MB data, please insert a with mobile data enabled Sim card into the tablet
- Press the update icon in the top right corner when user is logged in to the controller
- Wait for the update to finish, this normally takes no more than 10 minutes.
- If the system has not rebooted within 1 hour, the system can be restarted manually by using the power button.
- Restart controller and tablet and verify that the Software version number has incremented.





Restore MicroFlow shortcut

In normal mode, with controller on, Tablet connected to the controller AP and Ready light on:

- Open Chrome browser and enter the ip-address : <http://192.168.46.30/>
- When page has loaded click button on top right site of browser and select add to home screen
- Write name "Microflow"

A new shortcut is now available at the home screen that can be used in normal mode

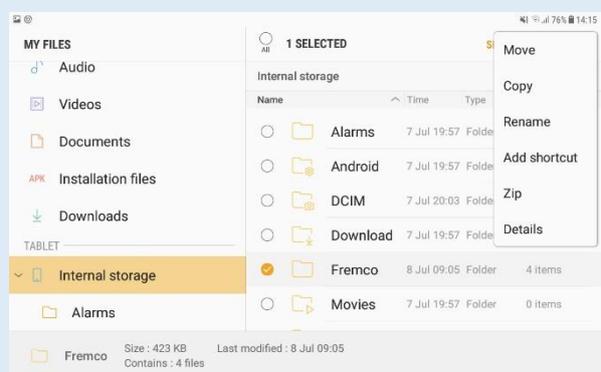


Restore MicroFlow Fremco folder Shortcut

- Go to home screen on tablet by pressing middle physical button
- Swipe up to go to apps
- Select "Samsung" folder



- Select "My Files"



- Go to internal storage
- Press and hold Fremco folder
- Press icon with three dots in top right corner of the tablet
- Choose "Add shortcut"
- Select "Home screen"
- Go to home screen on tablet by pressing middle physical button

Reset tablet to factory default

Please note: Only do this at a location with internet enabled WiFi. The tablet will fetch its Fremco specific setup online.



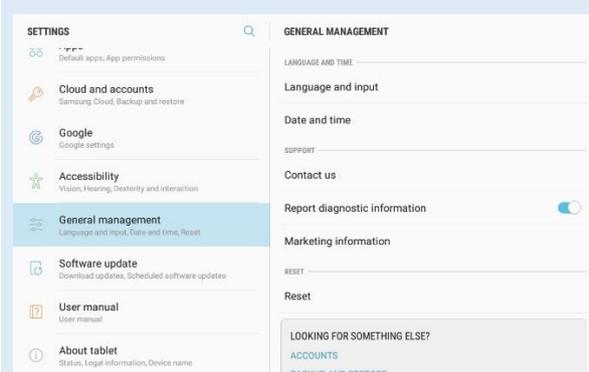
WARNING: All data on the tablet will be lost



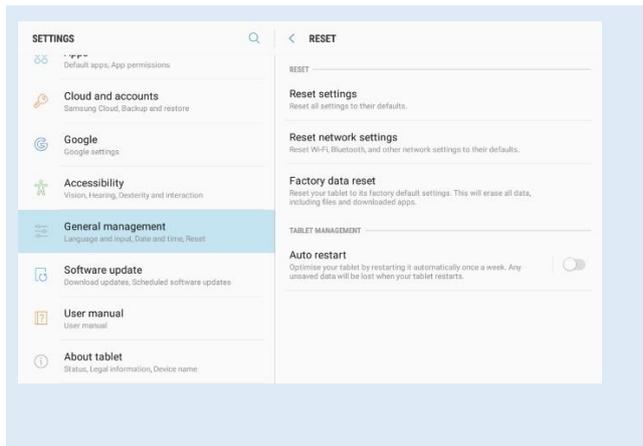
Go to home screen on tablet by pressing the home button



Swipe up, select settings



Choose "General Management" -> select Reset

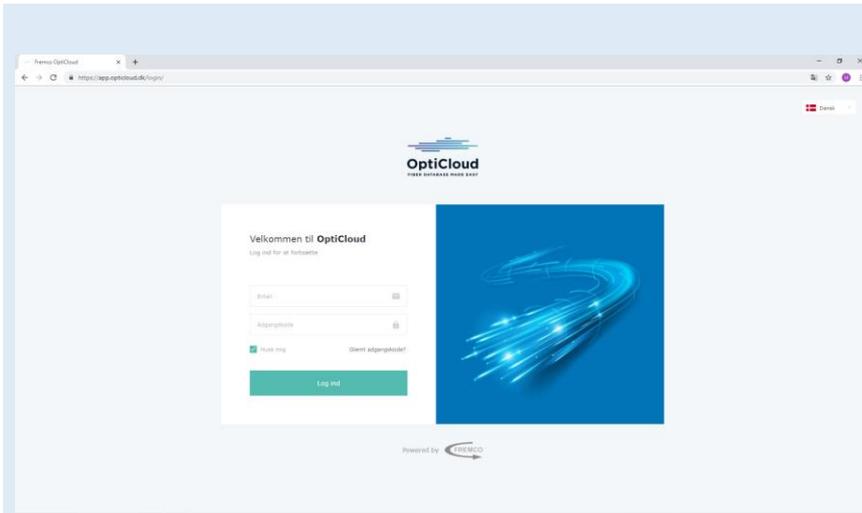


Select "Factory data reset" and follow instructions

OptiCloud – online fiber database

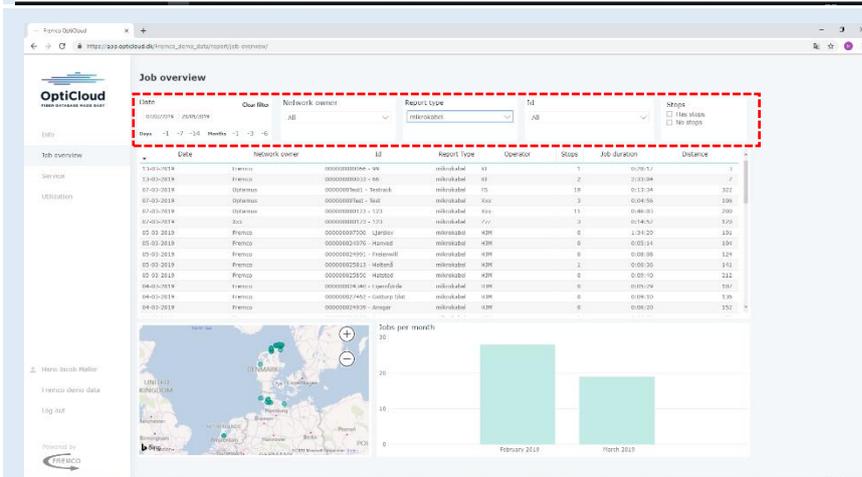
The MicroFlow Log stores a safe copy of all job reports in a database that can only be accessed by the owner of the machine. To access the data you need a login to the portal, you can retrieve a free login account to your data by writing an email to support@fremco.dk with:

- A picture of the yellow label in the controller
- An user-account email address



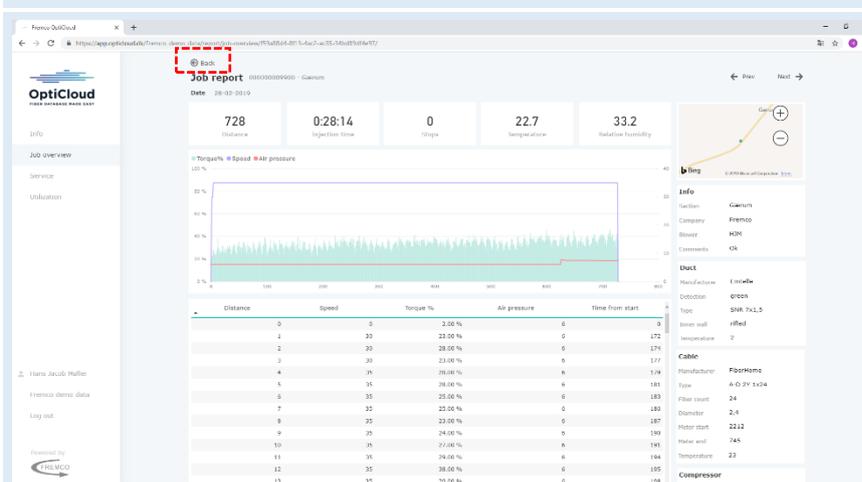
Login Screen

- Go to <http://app.opticloud.dk>
- Login with email and password



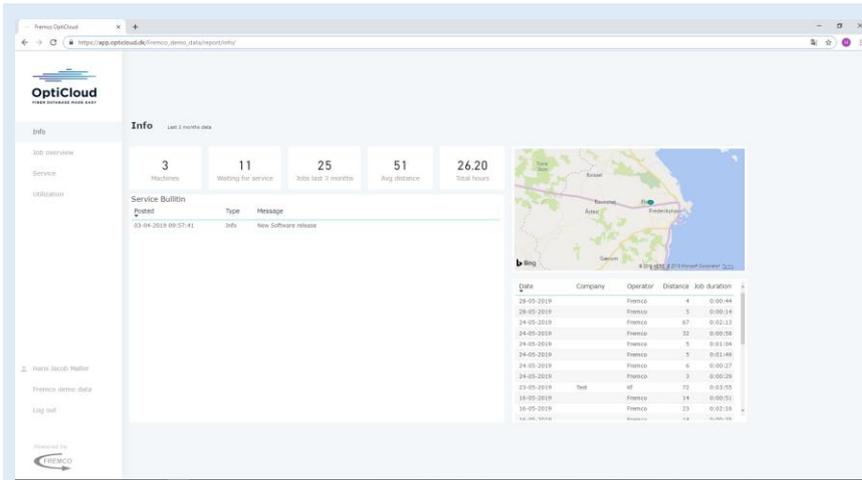
Job Overview

- Job overview gives a fast overview of all jobs
- To filter the jobs, use the options in the top of the screen
- Click on a single job in the list to go to detailed report report of that job



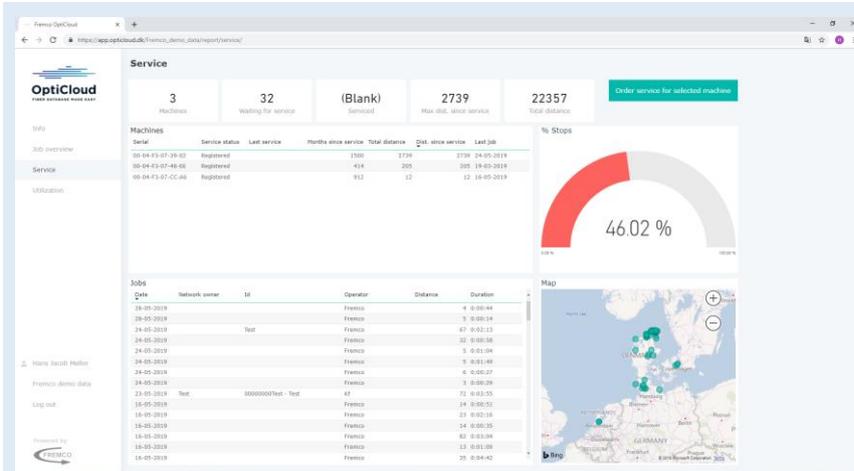
Job Report

- Job report gives a full report of a job
- **Please note:** Dependent on the report type used on the controller, some information might not be available. i.e. when using simple report the duct temperature will not be present
- Go back, by pressing the back button in the top left corner



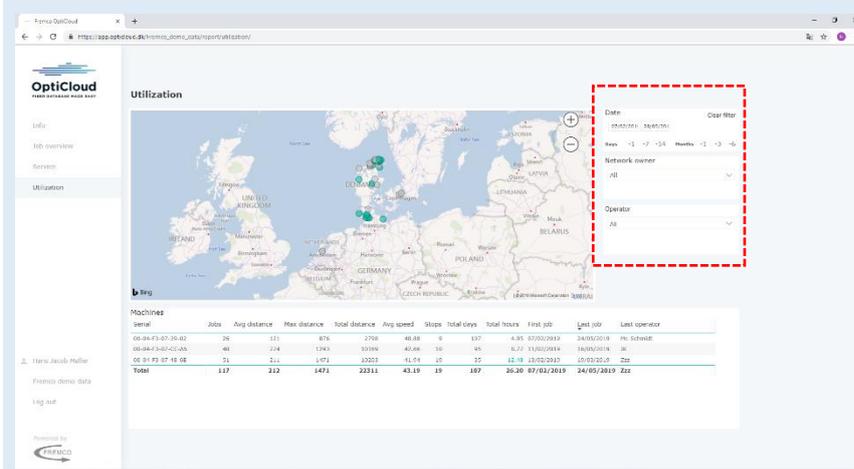
Info

- Give an status information of the last 3 months
- The service bulletin contains important information from Fremco related to OptiCloud and Microflow Log



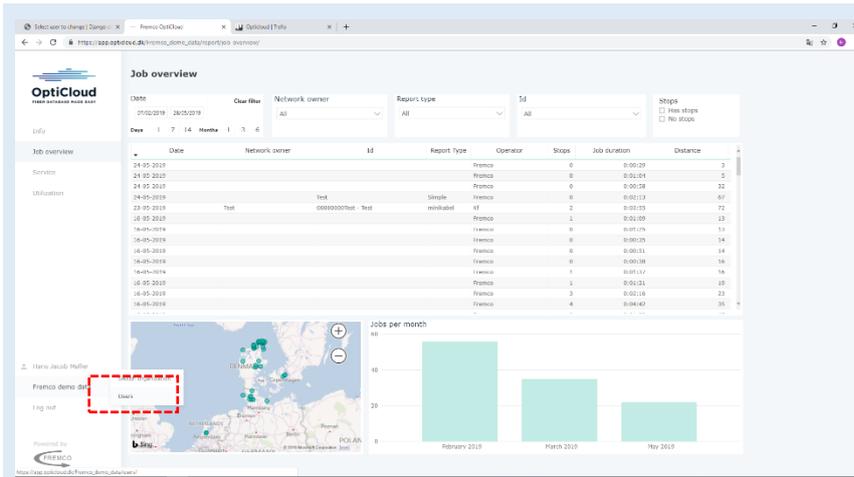
Service

- Gives an overview of machines service status
- %stops indicates how many jobs had a stop during the operation
- You can do data drill down, by selecting a single machine from the list



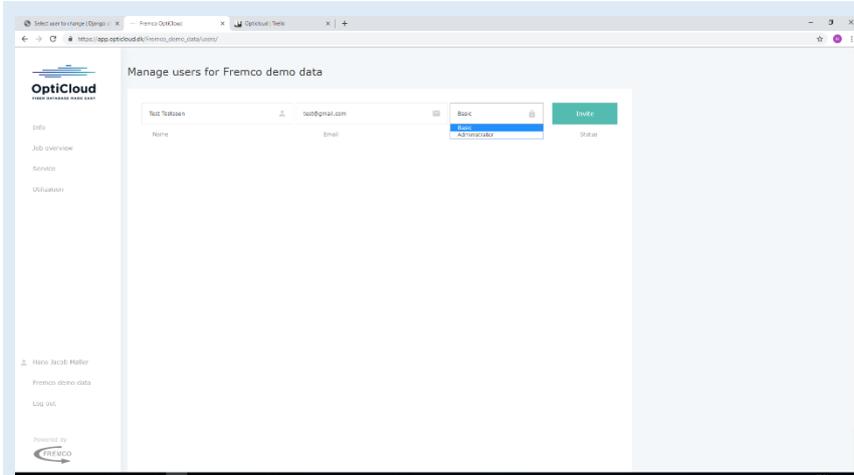
Utilization

- This screen illustrates where and how often the machine fleet has been utilized.
- In the map each machine has its own colour so it is possible to identify the area of operation for each machine
- Data filtering can be done in the menu to the right
- Data drilldown can be done by selecting a machine in the list below the map



Add users

- The first user will be created as administrator, this user can add other users
- In the left menu, hover over group name and click "Users"



- Fill in name and valid email
- Select if the user is Administrator, this user will be able to add other users, or Basis user, only able to view data
- Click invite
- The user will receive an email with an link to finish the subscription

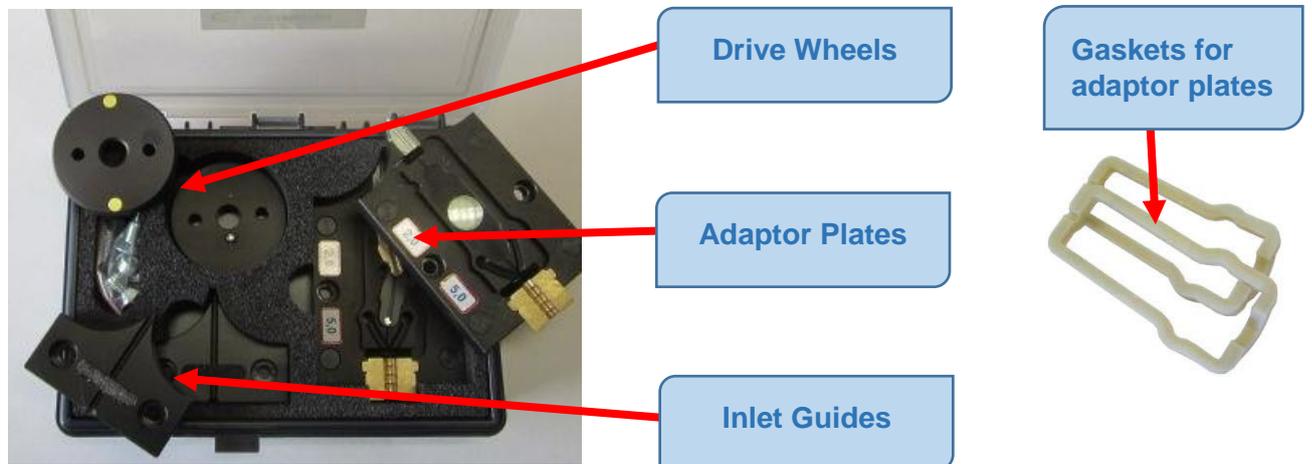
Torque Off-Set

The minimum power needed to run the machine varies with the running speed of the machine. For instance, the torque off-set at 70 m/min. is minimum 20.

Speed m/min 	Torque Off-Set 
10	5
20	5
30	10
40	10
50	15
60	15
70	20
80	20
90	25

Adaptor Plates

It is important that the adaptor plates fit the actual size of the fiber cable and the microduct. Below is an overview of the different adaptor plate components for MicroFlow.



There are many different sizes of adaptor plates, suitable for many different combinations of fiber and duct.

EC Declaration of Conformity



Manufacturer:

Fremco A/S
Ellehammervej 14
DK-9900 Frederikshavn
Denmark

We hereby declare that

101-10051 MicroFlow TOUCH/101-171001001 MicroFlow LOG for microfiber cables 0.8-6.5 mm

from Serial No. 9328.2294

Is manufactured in conformity with

EC Directives:

2006/42/EC – the Machinery Directive

The directive has the dual aim of harmonising the health and safety requirements applicable to machinery on the basis of a high level of protection of health and safety, while ensuring the free circulation of machinery on the EU market.

2014/30/EU - Electromagnetic Compatibility (EMC) Directive

The directive ensures that electrical and electronic equipment does not generate, or is not affected by, electromagnetic disturbance.

2014/35/EU – The Low Voltage Directive

The directive ensures that electrical equipment within certain voltage limits provides a high level of protection for European citizens, and benefits fully from the Single Market

International standards:

DS/EN ISO 12100:2011- Safety of machinery

The standard specifies basic terminology, principles and a methodology for achieving safety in the design of machinery. It specifies principles of risk assessment and risk reduction to help designers in achieving this objective

European standards:

DS/EN 4414:2010 - Pneumatic fluid power

ISO 4414:2010 deals with all significant hazards associated with pneumatic fluid power systems and specifies principles to apply in order to avoid those hazards when the systems are put to their intended use.

Technical file responsible:

Hans Jacob Møller
Research & Development Manager
Ellehammervej 14, DK-9900 Frederikshavn

Attested by:

A handwritten signature in blue ink that reads "Kim Lindblad Carlsen".

Kim Lindblad Carlsen
Managing Director

Frederikshavn, 10.07.2018