FinnSonic

V031A Versa Genius Automatic Cleaning Line

Versa Genius 50/IV HD VD TD35

S/N: 6180007

FI Käyttö- ja turvaohjeet
SV Bruks- och skyddsanvisningar
EN Operating and safety instructions
DE Bedienungs- und Sicherheitsanleitung
NL Bedienings- en veiligheidsvoorschriften
FR Consignes de securite et instructions de mise en service
IT Istruzioni d'uso e di sicurezza
RU Инструкция по эксплуатации и технике
EE Kasutus- ja ohutusjuhend

FinnSonic

FinnSonic

Manufacturer
FinnSonic Oy
FIN-15170 Lahti
www.finnsonic.com
FINLAND

CE

Model	Versa Genius 50/IV HD VD TD35		
Code	V031A		
Serial No.	6180007		
El. dwg	618000700		
Volts, Freq	480 VAC, 60 Hz		
Power	29 kW	Weight	1600 kg
Amps	54 A	Year	2018

FI Koneessa on arvokilpi, johon on merkitty mm. KONEEN TYYPPI (MODEL) ja SARJANUMERO (SER. NO.).Ilmoita nämä numerot aina, kun otat yhteyttä koneen valmistajaan tai jälleenmyyjään.

SV Maskinen är försedd med MODELL och SERIENUMMER.
Ange dessa vid kontakt med tillverkaren eller återförsäljaren av maskinen.

DA På maskinen er angivet model og serienummer.
Oplys disse numre ved kontakt med fabrikken eller importøren.

EN The machine is provided with MODEL and SERIAL NUMBERS.
Please announce these numbers when contacting the manufacturer or distributor of the machine.

NL De machine is voorzien van model en serienummer.
Gebruik deze aub bij elke vraagstelling aan de fabrikant of invoerder betreffende deze machine.

DE Die Maschine besitzt eine MODEL- und SERIENNUMMER.
Bitte nennen Sie diese Bezeichnungen wenn Sie zu dem Hersteller oder der Vertretung Kontakt aufnehmen.

FR La machine est repérée par un NOM DE MODELE et un NUMERO DE SERIE.
Pour toute demande concernant cette machine, veuillez indiquer ces références.

FinnSonic

CE

EC DECLARATION OF CONFORMITY

Manufacturer: **FinnSonic Oy**

Address: Parikankatu, 8
FIN-15170 LAHTI

declares that the machinery

Versa Genius 50/IV HD VD TD35
S/N: 6180007

- **complies with the EC Machine Directive** **2006/42/EC**
- **complies with the EMC Directive** **2014/30/EC**
- **complies LVD Directive** **2014/35/EC**

The technical documentation for the machinery is available from:

Name: Pasi Vähäkuopus

Address: Parikankatu, 8
FIN-15170 LAHTI

Place of issue: **Lahti 04.01.2019**

Signature:

Name of authorised representative, title: Timo Laatunen, Production Manager

NOISE EMISSION DECLARATION REPORT

Versa Genius 50/IV HD VD TD35
S/N: 6180007

Equivalent A-weighted sound pressure level measured at the workstation:

- Sound pressure level is 79 dB(A)

Date of test: Lahti 22.12.2018

Signature

Name, title: Timo Laatunen, Production Manager

Noise level is measured at the workshop. The instrument being used is integrating sound pressure meter, type WÄRTSILÄ 7078.

FinnSonic

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Operation instructions

1. General

Example photo of automatic Versa Genius cleaning line with full encapsulation and TD35 basket transporter. (for illustration purposes only, not 100% identical with the quoted solution)

1.1 Process stages

Process direction from left to right

Stage 1

- Ultrasonic cleaning, 1200 W, 30 kHz
- Basket dunk for vertical agitation
- Storage tank, located inside the machine encapsulation
- Auto stop/go control for storage tank circulation
- Belki 211 oil separator
- Surface spray bar
- 20" stainless filter with 50µ cartridge for fine filtration
- Auto refill
- Auto detergent dosing

Stage 2

- Ultrasonic cleaning 1200 W, 30 kHz
- Basket dunk for vertical agitation
- Closed loop filtration with 20" stainless filter with 50µ cartridge for fine filtration
- Auto stop/go control for closed loop circulation
- Auto refill
- Auto detergent dosing

Stage 3

- Jet spray under immersion
- Closed loop filtration with 20" stainless filter with 50µ cartridge for fine filtration
- Autopurge

Stage 4

- Rinse with deionized water
- Closed loop deionized water filtration with resin and active carbon filters and 20" stainless filter with 50µ cartridge for fine filtration
- Conductivity measurement, measuring range 1micS-1mS

Stage 5

- Hot air dryer
- Automatic sliding lid to left

Stage 6

- Vacuum dryer

Common

- TD35 automatic basket transporter
- Full encapsulation with windows, interlocked rear service doors
- Filtermist steam condenser
- Motorized loading and unloading conveyors, space for 4 baskets on each conveyor
- Cooling station with covering for the unloading conveyor
- Siemens PLC
- Light beacon
- Wash baskets (10 pcs) for Versa Genius 50, with support for customer's plastic jigs for blades
- Usage meters for water, air and power
- Common water inlet and drain connections for all the stages
- Drain pump

2. Control buttons / switches

CONTROL
Control switch turned to position "1" enables manual operations and set automatic drive to "stand by" status (starts automatic heating, filling etc, waiting for start).

Turning switch to "start" activates automatic drive and transporter starts to move baskets.

Turning switch to "start" when automatic drive is active, stops automatic drive. Active treatments will continue but transporter stop moving baskets.

MANUAL DRIVE
Manual drive switch must be turned to "1" to enable manual operations with control panel.

Note! Switching manual drive to "1" stops all automatic functions, including treatments.

ALARM RESET
Alarm light is lit when alarm occurs. Alarm can be reset when cause of alarm is fixed. (for example: low level alarm can be reset when liquid level is above alarm level)

EMERGENCY STOP ALARM RESET
Emergency stop light is lit when emergency stop alarm occurs. Alarm can be reset after emergency stop button is lifted up.

LIGHTING
Lightning switch controls cleaning line lights.

LOADING CONVEYOR HOLD – RUN
Run position drives basket to the transporter when program is activated from operation panel.
Hold position drives basket to holding position inside the hatch. Transporter does not pick up the basket if switch is on hold position.

UNLOADING CONVEYOR JOG
Jog button moves conveyor as long as pressed.

MAINTENANCE DOOR OPEN REQUEST
Opens interlocked rear service doors. Line must be in manual mode.

3. Terminology

Treatment time	Set treatment time.
Ultrasonic time	Set ultrasonic time.
Jet treatment time	Set jet spray time during the treatment.
Dripping time:	Set dripping time after treatment.
Dunking after treatment:	Set how many times basket dunks in the tank after the treatment.
Agitation:	Agitation moves basket in the tank during the treatment.
Ultrasonic booster:	Set ultrasonic booster on/off. Ultrasonic booster gives periodical boost to ultrasonic power.
Purge time:	Set purge time during treatment. Long purge time means that more wash liquid is changed during treatment.

4. Filling / emptying tanks

See operation panel instructions for automatic or manual filling.

Stop all functions before emptying tanks. Open drain valve and close it when tank is empty.

Note! Notice local waste water legislation.

5. Automatic detergent dosing

Stage 1 and 2 are equipped with dosing pump which doses detergent automatically to inlet water. See manufacturer´s instructions (Dosatron) for changing the dosing percentage.

6. Light tower

The machine is equipped with a three colour light tower.

The following colour codes are used in the light tower:

Red:	Machine alarm
Yellow:	Temperatures at operating area
Yellow blinking:	Temperatures below/above operating area
Green:	Machine is in automatic mode and operating
Green blinking:	Machine is in standby mode and is not operating
White	Machine is in automatic mode and operating but no baskets are in process.

7. Starting and ending automatic operation

Starting:

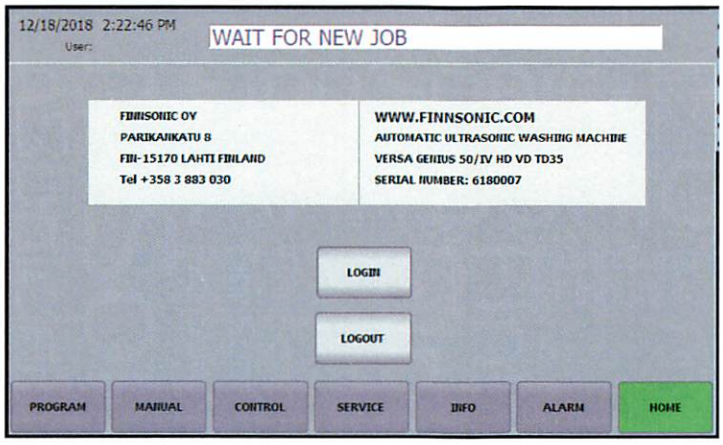
1. Turn manual drive switch to "0" and Line control switch to "1"
2. Check current user from operation panel. Login if needed.
3. Turn Line control switch to start.
4. Reset alarms if needed.
5. Turn loading conveyor run/hold switch to run position.
6. Place the basket on conveyor.
7. Activate program from operation panel or use bar code reader.
8. Automatic washing cycle starts.

Ending:

1. Wait for all baskets has circulated the washing cycle.
2. Logout
3. Leave the Line control switch to "1" if heating, filtration, oil separation and automatic filling are supposed to stay automatic.
4. Turn Line control switch to "0" to stop all automatic functions.

8. Operation panel

8.1 Home page

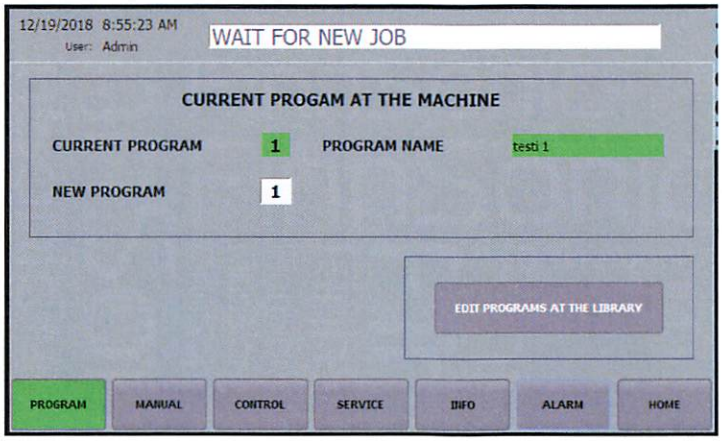


Login and insert password. Permitted operations depends on user.

Default passwords:	User:	1111
	Maintenance:	2222
	Admin:	3333

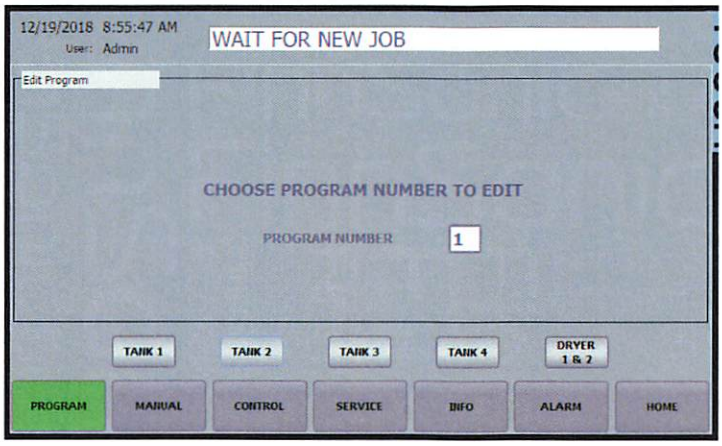
8.2 Program page

Select program for new basket on program page.



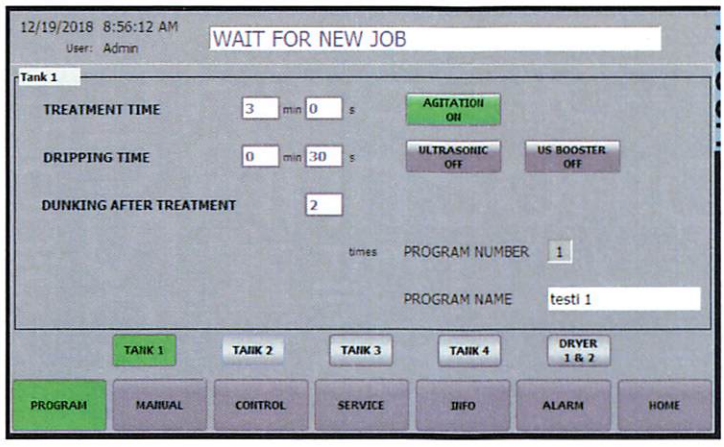
6.2.1 Edit program

Press “edit programs” button and choose program number to edit.



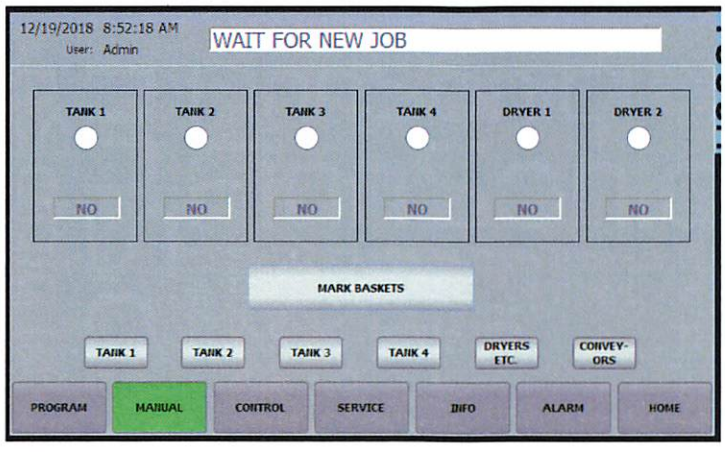
Edit treatment times, functions and parameters for each stage. Changes are saved automatically. See terminology for explanations of parameters.

Function field is green when function is set as active.

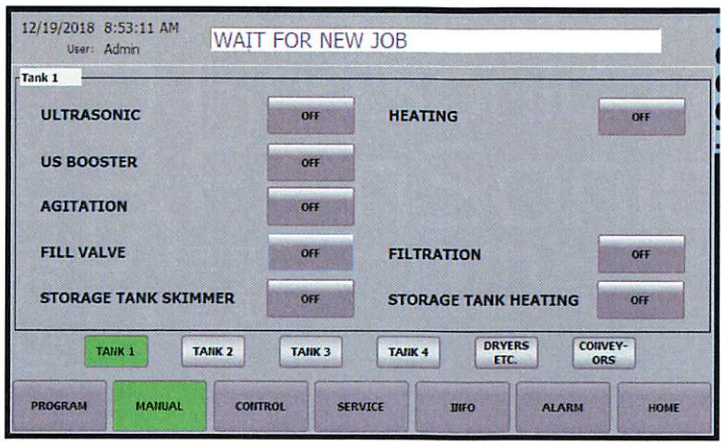


8.3 Manual page

Note: Manual drive switch must be on to enable manual mode.
Each stage has manual mode subpage. Operator can drive all functions manually and fill up tanks manually by opening the fill valve.



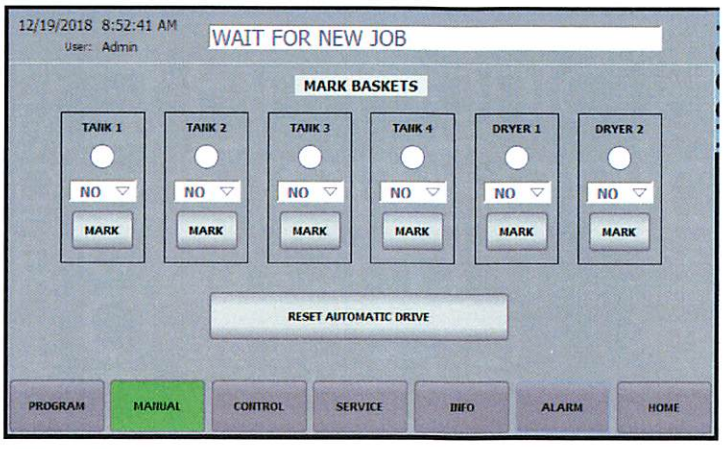
Function button turns green when operator push the button and function turns on.



Mark baskets page

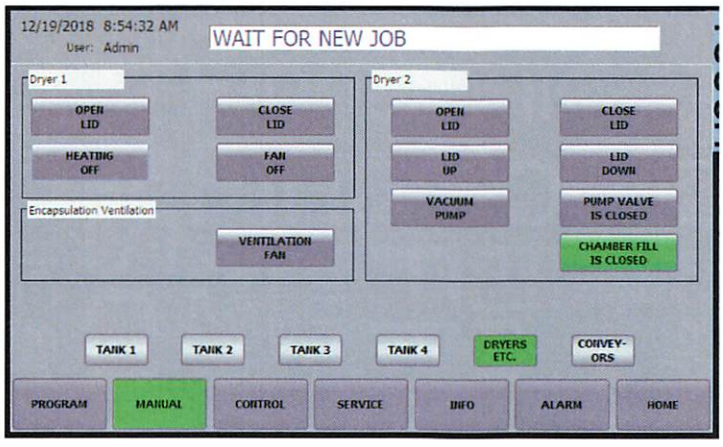
Mark basket locations on Mark baskets page. Type program number and press "mark" button. Typing program number 0 removes basket marking from particular stage.

Press "Reset automatic drive" to reset all basket locations and program information.



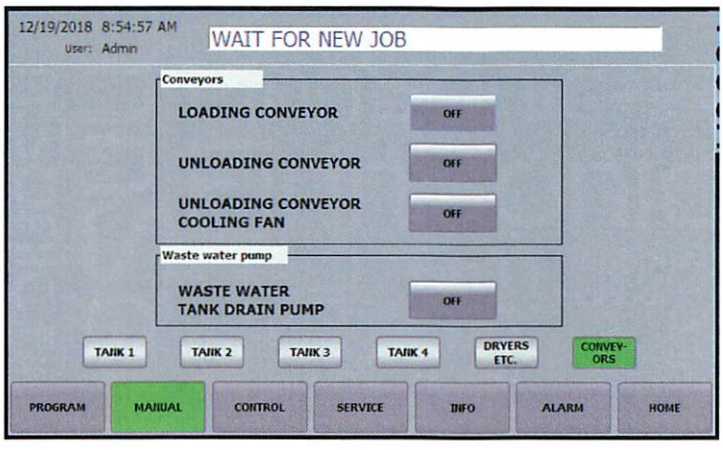
Dryers etc. page

Dryers and line ventilation can be controlled manually in dryers etc. subpage. Dryer 2 is a vacuum dryer. Dryer inlet (chamber fill) and outlet (pump valve) air valves can be opened and closed manually. Button is green when valve is closed.



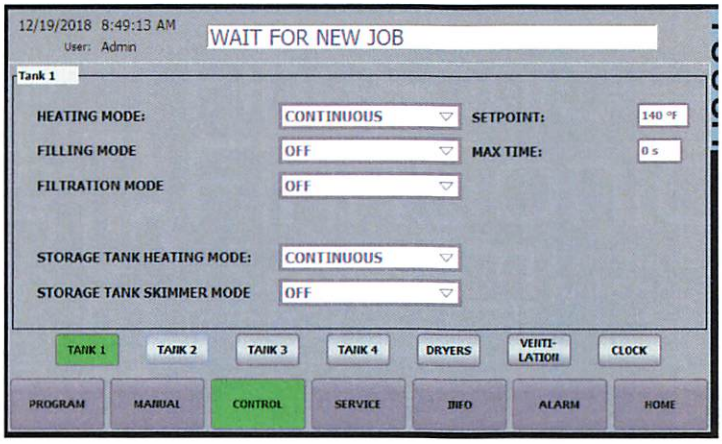
Conveyors (and waste water pump) page

Conveyors and waste water tank draining pump can be controlled manually in conveyors subpage.



6.4 Control page

Each stage has control subpage. Set temperature set points, heating modes, filling modes, schedulers etc on control page.



Heating modes:

Off
Continuous
Scheduler

Filtration modes:

Off
Continuous
Continuous/No tretment
Scheduler
Scheduler/ No tretment

Note: "No treatment" stops filtration during treatment time.

Skimmer modes:

Off
Continuous
Scheduler

Filling modes: Off
Automatic

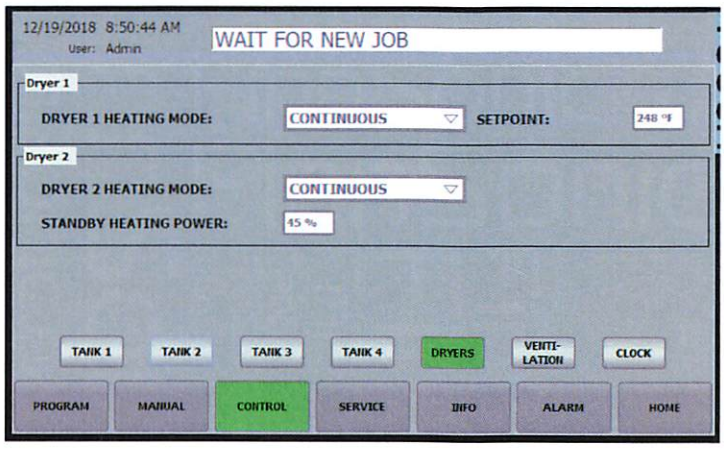
Set filling alarm limit in "max time" field. Alarm will occur if filling is not ready within in set max filling time.

Purge modes: Off
On (Set purge time for eachprogram in program page)

Conductivity limit: Set conductivity alarm limit.

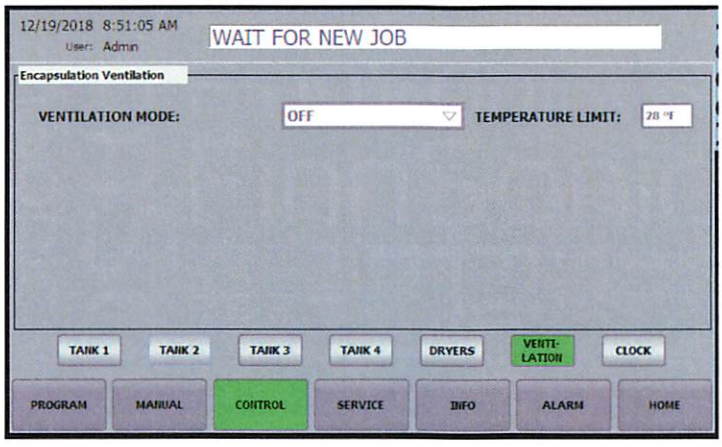
Standby heating power (Vacuum dryer):

Temperature measurement is not valid at vacuum enviroment. Heating during vacuum has to be done with heating percentage controller.



Ventilation modes:

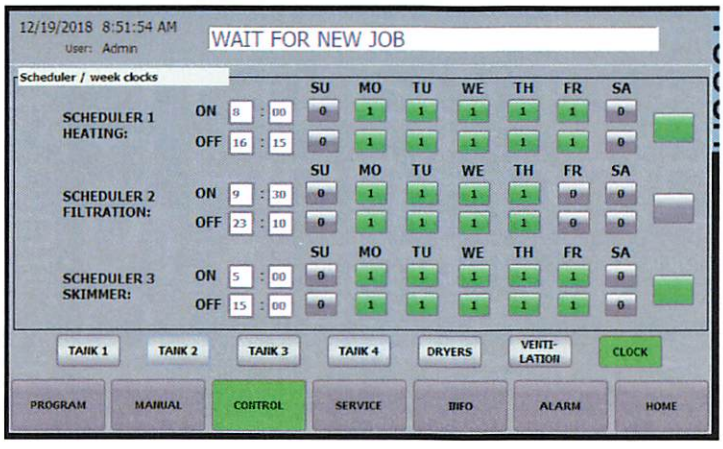
Off
Continuous
Scheduler (Scheduler 3)
Temperature (Set temperature limit)



Clock (scheduler)

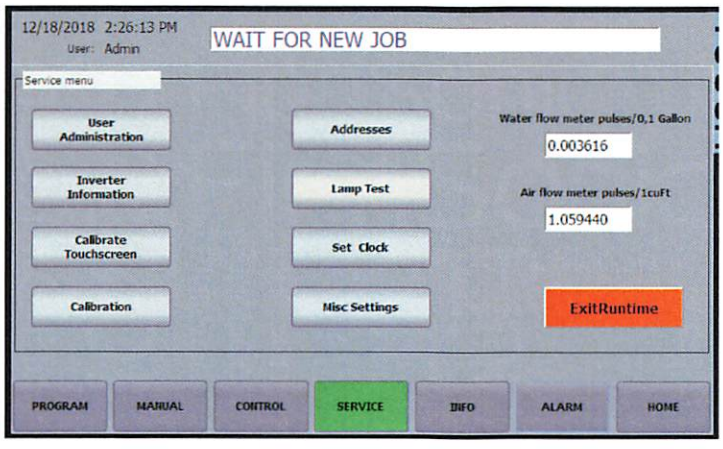
Set scheduler to heating, filtration and oil skimmer on clock subpage. Activate clock by pressing button next to particular week clock (button turns green).

Note! Oil skimmer and ventilation has a common scheduler (Scheduler 3).



6.5 Service page

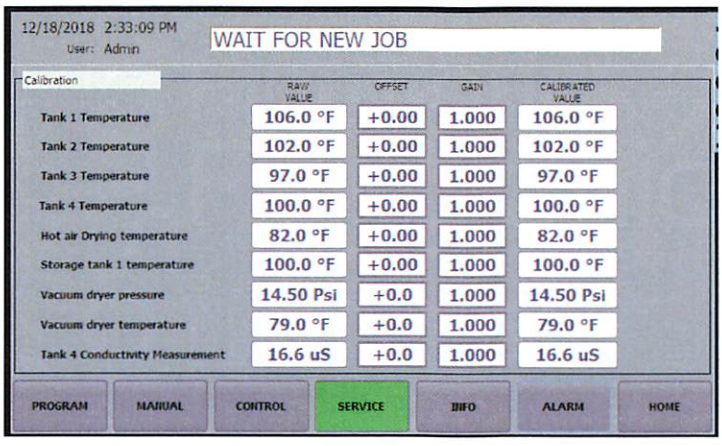
Administrator or maintenance lever user can change cleaning line settings on service page. “Lamp test” button execute lamp test. “Exit runtime” button shuts down operating interface.



Caution! **Changing address parameters can lead to machine error or damage.**

Service subpages:
- User administrator
- Inverter information
- Calibrate touchscreen
- Calibration
- Addresses
- Lamp test
- Set Clock
- Misc settings (temperature tolerances)

6.5.1 Calibration



Temperature calibration procedure:

1. Place the probe near to the thermocouple inside the station.
2. Record readings of the reference meter value and the HMI Raw input value at ambient temperature.
3. Switch on heating and wait until the temperatures have stabilized.
4. Record readings of the reference meter value and the HMI Raw input value at operating temperature.
5. Calculate the offset and gain for the HMI using e.g. ordinary least squares method.
6. Adjust the offset and gain values at the HMI according to the calculation results.
7. Re-check that the calibrated value is correct.

Vacuum drying pressure calibration:

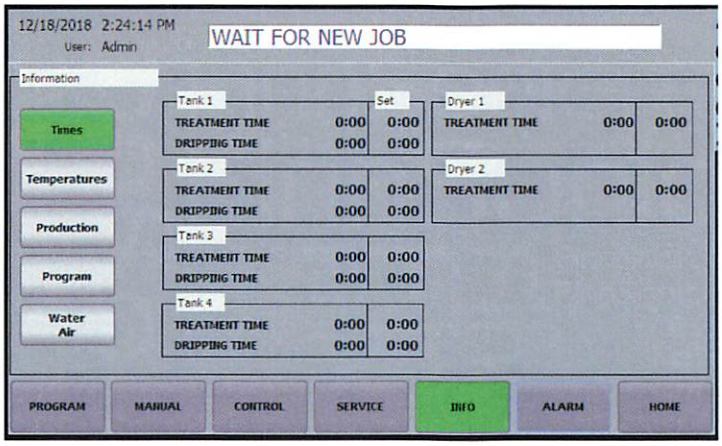
1. Make sure dryer lid gaskets are clean.
2. Attach reference pressure meter to connector on the dryer.
3. Login with admin password.
4. Set system to manual mode.
5. Close lid from operation panel manual page.
6. Close the release valve and open vacuum pump valve.
7. Press "vacuum pump" button to start suction.
8. Close vacuum pump valve and vacuum pump when pressure is between 700 – 800 mbar.
9. Record readings of the reference meter value and the HMI Raw input value.
10. Press "vacuum pump" button and open vacuum pump valve to start suction.
11. Close vacuum pump valve when pressure is between 50 – 150 mbar.
12. Record readings of the reference meter value and the HMI Raw input value.
13. Calculate the offset and gain for the HMI using e.g. ordinary least squares method.
14. Adjust the offset and gain values at the HMI according to the calculation results.
15. Re-check that the calibrated value is correct.

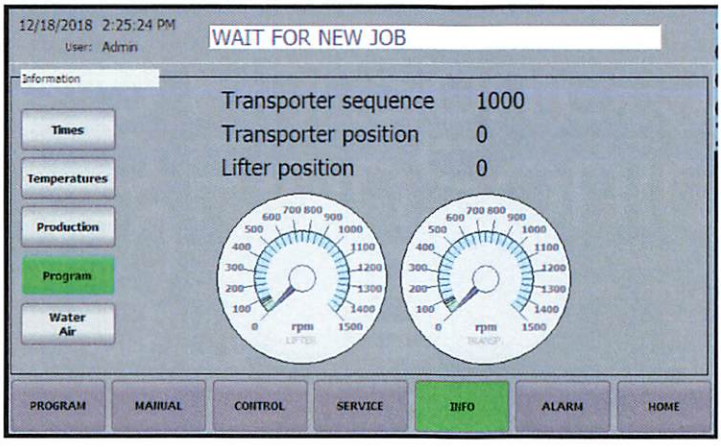
Conductivity measurement calibration

Perform calibration according to the Jumo eco trans lf03 calibration instructions (see literature).

6.6 Info page

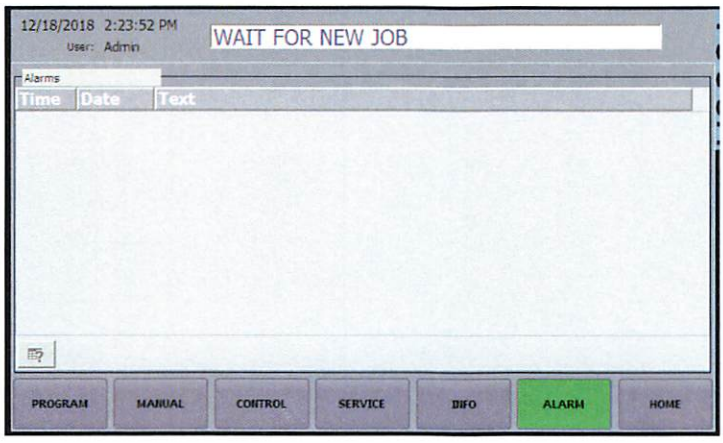
Information of the cleaning line is shown on information page.





6.7 Alarm page

Active alarms are shown on alarm page. Press icon below the alarm list to show more information about selected alarm.



9. Troubleshooting

The following situations may cause an audible or/and visual alarm:

Control voltage is off
Turn control voltage on by using the control voltage switch

Level alarm in a tank
Add liquid to the tank and reset alarm.

Motor circuit breaker has tripped
Check that the motor runs freely, check the condition of the cables, measure the input current of the motor

Emergency stop button pressed
Release the emergency stop button and reset alarm.

Power failure
Start according to the instructions given in chapter "Starting and ending automatic operation".

Automatic drive does not start
Check that the all doors are closed, check the positions of the switches, check alarms, check manual switch position.

Alarms

See alarm and description of alarm from operation panel.

Note! All the alarms can be reset only if the reason of the malfunction has been cleared.

10. Alarm list

Alarm text	Info text
MOTOR ALARM	A motor safety switch has tripped. Check the reason for the alarm and activate the breaker inside the control cabinet.
WINDOW ALARM	One of the windows is open. The process continues when all of the windows are closed.
TRANSPORTER DRIVE ALARM	Transporter motor drive alarm. Check if the transporter has gone over the movement area, or if there is something preventing the movement of the device. Reset the alarm with the "alarm reset" button.
DRYER 1 LID ALARM	The cylinder doesn't move or the magnetic limit switch is damaged. Check the limit switches and the air pressure of the pneumatic system.
TANK 4 OVERFILL ALARM	Too much water in the tank 4. Adjust the water level. Reset the alarm with the "alarm reset" button.
HOMING ALARM	The lifter and transporter have to be run into the home-sensors so that the intial postion of the transporter is reset to a known position. Drive lifter axis first to the home-position, and then transporter axis. The alarm is automatically reset when both axis are at homeposition.
TANK 3 LOW LEVEL ALARM	Liquid level in tank 3 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
TANK 1 LOW LEVEL ALARM	Liquid level in tank 1 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
TANK 1 COMMUNICATION ALARM	There is no reply from tank 1 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.

LIFTER DRIVE ALARM	Lifter motor drive alarm. Check if the lifter has gone over the movement area, or if there is something preventing the movement of the device. Reset the alarm with the "alarm reset" button.
STORAGE TANK 2 OVERFILL ALARM	Too much water in the storage tank 2. Adjust the water level. Reset the alarm with the "alarm reset" button.
DRYER 2 COMMUNICATION ALARM	There is no reply from dryer 1 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.
UNLOAD PLACE ALARM	The unload place is not empty. Check if there is a basket or the phtocell is damaget. Reset the alarm with "Alarm reset" button.
DRYER 1 OVERTEMPERATURE ALARM	The dryer 1 has overheated. Check the reason for overheating. Reset the alarm with the "alarm reset" button.
TANK 2 LOW LEVEL ALARM	Liquid level in tank 2 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
EMERGENCY STOP ALARM	One of the emergency stop buttons is activated. Release button and reset the alarm with "ALARM RESET" - button.
STORAGE TANK 1 LOW LEVEL ALARM	Liquid level in storage tank 1 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
TANK 3 COMMUNICATION ALARM	There is no reply from tank 3 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.
TANK 2 COMMUNICATION ALARM	There is no reply from tank 2 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.
DRYER 1 COMMUNICATION ALARM	There is no reply from dryer 1 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.
DRYER 2 LID ALARM	The cylinder doesn't move or the magnetic limit switch is damaged. Check the limit switches and the air pressure of the pneumatic system.

STORAGE TANK 1 OVERFILL ALARM	Too much water in the storage tank 1. Adjust the water level. Reset the alarm with the "alarm reset" button.
TANK 4 LOW LEVEL ALARM	Liquid level in tank 4 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
UNLOADING CONVEYOR ALARM	The unloading conveyor has run the maximum time and still has not been able to move the basket away from the unloading place. Check that the conveyor is not full and the photocell operates normally. Reset the alarm with "alarm reset" button.
CUSTOMER WASTE WATER TANK FULL ALARM	The customer waste water container is full. Empty the tank and reset the alarm with alarm reset button.
TANK 4 CONDUCTIVITY ALARM	The conductivity is above set alarm level, check the reason for the alarm and reset the alarm with alarm reset button.
WASTE WATER TANK OVERFILL ALARM	Too much water in the waste water drain tank. Adjust the water level. Reset the alarm with the "alarm reset" button.
DRYER VACUUM PUMP ALARM	The vacuum pump is not able to create enough vacuum into the dryer. Check the chamber for leaks. Reset the alarm with the "alarm reset" button.
LEAKAGE ALARM	Water has been detected on the drip tray below the machine. Check tanks and hoses for leaks, and empty the drip tray. Reset the alarm with the "alarm reset" button.
TANK 1 MAX FILL TIME ALARM	The set maximum filling time for the tank has been elapsed. Check tank and hoses for leaks or blockages. Reset the alarm with the "alarm reset" button.
STORAGE TANK 2 LOW LEVEL ALARM	Liquid level in storage tank 2 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
TANK 4 COMMUNICATION ALARM	There is no reply from tank 4 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.

STORAGE TANK 1 COMMUNICATION ALARM	There is no reply from storage tank 1 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.
TANK 3 OVERFILL ALARM	Too much water in the tank 3. Adjust the water level. Reset the alarm with the "alarm reset" button.
TANK 5 OVERFILL ALARM	Too much water in the tank 5. Adjust the water level. Reset the alarm with the "alarm reset" button.
TANK 6 OVERFILL ALARM	Too much water in the tank 6. Adjust the water level.* reset the alarm with the "alarm reset" button.
TANK 5 LOW LEVEL ALARM	Liquid level in tank 5 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.
TANK 3 OVERHEAT ALARM	Tank 3 has overheated. Check the reason for overheating. Reset the alarm with the "alarm reset" button.
TANK 4 OVERHEAT ALARM	Tank 4 has overheated. Check the reason for overheating. Reset the alarm with the "alarm reset" button.
TANK 2 MAX FILL TIME ALARM	The set maximum filling time for the tank has been elapsed. Check tank and hoses for leaks or blockages. Reset the alarm with the "alarm reset" button.
TANK 3 MAX FILL TIME ALARM	The set maximum filling time for the tank has been elapsed.check tank and hoses for leaks or blockages. Reset the alarm with the "alarm reset" button.
TANK 4 MAX FILL TIME ALARM	The set maximum filling time for the tank has been elapsed.check tank and hoses for leaks or blockages. Reset the alarm with the "alarm reset" button.
TANK 4 MAX FILL TIME ALARM spares	The set maximum filling time for the tank has been elapsed. Check tank and hoses for leaks or blockages. Reset the alarm with the "alarm reset" button.
TILTING ALARM	The cylinder doesn't move or the magnetic limit switch is damaged. Check the limit switches and the air pressure of the pneumatic system.

INVERTER ALARM	Transporter or lifter inverter has triggered an alarm. Check the inverter display for the error code, and look at the inverter manual for error explanation. Reset the alarm with alarm reset button.
HORIZONTAL MOVEMENT ALARM	The horizontal position of the transporter has not changed. Check if there is something preventing the movement of the device. Reset the alarm with the "alarm reset" button.
VERTICAL MOVEMENT ALARM	The vertical position of the lifter has not changed. Check if there is something preventing the movement of the device. Reset the alarm with the "alarm reset" button.
GRIPPING CYLINDER ALARM	The cylinder doesn't move or the magneticlimit switch is damaged. Check the limitswitches and the air pressure of the pneumatic system.
ALARM BASKET DETECTION AT GRIPPING	Alarm basket detection at gripping
ALARM AUTOMATIC PROGRAM NUMBER SELECTION	The system was unable to read correct program number from the basket at the loading conveyor. Check the position of the basket and the presence of the program selection plate. Reset the alarm with alarm reset button.
DRYER 2 OVERTEMPERATURE ALARM	The dryer 2 has overheated. Check the reason for overheating. Reset the alarm with the "alarm reset" button.
TANK 5 OVERHEAT ALARM	Tank 5 has overheated. Check the reason for overheating. Reset the alarm with the "alarm reset" button.
TANK 6 MAX FILL TIME ALARM	The set maximum filling time for the tank has been elapsed. Check tank and hoses for leaks or blockages. Reset the alarm with the "alarm reset" button.
TANK 6 LOW LEVEL ALARM	Liquid level in tank 6 is too low. Check the reason and correct the liquid level. Reset the alarm with the "alarm reset" button.

STORAGE TANK 2 COMMUNICATION ALARM	There is no reply from storage tank 2 control panel. Check the reason for communication fault. Reset the alarm with the "alarm reset" button.
TANK 1 FILTRATION PRESSURE ALARM	The pressure difference between filter inlet and outlet is too big. Most probable cause is that the filter is too dirty. Change the filter if necessary and reset the alarm with alarm reset button.
TANK 2 FILTRATION PRESSURE ALARM	The pressure difference between filter inlet and outlet is too big. Most probable cause is that the filter is too dirty. Change the filter if necessary and reset the alarm with alarm reset button.
DRYER 2 VACUUM PUMP OIL OVERTEMPERATURE ALARM	The oil in the vacuum pump is too hot. Check the reason for the abnormal temperature and reset the alarm with alarm reset button.
DRYER 2 CHAMBER PRESSURE DOES NOT DECREASE ALARM	The pressure in the vacuum drying chamber is not going down even when the vacuum pump is on. Check the chamber for leaks, and check that the pump operates normally. Reset the alarm with alarm reset button.
DRYER 2 CHAMBER PRESSURE DOES NOT INCREASE ALARM	The pressure in the vacuum drying chamber is not going up even when the chamber fill valve is open. Check the operation of the valve and piping. Reset the alarm with alarm reset button.
TANK 1 PH HIGH ALARM	The ph in the tank is outside the allowed range. Check the reason for the abnormal ph and reset the alarm with alarm reset button.
TANK 2 PH HIGH ALARM	The ph in the tank is outside the allowed range. Check the reason for the abnormal ph and reset the alarm with alarm reset button.
DOOR ALARM	One of the back doors is open. The process continues when all of the windows are closed and the alarm is reset with alarm reset button.