Fullwood Packo

Handleiding

Manuel

Betriebsanleitung

Manual

Installation Manual iControl

1.2.3

Contents

About this document

Introduction

You can find more info about the iControl operating system in this manual.

Before you start up the iControl operating system, you must read the general parts of the installation manual.

⚠️ **Warning:** *Installation may only be carried out by an approved installer*

Control panel

Lock screen
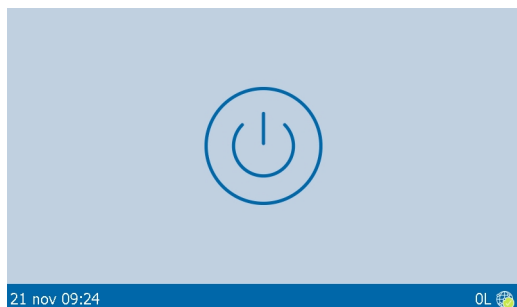
Figure 1: Lock screen

Table 1:

Item	Display of
A	Information screen, with active cycle: • Standby • Cooling, with indication of the temperature • Cleaning, with indication of progress
B	Status bar with: • Date • Time • Volume, if active • Internet status, if active The colour changes depending on the status of the control • Blue, everything is OK • Red, urgent message • Orange, less urgent message

Unlock the screen

Touch the screen to unlock it. The unlock symbol appears.

Continue touching the screen until the unlock symbol is complete.

You then see the Stand-by screen.

Stand-by

You can operate the tank using the touchscreen. The screen consists of:
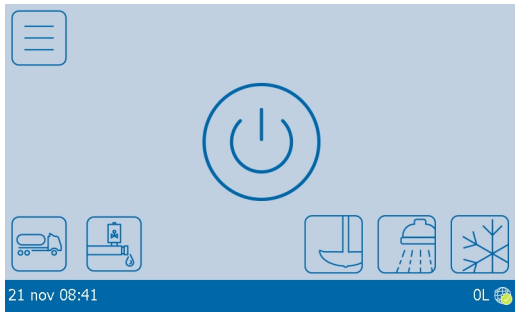
Figure 2: Stand-by screen

Table 2:

Item	Key	Function
A		Open the settings, see Settings on page 4
B	or	Display the current error messages, see Messages on page 29
C		Opening and closing the pneumatically operated outlet with robot option, see 11. ROBOT on page 24
D		Button for the collector
E		Start agitation
F		Start cleaning
G		Start cooling

Settings
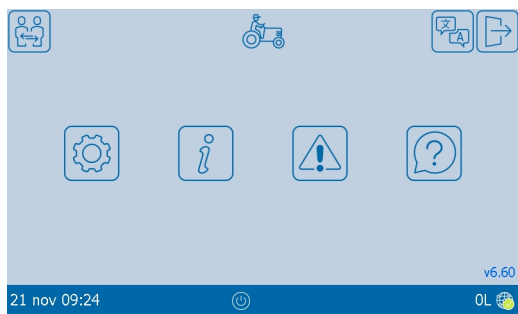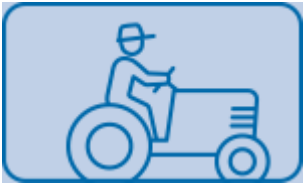
Table 3:

Item	Key/symbol	Function
A		Displays the active user. You have the following options: • • •
B		Change of user on page 4
C		Change language on page 5
D		Leave menu
E		View parameters and change if required, see List of parameters (depending on user) on page 6
F		View logging, see Logging on page 46
G		View messages, see Messages on page 29
H		View extra info
I	v6.60	Displays the current software version

Figure 3: Settings

Change of user

1 Press .
2 Select the required user.

If	Then
	No action required, the control goes back to the display of the user.
	Enter the password to display the installer parameters. 📄**Note:** *password = DDMM, e.g. 01 December 2018 = 0112*
	Enter the password to display the Fullwood Packo parameters. 📄**Note:** *the password = MMDD, e.g. e.g. 01 December 2018 = 1201*

After entering an incorrect password you see the message, ***60002 Wrong password!***

Change language

1   Press 🔲.
2   Select the required language.

List of parameters (depending on user)

Description of parameters

Symbols	Description
1	1 Cooling on page 7
2	2. Agitating on page 9
3	3. Cleaning on page 10
4	4. Cleaning cycle on page 13
5	5. Temperature on page 13
6	6. General on page 15
7	7. Milk guard - Oculus on page 16
8	8. Service on page 19
9 IB	9. IB on page 23

Symbols	Description
10 GSM	10. Mobile phone on page 23
11 ROBOT	11. ROBOT on page 24
12 BUFFER	12. BUFFER - only with old software on page 25
13 SSC	13. SSC on page 25
14 PACAP	14. PACAP on page 26
15 INTERNET	15. INTERNET on page 27

1 Cooling

Parameter	Description
1.1 Check cooling active?	See 1.1 Check cooling active? on page 8
1.2 Settings cooling circuit 1	See 1.2 Settings cooling circuit 1 on page 8
1.3 Settings cooling circuit 2	See 1.3 Settings cooling circuit 2 on page 9
1.4 Deepcooling time	Time for cooling to the set temperature in parameter 1.5. When this has been reached or if the time has passed automatic cooling will be activated.

Parameter	Description
1.5 Deepcooling temperature	See *1.4 Deepcooling time*
1.6 Agitate when cooling stops?	When stopping cooling agitation is activated.
1.7 Tripping safety	Three options • 6-minute delay, shows the message *Cooling will start when tripping safety is ended!* when there is no 6 minutes between the start and end of automatic cooling • 0-minute delay (DX), only intended for maintenance • Off, set with IB tanks

1.1 Check cooling active?

You can check if cooling is active at different times each day, *1.1 Check cooling active?*.

If cooling is not active the following error message is generated: *Product detected, please start the cooling!*

1 Select 1 or more alarm times.

You select...	Activate the alarm time
Alarm time 1	*1.1.1 Check 1 active?* and enter the alarm time *1.1.1.1 Time*
Alarm time 2	*1.1.2 Check 2 active?* and enter the alarm time *1.1.2.1 Time*
Alarm time 3	*1.1.3 Check 3 active?* and enter the alarm time *1.1.3.1 Time*
Alarm time 4	*1.1.4 Check 4 active?* and enter the alarm time *1.1.4.1 Time*
Alarm time 5	*1.1.5 Check 5 active?* and enter the alarm time *1.1.5.1 Time*

ExampleDairy farm milks twice day and starts each day at around 6:30 and 17:00.

1.1.1 - Active - 1.1.1.1 - 7:00

1.1.2 - Active - 1.1.2.1 - 17:30

1.2 Settings cooling circuit 1

You can control 2 cooling circuits. The parameters below describe the settings for cooling circuit 1, being outputs O5 + O15.

1 Enter the time delay for starting cooling at the start of the cooling cycle, *1.2.1 Time delay 1st cooling cycle*

2 Enter the time delay for the following cooling cycles, *1.2.2 Time delay other cooling cycles*

3 Select if the time delay for the following cooling cycles must apply for each time of cooling, *1.2.3 Delay for all cooling cycles?*

4 If the start of cooling must take place at *Volume/percent* or *Sensor*, set the time after which the cooling can start again after stopping, *1.2.4 Start delay when cooling is stopped*

5 For the automatic starting of cooling in *1.2.5 Select the type of sensor* you can select

- ***Automatic***, start automatically after cleaning (standard if robot option)
- ***Manual***, starting takes place by pressing the cool key
- ***Volume/percent***
- ***Sensor***

6   If ***Volume/percent*** select:

- ***Volume*** and enter the volume, ***1.2.9 Insert volume***
- ***Percent***, and enter the percentage, ***1.2.8 Insert percentage***

7   If ***Sensor*** select in ***1.2.6 Input or level?***

- ***NIV 3***
- ***NIV 4***
- ***NIV 6***
- ***I11 - Product input***, external contact

1.3 Settings cooling circuit 2

You can control 2 cooling circuits. The parameters below describe the settings for cooling circuit 2, being outputs O8 + O19.

1   Enter the time delay for starting cooling at the start of the cooling cycle, ***1.3.1 Time delay 1st cooling cycle***

2   Enter the time delay for the following cooling cycles, ***1.3.2 Time delay other cooling cycles***

3   Select if the time delay for the following cooling cycles must apply for each time of cooling, ***1.3.3 Delay for all cooling cycles?***

4   If the start of the cooling must take place at ***Volume/percent*** or ***Sensor***, set the time after which the cooling can start again after stopping, ***1.2.4 Start delay when cooling is stopped***

5   For the automatic starting of cooling in ***1.3.5 Select the type of sensor*** you can select

- ***Automatic***, start automatically after cleaning (standard if robot option)
- ***Manual***, starting takes place by pressing the cool key
- ***Volume/percent***
- ***Sensor***

6   If ***1.3.7 Volume/percent*** select:

- ***Volume*** and enter the volume, ***1.3.9 Insert volume***
- ***Percent***, and enter the percentage, ***1.3.8 Insert percentage***

7   If ***Sensor*** select in ***1.3.6 Input or level?***

- ***NIV 3***
- ***NIV 4***
- ***NIV 6***
- ***I11 - Product input***, external contact

2. Agitating

Parameter	Description
2.1 Resttime agitation	Rest time of agitation after reaching the set point, is followed by the agitation time.
2.2 Agitation time	Time of agitation after reaching the set point, is followed by the rest time.
2.3 Manual agitation active?	See 2.3 Manual agitation active? on page 10
2.4 Clock agitation active (DK)?	See 2.4 Clock agitation active (DK)? on page 10

2.3 Manual agitation active?

1   To be able to manually agitate activate the option *2.3 Manual agitation active?*.

In the stand-by screen the key for agitating appears.

2   Enter the time for agitating:

- Enter the time for short manual agitating, *2.3.1 Manual agitation time 1*
- Enter the time for long manual agitating, *2.3.2 Manual agitation time 2*

2.4 Clock agitation active (DK)?

Still to be detailed.

3. Cleaning

Parameter	Description
3.1 Delay cleaning	See 3.1 Delay cleaning on page 10
3.2 Dosing	See 3.2 Dosing on page 11
3.3 Cleaning program	See 3.3 Cleaning program on page 11
3.4 Select volume	See 3.4 Select volume on page 12
3.5 General settings	See 3.5 General settings on page 12
3.6 Fixed values	See 3.6 Fixed values on page 13

3.1 Delay cleaning

You can place cleaning on hold in different ways. This is to prevent insufficient hot water being available to clean the cooling tank.

1   Activate option *3.1 Delay cleaning*

2   Select from the following options:

- *Rest time*, time of waiting after cold and hot rinsing to allow time to prepare the hot water.
- *Waiting periodes*, periods in which hot cleaning may not take place.

3   If *Rest time*, enter the rest time, *3.1.1 Rest time*

4   If *Waiting periodes*, select the required period(s)

Activate	Enter the start and stop time
3.1.2.1 Periode 1 active	• *3.1.2.2 Start* • *3.1.2.3 Stop*
3.1.2.4 Periode 2 active	• *3.1.2.5 Start* • *3.1.2.6 Stop*
3.1.2.7 Periode 3 active	• *3.1.2.8 Start* • *3.1.2.9 Stop*
3.1.2.10 Periode 4 active	• *3.1.2.11 Start* • *3.1.2.12 Stop*
3.1.2.13 Periode 5 active	• *3.1.2.13 Start* • *3.1.2.14 Stop*

3.2 Dosing

Cleaning uses dosing pumps for:

- Acid
- Alkaline
- Disinfection

You can set the product quantity for each dosing pump, in the percentage of the set water volume. The recommended percentage **depends on the type of product** and the **quality of water** used. For more info see the sticker on the detergent drum.

You can also select the time of switching between the products.

1　Enter after how many cleaning cycles you want to switch between acid or alkaline, *3.2.1 Sequence acid/base*

2　If you want to change the percentage:

- For acid, change *3.2.2 Percentage acid*
- For alkaline, change *3.2.3 Percentage base*
- For disinfectant, change *3.2.4 Percentage disinfectant*

3.3 Cleaning program

There are different types of cleaning programs

- Standard cleaning
- Eco-wash, old iControl
- Eco-2-wash, new iControl

1　Select the required cleaning program, *3.3.1 Type*

2　You have extra options depending on the program selected

If	Then
Cleaning with 2 pumps (acid/alkaline)	Possibility of extra rinsing without circulation, *3.3.4 Drain at start cleaning*
Cleaning with 3 pumps	Possibility of extra rinsing without circulation, *3.3.3 Pre rinse without pumping (extra valve) active?*
ECO-WASH 2 pumps (acid/alkaline)	No extra options possible
ECO-WASH 3 pumps	No extra options possible

If	Then
ECO-2-WASH	No extra options possible

3   You can check the different stages of cleaning and change if required in 4. Cleaning cycle

3.4 Select volume

Can only be set at:

- *Cleaning with 2 pumps (acid/alkaline)*
- *Cleaning with 3 pumps*
- *ECO-WASH 2 pumps (acid/alkaline)*
- *ECO-WASH 3 pumps*

1   Place the tank at the correct slope. You can find the info about the correct slope in the general manual.

2   Set parameters *3.4.1 Volume till sensor cold* and *3.4.2 Volume till sensor warm* to the same value, as well as the volume that you want to fill, *3.6.5 Percentage volume for filling*.

3   Place volume meters on the cold and hot water supply.

4   Start a cleaning cycle.

5   Note how much water is filled during cold and hot pre-rinsing.

6   Enter the values:

- *3.4.1 Volume till sensor cold*
- *3.4.2 Volume till sensor warm*

7   You can set the required quantity of water for each step, see 4. Cleaning cycle

3.5 General settings

3.5.1 Start delay cleaning pump	Enter the time that the pump must wait before starting up at the start of cleaning or after the time in *3.5.2 Cleaning pump time active*.
3.5.2 Cleaning pump time active	Enter the time that the pump must be active.
3.5.3 Flow rate dosage pump acid	Enter the dosing pump flow rate. Note: Standard = 280ml
3.5.4 Flow rate dosage pump base	
3.5.5 Flow rate dosage pump disinfection	

3.6 Fixed values

Parameter	Description
3.6.1 Extra drain time	If sensors **NIV 1** + **NIV 2** no longer detect the extra drainage time is loaded.
3.6.2 Delay level sensor	With level sensor detection they must continue to detect during the set time to go to the next step.
3.6.3 Volume reservoir	Enter the volume of the reservoir: • Eco-wash, standard = 20 litres • ECO-2-WASH, standard = 35 litres
3.6.4 Delay level sensor ECO-WASH	At the start of filling the Eco-wash, level sensor LEV1 is ignored for the set time to override the waves of the water unloaded.
3.6.5 Percentage volume for filling	Enter the percentage for filling up to level.
3.6.6 Warm water temperature	Enter the hot water temperature.

4. Cleaning cycle

5. Temperature

The control can monitor 2 set points. By default 1 set point is active.

Parameter	Description
5.1 *Setpoint 1 (SP1)*	See 5.1 Setpoint 1 (SP1)
5.2 *Setpoint 2 (SP2)*	See 5.2 Setpoint 2 (SP2)
5.3 *Temperature sensors*	See 5.3 Temperature sensors
5.4 *Fast read out of temperature values*	The temperature is read quickly or every 10s. Then the temperature sensors are loaded less.

5.1 Setpoint 1 (SP1)

1. Enter the value for set point 1, *5.1.1 Value*
2. Enter the differential, *5.1.2 Differential*. This determines at which temperature the cooling will switch on again.

5.2 Setpoint 2 (SP2)

You can activate the second set point in different ways:

- Manually, here you can manually select the 2nd set point
- *Periodically active*, the set point is automatically changed here

1. Activate the 2nd set point, **5.2 Setpoint 2 (SP2)**
2. Enter the value for set point 2, **5.2.1 Value**
3. Enter the differential, **5.2.2 Differential**. This determines at which temperature the cooling will switch on again.
4. If option **5.2.3 Periodically active**, choose from the following options:

Select	Then
No	Select after cooling has started if set point 1 or set point 2 must be active.
Yes	The set point automatically changes to set point 2 when set point 1 is reached.
Fixed time - period	Enter the period(s) in which the 2nd set point must be active: 1 For period 1: enter **5.2.3.2 Periode 1 start** and **5.2.3.3 Periode 1 stop**. 2 For period 2: enter **5.2.3.4 Periode 1 start** and **5.2.3.5 Periode 1 stop**. 3 For period 3: enter **5.2.3.6 Periode 1 start** and **5.2.3.7 Periode 1 stop**. 4 For period 4: enter **5.2.3.8 Periode 1 start** and **5.2.3.9 Periode 1 stop**. 5 For period 5: enter **5.2.3.10 Periode 1 start** and **5.2.3.11 Periode 1 stop**.
Set time after start cooling	Enter the time when the set point must switch from set point 1 to set point 2, **5.2.3.1 Set time after start cooling**.

5.3 Temperature sensors

Three sensors can be connected to the control:

- **Product**
- **Oculus**
- **Sensor 3**

The **Product** sensor is used for monitoring the set point.

The **Oculus** sensor is used for registering the temperatures for 7. Milk guard - Oculus functionality.

The **Sensor 3** does not yet have functionality.

1. Set operation **5.3.1 Sensor operation** to **Normal**.
2. Select the correct type for each sensor
    - NTC, 10kΩ at 20°C
    - PT1000, 1000Ω at 0°C, 1077Ω at 20°C
3. Calibrate the sensor(s)

Select	Then
5.3.4 Product	Select the correct type, **5.3.4.1 Type**. Check **5.3.4.2 Actual value** and change **5.3.4.3 Calibration** if required.

Select	Then
5.3.5 Oculus	Select the correct type, *5.3.5.1 Type*. Check *5.3.5.2 Actual value* and change *5.3.5.3 Calibration* if required.
5.3.6 Sensor 3	Select the correct type, *5.3.6.1 Type*. Check *5.3.6.2 Actual value* and change *5.3.6.3 Calibration* if required.

4   If there are problems with the temperature sensors, see Temperature sensor(s)

6. General

Parameter	Description
6.1 *User*	See 6.1 User
6.2 *CHR number Arla*	See 6.2 CHR number Arla
6.3 *SN oculus (Mac adres)*	See 6.3 SN oculus (Mac adres)
6.4 *Watchdog timeout*	See 6.4 Watchdog timeout

6.1 User

The information you enter is used in the tank log data.

1   Enter the name of the user, *6.1.1 Name*
2   Enter the name of the dairy farm, *6.1.2 Dairy*
3   Enter the country code, *6.1.3 Country code*
4   Enter the Arla CHR number, *6.1.4 CHR number Arla*

📄*Note:* The CHR number is the number you have received from the dairy farm.

6.2 CHR number Arla

The info about the control can be found here.

Parameter	Enter the version or serial number of
6.2.1 Software version(s) and serial number(s)	the display.
6.2.2 Software version display	the power print.
6.2.3 Software power print	the boot software of the power print.
6.2.4 Software power print boot	the software of the PACAP (Pitagora).
6.2.5 Software version pacap	the PACAP sensor.
6.2.6 Serial number volume indicator/Pacap	the display, the MAC address. 📄*Note:* https://nl.wikipedia.org/wiki/MAC-adres

6.3 SN oculus (Mac adres)

There is also general info you can enter/read in the control.

Parameter	Description
6.3.1 General	Enter the date and time.
6.3.2 Date	Adjust the brightness.
6.3.3 Contrast	Enter the frequency at which the control works. This is used to calculate the time of the dosing pumps.
6.3.4 Frequence	Adjust the setting to the place where the tank is installed. This setting is used for automatic switching between summer and winter time.
6.3.5 Region settings	This can be deactivated if no summer or winter time is used.
6.3.6 Overrule daylight saving settings	If the control no longer responds for some reason the tank will automatically restart. After start-up the following message is shown: *iPower: Watchdog reset!*.

6.4 Watchdog timeout

Parameter	Description
6.4.1 Serial number	Enter the serial number. This serial number is unique and is used as reference when sending the tank data through 15. INTERNET on page 27. If the serial number has not been entered you see an error message, *Please enter the serial number - 6.4.1 Tank number*.
6.4.2 Type	Enter the tank type. A number of parameters are changed based on type and volume. Changing this parameter ensures the loading of the standard setting for cleaning, the adaptation of the number of agitators and change to the tripping safety setting
6.4.3 Volume	Enter the volume of the tank. A number of parameters are changed based on type and volume. Changing this parameter ensures the loading of the standard setting for cleaning, the adaptation of the number of agitators and change to the tripping safety setting
6.4.4 Number of agitators	Enter the number of agitators. If multiple agitators then: • Cooling continues if 1 agitator generates an alarm • Is checked if all agitators still run at the milk guard, see 7. Milk guard - Oculus on page 16
6.4.5 Number of compressors	Enter the number of compressors. If multiple compressors, cooling continues if 1 compressor generates an alarm.

7. Milk guard - Oculus

The milk guard consists of a number of standard monitoring processes. Extra monitoring processes can also be selected:

Parameter	Description
7.1 **Oculus type**	Select the required monitoring • **Base** • **Light** • **FULL** • **Arla**
7.2 **Parameters base**	See 7.2 Parameters base on page 17
7.3 **Extra parameters light**	See 7.3 Extra parameters light on page 18
7.4 **Extra parameters full + Arla**	See 7.4 Extra parameters full + Arla on page 18
7.5 **General parameters**	See 7.5 General parameters on page 19
7.6 **Parameters Eco-2-Wash**	See 7.6 Parameters Eco-2-Wash on page 19

7.2 Parameters base

Initially the basic parameters are described. These are divided into:

- **Cooling**
- **Cleaning**

1 Enter the maximum power loss time, **7.2.1 Maximum power interruption time**

2 For cooling, **7.2.2 Cooling**

If	Then
7.2.2.1 Maximum temperature during cooling	Enter the maximum temperature that must be reached during first cooling
7.2.2.2 Maximum time for maximum temperature during cooling	Enter the time within which the temperature of first cooling must be reached.
7.2.2.3 Minimum temperature during cooling	Minimum temperature the product may have.
7.2.2.4 Maximum time to pass minimum temperature during cooling	Maximum time that the minimum temperature may be exceeded.

3 For cleaning, **7.2.3 Cleaning**

If	Then
7.2.3.1 Minimum cleaning temperature during main rinse	Enter the minimum temperature that must be reached during main cleaning.
7.2.3.2 Minimum time above minimum cleaning temperature during main rinse	Enter the time in which the minimum temperature must be reached during main cleaning
7.2.3.3 Reminder to start te cleaning after collection (change in NIV3)	Enter the time in which a reminder must be given after emptying the tank.
7.2.3.4 Time within the cleaning should be started after collection (change in NIV3)	Enter the time within which the tank must be cleaned.
7.2.3.5 Impossible to fill the tank	Indicate whether it must be checked if filling takes place. Only with standard cleaning, with filling by time. If the error message is generated filling stops.

If	Then
7.2.3.6 Maximum time to fill	Enter the maximum filling time. If after this time no level is detected an error message is generated and filling stops.
7.2.3.7 Maximum time to drain	Enter the maximum drainage time.
7.2.3.8 Maximum heating time	Enter the maximum heating time. The maximum heating time is checked if the heating option (inline heating) is assembled.

7.3 Extra parameters light

In the light version a level sensor is used that detects if the tank is emptied. The level sensor ensures the resetting and starting of the timers that check proper operation.

1. Enter the maximum temperature that may occur after reaching the set point *7.3.1 Maximum temperature when setpoint reached*
2. Enter the maximum time in which the temperature may increase to above the maximum temperature after reaching the set point, *7.3.2 Maximum time above maximum temperature when setpoint reached*

7.4 Extra parameters full + Arla

In the Full or Arla version agitator detection is also checked.

1. Enter the maximum time in which there may be no agitation during cooling, *7.4.1 Maximum time agitator(s) not active during cooling*
2. Enter the not loaded limits, *7.4.2 Do not load limits*

If	Then
7.4.2.1 Limit 1	Select the required limit type and enter the limit temperature, *7.4.2.1.1 Temperatuur* and the limit time, *7.4.2.1.2 Maximum tijd*
7.4.2.2 Limit 2	Select the required limit type and enter the limit temperature, *7.4.2.2.1 Temperatuur* and the limit time, *7.4.2.2.2 Maximum tijd*
7.4.2.3 Limit 3	Select the required limit type and enter the limit temperature, *7.4.2.3.1 Temperatuur* and the limit time, *7.4.2.3.2 Maximum tijd*
7.4.2.4 Limit 4	Select the required limit type and enter the limit temperature, *7.4.2.4.1 Temperatuur* and the limit time, *7.4.2.4.2 Maximum tijd*
7.4.2.5 Limit 5	Select the required limit type and enter the limit temperature, *7.4.2.5.1 Temperatuur* and the limit time, *7.4.2.5.2 Maximum tijd*

Limit types:

- *Maximum*
- *Minimum*
- *Off*
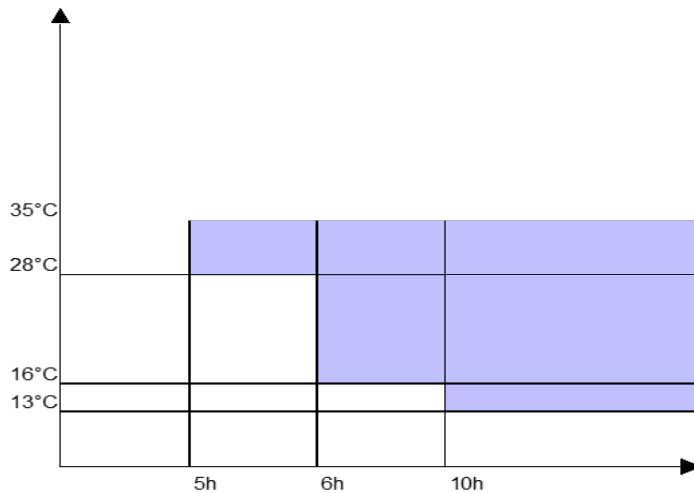
Figure 4: Example not loaded limits

7.5 General parameters

General parameters

1. Select if you want to activate the Oculus alarm, *7.5.1 Oculus alarm active?*
2. Enter the time for an alarm to be generated after cooling stops, *7.5.2 Delay Oculus alarm when cooling is stopped*
3. Enter the type of Oculus sensor, *7.5.3 Type Oculus sensor*. The options are *L3* or *Volume*.
4. If *Volume*, enter the value so the Oculus is detected empty, *7.5.4 Oculus empty detection (L)*.

7.6 Parameters Eco-2-Wash

Parameters specifically for ECO-2-Wash.

1. Enter the time when detergent detection is ignored after restarting, *7.6.1 Ignore time cleaning detergent detection after start up*
2. Enter the detergent detection delay after starting main cleaning, *7.6.2 Delay time cleaning detergent detection low at start main rinse*
3. Enter the alarm time if detergent detection is high at the start of main cleaning, *7.6.3 Delay time cleaning detergent detection high at start main rinse*.
4. Enter the time when water filling must be discontinued at the end of dosing, *7.6.4 Stop time fill water at end of dosing*.
5. Enter the maximum delay for the detection of detergent detection, *7.6.5 Maximum delay time cleaning detergent detection*
6. Enter the water rinsing time if the filling time for the detergent is longer than the water filling time, *7.6.6 Rinse time when time dosing exceeds fill time water*
7. Enter the maximum time for emptying the reservoir, *7.6.7 Maximum time emptying the reservoir*

8. Service

Parameter	Description
8.1 *Software update*	See 8.1 Software update on page 20
8.2 *Software update*	See 8.2 Diagnose menu on page 21
8.3 *Parameters + logging*	See 8.3 Parameters + logging on page 22
8.4 *Options*	See 8.4 Options on page 23
8.5 *Info*	

8.1 Software update

There are two programs on the iControl:

- iControl software: this ensures the daily operation of the tank.
- Bootloader software: this allows the installation of other software. If there is a number of versions on the SD or USB the required software can be selected.

There are different reasons to carry out an update:
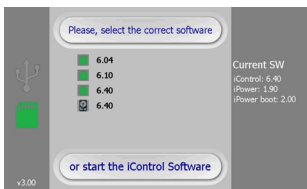
- If the version on the display does not match that of the PowerPrint.
- If there is a new version on:
  - USB
  - SD

How to update software:
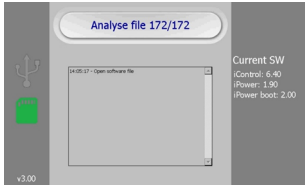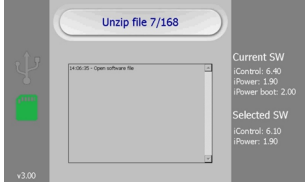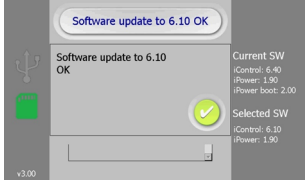
1 Insert an SD or USB with new software in the display.
Results: It asks if you want to install the software.

2 Click on the check mark to confirm.
Results: The iControl software closes and the bootloader software starts.

3 Select if you want to install the suggested software.

If	Then
YES	Follow the instructions on the screen and continue with step If YES or version selected, follow the update instructions on page 20
NO	Continue with step If NO, follow the instructions on page 20

4 If NO, follow the instructions

If	Then
	Select the version that you want to install. green = SD card blue = USB stick = software on the display for installation on the PowerPrint so the PowerPrint version matches the version on the display.
	If you do not want to install another version, press "Start the iControl Software".

5 If YES or version selected, follow the update instructions

If	Then
  Analyse file 172/172 Current SW iControl: 6.40 iPower: 1.90 iPower boot: 2.00 14:05:17 - Open software file v3.00	When the update starts the file is analysed. 📄*Note: The file must contain the following:* • iPower.1.05.hex • iPower2.1.90.hex
  Unzip file 7/168 Current SW iControl: 6.40 iPower: 1.90 iPower boot: 2.00 14:06:35 - Open software file Selected SW iControl: 6.10 iPower: 1.90 v3.00	If the file is correct, it is unzipped. The current version is shown **top right** The version to be installed is shown **bottom right** **In the middle** it is shown what is happening
  Software update to 6.10 OK Software update to 6.10 OK Current SW iControl: 6.40 iPower: 1.90 iPower boot: 2.00 ✅ Selected SW iControl: 6.10 iPower: 1.90 v3.00	If everything works properly, a message is displayed to start the software. The control is automatically restarted after 10 seconds.

8.2 Diagnose menu

You can view operation of the tank in the diagnosis menu.

You do this in:

- Service menu
- *Inputs*
- *Write output(s)*

1. If the robot output not may switch, select ***8.2.1 Service robot active (output will not change)***
2. If the SSC output not may switch, select ***8.2.2 Service SSC***
3. If you want to check the inputs, select ***8.2.3.1 Read input(s)***.
4. Check the different conductivity inputs.

  - If the sensor **detects** the current conductivity must be **lower** than the **conductivity limit**.
  - If the sensor does **not detect** the current conductivity must be **higher** than the **conductivity limit**

If input	Then
LEV1/L1	Check the current conductivity, ***8.2.3.3***, ***Actual conductivity NIV1*** and change the conductivity limit if required, ***8.2.3.2 Conductivity limit NIV1***.
LEV2/L2	Check the current conductivity, ***8.2.3.5***, ***Actual conductivity NIV2*** and change the conductivity limit if required, ***8.2.3.4 Conductivity limit NIV2***.
LEV3/L3	Check the current conductivity, ***8.2.3.7***, ***Actual conductivity NIV3*** and change the conductivity limit if required, ***8.2.3.6 Conductivity limit NIV3***. Enter the delay time for the sensor, ***8.2.3.8 Level sensor 3 delay time***

If input	Then
LEV4/L4	Check the current conductivity, **8.2.3.10**, **Actual conductivity NIV4** and change the conductivity limit if required, **8.2.3.9 Conductivity limit NIV4**.
LEV5/L5	Check the current conductivity, **8.2.3.12**, **Actual conductivity NIV5** and change the conductivity limit if required, **8.2.3.11 Conductivity limit NIV5**.
LEV6/L6	Check the current conductivity, **8.2.3.14**, **Actual conductivity NIV6** and change the conductivity limit if required, **8.2.3.13 Conductivity limit NIV6**.

5   Select which sensor is used for the detection of the detergent. Select **Not active** if you want to deactivate the option, **8.2.3.15 Detection cleaning detergent**

6   Check the outputs, select **8.2.4 Write output(s)** and select the output you want to test.

7   If there are error messages which you do not know the cause of you can delete them, **8.2.5 Erase errors**. If the error has not been rectified the message will be shown again.

8.3 Parameters + logging

In this menu you can do the following:

- Enter where the parameters and logging must be saved
- Manually export the parameters and logged data
- Manually save the parameters
- Load factory settings

If	Then
8.3.1 External backup memory	Enter the external back-up memory. All control data are saved to this back-up memory. • **SD-card** • **Memory stick** • **Nothing** ℹ️ **Tip:** *You should activate 1 of the 2 external data carriers.*
8.3.2 Manually export to USB or SD-card	This action saves the parameters and logged data on an external data carrier if present in the following order: • **Memory stick** • **SD-card**
8.3.3 Save	This action manually saves the parameters on the display and on the external data carrier selected in **8.3.1**.
8.3.4 Load (User/Installater/Fullwood Packo)	This action loads the saved parameters. One can choose between: • User • Installer • Packo
8.3.5 Load Oculus back-up files	This action loads all back-up files.
8.3.6 Load factory settings (NOT ADVISED)	This action resets all parameters.

8.4 Options

The necessary options are entered in this menu:

If	Then
8.4.1 Buzzer off?	the beeper is not activated.
8.4.2 Exhibition software	a cycle simulation will be activated that: • Simulates a cooling cycle when cooling is started • Simulates a cleaning cycle when cleaning is started • Simulates filling the tank • Displays the logging from the last 2 months
8.4.3 A fine day to exit	Then the iControl program is closed and you arrive at the Windows window.

9. IB

The periods to build up ice can be set in different ways:

- *Off*, you do not build up any ice.
- *On*, you then build up ice as soon as the sensor enters the water.
- *Periodic*, you then build up ice when the sensor enters the water and the period is active.

1   Select *9.1 Time clock*
2   If *On*, select if you automatically wish to switch to *Periodic*.
3   If *Periodic*, enter the different periods:

If	Then
9.1.2 Periode 1	Enter the start time, *9.1.2.1 start* and stop time, *9.1.2.2 stop*.
9.1.3 Periode 2	Enter the start time, *9.1.3.1 start* and stop time, *9.1.3.2 stop*.
9.1.4 Periode 3	Enter the start time, *9.1.4.1 start* and stop time, *9.1.4.2 stop*.
9.1.5 Periode 4	Enter the start time, *9.1.5.1 start* and stop time, *9.1.5.2 stop*.
9.1.6 Periode 5	Enter the start time, *9.1.6.1 start* and stop time, *9.1.6.2 stop*.

4   As protection for cooling the product you should set the *9.1.7 Delay start cooling unit after start ice water pump*.
5   You can change the output for ice building, select *9.1.8 Time clock connected on output Q21 in stead of Q22?*.

10. Mobile phone

The mobile phone menu is used for sending text messages through a mobile phone module:

1 Enter the telephone number that the text message must be sent to, *10.1.1 Cell phone number 1*

2 Select if you expect an answer, *10.1.2 Expected answer?*

3 If YES, enter the following:

- The telephone number where an extra text message is sent to, *10.1.2.1 Cell phone number 2*
- The number of times that the message must be sent, *10.1.2.2 Number of retries before sending SMS to phone number 2*
- The time between the messages *10.1.2.3 Time-out*

4 Enter the PIN code, *10.1.3 Pin code*.

5 There is also the possibility of sending extra information texts, activate *10.1.4 Extra messages* and select:

Extra info	Select
if cleaning has ended	*10.1.4.1 Cleaning ended*
about the temperature at the end of cleaning	*10.1.4.2 Temperature at end of cooling*
about the maximum temperature of cleaning	*10.1.4.3 Maximum temperature during cleaning*
if cooling is active	*10.1.4.4 Cooling active*

6 Activate the mobile phone, *10.1 SMS service active?*

7 Check operation and send a test text message, *10.1.5 Test SMS*

8 Extra info is viewed, *10.1.6 Info*

If	Then
10.1.6.1 Follow sequence	Module works correctly if message: *Waiting for message to send*
10.1.6.2 Signaal quality, OK if > 13	Value must be higher than 1 and lower than 99.
10.1.6.3 Baudrate	The connection speed is displayed here, default = 9600.
10.1.6.4 Timeout thread (retry connection after)	Time of waiting before an alarm is generated that no connection can be made.

11. ROBOT

The robot menu is used to make the connection with the robot. The Q23 is used as output. This consists of 3 connections:

- Q23COM
- Q23NO
- Q23NC

Switching this output depends on the settings.

1 Activate the option, *11.1 Robot connected?*.

2 Indicate if the tank may automatically start cooling after cleaning, if you want to check the tank deactivate the option *11.2 Start cooling after cleaning (check cleaning of the tank)?*

3   Enter after what time after stopping cleaning the cooling cycle can start. This time gives you the opportunity to take extra action without the robot being released, *11.3 Delay start cooling cycle*

4   Indicate if the tank may start if there was a problem during cleaning, *11.4 Start cooling cylce when problem during cleaning?*.

5   The output can be switched in different ways:

If	Then
Q23NO closed during • Cooling Q23NO open during • Standby • Cleaning	• *11.5* = *No* • *11.6* = NC
Q23NO open during • Cooling Q23NO closed during • Standby • Cleaning	• *11.5* = *No* • *11.6* = NO
Q23NO closed during • Cooling • Standby Q23NO open during • Cleaning	• *11.5* = *Yes* • *11.6* = NC
Q23NO open during • Cooling • Standby Q23NO closed during • Cleaning	• *11.5* = *Yes* • *11.6* = NO

12. BUFFER - only with old software

See old manual for operation.

13. SSC

Before you begin:
Requirements:

- Level sensor
- Low pressure pressostat, PRIV, setting -5°C, differential minimal

The SSC system allows you to cool small quantities of product without the risk of freezing on.

1   Activate the function, *13.1 SSC active?*

2   Indicate how long the compressor must be on, *13.1.1 Time compressor on*

3   Indicate how long the compressor must be off, *13.1.2 Time compressor off*

4   Indicate the delay time for circuit 2, *13.1.3 Delay time second cooling circuit*

SSC: operation

Level not reached

- Compressor stays active for the time set in **13.1.1 Time compressor on**.
- After this time the low pressure pressostat PRIV is checked, if
    - **Higher** than the set value the compressor continues to **run** until the pressure is below the set value.
    - **Lower** than the set value the compressor **stops** for the time set in
- The compressor is stopped for the set time in **13.1.2 Time compressor off**. Then this cycle is repeated.

Level reached

Compressor is switched with the set point.

14. PACAP

≡ - ⚙ - PACAP

The PACAP is a volume indication system. This system can be assembled on:

- Horizontal tanks
- Vertical tanks

If	You then need the following files
Horizontal tanks	• Pacapadresses_HOR.txt • Pacap_*serienummer*.txt The serial number can be seen on the identification plate.
Vertical tanks	• Pacapadresses_VERT.txt • Pacap_VM.txt

1. Activate the option, **14.1 Pacap active?**.
2. Check the status, **14.1.1 Status**.
3. If this differs from **0** or **1**:
    - Check the wiring
    - Check the power supply
    - Replace the pitagora
    - Replace the option print
4. Enter/check the sensor settings.
   You can find the settings on the final test certificate or you can request them.

If	Check/enter:
Pitagora	• **14.1.5.1 Coefficient A** • **14.1.5.2 Coefficient B** • **14.1.5.3 Coefficient C** • **14.1.5.4 Coefficient D**
Option print 4-20mA	• **14.1.5.5 Value A** • **14.1.5.6 Value B**

5. Calibrate the display

If	Then
Horizontal tank	1 Measure the height of the product with the measuring rule 2 Enter the value in mm, **14.1.2 Actual value (mm)**
Vertical tank	If calibration takes place **beforehand**: 1 Fill the tank with a known quantity 2 Enter this value **14.1.5.10 Calibration (L)** If calibration has to take place **afterwards**: 1 Note the volume in the tank the last time 2 Check the maximum value of the last collection, **14.1.5.11 Calibration (L) at collection (maximum value)** 3 If the volume does not vary much from the value above, enter the volume from the last time, **14.1.5.12 Calibration (L) at collection (actual value)**.

6   Check the value shown on the display. If this does not correspond to what you have entered check **14.1.4 Check measuring table**

7   If the tank does not show 0 when it is the empty, enter this value **14.1.3 Zero value when tank is empty**

8   Then other following parameters can be viewed or set

If	Then
14.1.5.7 Actual gross value	This shows the gross value arriving in the control.
14.1.5.8 Maximum value	If the value comes above this value 0 is shown on the display.
14.1.5.9 Calibration (mm)	This value is the difference between **14.1.5.7 Actual gross value** and **14.1.2 Actual value (mm)**.
14.1.5.13 Dealy Pacap alarm	This is the time after which an alarm is generated if the **14.1.1 Status** differs from 0 or 1.

15. INTERNET

The control can be connected to the internet. For this use a UTP cable and connect it to the connector on the display.

Set the internet connection:

1   Activate the option, **15.1 Internet active?**. The status is shown in the status bar

- Status OK:
- Status NOK:

2   More info if the status is NOK can be found in *15.1.1 Status*.

If	Then
Check IP	Check the cable
IP OK, check internet	Check the internet connection
Internet ok, check server	Contact Fullwood Packo to see if the server is still working.
All ok, wait for next check	No action required

3   To send the current data, go to *15.1.2 Test connection*

Extra info can be found and changed under *15.1.3 Info*.

Parameter	Description
15.1.3.1 IP adress	Enter the IP address with which the control is connected to the internet.
15.1.3.2 Server adress	This is the address where the data are sent to.
15.1.3.3 Frequence sending data	This shows the interval for sending the data.

Messages

Active messages

 or
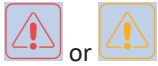
Figure 5: Active messages

The messages are displayed in red, orange or white.

Item		Display of
A		Delete the message. If this has not yet been rectified it will be displayed again.
B		Extra info, if available.

Overview of the messages

 -
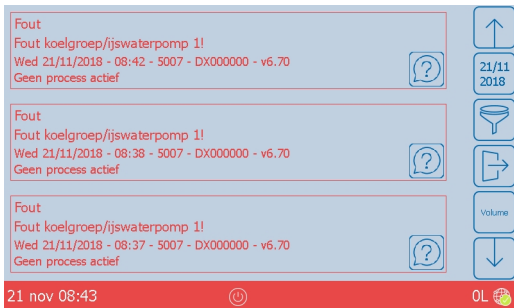
The message(s) are shown in chronological order, the last message is at the top.

Item		Display of
A	↑	Show previous message.
B	10/10 2018	Filtering by date
C	⏳	Filtering by type: • Cooling • Cleaning • Overview of the messages • Active messages • Delete filter
D	↪	Leave menu.
E	↓	Show next message.

Info about the message

Item	Display of
A	Action you must take.
B	Brief description of the message.
C	Date and time of the message occurring.
D	Message code
E	Serial number of the appliance at the time of the message being displayed.
F	Version number of the software at the time of the message being displayed.
G	Info about the process that was active when the message occurred.

Buffer - only for use with old version of the control

If the buffer function is active you can see the following messages:

Code	Description	Action
5021	*Buffer vessel 1 is full!*	Check: • Level sensor on the main tank.

With problems during the cleaning you see the message *Cleaning NOK, restart?*.

If you (re)start cleaning you see the question *Water in the tank, press -> and drain the tank. - Milk in the tank or tank is empty press ----------------------------->*.

Export

The logged data and/or the parameters can be manually or automatically saved on the **SD-card** or **Memory stick**. The following message can be shown here:

Code	Description	Action
4000	*No external memory found!*	Check whether a **SD-card** or **Memory stick** is connected.
4001	*Copy to memory stick: OK*	No action required, it is shown that copying to the **Memory stick** was successful.
4002	*Copy to SD card: OK*	No action required, it is shown that copying to the **SD-card** was successful.
4003	*Failed to create the destination folder! Is the card locked?*	Check whether the external device is locked.
4004	*Files to copy not found!*	Contact Fullwood Packo if this message keeps returning.
4005	*Destination folder not found!*	Contact Fullwood Packo if this message keeps returning.
4006	*Authentication error! Is the card locked?*	Contact Fullwood Packo if this message keeps returning.
4007	*Failed to copy files: are they already on the memory device? Is the disk full?*	Contact Fullwood Packo if this message keeps returning.
4008	*File transfer: unknown error*	Contact Fullwood Packo if this message keeps returning.
4009	*No SD card found!*	Check whether a **SD-card** is connected.
4010	*No memory stick found!*	Check whether a **Memory stick** is connected.
4011	*Copy busy!*	No action required, indicates that copying is in progress.
4012	*Copy files started!*	No action required, indicates that copying has started.

Error message

A file is needed, *PaError.xml* for error messages:

- not displayed
- displayed after a number of times
- displayed after a certain period

If this file has an incorrect format you see *Format error PaError.xml!*

Mobile phone

When testing the mobile phone functionality the following error messages can be displayed:

Code	Description	Action
26001	*GSM: Not enough characters in the GSM number*	Check the mobile phone number, the number must consist of • Country code, e.g. 0032 • Telephone number, e.g. 479 45 85 22 E.g. 0032 479 45 85 22
26002	*GSM: no GSM number entered*	Enter a mobile phone number
26004	*GSM: Is switched off!*	Check whether all parameters have been correctly entered and check whether mobile phone reception is good, see 10. Mobile phone on page 23. If OK, activate the mobile phone option.
26005	*GSM: Is not active!*	Check whether all parameters have been correctly entered and check whether mobile phone reception is good, see 10. Mobile phone on page 23. If OK, activate the mobile phone option.
26008	*GSM: Inititialisation PIN-code failed*	Check the PIN code, *10.1.3 Pin code*
26017	*GSM: Unable to send SMS*	Check whether reception is good, *10.1.6.2 Signaal quality, OK if > 13*.
26019	*GSM: No answer received*	Check whether a confirmation message has been sent.
26022	*GSM: Unable to send SMS due to network or lack of money*	Check if • there is sufficient credit on the card • the network is sufficiently strong See 10. Mobile phone on page 23.
26023	*GSM: No suitable baudrate found*	Check the connection between the mobile phone and the control.

Inputs

There are different inputs on the print. An error message is generated depending on the inputs. Types:

- 230 V inputs, I1 - I11
- 24 V inputs, I12 - I13

Code	Description	Action
5000	*Input I4, cleaning pump active!*	Check the cleaning pump current. This can be: • Internal • External ⓘ *Tip: The print can be checked by placing a bridge over the input I4*
5001	*Input I1, agitator 1 active!*	Check the agitator 1 current. ⓘ *Tip: The print can be checked by placing a bridge over the input I1*
5002	*Input I2, agitator 2 active!*	Check the agitator 2 current. ⓘ *Tip: The print can be checked by placing a bridge over the input I2*
5003	*Input I3, agitator 3 active!*	Check the agitator 3 current. ⓘ *Tip: The print can be checked by placing a bridge over the input I3*
5004	*Input I8, Robot stopped!*	The message is shown when the milk is collected. If the message is displayed at another time, check the input *I8* ⓘ *Tip: The print can be checked by placing a bridge over the input I8*
5005	*Input I12, detergent almost empty!*	Check • if there is still detergent in the bottle • if the float has seized • if the connection is still good ⓘ *Tip: The print can be checked by placing a bridge over the input I12*
5006	*Input I10, breakdown heating equipment!*	Check the heating element safety thermostat. ⓘ *Tip: The print can be checked by placing a bridge over the input I10*
5007	*Input I5, breakdown cooling unit/ice water pump 1!*	Check the cooling unit current or the ice water pump. ⓘ *Tip: The print can be checked by placing a bridge over the input I5*
5008	*Input I6, breakdown SSC1/ ice water pump 2!*	Check the cooling unit current or the ice water pump. ⓘ *Tip: The print can be checked by placing a bridge over the input I6*
5011	*Input I13, Eco-tronic alarm actief*	Check the Eco-tronic controller. ⓘ *Tip: The print can be checked by placing a bridge over the input I13*
5012	*Input I19, UPS input*	Check the UPS. ⓘ *Tip: The print can be checked by placing a bridge over the input I9*

Internet

When testing the internet connection the following message can be displayed:

Code	Description	Action
4104	*Internet test started*	The message is displayed when the test is started, *15.1.2 Test connection*
4101	*Internet connectivity NOK, no IP address, check the cable*	Check the cable connected between the internet connection and the control.
4102	*Internet connectivity NOK, no internet, check your internet*	Check that your internet connection is working.
4103	*Internet connectivity NOK, server does not reply, contact Fullwood Packo*	Contact Fullwood Packo to see if there is a problem with the server.
4100	*Internet connectivity OK, check your data at http://icontrol.packo.com*	If everything is working properly you can check the data on the website concerned.

Cooling

Different messages can be displayed during cooling.

Code	Description	Action
5010	*Input I11, alarm milk input while other process active!*	The message is shown if input *I11* is active while cleaning is active.
5020	*Cooling not active after milking at the set period!*	Starts the cooling. It has been detected that cooling is not starting at the entered times, *1.1 Check cooling active?*
5050	*Maximum cooling time exceeded!*	Check the actual cooling time. If it is indeed longer, find the cause. • Soiling of the condenser • Pre-cooling less efficient • Compressor/cooling unit defective • Liquid valve defective • Ice water pump defective or blocked
5055	*Cooling will start when tripping safety is ended!*	Wait until tripping safety has past. If this error message returns regularly, check the logging of the temperatures. If there are jumps in the temperature replace the relevant temperature sensor.
5057	*Temperature is lower than de minimum temperature!*	Check: • the actual temperature of the product • if the liquid valve closes • if the ice water pump stops • the logging of the temperatures. If there are jumps in the temperature replace the relevant temperature sensor .

Logging

Different messages can be displayed when saving or reading the parameters or logging.

Code	Description	Action
1001	Error reading machine params!	Contact Fullwood Packo if this message keeps returning.
1002	Unable to save machine params!	Contact Fullwood Packo if this message keeps returning.
1501	Error reading params!	Contact Fullwood Packo if this message keeps returning.
1502	Unable to save params!	Contact Fullwood Packo if this message keeps returning.
2001	Error reading error log!	Contact Fullwood Packo if this message keeps returning.
2002	Unable to save error log!	Contact Fullwood Packo if this message keeps returning.
2003	Unable to read/write error log!	Contact Fullwood Packo if this message keeps returning.
2501	Error parameter not read!	Contact Fullwood Packo if this message keeps returning.
2510	Failed to save the parameter file locally!	Contact Fullwood Packo if this message keeps returning.
2511	Failed to save the dealer/Fullwood Packo file lokaal locally!	Contact Fullwood Packo if this message keeps returning.
2512	Failed to save the parameter file externally!	Contact Fullwood Packo if this message keeps returning.
2513	Failed to save the dealer/Fullwood Packo file externally!	Contact Fullwood Packo if this message keeps returning.
2514	Failed to save the parameter file in the backup directory!	Contact Fullwood Packo if this message keeps returning.
2515	Failed to save the dealer/Fullwood Packo file in the backup directory!	Contact Fullwood Packo if this message keeps returning.
3001	Error reading cool log!	Contact Fullwood Packo if this message keeps returning.

Code	Description	Action
3002	***Unable to save cool log!***	Contact Fullwood Packo if this message keeps returning.
3501	***Error reading inst cool log!***	Contact Fullwood Packo if this message keeps returning.
3502	***Unable to save inst cool log!***	Contact Fullwood Packo if this message keeps returning.

OCULUS

Different messages will be displayed depending on the settings in the Oculus parameters.

Code	Description	Action
6000	***Do not load limit 1 exceeded!***	The set limits in ***7.4.2.1 Limit 1*** are exceeded. Analyse the logging to see what has gone wrong.
6001	***Do not load limit 2 exceeded!***	The set limits in ***7.4.2.2 Limit 2*** are exceeded. Analyse the logging to see what has gone wrong.
6002	***Do not load limit 3 exceeded!***	The set limits in ***7.4.2.3 Limit 3*** are exceeded. Analyse the logging to see what has gone wrong.
6003	***Do not load limit 4 exceeded!***	The set limits in ***7.4.2.4 Limit 4*** are exceeded. Analyse the logging to see what has gone wrong.
6004	***Do not load limit 5 exceeded!***	The set limits in ***7.4.2.5 Limit 5*** are exceeded. Analyse the logging to see what has gone wrong.
6005	***Max power interruption time passed!***	Check the installation. If this continues contact the service technician.
6008	***Please start the cleaning urgently!***	Start cleaning within the time set in ***7.2.3.4 Time within the cleaning should be started after collection (change in NIV3)***
6009	***Temperature rises too much after reaching the set point***	Check the cooling, the temperature has become higher than the time in ***7.3.2 Maximum time above maximum temperature when setpoint reached***
6010	***Temperature too long too high during the first cooling***	Check the cooling, the temperature has stayed high too long after starting cooling, ***7.2.2.1 Maximum temperature during cooling***
6011	***Temperature too long below the minimum temperature***	Check the cooling, the temperature has become lower than set in ***7.2.2.3 Minimum temperature during cooling***
6012	***Agitator {0} too long not active during cleaning***	Check agitator 1, 2 or 3 depending on what is in the message. The message is displayed because • the agitator is not running • the sensor is not properly adjusted • the wiring is incorrect
6014	***Do not forget to clean the tank!***	Start cleaning. A message is displayed if cleaning is not active after collection. See ***7.2.3.3 Reminder to start te cleaning after collection (change in NIV3)***

Code	Description	Action
6015	*Cooling is active or level detected without cleaning!*	Check whether the tank has actually been emptied. If not, check the values of the LEV3 sensor. This message is displayed if a tank is detected empty.
6018	*Product detected, please start the cooling!*	Start cooling. Cooling is not active while product is detected.
100005	*Electricity failure*	No action required, this message is displayed if there has been a power loss during cooling, cleaning or agitating.
100012	*Oculus light selected!*	No action required, this message is displayed to indicate that the Oculus light option is selected. With the selection of the Oculus light agitator detection is not checked.

Start-up

Different messages can be displayed during start-up.

Code	Description	Action
2516	*Parameter files found with no serial number or serial number DX000000!*	Confirm the message, you then see the following message, *Where to load the parameters from?*. Select the required location, SD card or display.
5022	*Please enter the serial number - 6.4.1 Tank number*	Enter the serial number of the tank.
6051	*Dealer parameters not found, Fullwood Packo parameters loaded!*	Contact Fullwood Packo if this message keeps returning.
6052	*Fullwood Packo parameters not found, factory parameteres loaded!*	Contact Fullwood Packo if this message keeps returning.
20012	*Processparameters are cleared! New version installed or dead battery!*	• With new version: no action required • If no new version, replace the battery

PACAP

Different messages can be displayed during start-up.

Code	Description	Action
4050	*No Pacap address file found!*	Check whether the control has the file with the addresses for the PACAP. • Pacapaddress_HOR.txt • Pacapaddress_VERT.txt
4051	*Pacap address file - wrong syntax!*	Contact Fullwood Packo if this message keeps returning.
4052	*No Pacap volume file found!*	Check if horizontal tank: • if the serial number has been entered • if the correct tank type has been entered • if the table is on the USB/SD/control Check if vertical tank: • if the table, Pacap_VM.txt is on the USB/SD/control
4053	*Pacap file - wrong order mm values!*	Contact Fullwood Packo with the following info: • Tank serial number • Software version number • Tank type
4054	*Pacap file - wrong order volume values!*	Contact Fullwood Packo with the following info: • Tank serial number • Software version number • Tank type
4055	*Pacap file - wrong syntax!*	Contact Fullwood Packo with the following info: • Tank serial number • Software version number • Tank type
4056	*Pacap address file - not enough items!*	Contact Fullwood Packo with the following info: • Tank serial number • Software version number • Tank type
5035	*Please try again later, loading para-meter value!*	No action required, this message is shown to indicate that the value must still be retrieved.
5036	*Inserted value is processed!*	No action required, this message is shown to indicate that the entered value is being processed.
5037	*Updating volume indication!*	No action required, this message is shown to indicate that the entered value is being processed.
5038	*Please wait, loading volume indication parameters!*	No action required, this message is shown to indicate that the value must still be retrieved.
5039	*Volume indication information is read!*	No action required, this message is shown to indicate that the entered value(s) are being processed.

Code	Description	Action
11013	*Pacap timeout*	Contact Fullwood Packo if this message keeps returning.
11113	*Communication error with external module*	Check: • Connection between external module and control • Power to the external module • Replace the external module
11151	*Status volume indicator/pacap NOK*	Check • Connection of the sensor to the external module • Settings of the PACAP

Parameters

Different messages can be displayed during start-up.

Code	Description	Action
1505	*Factory params loaded!*	No action required
1506	*Dealer paramame-ters loaded!*	No action required
1507	*Fullwood Packo parameters loaded!*	No action required
1508	*Dealer parameters not found!*	Contact Fullwood Packo if this message keeps returning.
1509	*Fullwood Packo parameters not found!*	Contact Fullwood Packo if this message keeps returning.
5030	*Parameters saved*	No action required
6050	*Last parameters not found, dealer para-meters loaded!*	Contact Fullwood Packo if this message keeps returning.

PP - Power Print

Different messages can be displayed during start-up.

Code	Description	Action
103	*Power init error, communication problem!*	Contact Fullwood Packo if this message keeps returning.
104	*Power init error, failed reading inputs!*	Contact Fullwood Packo if this message keeps returning.
7001	*Comm. port power print: open failed*	Contact Fullwood Packo if this message keeps returning.
10013	*Error communication power print*	Contact Fullwood Packo if this message keeps returning.
10041	*Communication power print: wrong function code - update SW iPower!*	Contact Fullwood Packo if this message keeps returning.
10050	*Communication power print: iPower SW not started!*	Contact Fullwood Packo if this message keeps returning.
10060	*iPower: Watchdog reset!*	Contact Fullwood Packo if this message keeps returning.
10061	*iPower: I2c inputs failed to read*	Contact Fullwood Packo if this message keeps returning.
10062	*iPower: I2c temp failed to read*	Contact Fullwood Packo if this message keeps returning.
10063	*iPower: Comm CRC error*	Contact Fullwood Packo if this message keeps returning.
10064	*iPower: Comm unkown address*	Contact Fullwood Packo if this message keeps returning.
10065	*iPower: Comm wrong format*	Contact Fullwood Packo if this message keeps returning.
10066	*iPower: Comm wrong number of bytes*	Contact Fullwood Packo if this message keeps returning.
10067	*iPower: unknown error*	Contact Fullwood Packo if this message keeps returning.
10068	*EXCEPTION iPower: Take picture of these numbers!*	Contact Fullwood Packo if this message keeps returning.
10069	*iPower: RS485 Rx overflow*	Contact Fullwood Packo if this message keeps returning.
10070	*iPower: WinCE Rx overflow*	Contact Fullwood Packo if this message keeps returning.
10071	*iPower: EEPROM cleared*	Contact Fullwood Packo if this message keeps returning.

Code	Description	Action
10100	*iPower: EEPROM writing failed*	Contact Fullwood Packo if this message keeps returning.
10101	*iPower: EEPROM reading failed*	Contact Fullwood Packo if this message keeps returning.
100010	*Last parameters not found, dealer parameters loaded!*	Contact Fullwood Packo if this message keeps returning.
100011	*Watchdog cannot start: restart tank!*	Restart the tank, contact Fullwood Packo if this message keeps returning.

Cleaning

The following message messages can be displayed during cleaning.

Code	Description	Action
5014	*Cleaning program ended.*	No action required, indicates that cleaning has finished.
5015	*Temperature main cleaning not long enough high*	Check: • Quantity of hot water in pre-rinsing and main cleaning • The boiler, if it is sufficiently large - Volume = required volume/0.8 - E.g. 300l required --> boiler size = 375l
5016	*Tank full at the end of the cleaning!*	Check • Drainage valve(s), must be open • Water valve(s), must be closed • Water level sensor, may not detect • Drain level sensor, may not detect
5023	*Level sensor detergent detectects water/product at start filling detergent*	Check: • Detergent detection level sensor, may not detect • Water valve(s), must be closed • Feed chute for soiling
5024	*Level sensor reservoir detectects water/product at standby*	Check: • Water level sensor, may not detect • Water valve(s), must be closed
5025	*Level sensor drain detectects water/ product at standby*	Check: • If it is water or product • Drain level sensor, may not detect • Water valve(s), must be closed • Outlet valve, manual or pneumatic, must be closed

Code	Description	Action
5026	*Level sensor detergent detectects water/product at standby*	Check: • Detergent detection level sensor, may not detect • Water valve(s), must be closed • Feed chute for soiling
5027	*Level sensor water-level keeps detecting when emptying the reservoir*	Check: • Water level sensor, may not detect • Circulation valve, this must be open
5028	*Disinfectie empty*	Check: • Dosing pump disinfection • Bottle with detergent
5051	*Heating the water takes too long!*	Check: • Heating equipment, are all 3 phases still OK • Temperature sensor(s), do they display the correct temperature
5052	*Tank not empty during cleaning!*	Check: • Drainage valve(s), must be open • Water level sensor, may not detect • Drain level sensor, may not detect
5054	*No water detected during filling!*	Check: • Water level sensor, must detect within the set time, ***7.2.3.6***. • Drain level sensor, must detect within the set time, ***7.2.3.4***.
5058	*Level sensor water fill detects before level sensor drain.*	Check: • Water level sensor, may not detect at start of filling • Drain level sensor, must detect before water level sensor detects with filling
5059	*Level sensor water fill keeps detecting when emptying reservoir*	Check: • Water level sensor, may not detect • Circulation valve, this must be open
6013	*Cleaning temperature not long enough high*	Check: • Volume water in main cleaning • Temperature after pre-rinsing • Circulation time of main cleaning
6017	*Stop pressed during cleaning!*	No action required, is used to detect that cleaning was manually stopped.
60003	*Load default cleaning program!*	No action required, indicates that the default cleaning program is loaded.
60004	*Load cleaning program!*	No action required, indicates that the cleaning program is created again.

Robot

The following messages can be displayed with operation with a robot.

Code	Description	Action
5060	*Robot service active!*	No action required, indicates that the robot is in service mode.

If the tank was incorrectly cleaned or if the tank was manually stopped the message *Press cooling or cleaning button* is displayed.

Check the tank and if

- the tank is not sufficiently cleaned, start a new cleaning cycle
- the tank is sufficiently cleaned, start cooling

SSC

The following messages can be displayed with operation with SCC.

Code	Description	Action
5061	*SSC service active!*	No action required, indicates that the SSC is in service mode.

Update

When inserting or removing a *SD-card* or *Memory stick* the following message is displayed:

- *Memory stick inserted*, code *5031*
- *SD card inserted*, code *5032*
- *Memory stick removed*, code *5033*
- *SD card removed*, code *5034*

1 If there is a new version on the inserted *SD-card* or *Memory stick* the following message is displayed *Current software: {0}, software found on {2}: {1}. Do you want to install this one?*.

2 Select if you want to install the new version.

3 If yes, a message is displayed *Software will be updated*.
To be able to apply the update you need a bootloader, if this is not available you see *No bootloader found - impossible to update the software*, see 8.1 Software update

Temperature sensor(s)

The following can take place:

- The *Product* sensor can become defective. You then see the following message: *Product temperature sensor broken!*
- The *Oculus* sensor can become defective. You then see the following message: *Oculus temperature sensor broken!*
- A difference can be observed between the *Product* and *Oculus* sensor. You then see the following message: *The difference between the product sensor and the oculus sensor is too big!*

Temperature sensor(s) - actions

1 Confirm the message *Product temperature sensor broken!* or *Oculus temperature sensor broken!*
Results: You see the following message, you can find the next steps under Temperature sensor(s) - solution

- *Change 5.3.1 to NORMAL, check difference between sensors and if necessary replace product temperature sensor*
- *Change 5.3.1 to NORMAL, check difference between sensors and if necessary replace Oculus temperature sensor*

2 Confirm the message *The difference between the product sensor and the oculus sensor is too big!*

3 The following is asked *Which sensor is correct? Check the temperature of the product inside the tank and select the correct value. In 90% of the cases the lowest value will be the correct one.*

- You see the following message *Change 5.3.1 to NORMAL, check difference between sensors and if necessary replace product temperature sensor* or *Change 5.3.1 to NORMAL, check difference between sensors and if necessary replace Oculus temperature sensor*, then follow the steps under Temperature sensor(s) - solution

- If you have selected the highest value you see the message *You have chosen the highest value, in most cases the lowest value is the correct one? Are you sure?*

4 Confirm if correct and follow the steps under Temperature sensor(s) - solution .s

Temperature sensor(s) - solution

1 Change *5.3.1 Sensor operation* to *Normal*.

2 Check *5.3.4.2 Actual value*, if this varies too much from the actual temperature of the product the *Product* sensor must be replaced.

3 Check *5.3.5.2 Actual value*, if this varies too much from the actual temperature of the product the *Oculus* sensor must be replaced.

4 If the temperature sensors do not vary too much, calibrate the sensor(s)

Select	Then
5.3.4 Product	Check *5.3.4.1 Actual value* and change *5.3.4.2 Calibration* if required.
5.3.5 Oculus	Check *5.3.5.1 Actual value* and change *5.3.5.2 Calibration* if required.
5.3.6 Sensor 3	Check *5.3.6.1 Actual value* and change *5.3.6.2 Calibration* if required.

5 To prevent the error in the future *5.3.2 Maximum temperature difference* and/or *5.3.3 Maximum time for temperature difference* can be changed.

XML

When loading the texts you can see the following messages:

Code	Description	Action
100000	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.
100001	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.
100002	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.
100003	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.

Code	Description	Action
100004	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.
100007	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.
100008	*Screen XML: file not found!*	Contact Fullwood Packo if this message keeps returning.

Logging

Figure 6: Logging

Table 4:

Item	Display of

A	Info about the active cycle:
	• Cooling
	  - Start time cooling
	  - Stop time cooling
	  - Active cooling time,
	  - Running time cooling unit 1,
	  - Running time cooling unit 2,
	• Cleaning
	  - Start time cleaning
	  - Stop time cleaning
	  - Duration cleaning
	  - Maximum temperature
	  - Temperature start
	  - Temperature end

B	Indicates whether there was an error message during this cycle
C	Switches to the detail display on graphics
D	Switches to the detail display in table
E	Filtering by date
F	Filter: • Cooling • Cleaning • Overview of messages • Active messages • Delete filter
G	Leave menu
H	Switch to volume logging

Volume logging

Table 5:

Item	Display of
A	Info about the volume: • Date • Time • Volume
B	Switches to the detail display on graphics

Process description

Cooling

Figure 7: Cooling screen

Table 6:

Item	Display of
A	Displays the current product temperature
B	Status of cooling circuit 1
C	Status of cooling circuit 2
D	Set point 1, if white background this is active
E	Set point 2, if white background this is active
F	Deep cooling
G	Stop cooling

Cooling cycle

The cooling cycle can be started in different ways, see 1 Cooling .

The first step in the cooling process is the delayed start of cooling, this can be overridden by pressing the skip key

The second step is cooling to the selected set point.

After the temperature has reached the set point there is agitation for the time in *2.3.1 Manual agitation time 1*.

After agitation there is a rest period.

When the temperature comes above the set point and differential there is first agitation. If the temperature after agitation is still above the set point and differential there is cooling again.

If cooling must immediately start **deep cooling** can be switched on .
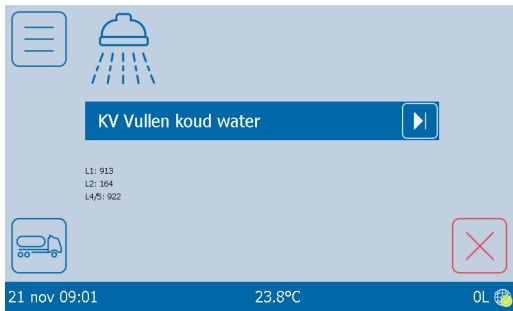
Cleaning

Figure 8: Cleaning screen

Table 7:

Item	Display of
A	Display of the actual cleaning temperature
B	Info about the current step
C	Info about the level sensors, only if logged in as Installer or FullwoodPacko
D	Manual transition to the next step, only for installer
E	Stop cleaning

Cleaning cycle

The cleaning can only be started manually.

The cleaning always starts with drainage.

Then the 4 steps programmed in the menu are carried out, see 4. Cleaning cycle .

At the end of cleaning the message is displayed whether cleaning was successful or not.

In combination with a robot, after poor cleaning you are asked what you want to do, see Robot .
If no action the robot cannot start.

Agitating

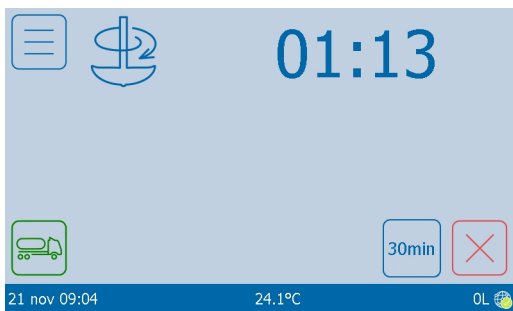Figure 9: Agitation screen

Item	Display of
A	Display of the remaining agitation time.
B	Start the second agitation time.
C	Stop agitation.

Agitating

Agitation can only be started manually. For this the manual agitation option must be activated, see 2. Agitating

Hardware

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