EN

PF7/PF7+ Peristaltic Filler with QC14 Pumphead User Manual

EN

Contents

Section 1 - Safety notes and installation

1 Disclaimers

The information in this document is believed to be correct, but Watson-Marlow Flexicon A/S accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: This product must not be used for patient-connected applications.

PF7+ This logo means the feature is exclusive to PF7+.

2 Certification

Certification documents follow on the next pages.

2.1 Declaration of conformity

Watson-Marlow Limited
Falmouth
Cornwall
TR11 4RU
England

EU declaration of conformity

1. PF7/PF7+ Peristaltic Filler.

2. Manufacturer:
   Watson Marlow Ltd
   Bickland Water Road
   Falmouth
   TR11 4RU
   UK

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.

4. All models and versions of the PF7/PF7+ series of peristaltic filler with all approved pumpheads, tubing and accessories.

5. The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:
   Machinery Directive 2006/42/EC
   EMC Directive 2014/30/EU
   ROHS Directive EU 2016/863

6. Harmonised standards used:
   BS EN 61010-1:2010+A1-2019 Safety requirements for electrical equipment for measurement, control, and laboratory use Part 1: General Requirements
   BS EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use – EMC requirements Part 1: General Requirements
   BS EN 60529:1992+A2:2013 Degrees of protection provided by enclosures (IP code)

7. Intertek Testing and Certification Ltd, No: 3272281, performed compliance testing to UL 61010-1:2012 and CSA C22.2#61010-1-12:2012 and issued certification of compliance to these standards.

   Signed for and behalf of:

   Watson Marlow Ltd

   Falmouth, 01 April 2021

Simon Nicholson, Managing Director, Watson-Marlow Limited
Watson-Marlow Fluid Technology Group Telephone +44 (0) 1326 370370
A Spirax-Sarco Engineering plc company

2.2 Declaration of incorporation

Watson-Marlow Limited
Falmouth
Cornwall
TR11 4RU
England

EU declaration of incorporation

1. Manufacturer:
   Watson Marlow Ltd
   Bickland Water Road
   Falmouth
   TR11 4RU
   UK

2. Person authorised to compile the technical documentation:
   Nancy Ashburn
   Design and Engineering Director
   Watson Marlow Ltd
   Bickland Water Road
   Falmouth
   TR11 4RU

3. All models and versions of the PF7/PF7+ series of peristaltic filler with all approved pumpheads, tubing and accessories.

4. The essential Health and Safety requirements (Annex 1) of the Directive have been applied and fulfilled and the relevant technical documentation has compiled in accordance with part B of Annex VII of the directive. This unit is also in compliance with the following directives:
   Machinery Directive 2006/42/EC
   EMC Directive 2014/30/EU
   ROHS Directive EU 2016/863

5. We undertake to transmit, in response to a reasoned request, by appropriate national authorities, relevant information on the partly completed machinery identified above, and shall be without prejudice to our intellectual property rights. The method of transmission shall be by mail or email.

6. In accordance with the Machinery Directive 2006/42/EC this unit must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the directive where appropriate.

Signed for and behalf of:
Watson Marlow Ltd
Falmouth, 01 August 2020

Simon Nicholson, Managing Director, Watson-Marlow Limited
Watson-Marlow Fluid Technology Group Telephone +44 (0) 1326 370370
A Spirax-Sarco Engineering plc company

3 Safety information

This safety information should be used in conjunction with the rest of this operating manual.

This pump and pumphead should only be used by competent, suitably trained personnel after they have read and understood the manual and considered any hazard involved. If the pump is used in a manner not specified by WMFTG, the protection provided by the pump may be impaired. Any person who is involved in the installation or maintenance of this equipment should be fully competent to carry out the work. This person should also be familiar with the appropriate local health and safety regulations.

3.1 Definitions of symbols on the pump or pumphead

An appropriate safety instruction should be followed or caution to a potential hazard exists.

Rotating Parts

Complies with the applicable EC directives

Dangerous voltage

The pump or packaging cannot be handled as domestic waste. Dispose of the pump and packaging at an appropriate recycling centre for the recovery of electrical and electronic equipment.

3.2 Intended purpose

The PF7/PF7+ is a peristaltic fluid dispensing pump suitable for viscous, shear-sensitive hygienic and aseptic applications. This pump must be used only for its intended purpose.

WARNING: This product must not be used for patient-connected applications.

3.3 Tube bridge open indicator

There are rotating parts inside the pumphead. Isolate the pump from input power before opening the pumphead tube bridge or access tray.

The pumphead features magnetic safety switches in both the tube bridge and access tray. If the tube bridge or access tray are opened the pump will not operate and a warning screen is displayed.

The tube bridge must be closed for the warning screen to clear and the pump to start.

Additionally for the QC14 pumphead the access tray must be closed for the warning screen to clear and the pump to start.

3.4 Shipping and handling

The pump does not require special precautions to ship.

The PF7 contains a non-replaceable Manganese Dioxide Lithium Battery (Li/MnO_2), IEC CR2032, with a typical capacity of 225 mAh, containing 0.07 g of Lithium.

The PF7+ contains a non-replaceable Manganese Dioxide Lithium Battery (Li/MnO_2), IEC CR2016, with a typical capacity of 140 mAh, containing 0.0036 g of Lithium.

4 Peristaltic pumps - an overview

Rollers or shoes in a peristaltic pump compress the tube or hose as they rotate, creating a vacuum which draws fluid through the tube.

Nothing but the pump tube or hose touches the fluid, eliminating the risk of the pump contaminating the fluid, or the fluid contaminating the pump.

www.wmftg.com/how-do-peristaltic-pumps-work

The figure shows fluid being drawn into a pump tube, trapped by the pumphead roller, and expelled when the next roller passes over the tube. As the rollers rotate, a vacuum is formed in the tube, pulling in more fluid, for the next roller pass.

The complete closure of the tube when it is occluded (squeezed) between the roller and the track, gives the pump its positive displacement action, preventing backflow and eliminating the need for check-valves when the pump is not running.

Peristaltic pumps are self-priming and self-sealing against backflow. No valves are required in infeed or discharge line, except those specified in "Table 3 - Tube sizes" on page 19.

5 When you unpack your pump

Lift the pump according to standard Health and Safety guidelines using both lifting points. (Refer to "Lifting point locations" on the next page)

DO NOT lift the pump by holding the pumphead as the access tray can disengage.

1. Unpack all parts carefully, retaining the packaging.
2. Make sure you have all components in "Supplied components" below:

Table 1 - Supplied components
PF7/PF7+ pump drive unit, fitted with a QC14 pumphead.
QC14 pumphead tube lock set
Power supply cable for country of use
Safety information booklet

3. Inspect components for damage. If anything is missing or damaged, contact your Watson-Marlow sales office or distributor.
4. Dispose of the packaging at an appropriate recycling centre. The outer carton is made of corrugated cardboard.

5.1 Before storage

Pump:

1. Make sure you have all components in "Supplied components" above.
2. Refer to "Pump specifications" on page 148 for storage specifications.

Tubing:

1. Make sure use-by-dates are clearly marked.

5.2 After storage

Pump:

1. Make sure you have all components in "Supplied components" above.
2. Inspect components for damage.
3. Make sure that all parts of the pump work correctly.

Tubing:

1. Inspect for damage.
2. Make sure tubing use-by-dates are not exceeded.

6 Lifting and carrying

Disconnect the power cable and other wired connections and remove the tube from the pumphead before moving the pump. Failure to do so could result in a trip hazard or damage to the pump, cables, connectors or tube.

Lift the pump according to standard Health and Safety guidelines using both lifting points. (Refer to "Lifting point locations" below)

DO NOT lift the pump by holding the pumphead as the access tray can disengage.

1	Lifting points

Figure 1 - Lifting point locations

7 Key features of QC14 pumphead

Figure 2 - Key features of QC14 pumphead

Table 2 - Key features of QC14 pumphead

	Name	Description
1.	Tube Bridge	The removable upper portion of the pumphead.
2.	Locking lever*	Locks the tube bridge in place.
3.	Track	Maintenance free spring loaded track fingers. Accommodate different Accusil tube sizes without adjustment.
4.	Rotor	Rotates to produce smooth accurate flow.
5.	Access tray*	Removable tray for pumphead cleaning. (Note: Access tray is consumable wearing part)

*Pumphead safety—Pump will only operate when the integral safety switches are in the correct position.

8 Pumphead mounting and removal

Isolate from power supply to secure the motor against accidental start-up. Only qualified personnel can lift, transport, install, operate, maintain and repair the pump.

The pumphead is held in position with two hex bolts located as shown below. To remove the pumphead, use a 5 mm hex key to remove the bolts.

The hex bolts are tightened to the pump using 3.6-4 Nm of torque.

Figure 3 - Pumphead mounting and removal

9 Installation position

This product does not comply with the ATEX directive and must not be used in explosive atmospheres.

- Position the pump on a work surface or bench.
- Clear the top, front and back of the pump of obstructions so the controls and wiring connections are easily accessible when the pump is in use. The pump's power input plug is the disconnecting device (for isolating the motor drive from the power supply in an emergency).

10 Setting up the fluid path

If fluids hazardous to health are used applicable safety procedures must be followed to prevent injury.

10.1 Tube selection

Tubes must be selected according to the fluid and volume to be filled. Use the table shown below for choice of tubes according to minimum volume to be filled.

PF7/PF7+ has been designed to provide optimal performance when used in combination with Flexicon Accusil and Asepticsu. Use Accusil and Aspeticsu to ensure the highest level of accuracy. Using tubing other than Accusil and Asepticsu can cause poor performance and undesirable results.

For best performance, choose Accusil tubing using "Table 3 - Tube sizes" below:

Table 3 - Tube sizes

Volume (ml)	Filling Nozzle (mm i.d.)	Tubing (mm i.d.)	Y-Connector (mm i.d.)
0.01-0.50	0.6	0.5	1.2
>0.50 - 1.00	1.0	0.8	1.2
>1.00 - 1.70	1.0	1.2	1.8
>1.70 - 7.00	1.6	1.6	1.8
>7.00 - 12.0	3.2	3.2	3.6
>12.0 - 22.0	4.5	4.8	4.8
>22.0 - 35.0	6.0	6.0	4.8
> 35.0	8.0*	8.0	7.5

* use non-return valve

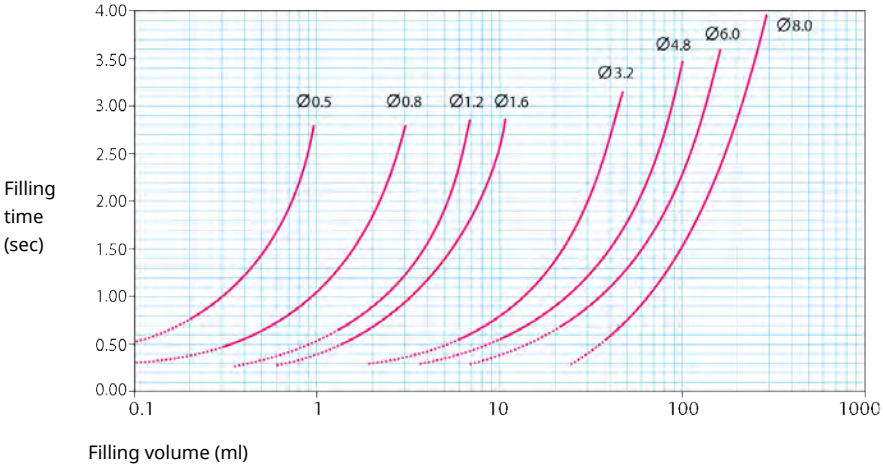


Figure 4 - Filling time

10.2 Y-connector selection

Before mounting the tubes in the pumphead, the tubes must be assembled with a Y-connector.

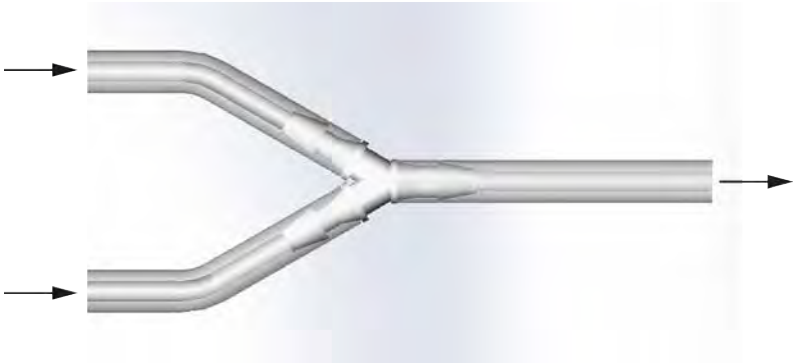


Figure 5 - Y-connector selection

When the Y-connector has been assembled, mount the tubes in the pumphead as shown in "Changing the tube" on page 22.

10.3 Fluid path layout

Recommended placement of container	Infeed	Pumphead	Outfeed

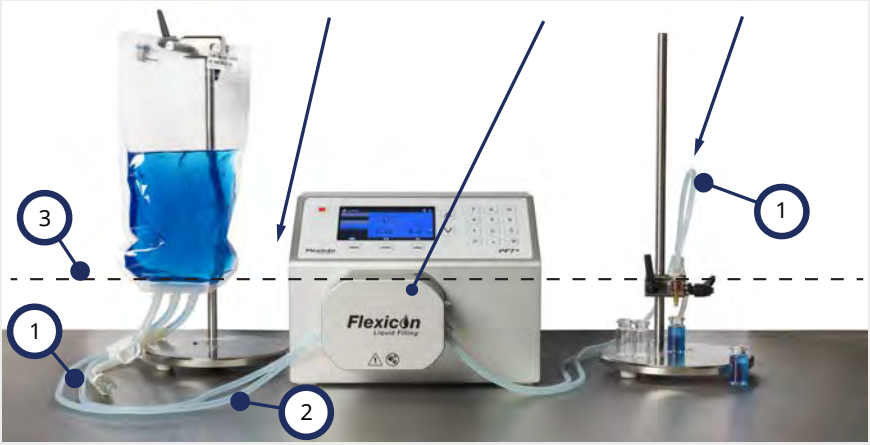


Figure 6 - Fluid path layout

1	**Tube bends** Avoid sharp bends in the tube. Bends in the tube must be at least four times the tubing diameter.
2	**Infeed/outfeed tube** The length between container, pumphead and filling nozzle must be as short as possible. Ensure there are no obstructions which could reduce the fluid flow in the tube line. Ensure that all fluid path components are suitably rated to handle the predicted fluid path pressure. When using a single infeed tube, ensure that the cross sectional area of the infeed tube is greater than the combined cross sectional area of the tubes in the pumphead. Ensure that the outfeed tube bore is equal to or larger than the tubing in the pumphead. When pumping viscous fluids use tube with a bore several times larger than the pumphead tubing.
3	**Minimum fluid level** Position the pump at or just below the minimum level of the fluid to be pumped. This will ensure flooded suction and maximum pumping efficiency.

It is recommended that the PF7+ is used in combination with the Flexicon Advanced Filling Kit that optimises the advanced features of the PF7+. For fluid path layout with Advanced Filling Kit, refer to "Start Zero waste batch" on page 81.

11 Changing the tube

Tubes may be mounted into the pumphead either by using a twin infeed and single outfeed with a Y-connector or a tube element can be loaded with a single infeed and single outfeed.

Tube changes can be performed with one hand.

There are rotating parts inside the pumphead. Isolate the pump from input power before opening the pumphead tube bridge or access tray.

The pumphead features magnetic safety switches in both the tube bridge and access tray. If the tube bridge or access tray are opened the pump will not operate and a warning screen is displayed.

Figure 7 - Opening the pumphead

Figure 8 - Removing the tube from the pumphead

Fitting tube with tube lock (optional - twin infeed) (Note: Tube locks are consumable wearing parts)

If using a twin infeed, secure the tube with the correctly sized tube lock. Pumping performance can be affected.

Figure 9 - Loading the tube into the pumphead

Figure 10 - Closing the pumphead

11.1 Maximising tube life

To maximise the performance of the tube, avoid leaving tubes mounted in the pumphead with the tube bridge locked down, when not in use (for example overnight).

Lift the locking lever up in order to relieve the pressure in the tube.

12 Connecting to a power supply

Danger of damage to pump. Make sure the voltage is set correctly before connecting to a power supply.

Set the voltage selector to the correct regional power supply either 115 V for 100-120 VAC or 230 V for 200-240 VAC 50/60 Hz. Remove the fuse holder and rotate to the desired position. Refer to "Checking and replacing the fuse" on page 28.

Figure 11 - Voltage selector.

Only connect the pump to the power supply using the supplied power cable:
EU/RoW: H05VVF3G1.0mm^2 10A/250 VAC 105 °C fitted with EN/IEC 60320/C13 coupler and a regional plug.
US/CAN: Type SJT 3 x 18 AWG, rated 300 V, 105 °C, fitted with an IEC 60320/C14 coupler and terminated with a NEMA 5-15P (125 V) plug.
If the cable becomes damaged, remove the pump from service and contact your Watson-Marlow sales office or distributor.

WARNING: Only connect to an earthed single phase power supply of either 100-120 VAC 60 Hz or 200-240 VAC 50 Hz via either a Ground Fault Circuit Interrupter (GFCI) or Residual Current Device (RCD) or Branch Circuit Protection Device.

Ensure the supplied power cable is fully compatible with your power outlet. In some cases an adaptor (not supplied) may be required to ensure a fully earthed connection.

1	Power supply inlet IEC socket. Image shows PF7+. PF7 rear panel looks slightly different. Power supply inlet is located in the same place.

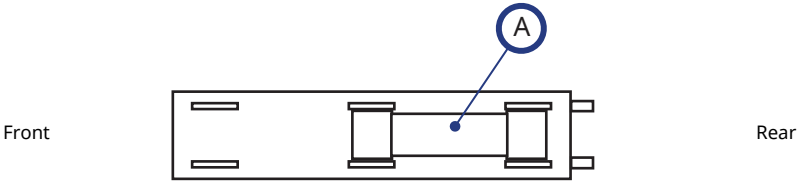
Figure 12 - Power supply socket

12.1 Checking and replacing the fuse

Always isolate the pump from the power supply by removing the supply cable from the socket on the rear of the pump before opening any guard or track, or performing any positioning, removal or maintenance operation.

There are two user-replaceable T2.5AH250V (Ceramic, 5x20 mm, 2.5 A, 250 VAC, Time Delay) fuses in the fuse holder above the power input connector at the back of the pump, both of which must be intact and present for the pump to work. Some regional cordsets are also provided with a fuse, and should be replaced with the same rating and type.

Figure 13 - How to remove the fuse holder



A - Fit both fuses in the rear position

Figure 14 - Fuse position

13 Control wiring

Do not apply voltages greater than those specified in "Table 4 - M12 connector pin functionality" on the next page to M12 connector pins. Greater voltage will cause permanent damage not covered by warranty.

Figure 15 - The rear of the pump. Image shows PF7+. PF7 rear panel looks slightly different. M12 connectors are located in the same place.

There are two M12 connectors on the rear of the PF7/PF7+ for control wiring. Plugs and cables for these connectors should be: M12, female, 8-Pin A coded, shielded.

Both connectors have the same pin configuration. The pin configuration and the signal response is shown in "M12 connector pin functionality" on the next page.

Do not strap the control and power supply cable together.

Table 4 - M12 connector pin functionality			
Pin Type	**Pin(s)**	**Connector 1 Functionality**	**Connector 2 Functionality**
Discrete output (Open Drain 5-24 VDC)	1	Active when filling (Start delay + filling + end delay)	Inactive when filling
Voltage output (24 VDC)	2	Active	Active
Input pull-up (5-24 VDC)	3	5.6 kΩ resistance	5.6 kΩ resistance
Input (5-24 VDC)	4	Start	Prime
Relay output (24 VDC)	5, 6, 7	General error	Paused
Return (0 VDC)	8	Control return	Control return

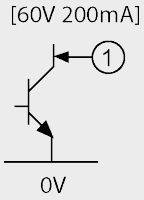
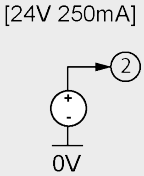
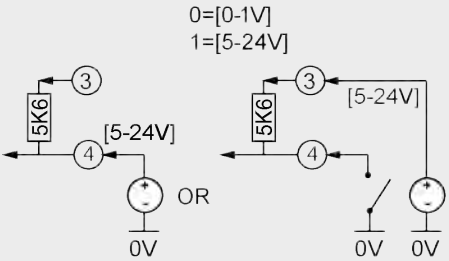
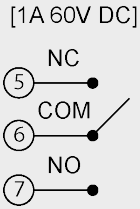
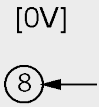
Table 5 - M12 connector pin signals			
Function	**Pin number**	**Input/ Output**	**Signal response**
Discrete Output (Open Drain)			
Voltage Output (24 V)			

Table 5 - M12 connector pin signals

Function	Pin number	Input/ Output	Signal response
Input			
Relay (Normally Closed) Relay (Common) Relay (Normally Open)			
Signal and Power Return			

EN

Section 2 - Pump operation

14 Pump controls and interface

14.1 Keypad operation

1. STOP key	2. Up and Down keys	3. Delete key
4. Numeric Keypad	5. Smart Keys	-

Figure 16 - Keypad

The STOP key will immediately stop the pump, regardless of what screen is currently displayed. If the pump is stopped part way through a fill, a message stating this will be displayed.

Keyboard operation is recommended for PF7+.
Refer to "USB devices" on the next page to connect a keyboard.
Refer to "Keypad operation" above for keyboard mapping.

PF7+ 14.2 USB keyboard operation

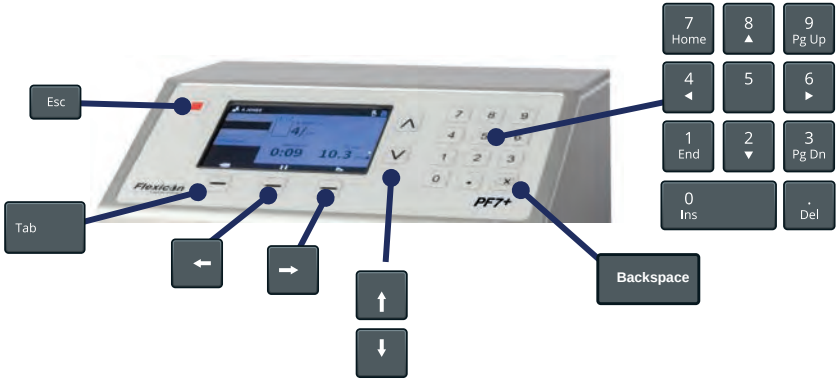


Figure 17 - USB keyboard mapping

The **ESC key (** Esc **)** will immediately stop the pump, regardless of what screen is currently displayed. If the pump is stopped part way through a fill, a message stating this will be displayed.

Use the letter keys (A ~ Z), number keys and symbols to input text.

Full functionality is only guaranteed for devices on the list of compatible devices.
For list of compatible devices:
www.wmftg.com/softwareanddevices

14.3 USB devices

- Balance
- Printer
- Flash drive

PF7+

- Keyboard

Connect the USB device to any USB port on the rear of the pump before turning the power on.

Figure 18 - Successful connection of a Mettler-Toledo ML-T balance indicated by a white icon on the Screen info bar. Successful connection of an unverified compatible balance indicated by a grey icon on the Screen info bar.

PF7+

Connect a compatible balance to PF7+ to enable the following:

- **"Start Zero waste batch" on page 81**
- **"Auto-recalibration " on page 76**

When balance is not attached these options will not be in the menu.

14.3.1 Compatible devices

Full functionality is only guaranteed for devices on the list of compatible devices.
For list of compatible devices:
www.wmftg.com/softwareanddevices

Table 6 - USB flash drive specification
USB 2.0 Minimum 2 GB Maximum 32 GB FAT32 format

14.3.2 USB device troubleshooting

Issue	Solution
USB device does not work or is not recognised.	1. Turn the pump off using the power switch on the rear of the pump. 2. Make sure the device is connected to the USB port. 3. Turn the pump on using the power switch on the rear of the pump.

14.4 Glossary of icons

Table 7 - Smart key icons					
	BACK TO PREVIOUS SCREEN		PAUSE		RUN
	NO / CANCEL		MODE		STOP
	EDIT		NEXT		YES/CONTINUE

Screen info icons			
	Supported balance connected (White Icon)		Reporting on (White Icon)
	Balance connected (Unverified compatibility)		Reporting error (Red Icon)
	Calibration Units are set to Volume (Red Icon)		Reporting in progress (Blue Icon)
	Auto-recalibration is active during a batch (Blue Icon)		Recalibration required (Red Icon)
	Supported printer connected		User is logged out
	Printer connected (Unverified compatibility)		Supported keyboard connected
	Supported USB memory stick connected		Keyboard connected (Unverified compatibility)
	USB memory stick connected (Unverified compatibility)		Reporting off
	Recipe		Unsupported USB device is connected
	Operator		Fill activation by time delay
	Administrator		Fill activation by external input

Screen info icons			
	Supervisor		User blocked
	Recalibration reminder		Fill activation by keypad

15 Switching the pump on for the first time

Read all safety information contained within this manual before starting the pump for the first time.

Danger of damage to pump. Make sure the voltage is set correctly before connecting to a power supply. Refer to "Connecting to a power supply" on page 26

Keyboard operation is recommended for PF7+. Refer to "USB devices" on page 36.

Keypad operation:

- **Scroll characters using keypad up/down keys (▲/▼). Wait 1 second to enter next character.**
- **Use numeric keypad to enter numbers.**
- **Press  to delete.**

15.1 Powering up

Set the power switch on the rear of the pump to the 'I' position. The pump displays the start-up screen with the Flexicon logo.

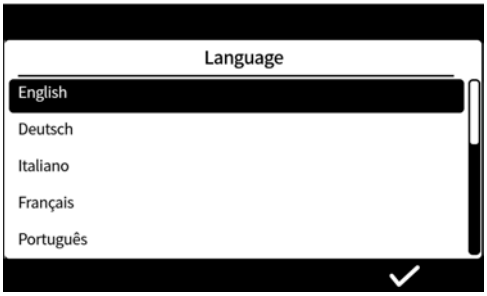
If the initial setup is interrupted by a power cycle, setup will restart from the beginning.

15.2 Language selection

Select the display language.
Available languages:

- English
- French
- German
- Portuguese
- Italian
- Dutch
- Chinese
- Korean
- Japanese
- Danish
- Swedish
- Spanish

Batch reports and notes are English only. Keyboard input is English only.



15.3 Enable United States Food and Drug Administration (FDA) 21CFR Part 11 Compliance

PF7+

15.3.1 FDA 21CFR Part 11 compliant functions

Some functions can only be accessed with 21 CFR Part 11 compliance enabled.

To comply with FDA 21CFR Part 11 standards, the user will be asked to enter a username and password to either give approval or to access certain features.

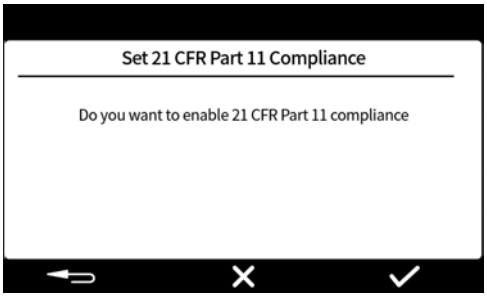
The events that occur on the pump are recorded in the batch reports and audit trail logs.

If FDA 21CFR Part 11 compliance is enabled, the following functionality applies;

- Usernames must be typed—"Logging in to the pump" on page 134
- Passwords are required for all users—"Switching the pump on for the first time" on page 40, "Users" on page 99.
- User accounts are blocked after a number of incorrect entry's—"Log in" on page 47.
- Passwords expire after a set duration—"Password expiry duration" on page 98.
- Session timeout period cannot be disabled—"Session timeout period" on page 97.
- The users password must be re-entered to 'sign' the report at the end of a batch—"First user batch approval" on page 81.
- A second user must approve a batch report before it can be saved to PDF—"Export as PDF" on page 144
- Service access to the pump can be blocked—"Users" on page 99.

When FDA 21CFR Part 11 compliance is enabled, there must be at least two user accounts to allow a second user to approve a batch report before it can be saved to PDF. To create a second user account refer to "Users" on page 99.

The option to enable or disable FDA 21CFR Part 11 compliance is only available during initial setup. To change FDA 21CFR Part 11 compliance between enabled or disabled, factory reset the pump. (Refer to "Backup and reset" on page 104).



Press ✓ to enable FDA 21CFR Part 11. Press ✗ to disable FDA 21CFR Part 11 compliance.

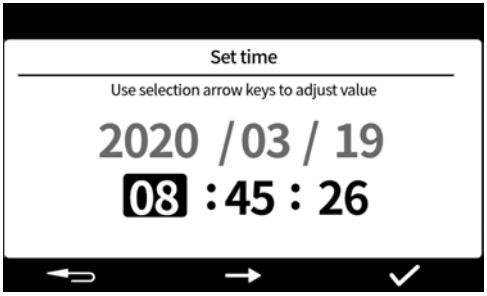
15.4 Setting the time zone

The date is preset in the factory and is not adjustable.

The time is preset to GMT—Adjust the hour value to match your local time zone using the up and down keys (⌃/⌄). Minutes and seconds may also be adjusted.

The time format is hh/mm/ss and the date format is yyyy/mm/dd.

The time is 24hr format.



Once the time is correct, press ✓. Pressing ← at any point returns to the previous screen.

15.5 Setting the filling method

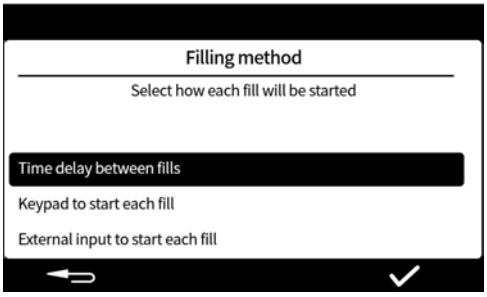
The filling method defines how each fill will be started.

Time delay between fills —Automated filling with a user defined interval between fills.

Keypad to start each fill—Manual filling. Press ▶ to start each fill.

External input to start each fill— Remote controlled filling. Refer to "Control wiring" on page 29.

The Filling method icon displays on the **Screen info bar**.



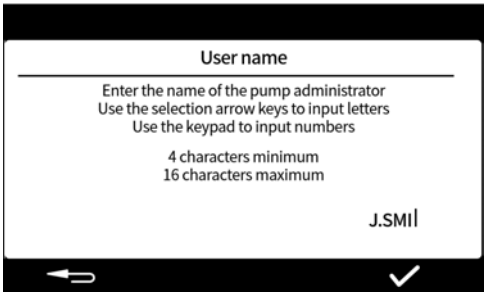
The filling method can be reset in settings mode. Refer to "Filling method" on page 93.

15.6 Setting the pump administrator

Initial setup of the pump establishes an administrator user. Additional users can be added after setup. Refer to "Users" on page 99.

Enter a username for the pump administrator. The default username is USER1.

If you have multiple PF7+ pumps, set up a common administrator username and password for every pump. This will allow importing and exporting of data from a USB flash drive for faster configuration of multiple pumps. Refer to "Backup and reset" on page 104.



15.7 Setting a password

PF7+

Keep a record of passwords!

When logging in there are 5 attempts to enter the correct password before the user will be 'blocked'. Refer to "Block user" on page 100.

If the service user is blocked, there is no way to service or recover the pump without the administrator password. Refer to "Returning pumps" on page 160 for service and recovery.

The option to block the service user is only available if FDA 21CFR Part 11 compliance is enabled.

If you lose your password contact your local WMFTG or Flexicon representative.

Press ✕ if a password is not required or press ✓ if a password is required.

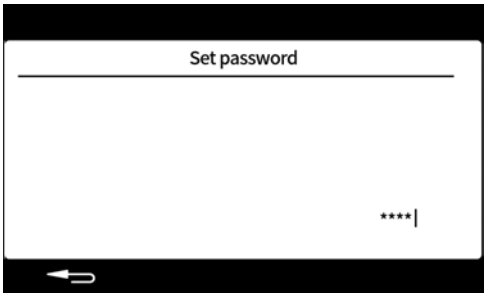
If FDA 21CFR Part 11 compliance is enabled, a password is required. Refer to "Enable United States Food and Drug Administration (FDA) 21CFR Part 11 Compliance" on page 42.

Enter the password using the numeric keypad or keyboard.
The password contains any of the following:

- lower-case letters (a-z)
- upper-case letters (A-Z)
- digits (0-9)
- special characters (!%()*+-.:;=?@[]^_|)

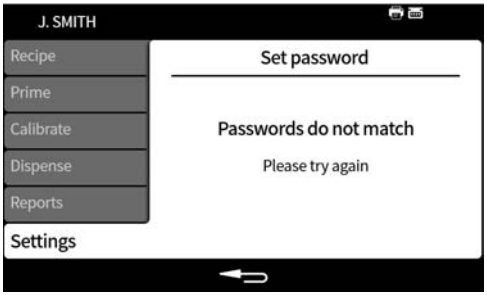
The password is:

- 4 characters minimum
- 16 characters maximum



Press ✓ to confirm.

Re-enter the password when requested and press ✓.
If the entry's don't match, the following screen will be displayed.



16 Switching the pump on after initial setup

Set the power switch on the rear of the pump to the 'I' position. The pump displays the start-up screen with the Flexicon logo.

Follow the on screen instructions. For more information refer to "Log in" on the next page.

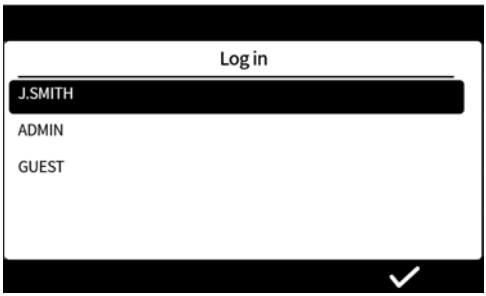
17 Log in

If you are logged in as a user and would like to switch to a different user first refer to "Log out" on page 93.

PF7+ If FDA 21CFR Part 11 compliance is enabled refer to "Enter the username if FDA 21CFR Part 11 compliance is enabled" on the next page.

Log in will return the user to recipe mode. In event of power failure if a batch was in progress the user is returned to complete the batch.

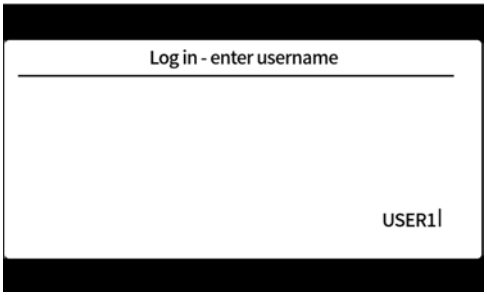
17.1 Select a user



Select the desired username.

The icon by the username indicates the type of user. Refer to "Glossary of icons" on page 37.

PF7+ 17.2 Enter the username if FDA 21CFR Part 11 compliance is enabled



Keyboard operation is recommended for PF7+. Refer to "USB devices" on page 36.

Keypad operation:

- **Scroll characters using keypad up/down keys (/). Wait 1 second to enter next character.**
- **Use numeric keypad to enter numbers.**
- **Press to delete.**

Press to confirm.

17.3 Entering your password

PF7+

Keep a record of passwords!

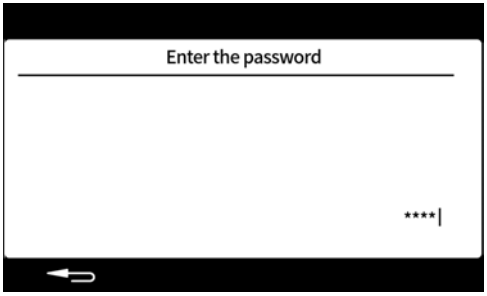
When logging in there are 5 attempts to enter the correct password before the user will be 'blocked'. Refer to "Block user" on page 100.

If the service user is blocked, there is no way to service or recover the pump without the administrator password. Refer to "Returning pumps" on page 160 for service and recovery.

The option to block the service user is only available if FDA 21CFR Part 11 compliance is enabled.

If you lose your password contact your local WMFTG or Flexicon representative.

The following screen will only display if a password is required.



If FDA 21CFR Part 11 compliance is enabled, a password is required. Refer to "Enable United States Food and Drug Administration (FDA) 21CFR Part 11 Compliance" on page 42.

Enter the password using the numeric keypad or keyboard.

18 Menu navigation

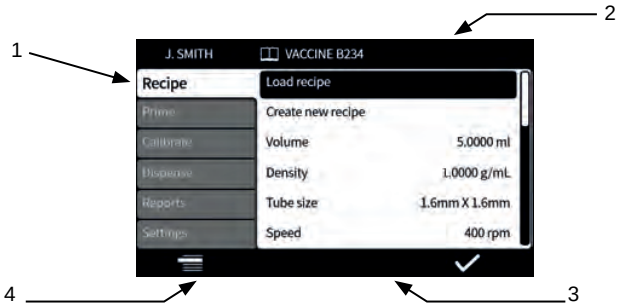


Figure 19 - Menu navigation

1. MODE tabs	2. Screen info bar
3. Smart key icon bar ("Glossary of icons" on page 37)	4. MODE icon

Smart key functions are indicated by the smart key icon bar.

Whenever the  icon is displayed, press  to scroll through the MODE tabs. The active MODE tab is highlighted.

Keyboard operation—Refer to "USB keyboard operation" on page 36.

19 Recipe mode

A 'recipe' contains all the parameters for the required fill. The active recipe name is displayed on the **Screen info bar**.

Select the Recipe MODE tab to create or edit recipes. Each recipe item has clear on screen instructions.

Figure 20 - Recipe screen

A - Recipe name (Whilst recipe is being modified name is displayed in red. Saved recipe name is displayed in white.)

Modified, unsaved recipes can be used to fill a batch unless user restrictions have been set to 'protected recipes only'.
If a modified recipe is used the recipe name is denoted with an asterisk in the batch report.

To improve usability hide items that are not required from this menu. Refer to "Operator access restrictions" on page 94.

PF7+

Refer to "Import all data " on page 104 and "Export all data" on page 107 to import/export saved recipes to other PF7+.

19.1 Load recipe

Load a recipe from a list of stored recipes. Recipe is restored to the parameters that were saved in that recipe. Recipe name displays in white.

19.2 Create new recipe

1. Select **Create new recipe** in the Recipe MODE tab.
2. Enter the volume, density and viscosity when prompted. All additional parameters can be adjusted after the recipe is saved.
3. The following parameters are then automatically suggested:
   a. Tube size
   b. Speed
   c. Acceleration
   d. Deceleration
   e. Anti-drip
4. Enter the first fill delay and between fill delay.
5. Save the recipe—New recipe or overwrite existing.
6. Optional: Edit the all recipe parameters as desired. The recipe name at the top of the screen will be displayed in red to indicate the recipe has been modified.
7. Save the recipe to confirm changes and the recipe name will be displayed in white. Refer to "Save recipe" on page 60.

Besides the parameters included in a recipe, filling accuracy is also influenced by fluid path layout. Refer to "Fluid path layout" on page 21.

19.3 Volume

This sets the target fill amount. To change between volume or weight, refer to "Units" on page 93.

- Minimum = 0.0100 millilitres or grams
- Maximum = 9999.9 millilitres or grams

19.4 Density

Equates the fill mass (weight) measured by a balance to the dispensed fill volume by the pump.

19.5 Tube size

Defines the default value used for the first calibration and the limits applied to a calibration.

Only compatible Accusil tubing sizes are listed. Refer to "Tube selection" on page 19.

19.6 Speed

Rotor speed.

Table 8 - Maximum pump speed	
PF7	400 rpm
PF7+	600 rpm

Excessive speed may cause splashing or foaming.

19.7 Acceleration

Rotor acceleration.

Table 9 - Maximum acceleration	
PF7	100
PF7+	200

Excessive acceleration may cause splashing or foaming.

19.8 Deceleration

Rotor deceleration.

Table 10 - Maximum deceleration	
PF7	100
PF7+	200

Faster deceleration typically improves fill accuracy by maintaining consistency in the size of the liquid drop.

19.9 Anti-drip

If dripping occurs after the fill has completed, increase anti-drip to create "suck back" by momentarily reversing the direction of pumphead. Anti-drip is measured by the number of reverse steps 0-10.

19.10 Start delay

Sets time delay between start signal and fill start.

Only available if filling method is 'keypad to start each fill  ' or 'external input to start each fill  '.

19.11 End delay

Sets time delay between pumphead stop and fill complete signal.

Only available if filling method is 'keypad to start each fill  ' or 'external input to start each fill  '.

19.12 First fill delay

Sets time delay between start signal and first fill start.

Allows time to position filling needle manually.

Only available if filling method is 'time delay between fills  '.

19.13 Between fill delay

Time delay between each fill.

Only available if filling method is 'time delay between fills  '.

PF7+ 19.14 Vial weight

Nominal weight for an empty vial. This is used to verify that the vial is empty to start the pump.

Zero waste filling only. Refer to "Start Zero waste batch" on page 81.
Requires a connected balance.

User must also set "Vial weight tolerance" below

It is recommended to use the average weight of multiple vials or use the manufacturers data.

PF7+ 19.15 Vial weight tolerance

Sets the tolerance (+/-) of the nominal vial weight for a empty vial specified in "Vial weight" above.

Always set vial weight tolerance value less than "Vial weight" above to prevent accidental filling when no vial is present.

It is recommended to set vial weight tolerance less than "Volume" on page 1 if possible to prevent accidental filling of a previously filled vial.

Zero waste filling only. Refer to "Start Zero waste batch" on page 81.
Requires a connected balance.

PF7+ 19.16 Weigh check frequency

Zero waste filling only. Refer to "Start Zero waste batch" on page 81.
Requires a connected balance.
During a manual batch, frequency of weigh checking is determined by the operator. Refer to "Weigh check option" on page 102.

How often the fill is weight checked using the connected balance, refer to "Zero waste filling - weigh checked fill" on page 85.

Set to 1 to weigh check every fill.

The fills in between the checked fills are non-checked. Refer to "Zero waste filling - non weigh checked fill" on page 87

When the fill is weight is checked:

- the result is stored in the batch report
- the pump is recalibrated
- the fill will take longer than a non-checked fill due to the stabilisation of the balance reading

Table 11 - Example weigh check frequencies

Weigh check frequency	Fill number									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1										
2										
3										

 = Checked fill

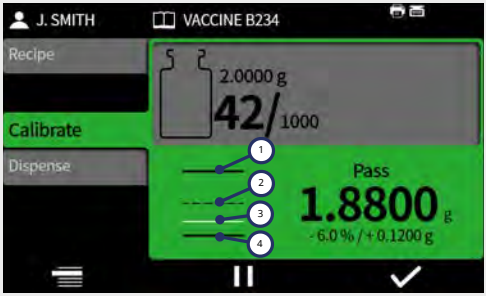
PF7+ 19.17 Fill tolerance

During calibration or weigh checking **Fill tolerance** defines an upper and lower limit in relation to the target fill weight "Volume" on page 52

Configure the upper and lower tolerance limits independently to define an acceptable fill.

Screen colour indicates an acceptable fill.

Figure 21 - Acceptable fill—Green



1 - Upper fill tolerance

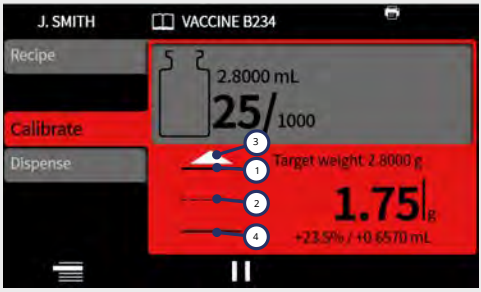
2 - Target (nominal) fill weight

3 - Acceptable measured fill weight

4 - Lower fill tolerance

Displayed arrow above or below the diagram indicates the limit is exceeded.

Figure 22 - Unacceptable fill—Red



1 - Upper fill tolerance

2 - Target (nominal) fill weight

3 - Measured fill weight exceeds upper limit arrow

4 - Lower fill tolerance

Denoted in batch report with:

- **Within limits: True/False**

An unacceptable fill can be removed from the batch if "Remove from batch option" on page 102 is turned on and selected.

19.17.1 Setting fill tolerance limits

The fill tolerance limits specified in "Guideline fill tolerance limits" below are calculated based on the expected smallest drip size. These are a minimum recommended tolerance. You may set a smaller tolerance than those specified, however doing so may result in more unacceptable fills, particularly during the initial fills of a zero waste batch. Setting a smaller tolerance limit will not increase the accuracy of the fill, it will only determine the limits that define an acceptable fill.

To define the fill tolerances in ml:

1. In the recipe menu select Fill tolerance.
2. Select Upper limit or Lower limit as required
3. Select +%
4. Enter the value specified in the table as a percentage of the fill volume defined in the recipe

Table 12 - Guideline fill tolerance limits

Tube size (mm)	Recommended tolerance in (ml)
0.5	±0.0099
0.8	±0.0149
1.2	±0.0149
1.6	±0.0209
3.2	±0.0407
4.8	±0.0594
6	±0.0792
8	±0.1100

PF7+ 19.18 Auto-recalibration tolerance

During manual filling **Auto-recalibration tolerance** defines an upper and lower limit in relation to the target fill weight "Volume" on page 52

The pump will auto-recalibrate when the connected balance measures a weight within these limits.

The limits should be set to allow an empty vial to be tared without recalibrating the pump.

Manual batch only refer to "Dispense mode" on page 72.
Requires a connected balance.

If a correctly filled vial is outside of the auto-recalibration tolerance, a manual recalibration can still be performed. Refer to "Calibration whilst dispensing" on page 74.

19.19 Recalibration reminder

Sets the number of fills or time before a recalibration reminder. A message is displayed and the pump beeps twice when reached.

Manual batch only Refer to "Dispense mode" on page 72.

19.20 Recalibration pause

Sets the number of fills or time before a recalibration pause. The batch is paused and the pump beeps three times when reached. The batch cannot resume until a recalibration is performed.

Manual batch only Refer to "Dispense mode" on page 72.

19.21 Protected recipe

Protected recipes cannot be edited or overwritten. A recipe must be saved before it can be protected.

To prevent a recipe from being unprotected and edited, hide **Protected recipe**. Refer to "Operator access restrictions" on page 94.

PF7+

As a best practice for cGMP, protect recipes and apply user restrictions to allow filling only with protected recipes.
Refer to "Operator access restrictions" on page 94.

To prevent a user from running a batch using an unsaved or unprotected recipe:

1. Save the recipe.
2. In recipe mode, set **Protected recipe** to **Yes.**
3. In **settings** mode, **operator access restrictions** or **supervisor access restrictions**, **Dispense**—set **Protected recipes only** to **Yes**. Refer to "Operator access restrictions" on page 94.
4. In **settings** mode, **operator access restrictions** or **supervisor access restrictions**, **Recipe**—set **Protected recipe** to **Hidden**. Refer to "Operator access restrictions" on page 94.
5. Log in as the operator or supervisor account. The operator or supervisor will not be able to start a batch if the recipe is not protected. The operator or supervisor will require administrator to set a new recipe as protected.

19.22 Save recipe

Saves the current filling parameters under a recipe name.

Saved recipes can be overwritten unless they have been protected. Refer to "Protected recipe" on the previous page.

Up to 200 recipes can be saved.

FDA 21CFR Part 11 compliance:
Saving of recipes associated with a complete batch are recorded in the batch record. Alterations to any recipe are recorded in the audit trails report.

19.23 Print recipe

Prints the current recipe parameters.

19.24 Delete recipe

Deletes a saved recipe.

PF7+

As a best practice for cGMP, apply user restrictions to disallow this function.
Refer to "Operator access restrictions" on page 94.

20 Priming and continuous pumping mode

PF7+

Not required for zero waste filling. Refer to "Start Zero waste batch" on page 81.

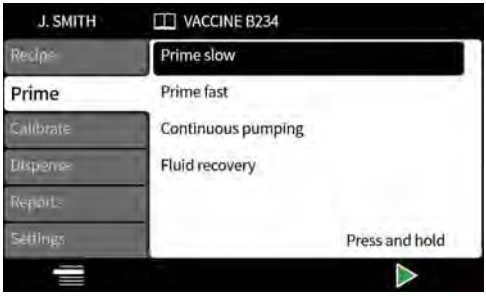


Table 13 - Prime items

Prime item	Description
Prime slow	The pump will run forwards (slowly) as long as the key is held down
Prime fast	The pump will run forwards (fast) as long as the key is held down
Continuous pumping	The pump will run forwards at the set speed until the stop key is pressed
Fluid recovery	The pump will run the slowly, in reverse at a fixed speed to allow recovery of fluid from the fluid path.

20.1 Prime slow and Prime fast

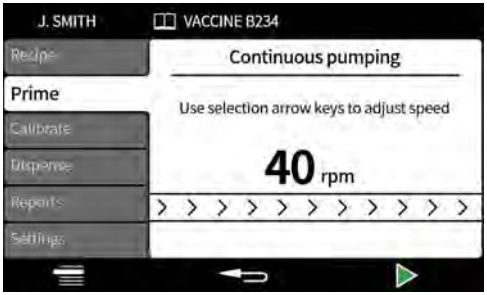
When using **prime slow** or **prime fast**:

- Press and hold the  key to prime the pump.
- The speed can be adjusted in the settings menu.

20.2 Continuous pumping

When using **continuous pumping**:

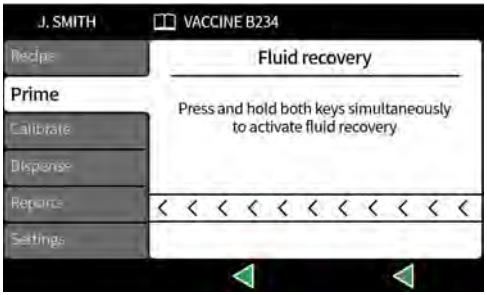
- Adjust the pump speed using the up and down keys (⌃/⌄).
- Press  to Start pumping.
- Press  or the Stop key to stop pumping.



20.3 Fluid recovery

During fluid recovery, the flow direction is reversed.
Ensure reverse flow is not prevented by peripherals such as a non-return valve.
Ensure the flow is into a container with enough volume for the recovered fluid.
Assess the contamination risk when determining the viability of the recovered fluid.

The pump runs in reverse at a fixed slow speed to recover fluid.



Press and hold both  keys simultaneously. When either key is released, fluid recovery will stop.

20.4 Priming the pump

Before dispensing can take place, prime the pump by filling the tube with fluid and ensuring air is eliminated from the line.

Procedure

1. Run the pump continuously using **prime slow** or **prime fast** until fluid is observed leaving the nozzle (Refer to "Priming and continuous pumping mode" on page 61)

20.4.1 Eliminating trapped air from the tube

Trapped air bubbles in the tube will cause inaccuracies in the volume of dispensed fluid. It is recommended to remove all air bubbles from the tubing before dispensing.

Procedure:

1. Using fingers, squeeze the tube and push air bubbles along the tube and back into the fluid container or towards the pumphead and nozzle
2. Repeat until no air is visible inside the tube

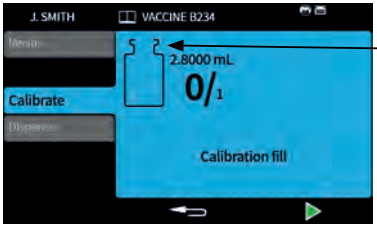
21 Calibrate mode

PF7+

Not required for zero waste filling. Refer to "Start Zero waste batch" on page 81.

For optimum filling accuracy calibrate the pump:

- before starting a batch
- following any change to the recipe
- following any change to the fluid path
- periodically throughout a batch



Calibration icon: the number displayed within the vial icon indicates calibration fills done since the last batch or recipe parameters change

Figure 23 - Calibration icon

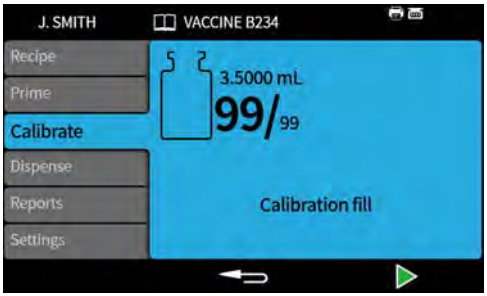
The pump uses the current recipe parameters during the calibration process. These include volume, density, tube size, speed, acceleration, deceleration, and anti-drip.
The units used in calibration can be volume or weight and are set through the settings tab. Refer to "Units" on page 93.

Table 14 - Calibrate items

Calibrate item	Description
Single fill calibration	A calibration is done using a single fill
Multi-fill calibration	A calibration is done using an average value calculated from all the fills taken (Enter a number between 2 and 99 fills). For best results use Multi-fill calibration.

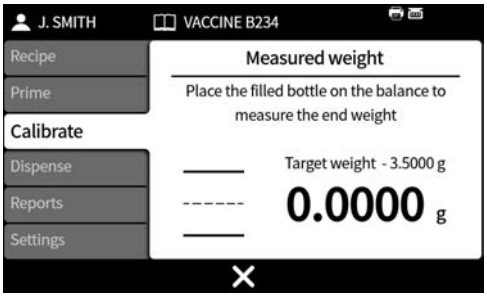
If Multi-fill calibration is selected, a screen will be displayed to enter the number of fills that will be used to create an average fill calibration value.

21.1 Single-fill calibration with a balance connected



1. Set the pump units to **weight.** Refer to "Units" on page 93.
2. Place a container that will be used for the calibration fills onto the balance.
3. Tare the balance.
4. Place the container under the filling nozzle.
5. Press  or use the external input to start the calibration fill.

21.1.1 Calibration value entry



6. Place the filled vial(s) on the balance. The balance value will be automatically displayed.
7. Press  .

Calibration outside an acceptable level

If the calibration value entered is outside of ±95% of the target value:

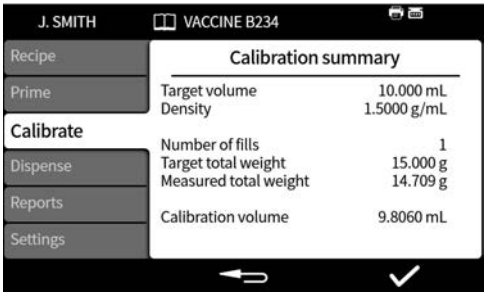
- A warning screen is displayed.
- Calibration cannot continue.
- Check the value was entered correctly.
- Check the tube size is as per the recipe.
- Check the fluid path is set up correctly.

PF7+ **Calibration with fill tolerance limits**

Refer to "Fill tolerance" on page 57 to enable fill tolerance limits.

21.1.2 Calibration summary

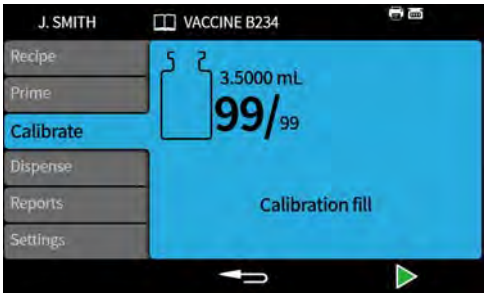
A calibration summary will be displayed. If the values are correct, press  to complete the calibration process.



The following are added to the report, for each calibration since the last recipe change or since the pump was powered on:

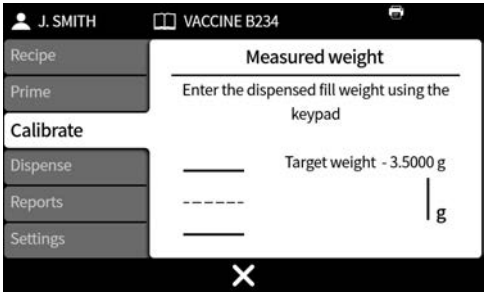
- Data/time of calibration
- Calibration volume
- Active username when calibration was done

21.2 Single-fill calibration without a balance connected



1. Place the container under the filling nozzle.
2. Press  or use the external input to start the first calibration fill.

Calibration value entry



3. Enter the dispensed value using the numeric keypad.
4. Press  .

Calibration outside an acceptable level

If the calibration value entered is outside of ±95% of the target value:

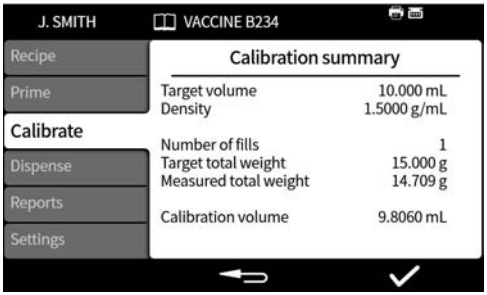
- A warning screen is displayed.
- Calibration cannot continue.
- Check the value was entered correctly.
- Check the tube size is as per the recipe.
- Check the fluid path is set up correctly.

PF7+ **Calibration with fill tolerance limits**

Refer to "Fill tolerance" on page 57 to enable fill tolerance limits.

21.2.1 Calibration summary

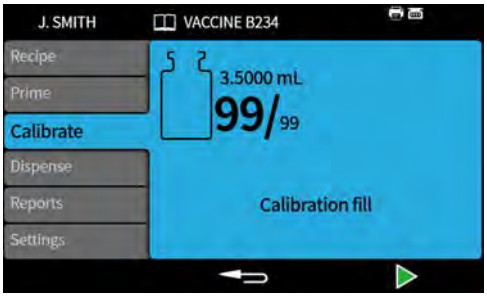
A calibration summary will be displayed. If the values are correct, press  to complete the calibration process.



The following are added to the report, for each calibration since the last recipe change or since the pump was powered on:

- Data/time of calibration
- Calibration volume
- Active username when calibration was done

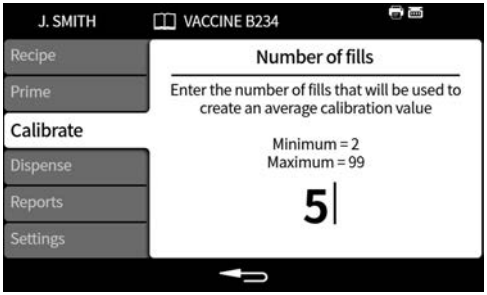
21.3 Multi-fill calibration with a balance connected



1. Set the pump units to **weight.** Refer to "Units" on page 93.
2. Place all containers that will be used for the calibration fills onto the balance.

It is acceptable to use a single container large enough to contain the total volume from all calibration fills.

3. Tare the balance.
4. Select **Multi-fill calibration.**
5. Enter the number of calibration fills.



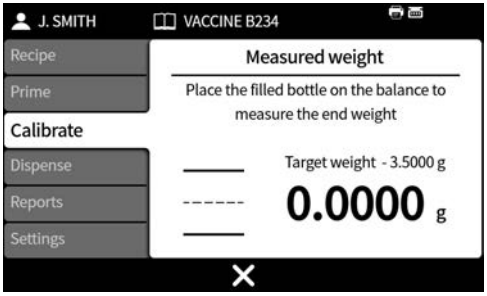
6. Start the calibration fills depending on the selected filling method:

Time delay between fills - Press  or use the external input to start the first calibration fill. Any further fills will start automatically after the **Between fill delay** has elapsed.

Keypad to start each fill - Press  to start each fill.

External input start each fill - Press  or use the external input to start each fill.

Calibration value entry



7. Place the filled container(s) on the balance. The target weight is automatically displayed. The Target weight is the total weight of all fills.
8. Press  .

Calibration outside an acceptable level

If the calibration value entered is outside of ±95% of the target value:

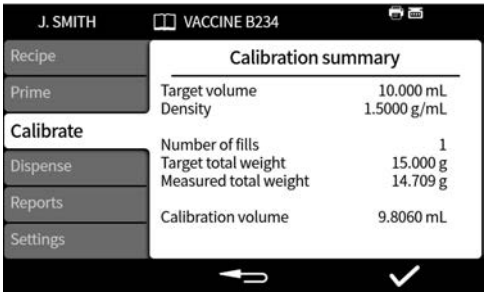
- A warning screen is displayed.
- Calibration cannot continue.
- Check the value was entered correctly.
- Check the tube size is as per the recipe.
- Check the fluid path is set up correctly.

PF7+ **Calibration with fill tolerance limits**

Refer to "Fill tolerance" on page 57 to enable fill tolerance limits.

21.3.1 Calibration summary

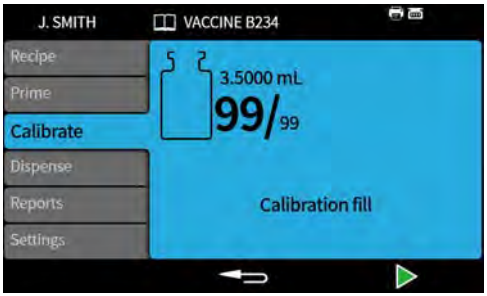
A calibration summary will be displayed. If the values are correct, press  to complete the calibration process.



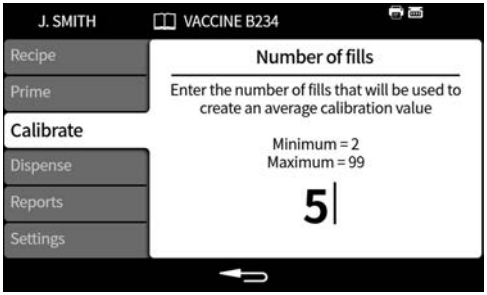
The following are added to the report, for each calibration since the last recipe change or since the pump was powered on:

- Data/time of calibration
- Calibration volume
- Active username when calibration was done

21.4 Multi-fill calibration without a balance connected



1. Place the container under the filling nozzle.
2. Select **Multi-fill calibration.**
3. Enter the number of calibration fills.



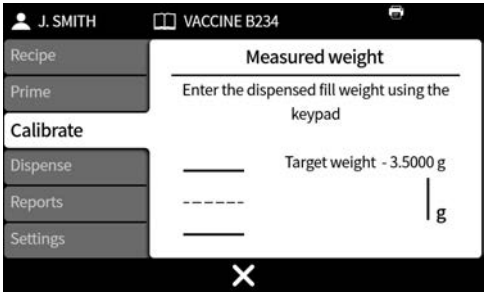
4. Start the calibration fills depending on the selected filling method:

Time delay between fills - Press  or use the external input to start the first calibration fill. Any further fills will start automatically after the **Between fill delay** has elapsed.

Keypad to start each fill - Press  to start each fill.

External input start each fill - Press  or use the external input to start each fill.

Calibration value entry



5. Enter the dispensed value using the numeric keypad. The Target weight is the total value of all fills.
6. Press  .

Calibration outside an acceptable level

If the calibration value entered is outside of ±95% of the target value:

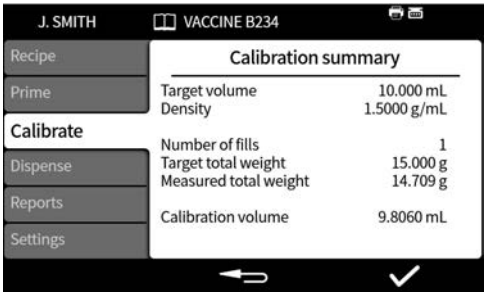
- A warning screen is displayed.
- Calibration cannot continue.
- Check the value was entered correctly.
- Check the tube size is as per the recipe.
- Check the fluid path is set up correctly.

PF7+ **Calibration with fill tolerance limits**

Refer to "Fill tolerance" on page 57 to enable fill tolerance limits.

21.4.1 Calibration summary

A calibration summary will be displayed. If the values are correct, press  to complete the calibration process.



The following are added to the report, for each calibration since the last recipe change or since the pump was powered on:

- Data/time of calibration
- Calibration volume
- Active username when calibration was done

22 Dispense mode

To start a batch on a PF7 refer to "Start manual batch" on the next page.

PF7+ To start a batch on a PF7+:

- Refer to "Start manual batch" on the next page.
- Refer to "Start Zero waste batch" on page 81.

Figure 24 - Feature availability by pump and balance configuration

		Configuration			
Feature	**Pump**	**Calibration in volume**	**Balance not connected to pump**	**Balance connected to pump**	**Filling on balance with Advanced filling kit**
Start manual batch	PF7	Yes	Yes	Yes	No
	PF7+	Yes	Yes	Yes	No
Start zero waste batch	PF7+	No	No	Not recommended	Yes

22.1 Batch size

Enter the number of fills to be completed in the batch.

- Minimum - 1
- Maximum - 999999

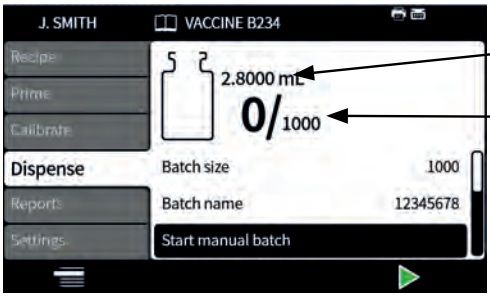
22.2 Batch name

Name given to the batch. Maximum 12 characters.

22.3 Start manual batch

For instructions for filling directly onto a balance using the PF7+ with Flexicon Advanced filling kit refer to "Start Zero waste batch" on page 81.
Start manual batch is for all other types of filling.

Before a batch is dispensed, ensure your recipe parameters are correct, your pump has been primed, calibrated and any additional settings are correct for your process.



Target volume

Batch Progress Icon: The left hand number is the number of dispenses completed, the right hand number is the batch size

Figure 25 - Batch dispense screen

If **Start manual batch** is highlighted press  to start the batch. If reporting is **On**, a batch report will be created.
How the fills are started depends on the selected **filling method**.

When the pump is dispensing or ready to dispense, the screen background colour is blue.

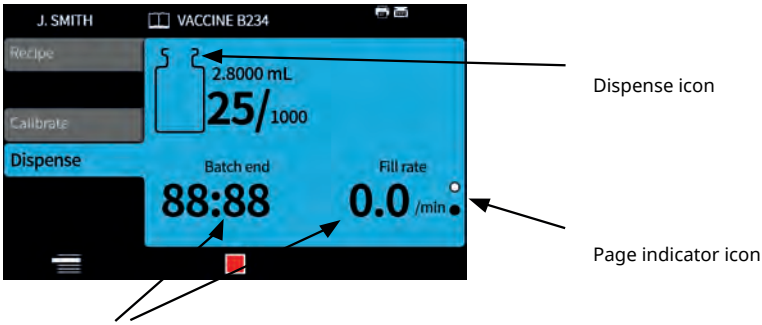


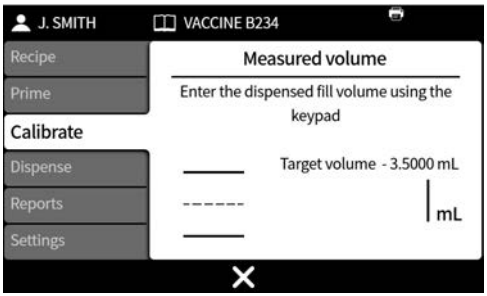
Figure 26 - Dispensing or ready to dispense screen

Use the up and down keys (▲/▼) to change between display pages whilst a batch is running.

If the ■ key or Esc key is pressed at any point, the pump will stop immediately and a fill interrupt screen will be displayed.

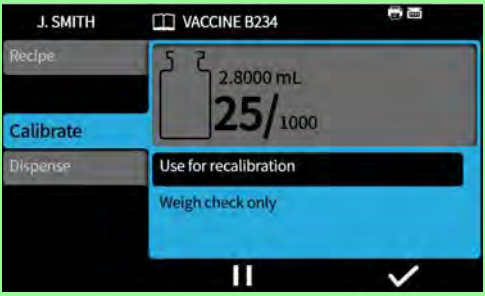
22.3.1 Calibration whilst dispensing

1. If using a balance, tare the balance using the vial to be filled.
2. Press ☰ to access **Calibrate** mode.



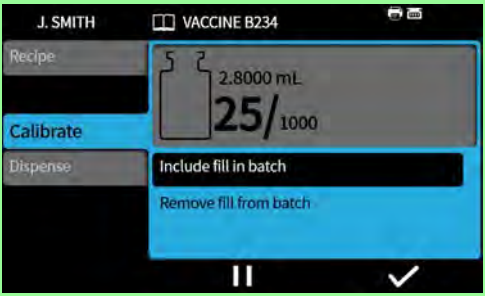
3. Enter the calibration value
   i. **No connected balance—**Use the numeric keypad. Press ✓ to confirm.
   ii. **Connected balance—**Place the filled vial on the balance. The value automatically displays. Press ✓ to confirm.

Weigh check only



Only displayed if "Weigh check option" on page 102

Remove from batch option



Only displayed if "Remove from batch option" on page 102 is on.

Remove from batch—Calibration values are included in the batch report if reporting is on. Fill count is not increased.

Include in batch—Calibration values are included in the batch report if reporting is on. Fill count is increased.

A rolling average of previous fill weights can be used for calibration. Refer to "Calibration settings" on page 101.

PF7+ **Calibration with fill tolerance limits**

Refer to "Fill tolerance" on page 57 to enable fill tolerance limits.

Option only displayed when a USB balance is detected. Refer to "USB devices" on page 36.

Option only displayed when Auto-recalibration tolerance is set. Refer to "Auto-recalibration tolerance" on page 58.

Before **Manual batch**:

1. Set "Auto-recalibration tolerance" on page 58 so that any weight shown during tarring is not seen as a filled vial
2. Connect a compatible balance.

Figure 27 - Successful connection of a Mettler-Toledo ML-T balance indicated by a white icon on the Screen info bar. Successful connection of an unverified compatible balance indicated by a grey icon on the Screen info bar.

3. Enter dispense mode and run the batch.
4. Place an empty vial that will be used for the calibration fill onto the balance.
5. Tare the balance.
6. Place the vial under the fill nozzle.

During **Manual batch:**

7. Fill the vial
8. Place the vial on the balance.
9. If the filled weight is within the Auto-recalibration tolerance, the pump will recalibrate and display the relevant calibration screen.
10. Remove the filled vial from the balance to clear the screen.
11. If a correctly filled vial is outside of the auto-recalibration tolerance, a manual recalibration can still be performed. Refer to "Calibration whilst dispensing" on page 74.

A rolling average of previous fill weights can be used for calibration. Refer to "Calibration settings" on page 101.

The balance must achieve a stable weight for a calibration value to be entered. If the balance is taking too long to stabilise or not stabilising at all, refer to the balance manufacturers instructions.

Example A

- Target fill weight = 5 g
- Actual fill weight measured by the balance = 5.1175 g
- Upper auto recalibration tolerance limit = 7.5 g
- Lower auto recalibration tolerance limit = 2.5 g

While pump is dispensing, a filled vial is placed on the balance. The measured weight falls within the auto recalibration tolerances. The pump automatically enters calibration mode and performs a calibration.

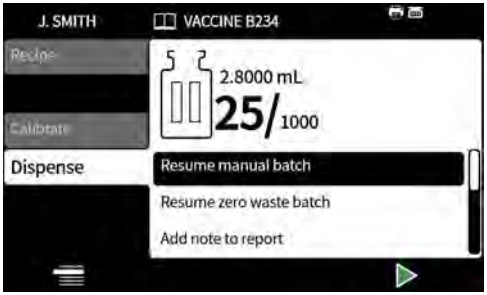
Example B

- Target fill weight = 5 g
- Actual fill weight measured by the balance = 2.2010 g
- Upper auto recalibration tolerance limit = 7.5 g
- Lower auto recalibration tolerance limit = 2.5 g

While the pump is dispensing, a foreign object is placed on the balance. The measured weight falls outside the auto recalibration tolerances. The pump will continue dispensing.

22.3.3 Pausing a batch

To pause a batch press  . Once the current fill has been completed, the batch will pause.



When a batch is paused, the following options are available:

- **Resume manual batch** — This can be hidden, refer to "Operator access restrictions" on page 94.
- **Add note to report**—"Add note to report" on page 79
- **End batch**—"End batch" on page 80
- **Batch size**—"Batch size" on page 72
- **Fluid sample**—"Fluid sample" on page 80

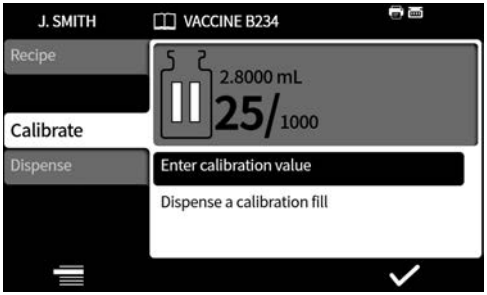
To resume filling press  .

22.3.4 Calibration whilst paused

1. To pause a batch press  . Once the current fill has been completed, the batch will pause.
2. If using a balance, tare the balance using the vial to be filled.
3. Press  to access **Calibrate** mode.

When batch is paused calibrate mode is used to:

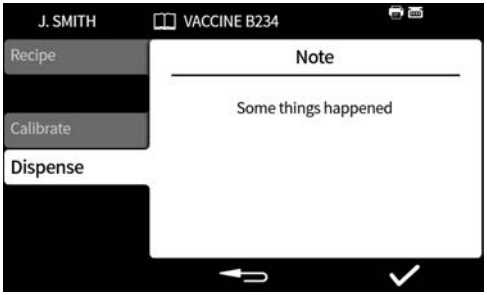
- Enter the calibration value
  i. **No connected balance—** Use the numeric keypad. Press  to confirm.
  ii. **Connected balance—**Place the filled vial on the balance. The value automatically displays. Press  to confirm.
- **Dispense a calibration fill**—dispense a calibration fill before the calibration value is entered.



A rolling average of previous fill weights can be used for calibration. Refer to "Calibration settings" on page 101.

PF7+ 22.3.5 Add note to report

1. Pause the batch.



2. Select **Add note to report**.
3. Type the text. Maximum 63 characters.

Keyboard operation is recommended for PF7+. Refer to "USB devices" on page 36.

Keypad operation:

- **Scroll characters using keypad up/down keys (▲/▼). Wait 1 second to enter next character.**
- **Use numeric keypad to enter numbers.**
- **Press ⌫ to delete.**

4. Press ✓ to confirm.

The note is saved in the batch report with the time and date it was created.

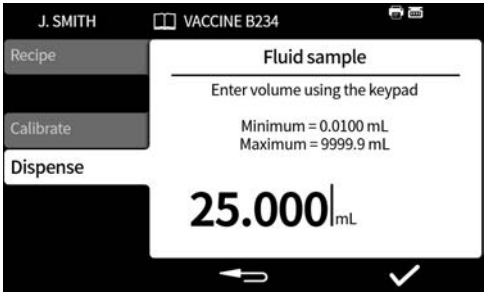
For information on viewing reports refer to "Reports mode" on page 89.

Repeat to add further notes. Adding a new note will not overwrite previous notes.

22.3.6 Fluid sample

To take a fluid sample:

1. Pause the batch
2. Select **Fluid sample**

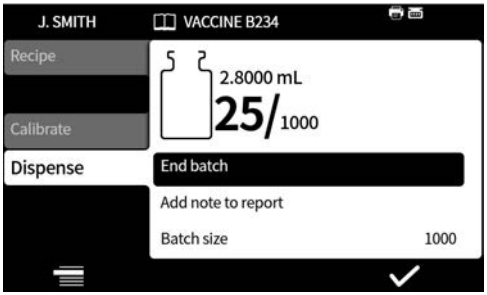


3. Enter the required sample volume and press ✓.
4. The fluid sample is dispensed.

Use the add note feature to add sample information to the batch report. Refer to "Add note to report" on the previous page.

22.3.7 End batch

1. Pause the batch
   i. If a **Batch size** has been entered, the batch will pause automatically when the number of fills completed equals the batch size.
   ii. If a **Batch size** is unlimited or to end a batch early, press ❚❚. Once the current fill has been completed, the batch will pause.



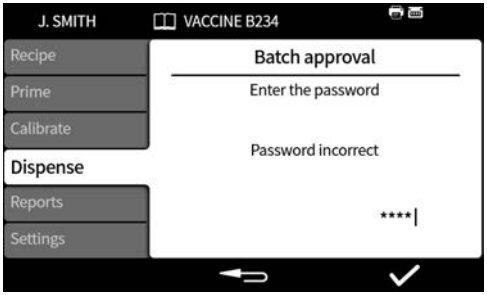
2. Select **End batch** and press ✓.

If reporting is **On**, the batch report will be completed.

If FDA 21CFR Part 11 compliance is enabled, a password is required.

When a batch has finished dispensing, the user is prompted to enter a password as part of the two person sign-off requirement.

Second user sign-off will occur in NetTools. Refer to "Saving a batch report without a network using USB flash drive" on page 142 and "Saving a report" on page 140.



Enter the password using the numeric keypad or keyboard.

The batch has now been approved by the current user. Time and date of approval and user name is stored in the report for that batch.

For information on viewing reports refer to "Reports mode" on page 89.

PF7+ 22.4 Start Zero waste batch

The pump will prime and calibrate automatically and do ongoing weight checking up to 100% so no fluid is wasted.

Disclaimer: Zero waste batch is the design and intended purpose of the function, however, no process is guaranteed, and loss of product could occur.

Option only displayed when a USB balance is detected. Refer to "USB devices" on page 36.

Ensure balance is connected and powered on for the duration of the batch.

The Flexicon Advanced Filling Kit is recommended for Zero waste batch.

If Zero waste batch is the desired filling method the following functions are not required:

- **Prime slow**
- **Prime fast**
- **Single-fill calibration**
- **Multi-fill calibration**
- **Start manual batch**

Hide these functions to avoid fluid waste due to accidental use. Refer to "Operator access restrictions" on page 94.

During initial fills the pump will prime and calibrate via the automatic communication from the balance. Following the initial fills, fill speed will increase.

After the first fill it may be necessary to remove trapped air from the tube.

Trapped air bubbles in the tube will cause inaccuracies in the volume of dispensed fluid. It is recommended to remove all air bubbles from the tubing before dispensing.

Procedure:

1. **Using fingers, squeeze the tube and push air bubbles along the tube and back into the fluid container or towards the pumphead and nozzle**
2. **Repeat until no air is visible inside the tube**

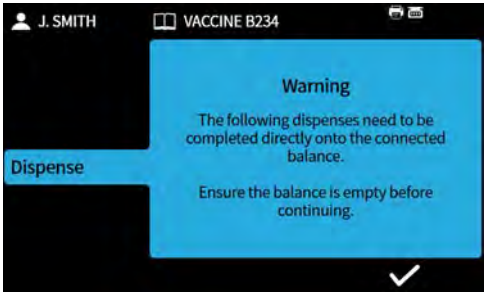
Figure 28 - Setup with PF7+, Asepticsu and the Flexicon Advanced Filling Kit

Before **Zero waste batch:**

3. Set **Vial weight** and **Vial weight tolerance** in the Recipe. Refer to "Vial weight tolerance" on page 55.
4. Set the height of the filling needle with enough clearance to be able to remove the vial if there is a drop of fluid hanging on the nozzle.

22.4.1 Start Zero waste batch

1. In the dispense menu, select **Start Zero waste batch**.



Ensure the balance is empty before pressing .

2. Press to confirm. The balance is zeroed by the pump.

The fill will be weigh checked or non weigh checked as determined by the"Weigh check frequency " on page 56

22.4.2 Zero waste filling - weigh checked fill

1. Place an empty vial on the balance.

How the fills are started depends on the selected filling method:

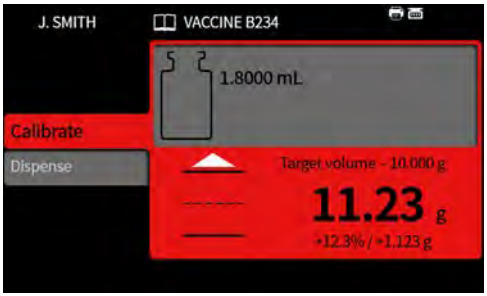
- If the filling method is set to **time delay between fills**, filling will commence automatically after an empty vial is placed on the balance.
- If the filling method is set to **keypad to start each fill**, the  icon is displayed once an empty vial is placed on the balance. Press  to start filling.

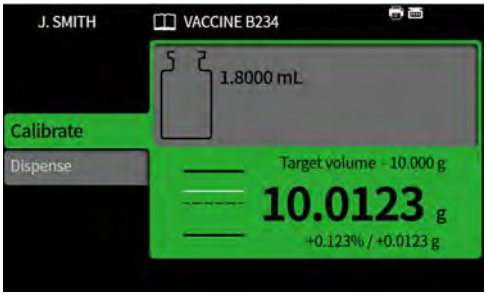
The pump determines there to be an empty vial on the balance whenever a weight is displayed on the balance that is within the vial weight tolerance. Refer to "Vial weight" on page 55 and "Vial weight tolerance" on page 55.

The balance must achieve a stable weight for a calibration value to be entered. If the balance is taking too long to stabilise or not stabilising at all, refer to the balance manufacturers instructions.

The balance will be tared as filling commences.
A single fill will complete.

The balance must stabilise before the fill is completed.





The filled weight is the first stable weight received from the balance once filling is complete. The measured weight of this fill will be included in the batch report if this is turned on. (Refer to "Reports mode" on page 89). The measured weight will be used to update the calibration value. (Refer to "Recalibration averaging " on page 101).

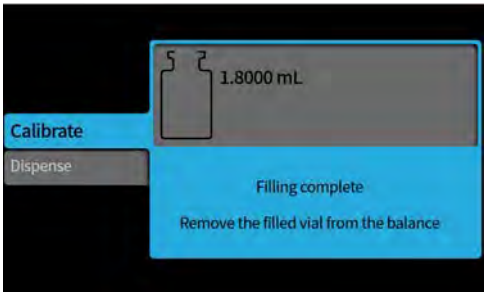
22.4.3 Zero waste filling - non weigh checked fill

Place an empty vial on the balance.

How the fills are started depends on the selected filling method:

- If the filling method is set to **time delay between fills**, filling will commence automatically after an empty vial is placed on the balance.
- If the filling method is set to **keypad to start each fill**, the  icon is displayed once an empty vial is placed on the balance. Press  to start filling.

A single fill will complete.



Remove the vial from the balance to proceed.

If the batch is not complete, the process will repeat from the beginning ("Zero waste filling - weigh checked fill" on page 85 or "Zero waste filling - non weigh checked fill" above).

22.4.4 Pausing a Zero waste batch

To pause a batch press  . Once the current fill has been completed, the batch will pause.

When a batch is paused, the following options are available:

- **Resume Zero waste batch** — This can be hidden, see "Operator access restrictions" on page 94. (Only available if a compatible balance is connected).
- **Add note to report**—"Add note to report" on page 79
- **End batch**—"End batch" on page 80
- **Batch size**—"Batch size" on page 72
- **Fluid sample**—"Fluid sample" on page 80

22.4.5 Resuming a Zero waste batch

To resume filling press  .
When a Zero waste batch is resumed the balance is zeroed by the pump.

22.5 Test fill

Dispense a single fill without creating a batch report.

PF7+

As a best practice for cGMP, apply user restrictions to disallow this function.
Refer to "Operator access restrictions" on page 94.

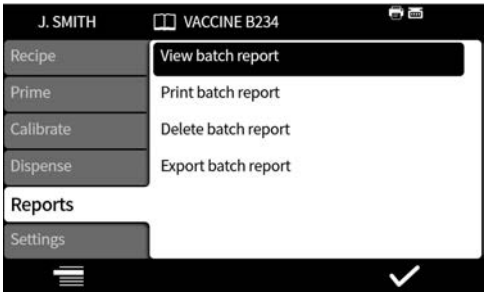
22.6 Index filling machine

For use only with a Flexicon FlexFeed system. Will index one vial.

23 Reports mode

Batch reports can be viewed, printed, deleted or exported to USB flash drive from the reports tab.

PF7+ This information is related to reports. For Audit trail logs refer to "Saving an audit trail log" on page 141.



Example is PF7+. PF7 may vary.

The report data stored and output by the PF7 are the values for the following:

Table 15 - Report data	
• Software Version	• Tube size
• Batch number - unique ID	• Acceleration
• Start time and date	• Deceleration
• User name	• Anti-drip
• Batch name	• Start delay
• Recipe name	• End delay
• Volume	• Between fill delay
• Density	• Batch size
• Calibration values • Whether calibration values fall within the defined limits	• Speed
• Recipe setting changes while dispensing	
PF7+ These report values will be shown if FDA 21CFR Part 11 compliance was enabled when the report was created: • Batch approval • Date • User	

23.1 View batch report

Displays a list of batch reports saved on the pump. Ordered by the date and time batch was completed.

Select from the list to view.

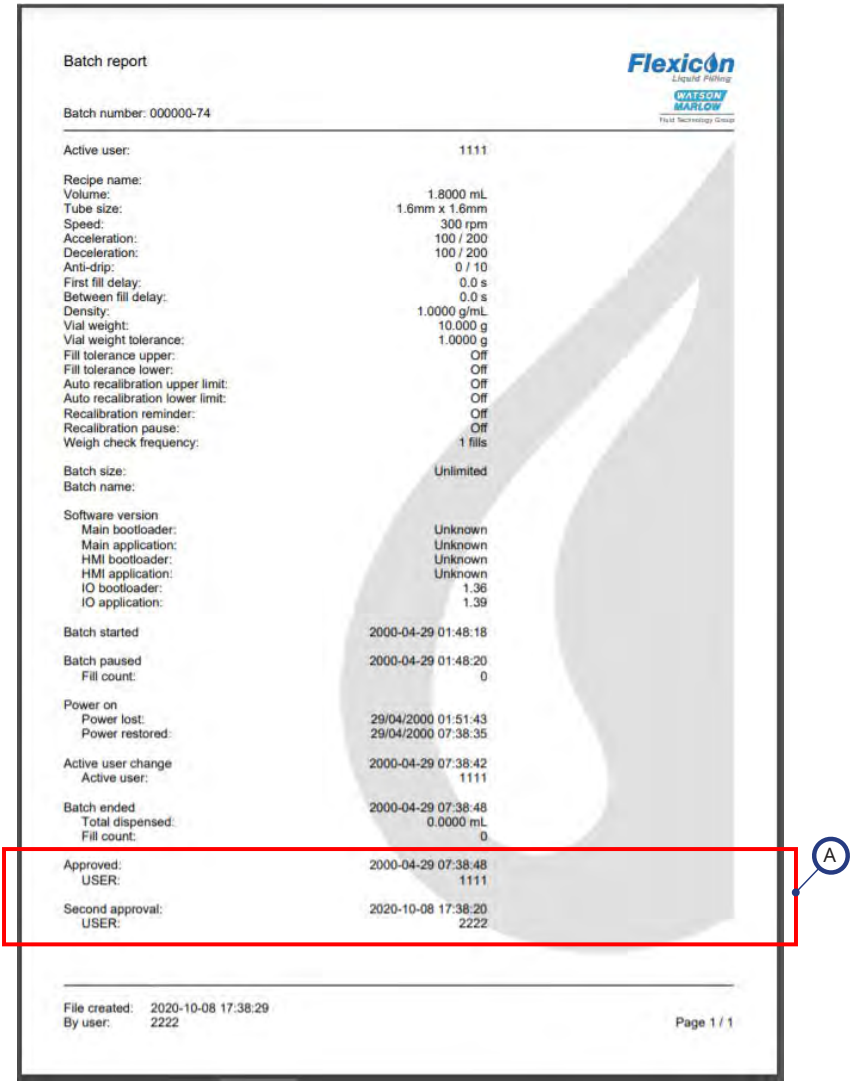


Figure 29 - Example PF7+ batch report (Printed from NetTools not a USB thermal printer.)

A	These report values will be shown if FDA 21CFR Part 11 compliance was enabled when the report was created.

Example is PF7+. PF7 may vary.

23.2 Print batch report

Print to USB connected printer.

23.3 Delete batch report

Delete a group of reports by age:

- older than 1 month
- older than 6 months
- older than a year

Individual reports cannot be deleted. Reports created less than one month ago cannot be deleted.

PF7+

As a best practice for cGMP, apply user restrictions to disallow this function.
Refer to "Operator access restrictions" on page 94.

PF7+

23.4 Export reports to USB flash drive

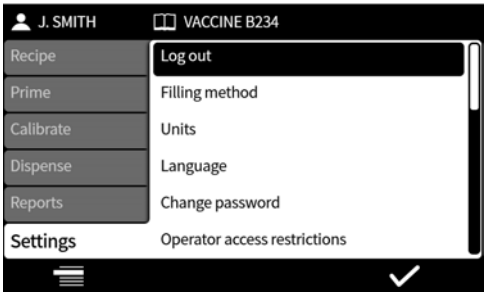
Save encrypted reports to a USB flash drive for import to NetTools. Refer to "Saving a batch report without a network using USB flash drive" on page 142 to read the exported report.

Option only displayed when a USB flash drive is detected. "USB devices" on page 36.

Reports can also be exported by Ethernet using NetTools. Refer to "Saving a report" on page 140.

24 Settings mode

Configuration of general settings.



24.1 Log out

Manually log out. To log in again, refer to "Log in" on page 47.
To enable automatic timeout of current user refer to "Session timeout period" on page 97.

24.2 Filling method

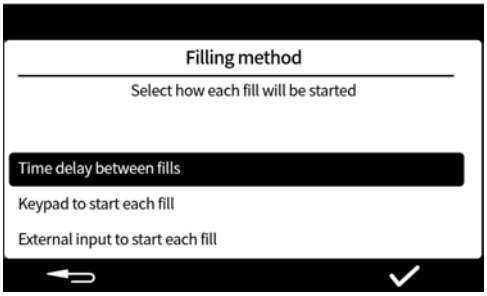
The filling method defines how each fill will be started.

Time delay between fills —Automated filling with a user defined interval between fills.

Keypad to start each fill—Manual filling. Press to start each fill.

External input to start each fill—Remote controlled filling. Refer to "Control wiring" on page 29.

The Filling method icon displays on the **Screen info bar**.



24.3 Units

Sets the units used in recipe or calibration to either;

- weight in grams
- volume in millilitres

To use a connected balance, set the calibration units to **weight**.

24.4 Language

Select the display language.
Available languages:

- English
- French
- German
- Portuguese
- Italian
- Dutch
- Chinese
- Korean
- Japanese
- Danish
- Swedish
- Spanish

Batch reports and notes are English only. Keyboard input is English only.

24.5 Change password

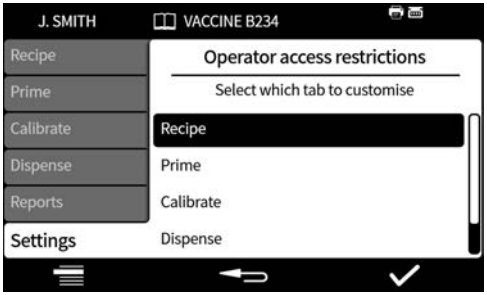
Change the password for the current user. To remove a password refer to "Users" on page 99.

PF7+

As a best practice for cGMP, apply user restrictions to disallow this function.
Refer to "Operator access restrictions" below.

24.6 Operator access restrictions

Customise the Active/Hidden/View only options for all **operator** level users.



Each menu tab can be active or hidden. Some items can also be customised as view only. When an item is selected as active, the item is both viewable and editable.

The options for each tab item are shown in the tables below:

Table 16 - Access restrictions - Recipe		
Recipe tab item	**Description**	**Default**
Load recipe	Active/hidden	Active
Create new recipe	Active/hidden	Active
Volume/Weight	Active/view only/hidden	Active
Density	Active/view only/hidden	Active
Tube size	Active/view only/hidden	Active
Speed	Active/view only/hidden	Active
Acceleration	Active/view only/hidden	Active
Deceleration	Active/view only/hidden	Active
Anti-drip	Active/view only/hidden	Active
Start delay / First fill delay	Active/view only/hidden	Active
End delay / Between fill delay	Active/view only/hidden	Active
Vial weight	Active/view only/hidden	Active
Vial weight tolerance	Active/view only/hidden	Active
PF7+ Weigh check frequency	Active/view only/hidden	Active
PF7+ Fill tolerance	Active/view only/hidden	Active
Auto recalibration tolerance	Active/view only/hidden	Active
Recalibration reminder	Active/view only/hidden	Active
Recalibration pause	Active/view only/hidden	Hidden
PF7+ Protected recipe	Active/view only/hidden	Active
Save recipe	Active/hidden	Active
Print recipe	Active/hidden	Hidden
Delete recipe	Active/hidden	Active

Table 17 - Access restrictions - Prime		
Prime tab item	**Description**	**Default**
Prime slow	Active/hidden	Active
Prime fast	Active/hidden	Active
Continuous pump	Active/hidden	Active
PF7+ Fluid recovery	Active/hidden	Active

Table 18 - Access restrictions - Calibrate		
Calibrate tab item	**Description**	**Default**
Single-fill calibration	Active/hidden	Active
Multi-fill calibration	Active/hidden	Active

Table 19 - Access restrictions - Dispense		
Dispense tab item	**Description**	**Default**
Start manual batch	Active/hidden	Active
PF7+ Start Zero waste batch	Active/hidden	Active
Test fill	Active/hidden	Active
Index filling machine	Active/hidden	Active
Protected recipes only	Yes/No	No

Table 20 - Access restrictions - Reports		
Reports tab item	**Description**	**Default**
Print	Active/hidden	Active
View	Active/hidden	Active
Delete	Active/hidden	Hidden
PF7+ Export	Active/hidden/current batch only	Active

Table 21 - Access restrictions - Settings		
Settings tab item	**Description**	**Default**
Filling method	Active/hidden	Hidden
Units	Active/hidden	Hidden
Language	Active/hidden	Hidden
Change password	Active/hidden	Hidden

PF7+ 24.7 Supervisor access restrictions

Customise the usable options for all **supervisor** level users. The features and capabilities are the same as the operator restrictions.

Refer to "Operator access restrictions" on page 94.

24.8 Printer and balance

Supported devices are automatically recognised when connected via USB.

 On the **Screen info bar**—supported printer is connected.

 On the **Screen info bar**—supported balance is connected. To use a connected balance, set the calibration units to **weight**.

For list of compatible devices: www.wmftg.com/softwareanddevices

 On the **Screen info bar** —balance cannot be used. The calibration units are set to volume. Refer to "Units" on page 93.

 On the **Screen info bar** — auto-recalibration tolerance is set. Refer to "Auto-recalibration tolerance" on page 58.

24.9 Default recipe

Sets the default values for when a new recipe is created.

PF7+ 24.10 Session timeout period

Sets period of inactivity to automatically log out.

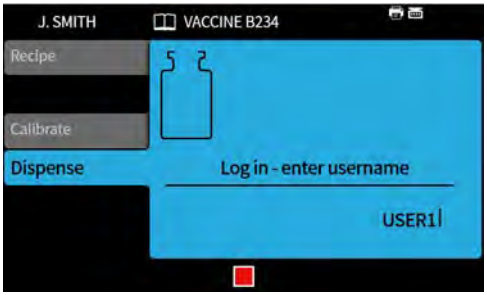
If FDA 21CFR Part 11 compliance is activated, this cannot be disabled.

Log in will return the user to recipe mode. In event of power failure if a batch was in progress the user is returned to complete the batch.

24.10.1 Session timeout while pumping fluid

If the session timeout occurs while the pump is priming, calibrating or dispensing. Pressing  will complete the current fill and then stop, or pressing  will stop the pump immediately.

The password is not required to stop the pump.



PF7+ 24.11 Password expiry duration

FDA 21CFR Part 11 compliance only. Refer to "Enable United States Food and Drug Administration (FDA) 21CFR Part 11 Compliance" on page 42.

Sets period in weeks before user required to set new password.

- Maximum - 52 weeks
- Minimum - 1 week

The pump cannot be operated until a new password is set. New passwords must be different from the previous 5 passwords.

A setting of 0 weeks will ask the user to reset the password at every login. This feature is for testing purposes.

24.12 Users

This is used to create, edit and delete user profiles.
Up to 50 users can be stored on the pump.
To export all users refer to "Export all data" on page 107.
To import previously exported users refer to "Import all data " on page 104.
The different user types are shown below:

Table 22 - User profile types

User type	Description
Administrator	No restrictions on access.
PF7+ Supervisor	Access restrictions set by the administrator. Refer to "Supervisor access restrictions" on page 97.
Operator	Access restrictions set by the administrator. Refer to "Operator access restrictions" on page 94.
Service user	For service technician to do maintenance operations. This user profile cannot be edited and is not displayed in the user list.

The active user cannot delete their own user account.

For further information about FDA 21CFR Part 11 compliance including deleting users and duplication of user names refer to the whitepaper available on request.

24.12.1 Block user

The option to block the service user is only available if FDA 21CFR Part 11 compliance is enabled.
If the service user is blocked, there is no way to recover the pump if the administrator password is lost or locked due to failed password attempts.

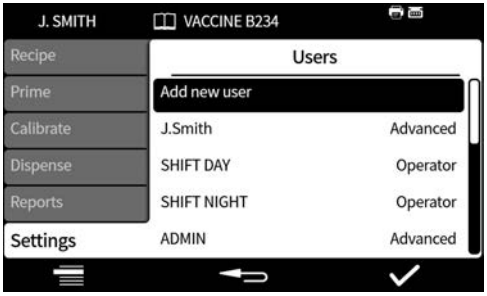
Block user prevents a user from operating the pump. Only an administrator can unblock.

The above screen is displayed if

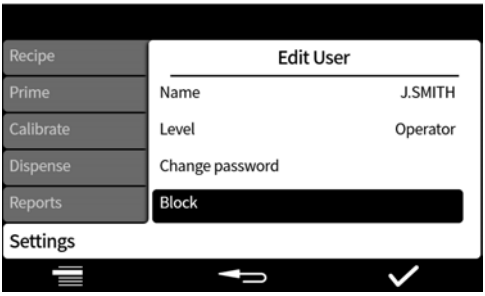
- The number of incorrect password attempts has exceeded the maximum attempts.
  - Operator and supervisor—5 incorrect attempts.
  - Administrator—10 incorrect attempts.
- The administrator has blocked the account.

Blocking or unblocking a user

Log in as the administrator. Refer to "Log in" on page 47.
On the settings menu, select 'Users'.



Select the desired user.



If the user is blocked select 'Unblock' to unblock the user.
If the user is unblocked select 'Block' to block the user.

The user block status has now been changed. Press  to return to the settings menu.

24.13 Prime speeds

Sets the prime slow, prime fast and fluid recovery speed levels.

Table 23 - Prime speeds

Mode	Pump	Min rpm	Max rpm
Prime slow / Prime fast	PF7	30	400
	PF7+	30	600
Fluid recovery	PF7+	30	100

24.14 Calibration settings

24.14.1 First calibration fill amount

Reduce the volume dispensed in the first calibration fill to 90% or 80% of the recipe fill volume.

PF7+

24.14.2 Recalibration averaging

Recalibration averaging recalibrates using a rolling average of the previous stored recalibration values.
Value of one—no averaging.
Value of two or greater—incrementally adds recalibration value to rolling average.

Higher values

- **reduce negative effect of natural small variations in fill volume**
- **reduce positive effect of calibration if significant difference between target fill weight and recalibration value.**

Optimum value depends on calibration frequency.

If the latest calibration value exceeds the fill tolerance limits ("Fill tolerance" on page 57), rolling average is reset and based only on new calibration value.

PF7+ **24.14.3 Weigh check option**

On—Option **weigh check only** will display when calibrating during manual batch. Refer to"Weigh check only" on page 75.

Off—the option **weigh check only** will not be displayed.

Weigh checking

Use **Weigh check only** to check the weight at any point during manual batch:

1. Turn **Weigh check option** on
2. Start a manual batch
3. Do a calibration
4. When the weight check only screen is displayed, select **weigh check only**

The calibration value is saved in the batch report but the calibration value used for dispensing remains unchanged.

PF7+ **24.14.4 Remove from batch option**

On—Options to **remove from batch** or **include in batch** display when calibrating during manual batch. Refer to "Remove from batch option" on page 75.

Off—Every fill is included in batch.

24.15 Reporting

24.15.1 Batch reports

On—Batch report generated when new batch starts.

Off—No report generated.

24.15.2 Auto delete

On—all saved batch reports are deleted when new batch starts.

Off—all saved batch reports are retained.

PF7+

As a best practice for cGMP, apply user restrictions to disallow this function.
Refer to "Operator access restrictions" on page 94.

24.16 Time and date

Refer to "Setting the time zone" on page 43.

The date is preset in the factory and is not adjustable.

24.17 Pump info

View various information specific to the pump.

Table 24 - Read only information displayed in pump info	
Software version	HMI Application Main Application IO Application
Bootloader version	HMI Application Main Application IO Application
21 CFR part 11 compliance	On/Off
Run hours	Total pump run hours
Website	WMFTG website
Model	PF7/PF7+
Mac address	-

The option to enable or disable FDA 21CFR Part 11 compliance is only available during initial setup. To change FDA 21CFR Part 11 compliance between enabled or disabled, factory reset the pump. (Refer to "Backup and reset" on the next page).

After USB firmware update:

- **Software version** will change. Use this software version to find the compatible version of NetTools.
- **Bootloader version** is factory set and will not change.

Refer to "Backup and reset" on the next page.

24.18 Sound level

Sets sound volumes for:

- keypad beep
- recalibration
- start fill
- end fill tones

PF7+ 24.19 Network

Configure the Ethernet network connection to transfer data to NetTools.

To transfer pump data via the Ethernet connection refer to "WMFTG NetTools — Network and user account setup " on page 112.

24.19.1 DHCP

On—IP address is automatically assigned when connected to a network.
Off—manually configure the network settings.

Manual configuration:
Network settings may be specific to your organisation.
Contact your systems administrator to ask if you can use the example settings or to obtain correct configuration details for IP Address, Subnet Mask and Default Gateway.
The IP address must be unique for each device.

24.20 Backup and reset

Administrator only. Refer to "User profile types" on page 99.

24.20.1 Delete all reports

All reports are deleted.

24.20.2 Delete all recipes

All recipes are deleted.

PF7+

24.20.3 Import all data

Any combination of the following files can be imported from a USB flash drive;

- Recipes.pf7
- Settings.pf7
- Users.pf7

Option only displayed when a USB flash drive is detected.

Table 25 - Required equipment - Import all data

USB flash drive with PF7+ files. (Refer to "Export all data" on page 107)

Table 26 - Imported data fields

- Language
- Recipe Units
- Calibration Units
- Logging Enabled
- Auto Delete Reports
- First Calibration Amount
- Weigh Check Option
- Remove From Batch Option
- Session Timeout value
- Password Expiry value
- CFR21 enabled
- Calibration MultiFill option
- Recalibration Averaging value
- Dispense Protected Recipes Only User
- Dispense Protected Recipes Only Supervisor
- Sound levels
- User/Supervisor menu item settings

Procedure

Importing each file will replace all current data on the pump that relates to that file.

Importing a recipes.pf7 file will replace all recipes currently saved on the pump, including the default recipe.

Importing a settings.pf7 file will replace all pump setting, including the FDA 21CFR Part 11 selection.

Importing a users.pf7 file will replace all users currently saved on the pump.

Keep a record of the administrator username and password at the time of export. This will be required when importing the data.

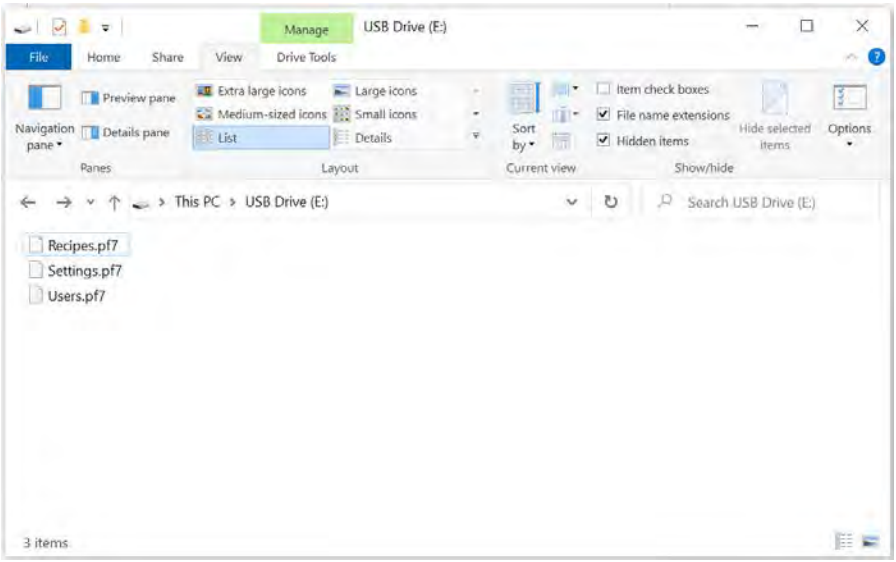


Figure 30 - Top level folder of USB flash drive

1. Place the files in the top level folder of the USB flash drive.
2. Insert the USB flash drive into the USB port on the rear of the pump.

If importing a users.pf7 file:

- **Create an administrator account with the same username and password as the one saved in users.pf7 on the USB flash drive.**
- **Log in to that administrator account.**

3. Select **import all data**. Press ✓ to confirm.
4. After importing data, the pump will restart.

PF7+ **24.20.4 Export all data**

The following files will be created in top level folder of the USB flash drive.

- Recipes.pf7
- Settings.pf7
- Users.pf7

Option only displayed when a USB flash drive is detected.

Exporting a recipes.pf7 file will replace recipes.pf7 currently saved on the USB flash drive.

Exporting a settings.pf7 file will replace settings.pf7 currently saved on the USB flash drive.

Exporting a users.pf7 file will replace users.pf7 currently saved on the USB flash drive.

Table 27 - Required equipment - Export all data

USB flash drive (Refer to "USB devices" on page 36)

Keep a record of the administrator username and password at the time of export. This will be required when importing the data.

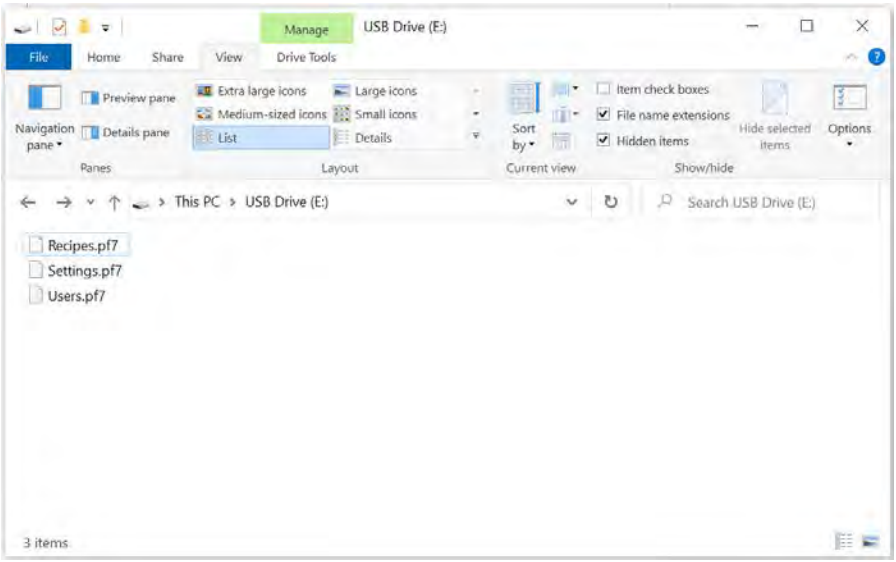


Figure 31 - Top level folder of USB flash drive

The exported .pf7 files are encrypted to protect the information contained.

Batch reports will not be exported, refer to "Export reports to USB flash drive" on page 92.
Audit trail data will not be exported, refer to "Saving an audit trail log" on page 141.

24.20.5 Start USB firmware update

Do not power off the pump during a firmware update. Permanent damage may occur.

PF7+

Firmware update process

All pump data is erased.

Before this is performed, export all data and print, export to USB flash drive or save to PDF any required batch reports.

Refer to

- **"Export all data" on page 107**
- **"Export reports to USB flash drive" on page 92**
- **"Export as PDF" on page 144**

PF7+ Audit trail data is NOT erased. Audit trail data is stored to an internal backup SD card. The unit must be returned to a WMFTG approved service centre for access to SD card.

If using PF7+ with NetTools, install the correct version of NetTools to correspond with the PF7+ Software version.

Procedure

If the files contained within the update folder are changed or the folder is renamed, the pump being updated may become unusable.

Table 28 - Update folder name

PF7	WM_PF7
PF7+	WM_PF7P

1. Put the update folder in top level folder of USB flash drive.

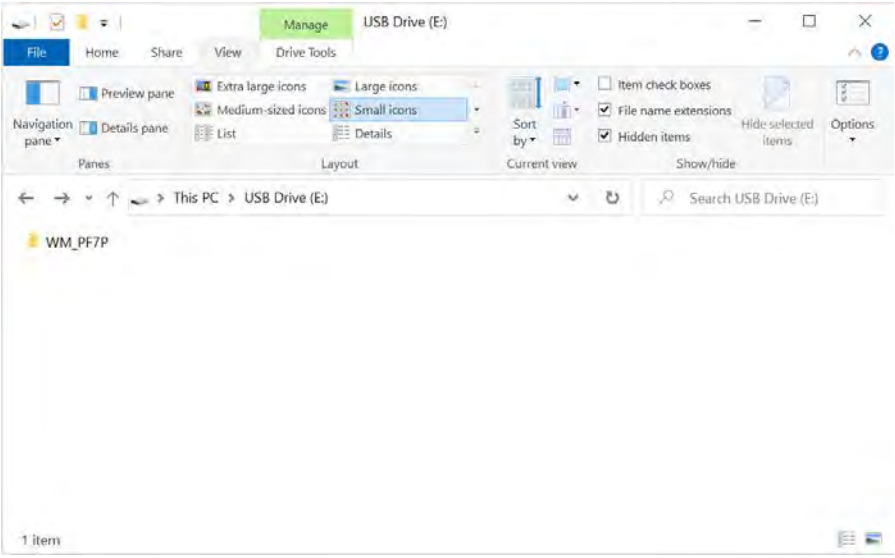


Figure 32 - Top level folder of USB flash drive

2. Insert the USB flash drive into the USB port on the rear of the pump.
3. Select **Start USB firmware update.**
4. Follow the on screen instructions.

24.20.6 Factory reset

PF7+

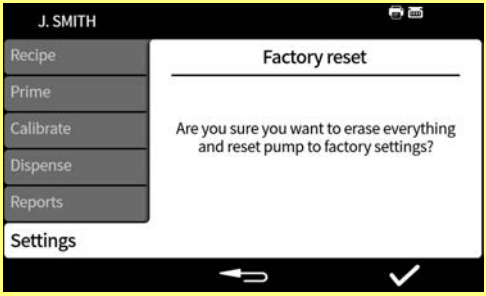
Factory reset process

All pump data is erased.

Before this is performed, export all data and print, export to USB flash drive or save to PDF any required batch reports.

Refer to

- **"Export all data" on page 107**
- **"Export reports to USB flash drive" on page 92**
- **"Export as PDF" on page 144**



PF7+ Audit trail data is NOT erased. Audit trail data is stored to an internal backup SD card. The unit must be returned to a WMFTG approved service centre for access to SD card.

25 WMFTG NetTools — Network and user account setup

PF7+

NetTools software is necessary for second sign off within FDA 21CFR Part 11 electronic batch records.

To enable NetTools to communicate with the pump, you must follow all sections of this topic. Below is a summary of tasks that must be completed:

Direct connection is recommended for first time setup or when you intend to dedicate a single PC as an isolated access terminal for the pump.
Connection via Ethernet network can be reinstated after the first time setup has completed.

1. Connect pump to your PC using direct connection or via Ethernet network.
2. Configure network settings.
3. Set-up administrator account on the pump.
4. Set-up user accounts.
5. Generate and install, security and device certificate (optional).

25.1 Connecting pump to a PC directly—Connection option 1

Direct connection is recommended for first time setup or when you intend to dedicate a single PC as an isolated access terminal for the pump.
Connection via Ethernet network can be reinstated after the first time setup has completed.

Table 29 - Required equipment - Connecting pump to a PC directly
PC with an available RJ45 Ethernet socket
Ethernet cable
Anybus Certificate Generator software (Optional for full SSL certificate compliance) see "Generate a security certificate (Optional)" on page 119

25.1.1 Configure pump for direct connection

Refer to "Network" on page 103 to set your pump to the following IP Configuration.

1. On the pump display, select Settings > Network.
2. Set DHCP to **off** to allow manual configuration.

Manual configuration:
Network settings may be specific to your organisation.
Contact your systems administrator to ask if you can use the example settings or to obtain correct configuration details for IP Address, Subnet Mask and Default Gateway.
The IP address must be unique for each device.

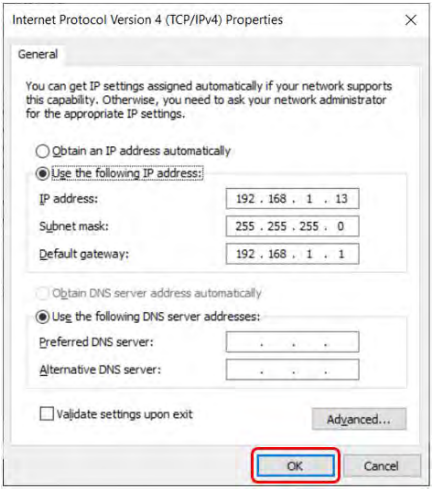
3. Enter the required IP Address, Subnet Mask and Default Gateway (example below).

The following example settings can be used:

- **IP Address: 192.168.1.12**
- **Subnet Mask: 255.255.255.0**
- **Default Gateway: 192.168.1.1**

25.1.2 Configure PC for direct connection

You may require permission from your systems administrator to alter the following settings on your PC.



1. Type **'Network Connections'** into the start menu to find the **View Network Connections** window in **Control Panel**.
2. Right click **Ethernet** connection.
3. Click **Properties.**
4. Select **Internet Protocol Version 4 (TCP/IPv4)** in the list
5. Click **Properties**
6. In the **Internet Protocol Version 4 (TCP/IPv4) Properties** window, select the **Use the following IP address** button.
7. Enter the required IP Address, Subnet Mask and Default Gateway (example below).
8. Select **OK** (outlined in red).
9. Close all open windows.

Manual configuration:
Network settings may be specific to your organisation.
Contact your systems administrator to ask if you can use the example settings or to obtain correct configuration details for IP Address, Subnet Mask and Default Gateway.
The IP address must be unique for each device.

The following example settings can be used:

- **IP Address: 192.168.1.13**
- **Subnet Mask: 255.255.255.0**
- **Default Gateway: 192.168.1.1**

25.2 Connecting pump to a PC via Ethernet network—Connection option 2

Direct connection is recommended for first time setup or when you intend to dedicate a single PC as an isolated access terminal for the pump.
Connection via Ethernet network can be reinstated after the first time setup has completed.

Table 30 - Required equipment - Connecting pump to a PC via Ethernet network

PC with an available RJ45 Ethernet socket
Ethernet cable
Network/Router
Anybus Certificate Generator software (Optional for full SSL certificate compliance) see "Generate a security certificate (Optional)" on page 119

1. Connect the PF7+ to your router or network using the Ethernet port on the rear of the pump and a standard Ethernet cable.
2. Connect your PC to the same network using either a wired Ethernet connection or a wireless connection.
3. On the pump display, select Settings > Network. Make a note of the IP address shown (for example 192.168.1.12).
4. Type this IP Address into the address bar of your internet browser.
5. Proceed to "Initial pump set-up" on the next page

If pump network settings are not configured automatically, check DHCP is turned on, see "Network" on page 103
If PC settings are not configured automatically, contact your systems administrator.

25.3 Initial pump set-up

Optional first step to remove security warning: "Generate a security certificate (Optional)" on page 119.

Set-up initial network administrator for configuring the connectivity between PC and pump.

1. Enter the pump IP address into the PC web browser (For example Microsoft Edge or Google Chrome)

Configure your pump name and IP address in the PF7+ Network Settings menu. Refer to "Settings mode" on page 93.

A note on SSL certificates and security

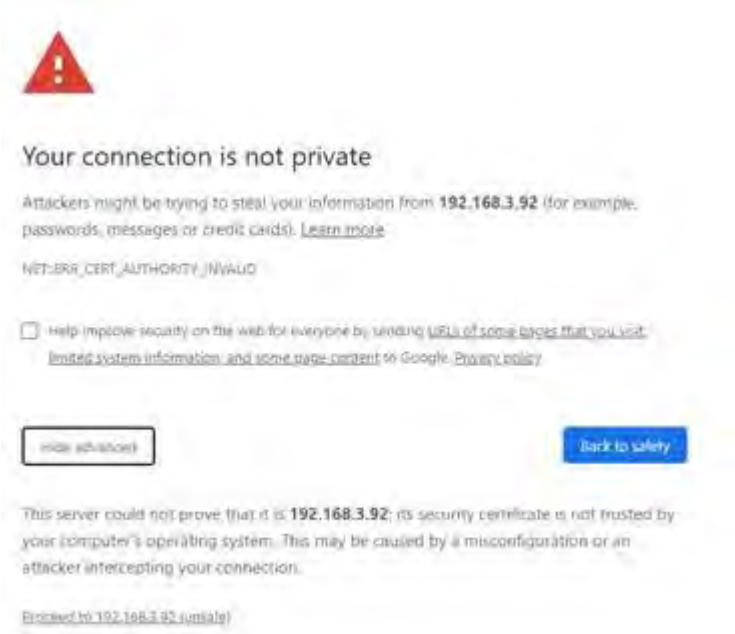
The SSL protocol uses encryption to secure the data between two devices on the same network. This is common on websites, where a website will send an SSL certificate to a user's internet browser.

This certificate will have been signed by a trusted provider, automatically recognised and then verified by your browser, over the internet.

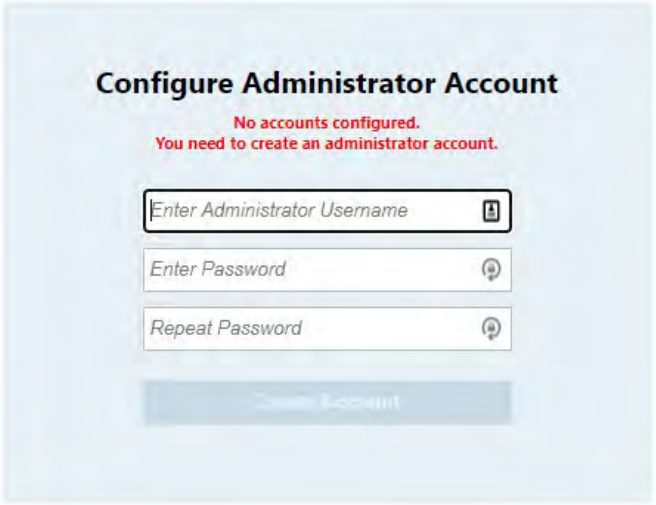
A similar principle is used to validate the identity of IoT (Internet of Things) devices, such as the PF7+ and the computer it is connecting to.

The connection between the PF7+ and the computer is a peer-to-peer connection over Ethernet, with no cloud based, web based or other external aspects. The SSL certificate cannot be generated automatically.

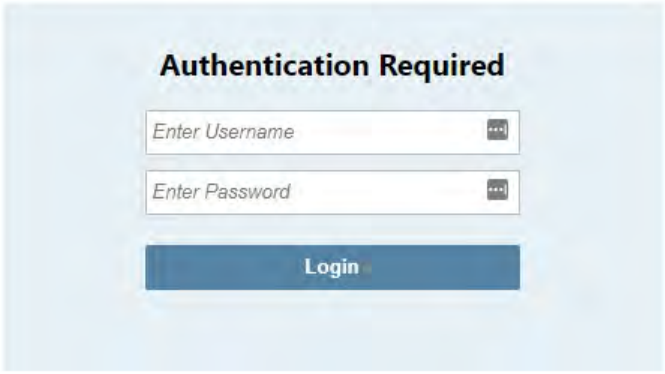
You will need to self-generate a certificate as described on the following pages and install it onto your PC for the connection between the PF7+ and your browser to become trusted.



2. The browser will warn of an unsafe web page. Click the option to proceed.



3. Enter a new username and password to create a Network Administrator.



4. The administrator account is now configured. Use this username and password to log in when prompted.

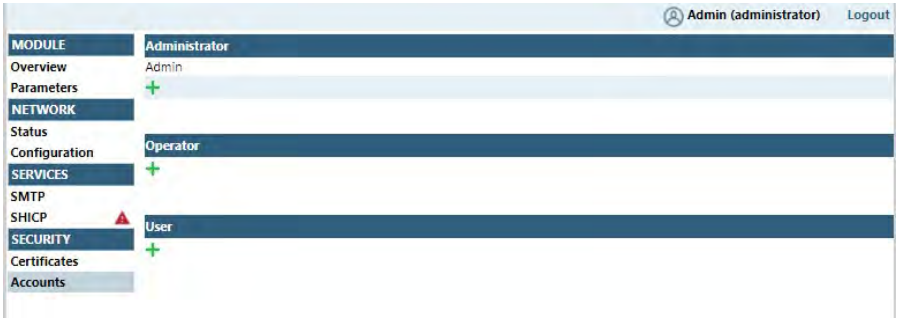
25.3.1 User account setup for PC to Pump network connectivity

To access information from the pump, the NetTools software requires its own unique set of user accounts to be configured via a web browser based interface.

If you have multiple PF7+ pumps, it may be useful to set up a common administrator username and password for every pump.

These account are specific to NetTools and must be configured in NetTools. Any changes to user accounts in the PF7+ pump, including factory reset, will not affect NetTools accounts.

1. Enter the pump IP address into the PC web browser (For example Microsoft Edge or Google Chrome).
2. Log in using the administrator username and password.
3. Select the Security/Accounts tab



4. Click the '+' to add a new account.

Table 31 - User account types

	NetTools web browser configuration interface
Administrator	Account configuration Handling of certificates Access to module and network status and configuration information
Operator	Access to module and network status and configuration information The operator can view the module and network status information, but not set any system configuration. The operator is not granted any access to the security settings.
User	Access to module and network status information

25.4 Generate a security certificate (Optional)

NetTools is fully functional if this procedure is not completed, but a security warning is displayed on first use.
Why is this warning appearing?
An internet browser authenticates security by communicating with internet based services. When connecting directly to the pump during set-up, these services cannot be accessed.

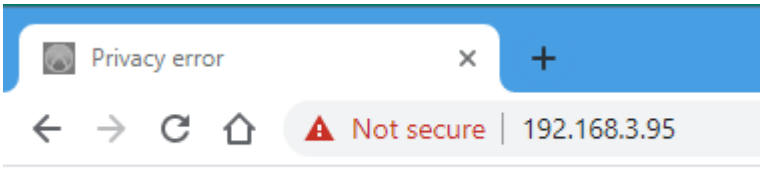


Figure 33 - Privacy error (Security warning)

The following is a procedure for removing the security warning displayed by internet browsers when accessing the PF7+ web pages.

1. "Generate a CA certificate" on the next page .
2. "Install CA certificate in Windows" on page 121
3. "Use the CA certificate to generate a Device Certificate which is installed on the PF7+" on page 127.

Direct connection is recommended for first time setup or when you intend to dedicate a single PC as an isolated access terminal for the pump.
Connection via Ethernet network can be reinstated after the first time setup has completed.

The Device Certificates will be tied to specific IP Addresses. Assign your PF7+ a valid static IP address.

25.4.1 Generate a CA certificate

Direct connection is recommended for first time setup or when you intend to dedicate a single PC as an isolated access terminal for the pump.
Connection via Ethernet network can be reinstated after the first time setup has completed.

1. Follow all instructions in "Connecting pump to a PC directly—Connection option 1" on page 112
2. Download and install the Anybus Certificate Generator software onto your PC. Download link:

This link will lead you to a third party website, owned and operated by an independent party over which Watson-Marlow Fluid Technology Group, Watson-Marlow Limited and Watson-Marlow Flexicon A/S have no control ("3rd Party Website"). Any link you make to or from the 3rd Party Website will be at your own risk.
Watson-Marlow Fluid Technology Group, Watson-Marlow Limited and Watson-Marlow Flexicon A/S accepts no liability for any loss, damage, harm and any other consequence resulting directly or indirectly from or relating to your access to the 3rd Party Website or any information that you may provide, files downloaded or any transaction conducted on or via the 3rd Party Web site or the failure of any information, goods, software or services posted or offered at the 3rd Party Website or any error, omission or misrepresentation on the 3rd Party Website or any computer virus arising from or system failure associated with the 3rd Party Website or software downloaded from the 3rd Party Website.

https://cdn.hms- networks.com/docs/librariesprovider7/default- document- library/software/anybus-certificate-generator.zip?sfvrsn=7bd553d7_18

3. Run the Anybus certificate generator software. The software displays PF7+ discovered on the network.

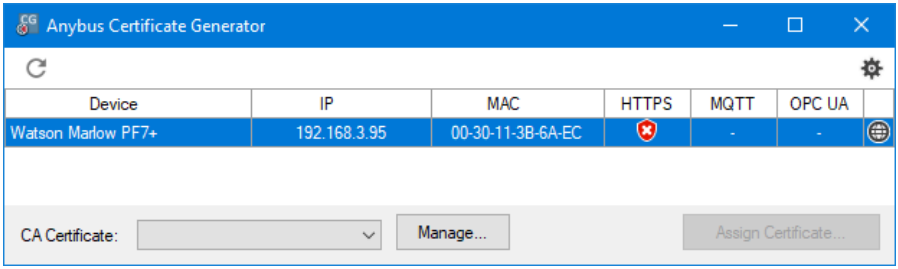


Figure 34 - The software displays PF7+ discovered on the network.

4. Click the **Manage...** button to open the **Manage CA certificates** dialogue.

In the Manage CA certificates dialogue, view previously generated CA certificates and generate new CA certificates.

5. Click the **New...** button to generate a new CA certificate.

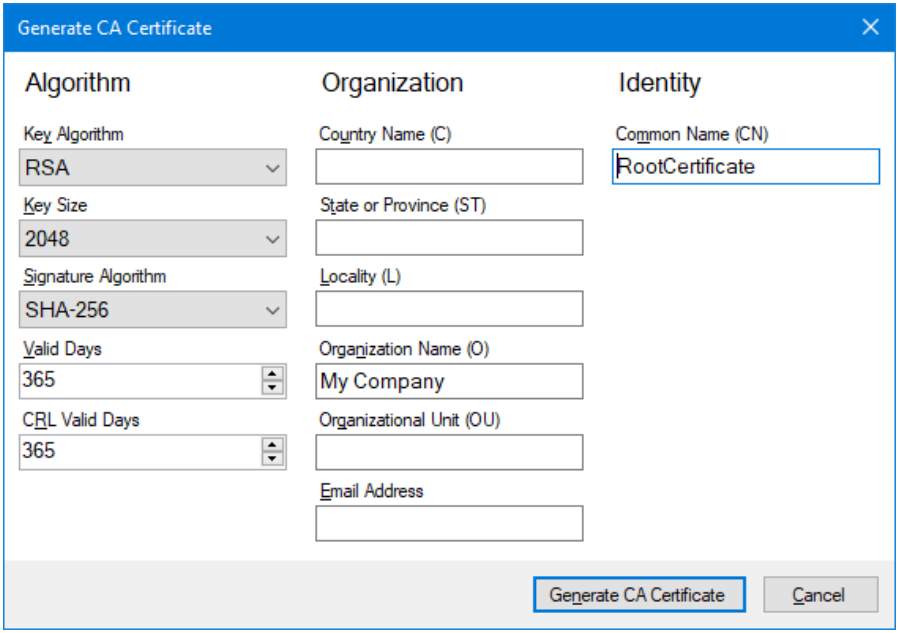


Figure 35 - Generate CA certificate

6. Type the information into the **Generate CA certificate** dialogue using "Generate CA certificate" above as an example.
7. Click **Generate CA Certificate.** The certificate is generated and can now be used to issue device certificates for PF7+.

25.4.2 Install CA certificate in Windows

1. Go to the **Manage CA certificates** dialogue of the Anybus Certificate Generator software.
2. Click **Show in folder** to open the folder where the CA certificate files are saved.
3. Copy the file path to the clipboard.

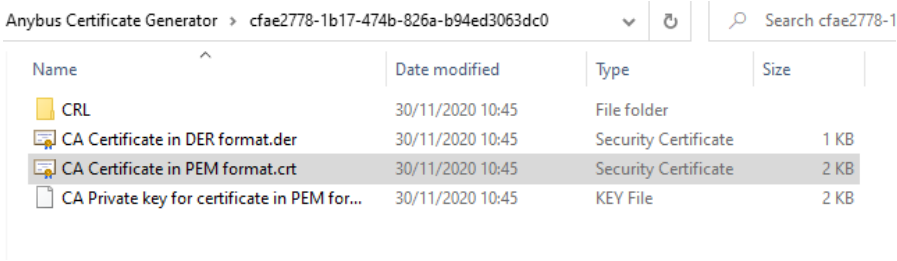


Figure 36 - Show in folder

4. Type 'Manage computer certificates' into the start menu to run the **Windows Certificate Manager.**

5. Right click on **Trusted Root Certification** and click **All Tasks > Import...**

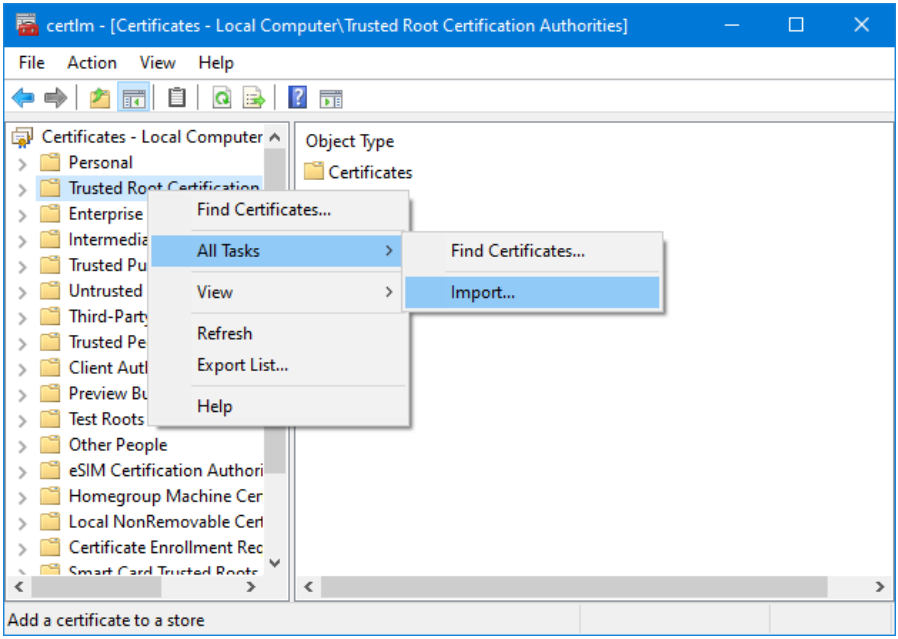


Figure 37 - Windows Certificate Manager

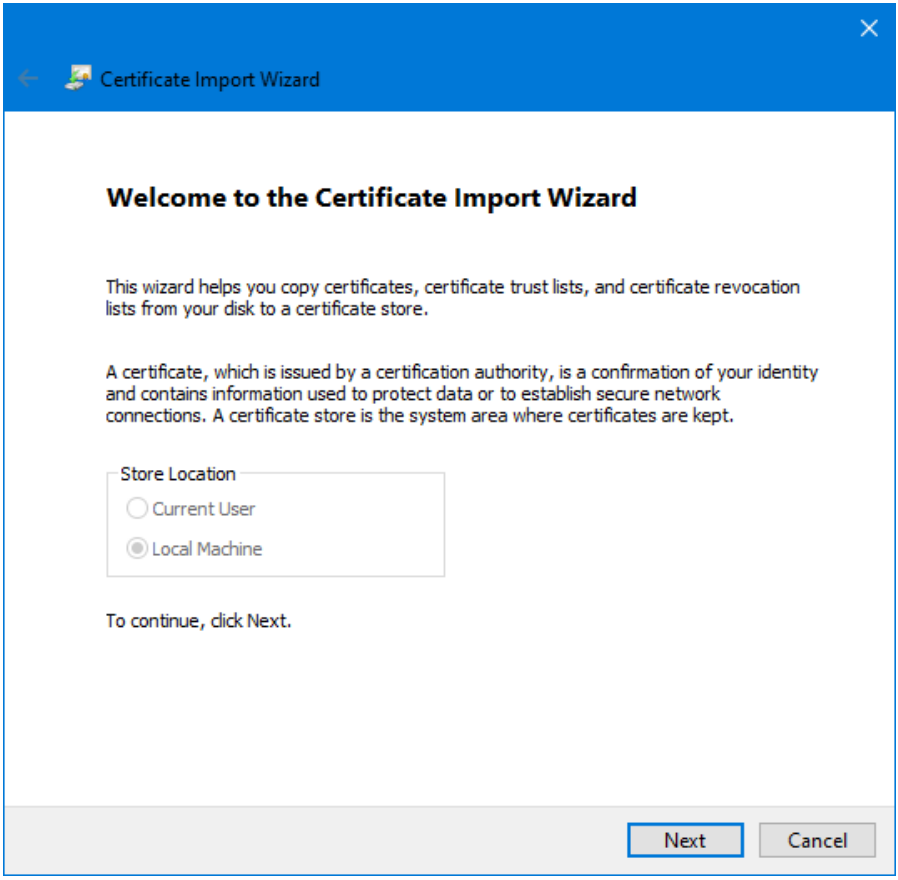


Figure 38 - Certificate Import Wizard

6. Click **Next** in the Certificate Import Wizard dialogue.

7. Paste the file path from the clipboard or browse to the location of the CA certificate.

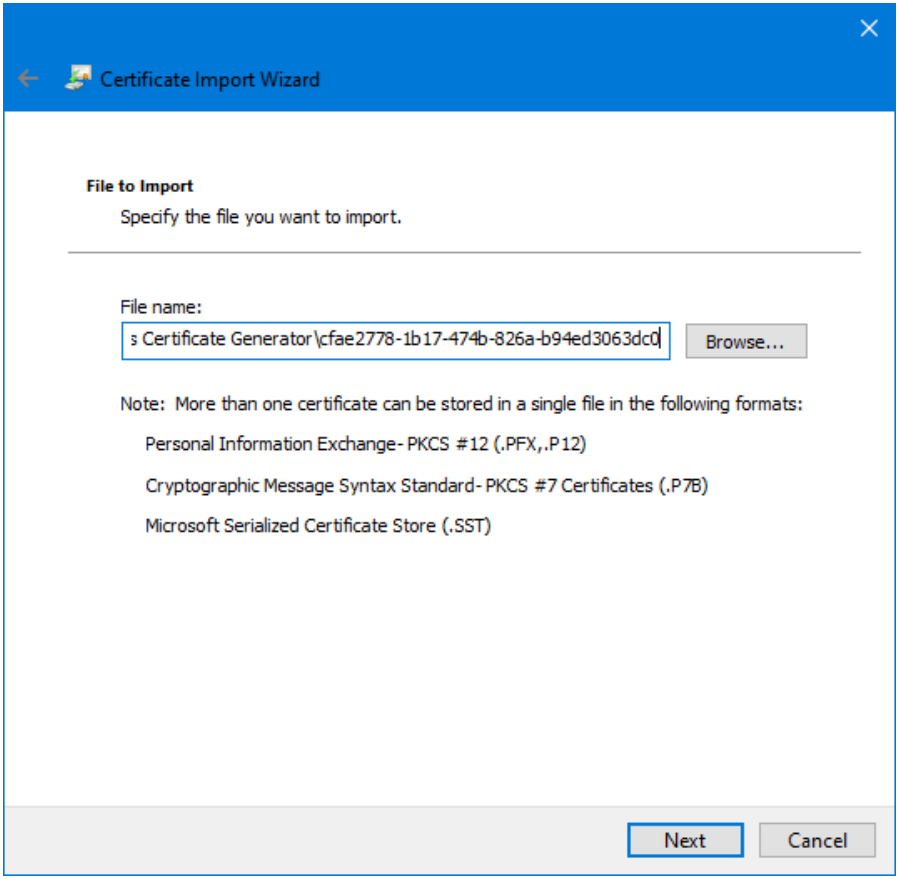


Figure 39 - File to import

8. Select the certificate.

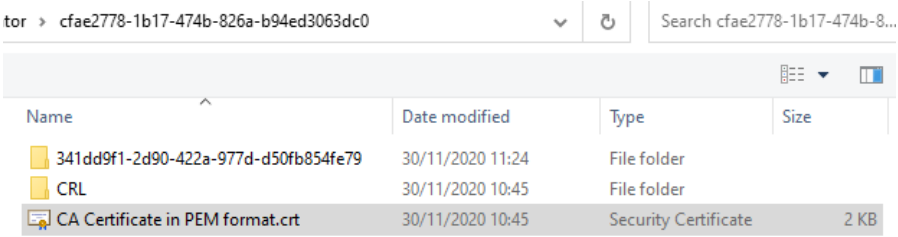


Figure 40 - Select the certificate

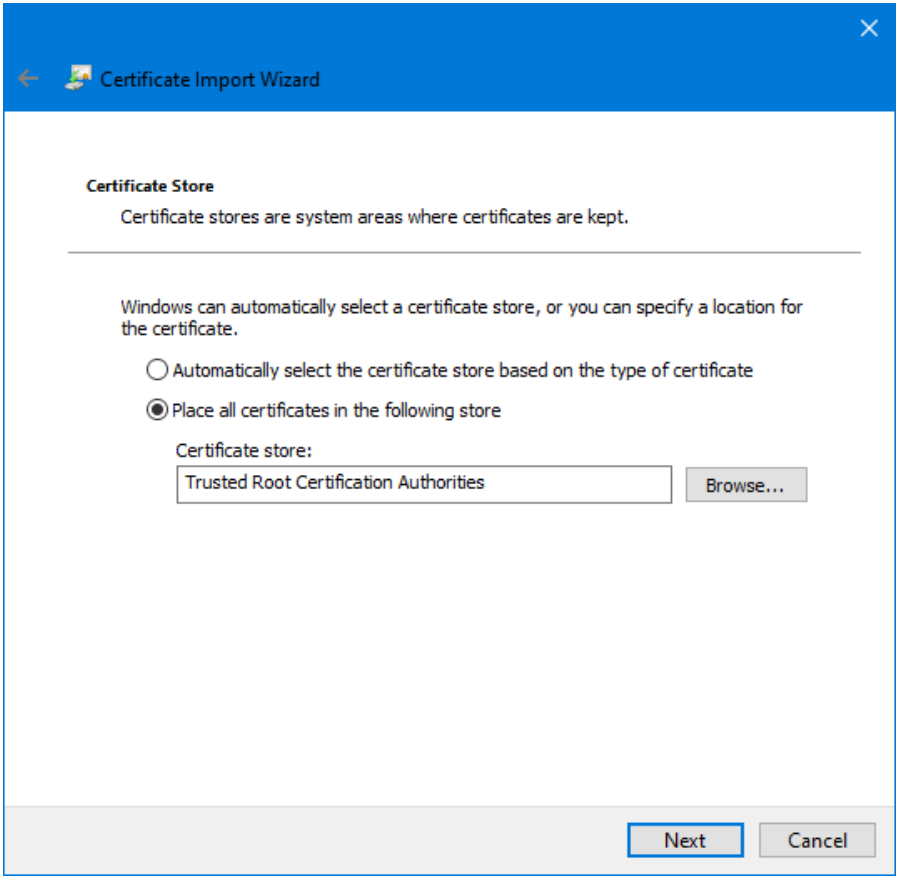


Figure 41 - Certificate store

9. Click **Next.**

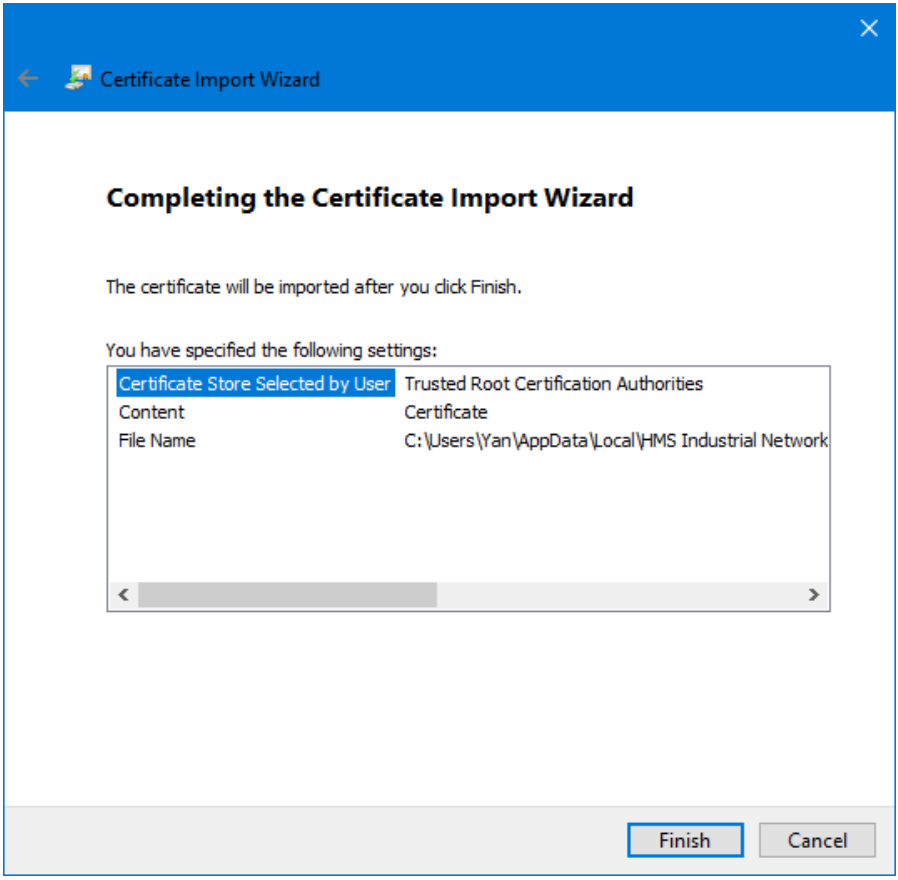


Figure 42 - Finish

10. Click **Finish.**

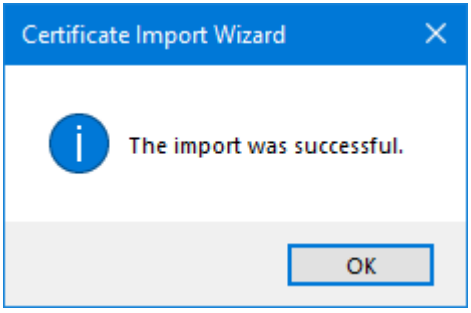


Figure 43 - Import successful

11. Click **OK.**

25.4.3 Use the CA certificate to generate a Device Certificate which is installed on the PF7+

1. Go to the Anybus Certificate Generator software.

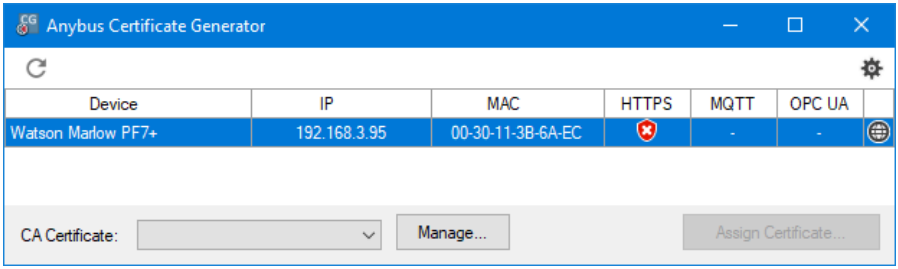


Figure 44 - The software displays PF7+ discovered on the network.

2. Click the  icon to access settings.
3. Click **Edit certificate default settings**. Enter details common to all your Device Certificates. Enter "Example certificate settings" below.

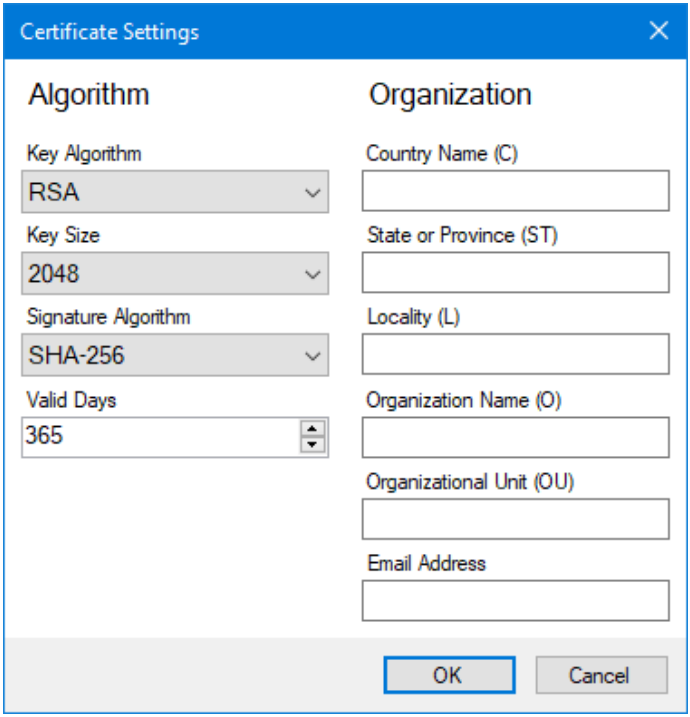


Figure 45 - Example certificate settings

4. In the main window, select the PF7+, then the root certificate and click **Assign Certificate...** .

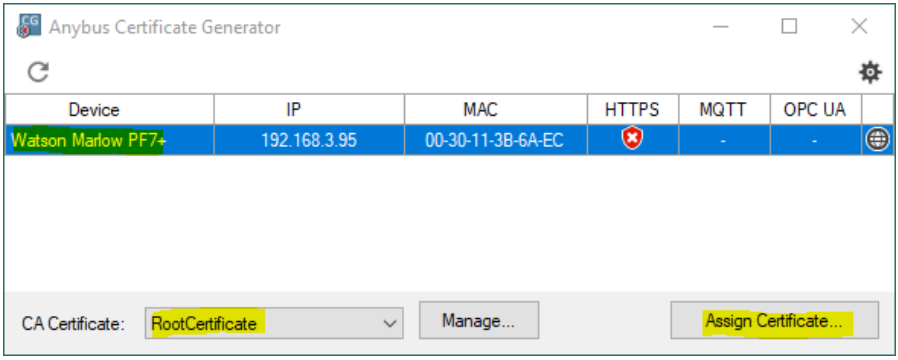


Figure 46 - Assign Certificate...

5. Type the IP address of the PF7+ in the Common Name (CN) and Alternative Name fields.

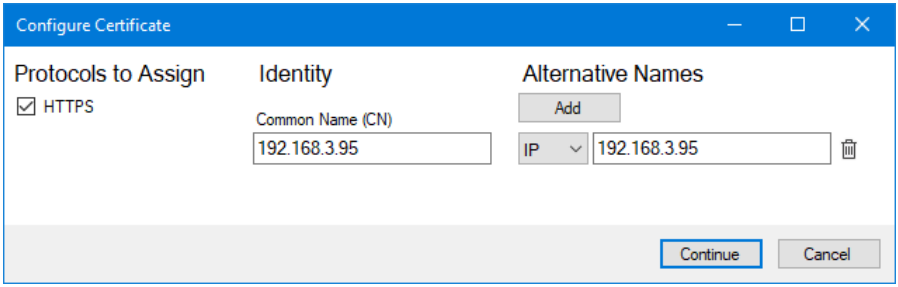


Figure 47 - Configure Certificate

6. Make sure the PF7+ is still connected to the network.
7. Click **Continue**.

If you have not created an initial administrator account:

8. Type the details for the first administrator account
9. Click **Continue.**

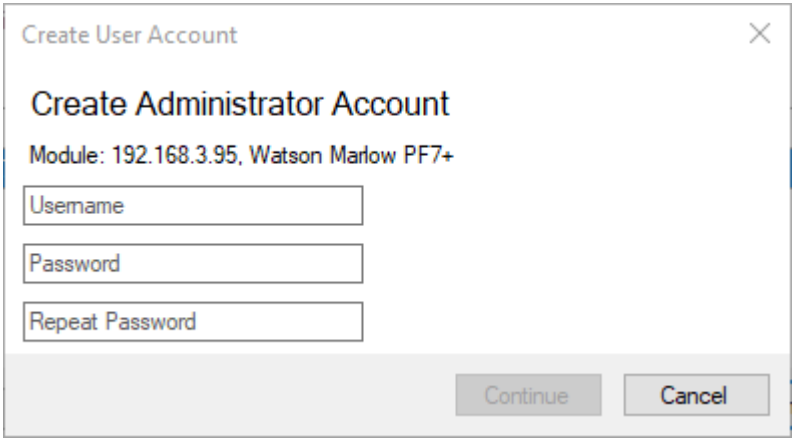


Figure 48 - Create administrator account

10. Click **OK.**

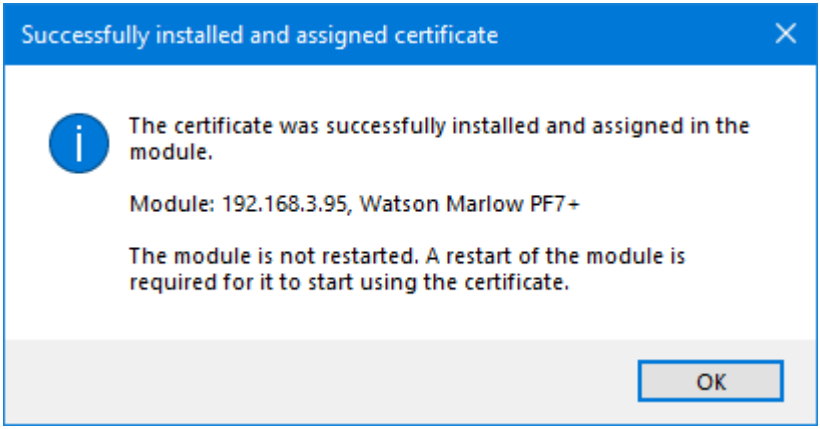


Figure 49 - Install successful

11. Restart the PF7+.
12. Click the rescan icon in the Anybus Certificate Generator.

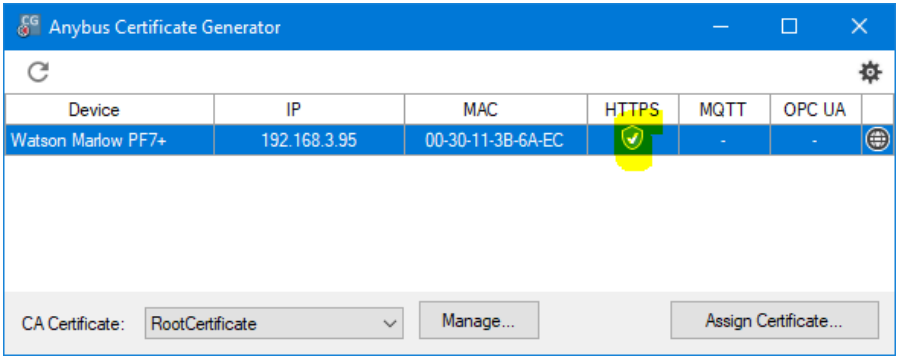


Figure 50 - The Anybus Certificate Generator shows an https certificate has been assigned to the PF7+.

13. Close all Chrome browser windows.

14. Click the  icon.

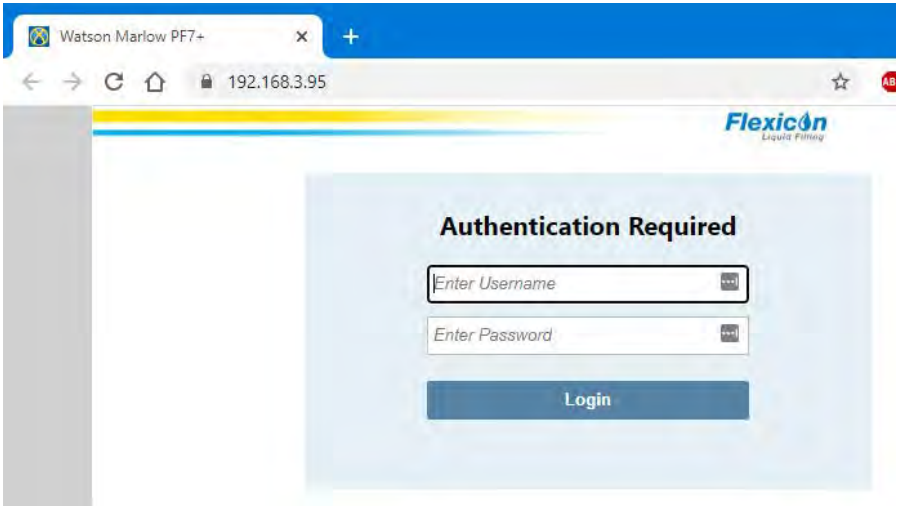


Figure 51 - You can now log in to the PF7+ and assign network users for use with NetTools.

PF7+ 26 WMFTG NetTools — Installation and operation

Use NetTools to:
View reports, recipes, audit trail logs and other information on a PC.
Save reports, recipes and audit trail logs on a PC.

NetTools software is necessary for second sign off within FDA 21CFR Part 11 electronic batch records.

26.1 Installation of NetTools

Table 32 - Required equipment - Installation

A PC with the following minimum requirements:
- Operating system: Windows 10
- Processor: Intel or AMD x86/x64 1 GHz or more
- 512 MB RAM
- 0.5 GB free hard drive space

1. Check the PF7+ **Software version**: "Pump info" on page 103
2. Download the software corresponding to your PF7+ software version from www.wmftg.com/softwareanddevices
3. Extract the files from the .zip folder.
4. Run the .exe file to launch the installation.
5. Follow the on screen instructions.

26.2 Launch NetTools

1. Launch NetTools from the start menu or Desktop shortcut.

The pump can continue to operate as normal while NetTools is in use.

26.2.1 User Interface

Figure 52 - NetTools User Interface

1	Refresh button—Refreshes the information in the pumps panel.
2	Pumps panel—Displays a list of connected pumps and the data stored on that pump.
3	Save as PDF—Saves the selected report or audit as a PDF file on your PC.
4	Tabs—Files that are open, but not selected.

Figure 52 - NetTools User Interface	
5	Selected tab—The selected tab is displayed in blue and the selected report or audit is displayed in the window.
6	Open files—An extended list of open tabs that will not fit on the screen.
7	Pin—Pin to keep the panel open. Unpin to reduce the panel to save screen space.
8	Pump info—Displays if the info header is doucle clicked in the pumps panel (2).
9	Edit—Opens the edit pump info box where the Host name can be edited.

26.3 Change NetTools language

1. Launch NetTools
2. Press Ctrl+Shift+Alt+Backspace. The Supervisor options window is displayed.

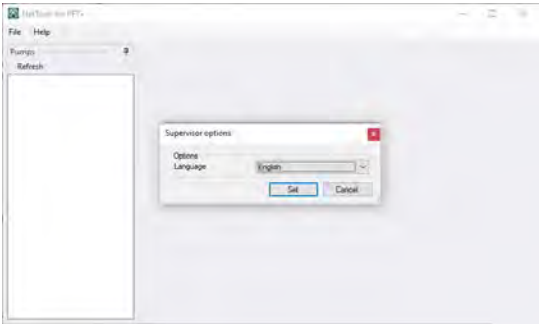
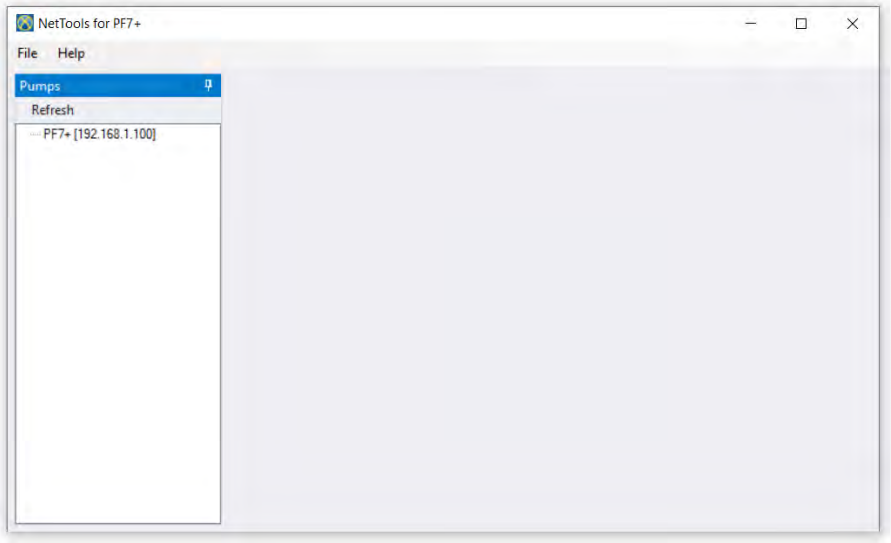


Figure 53 - Supervisor options

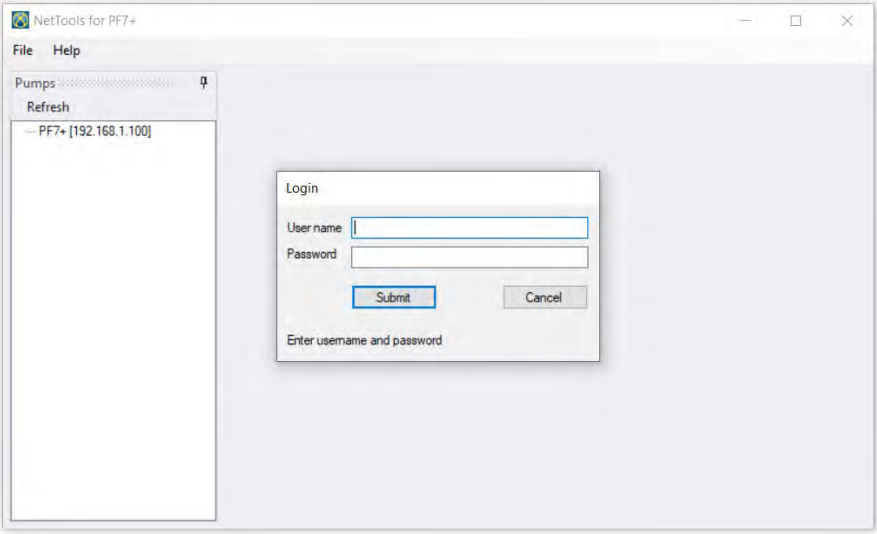
3. Choose the desired language from the drop-down list
   - English
   - Chinese
   - Danish
   - Dutch
   - French
   - German
   - Italian
   - Japanese
   - Korean
   - Portuguese
   - Spanish
   - Swedish
4. Click Set
5. NetTools will restart in the chosen language

26.4 Logging in to the pump

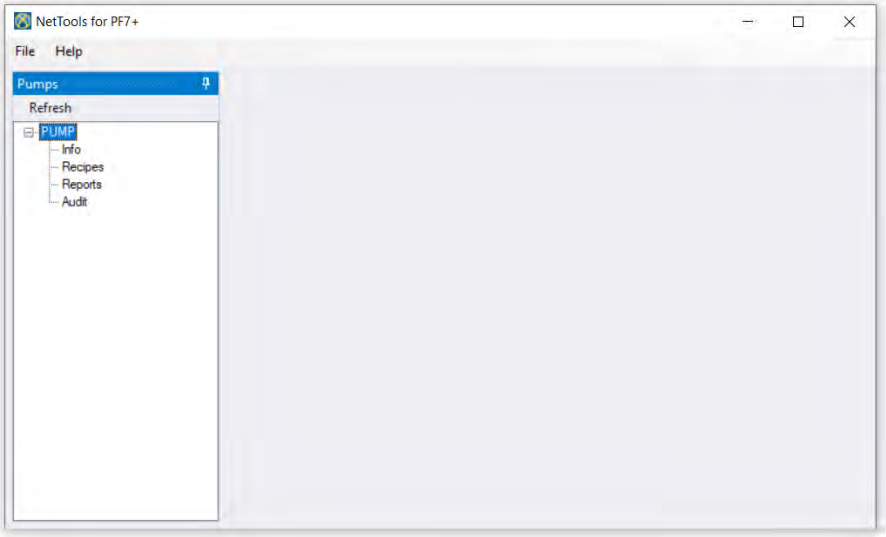


1. Click refresh to find PF7+ pumps connected to the network.

The pump IP address identifies it on the network. Refer to "Network" on page 103 to view the IP address.



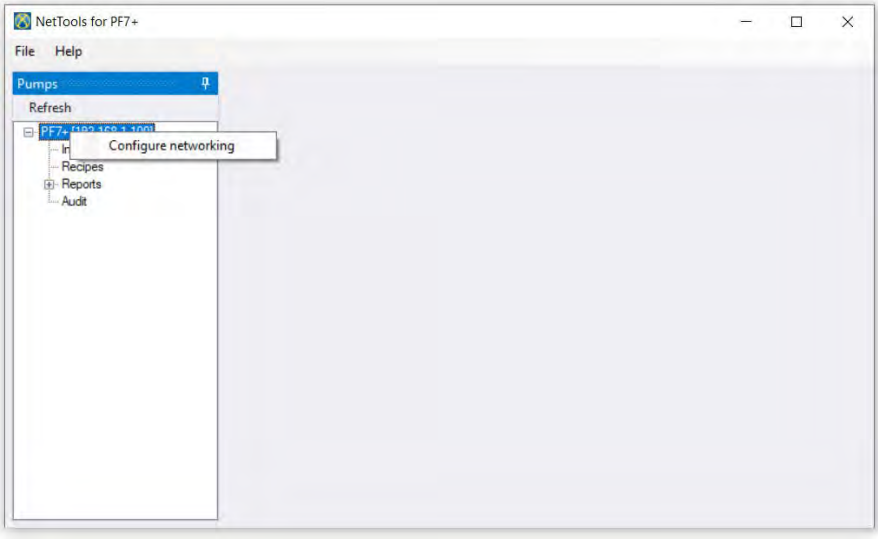
2. Double click pump name to open login window.
3. Log into pump using credentials created in initial set-up. Refer to "Initial pump set-up" on page 115.



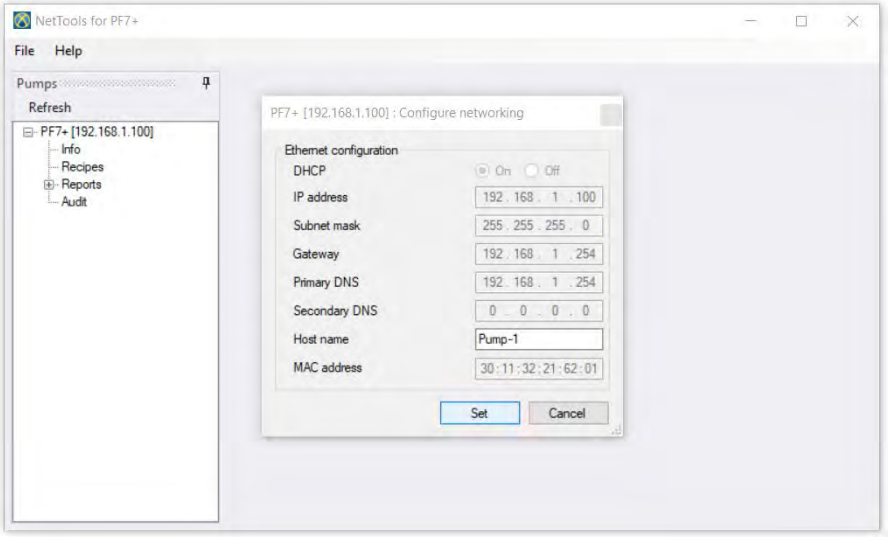
4. Double click to access **Info**, **Recipes**, **Reports** or **Audit**.

26.5 Changing the pump name

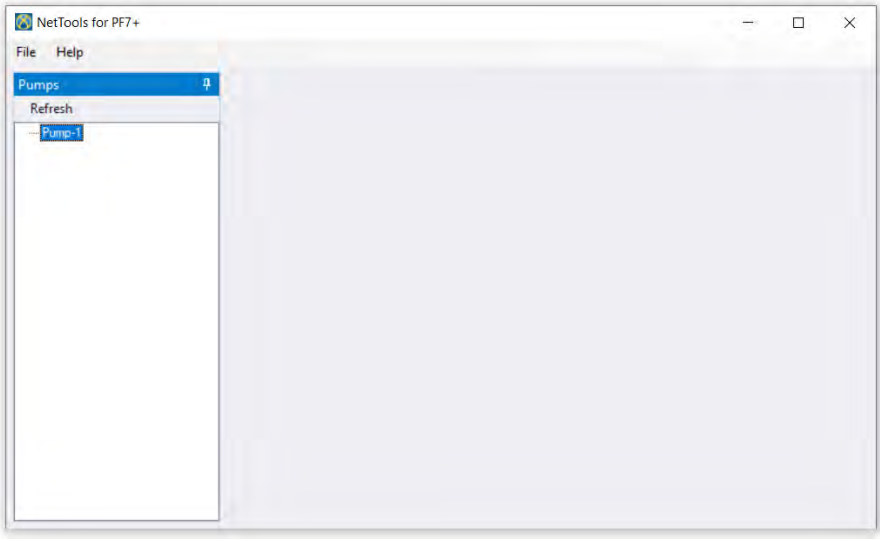
If there are multiple PF7+ pumps on the network, changing the pump name can help identify individual pumps.



1. Log in to the pump
2. Right click on the pump name and selecting **configure networking**.



3. Enter pump name in the box **Host name**. Spaces are not allowed.

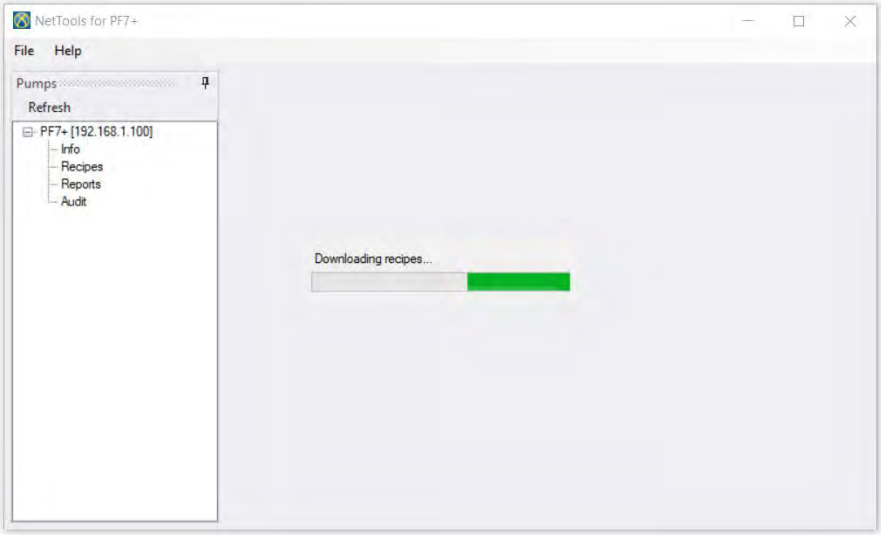


4. The entered name is now used to identify the pump rather than the IP address.

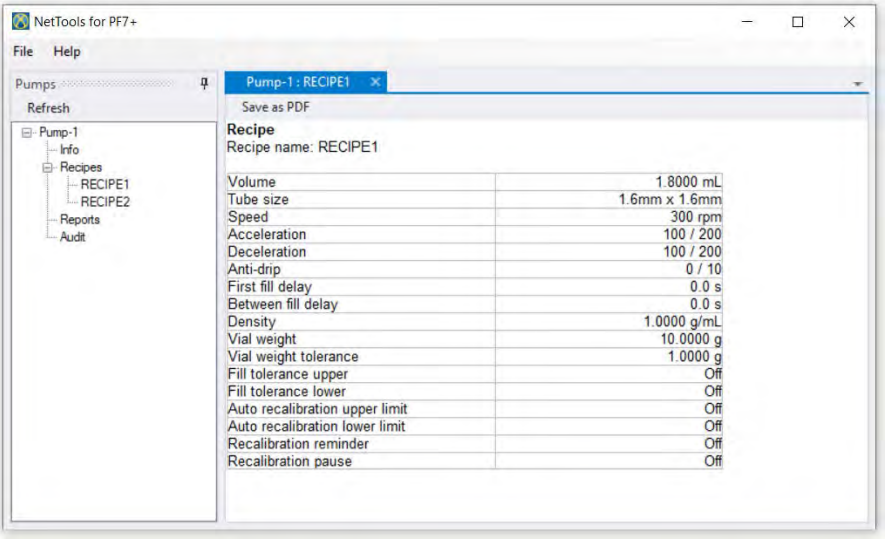
26.6 Saving a recipe

Recipes are viewed and saved on NetTools. Recipes are created on the pump.

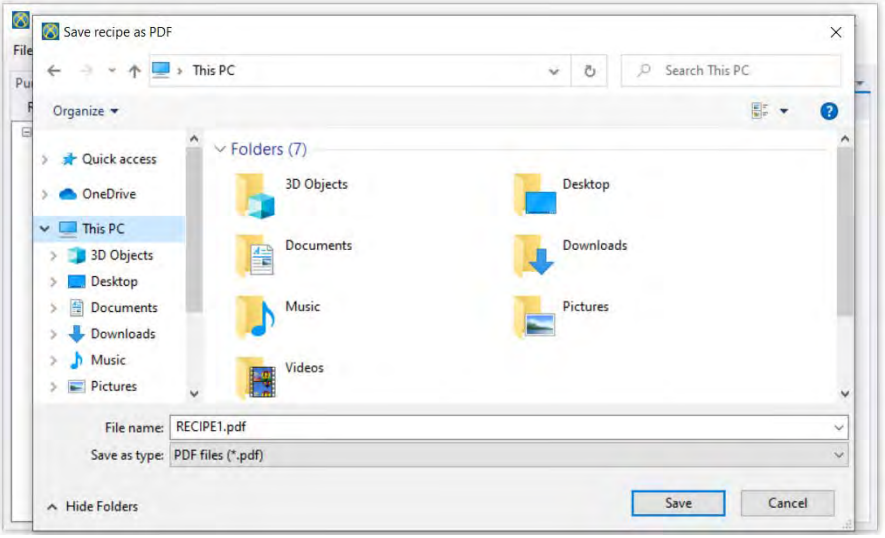
1. Double click **Recipes** to retrieve saved recipe data.



This may take several minutes.



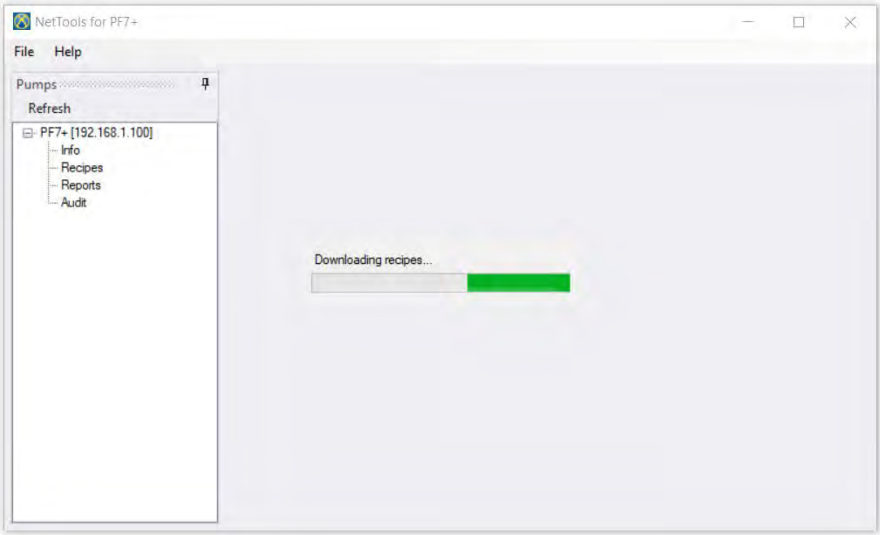
2. Double click on a recipe to view.
3. Click **save as PDF**.



4. Select a location, enter a name and click save.

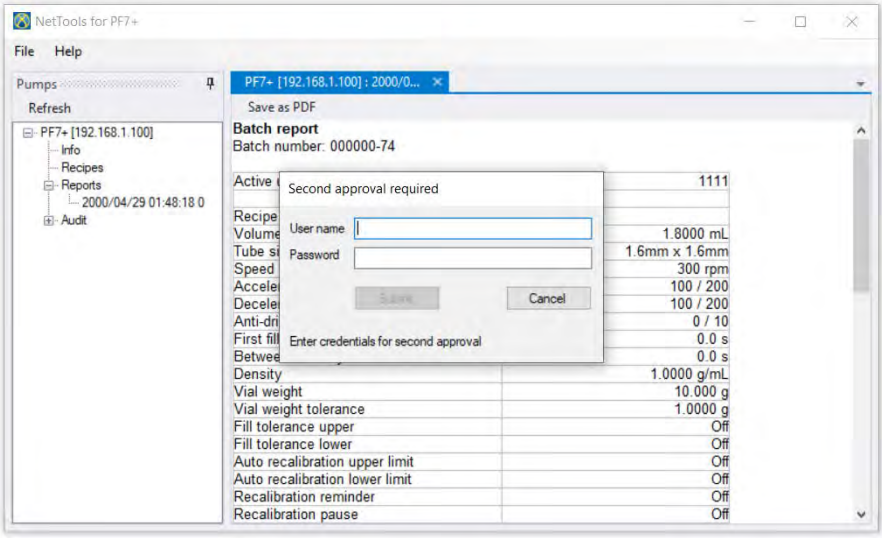
26.7 Saving a report

1. Double click on the reports section to download the saved reports data from the pump. This may take several minutes.



2. The downloaded reports are then displayed. Double click on a report to view.
3. Click **save as PDF**.

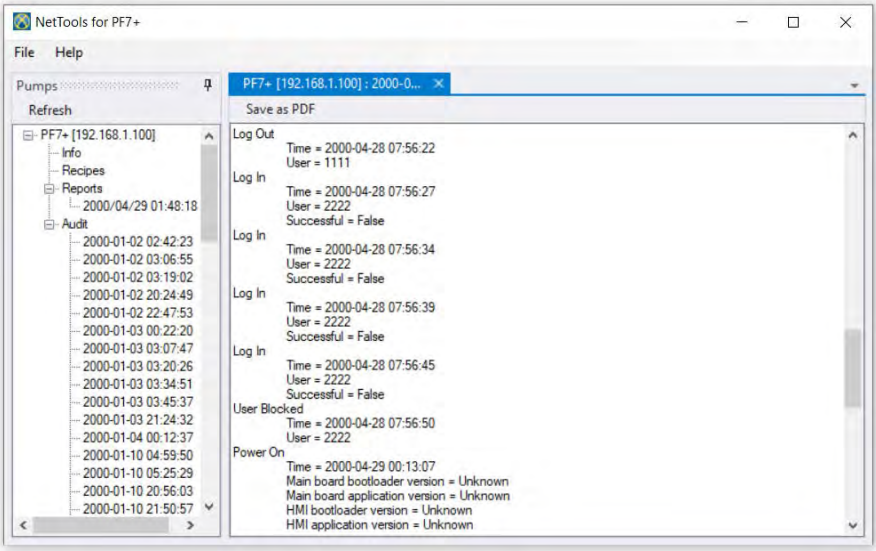
If the pump has FDA 21CFR Part 11 compliance activated, a second user approval is required before the report can be saved. The username and password need to be a valid user profile that is used to log into the pump, (refer to "Users" on page 99) rather than the username and password used to log into NetTools. The second approver of a batch report must be a different user than the one who approved the batch when it was created.



4. After a valid second approval the batch report can be saved.

26.8 Saving an audit trail log

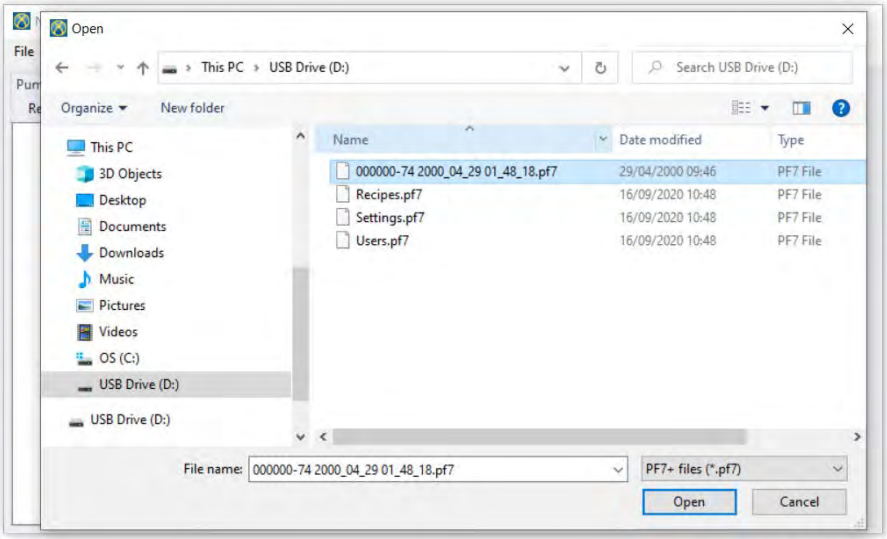
Each audit trail log is created automatically when the log gets to a set size. It is identified by the time and date that the log was created.



26.9 Saving a batch report without a network using USB flash drive

NetTools can be used to view and save a batch report to PDF from a pump that is not connected to the network. The batch report must first be exported from the pump to a USB flash drive, refer to "Export reports to USB flash drive" on page 92.

1. In NetTools, select File > Open and then locate the saved batch report.



2. When the batch report is exported, it is named using the batch number and the time and date the batch was started.

If the pump has FDA 21CFR Part 11 compliance activated, a second user approval is required before the report can be saved. The username and password need to be a valid user profile that is used to log into the pump, (refer to "Users" on page 99) rather than the username and password used to log into NetTools. The second approver of a batch report must be a different user than the one who approved the batch when it was created.

26.10 Export as PDF

Recipes, reports and audit trail logs can be exported as a PDF for convenient printing.

1. Open the file you wish to export (Refer to "Logging in to the pump" on page 134.)

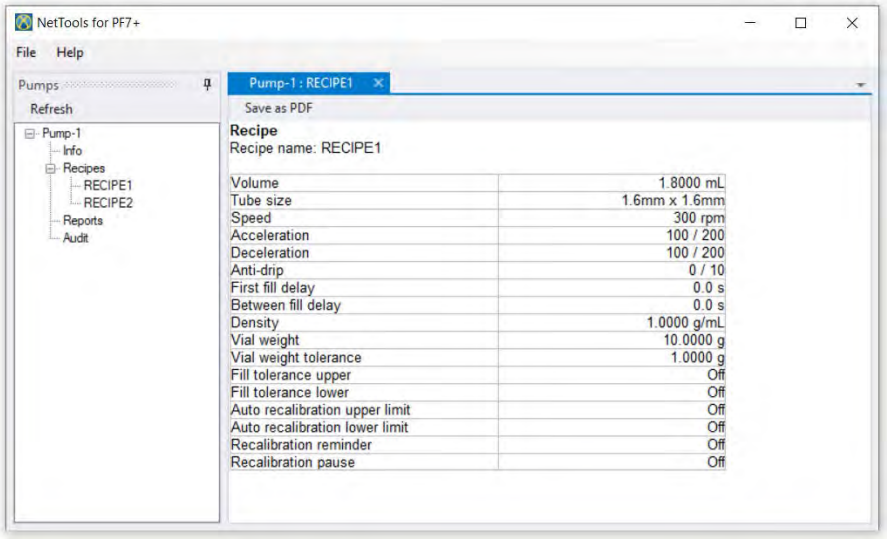


Figure 54 - save as PDF

2. Click the 'save as PDF' button.

If FDA 21CFR Part 11 compliance was enabled when a report was created, you will requested to enter a password to complete the second approval. Enter a username and password that is different from the user that completed the first approval. (Refer to "First user batch approval" on page 81).

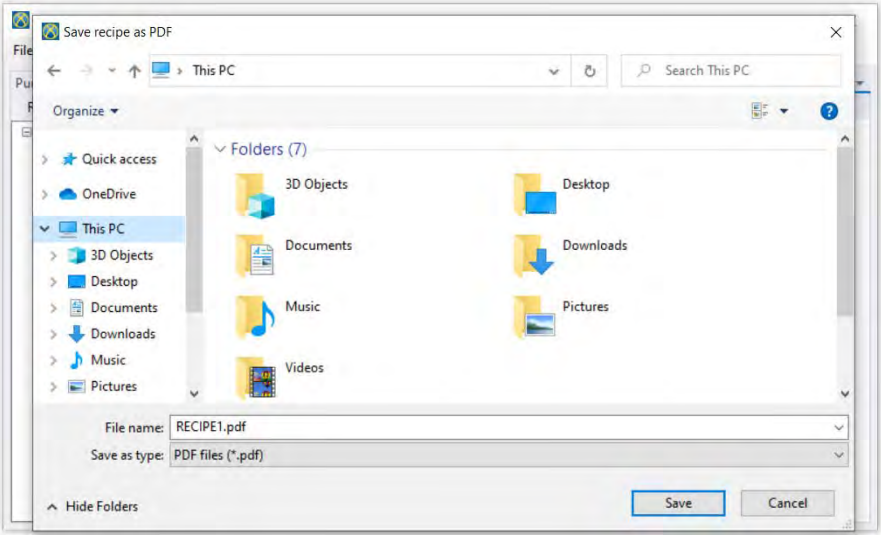


Figure 55 - Save the file to the desired location when requested.

PDF format including watermark cannot be changed.

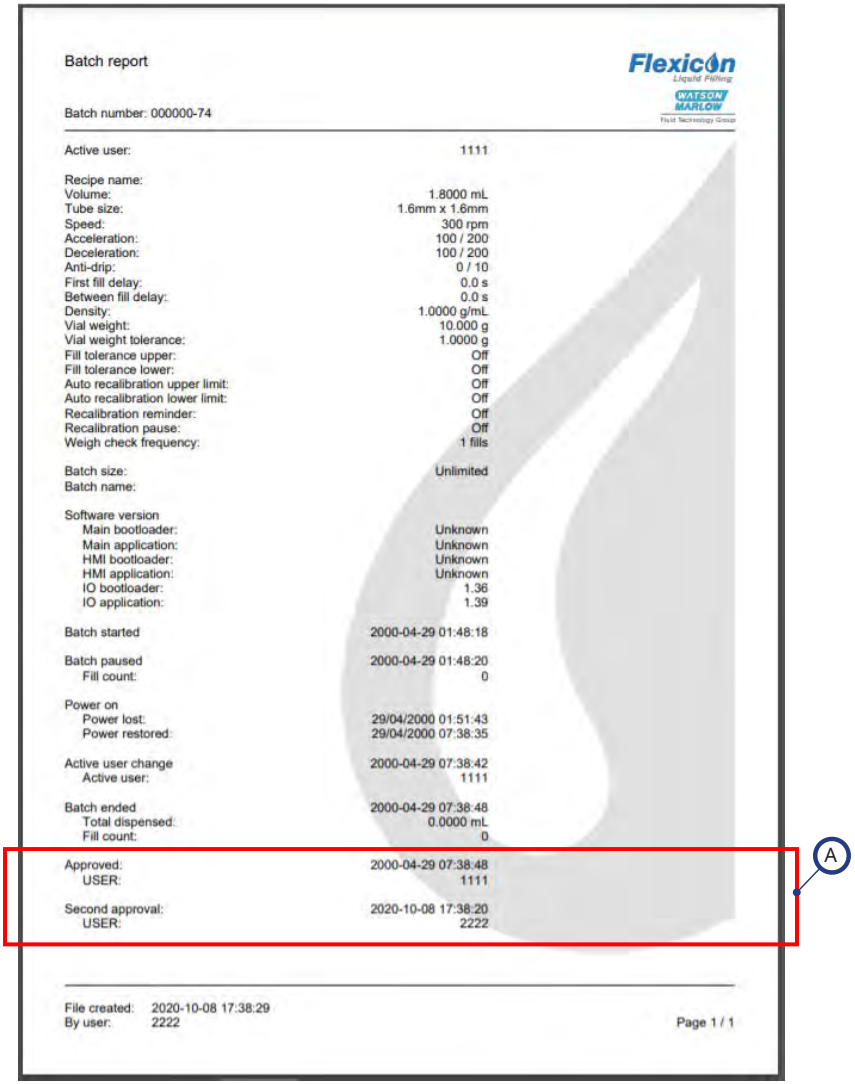


Figure 56 - Example PF7+ batch report (Printed from NetTools not a USB thermal printer.)

A	These report values will be shown if FDA 21CFR Part 11 compliance was enabled when the report was created.

EN

Section 3 - Technical specifications and ordering

27 Pump specifications

Table 33 - Pump specifications	
Specification	**Rating**
Operating environment	Indoor use only
Suitability	Dry biotechnology and pharmaceutical manufacturing environments
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Humidity (non-condensing)	80% up to 31 °C (88 °F) decreasing linearly to 50% at 40 °C (104 °F)
Maximum altitude	2000 m (6560 ft)
Supply voltage	100-120 V/200-240 V 50/60 Hz 1 pH
Maximum voltage fluctuation	+/-10% of nominal voltage.
Power consumption	140 VA
Full load current	<0.6 A@ 230 V; <1.25 A @ 115 V
Fuse rating	Ceramic, 5x20 mm, 2.5 A, 250 VAC, Time Delay
Installation category (overvoltage category)	II
Pollution degree	2
Protection class	IP32 to BS EN 60529
Sound level	<70 dB (A) @ 1 m
Control ratio	PF7 30-400 rpm (370:1), PF7+ 30-600 rpm (570:1)
Maximum speed	PF7 400 rpm, PF7+ 600 rpm
Weight	PF7 12.5 kg (27 lb 10 oz), PF7+ 10.9kg (24 lb)
USB (PF7+)	4 x Type A USB 2.0 High Speed 500 mA
USB (PF7)	2 x Type A USB 2.0 High Speed 500 mA

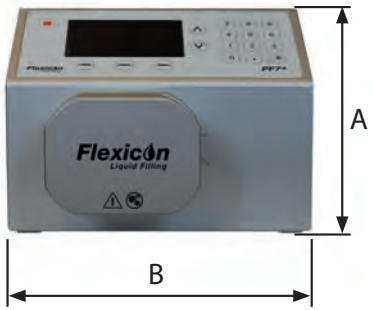
Table 33 - Pump specifications	
Specification	**Rating**
Ethernet (PF7+)	RJ45 10/100 Mbps (For export capability from pump only, not control use. Not designed for use with EtherNet/IP™. Not designed for use with PROFINET).

28 Materials of construction

Table 34 - Pump materials of construction	
Component	**Material**
Keypad	Polyester
HMI Screen	Polycarbonate
Casing	Anodised aluminium, EN AW-6060 T66
Side inner panels	ABS (Acrylonitrile butadiene styrene)
Side outer panels	Anodised aluminium
Feet	Silicone rubber
Rotor shaft	Stainless steel ANSI 304

Table 35 - Pumphead materials of construction	
Component	**Material**
Pumphead casing	Anodised aluminium EN AW-5754
Rollers	Stainless steel ANSI 304
Tube bridge	Anodised aluminium EN AW-5754
Tube bridge fingers	Hard anodizing (prevents gouging and scoring)
Tube lock	ABS (Acrylonitrile butadiene styrene)
Access tray	ABS (Acrylonitrile butadiene styrene)
Safety switch on the tube bridge and access tray	Proximity switch and neodymium magnet

28.1 Dimensions



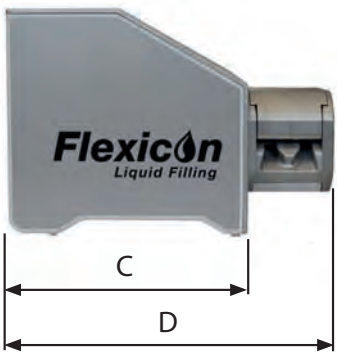


Table 36 - Pump dimensions

A		B		C		D	
mm	**inch**	**mm**	**inch**	**mm**	**inch**	**mm**	**inch**
207	8.16	280	11.02	218	8.59	300	11.81

29 Spares and accessories

Do not fit any spare parts or tubing to the pump other than those tested and approved by WMFTG. Doing so could lead to injury to persons or damage to property for which no liability can be accepted.

Table 37 - Accusil platinum-cured tube ordering codes

Bore / mm (in)	Wall / mm (in)	Length / m (ft)	Part code
0.5 (1/50)	1.6 (1/16)	10 (32.8)	84-103-005
		150 (492.1)	84-104-005
0.8 (1/32)	1.6 (1/16)	10 (32.8)	84-103-008
		150 (492.1)	84-104-008
1.2 (3/64)	1.6 (1/16)	10 (32.8)	84-103-012
		150 (492.1)	84-104-012
1.6 (1/16)	1.6 (1/16)	10 (32.8)	84-103-016
		150 (492.1)	84-104-016
3.2 (1/8)	1.8 (1/14)	10 (32.8)	84-103-032
		150 (492.1)	84-104-032
4.8 (3/16)	2.0 (10/127)	10 (32.8)	84-103-048
		125 (410.1)	84-104-048
6.0 (6/25)	2.1 (10/127)	10 (32.8)	84-103-060
		90 (290.3)	84-104-060
8.0 (5/16)	2.2 (2/23)	10 (32.8)	84-103-080
		65 (213.2)	84-104-080

Table 38 - Pump product codes

Description	Partcode
PF7+/PF7 Foot Pedal Switch	88-210-040
Filling Stand	88-200-200

Table 38 - Pump product codes	
Description	**Partcode**
PF7+ Peristaltic Filler	91-068-14X*
PF7+ IQOQ Protocol for 1 unit	74-156-440
PF7+ IQOQ Execution	74-156-431
PF7+ IQOQ Additional units	74-156-442
PF7 Peristaltic Filler	91-060-00X*
PF7 IQOQ Protocol for 1 unit	74-156-443
PF7 IQOQ Execution	74-156-444
FlexFeed 15	92-160-000
FlexFeed 20	92-170-000
FlexFeed 30	Contact local sales office
Advanced Filling Kit (up to 30R vials)	88-208-00X*
Advanced Filling Kit (50R-100R vials)	88-208-10X*
Wireless Cleanroom Keyboard	88-100-001
Field replaceable parts	
QC14 pumphead for PF7+/PF7	87-068-000
QC14 tubebridge for PF7+/PF7	87-068-047
QC14 complete tubelock set	87-068-500
QC14 replacement access tray	87-068-055
Weigh pan set for Advanced Filling Kit up to 30R	87-208-100

*X represents one of the plug options from "Plug options" on the next page.

Table 39 - Plug options
U: UK mains plug E: EU mains plug A: American mains plug K: Australia mains plug R: Argentina mains plug C: Swiss mains plug D: India/South Africa mains plug B: Brazilian mains plug J: Israel mains plug

30 Pump maintenance (including cleaning)

30.1 Service

There are no user-serviceable parts inside this pump. Any attempt to service the pump may result in damage and will void the warranty.

The unit should be returned to a WML Approved Service Centre for service. For any additional service requirements, including help with scheduled maintenance of pumpheads when included with any system please contact your nearest WMFTG or Flexicon representative.

Before returning to a WML Approved Service Centre:

- **Clean/decontaminate the pump thoroughly.**
- **Complete the decontamination declaration confirming return it to us in advance of the item being shipped. For full details in English visit: www.wmftg.com/decon. Further languages are available, check your local support pages on the WMFTG website.**
- **Unblock the service user—If the service user is blocked, there is no way to service or recover the pump without the administrator password.**
- **Inform us if software or hardware changes or replacement would impact your validation.**
- **Export any recipes or records—Pumps returned after repair or inspection will be at factory default. We cannot take responsibility for any lost data.**

30.2 Cleaning

Always isolate the pump from the power supply by removing the supply cable from the socket on the rear of the pump before opening any guard or track, or performing any positioning, removal or maintenance operation.

Remove the tube bridge and the tubes before cleaning the pumphead.

The bottom of the pumphead features a removable access tray with magnetic switch. This tray can be removed before cleaning to allow easy access to the inside of the pumphead.

Make sure the access tray is correctly refitted before putting the pumphead back in service or the pump will not operate.

The tube locks and access tray are gamma irradiateble and autoclavable

Follow all the Safety Data Sheet (SDS) precautions when using cleaning agents.

Table 40 - Compatible cleaning agents
Ethyl Alcohol 70%
Surface disinfectant containing Formaldehyde
6% concentration of hydrogen peroxide in water for injection (WFI)

31 Troubleshooting

If the pump display remains blank when the pump is switched on, make the following checks:

- Check that the input power is available to the pump.
- Check the fuse in the wall plug if one is present.
- Check the position of the voltage selector.
- Check the power switch at the rear of the pump.
- Check the fuses in the holder in the centre of the switch plate at the rear of the pump. Remove the fuse holder as shown in the images below:

Figure 57 - How to remove the fuse holder

If the pump runs but there is little or no flow, make the following checks:

- Check that fluid is supplied to the pump.
- Check for any kinks or blockages in the lines.
- Check that any valves in the line are open.
- Check that the tube is in the pumphead.
- Check that a tube is not split or burst.
- Check that the correct wall-thickness tube is being used.
- Check the direction of rotation.
- Check that the correct tube bridge is fitted for the selected tube
- Check the tubes are not overlapping in the rotor channels

32 Warranty

Watson-Marlow Limited ("Watson-Marlow") warrants this product on behalf of Flexicon to be free from defects in materials and workmanship for five years from the date of shipment, under normal use and service.

Watson-Marlow's sole responsibility and the customer's exclusive remedy for any claim arising out of the purchase of any product from Watson-Marlow is, at Watson-Marlow's option: repair, replacement or credit, where applicable.

Unless otherwise agreed in writing, the foregoing warranty is limited to the country in which the product is sold.

No employee, agent or representative of Watson-Marlow has the authority to bind Watson-Marlow to any warranty other than the foregoing unless in writing and signed by a director of Watson-Marlow. Watson-Marlow makes no warranty of the fitness of its products for a particular purpose.

In no event:

i. shall the cost of the customer's exclusive remedy exceed the purchase price of the product;
ii. shall Watson-Marlow be liable for any special, indirect, incidental, consequential, or exemplary damages, however arising, even if Watson-Marlow has been advised of the possibility of such damages.

Watson-Marlow shall not be liable for any loss, damage, or expense directly or indirectly related to or arising out of the use of its products, including damage or injury caused to other products, machinery, buildings, or property. Watson-Marlow shall not be liable for consequential damages, including without limitation, lost profits, loss of time, inconvenience, loss of product pumped, and loss of production.

This warranty does not obligate Watson-Marlow to bear any costs of removal, installation, transportation, or other charges which may arise in connection with a warranty claim.

Watson-Marlow shall not be responsible for shipping damage of returned items.

32.1 Conditions

- Products must be returned by pre-arrangement to Watson-Marlow, or a Watson-Marlow approved service centre.
- All repairs or modifications must have been made by Watson-Marlow, or a Watson-Marlow approved service centre or with the express permission in writing of Watson-Marlow, signed by a manager or director of Watson-Marlow.
- Any control or system connections must be made in accordance to Watson-Marlow recommendations.

32.2 Exceptions

- Consumable items including tubing and pumping elements are excluded.
- Pumphead rollers are excluded.
- Repairs or service necessitated by normal wear and tear or by lack of reasonable and proper maintenance are excluded.
- Products which, in the judgement of Watson-Marlow, have been abused, misused, or subject to malicious or accidental damage or neglect are excluded.
- Failure caused by electrical surge is excluded.
- Failure caused by incorrect or sub-standard system wiring is excluded.
- Damage by chemical attack is excluded.
- Ancillaries such as leak detectors are excluded.

- Failure caused by UV light or direct sunlight.
- Any attempt to disassemble a Watson-Marlow product will invalidate the product warranty.

Watson-Marlow reserves the right to amend these terms and conditions at any time.

33 Returning pumps

- Clean/decontaminate the pump thoroughly.
- Complete the decontamination declaration confirming return it to us in advance of the item being shipped. For full details in English visit: www.wmftg.com/decon. Further languages are available, check your local support pages on the WMFTG website.
- Unblock the service user—If the service user is blocked, there is no way to service or recover the pump without the administrator password.
- Inform us if software or hardware changes or replacement would impact your validation.
- Export any recipes or records—Pumps returned after repair or inspection will be at factory default. We cannot take responsibility for any lost data.

34 Name and address of manufacturer

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Falmouth, Cornwall
TR11 4RU
UK
Telephone: +44 (0) 1326 370370
Fax: +44 (0) 1326 376009
Email: aftersales.uk@wmftg.com
www.wmftg.com/Flexicon

35 Trademarks

asepticsu and Accusil are registered trademarks.

36 Version history

Table 41 - Version history

Document number	Date	Notes
m-pf7-pf7+-en-00	06/2021	First release as Draft
m-pf7-pf7+-en-01	27/07/2021	First release as finished document. • General updates to terminology • Added section 'Configure NetTools language.' • Updated conformity section with latest certificates. • Added Imported data fields table.

Section 4 - List of figures and tables

37 List of figures

38 List of tables