



Allegro™ Connect Buffer Management System Unit Human Machine Interface (HMI)

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1 Introduction

This document describes the functionality of the Human Machine Interface (HMI) of the Allegro Connect buffer management system.

1.1 Reference Documents

Title	Document Number	Issue
Buffer Software Design Specification	A-15650_SUBM_Auto_SDS	1.45
Instructions for Use - Allegro™ Connect Buffer Management System	USD3416	

2 Notifications and Warnings

Incorrect configurations of controllers or sensors can significantly affect the technical process of the system. Activities on the control system should be performed by properly qualified users and operators. Users and operators should be trained and should be sufficiently familiar with the system.

Strict care of the user administration is a mandatory prerequisite for the operation of the system.

The standard user and supervisor don't need to perform settings or operations in the Windows® Operating System. It is forbidden for any standard user or supervisor to perform settings or operations in the Windows operating system. In the unexpected case of an application crash, contact the system administrator.



When a controller is turned on, product damages or personal injuries may result

In the event of an emergency stop, all actuators and running controllers are turned off immediately and go back to their standard position.

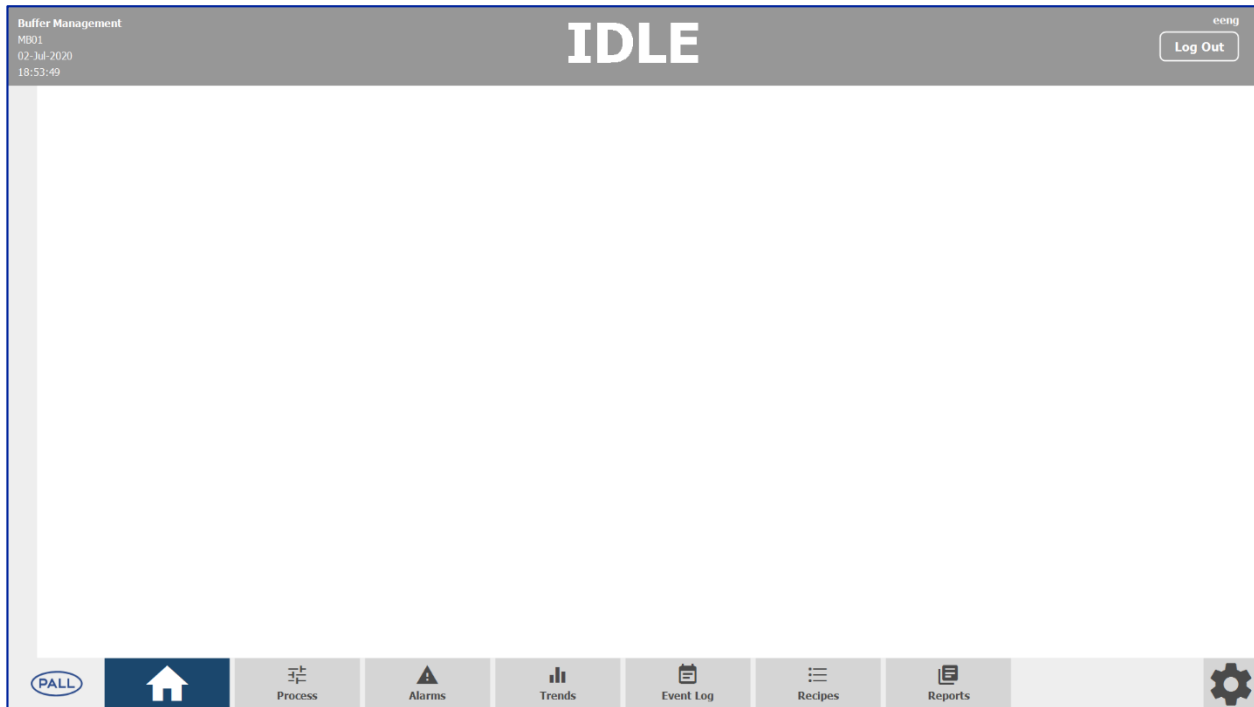
Before unlocking the system, make sure that everything is in a healthy state so that no personal injuries can occur. To unlock the emergency stop, twist and pull the E-Stop button back, push the hardware reset button and acknowledge the emergency event on the HMI.

3 Main Layout

The screenshot below shows the main layout of the HMI. The HMI is divided into three parts, namely the header, footer, and content.

Figure 1

The main layout of the HMI.



3.1 Header

The header visualizes the general status of the skid. The header has four different states as shown in Figure 2.

Figure 2

A– D show the different states.

A. Idle: No warning and no critical error pending, no batch is currently running



B. OK: No warning and no critical error pending, a batch is currently running



C. Warning: A warning is pending

The background is flashing until the user interacts with the HMI by logging in or change a screen or open a faceplate



D. Critical: A critical error is pending

The background is flashing until the user interacts with the HMI by logging in or change a screen or open a faceplate. If a Warning or Critical error is pending, click on the Header to open the alarm page.



3.2 Batch Information

If a batch is running, information will be shown on the header. The following information is available:

- Batch ID
- Recipe ID
- Running Unit Operation
- Running Operation
- Running Phase
- Batch Status (Run, Held, etc.)

Figure 3

Example of batch information on the header.



3.2.1 Flashing

When the header flashes, a new alarm has occurred that requires the user's attention. The flashing stops once the user logs in, has changed the screen or, opened a faceplate.

3.3 Footer

The primary navigation is located on the footer of the screen and appears on all screens.

Figure 4

Footer.

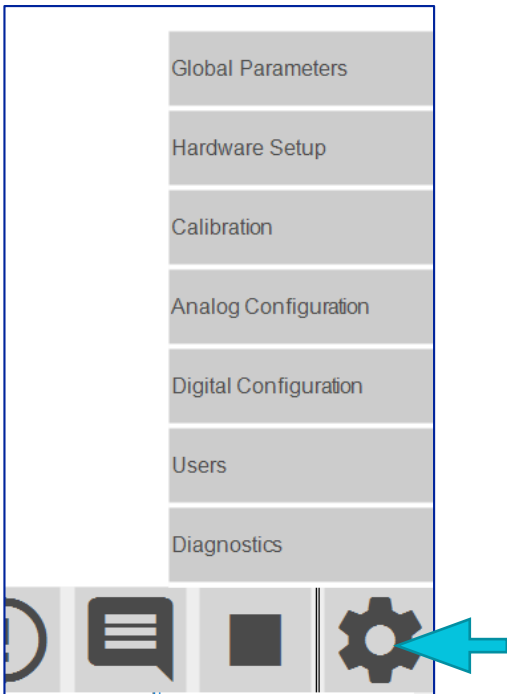


3.3.1 Configuration Menu

The configuration button on the right of the footer opens a menu bar to navigate to the configuration pages of the skid.

Figure 5

Configuration button.



3.3.2 Prompt Button

The “prompt” button is visible if a user prompt is pending. The button opens the prompt dialog. The prompt button will remain visible until the specified action has been completed and acknowledged by the user.

Figure 6

Prompt button.



3.3.3 Comment Button

The “comment” button is visible if a batch is active. The button opens the comment dialog that enables the user to enter a comment which will be recorded in the audit trail of the batch.

Figure 7

Comment button.



3.3.4 Batch Hold Button

The “batch hold” button is visible if a batch is in the run-state. The button puts the batch on hold.

Figure 8

Batch hold button.



3.3.5 Batch Restart Button

The “batch restart” button is visible if a batch is in the held state. The button restarts the batch.

Figure 9

Batch restart button.

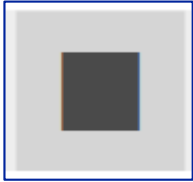


3.3.6 Batch Abort Button

The “batch abort” button is visible if a batch is in the held state. The button opens the batch abort dialog.

Figure 10

Batch abort button.



3.3.7 Footer for Operator While Batch Running

While a batch is running, a logged-in operator will not see the buttons for reports or the configuration menu.

Figure 11

Footer whilst a batch is running.



3.4 Content

In the main content part of the HMI (between the header and footer), the content of the selected HMI tab will be shown (Dashboard, Process, Alarms, etc.). The navigation between the available screens is described in the previous section regarding the footer. The available content is described in the following sections.

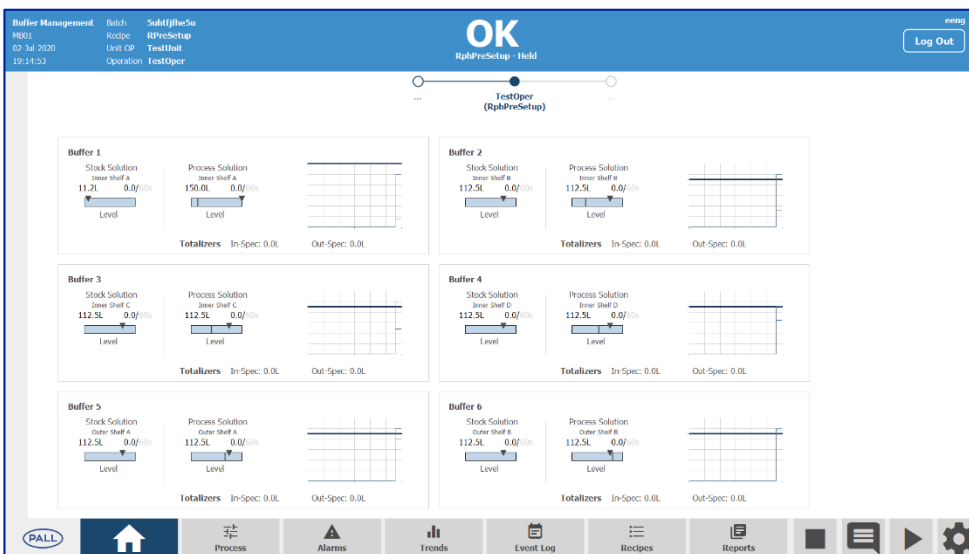
3.5 Dashboard

The dashboard gives an overview of important real-time measurements and batch information.

For each configured buffer, there is one tile placed on the screen. Each tile displays the corresponding stock and process solution biocontainer levels. For the process solution biocontainer, the black vertical line in the blue level indicator bar shows the level set-point (as set by the user).

Figure 12

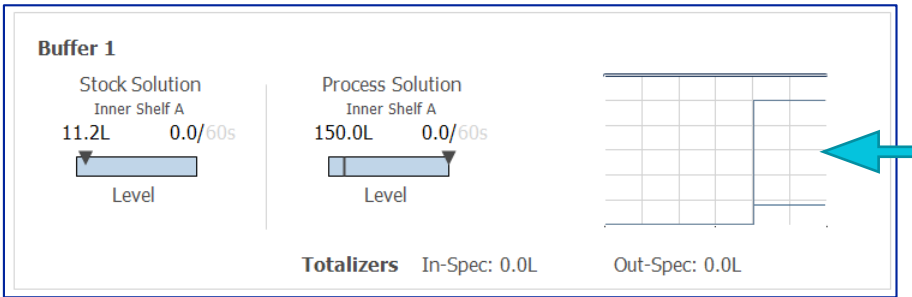
Dashboard.



A detailed trend window can be opened by clicking on a buffer tile.

Figure 13

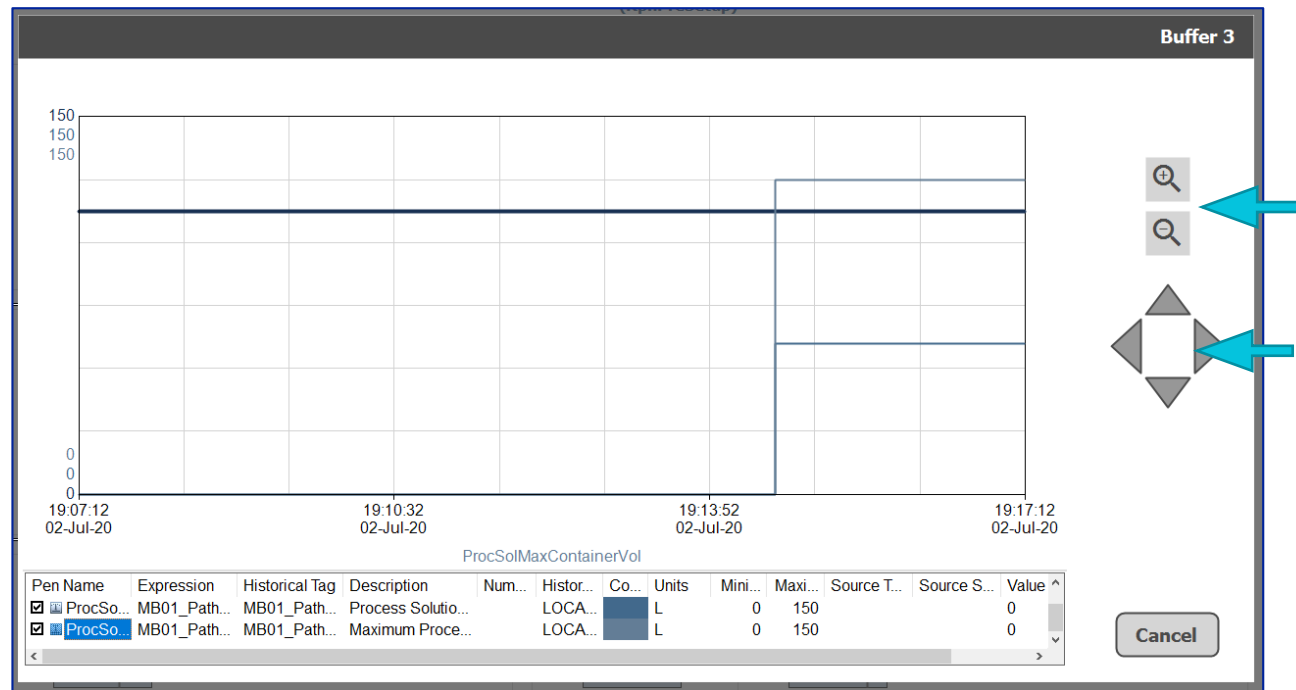
Buffer tile.



With the pan and zoom buttons, the scaling and position of the value and time axes can be adjusted.

Figure 14

Pan and zoom buttons.





3.6 Process Screens

There are several process-related screens available to visualize the state of actuators and sensors.

All tube lines on the process screens are animated with the current state of the flow path.

Table 1

Tube line style.

Line Style	Description
	Flow path closed
	Flow path open

All component frames on the process screens are also animated with the current state of the flow path and with the current alarm state.

Table 2

Alarm state for the current state of the flow path.

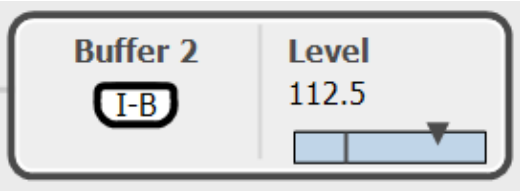
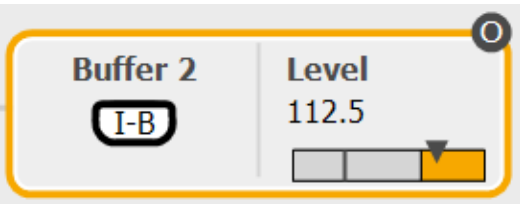
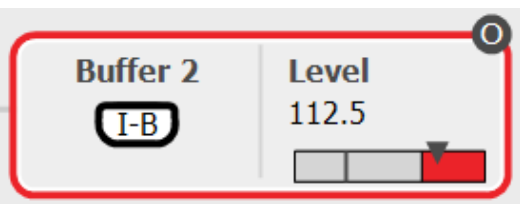
Style	Description
	Flow path open
	Warning is active
	The critical alarm is active





Table 3

Actuators and sensors are animated to indicate their current state.

Icon	Description
	Valve is closed
	Valve is open
	The pump/motor is stopped
	The pump/motor is running
	Digital input is not in the desired state (e.g. no fluid present for level sensors)
	Digital input is in the desired state (e.g. fluid present for level sensors)
	Digital input is faulty (Data Fault)
	Analog scale without alarm setpoints
	Analog scale with alarm setpoints (HH, H, L, LL)

Table 4

Status icons are available to indicate other conditions of the components.

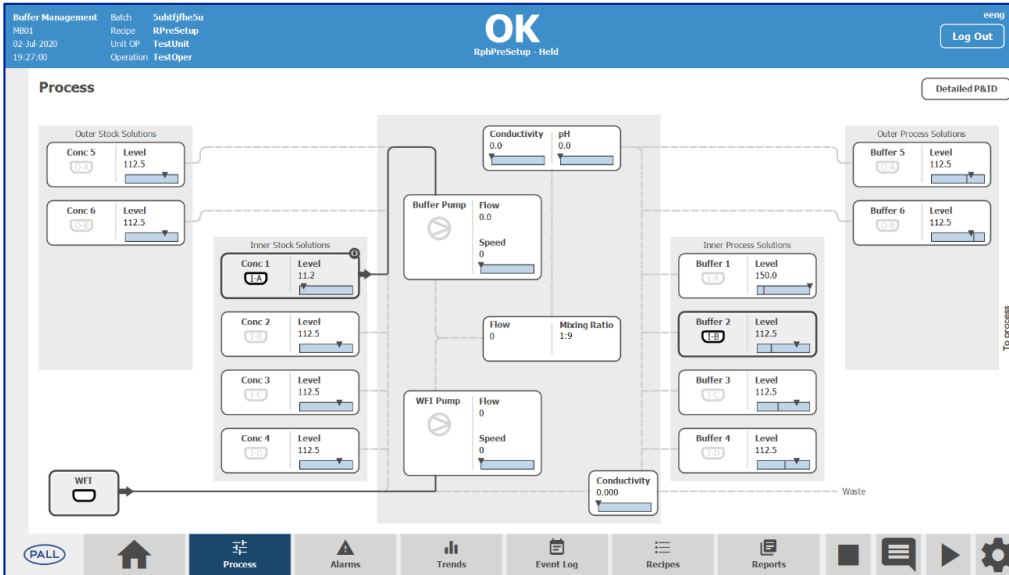
Icon	Description
	Actuator is interlocked
	Alarm override is pending
	Simulation is enabled
	Manual mode is enabled

3.6.1 Process Screen

The process screen gives a simplified overview of the current process. Important measurements and actuators are displayed on the screen. The detailed P&ID screen can be accessed with the button on the upper right side of the screen.

Figure 15

P&ID Process screen.

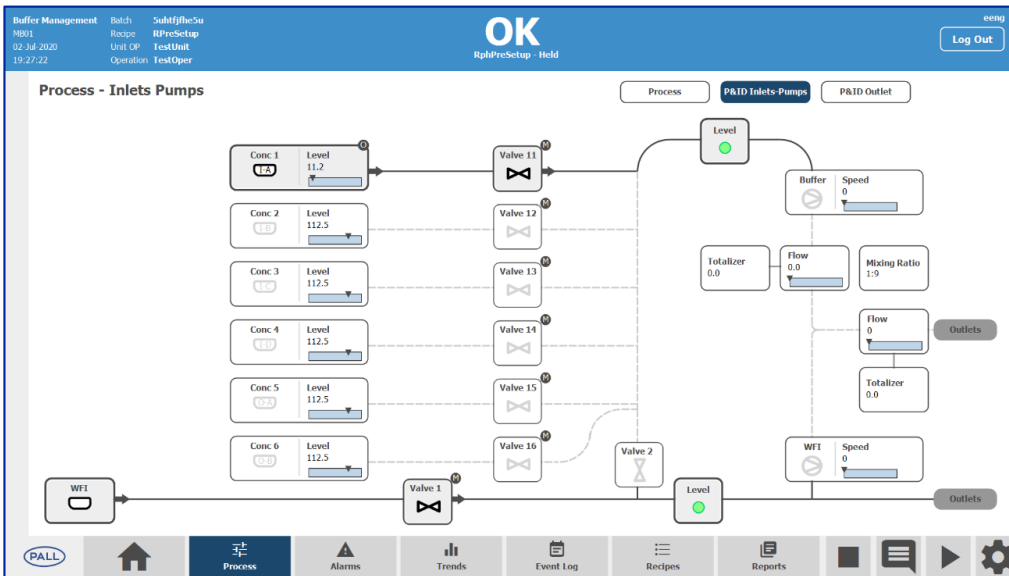


3.6.2 P&ID Screen Inlets-Pumps

The P&ID screen inlets-pumps gives a detailed view of the inlet and pump section of the system. The functionality is equivalent to the process screen.

Figure 16

P&ID Process Inlets Pumps screen.

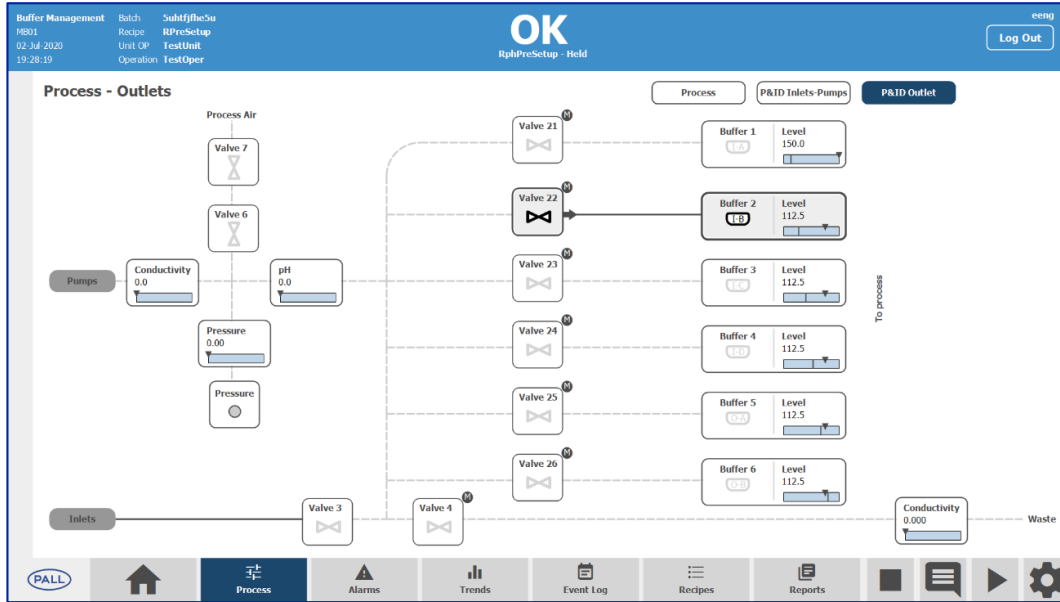


3.6.3 P&ID Screen Outlet

The P&ID outlet screen gives a detailed view of the outlets and the drain section of the skid. The functionality is equivalent to the process screen.

Figure 17

P&ID Process Outlets screen

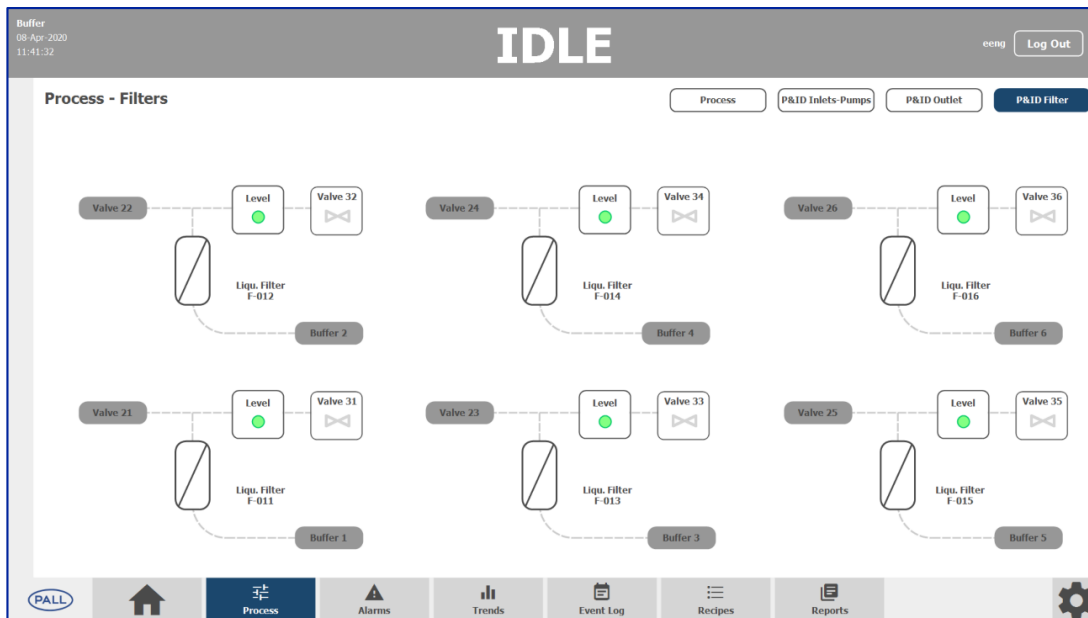


3.6.4 P&ID Process Filters Screen

The P&ID process filter screen gives a detailed view of the outlet filter section of the skid. The functionality is equivalent to the process screen. The screen is only accessible if the filter skid is installed and enabled.

Figure 18

P&ID Process Filters screen.



3.6.5 Faceplates

Faceplates for the actuators and sensors can be opened by clicking on the selected component.

Figure 19

Faceplates.

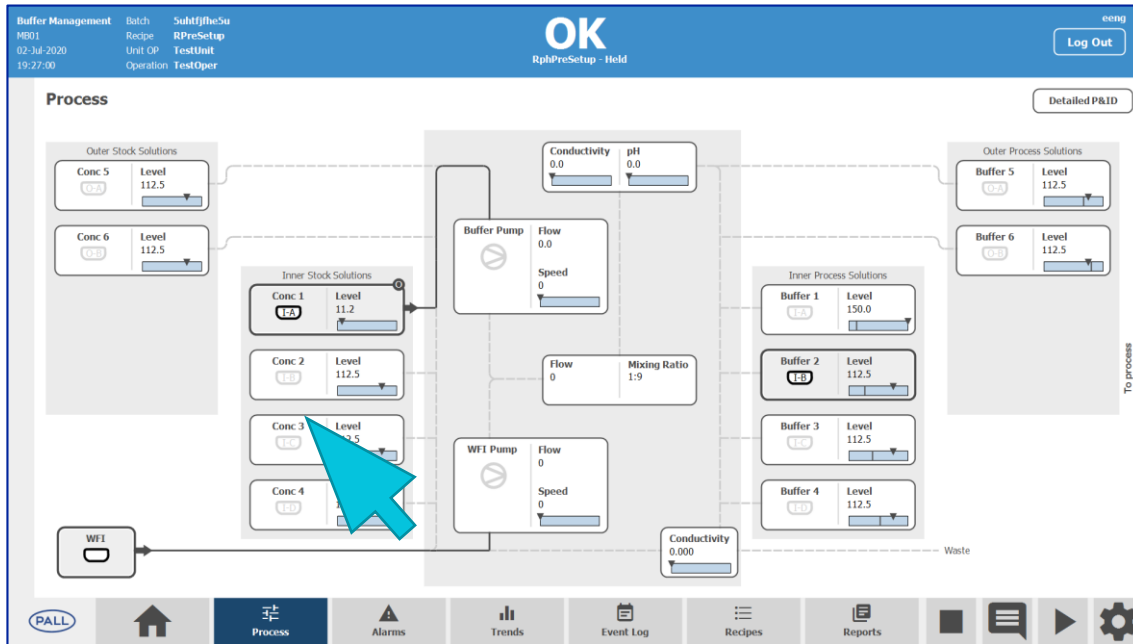


Table 5

General faceplates.


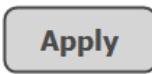

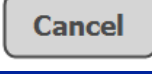
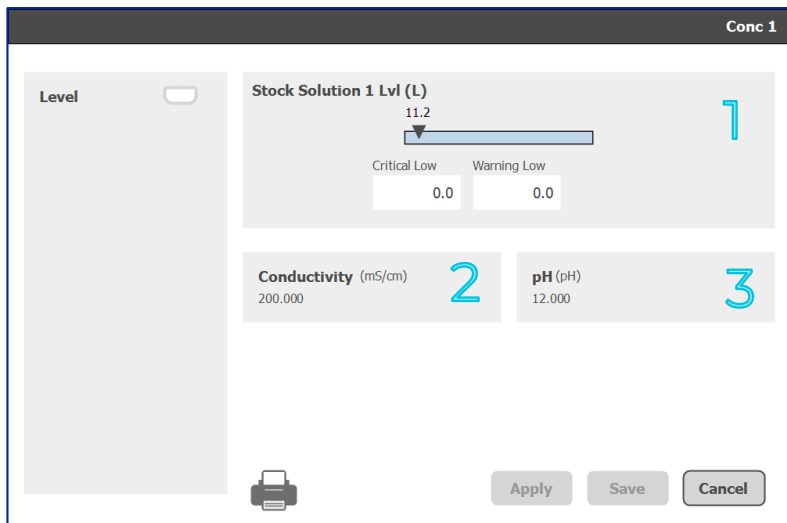
Button	Description
	Prints the current HMI screen
	Saves the entered changes (only operable if changes made) without exiting the popup
	Saves the entered changes (only operable if changes made) by exiting the popup
	Exits the pop up with a rejection of the changes

Figure 20

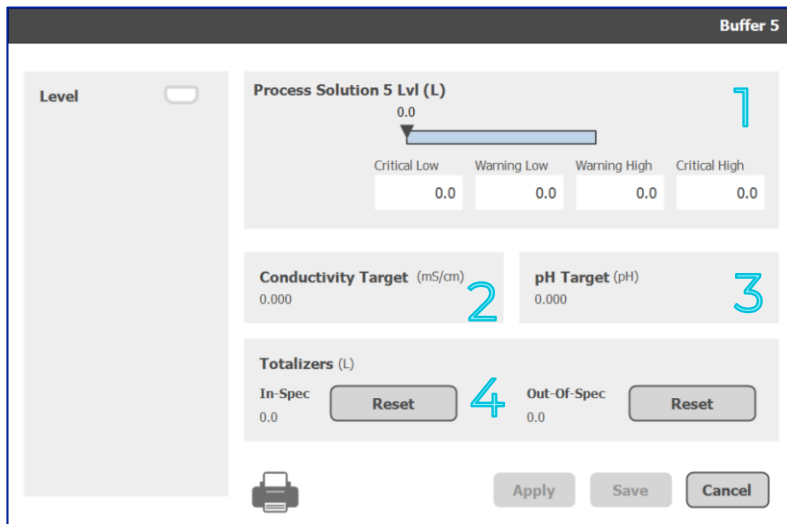
Stock Solution faceplate.



1. Analog signal of the stock solution level sensor including alarms.
2. Recipe defined conductivity of the stock solution.
3. Recipe defined pH of the stock solution.

Figure 21

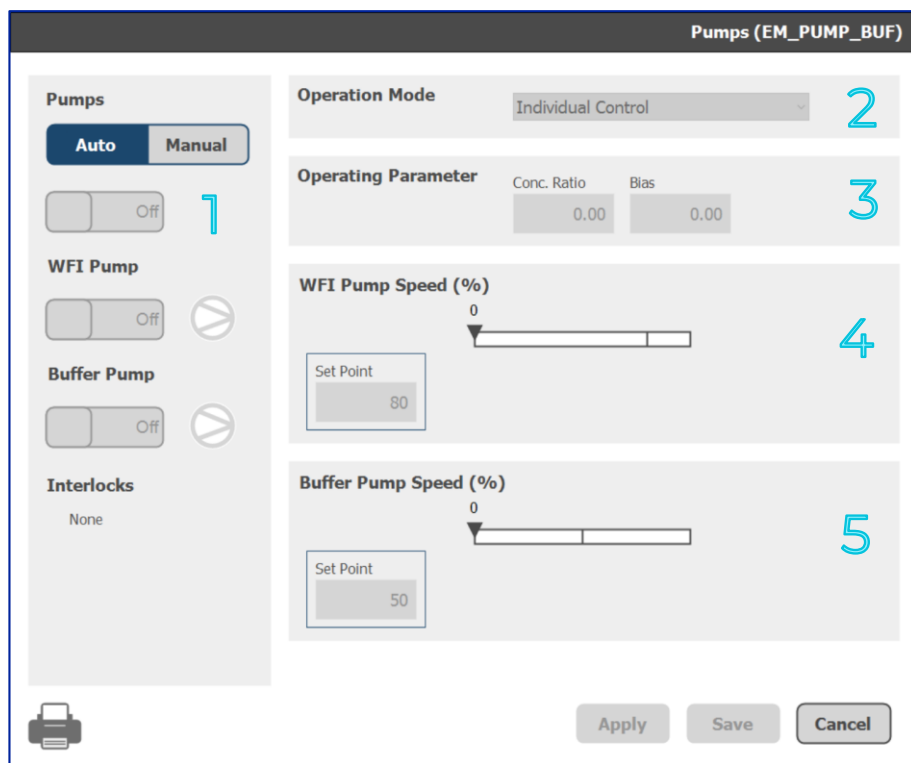
Process Solution faceplate.



1. Analog signal of the process solution level sensor including alarms.
2. Recipe defined conductivity target of the process solution.
3. Recipe defined pH target of the process solution.
4. Totalizers for fluid that met the target (In-Spec) and fluid that did not meet the target (Out-Of-Spec). Each totalizer can be reset with the corresponding button.

Figure 22

Pumps faceplate.



1. Mode Selection of both pumps at the top, and the individual pumps (WFI / buffer) below. If a recipe is running, the pumps are forced into Auto mode and cannot be switched to Manual mode. When no recipe is running, or if an active recipe is on "Hold", the pumps can be switched to Manual mode if the logged-in user has the right access level "General – Manual".
2. Operational Mode dropdown. If the pumps are in Auto mode, the dropdown shows the active operation mode. When the pumps are in Manual mode the required operation mode can be selected.
3. Operational parameters for the pumps. If the pumps are in Auto mode, the parameters are inactive.
4. Individual status of the WFI pump. If the pump is in Auto mode, this part is inactive. When the pump is in Manual mode and the WFI pump is activated in Part 1, the setpoint of the pump can be entered.
5. Individual status of the buffer pump. If the pump is in Auto mode, this part is inactive. When the pump is in Manual mode and the buffer pump is activated in Part 1, the setpoint of the pump can be entered.

The following operation modes can be selected.

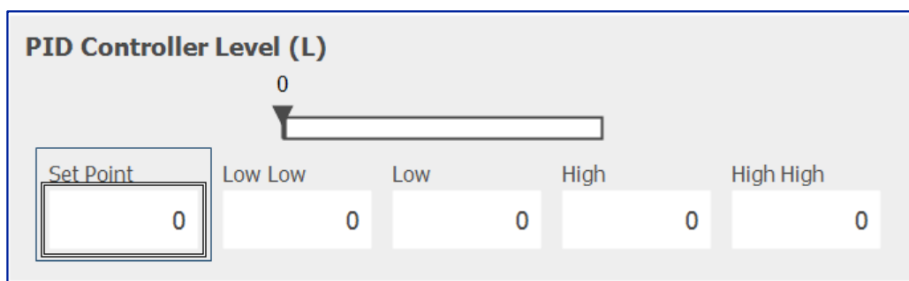
Table 6

Operation modes.

Button	Description
Individual Control	WFI pump and buffer pump can be operated individually where the speed setpoints can be entered in Part 4 and Part 5. To start each pump individually, a relevant flow path must be open and the corresponding On/Off switch in Part 1 must be initiated
Constant Speed + Conductivity Control	WFI pump runs with speed setpoint entered in Part 4. The buffer pump is controlled by the conductivity controller with the conductivity setpoint entered in Part 5.
Level Control + Conductivity Control	WFI pump is controlled by the process solution level controller with the level setpoint entered in Part 4. The buffer pump is controlled by the conductivity controller with the conductivity setpoint entered in Part 5.

Figure 23

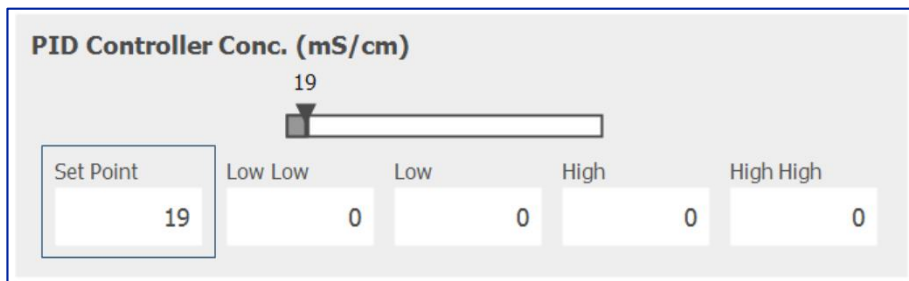
PID controller level slider.



If the Buffer Pump Equipment Module is in operation mode "Level Control + Conductivity Control" the slider shows the values of the level controller. Below that the controller setpoint and alarm setpoints can be changed.

Figure 24

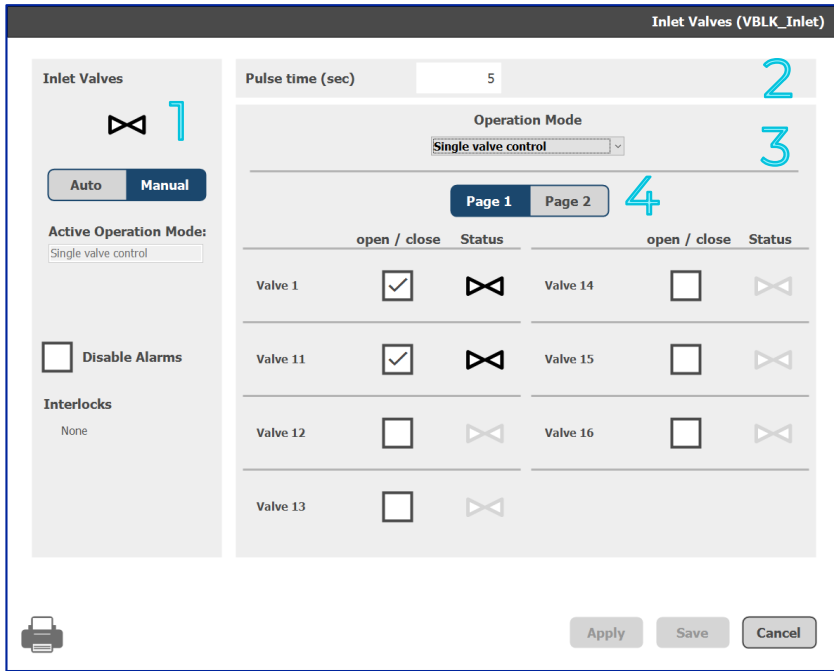
PID conductivity control slider.



If the Buffer Pump Equipment Module is in operation mode "Constant Speed + Conductivity Control" or "Level Control + Conductivity Control" the slider shows the values of the conductivity controller. Below that, the controller setpoint and alarm setpoints can be changed.

Every change of Mode, operation mode, or setpoints only becomes active after the Apply or Save button of the faceplate is pressed.

Figure 25
Valve Block faceplate.



1. Mode Selection of the valve block. It also shows the active operation mode. If a recipe is running the valve block is forced into Auto mode and cannot be switched to Manual mode unless the recipe has been put on hold and the user has the necessary access level. When no recipe is running the valve block can be switched to Manual.
2. Parameter section of the valve block.
3. Operational Mode drop-down menu. If the pump is in Manual mode, the required operation mode can be selected.
4. Switch button to change between displays of valves 1-8 and valves 9-16.

Below that, each valve is shown with name, command, and status. The command to open/ close is only active in the operation mode “Single valve control”. Valves that are not used in the valve block are invisible in this part.

The following operation modes can be selected.

Table 7

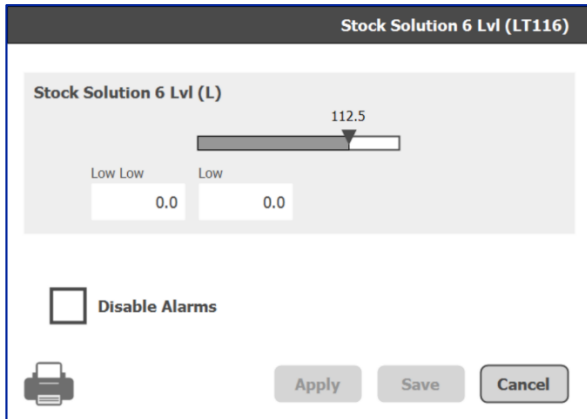
Operation modes.

Button	Description
Single valve control	Each valve of the valve block can be opened/closed individually in Part 4
Open valve block	All valves of the valve block are opened
Close valve block	All valves of the valve block are closed
Pulse valve block (MIM)	All valves of the valve block are opened and closed with the pulse time defined in Part 2 until the operation mode is changed

Every change of Mode selection, operation mode, or valve command becomes active after the Apply or Save button of the faceplate is pressed.

Figure 25

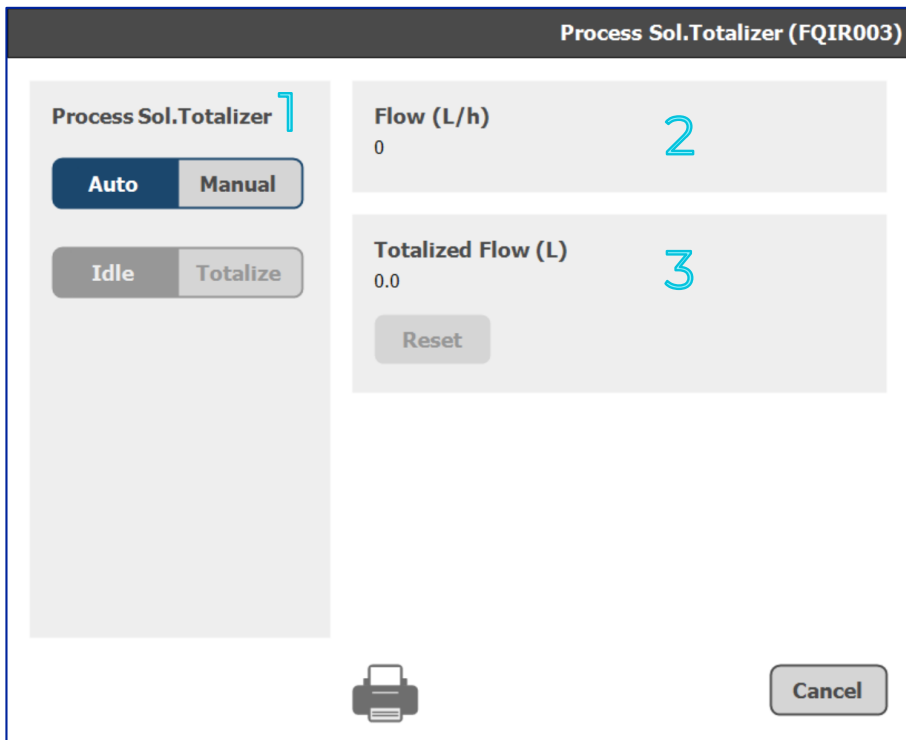
Analog faceplate.



The analog faceplate shows the analog signal of the corresponding sensor and the used alarms for that sensor.

Figure 26

Totalizer faceplate.



1. Mode selector of the totalizer. If a recipe is running the totalizer is forced into Auto mode and cannot be switched to Manual mode. When no recipe is running the totalizer can be switched to Manual.
2. When switched to manual the totalizer can be in the following operation modes: Idle or Totalize. If the totalizer is in Idle mode, it is not totalizing.
3. Corresponding process value of the flow sensor.
4. Totalized value of the totalizer. If the totalizer is in Manual mode, the totalized value can be reset with the Reset button.

4 Alarms Screen

The alarm screen shows active and inactive (historic) alarms.

4.1 Active Alarms

On the active alarm page, current pending alarms can be monitored and acknowledged. There are two acknowledged options available.

Figure 27

1. Acknowledge Selection: Only the selected alarm will be acknowledged (only possible if an alarm is selected)
2. Acknowledge Visibly: All visible alarms in the list will be acknowledged.

Buffer Management MB01 02-Jul-2020 19:35:42 Batch: SubffjbeSu Recipe: RPreSetup Unit OP: TestUnit Operation: TestOper

CRITICAL RphPreSetup - Aborting Log Out

Alarms

Active Inactive

Status	Tag	Description	Date/Time
UNACK	MB01_CM_ALM_Lifesign Alm	Lifesign Alarm between PLC and HMI	02-Jul-2020 19:31:08

1 Acknowledge Select. Acknowledge Visible 2

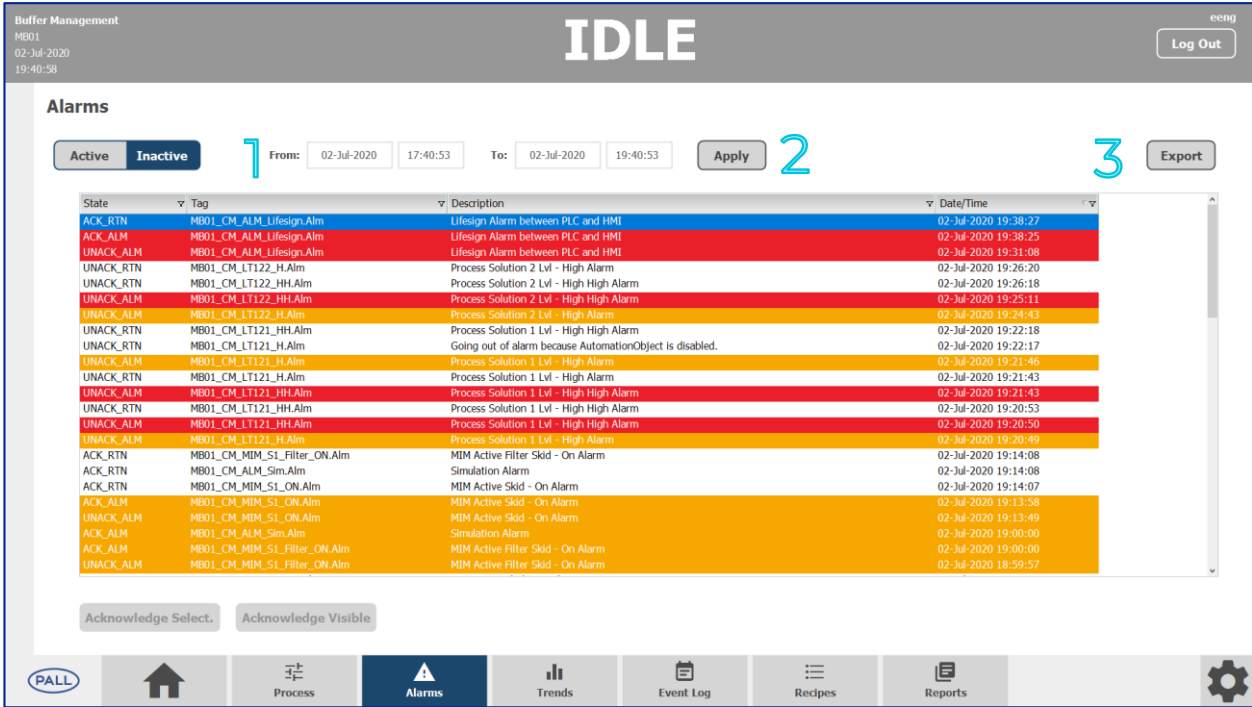
PALL Home Process Alarms Trends Event Log Recipes Reports

4.2 Inactive Alarms

On the inactive alarm page, historic alarms can be monitored. A time window can be defined for the query [1].

Figure 28

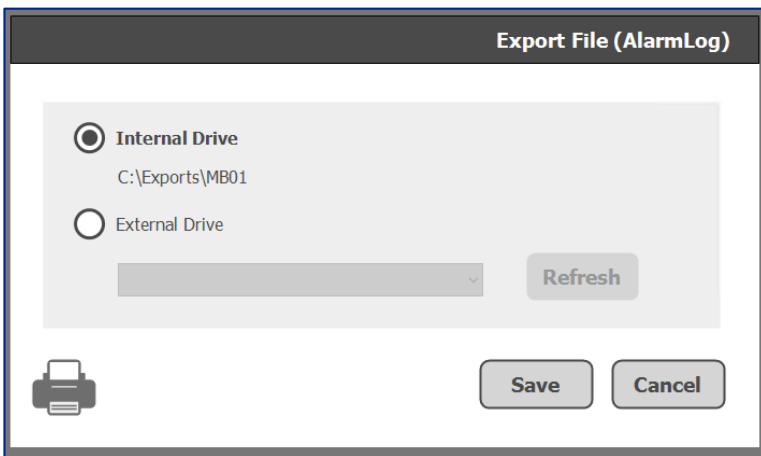
Inactive alarm page.



1. Time Window for query. Define here the time window for which to investigate historic alarm logs.
2. Apply button. Press the apply button to generate results for the query within the defined time window.
3. Export button. The “export” button opens a dialog box for the export of the current query in CSV format.

Figure 29

Export file dialog box.



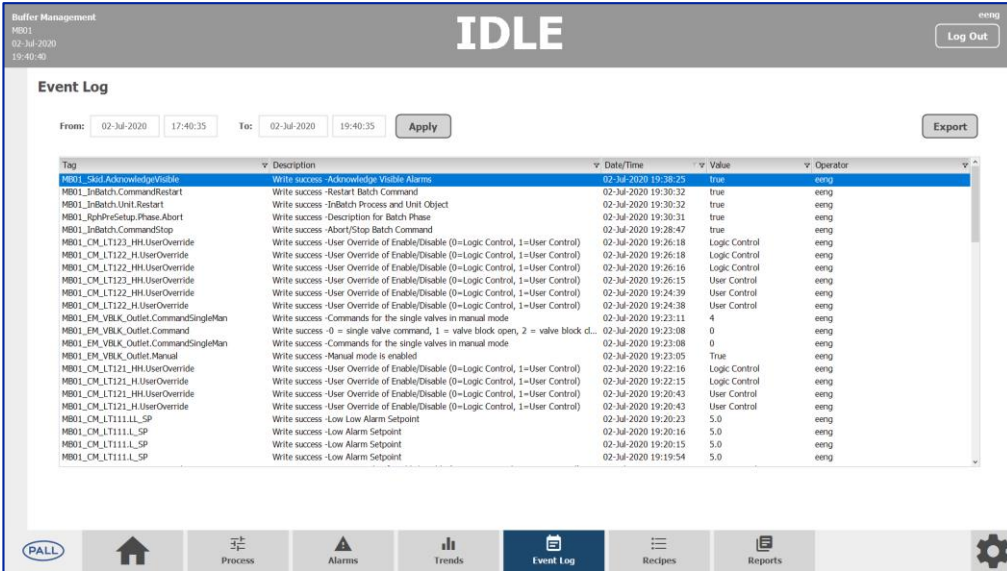
If “Internal Drive” is selected, the file will be stored on the default path (#DRIVE:\Exports\#SKID_ID). Otherwise, an external USB drive can be selected for storage.

If the USB drive has been plugged in after opening the dialog, the dropdown for the drive selection can be refreshed with the refresh button.

4.3 Event Log Screen

The event log shows historized audit trail entries of the skid. A time window can be defined for the query.

Figure 30
Event Log screen.

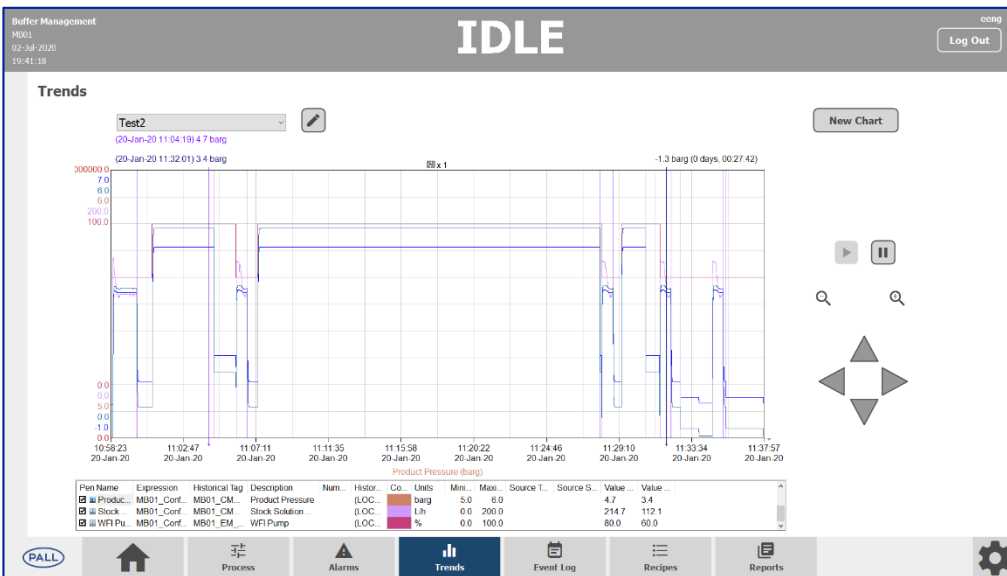


The export functionality is equivalent to the alarm screen.

4.4 Trend Screen

The trend screen enables the user to monitor the trend curves of the batch.

Figure 31
Trends screen.



With the drop-down on the upper left side, an existing pre-set trend chart can be selected for editing or monitoring.

Selecting a new entry from the drop-down loads the trends and updates the trend curve windows automatically.

Figure 32

Drop-down.



4.4.1 Pre-Set Editing / Creation

The editing dialog can be opened with the “pen icon” button next to the preset selection. The button is only active if a preset is already existing.

The creation dialog for a new preset can be opened with the new chart button on the upper right-hand side.

The dialog for creation or editing is equivalent.

4.4.2 Edit / Create Dialog

The editing / creation dialog enables the user to create and edit a pre-set trend chart. A pre-set name can be defined. If an invalid character is entered, the frame of the input field will be colored in red and the save button is not active.

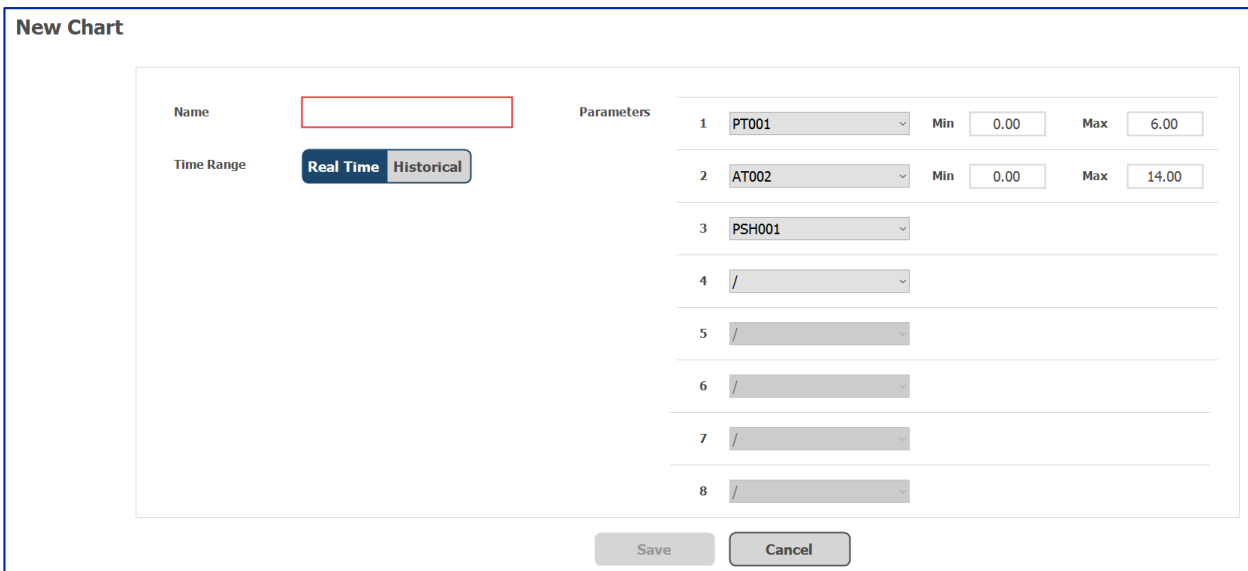
There are 3 modes available to set up the time range:

1. Real-Time: Last hour
2. Historical – Time: Adjustable time window
3. Historical – Recipe: Time window of batch

It is possible to define up to 8 curves per trend chart pre-set. For the analog curves, it is possible to adjust the x-axis range.

Figure 33

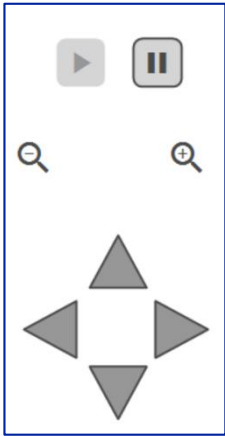
Trend chart pre-set.



4.4.3 Trend Control

Figure 34

Control buttons.



- The **pause** button stops and resumes the running of the time axis.
- The **play** button starts the time axis running.
- **Pan** and **zoom** buttons the scaling and position of the value and time axis can be adjusted.

4.5 Recipes Screen

The recipe screen enables the user to control and monitor a batch.

Figure 35

Recipes screen.



4.6 Batch Control

The batch control enables general batch commands like start, hold, restart and abort of a batch.

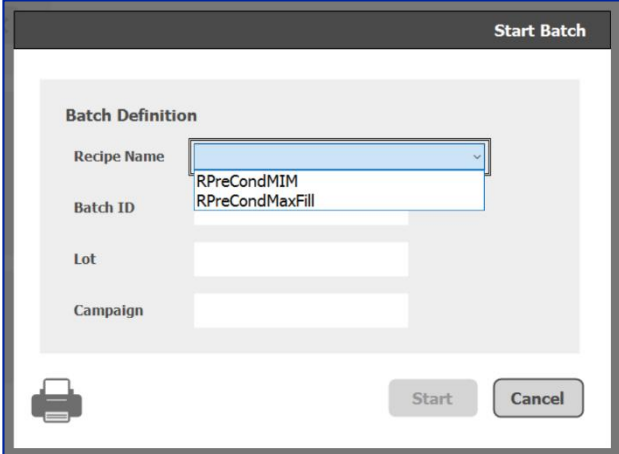
The Play button of the batch control box is active if no recipe is running. The hold button is only active if a recipe is running. The abort button is only active if a recipe is on hold.

If the play button is pressed, a pop-up for the recipe definition will be opened.

A predefined recipe from the Global Parameters page (Section 4.7.2) can be selected. If Batch ID, Lot, and Campaign have been entered the selected recipe can be started by pressing the Start button. A unique batch ID must be entered for every batch.

Figure 36

Start Batch screen.



The screenshot shows a 'Start Batch' dialog box. It contains a 'Batch Definition' section with the following fields: 'Recipe Name' (a dropdown menu with 'RPreCondMIM' and 'RPreCondMaxFill' as options), 'Batch ID', 'Lot', and 'Campaign'. At the bottom left is a printer icon, and at the bottom right are 'Start' and 'Cancel' buttons.

4.6.1 Batch Information

The batch information shows the following status information:

- Recipe ID
- Batch ID
- Batch Status (Run, Held)
- Unit Status (Run, Held, Alarm)

4.6.2 Phase Selector

The phase selector enables the user to select a phase for phase control. All phases that are part of the recipe are listed in the dropdown menu.

4.6.3 Phase Control

The phase control enables the user to use general phase commands like hold, restart and abort. The controls are only active if the phase is currently scheduled in the operation.

4.7 Engineering Screens

The engineering or configuration screens are primarily intended for high-level users to set up the system.

4.7.1 Global Parameter

The global parameter screen enables the user to modify global system parameters, such as PID tuning parameter or delay times.

The global parameters that can be set up are defined in the Buffer Software Design Specification (Section 1.1)

Figure 37

Global parameter screen.

Buffer Management
H001
02 Jul 2020
19:41:57

IDLE Log Out

Global Parameter

Pump Curves

WFI Pump Curve Calculation

Speed Scaling Factor	13.15300	Pressure Scaling Factor	-10.9100	Offset	19.97000
----------------------	----------	-------------------------	----------	--------	----------

Value Delay

PID Param.

Buffer Pump Curve Calculation

Speed Scaling Factor	2.30726	Pressure Scaling Factor	-0.10300	Offset	1.39800
----------------------	---------	-------------------------	----------	--------	---------

Recipe Names

Page 1/1 Next: Other(1) >

Navigation: Home, Process, Alarms, Trends, Event Log, Recipes, Reports, Settings

4.7.2 Global Parameter – Recipe

The recipe names are defined here. Only recipes that are entered here are selectable in the batch start dialog, described in (section 4.6).

The recipe name defined here must exactly match the name on the Batch Management recipe.

Figure 38

Global Parameter recipe screen.

Buffer Management
H001
02 Jul 2020
19:42:10

IDLE Log Out

Global Parameter

Pump Curves

Number	Name	Number	Name
1.	RPreSetup	11.	
2.	RPreCndMIM	12.	
3.		13.	
4.		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

Page 1/1 <

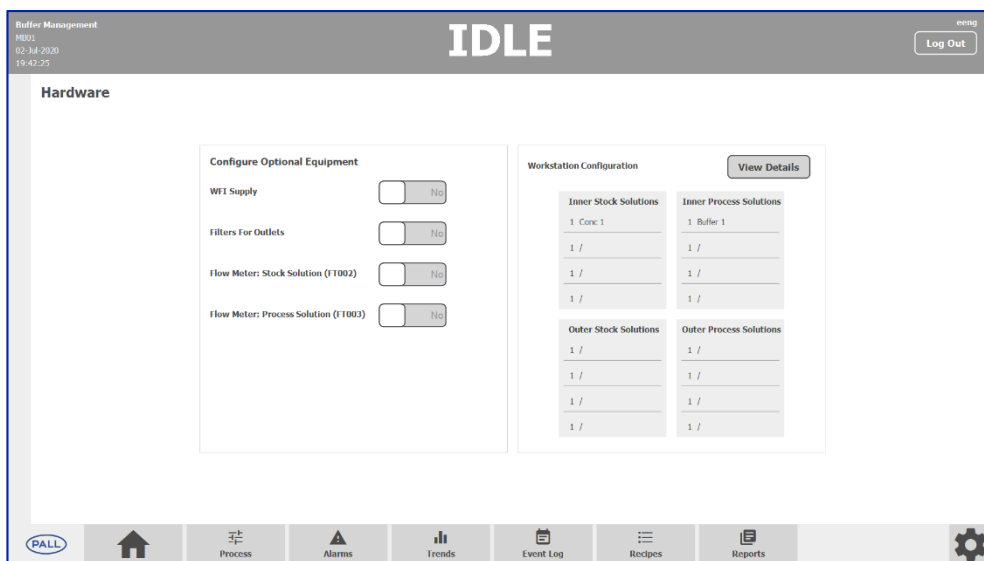
Navigation: Home, Process, Alarms, Trends, Event Log, Recipes, Reports, Settings

4.7.3 Hardware

The hardware screen enables the user to activate or deactivate optional equipment and modify the current buffer setup. The equipment selection is only operable if no batch is running.

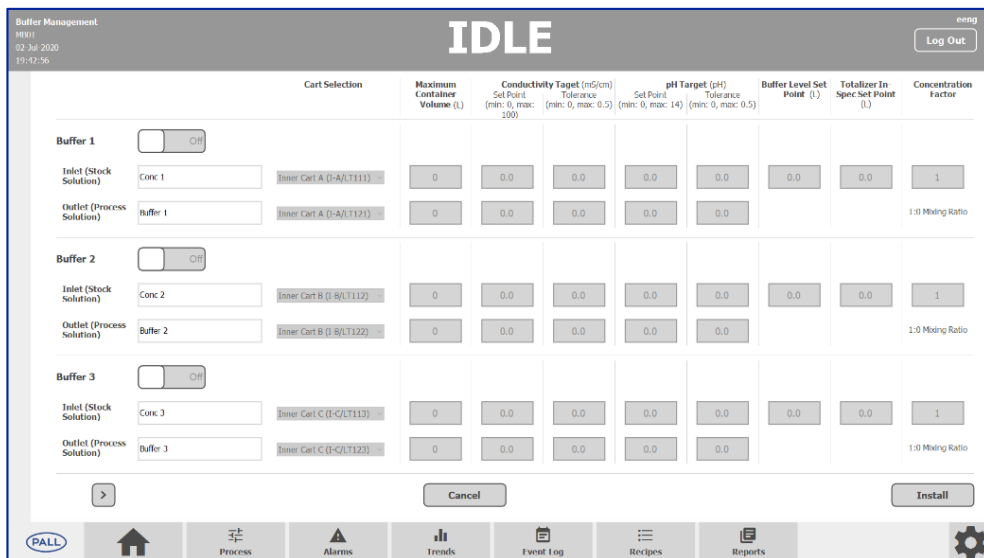
The hardware parameters that can be set up are defined in Buffer Software Design Specification (Section 1.1)

Figure 39
Hardware screen.



The buffer setup can be accessed via the “View Details” button. On the buffer setup screen, all six buffers can be viewed (sensor assignment, buffer activation, setpoints) during a batch run. If no batch is active, buffers can be enabled, and buffer names can be changed.

Figure 40
Buffer setup screen.



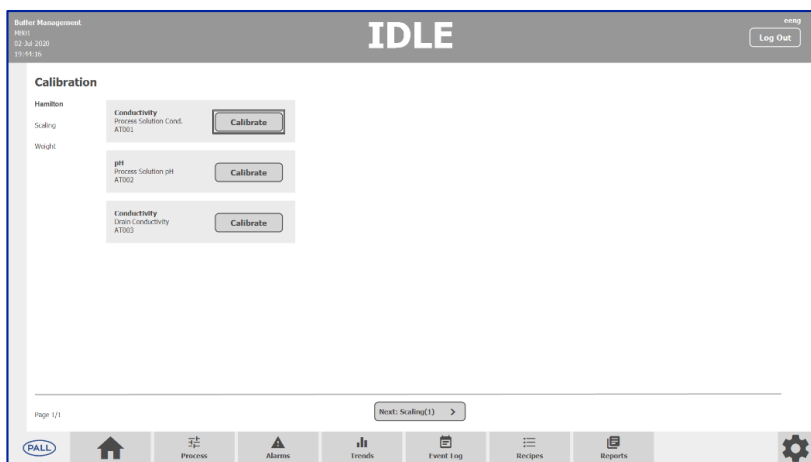
4.7.4 Calibration

The calibration page enables the user to trigger the calibration of weight scales and Hamilton sensors and set K values for flow meters.

The calibration values that can be set up are defined in Buffer Software Design Specification (Section 1.1)

Figure 41

Calibration screen.



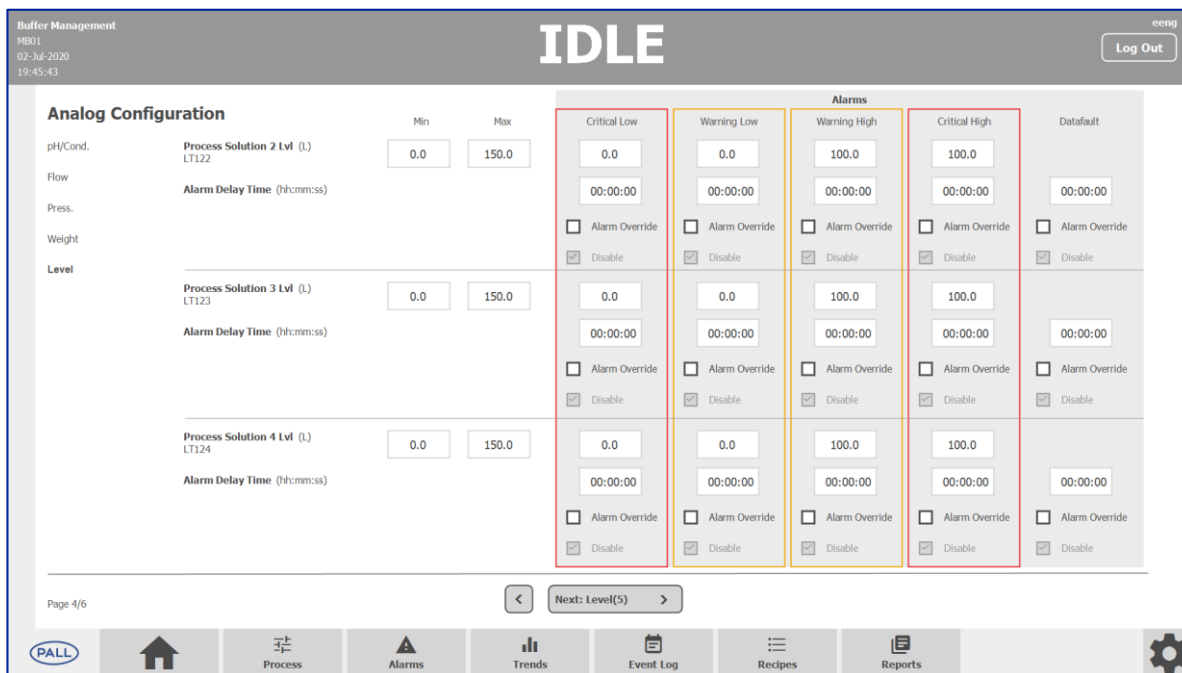
4.7.5 Analog Configuration

The analog configuration screen enables the user to modify engineering ranges, alarm set points, and delay times. It is also possible to override the activation of alarms (if allowed).

The analog signals that can be changed here are defined in Buffer Software Design Specification (Section 1.1)

Figure 42

Analog configuration screen.



Each analog signal is shown with its description, unit, and tag name. On the right-hand side of the description are the engineering ranges (Min / Max). Right of that are 5 alarms (LL / L / H / HH / Data fault). The colored frame shows if the alarm is set up as critical (red) or warning (orange).

Figure 43

Alarm setup.

Process Solution Cond. (mS/cm) AT001	Min	Max	Alarms				
	0.0	300.0	Critical Low	Warning Low	Warning High	Critical High	Datafault
Alarm Delay Time (hh:mm:ss)			0.0	0.0	0.0	0.0	
			00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
			<input type="checkbox"/> Alarm Override	<input type="checkbox"/> Alarm Override	<input type="checkbox"/> Alarm Override	<input type="checkbox"/> Alarm Override	<input type="checkbox"/> Alarm Override
			<input checked="" type="checkbox"/> Disable	<input checked="" type="checkbox"/> Disable	<input checked="" type="checkbox"/> Disable	<input checked="" type="checkbox"/> Disable	<input type="checkbox"/> Disable

Below the Alarm type (Warning Low) is the setpoint field.

Below the setpoint is the "Alarm Delay Time", which delays the activation of the alarm after the alarm condition is pending. If the alarm condition gets cleared during the delay time the alarm will not be activated.

The checkbox "Alarm Override" is active if the alarm can be overridden from the HMI.

The checkbox "Disable" is active if the checkbox "Alarm override" is selected. If "Disabled" is selected the alarm will not be activated.

If all settings are inactive, the alarm is not used in the system.

Figure 44

Setpoint field.

Warning Low

0.0

00:00:00

Alarm Override

Disable



The alarm override during a running recipe can cause malfunctions of the process due to suppression of critical alarms.

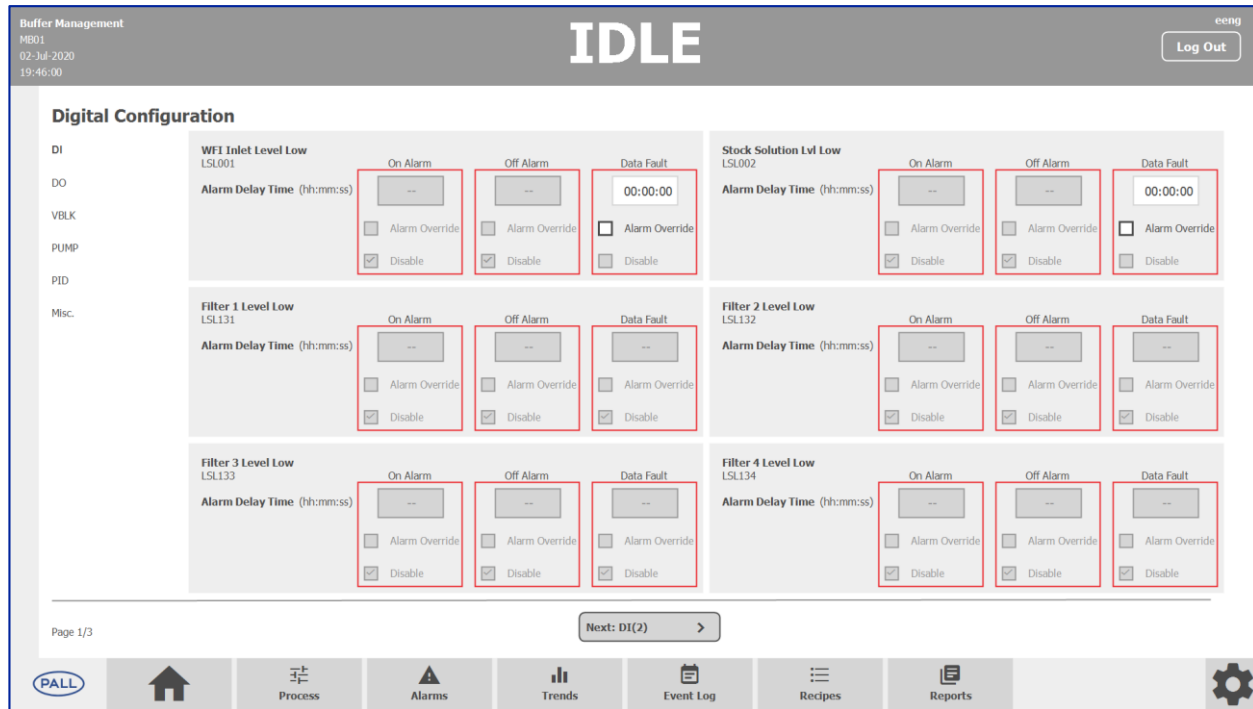
4.7.6 Digital Configuration

The digital or alarm configuration screen enables modification of alarm setpoints and delays, as well as override the activation of alarms (if allowed).

The digital signals that can be changed here are defined in Buffer Software Design Specification (Section 1.1).

Figure 44

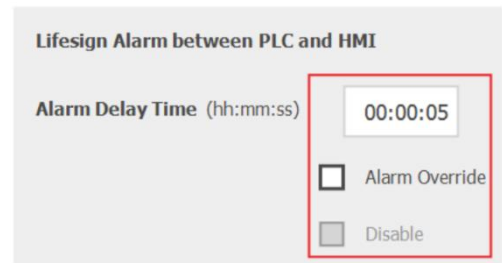
Digital.



Each digital alarm is shown with its description. The colored frame shows if the alarm is set up as critical (red) or warning (orange).

The “Alarm Delay Time”, delays the activation of the alarm after the alarm condition is pending. If the alarm condition gets cleared during the delay time the alarm will not be activated.

The checkbox “Alarm Override” is active if the alarm can be overridden from the HMI. The checkbox “Disable” is active if the checkbox “Alarm override” is selected. If “Disabled” is selected the alarm will not be activated.



The alarm override during a running recipe can cause malfunctions of the process due to suppression of critical alarms.

4.7.7 Users

The user and security configuration screen enables the user to adjust the user rights of the available user groups “Operator”, “Supervisor” and “Process Engineer”.

The user rights can only be modified by a member of the “Administrator” group.

New users can be created via the Windows operating system by the system administrator. New users must be assigned to one of the following user groups:

1. Administrators
2. Process Engineers
3. Supervisors
4. Operators

After the creation of the new user, at least one login to the Windows operating system must be performed with the new account, before the user can log in to the HMI.



The system administrator is responsible for the security settings of the user and groups. It is highly recommended to enable password altering and password complexity.

Figure 45
Users screen.

Security Area	Operator	Supervisor	Process Engineer
General - Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
General - Simulation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
General - Edit Alarm Setpoints	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
General - Enable/disable	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alarm - Acknowledge Multiple	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Alarm - Acknowledge Individual	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Settings - Access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Settings - Edit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.7.8 Diagnostics

The diagnostics or simulation screen enables a simulation of the values of analog and digital inputs. The simulation must be enabled for the dedicated sensor before manipulating the simulated value.

The analog and digital inputs that can be simulated are defined in the Buffer Software Design Specification (Section 1.1)

Figure 46

Diagnostics screen.

The screenshot displays the 'Diagnostics' screen for a Buffer Management system. The top header shows 'Buffer Management' with system details: MB01, 02-Jul-2020, 19:46:31, and a 'Log Out' button. The main status is 'IDLE'. The screen is divided into two columns of digital inputs (DI). Each input has a name, a simulation toggle (currently 'Off'), and a 'Simulation Value' input field. The inputs are:

DI	Input Name	Simulation Value
AI	WFI Inlet Level Low (LSL001)	Off
DI	Stock Solution Lvl Low (LSL002)	Off
DI	Filter 1 Level Low (LSL131)	Off
DI	Filter 2 Level Low (LSL132)	Off
DI	Filter 3 Level Low (LSL133)	Off
DI	Filter 4 Level Low (LSL134)	Off
DI	Filter 5 Level Low (LSL135)	Off
DI	Filter 6 Level Low (LSL136)	Off
DI	Product Pressure High (PSH001)	Off
DI	Air Pressure Healthy (PIRV002)	Off (checked)
DI	MIM Active (MIM_S1)	Off
DI	MIM Active Filter Skid (MIM_S1_Filter)	Off
DI	E-Stop Healthy (HS001)	Off (checked)
DI	Power Loss (PwrLoss)	Off

The bottom navigation bar includes the PALL logo and icons for Home, Process, Alarms, Trends, Event Log, Recipes, Reports, and Settings. The page number 'Page 1/1' is visible in the bottom left corner.

4.8 Reports Screen

The report screen shows the last batch of reports of the system. It is possible to select between the detailed and the summary report.

For a detailed description of the content of the reports see Buffer Software Design Specification (Section 1.1) .

Figure 47
Reports screen.

Buffer Management
M801
02-Jul-2020
19:46:45

IDLE eeng

Reports

Reports List
 DETAIL (171)
 SUMMARY (171)

SummarY REPORT
Version: 2.06

Batch ID	Batch Start	Batch End	Batch Duration	Generated	Page
548utu	02-Jul-20 19:38:07	02-Jul-20 19:40:24	0:02:17	02-Jul-20 19:40:38	1 / 3

Recipe

Name	Version	State
RPhSetup_1	1	Production

Phases / Steps / Transitions

Time	Operation	Phase	Step	Transition	Action
02-Jul-20 19:38:12	TestOper	RphPreSetup	1	1	Wait for Allocate
02-Jul-20 19:38:12	TestOper	1	1	1	Operation Received Run
02-Jul-20 19:40:13	TestOper	RphPreSetup	1	1	Received Allocate
02-Jul-20 19:40:13	TestOper	RphPreSetup	1	1	Received Ready
02-Jul-20 19:40:15	TestOper	RphPreSetup	1	1	Set Start
02-Jul-20 19:40:17	TestOper	RphPreSetup	1	1	Received Run
02-Jul-20 19:40:17	TestOper	RphPreSetup	1	1	Step Started
02-Jul-20 19:40:21	TestOper	RphPreSetup	1	1	Step Finished
02-Jul-20 19:40:23	TestOper	RphPreSetup	1	1	Received Done
02-Jul-20			1	1	

List of Report files
 Show list by
 Report timestamp
 Report name

▼ This Week
 ▶ 20200702_194043_Batch_ID#548utu#_Modu
 ▶ 20200702_191411_Batch_ID#26tehgth#_M
 ▶ 20200702_185845_Batch_ID#537zrj#_Mod
 ▶ 20200702_185334_Batch_ID#45uhr#_Mod
 ▶ 20200701_151429_Batch_ID#57ngj#_Modu
 ▶ 20200701_150434_Batch_ID#376zrhg#_M
 ▶ 20200701_150303_Batch_ID#537zedrhd#_M
 ▶ 20200630_134316_Batch_ID#647burj#_Mc
 ▶ 20200629_121104_Batch_ID#547fghd#_M
 ▶ 20200629_150227_Batch_ID#5ur6lugg#_M
 ▶ 20200629_150021_Batch_ID#5ur6lugg#_M
 ▶ 20200629_145623_Batch_ID#5487urthg#_M
 ▶ 20200629_135952_Batch_ID#5656j#_Mod
 ▶ 20200629_135611_Batch_ID#576zrhv#_M
 ▶ 20200629_114933_Batch_ID#4367347e76zr
 ▶ 20200629_110211_Batch_ID#576zrhv#_Mo

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Navigation Bar: PALL, Home, Process, Alarms, Trends, Event Log, Recipes, Reports, Settings

The reports will be saved as a protected read-only PDF in the folder:

#DRIVE\ODS\Dream Report\Project\#PROJECT_NAME\Reports

5 Procedures

5.1 Login

1. Open login dialog from the header

Figure 48

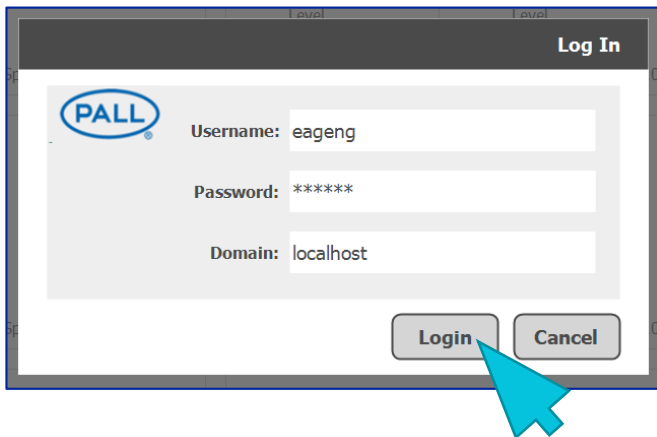
Reports screen.



2. Enter credentials
3. Press the button "Login"

Figure 49

Credentials screen.



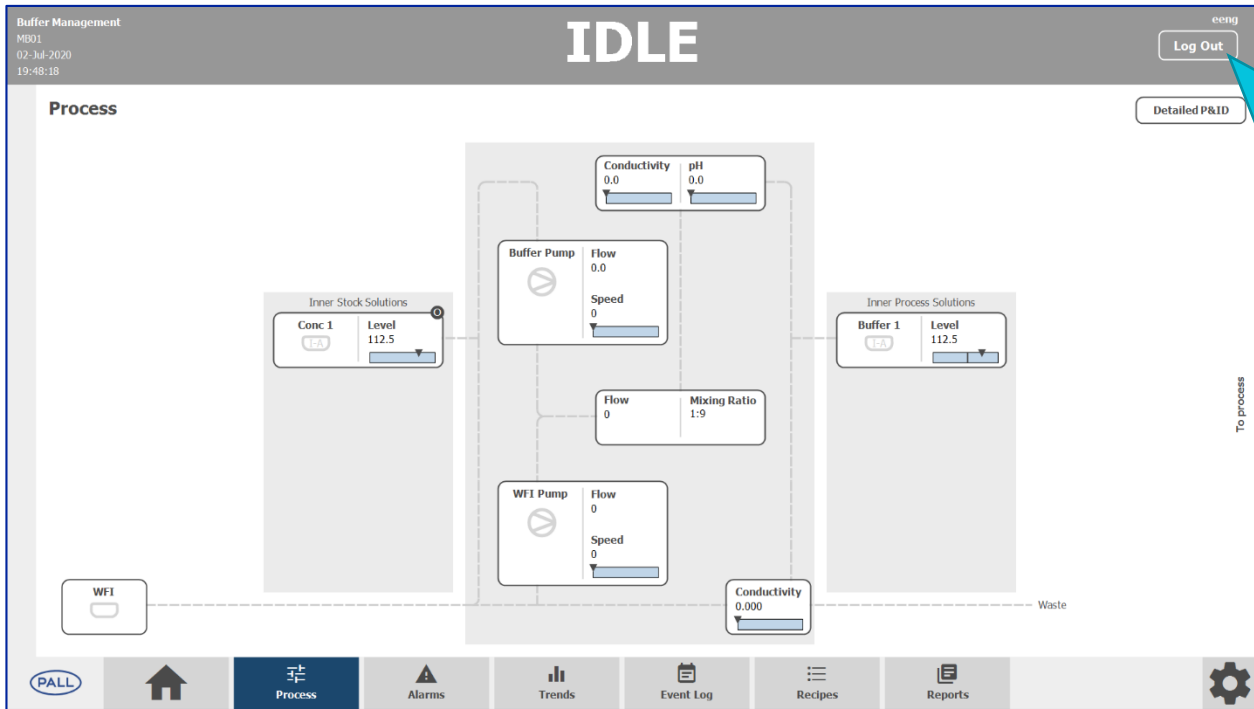
4. Wait until response
5. If the login dialog closes then the login has been successful, if a wrong password, username, or domain has been entered, the dialog stays open and the password field gets cleared.

5.2 Logout

1. Open logout dialog from the header

Figure 50

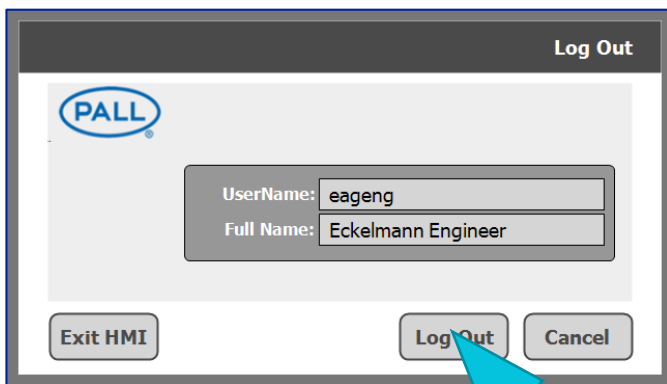
Log out button in the top right corner.



2. Press the button "Log Out"

Figure 51

Log out screen.



3. Logout performed

5.3 Shutdown

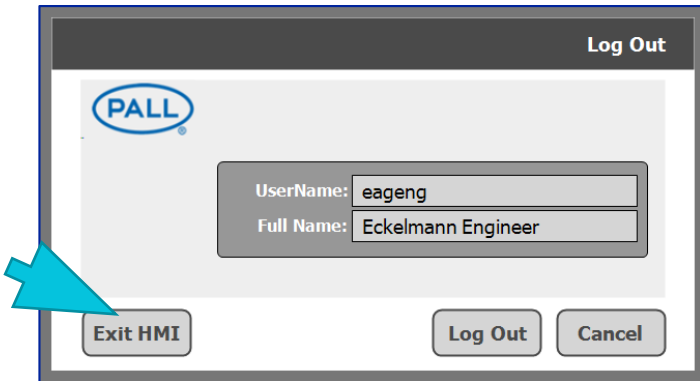
The shutdown of the system can be done performing the following steps:

1. Log in as a user of the groups "Process Engineer" or "Administrator"
2. Open the logout dialog and press the button "Exit HMI"

Figure 52 A-C

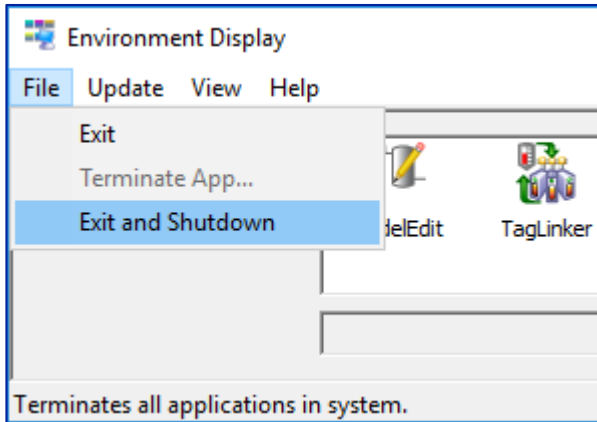
Shutdown process.

A.



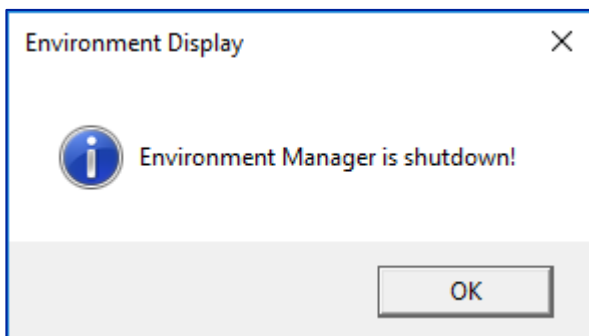
3. Open application "Environment Display" and press "File/Exit and Shutdown"

B.



4. Wait until the feedback message box "Environment Display is shut down!"

C.



5. The computer can be restarted or shut down now



Follow the described procedure to avoid data loss.

5.4 Instructions for Installation / Uninstallation

For the phases “RphPreCondMIM” and “RphPostUnInstall” there is a visual instruction guide on the HMI available to guide the operator through the installation or uninstallation of the single-use manifold.

After the phase enters the run-state, the instruction will be automatically opened.

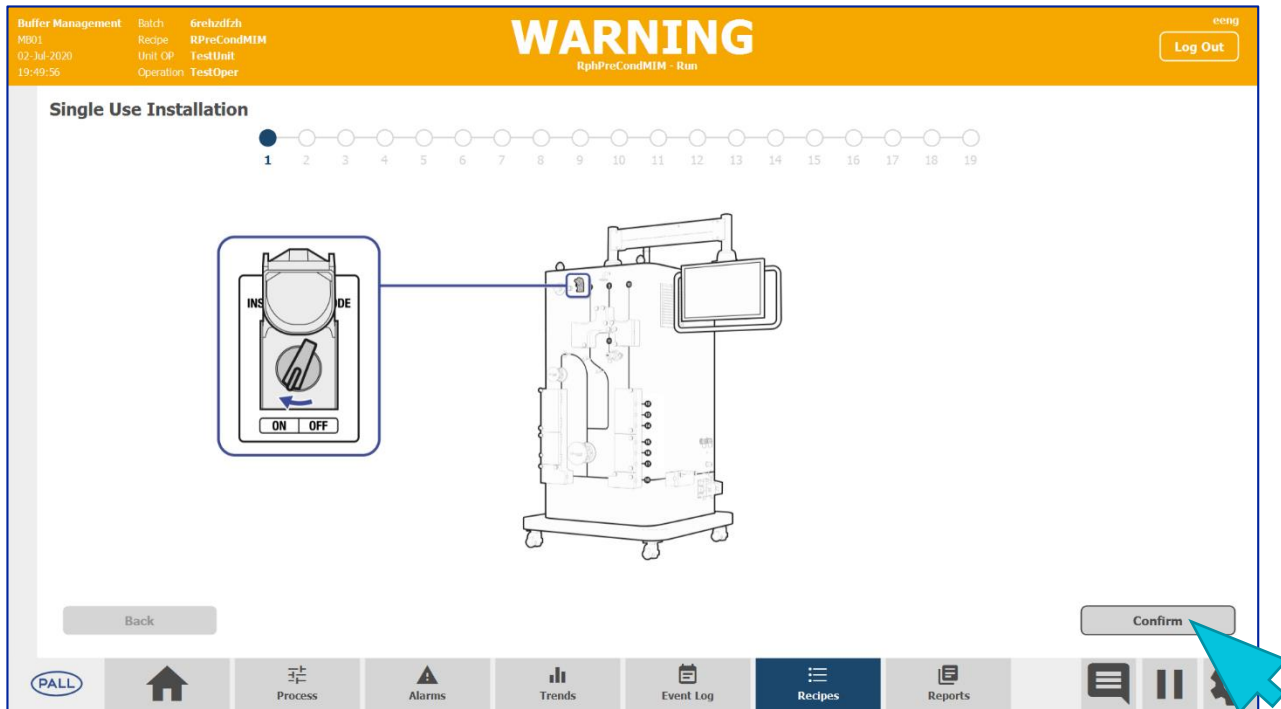
The visual instructions guide the operator in the steps required to install or uninstall the manifold and sensors in chronological order.

After the described process step is fulfilled, the operator can continue by pressing the “Confirm” button.

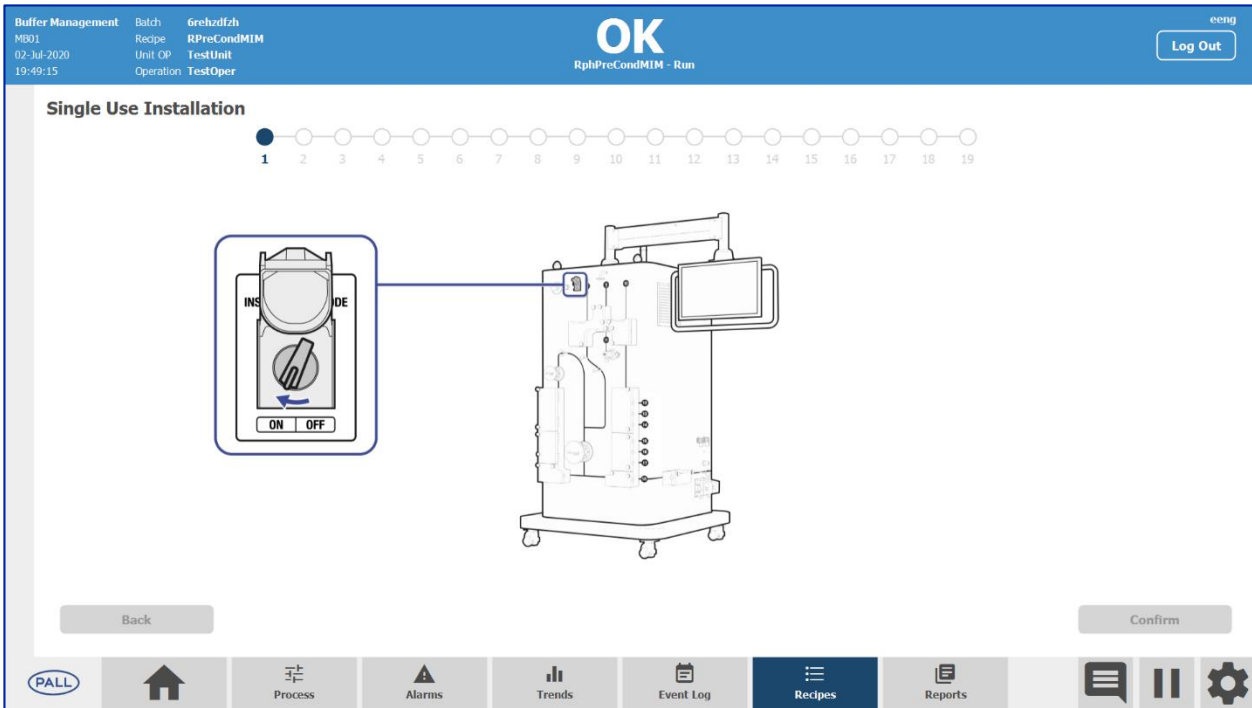
In some process steps, conditions will be evaluated by the automation system. The button will be operable only if the condition is fulfilled.

Figure 53 A – B
Installation/uninstallation

A.



B.



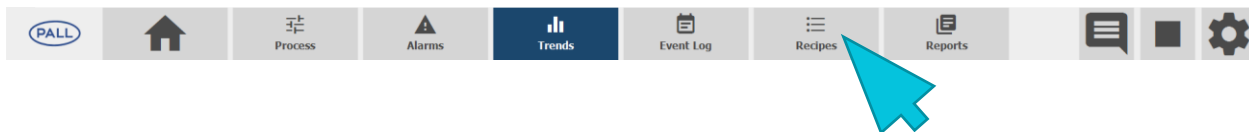
After all, steps are executed, the instruction will be closed automatically.

If the batch goes to hold-state during the execution of the instruction, the “Confirm” and “Back” buttons are not operable until the batch goes to run-state again.

After opening a different HMI page during the execution of the instruction, the page can be opened again by pressing the “Recipes” button in the navigation bar.

Figure 54

Recipes button on the navigation bar.



6 Glossary

Term	Definition
HMI	Human Machine Interface
CM	Control Module
EM	Equipment Module
PLC	Programmable Logic Controller
HDS	Hardware Design Specification
SDS	Software Design Specification
URS	User Requirements Specification
I/O	Input / Output



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