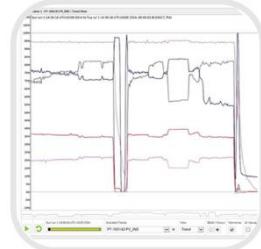




Inform, Enhance, Grow. Intelligently.



Gestalt Trend-User Guide

Intelligent Plant Ltd.

Company number: SC299081

Registered address: First Floor,

VAT number : 887 3049 84

489 Union Street,

E-mail : info@intelligentplant.com

Aberdeen,

Phone : 01224 596001

AB11 6AZ.

Revision History:

Date	Version	Description	Created by (Initials)	Reviewed by
10/11/2016	0.1	Create User Guide	TG	GT
11/01/2017	0.2	Updates after Review	TG	
07/03/2018	0.3	Screenshot Updates	TG	
06/11/2018	0.4	Updates to reflect latest product revisions	TG	
07/01/2019	0.5	Updates to reflect latest product revisions	TG	GT
24/09/2019	0.6	What's New topic and document layout changes	TG	
02/10/2019	0.7	Updates after Calm Waters View Type enabled	TG	
21/10/2019	0.8	Detailed Limits information	TG	SA
10/12/2019	0.9	Updates after client training feedback	TG	

© Copyright 2019, Intelligent Plant Ltd.



Table of Contents

1	Purpose of Document.....	8
2	What's New.....	9
2.1	December 2019.....	9
2.1.1	Access to Gestalt Trend.....	9
2.1.2	Preview.....	9
2.1.3	PCP View Type	9
2.2	October 2019	9
2.2.1	Different View Types.....	9
2.2.2	Tool Bar Types.....	9
2.2.3	Mouse Tips.....	9
2.2.4	X-Axis Zoom.....	9
2.2.5	Limits.....	9
2.2.6	Pre-Scrub & Post-Scrub.....	9
3	Access to Gestalt Trend	10
3.1	Tool Bar Types.....	12
3.1.1	Context Tool Bar.....	12
3.1.2	Time Controls Tool Bar.....	14
3.1.3	Quick Set Tool Bar.....	15
3.2	Workspace	15
3.2.1	Typical Use Case Scenario.....	17
4	Left-Side Panel.....	19
4.1	Dashboards	19
4.2	Settings.....	20
4.2.1	Context Bar.....	21
4.2.2	Messaging.....	21
4.2.3	Playback Speed.....	22
4.2.4	Palette.....	23
4.2.5	Tiling	24
4.2.6	Titlebars.....	25
4.3	Licensing.....	26
4.4	Export	27
4.5	Share a Dashboard or Folder	27
5	Creating a Trend.....	29
5.1	Set up the workspace.....	29
5.2	Adding the Data	29
5.3	Mouse Tips.....	30
5.4	X-Axis Zoom.....	30
5.5	Preview.....	31
5.6	Tab Options.....	31
5.6.1	Search.....	31

5.6.2	Time.....	31
5.6.3	Play.....	32
5.6.4	View.....	32
5.6.5	Settings.....	33
6	Examples.....	43
6.1	Trend.....	43
6.2	Parallel Co-ordinate (PCP).....	43
6.3	Fast Fourier Transform (FFT).....	44
6.4	Histogram.....	44
6.5	Limits.....	45
6.6	X-Y Scatter Plot.....	45
6.7	Cross-Correlation Graph (CCG).....	46
6.8	Cross-Correlation Matrix (CCM).....	46
6.9	Calm Waters (3DCW1).....	47
6.10	Calm Waters (3DCW2).....	47

Figures

Figure 2-1 Access the Industrial App Store.....	10
Figure 2-2 Industrial App Store Home Page.....	10
Figure 2-3 Gestalt Trend Profile Area	11
Figure 2-4 Gestalt Trend Home Page.....	11
Figure 2-5 Tool Bar Type Selection	12
Figure 2-6 Access to Left-Side Panel.....	12
Figure 2-7 Start Time.....	12
Figure 2-8 Start Time – Date and Time.....	12
Figure 2-9 End Time	12
Figure 2-10 End Time – Date and Time.....	13
Figure 2-11 Refresh Start and End Time.....	13
Figure 2-12 Interval – Time Step	13
Figure 2-13 Function.....	13
Figure 2-14 Window Options.....	13
Figure 2-15 Time Controls Tool Bar– View Left-Side Panel.....	14
Figure 2-16 Time Controls Tool Bar– Annotation.....	14
Figure 2-17 Time Controls Tool Bar– Create Annotation	14
Figure 2-18 Time Controls Tool Bar– Stop.....	14
Figure 2-19 Time Controls Tool Bar– Play	14

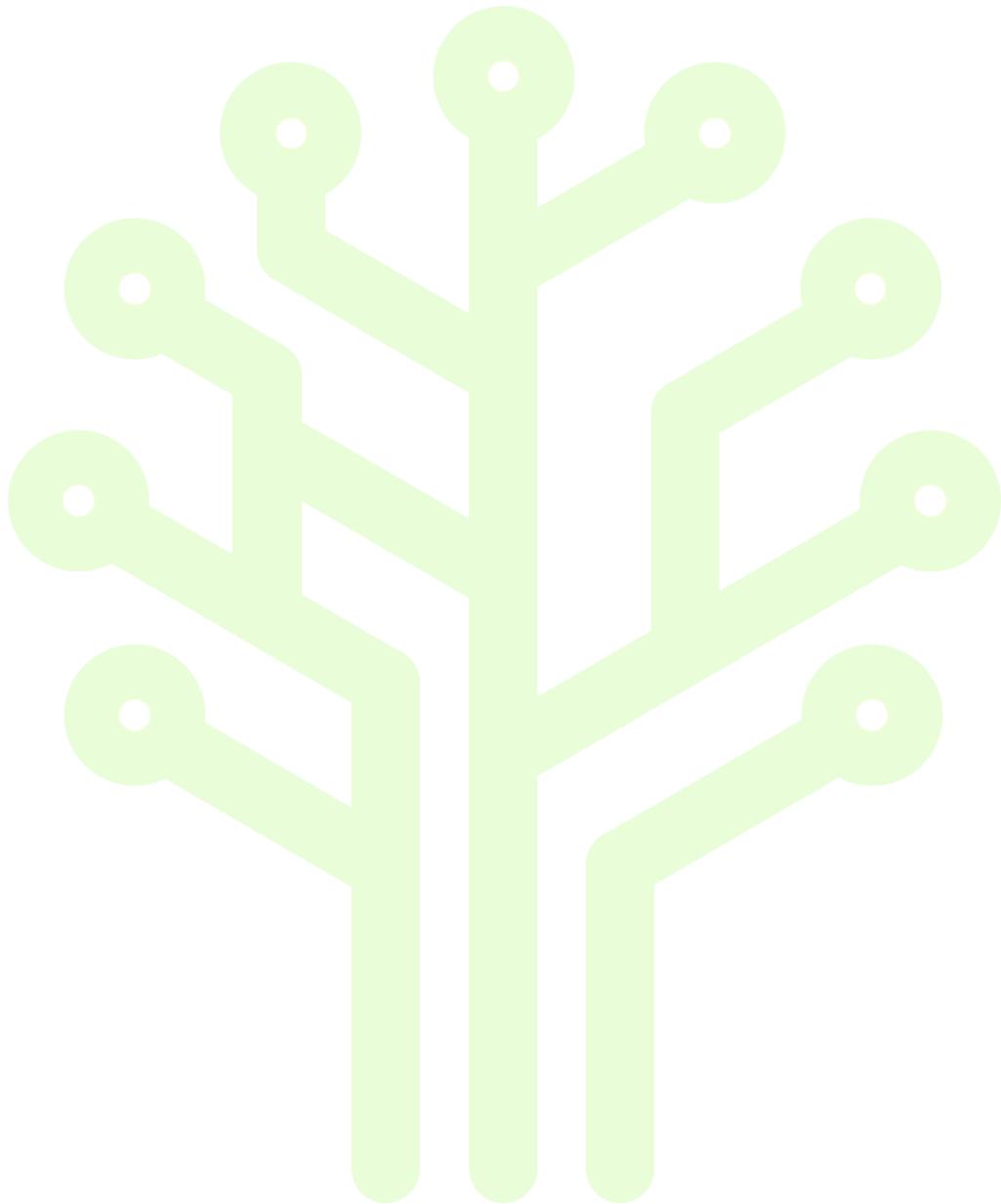
Figure 2-20 Time Controls Tool Bar– Pause	15
Figure 2-21 Time Controls Tool Bar– Refresh	15
Figure 2-22 Time Controls Tool Bar– Step Back	15
Figure 2-23 Time Controls Tool Bar– Time Control Bar	15
Figure 2-24 Time Controls Tool Bar– Step Forward	15
Figure 2-25 Quick Set Time Tool Bar	15
Figure 2-26 Window Options Open	16
Figure 2-27 Trend, PnID or Custom Options	16
Figure 2-28 x3 Windows – Custom Option	16
Figure 2-29 Select x1 Option	17
Figure 2-30 Search Criteria Options	17
Figure 2-31 Datasource – Tags Found	18
Figure 2-32 Tag Selected	18
Figure 2-33 Busy Icon	18
Figure 3-1 Left-Side Panel Access	19
Figure 3-2 Left-Side Panel	19
Figure 3-3 Dashboards	19
Figure 3-4 Dashboards – Existing Trends	20
Figure 3-5 Settings	20
Figure 3-6 Context Bar	21
Figure 3-7 Context Bar Options	21
Figure 3-8 Messaging	21
Figure 3-9 Error Reporting	22
Figure 3-10 Error Message	22
Figure 3-11 Playback Speed	22
Figure 3-12 Playback Settings	23
Figure 3-13 Play Icon	23
Figure 3-14 Stop Icon	23
Figure 3-15 Palette	23
Figure 3-16 Canvas Colour Options	24
Figure 3-17 Tiling	24
Figure 3-18 Tiling Options	24
Figure 3-19 Titlebars	25

Figure 3-20 Titlebars Options	25
Figure 3-21 Titlebars Option – On	25
Figure 3-22 Titlebars Option – Off	25
Figure 3-23 Licensing	26
Figure 3-24 Current Licensing Info	26
Figure 3-25 Export	27
Figure 3-26 Share Dashboard	27
Figure 3-27 Share Folder	28
Figure 3-28 Share Options	28
Figure 3-29 Share Options – Click to Accept	28
Figure 4-1 Select x1	29
Figure 4-2 Select Trend	29
Figure 4-3 Search for Tags	29
Figure 4-4 Add Tag	30
Figure 4-5 Trend Created	30
Figure 4-6 Preview Zoom	31
Figure 4-7 Search Tab	31
Figure 4-8 Time Tab	31
Figure 4-9 Play Tab	32
Figure 4-10 View Tab	32
Figure 4-11 Settings Options	33
Figure 4-12 Limits Option	34
Figure 4-13 Limits – Available Trends	34
Figure 4-14 Limits Selected – Upper and Lower Limits	35
Figure 4-15 Limits – Zoom to an Area	35
Figure 4-16 Limits – Reset Limits	35
Figure 4-17 Limits – New Limits	36
Figure 4-18 Settings – Default Settings	36
Figure 4-19 Settings – Limits Indication	37
Figure 4-20 Settings – Normalise Unchecked – Y-Axis Updates	37
Figure 4-21 Settings – Limit Type & Limit Value	38
Figure 4-22 Settings – TagLimits Indicator Updated	38
Figure 4-23 Changing Limits for Different Tags	39

Figure 4-24 Settings – LimitValue Default.....	39
Figure 4-25 Normalise Not Selected.....	40
Figure 4-26 Normalise Selected.....	40
Figure 4-27 Pre-Scrub Slider to the Right.....	41
Figure 4-28 Post-Scrub Slider to the Right.....	41
Figure 4-29 Pre-Scrub & Post-Scrub Area.....	42
Figure 4-30 Pre-Scrub & Post-Scrub – XY Scatter View.....	42
Figure 5-1 View Type.....	43
Figure 5-2 Trend	43
Figure 5-3 Parallel Co-ordinate (PCP)	43
Figure 5-4 Fast Fourier Transform (FFT).....	44
Figure 5-5 Histogram.....	44
Figure 5-6 Limits.....	45
Figure 5-7 X-Y Scatter Plot.....	45
Figure 5-8 Cross-Correlation Graph (CCG)	46
Figure 5-9 Cross-Correlation Matrix (CCM)	46
Figure 5-10 Calm Waters (3DCW1).....	47
Figure 5-11 Calm Waters (3DCW2).....	47

1 Purpose of Document

This document gives instructions on how to use Gestalt Trend. By following the detailed steps within this document this tool allows you to view your process data. You can configure datasources then switch between multiple views for in-depth analysis of your data in real time.



2 What's New

This section allows users who may have already browsed this user guide a quick link option to look at the new features and enhancements.

2.1 December 2019

2.1.1 Access to Gestalt Trend

Follow through the initial access instructions and see that Figure 3.3 is an additional step that the user takes from the Gestalt Trend postcard. Users can browse additional information regarding trend or proceed straight to the Trend tool by selecting the Start button.

Go to Section 3 (Ctrl+Click)

2.1.2 Preview

Whilst not a new feature, Preview has not been covered before. Zooming into another part of your trend out-with your date and time setting.

Go to Section 5.5 (Ctrl+Click)

2.1.3 PCP View Type

Additional information added to describe how to move tags around in your PCP view.

Go to Section 6.2 (Ctrl+Click)

2.2 October 2019

2.2.1 Different View Types

An explanation of the different View Type options within the View Tab. This now includes Calm Waters.

Find these options in the drop-down menu that already includes Trend, Parallel Co-ordinate (PCP), Fast Fourier Transform (FFT), Histogram, Limits, XY Scatter, Cross Correlation Graph (CCG) and Cross-Correlation Matrix (CCM), Calm Waters (3DCW1), Calm Waters (3DCW2).

Go to Section 6 (Ctrl+Click)

2.2.2 Tool Bar Types

All tool bar options are now detailed in one section.

Go to Section 3.1 (Ctrl+Click)

2.2.3 Mouse Tips

Increase your trend visualisation experience by using your mouse buttons and scroll wheel.

Go to Section 5.3 (Ctrl+Click)

2.2.4 X-Axis Zoom

A landscape zoom feature that allows a close-up view of an area in your trend.

Go to Section 5.4 (Ctrl+Click)

2.2.5 Limits

Detailed info on how to view and change limits in your trend.

Go to Section 5.5.5.1 (Ctrl+Click)

2.2.6 Pre-Scrub & Post-Scrub

Additional info and rewording of this section plus examples of how to use Pre-Scrub & Post-Scrub features.

Go to Section 5.5.5.3 (Ctrl+Click)

3 Access to Gestalt Trend

Select this link appstore.intelligentplant.com to log into the Industrial App Store. Use either your Google, LinkedIn or Microsoft account or register your organisation with the Industrial App Store.

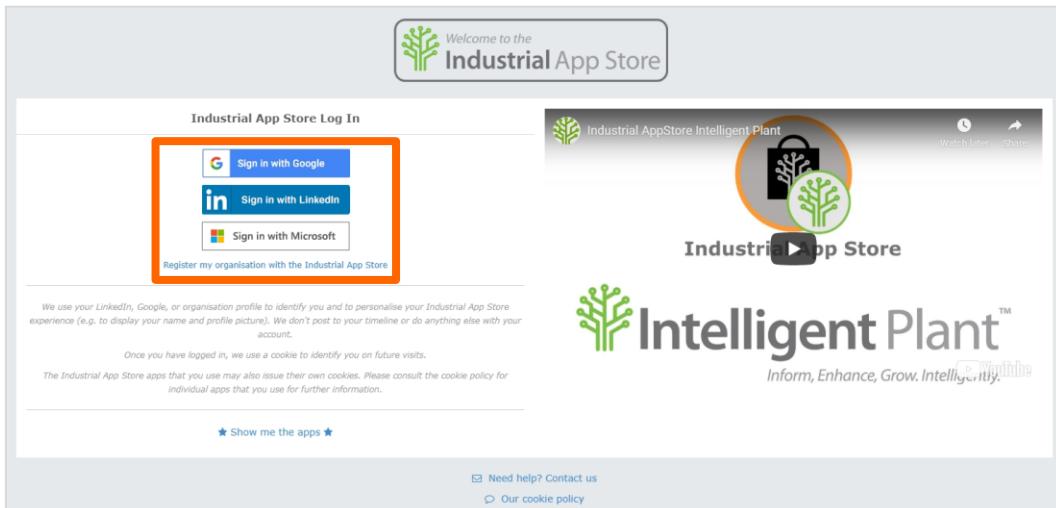


Figure 3-1 Access the Industrial App Store

On the Industrial App Store home page select the Gestalt Trend postcard. This will take you to the Trend Profile.

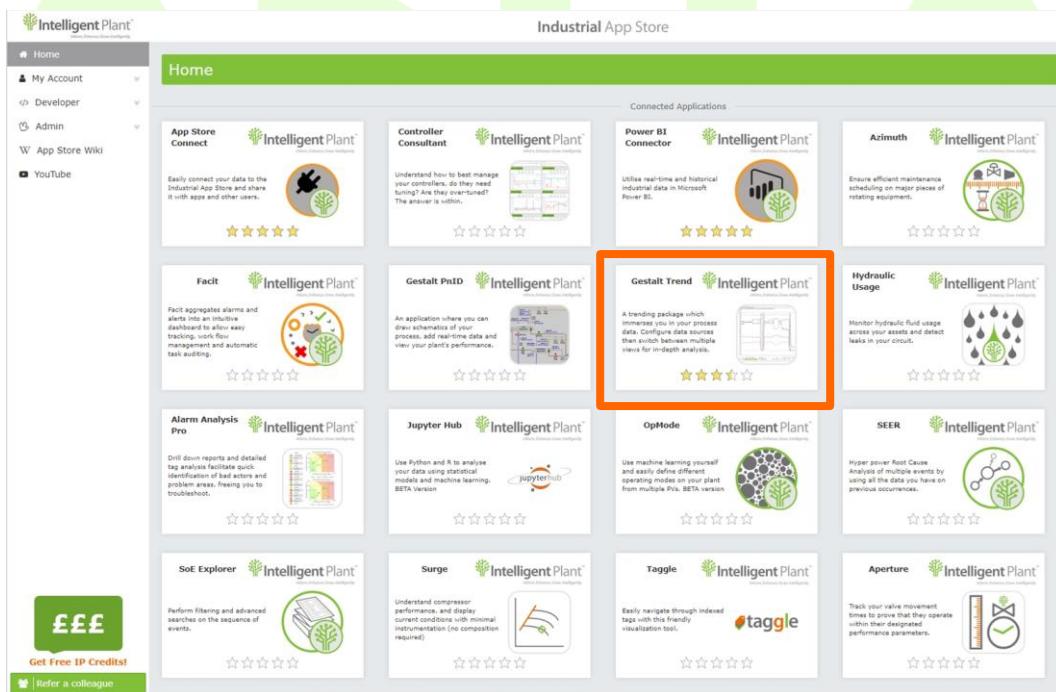


Figure 3-2 Industrial App Store Home Page

The Trend Profile area allows you to either select the start button and immediately start creating trends or you can browse this profile page to find out a little more information regarding trend.

In this area you can find links to the user guide, YouTube videos, Trend FAQs, Industrial App Store Wiki and browse screenshot views that have been produced in Gestalt Trend.

Select the Start button to proceed.

Note:

Once you are on the Home page of Trend, you can create a bookmark in your browser to save having to go through these steps every time you choose the Trend postcard from the Industrial App Store home page.

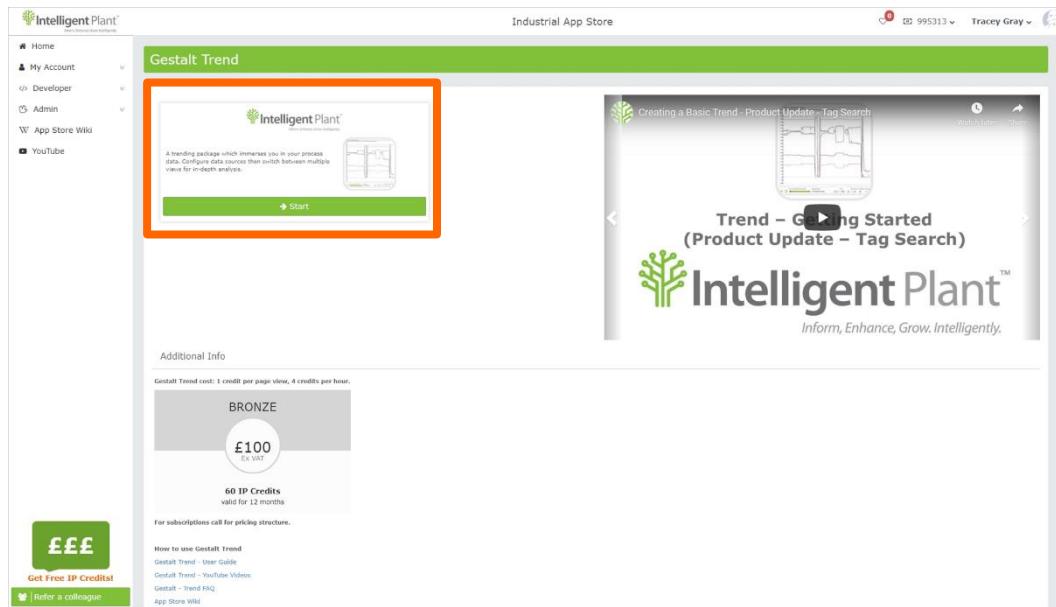


Figure 3-3 Gestalt Trend Profile Area

Go back to Section 2 (Ctrl+Click)

The home page of trend appears with the context tool bar and workspace.

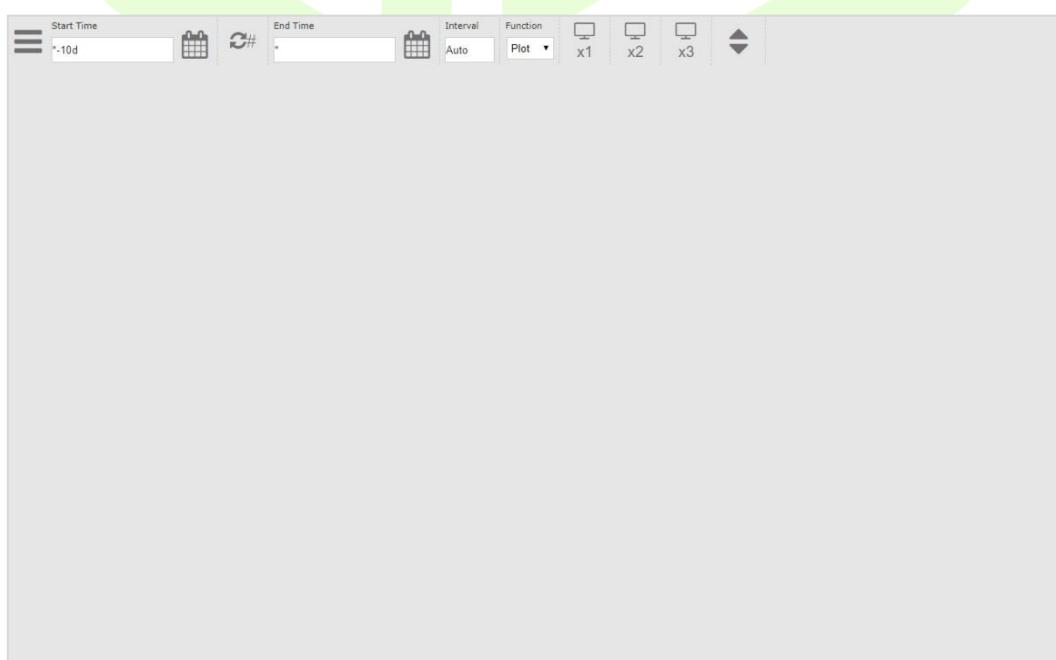


Figure 3-4 Gestalt Trend Home Page

3.1 Tool Bar Types

You can flip between three different toolbars by selecting the arrows at the end of each tool bar.



Figure 3-5 Tool Bar Type Selection

3.1.1 Context Tool Bar

The context tool bar allows you to access the Left-Side Panel, set Start and End time, Interval (Time Step), Function options and apply your settings. Once you have chosen your window option you can search for your tags.

Access the Left-Side Panel by selecting the burger icon.



Figure 3-6 Access to Left-Side Panel

Start Time – Select the calendar icon to set the date and time.



Figure 3-7 Start Time

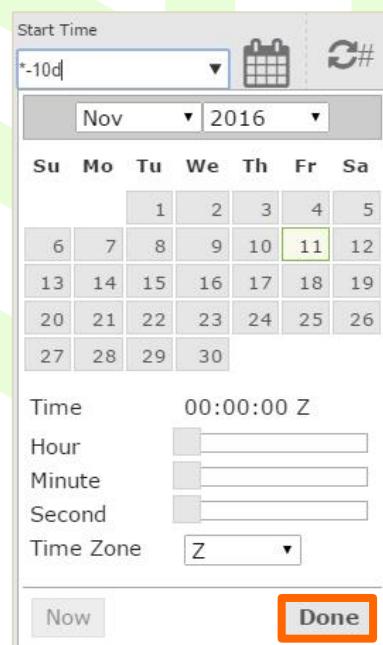


Figure 3-8 Start Time – Date and Time

Select Done when finished.

End Time – Select the calendar icon to set the date and time.



Figure 3-9 End Time

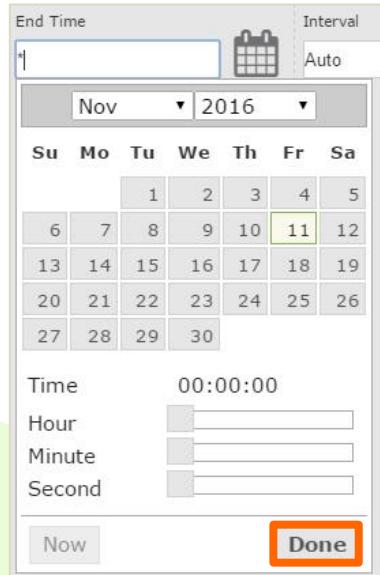


Figure 3-10 End Time – Date and Time

Select Done when finished. Select Apply.

The refresh button swaps between relative and absolute time.



Figure 3-11 Refresh Start and End Time

Mouseover the interval area to see the time step (how long between samples). You can set your own interval time.



Figure 3-12 Interval – Time Step

The function options allow you to select Plot, Interp, Max, Min, Avg or Raw from the drop-down menu.



Figure 3-13 Function

If you have selected any of the options that appear before the Apply button, remember to select Apply to confirm your changes.

On your workspace you can choose to have one, two or three new windows open. Select one of these icons to start creating a trend, view a PnID or upload a web page.



Figure 3-14 Window Options

3.1.2 Time Controls Tool Bar

Access the Left-Side Panel by selecting the burger icon.

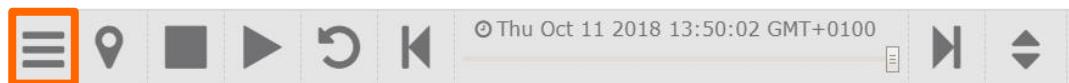


Figure 3-15 Time Controls Tool Bar – View Left-Side Panel

Select the annotation icon to add an annotation or drag a new annotation from the left-hand side of the plot area.



Figure 3-16 Time Controls Tool Bar – Annotation

Type in the create annotation area. Select OK. See your text appear on the trend.

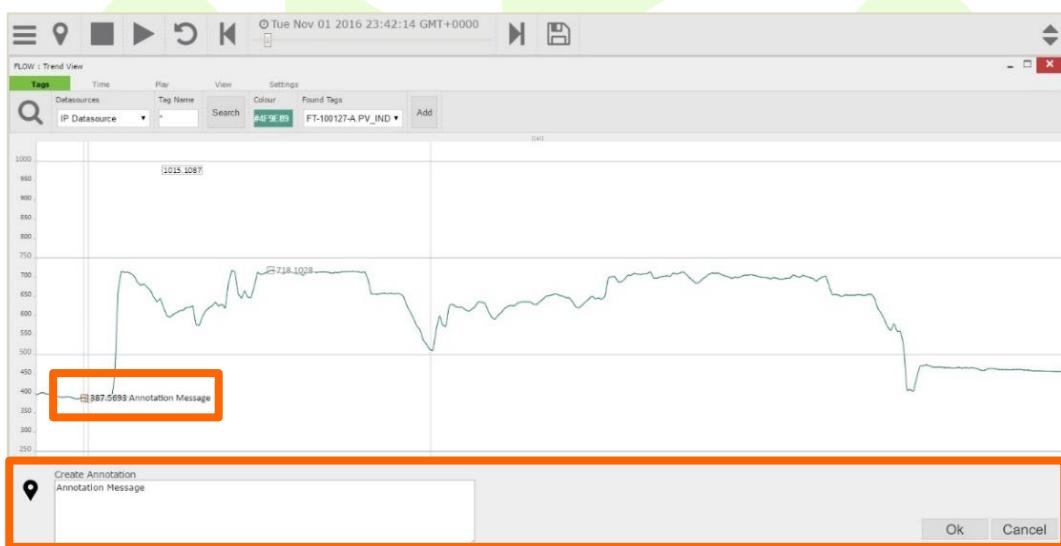


Figure 3-17 Time Controls Tool Bar – Create Annotation

Note:

You can also click and drag the Y-Axis onto the workspace and create an annotation.

Select the stop icon to stop the marker moving along the trend line.

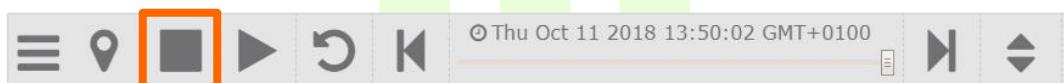


Figure 3-18 Time Controls Tool Bar – Stop

Select the play icon to start the marker travelling along the trend line.

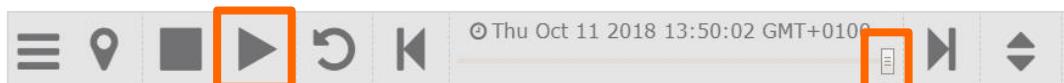


Figure 3-19 Time Controls Tool Bar – Play

Select the pause icon to stop the marker at a specific place on the trend line.



Figure 3-20 Time Controls Tool Bar – Pause

Select the refresh icon to re-acquire all the data in the trend.

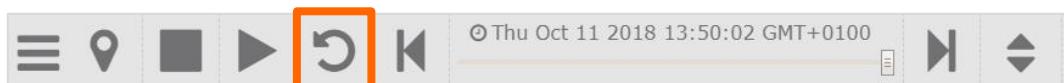


Figure 3-21 Time Controls Tool Bar – Refresh

Select the step back icon and the trend will go back or forward (new data) by one display unit i.e. the data visible on the screen.

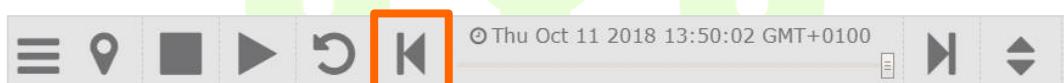


Figure 3-22 Time Controls Tool Bar – Step Back

After play is selected watch the time bar move along its range – from left to right.

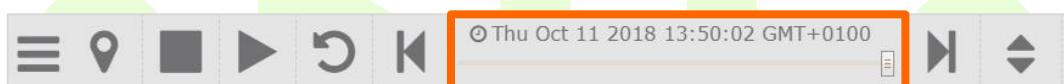


Figure 3-23 Time Controls Tool Bar – Time Control Bar

Select the step forward icon to go forward in time through your trend.

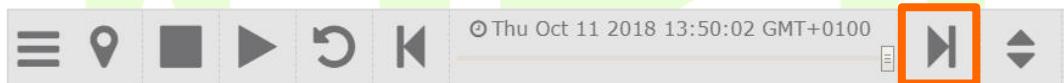


Figure 3-24 Time Controls Tool Bar – Step Forward

3.1.3 Quick Set Tool Bar

Choose any time options to show that time range in your trend.



Figure 3-25 Quick Set Time Tool Bar

Go back to Section 2 (Ctrl+Click)

3.2 Workspace

Select x1 opens one window. Select x2 after selecting x1 and a further two new windows will open. Select x3 after selecting both x1 and x2 and a further three new windows will open in the workspace.

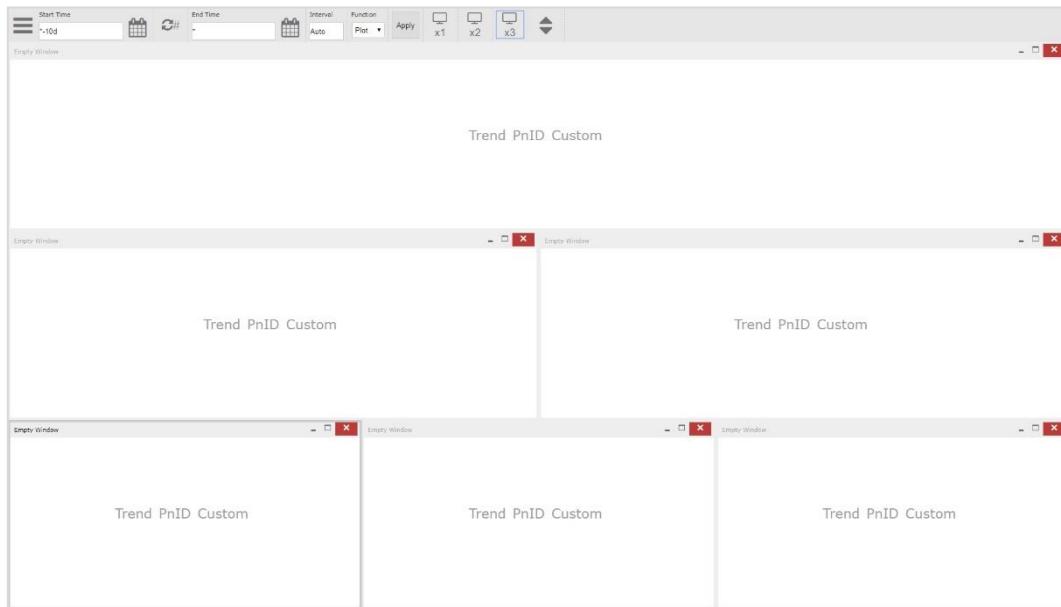


Figure 3-26 Window Options Open

The new windows will automatically fill your workspace. You can close any window at any time by selecting the close button at the top right side of each window.

Note:

If you have multiple windows open and want to see a closer view of one window. Double-click to see that view fill the page. Double-Click again to return to your multiple windows view.

When you open a window, you have the option to either create a Trend, open the PnID tool or select Custom to upload a web page.

Trend PnID Custom

Figure 3-27 Trend, PnID or Custom Options

Select Trend to start creating a new trend. Select PnID, the home page of the Gestalt PnID will appear. You can browse the pages that already exist within PnID. Select Custom then select the Settings tab and type in the web address you wish to view, select Go. You should now be able to view your chosen web page. The next example shows that the user selected x3 icon from the context tool bar and Custom was selected from the first window.

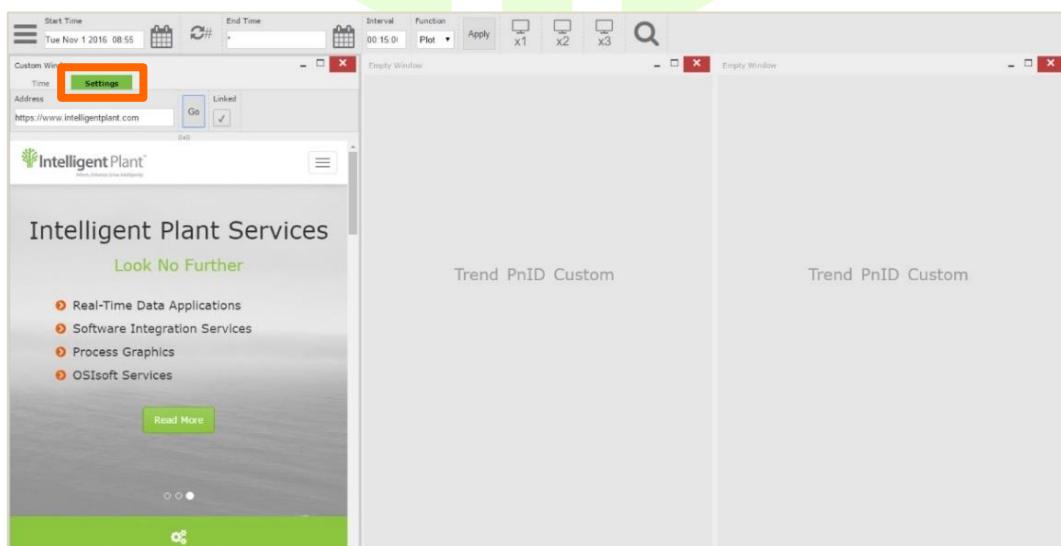


Figure 3-28 x3 Windows – Custom Option

3.2.1 Typical Use Case Scenario

Select the x1 option and then select the Trend option that appears on the middle of the workspace.

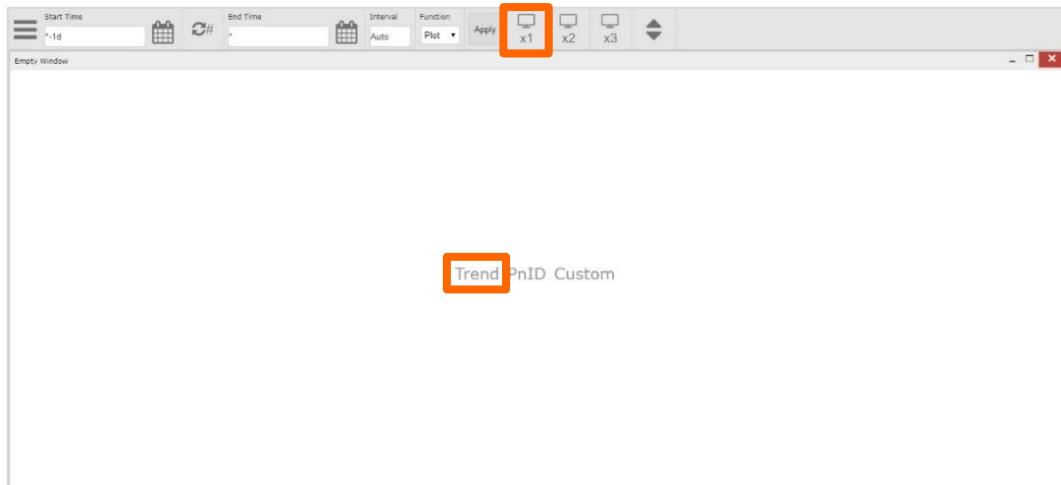


Figure 3-29 Select x1 Option

If needed, you can select a description from the drop-down menu then select the ADD button which will add a new search criteria text box.

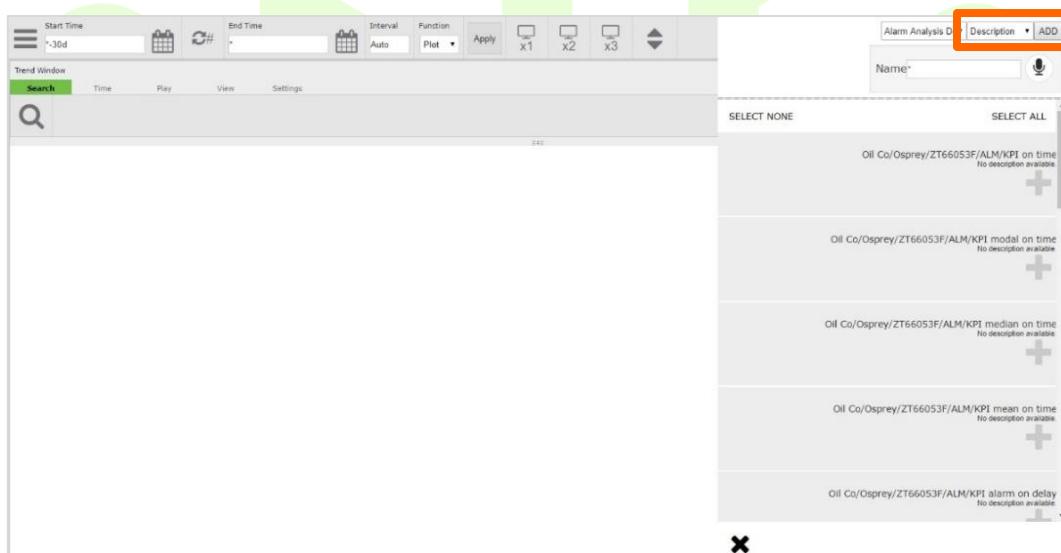


Figure 3-30 Search Criteria Options

Select a datasource name and type your search criteria into Name. The first set of tags that have the selected data source name and criteria reference will appear in the window.

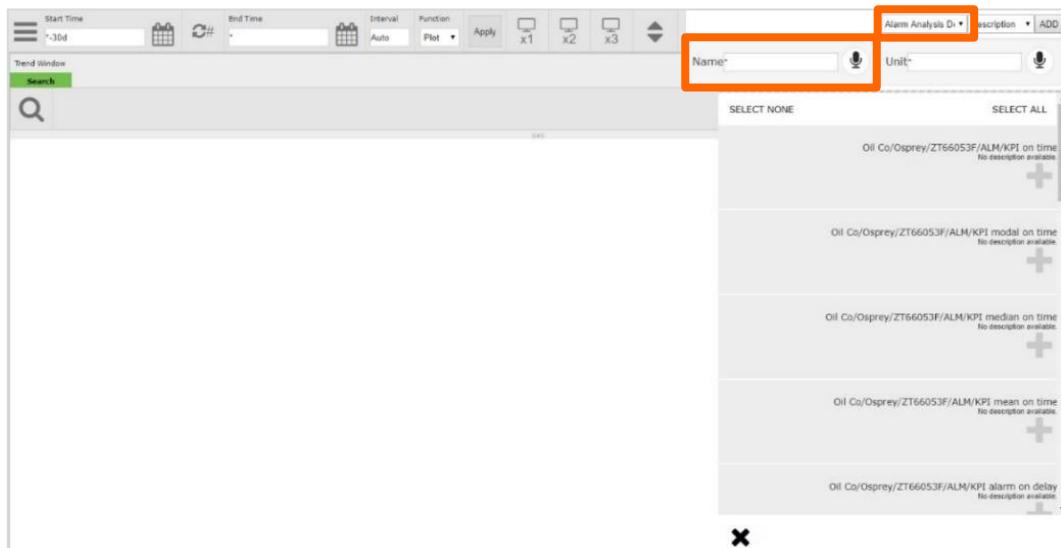


Figure 3-31 Datasource – Tags Found

Select the + sign beside the tag you require. This will initially turn yellow then green. You will then see it appear in the workspace. When finished, select the x icon to close the panel. Should you re-open the search panel the tags that already appear in your trend will still show the green + symbol letting you know that they are already in your trend.



Figure 3-32 Tag Selected

The 'Busy' icon may appear in the bottom right hand corner when the server is processing information. This lets the user know that their action is in progress.

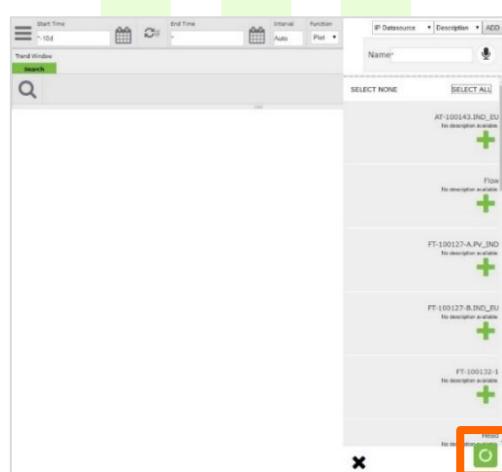


Figure 3-33 Busy Icon

4 Left-Side Panel

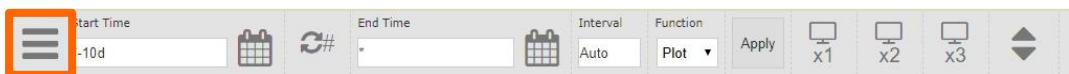


Figure 4-1 Left-Side Panel Access

After selecting the burger icon from the context tool bar, the Left-Side Panel appears.

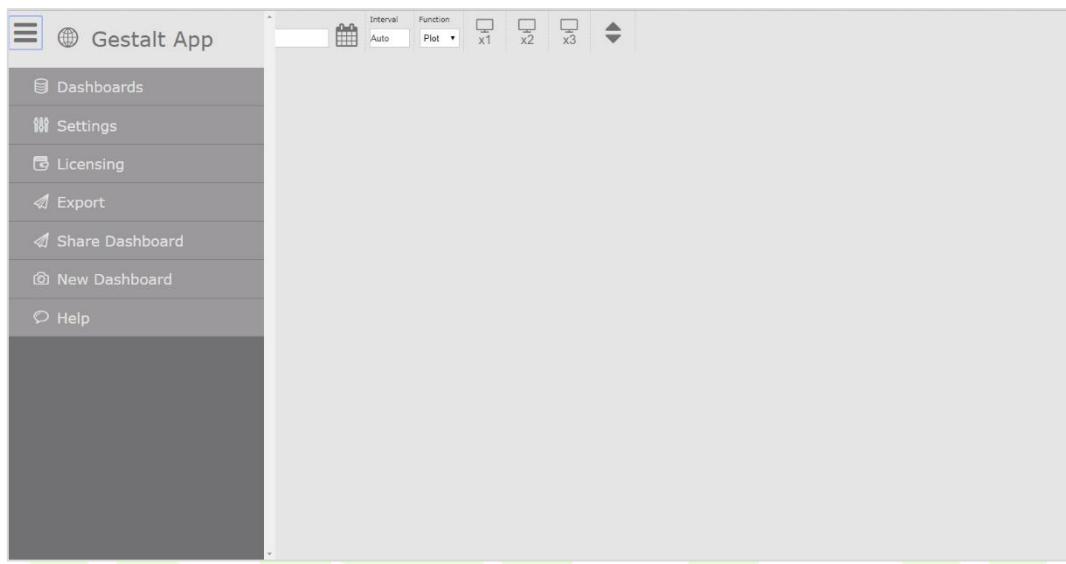


Figure 4-2 Left-Side Panel

4.1 Dashboards

Select Dashboards to access existing trends.

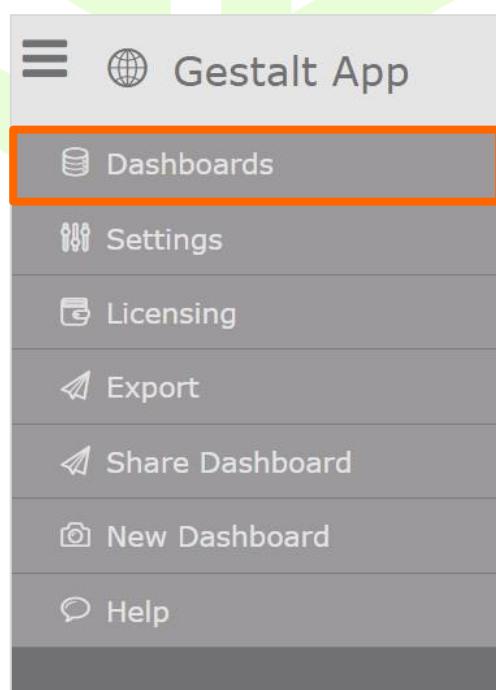
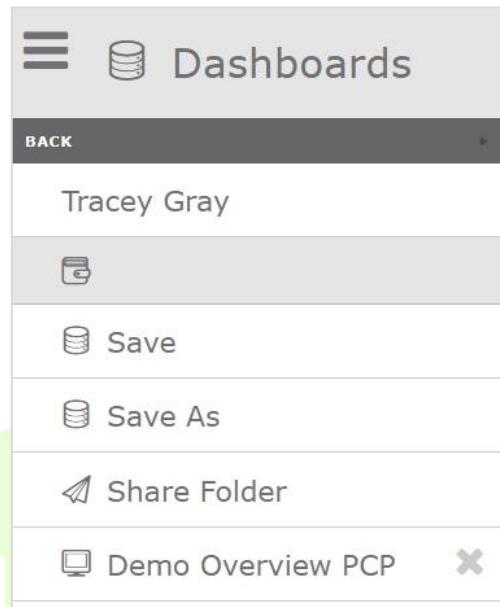


Figure 4-3 Dashboards



To view an existing trend, select one from the list of available trends.

4.2 Settings

Select Settings to access the Context Bar, Messaging, Playback Speed, Palette, Tiling and Titlebars.

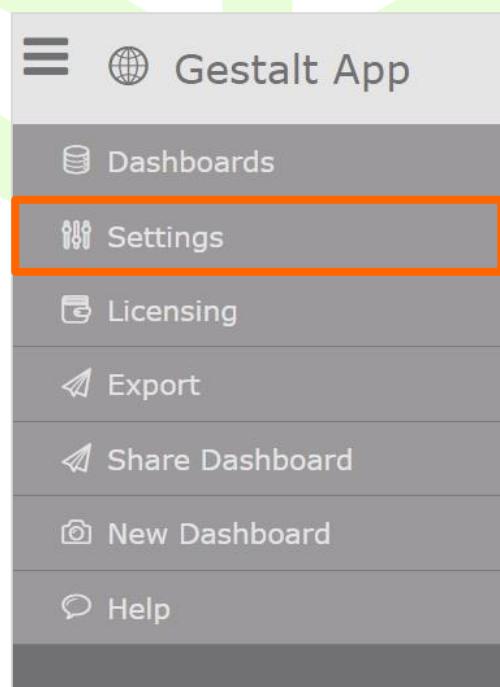


Figure 4-5 Settings

4.2.1 Context Bar

Once you have opened a trend you can select the Context Bar to select the option to Hide or Show the tool bar that is in view in your trend.

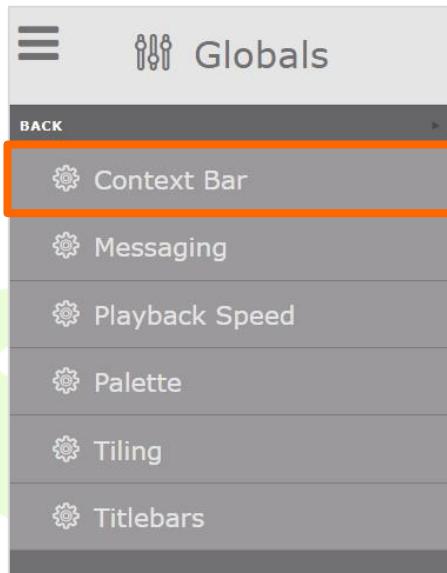


Figure 4-6 Context Bar

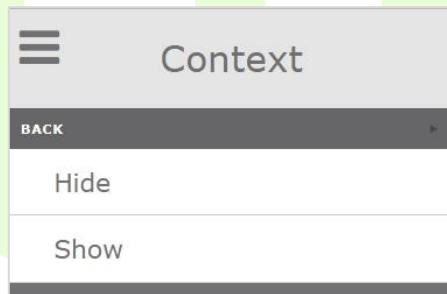


Figure 4-7 Context Bar Options

4.2.2 Messaging

Select Messaging to access either Information, Debug or Error.

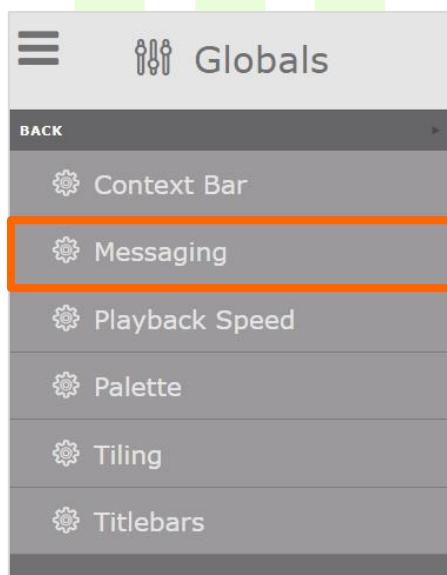


Figure 4-8 Messaging

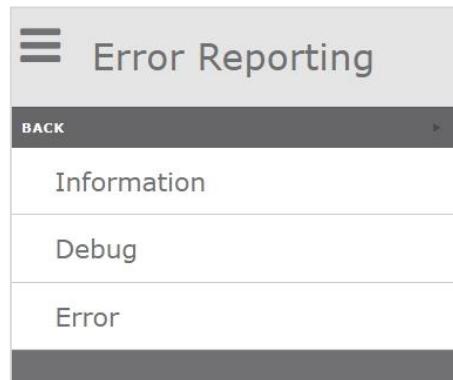


Figure 4-9 Error Reporting

By selecting one of these options a pop-up will appear at the bottom right of the screen giving information on worst case errors. A pop-up may also appear as a result of an error while the user is working. Contact the support team for information on how to solve an error - support@intelligentplant.com

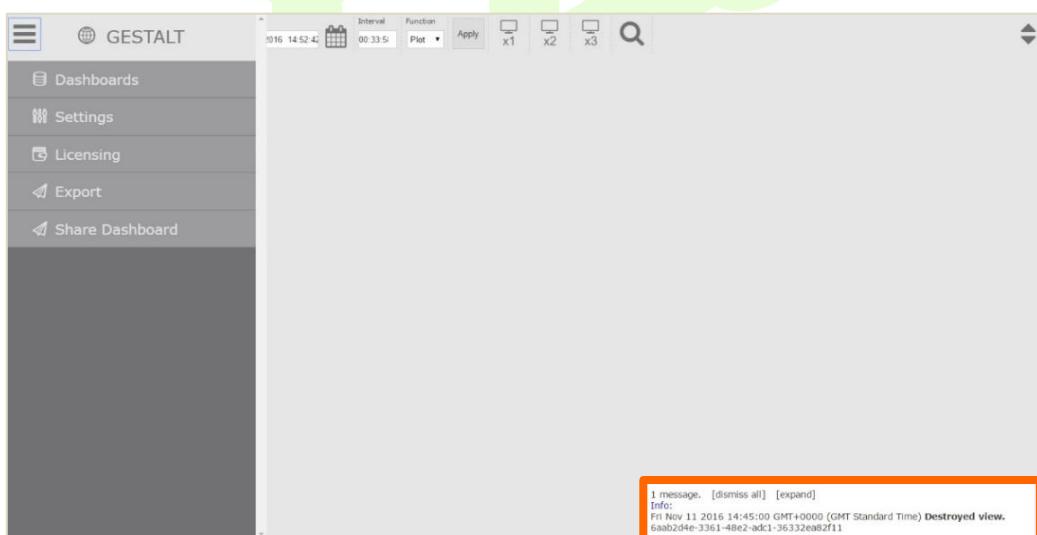


Figure 4-10 Error Message

4.2.3 Playback Speed

Select Playback speed to access Playback Settings.

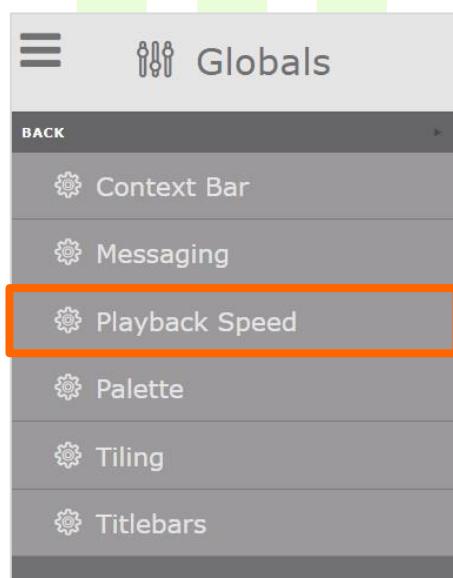


Figure 4-11 Playback Speed

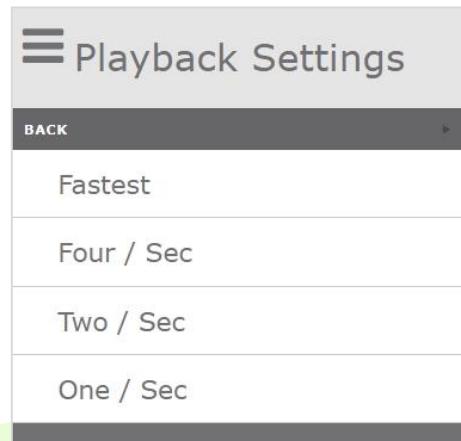


Figure 4-12 Playback Settings

Select the play back time you require.



Figure 4-13 Play Icon

You can now view your tags in your trend moving through time. You can stop this time setting by selecting the Stop icon that appears in the time controls tool bar.

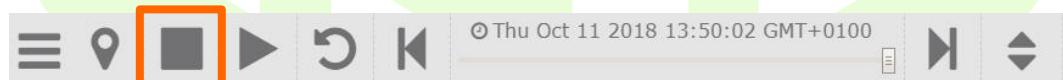


Figure 4-14 Stop Icon

4.2.4 Palette

Select the palette to change the background colour of your workspace.

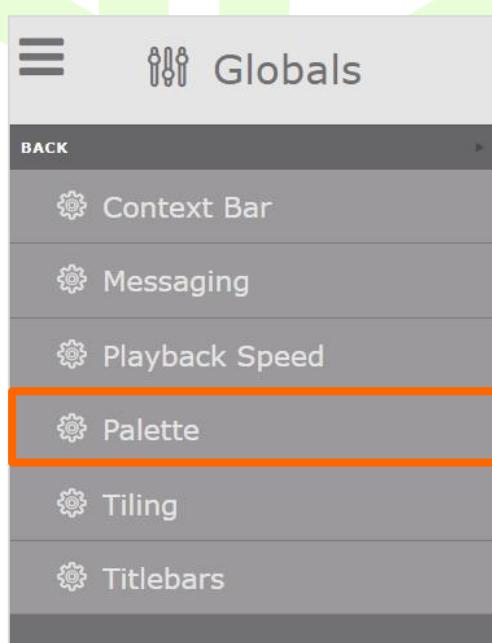


Figure 4-15 Palette



Figure 4-16 Canvas Colour Options

Select an option to have a white or black workspace.

4.2.5 Tiling

Select Tiling to have the option to have your trends tiled or windowed separately within the workspace.

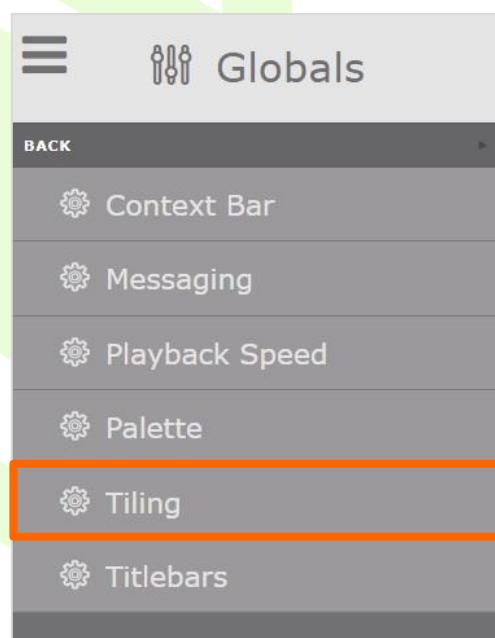


Figure 4-17 Tiling

Selecting the tiled option (default) makes sure no windows overlap. Select Windowed to allow each overview window that is opened to be moved to a custom location within your workspace.

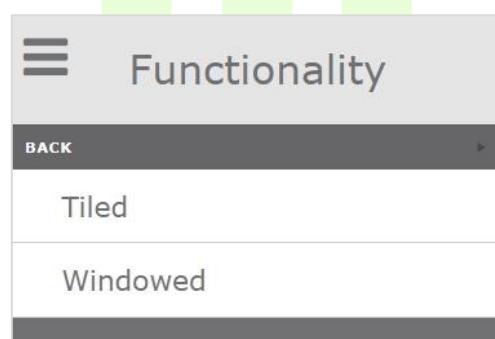


Figure 4-18 Tiling Options

4.2.6 Titlebars

Select Titlebars to allow the option to turn your trend view title on or off. You can also delete a window on the canvas when the On option has been chosen.

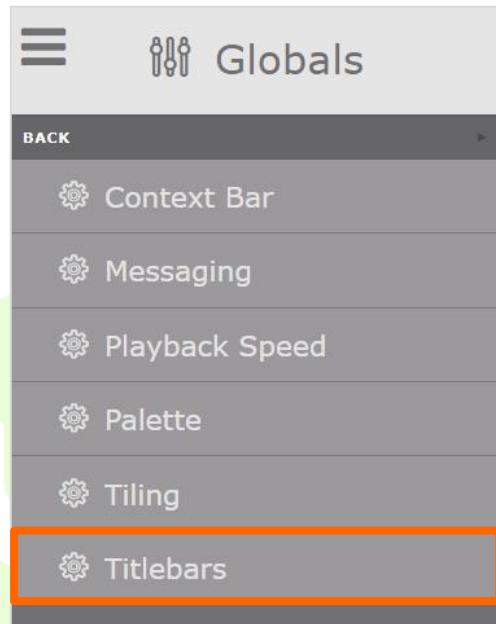


Figure 4-19 Titlebars

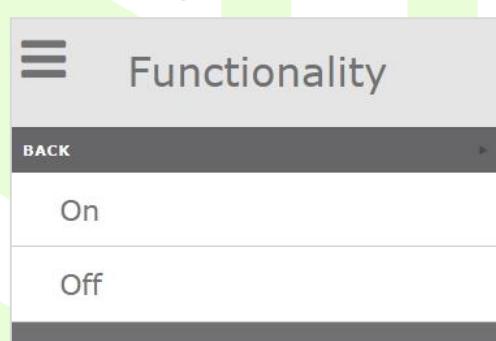


Figure 4-20 Titlebars Options

The example below shows that the titlebar is on. The descriptor in view will be the tag name that appears first in the Available Trends list. If you change the tag name in the Available Trends list or the type of view (Trend, PCP, FFT, Histogram, Limits, XY Scatter, CC Graph, CC Matrix) you will see the new tag and view you have chosen in this area.



Figure 4-21 Titlebars Option – On

The example below shows that the titlebar is off.

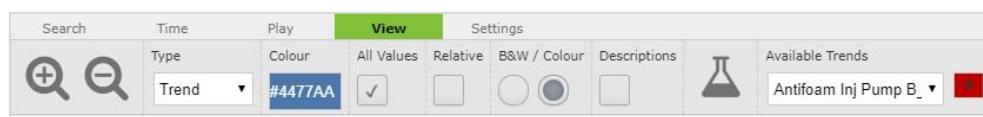


Figure 4-22 Titlebars Option – Off

Note:

The titlebar does not return to a default option when you create a new trend. You have to set this to the state you require.

4.3 Licensing

Select to view your current licence information if you have a standalone version of Gestalt Trend.

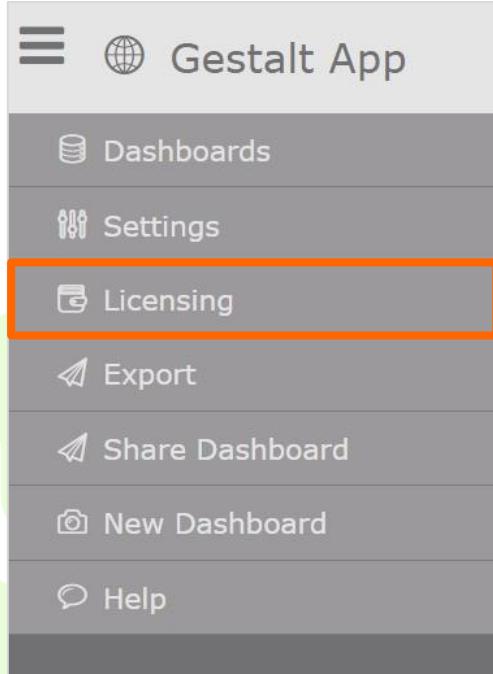
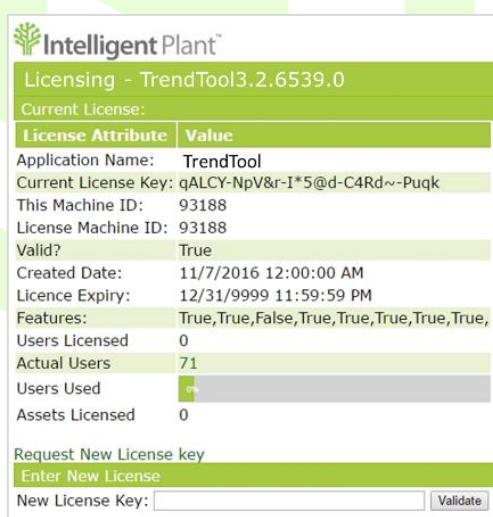


Figure 4-23 Licensing



License Attribute	Value
Application Name:	TrendTool
Current License Key:	qALCY-NpV&r-I*5@d-C4Rd~Puqk
This Machine ID:	93188
License Machine ID:	93188
Valid?	True
Created Date:	11/7/2016 12:00:00 AM
Licence Expiry:	12/31/9999 11:59:59 PM
Features:	True, True, False, True, True, True, True,
Users Licensed	0
Actual Users	71
Users Used	0
Assets Licensed	0

Figure 4-24 Current Licensing Info

4.4 Export

Select Export to download an excel spreadsheet containing the tags from your trend.

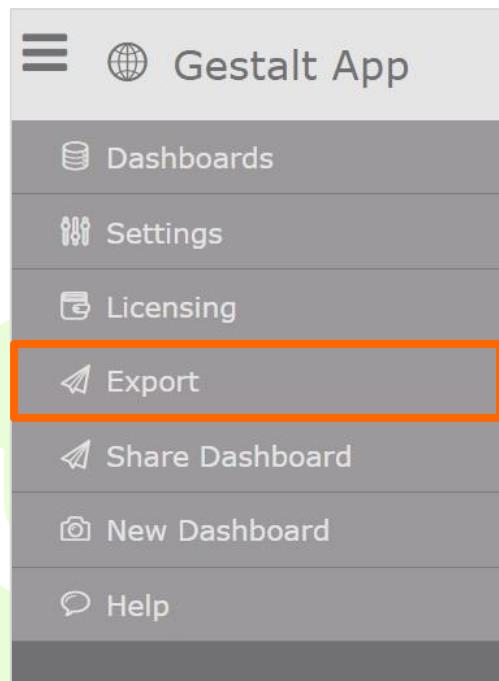


Figure 4-25 Export

4.5 Share a Dashboard or Folder

Allow certain users to view your work. You can share a folder or an individual dashboard.

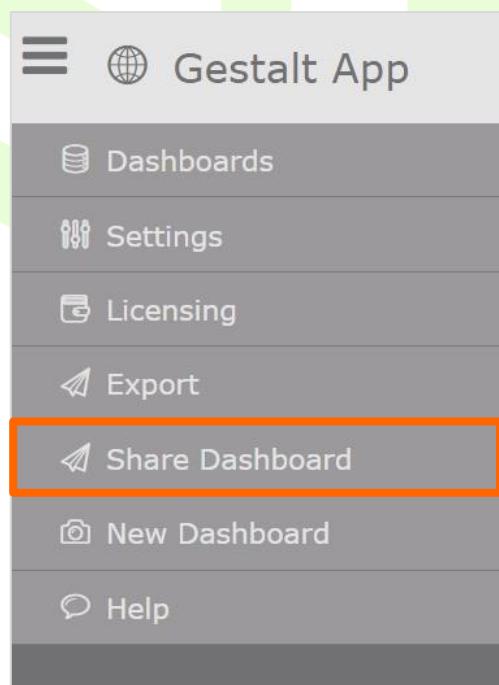


Figure 4-26 Share Dashboard

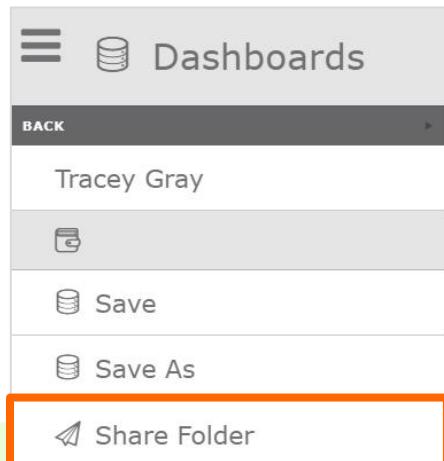


Figure 4-27 Share Folder

Select the user(s) you want to share your dashboard or folder with. Select OK.

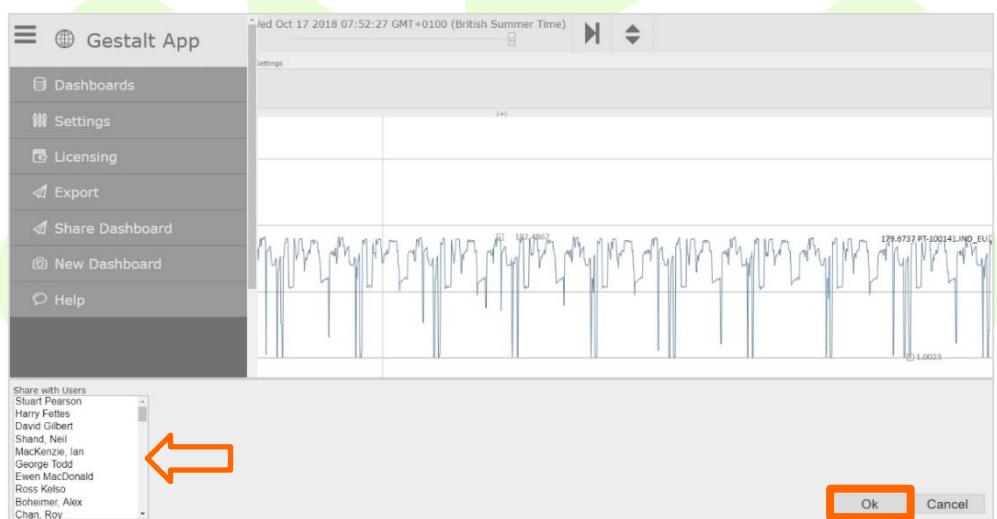


Figure 4-28 Share Options

The user who you are sharing this work with will see a highlighted option in green text in the Left-Side Panel. They should select the green text to accept the shared work. The user now has access to the shared trends.

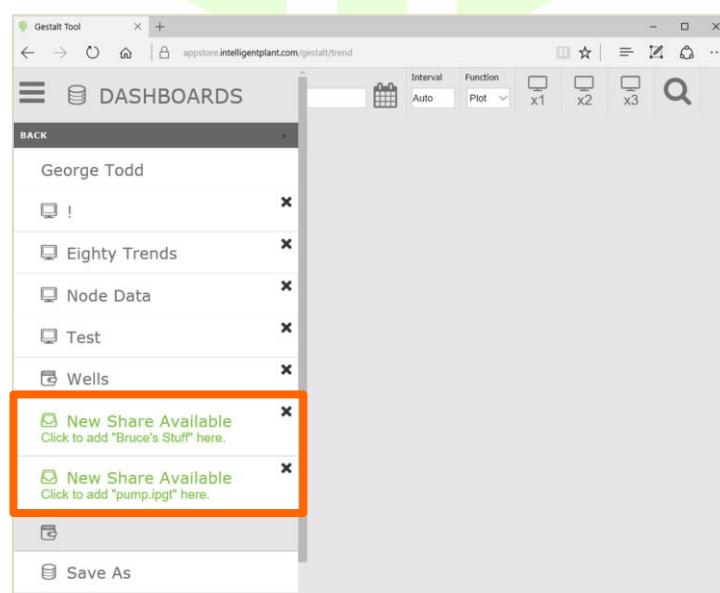


Figure 4-29 Share Options – Click to Accept

5 Creating a Trend

5.1 Set up the workspace

Select x1 icon from the context tool bar.



Figure 5-1 Select x1

Select Trend from the workspace.

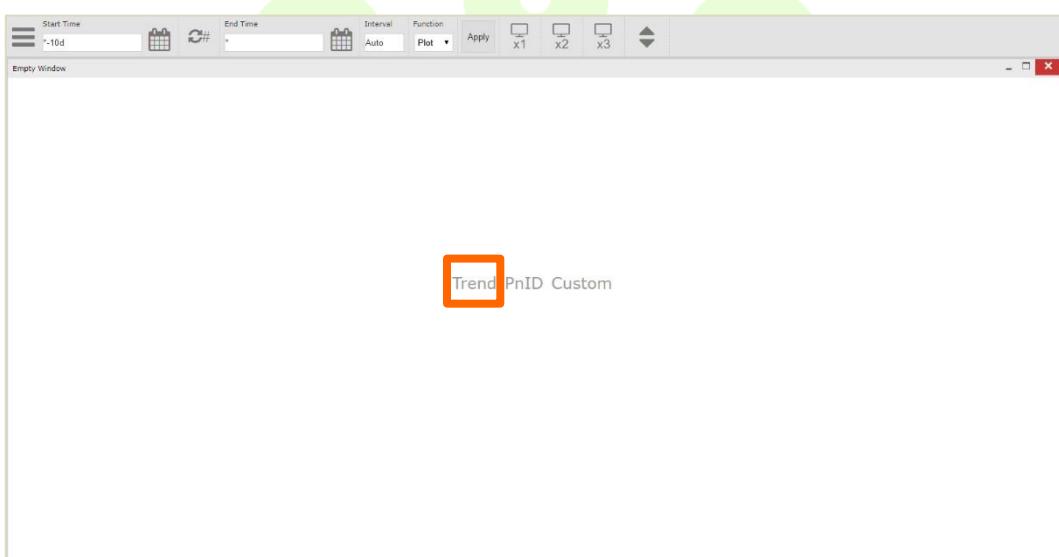


Figure 5-2 Select Trend

5.2 Adding the Data

Select the datasource name from the drop-down menu and the list of tags will appear in view on the Right-Side Panel. If you know the tag name type it into the name area. You can also type in a wildcard to find a list and/or specific tag(s).

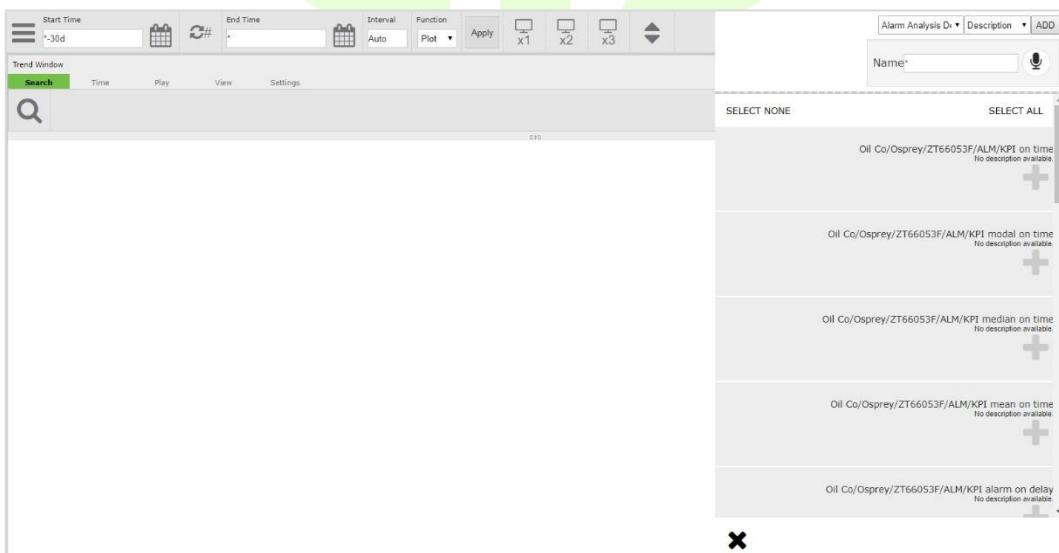


Figure 5-3 Search for Tags

Select + to add the tag to the workspace.

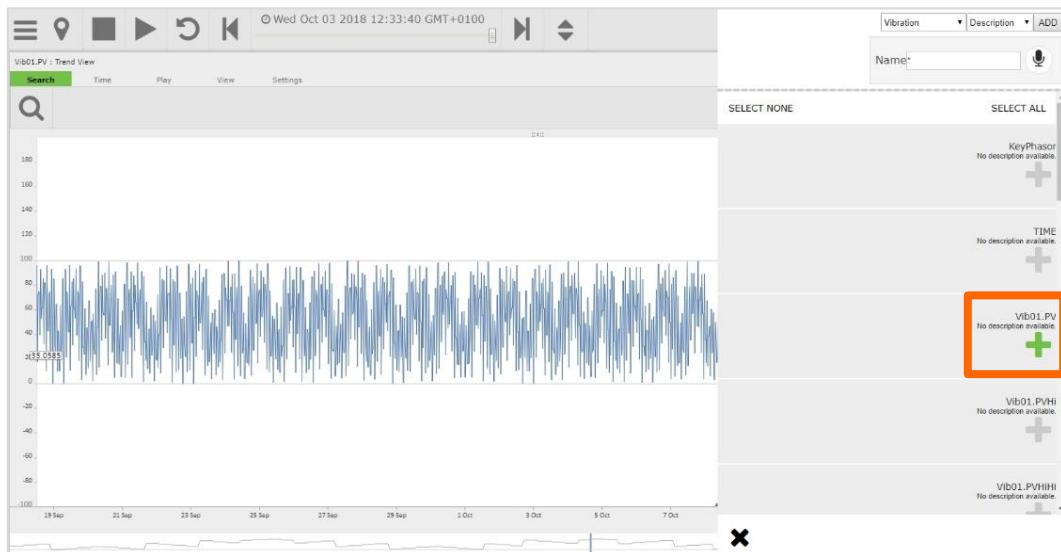


Figure 5-4 Add Tag

You can add any amount of tags to a trend. When the tags are added to the workspace, they may sit on top of each other. To see them individually select the Settings tab and select the Stack checkbox.

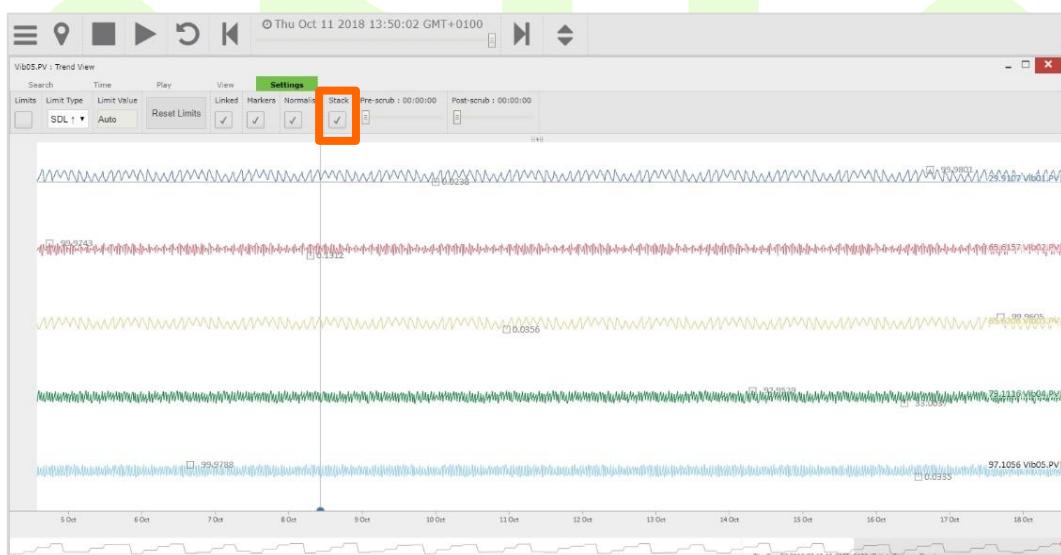


Figure 5-5 Trend Created

5.3 Mouse Tips

Move the scroll wheel forward to make the trend fill your workspace in portrait mode (top to bottom). Move the scroll wheel backwards to see more than one trend in your workspace come closer together. Left click, hold and select an area with your mouse to zoom in to a particular spot in your workspace. Right click to pan right or left, or up and down in your workspace.

Go back to Section 2 (Ctrl+Click)

5.4 X-Axis Zoom

Place your cursor on the x-axis, then using your mouse, scroll forward to zoom into your workspace in landscape mode (right to left). Scroll back to Zoom out.

Go back to Section 2 (Ctrl+Click)

5.5 Preview

At the bottom of the trend view, below the x-axis is the trend preview. You can zoom into another part of your trend out-with your date and time setting. Select anywhere in the preview area to get a close-up view of the data in your workspace. The grey area shows the range that has been selected to be viewed in your workspace.

Note:

The preview area shows the data of the tag that is at the top of the Available Trends list.

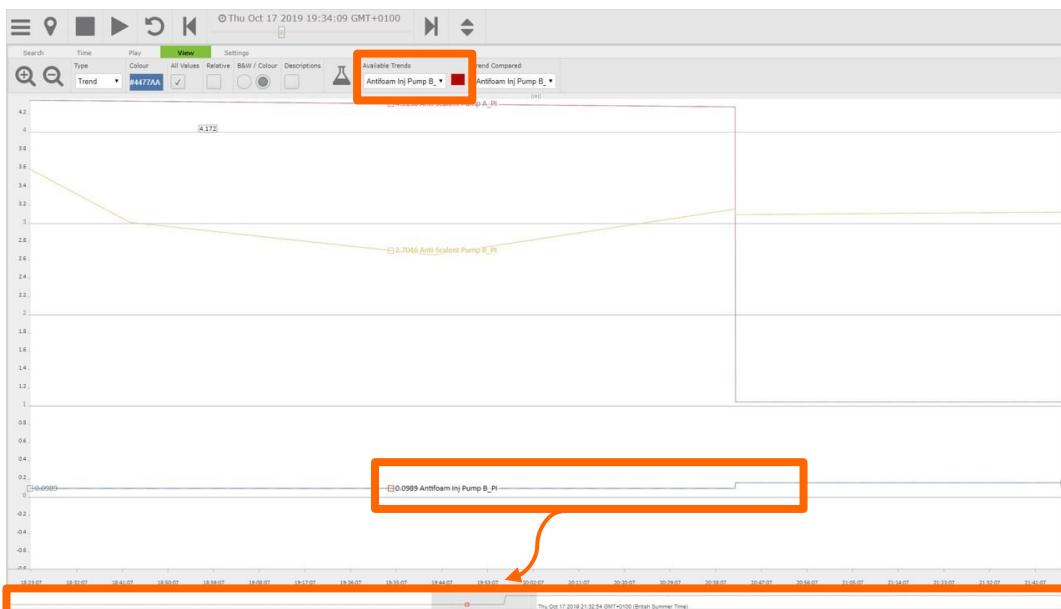


Figure 5-6 Preview Zoom

Go back to Section 2 (Ctrl+Click)

5.6 Tab Options

There are five options to choose from. These are Search, Time, Play, View and Settings.

5.6.1 Search

This is the default setting for tabs when you start to create a trend. At this point no other tab options are in view.

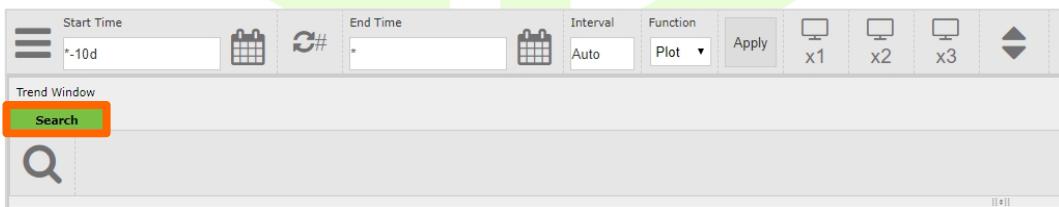


Figure 5-7 Search Tab

Once you have searched for and added a tag the remaining tabs will come into view.

5.6.2 Time

Select the Time tab to set a specific start and end time. Select Apply to confirm the new time setting.

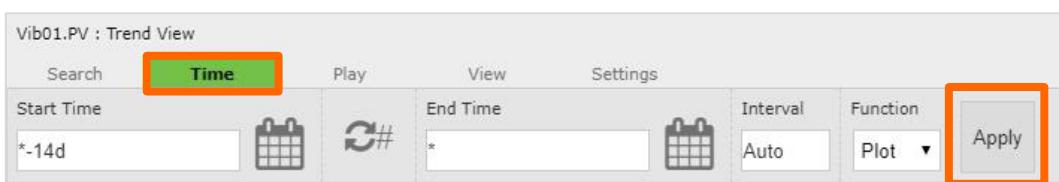


Figure 5-8 Time Tab

5.6.3 Play

Select Play tab then press play to view the red marker moving along your trend.

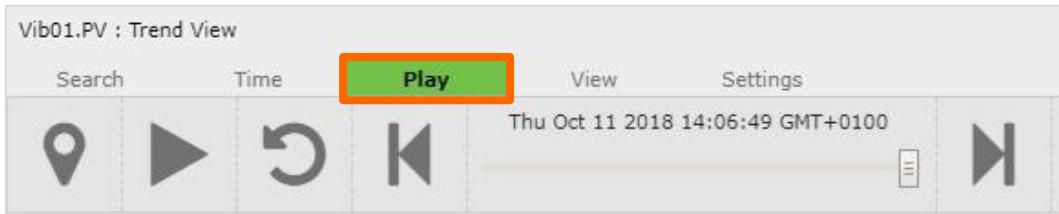


Figure 5-9 Play Tab

5.6.4 View

Select View tab.

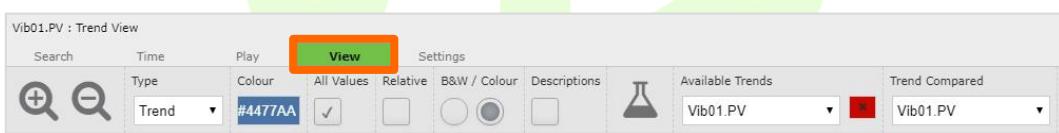


Figure 5-10 View Tab

Here you can choose to zoom in or out of your trend, pick a different view from the drop-down menu. The options are Trend, Parallel Co-ordinate (PCP), Fast Fourier Transform (FFT), Histogram, Limits, XY Scatter, Cross Correlation Graph (CCG), Cross-Correlation Matrix (CCM), Calm Waters (3DCW1 & 3DCW2). To change the colour of your trend data, left click over the colour box and select a new colour from the palette.

Unchecking the All Values box removes certain values that are in view on your trend. Checking the Relative box changes the x-axis view from the time you have set, for example -10 days would change to show the day and month of that time setting.

The B&W/Colour option allows your tags to be shown in black and white or colour. If you select B&W, then the tag that is shown first in the Available Trends will be black and the remaining tags will be greyed out. Checking the Descriptions box will show information relating to the tags if they are available.

Selecting the bottle icon will cause the expression dialogue to appear at the bottom of your screen.

Within the dialogue you can create new trends that are derived from mathematical operations on the existing data in your plot window.

To reference a particular trend, you need to enter the tag name wrapped in square brackets:

[tag name]

This can then be used as variable in the expression. As an example, if you wanted to scale a particular trend by 2, you would do it with the following:

[tag name] * 2

Or if you wanted to calculate the difference between two trends using, you would:

[tag name 1] - [tag name 2]

An expression can contain any number of trends and below is a table detailing all the available operations that can be used in the expression, along with their corresponding notation:

Operation	Notation
Add	+
Minus	-
Multiply	*
Divide	/

Once you have written your formula, you can then give it a name and select Ok. This will then add the computed trend resolved from the expression to the current plot window, which you can select via the Available Trends & Trend Compared drop-downs.

5.6.5 Settings

The Settings tab allows you to add or remove several features in your trend. Choose Limits, Limit Type (drop-down menu), Limit Value, Linked, Markers, Normalise, Stack, Pre-Scrub or Post-Scrub. Select the boxes and see a tick appear or deselect to remove it. To use Pre-Scrub or Post-Scrub you should pick a point on your workspace then move the slider options.

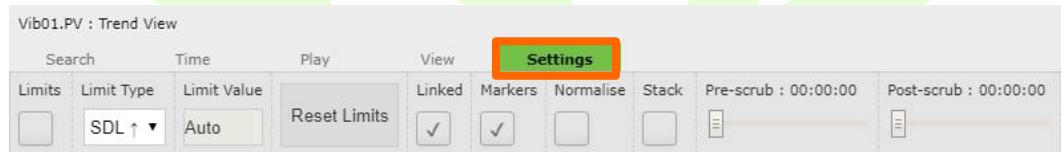


Figure 5-11 Settings Options

Note:

If you have more than one window open in your trend and uncheck the Linked box on one of the windows, any common updates will not follow through to the unlinked trend.

5.6.5.1 Limits

When the Limits option is selected you can see that your trend shows limit indicators (red, yellow and green lines). You can select a Limit Type from a drop-down menu, set a Limit Value or Reset Limits.

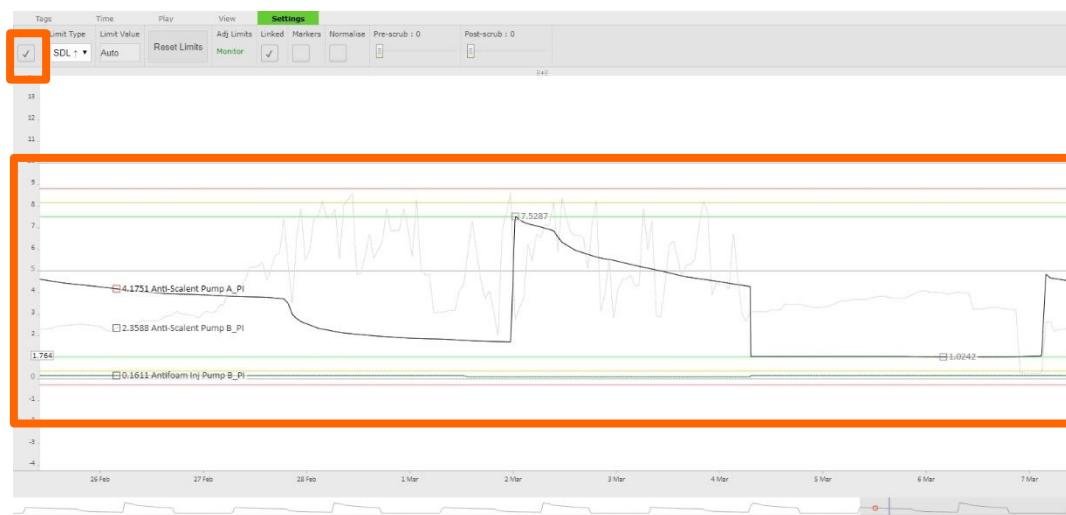


Figure 5-12 Limits Option

Limits can be dragged on the canvas but in order to set the limits for all tags we can swiftly do this with a simple process.

5.6.5.1.1 Setting Limits – An Example

Viewing Limits in a 10-day time period.

Note:

The tag highlighted is the tag that appears at the top of the Available Trends tag list.

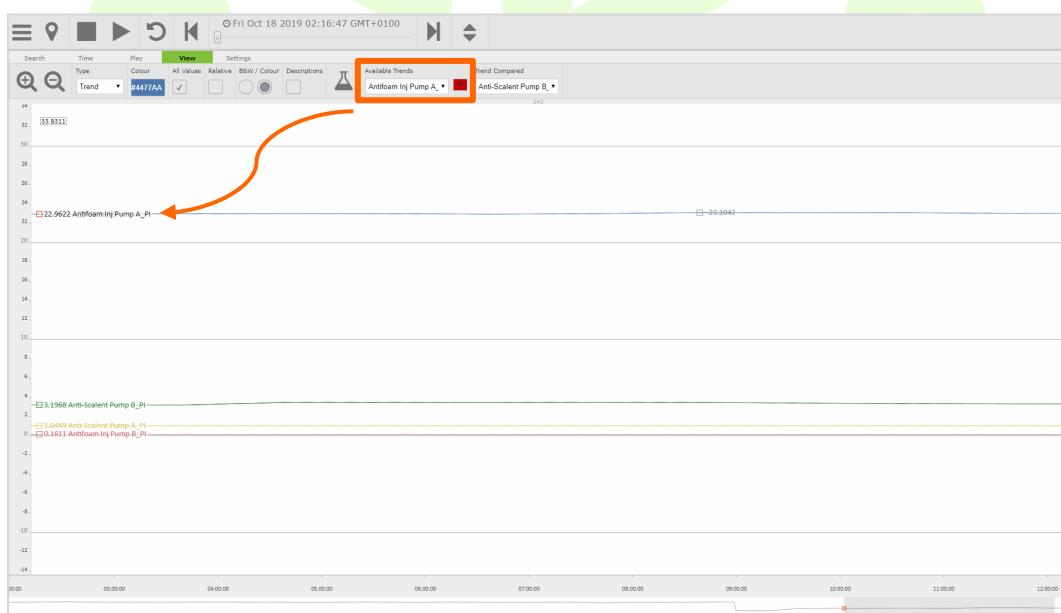


Figure 5-13 Limits – Available Trends

Go to the Settings Tab and select the Limits box. You'll then see the limits appear on the first trend line.

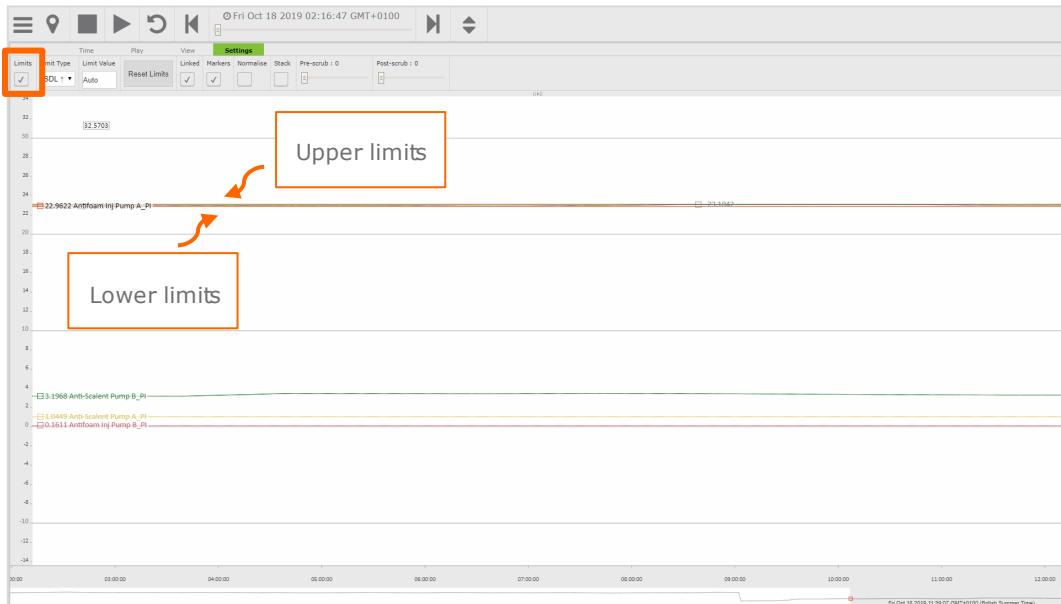


Figure 5-14 Limits Selected – Upper and Lower Limits

Zoom into an area in the data that shows normal operation.

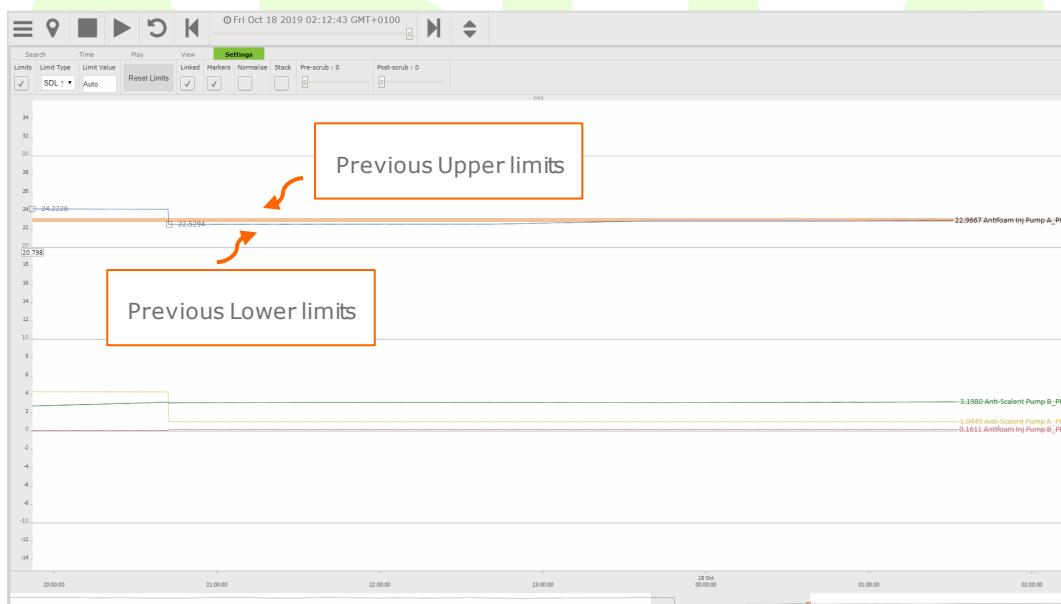


Figure 5-15 Limits – Zoom to an Area

Select Reset Limits

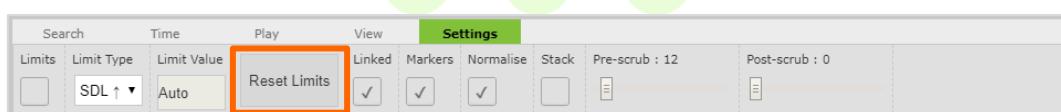


Figure 5-16 Limits – Reset Limits

The limits for all tags in the trend have been set with Normal Operating range that bounds all the existing data in the trend and will highlight any data outside this.

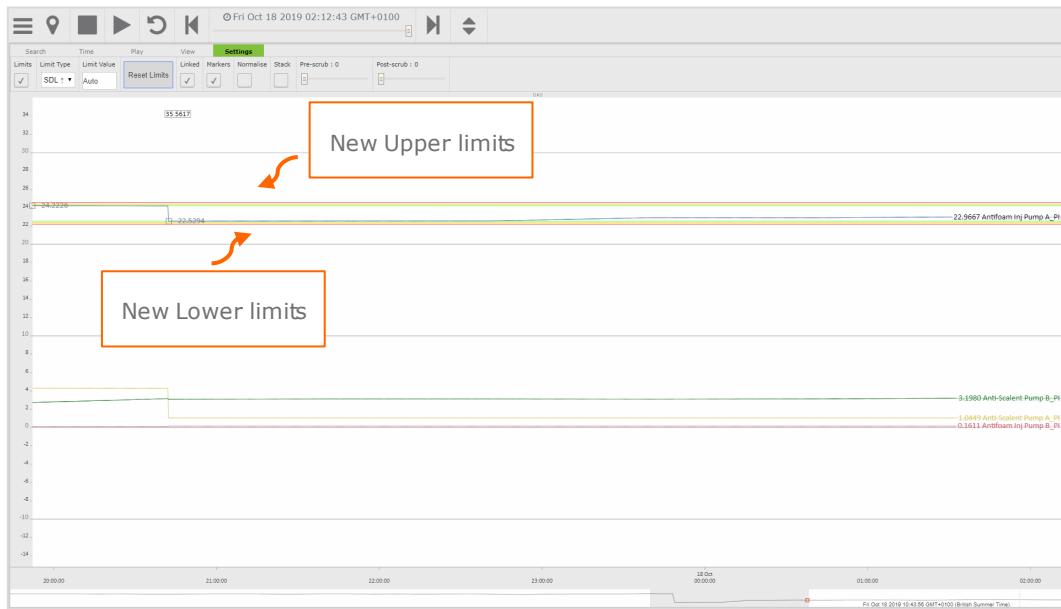


Figure 5-17 Limits – New Limits

5.6.5.1.2 Operating Limits

From the Limit Type drop-down menu, you can select:

- SDL - Safe Design Limits (Upper)
- SOL - Safe Operating Limits (Upper)
- NOL - Normal Operating Limits (Upper)
- NOL - Normal Operating Limits (Lower)
- SOL - Safe Operating Limits (Lower)
- SDL - Safe Design Limits (Lower)

Limits are automatically set to the range of data in your trend. There is normally a 10% deviation from the NOL to the SOL and SDL ranges.

By default, these are the settings below.

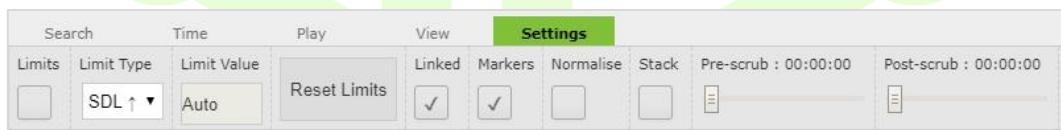


Figure 5-18 Settings – Default Settings

Alter the limits in your view by selecting the Limits check box.

You then see the green, amber and red limits appear within the range of your data.

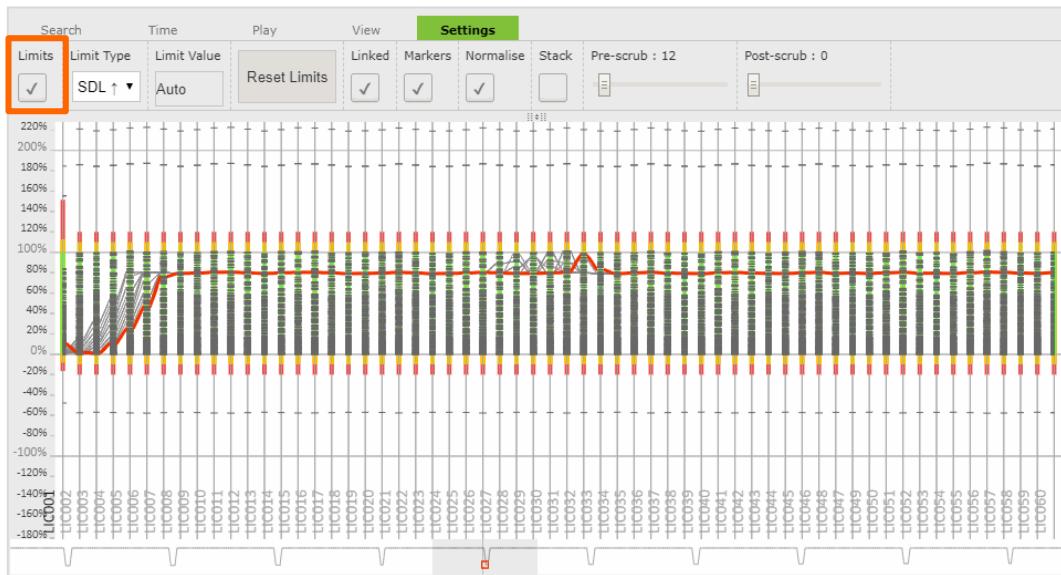


Figure 5-19 Settings – Limits Indication

If you Uncheck the Normalise Box, you can see the Y-Axis shows the Normal Operating Limits (NOL).

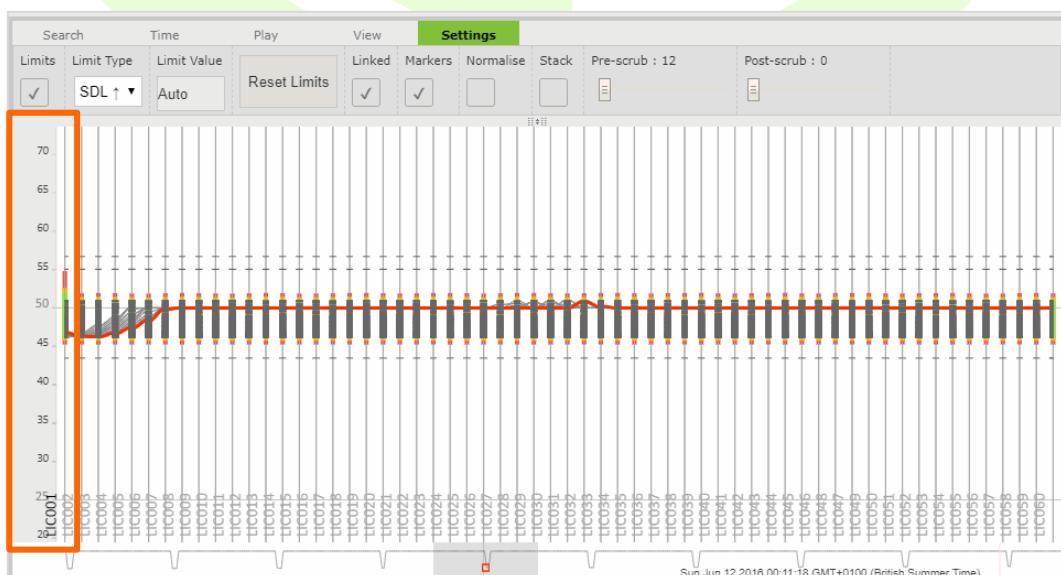


Figure 5-20 Settings – Normalise Unchecked – Y-Axis Updates

To change any of the limit values uncheck/check the Limits box to see the Limits Value area go from greyed out to white. Choose your limit type from the drop-down menu and in the Limits Value area type in the new value for the Limit Type.

To change a Limit Type, select your new option, change Limit Value then press Enter on your keyboard.

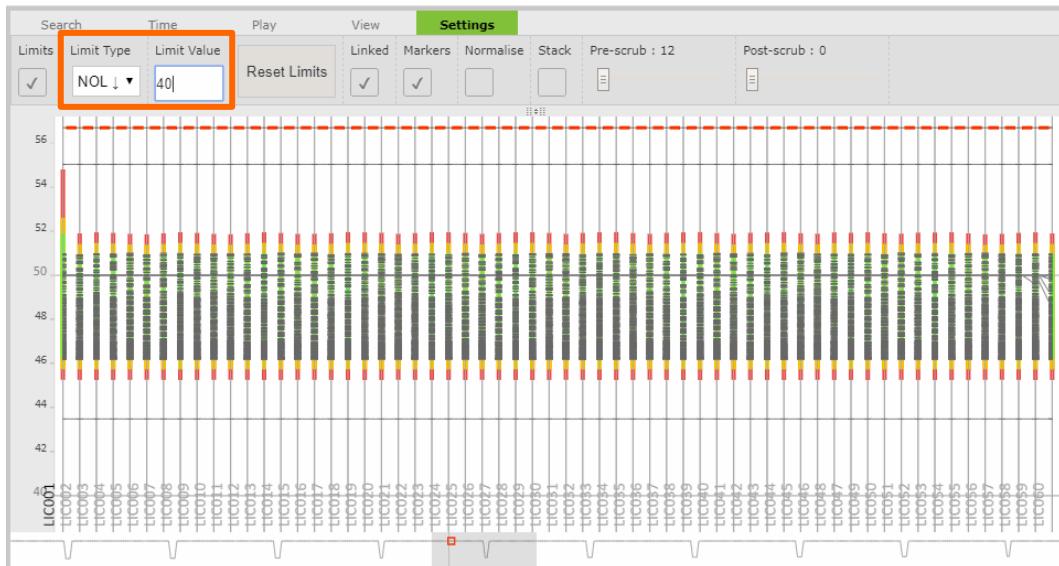


Figure 5-21 Settings – Limit Type & Limit Value

Save the page and refresh the page.

You can then see that the limit value has changed in the view below.

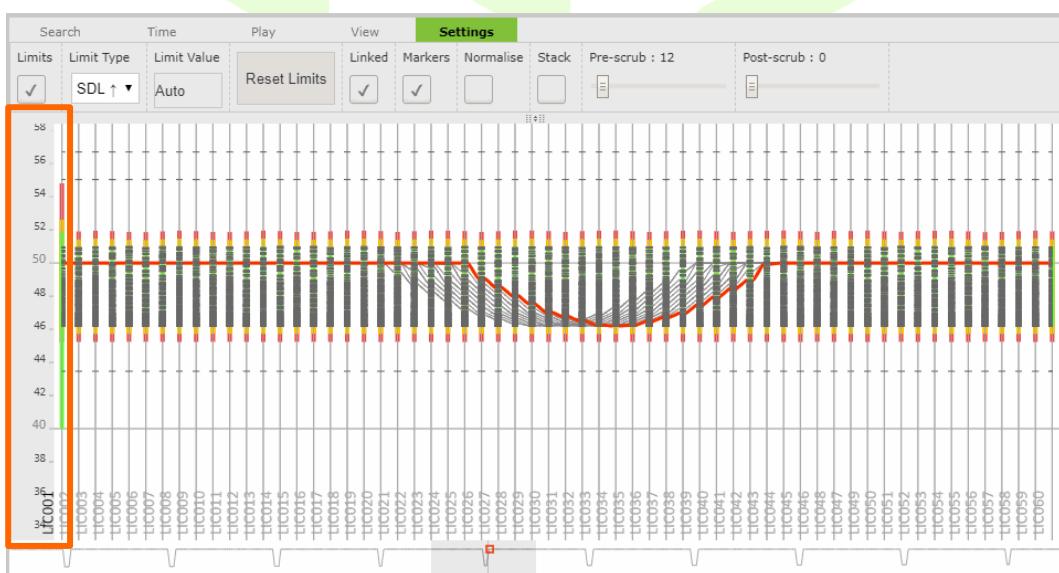


Figure 5-22 Settings – Tag Limits Indicator Updated

Note:

The Limits change only for the tag that is at the top of the Available Trends area. Should you wish to repeat the new limits for another tag, select it from the Available Trends area and it will show at the top of the available trends list of tags.

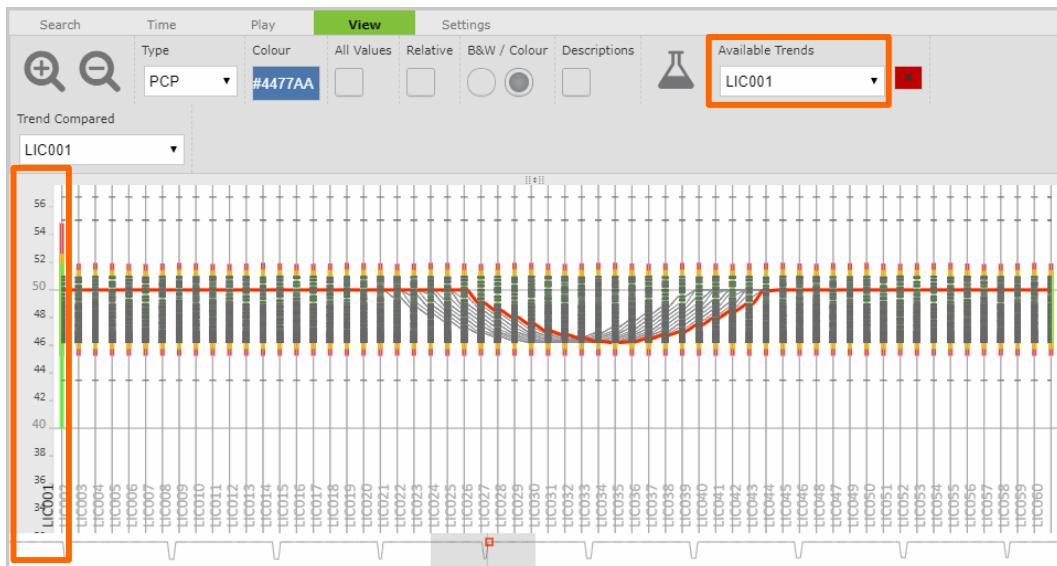


Figure 5-23 Changing Limits for Different Tags

When you re-open a trend if you go to the Settings Tab you will see that the Limit Value always reverts to Auto.

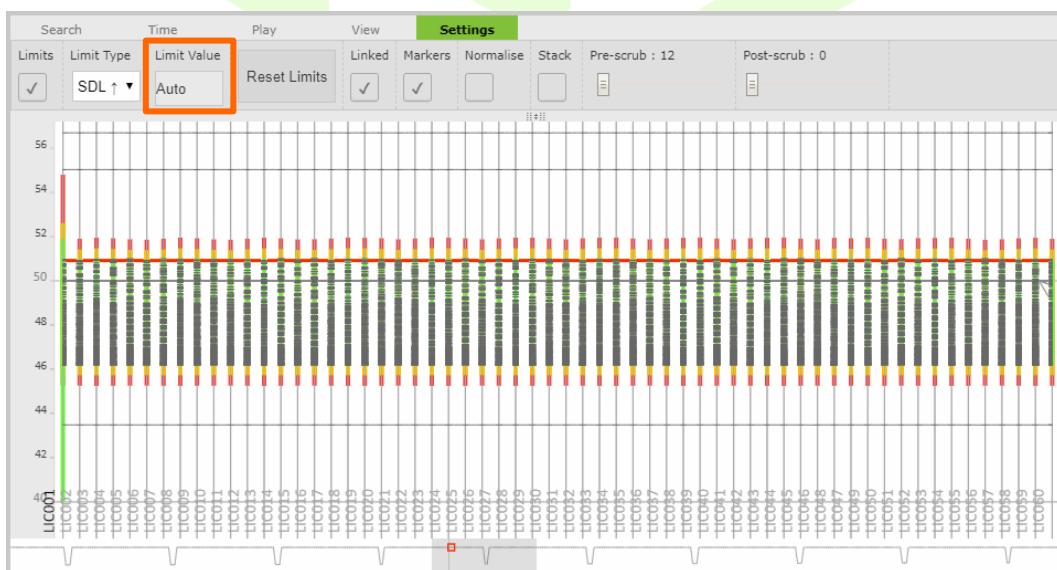


Figure 5-24 Settings – Limit Value Default

Go back to Section 2 (Ctrl+Click)

5.6.5.2 Normalise

When Normalise is selected you can see how the scale changes at the left-hand side of your trend. Selecting the Normalise option changes the scale to a percentage scale.

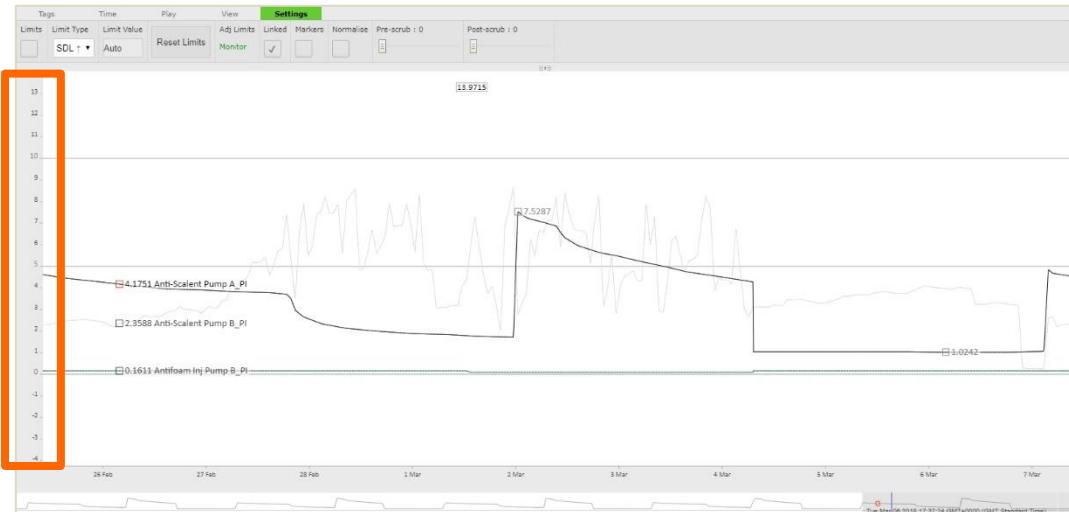


Figure 5-25 Normalise Not Selected

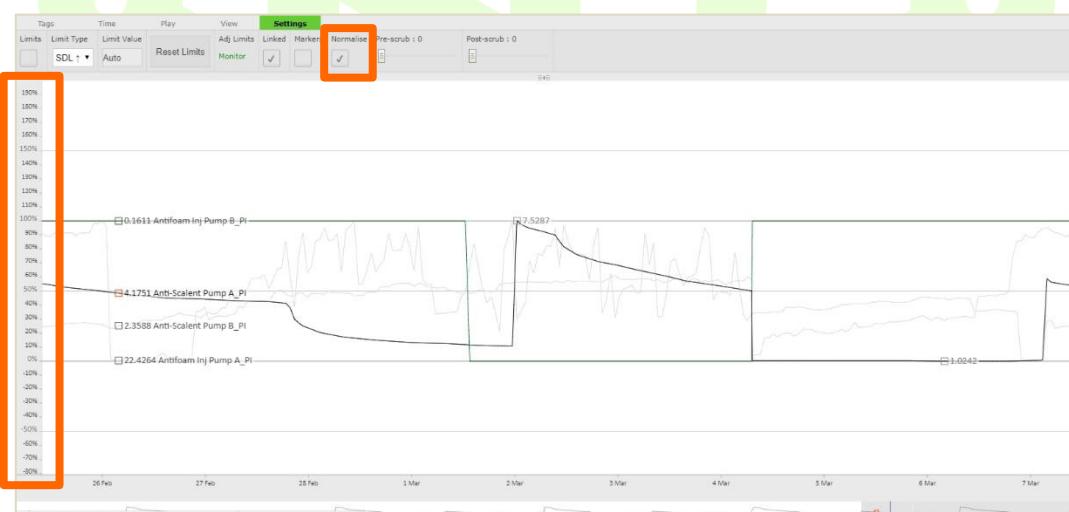


Figure 5-26 Normalise Selected

5.6.5.3 Pre-Scrub & Post-Scrub

You can view before and after a particular area on a trend by using Pre-Scrub or Post-Scrub. Move the sliding scale that appears in the Pre-Scrub and Post-Scrub areas.

On the canvas you can point to an area you may be interested in and go to Pre-Scrub and as you move the sliding scale to the right you will see a grey layer appear to the left of the point chosen.



Figure 5-27 Pre-Scrub Slider to the Right

If you'd like to find out more info to the opposite side of the area already chosen, select the Post-Scrub sliding scale and move to the required area, you will see the grey layer increase in width.

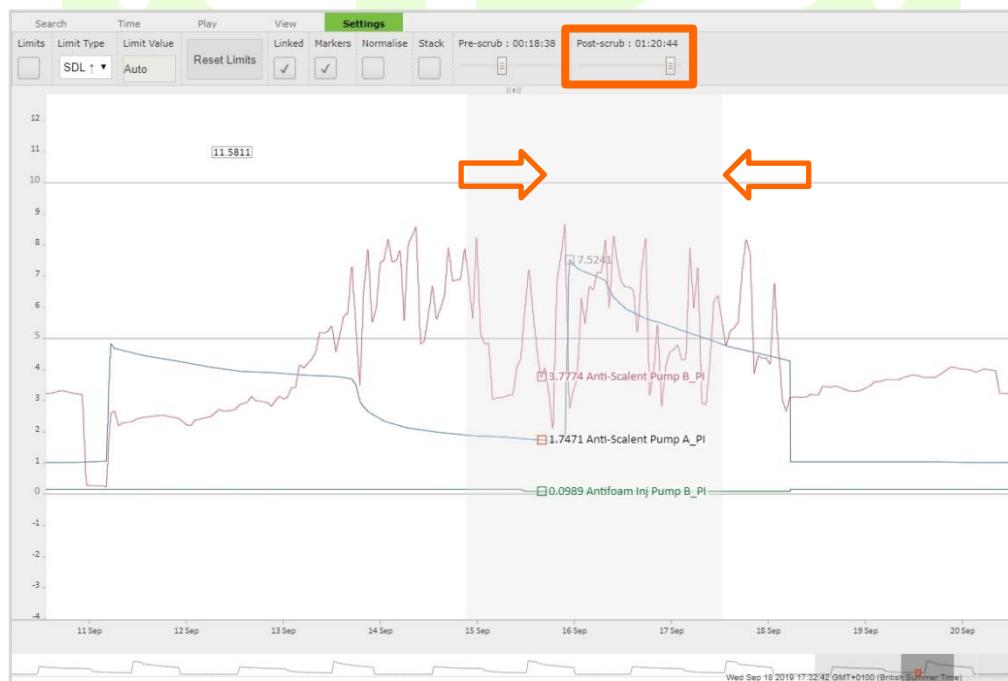


Figure 5-28 Post-Scrub Slider to the Right

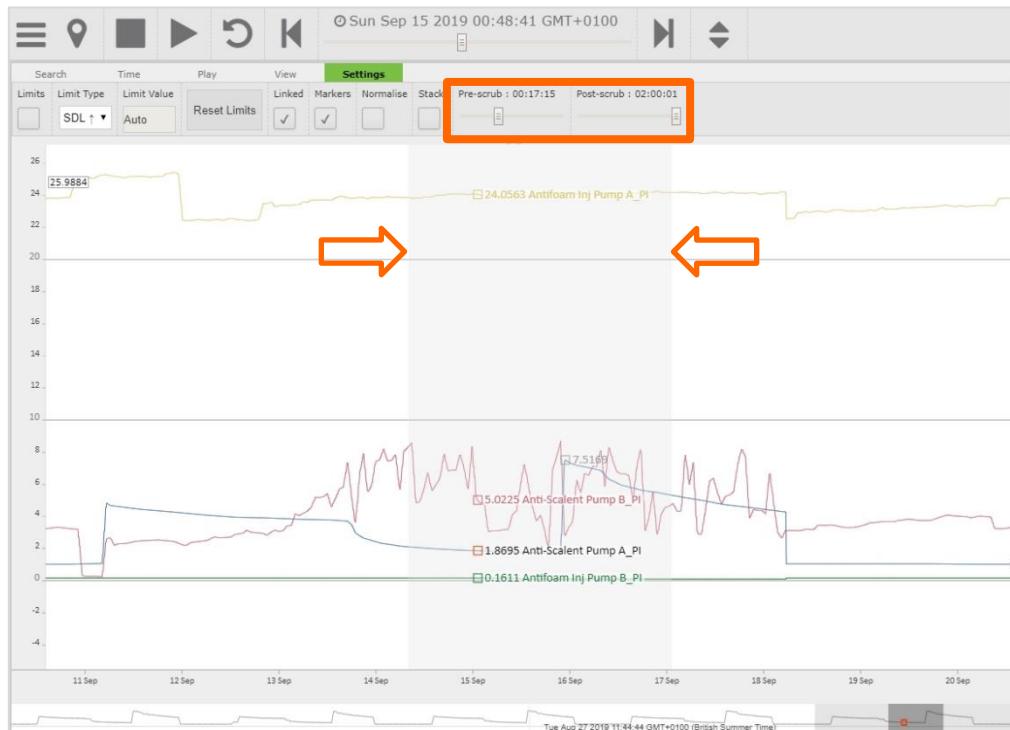


Figure 5-29 Pre-Scrub & Post-Scrub Area

You can view a specific area (Pre-Scrub & Post-Scrub) in a different view type. Go to the View tab . Select XY Scatter from the drop-down menu.

The view now shows the details in XY Scatter mode.

You can change Pre-Scrub & Post-Scrub ranges at any time by going back to the Settings tab and moving the Pre-Scrub & Post-Scrub sliding scales.

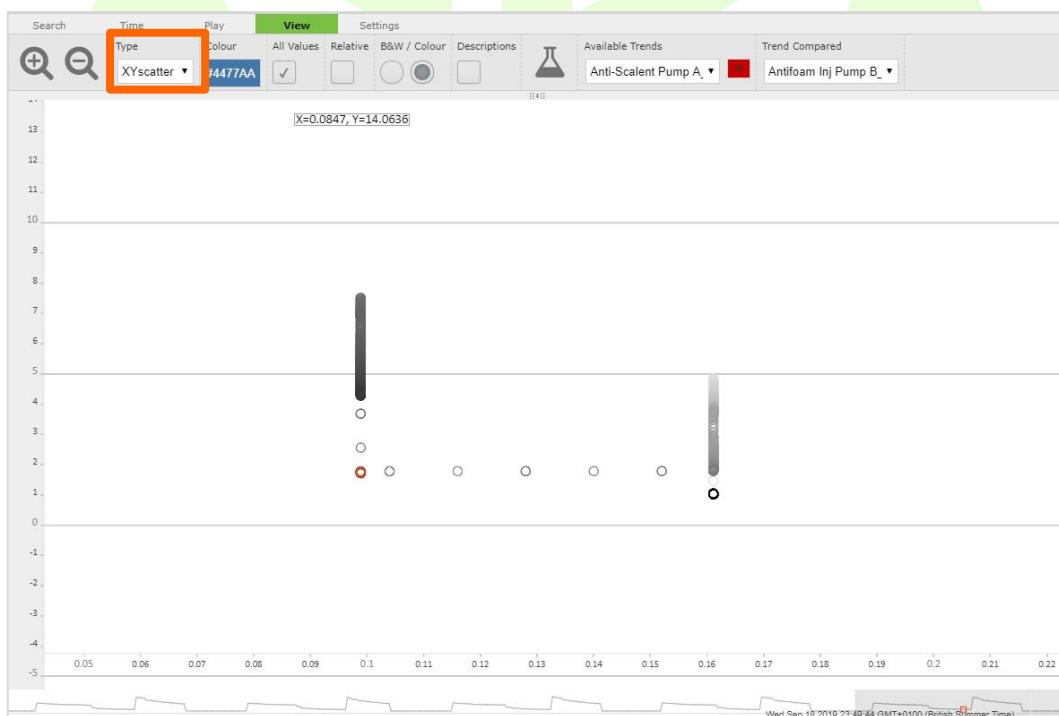


Figure 5-30 Pre-Scrub & Post-Scrub – XY Scatter View

Go back to Section 2 (Ctrl+Click)

6 Examples

The following screenshots show how the same tags are portrayed in the different views available from the view tab and type in Gestalt Trend. Select a different type of view from the drop-down menu.

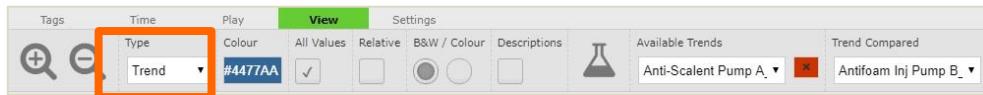


Figure 6-1 View Type

6.1 Trend

To create a simple Trend select the search tab, choose your datasource and search for the tags you require , select the + sign underneath the tag and initially it will turn to yellow then green and will be placed on your workspace.

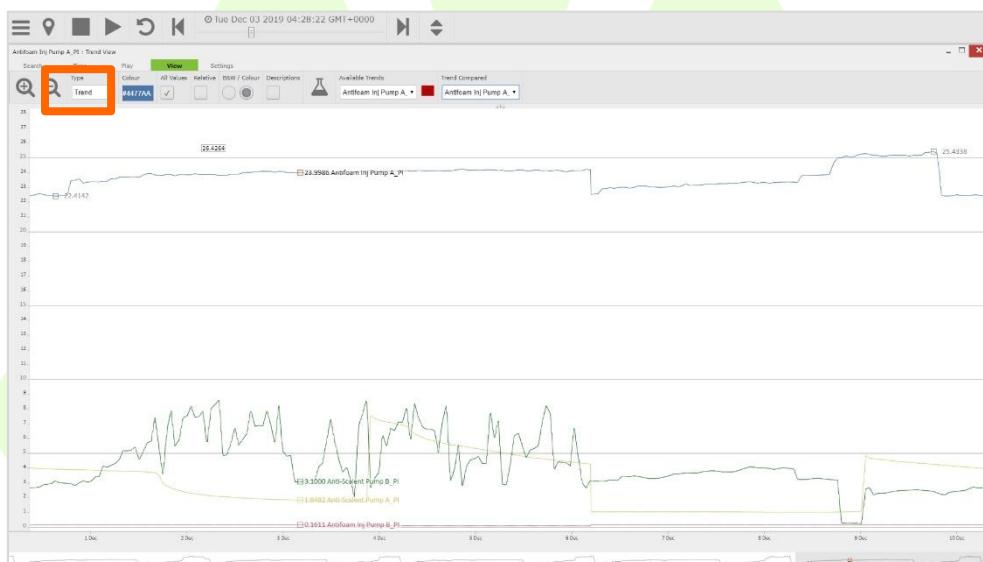


Figure 6-2 Trend

6.2 Parallel Co-ordinate (PCP)

Select type PCP. Note the tag name appearing at the top of the available trends list will appear black on the workspace . All other tags are greyed out. To change tag order, either select the tag you want to appear at the top of the available trends list from the drop-down list or select the actual tag name that appears beside the vertical line. You can also re-order the tags in the workspace, just left click and hold your mouse on a tag name that's near the vertical line and move to another area on the workspace.

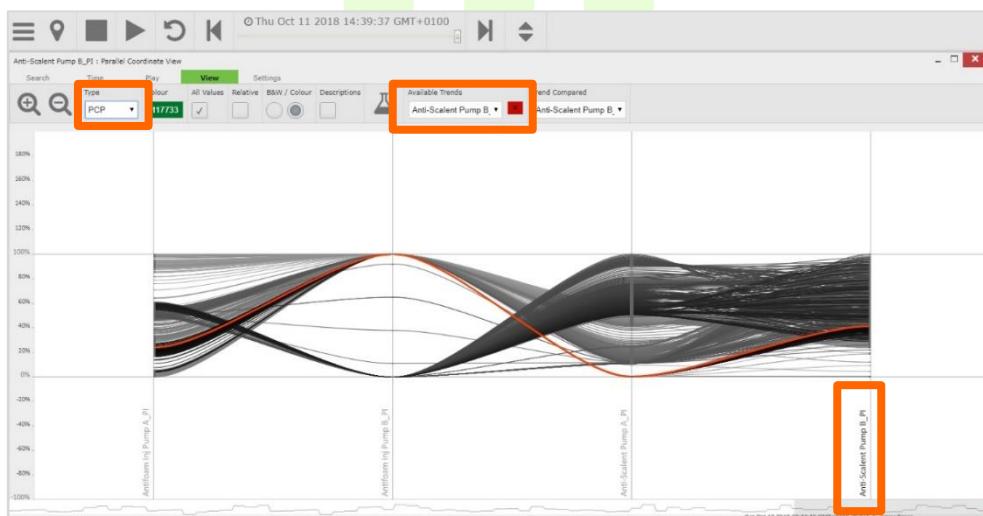


Figure 6-3 Parallel Co-ordinate (PCP)

Go back to Section 2 (Ctrl+Click)

6.3 Fast Fourier Transform (FFT)

This shows frequencies in the data – it can be helpful to find the cause of oscillations in a process by identifying tags that have variations at the same frequency, or to highlight repeating patterns that might not be obvious on a trend.

The x axis on this chart shows the frequencies where the y axis is the amplitude at that frequency. The FFT is always for the full-time range, so playback does not affect the FFT chart.

It may be helpful to use B&W mode (Ctrl+Click) to highlight individual tags on this chart.

The B&W/Colour option allows your tags to be shown in black and white or colour. If you select B&W, then the tag that is shown first in the Available Trends will be black and the remaining tags will be greyed out.

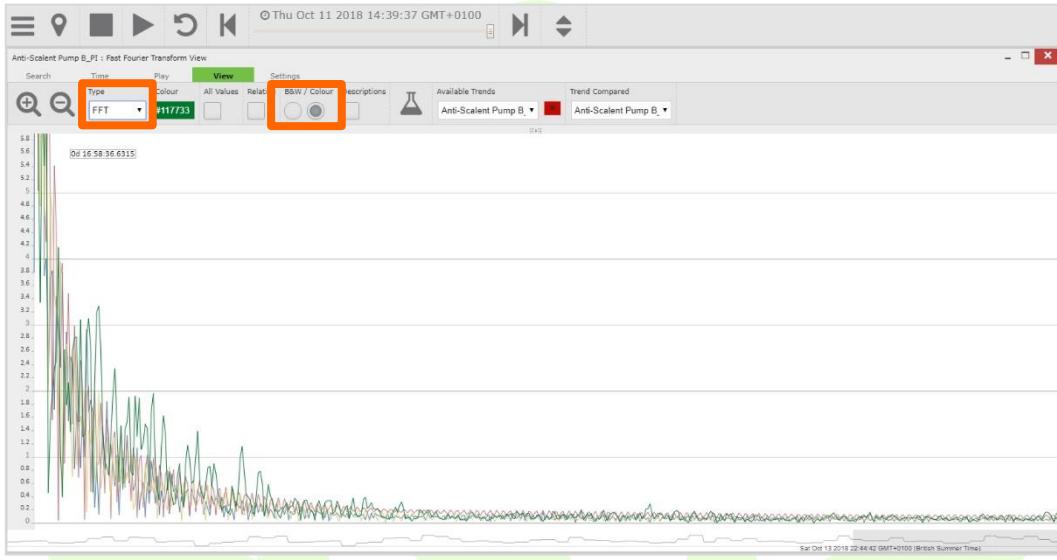


Figure 6-4 Fast Fourier Transform (FFT)

6.4 Histogram

The histogram chart shows the distribution of values for tags – this can help when assessing limits for alerts/alarms.

It may be helpful to use B&W mode (Ctrl+Click) to highlight individual tags on this chart.

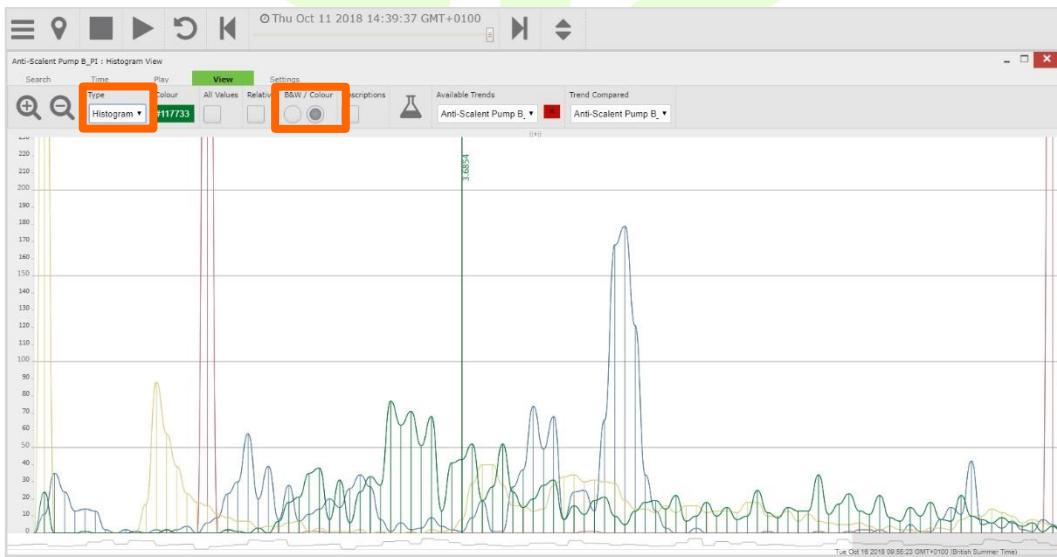


Figure 6-5 Histogram

6.5 Limits

This Limits view allows you to see the limits of all tags in value format.

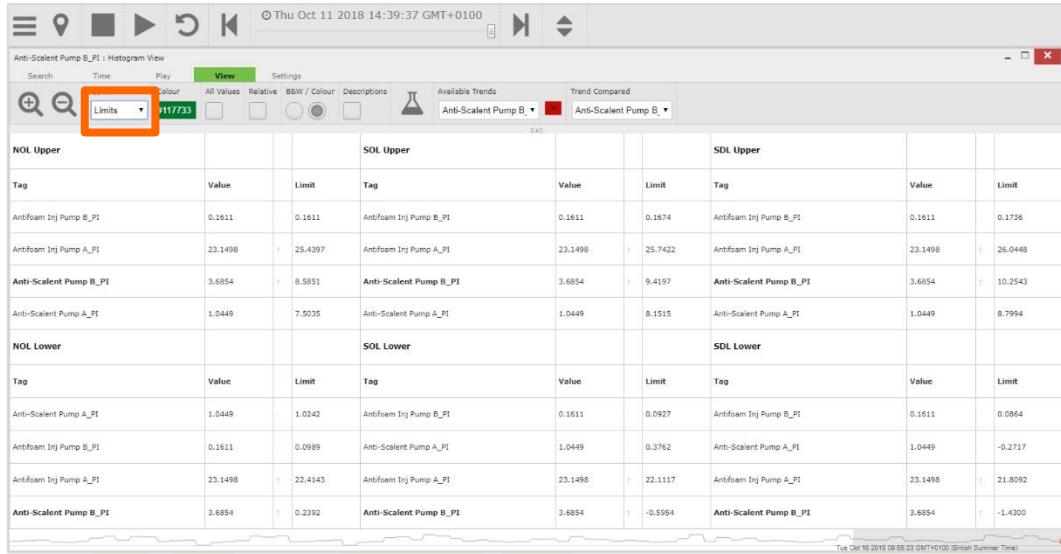


Figure 6-6 Limits

6.6 X-Y Scatter Plot

Equipment performance can often be quickly analysed with an x-y scatter of key variables. Instances of the equipment operating out of spec can be selected, and switching back to a trend view, it can be seen when this happened in time.

In an x-y scatter plot the available trends is the x-axis and trend compared is the y-axis. Again, the order of tags can be changed. You can select any of the circles individually and see that particular one change to red. You can right click your mouse to move the view around your page and use your mouse wheel to zoom into your page.



Figure 6-7 X-Y Scatter Plot

6.7 Cross-Correlation Graph (CCG)

The cross-correlation graph shows how one tag varies in relation to another tag over time. For example, if a pressure takes 2 minutes to affect another pressure, then a peak will be shown at 2 minutes on the scale. Hovering with the mouse shows the time in the tooltip that is at the pointer.

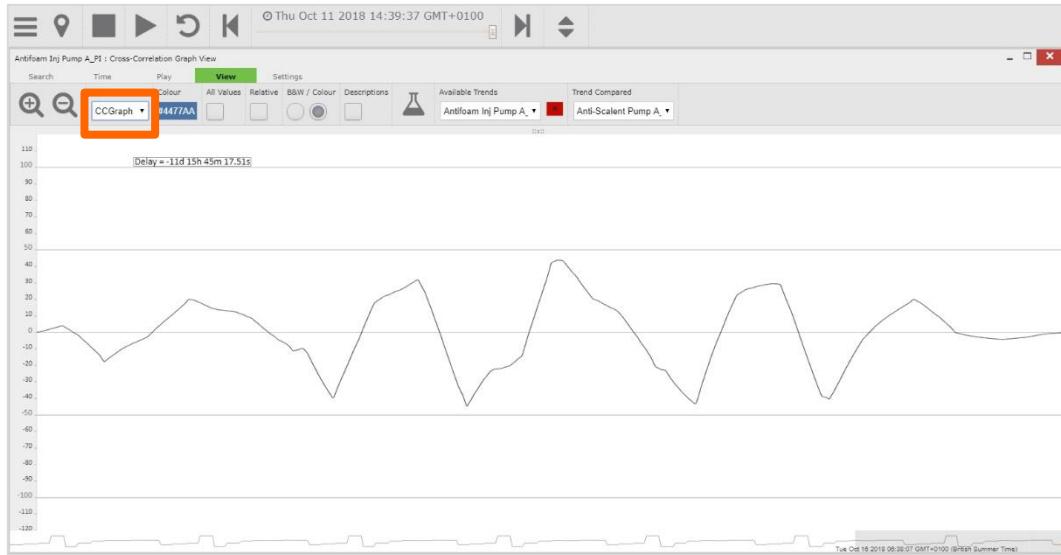


Figure 6-8 Cross-Correlation Graph (CCG)

6.8 Cross-Correlation Matrix (CCM)

This identifies if tags go up and down at the same time, or if one goes down whilst the other goes up (coloured squares). Clicking all values zooms the matrix to fit in the space if it is too large. Clicking on a square selects the two tags and shows the cross-correlation graph – you can then navigate to an XY scatter plot of the tags for confirmation.



Figure 6-9 Cross-Correlation Matrix (CCM)

6.9 Calm Waters (3DCW1)

Calm waters is a way of showing deviations from normal, for hundreds of points simultaneously.

In this view moving the mouse wheel forward and back moves the view vertically. Left click the mouse and hold to see the view rotate clock wise and anti-clock wise. Right click the mouse and hold to see a particular view move slowly up and down vertically. Note that you can set the tag order in a PCP view and it will be applied to the calm waters view.

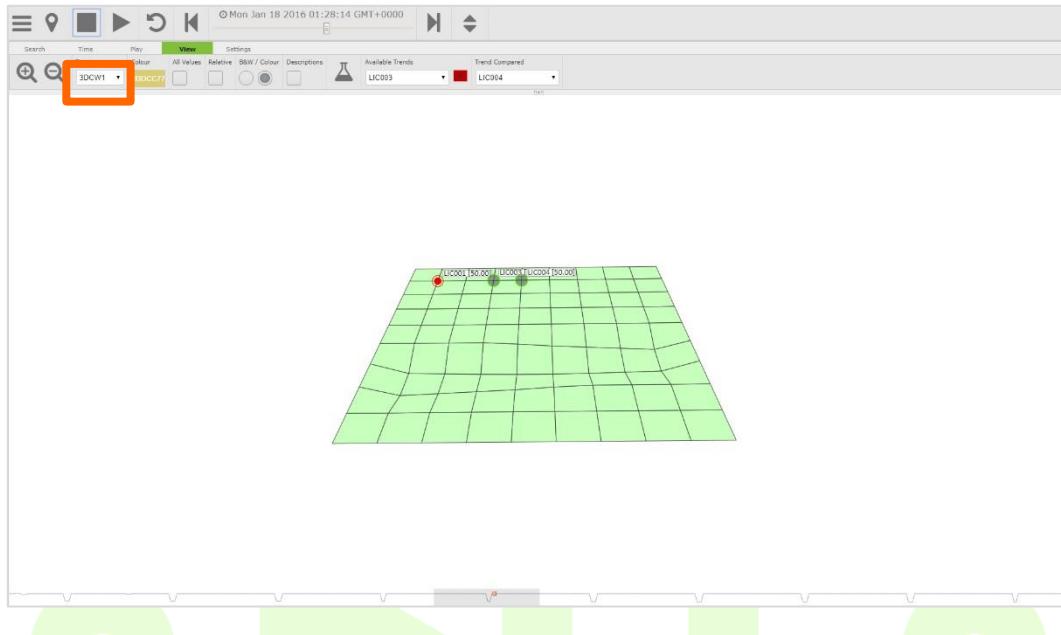


Figure 6-10 Calm Waters (3DCW1)

6.10 Calm Waters (3DCW2)

A different option that follows the same steps as above.

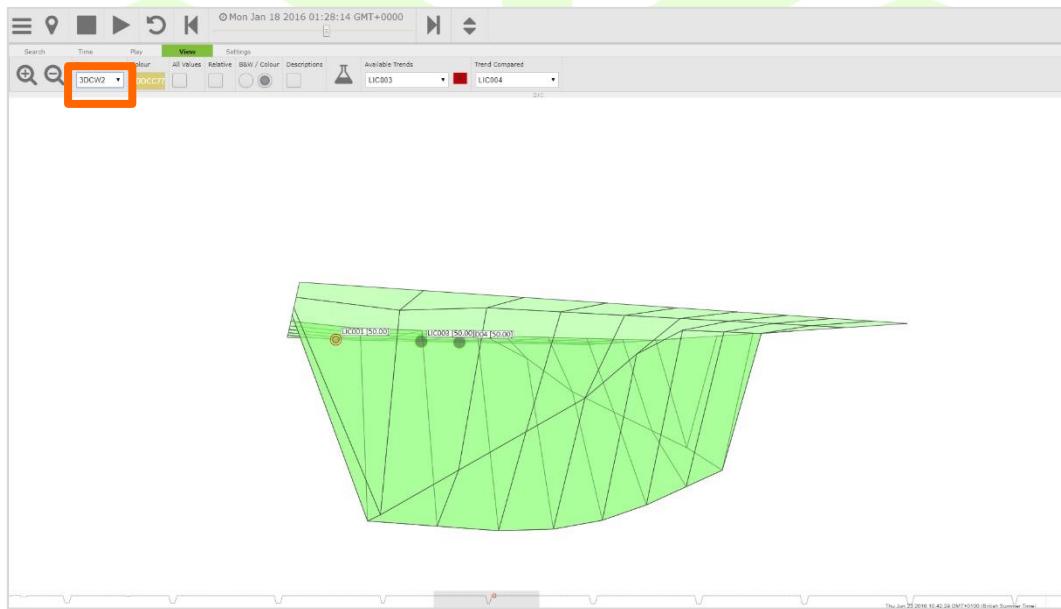
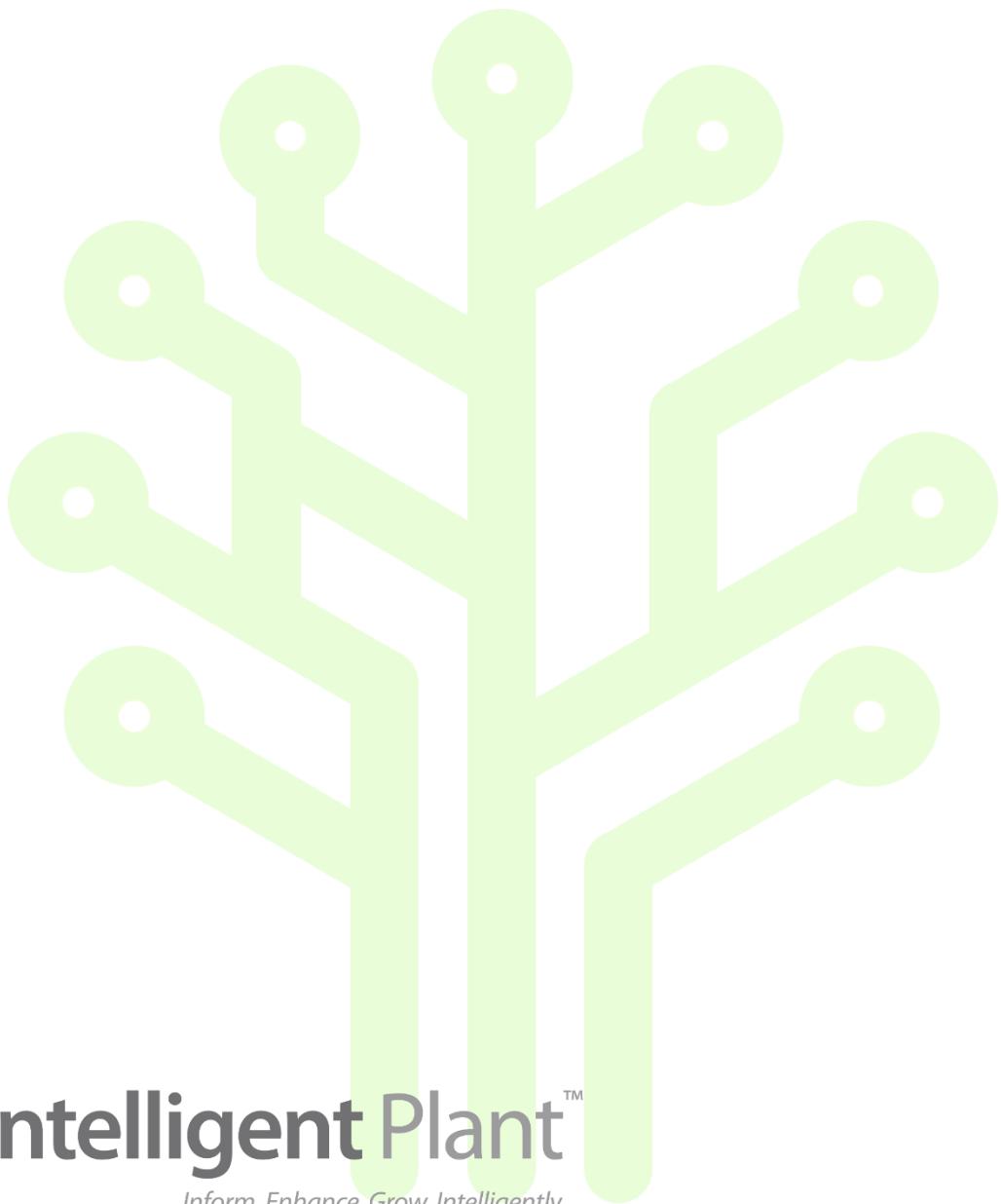


Figure 6-11 Calm Waters (3DCW2)

Go back to Section 2 (Ctrl+Click)



 **Intelligent Plant**™

Inform, Enhance, Grow. Intelligently.

Intelligent Plant Ltd

First Floor

489 Union Street

Aberdeen

AB11 6AZ