



# 4Sight2 V1.5.0

Calibration Management Software

User Manual 123M3138 Revision D



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# Preface

## Safety



THE 4SIGHT2 SOFTWARE FEATURES REAL-TIME CALIBRATION CAPABILITIES, AND CAN BE USED TO CONTROL PRESSURE AND TEMPERATURE INSTRUMENTATION. WORKING WITH PRESSURE AND TEMPERATURE INSTRUMENTATION AND EQUIPMENT IS POTENTIALLY HAZARDOUS.



Before you use the 4Sight2 Software, make sure that you read and understand all relevant safety guidelines and procedures. This includes all applicable local safety procedures, the instructions for the equipment you are using with this software, and this publication.



Before you start an operation or procedure in this publication, make sure that you have the necessary skills required by your organisation (if necessary, with qualifications from an approved training establishment).



Before you start an operation or procedure ensure that you have read and understood any safety instructions for connected equipment.



Where pressure is being applied, ensure all fittings and pipework are correctly rated and serviceable.



Where pressure is being applied, wear appropriate PPE and comply with all local procedures and regulations. Examine all equipment for damage before use. Replace all damaged equipment. Do not use damaged equipment.



Automated calibrations should be performed only after manually confirming the state of the pressure or temperature controller and the correct connection of any sensor.



Loss of communication or other erroneous termination of procedure may result in residual pressure being trapped in the system or temperature calibrators remaining at a high/low temperature. This must be vented/reset manually before recommencing.



Turn off the source pressure(s) and carefully vent the pressure lines before disconnecting or connecting the pressure lines. Do not rely on 4Sight2 software for indication of system pressure or temperature, use local indication. Proceed with care.



Only use equipment with the correct pressure and temperature ratings.



FAILURE TO FOLLOW ALL APPLICABLE SAFETY PROCEDURES AND GUIDELINES MAY RESULT IN DAMAGE TO PROPERTY OR SERIOUS PERSONAL INJURY (INCLUDING DEATH).

## Trademarks

All product names are trademarks of their respective companies.

Microsoft, Excel, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

## Software Purpose

The 4Sight2 Calibration software is a web based calibration management tool that helps you maintain and control your calibration environment to the highest standards of metrology. You can use the software for these tasks:

- Manage the calibration of all the measurement devices for a specified business location
- Setup a schedule of calibration work for technicians
- Upload and download data to and from the Druck portable calibrators (DPI620 Genii, DPI611 and DPI612) that have a USB communication function
- Manage the calibration records for devices that are not supported by a portable calibrator (Manual Data Entry)
- Inspect your calibration history records. You can also make a permanent record of each calibration certificate. For example: For ISO 9000 quality control procedures.
- Control automated calibrations using Druck Pressure Controllers (PACE 1000, 5000 & 6000), Portable Calibrators (DPI620 Genii, DPI611 and DPI612) and Temperature Calibrators (DryTC165, DryTC 650, LiquidTC165 & LiquidTC255)

The 4Sight2 Calibration software has been developed and tested with Google Chrome, Microsoft Edge and Firefox.

The 4Sight2 Calibration software is recommended for use with the following Portable Calibrator, Pressure Controller and Temperature Calibrator firmware minimum versions.

<b>Device Name</b>	<b>Application</b>	<b>Operating System</b>	<b>Device Name</b>	<b>Application</b>	<b>Operating System</b>
DPI611/DPI612	V3.01.31	V2.04.00	DryTC 165	-	-
DPI620 Genii	V3.18.47	V2.06.00	DryTC 650	-	-
DPI620 Genii-IS	V3.18.47	V1.05.00	LiquidTC 165	-	-
PACE 6000	V02.03.10	-	LiquidTC 255	-	-
PACE 5000	V03.03.05	-			
PACE 1000	V01.12.03	-			

# Glossary

Calibration	The comparison of an instrument's performance to a standard of known accuracy. The objective of calibration is to ensure that an instrument's output properly corresponds to its applied input.
Calibration History	The historical record of which instruments range you calibrated using the portable calibrators or manual
Calibration Point or Test Point	The specific calibration requirement for each asset. For example, a three-point check at 20%, 50%, and 75% calibrations points of an input range.
Data Sheet	A data sheet provides a template to specify the input and output values and to enter As Found and As Left values.
Direction	The referential direction (that is, increasing or decreasing) of the specified calibration point in the calibration process.
DUT	Device Under Test. The asset being calibrated.
Desired Output	The output you want to attain for a given input (for example, 0 psi input = 4 mA output).
Hysteresis	The difference between a switch's set and reset points.
Input	The process variable applied to the DUT.
Input Range	The upper and lower input values between which you calibrate an asset. Input Lower Range value is the minimum specified input value. Input Upper Range value is the maximum specified input value.
Instruments	Devices used to monitor and control plant processes (for example, gauges, transmitters, and switches).
Location	The Locations lets you track locations for assets and organize these locations into logical hierarchical systems or network systems. Using hierarchies or systems of locations and specifying the location for assets on the asset record provides the groundwork for gathering and tracking valuable information on the history of an asset, including its performance at specific sites, as it is moved from location to location. With locations organized into systems, you can quickly find a location using search option, and identify the asset at that location.
No Adjustment Made	No Adjustment Made means if all As Found values are within the acceptable user specified tolerance, the technician can select the No Adjustment Made in the portable or manual calibration.
Nominal Input	The user specified input value for each calibration point

Output	The DUT's translation of the input. For example, A pressure transmitter translates or converts pressure (in Bar, mBar, psi etc.,) to electrical signal (in mA, Volts, mV etc.,)
Output Range	The upper and lower output values between which you calibrate an asset. Output Lower Range value is the minimum specified output value. Output Upper Range value is the maximum output value.
Process Units	Define the engineering units used for calibration
Nominal value	The application calculated value based on input values for each calibration or test point. The range on nominal value might be limited to the input lower range value and input upper range value in certain cases.
Vent Rate	Vent rate is defined as the rate at which controller releases the Pressure.
Settling time	Settling time is defined as, when the controller reaches the input test point, software will wait for the settling time to expire before collecting the results from output unit.
In Limits time	In Limits time is defined as, when the controller reaches the input test point, software will wait until a set point reached event is received from the controller before collecting results.
Slew rate	Slew rate is the rate at which controller increases the input pressure to reach the set test points. It is expressed in bar/sec.
Generate 0	Generate 0 is the method you use to return the controller to its zero level.

## Table of Contents

Preface .....	i
Safety .....	i
Trademarks .....	ii
Software Purpose .....	ii
Glossary.....	iv
1. Getting Started.....	1
1.1 System Access .....	1
1.2 Language Support .....	2
1.3 Successful Login .....	2
1.4 Changing Password .....	2
1.5 Sign Out .....	2
2. Application Navigation.....	3
2.1 4Sight2 Menu .....	3
2.2 Context Browser .....	3
3. System Management.....	5
3.1 Update Assets .....	5
3.2 Database .....	8
3.3 Reports .....	9
3.4 License .....	10
3.5 Global Policies .....	11
4. Resources.....	13
4.1 Users .....	13
4.2 Groups .....	14
4.3 Permission Sets .....	15
5. Assets.....	18
5.1 Create Plant .....	18
5.2 Create Location and Sub-Locations .....	19
5.3 Create Tag .....	19
5.4 Create Device .....	19
5.5 Create Range .....	20
5.6 Copying and Pasting Asset Information .....	22
5.7 Move Asset Information .....	22
5.8 Edit .....	22
5.9 Delete .....	23
5.10 Bin Location .....	23
6. Routines.....	24
6.1 Creating Routines .....	24
6.2 Viewing Routine Details .....	24
6.3 Editing Routines .....	24
6.4 Deleting Routines .....	24
6.5 Linking a Procedure to a Routine .....	25
6.6 Linking Routine to an Asset .....	25
7. Procedures.....	26
7.1 Create Procedures .....	26
7.2 Updating Procedures .....	26
7.3 Deleting Procedure .....	27
8. Test Equipment .....	28
8.1 Creating Test Equipment - Manually .....	29
8.2 Creating Test Equipment - Automatically .....	29
8.3 View Test Equipment .....	30

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8.4	Move Test Equipment .....	31
8.5	Edit Test Equipment .....	32
8.6	Delete Equipment .....	32
9.	Linking Documents .....	33
9.1	Linking a New Document .....	33
9.2	Linking an Existing Document .....	33
10.	Custom Views .....	34
10.1	Switching Views .....	34
10.2	Manage Views .....	34
10.3	Export Data .....	35
11.	KPI Dashboard.....	36
11.1	OVERALL ASSET HEALTH KPI .....	36
11.2	AVAILABLE EQUIPMENT KPI .....	37
12.	Performing a Calibration.....	38
12.1	Assigning a Range to Technician and Approver .....	38
12.2	Work List .....	38
12.3	Performing an Adhoc calibration .....	39
12.4	Technician .....	39
13.	Portable Calibration.....	41
13.1	Technician .....	41
13.2	During Calibration .....	43
13.3	Receiving from Calibrator .....	43
13.4	Completing Calibration .....	43
13.5	Calibration Approval (Approver) .....	44
14.	Manual Calibration.....	46
14.1	Technician .....	46
14.2	Calibration Approval .....	47
15.	Automated Calibration .....	48
15.1	Warnings .....	48
15.2	Prerequisites .....	49
15.3	Setup .....	49
15.4	Controller Options .....	50
15.5	Set Environment .....	52
15.6	AsFound/AsLeft .....	53
16.	Calibration Results and Reports.....	57
16.1	Viewing Past Calibration Results .....	57
16.2	Generating Calibration Reports .....	57
17.	Frequently Asked Questions (FAQs) .....	58
17.1	License Management .....	58
17.2	Asset Management .....	58
17.3	Device Connectivity .....	60
17.4	Calibration Management .....	60
17.5	User Management .....	60
17.6	Login behavior .....	61
17.7	Uncertainties .....	61
18.	Troubleshooting.....	63

# 1. Getting Started

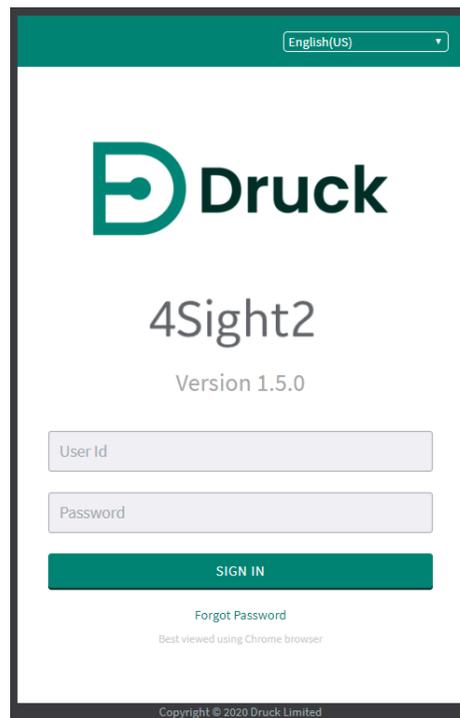
## 1.1 System Access

Upon successful installation of 4Sight2 application by following the instructions in installation manual, you can navigate to the login page from your Chrome browser using the URL provided to you:

For Example: `http://Computer Name or IPAddress:Port Number/4sight2`

or

If you are using the server machine where 4Sight2 is installed, use the 4Sight2 desktop icon.



Add the given URL to your favourites list for quicker future access.

Use the User Id and Password that was specified during installation process for the initial login.

An SSL certificate may be added to the 4Sight2 application to enable HTTPS access. Please see the Installation Manual for further details.

If the User Id or Password entered is wrong or the administrator has not set the user to an active status, the following warning message will be displayed – “Access Denied. Possibly Invalid credentials. Contact your 4Sight2 Application Administrator”.

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## 1.2 Language Support

4Sight2 supports the following languages:

- English
- Italian
- German
- Dutch
- Korean
- French
- Portuguese (European)
- Portuguese (Brazilian)
- Chinese
- Chinese Simplified
- Spanish
- Japanese (Hiragana)
- Japanese (Katakana)
- Japanese (Kanji)

To switch the languages being used by 4Sight2, from the log in screen in the top right corner select the desired language from the languages dropdown.

## 1.3 Successful Login

On successful login as an administrator, you have access to all the functionalities of 4Sight2. You can create Groups, Permission Sets, Users and update Global Policies.

There can be more than one user with admin privileges. We recommend an additional user with administrator privileges is created at this point. This is to ensure that there are a minimum of two active users with administrator privileges in the system.

## 1.4 Changing Password

1. Click the User Id in the top right of the screen and select **Change Password** to display the **Change Password** page.
2. Enter the **Old Password**, **New Password**, and then re-enter the new password into **Confirm Password** box.
3. Click **Update** to change the existing password.

## 1.5 Sign Out

Click the User Id in the top right of the screen and select **Sign Out** to log out from the 4Sight2 application.

## 2. Application Navigation

This section helps you to understand the 4Sight2 menu items, screen structure and navigation.

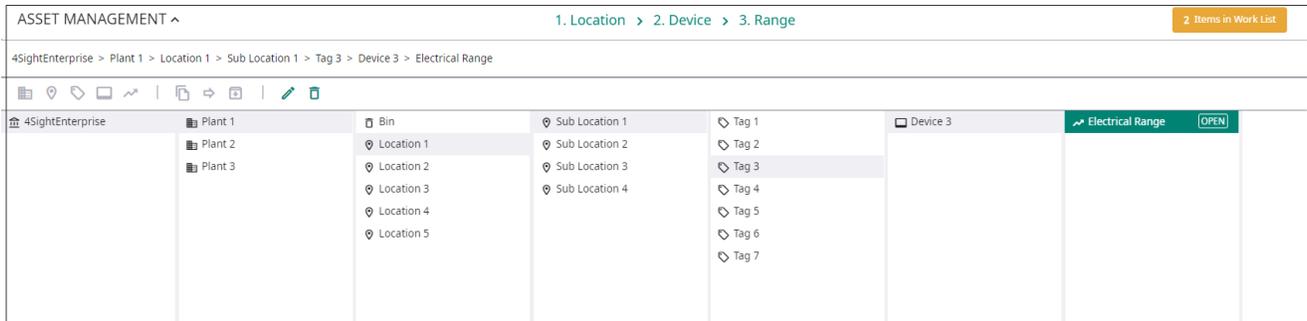
### 2.1 4Sight2 Menu

The menu located to the left of 4Sight2 can be used to navigate between major sections of the application.

Menu Item	Description
Dashboard	Access the KPI dashboard to display a graphical representation of asset health and test equipment availability within the enterprise.
Calibration	Calibrations to be performed including Portable, Manual and Automated can be accessed via this section.
Assets	The Asset Management section allows creation, editing, deletion and viewing of asset details. Users' work lists can also be accessed from this section. Assets include Plants, Locations, Tags and Devices.
Routines	Routines can be created, edited and updated in this section to allow scheduling of calibrations.
Procedures	Procedures can be created edited and updated in this section to specify set points to be carried out during a calibration.
Test Equipment	Create, edit, update and view test equipment details in this section
Resources	Manage Users, Groups and Permissions in this section
System Management	Options to add new asset types, manage database backups, customise reports, manage 4Sight2 licenses and global policies.
Help	Access to information about the 4Sight2 product, along with installation and user manuals.

### 2.2 Context Browser

The context browser displays the structure of assets that have been added in the enterprise. You can view the context browser by selecting **Assets** from the 4Sight2 menu and click on the title **Asset Management**.



The Context Browser in Assets section allows the user to drill-down through a hierarchical menu in order to switch the context of the overall view. Examples of possible contexts include specific locations organized geographically, physical assets organized by model or other classification, or assets organized by department or function.

When a user clicks on the title or arrow, the expanded view of the context browser is displayed. Selecting an item in the context browser causes sub-items of this asset to be displayed in the next panel. By selecting the open buttons, visible next to each asset, the details of the selected asset are displayed.

## 3. System Management

The System Management sections allows users with administrator privileges to manage hardware details, import and export asset details, customize reports, update license and global policies details.

### 3.1 Update Assets

This section allows users to edit details of hardware that are used with 4Sight2. Select **System Management > Hardware** from the 4Sight2 Menu. From this section a user can edit details of Assets and Test Equipment used by this version of 4Sight2.

#### 3.1.1 Assets

Select **System Management > Hardware** from the 4Sight2 Menu. By default, the Assets tab will be selected.

##### 3.1.1.1 Add Assets

1. On the Hardware page, select **Assets tab > Description tab**.
2. In the **Enter Manufacturer Name** field, start typing the name of the new asset manufacturer name, it shows the list of available options.
3. If the manufacturer name does not exist already in the list, enter the full name and then click **Add** button.
4. "Successfully Created Manufacturer" message will be displayed.
5. Select your newly created Manufacturer from the **Enter Manufacturer Name**.
6. In the **Enter Model Name** field, enter the model name of your new asset and then click **Add** button.
7. "Successfully Created Model" message will be displayed.

##### 3.1.1.2 Update New Assets

1. On the Hardware page, Select **Assets tab > Description tab**.
2. In the **Enter Manufacturer Name** field, find the name of the existing asset manufacturer name that you want to update.
3. Edit the manufacturer name on the same field and then click **Update** button.

**NOTE:** You cannot update the system default assets.

4. "Successfully Updated Manufacturer" message will be displayed.
5. Select the Manufacturer name and then find the model name of the asset that you want to edit in the **Enter Model Name** field.
6. Edit the model name in the same field and then click **Update** button.
7. "Successfully Updated Model" message will be displayed.

### 3.1.1.3 Manage Asset Priorities:

1. On the Hardware page, Select **Assets tab > Priorities and types tab**.
2. Under "Manage Asset Priorities" click **Add** to create a new priority.
3. A pop-up appears to enter the priority name.
4. Enter the name and click **Add**.
5. "Priority Created successfully" message will be displayed and the new priority name will be appended to the list.
6. Use the Up and down arrow icon on the order column to rearrange the order of your new priority and then click **Save**.
7. Use the edit icon on the Actions column to edit the name of the priority.
8. Use the **Restore Defaults** button to reset the priorities list to defaults: Critical | High | Medium | Low.

### 3.1.1.4 Manage Asset Types:

1. On the Hardware page, Select **Assets tab > Priorities and types tab**.
2. Under "Manage Asset Types" click **Add** to create a new asset type.
3. A pop-up appears to enter the device type name.
4. Enter the name and click **Add**.
5. "Device type added successfully" message will be displayed and the new device type will be appended to the list.
6. Use the edit icon on the Actions column to edit the device type name

## 3.1.2 Test Equipment

Select **System Management > Hardware > Test Equipment tab**. Procedure for Adding and updating test equipment is similar to adding and updating assets. Refer to Section 3.1.1 for adding and updating assets.

### 3.1.2.1 Define Custom Fields

4Sight2 allows an administrative user to define several custom fields. Once defined and "Display on details" is selected these fields will be available upon creation of new test equipment. A maximum of 4 custom fields can be defined. To create a custom field, follow these steps:

1. Navigate to the **System Management > Hardware > Test Equipment Tab > Description Tab**.
2. Enter the name of the custom field into a Custom Field text box.
3. To set this field to active on creation of devices tick the **Display on details** checkbox.
4. Select **Set**.
5. Message, "Success Custom field for Test Equipment set Successfully" will be displayed.

6. If the custom field name requires updating, edit the text and select **Set** again.
7. If any changes such as unchecking the **Display on details** checkbox or the custom field name has been changed incorrectly, before selecting **Set**, the **Reset** button can be used to undo these changes.

### 3.1.2.2 Uncertainties

If a new model of test equipment has been created, the uncertainties screen allows a user to add details of the uncertainties related to this test equipment type.

1. Navigate to **System Management > Hardware > Test Equipment tab, Uncertainties Tab**.

2. Select the manufacture and model of a newly define type of test equipment.

**NOTE:** Default 4Sight2 Test equipment will not be displayed in the Model drop down.

3. Click **Add Function**, and the Add Function pop up will be displayed.
4. Select **Function Type**, this can either be Pressure or Electrical. Then if Pressure has been selected, select a **Function Subtype**: Absolute | Gauge | Differential | Sealed Gauge | TERPS Absolute | TERPS Gauge.
5. Enter the following function Details:
  - **Name** - Name of the uncertainty range. Suggest a naming convention here to describe the range and unit of the uncertainty value e.g. 0 to 100 Bar G
  - **Range** - Defines the lower/upper range and unit associated with the uncertainty values. Units are available based upon the Function Type selection.
  - **Method** - Measure | Simulate - Used to define the Test Equipment direction the uncertainty range is to be used for.
  - **Working Temperature** - the minimum and maximum working temperature for the uncertainty.
  - **Resolution** - the simulate/measurement resolution of the test equipment reading.
  - **Add Temperature** - the additional working temperature range for which additional uncertainty values need to be applied.
  - **Add Coefficient Deg / % Rdg** - the percentage reading per degree uncertainty value. This value is applied to the uncertainty calculation if the TE is being used outside the normal working temperature range.
  - **Add Coefficient % FS** - the percentage full scale per degree uncertainty value. This value is applied to the uncertainty calculation if the TE is being used outside the normal working temperature range.
  - **Confidence Interval 2 | 3** - The confidence interval, or coverage (K) factor used to calculate the Test Equipment accuracy/precision values. This figure is defined by the Test Equipment manufacturer and should be obtained from the equipment data sheet for 3rd party devices. A K factor of 2, or 2-sigma confidence interval, the measurements will remain within specification over the stated period with an approximate level of confidence of 95.4%. A K factor of 3, or 3-sigma confidence interval, the measurements will remain within specification over the stated period with an approximate level of confidence of 99.7%

- **Drift** – The drift of the Test Equipment over time. This figure is defined by the Test Equipment manufacturer and should be obtained from the equipment data sheet for 3rd party devices. Drift can be included as part of the accuracy/precision figures provided by the Test Equipment manufacturer, if this is the case then this field should be left blank. If drift has not been included, the drift/performance of the Test Equipment should be defined here.
- **Drift Type** – %RDG | %FS | Fixed – The drift type defined as percentage of reading, percentage of full scale or fixed.
- **Uncertainty % Reading** – the percentage reading uncertainty value for the working temperature.
- **Constant Error** – the constant error uncertainty value for the working temperature range. The constant error is defined as either %FS or fixed.
- **Constant Error Type** – %FS | Fixed – the constant error type defined as percentage of full scale or fixed error.

**NOTE:** uncertainty values should be in the same unit as defined for the range. E.g. if the uncertainty range unit is defined as Bar then any fixed uncertainty values should also be entered in Bar.

6. Message "Success: Successfully created function" will be displayed. The new function will be added to the uncertainties table.
7. To edit the function, select the **Edit** icon from the Actions column of the uncertainties table.
8. Select the **Reset** button to clear the selection in the Manufacture and Model dropdowns.

### 3.1.2.3 Configurations

From the **System Management > Hardware > Test Equipment Tab > Configuration Tab** an administrative user can update the following items.

- **Calibration Configurations**
  - **Due Tolerance**– Global setting used to define the tolerance for warning that TE is approaching its calibration due date.
- **Communication Server Configurations**
  - **Communications Server HTTP Port** – This should match port set up during installation to communicate with the Test Equipment Communicator for HTTP port
  - **Communication Server HTTPS Port** – This should match port set up during installation to communicate with the Test Equipment Communicator for HTTPS port

Once configurations are adjusted select the **Update** button. If the user wishes to undo the change made before selecting the **Update** button, they should select the **Revert** button.

## 3.2 Database

Database section allows a user with administrator privileges to backup database data, schedule database backups, manage backups, import and export data. Select **System Management > Database** from the 4Sight2 menu to go to the Database Backup Page

## 3.2.1 Backup Now

1. Click **Backup Now** button in the top right corner of the Database Backup page.
2. Enter a Name for the backup and Click **Save**.
3. Backup starts immediately and pop-up appears displaying "Database Backup in Progress". Wait for the backup to complete.
4. After the backup is completed, "Database backup has been completed successfully. Please refresh the page to view the latest information" message will be displayed and the back up will be displayed in the Backup Log table

### 3.2.1.1 Schedule Backup

1. Click **Settings** icon from the Schedule Backup section.
2. Enter Start Date, Time, Interval and Maximum number of backups to keep in the Scheduled Backup pop up and Click **Save**.
3. Details in the Scheduled backup section will be updated as per the current backup settings.

### 3.2.1.2 Import Data

1. On the Database Backup page, select **Import Data** from the **Action** drop down.
2. **Import Data** pop-up will be displayed.
3. Make sure that the data you wish to import matches the template provided.
4. Click **Choose File** to select an .xls/.xlsx file to import.
5. Click **Import** and data import progress will be displayed
6. "Data Successfully imported" message will be displayed.

### 3.2.1.3 Export Data

1. On the Database Backup page, select **Export Data** from the **Action** drop down.
  2. **Export Data** pop-up appears and then click **Export** button.
- NOTE:** Do not close the Export Data pop-up while exporting as it will terminate export data process.
3. After the export is completed, "File Export Successfully" message will be displayed.
  4. Exported file(.xls) will be downloadable through your web browser.

### 3.2.1.4 Delete Backup

1. Select the item that you want to delete from the Backup Log Table.
2. Click **Delete** button and then Click **OK** to confirm the deletion.
3. "Backup(s) deleted successfully" message will be displayed.

## 3.3 Reports

The Reports section allows users with administrative privileges to provide details required to generate custom reports. Select **System Management > Reports** from the 4Sight2 Menu to go to the reports page.

### 3.3.1 Set Up

The setup tab in reports page allows a user to provide the following details: Company Name, Company Address, Company Telephone, Company Email, Company Logo, Accreditation Company Name, Accreditation Company Details, Accreditation Company Number and Accreditation Company Logo.

### 3.3.2 Templates

The **Templates** tab on the **Reports** screen allows a user to upload custom templates for generating reports. Standard templates are provided with 4Sight2, however if a custom template is required please contact Druck. Once a new template has been provided follow these instructions to add a new report template.

1. From the Actions dropdown select **Add New**.
2. Using the **Add Report Template** pop up enter a name for this new template, choose the template file to upload, add a description and select the report type from the type dropdown.
3. Click the **Upload** button.
4. The new items details will be added to the Calibration Report table.
5. To make this report the default for all calibration reports select the **Default** radio button in the reports row of the table.
6. To edit the Report Template select **Edit** from the Actions column of the Calibration Report table. This allows a user to change the name and description of the report only.
7. To delete a Report Template, select **Delete** from the Actions column. The **Confirm Delete** pop-up will be displayed. Click **Delete**.

## 3.4 License

The License page displays details of your current 4Sight2 License. If your license requires updating contact Druck. A new License file can then be generated depending on the features requested for your 4Sight2 version and the License file can be uploaded via this page in the Upload License section.

### 3.4.1 Viewing License Information

From the 4Sight2 menu, Select **System Management > License** to view the license page.

### 3.4.2 Purchasing License Information

To purchase a new 4Sight2 License submit Hardware Details found on the **System Management > License** screen to tech support along with PO details.

There are two types of licenses: Demo and Perpetual. By default, 4Sight2 comes with 90-day free trial after which you need to purchase a perpetual license. You do not have to wait till your demo runs out. 4Sight2 Perpetual licenses are tied to the computer/server on which they are applied. E.g. one license file can only be used on one physical or virtual computer. If you are unsure about

the computer on which you would want 4Sight2 or need more evaluation time, ask for demo extension license. Contact customer care and generate a Purchase order for the right flavour.

Flavour	Lite	Standard	Advanced
	(4SIGHT2-LIT)	(4SIGHT2-STD)	(4SIGHT2-ADV)
Uncertainty	No	Yes	Yes
No. of Tags	1000	2000	Unlimited
No. Of Users	1	3	5
Automated Pressure	No	Yes	Yes
Automated Temperature	No	No	Yes
Custom Reports	Yes (1 customized template)	Yes (up to 2 templates)	Yes (up to 5 templates)

Add-Ons can be requested including additional users, increased number of tags, data migration and customizable calibration certificates. Please contact customer care for more details.

### 3.4.3 Uploading License File

On the **License** page, under **Upload License**, click **Choose File** and browse the license file and click **Activate** button. If any mis-match, please contact tech support to regenerate the license.

## 3.5 Global Policies

Global Policies allow administrative users to define a set of rules which affect the 4Sight2 system for all users. This is in relation to the calibration approval process and the use of out of date Test Equipment.

A user can navigate to the global policies section by selecting **System Management > Global Policies** from the 4Sight2 menu.

### 3.5.1 Calibration Approval

From the **Global Policies** screen in the **Calibration Approval** tab a user can define rules surrounding the approval process of a calibration. The following options are available.

- **Technician and Approver** - This is the default 4Sight2 calibration approval workflow. In this scenario, once a calibration is completed by a technician, the results are sent to the assigned approver for approval.
- **Technician Only** - This policy allows for one step approval. Once a calibration is completed by a technician, they can then approve the results themselves without the need for a secondary approver.
- **Technician and Approver when** - The following settings allow for one step approval, unless the following scenarios occur, then a secondary approval is required:

- **A calibration requires device adjustment** - If the result of a calibration is needs adjustment
- **A calibration fails** - If the calibration result is failed
- **A calibration procedure has changes** - If the procedure run on a device has change since the previous calibration.

### 3.5.2 Test Equipment

From the **Global Policies** screen, in the **Test Equipment** tab, a user can define rules surrounding out of calibration Test Equipment. The following options are available.

- **Allow Use** - This is the default policy for 4Sight2. If a piece of Test Equipment is past its calibration due date a warning will be displayed to the user, however they will be able to proceed with the calibration.
- **Deny Use** - This option will stop users performing any calibrations with an out of calibration piece of Test Equipment.
- **Deny Use** - The following options deny use of Test Equipment given the following scenarios:
  - **For critical assets** - If the 'Deny use of out of calibration Test Equipment' flag located on the device is set to true this prevents out of calibration date Test Equipment from being used on that device.
  - **When grace period has expired** - When creating a piece of Test Equipment in 4Sight2 a grace period can be defined. This is a number of days that a piece of Test Equipment can be out of calibration before denying use for calibrations.

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## 4. Resources

### 4.1 Users

#### 4.1.1 Creating Users

1. From the 4Sight2 menu select **Resources > Users** to display the **Users** page.
2. From the **Actions** drop-down menu select **Add New User** to display the **New User** page.
3. Enter the following details:
  - **User ID** - Login User ID for new user
  - **First Name**
  - **Last Name**
  - **Email ID** - Correct format of an Email ID with @ symbol.
  - **Mobile number** (Optional)
  - **Password, Confirm Password**
  - **Status** - To define if a user is currently active within the system. The inactive users will not be able to log in to the system. If a user leaves the company then the user should be made inactive.
  - **Hierarchy Access** - Enterprise, Plant and Location fields are used to limit the user's view and access to the plant structure. The Asset tree is displayed and restricted for this user based upon the access permissions selected.
  - **Group Access** - Select the groups you wish the user to be a member of. By default, all users will be members of the following groups: Change Password | Default | User group login | User Group reading. The default additional groups available are as follows: Admin | Auditor | Reset Password | User group write | Supervisor | Technician. You can also create new additional groups and view the details of the default group in the Groups section of resources.
4. Click **Create**. Successfully Created User message will be displayed.

#### 4.1.2 Editing Users Details and Reset Password

1. From the 4Sight2 menu, select **Resources > Users** to display the **Users** screen.
2. Click on the Users name to display the user information screen. This screen displays information about the user.
3. To edit the user details, from the **Actions** drop-down menu select **Edit Details. Update User** page appears.
4. After updating the user details, click **Update** to update the user information. Successfully Updated User message will be displayed.
5. To reset the user password, from the **Actions** drop-down menu select **Reset Password. Reset Password** page appears.
6. Enter the new password and click **Update**.

## 4.2 Groups

Groups enable users with administrator privileges to enforce read and write access, of individual users, to various 4Sight2 functionality via the assignment group permissions. Groups can be assigned to users to limit their access to certain areas and functionalities dependent on their role.

A user with administrator privileges can provide read/write access to various functionalities within the 4Sight2 application. This is achieved through assigning defined Permission Sets to a group.

After creating a new group, the user with administrator privileges can assign users to that group. This gives the administrator the ability to limit each users access to areas and functionality within the application depending upon their particular role.

The available default groups are as follows:

- **Admin** - Read and write access to all system features
- **Auditor**- Read access to all system areas
- **Change Password** - Allows a user to change their own password
- **Default** - A minimum group required for all users to access 4Sight2
- **Reset Password** - Enables a user to reset other users' passwords
- **Log In** - Allows a user to log in to the system
- **User Group Read** - View user permissions and groups
- **User Group Write** - Create, modify and delete users, permissions and groups
- **Supervisor** - Access to all system features excluding resources and system management write access.
- **Technician** - Limited system write access, all the necessary permissions to perform calibrations and generate reports.

### 4.2.1 Creating Groups

1. From the 4Sight2 menu, select **Resources > Groups** to display the **Groups** screen.
2. From the **Actions** drop-down menu select **Add Group** to display the **New Group** screen.
3. Enter the group Name, Description and click **Create**.
4. A message indicating the successful creation of the group shall be displayed.

### 4.2.2 Linking a Permission Set to a Group

1. From the 4Sight2 menu, select **Resources > Groups** to display the **Groups** page.
2. Click on the group name to view group information.
3. Click on the plus + symbol on Permission Sets section to display the list of Permission Sets available.
4. Click on the check boxes of respective permission sets to be linked and click Link.
5. The selected permission sets will be linked and will be listed on Permission Sets section.

---

**NOTE:** To unlink a permission set, click on **Unlink** icon available next to the Permission Set.

### 4.2.3 Viewing Group Details

1. From the 4Sight2 menu, select **Resources > Groups** to display the **Groups** page.
2. Click on the group name to view group information.

### 4.2.4 Editing Groups

1. From the 4Sight2 menu, select **Resources > Groups** to display the **Groups** page.
2. Click on the group name to view the group information.
3. From the **Actions** drop-down menu select **Edit Details** to display the **Update Group** page.
4. After updating, click **Update** to save the changes.

### 4.2.5 Deleting Groups

1. From the 4Sight2 menu, select **Resources > Groups** to display the **Groups** page.
2. Click on name of the group to delete.  
**NOTE:** It is not possible to delete the default groups which were installed as part of the 4Sight2 application.
3. From the **Actions** drop-down menu select **Delete** to display the **Confirm Delete** message.
4. Click **Delete** to delete the group.

## 4.3 Permission Sets

Permission Sets allows a user with Administrator privileges to enable or disable access rights to application functionality for group members. Permission sets are linked to groups and are used to define that groups access to system areas and functions.

### 4.3.1 Creating Permission Sets

1. From the 4Sight2 menu, select **Resources > Permission Sets** to display the **Permission Set** screen.
2. From **Actions** drop-down menu select **Add Permission Set** to display the **New Permission Set** screen.
3. Enter the Permission set Name, Description and click **Create**.  
**NOTE:** In order to select the permission set the user must edit the permission set that has been just created.
4. A message indicating the successful creation of the permission set will be displayed.

### 4.3.2 Setting/Editing Permission Sets

1. From the 4Sight2 menu, select **Resources > Permission Set** to display the **Permission Set** page.
2. From the permission set table, select the name of the Permission set to be edited. This will display the current details of the selected Permission Set.

3. From the **Actions** drop-down menu select **Edit Details** to display the **Update Permission Set** page.
4. To assign functionalities to a permission set, click on the check boxes and click **Update**.
5. The successful update of the permission set message will be displayed.  
**NOTE:** To select the entire group of permissions click on the respective group heading box.  
**NOTE:** Default permission sets, as installed by the 4Sight2 application are not editable.

### 4.3.3 Deleting Permission Sets

1. From the 4Sight2 menu, select **Resources > Permission Set** to display the **Permission Set** page.
2. From the permission set table, select the name of the Permission set to be removed. This will display the current details of the selected Permission Set.
3. From the **Actions** drop-down menu select **Delete** to display the **Confirm Delete** page.
4. Click **Delete** to delete the selected permission set.

**NOTE:** There is no option to delete the default permission sets.

### 4.3.4 Permissions

The following permission settings are configurable by either selecting the heading check box to include all of the associated permissions within that heading or by selecting permission(s) individually.

**User Management**- This contains the permissions to create, view, update and delete the resources i.e., Users, Groups and Permission Sets in the application.

**License Management** - Contains the permissions related to license activation, upload, deletion and viewing.

**Document Management** - This contains the permissions to the viewing, linking and de-linking of documents in the application.

**Type Management** - This contains the permission to view the static data related to drop-downs in the application This permission is required in conjunction with System Configuration options to enable the configurations to be stored in the application database for Manufacturer and Model/Country and State.

**Job Management** - This contains the permissions related to the scheduling aspects of routine, procedure and calibration job management.

**Report Management** - This contains the permissions required to view the Calibration Report PDF generated through Portable or Manual calibration.

**System Management** - This contains only the permission to update system configuration and also import/export facility in the application.

**Asset Management** - Contains the Create/Update/Delete/View permissions pertaining to all the assets that includes Plants, Locations, Sub Locations, Devices, Ranges and also Test Equipment. It also contains an additional permission required to view the Asset Table. The permissions related to Tag/Device copy and movement are also present here.

**Dashboard** - This contains the permission to enable what is displayed on the user dashboard.

## 5. Assets

The Asset module allows you to represent physical locations and devices on your site(s) in a single view. You can set-up: Plants, Locations, Sub-Locations, Tags, Devices and Device Ranges.

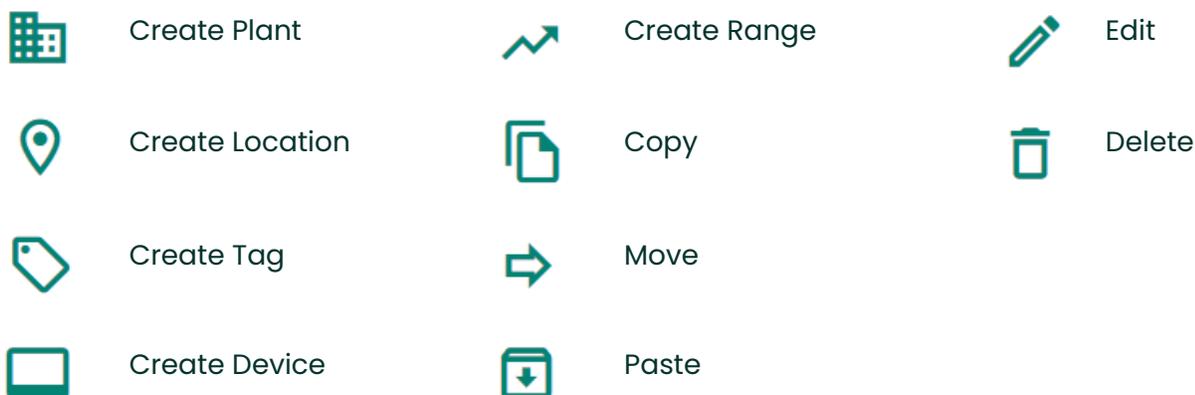
To display the Assets page, click on **Assets** from the **4Sight2** menu.

The asset page contains two tabs, **Assets** and **Work List**. The Assets Table allows you to explore all the assets available in your assign location, i.e. if you are an administrator, you can view all assets in the enterprise and the work list table displays all jobs assigned to the user.

From the work list tab users can send jobs for Automated, Manual and Portable Calibration by selecting items from the work list and using the Calibration Type drop down and send button in the bottom right hand corner from the **WorkList** tab.

To view the asset hierarchy, click on the **Asset Management** title to view the context browser.

The **4SightEnterprise** is the default asset and you can add plants under this Asset. From the context browser you can perform the following actions:



### 5.1 Create Plant

The Plant section in the Asset module allows a user to add a plant with the following details: Plant Name, Country, State, City, ZIP Code, and Address of the plant.

1. To create a new plant, click on **Create plant** icon to open the **Create Plant** screen.

**NOTE:** Only green colour icons are available to the user for selection and the grey colour icons are unavailable to the users at that moment. Click on the appropriate panel to enable the icons.

2. Enter the following details:
  - **Plant Name:** Enter the Plant name (Maximum 50 characters)
  - **Plant Description:** Enter the description (Maximum 250 characters) of plant to be created
  - **Address:** Enter the address of the plant
  - **Country:** Enter the country where the plant is located

- **State:** Select the state where the plant is located
  - **City:** Enter the name of the city
  - **Zip Code:** Enter the zip code of the city
3. Click **Create** to add the new plant or Click **Create & Add New** to save the current plant details and open a new Create Plant screen to create another new plant
  4. Successful creation of the New Plant Message will be displayed.
  5. **Reset:** use to clear the fields
  6. **Cancel:** use to abort the current operation

## 5.2 Create Location and Sub-Locations

A Location or Sub-Location usually represents a physical location on your site (Example: a building or room) but you can set up any alternative group structure (Example: Druck, Ruska). You can add more than one device or tag to a location.

**Sub-location:** The application enables the user to create **Sub-Location** within a location for better identification of the device location within a plant. Ten levels of sub-location can be created within location, by placing sub-location within sub-locations.

1. From the **Plant** panel of the context browser, click on **Create Location** icon to open the create location page.
2. After entering the location details, Click **Create** to add the location/sub-location or Click **Create & Add New** to save the current location details and open a new Create location screen to create another new location.
3. Successful addition of the location message will be displayed.

## 5.3 Create Tag

Tags in Asset module is similar to a location but a tag is only associated with a single device. For example: You can set up a tag for a unique device operation. If you calibrate the related device, there is a link to the device and the tag.

1. From the **Location** panel of the context browser, click on **Create Tag** icon to open the Create Tag page.
2. After entering the tag details, Click on **Create** to add the Tag or Click **Create & Add New** to save the current tag details and open a new create tag screen to create another new tag.
3. Successful addition of the Tag message will be displayed.

## 5.4 Create Device

Device in Asset module is provided to add information about the instrument to be calibrated in the given location.

1. From the **Tag** or **Location** panel of the context browser, click on **Create Device** icon to open the Create Device page.
2. Enter the following details:
  - **Priority:** Select the priority level from the drop-down list

- **Device Name:** Enter the name of the device (Maximum 50 characters)
- **Device Description:** Enter description about the device (Maximum 250 characters)
- **Maintenance Date:** Enter the latest calibration date of the device
- **Device ID:** Enter the device identification (not mandatory)
- **Asset ID:** A unique identifier for the Device (Maximum: 50 characters) (not mandatory)
- **Device Type:** Select the type of device from the drop-down
  - **Pressure - Environment Settings** - If the device type is pressure, then the following details should be provided
    - Attitude Correction (AC) (Ui/Pa)
    - Fluid Head Height (m)
    - Fluid Head Height Uncertainty (m)
    - Gravity ( $m/s^2$ )
    - Gravity Uncertainty ( $m/s^2$ )
    - Fluid Density Type - ro (gas) - default air | ro (water) | ro (fluid) default oil
    - Fluid Density ( $kg/m^3$ )
    - Fluid Density Uncertainty ( $kg/m^3$ )
- **Manufacturer:** The manufacturer.
- **Model Number:** The model number specified by the manufacturer.
- **Serial Number:** The serial number specified by the manufacturer.
- **Deny use of out of calibration Test Equipment:** Check to block calibrations being performed with out of date calibration equipment.
- **Warnings:** Provide any Warning Message to technicians before performing a task.
- **Pre Calibration Notes:** Provide details of test set up to a technician before performing a task.
- **Post Calibration Notes:** Provide details of how to leave test set up after the test completion.

**NOTE:** New Manufacturers, Models, Device type and Device priority can be configured in the **System Management > Hardware** section.

3. After entering the above details, Click on **Create** to add the Device or Click **Create & Add New** to save the current device details and open a new create device screen to create another new device.
4. Successful addition of the Device message will be displayed.

## 5.5 Create Range

Ranges provide the measurement capabilities of a device. For every device added there must be at least one range associated with this device.

1. From the **Device** panel of the context browser, click on **Create Range** icon to open the Create Range page.

**Range Name:** Enter a name for the new range.

**On Uploading Adhoc Results:**

- **Retain Last Calibration Date:** It retains the last calibration date and does not affect the actual calibration schedule
- **Reset Last Calibration Date:** It resets the last calibration date to the date on which adhoc calibration is performed and the calibration schedule will be changed respectively

**Settling Time:** Enter the settling time. Settling time is defined as, when the controller reaches the input test point, software will wait for the settling time to expire before collecting the results from output unit.

**Input/Output Configuration:** Click on the drop-down list and select the applicable type. These include:

- **Linear:** A typical straight-line relationship.
- **Square Root:** Flow calculations use this type of relationship. The data includes the option to set a Break Point.
- **Switch:** For switches only.

**Parameter:** Click on the drop-down list and select the applicable Parameter. Following are the available parameter list: Electrical | Density | Frequency | Humidity | Observed | Pressure | Temperature | Temperature (RTD) | Temperature (TC) | Volume | Weight | Area | Time | Velocity

Current	Observed	Temperature
Density	Pressure	Temperature (RTD)
Frequency	Resistance	Temperature (TC)
Humidity	Switch *	Voltage

\* Only available as an output parameter when input/output ratio of switch is selected  
If I/O configuration is selected as Linear or square root, following parameters will appear to the user

- **Minimum/Maximum:** Enter applicable values for the Device.
- **Unit:** Click on the drop-down list and select the applicable units.
- **% Span Pass Fail:** Enter the necessary calibration limits for pass and fail
- **% Span Adjustment:** Enter the permitted amount of adjustment. The user defined adjustment limit used to warn of drift towards failure and therefore adjustments is recommended.

**If I/O configuration is selected as Switch, following parameters will appear to the user**

- **Minimum/Maximum:** Enter applicable values for the Device.
- **Unit:** Click on the drop-down list and select the applicable units.
- **Actuation Point:** Enter the value to set switch actuation point from close to open.
- **Deactuation Point:** Enter the value to set switch deactuation point from open to close.
- **Switch Status:** Select the status of the switch
- **Trip:** Select the type of trip: rising or falling

- **Contact:** Select the type of contact
- **Actuation/Deactuation Tolerance:** Enter the necessary actuation/deactuation point tolerance

**Routine:** Linking a routine to a range provides calibration schedule to that range. Click on the drop-down list and select the existing routine or create a new routine by selecting <<**Create Routine**>> from the drop down. See Section 6, Routines.

**Procedure:** Linking a procedure to a range creates a specific instance of that test procedure using the ranges specified. Click on the drop-down list and select the existing procedure or create a new procedure by selecting <<**Create Procedure**>> from the drop down. See Section 7, Procedures.

**Assign Technician:** Click on the drop-down list and select the default technician to the range.

**Assign Approver:** Click on the drop-down list and select the default approver to the range.

2. Click **Create** to add the range or Click **Create & Add New** to save the current range details and open a new create range screen to create another new range.
3. Successfully Created Range message will be displayed.

## 5.6 Copying and Pasting Asset Information

Copy and Paste create a new copy asset using the copied asset as a template. The asset information from a device can be copied and pasted in another location or sub-location.

1. From the panel of the context browser, Click on a Device to display the assets.
2. Select the asset and click on **Copy icon**.
3. "Success: Device is Marked for Copy." Message will be displayed .
4. Select the **Location** or **Sub-Location** to paste the asset information.
5. Click on **Paste** icon to reuse the asset information in the selected location or sub-location. "Success: Asset Successfully Pasted" message will be displayed

## 5.7 Move Asset Information

Move option relocates the selected device or tag to a new location with that devices calibration history.

1. From the **Location** panel of the context browser, click on the Location or Sub-Location to display the assets.
2. Select the asset and click on **Move** icon.
3. "Success: Device is Marked for Move" message will be displayed
4. Select the **Location** or **Sub-Location** to paste the asset information.
5. Click on **Paste** icon to reuse the asset information in the selected location or sub-location. "Asset has been successfully moved" message will be displayed.

## 5.8 Edit

1. To edit an asset, select the asset and click on the **Edit** icon.
2. The Update Asset screen will be displayed with the details for your selected asset.

3. Edit the required details of the asset and select **Update**.
4. "Success: Successfully updated Asset" message will be displayed.

**NOTE:** Assets can also be edited using the actions drop down available when viewing an asset detail.

## 5.9 Delete

1. To delete the asset, select the asset and click on the **Delete** icon to display the Confirm Delete message.
2. Click **Delete** to remove the selected asset.

**NOTE:** Assets can be deleted only if there is no sub-assets associated. To delete an asset, delete from the lowest level asset, from Range up the structure to Plant level.

**NOTE:** Range cannot be deleted if calibration results are associated with it.

## 5.10 Bin Location

Upon creation of a new Plant, a Bin location is automatically added to the plant. The purpose of the bin location is to allow users to remove assets that are no longer active from their plant, but also retain their calibration history for audit purposes. By moving an asset to the bin location asset health is no longer recorded for these assets in the KPI dashboard and assets will no longer be scheduled for calibration.

## 6. Routines

Routines allows the user to create and manage the calibration schedule. You can setup a calibration schedule based on the procedures associated with the routine.

### 6.1 Creating Routines

1. From the 4Sight2 menu, click **Routines** to display the **Routines** page.
2. From **Actions** drop-down menu select **Add New Routine** to display the **Create Routine** page.
3. Enter the following data:
  - **Routine Name:** Enter the name
  - **Description:** Enter a description of the routine
  - **Priority:** Select the priority from drop-down
  - **Interval:** Enter the interval period for calibration in Days/Months.
  - **Period:** Select the interval in Days or Months
  - **Due Tolerance:** Enter the tolerance level of days for calibration. This tolerance is used to specify the number of days the calibration can be performed before it's due date.
  - **Overdue Tolerance:** Enter the overdue tolerance for the calibration. This tolerance is used to specify the number of days the calibration can be performed after it's due date.
4. Click **Create** and the successful creation of the routine message will be displayed.

### 6.2 Viewing Routine Details

To view routine information:

1. From the 4Sight2 menu, click **Routines** to display the **Routines** page.
2. Click on the routine to display the routine page.

### 6.3 Editing Routines

**NOTE:** If the routine is linked to a range which has calibration results or if the calibration is in progress the routine cannot be edited.

1. From the 4Sight2 menu, click **Routines** to display the **Routines** page.
2. Click the routine name to update and to display the routine page.
3. From the **Action** drop-down select **Edit Details** to view the **Update Routine** page.
4. After updating the routine information, click **Update** to update the changes.

### 6.4 Deleting Routines

1. From the 4Sight2 menu, click **Routines** to display the **Routines** page.
2. Click the routine name to delete and to display that routine details.
3. From **Action** drop-down select **Delete** to display the **Confirm** page.

4. Click **Delete** to confirm the deletion of routine.

**NOTE:** If a routine is linked to any device, it can't be deleted.

## 6.5 Linking a Procedure to a Routine

Every procedure has to be linked to a calibration schedule through a routine.

To link a procedure to routine:

1. From the 4Sight2 menu, click **Routines** to display the **Routines** page.
2. Select a routine from the list that has to be linked with a procedure.
3. From the Routine page, click the plus symbol to display the list of procedures.
4. Select the procedures to be linked and click Link. Successful linked message will be displayed, also you can view the procedure name displayed in Procedures section of Routine page.

**NOTE:** To unlink the linked procedure, click on the **Unlink** icon.

The Affected Devices section of the Routine page displays details of the assets which are currently linked to the Routine.

## 6.6 Linking Routine to an Asset

Every asset needs to be linked to a calibration schedule through a routine. The routine can be linked to any Plant/Location/Tag/Device within the plant structure. If a routine is linked higher up the plant structure then all children automatically inherit the linked routines. This can be useful if there are only certain routines which a plant uses as these can be linked at the plant or location level and then all devices will automatically inherit them and they will only need to be added once at this higher level.

Alternatively the routines can be linked at the lowest, device level and only apply to that device.

1. From the 4Sight2 menu, click on **Assets** to display the Asset page.
2. From the Assets page, click on the Assets Management title to display the context browser.
3. From Assets context browser, click on **Assets >> 4SightEnterprise** to display the list of plants in the next panel. Then navigate to device location.
4. Select the device and click **Open** to display the device page.
5. From the device page, click "+" symbol in Routines section to display the list of routines.
6. Select the routines by clicking on the respective routine check box and click **Link**.
7. The routines are linked with the device and will be displayed in routines section.

## 7. Procedures

**Procedures** helps the user to setup and manage the calibration procedures. The user can define the generic format for calibration. To make the created **Procedure** effective you need to link it to a **Routine**.

### 7.1 Create Procedures

1. From the 4Sight2 menu click **Procedures** to display the **Procedures** page.
2. From **Actions** drop-down menu select **Add New Procedures** to display the **Create Procedure** page.
3. Enter the following procedure details:
  - **Procedure Name** - Enter name of the procedure
  - **Procedure Type** - Select either Switch or Proportional to define the procedure type
  - **Description** - Enter a description of the procedure
  - **Exercise Cycle** - Enter the number of cycles which the procedure is to be performed
  - **External Power**- Use the check-box to define the source of the external power to the DUT. If checked, power is to be provided externally by the plant. If un-checked, power is to be generated by the calibrator.

#### **Proportional**

- **Point**:- Test points can be added and defined individually by manually adding the point along with the %Span for that point or by using the **Procedure Point Wizard**
- **% Span**: - The %Span value for a point is the % of total input span with 0% being the minimum range value and 100% the maximum range value
- **Test Point Tolerance** - To set an applicable calibration tolerance for each test point
- **Procedure Wizard** - Test point wizard used to create a set of test points

#### **Switch**

- **Ramp Time (Seconds)**- Set the period (in seconds) for the portable calibrator to go from the low value to the high value
- **Test Reset** - Select this option to see if the switch resets correctly

4. Click **Create**. The successful creation of the procedures message will be displayed.

### 7.2 Updating Procedures

1. From the 4Sight2 menu, click **Procedures** to display the **Procedures** page.
2. Click the procedure name to update.
3. From the **Actions** drop-down, select **Edit Details** to display the **Update Procedure** page.
4. After updating the procedure information, click **Update** to update the changes.

---

## 7.3 Deleting Procedure

1. From the 4Sight2 menu, click **Procedures** to display the **Procedures** page.
2. Click the procedure name to delete.
3. From the **Actions** drop-down, select **Delete** to display the **Confirm Delete** page.
4. Click **Delete** to confirm the deletion of procedure.

### 7.3.1 Linking a Procedure to a Range

Linking a procedure to a range creates a specific instance of that test procedure using the ranges specified.

1. From the **Device** panel of the context browser, click on the device to view the ranges
2. Select the range and click **Open** to view the range information.
3. Click on the plus “+” symbol on Procedures section to view the list of procedures.
4. After selecting the procedure, click **Link** to link the procedure with a range. The linked procedure will be displayed in Procedures section.

**NOTE:** To unlink a procedure with a range, open the range screen and click on the **Unlink** icon available next to the linked procedure.

## 8. Test Equipment

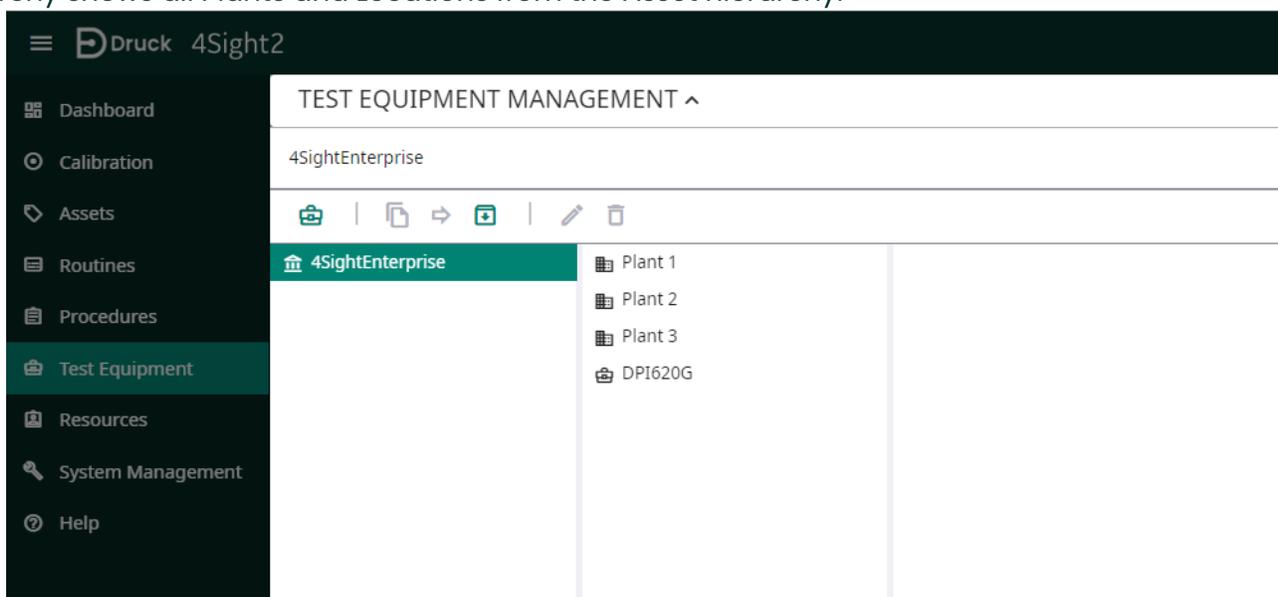
The Test Equipment Module allows a user to record details of Test Equipment used to perform calibrations as well as assign physical locations of these devices within an enterprise.

To display the Test Equipment page, click on **Test Equipment** from the 4Sight2 menu. The Test Equipment page displays a table with details of all test equipment within the enterprise, including details of:

- **Equipment Name** – The name assigned to the piece of Test Equipment upon creation.
- **Status** – Status can be one of the following: Available, In Use, Out of Service, Out for Calibration or Retired.
- **Cal Status**– Cal Status represents whether the calibration of the piece of Test Equipment is On Time, Due or Overdue.
- **Calibration Due** – The next time the piece of Test Equipment is to be calibrated.

To view details of Test Equipment, select the equipment name from the Test Equipment table or select the Test Equipment from the test equipment hierarchy.

To view the Test Equipment hierarchy, click on the Test Equipment Management title. This hierarchy shows all Plants and Locations from the Asset hierarchy.



From the Test Equipment hierarchy, a user can perform the following actions:



Add Equipment



Move



Paste



Edit



Delete

## 8.1 Creating Test Equipment – Manually

Using the Test Equipment Management hierarchy, Add Equipment action, details for a new piece of Test Equipment can be added.

1. From the Test Equipment management hierarchy select either Enterprise level, Plant level or Location level item to create the Test Equipment in. If a piece of Test Equipment is created as Enterprise level, then this piece of Test Equipment can be used to calibrate all devices in the Asset hierarchy. By creating a piece of Test Equipment at a Plant or Location level the user is restricting the set of Devices that can be calibrated with this piece of Test Equipment.
2. Click the **Add Equipment** icon to display the create Test Equipment screen.
3. Enter the following details:
  - **Name** – Enter a name for the Test Equipment (Maximum 50 Characters)
  - **Serial Number** – Enter the serial number of the Device
  - **Manufacturer** – Select a Manufacturer from the drop down.
  - **Model** – Select a model from the dropdown
  - **Purchased** – Date the Test Equipment was purchased
  - **Last Calibration** – The date this Test Equipment was last calibrated
  - **Calibration Interval**– The number of days between calibrations
  - **Firmware Version** – Field available for PACE and DPI to enter device firmware versions.
  - **Owner** – Assign a system user from the drop down as the Test Equipment owner.
  - **Custom Fields** – Several Custom fields may also be available which have been defined by an administrative user. See section 3.1.2.1 Define Custom field, for information on how to define custom fields.
  - **Grace Period** – The time before use of test equipment may be denied if the device is out of calibration.
  - **Asset Number** – Enter Asset Number of the Device. (Optional)
  - **Certificate Number** – Enter Certificate Number Related to the device. (Optional)

**NOTE:** Alternative manufactures and models can be created within system management see the hardware section.

4. Click **Create**. Successful creation of Test Equipment message will be displayed.

## 8.2 Creating Test Equipment – Automatically

Test Equipment can be created automatically upon attempted device communication via Automated or Portable Calibration. If a piece of Test Equipment does not already exist in the Asset hierarchy a warning pop up will be displayed to the user stating Test Equipment not present in 4Sight2 application.

4Sight2 will auto-populate any details that it can obtain from the Test Equipment and the user can enter any remaining details:

- **Name** – Enter a name for the Test Equipment (Maximum 50 Characters)
- **Serial Number** – (Auto-populated) Enter the serial number of the Device

- **Manufacturer** - (Auto-populated) Select a Manufacturer from the drop down.
- **Model** - (Auto-populated) Select a model from the dropdown
- **Purchased** - (Auto-populated) Date the Test Equipment was purchased
- **Last Calibration** - (Auto-populated) The date this Test Equipment was last calibrated
- **Calibration Interval**- (Auto-populated) The number of days between calibrations
- **Grace Period** (Days) - Is the time before Test Equipment use may be denied if the device is out of calibration.
- **Firmware Version** - (Auto- Populated) Field available for PACE and DPI to enter device firmware versions.
- **Owner** - Assign a system user from the drop down as the Test Equipment owner.
- **Custom Fields** - Several Custom fields may also be available which have been defined by an administrative user. See section 3.1.2.1 Define Custom field, for information on how to define custom fields.
- **Asset Number** - Enter Asset Number of the Device. (Optional)
- **Certificate Number** - Enter Certificate Number Related to the device. (Optional)

## 8.3 View Test Equipment

To view test equipment details, either select **Open** next to the item in the Test Equipment hierarchy or select the item from the Test Equipment table.

### 8.3.1 General

General test equipment details provided details enter upon creation of Test Equipment including, Model, Manufacture, Serial Number, Owner, Location and purchase date of test equipment. This is displayed along with an available image of the Test Equipment type and the equipment's current status.

### 8.3.2 Uncertainty

Definition of the Test Equipment Uncertainty data. This data is used in the expanded uncertainty calculation for each calibration test point if the 'Uncertainty' feature has been enabled.

Uncertainty data is defined here for each test equipment function when being used in Measure or Simulation mode. For Druck Test Equipment the data is pre-defined in the System Management -> Hardware -> Test Equipment section but can be modified on an individual basis. For third party Test Equipment, uncertainty data can be manually entered for each supported function type.

For Druck test equipment uncertainty values are predefined, however for PACE modules users are required to provide the calibrator uncertainty used to calibrate the test equipment. This information can be found on the calibration certificate provided on purchase or recalibration.



If the following message is displayed on test equipment update: "Info: Please review the Uncertainty Parameters of Test Equipment for calculating the Calibrator's Uncertainty" then review and edit the uncertainty details in the test equipment uncertainty tab for both Measure and Simulation details using the edit button. An example case is when a PACE module is updated, Calibrator Uncertainty Values 1 and 2 will be cleared and require updating from the latest calibration certificate. If uncertainty values are not provided, then uncertainties will not be calculated, and N/A will be displayed on calibration certificates and results for uncertainties.

### 8.3.3 Calibration

#### 8.3.3.1 In Progress

A list of all ranges currently in progress using this piece of Test Equipment, along with details of the technician currently performing this calibration.

#### 8.3.3.2 Historical

Displays an overview of all calibrations performed with this Test Equipment. Historical data table displays details of assets calibrated by the selected test equipment, technician and approver of this calibration and the date of calibration. History can be filtered using calibration dates, to and from, to get an overview of a specific period of time.

### 8.3.4 Documents

#### 8.3.4.1 Calibration Certificates

Here calibration certificates of the Test Equipment can be added. Select the add button to add a new calibration certificate. View linking document section for details on how to link a document.

#### 8.3.4.2 Documents

Any documentation related to the Test Equipment can be stored here. Select the add button to add a document. View linking document section for details on how to link a document.

## 8.4 Move Test Equipment

The move option can be used to relocate a selected piece of Test Equipment and move it to a new location within the Test Equipment hierarchy.

1. Select a piece of Test Equipment from the Test Equipment hierarchy.
2. Click on the **Move** Icon and Success Marked for Move message will be displayed.
3. Select the Plant or Location you wish to move the asset too.
4. Click the **Paste** icon and the Test Equipment will be displayed in this new location.

## 8.5 Edit Test Equipment

1. Select the piece of Test Equipment you wish to edit from the Test Equipment hierarchy and click on the **Edit** icon.
2. The update Test Equipment screen will be displayed.
3. Edit details as required and then click the **Update** button.
4. Successfully Updated Test Equipment message will be displayed.

**NOTE:** Test Equipment can also be edited using the actions dropdown available when viewing Test Equipment details.

## 8.6 Delete Equipment

1. To delete a piece of Test Equipment, select the Test Equipment from the Test Equipment hierarchy and click on the **Delete** icon.
2. The confirm delete popup will be displayed, select the **Delete** button to confirm deletion.
3. The Test Equipment will be removed from the Test Equipment hierarchy.

## 9. Linking Documents

Documents like Certificate/Brochure/Data sheet/Manual/Procedure can be linked to any plant location, asset, or test equipment. A user can upload a new document or link an existing document which has uploaded previously into 4Sight2.

### 9.1 Linking a New Document

A user can link a document to an Asset, Routine, Procedure and Test Equipment. Users can upload a new document or link to an existing document available in 4Sight2.

1. From the 4Sight2 menu, click on **Assets** to display the Asset page.
2. From the **Assets** page, click on Asset Management to display the context browser.
3. View any of the Assets details by navigating to the asset in the context browser and selecting open.
4. Click on **+** button in DOCUMENTATION section to add a document.
5. Click on **Upload** tab to upload a new document.
6. Click **Choose File** to select the file from the system.
7. Select **Document Type** from the drop-down. Available document types are: Brochure | Certificate | Datasheet | Manual | Procedure.
8. Enter a name for the file being uploaded in **Reference**.
9. Select the validity date in **Valid to Date** field.
10. Select the **Link this document to Current Asset** check box if you want to link the document to the current asset.
11. Click **Upload** button.

### 9.2 Linking an Existing Document

1. From 4Sight2 menu, click on **Assets** to display the Asset page.
2. From the **Assets** page, click on Asset Management to display the context browser.
3. Click on **+** button in DOCUMENTATION section to add a document.
4. The Documents page displays the following details about the document as default: Name | Type | Reference | Revision | Last Updated | Unlink Option.
5. Click on the check box to select the document.
6. Click **Link** to link the selected document with the device. The linked documents will be displayed in Documentation section. To unlink the documents, use the **Unlink** button.

## 10. Custom Views

The custom views feature in 4Sight2 allows users to customize the way in which data in tables are displayed. Custom views can be applied to the Asset table, the Work List and the Test Equipment table.

### 10.1 Switching Views

To switch views, select the name of the view you wish to apply from the Views drop down, which is found to the top right of the table. Each table will have a default view with a number of displayed and hidden items.

#### Asset Table

Display: Range | Approver | Allocated List | Tag | Due Date  
Hide: Cal Status | Device | Location | Assigned To | Priority

#### Work List

Display: Range | Approver | Allocated List | Tag | Due Date  
Hide: Cal Status | Device | Location | Assigned To | Priority

#### Test Equipment Table

Display: Equipment Name | Status | Cal Status | Calibration Due  
Hide:

### 10.2 Manage Views

To create, update and delete views use the manage views tool.



- Manage Views Icon

The Manage Views icon can be found to the top right of tables that allow custom views to be applied.

#### 10.2.1 Creating a New View

1. Select the Manage View icon.
2. Edit the name of the view in the View name text box.
3. Tick **Default** if you wish to set this new view as the default view.
4. Tick Global if this view is to be available to all users, or untick if this is a personal view.
5. Drag and drop the Display and Hide items into the desired columns.

6. Click the **Add** button to create the new view.
7. View Copied Message will be displayed.

### 10.2.2 Updating a View

1. From the Views drop down select the view you wish to update.
2. Select the manage views icon.
3. Change Displayed and Hidden items where necessary and update the Default and Global check boxes if required.
4. Select the **Update** button.
5. Success: View Saved message will be displayed.

### 10.2.3 Applying Filters to Views

Filters can also be saved within views. Save applied filters following these steps

1. Apply filters to the data in any column.

**NOTE:** The Due date filter can be used to select a date to and from on the calendar view. Select apply once dates have been selected.

2. The name of your view in the Views drop down will be followed by "(unsaved)" and a red circle with a number will be displayed in it to indicate the number of unsaved views. The manage views icon will appear with a \* in a red circle indicating this view is unsaved.



3. To save these filters against this view select the Manage Views icon.
4. Then select the **Update** button.
5. Success: View Saved message will be displayed.

### 10.2.4 Deleting Views

1. Select the name of the view you wish to delete from the Views dropdown.
2. Click the manage views button.
3. Select the Delete button.
4. Confirm Delete pop up will be displayed. Select Delete.
5. Success: View Deleted message will be displayed.

## 10.3 Export Data

Details of custom views can be exported by the user using the export data icon



- Export Data Icon

This data can be exported to the following formats: Excel, PDF, Word and HTML.

# 11. KPI Dashboard

On Login to 4Sight2, the Key Performance Indicator, (KPI), dashboard will be displayed.

For a new application install, where no asset/test equipment data has been populated, the KPI display will be populated with demo data & grayed out to indicate that it is not yet active.

## 11.1 OVERALL ASSET HEALTH KPI

**Passed** - This status indicates that all ranges on the asset have passed calibration & are within defined tolerances.

**Needs Calibration** - This status indicates that an asset is due for calibration from the schedule defined by the routine/procedure linked to the asset.

The exact Needs Calibration status can be determined by viewing those assets under ASSETS dashboard.

**Due** - Range is within the defined calibration due tolerance.

**Past Calibration Date** - Range is past its calibration date, but not beyond the defined overdue tolerance.

**Overdue** - Range is beyond the defined calibration overdue tolerance.

**In Progress** - This status indicates that an asset procedure, (or procedures for a device with multiple ranges), has been downloaded to a portable calibrator & that the calibration is currently in progress. The In Progress status remains valid until the procedure(s) have been completed, uploaded back into 4Sight2, reviewed & completed by the technician, reviewed & approved, (or rejected), by the approver.

Status will then change from In Progress, to Passed, Needs Adjustment or Failed as determined by the individual range specifications.

**Needs Adjustment** - This status indicates that one, (or more), ranges on an asset are within the defined overall Pass/Fail tolerance, but have exceeded the defined adjustment tolerance & adjustment is recommended/needed to maintain range accuracy.

Example: - If an asset has 3 ranges, 2 of which pass, but one requires adjustment, the overall status of the asset will show as Needs Adjustment in the KPI.

**Adhoc** - When a range is set to Ad-Hoc, it appears as orange on the KPI screen.

**Failed** - This status indicates that one, (or more), ranges on an asset are outside of the defined overall Pass/Fail tolerance.

Example: - If an asset has 3 ranges, 2 of which pass, but one has failed, the overall status of the asset will show as Failed in the KPI.

**Unknown** - This status indicates that asset range(s) have been created, but have not been linked to a test procedure. (This status will only be displayed if all the ranges of an asset do not have a linked procedure).

Example: - If an asset has 3 ranges, all with linked procedures, then Unknown will be the displayed status for that asset. If one, (or more), of the ranges is then linked to a routine/procedure pair within the 4Sight2 application, the status of that asset will change to Passed.

Please Note: The 4Sight2 application assumes that upon linking a new asset to a routine/procedure pair that the asset has passed its previous calibration. Therefore, it is the Administrator/Supervisor's responsibility when first linking an asset within the 4Sight2 application to ensure that the asset passed its previous calibration, the calibration date of the asset is correct and matches the calibration certificate issued. Calibration certificates can be uploaded and stored within the 4Sight2 application for each asset.

## 11.2 AVAILABLE EQUIPMENT KPI

The Available Equipment KPI displays the current status of the test equipment.

For a new application install, where no asset/test equipment data has been populated, the KPI display will be populated with demo data & greyed out to indicate that it is not yet active.

Test Equipment Status shows total number of test equipment available for use and availability status.

**Available**- Test equipment is available for download of procedures to perform calibrations.

**In Use** - Test Equipment is currently in use to perform calibrations.

**Out of Service** - Test Equipment's status has been set to Out of Service

**Out for Calibration** - Test Equipment's status has been set to Out for Calibration

**Retired** - Test Equipment's status has been set to Retired

## 12. Performing a Calibration

The Calibration module helps you to manage the calibration records of Devices. Setting up the calibration requires understanding the task on which a calibration range can be executed with the device available. The 4Sight2 application allows the following calibrations:

- **Portable Calibration:** For use with a calibrator that supports USB communications. The range, procedure and routine can be sent to the calibrator through USB communications port from 4Sight2 application and the calibration results can be received from the calibrator to 4Sight2 through USB communications port.
- **Manual Calibration:** For use with a calibrator that does not support USB communications. Based on the range, procedure and routine assigned the technician has to execute calibration task and manually enter the calibration data to 4Sight2 application.
- **Automated Calibration:** For use with a calibrator and controller that supports USB communications. 4Sight2 software instructs the controller to send Range, Procedure and Routine to the device under calibration with the help of external pressure source and the calibrator, the results are fetched in to the 4sight2 application with the help of USB communications.

### 12.1 Assigning a Range to Technician and Approver

1. From the 4Sight2 menu, click on **Assets** to display the Assets page.
2. To assign a range to technician click on the check box next to the ranges in the asset table.
3. From **Assign Technician** drop-down select the technician from the list displayed.
4. From **Assign Approver** drop-down select the approver from the list displayed.
5. Click **Assign**.
6. The range is assigned to Technician's and Approver's work list only if the range is Due or Adhoc, if it is On Time then it is not added to the work list and the successful message will be displayed.

### 12.2 Work List

The Work List helps the user to Add, Remove and Clear items to their work list.

- **Send**- the selected items will be added to selected calibration type list.  
**Remove from Work List** - the selected items will be removed from the user's work list

Based on your role (Approver or Technician) you can either add the calibration results or approve the calibration results.

For Technician roles or person handling calibration requests, the calibration screen displays the list of ranges assigned.

For Approver roles, the calibration screen displays the list of calibration results to be approved.

## 12.3 Performing an Adhoc calibration

If an item that requires calibration is not yet due, therefore is not displaying in a user's work list, technicians have the ability to assign themselves a range as an Adhoc calibration and admin users have the ability to assign Adhoc calibrations to another user's worklist.

1. To perform an Adhoc calibration, firstly select **Assets** from the 4Sight2 menu to view the assets list.
2. Select the items from the Assets table you wish to assign as Adhoc calibrations.
3. Click the **Add to Worklist** button in the bottom left corner of the **Assets** Tab.
4. Success: Successfully added to selected technician's worklist message will be displayed, and the item will appear in the technician's work list with an Adhoc status.

## 12.4 Technician

### Sending to Calibrator

1. From the 4Sight2 menu, click on **Assets** to display the Assets page.
2. From the Assets page, select the **Work List Tab** or **Item in Work list** button to display the list of calibration work assigned.
3. The number displayed on the button indicates the number of items currently in your work list. The Colour of the button will also change depending on the status of the items in the work list.

**Overdue** | **Due** | **Adhoc** | **On Time** | **In Progress**

4. The Work List page displays the ranges assigned with the following information:
  - **Total Items** - Number of items in the work list
  - **Selected** - Number of items selected
  - **Location**- The location of the device to be calibrated
  - **Tag**- Tag the device is located at
  - **Device** - The device the calibration is to be performed on
  - **Range**- The range to be used for calibration
  - **Priority** - The priority of the calibration
  - **Cal Status** - The status can be one of the following: On Time, In Progress, Due, Past Calibration Date, Adhoc and Overdue. Work list item with status Due, Past Calibration Date, Adhoc or Overdue will be displayed automatically. The work list item status will change to **In Progress**, once the range has been sent to the calibrator.  
**NOTE:** If the status is Adhoc, then the due date will be the current date which means the technician must perform the calibration immediately
  - **Allocated List**- This will state whether this range has been sent to the portable, manual or automated calibration.
  - **Assigned To** - The Technician performing the calibration
  - **Approver** - The person approving the calibration results.
  - **Due Date** - When the calibration needs to take place

5. The user can either select to send range to the Portable or Manual Calibration or Automated Calibration list to perform the calibration.

## 13. Portable Calibration

Portable Calibration is the method by which calibration is performed on the Portable Calibrator which supports USB communications function.

### 13.1 Technician

1. Navigate to Work List on the Assets page.
2. Select the ranges from the work list to be executed via portable calibration. Select **Portable Calibration** from the **Calibration Type** dropdown, then click the **Send** button
3. The range will now appear in the Portable Calibration List. From the 4Sight2 menu, click **Calibration > Portable Calibration** to display the calibration ranges assigned.

Understanding the priority of task by its color:



Understanding the status of task by its icon:

Calibration State Icon	Status
	Range is assigned to the Technician
	Range has been sent to the test equipment or the range results have been uploaded but are yet to be completed by the Technician
	Range test is completed by the Technician and the test is waiting for Approval

To send multiple range tests to a connected piece of Test equipment:-

4. Ensure the Portable Calibration screen is working in Send/Receive mode by selecting the toggle switch at the top of the screen. Note: this should default to Send/Receive upon entry to this page.
5. Select one or many range tests to send by selecting and highlighting each test by hand or by using the filter at the top of the screen which enables auto selection based upon the Calibration State of each test.
6. Connect the calibrator device to the system through USB port.
7. Select the Port and Calibrator from the drop-downs. The Calibrator drop-down automatically populates the details of Druck devices connected. If this box is empty, please check your device connections and refresh the display. If the box remains empty and the

connected device is not recognized then refer to the Troubleshooting section of this document.

8. Select the Port and Calibrator from the drop-downs. The Calibrator drop-down populates the details of Druck devices connected. If this box is empty, please check your device connections and refresh the display. If the box remains empty and the connected device is not recognized then refer to the Troubleshooting section of this document.
9. Upon selection of a calibrator, the calibration date and due date stored within the calibrator are checked against the dates held within the Test Equipment section of 4Sight2. If the calibration dates do not match, then a warning is displayed and it is the Technician's responsibility to confirm the correct calibration dates are present in 4Sight2 before continuing to use the Test Equipment for calibration.
10. The **Erase Test Equipment Memory** button can be used to completely erase the connected calibrator memory before a send. However, it should be noted that this will completely remove any existing range test results which are present upon the calibrator at this point. It is recommended that it is confirmed prior to performing this erase that all results have been successfully uploaded to 4Sight2.
11. Once the test equipment for send is displayed, select **Continue** to send to this test equipment.
12. The Send/Receive screen contains a table which displays information about the range tests selected for send. The table displays Range/Tag and Location information to help identify the DUT. It also displays the filename of the range test as it will appear on the test equipment and if previous calibration results already exist for this test on the connected test equipment.
13. Select the range tests from the table for send and select **Send to Test Equipment**.  
**NOTE:** Ensure the portable calibrator is set to the same language as 4Sight2 before downloading to allow characters to be displayed correctly on the portable calibrator. To change the language, from the calibrator menu go to **Settings > Language** and select the required language.
14. If any ranges fail to send then they will display an Operation Status of **Failed**. In this case the mouse can be used to hover over each Failed result and the failed message will be displayed.
15. Any ranges, which have previously been sent to the calibrator, will not be sent again if selected as part of another batch. In this situation, the range test is marked as N/A in the Operation Status column.
16. If any tests have been sent to the calibrator in error, these can be Aborted by selecting the test(s) and selecting **Abort**.  
**NOTE:** Aborting a test will remove it from the Technician's Portable Calibration screen. Any results within 4Sight2 will also be lost but the test and any associated result data will not be removed from the Test Equipment.
17. Once all required tests are successfully sent select **Close**.
18. The range and procedure data sent from 4Sight2 will be published in the calibrator. Upon successful send, the range and procedure data sent from 4Sight2 shall be available in the Documenting section of the calibrator.

## 13.2 During Calibration

19. Navigate to the desired procedure in the Documenting section of the calibrator and confirm the auto populated values for UserID and DUT Serial Number in the Test Details section in the Calibrator. These details are automatically transferred from 4Sight2 and should be checked before the Calibration process is initiated. To know more about Calibrator operating steps, please refer to the Calibrator's manuals.
20. Based on the test points specified in the procedure and the range Input Min/Max value specified in the range, the test point values are presented in the calibrator and calibration happens for each test point.
21. On completion of calibration for each test point, the results are saved in As Found results. The first time results of calibration procedure are saved as AsFound and all the subsequent test results are stored in the AsLeft results. These results can be viewed on the calibrator in tabular and graphical form before uploading.

## 13.3 Receiving from Calibrator

To receive multiple range tests from a connected piece of Test equipment:-

22. Ensure the **Portable Calibration** screen is working in **Send/Receive** mode by selecting the toggle switch at the top of the screen.  
**NOTE:** This should default to Send/Receive upon entry to this page
23. Select one or many range tests to receive by selecting and highlighting each test by hand or by using the filter at the top of the screen which enables auto selection based upon the Calibration State of each test.  
**NOTE:** Range tests which are available for receive are displayed with
24. Range tests which contain test results on the connected test equipment are automatically selected and highlighted for upload.
25. Enter the environment for the tests to be received.  
**NOTE:** The environment data entered here will be applied to each of the received tests. This data will be reviewed and can be changed upon review of the received test results prior to completing the calibration.
26. Select **Receive from Test Equipment** to receive the test results into 4Sight2.
27. The operation status column will display the result of the receive operation. If any range test fails to be received then an error message will be displayed at the top of the screen and upon hovering over the Failed status the error message will also be displayed.
28. If at this point any tests need to be aborted, then they can be selected and aborted as described above.
29. Select close to complete the receive process.

## 13.4 Completing Calibration

30. Received results are reviewed by selecting Review at the top of the Portable Calibration menu.

31. Each received result can be displayed by selecting the test.
32. AsFound and AsLeft results will be displayed to the user in the form of a table and graph.
  - Passed** - Within the adjustment limit and max error limit
  - Need Adjustment** - Within the max error limit but outside the adjustment limit
  - Failed** - Outside the max error limit
33. If another set of calibrations for each test point are performed, then the results for those are saved as As Left results.
 

*The cumulative status depends on the statuses of the different test points. If one of the test points has failed, then irrespective of status of other test points, the cumulative status is Failed. If out of two test points, one has passed and one has a needs adjustment status, then the cumulative status is Needs Adjustment. Only if all the test points have status of Passed then the cumulative status is Passed.*
34. When you have finished viewing the As Found results, click **Continue**. If the calibration procedure passes first time then as there is no adjustment needed there is no need to repeat the procedure to obtain As Left result. In this situation the calibrator will only contain the As Found results and as such the user is prompted to copy these results to As Left.
35. Click **Continue** to display the Summary page.
36. On the Summary page for each range test, confirm the environment data is correct.
37. Enter any comments on the calibration performed or notes for the approver into the **Notes** box (characters < 500).
38. To approve the calibration click **I complete this calibration** check box to enable the **Done** button.
39. The Range will now be removed from your portable calibration list and will be sent to the Approver's Portable Calibration list.

## 13.5 Calibration Approval (Approver)

**NOTE:** If global policies are set to "Technician Only" approval, these steps may not be required. If you are an administrative user, see global policies section or check with your local administrator for more details.

40. To approve the Calibration work uploaded by the technician, login to 4Sight2 application through Approver login.
41. From the 4Sight2 menu click **Calibration > Portable Calibration** or **Manual Calibration** or **Automated Calibration** to view the calibration results.
42. Results ready for approval can be viewed by selecting the Review option at the top of the screen.
43. Select the range you need to approve to view the As Found Details.
44. The As Found screen displays the calibration results uploaded by the technician.
45. Click the **Continue** to view As Found page.
46. Click **Continue** to view the Summary page.
47. Enter the remarks in **Notes** text box (characters < 500).

48. To approve the calibration select I approve this calibration check box to enable the **Approve** button, Click **Approve**.
49. Or to reject, enter the remarks in Notes text box (characters < 500) and click **Reject** (By default the Reject button is enabled).
50. The calibration is now complete and this range is removed from your portable calibration list. The results are now attached to the range.

## 14. Manual Calibration

The Manual Calibration allows a user to record the calibration results from a Calibrator that does not support USB communications.

Based on your role (Approver or Technician) you can either add the calibration results or approve the calibration results.

For Technician roles or person handling calibration requests, the Manual Calibration screen displays the list of calibration work assigned.

For Approver roles, the Manual calibration screen displays the list of calibration results to be approved.

### Calibration Reports

Before starting the calibration task, to record the manual calibration data on paper, you can generate a blank calibration report and print it. After entering the calibration data into 4Sight2 you can generate the calibration report.

## 14.1 Technician

To add the Manual Calibration

1. From 4Sight2 menu, select **Assets** to display the Assets screen, then select the **work list** tab.
2. Select the items from the work list you wish to send for manual calibration.
3. From the **Calibration Type** dropdown select **Manual Calibration** and then click the **Send** button.
4. 4Sight2 will add the selected items to the Manual Calibration list. This page can be accessed via the 4Sight2 menu, **Calibration > Manual** Calibration.
5. Select a range from the manual calibration list you wish to add calibration results to.
6. Add an input and output Measurement Device and click **Start Calibration**.
7. Set the DUT Serial Number and calibration environment by providing the information and click **Set Environment** to view the next screen.
8. Enter the As Found Calibration data, to view the calibration result.

<b>Passed</b>	- Within the adjustment limit and max error limit
<b>Need Adjustment</b>	- Within the max error limit but outside the adjustment limit
<b>Failed</b>	- Outside the max error limit

9. Using the edit icon (green colour) next to the Actual Input and Actual Output value entry boxes Uncertainty Ranges can be set. Select Uncertainty Range pop-up will be displayed, select the device and the range and select **OK** to set the uncertainty range. The range selected will be applied to all of the test points. The uncertainty range selected for each test point can be viewed by hovering over the edit icon. If a range has been selected for either an input or output but not both a red edit icon will be displayed to indicate that it must be set. Once both input and output uncertainty ranges have been set uncertainty calculations

will be performed. These values are displayed in the Uncertainty and Uncertainty % Span columns of the results table. If ranges are not selected these columns will display N/A.

note: if no range is selectable from the Uncertainty Range pop-up then this means you have not set the uncertainty range for this device. Refer to Section 8.3.2 Uncertainty.

10. Press the **Continue** button to display the **As Found Completed** page.
11. To add As Found data click **No** or to copy data click **Yes** to proceed to As Left page.
12. Click **Continue** to display the Summary page, this page displays an overview graph and a section to add technician notes.
13. Enter any observations or comments in Notes. Click on the **I Complete this Calibration** box and click **Done**. The range will be removed from Technician's work list.

## 14.2 Calibration Approval

Once the technician has uploaded the manual calibration results, these results then can be approved.

**NOTE:** If global policies are set to "Technician Only" approval, these steps may not be required. If you are an administrative user, see global policies section or check with your local administrator for more details.

To approve a Manual Calibration, the assigned approver must review the results in their Manual Calibration List.

1. From 4Sight2 menu, select **Calibration > Manual Calibration** to view the range awaiting approval or rejection.
2. Click on the range to view the latest calibration results.
3. Click **Continue** to view further results like **As Found** and **As Left**, enter the remarks in **Notes** section.
  - To reject the calibration, click **Reject**.
  - To approve the calibration, click on the check box **I Approve this calibration** to enable the Approve button and click **Approve**.
4. Successfully approved the calibration message will be displayed.

# 15. Automated Calibration

Automated Calibration allows for full automation of a calibration procedure whereby each step is controlled automatically by 4Sight2 in combination with Druck instruments. Semi-automation can also be achieved with the use of third-party devices.

The list of Druck instruments supported by Automated Calibration are:

- Pressure Controllers – PACE 1000, PACE 5000, PACE 6000
- Portable Calibrators – DPI611, DPI612, DPI620G, DPI620G-IS
- Temperature Calibrators – DryTC 165, DryTC 650, LiquidTC 165 and LiquidTC 255.

note: Automated calibration is available only to the user with the appropriate license, see License section.

## 15.1 Warnings

Before performing an Automated Calibration using Druck pressure controllers or temperature calibrators, please review the following warnings.

### 15.1.1 Pressure Controllers



Before performing automated calibration, checks should be performed to ensure that the DUT and the pressure controllers/sensors are all within the expected and compatible pressures operating ranges. DO NOT rely on the system to check everything. Refer to the safety instructions at the start of this manual.



Using USB connection does not prevent Ethernet connection from also controlling the PACE, care should be taken to remove the Ethernet connection for the safest operation.



Loss of communication, or loss of local services can result in trapped/residual pressure within the system, which will require careful manual vent before operations can be resumed.

### 15.1.2 Temperature Calibrators



**CAUTION! Risk of injury or material damage!**– The calibrator can become very hot during operation. If the machine is operated without supervision, third-party persons in the vicinity could get injured. Moreover, flammable material could get into the machine and cause significant damage to property. Never leave the calibrator unattended when it is in operation or in the cooling phase.



**CAUTION! Risk of burns!** - The Calibrator can become very hot when in operation. Touching hot parts can result in serious injuries. Never touch the metal block, the tank, the adapter sleeve or the test specimen at temperatures above 35oC or below 10oC. Allow the calibrator to cool before you remove the test specimen, clean the tank, change the adapter sleeve or the calibration insert or switch off the machine.



**CAUTION! Material damage!** - The opening in the metal block of the calibrator is only intended to be used with adapter sleeves or calibration inserts. Using heat transfer media (oil, thermal paste or other media) can lead to incorrect measurements and damage to calibrator. Never fill the metal block opening with a heat transfer medium. Only micro baths are suitable for use with heat transfer medium.

## 15.2 Prerequisites

The following steps explain how a user can add a Range to the Automated Calibration list.

1. From the 4Sight2 menu select **Assets** to display the assets page.
2. Select the **Work List** tab to display the list of assigned ranges.
3. Select the ranges from the work list that are to be executed via Automated Calibration.
4. From the **Calibration Type** dropdown, select **Automated Calibration** then click **Send**.
5. "**Success:** range(s) sent to Automated Calibration" message will be displayed.
6. Navigate to Automated Calibration by selecting **Calibration > Automated Calibration** from the 4Sight2 menu.
7. Select the range from the Automated Calibration list you wish to perform.

## 15.3 Setup

Once a range has been selected from the calibration list, proceed to setup the calibration. Make sure all controllers and calibrators are connected to the system via USB and select Refresh. A range will either be Proportional or Switch, please follow the relevant following instructions.



Connected devices current values will be displayed in the Input reading and output reading boxes. If the colour of the reading in the boxes is red at any point of time during calibration denotes communication loss or error in device connection to the system.

### 15.3.1 Proportional

1. Select the **Input Controller** from the Input Controller dropdown. A controller can either be a pressure controller or a temperature calibrator. Then for a pressure controller select a **Module** or temperature calibrator a **Range**.

**NOTE:** Once a controller is selected several controller options will be displayed, refer to Controller Options section for more details.

2. Select the **Input Measurement**. An input measurement can be any of the supported Druck calibrators. Then select a **Module** for a pressure controller, a Range for a temperature calibrator and a **Channel** for a portable calibrator.
3. Select the **Output Measurement** and its **Module, Range** or **Channel** where relevant.

**NOTE:** If an Input Controller/Measurement or Output Measurement device does not support USB communications, manual entry can be selected for any of these devices. This enables the user to enter results manually into the table and perform a semi-automated procedure.

4. Select **Continue**.

### 15.3.2 Switch

1. Select the Input Controller from the Input Controller dropdown. A controller can either be a pressure controller or a temperature calibrator. Then for a PACE select a **Module** or temperature calibrator a **Range**.

**NOTE:** Once a controller is selected several controller options will be displayed, refer to Controller Options section for more details.

2. Input Measurement will be auto populated with the same details as the input controller. Input reading will be output by the input controller.
3. Select the **Output Measurement** and its **Module, Range** or **Channel** where relevant.

**NOTE:** Switch tests only supports devices that support USB communication.

4. Select **Continue**.

## 15.4 Controller Options

After selecting the controller in setup for Automated Calibration, controller options are enabled. Controller Options include Vent, Exercise, Leak Test and Reset which ensure integrity of the product and are available for consumer safety.

### 15.4.1 Exercise - PACE

1. Exercise is the process to ensure the controller is working properly before performing the actual calibration.
2. On the Automated calibration screen, click **Exercise** button under controller options.
3. In the exercise box, enter the number of exercise cycle and click **Start**.
4. Based on the range specified, the controller applies pressure to the equipment from minimum to maximum or maximum to minimum value and completes the exercise.

5. 4Sight2 verifies whether test point values are controlled properly by controller and displays the results.

### 15.4.2 Vent – PACE

1. Vent is process of releasing the pressure of the controller to atmospheric pressure.
2. To perform a vent operation, on the Automated calibration screen click **Vent** button under controller options.

### 15.4.3 Leak Test – PACE

1. Leak Test is the process of checking if there are any pressure leaks in the equipment under test, to ensure that pressure can be controlled to and maintained by the PACE controller before conducting the procedure.
2. On the Automated Calibration screen, once a PACE has been selected as the input controller and module selected, click the **Leak Test** button under controller options.
3. The **Leak Test** pop up **Settings** screen will be displayed with the following settings options:

#### Test Pressures

- **Control Point 1**– Enter a value between the upper and lower range of the input pressure to set the first control point
- **Control Point 2** – Enter a secondary control point value been the upper and lower range of the input pressure. If only one test point is required enter the same value as control point 1.
- **End Point** – Enter a pressure value between the upper and lower range of the input pressure to be controlled to at the end of the test before venting.
- **Control Point Tolerance** – Enter a % tolerance value to be used to verify the control point has been reach within the tolerance.

#### Dwell Settings

- **Control**– Enter a time in hours, minutes and seconds for the control stage run. The control stage is the time the PACE should apply pressure to a device under test, before the leak rate is measured.
- **Thermal Stability** – Enter a time in hours, minutes and seconds for thermal stability stage to run. The thermal stability stage is the time once the PACE has stopped applying pressure for the pressure to stabilise to the environment's temperature.
- **Measure** – Enter a time in hours, minutes and seconds for the measure stage to run. The Measure stage is the time the leak rate is to be measured over.

#### Test Summary

- **Input Controller** – Details of the PACE controller selected to perform the test with.
- **Module Range**– Details of the module the test is being performed with.
- **Leak Test Range** – The range of the test procedure, representing the limits the leak test can be performed between.

#### Rates

- **Slew Rate**– The rate at which the PACE should control to the test points, in seconds or minutes.
  - **Vent Rate** – The rate at which the PACE controller should vent to ambient pressure, in seconds or minutes.
  - **Measure Leak Rate**– Select whether the result should be in pressure per minute or pressure per second.
  - **Leak Rate Tolerance**– a value set by the user to determine whether the Leak Test passed or failed.
4. Once the settings have been adjusted as required, click **Next**.
  5. The **Test** screen will be displayed with the following panes:
    - **Current Stage** – The leak test stage, either venting, control dwell, thermal stability or measure dwell, will be displayed alongside a countdown time for the stage once the test is started.
    - **Current Reading** – The pressure reading from the PACE controller
    - **Test Summary** – Details of the controller being used, and tolerances selected.
    - **Results** – Will display a results summary on test completion.
  6. Click the **Start** button to begin the Leak Test.
  7. 4Sight2 will firstly vent the controller before starting the test.
  8. Once vented the **Current Stage** pane will display **Control Dwell** along with a countdown timer for this stage. During this stage the PACE will apply pressure to the device under test based on the value selected for control point 1.
  9. The next stage is the **Thermal Stability** stage where the PACE controller will stop applying pressure to allow the pressure to stabilised based on the environment's temperature.
  10. The **Measure Dwell** stage will then commence. During this stage the leak rate will be measured.
  11. The result of the Point will be displayed in the **Results** pane, a cross represents a failed test point and a tick a passed test point.
  12. If a second test point has been set, then steps 8 to 11 will be repeated.
  13. Once both control points have been tested an Overall Status will be presented to the user.
  14. Select **Close** once Leak Testing is complete.

#### 15.4.4 Reset – Temperature Calibrator

1. Reset is the process of resetting the temperature calibrator to a safe temperature. Reset returns the temperature calibrator to an ambient temperature of 20°C.
2. To perform a reset operation, on the Automated Calibration Setup screen click the **Reset** button under Controller options.

### 15.5 Set Environment

Every controller type allows the user to set the following common environment variables.

- Ambient Pressure – Default 1013 mbar
- Relative Humidity – Default 70%RH
- Temperature – 20°C

Depending on the type of controller selected Controller Settings on the set environment screen vary. Please follow the instructions for the relevant controller type. Once the environment variables are set click Set Environment to display the As Found Screen.

### 15.5.1 PACE

- **Generate '0' by** – This option allows a user to generate a zero-set point either by venting the controller or controlling to zero.  
**NOTE:** To control to zero, a vacuum pump may be required.
- **Collect Results when –**
  - **Settling time expires** – Settling time uses the settling time defined in the range to wait for the set point to stabilise after the controller has controlled to this value.
  - **In Limits** – In Limits is a function available on a PACE which calculates whether the Input reading has been within test point tolerance defined in the procedure, for a given in limits time. If in limits is selected as the value for 'collect results when', the In-Limit Time box will appear, and the user can enter a time and its unit's.
- **Slew Rate** – Slew Rate defines the time to control to a given setpoint. This can either be Linear or Max.
  - **Linear** – If a linear slew rate is select the user can define the Number of Units/frequencies in bar/sec or bar/min
  - **Max**– Max slew is equivalent to setting slew rate to 0, so we assume the value is controlled to instantly.
- **No Overshoot** – This option ensures that the set points defined are not exceeded.
- **Vent Rate** – Defines the rate at which the controller should vent to 0 in bar/sec or bar/min.  
**NOTE:** For a switch test the only Controller Setting is Vent Rate.

### 15.5.2 Temperature Calibrators

Temperature calibrators only have the common environment settings unless they are Liquid temperature calibrator. In which case the user can set the liquid type setting.

**Liquid Type:** This can be selected as oil or water. If oil is selected, then the user must enter a flash point. This flash point is verified against the upper range of the test. If the upper range is above the flash point of the oil, then the user will be warned not to perform this test.

## 15.6 AsFound/AsLeft

From the AsFound and AsLeft screen the Automated Calibration can be performed. Before a temperature calibration the user has the ability to adjust settling time. This allows users to run the test a few times before deciding on the exact settling time they wish to use as different scenarios may require larger settling time than others.

## 15.6.1 Proportional

1. Click **Start** to start the calibration.
2. Upon clicking the start button, the functions shown below will be available during calibration.
  - Pause – technician can pause the calibration. Pausing the test more than 2 minutes will abort the test
  - Stop – technician can stop the calibration process and start the process again from the first test point
  - Skip – technician can skip the set test points which he doesn't want to execute
  - Redo Last – technician can repeat the test points which he wants to exercise again
  - Abort – technician can abort the calibration process and again go to Auto Calibration setup screen for any modification in controller, calibrator/reference, output device or any other configuration
3. Before the first test point is performed and after the last set point is performed for a PACE controller, 4Sight2 will vent the controller to atmospheric pressure. For a temperature calibrator after the last set point the calibrator will be reset to 20°C. Vent and Reset are for safety purposes.
4. Based on the test points specified in the procedure and the range Input Min/Max value specified in the range, the test point values are presented to a controller. The controller applies the test point values to the device under calibration and then the calibrator reads the output values and send it to the system.

**NOTE:** On selecting the Hold before reading check box, user shall confirm that the reading can be taken upon reaching the set point by clicking Take readings button.

**NOTE:** For Manual Entry, enter the values manually in the appropriate field, either input or output as selected and click **Done**

5. On completion of each calibration, results will be displayed immediately on the screen and successful completion of the calibration message will be displayed.
6. Results will be displayed to the user in the form of table and graph.

<b>Passed</b>	- Within the adjustment limit and max error limit
<b>Need Adjustment</b>	- Within the max error limit but outside the adjustment limit
<b>Failed</b>	- Outside the max error limit

7. When you have finished viewing the As Found results, click **Continue**. If the calibration procedure passes first time then as there is no adjustment needed there is no need to repeat the procedure to obtain As Left result. In this situation click **Next** and the user is prompted to copy these results to As Left.

**NOTE:** If the calibration is aborted in As Left page, data in As Found page will also be erased.

8. Click **Continue** to display the Summary page. For other steps in automated calibration, continue from step 18.

## 15.6.2 Switch Calibration

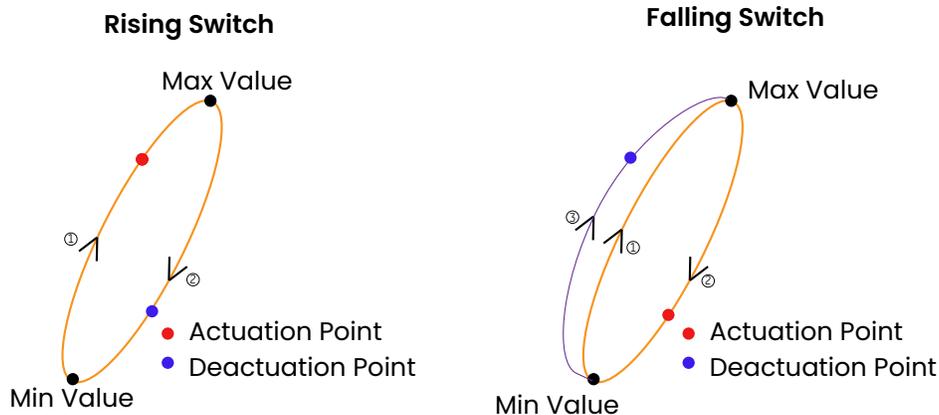
9. Click **Start** to start the calibration.

10. Based on ramp time specified in the procedure and input Min/Max value specified in the range, the controller applies pressure/temperature to the switch and then the calibrator reads the actuation and deactuation points of the switch and send it to the system. The system will show the status of the switch when it turns from close to open and vice versa.

**NOTE:** 4Sight2 repeats the calibrations as per the number of exercise cycles set in the procedure

**NOTE:** If switch Actuation and Deactuation fails to occur, then -99999.00000 will be shown as the value in the application for the corresponding cycle

11. **Rising switch:** The controller applies pressure/temperature to the switch from minimum value to maximum value and returns to minimum value and completes the cycle. The calibrator detects the actuation point while pressure/temperature is rising and detects the deactuation point while pressure/temperature is falling.
12. **Falling switch:** The controller applies pressure/temperature to the switch from minimum value to maximum value and returns to minimum value and then continues to raise again to maximum value and completes the cycle. The calibrator detects the actuation point while the pressure/temperature is falling from max to min value and detects the deactuation point while the pressure/temperature is rising again.



13. On completion of each calibration, results will be displayed immediately on the screen and successful completion of the calibration message will be displayed.

14. Results will be displayed to the user in the form of table and graph.

**Passed** - Within the actuation/deactuation tolerance  
**Failed** - Outside the actuation/deactuation tolerance

15. When you have finished viewing the As Found results, click **Continue**. If the calibration procedure passes first time then as there is no adjustment needed there is no need to repeat the procedure to obtain As Left result. In this situation click **Next** and the user is prompted to copy these results to As Left.
16. When you view results on As left page, cycles with max actuation error will be saved in as left results and this will be used for determining calibration results.
17. Click **Continue** to display the Summary page.

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### 15.6.3 Summary

18. On the Summary page for each range test, confirm the environment data is correct
19. Enter any comments on the calibration performed or notes for the approver into the Notes box (characters < 500).
20. To approve the calibration click **I complete this calibration** check box to enable the Done button.
21. The Range will now be removed from your automated calibration list and will be sent to the Approver's Automated Calibration list.

### 15.6.4 Calibration Approval (Approver)

**NOTE:** If global policies are set to "Technician Only" approval, these steps may not be required. If you are an administrative user, see global policies section or check with your local administrator for more details.

22. To approve the Calibration work uploaded by the technician, login to 4Sight2 application through Approver login.
23. From the 4Sight2 menu click **Calibration** > **Automated Calibration** to view the Automated calibration results.
24. Results ready for approval can be viewed by selecting the Review option at the top of the screen.
25. Select the range you need to approve to view the As Found Details.
26. The As Found screen displays the calibration results uploaded by the technician.
27. Click the **Continue** to view As Found page.
28. Click **Continue** to view the Summary page.
29. Enter the remarks in **Notes** text box (characters < 500).
30. To approve the calibration select I approve this calibration check box to enable the **Approve** button, Click **Approve**.
31. Or to reject, enter the remarks in Notes text box (characters < 500) and click **Reject** (By default the Reject button is enabled).
32. The calibration is now complete and this range is removed from your Automated calibration list. The results are now attached to the range.

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## 16. Calibration Results and Reports

Once the Calibrations are complete, whether Portable, Manual or Automated, calibration results can be viewed, and calibration reports can be generated.

**NOTE:** calibrations must be approved in line with the global policies for results to be visible within the range. For example, if the global policy is “Calibration Approved by Technician and Approver” both users must approve the calibration before results are visible. See Section 3.5 Global Policies for more details.

From the 4Sight2 menu navigate to the Assets screen, then navigate to the range you wish to view results or generate a report for. Ranges can be found by searching the Assets table or Selecting the Asset Management title to navigate to the asset using the context browser.

Upon selecting a range with results, you will be able to see the Calibration Results, including a summary graph, as Found and as Left data, trending graph, test equipment used for the test, environment details, calibration notes and a summary of the test performed.

### 16.1 Viewing Past Calibration Results

If an asset has been calibrated multiple times, results can be viewed for any date and time using the drop down below the range name. You can also view **Current Configurations** using this drop-down which will display only the range information without the results

### 16.2 Generating Calibration Reports

To Generate a Report, from the action dropdown select **Generate Report**. A pdf will be generated which can be downloaded and saved. This will contain all the details about the test performed, the same as what is displayed in the calibration results in 4Sight2. This report can then be printed or saved to back up these records.

# 17. Frequently Asked Questions (FAQs)

## 17.1 License Management

**Question 1:** After installation of 4Sight2 why does the License screen show License Type: DEMO?

**Answer:** Upon Initial installation of the 4Sight2 software the demo version is installed.

- If you have already been provided with a license file, you must activate this using the License screen. See Uploading License File section in this manual.
- If you require a license file, please contact the 4Sight2 Tech Support Team.

**Question 2:** What should I do if I get an error message stating License is not valid?

**Answer:** Please attempt to reupload the license file provided. If you are still experiencing this error contact the 4Sight2 Tech Support Team.

**Question 3:** What should I do if upon upload of an existing license file, a mismatch in hardware id error displays?

**Answer:** This error may occur if you have switch network. The hardware id found on the License screen may have changed, meaning the existing perpetual license has become invalid. Please contact the 4Sight2 Tech Support Team to generate a new License file.

## 17.2 Asset Management

**Question 1:**How should I proceed if on initial login to 4Sight2 I see no asset data?

**Answer:** If you require migration of data from an existing database, you can opt for the data migration services provided by the 4Sight2 Tech Support Team. Otherwise you must manually create your data using 4Sight2.

**Question 2:** How do I access my organizational plant structure?

**Answer:** See the **Application Navigation > Context Browser** section of this user manual

**Question 3:** After the creation of an Asset hierarchy, how can I quickly navigate to different assets, such as locations, devices and ranges?

**Answer:** Navigate to the **Assets Screen > Assets** Tab. Use the filters on the assets table to search for an asset by name and click on the name link to take you directly to that entry. Alternatively, you can use the Asset hierarchy to navigate to the asset in the tree structure.

**Question 4:** Why even though I have created an asset hierarchy up to the device level I cannot see anything in my asset table?

**Answer:** Only range details are displayed in the asset table. Once a range has been created for a device it will be visible in the asset table.

**Question 5:** Where should I assign a routine I have created and why?

**Answer:** The purpose of a routine is to schedule an asset for calibration; therefore, an asset must be linked to a routine for 4Sight2 to manage this scheduling. A routine can either be linked directly to an asset or inherited by an asset. If a routine is linked to an asset directly such as a plant or location which has sub assets in the asset hierarchy, then all sub assets will show this routine as

inherited. Routines can also be created and assigned to ranges directly upon addition of a new range, this process will directly link this routine to the device this range belongs to.

**Question 6:** Where should I assign a procedure I have created?

**Answer:** Procedures must be directly assigned to a range. Upon creation of a range a user may create or assign an existing procedure to this range. This process will also automatically link this procedure to ranges routine.

**Question 7:** Why does a range show an Unknown Cal Status on the Asset screen?

**Answer:** If a procedure has not yet been linked to a range this status will be displayed. Upon creation of a range it is mandatory to link a procedure to a range, however if a range has been copied or you have recently had your data migrated, procedures may not be linked to the ranges yet.

**Question 8:** Is it possible to delete an asset that has calibration data?

**Answer:** No, you cannot delete an asset with historical calibration data, you can however move this asset to a Bin location to store results of assets that are no longer in service. Cal status for this device in the asset table will be displayed as Inactive.

**Question 9:** When I copy a device, what does the Copy [Number] next to the device name mean?

**Answer:** The copy number is generated by 4Sight2 to maintain the uniqueness of the device. This enables a user to copy a device to a location with a device that already has the same name. The device can be renamed by the user to remove the number.

**Question 10:** Why can I not move a device from one location to another if that location contains a device with the same name?

**Answer:** This operation is currently blocked. Please rename the device prior to moving it.

**Question 11:** Why do I get an error message stating "name size must be between 1 and 25" when pasting a device I have copied.

**Answer:** This is since a device is copied, the Copy[number] text is appended to the device name. If you attempt to paste a device name that will exceed the maximum character length for a device name with this text appended, you will see this error. To copy, reduce the device name length and then rename after copy.

**Question 12:** What are the basic ingredients required to perform a calibration in 4Sight2?

**Answer:** Create the below assets as a minimum:

- Two **Users**, one to act as a technician and another an approver.
- A **Plant**
- A **Location** within the Plant
- A **Device** within the Location
- A **Range** within the Device - assigned to the approver and technician.
- A **Routine** - Can be created whilst adding the range
- A **Procedure** - Can be created whilst adding the range
- one or more piece of **Test Equipment**.

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## 17.3 Device Connectivity

**Question 1:** Why do I see a No Connected Devices Found message, or download and upload is failing to and from my Druck Portable Calibrator?

**Answer:** There could be multiple reasons why this issue is occurring, see the following most common reasons and solutions:

- Make sure the device is connected via USB cable to the computer. Ensure the USB cable is functioning and in good condition.
- Make sure the device drivers are installed correctly, refer to the installation manual for details. Check if the device is visible in the windows device manager.
- Make sure your portable calibrator is in communications mode
  - On a DPI620G/IS navigate to **Devices >>USB Client Port** and select **Communications**
  - On a DPI611/DPI612 navigate to **Settings >> Devices >>USB Client Port** and select **Communications**
- There could be a date time synchronization issue, make sure your portable calibration is set to the correct date and time.
- Other application/Google Chrome extensions may be interfering with the device communications. Try Google Chrome in Incognito mode (Ctrl+Shift+N).

## 17.4 Calibration Management

**Question 1:** How do I find the procedures I have downloaded to my portable calibrator?

**Answer:** From the portable calibrator Home screen go to Documenting >> Run Procedures. Latest versions of the DPI620G/IS have a 4 S 2 button for quick access to Run Test Procedures.

**Question 2:** Why does the error message "Incorrect Probe Type" appear when I try to download to a Druck portable calibrator?

**Answer:** Druck portable calibrators supports fewer probe types than available in 4Sight2. Change the probe type in the range to work around this issue.

## 17.5 User Management

**Question 1:** I have assigned a range to a technician, but it is not visible in my technician work list, why?

**Answer:** 4Sight2 only displays items in the worklist if the item is due for calibration. Otherwise a supervisor can assign an item as Adhoc, see section **Performing an Adhoc Calibrator** or a technician can assign an item already assigned to them using the **Add to Worklist** button from the assets table.

**Question 2:** Why am I unable to see certain areas of the Plant?

**Answer:** Your permissions to view certain locations or plants may have been restricted. Please contact your 4Sight2 Administrator.

**Question 3:** Why can I not delete a user?

**Answer:** Users cannot be deleted due to audit trails; however, they can be set to inactive, meaning they will no longer be able to log into their 4Sight2 account.

## 17.6 Login behavior

- In Chrome browser single session/instance, if user X logs in to 4sight and when in another tab/browser instance the 4sight url is hit, then the same user shall be remained logged in to 4sight with the Dashboard page being displayed by default.
- In single server and multiple client scenario, each client machine can be considered as single user. If the concurrency user limit is reached across clients then appropriate error shall be displayed for that particular client machine.
- Within same machine/system, once a user is logged into 4sight, there is no restrictions on the number of tabs/sessions with which 4sight can be opened having that same user.
- In incognito mode, in single 4sight login page instance, either new user or user which is logged in to 4sight using normal mode, can be used to login to 4sight. Above three acceptance criteria are applicable to incognito mode as well.
- If there are 2 tabs both containing login page of 4sight2, if in Tab1 User1 logs in and then in Tab2 User2 logs in, User2 will be considered as latest user and then if User1 performs any actions in his instance then appropriate error shall be displayed. If User1 does explicit refresh then 4sight login will be refreshed with login of User2.
- In browser, 'X' button doesn't impact these scenarios.
- No impact of 'Refresh' button/functionality to above data.
- If there are multiple 4sight browser instances/tabs and if in one tab logout is performed, then in remaining tabs any action performed by user results in auto log out.
- If there are 2 tabs both containing login page of 4sight2, if in Tab1 User1 logs in and then in Tab2 User2 logs in, if User1 does explicitly sign out then he should be redirected to login page.
- Language selection will be handled separately in Incognito mode.
- Auto Log Out upon session expire shall be applicable across all open 4sight browser instances/tabs.
- Check for httpOnly = true in F12.
- When cookies are disabled the 4sight application will not load [AS-IS].

## 17.7 Uncertainties

**Question:** Why are uncertainty values in my test results displaying as N/A?

- For switch tests Minimum 3 Cycles are necessary to calculate Uncertainty.
- Calibrators Uncertainty must be specified to calculate Uncertainty type, when accuracy type is precision e.g. IDOS and PACE sensors.
- Range must be Manually selected for IDOS using pencil icon, to calculate Uncertainty
- If the test point result is out of range of the test equipment data sheet ranges, the calibrator uncertainty is N/A.
- If you haven't defined uncertainties for a third-party test equipment.

- Manual calibration uncertainty ranges need to be manually defined and selected during the test.
- Uncertainty will be not be displayed when an Absolute PM620 sensor is configured as Sealed gauge if its maximum range is less than 10 bar.

## 18. Troubleshooting

The table below explains common 4Sight2 error scenarios and their remedy actions.

Error Message	Scenario	Remedy/Action to take
Temperature probe not supported	A range has been created with an RTD/TC input or output that is not supported by portable download and upload.	Ensure probe selected is supported by Druck portable calibrators.
Download Error	Invalid data being downloaded to a Druck portable calibrator.	Please refer to the DPI datasheet to ensure the data being downloaded is valid for your test equipment.
Download/Upload Failed	If failed operation status of calibration is displayed in calibration table	Hover mouse over failed status for more details
No Connected Devices Found	4Sight2 is not communicating with Test equipment correctly.	Check Physical hardware connection. Check the device is listed in the Windows Device Manager. Check the Druck test equipment is in communication mode (This can be found under Device in the DPI menu).
Unable to communicate with Test Equipment	On machine start-up CommServer service did not start. Actual Message is shown as below, Unable to Communicate with Test Equipment Download the Test Equipment communicator package. After downloading, unzip and run setup.exe to install. For installation instructions or troubleshooting refer to the Installation Manual. Please contact Administrator for assistance.	Open windows services using "Services.msc" and verify if "DruckCommsServer" exists. If server is already installed, then manually restart the service or install Test Equipment Communication Package.

Error Message	Scenario	Remedy/Action to take
Communication stopped to Portable Calibrator	You successfully connected to the calibrator however subsequent communication attempts are not working.	A Google Chrome extension maybe interfering with the Test Equipment Communicator. Try accessing 4Sight2 in incognito mode to identify if this is the issue. Incognito mode disables any extensions. Or refer to the installation manual trouble shooting for more details
Cannot delete, as the node has entries below it.	When deleting an asset from the context browser	All child items in the structure must be deleted before attempting to delete this asset. I.e. to delete a Tag, you must firstly delete the range then the device then the Tag.
Critical Error in Procedure displayed on test equipment	Druck portable calibrator is displaying an error message	Refer to the Druck pressure calibrator data sheet for valid input output combination and data ranges.
This Test Equipment cannot be deleted as it is linked to a Range which has calibration results OR its calibration is in progress.	Deleting test equipment that has calibration in progress or has calibration result	Test equipment that has results may not be deleted as they will be associate with a calibration record.
404 Error Not found in web browser	Failing to access 4Sight2 with link <a href="http://IpAddress:PortNumber/4Sight2">http://IpAddress:PortNumber/4Sight2</a>	Try the following URL: <a href="http://IpAddress:PortNumber/uaa/login">http://IpAddress:PortNumber/uaa/login</a> If the above does not work, try restarting the service.
Unable to access 4Sight2 post upgrade	Accessing 4Sight2 after an upgrade	Clear the cache and then launch 4Sight2.

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