USER INSTRUCTIONS
AND
WIZARDS EXPLAINED

Table of Contents

Introduction

What is airINSITE

AIRINSITE is an advanced data logging (equipment) and web application (software) solution that enables compressed air equipment and systems to be easily audited, with advanced energy saving simulation capabilities.

About AIRINSITE equipment

AIRINSITE equipment consists of sensor products and data loggers for a variety of audit tasks. Sensors measure...

- Voltage
- Current
- Pressure
- Temperature
- Moisture (dew point)
- Flow

In addition, there's a 4-20mA data logger that can be used with a compatible sensor product.

What is AIR-INSITE.COM

AIR-INSITE.COM is a web application.

A web application is a client-server software application in which the client (or user interface) runs in a web browser. In simple terms, this means the AIR-INSITE.COM application software is hosted elsewhere (on a remote server) and AIR-INSITE.COM users' access the software using a user interface that's hosted within a web browser.

AIR-INSITE.COM features functions and application extensions (API's)

About the AIR-INSITE.COM web application

The AIR-INSITE.COM web application is a dedicated software product used by designers, specifiers, installers, and users of compressed air equipment.

The AIR-INSITE.COM web application is used in conjunction with AIRINSITE equipment to audit the use of compressed air equipment. AIR-INSITE.COM features a variety of graphing, charting, simulation and reporting tools.

Visit the AIR-INSITE.COM site and create an account. There's a sample audit included with new accounts that can be used to learn more about the web application

AIR-INSITE.COM web application 'platform' compatibility

AIR-INSITE.COM is a web application.

To operate the AIR-INSITE.COM App users will need an appropriate platform device and web browser.

Platform devices are widely catagorised as 'PC's', 'Tablets' and 'Smartphones. Although AIR-INSITE.COM may operate on many platforms, its primarily intended that AIR-INSITE.COM will be used on a 'PC' platform...

The term PC is itself a generic term. To clarify what we mean when we use the term PC, we mean a 'Personal' or 'Work station' or 'Desktop' or 'Laptop' computer that features either the Windows 7.0, 8.1 or 10 PC operating system.

AIR-INSITE.COM is a web app. Consequently a user's platform device must also feature a compatible web browser.

AIR-INSITE.COM web application 'browser' compatibility

AIR-INSITE.COM is a web application. Consequently it requires a compatible PC 'web browser'. The following web browsers are supported...

- Google Chrome
- Mozilla Firefox

AIR-INSITE.COM may operate on other web browser products.

AIR-INSITE.COM operates best used with Google Chrome!

AIR-INSITE.COM uses functions and software extensions (API's) that require web browser versioning to be compatible. Consequently AIR-INSITE.COM may become unstable or fail to operate if used with earlier versions of the respective web browser.

It's therefore desirable that AIR-INSITE.COM users update their web browser.

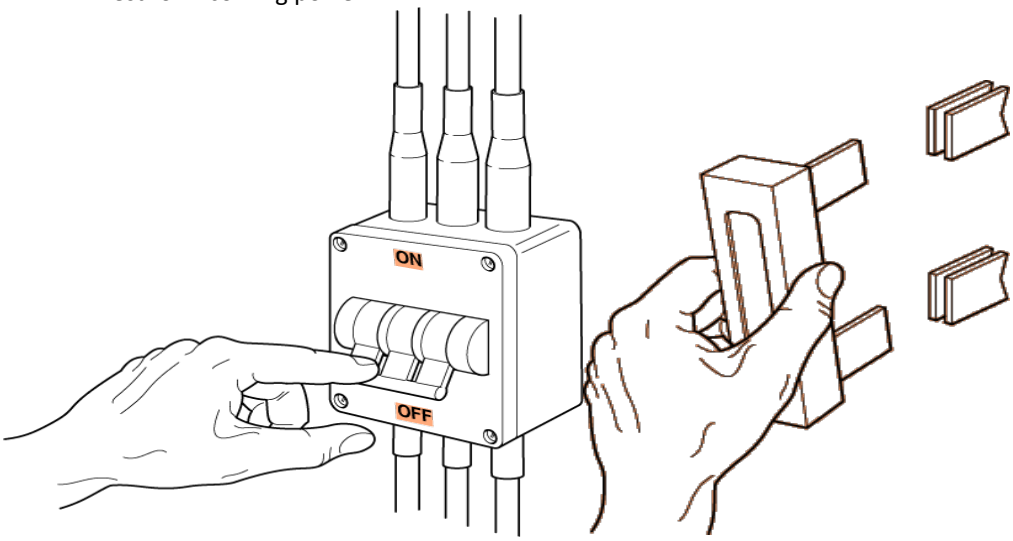
Safety first

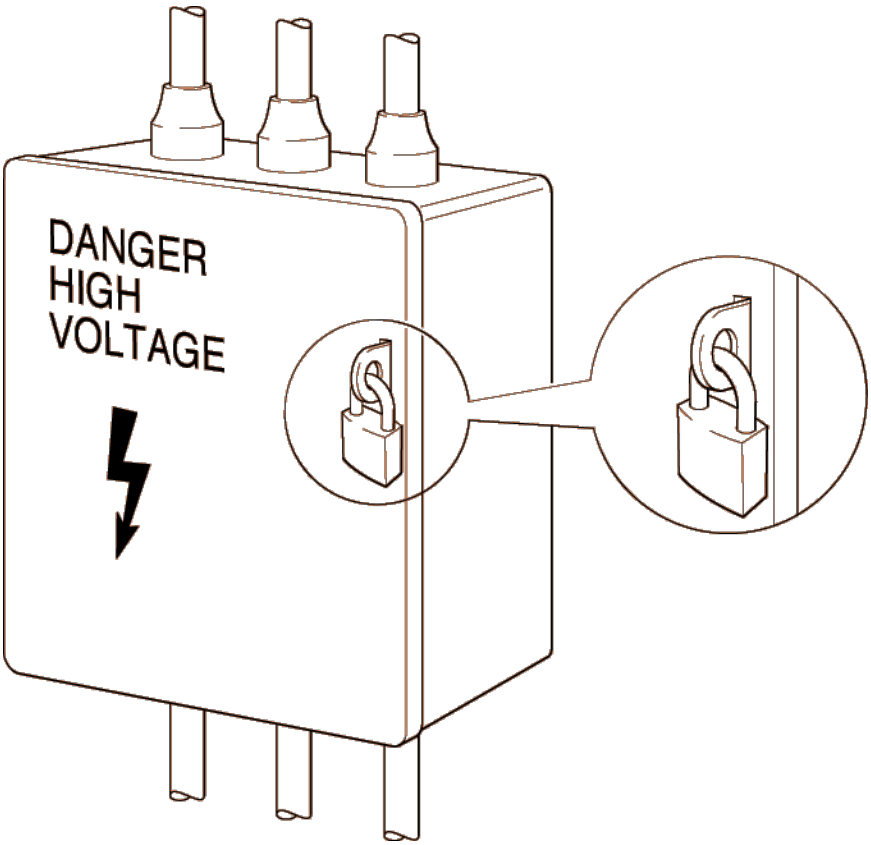
Do not install or operate the AIRINSITE™ product(s) until you and all personnel concerned have read and established a working understanding of the AIRINSITE™ device ...

Electrical Safety

Before installing the current clamp and Voltage leads

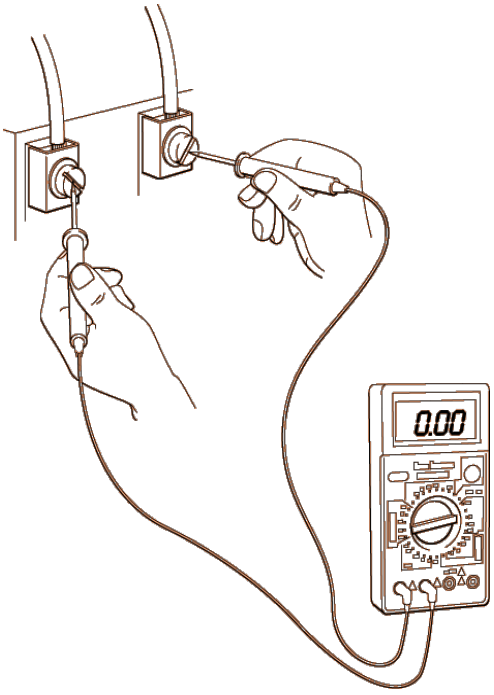
1. Isolate the unit from the main supplies
2. remove fuses
3. Lock out
4. Test for incoming power





Isolate the compressor's power supply at the main board.

Lock the isolation box to prevent someone inadvertently switching supply back on whilst work is in progress or the unit is unsafe to use.



Double check that the main supply terminals to the machine are not live before proceeding with any work.

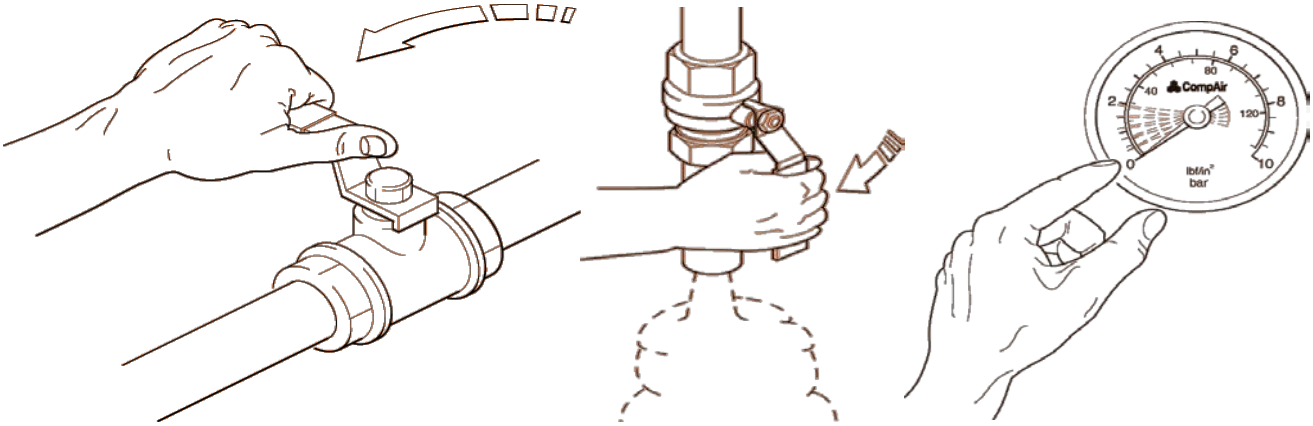
You may be 100% sure that supply has been isolated, but mistakes can occur from time to time. Get into the habit of double checking that the machine is safe to work on as high voltages can kill. It's not worth the risk !!!

Pneumatic Safety ….

Before Installing:

- Pressure Sensors
- Flow Sensors
- Dew Point Sensors

Isolate Compressor From System …



Support Video's

Before jumping in to the deep, please watch all the support video's that are available on air-insite.com, Repsnet or GD inside.

They contain a lot of visual aid how to set up a base station and how to install the loggers to the equipment

airINSITE process

How do I prepare the AIRINSITE Base station for first use?

Each AIRINSITE™ base station is supplied with a power supply and a variety of ‘domestic’ power supply heads.

You will require an Ethernet CAT 5e cable (not supplied), an accessible CAT 5e RJ45 socket, and an IP address with access to the World Wide Web and a source of supply power for the AIRINSITE™ Base station. Select the appropriate ‘domestic’ power supply head from those provided and complete assembly of the power supply. Insert the power supply jack into the socket of the AIRINSITE™ base station and apply supply power.

Following a AIRINSITE Base station 'boot' sequence the graphical user interface will display. Now connect an Ethernet CAT 5e cable (not supplied) to the RJ45 socket of the AIRINSITE™ Base station and to an accessible RJ45 socket with access to the World Wide Web.

Establish an IP address for the AIRINSITE™ base station using either DHCP or manual input methods (see notes below). Finally and only after an internet connection has been established; perform a base station update. Configure date and time settings. Your AIRINSITE™ base station is ready for use!

To learn more, watch a how to video on the support sites

How do I update the software in the AIRINSITE Base station?

First, ensure the AIRINSITE Base station is powered and has access to the internet.

Next, navigate to 'Settings' and press 'ENTER'. Navigate to 'Update base station' and press 'ENTER'. A screen will display the Base station ID, current operating software and the latest software available for download from the AIR-INSITE.COM website.

If the software version available is newer than the installed version, press 'ENTER' to initiate a software update.

Follow onscreen instructions until the Base station reboots!

How do I set the time and date on my AIRINSITE Base station?

From the main menu navigate to 'Settings' and press 'ENTER'. Select 'Time & Date' and press 'ENTER'. Proceed to configure the time, date and date format (DD/MM or MM/DD)

Can I use my AIRINSITE Base station anywhere?

In principle YES. However local area network restrictions may prevent you from establishing a connection to the internet. For example, some local area networks require you to enter additional firewall or user authentication information via a conventional browser interface such as Chrome or Internet Explorer or using custom software. You will not be able to do this using the graphical user interface of the AIRINSITE Base station.

If this occurs consult your local IT resource to gain support on establishing a connection to the internet.

Can anybody use my AIRINSITE Base station?

YES. Any AIRINSITE user account can use any AIRINSITE Base station to transfer data between the AIR-INSITE.COM cloud server and AIRINSITE data loggers. Via the 'Audit Manager' feature, AIRINSITE Base stations are capable of retaining up to 25 active audit configurations at any time. Caution! Because the AIRINSITE Base station ID is important, we encourage users to use the same AIRINSITE Base station throughout any initial audit configuration and the subsequent upload of audit results data.

Can I establish a connection to the internet by tethering my AIRINSITE Base station to my PC or other internet enabled device?

In many cases, yes. However, whilst you may be able to tether your AIRINSITE Base station to your PC or other internet enabled device, the network providing internet access may restrict the use of tethering over their network. Seek the support of the network service provider.

We've released an update to AIRINSITE Base station hardware and software that we call Base station V2. You may see the V2 text on AIRINSITE Base stations dispatched from summer 2015 onward. If your AIRINSITE Base station features V2 hardware your be able to pass data between AIR-INSITE.COM and a AIRINSITE Base station in the same way that you move data from a PC onto a USB mass storage device.

If you have a V1 Base station (unmarked / original version) and you wish to use the 'V2' feature the only solution is to purchase a new AIRINSITE Base station.

How to start a new audit on the AIRINSITE Base Station?

Before starting a new audit, make sure your Base Station settings are up to date and create a new audit configuration on the AIRINSITE Cloud. For more info on the above, please review the FAQs 'How do I prepare the AIRINSITE Base Station for first

use?', 'How do I set the time and date on my AIRINSITE Base Station', 'How do I update the software in the AirINSITE Base Station' and 'How to start a new audit on the AIRINSITE cloud'

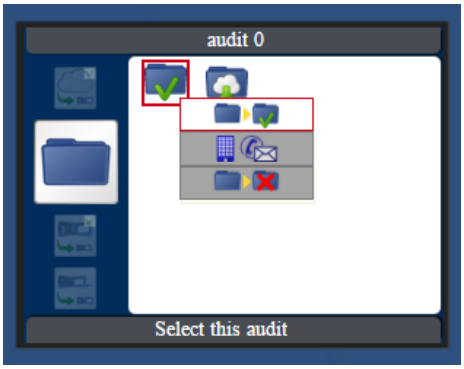
On Base Station:

Step 1: Cloud to Base

Press the down button to scroll to the 'Cloud to Base' menu and click the 'Enter' button to transfer the audit configuration from cloud to base. You should now see a green check mark in the right top corner of the 'Cloud to Base' menu icon indicating that this step has been taken successfully. Now press the 'Back' button to go back to the menu structure on the left.

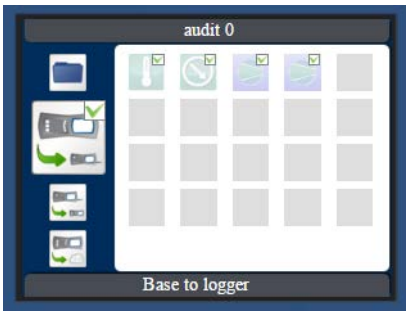
Step 2: Select your audit

Press the down button to scroll to the 'Audit Manager' menu and press Enter. Choose the correct audit file and select it by pressing the Enter button. After selecting an audit, its name should appear on the top of the base station screen.



Step 3: Base to Loggers

Press the down button to scroll to the 'Base to Loggers' menu and press Enter. Click on the Bluetooth buttons on all of the loggers. Once all Loggers are successfully synchronized with the the Base Station, you should now see a green check mark in the right top corner of the 'Base to Loggers' menu icon.



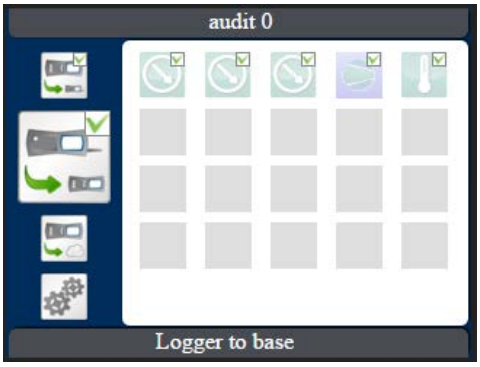
To make sure that your loggers are ready to be installed on site, log in into http://ww.air-insite.com website. Click on 'Audit Wizard' and double click on your audit. It should now show the 'Cloud to Base' and 'Base to Loggers' icons in green (instead of grey).

How do I transfer logged data from AIRINSITE data loggers to a AIRINSITE Base Station and on to AIR-INSITE.COM?

Before you begin, have your Base station and AIRINSITE data loggers to hand. Power up your BASE STATION, connect it to the internet and follow these steps...

Step 1: Logger to Base

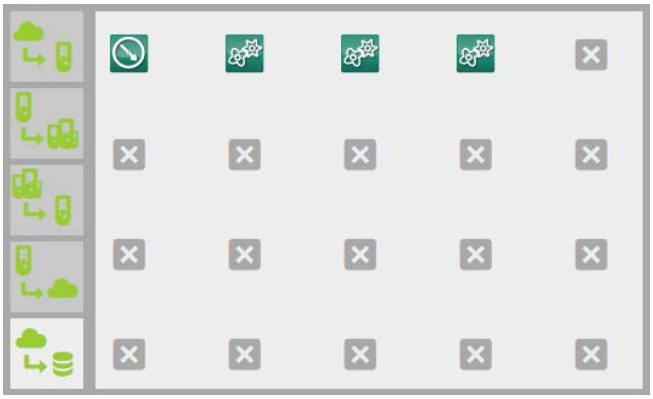
On your Base station press the DOWN button to scroll / find the 'Loggers to Base' (L2B) menu. Press ENTER. Next, Press the Bluetooth button on all of the AIRINSITE data loggers (in this example there would be 5). Once data from a AIRINSITE data loggers has successfully transferred you will see a green check mark on the respective AIRINSITE data logger icon. With all files transferred all data logger icons will feature a check mark. Additionally, in the right top corner of the 'Logger to Base' menu (L2B) a check mark will display. You've successfully transferred data from your AIRINSITE data loggers to a AIRINSITE Base station.



Step 2: Base to Cloud

Press the DOWN button to scroll / find the 'Base to Cloud' (B2C) menu and press ENTER. When the AIRINSITE Base station has finished uploading all audit data to AIR-INSITE.COM, you will see a green check mark in the right top corner of the 'Base to Cloud' (B2C) menu icon.

Progress of the above steps can be observed on the www.air-insite.com website. Click 'Audit Wizard' and then select your audit. Once selected you'll be re-directed to the Audit Wizard 'transfer data' view screen. It will show the 'Logger to Base' and 'Base to Cloud' steps in green (instead of grey) when completed.



Why can't I delete the last or only audit in the File Manager of my Base station?

This effect is the consequence of the way that the Base station handles the last or only remaining audit within Audit Manager. The Base station will not permit you to delete an active audit. When there's only one audit remaining in your Base station it is in effect 'active' and as a result you will be unable to delete it.

This is normal behaviour!

Please do not return a Base station for defect inspection as a consequence of this effect! As you add future audits at AIR-INSITE.COM and download them to your Base station thereby increasing the total number of audits on your Base station to >1, you will be able to delete audits. The effect is merely that you cannot delete the last audit on your Base station. The effect does not impact on normal operation of the Base station.

My Base station says 'Unable to resolve DNS' what does this mean?

Let’s start by understanding what DNS means...

Domain Names System (DNS)?

Basically, the purpose of DNS is to make human life in Internet easier... Computers on the Internet are finding each other using IP (Internet Protocol) addresses. It is a dotted number in form (e.g.: 11.22.33.44). The numbers are decimal values of one byte (0-255). It is very hard for us, as human beings, to use these addresses every time we want to reach a server on the Internet. That’s why some wise guy invented a system which converts these numbers into names and called it 'DNS'. It is

important to remember that the main task of a DNS is not only to convert words to numbers, but also for finding hosts and services on the Internet in general.

Closer to home, 'unable to resolve DNS' simply means the Base station cannot find 'www.air-insite.com' which is the name server the Base station is searching for on the internet. Observe that www.air-insite.com never knows where any Base station is in the world, instead Base stations are factory configured to find www.air-insite.com...

When you see the 'Unable to resolve DNS' message on a Base station this can mean one of three things (with probability percentage)...

Your Base station has no connection to the internet (greater than 95% probability)

Your Base station cannot find www.air-insite.com on the world wide web (less than 5% probability)

Your Base station has developed a hardware problem (less than 1% probability)

To troubleshoot item 1:

Use a patch cable to connect your Base station to an internet socket. Power up the Base station. Once fully powered up, use your Base station keypad and navigate to the 'settings' page. Navigate to the 'Ethernet' page. You should find the DHCP 'enabled' (common state. See below for an explanation about the 'disabled' state) and active IP, Subnet, Gateway and DNS settings. If the DHCP reads 'acquiring' or the other settings seem wrong (e.g. the I.P. reads 0.0.0.0) then there's a problem with the connection between the Base station and your network DHCP server.

What is a DHCP server?

The Dynamic Host Configuration Protocol (DHCP) is a standardized network protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses etc. With DHCP, devices such as the Base station request IP addresses and networking parameters automatically from a DHCP server, reducing the need for a network administrator or a user to configure these settings manually. The DHCP server will reside on the network where the Base station is being used!

Follow these steps...

Power cycle the Base station and re-check settings

Check the patch cable being used to connect the Base station with the internet socket (RJ45 plug)

Ensure the cable you are using is not a 'cross-over' patch cable

Configure DHCP to 'enabled'. Then power cycle the Base station and re-check settings

Try a different patch cable

Check the internet socket (RJ45 plug) is active (try another device that requires an internet connection using the socket etc)

Contact your IT network administrator for support

Your IT network administrator will be able to check the integrity of the IP settings given to the Base station by the network DHCP server

Your IT network administrator will also be able to check and resolve any network security settings that may prevent the Base station from acquiring an IP address dynamically (more common in larger organisations / networks)

Report the error

If DHCP is disabled the Base station is configured for manual IP configuration (Note: this is rarely used. Think carefully before disabling DHCP and making use of manual IP configuration!). In this configuration you will require support from your IT network administrator to establish an appropriate IP, Subnet, Gateway and DNS setting. Check the integrity of these settings thoroughly.

To troubleshoot 2:

Using a PC and internet browser (Google Chrome, Internet Explorer etc.) try to reach www.air-insite.com

If the page does not load, wait 10 minutes and try again

If the page loads then www.air-insite.com is reachable and the problem is closer to home... Check that your Base station has a connection to the internet (see above)!

If the symptom persists then report error

To troubleshoot 3:

Follow trouble shooting 1

Follow trouble shooting 2

Report error

If you choose to create a new support ticket then please provide as much information as possible. Include the contents of the Base station ID page which can be found on the settings page of your Base station. Where possible include screen shots and video footage to demonstrate the problem.

How can I make transporting my AIRINSITE equipment easy

To protect your investment, each AIRINSITE logger is supplied in a robust TUV certified polypropylene case which features...

A full length straight hinge to ensure high levels of rigidity and stability

Shapely, robust locks for a comfortable hold as well as integrated external feet to ensure each case can be securely transported

Stacking points for safe and secure storage or transportation of multiple AIRINSITE loggers

A tamper proof logger ID decal clearly visible on the case exterior

Foam inlays to secure the case contents against external influences

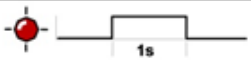
This approach is complimented by a AIRINSITE carry bag designed to carry up to 12 AIRINSITE data loggers and their sensors in a single convenient and rugged carry bag. An information factsheet can be downloaded here. For more information or to purchase, contact your nearest AIRINSITE point of sale.

How do you know when a AIRINSITE data logger is logging data?

AIRINSITE data loggers are intentionally designed with simplicity of operation and long battery life in mind, they therefore do not feature complex cable interconnects or a complex user interface. Logger software is intuitive and therefore requires no operator intervention. Instead, once a data logger is armed (completion of the Base to Logger step using your AIRINSITE Base station) it's working! So how do you know if it’s actually doing something...

Bottom right of each data logger, you will find a single diagnostic KEY and a RED LED above. You can press this diagnostic key at any time. Pressing this key has no effect on data logging! Once pressed the RD LED will pulse to offer condition feedback. The RED LED will self-extinguish after 5 minutes.

An explanation of condition feedback follows...

OFF	Low batteries
Troubleshooting: Check battery condition and replace batteries as necessary	
 Slow flash	Not configured
Troubleshooting: Create audit configuration, transfer from cloud to base station and then from base station to logger	
 Fast flash	Configured, not sensing data
Troubleshooting: Check installation	
 Fast flash	**All data loggers except current and volt logger…** Configured, sensing valid data
 Fast flash	**Current and volt logger only…** Configured, sensing current data, not sensing valid voltage data
Troubleshooting: Check installation	
 Fast flash	**Current and volt logger only…** Configured, sensing current data, sensing voltage data
 Fast flash	**Current and volt logger only…** Configured, not sensing valid data
Troubleshooting: Check installation	

How should I clean the sensor head of the AIRINSITE flow sensor?

The sensor head can be cleaned by carefully moving it to and from in warm water with a small amount of washing-up liquid. Avoid physical intervention on the sensor (e. g. using a sponge or brush).

If soiling cannot be removed, service and maintenance must be carried out by the original equipment manufacturer. (CE INSTRUMENTS)

What effect does temperature have on the flow measurement in AIRINSITE software?

No effect.

Temperature has an effect on velocity but this is irrelevant to flow measurement using our flow sensor and logger. That is because the flow sensor measures the velocity in which the temperature effect has already occurred.

Additional information regarding hardware:

The flow sensor has a maximum velocity capability of 185 m/s

Users should install the sensor correctly and follow the inner pipe diameter configuration in Audit Wizard

The housing of the sensor is rated from -30°C to +80°C

The probe and tube are rated from -30°C to +110°C.

There are a series of caveats that should be observed in order to achieve accurate results. These caveats are in the hardware manual we publish

How to update logger software?

There are two steps in updating logger software;

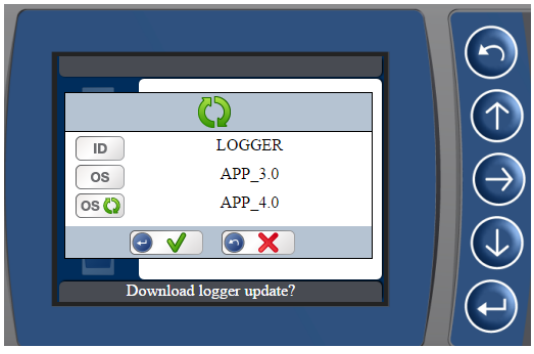
1. 'Download logger update' = Download the most current logger software to the BS from the Internet

2. 'Update logger' = Transferring the downloaded software from the BS to logger(s) via Bluetooth

On your base station display, go to Settings, click Enter, go to 'download logger update', then click Enter.

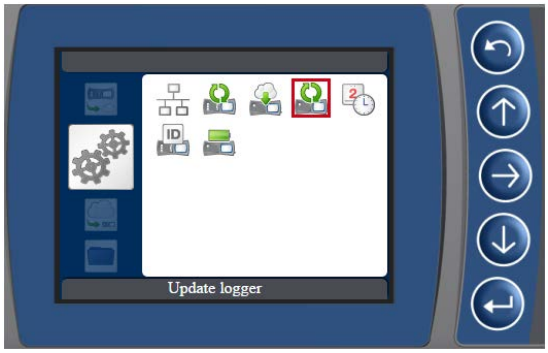
The base station will tell you what logger software version you currently have and what logger software version is available on ou r server.

For example, the picture below shows the base station has logger software version of 3.0 and the available version on the server is 4.0.



Click Enter to download the newest software to the BS.

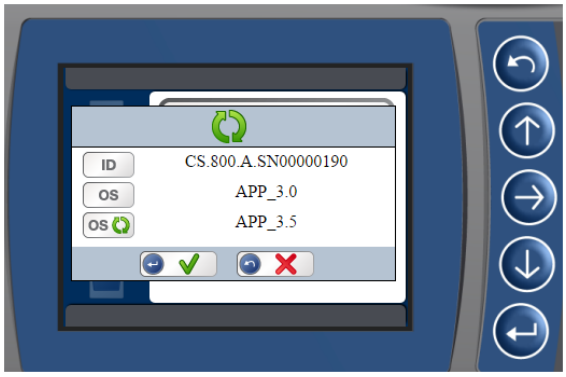
Go to ‘update logger’. Click Enter.



Click on the Bluetooth button of the logger(s) (left button on the logger(s)).

A window appears on your BS asking if you want to update the logger. Click Enter to update.

For example, the picture below shows a kW logger with serial number 190. It currently has software 3.0. Available logger software in the BS is 3.5. Click Enter to update the kW logger to software version of 3.5.



You will see the blue LED blinking fast. After the logger is updated, the blue LED will stop blinking.

INSTALLING CURRENT AND VOLT LOGGERS

Warning risk high pressure. Isolate gas connection from the compressed air system (e.g. gate or ball valve) before attempting to locate the pressure sensor. Read and understand all safety instructions for both AIRINSITE™ data logger and the compressed air installation and their risks where the data logger will be used before proceeding.

If in doubt stop immediately!

The AIRINSITE™ current and volt logger utilises a split ferrite core type sensor current clamp. De-energize the installation and place the current clamp over a single conductor supplying current to the entire air compressor package as illustrated below.

Ensure the jaws of the current sensor are securely closed around the cable to enable data acquisition with accuracy. Always put the clamp around 1 cable. In case we have more cables per phase, ignore the other cables. Only measure the 1 cable. The software in the cloud will allow you to indicate if a compressor as 1, 2 or 3 cables per phase. Measuring only the 1 cable, the software will apply corrections once uploaded to the cloud.

https://vimeo.com/215178324/0088ce064e

The advice is to attach the clamp on L1 cable. Attached the red voltage clip on L2 and the black on L3

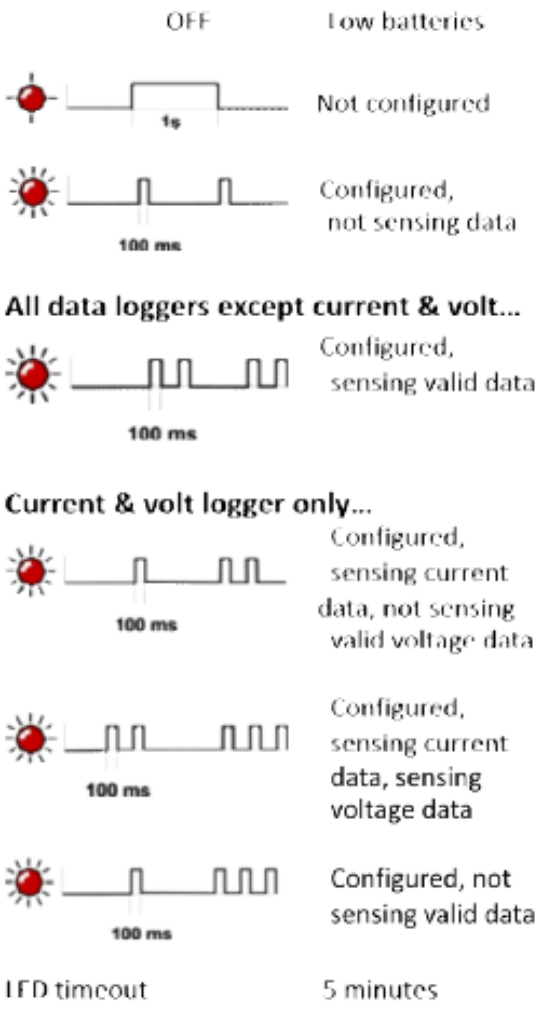
Never install sensors downstream of a VSD frequency inverter

Where possible, we recommend that installers use an accessible multi-meter to verify the voltage reading. When verifying the voltage reading remember that the value measured will equal the local 3 phase voltage / 1.732 (i.e. the square root of the 3 phase system). For example if you have a 415V supply voltage, an accurate voltage measurement at the multi-meter will be between 239 and 240 volts (415 / 1.732 = 239.6).

airINSITE™ data loggers correct this measurement to reflect the actual 3 phase value!

Any voltage inconsistency is likely to be associated with the earth bond. Be observant of issues such as paint, dirt or other ingress acting as a barrier between the BLACK volt probe and the earth source

Diagnostic key & LED…



PRESSURE SENSOR

Warning risk of electrical shock, high pressure and moving parts. Read and understand all safety instructions for both AIRINSITE™ data logger and the compressed air installation and their risks where the data logger will be used before proceeding.

If in doubt stop immediately!

Locate the pressure sensor in such a way as to avoid moisture or other forms of debris forming on the sensor element. Ideally, mount the pressure sensor upright!

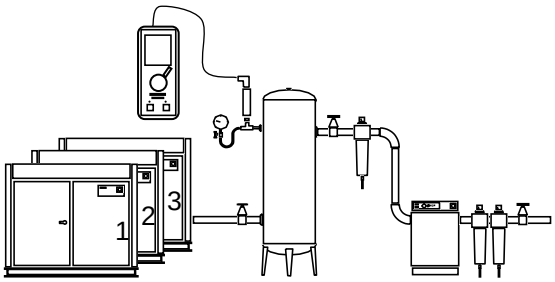
Caution: Ensure there is no compressed air leakage around the pressure sensors gas connection. Any leakage can affect detected pressure and give inaccurate results.

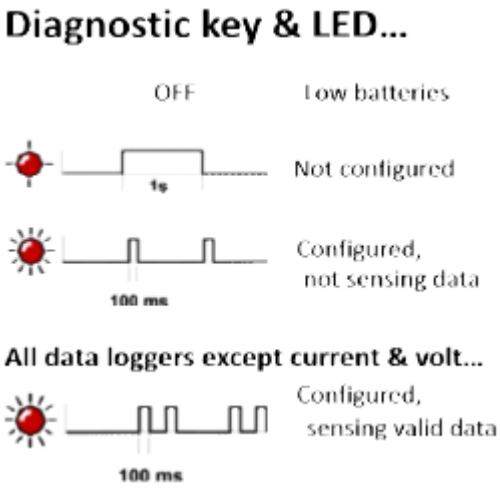
Once the pressure sensor is located and pipe work integrity has been checked, remove the gas isolation (e.g. gate or ball valve) from the pressure sensor.

For common system pressure, mount the pressure sensor at a location where the sensor is exposed to the 'common' system pressure of all compressors in the system at all times. For example a common pipe work header or compressed air storage vessel…

Note: The physical location of the pressure sensor can vary and should be chosen according to practical constraints.

Observe and maintain safe working practises at all times





DEWPOINT SENSOR

Warning risk high pressure. Isolate gas connection from the compressed air system (e.g. gate or ball valve) before attempting to locate the moisture sensor. Read and understand all safety instructions for both AIRINSITE™ data logger and the compressed air installation and consider any risks where the data logger will be located before proceeding.

If in doubt stop immediately!

Connect sensor and measuring chamber assembly to the compressed using the quick release coupling.

In case of compressed air containing oil and dirt particles a pre-filter should be installed in front of the measuring chamber.

Compressed air flows continuously in the capillary pipe of the measuring chamber.

The location of the moisture sensor may vary according to the parameter monitored. Placing a moisture sensor in front and behind a dryer allows evaluating a dryer's performance level

FLOW SENSOR

The flow sensor measures the flow velocity using the calorimetric principle in the middle of the pipe. Please observe mounting instruction:

- L: Length of pipe section
- At inlet (L1): 15 x inner pipe diameter
- At outlet (L2): 5 x inner pipe diameter
- D: Inner diameter of pipe wall

Warning:

Do not exceed the pressure range of 50bar!

Pressure is a hazard! When installing and removing the sensor and where the operating pressures in and around the position of the sensor are greater than 10 bar g, we recommend the use of elevated protection measures prescribed by local, regional, national or internationally reputable organisations

Overheating destroys the sensor.

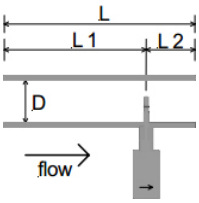
Observe the permissible storage and transportation temperature as well as the permissible operating temperature.

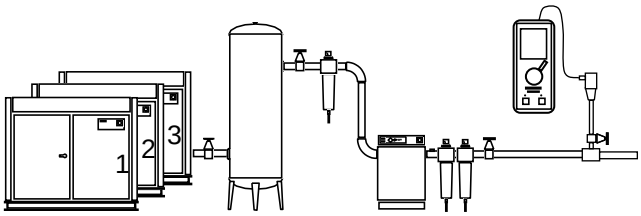
Always observe the direction of flow when positioning the sensor!

The safety ring at the sensor head must always remain undamaged and rest correctly in its installed position.

The screwed fixture must be pressure tight.

The adapter sleeve must be tightened with a torque of 20 to 30 Nm.





Avoid condensation or water droplets at the sensor element. Condensation or water on the sensor element may cause a fault and may corrupt sensor data.

The size of the inlet and outlet pipe diameter sections must not be less than the specified minimum values. Failure to observe may increase deviations in the measured data.

Sensor installation

Warning: risk of high pressure, vent the compressed air system to atmosphere before attempting to install or de-install the air flow sensor.

To measure the air flow of the entire compressed air system, mount the air flow sensor at a location where the sensor is exposed to 'common' air flow of all compressors in the system at all times. A straight pipe of sufficient length after the common 'wet' air receiver or dryer (when used) is necessary.

To maintain acceptable accuracy the sensor must be inserted in the centre of a straight pipe with undisturbed flow progression.

Undisturbed flow is assumed when no obstacles, seams, edges, curves are present in area L of the diagram below. Be aware that the air flow sensor is directional

- L: Length of pipe section
- At inlet (L1): 15 x inner pipe diameter
- At outlet (L2): 5 x inner pipe diameter
- D: Inner diameter of pipe wall

Where flow obstructions exist before the measuring section L1 should be adjusted as follows…

Flow obstruction L1 (Min) [1]

Slight curve (bend <90°) 12 x D

Reduction in D 15 x D

Expansion in D 15 x D

90° bend 15 x D

2 x 90° bends on one level 20 x D

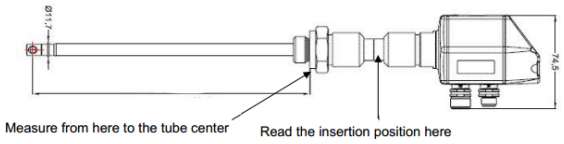
2 x 90° bends with a three

dimensional change in direction 35 x D

Shut off valve 45 x D

Observe the flow direction which should match with the arrows at the sensor connector head!

The sensor head must be placed in the centre of the pipe. Therefore the probe shaft has a scale. To determine the correct position, measure the length from the marked position to the centre of the pipe. The probe can then be inserted up to this measure and then secured.



Assembly is carried out by inserting the connection thread (1/2" thread, SW 27) into the connection piece. The sensor is then inserted to the required depth and aligned according to the direction of air flow. A depth scale engraved on the probe tube, a flow alignment arrow and an aligning device will be of help to you. Once the sensor has been aligned, the adapter sleeve must be tightened with the stipulated torque (SW 17).

Attention: Alignment of the sensor must not be modified when tightening the connection thread and adapter sleeve. Check the depth and alignment again and correct if necessary!

The angular deviation should not be greater than ± 2° in relation to the ideal position otherwise the measuring accuracy will decrease.

Air flow measuring range data:

Measuring range will vary relative to inner pipe diameter (D).

Maximum velocity of 185 metres per second (607 cubic feet per second)

D (mm)	D (inch)	Flow (m^3/min)	Flow (cfm)
65	2½	30.35	1071
70.3		35.63	
71.1		36.45	
76.1		41.85	
80	3	46.31	1635
82.5		49.31	
84.9		52.22	
90		58.75	

100	4	72.62	2564
107.1		83.4	
110		87.98	
125	5	113.74	4016
133.7		130.13	
150	6	163.98	5790
159.3		184.95	
182.5		243.03	
190		263.42	
200	8	292.22	10319
206.5		311.53	
250	10	457.15	16144
260.4		496.56	
300	12	659.07	23274
309.7		702.38	
339.6		844.55	
400		1171.69	
500		1830.76	
600		2636.3	
700		3588.3	
800		4686.75	
900		5931.67	
1000		7323.05	

DIN 1945/ISO 1217: 20°C, 1000mbar

Gas flow max velocity adjustment table

Gas	Max velocity (m/s)		
	Max velocity (ft/s)		
Air		170.1	558.07
Argon	Ar	289.2	948.81
Carbon dioxide	CO^2	183.1	600.72
Nitrogen	N2	164.5	539.69
Oxygen	O2	176.4	578.74
Nitrous oxide		N2O	181.4	595.14
Natural gas		NG	109.4	358.92

DIN 1343: 0°C, 1013.25mbar

Maintenance

The sensor head should be checked regularly for dirt and cleaned if necessary. Should dirt, dust or oil accumulate on the sensor element, a deviation will occur in the measuring value.

An annual check is recommended. Should the compressed air be heavily soiled this interval must be shortened.

Cleaning of the sensor head

The sensor head can be cleaned by carefully agitating it in warm water with a small amount of domestic wash liquid. Avoid physical intervention on the sensor (e. g. using a sponge or brush).

If soiling cannot be removed, service and maintenance must be carried out by the manufacturer.

Calibration certificates

Calibration certificates are issued by the manufacturer on request. A service fee is payable! Calibration is carried out using DKD (German calibration authority) certificated volume flow meters.

CHECK STATUS LOGGERS ONCE CONNECTED

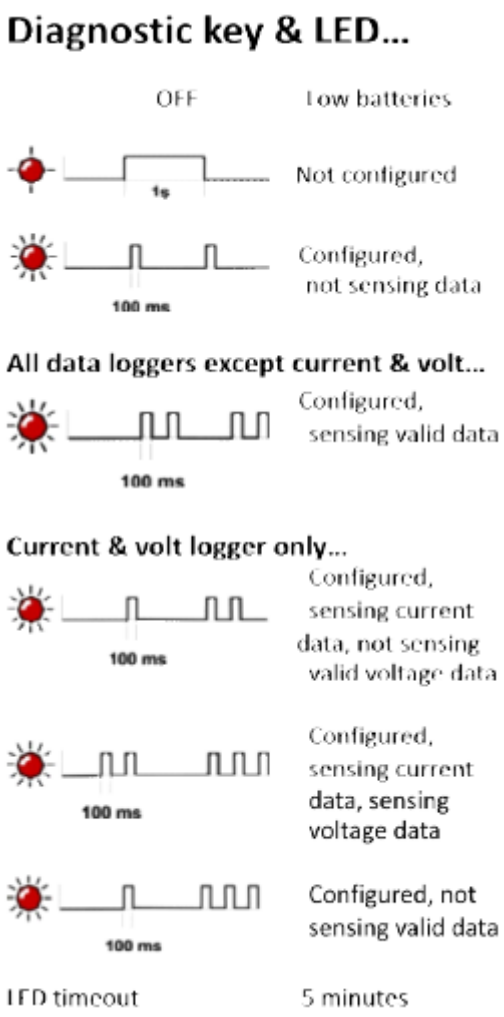
Switch the system back on

Push the status LED on the loggers to check the status

See status as shown on the right

If flash sequence is not as expected check the installation

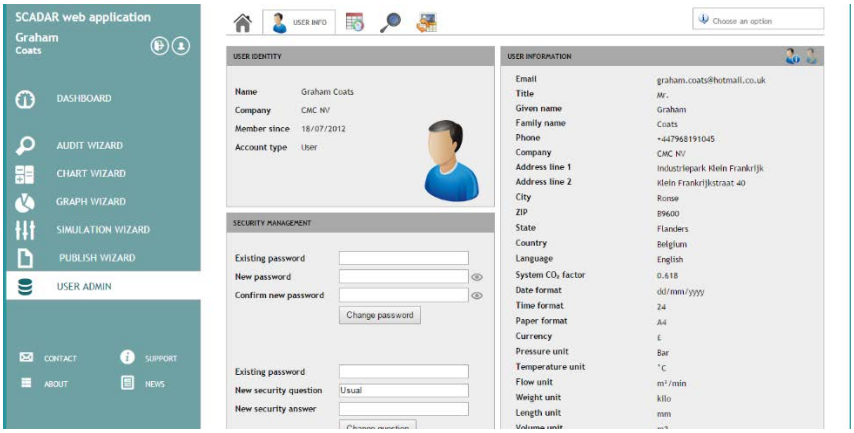
Consult the configuration sheet's last page



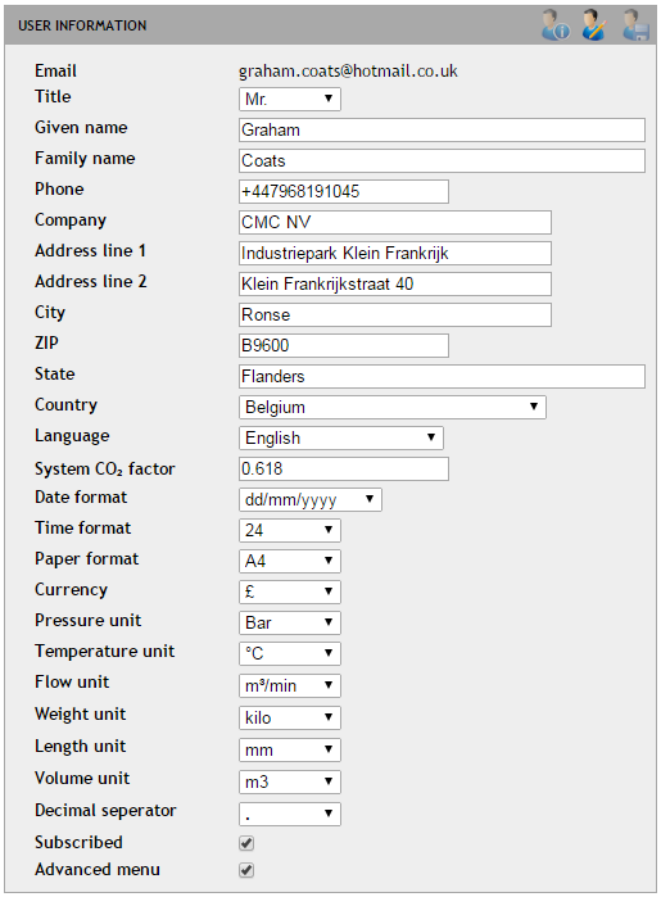
ADMINISTRATION/SETTINGS

How can I edit my 'User information'

From the dashboard click the 'User information' link on the 'MY STUFF' tile or navigate to User admin using the left side navigation bar of AIR-INSITE.COM. You'll end up here...



On the USER INFORMATION box (right side) there are two icons 'USER INFO' which is the default view and 'EDIT USER INFO'. To edit the user info, go ahead and click the respective icon. You're now able to edit as required (see below). Once complete, don't forget to save your changes using the 'Save user info changes' icon that displays whilst you're in EDIT mode...



How do I reset my login password?

To reset your login password, contact an administrator or submit a support ticket on our support website. An administrator will reset your password for you! You will receive an email with a link inviting you to login using a password generated during the reset process...

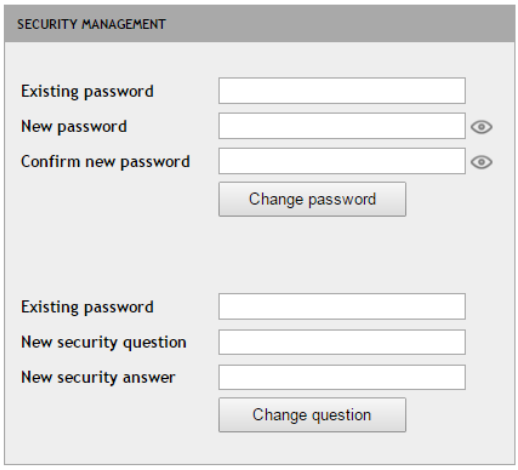
You can change the password provided to one of your choosing using the Security Management tile which you will find within USER ADMIN / USER INFO

Issue with resetting password

Once logged in, you can go to User Admin and click on User Info. You should now see the 'Security Management' box that will allow you to change your password. If you don't see it, please play with the zoom settings (e.g. change the zoom setting to 100%). Google Chrome browser is preferred.

Please note that the new password needs to have **a minimum of 7 characters, including at least 1 non-alpha numeric character** (e.g. !). Spaces are not allowed. Password is case sensitive.

After creating a new password, try to log out and log in again to see if there is any problems.



I've lost my password, how can I login?

Contact a network administrator or submit a ticket from our support website. A network administrator will reset your password which will trigger an email to the user email address. Use this email to login. You can change the password using the Security Management tile of USER ADMIN / USER INFO.

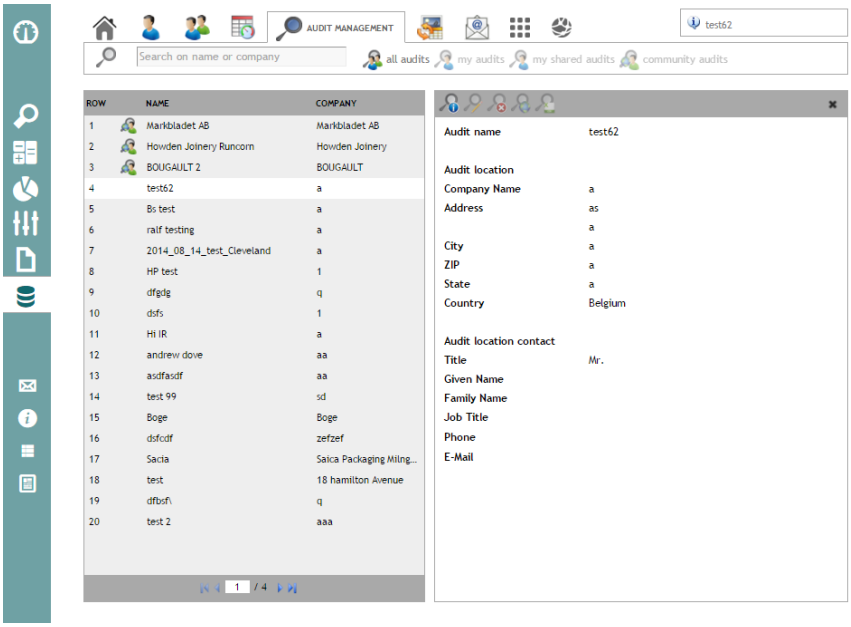
Can I change my email address?

No, it’s not possible to change your email address from the User Information screen.

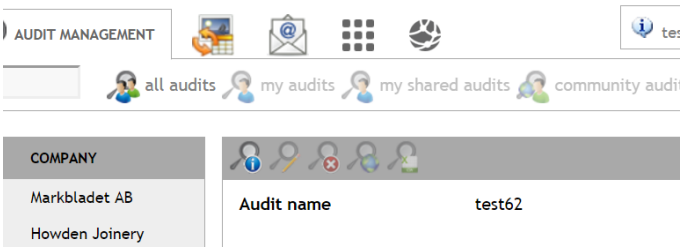
To change your email address please submit a ticket from our support website and we'll handle that for you. Once the change has been made, we'll inform you of this!

How can I share an audit with another airINSITE user?

Step 1: Go to the 'USER ADMIN' menu and then select 'AUDIT MANAGEMENT'



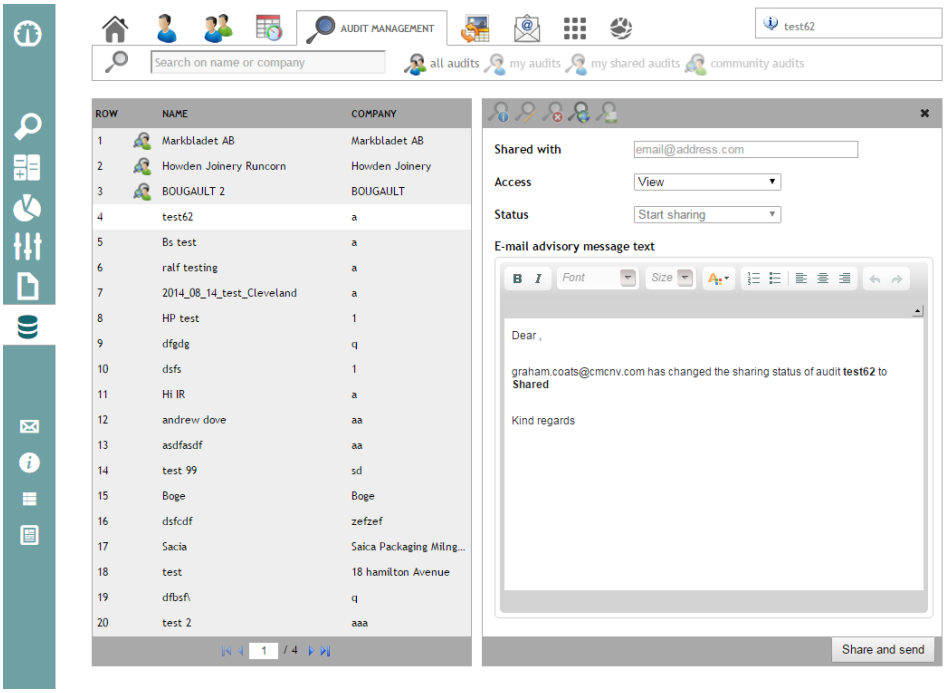
Audits are listed to the left and detail information about any selected audit is listed on the right. A variety of action icons are contained in the toolbar above the audit detail view...



Step 2: Use your pointing device to select an audit from the left list

Step 3: Press the 'Share Audit' action icon to 'share the audit' with another AIRINSITE user...

The area beneath will change to reveal the following view...



In the 'shared with' text box, enter the user email address of the AIR-INSITE.COM user you wish to share the audit with (Note this must correspond with the email address of the AIR-INSITE.COM user account!). In the Access 'pick list' decide whether you want the AIRINSITE user to have VIEW or VIEW & EDIT rights for the audit being shared. Use the email body area to add any information you would like to add in the email.

When ready, use the 'SHARE & SEND' action button at the bottom of the page.

The audit is now SHARED and an email has been sent from the AIR-INSITE.COM server to the email address of the AIR-INSITE.COM user informing them that the shared audit is available for VIEW or VIEW & EDIT.

Observe:

The use of the 'shared' status icons in lists displayed across the AIR-INSITE.COM website

The info box will guide you when entering a AIR-INSITE.COM users email address correctly

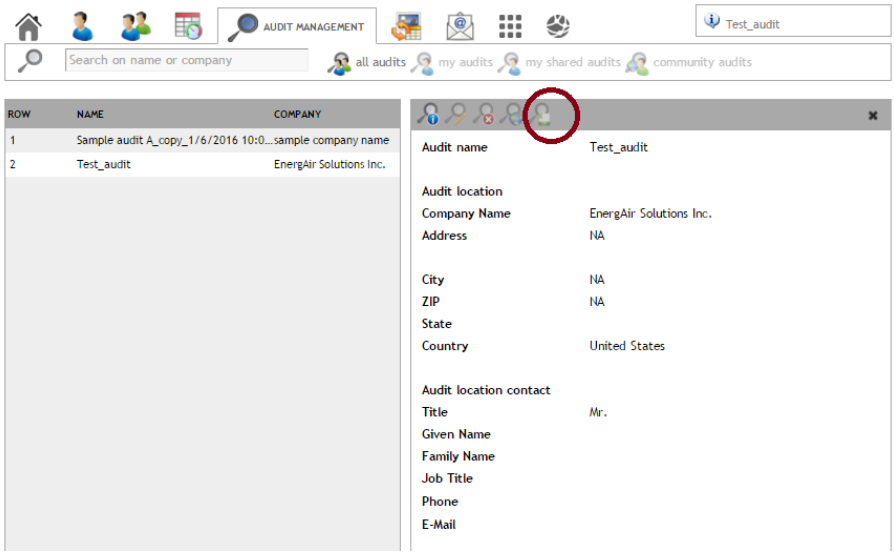
Use the status 'pick list' to observe SHARED status and to manage sharing rights (grey / no select is the pre-shared state)

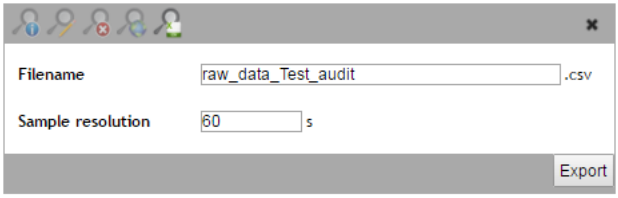
Change status as necessary and use the SHARE & SEND button to execute any change

How to export raw data and open it in Excel?

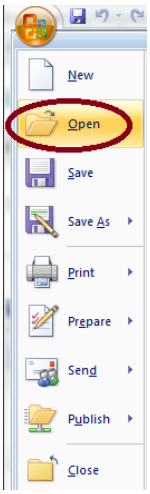
In User Admin, choose Audit Management, select the audit that you want to export data. Click on Export Audit Data as shown below.

You can change the file name and audit resolution, then Export. It will export/download your data in a CSV file.

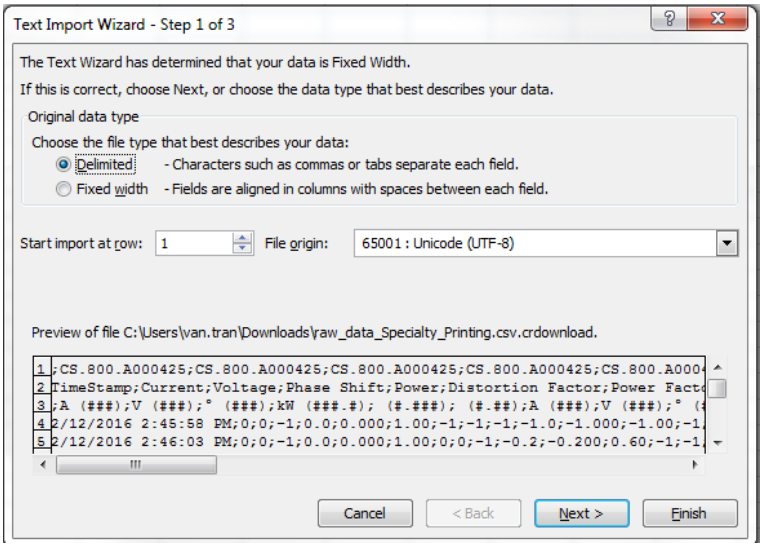




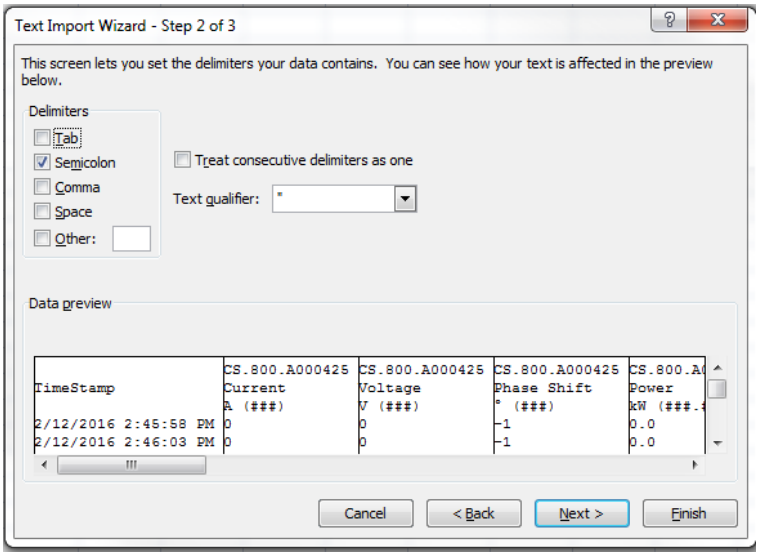
To open the downloaded data in Excel, open Excel, click Open and choose the downloaded CSV file. You have to select "All files" in order to see the CSV file



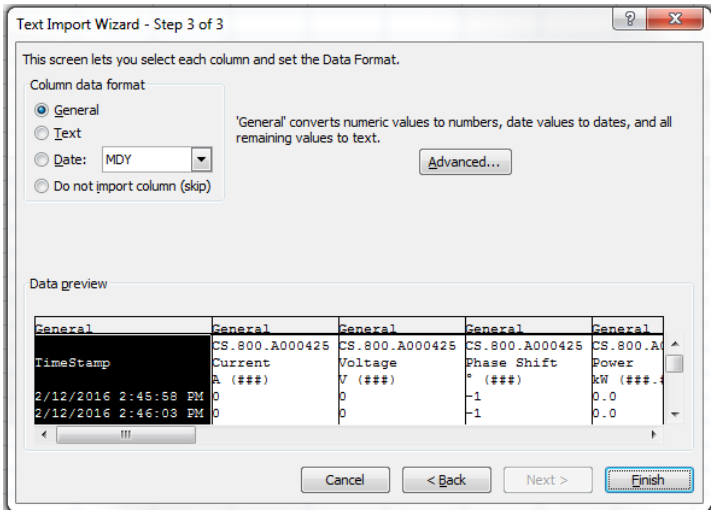
Choose Delimited in Step 1 of Text Import Wizard. Click Next



Choose Semicolon in Step 2 of Text Import Wizard. Click Next



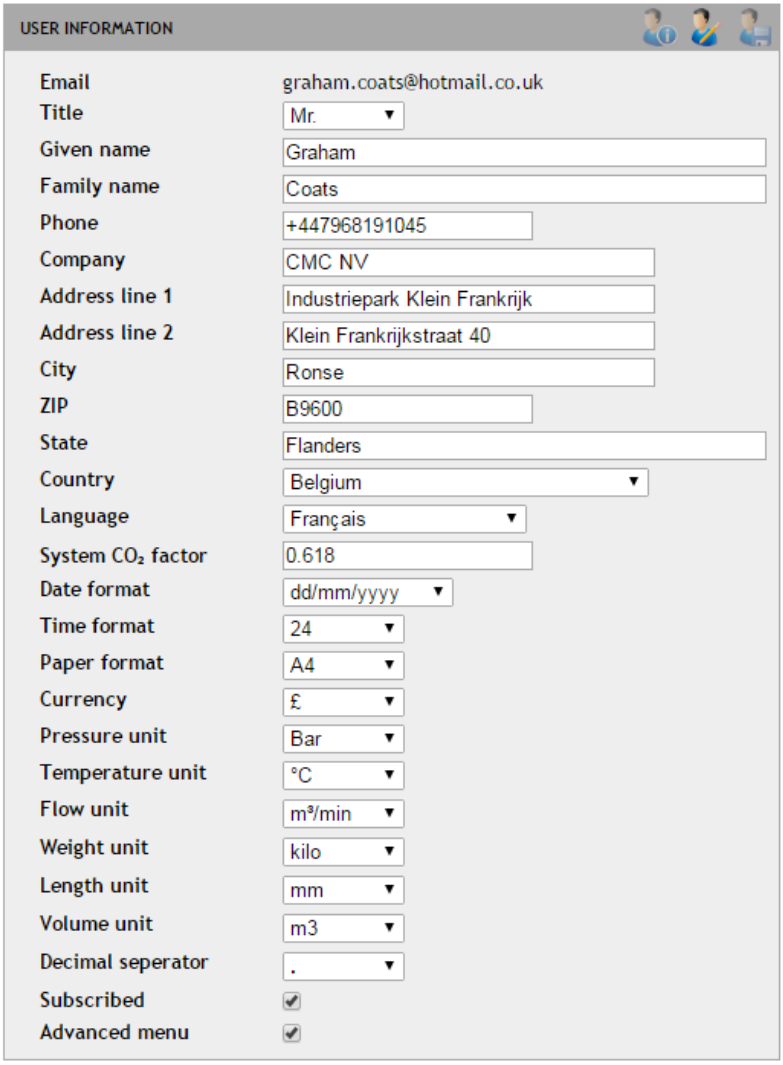
Choose General in Step 3. Click Finish.



What languages does AIR-INSITE.COM support?

As part of the V14 release (May 2016) we've deployed a language framework which will allow us to handle any language that we have a translation for. And as part of the language framework deployment we've also translated the site text into

French. So if you'd like to use 'French' as your default language then visit USER INFO and change the 'Language field setting of user information to 'French' (don't forget to save the change!)...



Your AIR-INSITE.COM session will now use the French language as default!

With the language framework deployed we'll be working working to introduce more languages in the coming months so check back when you can to see what languages become available from the drop down list!

The Basics

This information bulletin explains the features of Audit Wizard, recently updated on AIR-INSITE.COM V13.1.0.0 (4th Feb 2016).

Audit Wizard is one of a collection of 'feature' Wizards within the AIR-INSITE.COM cloud computing platform.

Before proceeding, USER's are advised to:

Understand that AIR-INSITE.COM performs best in Google Chrome

If USER's are unable to use Google Chrome, we recommend Mozilla Firefox

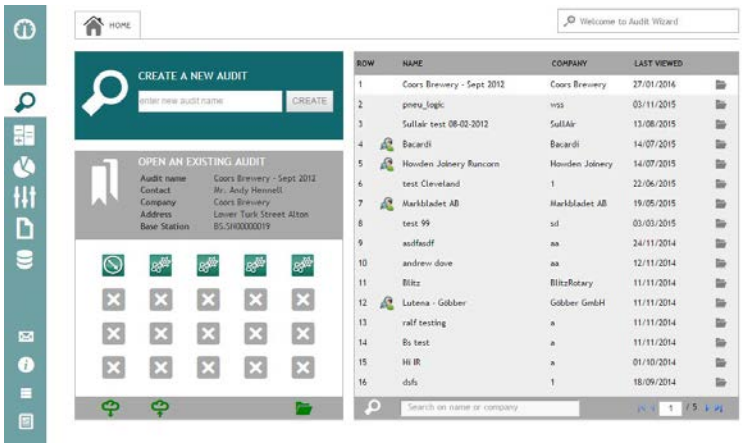
Internet Explorer is our least favoured browser (Sorry Microsoft☹).

Whichever browser you choose, we recommend the latest version (This is of particular importance when using Internet Explorer!). USER's must understand that some AIR-INSITE.COM features and functions will become slower or may not be compatible with older browser devices (e.g. your PC) or browser versions, there is no easy solution to this , if you want what modern browsers can offer then you need a modern browser version ☺

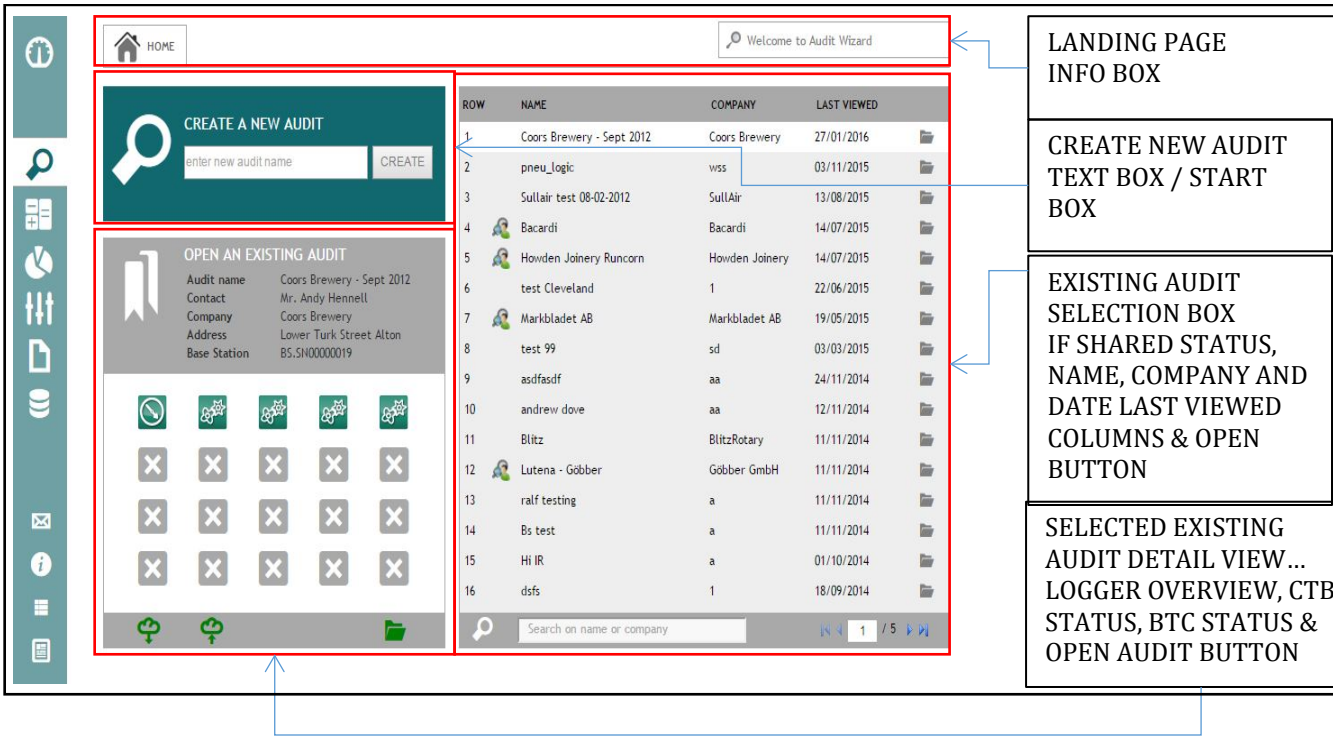
Prior to using AIR-INSITE.COM V13.1.0.0 ensure the cached content of your chosen browser has been cleared!

Understand how your browser uses memory and its memory limitations!

Users can reach 'Audit Wizard' by choosing it from the left hand Wizard selection (shown below) or from the Audit Wizard tile on the dashboard page displayed after user login. The Audit Wizard landing page looks like this…



The style of the landing page is similar to other Wizards, a 'style' theme that will continue as we further develop AIR-INSITE.COM. The following is an explanation of the Landing page environment…



Create a new audit using the 'Create a new Audit' text box / start box. Do this by giving your audit a name and press 'CREATE' then follow the Audit Wizard steps to creating your new audit (discussed later in this document)!

Audit names are unique and cannot be used repeatedly (observe the name availability text in the info box)

If the text box outline is RED then the name is not available, choose a different name!

Consider audit names carefully, AIR-INSITE.COM frequently uses audit names as a reference

The remainder of the landing page is dedicated to opening existing audit configurations…

Review existing audit configurations on the left list. Scroll through pages using the forward and back buttons at the foot of the list or use the Search box to filter by the 'name' or 'company' used in a specific audit configuration.

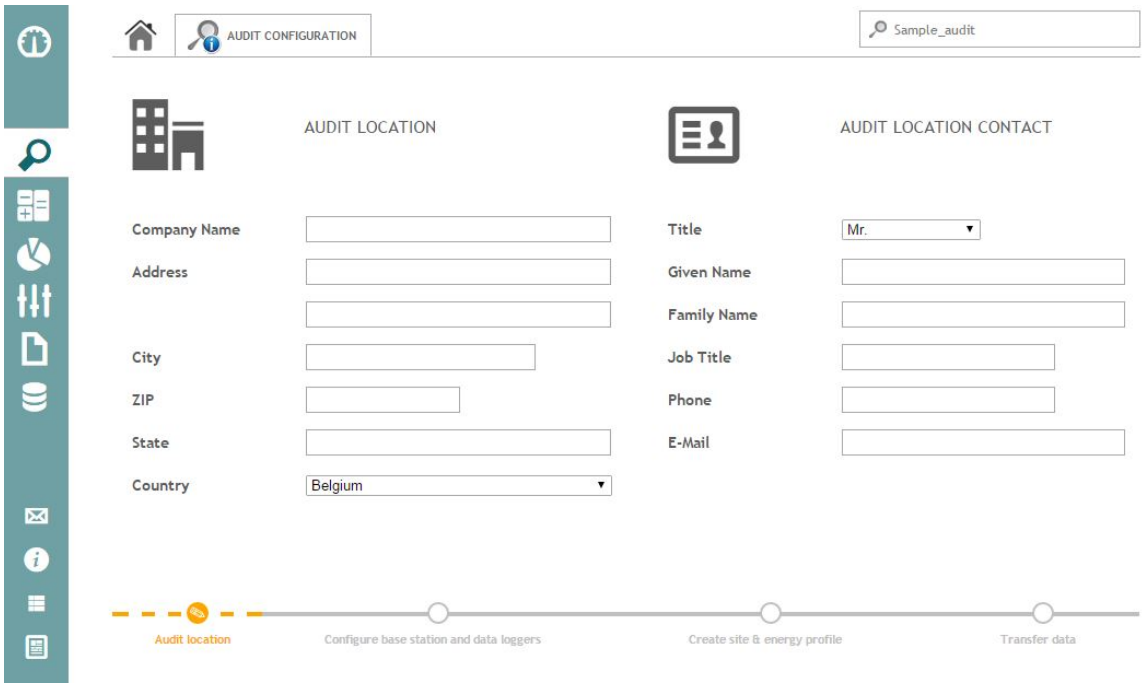
Click the audit row to select an existing audit configuration. When you select an existing audit configuration you can review additional information about the audit selected on the right side of the landing page. Details about the audit selected inclusive audit name, contact, company, address and the Base station configured for use with the audit data is displayed.

Additional icons clarify the loggers configured for use with the audit as well as the status of audit data. Observe that the icon layout follows the layout of the Base station graphical user interface. If you hover over a logger icon the logger specific serial number will be displayed. Further down, the progress of the audit is indicated using one of 2 cloud / arrow icons (discussed later).

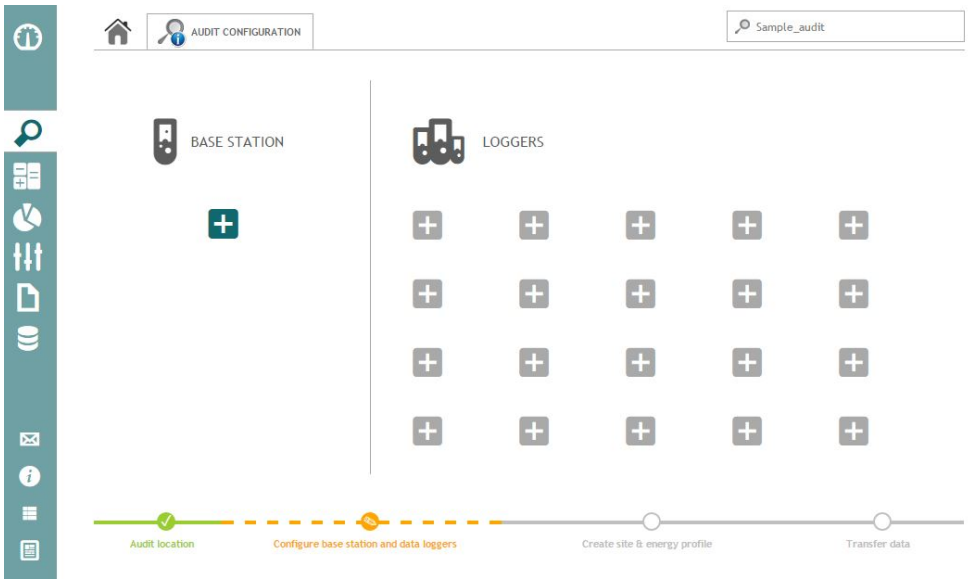
Open an audit configuration using the 'file' icon within the row of the selected audit or using the file icon at the foot of the detail view box.

The remainder of this document discusses creating and completing a new audit. Observe however that after an audit configuration has been used and the audit completed with logged data, it's still possible to re-visit an audit configuration and edit much of the configuration. This can be necessary (e.g. if you wanted to edit the performance data of an air compressor after audit).

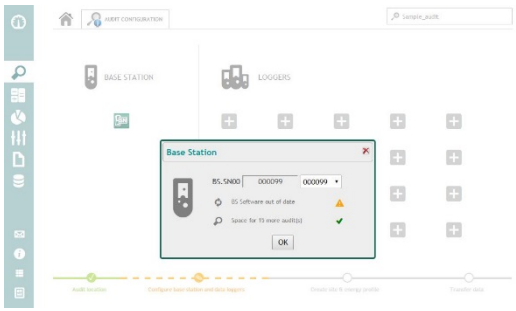
Start a new audit by giving your new audit a name and click CREATE. The audit configuration page will reveal. Observe the progress and navigation bar at the foot of the page and its colour coding. The colours emulate traffic light logic (GREEN = GO, RED = STOP & AMBER = SOMEWHERE IN BETWEEN). Here for example AMBER means you're not yet ready to progress to the next step until necessary field data has been entered…



Once you have entered necessary field data, the progress and navigation bar colour will change to green. This means that you can now progress to the next step. Use the progress and navigation bar to select 'configure base station and loggers'...



Start by selecting or entering the serial number of the physical base station you intend to use and click OK (observe that Base stations and data loggers are unique, each has a serial number ID which you will find on the physical device!).

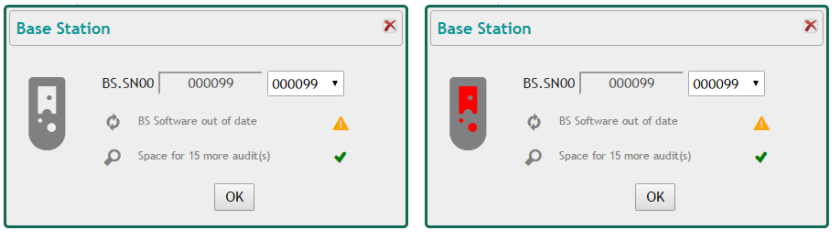


Observe…

When adding devices for the first time, enter the serial number of the device concerned and click OK. Note: it's not necessary to enter all of the 000 on the device decal... if your decal reads BS SN 000602 for example, you need only enter 602

Once a device serial number has been entered AIR-INSITE.COM will remember it… Note the presence of the list box to the right of the numeric field box!

Once a Base station has been selected AIR-INSITE.COM will indicate the Base station device state…



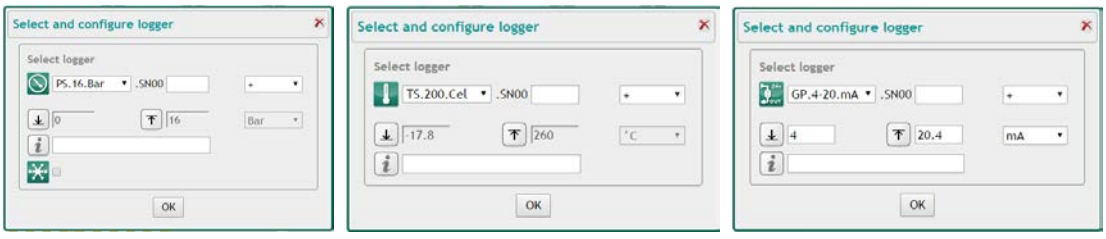
Base station internet presence is indicated by a GREEN or RED colour (where GREEN = 'ON LINE' & RED = 'OFF LINE'

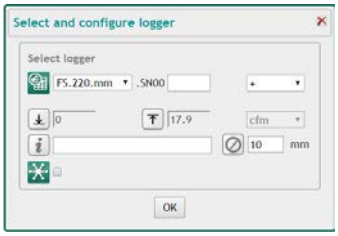
Base station software status is displayed. If this is out of date, go to the user interface of the Base station and update its software before proceeding!

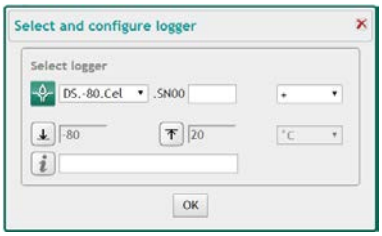
The number of available audit locations at the specified Base station (1 – 25) is displayed. If this is 'full', go to the Base station user interface and delete audit configurations to make space before proceeding!

An 'ON LINE' Base station will re-fresh status data every 45 seconds

Once configured, select OK and proceed to configure the physical data loggers you intend to use…







Observe…

There are 8 types of data loggers

PS.16.Bar = 0 - 16 Bar pressure logger

PS.60.Bar = 0 - 60 Bar pressure logger

The additional check box in the pressure logger configuration screen is used to identify logger(s) used to measure ‘system pressure’.

Consider that additional data loggers can be logging point of use pressure etc!

CS.800.A = Large current & volt logger

CS.50.A = Small current & volt logger

There are three defined steps to configuring a CS logger. The CS logger configuration box layout follows this order…

Selecting the logger

Associating the logger with a compressor

Use the # text box to identify compressors. Common place when multiple identical compressors are present (Compressor No 1, No 2 etc)

Use the SN text box to record the actual serial number of the compressor being logged

Use the Select, Edit or Remove action buttons to associate the logger with a compressor table (creating and editing compressor tables is not discussed here!)

Edit the audit location installation conditions

Use the L1x1,2,3 check box as necessary (not discussed here)

If you know the power factor of the actual compressor in the on load and off load state enter this data (this data would over-rule any compressor table power factor data)

Similarly, if you know the on load and the off load pressure of the actual compressor enter this (this data will influence and improve the accuracy of compressor performance data)

Select the audit location voltage

Check or Uncheck the 'calculate my kW' box as necessary

Default = unchecked

Only used when voltage data is either not measured or missing (e.g. data logger volt probes removed during audit)

When voltage data is missing or lost 'check' this box to use logged current and audit configuration data to calculate compressor kW!

TS.200.Cel = Temperature logger

FS.220.mm = Flow logger

Use the numeric field box to indicate the internal diameter of the pipe where the flow logger is installed

The additional check box in the flow logger configuration screen is used to identify logger(s) used to measure 'system flow'.

Consider that additional data loggers can be logging point of use flow etc!

DS.-80.Cel = Moisture dew point logger

GP.4-20.mA = 4-20mA 'general purpose' logger

General purpose loggers are supplied without sensors allowing users to make use of alternative sensor products (not discussed here)

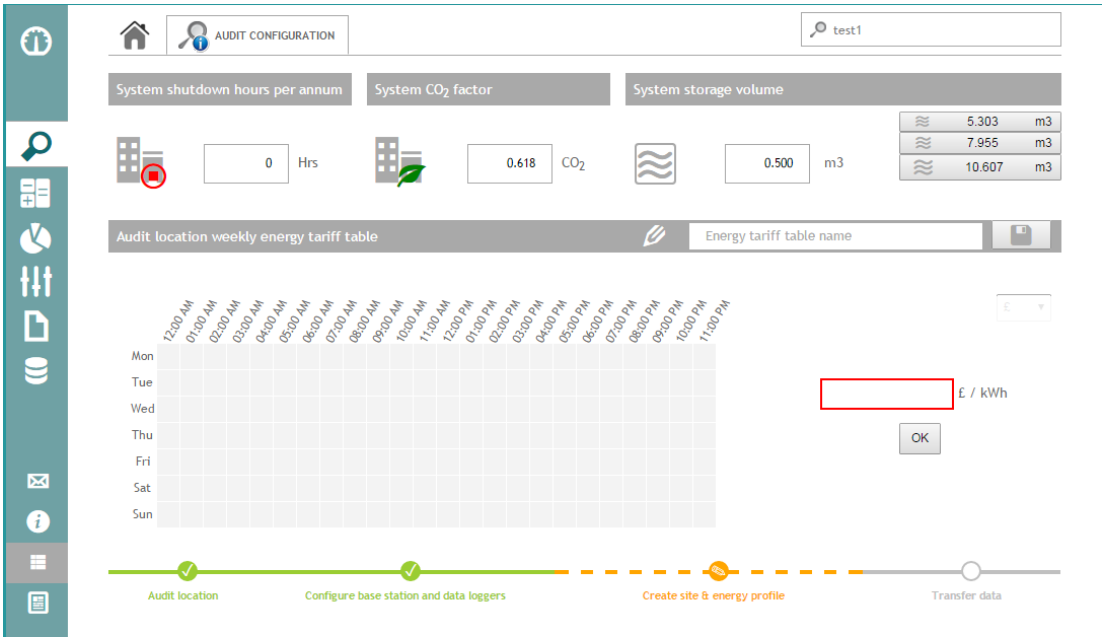
The information text box which is common to all is used to identify the intended use of a logger. So for example of you were using a temperature logger to log compressor room temperature, enter such information. AIR-INSITE.COM makes use of the information text box field so we encourage its use!

Not all fields are mandatory, follow on screen colour and text prompts

Editing of configuration data can be done later. Besides fundamentals, if data is missing or wrong, it can be changed later!

Once you have configured a Base station and at least one data logger, the progress and navigation bar colour will change to green. This means that you can now progress to the next step. Obviously, configure all loggers before proceeding. Then use the progress and

navigation bar to select 'Create site & energy profile'...



This step is broken into 4 elements…

System shutdown hours per annum

Use this numeric box to indicate hours when the compressed air system would be shutdown that will not be picked up by an audit. So for example…

If the system is shutdown every weekend and the logging spanned this period, do not reflect this here because the data logging will already gather this data

If the system is shutdown every year for 2 weeks in summer and 1 week in winter, reflect this here because the data logging will not gather this data!

System CO_2 factor

Use this numeric box to indicate a factor for CO_2

System storage volume

Use the small, medium or large selection buttons to accept the 'calculated' system storage volume displayed (i.e. if you do not know the system storage volume). The 'calculated' system storage volume is established by taking data from the compressor tables (configured earlier) alongside industry standards

to indicate a smaller than average, average or greater than average system volume. If system storage volume is not known, use common sense when making your selection

Alternatively, if you know the system storage volume then use the numeric box to enter a value

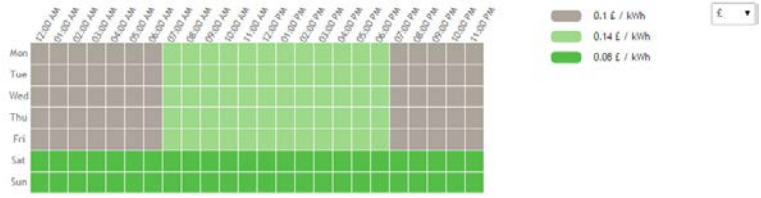
Audit location weekly energy tariff table

Up to 10 enery tarriffs are supported

Use a pointing device and the week grid to select a time span for a given tariff

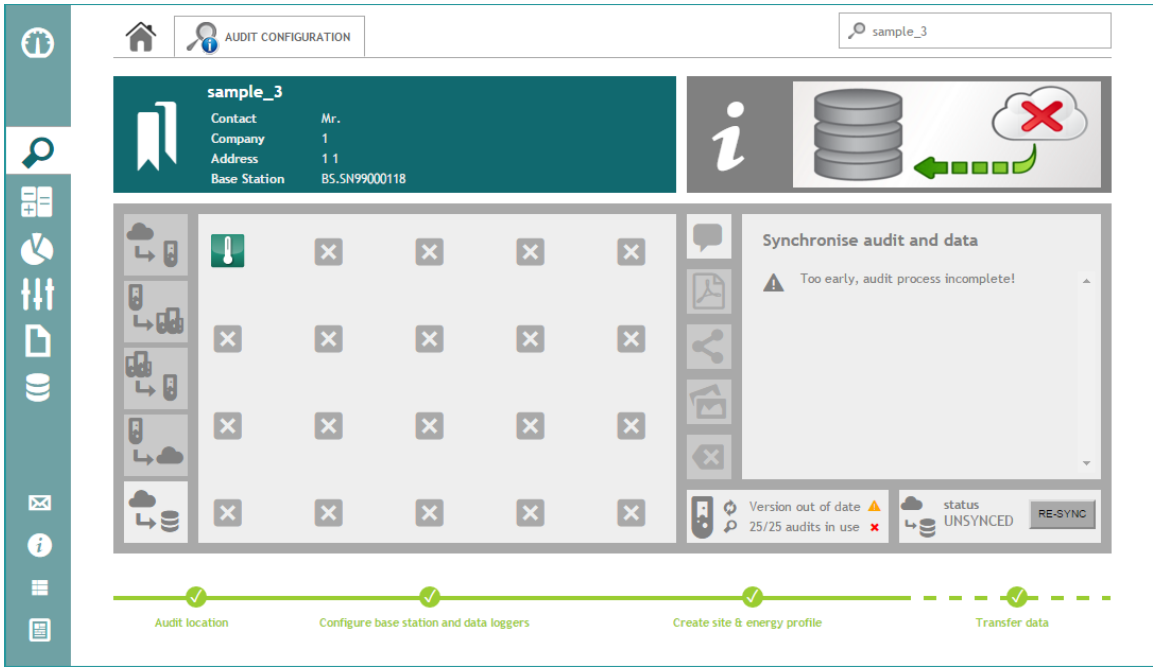
Enter a numeric value in box provided

Select a currency from the drop down list

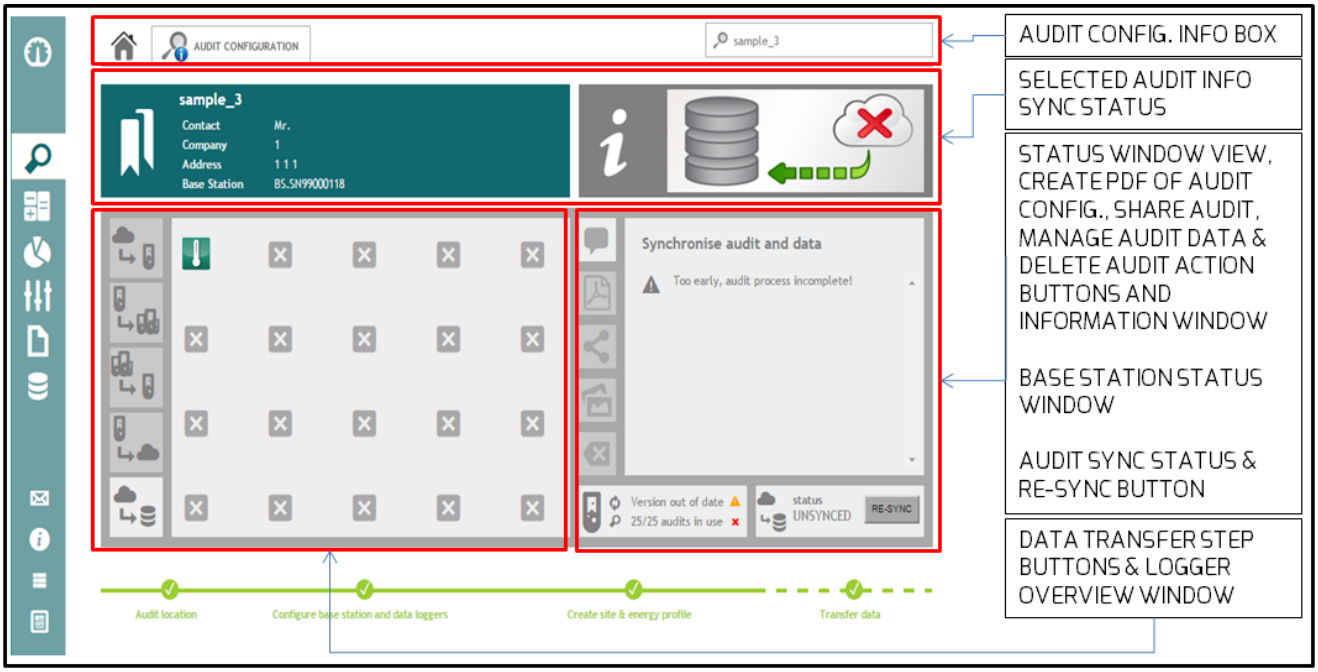


Observe the 'Energy tariff table name' save feature. This feature saves the Energy tariff as an image for use elsewhere (not discussed here).

Once you have configured the site & energy profile the progress and navigation bar colour will change to green. This means that you can now progress to the last step 'transfer data'.



The transfer data step is less of a configuration step and more to do with post configuration data transfer, handling, post data harvesting review and editing etc…



Observe…

The Transfer data page is divided into 4 principle areas…

The Audit configuration information box

The selected audit information (left) and an icon indicating whether or not audit data has been synchronised with the audit configuration

A status window with action button options for various functions

The data transfer buttons as well as a logger view window

Data transfer steps can be summarised as follows…

Cloud to Base (C2B) when the audit configuration is transferred from AIR-INSITE.COM to the configured Base station

Base to Loggers (B2L) when the audit configuration is transferred from the Base station to the configured data loggers

Logger to Base (L2B) when the logged data is transferred from the data loggers to the Base station

Base to Cloud (B2C) when the logged data is transferred from the Base station to AIR-INSITE.COM

SYNC when the logged data returned to AIR-INSITE.COM is synchronised with the audit configuration

Let’s begin by simply transferring our newly created audit to the Base station...

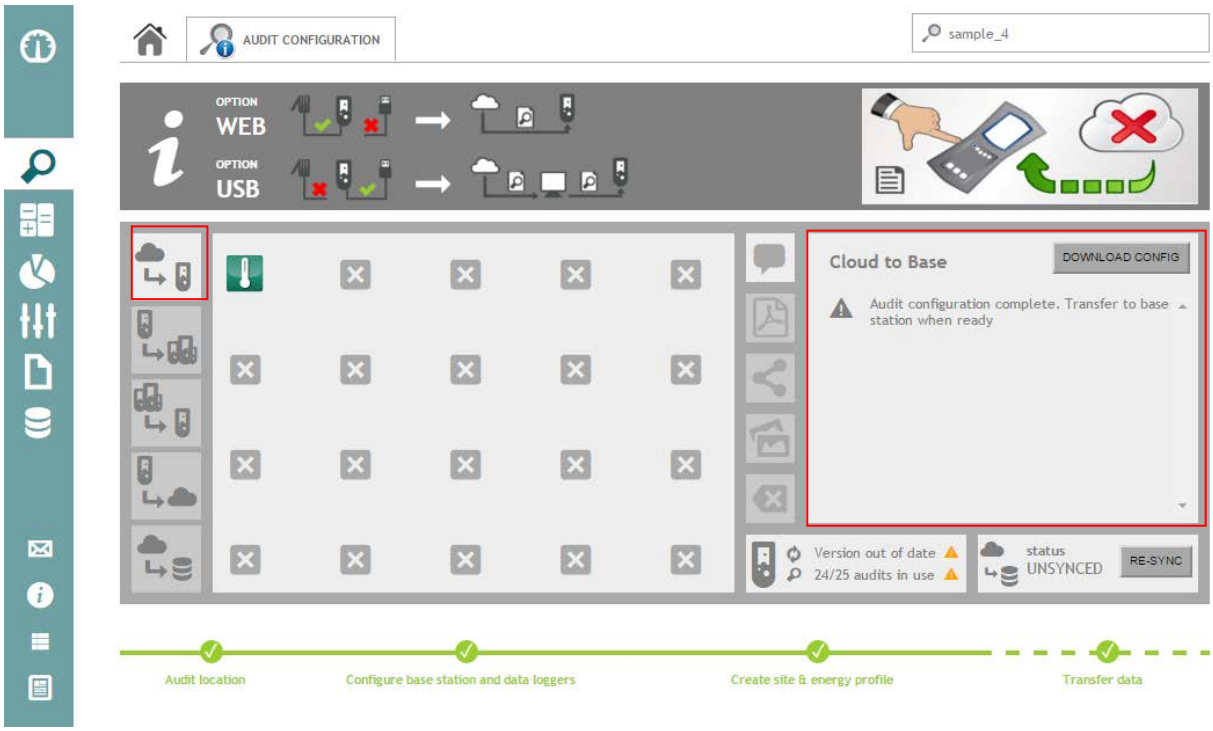
TRANSFERRING DATA TO/FROM CLOUD USING BASE STATION V2

Using the physical Base station configured for use with the audit, use its C2B feature to download the audit from AIR-INSITE.COM to the Base station. Observe when complete that the C2B tile at AIR-INSITE.COM will change colour from GREY to GREEN.

Newer Base stations benefit from a USB download / upload feature. To establish whether or not your Base station has this feature, look at the Base station decal on the rear of the Base station. If a '**V2**' mark is present then **you can** use this feature. If there is 'NO MARK' present your Base station is '**V1**' and **you cannot** use this feature.

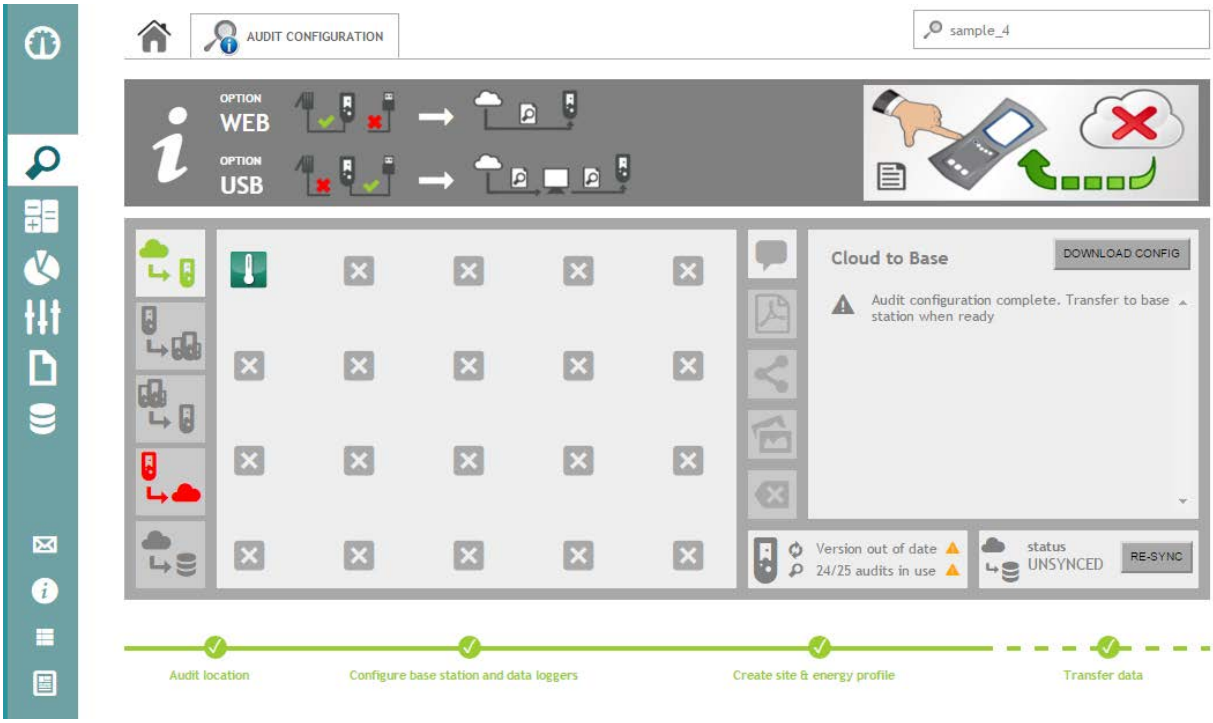
This feature is very useful when you want to perform a C2B or B2C step and your Base station does not have access to the internet!

To use this feature to perform the C2B step, begin by pressing the C2B button (1 of 5 buttons on the left side of the page below. Indicated in RED!) on the transfer data screen of AIR-INSITE.COM…



Observe the C2B information window (indicated above in RED) and the prompt / option to download a 'CONFIG' file. Proceed to press the DOWNLOAD CONFIG button. A config.bin file will download to the download folder of the device being used to access AIR-INSITE.COM.

Once you have completed the download, the 'transfer data' page of AIR-INSITE.COM will look like this…



Following a refresh of the browser page, the C2B information window will indicate that the transfer was performed successfully.

Next you want to transfer the 'config.bin' file from your device to the Base station.

Observe…

Your device can change the name of the config.bin file downloaded to your download folder (e.g. if you have more than 1 config.bin file, during download your device may add (1), (2) etc to the file name. The file must be called config.bin or the Base station will NOT accept it! **Correct as necessary before proceeding**

Pay attention to the graphical information at the top of the 'transfer data' page of AIR-INSITE.COM…

Your Base station should not be connected to the internet

Your Base station should be connected to the device where the config.bin file is located

When the Base station is connected to your device it can be found just like a Mass storage device can be found. The Base station ID is 'BS_DRIVE'

The USB feature is intended to handle **ONE** config.bin file at a time! Never attempt to copy more than one config.bin file to the BS_DRIVE folder at any time. This is emphasised by the unique name that must be used!

Never tamper with the config.bin file!

Never rename an alien file 'config.bin' or otherwise attempt to transfer an inappropriate file to the BS_DRIVE folder

Simply copy the config.bin file from your device to the BS_DRIVE. Then, remove the USB cable from the Base station (this is to release the BS_DRIVE folder control from your device which in turn will permit the Base station to use the BS_DRIVE folder once more!).

Next, perform a typical C2B step at the Graphical user interface of the Base station (i.e. as if it was connected to the internet). This action will import the config.bin file from the BS_DRIVE location of the Base station to the Base stations regular software environment. That's it! Using the Base station, find the Audit Manager menu where you can now select the Audit configuration downloaded via USB. Proceed to use the Audit configuration to perform the audit as usual (not discussed here).

Familiarise yourself with data transfer buttons as well as a logger view window…

These buttons change colour to indicate progress using the 'traffic light' system discussed earlier

By selecting a specific step (C2B, B2L etc), you can review progress

An online Base station will update AIR-INSITE.COM frequently. This includes events such as B2L or L2B data transfer events. When these buttons on the transfer data page change from GREY to GREEN, it's indicating that an event has been performed successfully. Refresh rates are up to 45 seconds.

Use the C2B and B2C buttons to access the USB method discussed elsewhere in this document (applicable to V2 Base stations only!)

Similarly, familiarise yourself with the logger overview window…

The layout of this window is intended to mirror the Base station graphical user interface display

Configured data loggers are shown as configured

Selecting a logger will display additional information about the logger on the right status window…

Logger software status is displayed

Logger battery status is displayed

Delete Loggers from Audit

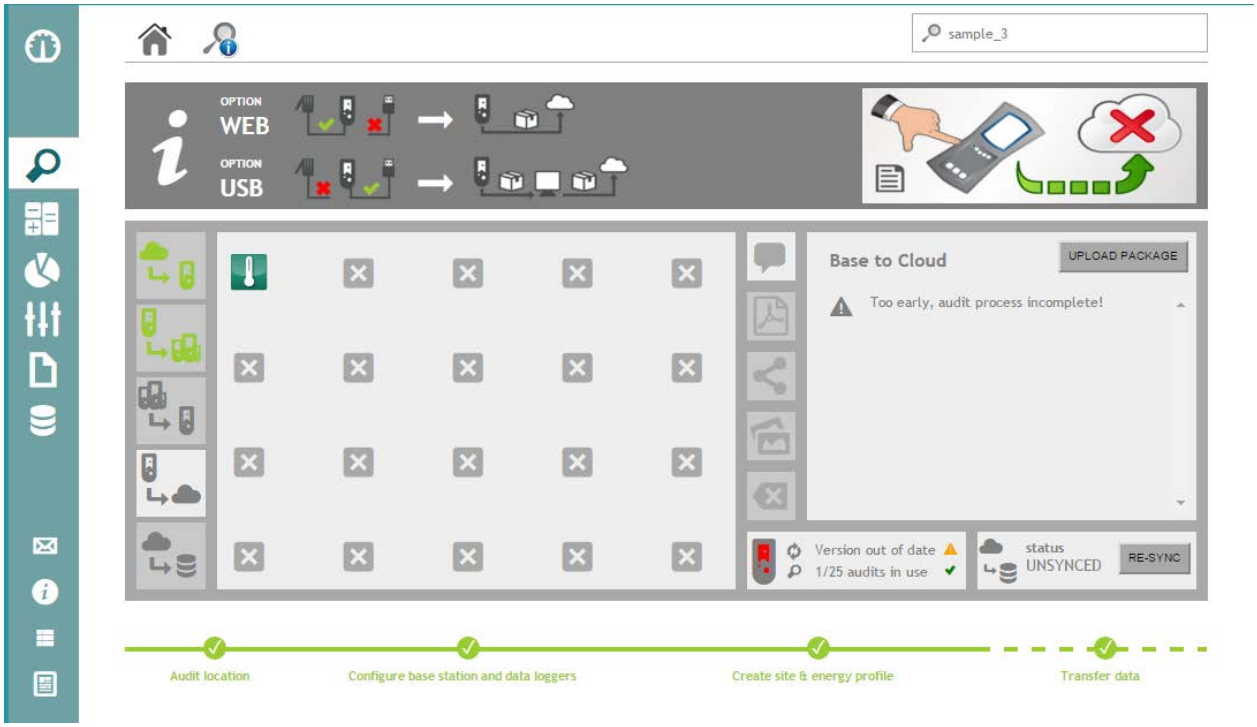
You can also delete a logger from an audit configuration here (observe the 'x' beside the logger data within the view window). This can be useful if for example a logger was not used during an audit and thus it contains 'no data'. Think carefully before deleting loggers from an audit configuration!

If you want to use the USB download / upload feature to return a completed logging to AIR-INSITE.COM you can do so as follows… (Note: USB download and upload features are independent of each other… you can use the Internet for download and USB for upload etc)

Do not connect your device to the USB socket of the Base station until the following steps have been taken! Complete the B2C step using the Base station as if it were on-line. Off-line the action will create a 'PACKAGE.BIN' file which will be written to the BS_DRIVE folder. The PACKAGE.BIN file contains both the audit configuration and the log files created by data loggers during the audit.

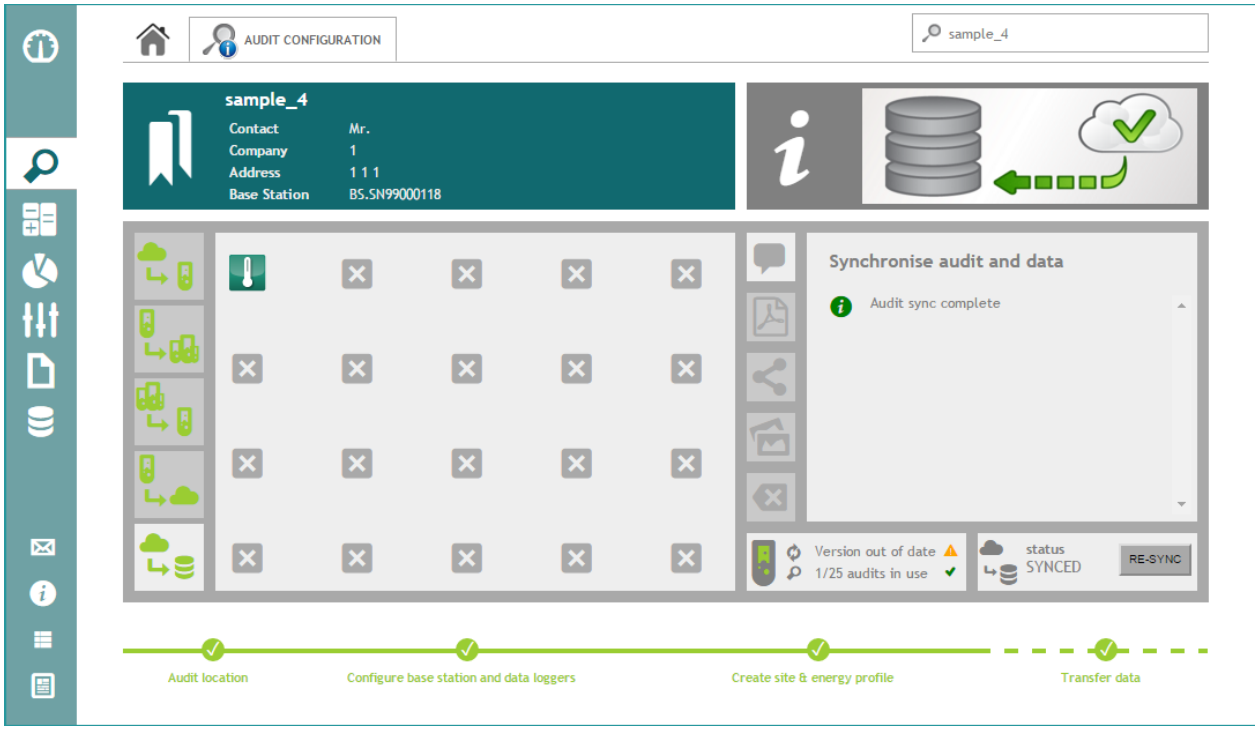
Next, connect the Base station to your device and locate the PACKAGE.BIN file. DO not tamper with the file in any way!

Next, from the transfer data page of AIR-INSITE.COM select the C2B step/button. You will see the following screen…



Use the UPLOAD PACKAGE button to locate and select the PACKAGE.BIN file for upload on your device (you should be able to locate the BS_DRIVE folder directly). The time taken to transfer the PACKAGE.BIN file will be relative to the size of the file (variable relative to the size of the audit) and the

Once complete your 'transfer data' page will refresh to look like this…

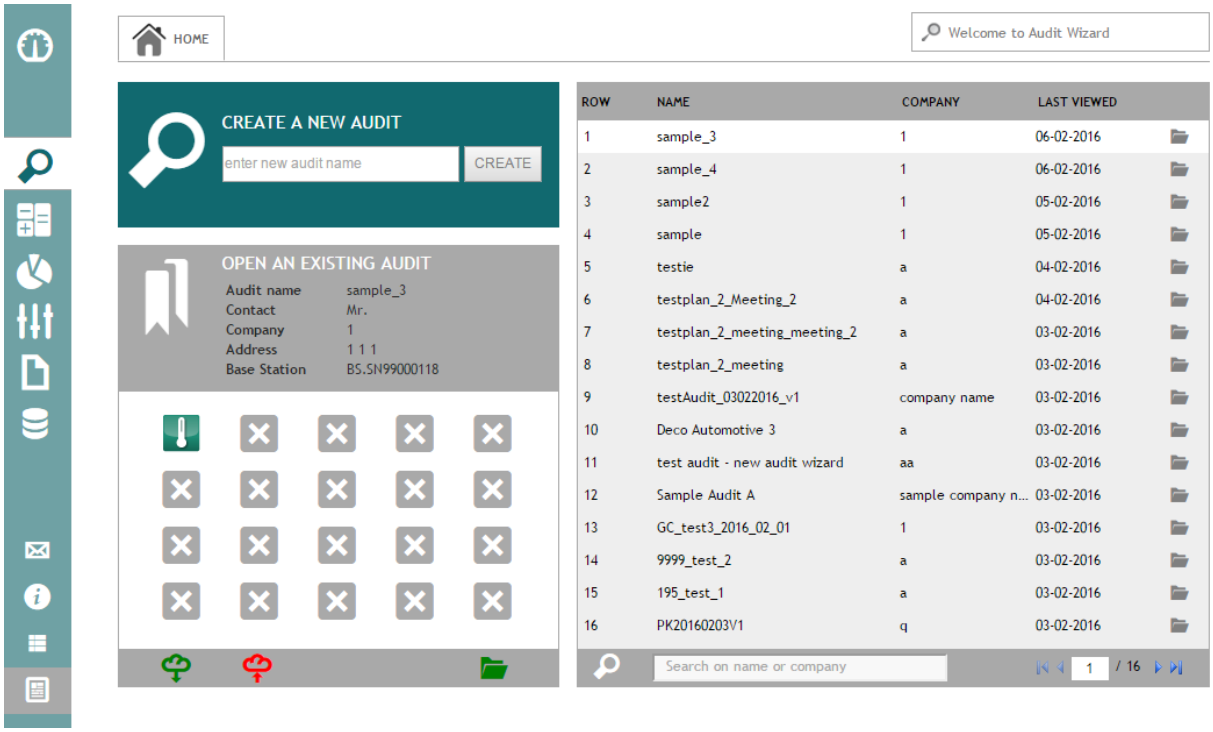


Proceed to use the 'SYNCED' audit in the usual way (not discussed here).

A SYNCED audit is where an audit configuration is combined with logged data to create a series of data streams. These data streams are accessed using the various Wizards at AIR-INSITE.COM (Graph Wizard, Chart Wizard etc).

From the Audit Wizard home page you can open an existing audit configuration using the 'file' icon within the row of the selected audit or using the file icon at the foot of the detail view box.

Observe the presence and status of both C2B & B2C 'cloud & arrow' information icons which use the now familiar traffic light system to indicate C2B & B2C status. These information icons are used elsewhere on AIR-INSITE.COM....



You can add and make significant changes to many aspects of an audit configuration. To do so navigate forward and back using the progress / navigation bar making changes as necessary (not discussed here).

Observe that changes to an audit configuration may necessitate a RE-SYNC of the audit!

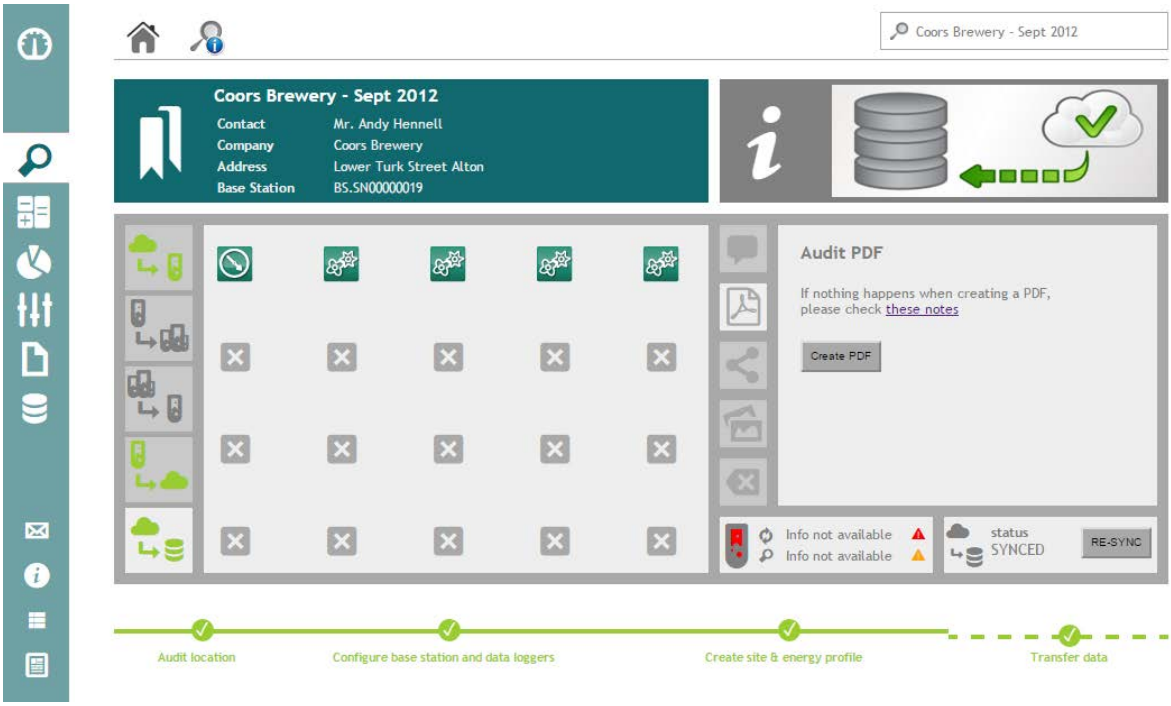
How do I know what loggers should be installed at the audit location?

When the audit was configured on AIR-INSITE.COM using Audit Wizard, information about the Audit location was established. This included relevant information about the quantity of data loggers, their serial numbers etc.

At the end of the Audit Wizard process the Audit configuration was made available to the AIRINSITE Base station. On the same screen (pictured below) there's a PDF icon that downloads a PDF of the audit configuration to your device (PC). The audit configuration PDF is intended as a guide to the equipment installer and also a useful aid when validating the audit configuration data.

Attached you'll find an example of the audit configuration PDF.

Note: when a PDF fails to download its typically because pop-up's are blocked in your browser settings. For guidance on this topic use this link... ENABLE POP UP INFO



How to fix inaccurate compressor status and calculated flow?

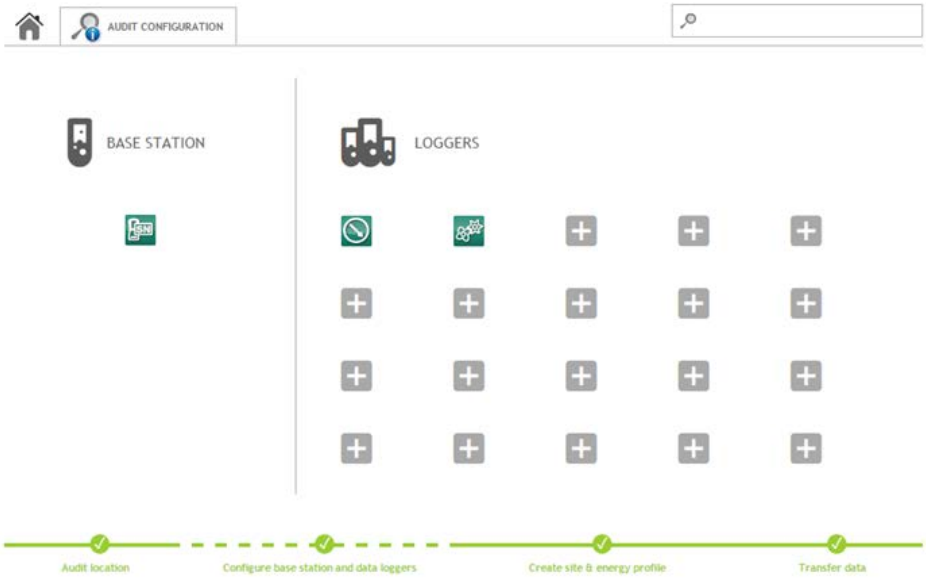
The first thing a user should always do when getting back data from loggers is check for correct compressor status (i.e. looking at kW and power factor graph). Sometimes AIRINSITE will calculate the load/unload status incorrectly as shown in the example below (i.e. it should've shown green instead of yellow to indicate productive power when compressor was loading). The reason of incorrect compressor status calculation is always due to the fact that Voltage and/or load/unload kW and/or Power Factor entered in compressor table (Audit Wizard) deviate too much from the measured V, kW or PF data.

Note that if compressor status is incorrect, calculated flow (supply and demand) will be incorrect as well!

To get AIRINSITE to show correct compressor status, go back to Audit Wizard and change Voltage and/or kW and/or PF in the compressor table;

Click on Audit Wizard. Double click on your audit.

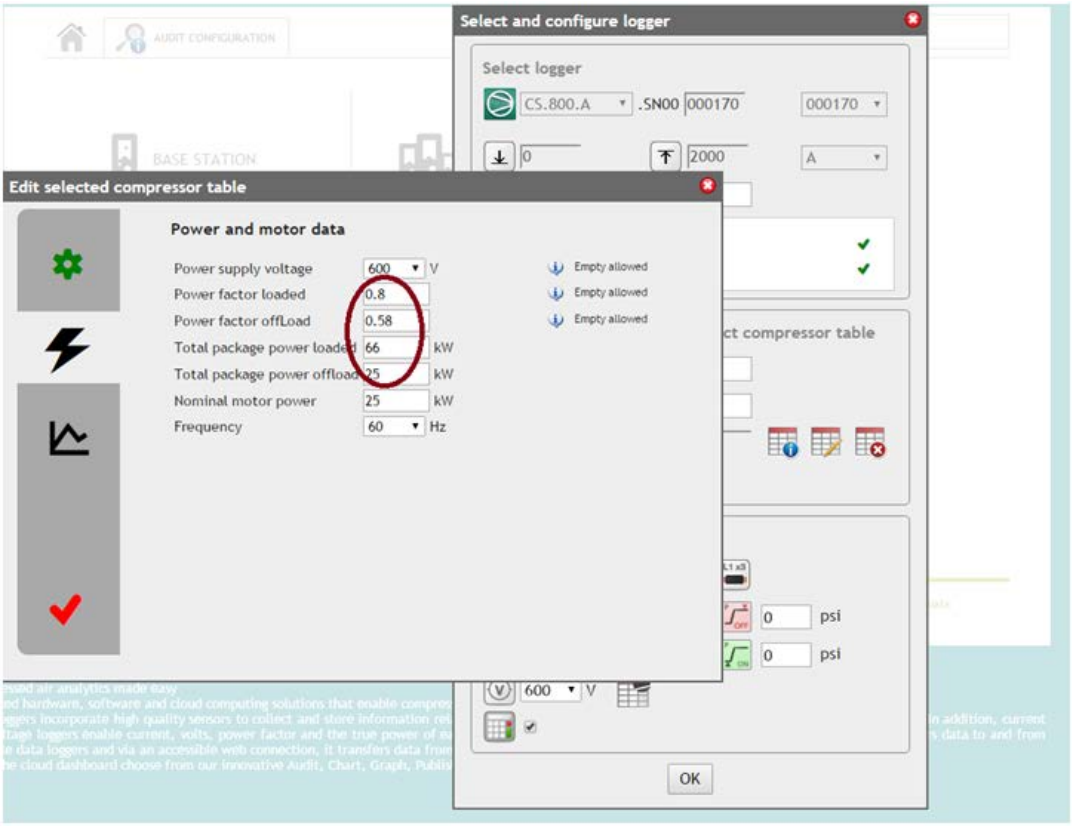
Click on 'Configure base station and data loggers'.



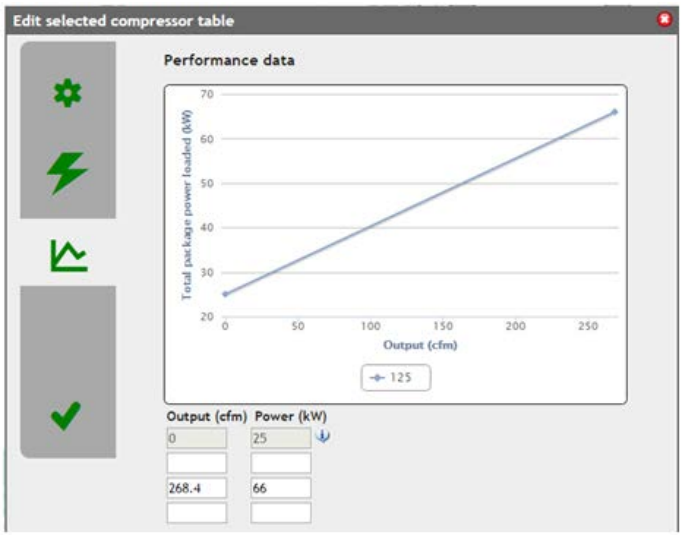
Click on the kW logger that you want to change V, load/unload kW and PF.

Click on the icon  to edit your compressor table.

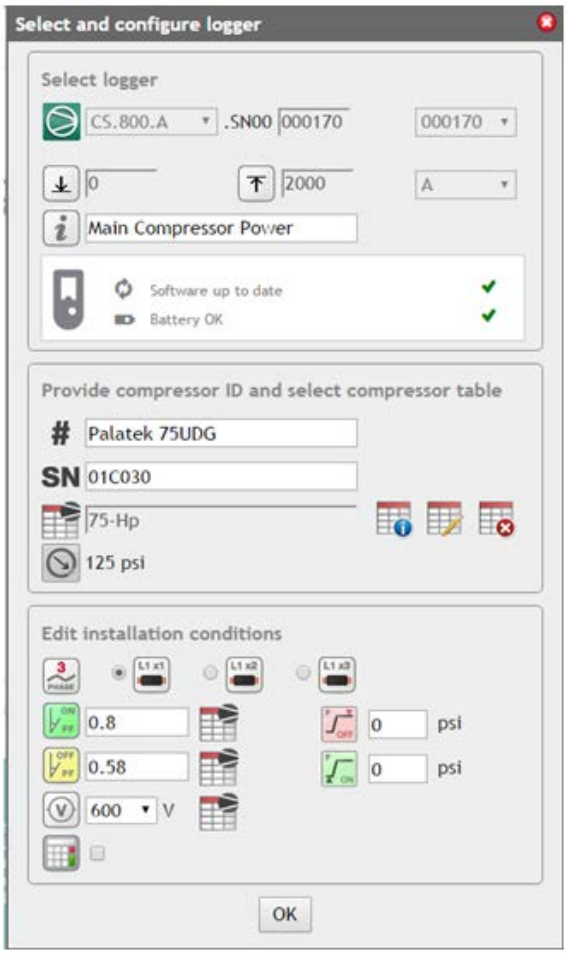
Go to 'Power and Motor data'. Edit Voltage and/or load/unload kW and/or PF.



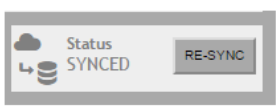
Go to Performance Data. Edit the maximum kW data. Sometimes you will have to edit minimum kW (e.g. inlet modulation compressor).



Click on the check mark  . Click OK.



Go to the last step ‘Transfer data’. Click RE-SYNC.



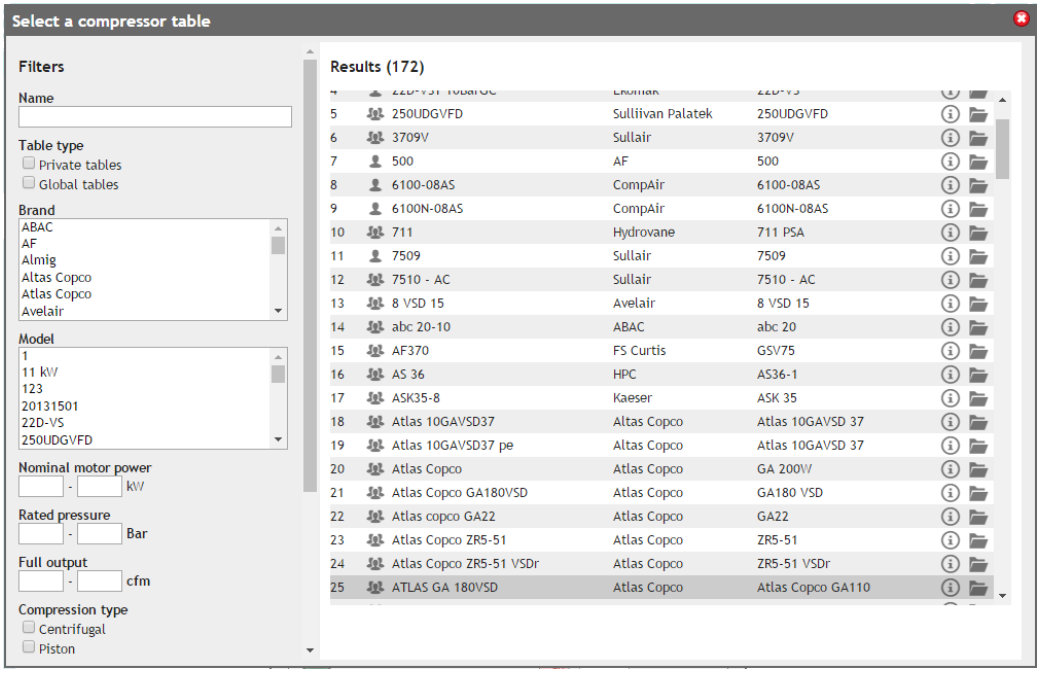
Check the kW and power factor graph again to make sure compressor status is correct.

Can I edit Global compressor tables?

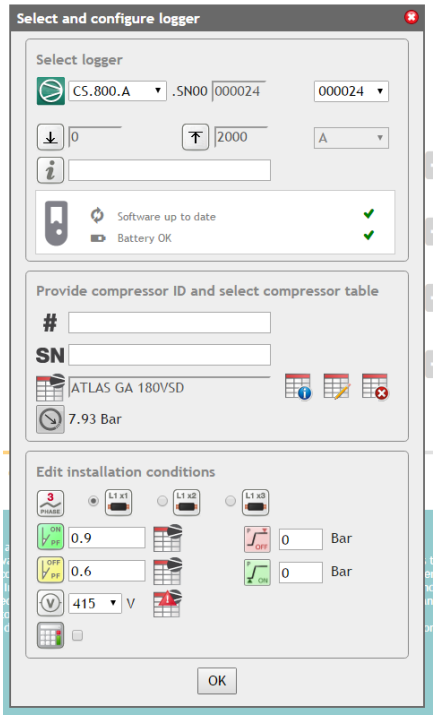
Global compressor tables are published by site administrators only.

Regular users can edit global compressor tables but when they do they must be saved as a 'PRIVATE' compressor table...

Let’s assume we're in Audit Wizard and we want to change the contents of a global compressor table and then associate the edited table with a logger. To do so, we'd be in Audit Wizard 'configure base station & data loggers' and we'd be using the 'Select a compressor table' filter...

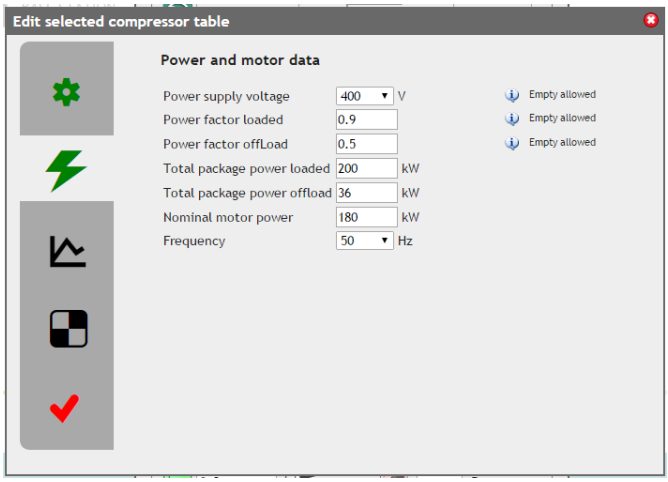


All the compressor tables with the multiple head icons are 'Global'. Let’s go ahead and pick No 25, the 'Atlas GA 180VSD' by clicking the open folder icon...

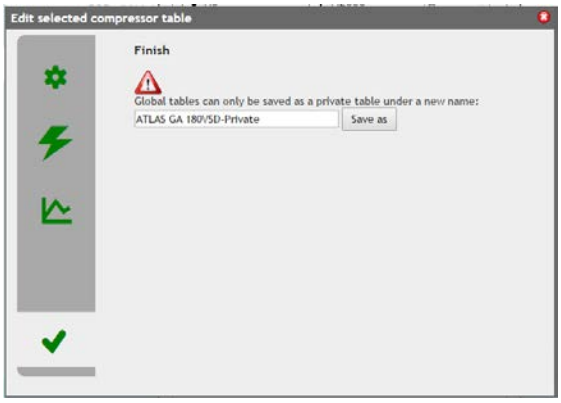


Now lets use the 'EDIT' button (middle button of the 'Provide compressor ID and select compressor table section) to edit the compressor table...

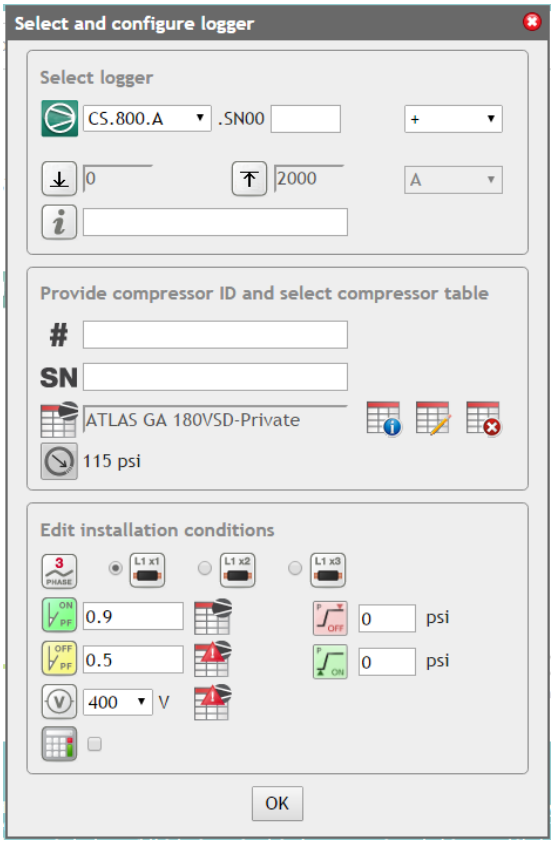
Let's suppose we want to change the off load power factor to 0.5, we can edit the field as shown below...



Next, continue to the check mark where you save changes...



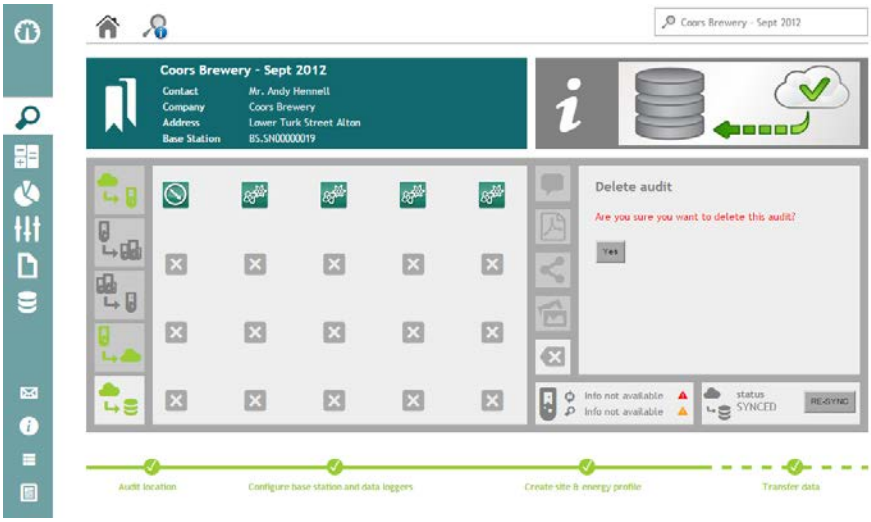
Observe the message indicating that you must save the edited global compressor table! AIR-INSITE.COM will generate a new name for the table which you can change as required. When ready, click 'SAVE AS' and you will be returned to the 'Select and configure logger window...



Observe that you are now working with a 'PRIVATE' copy with edits of the original global table!

Can I delete an audit from AIR-INSITE.COM

Yes you can! Navigate to Audit Wizard, select the audit concerned. From the Audit Wizard - transfer data window use the delete audit button to remove the audit you want to delete. There's an acknowledge request prompt prior to the audit being deleted...


Coors Brewery - Sept 2012
Coors Brewery - Sept 2012
Contact Mr. Andy Hennell
Company Coors Brewery
Address Lower Turk Street Alton
Base Station BS:SN00000019
Delete audit
Are you sure you want to delete this audit?
Yes
Info not available
Info not available
status
SYNCED
RE-SYNC
Audit location
Configure base station and data loggers
Create site & energy profile
Transfer data

GRAPH WIZARD EXPLAINED

GRAPH WIZARD EXPLAINED

This information bulletin explains the features of Graph Wizard, recently updated on WWW.AIR-INSITE.COM V12 (13th July 2015), Graph Wizard is one of a collection of 'feature' Wizards within the WWW.AIR-INSITE.COM cloud computing platform.

Before proceeding, USER's are advised to:

Understand that WWW.AIR-INSITE.COM performs best in Google Chrome

If USER's are unable to use Google Chrome, we recommend Mozilla Firefox

Internet Explorer is our leased favored browser (Sorry Microsoft)

Whichever browser you choose, we recommend the latest version (This is of particular importance when using Internet Explorer!). USER's must understand that some WWW.AIR-INSITE.COM features and functions will become slower or may not be compatible with older browser versions, there is no easy solution to this , if you want what modern browsers can offer then you need a modern browser version

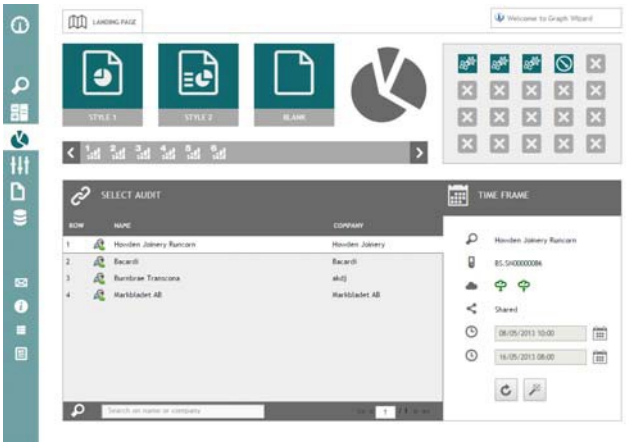
Prior to using WWW.AIR-INSITE.COM V12 ensure the cached content of your chosen browser has been cleared!

Also, prior to using new Graph Wizard, a re-sync of audit data is required! This is because new Graph Wizard features some completely new graph types which require the creation of new data streams from the original audit data. To create these new data streams, an audit re-sync is necessary.

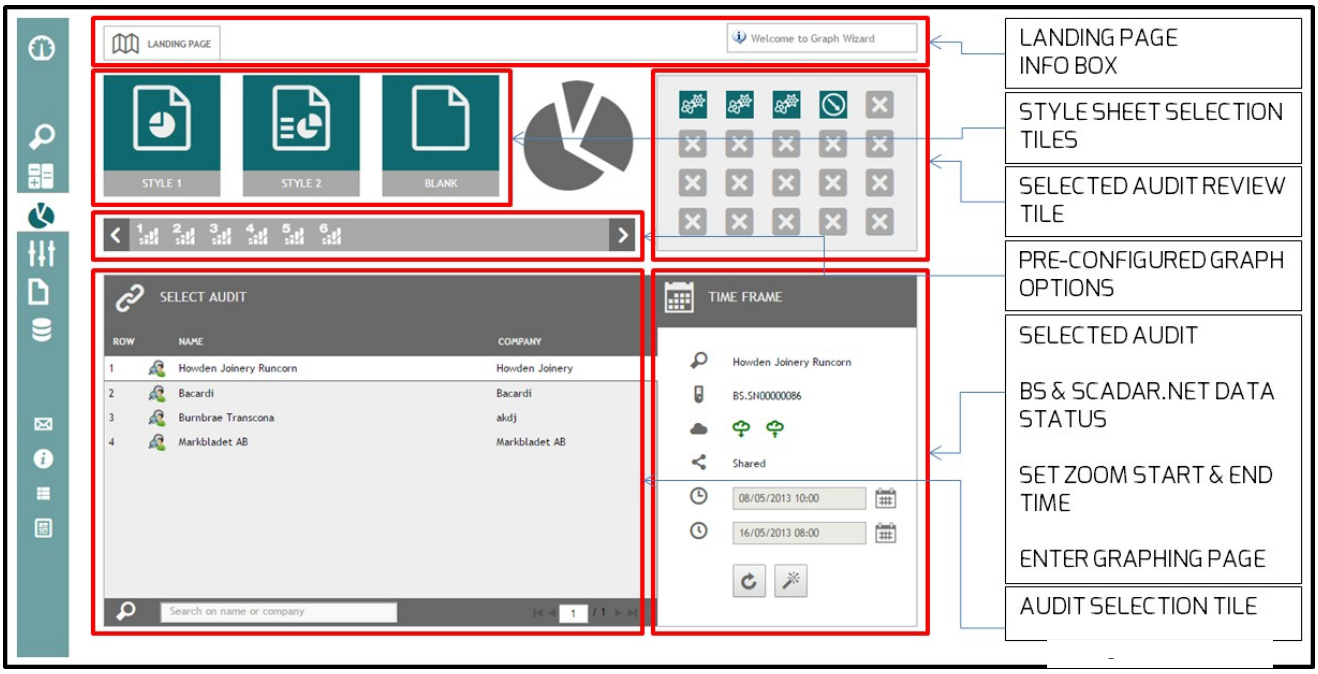
Understand how your browser uses memory and its memory limitations!

New Graph Wizard is a powerful graphing product. However, its features can place a significant burden on memory! 'How much memory' depends both on your chosen browser (our tests reveal that Firefox uses memory most efficiently) as well as the size and duration of the audit being used. For example a one week audit using 3 loggers will have a significantly lower resource burden than a 2 week audit involving 6 loggers. You can observe memory usage using Windows Task Manager, tab 'Processes' and observe the 'Memory' column for your chosen browser. As your browser uses memory to plot graphs you will see this value change. Browsers have memory limits typically at or around 1GB. Thereafter a page crash can occur. 1GB is not an insignificant amount of memory and most users will never observe a page crash. However, with new Graph Wizard's increased variety of graphs as well as the 'Style sheet' feature which enables a user to instantly load a large number of graphs automatically, it's important to be aware of the potential for a page crash to occur.

Users can reach ‘Graph Wizard’ by choosing it from the left hand Wizard selection. The new Graph Wizard landing page looks like this…



The style of the landing page is similar to Audit Wizard & Publish Wizard, a ‘style’ theme that will continue as we further develop WWW.AIR-INSITE.COM. The following is an explanation of the Landing page environment…



When you select an Audit, you can review information about the audit selected on the right side of the Landing page. There’s a Logger review tile which identifies the loggers used in the selected audit. If you hover over a logger tile the logger specific serial number will bedisplayed. Further down, the Base station serial number is indicated alongside ‘cloud status’ and whether or not the audit is a shared audit.

Style sheets work similar to the way ‘Templates’ do in Publish Wizard. A Style sheet allowsa User to choose a selection of graphs to be saved as a ‘Style sheet’. After saving a selection of graphs to a Style sheet, a User can simply navigate to Graph Wizard, choose aStyle sheet, select an Audit and press the ‘Wand’ button. WWW.AIR-INSITE.COM will load the graphing page and continue to load the graphs assigned to that Stylesheet.

There are 2 Style sheet tiles available as well as a ‘BLANK’ tile making 3 tiles in total. BothStyle sheets can be configured to load different graph choices. The third ‘BLANK’ tile simply opens the Graphing page without pre-loading any graphs, allowing the USER to make his or her own graph selections. Beneath the three tiles there is a number of ‘Pre-configured’ graphs, each identified by a graph number as well as an individual tool tip.

Use the three tiles in the following ways…

Select Style 1, Style 2 or Blank

If it’s not possible to select a Style sheet it’s likely that you have not saved anything tothat Style sheet yet!

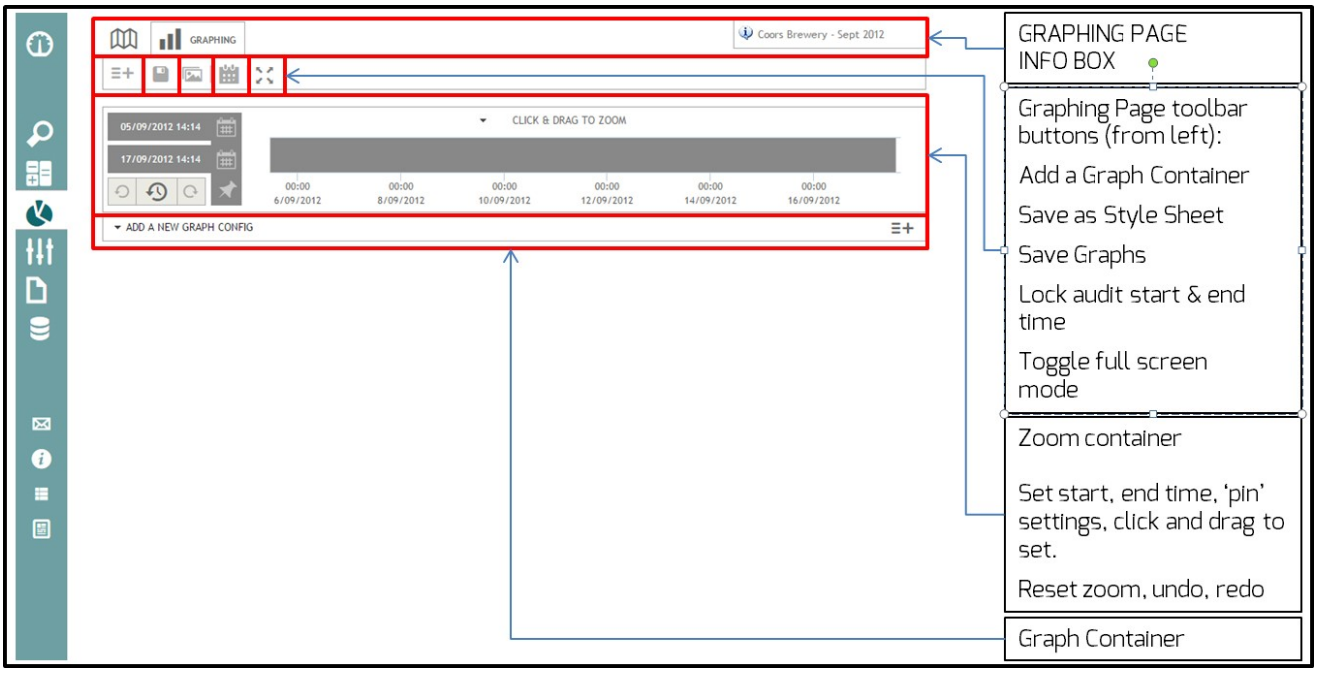
Once selected the tile will change from ‘grey’ to a color format

You can use the ‘grey ‘INFO’ portion of the tile to review Style sheet info

Pre-configured graphs work in a similar way to Style sheets. Users can select one or a number of Pre-configured graphs from the Landing Page, select an Audit and press the‘Wand’ button. You can access Pre-configured graphs from the Graphing Page as well

Pre-configured graphs either combine data that a User cannot combine (User configured graphs) or combines data that a User might often want to review in a specific graph format or combination. The list of System graphs will grow as we add more and more f e a t u r e s

The following is an explanation of the Graphing page environment using a BLANKStyle sheet…



The toolbar consists of 5 buttons. You can add one or as many graph containers as required. A single graph container is provided below the Zoom container (picturedabove). You can add more graph containers by either using the button on the Graphing page toolbar or the identical button placed at the top right of a graph container.

All containers are collapsible including the Zoom container. You collapse or expand a container by clicking the top area of the container

Save as Style Sheet allows you to save a selection of graphs within the 'Graphing' page aseither Style 1 or Style 2. You do this by first loading the graph selections manually. Onceloaded, use the 'Save as Style Sheet button to save as appropriate. When you return toGraph Wizard in the future, select the Style tile, the audit and press the wand button. Your Style sheet 'graph selection' will load automatically

Save graphs using the Graphing page toolbar will save 'ALL' graphs contained in all the graph containers. There is no User option to rename individual graphs here, all graphs are saved using a defined format and method and are placed individually in the appropriate folder on WWW.AIR-INSITE.COM. There are other save options including 'direct download' that permits User intervention to the graph saving process. These are discussed later …

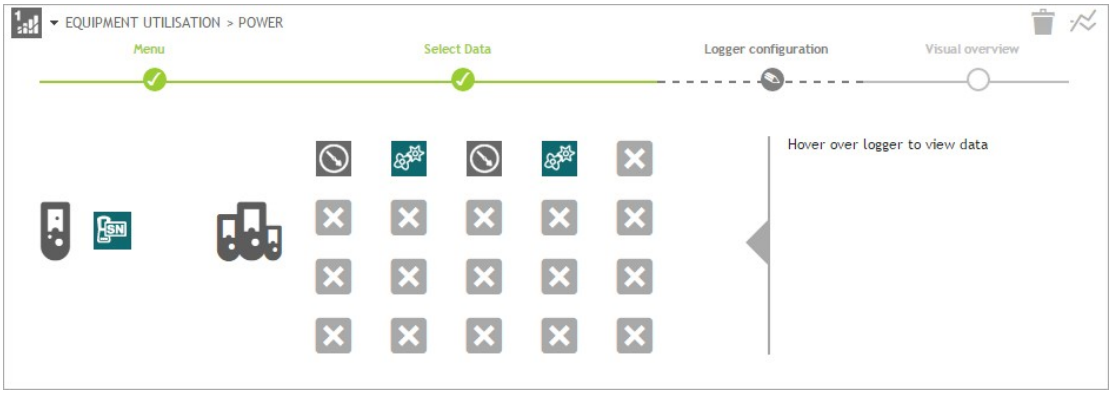
The 'Lock audit start & end time' button has a specific purpose which is distinct! By setting and locking the audit start and end time from the Graphing page toolbar, the setting will be locked and used across WWW.AIR-INSITE.COM. So for example, if you ever return to an audit in the future, the audit span will equal these settings or if you reset zoom settings, the zoom willreset to these span settings. If you run a Report template in Publish Wizard; these settings prevail etc.

Toggle full screen mode allows you to take advantage of your entire screen 'real estate'.Below is an example of a graph displayed in full screen mode…

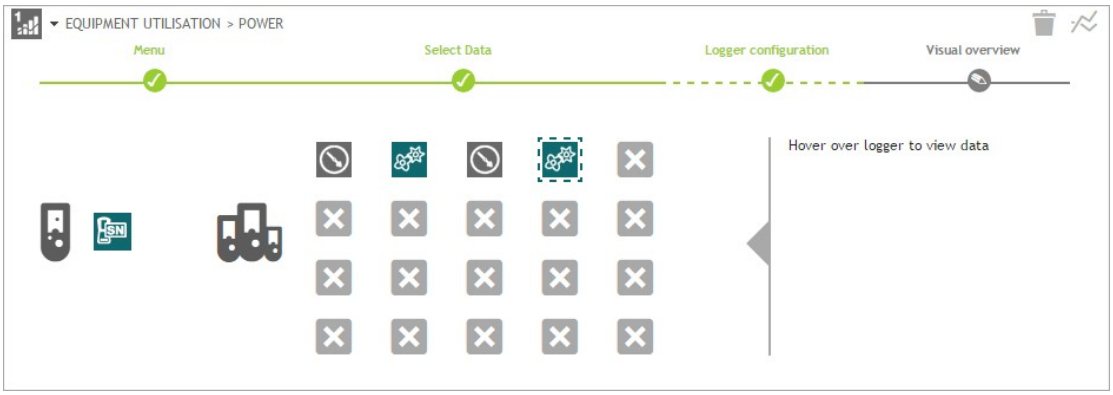
To configure a graph click ‘add a graph config’ and proceed to select a graph type…

Available graph types are ‘Equipment Utilisation’, ‘System utilisation (supply side)’, ‘System utilisation (demand side)’ and ‘Additional graph options’. Once a selection has been made, the Menu progress indicator will change color, from AMBER to GREEN and the nextstep can be reached. So for example, if you select ‘Equipment utilisation’ and then select ‘Continue’ your screen will look like this…

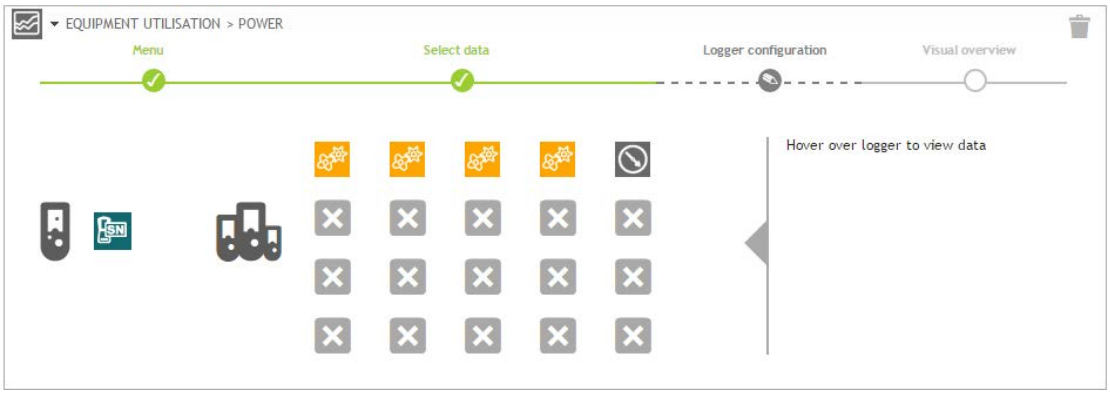
Continue to make permissible selections. We’ll select Amps by selecting the Amps tile within the Power tile and continue to the next step. Your screen will look like this…



Continue to make permissible selections. Observe that permissible selections are GREEN and that Logger information can be viewed by hovering over its tile. Logger information is displayed on the right. Selected loggers will have a hatched line placed around the Logger tile.



Configuration is now complete. Select Visual overview to view your graph… Follow theafore-mentioned steps to configure all graph options adding as many graph containers as required.



Before we look at the graphs its worth highlighting 'AMBER' colour specific to Current & Volt logger icons. The 'AMBER' colour replaces the 'warning triangle' used in earlier versions ofGraph Wizard. Its intended purpose is to alert the user to missing data and thereasons behind that missing data…

By hovering over the 'AMBER' logger icon you can receive up to 3 INFO messages via 'tool tip'…

Audit contains missing data

Logger contains missing volt data

Logger contains no kW data

It's OK to use audits that contain 'AMBER' icons, however be aware that the 'AMBER' colour is alerting you to something which may have an impact on your audit results. Equally, youmay be perfectly aware if the reason for the 'AMBER' icon and happy to ignore it. Here's a few things to consider…

Question	Answer
What does 'audit contains missing data' mean?	Simply that, for some reason, the logger contains missing data.
How will adjusting the audit start & end time eliminate missing data?	During the Audit Wizard process, loggers we're time synchronised. If you install 2 or more current & volt loggers in an audit, its impossible to install them synchroniously. Consequently, there's often missing data at both the start and end of any audit.
How do I adjust the audit start & end time?	You do this in Graph Wizard using the 'Lock audit start & end time' toolbar button.

Question	Answer
Why is this feature located in Graph Wizard?	Its located in Graph Wizard because its best to use the Equipment Utilisation feature of Graph Wizard to plot Amps, Volts, kW and Power Factor for the installed Current & Volt loggers, review results, make the appropriate start and end time decision and set accordingly.
Does locking the audit start & end time have any other effect?	Yes. Once locked, if you revisit any part of WWW.AIR-INSITE.COM and open an audit the newly locked start and end time is used!
What does 'audit contains missing volt data' mean?	Missing volt data can occur if the volt probe of the current & volt logger(s) was either not installed, became temporarily or permanently dislodged during the audit or if at any time during the audit, supply power was isolated from the host air compressor where the current and volt logger(s) was installed
How will adjusting the audit start & end time eliminate missing volt data?	If the supply power was isolated during installation or removal of the current and volt logger, there will be missing data.

When should I check ' Calculate my kW'	If you decide that you do not have reliable volt data then we neither have power factor data and consequently we do not have kW data. To make use of the 'Amps' data we can calculate kW by using the compressor table data entered during the Audit Wizard process. Navigate to Audit Wizard, selecting the relevant audit, go back to 'Configure base station and data loggers' and select the appropriate logger, in 'Select and configure logger' place a check mark in the box next to the calculator within the 'Edit installation conditions' section. You may repeat this process for as many current & volt loggers that have missing volt data. Then, before leaving Audit Wizard, navigate to 'Transfer data' and 'RE-SYNC' the audit that you made changes to.

Question	Answer
What does 'audit contains no kW data' mean?	Missing kW data will occur if the volt probe of the current & volt logger was either notinstalled, became temporarily or permanently dislodged during the audit orif at any time during the audit, supply power was isolated from the host air compressorwhere the current and volt logger wasinstalled
If I have no kW data what should I do?	check ' Calculate my kW' for the logger(s)concerned

Depending on the amount of data being retrieved you may experience a delay before your Graph(s) are viewable. Progress indicators will guide you!

Below is an example of the resulting graph (Display mode = Actual data)

The progress bar remains present at all times allowing USER's to view or edit the graph's configuration at any time.

If a User selects more than one Logger at the Logger configuration step, each Logger will beplotted on individual graphs within the same graph container.

At the top of the graph container there's a Rubbish Bin for deleting an entire graph container(which will delete all graph's within that graph container!).

At the right of each individual graph there's a toolbar which extends to reveal optionsor information…

The save button allows you to edit the name of the graph to be saved, you can save the graph to the 'SYSTEM' which places it within the appropriate folder on WWW.AIR-INSITE.COM (for use later) or you can download the image directly to your PC using the 'direct download' button.

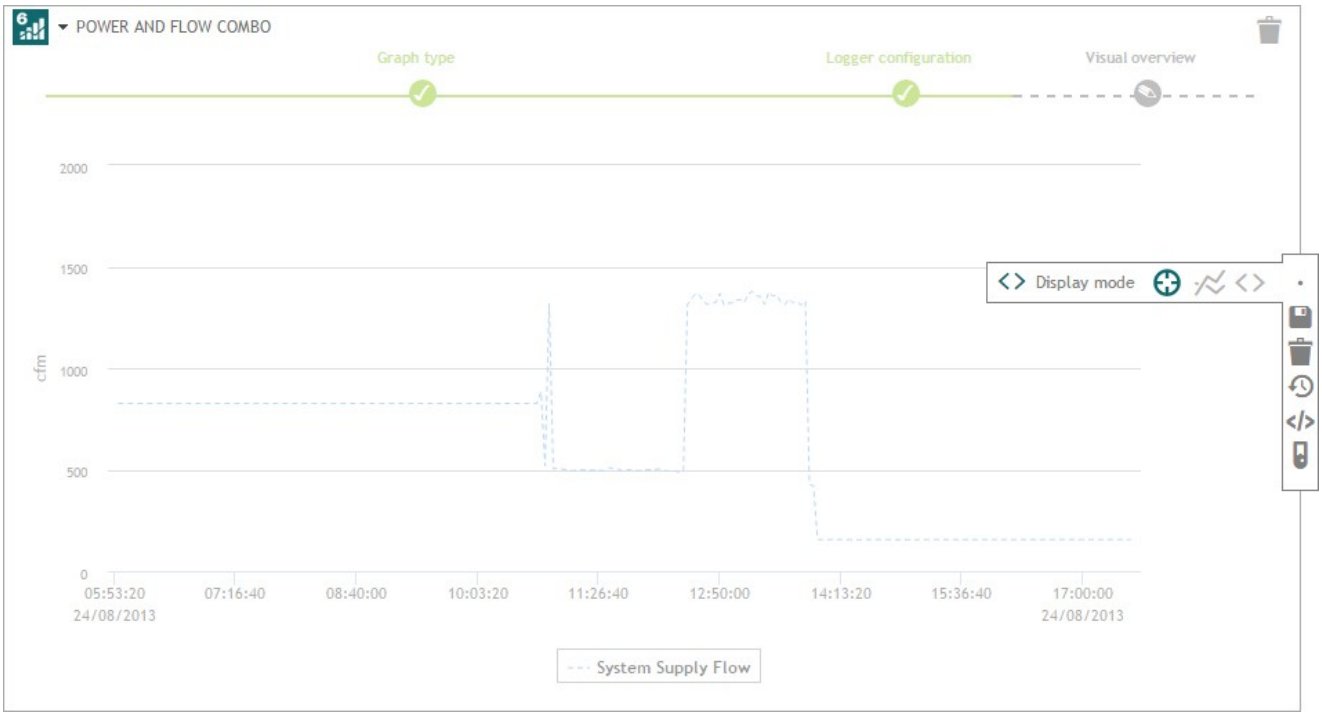
You can delete the individual graph using the Rubbish Bin.

You can reset any active zoom using the buttons on the right toolbar but notice that zoom settings are applied to all graphs! There's an undo and redo button either side of the reset zoom button which allows you to undo and redo zoom settings as necessary. The buttons indicate whether an undo or redo is available

There's a data button that displays the data streams used to create the graph.

Similarly, there's a logger button that displays the Loggers used to create the graph. If you hover over the Logger tile, the logger type and its Serial number will be displayed.

There's a Display mode button that allows Users to select between Actual data (default), Peak data or Average data. All 3 can be graphed as we've done in the example that follows.



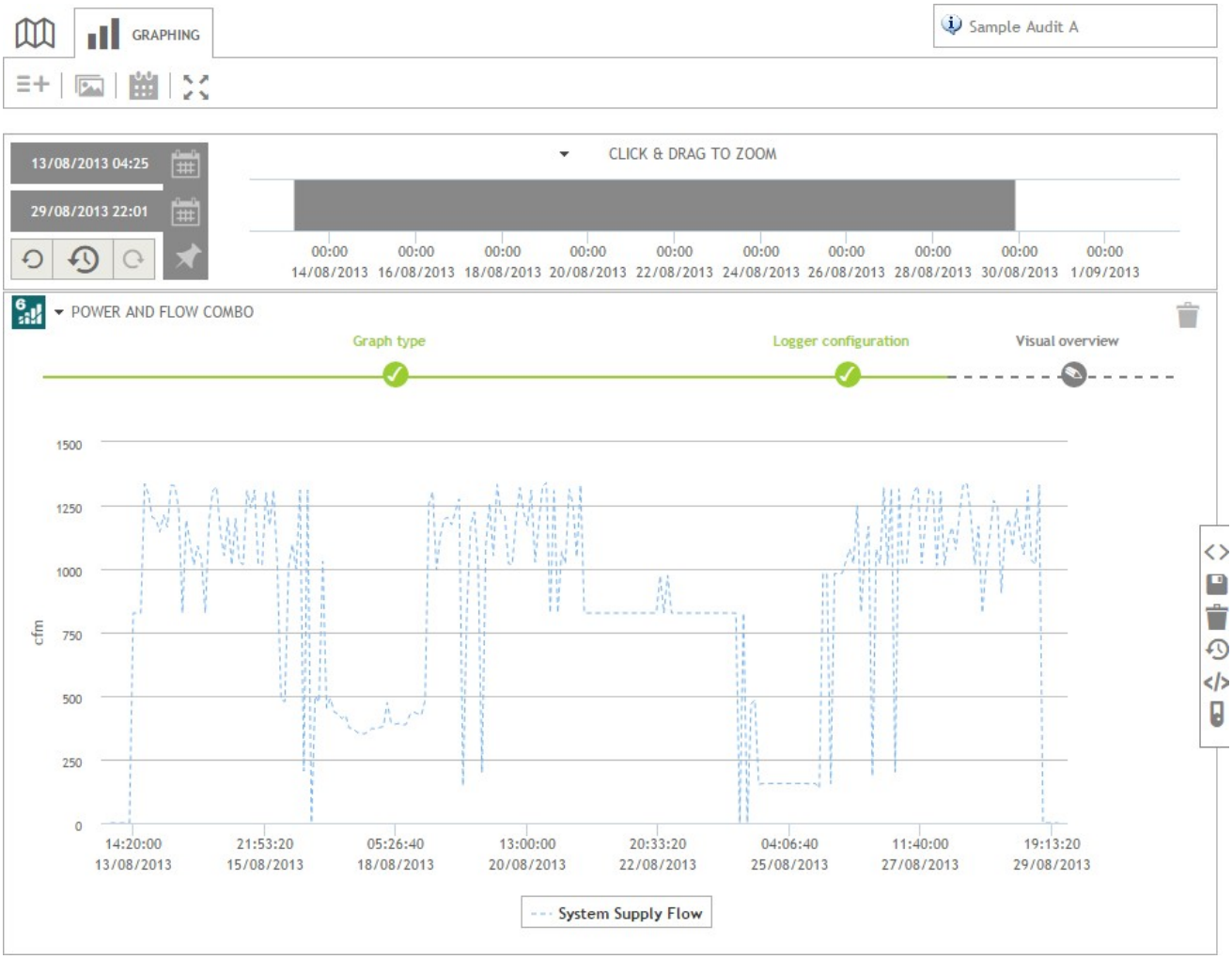
It's worth considering how sample data is gathered, stored and then used to understand the benefit of Display mode. As you will know, AIRINSITE loggers are pre-configured to sample data once every second. If an audit lasted for exactly 1 week, that's 604,800 samples of data. WWW.AIR-INSITE.COM offers display support down to 1024 x 768 pixel resolution which is common place. That's a maximum horizontal display resolution of just 1024 pixels. And that's before we put the browser (e.g. Chrome) on the display or WWW.AIR-INSITE.COM onto the browser. For graphs themselves, WWW.AIR-INSITE.COM actually plots 250 pixels across a horizontal graph axis! So if you were to load a graph with a time span of 1 week, we need to somehow plot 604,800 samples onto 250 pixels which is of course impossible…

If you think about it, the only time WWW.AIR-INSITE.COM can 'truly' plot samples directly from its database onto a graph is when the time span is equal to 4 minutes and 10 seconds (250 samples = 250 pixels!). And if you ever wondered why you can't zoom to a resolution greater than what looks like 4 or 5 minutes on the graph

horizontal axis, well now you know! This understood, it's worth remembering as you zoom into any graph that the effects of 'Display mode' diminish until they have no effect when you have zoomed into 4 minutes and 10 seconds of data.

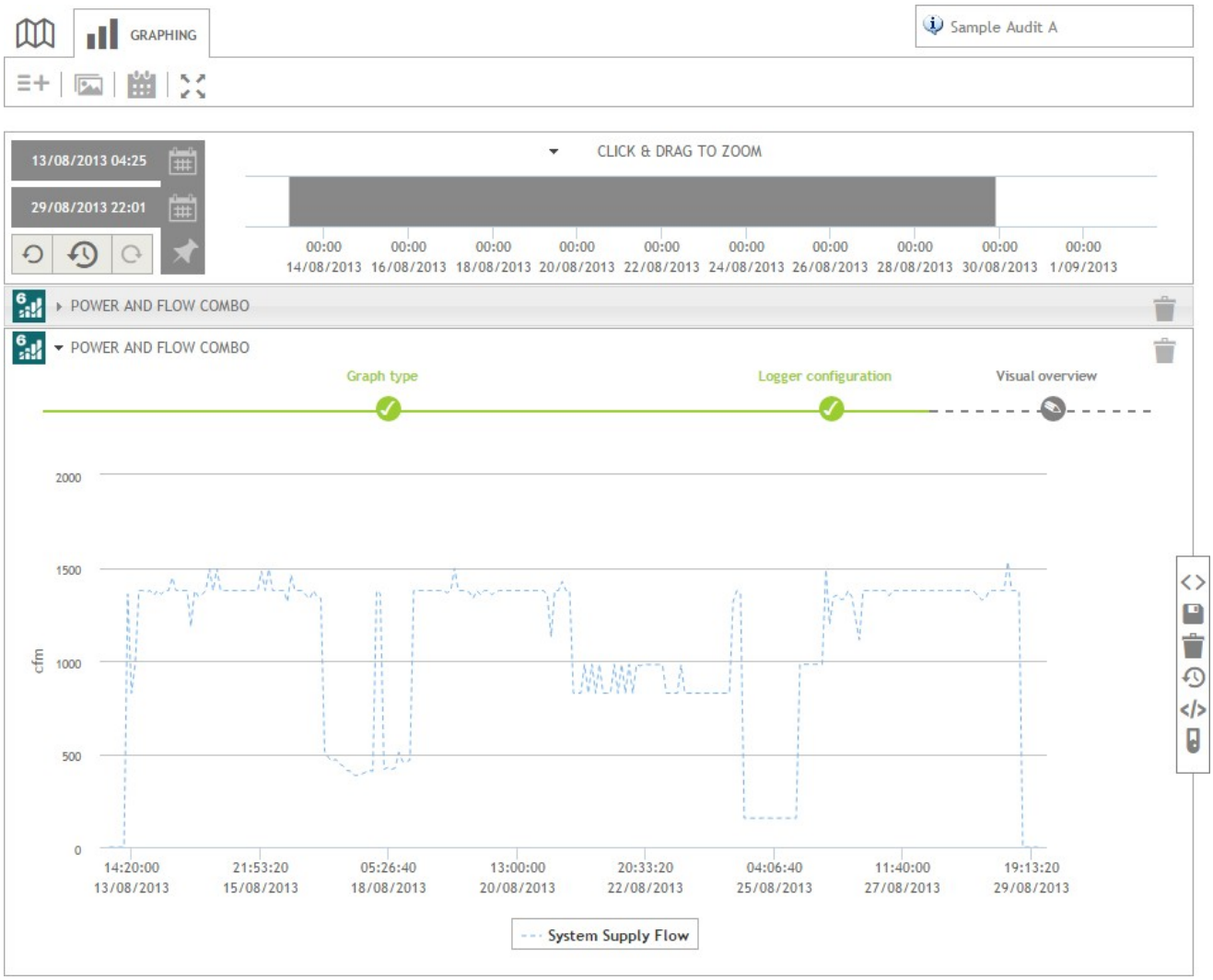
To help with this 'display challenge', WWW.AIR-INSITE.COM offers 4 Display modes; 'Actual data' (default), 'Average data', 'Minimum data' and 'Peak data' . Each mode has an alternative method to display more data than available pixel real estate.

Actual data (shown below) looks at the number of available samples (e.g. 604,800 over 1 week), WWW.AIR-INSITE.COM then divides the data into 250 equal sizes groups of data and takes the first sample in each of those equally sized groups to plot a graph.



The benefit of this Display method is that you are displaying real data. However the display method has limited benefit at lower resolution because large amounts of data are simply omitted from the graph.

Peak data (shown below) again looks at the number of available samples (e.g. 604,800 over 1 week), And again, WWW.AIR-INSITE.COM divides the data into 250 equal sizes groups of data but this time, WWW.AIR-INSITE.COM takes the single largest sample within each group to plot a graph.



The benefit if this Display method is that a User can easily find data peaks and peak trends in data which can be if particular interest.

Average data (shown below) again looks at the number of available samples (e.g. 604,800over 1 week), And again, WWW.AIR-INSITE.COM divides the data into 250 equal sizes groups of data but here WWW.AIR-INSITE.COM takes the number of samples within each group and establishes an

Average value for each group (e.g. 604,800 / 250 = 2,419 samples / by the sum of thesample data within each group).

The benefit if this Display method is that all available samples have contributed toproducing the graph. However some caution should be exercised when analysing average data and its beneficial to assess its value alongside the either Peak or Actual data or both.

There is no definitive answer to which Display method is best, it often depends in what data is being graphed and the specific area of focus.

How does Graph Wizard plot data from a Moisture (dew point) logger

When you use a airINSITE 'Moisture' data logger the moisture dew point plotted in Graph Wizard is an atmospheric dew point value.

If you want to know the pressure dew point at the 'line pressure' where the dew point sensor was installed and 'you know' what this line pressure was, download and use the attached Dewpoint_calc.exe tool. The tool is intended to assist in easily converting an 'atmospheric dew point' value into a 'pressure dew point' value.

dewpoint_calc.exe

My audit is not showing up in Graph Wizard anymore. Where's it gone?

The most common reason for an audit not showing up in for example 'Graph Wizard' is the way that AIR-INSITE.COM handles mass data storage. When logged data for an audit is sent to AIR-INSITE.COM a large number of data streams are also created. For example, we report on compressor status at AIR-INSITE.COM but we never actually logged compressor status. Instead, we create this data stream using a combination of the logged data uploaded and the audit configuration. To preserve memory and only after a significant period of non-use we throw out these data streams. Gasp I hear you say...

Relax, we do not throw out the logged data you uploaded to AIR-INSITE.COM, merely the data streams we created after you uploaded the logged data!

If this happens and you want to use the audit data once more, that's easy... Simply return to Audit Wizard and select the audit concerned. From the 'transfer data' window perform a re-sync of the audit. After the re-sync completes data streams have been re-established. Proceed to for example Graph Wizard where you'll find the audit listed once more.

Understanding the alternative methods Graph Wizard uses to plot and display graph data

Graph Wizard features a 'display mode' button within each graph... it’s one of the buttons in the small tool bar that hangs onto the right edge of every graph box!

It’s worth considering how data is gathered, stored and then used to understand the benefit of Display mode! As you will likely know, AIRINSITE data loggers are pre-configured to sample data once every second. If an audit lasted for exactly 1 week, that’s 604,800 samples of data!

AIR-INSITE.COM offers a display support down to 1024 x 768 pixel resolution which is common place. That’s a maximum horizontal display resolution of just 1024 pixels 'on screen'. And that’s before we put the browser (e.g. Chrome) on the display or AIR-INSITE.COM onto the browser.

For graphs themselves, AIR-INSITE.COM actually plots 250 pixels across a horizontal graph axis! So if you were to load a graph with a time span of 1 week, we need to somehow plot 604,800 samples onto 250 pixels which is of course impossible…

If you think about it, the only time AIR-INSITE.COM can ‘truly’ plot samples directly from its database onto a graph is when the time span is equal to 4 minutes and 10 seconds (250 samples = 250 pixels!). And if you ever wondered why you can’t zoom to a resolution greater than what looks like 4 or 5 minutes on the graph horizontal axis, well now you know! This understood, it’s worth remembering as you zoom into any graph that the effects of ‘Display mode’ diminish until they have no effect when you have zoomed into 4 minutes and 10 seconds of data.

To help with this ‘display challenge’, AIR-INSITE.COM offers 3 Display modes; ‘Actual data’ (default), ‘Average data’ and ‘Peak data’. Each mode has an alternative method to display more data than the available pixel real estate.

Actual data looks at the number of available samples (e.g. 604,800 over 1 week), AIR-INSITE.COM then divides the data into 250 equal sizes groups of data and takes the first sample in each of those equally sized groups to plot a graph. The benefit of this Display method is that you are displaying real data. However the display method has limited benefit at lower resolution because large amounts of data are simply omitted from the graph.

Peak data again looks at the number of available samples (e.g. 604,800 over 1 week), And again, AIR-INSITE.COM divides the data into 250 equal sizes groups of data but this time, AIR-INSITE.COM takes the single largest sample within each group to plot a graph. The benefit if this Display method is that a User can easily find data peaks and peak trends in data which can be if particular interest.

Average data again looks at the number of available samples (e.g. 604,800 over 1 week), And again, AIR-INSITE.COM divides the data into 250 equal sizes groups of data but this time AIR-INSITE.COM takes the number of samples within each group and establishes an average value for each group (e.g. 604,800 / 250 = 2,419 samples / by the sum of the sample data within each group). The benefit if this Display method is that all available samples have contributed to producing the graph. However some caution should be exercised when analyzing average data and it’s beneficial to assess its value alongside the either Peak or Actual data or both.

There is no definitive answer to which Display method is best, it often depends in what data is being graphed and the specific area of focus.

CHART WIZARD EXPLAINED

Chart wizard explained

Chart Wizard is an easy to use charting tool. It takes data from completed AIRINSITE audits and converts that data into readily accessible charts for you to view, download or save for use on AIR-INSITE.COM (e.g. to embed images within Publish Wizard reports)

What's the Chart Wizard 'Landing page' all about?

When you select Chart Wizard from the AIR-INSITE.COM dashboard or from the left side navigation pane of AIR-INSITE.COM you're re-directed to the Chart Wizard 'Landing page'. This is where a user can...

Search and make an audit selection for charting (a variety of audit data is displayed on screen to assist users)

Choose which charts to initially plot using the 'supply side' and 'demand side' chart tool bars or start a 'BLANK' charting session (default)

Set the start and end date and time for the charting session (for example you may choose to only chart 5 days of a 14 day audit)

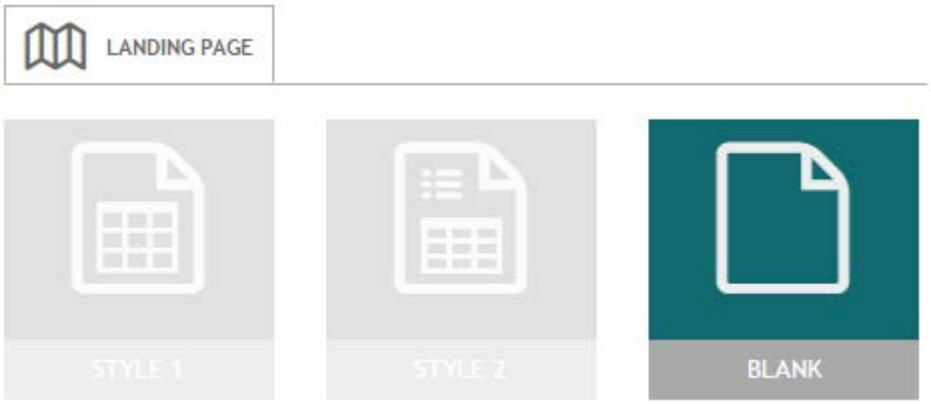
Review the contents of Chart Wizard 'Style' containers

What are 'style' containers and how do I make use of them?

What are they?

Style containers (see image below) allow users to make 'pre-defined' chart selections avoiding the need to make selections every time the user begins a charting session. So lets say a user wanted to instantly view Chart Supply side charts 1,3,5 & 7, these can be saved to the 'Style 1' container. Afterwards, the user need only navigate to the landing page, select 'Style 1', the audit to be charted and then press the 'Magic wand' button.

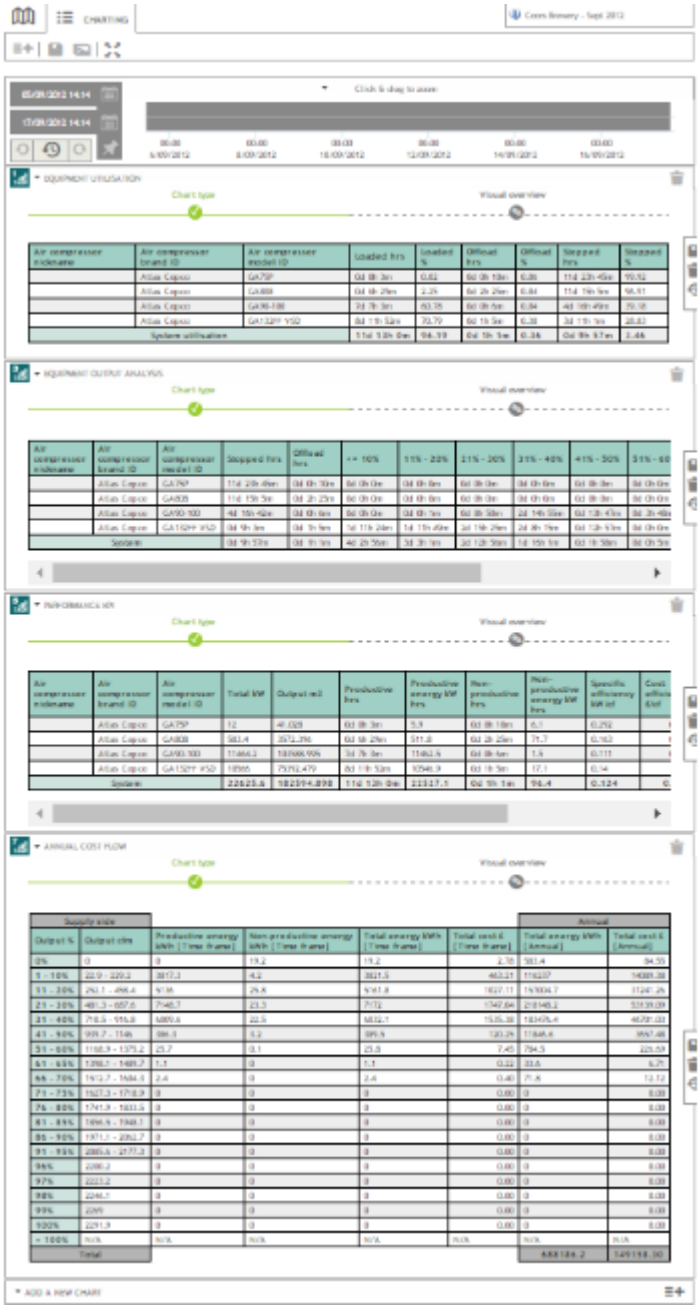
There are 2 'Style containers' which can retain different chart selections and there's a BLANK chart selection which is the active selection when a user navigates to the Chart Wizard 'Landing page'



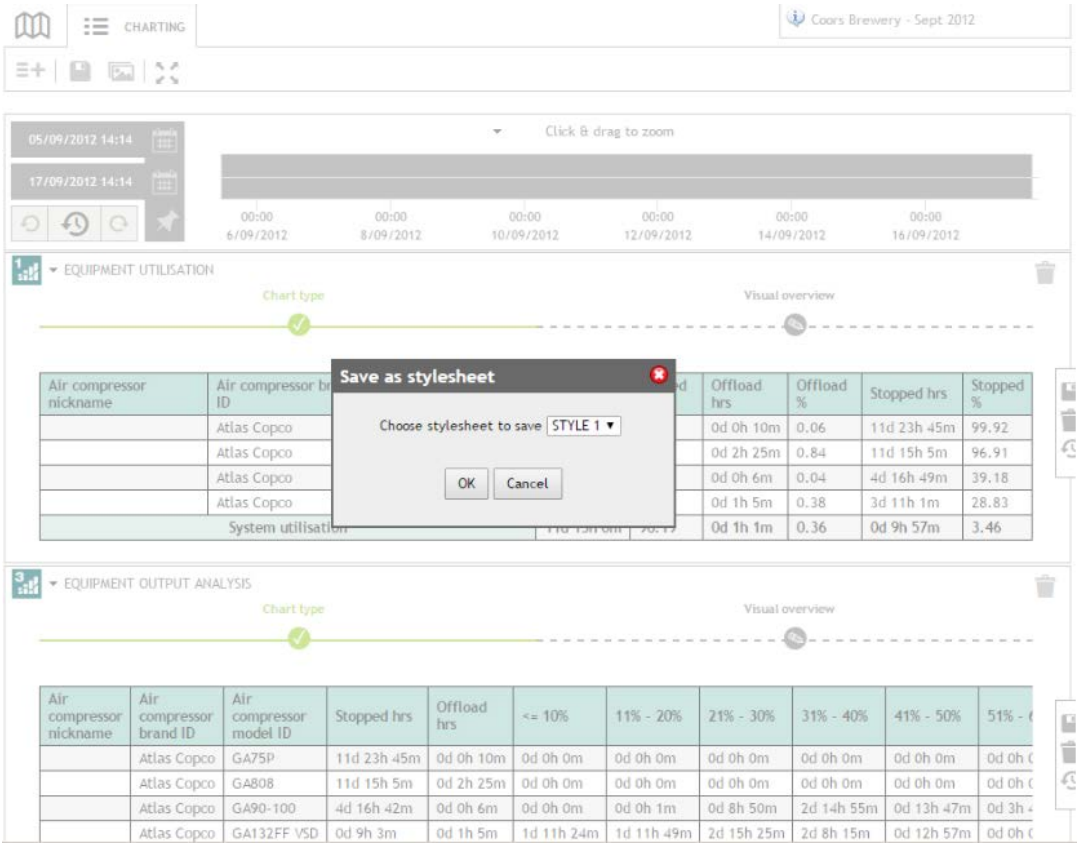
How can I make use of Style containers?

To make use of 'Style containers', first begin a 'BLANK' charting session using any audit. Choose all the charts that you'd like to save to the 'Style container'. In the example below we've selected Supply side charts 1,3,5 & 7...

Charts 1,3,5 & 7

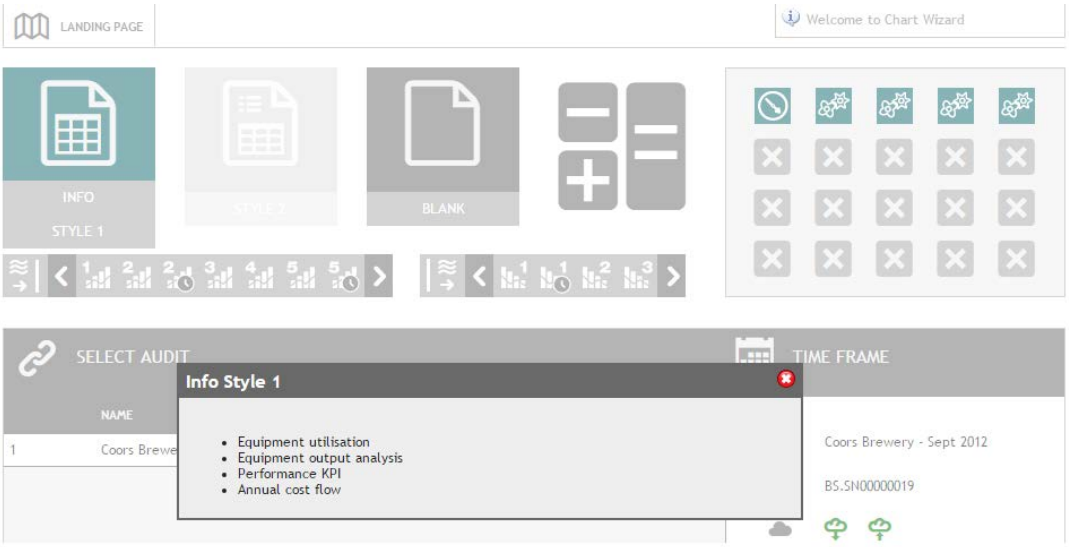


On the toolbar at the top of the 'Charting' page there's a 'save' action button. When pressed you can choose to save the active chart selection as 'Style 1' or 'Style 2'...



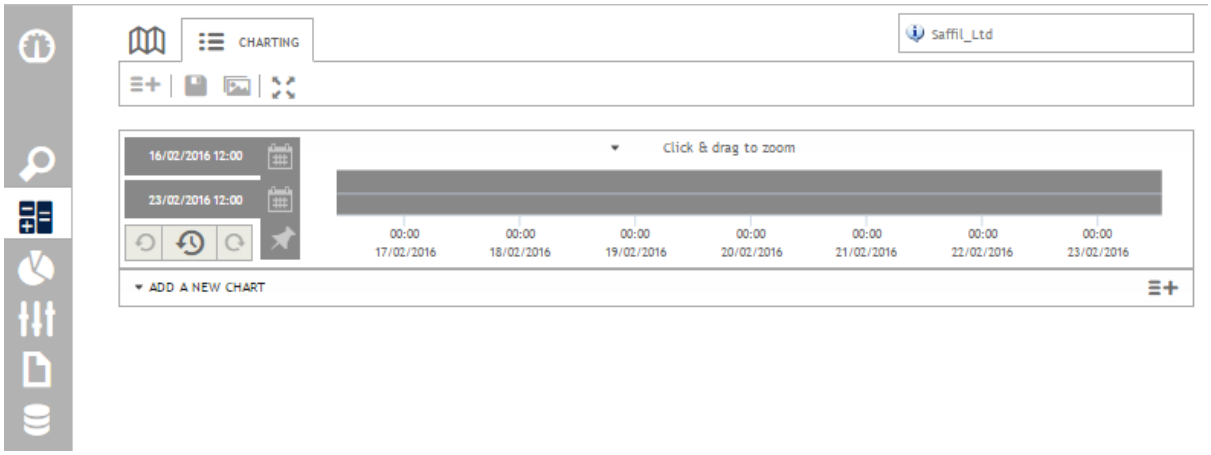
That's it!

When you next navigate to the Charting Wizard 'Landing page', the respective 'Style container' will now include the charts selected. By choosing 'Style 1', any audit and pressing the wand button, charts contained in the Style container will be immediately charted.



The Landing page

Once a selection has been made, use the 'Magic Wand' action button to begin a charting session. When pressed a charting session will begin (see image below). You can return to the Landing page using the 'Landing page' action button left of the charting text & icon ... Observe that the audit name selected is displayed in the 'info' window (see image below 'top right'). Observe that this info window will display important status information throughout your AIR-INSITE.COM session.



Some of the Charts icons have a clock symbol on them. What does this mean?

Some chart types are produced twice, this is indicated by the use of the same number and the introduction of a clock symbol to differentiate them (see image below)

When present this indicates the existence of a single chart that spans the start and end time chosen by the user and a daily 24 hour chart that span the same overall period of time. For example...

Supply side Chart 2 is the 'System power and output' chart...

			Excludes starting peak kW					
Air compressor nickname	Air compressor brand ID	Air compressor model ID	Min kW	Max kW	Average kW	Min output m³/min	Max output m³/min	Average output m³/min
Compressor 3	HPC	DS220	19.5	192.5	66.4	15.9	22	4.4
Compressor 1	HPC	ESD351	59.7	269.6	192.7	23.4	38.8	21.5
Compressor 2	HPC	ESD351	1.8	176.7	35.9	20.5	20.5	0
System			1.8	415.3	183.8	15.9	60.8	20
						Audit system power & supply side output		

Supply side Chart 2 with a clock symbol is the daily version of the same chart...

Wednesday 08/05/2013	Thu 09/05	Fri 10/05	Sat 11/05	Sun 12/05	Mon 13/05	Tue 14/05	Wed 15/05	Thu 16/05	›

			Excludes starting peak kW					
Air compressor nickname	Air compressor brand ID	Air compressor model ID	Min kW	Max kW	Average kW	Min output m³/min	Max output m³/min	Average output m³/min
Compressor 3	HPC	DS220	19.5	159	69.1	15.9	22	4.9
Compressor 1	HPC	ESD351	116.5	258.5	212.6	23.9	38.8	28.9
Compressor 2	HPC	ESD351	N/A	N/A	N/A	N/A	N/A	N/A
System			116.5	378.9	231.8	23.9	55	30.2
						Audit system power & supply side output		

The additional filter permits the user to review daily charts for the same chart type.

What's the difference in the 2 Chart toolbars?

There are two chart tool bars, one dedicated to 'supply side' charts and the other to 'demand side' charts. Supply side charts directly reflect what's been generated by the equipment audited whereas demand side charts reflects consumption levels down stream of the air reservoir.

Observe the following in relation to 'Demand side' charts...

The air reservoir is the 'System storage volume' that was entered during Audit Wizard 'Create site & energy profile').

Demand side data can only be created when a system pressure sensor was present and recorded System pressure data

When using either or both tool bars, observe the following...

Select or de-select charts by clicking on the individually

Select or de-select all charts by clicking the ''Supply side' or 'Demand side' icons left of either tool bar

You can use the 'Supply side' or 'Demand side' icons left of either tool bar to select or de-select charts at any time

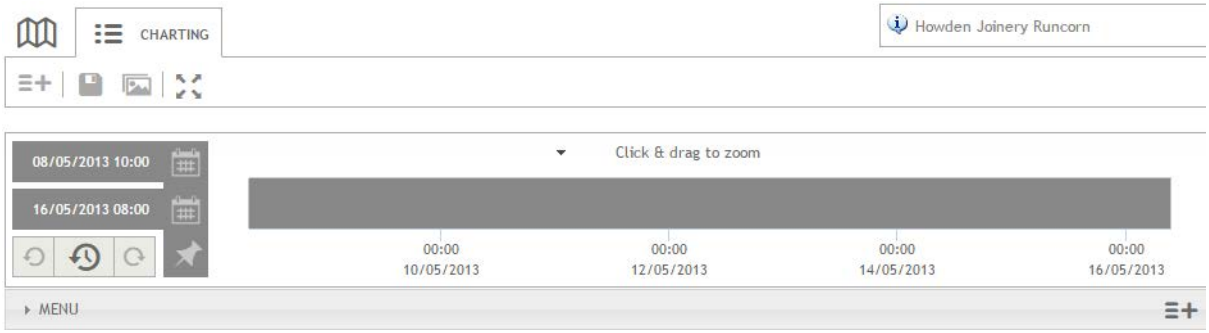
Use the arrows either side of the tool bar to reach additional charts

Selected charts will change colour (de-selected charts are grey!)

You can select both supply side or demand side charts simultaneously

Understanding the Charting page

Once selections have been on the Chart Wizard landing page and the 'Wand' is pressed, the Charting page will display...



You can return to the Landing page at any time by pressing the 'Landing page' icon top left...

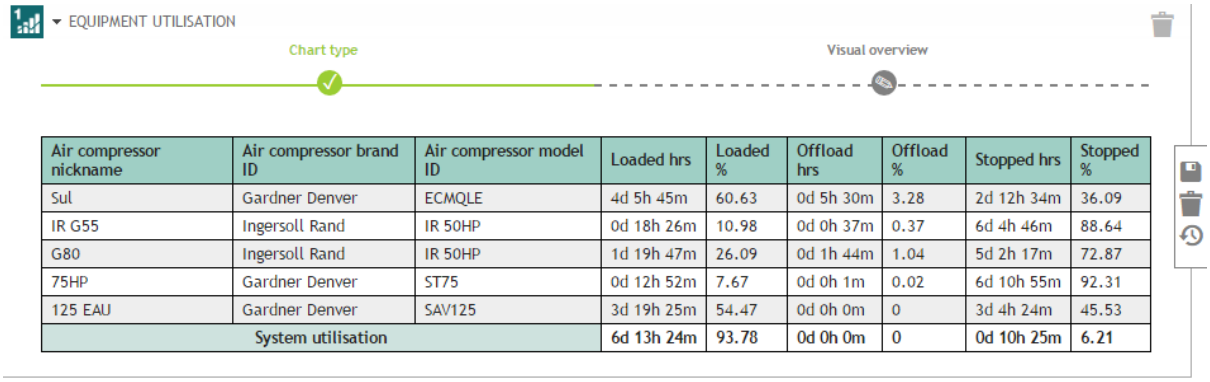
The tool bar beneath the Landing / Charting page icons contains 4 buttons...

Image:	Function (tool tip):	Description:
	Add a new chart	Adds a new container to the page which allows the user to make additional chart selections
	Save as style sheet	Saves the active chart selection as either 'Style 1' or 'Style 2'. Styles can then be accessed in the future without having to make chart selections
	Save graphs	Saves all active graphs to the audit folder (as opposed to saving charts individually which can be done from within individual Chart containers
	toggle full-screen mode	Toggle between standard page view (default) and full screen mode. Full screen mode uses more of the screen 'real-estate' to display the chart.

Beneath the tool bar you will find an area dedicated to choosing zoom start and end times which can then be

set using the 'pin' button (don't forget to use the 'pin' button to set the start and end times chosen!) Alternatively the Click & drag to zoom features allows you to use your mouse to set a start and end time.

Beneath the start / end time and zoom functions you can add as many Chart containers as necessary. Below is an example of a chart container displaying the 'Equipment Utilisation' chart...

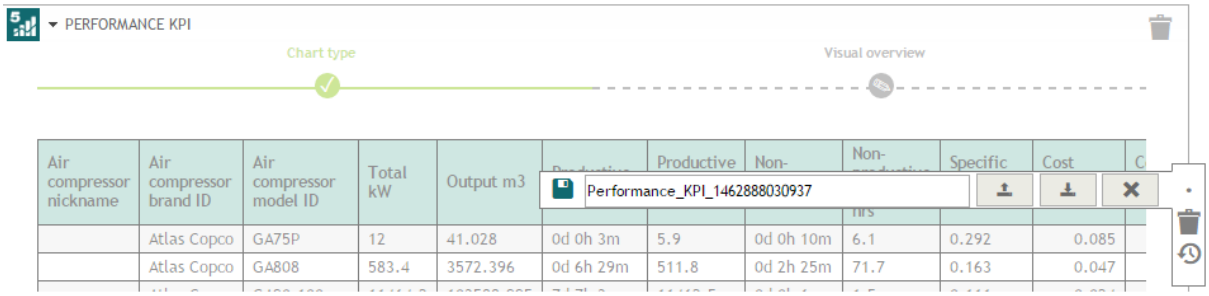


Air compressor nickname	Air compressor brand ID	Air compressor model ID	Loaded hrs	Loaded %	Offload hrs	Offload %	Stopped hrs	Stopped %
Sul	Gardner Denver	ECMQLE	4d 5h 45m	60.63	0d 5h 30m	3.28	2d 12h 34m	36.09
IR G55	Ingersoll Rand	IR 50HP	0d 18h 26m	10.98	0d 0h 37m	0.37	6d 4h 46m	88.64
G80	Ingersoll Rand	IR 50HP	1d 19h 47m	26.09	0d 1h 44m	1.04	5d 2h 17m	72.87
75HP	Gardner Denver	ST75	0d 12h 52m	7.67	0d 0h 1m	0.02	6d 10h 55m	92.31
125 EAU	Gardner Denver	SAV125	3d 19h 25m	54.47	0d 0h 0m	0	3d 4h 24m	45.53
System utilisation			6d 13h 24m	93.78	0d 0h 0m	0	0d 10h 25m	6.21

Each time you add a new chart container, you will see the same chart tool bar choices displayed on the Chart Wizard landing page...

Simple make a selection...

The selected chart will change colour, the progress indicator will also change from GREY to GREEN and you can proceed to press the 'Continue button'. When pressed, the chart will display.

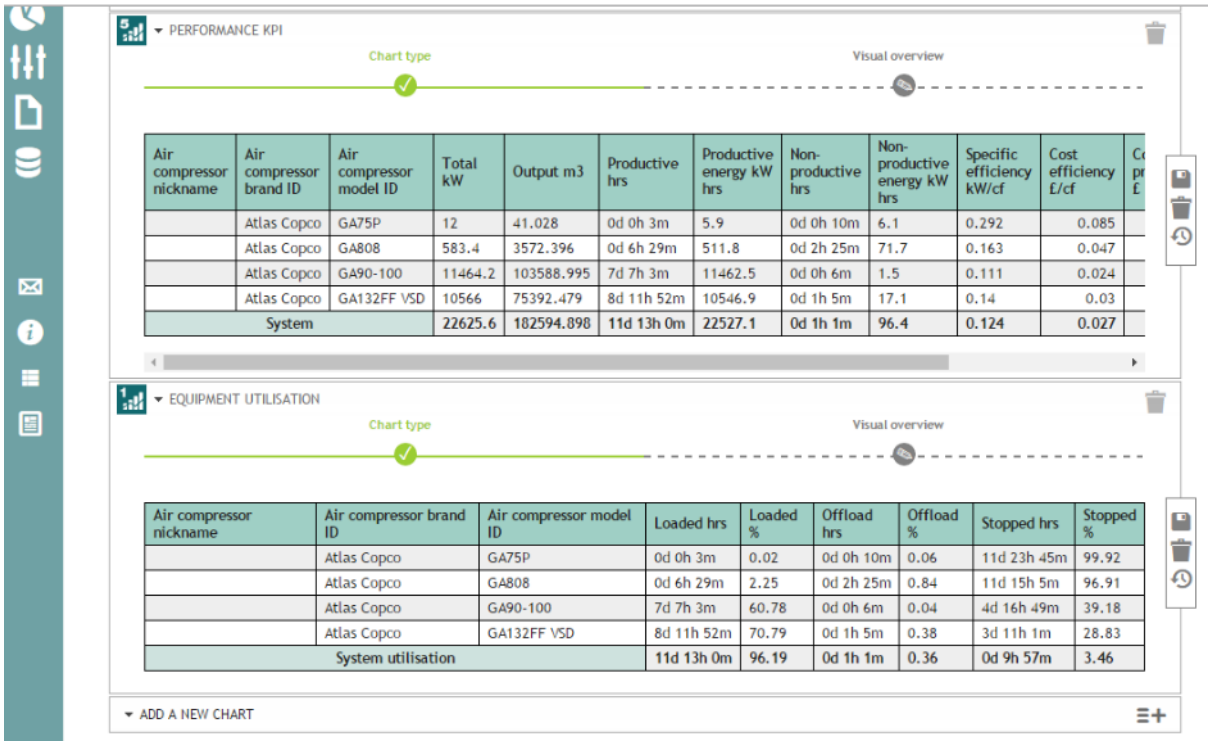


Air compressor nickname	Air compressor brand ID	Air compressor model ID	Total kW	Output m3	Productive	Non-	Specific	Cost
	Atlas Copco	GA75P	12	41.028	0d 0h 3m	5.9	0d 0h 10m	6.1	0.292	0.085
	Atlas Copco	GA808	583.4	3572.396	0d 6h 29m	511.8	0d 2h 25m	71.7	0.163	0.047

There's a chart container tool bar that allows you to save charts to the specific audit folder (this is the audit folder on the AIR-INSITE.COM cloud server) or you can simply select the Chart for direct download to your device.

The rubbish button allows you to delete the chart container (there's also a rubbish button on the top right of each chart container. Both perform the same function)

There's also undo, reset and redo zoom buttons located at the chart container



Air compressor nickname	Air compressor brand ID	Air compressor model ID	Total kW	Output m3	Productive hrs	Productive energy kW hrs	Non-productive hrs	Non-productive energy kW hrs	Specific efficiency kW/cf	Cost efficiency £/cf
	Atlas Copco	GA75P	12	41.028	0d 0h 3m	5.9	0d 0h 10m	6.1	0.292	0.085
	Atlas Copco	GA808	583.4	3572.396	0d 6h 29m	511.8	0d 2h 25m	71.7	0.163	0.047
	Atlas Copco	GA90-100	11464.2	103588.995	7d 7h 3m	11462.5	0d 0h 6m	1.5	0.111	0.024
	Atlas Copco	GA132FF VSD	10566	75392.479	8d 11h 52m	10546.9	0d 1h 5m	17.1	0.14	0.03
System			22625.6	182594.898	11d 13h 0m	22527.1	0d 1h 1m	96.4	0.124	0.027

Air compressor nickname	Air compressor brand ID	Air compressor model ID	Loaded hrs	Loaded %	Offload hrs	Offload %	Stopped hrs	Stopped %
	Atlas Copco	GA75P	0d 0h 3m	0.02	0d 0h 10m	0.06	11d 23h 45m	99.92
	Atlas Copco	GA808	0d 6h 29m	2.25	0d 2h 25m	0.84	11d 15h 5m	96.91
	Atlas Copco	GA90-100	7d 7h 3m	60.78	0d 0h 6m	0.04	4d 16h 49m	39.18
	Atlas Copco	GA132FF VSD	8d 11h 52m	70.79	0d 1h 5m	0.38	3d 11h 1m	28.83
System utilisation			11d 13h 0m	96.19	0d 1h 1m	0.36	0d 9h 57m	3.46

On the bottom right of the page you will find a 'Back to top' arrow which is useful if you have many charts open and you want to return to the top of the page.

What Charts can I see?

Currently there are 8 'supply side' charts and 3 'demand side' charts. Additionally there are 2 'daily' supply side and 1 'daily' demand side charts.

Supply side charts:

Chart name	Chart columns	Useful information
Equipment utilization	Air compressor nickname Air compressor brand ID Air compressor model ID Loaded HRS Loaded % Offload HRS Offload % Stopped HRS Stopped %	Where you have more than one compressor with the same brand and model ID use the 'Nick name' field in Audit Wizard to distinguish between them! System utilization is not simply a total of columns. For example 'System loaded hrs' is the time when at least one air compressor was loaded during the audit period
System power and output	Air compressor nickname Air compressor brand ID Air compressor model ID Min kW Max kW Average kW Min output Max output Average output	We exclude starting peak kW data from Max kW data (a common feature of start / delta starting) When reporting Min output there must be an air compressor in a loaded state. Only data points of activity (ie not stopped) is taken into consideration for the Minimum, Maximum and Average values
Equipment output analysis	Air compressor nickname Air compressor brand ID Air compressor model ID Stopped HRS Offload HRS Average load %	We use status data to establish the average load % for each air compressor and the system. This chart shows the hours a compressor had the status stopped, unloaded and loaded. The loaded status is divided per 10% of the maximum output of the compressor. It will use the system flow and the sum of the maximum output of all compressors in the audit for the system row. The maximum flow that is configured in the compressor table will be 100%, after that we will loop through every flow sample and convert it to a percentage and we will increase the counter for that percentage column. Afterwards we will convert the count for every column to a time span.

Equipment power analysis	Output % Output flow Time Time % Total kWh Total cost	We express the system output in percentage blocks. Ranging from 10%, 5% and 1% per block. We keep track of how long the system output produced that amount of flow during the audit. In the column next to it we show the corresponding percentage of that time span compared to the audits total duration. The next two columns show the kWh and cost for that output range.
Performance KPI	Air compressor nickname Air compressor brand ID Air compressor model ID Total kW Output Productive hours Productive energy Non productive hours Non productive energy Specific efficiency Cost efficiency Cost non-productive Cost productive Total cost	The chart shows the total kWh, Output, productive energy kWh, non-productive kWh, specific efficiency kW/flow, Cost efficiency and total Cost per compressor and system. Productive energy are the kW's used when the compressor is loaded. Non productive energy are the kW's used when the compressor is in the offload state. We will loop over every status in the status stream for every compressor. In this loop we will check the current status sample for it's state, and we will create the system status stream. If at least 1 compressor is loaded then the system status is loaded, if no compressors are loaded and there is at least 1 compressor unloaded/star delta then the system status is unloaded and if all the compressors are stopped then the system status is stopped. At the same time we keep track of the time a compressor is productive (status = loaded), non productive time (status = unloaded/star delta) and non operational hours (status = stopped). The current kW sample is added with the correct temporary variable for that state. The current flow sample is added to a temporary variable as is the current kw sample. If the current kw sample is greater than 0, the cost of this kW's are calculated and added to the total cost. If the current flow sample is also greater then 0, then the specific efficiency counter is increased and the cost is calculated for the specific efficiency (kw/flow) and added to the total cost efficiency. The Specific Efficiency can be 0 due to rounding (only 3 decimal points).
Annual cost asset	Air compressor nickname Air compressor brand ID Air compressor model ID Total energy kWh Total cost Annual energy kWh Annual cost non-productive Annual cost productive Annual cost total	We incorporate any Shutdown hours entered during the Audit Wzard 'create site & energy profile' The chart shows the productive energy, non productive, total energy, total cost, energy annualized and the cost annualized. The code loops over the status stream and checks each status sample. If the status is loaded then we add the current kW's to the temporary loaded variable else we add the current kW's to the temporary unloaded variable. The current kW's will also be added to the temporary total variable.
Annual cost flow	output % output flow	

	Productive energy kWh Non productive energy kWh Total energy kWh Total cost Annual total energy kWh Annual total cost	We incorporate any Shutdown hours entered during the Audit Wizard 'create site & energy profile' This chart shows the productive energy, non productive energy, total energy, total cost, total energy annualized and the total cost annualized for output percentage blocks, ranging from 10%, 5% and 1%.
System pressure	Pressure ID Time - system not pressurised Time - system pressurised Peak pressure High pressure Average pressure System pressurisation time System depressurisation time	The audit duration where no pressure value was recorded The audit duration where a pressure value was recorded The absolute peak pressure recorded The average of the 250 highest pressure values recorded The average of the 250 average pressure values calculated The time taken to reach average pressure The time taken to reach 0 pressure

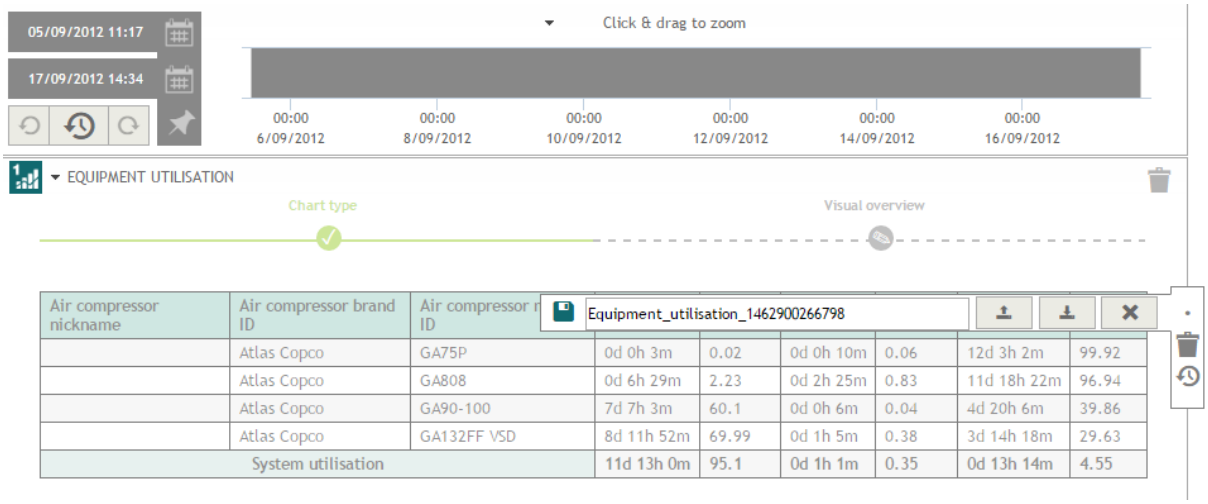
Demand side charts:

Chart name:	**Chart columns:**	**Useful information:**
System power & demand side output	Air compressor nickname Air compressor brand ID Air compressor model ID Min kW Max kW Average kW Min output Max output Average output	kW data reported is supply side data Demand side output data takes into account system volume (configured during Audit Wizard 'create site & energy profile') and the system pressure data recorded during the audit.
Demand consumption analysis	Consumption % Time	

Annual cost demand flow	output % output flow Productive energy kWh Non productive energy kWh Total energy kWh Total cost Annual total energy kWh Annual total cost	We incorporate any Shutdown hours entered during the Audit Wizard 'create site & energy profile'

How do I download a chart to my device?

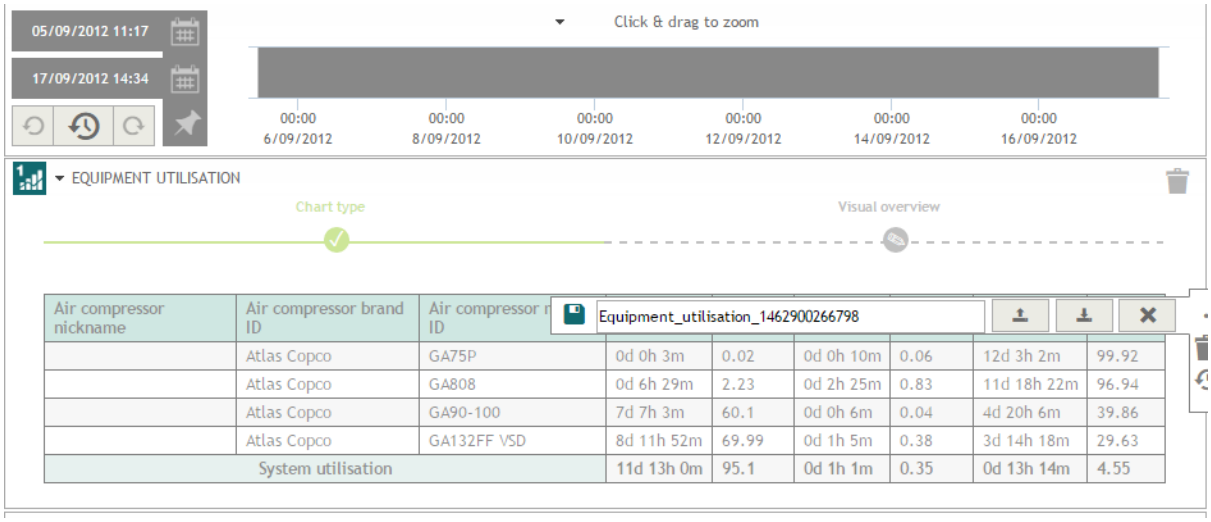
From the Chart container for the respective chart, use the right side toolbar to download a jpeg image of the chart...



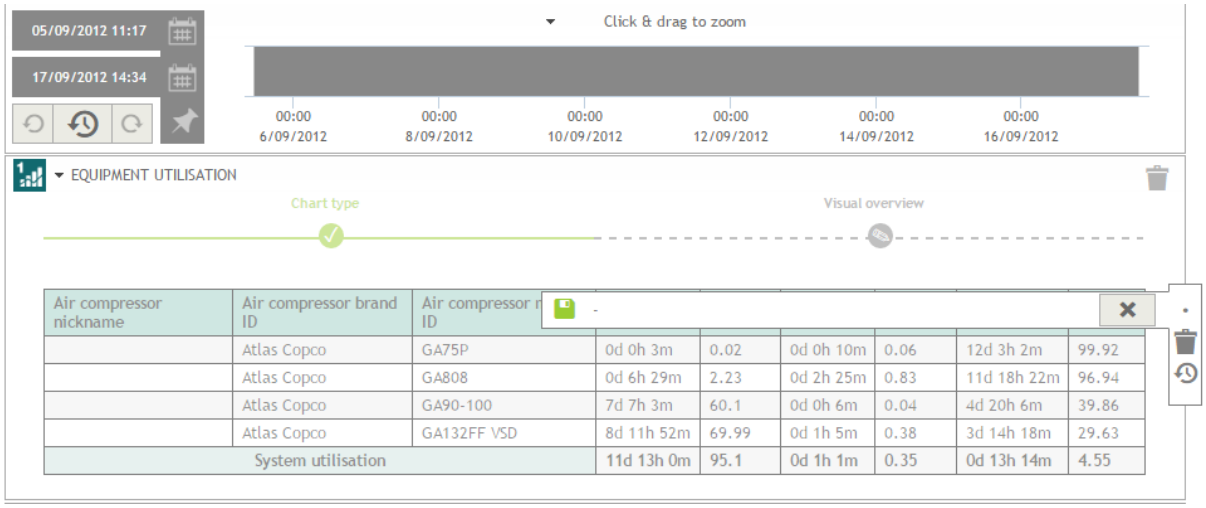
Note: the file name is generated by AIR-INSITE.COM but you can overwrite this to a name of your choosing!

How do I save a chart to use in Publish Wizard

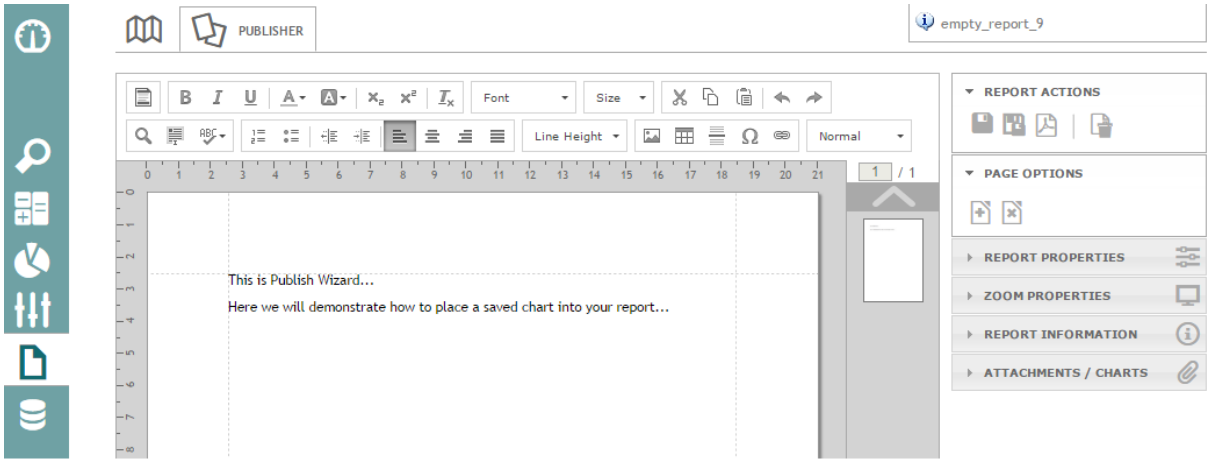
From the Chart container for the respective chart, use the right side toolbar to 'save' the chart to a dedicated audit/chart folder on AIR-INSITE.COM...



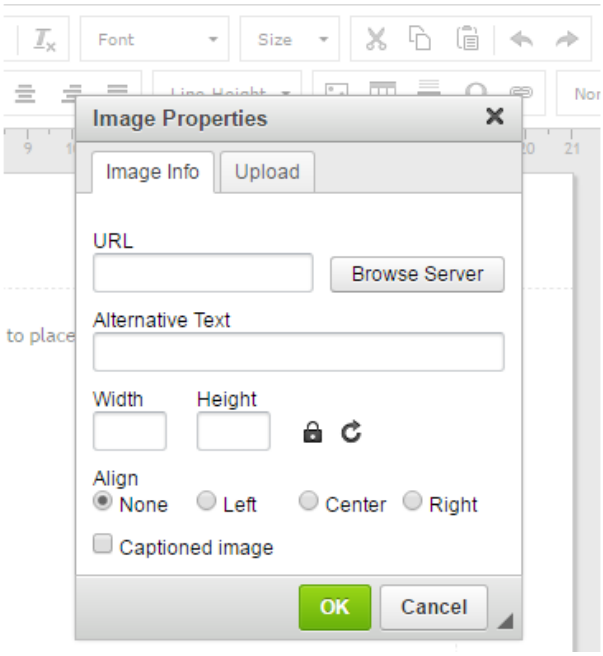
We've used the name 'SAMPLE SAVE IMAGE' to save the above chart (replacing the AIR-INSITE.COM generated file name displayed above)...



Next, from within Publish Wizard, report container (we've created an empty report below). Use the 'image' button on the toolbar...

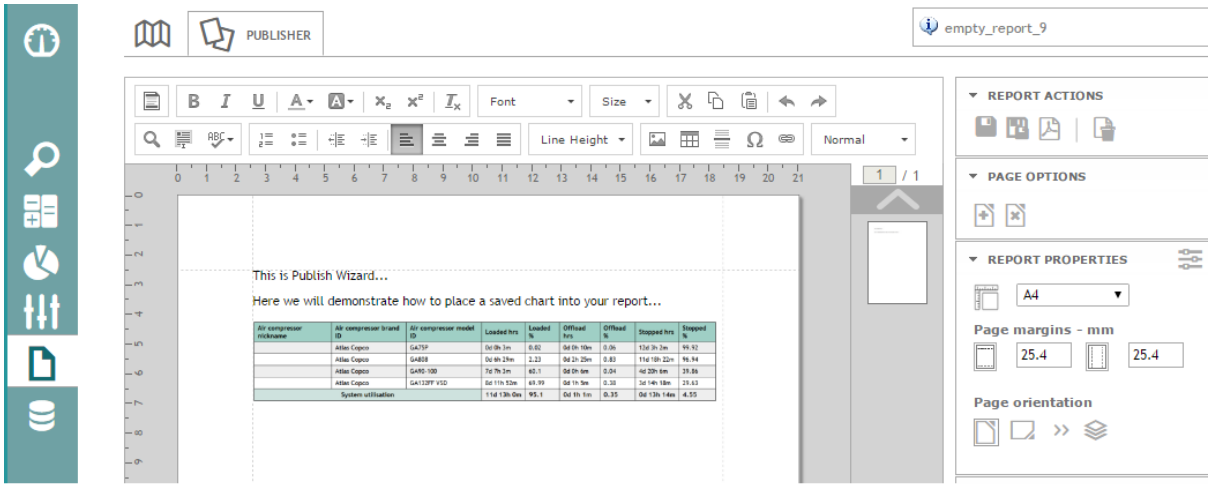


Choose 'browse server' from the pop up window...



Then use the folders list to locate the saved image thumbnail and select it...

Click OK to close the image properties pop up and return to Publish Wizard where you will find the image...

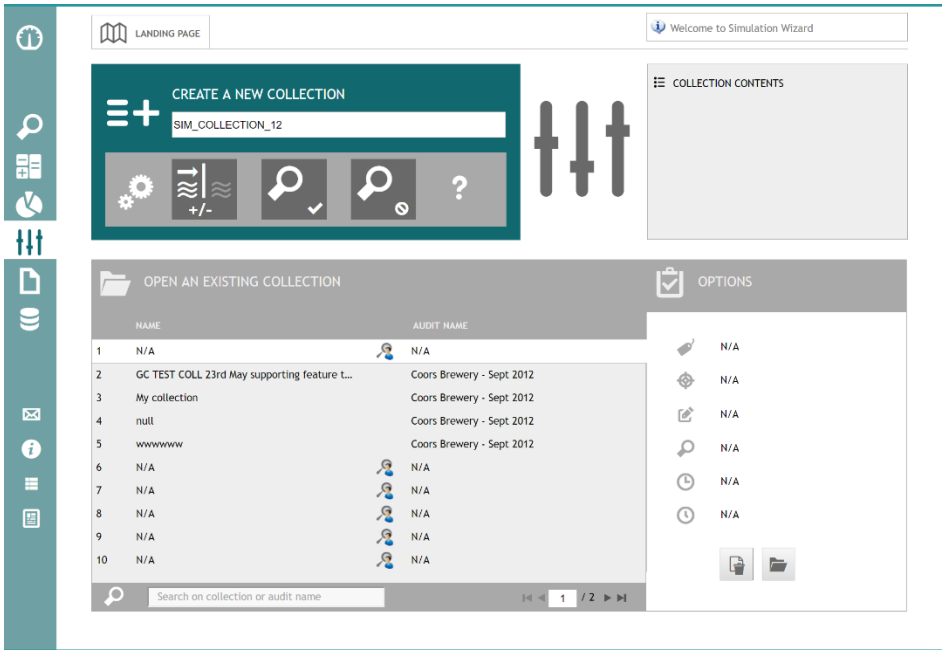


Note: Depending on settings, you may need to edit the size of the chart image to ensure it remains within the margin guides. To do this, either click on the image and edit its width and height properties or grab the bottom right of the image (indicated) and drag to suit.

SIMULATION WIZARD EXPLAINED

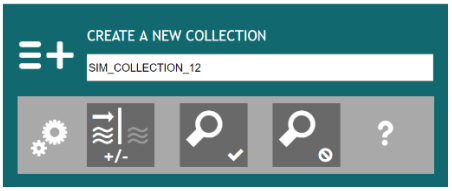
Landing Page Layout

The landing page looks like this...



It has a few key areas of interest...

The 'create a new collection' area...



A simulation collection can consist of one or multiple simulations. Irrespective the quantity of simulations chosen, they are saved under a single collection name. AIR-INSITE.COM will pre-fill the text box with a default collection name (e.g. SIM_COLLECTION_12 as shown). The collection name can be changed. AIR-INSITE.COM will not allow duplicate collection names!

Beneath the collection name there are 3 grey tiles...

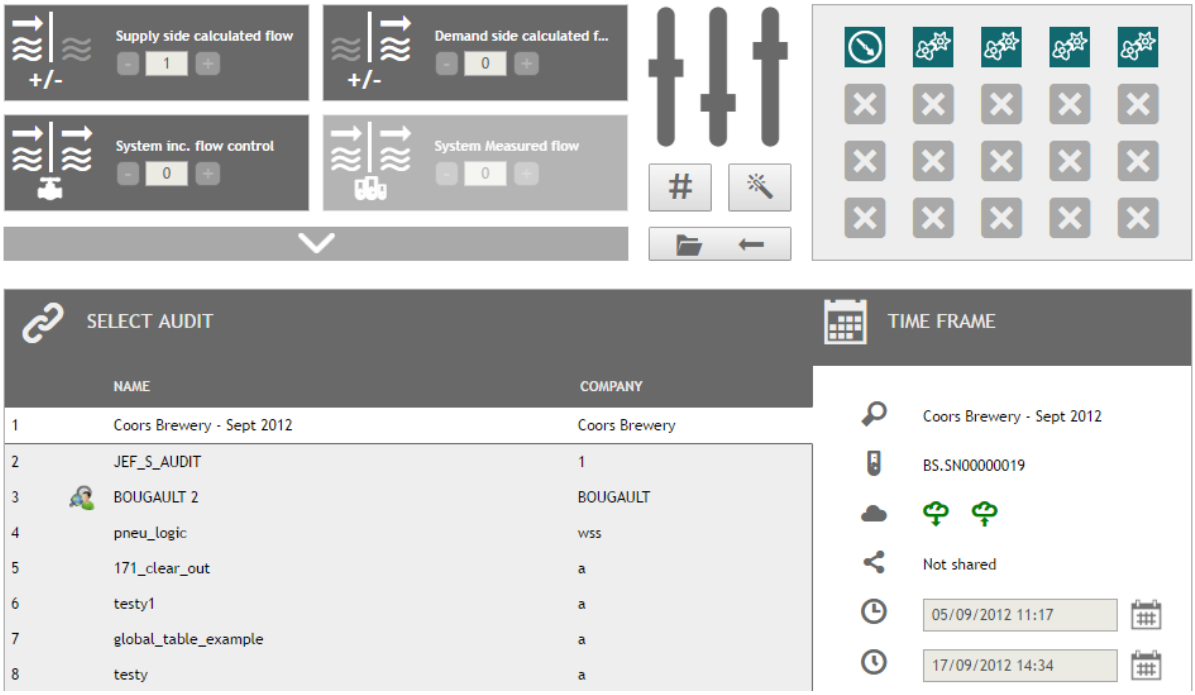
The first tile is a specific 'Simulation type' (Simulation types are discussed elsewhere). Above a 'Supply side calculated flow' Simulation type is shown. The tile shown can be different! Observe that AIR-INSITE.COM monitors an account users use of Simulation types and places the most frequently used Simulation type in this tile location!

The next tile denotes a Simulation collection linked to an audit

The final tile denotes a Simulation collection that is not linked to an audit

Linking a Simulation collection to an audit or not linking a Simulation collection to an audit is discussed elsewhere.

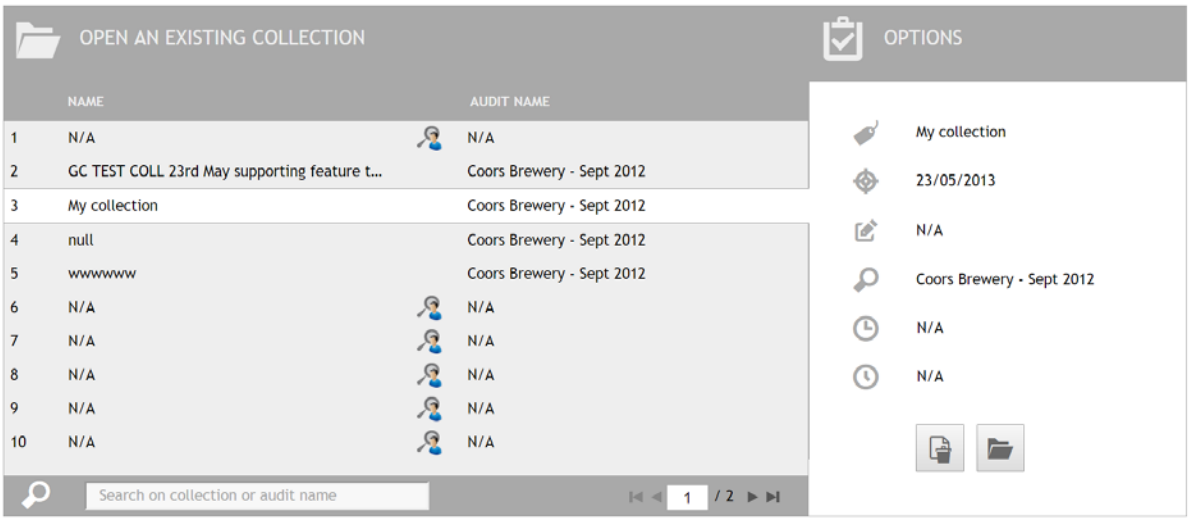
The following additional information can be useful... Once you link an audit to a Simulation collection, the logger configuration is displayed in the top right box, the audit name is displayed, the base station serial number, the status of the audit data, whether the audit is shared with another AIRINSITE user and the audit start and end times...



Furthermore, there's a button to reset the number of Simulation types, a go back button and lastly a wand which will take the user to the Simulator page

You can go back to the previous landing page screen by using this button...

Beneath the 'create a new collection' area is a list of existing Simulation collections...



Use the search tool text box to look up a saved Simulation collection by name or use the scroll arrows to scroll through additional pages. Selecting a collection will add information to the right side of the landing page...

The 'Collection contents' (top right) will indicate the type and quantity of Simulations contained within the selected collection

The 'Options' (bottom right) will display collection information (for existing collections 'options' cannot be edited and are 'greyed out'

There's a delete button to delete a selected Simulation collection and there's an Open button to open the selected Simulation collection.

Simulator page layout

The Simulator page looks like this...

The Simulator page consists of...

The Simulator tool bar

The Simulation tab navigation bar

The Simulation tool bar

The Graph area

The Chart area

The text annotation area

The Simulator tool bar:

The Simulator tool bar contains 'info, save, print PDF 'annual' simulation collection, print 'time span' simulation collection, tariff and 'toggle full screen' buttons. Consistent with other Wizards there's an information window located top right which will annunciate information messages from time to time...

The info button toggles a popup which displays the Simulation collection name, the linked audit (if any) as well as the audit start and end time

The save button toggles a popup that allows the user to make save selections...

Edit the Simulation collection name

Edit the name of each Simulation tab within the Simulation collection

Exclude (discard) selected Simulation tab or tabs from the save action

Save the Simulation collection

The print PDF 'annual' simulation button toggles a popup that allows the user to make print PDF choices relating to all 'Annual' simulations contained within the Simulation collection...

Exclude selected Simulation tab or tabs from the print action (Note: selections that are included in the print action will form part of a single PDF file)

Optionally upload a title page image for the Simulation report PDF (e.g. your company logo)

Edit the Simulation report PDF name

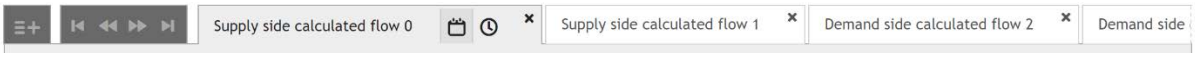
Print the Simulation report to PDF

The print PDF 'time span' simulation button toggles a popup that allows the user to make identical print PDF choices relating to all 'Time span' simulations contained within the Simulation collection

The tariff button toggles a popup that displays the tariff table and permits changes that affect the average tariff used (Note: AIRINSITE uses an average tariff in monetary calculations which is derived from the tariff table)

The toggle full screen button offers the user the option to toggle between a screen contained within a browser (initial) web page or full screen (Note: full screen mode offers significantly more AIRINSITE application 'screen real estate'. AIRINSITE recommends users to toggle 'full screen' for a better AIRINSITE experience!)

The Simulation tab navigation bar:



The Simulation tab navigation bar consists of 5 buttons (from left to right)...

Add an additional simulation to the Simulation collection

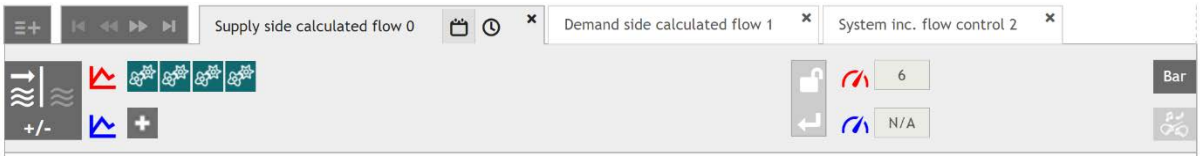
Navigate to first Simulation tab

Navigate left

Navigate right

Navigate to last Simulation tab

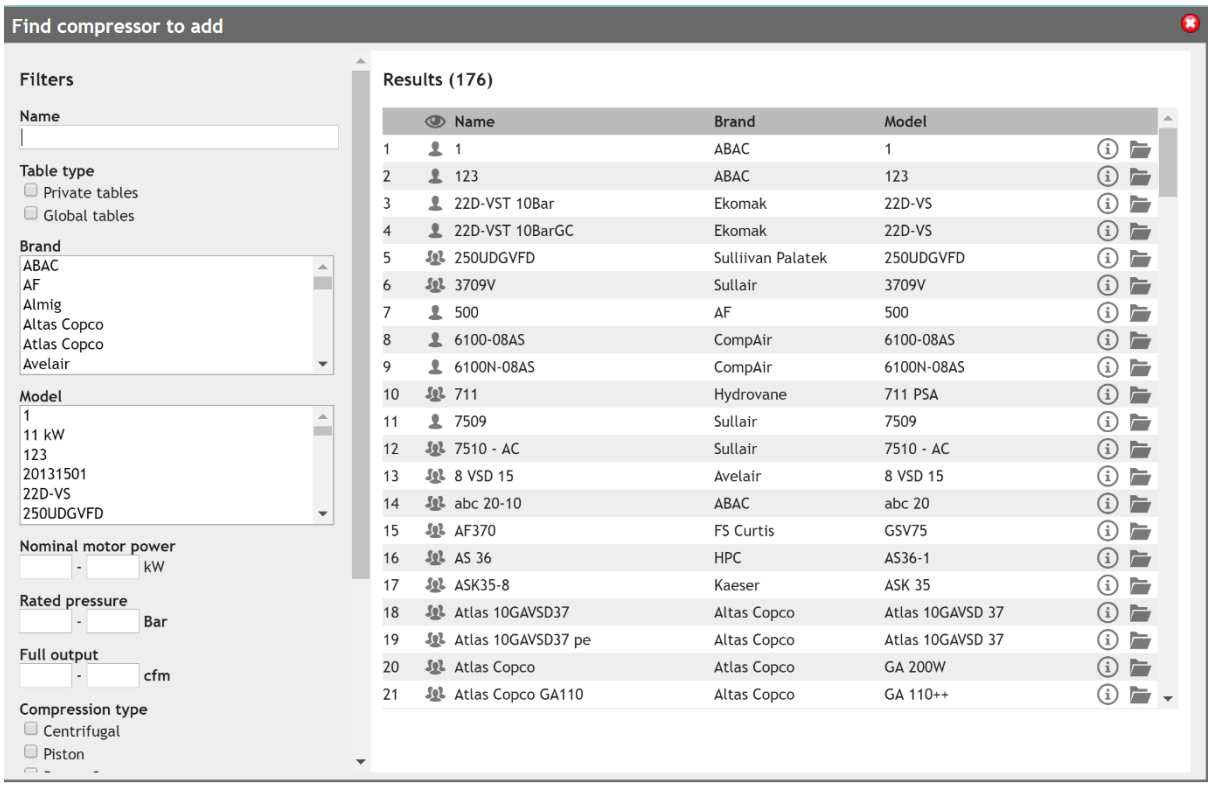
The Simulation tool bar (shown below with the Simulation tab navigation bar above):



The Simulation tool bar consists of equipment icons and selection buttons placed in a 'two row' arrangement. The two row arrangement provides for a RED 'before' and BLUE 'after' simulation display...

When a user first lands on the Simulator page, the RED line may or may not be populated with equipment icons (shown above)...

If the Simulation is not linked to an audit, a + button will display allowing the user to create an equipment configuration from equipment contained in the library...



If the audit is linked to an audit, the equipment configuration audited will display (shown above)

When a user first lands on the Simulator page, the BLUE line will not be populated with equipment icons. Users can choose to 'Lock & copy' the equipment configuration from the RED line onto the BLUE line or use the + button to create a new / alternative equipment configuration for the BLUE line

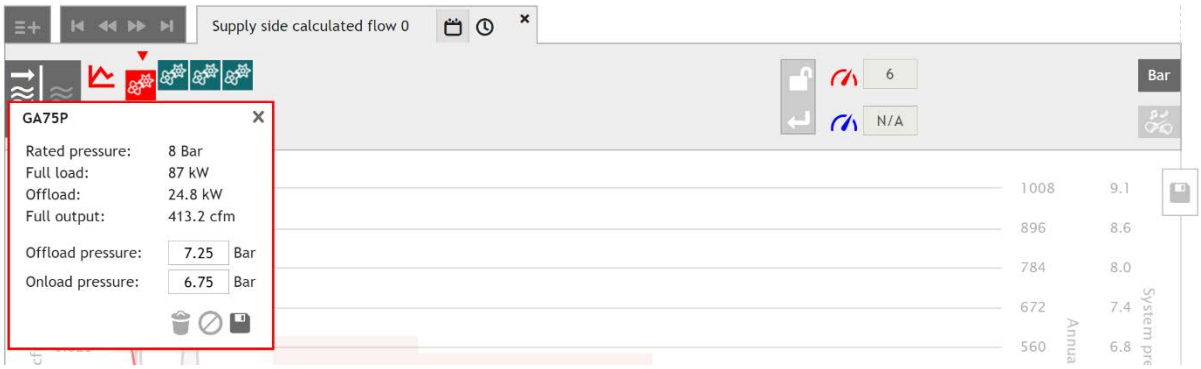
When a user copies the RED line to the BLUE line, the RED line is locked!

To re-edit the RED line, use the 'lock & copy' button to go back

Equipment icons on the RED line may or may not be re-ordered. This feature aims to preserve the integrity of known audit data... When a Simulation is linked to an audit and the high and low pressure set-points for 'all equipment' was entered (i.e. actual or known pressure set-point information) during the Audit Wizard step, the equipment icons cannot be re-ordered! If equipment icons can be re-ordered (equipment pressure set-points are either not known or is incomplete) simply drag and drop the equipment icons as required...

If equipment pressure set-points are not known, AIRINSITE assumes target system pressure is a nominal 6 BAR (or PSI equivalent) and also assumes the compressor cascade configuration. This can be edited!

Select the respective air compressor and edit its pressure set-points and save changes...



The equipment icon popup features delete and include / exclude buttons, When greyed out these buttons cannot be used (e.g. shown above, the delete and include / exclude icons are greyed out to preserve the integrity of known audit data)

Similarly and as discussed earlier, if the equipment pressure set-points are known (entered during the Audit Wizard step) the pressure set-point fields will be greyed out!

The target system pressure on the RED line will equal the lower pressure set point of the last compressor in the pressure cascade

There's a pressure unit indicator on the right side

Complete configuration of the RED line before proceeding to edit the BLUE line! Once a user either 'locks and copies' the RED line to the BLUE line or the user begins adding equipment to the BLUE line, no further edits to the RED line are permitted!

The Simulation tool bar with the RED line copied to the BLUE line...

Further notes relational to configuration of the BLUE line...

You can re-order equipment

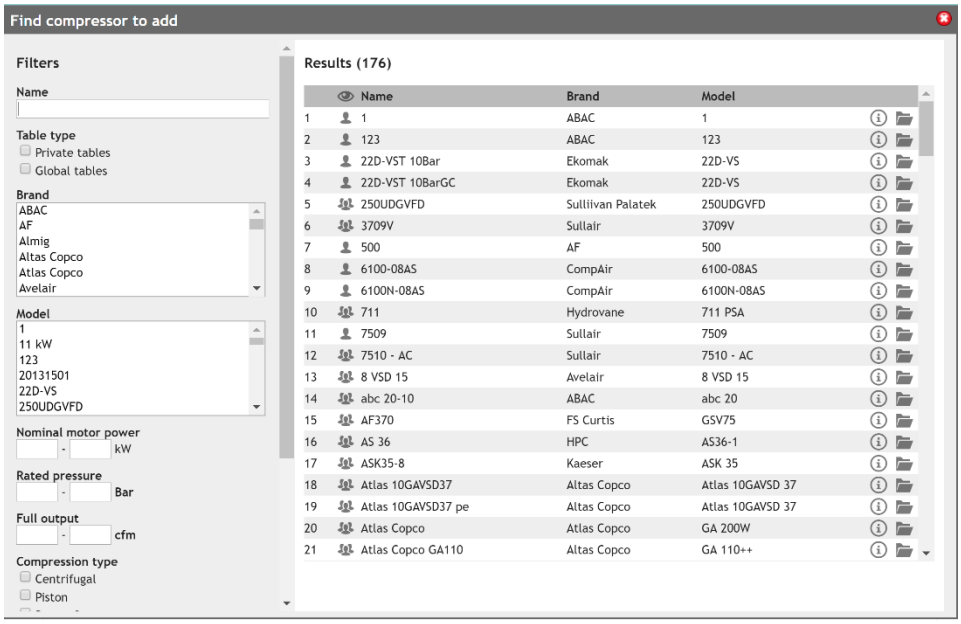
You can edit compressor pressure set-points

You can include or exclude equipment from the Simulation tab

You can permanently delete equipment from the Simulation tab

You can add alternative equipment to the Simulation tab

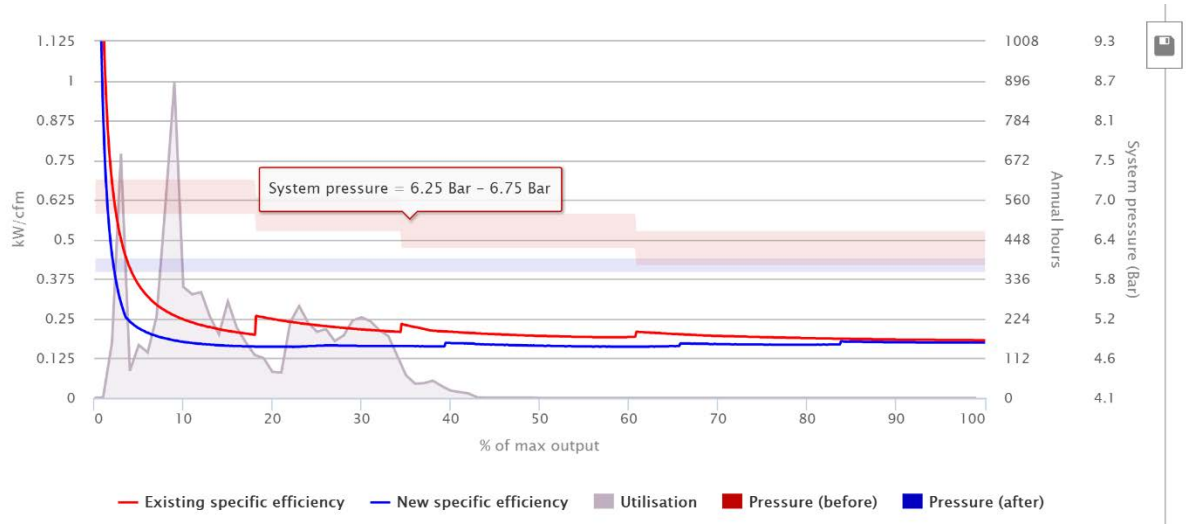
Add alternative equipment to the Simulation tab from the library...



You can enable SMART AIR MASTER / GD CONNECT system control..

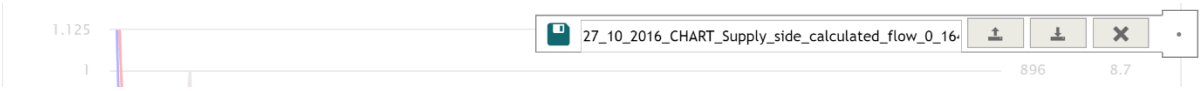
With SMART AIR MASTER / GD CONNECT system control enabled, you can adjust the target system pressure (e.g. adjust down)

The Graph area (Annual Simulation sub tab shown):



The Graph area displays 'RED' specific efficiency, 'BLUE' specific efficiency as well as annual utilisation (discussed elsewhere) and the before and after pressure. The legend can be used to include or exclude legend items from the display. Hovering over graph elements will display additional graph properties (e.g. RED System pressure shown for the third compressor in the cascade displayed)

There's a file save button located on the left of the graph area...



The popup permits the user to...

Give the Graph image a name (default name shown)

Save the Graph image to the users data management folder on the AIRINSITE server or

Download the image to your device (e.g. PC)

The Chart area (Annual Simulation sub tab shown):

8760							
0-10 %	2875	0.0 - 229.2	40.9	27.1	13.8	39675.0	8728.50
10-20 %	2180	229.2 - 458.4	77.3	56.8	20.5	44690.0	9831.80
20-30 %	1772	458.4 - 687.6	131.4	93.8	37.6	66627.2	14657.98
30-40 %	1162	687.6 - 916.8	172.8	131.7	41.1	47758.2	10506.80
40-50 %	59	916.8 - 1146.0	207.8	174.0	33.8	1994.2	438.72
50-60 %	0	1146.0 - 1375.1	243.6	205.6	38.0	0.0	0.00
60-70 %	0	1375.1 - 1604.3	299.6	248.2	51.4	0.0	0.00
70-80 %	0	1604.3 - 1833.5	330.6	290.1	40.5	0.0	0.00
80-90 %	0	1833.5 - 2062.7	363.5	339.4	24.1	0.0	0.00
90-100 %	0	2062.7 - 2291.9	399.4	381.9	17.5	0.0	0.00
	30	N/A	11.5	2.39	9.1	273.3	60.13
	382	732341.1 kW	531323.2 kW	**You will save:** 201018 kW hours, £ 44223.94, 124229.06 kilo/CO_2 per year			
	300						

Column description...

Annual utilisation %

For Simulations that are not linked to an audit the 'Annual utilisation' is an assumption

For Simulations that are linked to an audit the 'Annual utilisation' is derived from the audit data

For practical reasons, Annual utilisation is grouped into segments of 10% starting with 0 - 10% and ending with 90 - 100%

Annual utilisation hours

Utilisation hours is relational to utilisation %

Utilisation hours can be edited

Use the padlock to unlock the hour values for edit

Edit as necessary

Observe that the total must equal 8760 hours (or 1 year)

Utilisation + Running off load + Stopped + System shutdown = 8760

For Simulations that are linked to an audit, 'System shutdown hours' is taken from Audit Wizard - Step 3 'configure site and energy information'

Flow

kW relational to flow (RED)

kW relational to flow (BLUE)

kW savings (RED - BLUE)

kW savings - annual (RED - BLUE)

Monetary savings - annual (RED - BLUE)

Row description:

Column icon & padlock button

0 - 10%, ...

90 - 100%

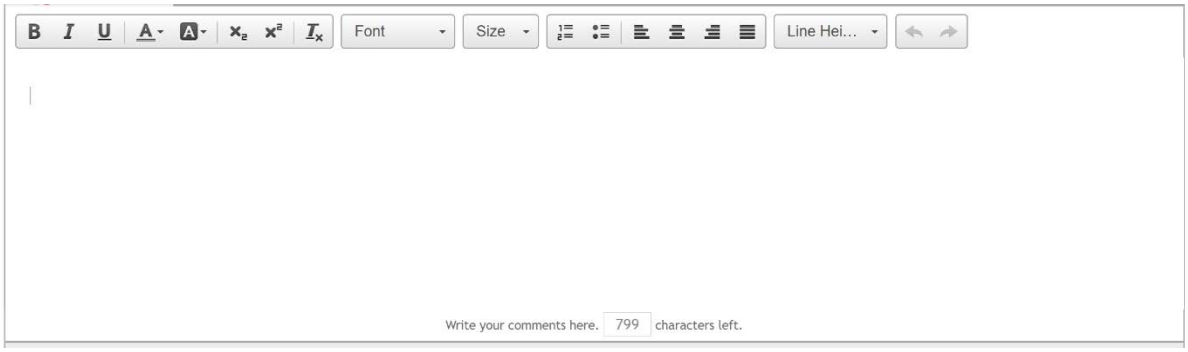
System off load running hours

System topped hours

System shutdown hours

Summary Simulation totals for RED energy, BLUE energy as well as energy, cost & CO2 savings

The text annotation area:



Use the text annotation area to annotate information that you would like to include in the Simulation Report PDF (discussed elsewhere).

There's a text editor toolbar and available character counter provided within the text annotation area

Simulation types

There are 4 types of Simulations...

Supply side calculated flow

Demand side calculated flow

System inc. flow control

System measured flow

Each Simulation type has a dedicated icon which is referenced throughout Simulation Wizard as well as any corresponding Simulation Report PDF outputs (discussed elsewhere).

The following icons are taken from the Simulation Wizard - Landing page and include 'quantity' of Simulations selection. Within a Simulation collection, users can produce multiple Simulations and of different types. If a given Simulation type is unavailable, it is either because the appropriate data loggers were not present (e.g. if no flow logger is present then the System measured flow Simulation type will be grayed out) or the Simulation is not linked to a compressed air audit.

Supply side calculated flow:

This Simulation type focuses on compressed air generation.

System inc. flow control:

This Simulation type provisions for the addition of a flow control device where compressed air generation equipment is typically installed in groups either side of a flow control device with a 'base' pressure target used for equipment downstream of the flow control device and a 'trim' pressure target used for equipment upstream of the flow control device.

System measured flow:

This Simulation type substitutes calculated flow (calculated flow is derived from the respective 'compressor tables') for measured flow which is derived from one or a group of flow sensors.

This Simulation type is only available for Simulations that are linked to a compressed air audit!

Demand side calculated flow:

Demand side calculated flow focuses on compressed air 'process' demand. Process demand is derived by taking into account 'System volume' (a value configured in Audit Wizard when a site and energy profile was established) and System pressure characteristics.

This Simulation type is only available for Simulations that are linked to a compressed air audit and where 'System pressure' was logged!

Simulations linked or not linked to an audit

This is a powerful feature of Simulation Wizard, providing users with the ability to produce Simulations that are either 'linked' or 'not linked' to an audit.

Simulations linked to an audit:

Simulations that are linked to an audit associates the Simulation types 'RED' line (discussed elsewhere) with the equipment audited, the associated compressor tables, equipment pressure settings (where configured), the installed pressure cascade, system shutdown hours and site energy tariff (configured from within Audit Wizard) and establishes existing specific efficiency, annual equipment utilisation (Annual Simulation sub tab only), Output (Time span Simulation sub tab only) and Pressure (Time span Simulation sub tab only)

Simulations that are not linked to an audit

Simulation type 'Annual' and 'Time span' sub tabs

Within the 'Simulator' page there's a tab that corresponds to each Simulation type and quantity configured in the Simulator Wizard 'Landing' page. In the example below our 'Simulation collection' consists of just 1 'Supply side calculated flow' Simulation...

Within each tab there are two icons. These icons look at a Simulation in one of 2 distinct ways...

Annual sub tab:

The annual sub tab combines an equipment profile with an annual utilisation profile to establish 'existing' specific efficiency, 'new' specific efficiency, utilisation as well as 'before' and 'after' pressure profiles.

Use the Annual sub tab to evaluate what the annual energy, cost and CO2 benefits of a given equipment profile would be versus an alternative equipment profile. Alternative equipment profiles can...

Maintain the same equipment but alter usage by changing pressure cascade settings

Apply Smart Air Master / GD Connect system control to evaluate the benefit of using a system controller to unify equipment control

Evaluate the benefit of reducing overall system pressure (target pressure)

Change the equipment profile to evaluate the benefits of change (introduce alternative equipment sizes or equipment capable of variable output (e.g. VSD))

Time span sub tab:

The time span sub tab is similar to the Annual sub tabs in many ways, however the time span sub tab focuses on a specific time span rather than attempting to simulate any annual benefits.

Use the Time span simulation to evaluate what the energy, cost and CO2 benefits of a given equipment profile would be versus an alternative equipment profile during a specific period of time.

Which Simulation sub tab is most suitable?

Simulation Wizard aims to Simulate either 'audited' or 'un-audited' equipment scenarios and offer 'before' (RED) and simulated 'after' (BLUE) results. By providing the 'annual' and 'time span' sub tabs, users have the ability to look at Simulations in either an 'annual' format or a specific 'time span' format. Which is best will depend on whether the simulation relates to an audit or not and whether you want to simulate a specific 'time span' or to 'annualise' the simulation results. In deciding which simulation is most suitable, it's worth understanding the primary difference between them...

The primary difference between 'Annual' and 'Time span' is of course **time**; one is an 'Annual' simulation and the other is a specific 'Time span' simulation. Time can be un-audited, a completely hypothetical scenario or it can be linked to an actual audit. A simulation that's not linked to an audit is completely hypothetical so its very much a question of preference. A simulation linked to an audit is real data creating a dilemma...

When AIRINSITE runs an Annual simulation linked to an audit, AIRINSITE has no way of knowing how the equipment might operate in future. Consequently the Annual sub tab compares the installed equipment's 'specific efficiency' (RED or BLUE) alongside audit utilisation data to display 'Annual' simulation results.

When AIRINSITE runs a 'Time span' simulation linked to an audit, AIRINSITE knows precisely how the equipment operated during the specific time span. Consequently the Time span sub tab compares the actual 'specific efficiency' (RED or BLUE) alongside the audit time span utilisation to display 'Time span' simulation results.

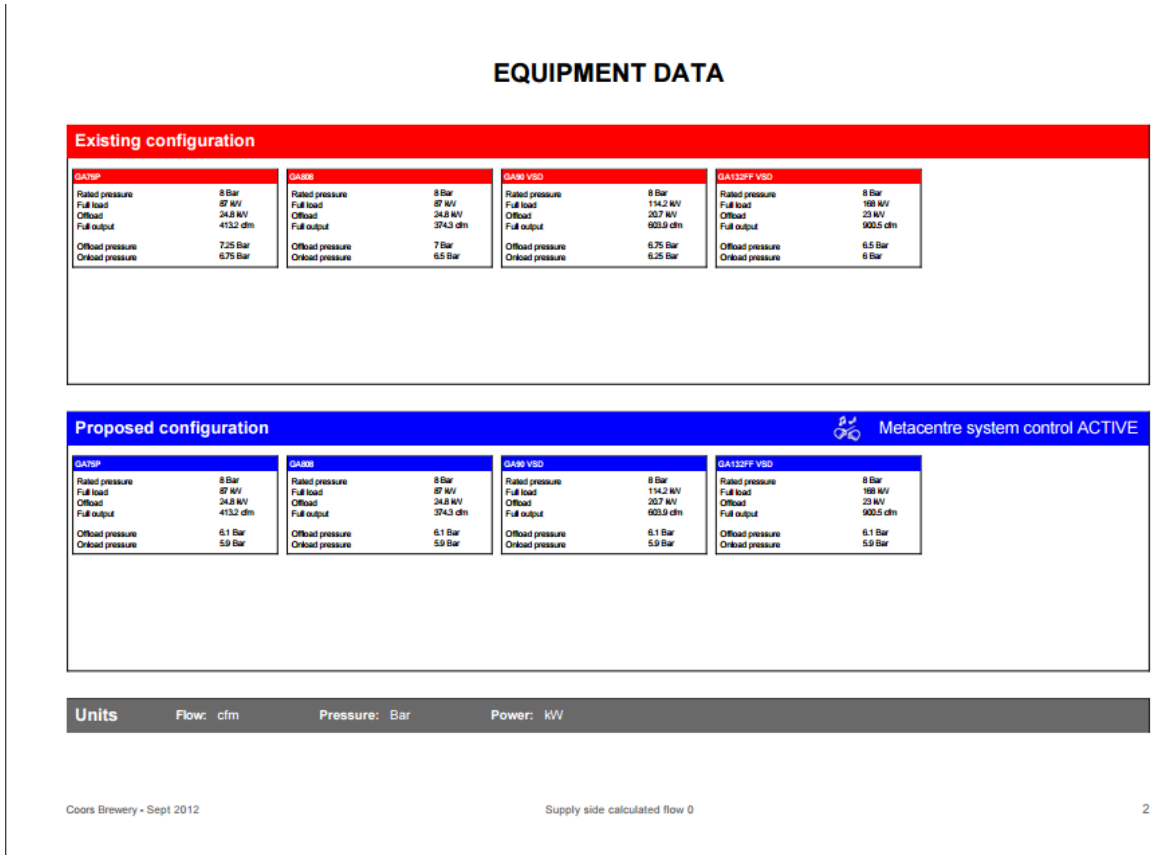
The Simulation Report PDF 'Annual Simulation collection'

Simulation Reports consist of a 5 page PDF. Where more than 1 Simulation has been included in the Print PDF file, Reports are sequentially included within the PDF. As an example, a Simulation Report PDF containing 2 Simulations can be downloaded from this article

Each Report follows the following format:

Page 1: Report cover page (Logo, Report name, Linked audit, Simulation collection name, Simulation tab name, Report production date)...

Page 2: Equipment data page describes the equipment used on the RED line, equipment used on the BLUE line, whether Smart Air Master / GD Connect system control is enabled on the BLUE line as well as the Unit of measure used within the report for Flow, Pressure and Power...



EQUIPMENT DATA

Existing configuration

GA75P		GA808		GA90 VSD		GA132FF VSD	
Rated pressure	8 Bar	Rated pressure	8 Bar	Rated pressure	8 Bar	Rated pressure	8 Bar
Full load	87 kW	Full load	87 kW	Full load	114.2 kW	Full load	168 kW
Offload	24.8 kW	Offload	24.8 kW	Offload	20.7 kW	Offload	23 kW
Full output	413.2 cfm	Full output	374.3 cfm	Full output	603.9 cfm	Full output	900.5 cfm
Offload pressure	7.25 Bar	Offload pressure	7 Bar	Offload pressure	6.75 Bar	Offload pressure	6.5 Bar
Onload pressure	6.75 Bar	Onload pressure	6.5 Bar	Onload pressure	6.25 Bar	Onload pressure	6 Bar

Proposed configuration Metacentre system control ACTIVE

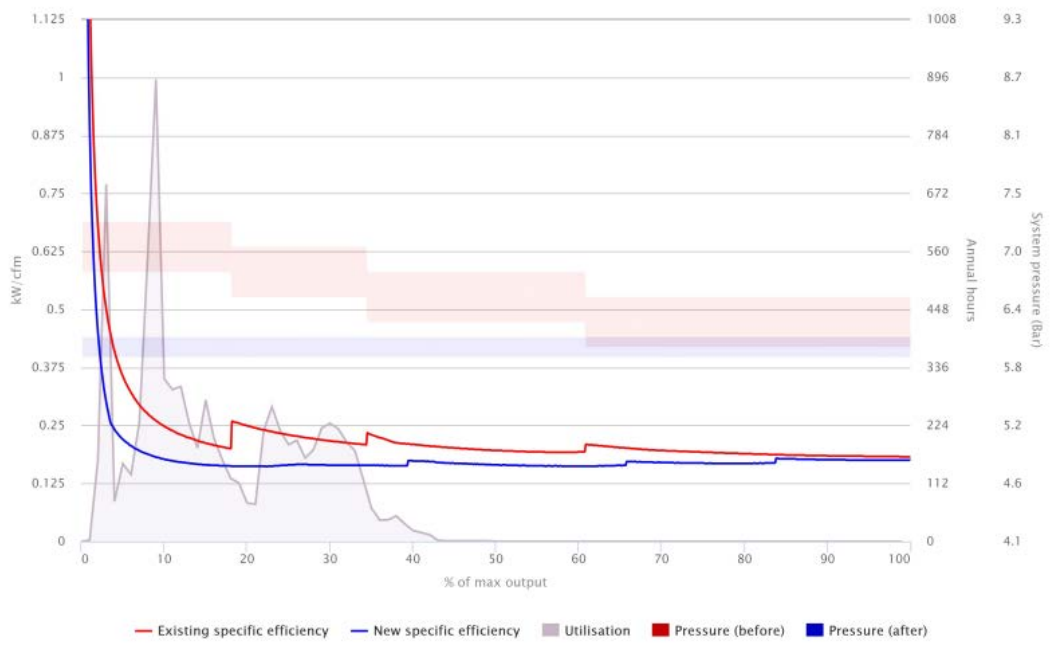
GA75P		GA808		GA90 VSD		GA132FF VSD	
Rated pressure	8 Bar	Rated pressure	8 Bar	Rated pressure	8 Bar	Rated pressure	8 Bar
Full load	87 kW	Full load	87 kW	Full load	114.2 kW	Full load	168 kW
Offload	24.8 kW	Offload	24.8 kW	Offload	20.7 kW	Offload	23 kW
Full output	413.2 cfm	Full output	374.3 cfm	Full output	603.9 cfm	Full output	900.5 cfm
Offload pressure	6.1 Bar	Offload pressure	6.1 Bar	Offload pressure	6.1 Bar	Offload pressure	6.1 Bar
Onload pressure	5.9 Bar	Onload pressure	5.9 Bar	Onload pressure	5.9 Bar	Onload pressure	5.9 Bar

Units Flow: cfm Pressure: Bar Power: kW

Coors Brewery - Sept 2012 Supply side calculated flow 0 2

Page 3: Shows the Simulation tab graph...

GRAPH DATA



Page 4: Shows the Simulation tab chart...

CHART DATA

8760							
0-10 %	2875	0.0 - 229.2	40.9	27.1	13.8	39675.0	5951.25
10-20 %	2180	229.2 - 458.4	77.3	56.8	20.5	44690.0	6703.50
20-30 %	1772	458.4 - 687.6	131.4	93.8	37.6	66627.2	9994.08
30-40 %	1162	687.6 - 916.8	172.8	131.7	41.1	47758.2	7163.73
40-50 %	59	916.8 - 1146.0	207.8	174.0	33.8	1994.2	299.13
50-60 %	0	1146.0 - 1375.1	243.6	205.6	38.0	0.0	0.00
60-70 %	0	1375.1 - 1604.3	299.6	248.2	51.4	0.0	0.00
70-80 %	0	1604.3 - 1833.5	330.6	290.1	40.5	0.0	0.00
80-90 %	0	1833.5 - 2062.7	363.5	339.4	24.1	0.0	0.00
90-100 %	0	2062.7 - 2291.9	399.4	381.9	17.5	0.0	0.00
	30	N/A	11.5	2.39	9.1	273.3	40.99
	382						
	300						

732341.1 kW 531323.2 kW **You will save:** 201018 kW hours, £ 30152.68, 124229.06 kilo/CO_2 per year

Page 5: Conclusions inclusive overview of Simulation data, who the report was prepared for, who to report was prepared by, Summary conclusions author comments, signature and date location...

CONCLUSIONS

SIMULATION DATA

Audit name Coors Brewery - Sept 2012
Collection name SIM_COLLECTION_10
Simulation name Supply side calculated flow 0 (Annual)
Simulation type Supply side calculated flow

Prepared for		Prepared by (author)	
Company	Coors Brewery	**Company**	CMC NV
Address line 1	Lower Turk Street	**Address line 1**	Industriepark Klein Frankrijk 62/05
Address line 2	null	**Address line 2**	/
City	Alton	**City**	Ronse
ZIP	GU34 2PS	**ZIP**	B-9600
State	Hampshire	**State**	East Flanders
Country	United Kingdom	**Country**	Belgium
Name	Mr. Andy Hennell	**Name**	Mr. Graham Coats
Job title	Maintenance Manager	**Email**	graham.coats@cmcnv.com

Summary conclusions

We have concluded that **you will save 201018 kW hours, £ 30152.68 and 124229.06 kilo/CO_2 per year** by applying the proposed equipment configuration shown on page 2 of this report.

Evidence to support our conclusions is provided in the associated Graph & Chart data.

Graph data shows the sites unmanaged versus managed specific efficiency and operating pressure range alongside the annualised system utilisation.

Chart data tables system utilisation in easy to read 10% 'utilisation zones' and highlights the difference in unmanaged versus managed kW, kW hours and cost per annum within each zone before totalising savings at the foot of the table.

Additional author comments relating to this efficiency analysis report follow

AUTHOR COMMENTS

If you annotate text to the Simulation Report in Simulation Wizard, that text will appear here

Signature of author: _____ Dated: _____

The estimates shown are calculated from given compressor performance data and are intended to demonstrate the potential energy cost savings achievable. These estimates do not constitute a contract or part thereof. Site conditions vary and operating conditions are not known. The web site author cannot accept liability if these savings are not achieved in practice.

The Simulation Report PDF 'Time span Simulation collection'

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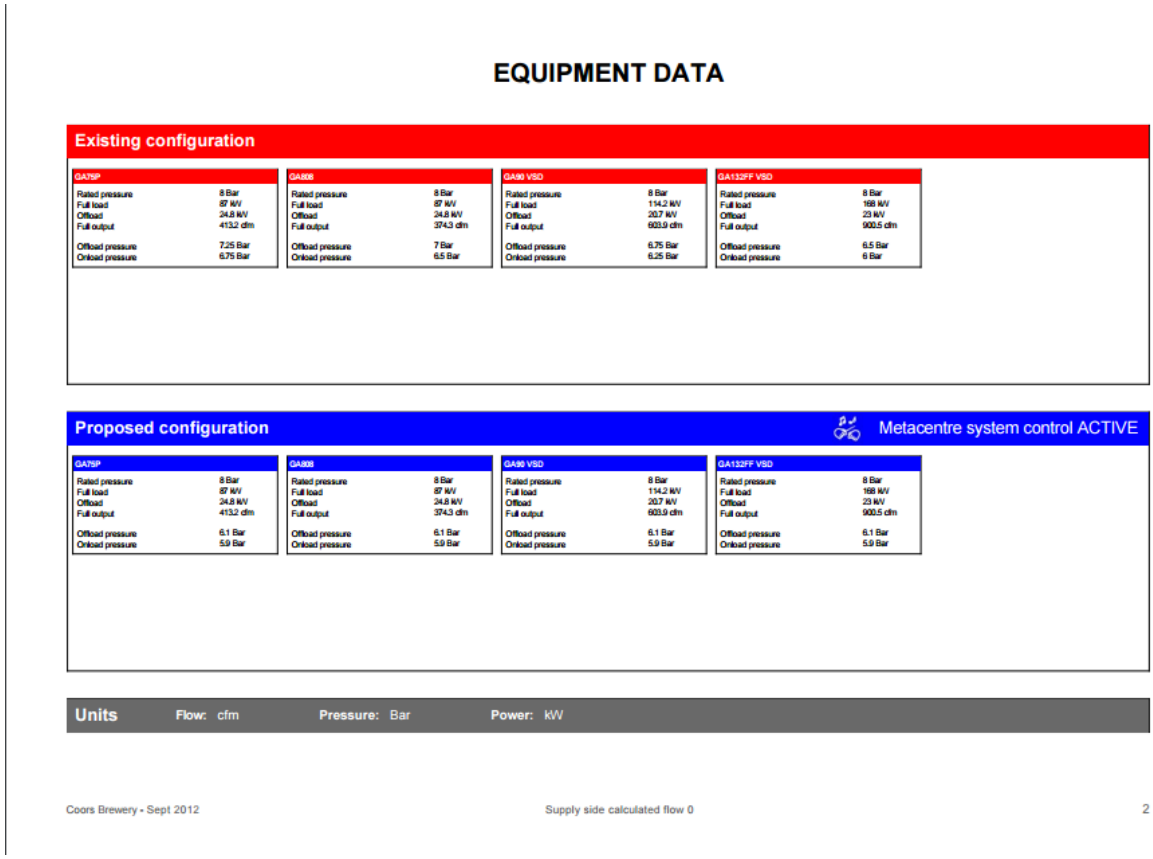

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Proposed configuration — Metacentre system control ACTIVE

GA75P		GA808		GA90 VSD		GA132FF VSD	
Rated pressure	8 Bar	Rated pressure	8 Bar	Rated pressure	8 Bar	Rated pressure	8 Bar
Full load	87 kW	Full load	87 kW	Full load	114.2 kW	Full load	168 kW
Offload	24.8 kW	Offload	24.8 kW	Offload	20.7 kW	Offload	23 kW
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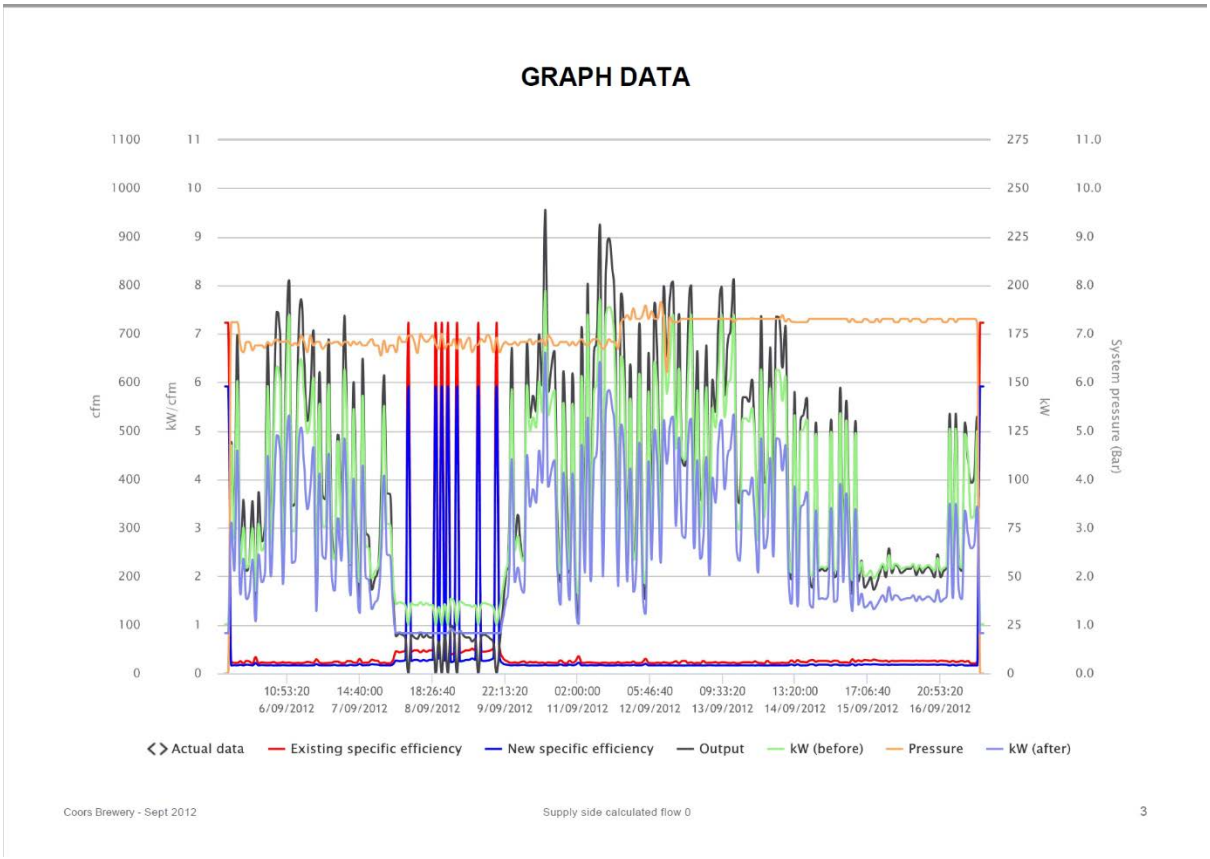
Offload pressure	6.1 Bar	Offload pressure	6.1 Bar	Offload pressure	6.1 Bar	Offload pressure	6.1 Bar
Onload pressure	5.9 Bar	Onload pressure	5.9 Bar	Onload pressure	5.9 Bar	Onload pressure	5.9 Bar

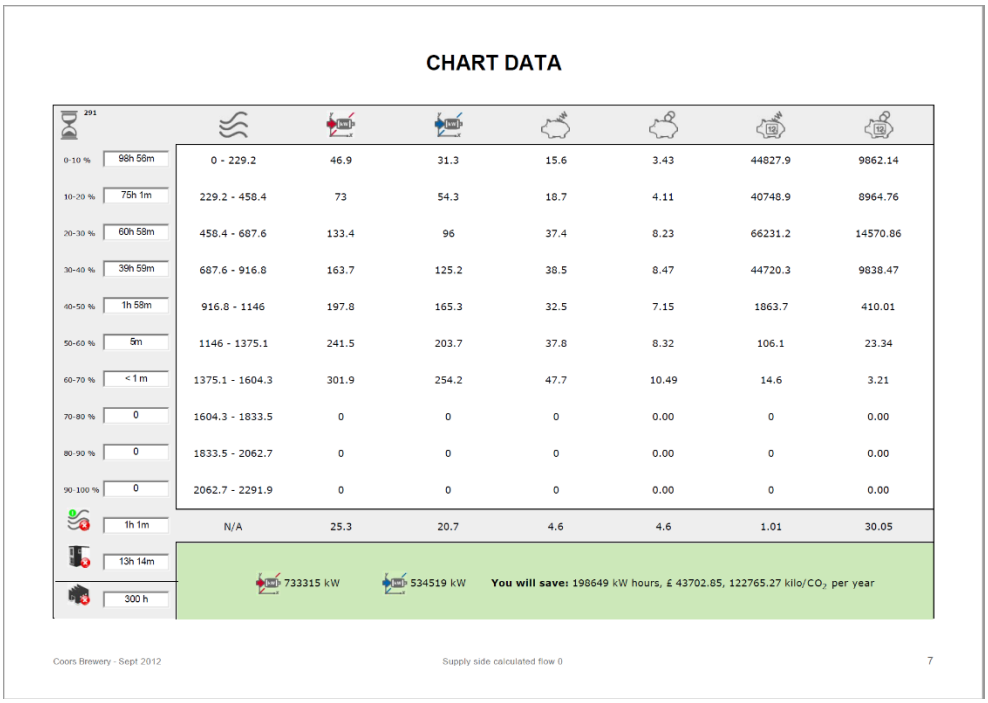
Units Flow: cfm Pressure: Bar Power: kW

Coors Brewery - Sept 2012 Supply side calculated flow 0 2

Page 3 4, 5 and 6: Shows the Simulation tab graph (only Page 3 is displayed here)...



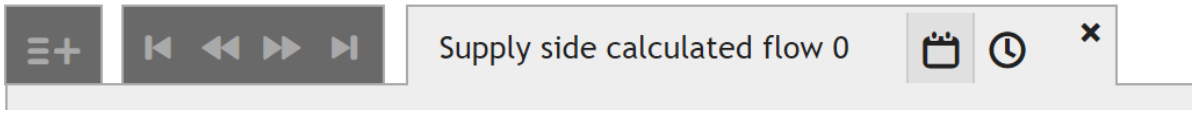
Page 7: Shows the Simulation tab chart...



Page 8: Conclusions inclusive overview of Simulation data, who the report was prepared for, who to report was prepared by, Summary conclusions author comments, signature and date location...

Understanding Simulation chart results data

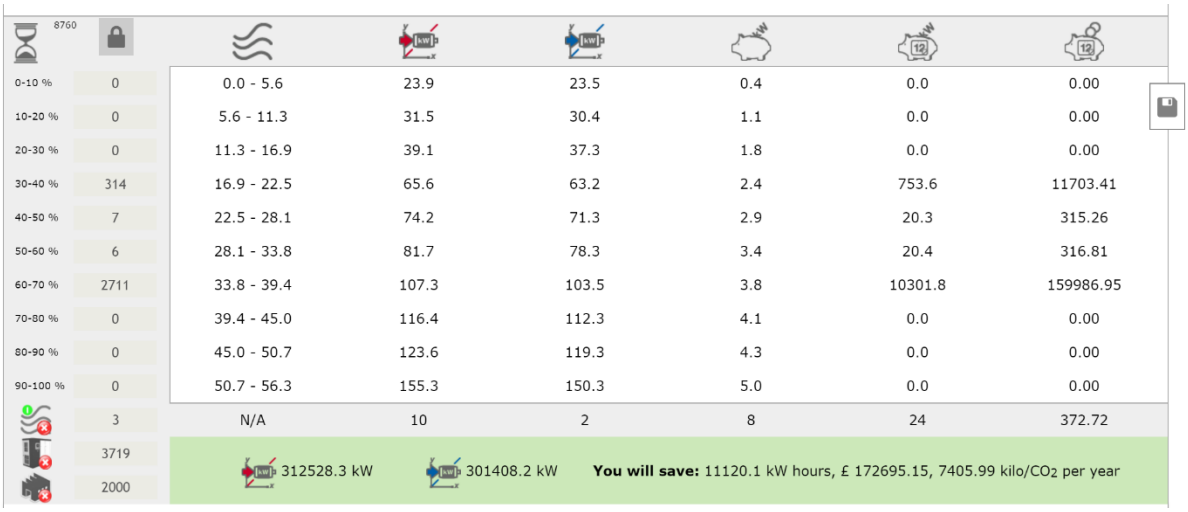
For each Simulation type, Simulation Wizard creates two alternative Simulation scenarios. We call these 'annual' and 'time span'. By default, Simulation Wizard displays the 'Annual' scenario. Use the 'sub-tab' icons located within the Simulation tab to toggle between 'Annual' and 'Time span' simulation...



Use this link to read about scenarios and their difference... SCENARIOS EXPLAINED

This article is not intended to explain Simulation Wizard functions. Use this link you want learn about Simulation Wizard function...

For this explanation of chart results data, we'll focus on an 'Annual' scenario and then explain where 'time span' differs...



8760							
0-10 %	0	0.0 - 5.6	23.9	23.5	0.4	0.0	0.00
10-20 %	0	5.6 - 11.3	31.5	30.4	1.1	0.0	0.00
20-30 %	0	11.3 - 16.9	39.1	37.3	1.8	0.0	0.00
30-40 %	314	16.9 - 22.5	65.6	63.2	2.4	753.6	11703.41
40-50 %	7	22.5 - 28.1	74.2	71.3	2.9	20.3	315.26
50-60 %	6	28.1 - 33.8	81.7	78.3	3.4	20.4	316.81
60-70 %	2711	33.8 - 39.4	107.3	103.5	3.8	10301.8	159986.95
70-80 %	0	39.4 - 45.0	116.4	112.3	4.1	0.0	0.00
80-90 %	0	45.0 - 50.7	123.6	119.3	4.3	0.0	0.00
90-100 %	0	50.7 - 56.3	155.3	150.3	5.0	0.0	0.00
	3	N/A	10	2	8	24	372.72
	3719						
	2000	312528.3 kW	301408.2 kW	**You will save:** 11120.1 kW hours, £ 172695.15, 7405.99 kilo/CO_2 per year			

Lets break our chart down into columns and rows to help explain how the data in the chart is arrived at...

Column 1: System hours run:

'Annual' or 'Time span'

For practical reasons, Utilisation data is segmented into 10% rows (e.g. it would be impractical to display the chart on screen or print the chart if the segment resolution was for example 1%). Use Graph Wizard or Chart Wizard to review utilisation in detail!

Beneath the 90 - 100% segment there's rows for 'system off load', 'system stopped' and 'system shutdown'. Observe that 'off load', 'stopped' and 'shutdown' utilisation relate to the system and not an individual item of equipment! So for example, 'system off load' is the period of utilisation where no item of equipment is in the load state and one or more item of equipment is in the off load state.

Columns 2: Utilisation hours:

Utilisation hours is the number of annualised hours the system will operate within the segment.

'Annual'

The hour data displayed will firstly depend on whether or not the Simulation is linked to an audit...

If the Simulation is not linked to an audit, Simulation Wizard offers completely hypothetical hour data. That hypothetical data establishes a scenario where equipment utilisation peaks at 60 - 70%.

If the Simulation is linked to an audit, hour data is established from the relational audits 'flow data' stream. Simulation Wizard...

Takes the flow data stream

Segments the flow range into the 10% segments

Looks across the flow data stream and allocates a sample to a segment (Note: AIRINSITE data logger sample resolution is fixed to 1 second sampling and cannot be modified!)

Applies a Wizard rule for 'system off load' (discussed elsewhere)

Applies the System shutdown hours provided during the Audit Wizard step

Verifies that the column adds up to 8760 hours (or 1 year)

In 'Time span'

If the Simulation is not linked to an audit, Simulation Wizard offers a hypothetical 168 hour (1 week) scenario. That hypothetical data establishes a scenario where equipment utilisation peaks at 60 - 70%.

If the Simulation is linked to an audit, hour data is the number of hours the system operated within the segment during the audit. The rules applied are identical to those described above.

Column 3: System flow:

Consistent with utilisation hours, system flow data displayed will depend on whether or not the Simulation is linked to an audit...

If the Simulation is not linked to an audit, Simulation Wizard offers completely hypothetical flow data. That hypothetical data establishes a scenario where equipment utilisation peaks at 60 - 70%.

If the Simulation is linked to an audit, flow data is established from the relational audits 'flow data' stream. Simulation Wizard...

Takes the flow data stream

Segments the flow range into the 10% segments

Looks across the flow data stream and allocates a sample to a segment (Note: AIRINSITE data logger sample resolution is fixed to 1 second sampling and cannot be modified!)

Note:

This article continues with the assumption that the reader understands the difference between a Simulation that is 'linked' or 'not linked' to an audit (i.e. hypothetical data versus actual data)!

Column 4: Installation average input kW (RED):

'Annual'

The value displayed is the 'average kW' required to produce the amount of flow in the given segment (e.g. 0 - 10%, 10 - 20% etc)...

Simulation Wizard knows the kW required to produce flow...

Irrespective the unit of measure displayed (e.g. cfm), behind the scenes Simulation Wizard uses m^3/min in its mathematical calculations

kW resolution is proportional to 0.1 m³/min of flow

Simulation Wizard starts with the kW for the smallest amount of flow in the corresponding segment

It then looks at all kW values for each 0.1m³/min step that falls within a given segment

Simulation Wizard calculates an 'average kW' using all of the kW values and the number of steps in a segment to establish an 'average kW' value

'Time span'

In time span Simulation Wizard is not trying to 'annualise' the data, consequently the information displayed can be more accurate...

Simulation Wizard knows the actual kW required to produce the actual flow at an actual point in time...

Simulation Wizard groups actual data into the corresponding segments

And then uses the number of samples to derive an 'average kW' value for that segment

Column 5: Proposed average input kW (BLUE):

The values in the 'Proposed' or BLUE column use the same calculations. Variation between the 'Installation' or RED column and the BLUE column is derived from...

Re-ordering the equipment on the BLUE line

Changing the pressure settings of the equipment on the BLUE line

Removing equipment from the BLUE line

Adding alternative equipment to the BLUE line

Enabling Smart Air Master / GD Connect system control

Changing the target pressure of the BLUE line

Column 6: Input kW variance of BLUE compared to RED:

Column 6 = Column 4 minus Column 5

Columns 7 & 8 displayed in 'Annual' Simulation only:

Column 7: Annual kW variance of BLUE compared to RED:

Column 7 = Column 6 expressed in kW hours per annum

Column 8: Annual monetary variance of BLUE compared to RED:

Column 8 = Column 7 expressed in monetary terms using the average kW hour tariff

Columns 7, 8 & 9 displayed in 'Time span' Simulation only:

Column 7: Savings:

Column 7 = Column 6 (kW variance) x Column 2 (utilisation hours)

Column 8: kW savings per annum:

Column 8 = Column 7 extrapolated to 1 year...

Remove 'system shutdown hours' from 8760 (1 year in hours) (so in the example image above, system shutdown hours is 2000 hours so this will leave 6760 hours where the system was either operating within a segment (e.g. 0 - 10%) or operating 'off load' or 'stopped')

Take the utilisation hours (column 2) for a segment or 'off load' or 'stopped' and extrapolate accordingly. For example...

Lets assume that column 2 for 0 - 10% is 100 hours

And that the sum of all segments (including 'off load' or 'stopped') was 200 hours.

100 / 200 * (8760 - 2000) = 3380

Finally, multiply the above result (extrapolated utilisation hours for a segment) with column 6

Column 9: Savings per annum

Column 9 = Column 8 expressed in monetary terms using the average kW hour tariff

Other points:

Point 1: Simulation Wizard rule applied to 'off load' kW when Smart Air Master / GD Connect system control is enabled:

Fixed speed equipment:

On the BLUE line, Smart Air Master / GD Connect system controller can change the equipment used to produce the same flow when compared to the RED line. In other words, for the 'entire span' of the output flow, other equipment used also means other equipment operating in an offload state from time to time. Since a Smart Air Master / GD Connect system controller always uses the most efficient equipment available, logic says that an overall gain must be achieved during periods of time whilst operating off load.

The specific efficiency curve (shown below) takes into account that some equipment is running 'fully loaded' whilst one item of equipment will operate either loaded or unloaded (off load). This is calculated during the system load time. The installation as such will also operate unloaded or off load from time to time (Due to equipment 'no load' run timers etc). These hours are also taken into account and they are independent of pressure.

Whilst operating off load, equipment is operating to 'free air', it's therefore difficult to identify which item of equipment will be the one operating. The percentage equipment is present on the output span provides an indication of 'how big' the probability is that an item of equipment will contribute to offload kW.

The following example shows how Simulation Wizard calculates this gain...

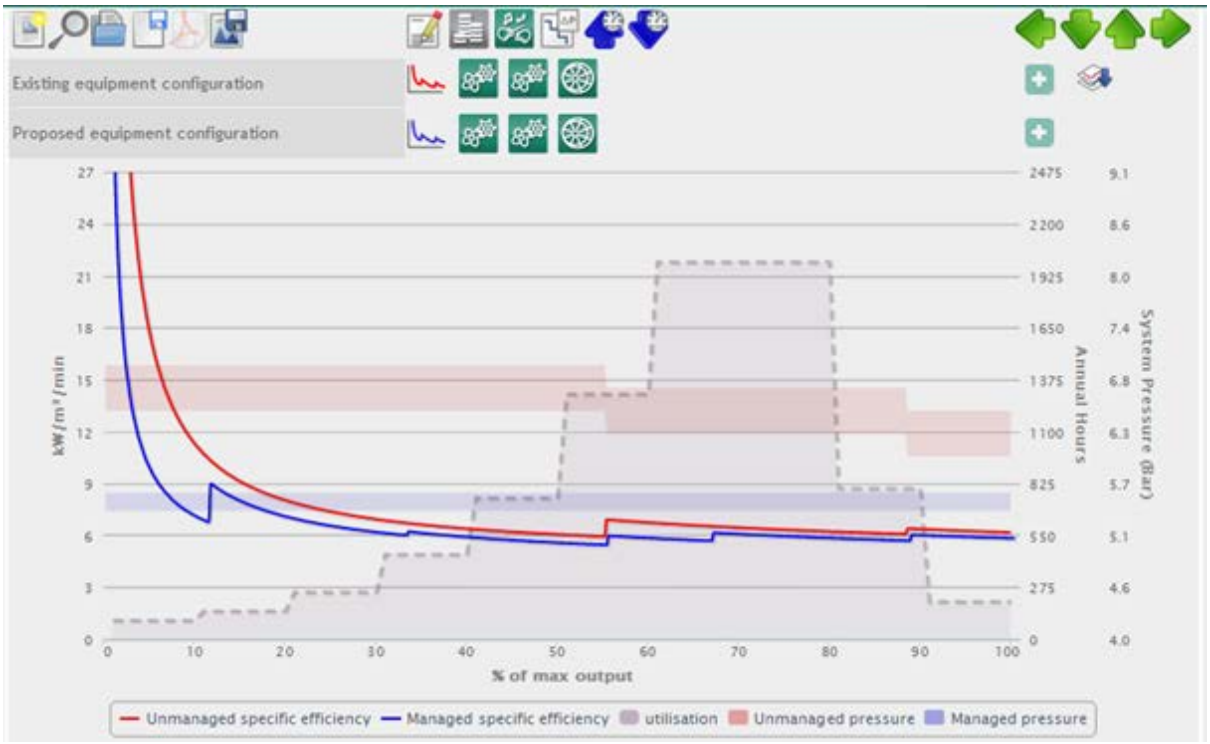
A 3 compressors scenario:

	Unit	Compressor #1	Compressor #2	Compressor #3	Total
Full load kW	kW	188.5	112.3	43.9	
Offload kW	kW	29.0	24.0	12.5	
Full Output	m3	24.0	14.4	5.1	43.5
Output	%	0.55	0.33	0.12	100

Average output kW over entire output span on RED line:

((C1 offload kw x C1%span) + C2 offload kw x C2%span) + C3 offload kw x C3%span) +) / total span =

(29.0 * 55% + 24 * 33% + 12.5 * 12%) / 100% = 25.37



Note: The above image is taken from a previous release of AIR-INSITE.COM. However, its relevance to the topic discussed here is unchanged!

Looking at the BLUE line you can see that over the entire span, the smallest (most efficient) item of equipment is used in 3 different areas, the middle size item of equipment in 2 different areas and the least efficient item of equipment only once. This fundamentally changes the 'span %' different equipment operates and favors the more efficient equipment to be operating in a load or off load state.

Once again, looking at the BLUE line in the example, you can see the smallest item of equipment is used 3 times over the entire output span. The middle is used on 2 occasions. Again, it is 'efficiency' which determines which item of equipment is used more often. Using a more efficient item of equipment, reduces the %span of less efficient equipment. The calculation for the BLUE line is as follows:

Average output kW over entire output span on BLUE line:

C1%new = C1%span – C2%span

C2%new = C2%span – C3%span

C3%new = C3%span – 0

((C1 offload kw x C1%new) + C2 offload kw x C2%new) x 2 + C3 offload kw x C3%new * 3) +) / total span =

(29.0 * 22% + 24 * 21% * 2 + 12.5 * 12% * 3) / 100% = 20.96

Average offload kW ratio = average BLUE / average RED

20.96 / 25.37 = 0.826 or 82.6 %

Conclusion for fixed speed equipment:

For any off load kilowatt consumed on the RED line, 82.6% will be consumed on the BLUE line or a gain of 17.4%

Variable speed equipment:

The variable speed scenario is more difficult to predict. Theoretically, off load operating times could or should be run down to zero **'IF'** all equipment is appropriately sized. However, when fixed speed equipment variants are used in combination with variable speed equipment, off load operating likely cannot be avoided and will result in some off load kW consumption. The overall benefit will be greater due to the introduction of variable speed equipment. To demonstrate the significant benefit of introducing variable speed equipment when compared to fixed speed equipment yet retain some unavoidable off load kW, a reduction of 50% is used to calculate off load kW.

Conclusion for variable speed equipment:

Introducing variable speed equipment will always show a meaning full reduction inclusive off load.

Where system shutdown data originates:

For Simulations that are not linked to an audit, system shutdown hours are hypothetical.

For Simulations linked to an audit, system shutdown hour data originates from Audit Wizard step 3 'create site & energy profile'

The chart coloured 'GREEN' or 'RED' area:

The chart coloured area summarises annual kW consumption for the equipment configuration on the RED line, annual kW consumption for the equipment on the BLUE line alongside annual savings for kW hours, monetary cost and CO^2 emissions.

The chart coloured area will be GREEN when the results of BLUE are better than RED. Conversely the chart coloured area will be RED when the results of RED are better than BLUE.

How reduced pressure influences reduced power in Simulation Wizard results data

AIRINSITE applies an industry accepted '5%' reduction in power per 1 bar reduction in pressure.

Users interested in understanding the calculations behind the rule can download the .xls attached to this article

Why can’t I edit the equipment on the RED line of a Simulation linked to an audit?

Simulation Wizard aims to preserve the integrity of audit data. Consequently when a Simulation is linked to an audit, the user will not be able to edit the RED line equipment. Why not? Well it's a real audit featuring real equipment! Furthermore, if a user could edit the equipment on the RED line this would only giving Simulation Wizard ‘half’ the story (i.e. the equipment and not how it was used).

In conclusion, if you want to edit the equipment on the RED line of a Simulation you should not link the Simulation to an audit.

It's perfectly possible to create a Simulation not linked to an audit and then emulate the audit conditions (equipment, utilisation profile etc). Of course the Simulation is a hypothetical one rather than one intrinsically linked to an audit.

Why can't I edit the low and high pressure set point of the air compressors on the RED line of Simulation Wizard?

If the Simulation is linked to an audit '&' the low & high pressure set points were configured during the Audit Wizard configuration step then you will 'NOT' be able to change the 'low' and 'high' pressure set points of these air compressors on the 'RED' line of Simulation Wizard. You will neither be able to re-order the compressors on the 'RED' line of Simulation Wizard.

This is because the Audit Wizard data takes priority!

If you want to edit the low and high pressure set point of the air compressors on the RED line of Simulation Wizard, first go to Audit Wizard and remove the 'low' and 'high' pressure set points configured in Audit Wizard and 're-sync' the audit.

Then return to Simulation Wizard and create a new Simulation. This time Simulation Wizard will use 'default' 'low' and 'high' pressure set points for each air compressor in the Simulation. You will be able to modify the default 'low' and 'high' pressure set points of these air compressors on the 'RED' line of Simulation Wizard and you will be able to re-order the compressors on the 'RED' line of Simulation Wizard.

How can I do a Simulation for an system with a Smart Air Master / GD Connect System controller already installed

Simulation Wizard assumes that NO System control is present, so this is a common question...

The way to carry out such a Simulation is as follows...

Lets say you want to perform a single Supply side Simulation linked to an existing audit

Go ahead and start Simulation Wizard as usual. However, instead of choosing just 1 Simulation, select 2

Next, prepare the RED line in both Simulations in an identical manner!

Now, copy the RED line of the first Simulation to the BLUE line. Enable System control by selecting the System control button

Now, go to the second simulation and prepare the BLUE line according to requirements. Enable System control by selecting the System control bottom

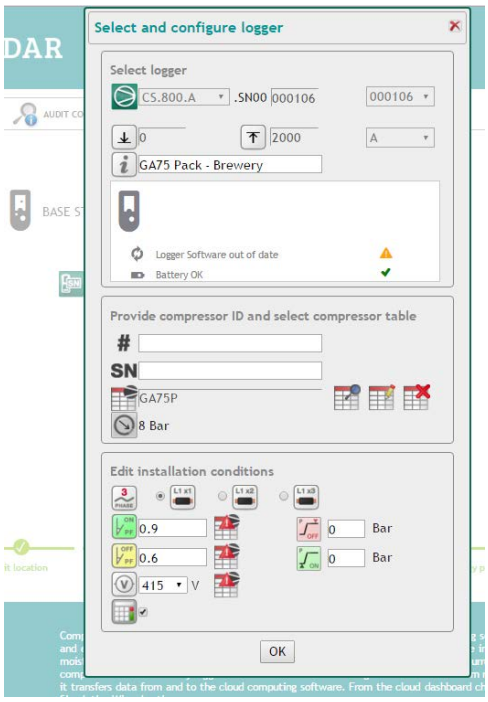
Now compare the results of the BLUE line in the first Simulation with the BLUE line of the second Simulation

The afore-mentioned procedure can be used for many similar scenarios

How does Simulation Wizard determine the low & high pressure settings of individual air compressors?

This depends on a couple of factors!

Firstly, is the Simulation linked to an audit or not? And secondly, if the Simulation 'IS' linked to an audit, were the 'low' and 'high' pressure set points included in the Audit Wizard configuration for the respective air compressor? For clarity, this is the 'low' and 'high' pressure set points included as part of the third portion of the 'Select and configure logger' popup called 'Edit installation conditions' (see below)...



If the Simulation is linked to an audit '&' the low & high pressure set points were configured during the Audit Wizard configuration step then you will 'NOT' be able to change the 'low' and 'high' pressure set points of these air compressors on the 'RED' line of Simulation Wizard. You will neither be able to re-order the compressors on the 'RED' line of Simulation Wizard.

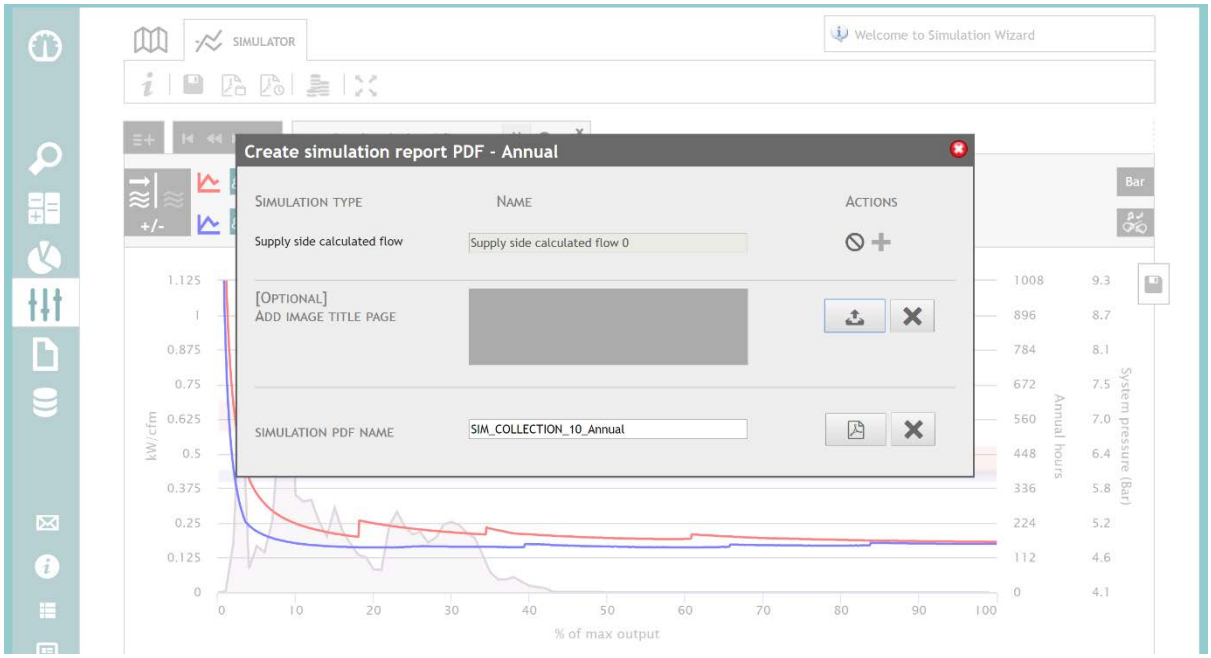
If the Simulation is 'NOT' linked to an audit then Simulation Wizard uses 'default' low and 'high' pressure set points for each air compressor in the Simulation. You will be able to modify these default 'low' and 'high' pressure set points of these air compressors on the 'RED' line of Simulation Wizard and you will be able to re-order the compressors on the 'RED' line of Simulation Wizard.

Similarly, 'if' the Simulation is linked to an audit '&' the 'low' & 'high' pressure set points were NOT configured during the Audit Wizard configuration step, then Simulation Wizard uses 'default' 'low' and 'high' pressure set points for each air compressor in the Simulation. You will be able to modify the default 'low' and 'high' pressure set points of these air compressors on the 'RED' line of Simulation Wizard and you will be able to re-order the compressors on the 'RED' line of Simulation Wizard.

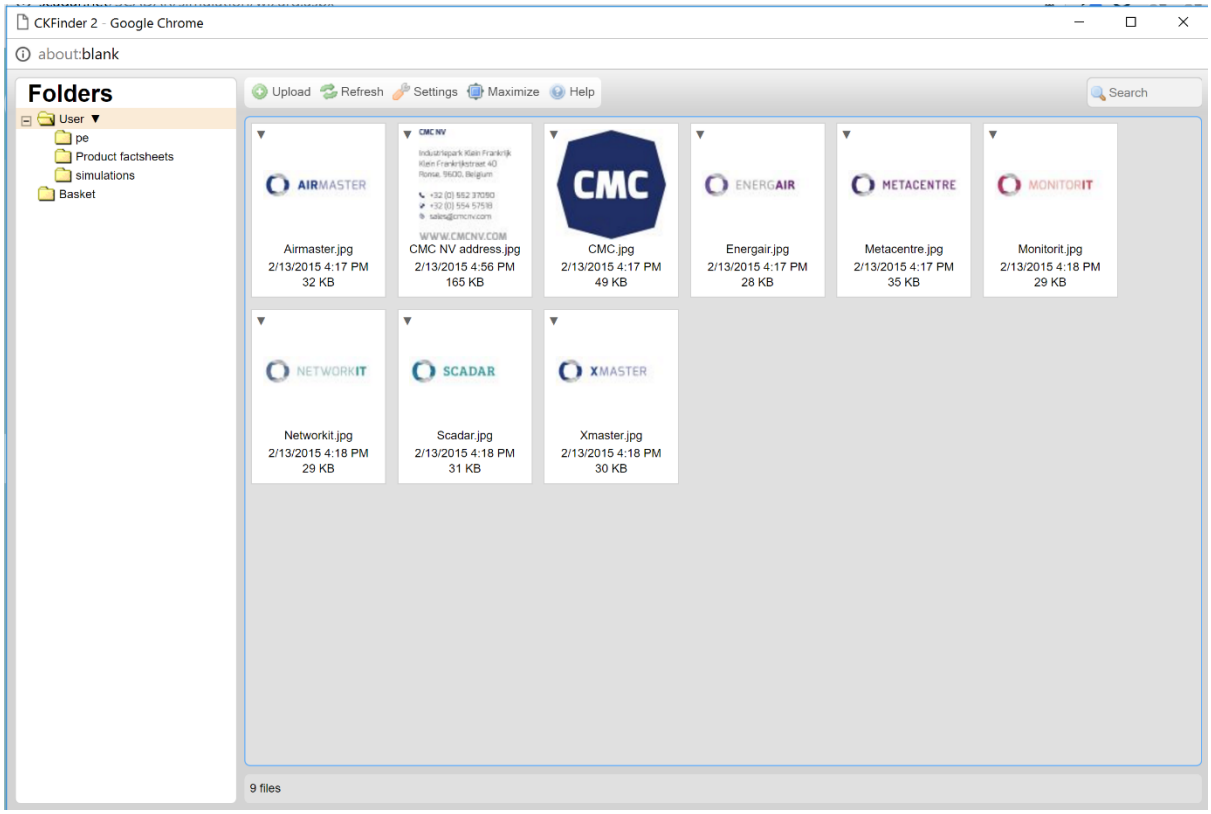
How can I add my company logo to the front 'cover page' of a Simulation Report PDF?

OK, lets suppose we wanted to add our company logo to the title page of a Simulation Report PDF. Firstly, have your logo available to upload! In this example, we'll just use a hi! speech bubble icon...

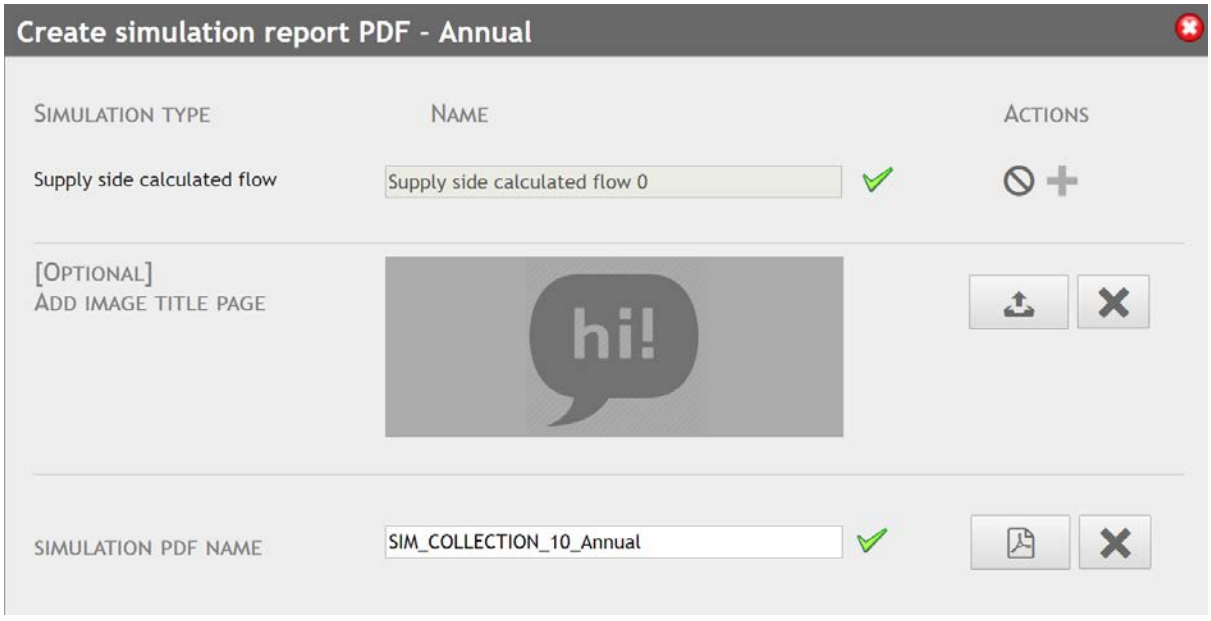
OK so let's suppose you're ready to print the Simulation Report PDF... Before you print your Simulation Report to PDF, observe the popup screen and in particular the '[Optional] add image title page' feature...



Use the upload button right of the feature in the popup. A folder list will appear...



Next, use the upload button to move your logo from your local device to the 'User' folder shown. Once uploaded, double click the icon to select it...



Now go ahead and print the Simulation Report to PDF.

Observe that the company logo has been added to the bottom left corner of the Simulation Report details page!

This Simulation Report PDF has also been appended to this article.