Alpha Moisture Systems

Model SADPmini2 Dewpoint Hygrometer (Logging Version)

2358 SADPmini2 User Manual

Contact Information

Head Office
Alpha Moisture Systems
Alpha House
96 City Road
Bradford
West Yorkshire
BD8 8ES
United Kingdom

Tel: +44 (0) 1274 733100
Fax: +44 (0) 1274 733200

Email: info@amsystems.co.uk
Web: www.amsystems.co.uk

Office Opening Hours:
Monday - Thursday 8.30am - 5.30pm (UK TIME)
Friday 8.30am - 5.00pm
Saturday and Sunday - Closed

Authorised Distributor Contact Information

Contents

1 Introduction 4
1.1 Explanation of Prohibition, Warning and Note Symbols used 4
1.2 Warranty 4
1.3 Instrument Description 5
1.4 General Arrangement 6
1.5 Functional Description of Desiccant Chamber 7
2 Important Information 8
2.1 Bluetooth Certification 8
2.2 Symbols Table 9
2.3 Battery Information 10
2.4 Cleaning and Decontamination 10
2.5 Information Screens 10
3 Installation 12
3.1 Gases to avoid 12
3.2 Gas Sampling System 13
3.3 Installation Configurations 13
3.4 Installation and Sample 15
4 Instrument Use 16
4.1 Powering Up the Instrument 16
4.2 Start Up Screen 16
4.3 Navigation Carousel 17

5 Instrument Settings 18
5.1 Setting the Language, Date and Delimiter Display: Navigation Keypad 18
5.2 Setting the Time, Date and Power Saving Mode (ECO): Navigation Keypad 19
5.3 Notes on the Correct Use and Choices of Moisture Measurement Units 20
5.4 Setting the Main and Secondary Screen Units: Navigation Keypad 22
5.5 Instrument Settings using PC Tool 23
5.6 Setting the Language, Date and Delimiter Display: User Tool 23
5.7 Setting the Time, Date, and Power Saving Mode (ECO): User Tool 24
5.8 Setting the Main and Secondary Screen Units: User Tool 25
5.9 Setting the Gas Type: User Tool 26
6 Calibration 28
6.1 AutoCal 28
6.2 CalSet 30
6.3 Single Point Calibration (SPC) 32
7 Logging 34
7.1 Setting the Location ID: Navigation Keypad 35
7.2 Data Logging 36
7.3 QuickLog 38
7.4 Viewing the Logged Data History: Navigation Keypad 40
7.5 Viewing the Quicklog Data and Snapshot Data History: Navigation Keypad 42
7.6 Transferring Data to the SD Card 45
7.7 Transferring Data from the SD Card 46
7.8 Setting the Location ID: User Tool 47
7.9 PC Realtime Logging 48
7.10 Viewing Logging, Quicklog, Snapshot and Realtime Logging Data: User Tool 49
7.11 Logging Data Management: User Tool 54
7.12 Data Logging Storage on Instrument 55

Appendix A Instrument Specification 56
A1: Instrument Specifications 57
Appendix B Trouble Shooting 58
B1: Trouble Shooting 59
Appendix C User Tool Software Installation and Guidance 60
C2: User Tool Software Guide 65
Appendix D Firmware Maintenance 68
D1: Firmware Update 69
D2: Loading User Tool Configured Files 71
D3: Saving User Tool Configured Files 73
D4: Downloading Settings to the SADPmini2 75
D5: SADPmini2 Report 76
D6: Configuring Instrument to Default Settings 77
D7: Downloading Calibration Files 78
Appendix E Bluetooth Configuration 79
E1: Bluetooth Connection Hierarchy 80
E2: Bluetooth Connection Configuration: Navigation Keypad 81
E2: Bluetooth Connection Configuration: User Tool 83

1 Introduction

This User Manual is only for use with the instrument supplied. All information required for the safe and proper operational use of the instrument is contained here. Make sure you read and understand the information and instructions in the User Manual before using the instrument. Failure to operate the instrument as directed in this User Manual may:

- Impair the inbuilt safety protection offered by the instrument
- Expose personnel to risk of injury
- Cause damage to and/or impair the function of the instrument
- Invalidate the instrument warranty

1.1 Explanation of Prohibition, Warning and Note Symbols used

Local health and safety regulations should be observed as should the safety critical prohibitions, warnings and notes highlighted in this user manual.

DO NOT	
	Prohibited actions or behaviours

WARNING	
	Danger to personnel and/ or damage to equipment

NOTE	
	Additional information

1.2 Warranty

The SADPmini2 is supplied with a two-year warranty from the date of purchase. This warranty is subject to the proper operational use of the instrument and following the information provided in this User Manual. The instrument should not be repaired without prior inspection or authorisation by Alpha Moisture Systems or an authorised distributor. Any unauthorised alteration or misuse may invalidate the instrument warranty.

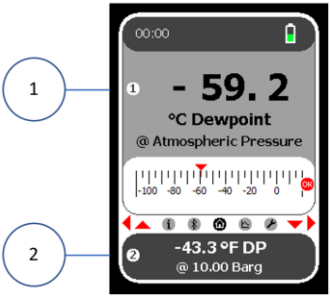
NOTE	
	Please retain the original equipment packaging so the SADPmini2 can be returned to Alpha Moisture Systems or your authorised distributor if required

1.3 Instrument Description

The SADPmini2 is a fully self-contained, micro-controller based, battery operated dewpoint hygrometer primarily used for mobile analysis and short term continuous monitoring. Using an ultra-high capacitance aluminium oxide sensor and a high accuracy, high speed, Analogue to Digital Converter (ADC), the SADPmini2 monitors dry industrial process gas and dry compressed air samples. Results are displayed on a colour Liquid Crystal Display.

The SADPmini2 is controlled via the Navigation Keypad. The display screen has two sections:

- A primary, upper section ① providing numerical, scrolling strip chart and horizontal moving coil configuration sample readouts.
- A lower secondary screen ② providing numerical sample readings in a secondary unit as required.



The display units of each section can be changed independently e.g. °C, °F, mg/m^3, ppm(v), ppm(w), and lb/MMscf.

A single USB port charges the battery when connected to either a PC or a dedicated power supply. The USB port also allows firmware, calibration and set-up data transfer from dedicated User Tool PC software. Alternatively a removable SD Card allows data transfer between the SADPmini2 and PC using the User Tool software.

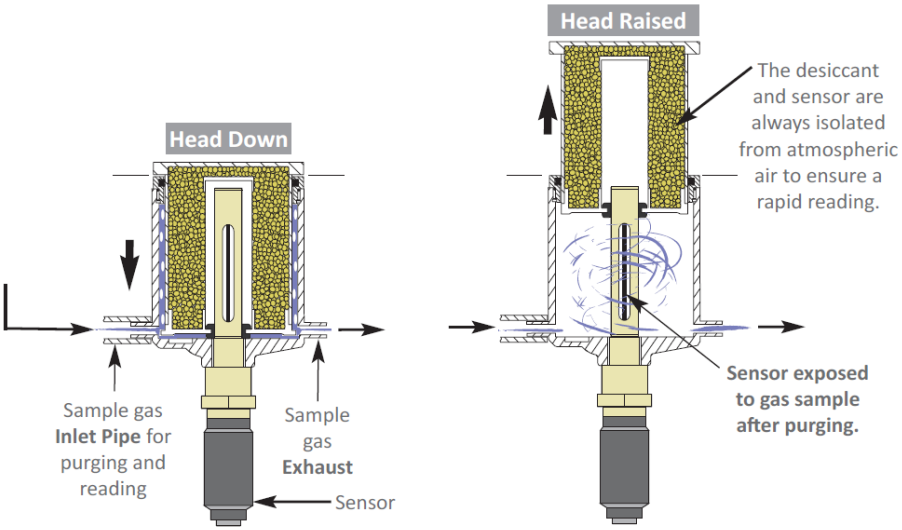
DO NOT	
⚠	Do not substitute the SD Card supplied with this instrument

1.4 General Arrangement

1.5 Functional Description of Desiccant Chamber

Keeping the sensor dry between tests makes sure that the SADPmini2 is ready to carry out rapid sample checks. The design of the Desiccant Head achieves this by surrounding the Aluminium Oxide Sensor with desiccant, keeping the sensor dry when not in use.

A sample of the process gas or air is piped to the inlet port. The sample flows through the measuring chamber while the Desiccant Head remains in position over the Aluminium Oxide Sensor.



Restricting the continuous flow of the sample by closing off the opposite port causes a pressure increase inside the instrument which raises the Desiccant Head and exposes the Aluminium Oxide Sensor to the sample. When the desiccant chamber is fully extended the outlet flow restriction should be removed and the sample gas allowed to flow through to the measuring sensor.

When measurement is complete, manually depress the desiccant chamber until it is fully closed. Disconnect the sample pipe from the instrument.

Between tests the sensor should not be exposed to ambient air. The chamber is designed so that the void space and chamber wall surfaces can be purged with sample gas before the sensor is exposed to the sample gas which allows the SADPmini2 to provide faster, more accurate and reliable results.

2 Important Information

2.1 Bluetooth Certification

NOTE	
	Bluetooth is a wireless technology standard for exchanging data over short distances from fixed and mobile devices. The SADPmini2 uses a Bluetooth connection facility to allow data transfer to either a PC or a Bluetooth printer

WT41 has modular certification with certification number R 209-J00047/J00231.

This instrument complies with FCC radiation exposure limits
- Contains FCC ID:QOQWT41/QOQWT41u.

This device complies with Industry Canada licence-exempt RSS standard(s)
- Contains IC: 5123A-BGTWT41/5123A-BGTWT41u.

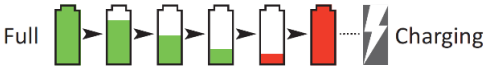
WT41 meets the requirements of the standards and fulfils the requirements of EMC Directive 89/336/EEC as amended by Directives 92/31/EEC and 93/68/EEC within CE marking requirement.

2.2 Symbols Table

Symbol	Description
	Lithium-ion Battery The SADPmini2 is powered by a single lithium-ion battery. The battery may be exchanged by an authorised agent with the necessary training, support systems and accreditation. **Only use the USB power supply supplied with the instrument to charge the battery.** It is recommended that the SADPmini2 be put on charge overnight prior to use
	Pressure Exposure The telescopic measuring head should not be exposed to more than 0.3 barg, 4 psig Exposing the measuring head to higher pressures may damage the instrument and result in injury to the operator or other personnel in the area.
	USB Communication Performance Using the USB communication channel and charging power port within the instrument may result in not all connections to all USB ports on all PCs or laptops being entirely successful. Many USB ports, even within the same PC or laptop, differ from each other in electrical hardware or firmware implementations, whilst still broadly complying with the overall USB standards, giving rise to a variety of situations which may manifest in a reduced connection experience. It is recommended that if a port is not connecting as expected then the user should try an alternative port within the PC or laptop or employ a USB Hub device which would effectively isolate the problematic PC or laptop USB port from the instrument.

2.3 Battery Information

The SADPmini2 uses a single lithium-ion battery (3.65 V nominal). The battery cannot be removed or replaced by the user. The instrument must be returned to an authorised agent for battery replacement. When the battery charge is low and/ or the battery is charging, the instrument display will be dimmed. If the battery is very low and the user tries to turn the instrument on, a battery low icon will be displayed and the instrument will shut down.



DO NOT	
⚠	Do not replace the battery. Only authorised agents should replace the battery. Do not open, crush, expose to heat above 50 °C or incinerate the battery. There is a risk of fire and burns. Only use the USB charging equipment supplied with the SADPmini2

2.4 Cleaning and Decontamination

The instrument must only be cleaned with a soft cloth dampened with water.

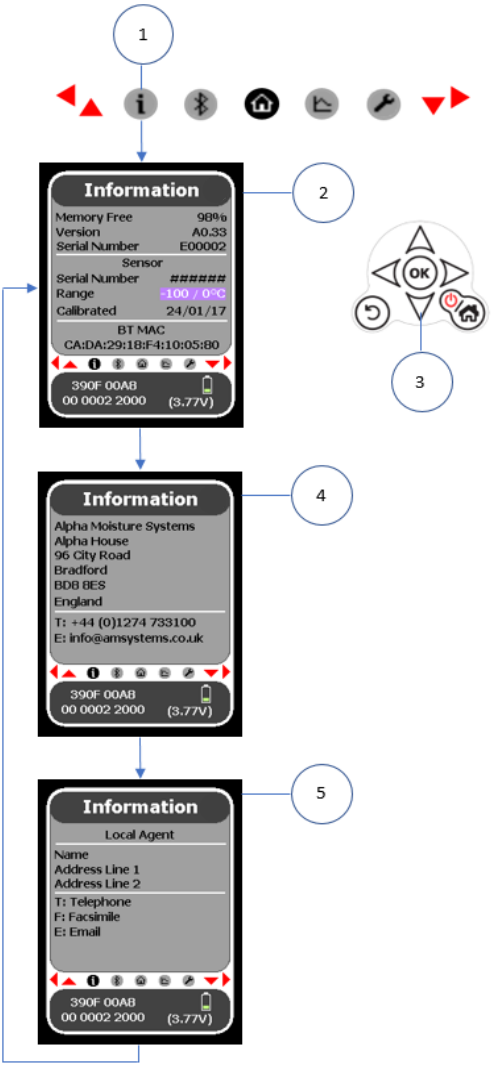
DO NOT	
⚠	Do not use solvents, silicones or abrasives to clean the SADPmini2

2.5 Information Screens

The SADPmini2 Information screens provide various instrument specification, manufacturer and authorised agent details. Information screens are for reference purposes only and do not provide any instrument functionality. To view the available Information Screens:

1. Select the Information icon ① from the Navigation Carousel to display the Information screen ②.
2. Using the navigation key ③ scroll through the screens ④ & ⑤ as required.

NOTE	
	Authorised distributor details will differ locally



3 Installation

This section details the sample specific SADPmini2 installation procedures and the instructions for obtaining the correct result from sample gas.

3.1 Gases to avoid

Corrosive Gases: The Sensor should not be exposed to corrosive gases (or corrosive contaminants in the gas sample) as these can chemically attack the sensor, impairing calibration accuracy and/or damaging it beyond economic repair. Examples of such gases are mercury (Hg), ammonia (NH_3), chlorine (Cl_2) etc. Strong oxidising agents such as ozone (O_3) should also be prevented from coming into contact with the sensor.

3.2 Gas Sampling System

DO NOT	
⚠	Do not allow the sample pressure to exceed 0.3 bar / 4 psi above ambient

NOTE	
ℹ	To maintain sample integrity and minimise equilibration time the system should be as simple as possible and of minimum swept volume.

NOTE	
ℹ	The sample tube should be stainless steel for very dry gas applications. If any section of the pipework must be flexible, it is recommended that PTFE is used.

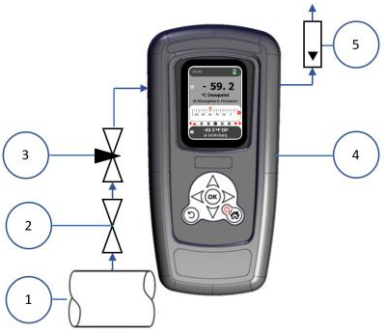
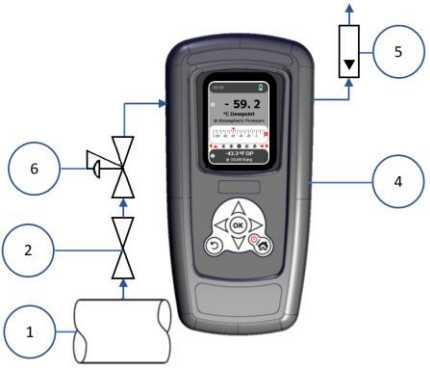
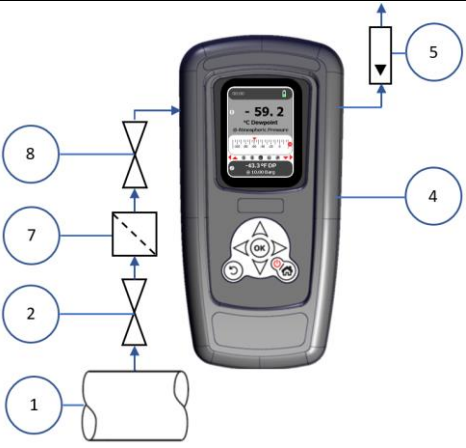
3.3 Installation Configurations

The installation configurations discussed cover the following sample scenarios:

- Clean gas < 10 bar
- Clean gas > 10 bar
- Particulate or liquid contamination

No.	Description
1	Process Line
2	Isolation Valve
3	Needle Valve
4	SADPmini2
5	Flow Indicator (Optional)
6	Pressure Regulator
7	Filter Unit
8	Needle Valve OR Pressure Regulator (depending on pressure of system)

WARNING	
⚠	Make sure that the rubber SD Card and USB power protector bungs are installed during sampling to comply with IP65 (NEMA4X) protection

Clean Gas < 10 Bar	
Reduce positive pressure gas to atmospheric pressure. Use a needle valve at low pressures (<10 barg) to control flow and pressure drop.	
Clean Gas > 10 Bar	
Reduce positive pressure gas to atmospheric pressure. Use a stainless steel, low swept volume pressure regulator at higher pressures (>10 barg).	
Particulate/ Liquid Contamination	
Filter all particulate matter. Use a coalescing filter (with drain) for liquid condensate samples. Hygroscopic particulates and liquid condensate will slow the achievement of equilibrium and delay the final result. Hygroscopic liquid (such as glycol) may accentuate the buffering effect (as above) and render the sensor too slow to use. Install the filter as close to the sample point as practical.	

3.4 Installation and Sample

1. Install the sample piping system and equipment as per the required installation configuration.
   NOTE: The SADPmini2 is not connected to the inlet piping system at this stage.
2. Open the sample Isolation Valve and adjust the needle valve/ regulator to allow a flow of 5-15 litres per minute to atmosphere through to sample pipe.
3. Allow the gas to flow through the sample pipe for 2 minutes to purge the system.
4. After ensuring that the sample gas is clean and dry connect the sample pipe to the instrument.
   NOTE: The orientation of the ports is not important.
5. When the sample flow is low or very dry gas is being measured connect a >20 cm pipe to the outlet port to prevent back diffusion.

WARNING	
	Failure to purge the system may expose the SADPmini2 to residual moisture and/ or liquid or particulate damage. Use white/ filter paper to check for dust or oil mist in the sample

WARNING	
	Do not exceed a flow rate of 20 litres per minute

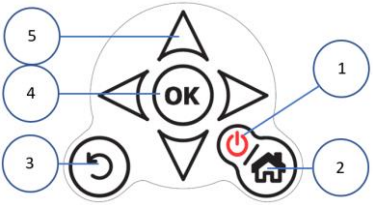
6. Allow the gas to flow through the SADPmini2 for two minutes.
7. Press the power button on the SADPmini2 and ensure that the sensor is ‘dry’.
8. Block the instrument outlet, e.g. cover with a finger and allow the Desiccant Head to extend fully.
   NOTE: Do not lift the Desiccant Head manually as this will draw ambient air into the sample chamber and produce a false reading.
9. Unblock the outlet and allow the gas to flow through the sensor.
10. The displayed reading will rise until the sensor is in equilibrium with the sample gas.
11. When the displayed reading has settled record the final reading.
12. When completed manually depress the Desiccant Head fully.
    NOTE: It is important to make sure the Desiccant Head is depressed fully when the instrument is not in use to prevent the sensor and desiccant material becoming saturated.
13. Close the sample Isolation Valve.
14. Press and hold the power button for two seconds to switch off the SADPmini2.
15. Disconnect the sample pipework from the SADPmini2.

4 Instrument Use

The SADPmini2 is designed for quick start-up and ease of use. This section details how to power up the instrument and how to use the Navigation Keypad to access the different instrument displays and functions.

4.1 Powering Up the Instrument

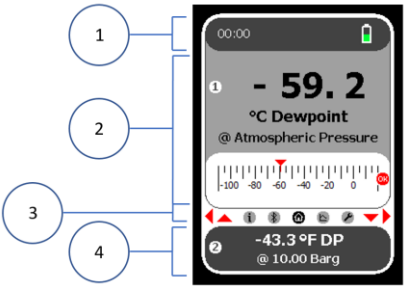
No.	Description
1	Power ON/ OFF
	Press to switch ON
	Press and hold to switch OFF
2	Home Key (returns to Home screen)
	Press Home Key to exit power saving Mode (no activity for 10 min.) Current screen re-activated
3	Back (to previous screen)
4	OK (confirm desired selection)
5	Navigation keys (move between screens)



4.2 Start Up Screen

After displaying the Splash screen, the SADPmini2 will display the following screen on start up.

No.	Description
1	Status bar (Time, Bluetooth and battery status)
2	Upper Section of Screen (Main Unit/Analogue scale)
3	Navigation Carousel
4	Lower Section of Screen (Secondary Units display, additional information)

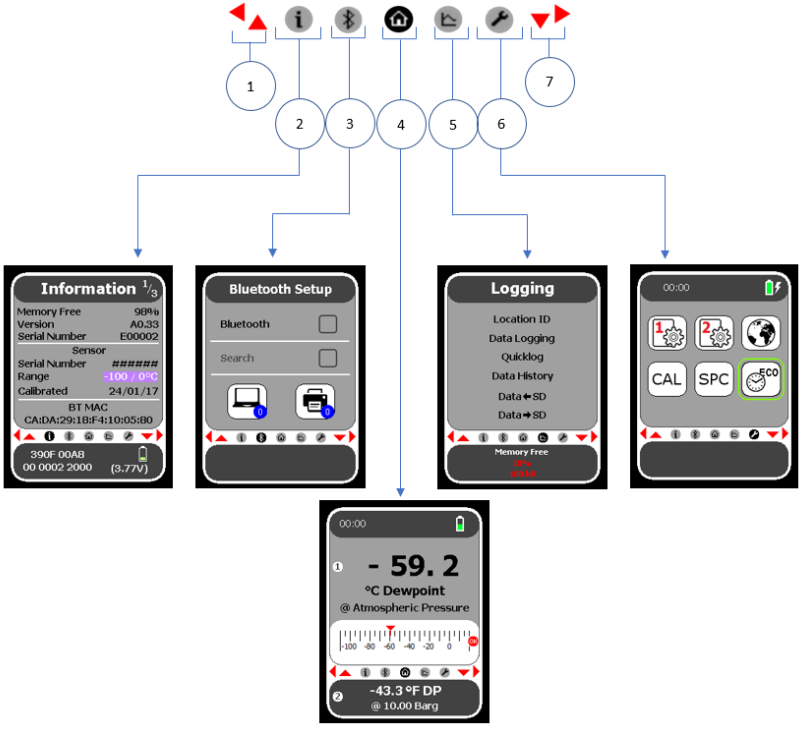


4.3 Navigation Carousel

The different instrument functions are accessed using the Navigation Carousel. Navigation icons on the carousel relate to the five different screen options available. The Navigation arrows displayed to the left and right of the Navigation Icons indicate the other screens that can be accessed after selecting one of the five Navigation icons.

No.	Description
1	Navigation Keys (left and up)
2	Information (icon)
3	Bluetooth (icon)
4	Home (icon)
5	Logging (icon)
6	Settings (icon)
7	Navigation Keys (right and down)

Selecting an icon on the Navigation Carousel will display the associated screen.



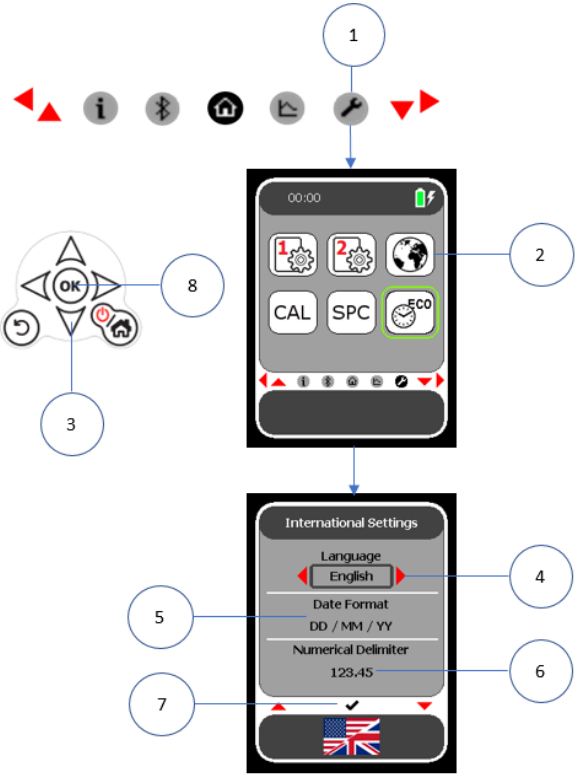
5 Instrument Settings

The SADPmini2 is despatched with client specific factory settings pre-installed. However, it may be necessary to adjust these settings periodically. Settings can be adjusted by using either the:

- Navigation keypad to directly input the setting changes into the instrument
- PC User Tool software to update the instrument settings via a USB or Bluetooth connection

5.1 Setting the Language, Date and Delimiter Display: Navigation Keypad

1. Select the Setting icon from the Navigation Carousel ① to display the Settings screen.
2. Select the International Settings icon on the Settings screen ②.
3. Using the navigation keys ③ select the required language ④.
4. Using the navigation keys select the required date format ⑤.
5. Using the navigation keys select the required Numerical Delimiter format ⑥.
6. Using the navigation keys select/ highlight the Blue tick ⑦.
7. Select OK ⑧ to save the settings.

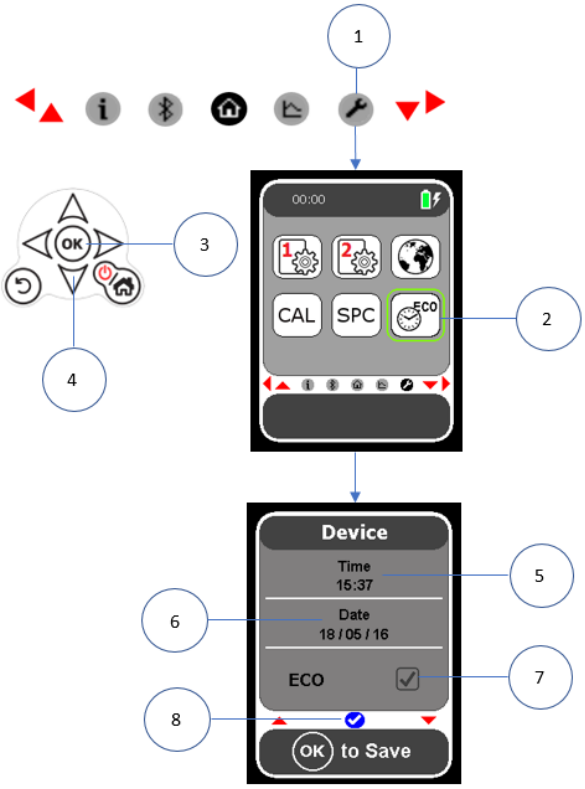


NOTE	
ℹ	The language selected is displayed in the dialogue box and as a flag at the bottom of the screen

5.2 Setting the Time, Date and Power Saving Mode (ECO): Navigation Keypad

NOTE	
	To save power and extend the battery life, the SADPmini2 has a power saving mode (ECO). When the ECO setting is enabled, the display will dim after 10 minutes and turn off after a further 30 minutes. When not enabled the display will not dim and the unit will remain active using normal power

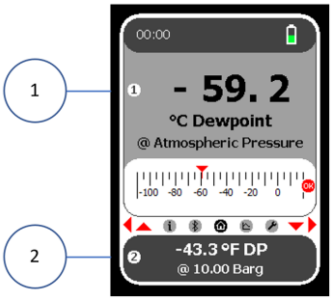
1. Select the Setting icon from the Navigation Carousel ① to display the Settings screen.
2. Select the Time/ Date and ECO icon ② on the Settings screen.
3. Select OK on the navigation keypad ③.
4. Select OK ③ again to access the time display.
5. Using the navigation keys ④ set the time ⑤.
6. Select OK (3) to save the time setting.
7. Using the navigation keys ④ highlight the date display ⑥.
8. Select OK ③ to access the date display.
9. Using the navigation keys ④ set the date.
10. Select OK ③ to save the date setting.
11. Using the navigation keys ④ highlight the ECO display ⑦.
12. Select OK ③ to enable/ disable the ECO
13. Select the navigation down key ④ to display a blue tick icon ⑧.
14. Select OK ③ to save the time/ date and ECO settings.



5.3 Notes on the Correct Use and Choices of Moisture Measurement Units

The SADPmini2 has two display screens:

- A primary, upper screen ① providing numerical, scrolling strip chart and horizontal moving coil configuration sample readouts.
- A secondary screen ② providing numerical sample readings in an alternative unit if required.



Dewpoint °C or °F

For moisture measurement indication in units of Dewpoint °C or °F the pressure at which the measurement is required to be indicated is also required. Please note that the instrument has been calibrated at atmospheric pressure and care must be exercised when choosing other engineering Units involving Gauge pressures such as barg and psig. You may select either 'atmospheric pressure' or one of four pressure engineering units along with the value of the system pressure. Absolute units of kPa and kg/cm² are also available. When selected, the main or secondary display screens will display the pressure at which the Dewpoint reading is being calculated.

The pressure units and value can be set differently for the Main and Secondary units.

Note For calculation and data entry reasons the pressure range is from vacuum to 500 bar (and equivalent units), however, the device still operates at atmospheric pressure.

Other Units

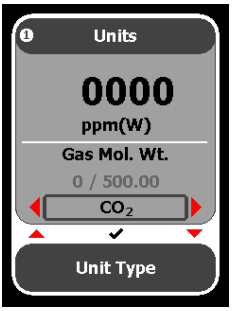
There are four other Moisture Measurement Units available, which are all either pressure independent (because they are concentrations) or must be quoted at atmospheric pressure and hence do not feature the need to specify the pressure at which the indicated measurement is to be calculated.

ppm(V)

Moisture concentration expressed as parts per million by volume.

ppm(W)

Moisture concentration expressed as parts per million by weight when referencing the gas in which the moisture is being measured. The SADPmini2 default setting is for air (molecular weight 28.99) however, this function allows the molecular weight to be set appropriately for other gases. There are other pre-sets available for Carbon Dioxide, Ethylene, Hydrogen, Methane, Nitrogen, Oxygen and Sulphur Hexafluoride.
The choice of gas applies to moisture concentrations indicated in both Main and Secondary display.

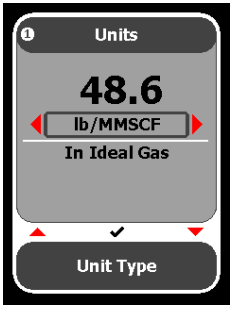


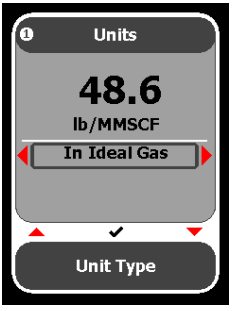
mg/m^3

Moisture concentration expressed as milligrams per cubic metre.
Often referred to absolute humidity when expressed as SI units kg/m^3

lb/MMscf

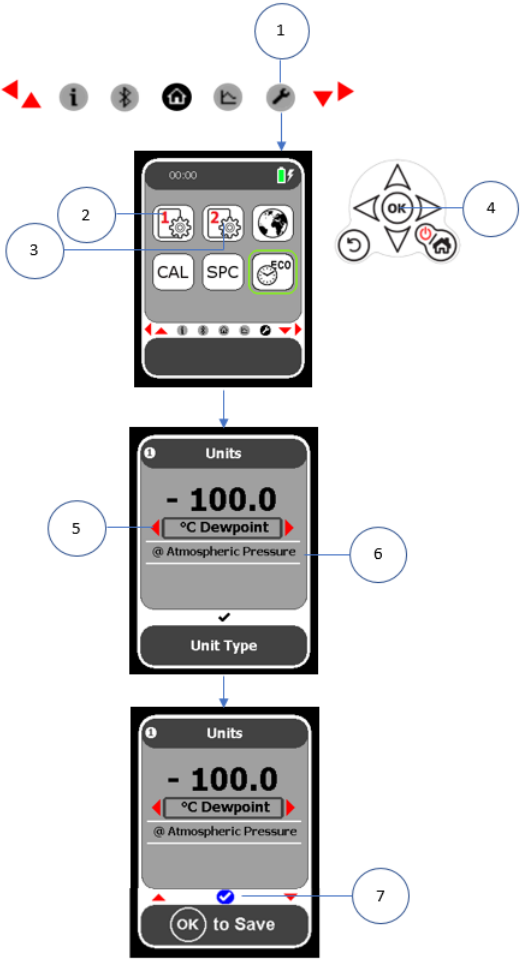
Moisture concentration expressed as pounds per million standard cubic feet.
Often referred to absolute humidity when sometimes expressed as lb/ft^3
Within this unit choice option there exists an option to further refine the indicated reading calculation by selecting either Ideal gas behaviour (Magnus) or Natural Gas (Bukacek correlation). The choice of calculation method applies to moisture concentrations indicated in both Main and Secondary display.





5.4 Setting the Main and Secondary Screen Units: Navigation Keypad

1. Select the Settings icon ① from the Navigation Carousel to display the Settings screen.
2. Using the navigation keys select either the main ② or secondary screen unit setting ③.
3. Select OK ④.
4. Using the navigation keys select the main screen units ⑤ as required.
5. If Dewpoint units are chosen (i.e. °C or °F) then the required pressure dewpoint must be selected. Choose either "Atmospheric Pressure" or alternative pressure dewpoint units and pressure value entered in data entry box ⑥.
6. Select OK ④.
7. Select the lower navigation key to display the blue tick ⑦.
8. Select OK ④ to save the settings.

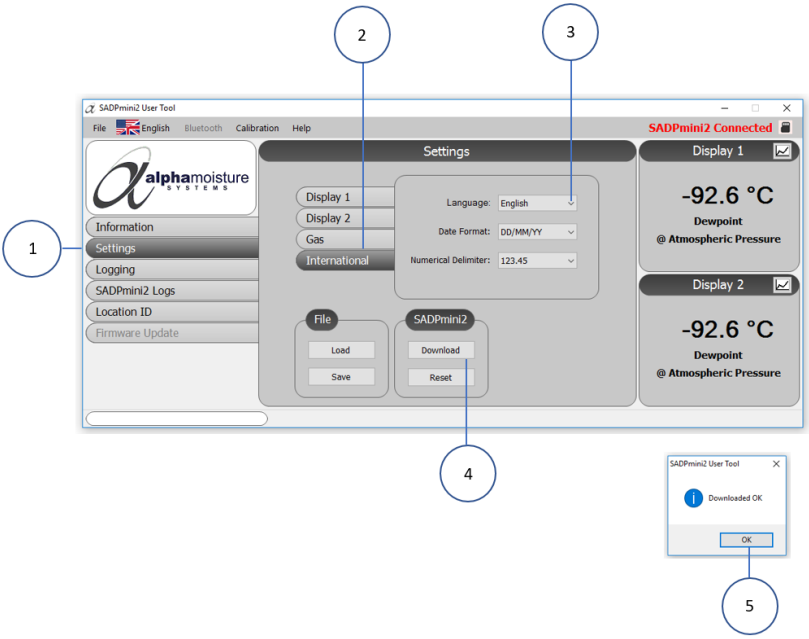


5.5 Instrument Settings using PC Tool

NOTE	
	The instrument settings may be changed by use of the supplied PC Tool software either over a USB or Bluetooth communication channel. To install PC Tool please refer to Appendix C of this manual.

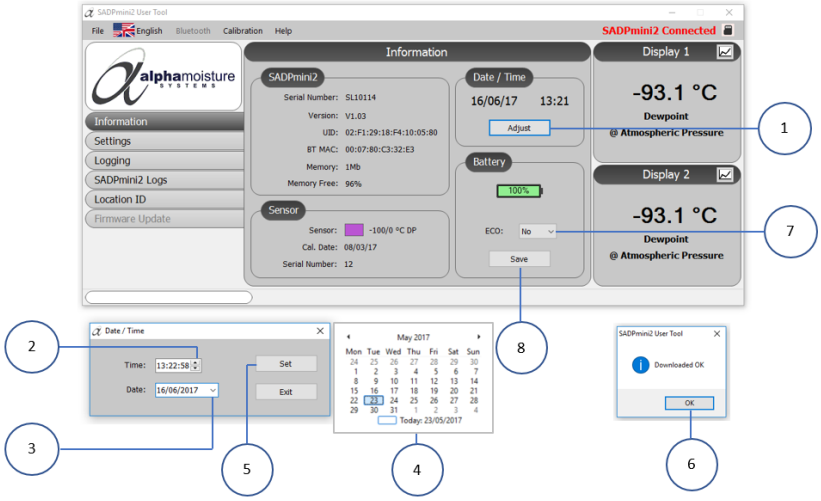
5.6 Setting the Language, Date and Delimiter Display: User Tool

1. Select the Settings tab ①.
2. Select the International tab ②.
3. Select the required language, date and Delimiter display formats from the dropdown menu ③.
4. Select Download ④.
5. Select OK ⑤ on the Download dialogue box to download the international settings to the SADPmini2.



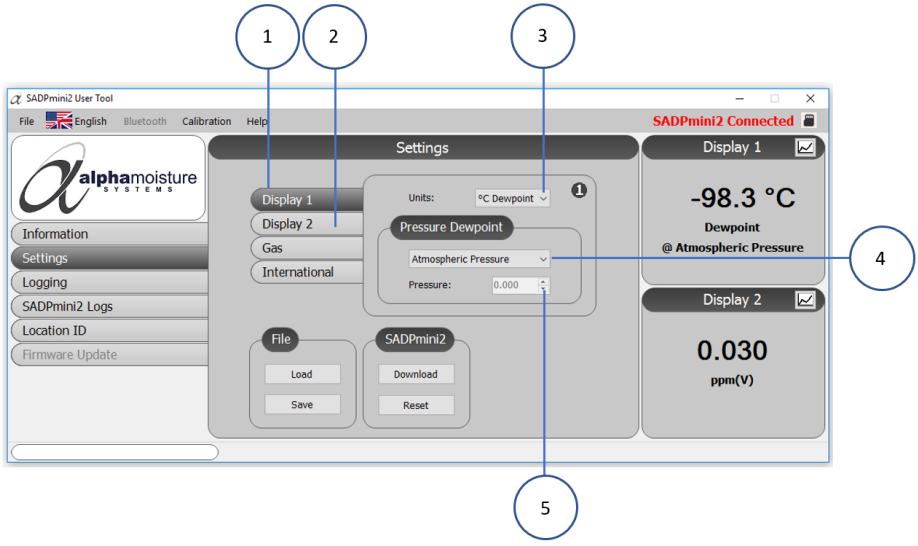
5.7 Setting the Time, Date, and Power Saving Mode (ECO): User Tool

1. Select the Date/ Time Set key ①.
2. Using the arrows ② set the correct time.
3. Using the arrow ③ select the drop-down calendar ④ and set the date.
4. Select Set ⑤ to confirm settings.
5. Select OK ⑥ on the Download dialogue box to download the date and time settings to the SADPmini2.
6. Using the arrow ⑦ select the ECO enabled (No/ OFF: Yes/ ON).
7. Select the Save ⑧ to save the settings.
8. Select OK ⑥ on the Download dialogue box to download the ECO setting to the SADPmini2.



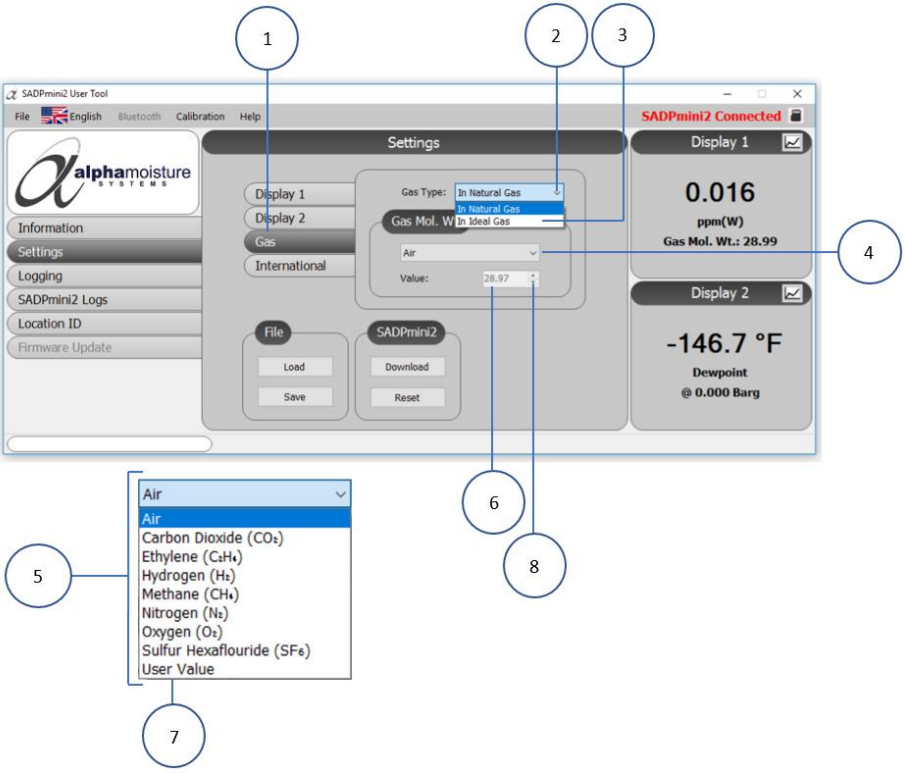
5.8 Setting the Main and Secondary Screen Units: User Tool

1. Select Display 1 ① or Display 2 ② as required.
2. Select the required Moisture Units from the drop-down menu ③.
3. If Dewpoint units are chosen (i.e. °C or °F) then the required pressure dewpoint must be selected. Choose either “Atmospheric Pressure” from the drop-down menu ④ or alternative pressure dewpoint units and pressure value entered in data entry box ⑤.



5.9 Setting the Gas Type: User Tool

1. Select the Gas tab ①.
2. Select, In Natural Gas ② or In Ideal Gas ③ as required.
3. Select the Gas Molecular Weight drop down menu ④.
4. Select the required gas type ⑤. **NOTE:** The User Tool software automatically sets the Molecular Weight parameter for the selected gas ⑥.
5. To use alternative Molecular weights (perhaps for other gases) please select User Value ⑦ from the drop down box. The weight may then be entered in the data entry box ⑥ or by using the up down editing arrows ⑧.



NOTE	
ℹ	The choice of gas and calculation method applies to moisture concentrations indicated in both Main and Secondary display

6 Calibration

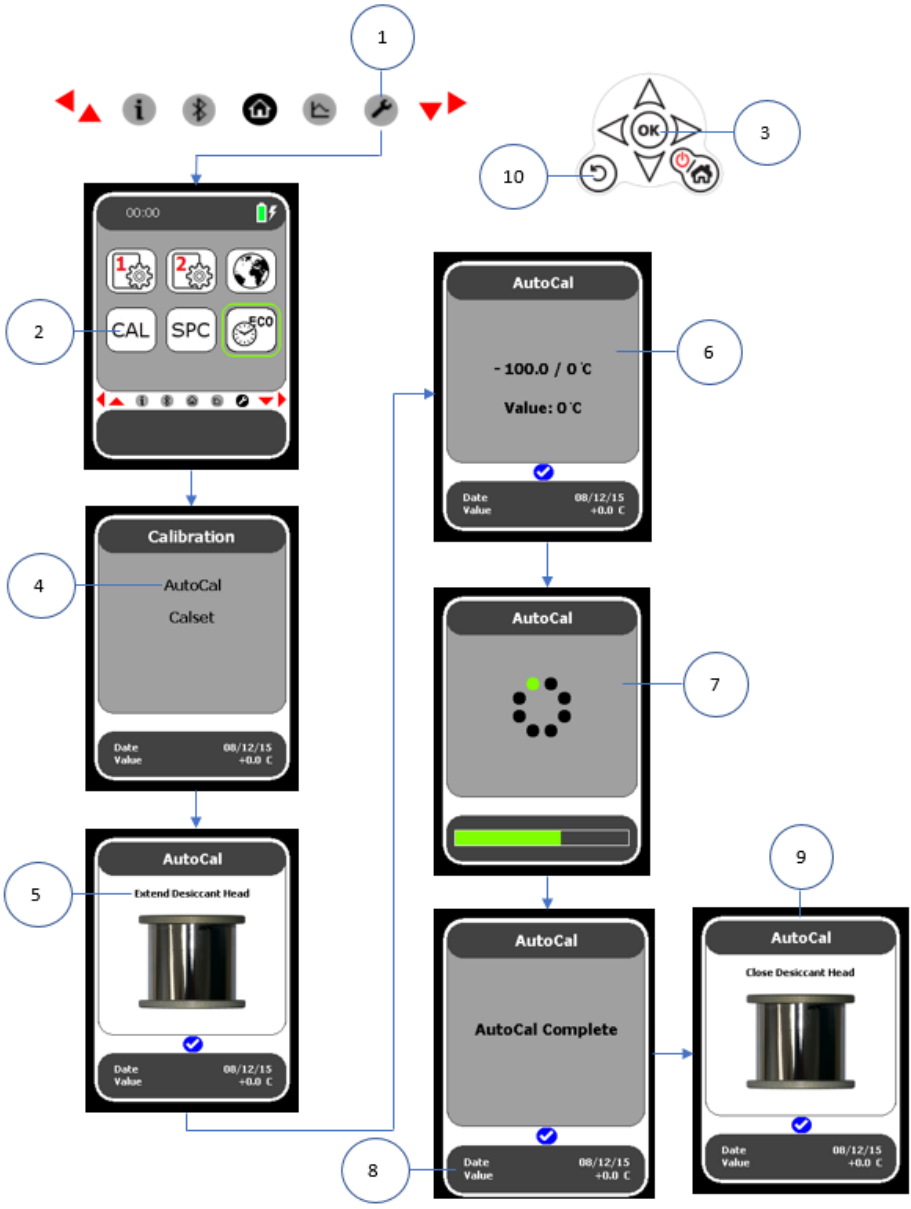
Field verifications of the range span may be performed periodically, every two to three months, to ensure correct operation between laboratory calibrations and correcting for any deviation. These functions can also be used to verify operation of the instrument if confirmation of an unexpected result is required.

NOTE	
	Time and Date must be set prior to calibration because the Time and Date of the calibration is saved with the calibration data

6.1 AutoCal

The AutoCal facility uses the fact that each sensor is designed and manufactured to give no further increase in response when it reaches its maximum moisture level. For example, a SADPmini2 with a full-scale value of 0 °C dewpoint will read 0 °C dewpoint when exposed to a gas with this moisture concentration and will continue to read 0 °C dewpoint as the moisture concentration rises above 0 °C dewpoint. The SADPmini2 can therefore be adjusted to read 0 °C dewpoint on any gas with a moisture concentration wetter than 0 °C dewpoint, ambient air for instance, thus setting the span to match the original calibration.

1. Select the Settings icon ① from the Navigation Carousel to display the Settings screen.
2. Using the navigation keys highlight the CAL settings ②.
3. Select OK ③ to display the Calibration screen. **NOTE** the AutoCal dialogue ④ box will be highlighted automatically.
4. Select OK ③ to access the AutoCal function.
5. Extend the Desiccant Head as shown ⑤.
6. Select OK ③.
7. Select OK ③ to start the AutoCal procedure ⑥.
8. The SADPmini will display the AutoCal procedure in progress ⑦ and AutoCal procedure complete screen ⑧ when finished.
9. Select OK ③.
10. Close the Desiccant Head as shown ⑨.
11. Select BACK (10) twice to return to the Settings Screen.

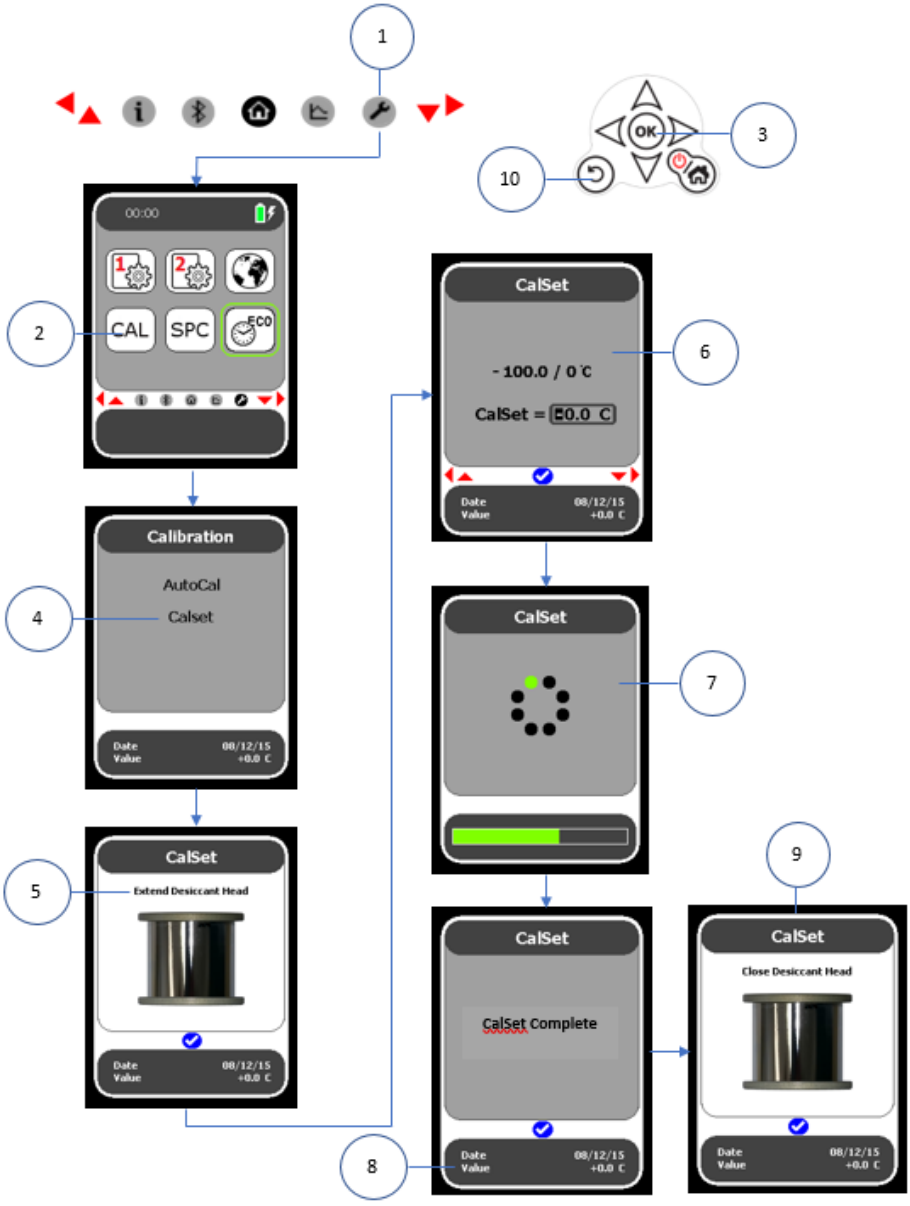

1
2
3
4
5
6
7
8
9
10
00:00
CAL
SPC
ECO
Calibration
AutoCal
Calset
Date
Value
08/12/15
+0.0 C
AutoCal
Extend Desiccant Head
- 100.0 / 0 C
Value: 0 C
AutoCal Complete
Close Desiccant Head
OK

6.2 CalSet

The instrument may be checked against a known moisture level, for example a reference standard, such as a chilled mirror hygrometer or a psychrometer using the function CalSet. This procedure is particularly useful when calibrating a Blue Spot sensor (-80°C to + 20°C) where the wettest end of the range is usually above normal ambient conditions.

For the CalSet procedure the user must enter the dewpoint of the gas the sensor is exposed to. Using the current calibration curve, the software calculates the target gain at this point.

1. Select the Settings icon ① from the Navigation Carousel to display the Settings screen.
2. Using the navigation keys highlight the CAL settings ②.
3. Select OK ③ to display the Calibration Screen ④.
4. Use the navigation keys to highlight the CalSet function ④.
5. Select OK ③.
6. Extend the Desiccant Head of the SADPmini2 as shown ⑤.
7. Select OK ③.
8. Using the navigation keys input the CalSet value ⑥.
9. Select OK ③ to start the CalSet procedure.
10. The SADPmini will display the CalSet procedure in progress ⑦ and CalSet procedure complete screen ⑧ when finished.
11. Select OK ③.
12. Close the Desiccant Head of the SADPmini2 as shown ⑨.
13. Select BACK ⑩ to return to the Settings Screen.

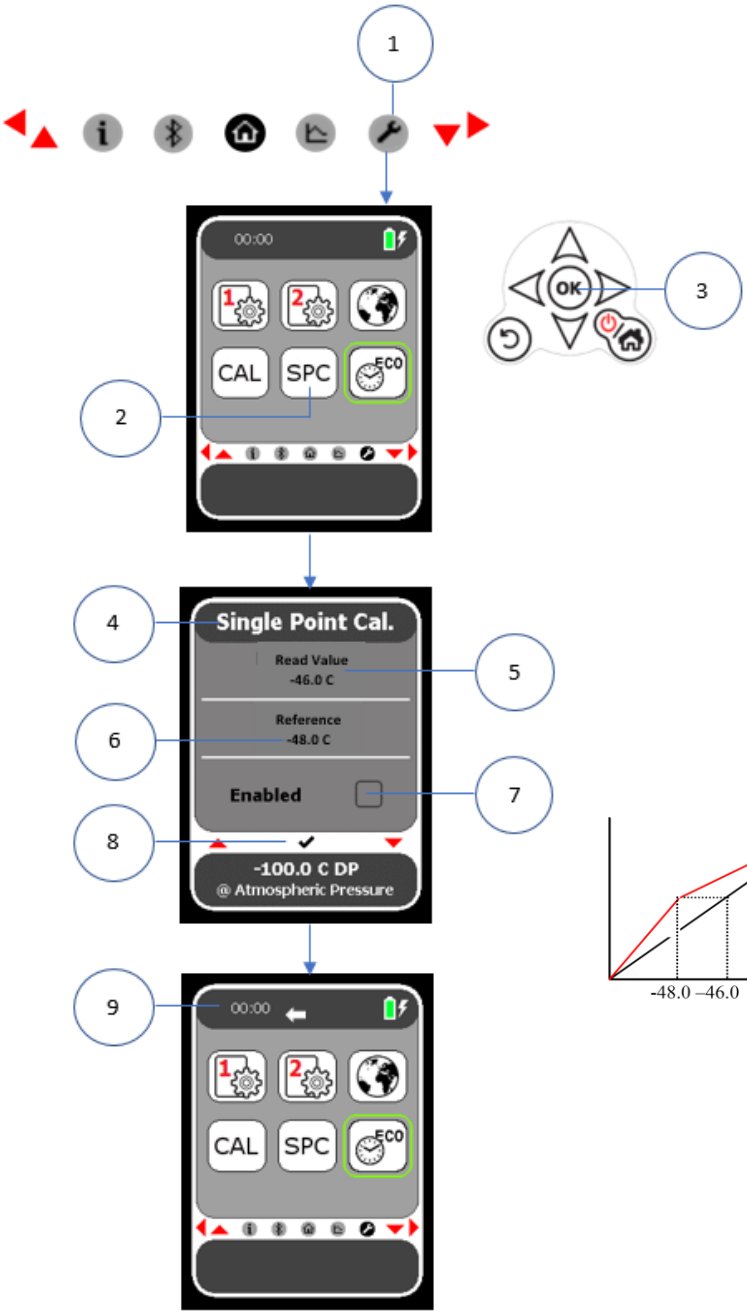

1
2
3
4
5
6
7
8
9
10
00:00
CAL
SPC
ECO
Calibration
AutoCal
Calset
Date
Value
08/12/15
+0.0 C
CalSet
Extend Desiccant Head
- 100.0 / 0 C
CalSet = 0.0 C
CalSet Complete
Close Desiccant Head
OK

6.3 Single Point Calibration (SPC)

NOTE	
	The SPC facility allows users to check the reading of the instrument against a "standard reference gas" or instrument, such as a chilled mirror unit, at a particular value that may be considered to be critical, and make any adjustment necessary to give agreement with that "standard reference." Rather than making the adjustment to the span of the instrument, as with AutoCal, the SPC adjustment is made by introducing a two-part straight-line response curve with a break point at the set point, or "standard reference."

NOTE	
	An AutoCal must be carried out before performing an SPC

1. Measure the value of the reference gas with the instrument in the normal way allowing the instrument to reach equilibrium and note the indicated value and the stated value of the "standard reference."
   [For example, the instrument reads -46°C dewpoint, and the "standard reference gas" is certified by the gas supplier as being -48°C dewpoint].
2. The instrument can now be removed from the gas sample, to conserve the reference gas.
3. Select the Settings icon ① from the Navigation Carousel to display the Settings screen.
4. Using the Navigation keys highlight the SPC setting ②.
5. Select OK ③ to display the SPC screen ④. **NOTE:** The Read Value ⑤ dialogue box will be automatically highlighted.
6. Select OK ③.
7. Using the navigation keys input the required Read Value ⑤.
8. Select OK ③ to exit.
9. Using the navigation keys highlight the Reference dialogue box (6).
10. Select OK ③.
11. Using the navigation keys input the required Reference ⑥.
12. Select OK ③ to exit.
13. Using the navigation keys highlight the SPC Enabled/ Disabled dialogue box ⑦.
14. Select OK ③ to enable or disable SPC. **NOTE** the secondary screen reading changes.
15. Using the navigation keys display the blue tick ⑧.
16. Select OK ③ to save the SPC settings. The SADPmini2 defaults to the Settings screen ⑨.

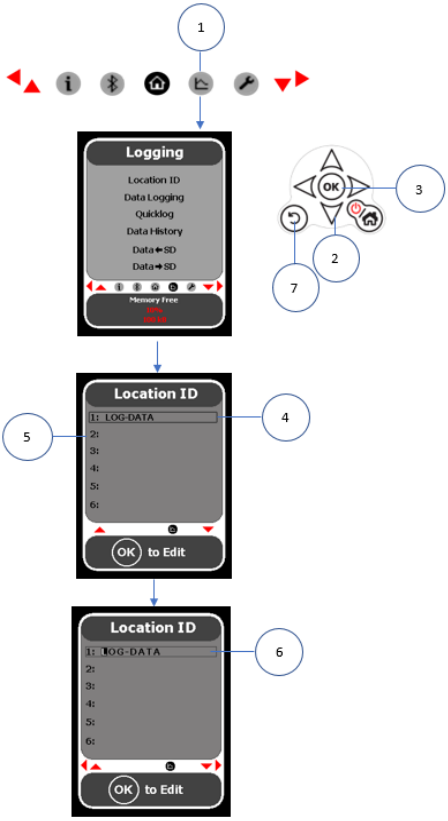

1
00:00
CAL
SPC
ECO
2
OK
3
4
Single Point Cal.
Read Value
-46.0 C
5
Reference
-48.0 C
6
Enabled
7
8
-100.0 C DP
@ Atmospheric Pressure
9
00:00
CAL
SPC
ECO
-48.0 –46.0

7 Logging

NOTES	
	Location IDs Location IDs are descriptive names or numbers or a combination of both which may be related to a particular sampling point or Tag in a process.The names of logging files are created from the Location ID plus a trailing number which represents the number of files which currently use that Location ID in the device storage. This limits the maximum number of "Data Logging" files associated with a Location ID to 1000 (i.e. **.000 - .999**). When a log is started and the file is created, the instrument will search for an available suffix to use (i.e. if 10 logs .000 - .009 have been stored and the user erases .003, the next log will take the suffix .003 not .010) **Data Logging** Data Logging enables the user to save data files in different named Location ID files and to adjust the logging interval and hence logging duration time settings. The files are 1000 samples long but depending on sample rate can acquire sampled data for an hour or many days. **Quicklog** Quicklog allows the user to quickly start the process of acquiring 240 samples readings at a fixed sample rate of 5 seconds. The Quicklog file therefore captures samples over 20 minute durations. Quicklog file types have the name **QUICKLOG + suffix**. There can be a maximum of 100 such files (i.e. **.000 - .099**) When the user reaches this number the next Quicklog created will wrap around and overwrite QUICKLOG.000. **Snapshot** When logging is underway the live sample data viewed on the LCD screen may be captured by a Snapshot feature. The snapshot is saved and can be downloaded to a PC or printed. File types have the same characteristics as Quicklog, however, the maximum number of entries is 50. (i.e. **.000 - .049**).

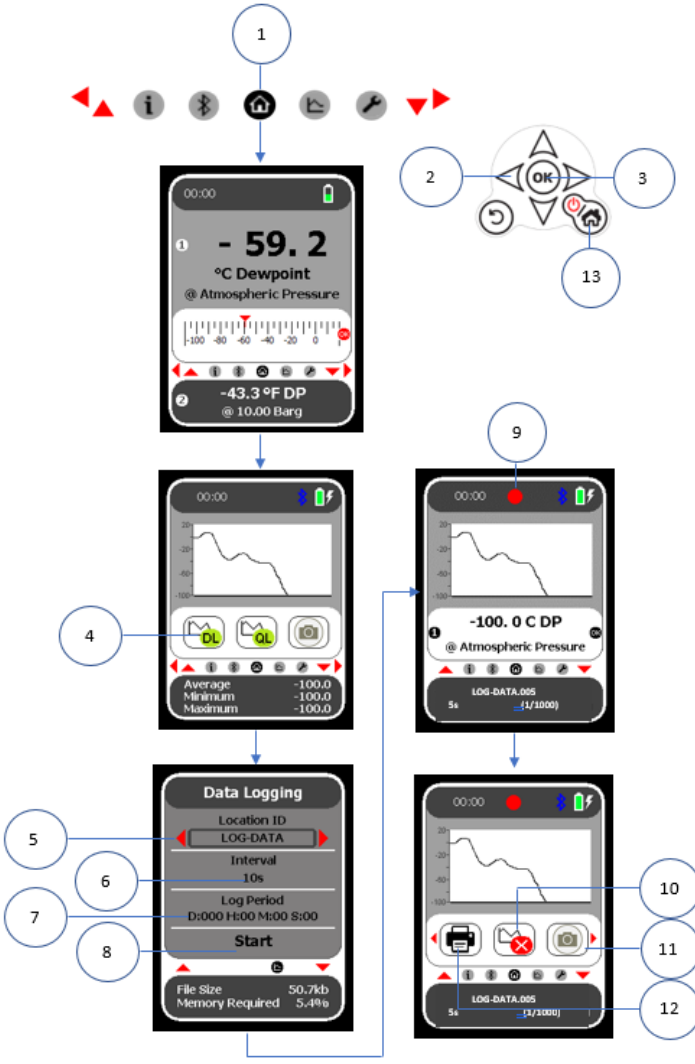
7.1 Setting the Location ID: Navigation Keypad

1. Select the Logging icon ① from the Navigation Carousel to display the Logging screen.
2. Select the lower navigation key ② to highlight the function.
3. Select OK ③.
4. Using the navigation keys select a Location ID that requires editing ④ or select an empty Location ID to input new Location ID information ⑤.
5. Select OK ③ to access the Location ID.
6. Using the navigation keys edit/ enter the preferred details ⑥.
7. Select OK ③.
8. Select BACK ⑦ to return to the Logging screen.



7.2 Data Logging

1. Select the Home icon ① from the Navigation Carousel to display the Home screen.
2. Select the upper navigation key ② to display the Graph screen.
3. Select OK ③ to display the Data Logging icon ④.
4. Using the navigation keys highlight the Data Logging icon (4).
5. Select OK ③.
6. Using the navigation keys select the Location ID ⑤.
   NOTE Data Logging information will be saved under the Location ID selected. Open this file when viewing the data with the User Tool software.
7. Using the navigation keys select the (Data Logging) Interval (6). **NOTE:** The SADPmini2 has an Interval range of five seconds to one hour. The file will contain 1000 samples. The Duration (measured in hours, minutes and seconds) will automatically be calculated to the parameters of the interval selected ⑦.
8. Using the navigation keys highlight the Start dialogue box ⑧.
9. Select OK ③ to start the Data Logging process. **NOTE:** The Graph screen will be displayed. A red flashing indicator ⑨ will be displayed. Data Logging is in progress.
10. Select OK ③ to access the Data Logging Stop ⑩, and Data Logging screen snapshot ⑪ and Data Logging print⑫
11. If required, select the Data Logging Stop ⑩ function. **NOTE** Data Logging will stop. The red flashing indicator ⑨ will not be displayed. Data Logging is no longer in progress. Data Logging will be saved in the Location ID selected above (Point 6).
12. If required, select the Data Logging snapshot ⑪ function. A snapshot of the Data Logging display screen will be saved on the SD Card in the Location ID selected above (Point 7). **NOTE** Screen snapshots are possible during the Data Logging process by activating the SnapShot icon.
13. If required, select the Data Logging print ⑫ function. The Data Logging information will be printed using a Bluetooth printer. The printer icon is green when paired and connected. If a printer is not paired the user will be taken to the Bluetooth Printer set up. **NOTE:** Data printouts are possible during the Data Logging process by activating the printer icon.
14. Select Home ⑬ to return to the Home screen.

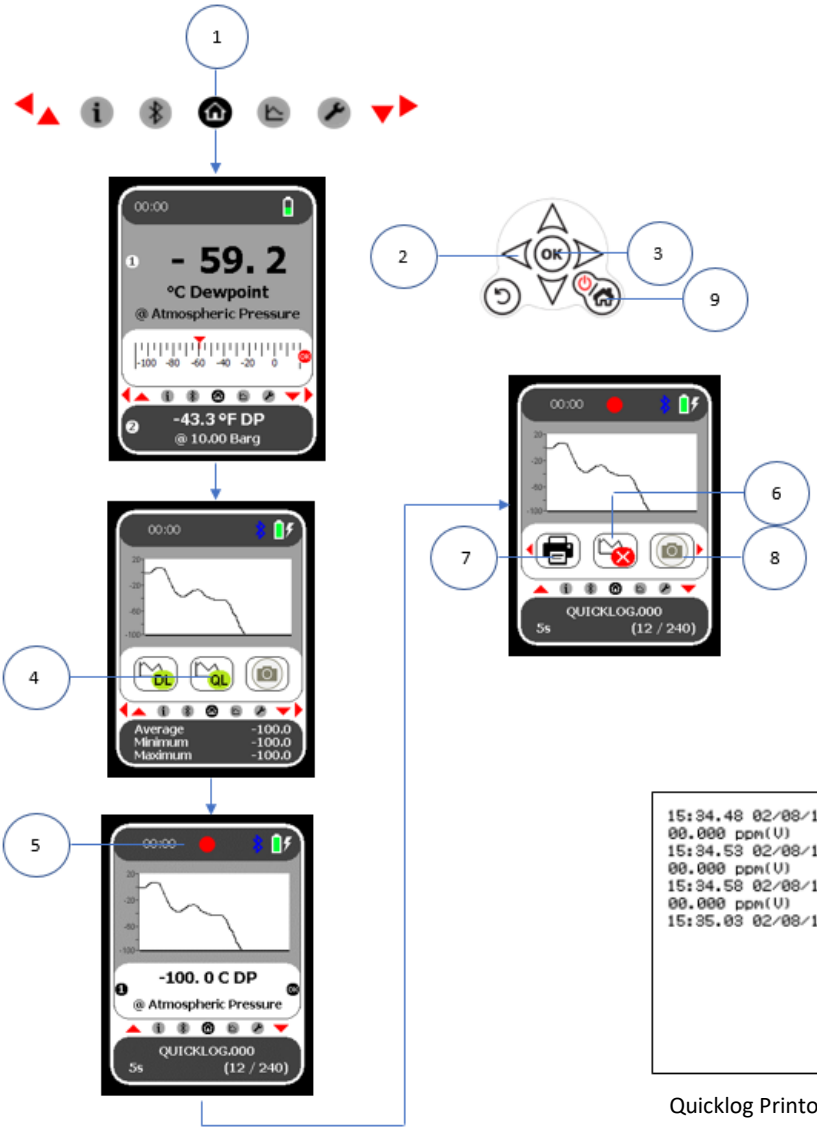



```
15:34.48 02/08/16
00.000 ppm(V)
15:34.53 02/08/16
00.000 ppm(V)
15:34.58 02/08/16
00.000 ppm(V)
15:35.03 02/08/16
```

Data Logging Printout

7.3 QuickLog

1. Select the Home icon ① from the Navigation Carousel to display the Home screen.
2. Select the upper navigation key ② to display the Graph screen.
3. Select OK ③ to display the Quicklog ④ icon.
4. Using the navigation keys highlight the Quicklog ④ function.
5. Select OK ③ to start the Quicklog process. **NOTE:** The Graph screen will be displayed. A red flashing indicator ⑤ will be displayed. Quicklog is in progress.
6. Select OK ③ to display the Quicklog stop ⑥, Quicklog print ⑦ and Quick Logging screen snapshot ⑧ icons. Quicklog is set at a 5 second sample speed for up to 240 samples.
7. If required, using the navigation keys select the Quicklog Stop ⑥ function. **NOTE:** Quicklog will stop. The red flashing indicator ⑤ will not be displayed. Quicklog is no longer in progress.
8. If required, using the Navigation keys select the Quicklog print ⑦ function. The Quicklog information will be printed using a Bluetooth printer. If a printer is not paired the user will be taken to the Bluetooth Printer set up. **NOTE:** Screen printouts are possible during the Quicklog process by activating the Snapshot icon.
9. Select the Quicklog snapshot ⑧ function if required. A snapshot of the Quicklog display screen will be saved in the selected Location ID. **NOTE:** Screen snapshots are possible during the Quicklog process.
10. Select Home ⑨ to return to the Home screen.

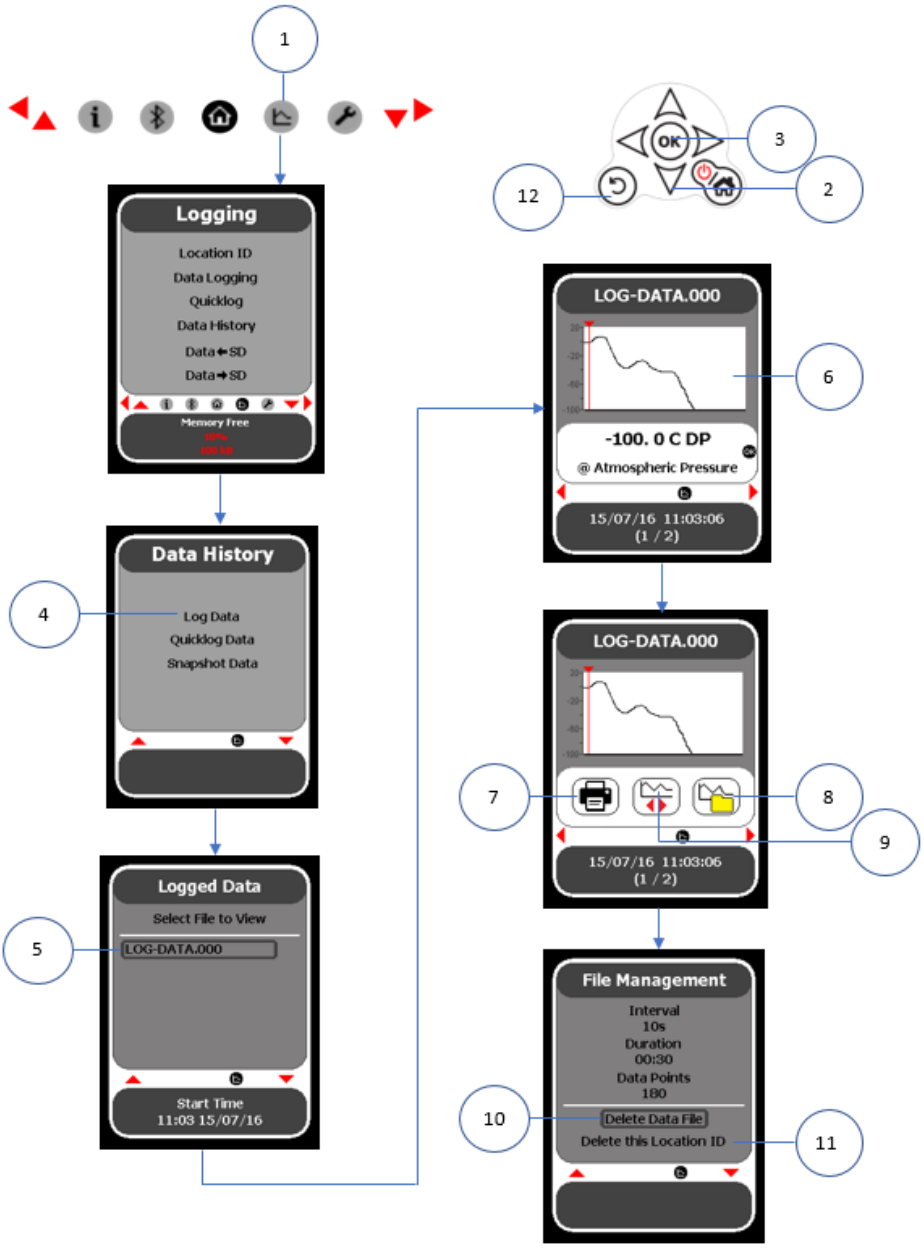



```
15:34.48 02/08/16
00.000 ppm(V)
15:34.53 02/08/16
00.000 ppm(V)
15:34.58 02/08/16
00.000 ppm(V)
15:35.03 02/08/16
```

Quicklog Printout

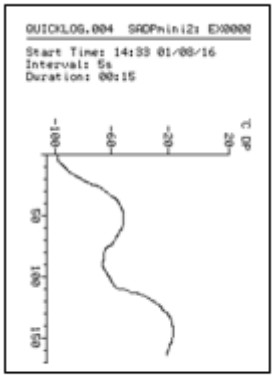
7.4 Viewing the Logged Data History: Navigation Keypad

1. Select the Logging icon ① from the Navigation Carousel to display the Logging screen.
2. Select the lower navigation key ② to highlight the function.
3. Select OK ③.
4. Using the navigation keys select Logged Data ④.
5. Select OK ③.
6. Using the navigation keys select the required file. **NOTE:** The time and date that the file was created is displayed in the second (lower) screen.
7. Select OK ③ to display the file graph ⑥. **NOTE:** navigation keys can be used to move the cursor along the graph curve with data readings displayed simultaneously.
8. Select OK ③ to display the file print ⑦ and information ⑧ icons. **NOTE:** If the file is too large to be displayed on one screen it will be displayed over several screens. Use the screen scroll icon ⑨ to move between screens.
9. Select the file information icon ⑦ to display the file information.
10. If required, use the navigation keys to select Delete File Data ⑩.
11. If required, select OK ③ to delete the file data.
12. If required, use the navigation keys select Delete this Location ID ⑪.
13. If required, select OK ③ to delete the Location ID.
14. Select BACK ⑪ to return to the file graph display ⑥.
15. Select OK ③ to display the file information ⑦ and print ⑧ icons.
16. Select the print icon ⑧ to print the file.
17. From the print screen select BACK ⑫ to return to the file graph display ⑥.
18. Select BACK ⑫ to return to the Logged Data screen, file selection screen and the Logging screen.

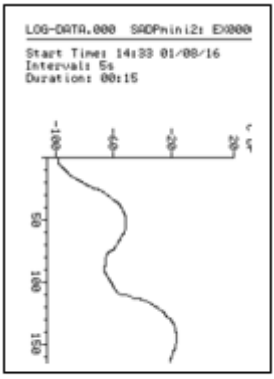

1
Logging
Location ID
Data Logging
Quicklog
Data History
Data ← SD
Data → SD
Memory Free
OK
3
2
12
LOG-DATA.000
6
-100. 0 C DP
@ Atmospheric Pressure
15/07/16 11:03:06
(1 / 2)
Data History
4
Log Data
Quicklog Data
Snapshot Data
LOG-DATA.000
7
8
9
15/07/16 11:03:06
(1 / 2)
Logged Data
Select File to View
5
LOG-DATA.000
Start Time
11:03 15/07/16
File Management
Interval
10s
Duration
00:30
Data Points
180
10
Delete Data File
Delete this Location ID
11

7.5 Viewing the Quicklog Data and Snapshot Data History: Navigation Keypad

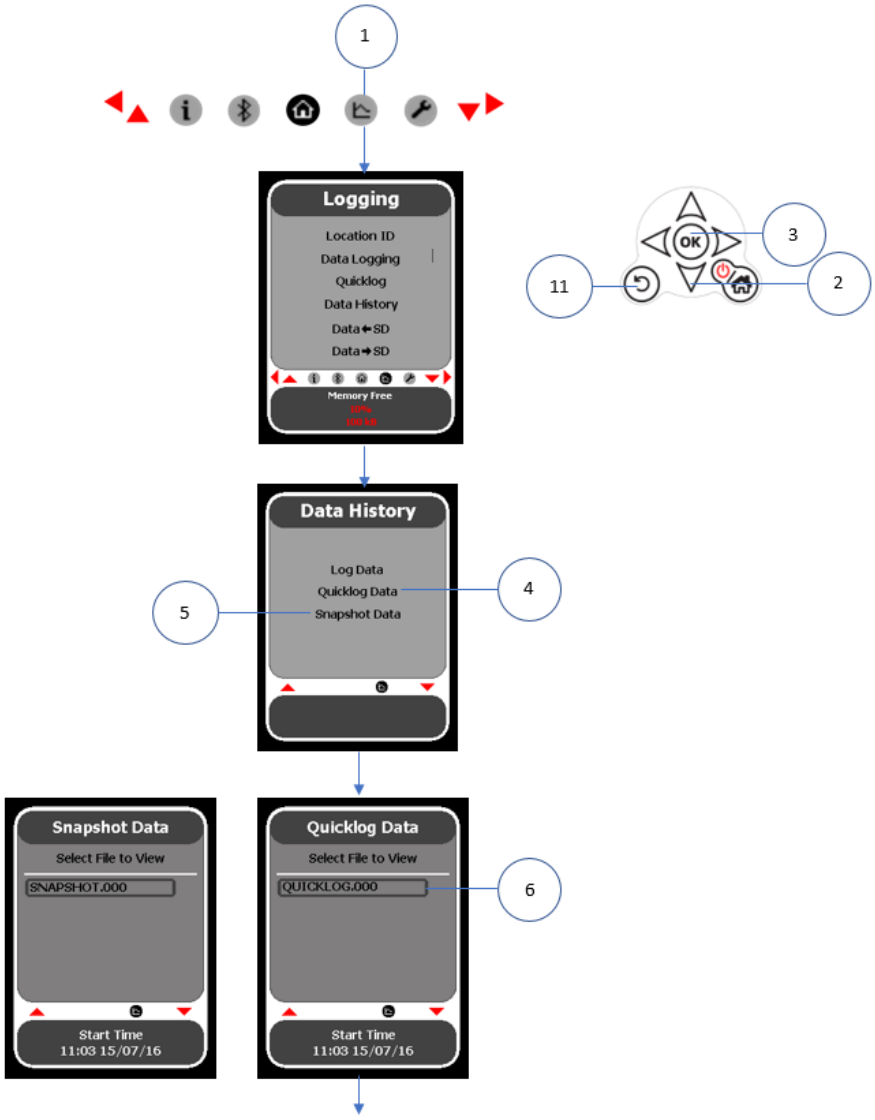
1. Select the Logging icon ① from the Navigation Carousel to display the Logging screen.
2. Select the lower Navigation key ② to highlight the function.
3. Select OK ③.
4. Using the navigation keys select Quicklog Data ④ or Snapshot Data ⑤.
5. Select OK ③.
6. Using the Navigation keys select the required file ⑥. **NOTE:** The time and date that the file was created is displayed in the second (lower) screen.
7. Select OK ③ to display the file graph ⑦.
8. Select OK ③ to display the file information ⑧ and print ⑨ icons.
9. Select the file information icon ⑧ to display the file information ⑩. **NOTE:** the information will clear after a short period and be replaced by the file graph display ⑦.
10. Select the print icon (9) to print the file.
11. Select BACK ⑪ to return to the file graph display ⑦, Quicklog Data ④ or Snapshot Data ⑤ screen and Logging screen.



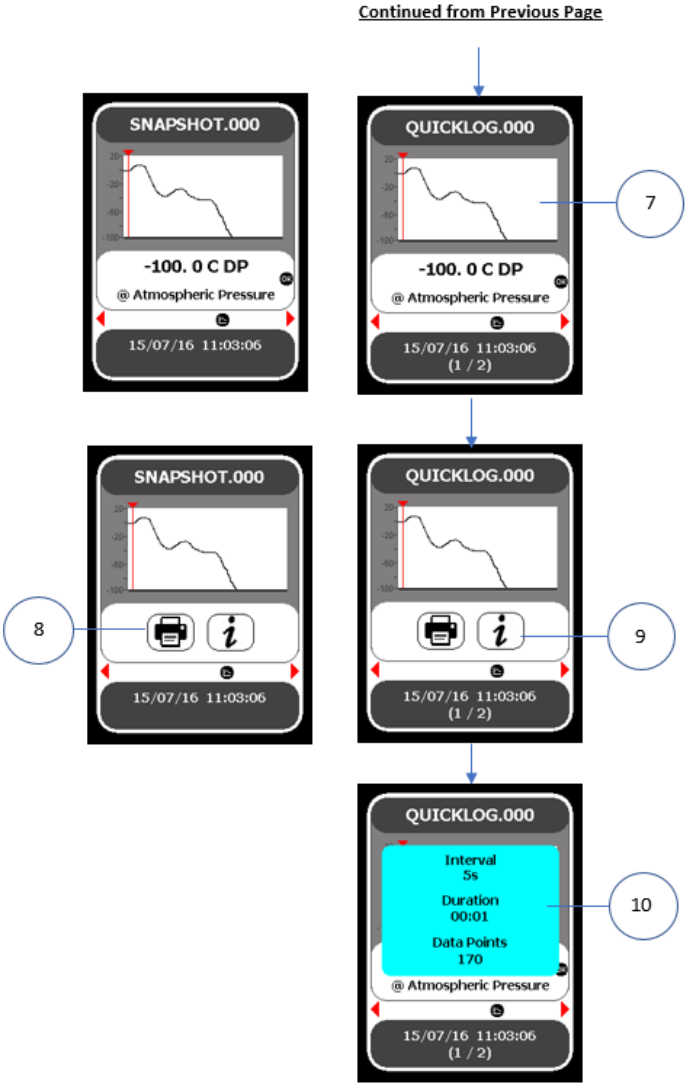
Quicklog Snapshot



Data Logging Snapshot



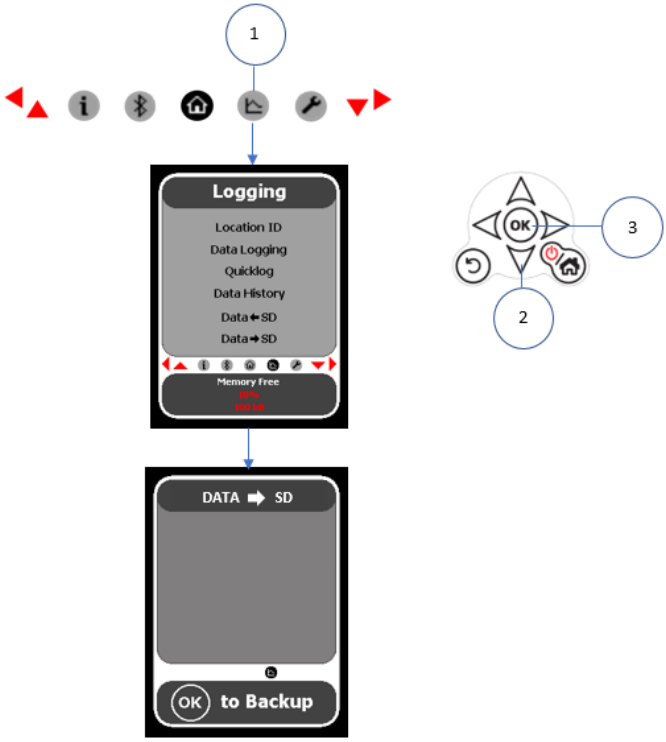
Continued on Next Page



NOTE	
	Quicklog and Snapshot screens shown together for illustration purposes

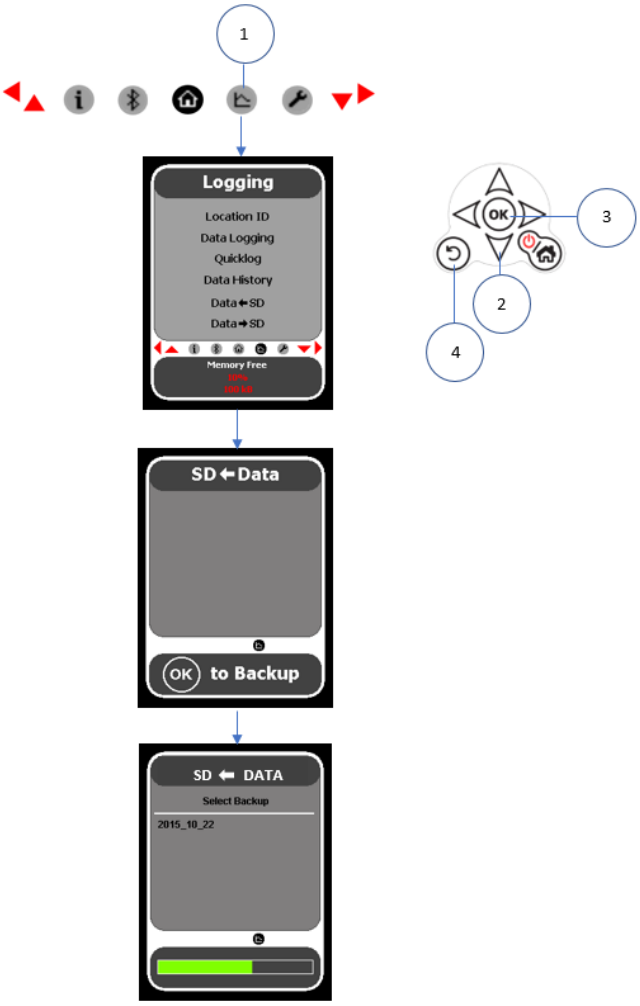
7.6 Transferring Data to the SD Card

1. Select the Logging icon ① from the Navigation Carousel to display the Logging screen.
2. Select the lower navigation key ② to highlight the function.
3. Select OK ③.
4. Select OK ③. The SADPmini2 will copy the data onto the SD card and return the user to the Logging screen.



7.7 Transferring Data from the SD Card

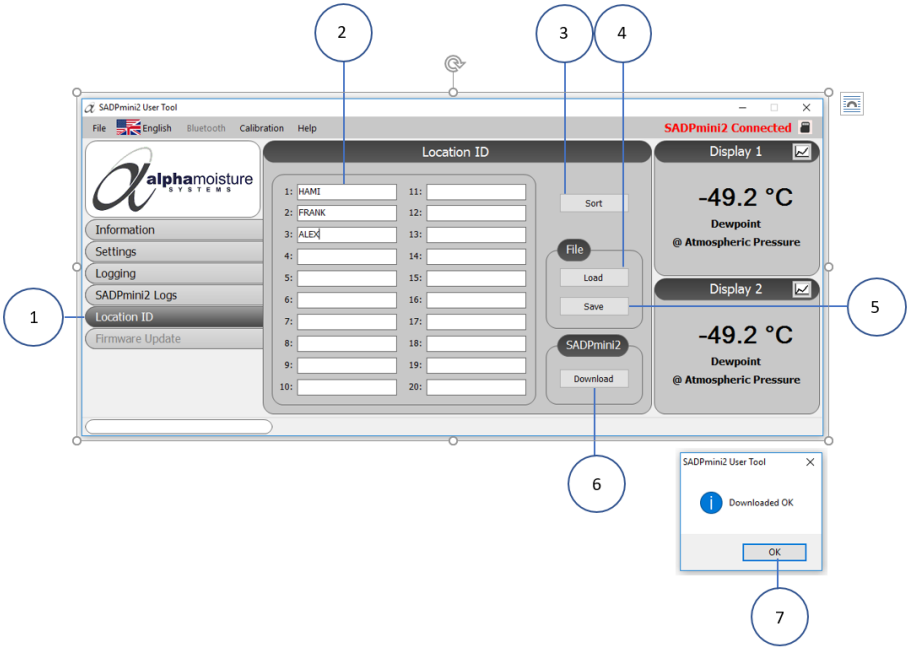
1. Select the Logging icon ① from the Navigation Carousel to display the Logging screen.
2. Select the lower navigation key ② to highlight the function.
3. Select OK ③.
4. Using the navigation keys select the required file.
5. Select OK ③. The SADPmini2 will first validate the data before copying the data to the selected file.
6. Select BACK ④ to return to the Logging screen.



7.8 Setting the Location ID: User Tool

The User Tool software allows the user to manage and transfer Location ID parameters as required.

1. Select the Location ID tab ①. Existing User Tool Location ID register settings ② will be displayed. **NOTE:** The Location ID register supports a maximum of 20 entries.
2. Select Sort ③ to order the Location ID register.
3. If required, select Load ④ to load Location ID registry settings files from your PC to the User Tool Location ID register.
4. If required, manually enter or delete Location ID from the register.
5. Select Save ⑤ to save the Location ID register settings on your PC.

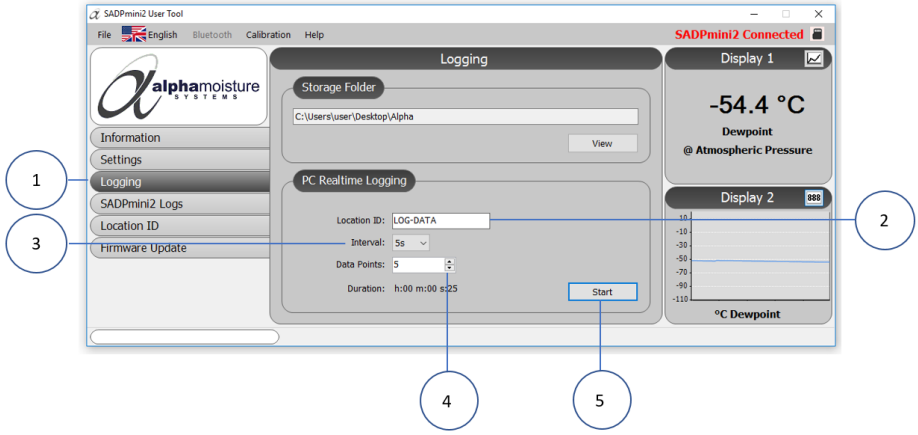


6. If required, select Download ⑥ to transfer the current User Tool Location ID register settings to the SADPmini2.

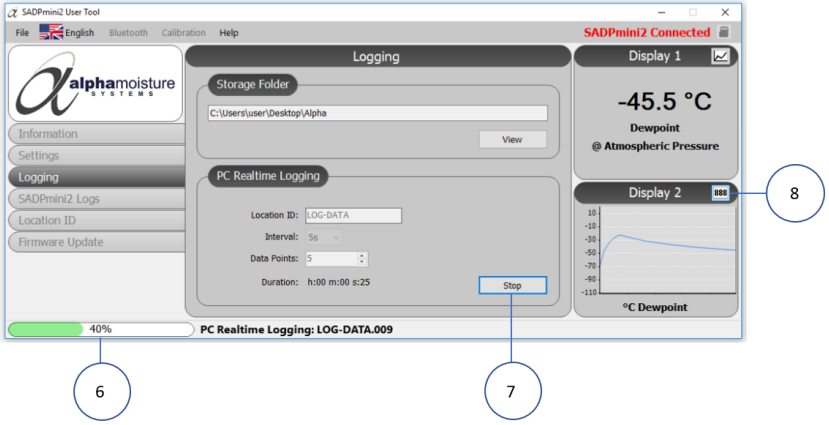
NOTE: Downloading Location ID register settings to the SADPmini2 will overwrite the existing Location ID settings. Select OK ⑦ to acknowledge the download.

7.9 PC Realtime Logging

1. Select the Logging tab ①.
2. Enter the Location ID ② - The Location ID is the root of the name of the files which will be saved in the PCLog_Data folder area on the PC for your instrument.
3. Enter the time Interval ③ from the drop-down menu (from 5 seconds to 1 hour)
4. Enter the number of Data Points ④ up to a maximum of 100,000 per file.
5. The logging duration time will be automatically calculated.

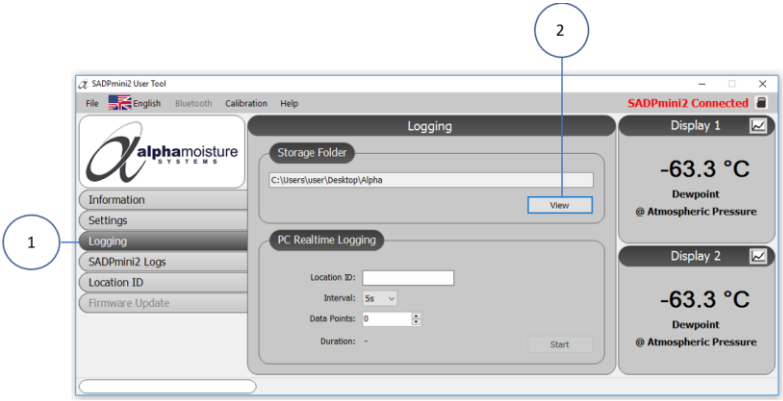


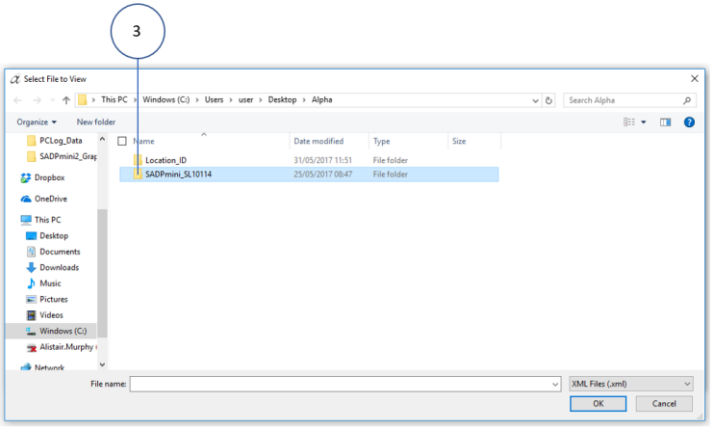
6. Select Start ⑤ to begin the Logging procedure. **NOTE:** The progress of the procedure is displayed in the bottom left hand corner of the screen ⑥. The procedure can be stopped at any time by selecting Stop ⑦. **NOTE:** Both the main and secondary displays can be viewed either numerically or as a graph ⑧.

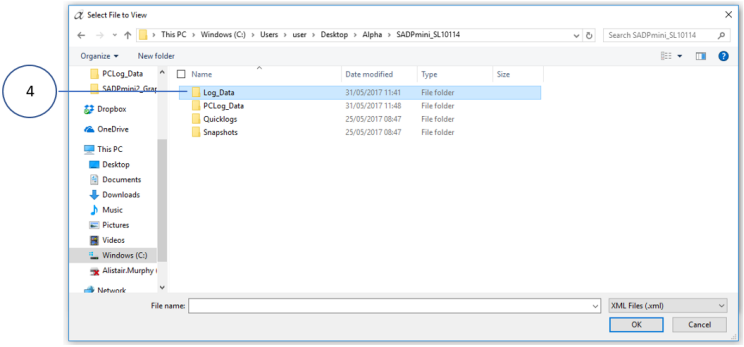


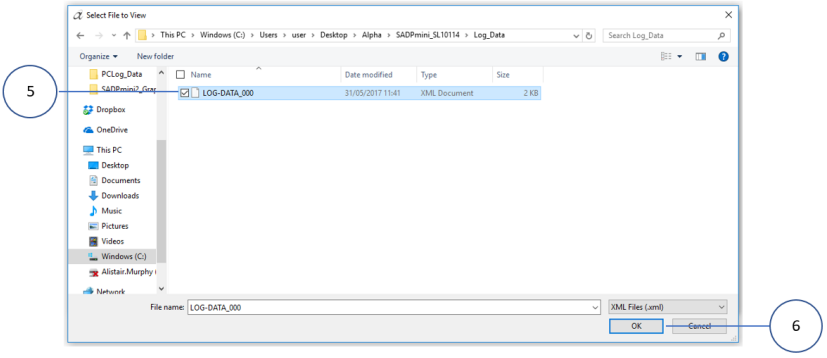
7.10 Viewing Logging, Quicklog, Snapshot and Realtime Logging Data: User Tool

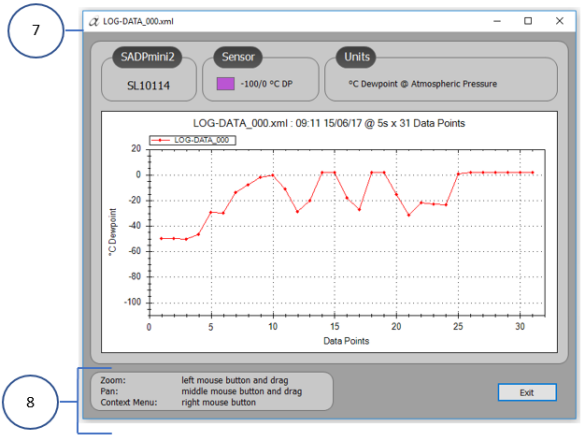
1. Select the Logging tab ①.
2. Select View ② to display the folders associated with the SADPmini2 ③.
3. Select/ open the desired folder ④.
4. Select the required file ⑤.
5. Select OK ⑥ to display the file ⑦. **NOTE:** Instructions for detailed data viewing are in the bottom left hand corner of the file window ⑧.



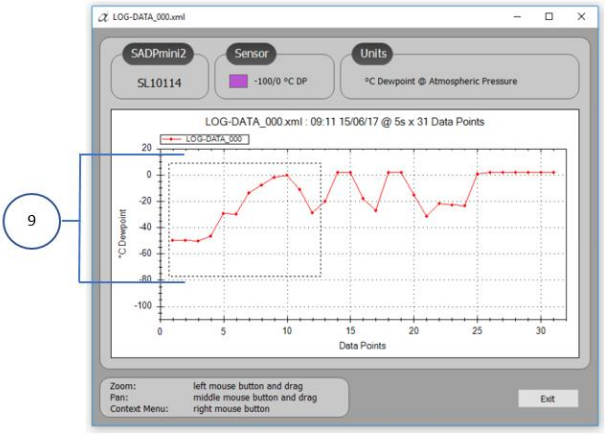


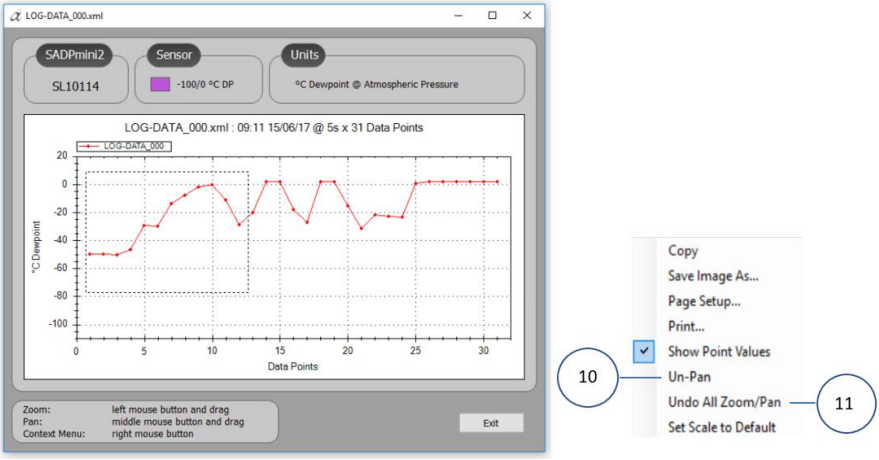

4
Select File to View
This PC › Windows (C:) › Users › user › Desktop › Alpha › SADPmini_SL10114
Search SADPmini_SL10114
Organize
New folder
PCLog_Data
SADPmini2_Grap
Dropbox
OneDrive
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
Windows (C:)
Alistair.Murphy
Network
Name
Date modified
Type
Size
Log_Data 31/05/2017 11:41 File folder
PCLog_Data 31/05/2017 11:48 File folder
Quicklogs 25/05/2017 08:47 File folder
Snapshots 25/05/2017 08:47 File folder
File name:
XML Files (.xml)
OK
Cancel


5
Select File to View
This PC › Windows (C:) › Users › user › Desktop › Alpha › SADPmini_SL10114 › Log_Data
Search Log_Data
Organize
New folder
PCLog_Data
SADPmini2_Grap
Dropbox
OneDrive
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
Windows (C:)
Alistair.Murphy
Network
Name
Date modified
Type
Size
LOG-DATA_000 31/05/2017 11:41 XML Document 2 KB
File name: LOG-DATA_000
XML Files (.xml)
OK
Cancel
6

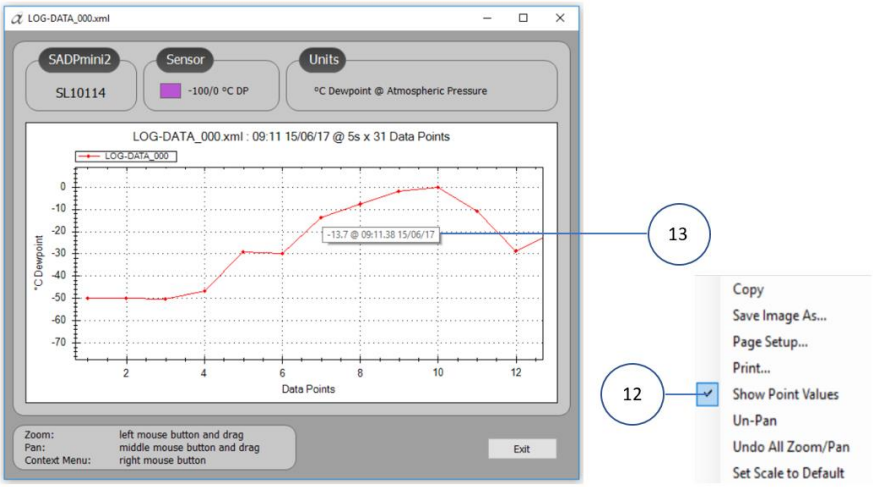

7
LOG-DATA_000.xml
SADPmini2
SL10114
Sensor
-100/0 °C DP
Units
°C Dewpoint @ Atmospheric Pressure
LOG-DATA_000.xml : 09:11 15/06/17 @ 5s x 31 Data Points
LOG-DATA_000
°C Dewpoint
Data Points
8
Zoom: left mouse button and drag
Pan: middle mouse button and drag
Context Menu: right mouse button
Exit

6. To zoom in on an area of the graphical display:
    I. Select and hold the left mouse button and drag the window over the area you want to zoom in on ⑨.
    II. Alternatively, use the mouse scrolling wheel/ middle mouse button to zoom IN/ OUT as required.
7. To pan across the zoom area select and hold the middle mouse button and drag.
8. To reset the graphical display view:
    I. Select the right mouse button to display the Context Menu and select Undo All Zoom/ Pan ⑩ from the menu.
    II. Alternatively, select Un-Zoom OR Un-Pan ⑪ as required from the menu.

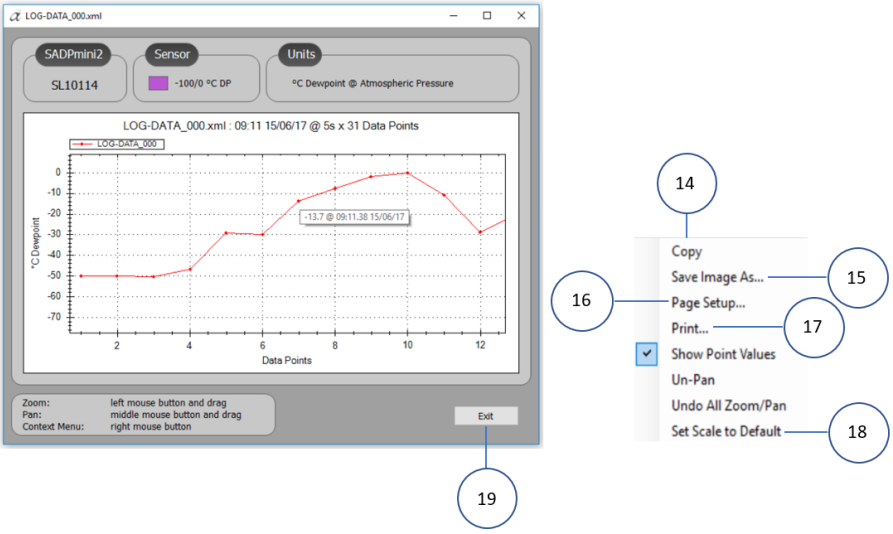




9. Alternatively, from the Context Menu:
    I. Select Show Point Values ⑫ and hold mouse over selected graph point to display Point Values ⑬.



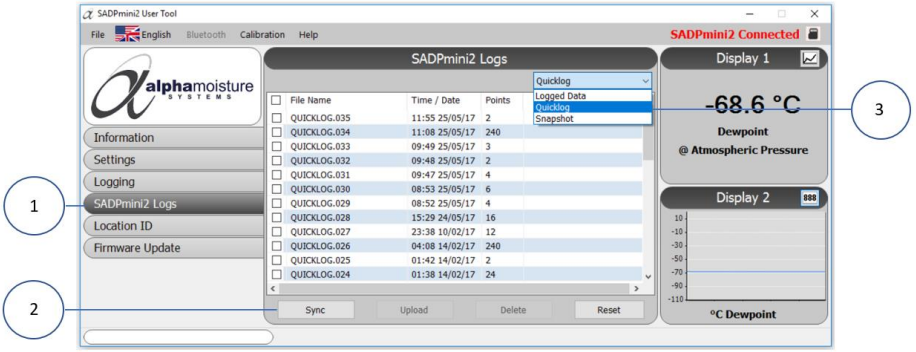
10. Alternatively, from the Context Menu:
    I. Select Copy ⑭ to copy an image of the Log Data file to the PC clipboard.
    II. Select Save Image As ⑮ to save the image to a location on your PC.
    III. Select Page Setup ⑯ to configure the Log Data file page prior to printing.
    IV. Select Print ⑰ to open the printer selection dialogue box on your PC, select the required printer and print the Log Data file.
    V. Select Set Scale to Default ⑱ to view the graph as defined by the graph parameters.
11. Select EXIT ⑲ to close the file.


LOG-DATA_000.xml
SADPmini2
SL10114
Sensor
-100/0 °C DP
Units
°C Dewpoint @ Atmospheric Pressure
LOG-DATA_000.xml : 09:11 15/06/17 @ 5s x 31 Data Points
LOG-DATA_000
°C Dewpoint
Data Points
-13.7 @ 09:11.38 15/06/17
Zoom: left mouse button and drag
Pan: middle mouse button and drag
Context Menu: right mouse button
Exit
14
Copy
Save Image As...
15
16
Page Setup...
Print...
17
Show Point Values
Un-Pan
Undo All Zoom/Pan
Set Scale to Default
18
19

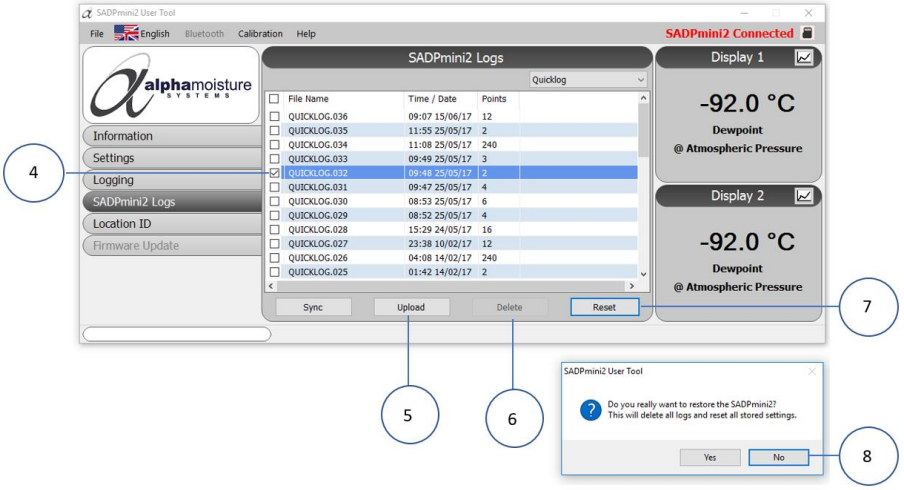
7.11 Logging Data Management: User Tool

The User Tool software allows the user to synchronise, upload, delete data logs and reset the SADPmini2 parameters.

1. Select the SADPmini2 Logs tab ①.
2. Select Sync ② to synchronise the SADPmini2 data with the User Tool software.
   NOTE: This function will synchronise **ALL** Logged, Quicklog and Snapshot data logs from the Instrument to the PC file system but not from the PC to the Instrument.



3. Select the data type to manage from the drop-down menu ③ either Logged, Quicklog or Snapshot data logs file(s)



4. Select the files of interest by checking the box next to them ④.
5. Select Upload ⑤ to upload the data file(s) to the PC.

6. The data file(s) can now be accessed and viewed by using a right click of the mouse whilst the uploaded file is selected.
7. Alternatively If required, select the file(s) of interest by checking the box next to them ④ and Press Delete ⑥ to delete the file(s).
8. If required, select Reset ⑦ to delete all logs from the instrument if Yes ⑧ is selected.

7.12 Data Logging Storage on Instrument

Data File Type	No of sample Data Points (n) per Data File	Maximum No. of Data Files	Sample Data Points Storage
Logged Data	1000	1,000 per Location ID = 20,000	303,000
Quicklog Data	1 < n < 240	100	24,000
Snapshot Data	85 < n < 170	50	8,500
Total Sample Data Points Storage			**335,500**

Appendix A
Instrument Specification

A1: Instrument Specifications

Description	Specification
Accuracy	±2 °C dewpoint
Type	Battery powered dewpoint hygrometer.
Dimensions	108mm (4.252”) width 215mm (8.465”) height 127mm (5”) depth
Weight	1.75 kg (3.8 lbs)
Display	Full colour graphics 240 x 320 resolution display.
Power Supply	Single lithium-ion battery (3.65 V nominal).
Sampling	Pressure: Atmospheric with flow rate of 5-15 litres/ minute.
Operating Temperature	-20 °C to +50 °C
Storage Temperature	-20 °C to +50 °C
Operating Humidity	95% RH non-condensing
Calibration	Factory calibration traceable to UK national and International Standards

Appendix B
Trouble Shooting

B1: Trouble Shooting

Fault	Possible Explanation	Action	Notes
Unit does not turn on, screen remains blank and LCD back light is not illuminated	Battery low level	Connect the supplied power supply unit for a minimum of 12 hours charging to achieve full charge	
Unit fails AutoCal with Sensor Open Circuit Error displayed or Instrument indicates lower limit	It may be that an internal wiring fault has occurred	Perform AutoCal again, ensuring that the desiccant head is fully extended	If action fails contact your authorised distributor
Instrument will not dry down to lower limit	Desiccant Sieve wet	Perform service on unit using Service Kit	Service Kit available from your authorised distributor
	Sealing 'O' ring failure	Perform service on unit using Service Kit	
Battery has short life between charges	Battery reaching end of useful life	Contact your authorised distributor	
Navigation Keypad fails to react to user key presses	The keypad may be damaged or an internal wiring fault has occurred	Contact your authorised distributor	
Fails to connect PC on USB Channel	Cable damaged or cable too long.	Change Cable	
Fails to connect to PC or Printer on Bluetooth Channel	Range is exceeded or radio signal blocked	Reduce range or remove obstructions	
	Battery Low in instrument or Printer	Connect the supplied power supply units to achieve full charge	
General Error in operation		Send a SADPmini2 Report to your authorised distributor (See Appendix D5)	

Appendix C
User Tool Software Installation and Guidance

C1: User Tool Software Installation

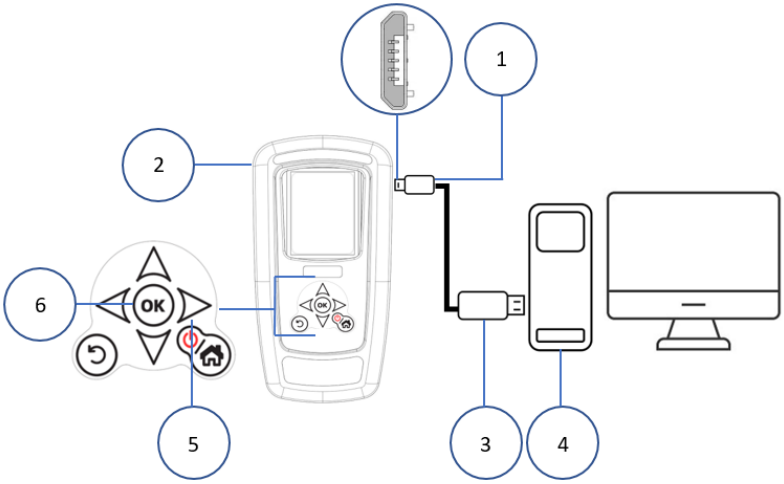
The SADPmini2 is supplied with dedicated User Tool software stored on the Micro SD Card. The software installation file may also be delivered by other means such as CD, DVD, flash drive, email attachment or internet download. The installation from the Micro SD card method is described here.

The user must first ensure that they have the necessary permissions within the Windows environment and administrative privileges otherwise they might not be able to install software.

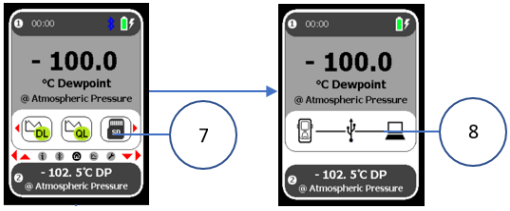
The software is compatible with Windows version XP (SP3), Vista, 7, 8 and 10.

The software provides access to instrument features which enable the user to adjust settings and transfer information via a USB or Bluetooth connection.

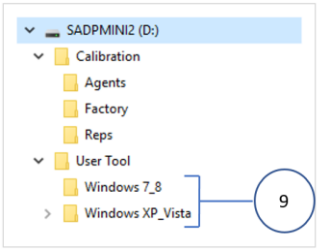
1. Install the USB cable end ① on the SADPmini2 ②.
2. Install the USB cable end ③ on the PC ④.
3. Press the power key ⑤ on the SADPmini2.
4. Press the OK key ⑥ on the SADPmini2.

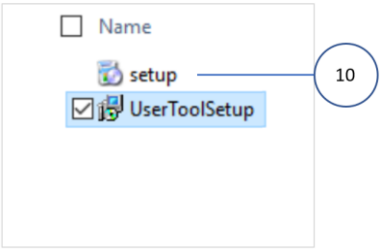


5. Press the OK key ⑥ again to display the SD Card connection.
6. Select the SD Card icon ⑦ using the navigation keys.
7. Press the OK key ⑥ to open the connection.
   The SADPmini2 USB to PC transfer screen will be displayed ⑧.
   NOTE: There may be a short delay as the PC installs the driver.

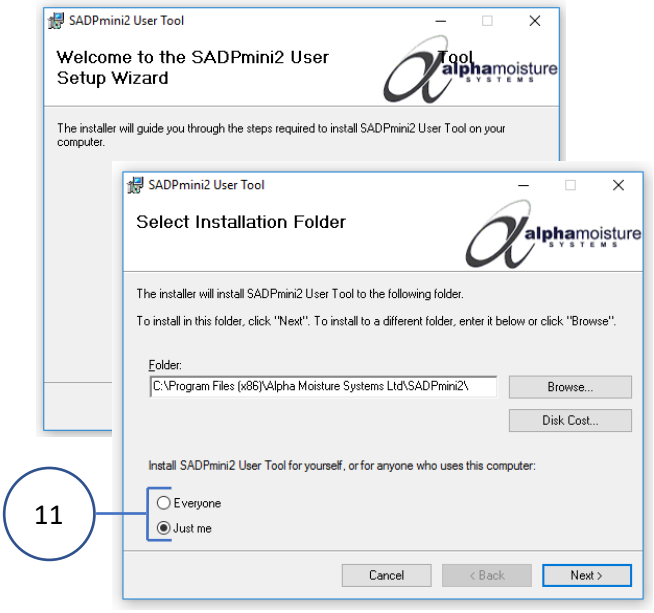


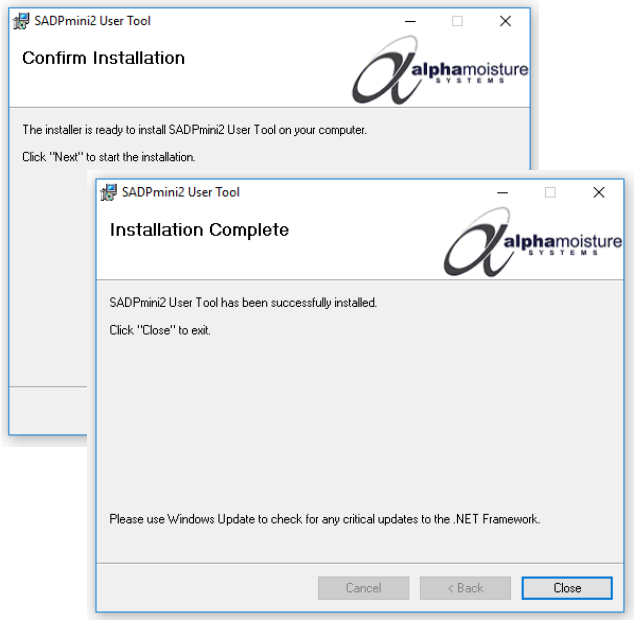
8. Select the required operating system installation version ⑨ for your PC.
9. Select the User Tool Setup icon ⑩ from the list.





10. Follow the SADPmini2 User Tool software installation prompts selecting the desired options ⑪ as required.





NOTE	
	A PC restart is not normally required. A SADPmini2 User Tool launch icon (shown below) will appear on the PC desktop at the end of the installation process

Selecting the User Tool icon on the desktop opens the User Tool software.

C2: User Tool Software Guide

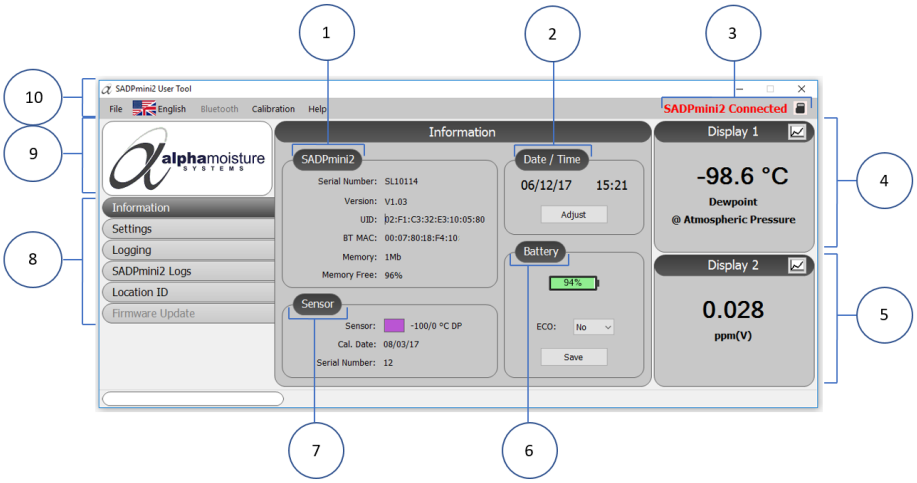
NOTE	
	It is recommended you do not connect/disconnect other devices e.g. mobile phones, portable drives etc. whilst connecting or working with the instrument as this may cause the instrument to lose/break the connection with the PC

NOTE	
	For the best visual appearance, it is recommended that the PC display text and icons option is set to **default** rather than **medium** or **larger**. (Microsoft font sizes/ desktop font sizes)

NOTE	
	The SADPmini2 keypad is locked when USB connected. All instructions are User Tool generated and can be downloaded to the SADPmini2

NOTE	
	Removing the USB cable during download/ data transfer may result in lost and/ or damaged data

On launching, the User Tool software will briefly display a splash screen with the manufacturer and software version number before displaying the Information screen below.



No.	Description
1	SADPmini2 instrument Overview: Serial Number, Firmware version, memory fitted (Mb), memory free (%) Unique Identification Number of Instrument (and Bluetooth Module if fitted)
2	Date and Time
3	SADPmini2 connection status and SD Card access icon
4	Main screen display: Live mirror display of SADPmini2 main screen with graph display function
5	Second screen display: Live mirror display of SADPmini2 second screen with graph display function
6	Battery: Battery charge status icon, ECO setting box and save
7	Sensor: Range, calibration date, serial No.
8	Screen Tabs to navigate to other sections of the User Tool Software.
9	Alpha Moisture Systems website link for connected PCs
10	Headings Menu: File (for access to Instrument Report Generation, Firmware Update), Language (User Tool language selection), Calibration file selection.

Setting the User Tool Language

Select the language tab ① from the Headings Menu.
Select the required language from the drop-down menu.
The User Tool will now display information in the selected language.
NOTE: The language on the SADPmini2 will not change.

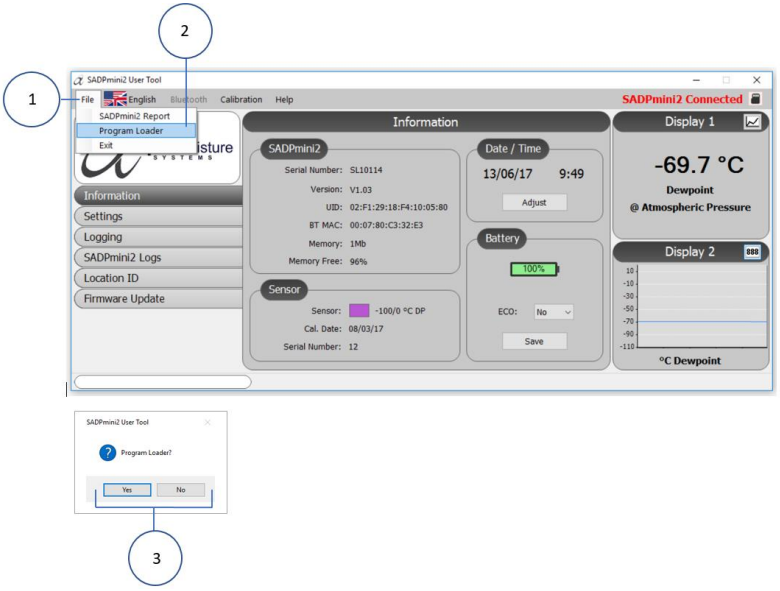
Appendix D
Firmware Maintenance

D1: Firmware Update

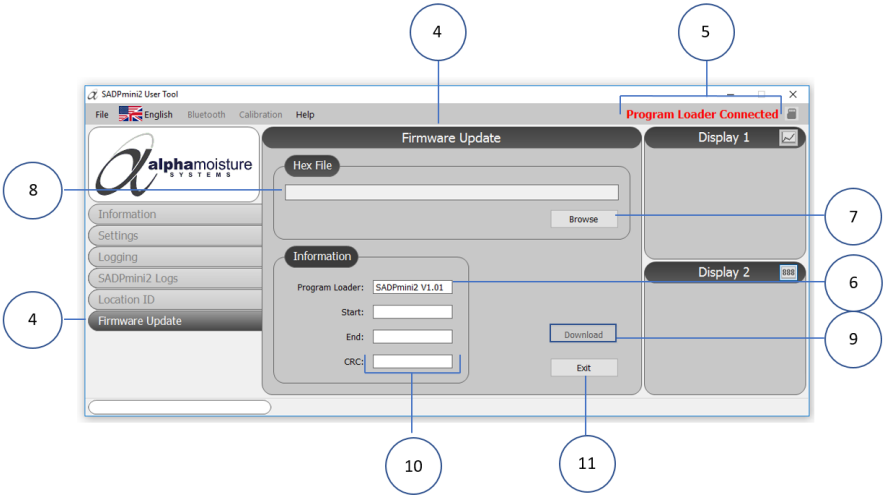
Instrument firmware updates may be distributed as email attachments. Users should save the firmware update file from the email to a location on their PC before updating their instrument. NOTE: Firmware files are Hex files (*.hex).

The user data log files will be preserved during this process.

1. Select the File tab from the headings menu ①.
2. Select Program Loader ②.
3. Select Yes/ No ③ to confirm or quit.



4. **NOTE:** If Yes is selected the Firmware Update screen will be displayed ④. All other User Tool Functions are disabled.
5. Program Loader Connected will be displayed ⑤.



The Program Loader screen will also be displayed on the SADPmini2 Instrument screen and the version of Program Loader software running on the instrument will be displayed ⑥.

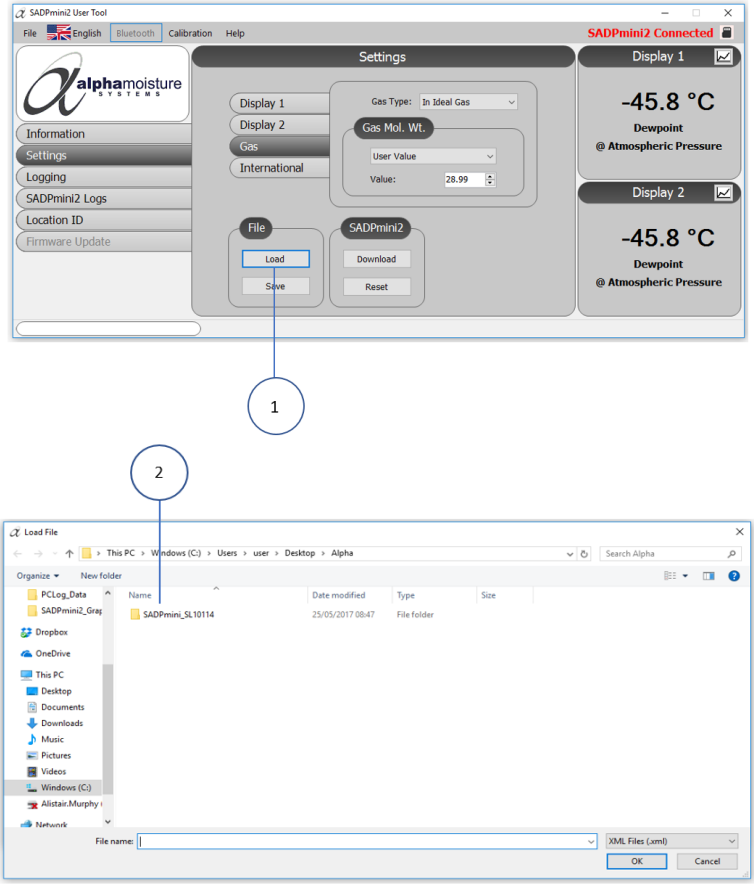
6. Select Browse ⑦ to locate, select and open the saved Firmware file on your computer. **NOTE:** The chosen firmware file details will be displayed in ⑧.
7. Select Download ⑨ to begin the programming.
8. The progress bar will display the following messages:
    - **Erasing Memory**
    - **Programming Memory**
9. The User Tool will generate a CRC number ⑩ from the file it is about to load to be checked after the process has completed successfully when the message **Downloaded OK** appears.
10. Select Exit ⑪ to return the instrument back to normal USB connected mode and the User Tool Information Screen.

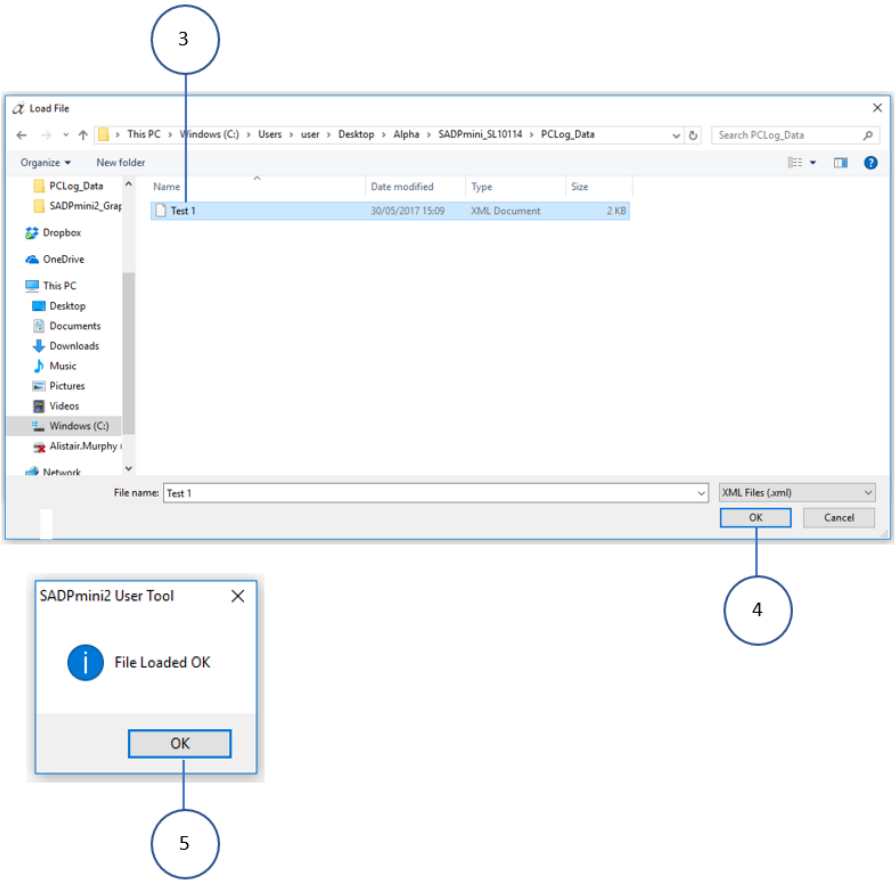
NOTE	
	The Time and Date may need to be reset when the Firmware update is complete

D2: Loading User Tool Configured Files

The User Tool software allows the user to load files into the SADPmini2 that contain already set parameters. This feature is particularly useful for multiple instrument set up.

1. Select the Load tab ①.
2. A folder will open.
3. Select the relevant folder where the setting file resides ②.
4. Select the file ③ to upload.
5. Select OK ④ to load the XML settings file to the User Tool
6. Select OK to confirm ⑤.

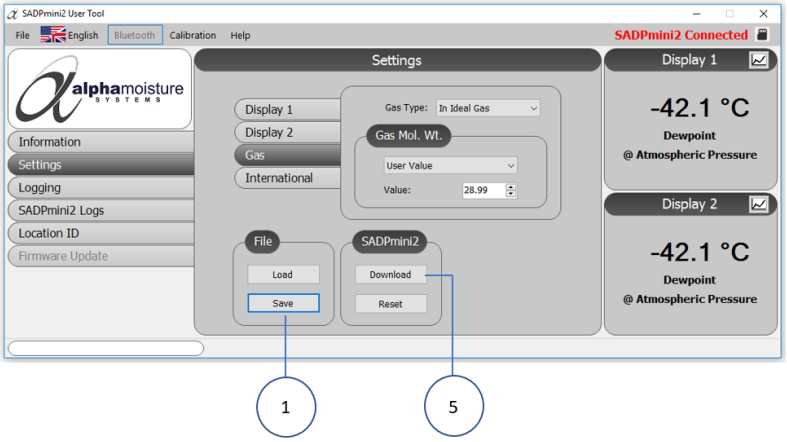


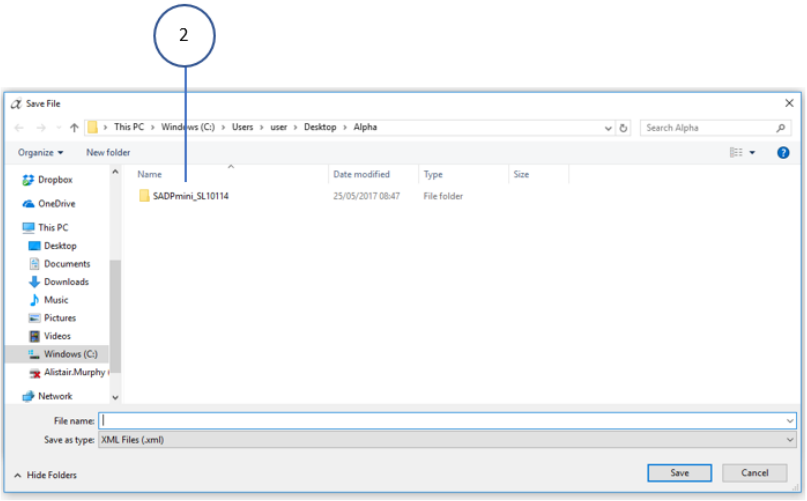

3
Load File
This PC › Windows (C:) › Users › user › Desktop › Alpha › SADPmini_SL10114 › PCLog_Data
Search PCLog_Data
Organize
New folder
PCLog_Data
SADPmini2_Grap
Dropbox
OneDrive
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
Windows (C:)
Alistair.Murphy
Network
Name
Date modified
Type
Size
Test 1
30/05/2017 15:09
XML Document
2 KB
File name: Test 1
XML Files (.xml)
OK
Cancel
4
SADPmini2 User Tool
File Loaded OK
OK
5

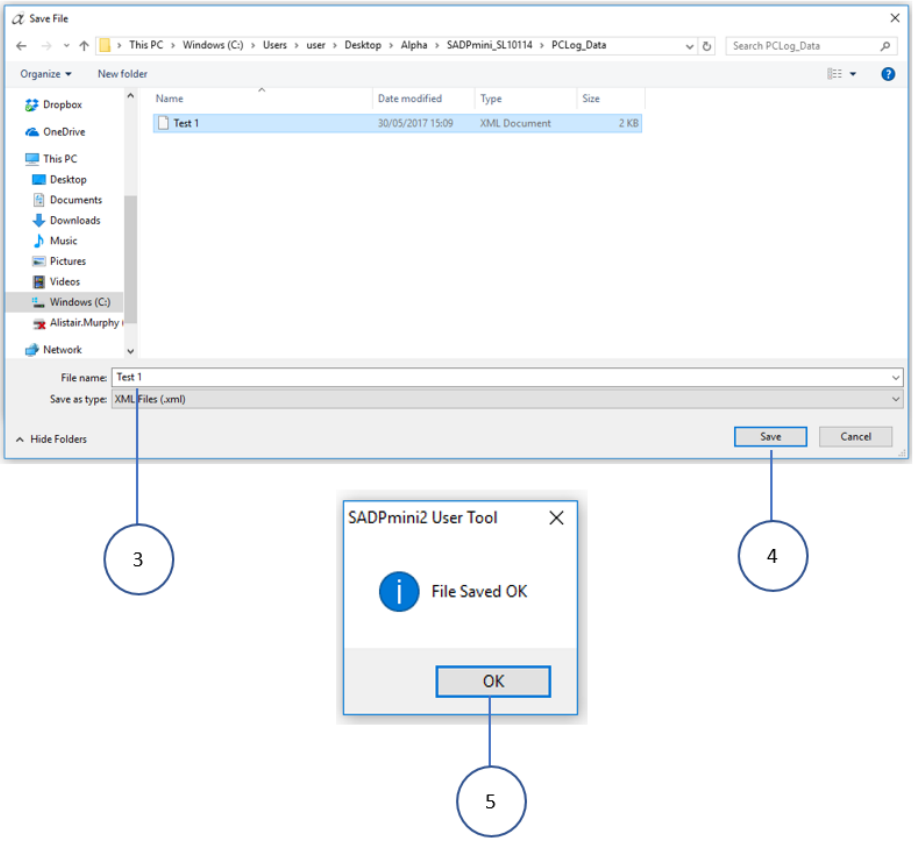
D3: Saving User Tool Configured Files

The User Tool software allows the user to save settings to a PC file to enable uploading for future use.

1. Select the Save tab ①.
2. A folder view will open ②.
3. Select/ open an existing folder or create a new folder.
4. Select/ type a file name ③.
5. Select save ④ to save the XML settings file to the file name chosen.



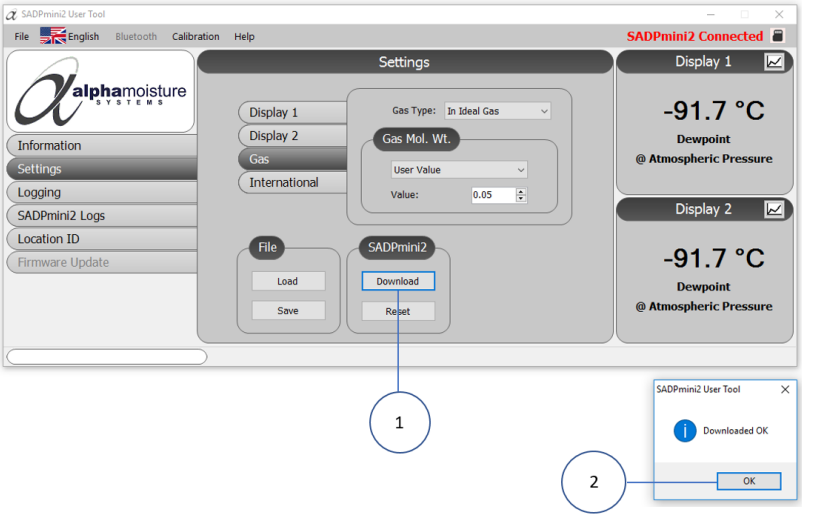



Save File
This PC › Windows (C:) › Users › user › Desktop › Alpha › SADPmini_SL10114 › PCLog_Data
Search PCLog_Data
Organize
New folder
Dropbox
OneDrive
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
Windows (C:)
Alistair.Murphy
Network
Name
Date modified
Type
Size
Test 1
30/05/2017 15:09
XML Document
2 KB
File name: Test 1
Save as type: XML Files (xml)
Hide Folders
Save
Cancel
3
4
SADPmini2 User Tool
File Saved OK
OK
5

D4: Downloading Settings to the SADPmini2

NOTE	
	The instrument settings may be uploaded from a settings file stored on the PC to the User Tool software then modified if required and then downloaded to a SADPmini2.

1. Select the Download tab ①.
2. Select OK ② to confirm setting transfer to the SADPmini2.

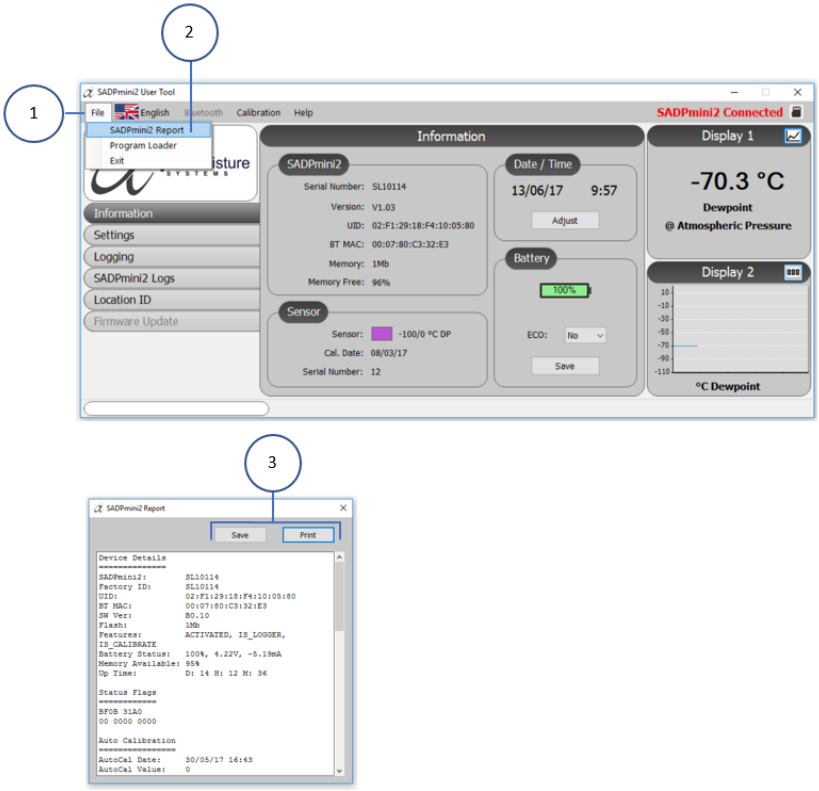


D5: SADPmini2 Report

The Report function provides the user with a real-time snapshot overview of the instrument status and settings.

To view the SADPmini2 Report:

1. Select the File tab from the headings menu ①.
2. Select SADPmini2 Report ②.
3. Select Save/ Print ③ as required.

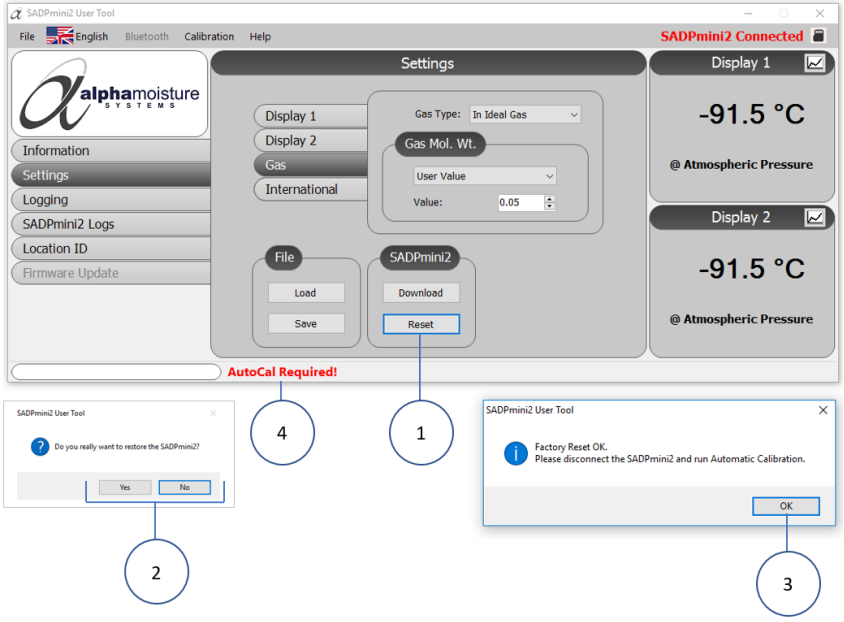


D6: Configuring Instrument to Default Settings

WARNING	
⚠	Configuring the instrument to Default Settings will change the settings to the following defaults: Both Display units °C Dewpoint at Atmospheric pressure Language English Date format dd/mm/yy Numerical delimiter is a '.' Gas Molecular weight 28.99 g/mol Gas type Ideal Gas Please contact your distributor for advice before proceeding with this process. If continuing with the process, a dialogue box "Auto Calibration Required" will appear.

1. Select the Reset tab ①.
2. Select Yes/ No ② as required and If Yes select OK ③ to confirm.

NOTE SADPmini2 will need to be disconnected form the User Tool and an AutoCal or CalSet performed as indicated ④.



D7: Downloading Calibration Files

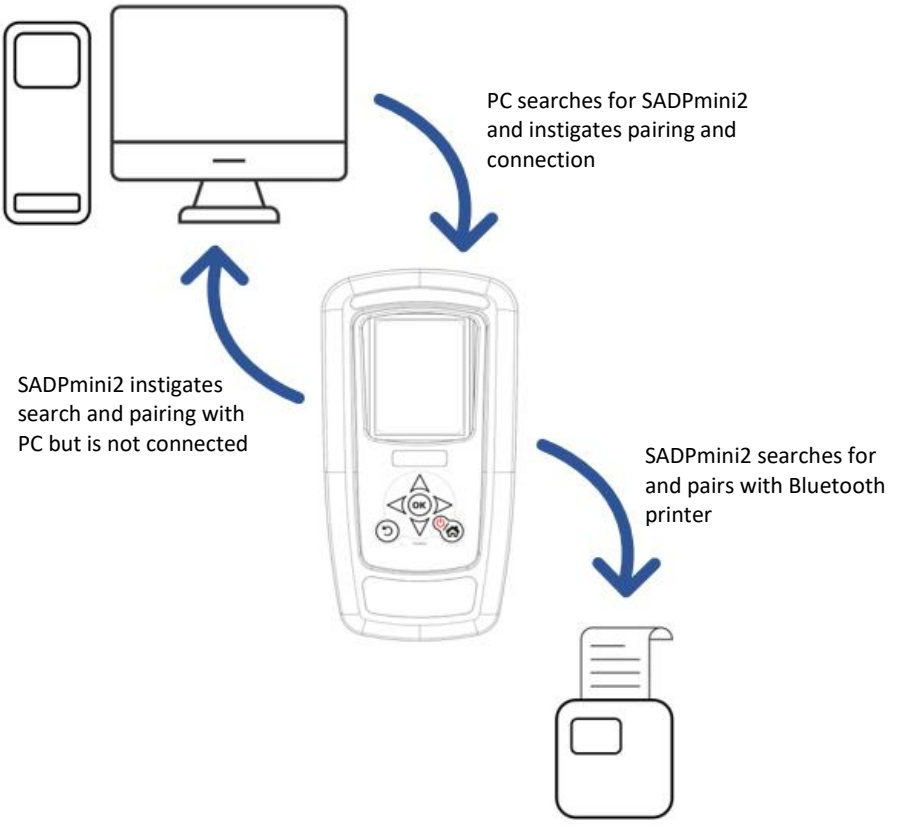
Calibration files may be distributed as email attachments when a new sensor has been installed on the instrument. Users should save the file (.bin) from the email to a location on their PC before updating their instrument.

To install the calibration file:

1. Select Calibration ① from the Headings Menu.
2. Select Browse ②.
3. Locate and select the required Calibration file on your computer. **NOTE:** Calibration files are Binary files (.bin).
4. Select a file to load. **NOTE:** The calibration file details will be displayed in the dialogue box ③.
5. Select Download ④ to transfer the file to the SADPmin2.
6. Select Exit ④.

Appendix E
Bluetooth Configuration

E1: Bluetooth Connection Hierarchy



E2: Bluetooth Connection Configuration: Navigation Keypad

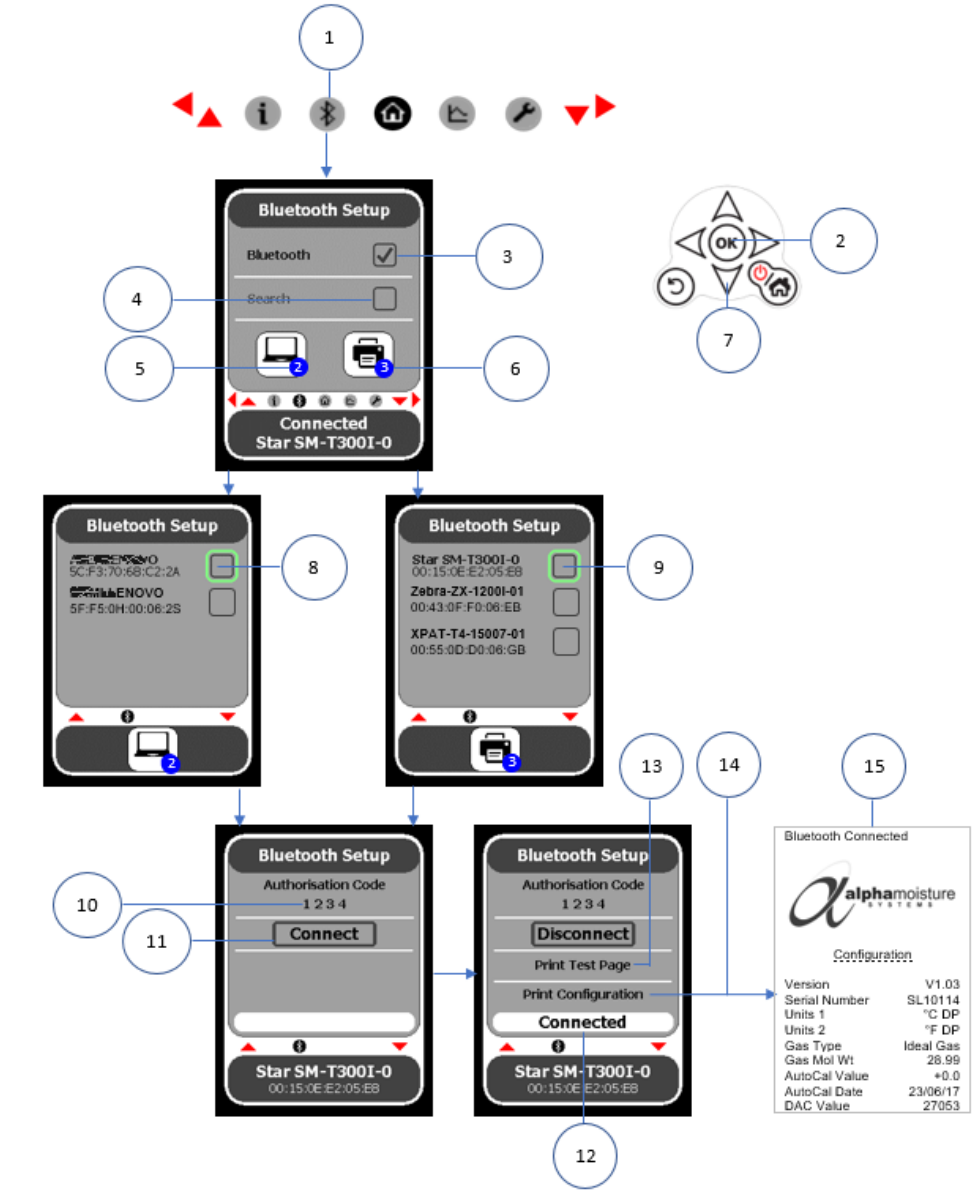
NOTE	
	Bluetooth is a wireless technology standard for exchanging data over short distances from fixed and mobile devices. The SADPmini2 uses a Bluetooth connection facility to allow data transfer to a PC, mobile phone or a Bluetooth printer.

To use the SADPmini2 the instrument must first find and pair to either a PC or Bluetooth printer.

1. Select the Bluetooth icon ① from the Navigation Carousel to display the Bluetooth screen.
2. Navigate and select Bluetooth ③by pressing OK ②. The Search option ④ will be highlighted.
3. Select OK ② to allow the SADPmini2 to search for a Bluetooth compatible PC ⑤ or printer ⑥.
4. Using the navigation keys ⑦ select either a Bluetooth compatible PC ⑧ or printer ⑨.
5. Select OK ② to connect.
6. If necessary edit the authorisation code ⑩.

NOTE	
	The Authorisation Codes for pairing common devices are often 4 or 5 digits long and may typically be by default 0000, 12345, 0123 etc. The SADPmini2 presents 0000 as a default which is editable to suit the device.

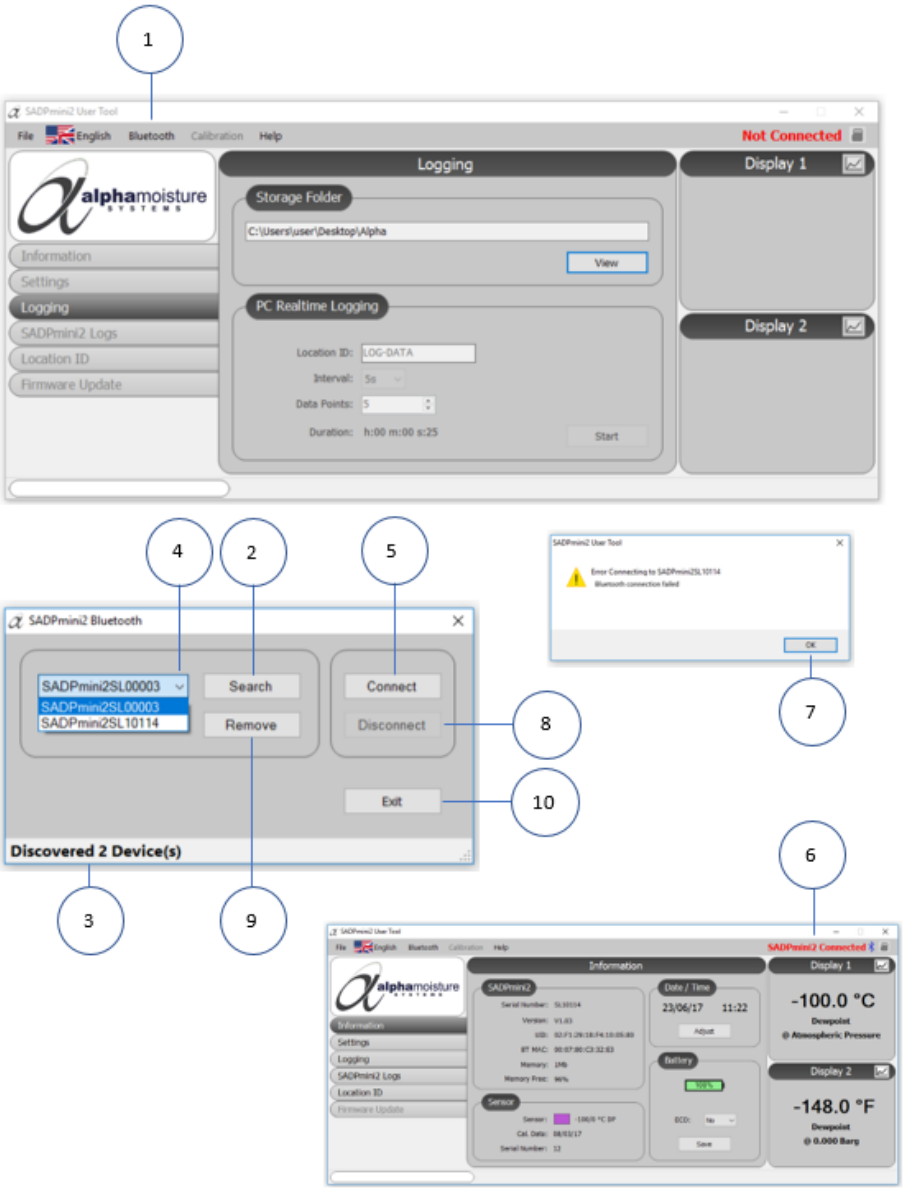
7. Using the navigation keys ⑦ highlight the Connect display ⑪.
8. Select OK ② to connect. **NOTE:** The instrument will now attempt to establish a connection to the selected printer. Connected ⑫ is displayed when a secure connection is established/ the instrument and Bluetooth printer are paired.
9. If required, select Print Test Page ⑬ to test the connection. **NOTE:** The printer will print “Bluetooth Connected”.
10. If required, select Print Configuration ⑭ to print the current status of the SADPmini2 ⑮.


1
Bluetooth Setup
Bluetooth
Search
Connected
Star SM-T300I-0
2
3
4
5
6
7
OK
Bluetooth Setup
5C:F3:70:68:C2:2A
5F:F5:0H:00:06:2S
8
Bluetooth Setup
Star SM-T300I-0
00:15:0E:E2:05:EB
Zebra-ZX-1200I-01
00:43:0F:F0:06:EB
XPAT-T4-15007-01
00:55:0D:D0:06:GB
9
10
11
Bluetooth Setup
Authorisation Code
1 2 3 4
Connect
Star SM-T300I-0
00:15:0E:E2:05:EB
Bluetooth Setup
Authorisation Code
1 2 3 4
Disconnect
Print Test Page
Print Configuration
Connected
Star SM-T300I-0
00:15:0E:E2:05:EB
12
13
14
15
Bluetooth Connected
alphamoisture
Configuration
Version V1.03
Serial Number SL10114
Units 1 °C DP
Units 2 °F DP
Gas Type Ideal Gas
Gas Mol Wt 28.99
AutoCal Value +0.0
AutoCal Date 23/06/17
DAC Value 27053

E2: Bluetooth Connection Configuration: User Tool

NOTE	
	The SADPmini2 must be disconnected from the USB cable to enable a User Tool Bluetooth connection

1. Open User Tool software.
2. Select Bluetooth ① from the Headings Menu.
3. Select Search ②.
4. The number of Discovered Devices will be displayed ③. **NOTE:** Two devices have been found in this example.
5. Select the required device from the drop-down menu ④.
6. Select Connect ⑤ to connect/ pair the User Tool software with the selected device.
   NOTE: The User Tool software will attempt to establish a secure connection.
   I. If a connection is established the User Tool software will default to the Information screen and display SADPmini2 Connected ⑥. A Bluetooth icon will also be displayed.
   II. If a connection fails an Error message will be displayed. Select OK ⑦ to clear the Error message.
   III. Make sure the device is still highlighted in the drop-down menu ④. **NOTE:** Make sure the device is in range.
   IV. Select Connect ⑤ to connect/ pair the User Tool software with the selected device.
7. To disconnect, select the required device from the drop-down menu ④.
8. Select Disconnect ⑧.
9. To remove a device from the drop-down menu ④:
   I. Select a device from the drop-down menu ④.
   II. Select Remove ⑨. **NOTE:** This will permanently remove the device from the drop-down menu ④.
10. Select Exit ⑩ to close.


1
SADPmini2 User Tool
File
English
Bluetooth
Calibration
Help
Not Connected
alphamoisture
SYSTEMS
Information
Settings
Logging
SADPmini2 Logs
Location ID
Firmware Update
Logging
Storage Folder
C:\Users\user\Desktop\Alpha
View
PC Realtime Logging
Location ID:
LOG-DATA
Interval:
5s
Data Points:
5
Duration:
h:00 m:00 s:25
Start
Display 1
Display 2
4
2
5
SADPmini2 Bluetooth
SADPmini2SL00003
SADPmini2SL00003
SADPmini2SL10114
Search
Remove
Connect
Disconnect
Exit
Discovered 2 Device(s)
8
10
3
9
SADPmini2 User Tool
Error Connecting to SADPmini2SL10114
Bluetooth connection failed
OK
7
6
SADPmini2 Connected
Information
Display 1
-100.0 °C
Dewpoint
@ Atmospheric Pressure
Display 2
-148.0 °F
Dewpoint
@ 0.000 Barg
Date / Time
23/06/17
11:22
Adjust
Battery
Sensor
Save

© Alpha Moisture Systems 2017