Gas Measurement Instruments Ltd

# PS500

## Auto Bump / Calibration Station - User Handbook

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## CONTENTS

LICENCE AGREEMENT ..... i

IMPORTANT - READ CAREFULLY ..... i

CALIBRATION Software Licence ..... i

30 DAY LIMITED WARRANTY ..... ii

LIMITED WARRANTY ..... ii

COPYRIGHT ..... iii

TRADEMARK INFORMATION ..... iii

LIABILITY ..... iii

INTRODUCTION ..... 1-1

1.1 GENERAL DESCRIPTION ..... 1-1

1.2 AUTO BUMP / CALIBRATION HARDWARE ..... 1-5

1.3 ADDITIONAL ACCESSORIES ..... 1-5

CONNECT CALIBRATION GAS AND POWER SUPPLY ..... 2-1

2.1 CONNECT CALIBRATION GAS ..... 2-1

2.1.1 Compare Gas Cylinder Label with Software Configuration ..... 2-2

2.1.2 Connect Gas Cylinder to ABC ..... 2-4

2.1.3 Connect Air / Exhaust Tubing to ABC (if required) ..... 2-5

2.2 CONNECT POWER SUPPLY ..... 2-7

SOFTWARE CONFIGURATION ..... 3-1

3.1 VIEW / EDIT SOFTWARE CONFIGURATION ..... 3-1

3.1.1 Bump Test ..... 3-4

3.1.2 Calibration ..... 3-6

3.1.3 Generate Settings File ..... 3-8

3.2 TRANSFER UPDATED 'PS500 SETTINGS' to ABC ..... 3-9

3.3 HELP OPTIONS ..... 3-11

BUMP / CALIBRATION OPERATION ..... 4-1

4.1 PS500 SWITCH ON ..... 4-1

4.2 INSERT INSTRUMENT IN AUTO BUMP / CALIBRATION STATION ..... 4-2

4.3 BUMP / CALIBRATION OPERATION ..... 4-6

4.4 REMOVE INSTRUMENT FROM ABC ..... 4-8

4.5 ABC FAULT INDICATION ..... 4-10

VIEW / PRINT TEST RESULTS ..... 5-1

5.1 INTRODUCTION ..... 5-1

5.2 DOWNLOAD TEST RESULTS ..... 5-2

5.3 VIEW / PRINT TEST RESULTS..... 5-4

5.3.1 Test Result Files ..... 5-5

5.3.2 Generated Certificates ..... 5-9

FIT MOUNTING BRACKET..... A-1

1. GENERAL DESCRIPTION ..... A-1

2. FIT MOUNTING BRACKET ..... A-2

3. ATTACH UNIT to WORKBENCH / DAISY CHAIN OPTION ..... A-3

INDEX..... ix

# INTRODUCTION

*Fig. 1-1 PS500 Auto Bump / Calibration Station*

## 1.1 GENERAL DESCRIPTION

The PS500 Auto Bump / Calibration Station provides the user with a quick, easy and reliable method of ensuring that PS500 instruments are correctly calibrated where company policy dictates.

Equipment does not have to be taken out of service for extended time periods while testing is undertaken.

The Auto Bump / Calibration Station (ABC) has 3 variants:

- Single gas unit (GMI part no. 61502) - 1 gas cylinder can be connected.
- Multi-gas unit (GMI part no. 61504) - up to 3 gases cylinders can be connected.
- Reactive gases ($CL_2$ / $NH_3$) multi-gas unit (GMI part no. 61504R) - up to 3 gases cylinders can be connected.

---

**Note: Throughout the user handbook the multi-gas variant (GMI part no. 61504) will be used to describe the Auto Bump / Calibration Station.**

---

The units can be used for:

- A Bump Test, approximately 60 seconds gas duration per cylinder, performs a full Bump Test of alarm set points and sensor response.
- A Calibration of the instrument, approximately 60 seconds gas duration per cylinder.

---

**Note: Gas duration is dependent on which PS500 model is being tested.**

---

The ABC can be free standing on a workbench, or alternatively, secured to the workbench individually or in a daisy chain fashion using the mounting bracket and screws supplied with the ABC. Refer to Appendix A for fitting instructions.

Power is supplied to the rear of the ABC via a 12V Universal Power Supply Unit (PSU), supplied with the ABC. A 12V Vehicle Power Supply is available as an accessory.

Gases are connected to the clearly marked inlet adaptors at the rear of the ABC. An integral pump automatically draws gas to the instrument for bump / calibration operation.

The user simply inserts the PS500 into the ABC, then closes the cover initiating the automatic testing process.

---

**Note: The PS500 MUST be switched on before inserting into the Auto Bump / Calibration Station.**

---

The ABC uses a traffic light system to display progress / result,

i.e. LED 1 (Green) = ON (power)
LED 2 (Orange) = TEST (in progress)
LED 3 (Green) = PASS
LED 4 (Red) = FAIL

This provides the user with a clear indication of whether the PS500 meets the selected parameters.

GMI '**PS500 Settings**' Software is a Windows™ based 'stand alone' application that allows the user to configure / edit test parameters and view / print test results.

This software will run on any PC / Laptop with Windows XP™ or newer software installed. (.Net Framework 2.0 or higher may also be required on early Windows XP™ operating systems).

Both the ABC and the USB memory stick are supplied with necessary '**PS500 Settings**' software installed.

---

**Note: 'PS500 Settings' are not pre-configured with test parameters. A settings file MUST be generated and transferred to the ABC before testing / calibration can take place.**

---

The software test parameters are configured via PC or Laptop then the settings file transferred to the ABC using the USB memory stick supplied.

The software provides a full audit trail of tested instruments and the resulting data is retained in the station memory until downloaded to the USB memory stick, before being transferred (refer to note on page 5-1) to any compatible PC / Laptop for long term storage, review and / or printing.

A Calibration Certificate can also be generated automatically after successful completion of instrument testing.

A permanent PC connection is provided via mini-USB socket at the rear of the ABC. An Ethernet socket is also provided at the rear of the ABC to allow results to be gathered over a network. Both of these options require additional software, either the '**flexiCal Plus**' PC software package or the '**IMS**' network software package, both available from GMI.

---

**Note: PS500 Bump / Calibration Software is only one part of the requirements in terms of calibration and maintenance of a PS500 portable gas detector. Gases, delivery and trained personnel are all of equal or even greater importance.**

---

## 1.2 AUTO BUMP / CALIBRATION HARDWARE

The multi-gas Auto Bump / Calibration Stations (GMI Part No's. 61504 / 61504R) are provided with:

- 4mm (5/32in.) fittings (3 x gas and 1 x air).
- 6mm fitting (1 x exhaust).
- 12V Universal PSU.
- USB memory stick with GMI '**PS500 Settings**' software.

The single-gas Auto Bump / Calibration Station (GMI Part No. 61502) is provided with:

- 6mm fittings.
- 12V Universal PSU.
- USB memory stick with GMI '**PS500 Settings**' software.

## 1.3 ADDITIONAL ACCESSORIES

- Test Gas Cylinders - for a full list of gases, contact GMI or an authorised distributor.
- On Demand Gas Flow Regulator - GMI Part No. 99118.
- Tygon® tubing - GMI Part No. 66118.
- 1.0 metre Tygon® tubing complete with 6mm adaptor - GMI Part No. 64265.
- 0.6 metres reactive gas tubing - GMI Part No. 61540.

# CONNECT CALIBRATION GAS AND POWER SUPPLY

## 2.1 CONNECT CALIBRATION GAS

Gas is supplied to the Auto Bump / Calibration Station from Test Gas Cylinders via On Demand Gas Flow Regulators (GMI Part No. 99118) and Tygon® tubing (GMI Part No. 12712).

*Fig. 2-1 Calibration Gas Setup*

**Note: For a comprehensive list of calibration accessories contact GMI or an authorised distributor.**

### 2.1.1 Compare Gas Cylinder Label with Software Configuration

First of all, make sure that the cylinder is not older than the 'use by' date on the label illustrated in Fig. 2.2.

Make sure that the cylinder contains enough gas to complete the bump test / calibration. The pressure gauge on the Regulator Valve, after fitting, gives a clear indication of this.

When applying gas to the instrument via the Auto Bump / Calibration Station, it is important that the gas concentrations listed on the cylinder label are consistent with the current software configuration downloaded from the USB memory stick to the unit.

As illustrated in Fig. 2.2, the cylinder gas concentrations can be easily found on the cylinder label.

*Fig. 2-2 Gas Cylinder Label*

The concentrations, illustrated in Fig. 2-2, should be consistent with the installed software configuration window, as illustrated in Fig. 2-3.

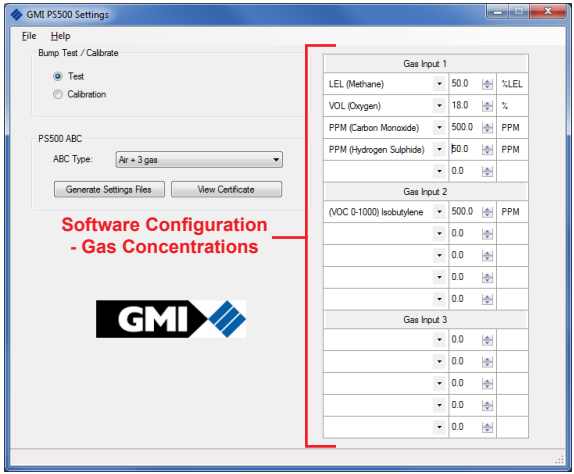



*Fig. 2-3 Software Configuration*

After comparing gas values between the Cylinder Gas Label and the Software Configuration, when consistent, proceed to the next paragraph.

If inconsistent, refer to Chapter 3 to update software configuration then download the updated configuration to the ABC.

---

**Note: The Multi-gas ABC can have up to 3 gas inputs, therefore 3 gas cylinders labels and configurations to compare.**

---

## 2.1.2 Connect Gas Cylinder to ABC

Connect the On Demand Regulator Valve to the gas cylinder by screwing the valve firmly into the top of the cylinder, as illustrated in Fig. 2-4. Fitting is simplified by pressing the valve on to the cylinder with one hand and turning the cylinder with the other. Care must be taken not to over-tighten the valve.

*Fig. 2-4 Attach Regulator Valve to Gas Cylinder*

Connect one of the supplied barbed adaptors to the end of the tubing, then push the barbed adaptor into one of the three 'Gas' inlet adaptors on the rear of the ABC, as illustrated in Fig. 2-5.

*Fig. 2-5 Connect Barbed Adaptor to ABC*

### 2.1.3 Connect Air / Exhaust Tubing to ABC (if required)

If the ABC is located in a poorly ventilated area, it is recommended that tubing is connected to both the 'Air' inlet and 'Exhaust' outlet adaptors on the rear face of the ABC, using barbed adaptors.

GMI recommend the use of an 'Air' in-line filter, also supplied with the unit. The (in-line filter) barbed adaptor is a push fit in the 'Air' inlet adaptor on the rear face of the ABC, as illustrated in Fig. 2-6.

Air inlet tubing, from the in-line filter, can be routed to the nearest window for the supply of fresh air.

Alternatively, compressed air can be used to supply inlet air.

---

**Note: If the compressed air option is adopted, the in-line filter is not required.**

---

*Fig. 2-6 Connect Air Tubing Adaptor to ABC*

The 'Exhaust' line, not illustrated, consists of a length of tubing and a barbed adaptor. The barbed adaptor is a push fit in the 'Exhaust' outlet adaptor on the rear face of the ABC.

Exhaust tubing can be routed to the nearest window.

---

**Note: Air inlet and exhaust tubing must be distanced from each other at end of tubing.**

---

To remove the 'Gas', 'Air' and 'Exhaust' barbed adaptors from the ABC, depress the yellow and blue coloured collars, in turn to release, then withdraw the adaptor and tubing.

## 2.2 CONNECT POWER SUPPLY

Power is supplied to the ABC via a Universal AC Power Adaptor (12Vdc output) supplied with the unit.

The plug adaptor is located in the 12Vdc socket on the rear face of the ABC, as illustrated in Fig. 2-7.

*Fig. 2-7 Connect Power Supply to ABC*

Locate the Universal Power Adaptor in a mains supply wall socket then switch the mains power ON.

The 'ON' LED, on the front face of the unit, will illuminate green, as illustrated in Fig. 2-8.

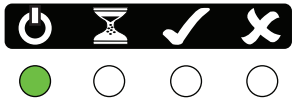


*Fig. 2-8 Unit 'ON' Indication*

After 5 seconds all four LED's illuminate green, as illustrated in Fig. 2-9. This indicates that the unit is loading operating software and preparing for testing.

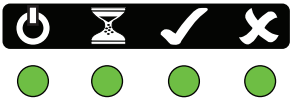


*Fig. 2-9 Unit Loading Software*

After a further 25 seconds three green LED's extinguish leaving only the 'ON' indication illuminated, as shown in Fig. 2-8. Next, three LED's coloured orange, orange and red illuminate briefly in sequence, indicating that GMI 'TEST' software has started.

Finally, the 'ON' indication is illuminated, as illustrated in Fig. 2-8, and the ABC is now ready for operation.

---

**Note: The ABC can be powered ON indefinitely with no harm to the hardware.**

---

# SOFTWARE CONFIGURATION

## 3.1 VIEW / EDIT SOFTWARE CONFIGURATION

The USB memory stick, supplied with the ABC, contains the '**PS500 Settings**' software.

**Note: 'PS500 Settings' are not pre-configured with test parameters. A settings file MUST be generated and transferred to the ABC before testing / calibration can take place.**

To view '**PS500 Settings**', insert the memory stick into an available USB port on your PC / Laptop.

The following screen is displayed on a Windows 7™ PC / Laptop.

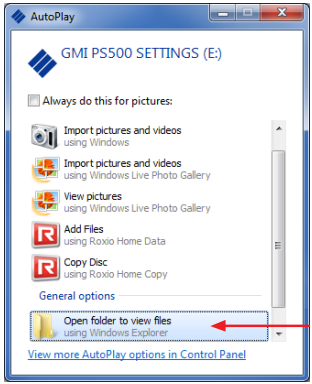



*Fig. 3-1 PS500 Settings Windows 7™ Options*

**Note: All software instructions in the user handbook, are based on using Windows 7™.**

Select 'Open folder to view files' to display the contents, as illustrated in Fig. 3-2.

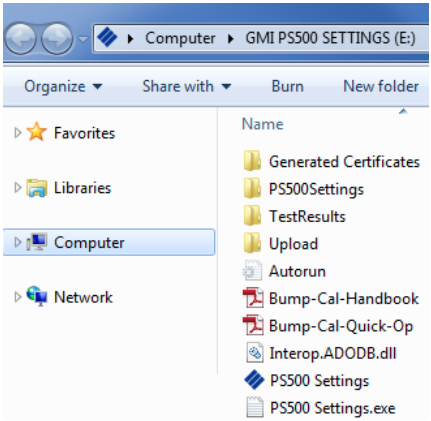



*Fig. 3-2 PS500 Settings Contents Folder*

**Note: A short-cut to both the User Handbook and the Quick Operation Guide, can be accessed from this window. Adobe Acrobat Reader must be installed to view these files.**

To view the test configuration settings, open the PS500 Settings application from the list of items in Fig. 3-2.

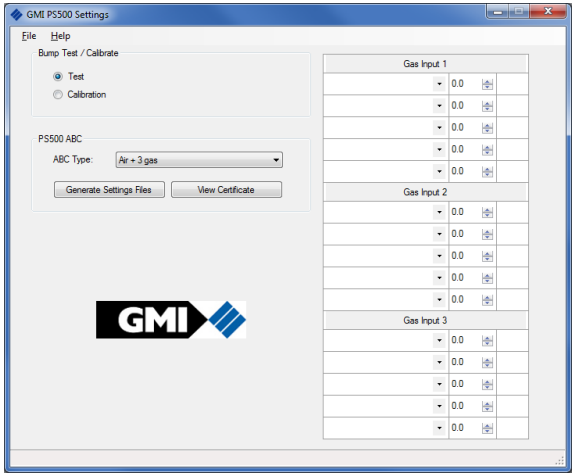



*Fig. 3-3 Configuration Window (Multi Gas Set-up)*

There are two Bump Test / Calibrate options available:

- Test (i.e. bump test)
- Calibration

PS500 instruments can have many gas configurations. To incorporate the majority of gas configurations, there are two ABC type's available for test and calibration:

- Air + 1 gas. Single Gas Cylinder - Gas Input 1.
- Air + 3 gas. Multi Gas Cylinders - Gas Inputs 1, 2, 3.

**Note: Each 'Gas Input' (cylinder) can contain up to 5 different types of gas.**

### 3.1.1 Bump Test

This feature provides the user with the ability to perform a full bump test, testing alarm set points and sensor response.

When gas is applied, using Test Gas Cylinders, for a pre-set time, the audible and visual alarms will activate, and the unit will record a 'Pass' when the target values are attained.

---

**Note: Gas application times, alarm set points and target values are gas type dependent.**

---

To select / change the instrument gas type, ensure from the 'Bump Test / Calibrate' section, 'Test' is selected. Then, from the appropriate 'Gas Input' section, select the required gas type from the drop down list. The example in Fig. 3-4 shows Methane selected from 'Gas Input 1'.

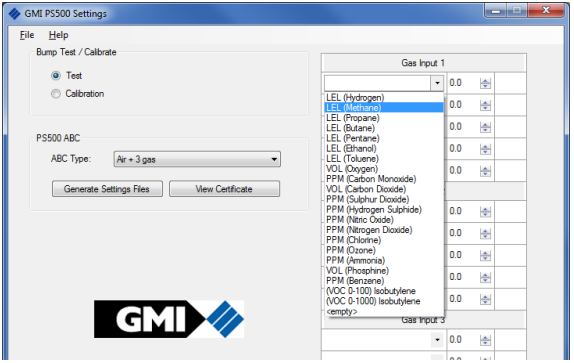



*Fig. 3-4 Instrument Gas Type Selection*

To enter / edit the gas concentration, highlight the gas value (0.0), then type in the new value (e.g. 50.0% LEL Methane), as illustrated in Fig. 3-5.

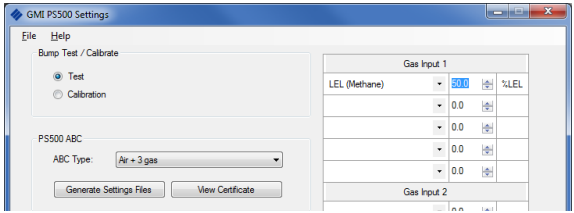



*Fig. 3-5 Gas Concentration*

**Note: It is important that the 'Gas Concentration' value is consistent with the value displayed on the gas cylinder label.**

Isobutylene is the recommended gas for tested or calibrating VOC 0-100 PPM and VOC 0 - 1000 PPM ranges.

If testing or calibrating VOC ranges with a gas other than Isobutylene, select the VOC range from the drop down list. Isobutylene can then be edited with your calibration gas of choice. E.g. Toluene in 'Gas Input 2', as illustrated in Fig. 3-6.

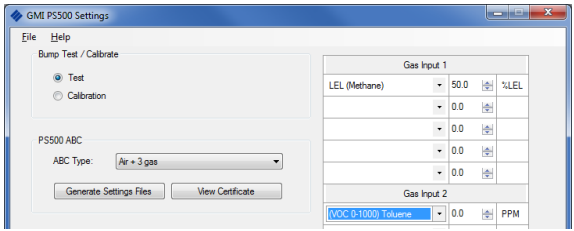



*Fig. 3-6 Editing VOC Gas Type*

### 3.1.2 Calibration

This feature provides the user with the option of performing a full calibration of the instrument.

When gas is applied, using Test Gas Cylinders, for a pre-set time, the audible and visual alarms will activate, and the unit will record a 'Pass' when the recalibrated target value is attained.

---

**Note: Gas application times, alarm set points and target values are gas type dependent.**

---

To select / change the instrument gas type, ensure from the 'Bump Test / Calibrate' section, 'Calibration' is selected. Then, from the appropriate 'Gas Input' section, select the required gas type from the drop down list. The example in Fig. 3-7 shows Methane selected from 'Gas Input 1'.

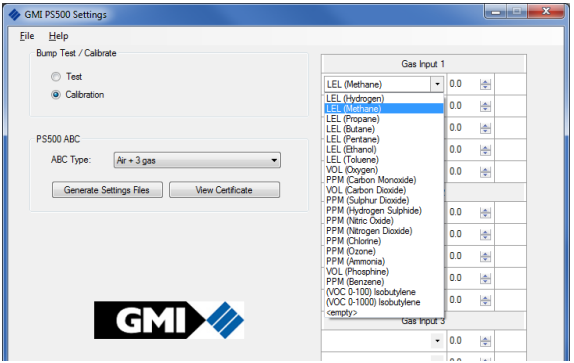



*Fig. 3-7 Instrument Gas Type Selection*

To enter / edit the gas concentration, highlight the gas value (0.0), then type in the new value (e.g. 50.0% LEL Methane), as illustrated in Fig. 3-8.

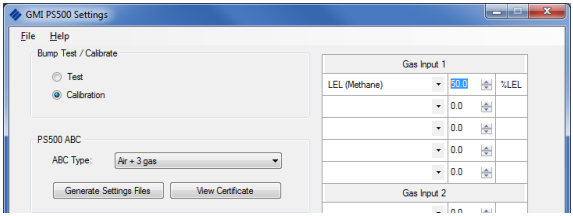



*Fig. 3-8 Gas Concentration*

**Note: It is important that the 'Gas Concentration' value is consistent with the value displayed on the gas cylinder label.**

### 3.1.3 Generate Settings File

The ‘Generate Settings Files’ button, illustrated in Fig. 3-9, allows any configuration changes to be saved to the USB memory stick, as updated settings file, then transferred to the ABC.

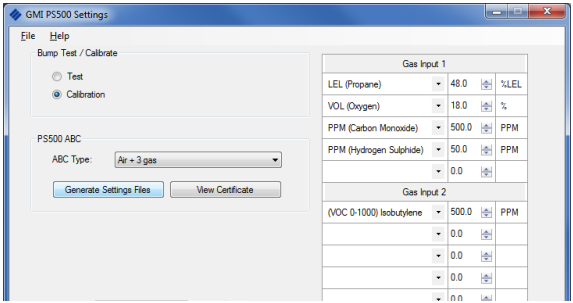



*Fig. 3-9 Generate Setting Files*

To save changes, select the ‘Generate Settings File’ button to save the data to the USB memory stick. The message illustrated in Fig. 3-10 will be displayed.

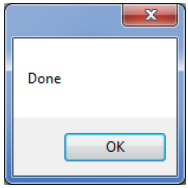



*Fig. 3-10 New PS500 Settings File Generated*

## 3.2 TRANSFER UPDATED 'PS500 SETTINGS' to ABC

Make sure that the 12V power supply is connected to the ABC and switched ON, indicated by an illuminated green 'ON' LED on the front of the ABC and that the ABC has completed start-up.

Remove USB memory stick from the PC / Laptop then insert into the USB port on the front face of the ABC, as illustrated in Fig. 3-11.

*Fig. 3-11 Auto Bump / Calibration Station USB Port*

When the USB is inserted in the ABC, the updated settings file is automatically transferred to the ABC, indicated by three flashing green LED's, as illustrated in Fig. 3-12.

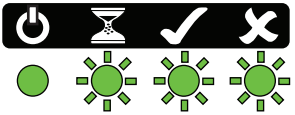


*Fig. 3-12 Transferring Data to Unit*

On completion of uploading the updated settings file, the three LED's stop flashing, as illustrated in Fig. 3-13, indicating the upload is complete.

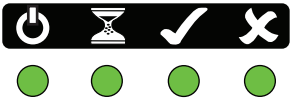


*Fig. 3-13 Upload Complete*

Next, LED's coloured orange, orange and red illuminate, as illustrated in Fig. 3-14 and GMI 'TEST' software has re-started.

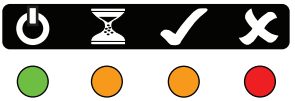


*Fig. 3-14 Test Software Re-started*

Next, the three (orange, orange and red) LED's extinguish, leaving only the green 'ON' LED illuminated.

The Auto Bump / Calibration Station has stored the new data and is ready for use.

The USB memory stick can now be removed.

## 3.3 HELP OPTIONS

The '**PS500 Settings**' software contains a Help menu, as illustrated in Fig. 3-15.

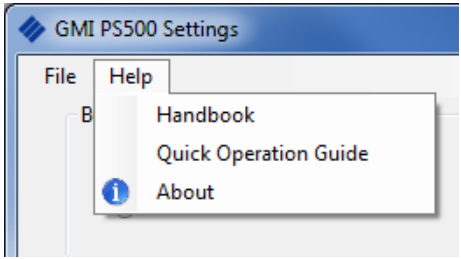



*Fig. 3-15 Help Menu*

The menu has the following options available:

- **Handbook** - select to open the User Handbook (in PDF format).
- **Quick Operation Guide** - select to open the Quick Operation Guide (in PDF format).
- **About** - contains information relating to the owner, name and version of the application.

---

**Note: Adobe Acrobat Reader must be installed to view the Handbook and Quick Operation Guide.**

---

# BUMP / CALIBRATION OPERATION

## 4.1 PS500 SWITCH ON

The PS500 must be switched ON, before inserting into the Auto Bump / Calibration Station.

To switch ON, press and hold the blue button, as illustrated in Fig. 4-1.

*Fig. 4-1 PS500 Switch ON*

The instrument will switch on, run through the warm-up sequence and show the normal operating display, as the example illustrates in Fig. 4-2.

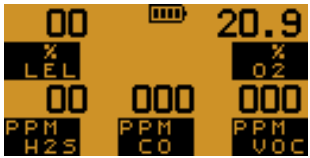



*Fig. 4-2 Normal Operating Display*

## 4.2 INSERT INSTRUMENT IN AUTO BUMP / CALIBRATION STATION

**Note: Before use, ensure the ABC is ready for operation and the appropriate 'PS500 Settings' file has been transferred.**

To release the front cover of the Auto Bump / Calibration Station, press the cover latch downwards, as illustrated in Fig. 4-3, then open the cover fully.

*Fig. 4-3 Open Front Cover*

Locate the instrument inlet connector over the gas supply nozzle in the unit, as illustrated in Fig. 4-4.

*Fig. 4-4 Locate Instrument*

Push the instrument rearwards until correctly seated in the station recess, as illustrated in Fig. 4-5.

*Fig. 4-5 Instrument Correctly Seated*

**Note: Ensure the instrument is switched ON before closing the front cover.**

Close the front cover of the Auto Bump / Calibration Station, by using both thumbs. Press the lower centre of the cover firmly, as illustrated in Fig. 4-6, until the latch ‘clicks’ shut.

*Fig. 4-6 Close Front Cover*

## 4.3 BUMP / CALIBRATION OPERATION

The Bump / Calibration operation starts up automatically following the locking of the unit cover latch.

After the cover latch 'clicks' shut, the orange 'Test in Progress' LED illuminates, as illustrated in Fig. 4-7.

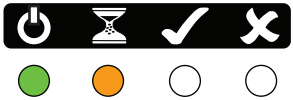


*Fig. 4-7 Test in Progress*

During testing, when the alarm set points are reached, the instrument's audible and visual alarms will activate for a short period of time.

On test completion the instrument will switch OFF.

A test 'PASS' is indicated by a green LED, as illustrated in Fig. 4-8.

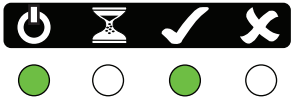


*Fig. 4-8 PASS Indication*

Alternatively, a test 'FAIL' is indicated by a red LED, as illustrated in Fig. 4-9.

*Fig. 4-9 FAIL Indication*

**Note: If the instrument fails, please ensure you are using the correct gas cylinder and the cylinder contains enough gas to perform a bump / calibration. The pressure gauge on the Regulator Valve gives a clear indication of this.**

Next, the unit pump switches OFF and the instrument can be safely removed.

The test result indication is displayed until the door is opened.

All test results are stored in the ABC memory and can be accessed as detailed in Chapter 5.

## 4.4 REMOVE INSTRUMENT FROM ABC

To release the front cover of the Auto Bump / Calibration Station, press the cover latch downwards, as illustrated in Fig. 4-10, then open the cover fully.

*Fig. 4-10 Open Front Cover*

**CAUTION: Do not overextend angle of extraction as damage to the gas supply nozzle could result.**

Grasp the instrument, lean the top of instrument away from the ABC, then carefully lift away from gas supply nozzle, as illustrated in Fig. 4-11.

*Fig. 4-11 Lift Instrument Clear of Gas Nozzle*

Close the front cover of the ABC then, using both thumbs, press the lower centre of the cover firmly until the latch 'clicks' shut.

## 4.5 ABC FAULT INDICATION

Fault detection indication is via the LED's on the front face of the unit, as follows:

**Test Error**

A 'Test Error' is indicated by an orange flashing LED, as illustrated in Fig. 4-12.

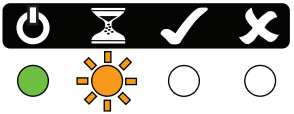


*Fig. 4-12 Test Error*

If this fault occurs, it is recommended that the USB memory stick is inserted into a PC / Laptop and re-configured, as detailed in Chapter 4.

On completion, the data should then be transferred to the Auto Bump / Calibration Station.

# VIEW / PRINT TEST RESULTS

## 5.1 INTRODUCTION

The test results of all instruments that have been Bump Tested / Calibrated in the unit are stored in the unit internal memory.

The USB memory stick (Part No. 61251), containing '**PS500 Settings**' software and supplied with the Auto Bump / Calibration Station, must be used to download this data.

*Fig. 5-1 Downloading Memory Stick*

The memory stick can be used to download data from several GMI Auto Bump / Calibration Stations, if required.

The data identifies the serial number of the unit used to download data from each instrument, bump tested or calibrated.

---

**Note: It is recommended a backup of the test results are made, on a PC / Laptop, on a regular basis; in case of the USB memory stick being misplaced.**

---

## 5.2 DOWNLOAD TEST RESULTS

Make sure that the Auto Bump / Calibration Station is connected to mains power supply, switched ON and start-up is completed.

This is indicated by an illuminated green 'ON' LED, on the front face of the unit, as illustrated in Fig. 5-2.

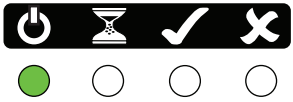


*Fig. 5-2 Unit 'ON' Indication*

Insert USB memory stick into the USB port on the front face of the unit, as illustrated in Fig. 5-3.

*Fig. 5-3 Auto Bump / Calibration Station USB Port*

When the USB memory stick is inserted in the unit, all stored test results are automatically transferred to the memory stick. During this process three green LED's flash in sequence from left to right, as illustrated in Fig. 5-4.

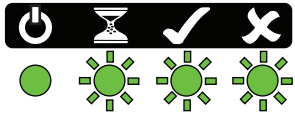


*Fig. 5-4 Downloading Data*

This is followed by all four green LED's illuminating, as illustrated in Fig. 5-5, indicating that download is complete.

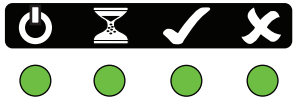


*Fig. 5-5 Download Complete*

Next, LED's coloured orange, orange and red illuminate, as illustrated in Fig. 5-6. This indicates that the test data has been downloaded and GMI 'TEST' software has re-started.

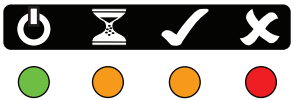


*Fig. 5-6 Test Software Re-started*

Next, the three (orange, orange and red) LED's extinguish, leaving only the green 'ON' LED illuminated, as illustrated in Fig. 5-2.

The USB memory stick can now be removed and transferred to a PC / Laptop to view test results.

## 5.3 VIEW / PRINT TEST RESULTS

Insert the USB memory stick into a USB port on PC / Laptop.

Select ‘Open folder to view files’ to display the contents, as illustrated in Fig. 5-7.

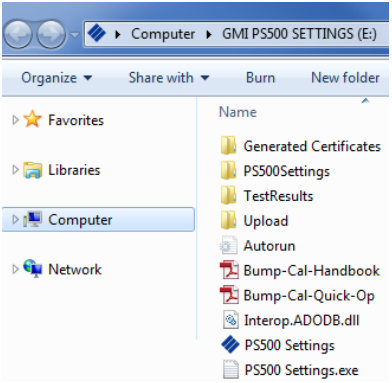



*Fig. 5-7 PS500 Settings Contents Folder*

The contents of the folder are as follows:

- Generated Certificates:
  Contains copies of all calibration certificates generated.
- PS500 Settings:
  This is a systems folder. **Do not edit.#**
- Test Results:
  Contains copies of all test results generated.
- Upload:
  Contains configuration settings used by the Auto Bump / Calibration Station. **Do not edit.#**

- Autorun:
  USB memory stick will start automatically when inserted. **Do not edit.#**
- Handbook:
  Auto Bump / Calibration Station user handbook (in PDF format).
- Quick Operation Guide:
  Auto Bump / Calibration Station poster style document (in PDF format).
- Interop.ADODB.dll. **Do not edit.#**
- PS500 Settings application.
- PS500 Settings.exe. **Do not edit.#**

# - Depending on PC / Laptop 'Folder Option' settings these items may be hidden. If visible do not edit.

### 5.3.1 Test Result Files

The contents of this folder includes all instrument test result files downloaded from each Auto Bump / Calibration Station that the USB memory stick has been used on.

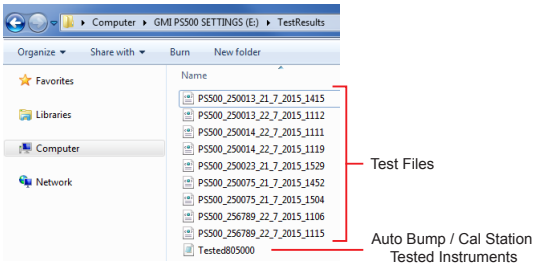



*Fig. 5-8 'Test Results' Folder Contents*

Test Result Files:

The test file names in Fig. 5-8, (e,g. PS500_250013_21_7_2015_1415) identifies the serial number of the instrument (e.g. 250013), the date tested in day, month and year (e.g. 21_7_2015) and the time testing was completed (e.g. 1415hrs).

Each file can be opened individually to display a comprehensive list of test results obtained from that particular instrument.

The following example, in Fig. 5-9, illustrates information available, including:

- Instrument Type (e.g. PS500)
- Test Type (e.g. CALIBRATION)
- Instrument Serial No. (e.g. 250013)
- New Cal Due Date (if Test registered as PASS)
- ABC Serial No. (e.g. 805000)
- Date Tested (e.g. 21 July 2015)
- Time Tested (e.g. 2:15:25 PM)
- Overall Result (e.g. PASS)

Followed by a listing of air tests, then gas tests which display target / lo Limit / hi Limit / result / range / re cal val / re cal result for the gas range.

Finally, an audible / visual alarm test result is displayed.

Test results, as illustrated in Fig. 5-9, can be printed if required.

```
<?xml version="1.0" encoding="utf-8"?>
<resultset>
  <info>
    <instrument>PS500</instrument>
    <testtype>CALIBRATION</testtype>
    <serial>250013</serial>
    <calGas>METHANE</calGas>
    <lel100pc>5</lel100pc>
    <calDueDate>21 January 2016</calDueDate>
    <absSerialNum>805000</absSerialNum>
    <date>21 July 2015</date>
    <time>2:15:25 PM</time>
    <overallResult>PASS</overallResult>
    <opID>Not Used</opID>
  </info>
  <airtests>
    <set>
      <range>% LEL</range>
      <lolim>-2</lolim>
      <reading>0</reading>
      <hilim>2</hilim>
      <prezero>PASS</prezero>
      <postzeroreading>0</postzeroreading>
      <postzero>PASS</postzero>
    </set>
    <set>
      <range>% O2</range>
      <lolim>20.4</lolim>
      <reading>20.9</reading>
      <hilim>21.4</hilim>
      <prezero>PASS</prezero>
      <postzeroreading>20.9</postzeroreading
      <postzero>PASS</postzero>
    </set>
    <set>
      <range>PPM VOC</range>
      <lolim>-2</lolim>
      <reading>-1</reading>
      <hilim>2</hilim>
      <prezero>PASS</prezero>
      <postzeroreading>0</postzeroreading>
      <postzero>PASS</postzero>
    </set>
```

*Fig.5-9 View Test Result File*

Auto Bump / Calibration Station Instruments:

The tested files (e.g. Tested805000.rec) illustrated in the Fig. 5-8, identifies the serial number of each Auto Bump / Calibration Station (e.g. 805000) that the memory stick has been used to download data from. Each file contains a list of all instrument serial numbers tested on that particular station.

Each '.rec' file can be opened individually to display a comprehensive list of test results obtained from that particular Auto Bump / Calibration Station.

The following example, Fig. 5-10, illustrates a list of instruments tested on unit serial number 805000.

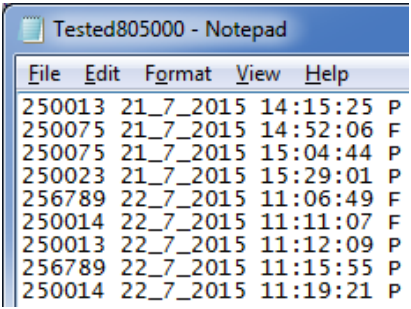



*Fig. 5-10 Tested Instruments on 805000*

The file includes:

- A list of instruments tested
- Date Tested (day, month, year)
- Time Tested
- Test Result, Pass (P) or Fail (F)

### 5.3.2 Generated Certificates

The contents of this folder includes a list of all Bump Test / Calibration Certificates generated when selecting the 'View Certificate' button in the configuration window, as illustrated in Fig. 5-11.

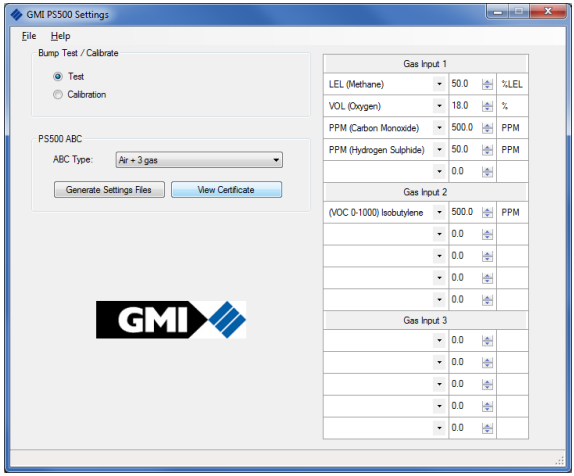



*Fig. 5-11 Configuration Window*

Certificate Content:

The certificates, as illustrated in Fig. 5-17 and 5-18, include company details, order number, etc. These details are completed in a 'Certificate Printer' window, accessed by opening 'View Certificate' in the configuration window, illustrated in Fig. 5-11.

The 'Certificate Printer' window is displayed, as illustrated in Fig. 5-12.

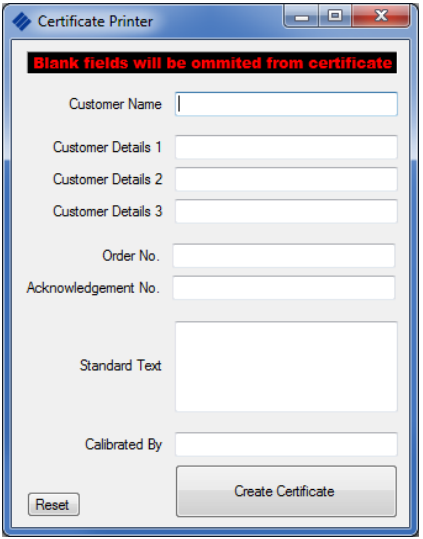



*Fig. 5-12 'Certificate Printer' Window*

The windows contents can now be completed to include company name, address, etc., as illustrated in Fig. 5-13.

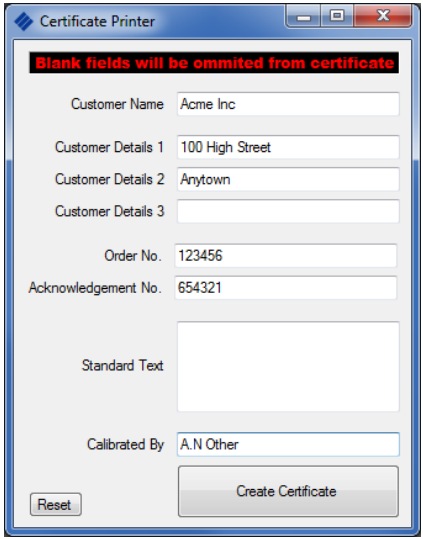



*Fig. 5-13 Certificate Completed*

When 'Certificate Printer' window is complete, select the 'Create Certificate' button, illustrated in Fig. 5-13, to print certificate as illustrated in example Fig. 5-18.

To include your company's logo on the printed certificate, insert the logo file, named **logo.jpg** into the 'Generated Certificates' folder on the memory stick. The logo will be included in the top right hand corner of the certificate, as illustrated in the 'GMI' logo example in the 'Calibration Certificate', illustrated in Fig. 5-18.

**Note: Logo dimensions must not exceed 200 (W) X 50 (H) pixels.**

After selecting the ‘Create Certificate’ button, the test results folder will be displayed, highlight a test result for certificate generation then select ‘Open’, as illustrated in Fig. 5-14.

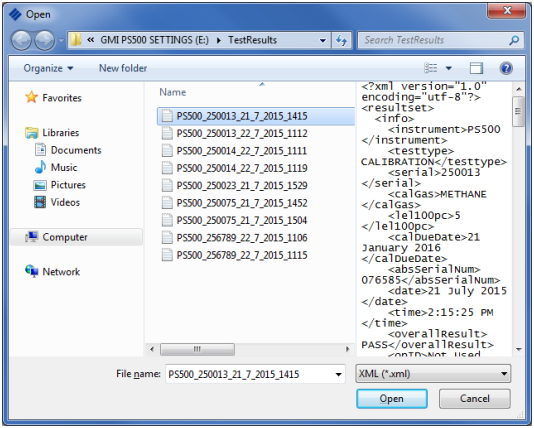



*Fig. 5-14 Select Test Result for Certificate Generation*

Next, a ‘DONE!’ window will be displayed. The certificate has now been generated for the selected test result file. Select ‘OK’, from the window, to open the generated certificate, as illustrated in Fig. 5-15.

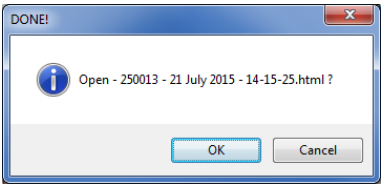



*Fig. 5-15 Open Certificate*

Generated Certificate Files

The certificate files illustrated in Fig. 5-16, identifies date and time of each certificate's generation.

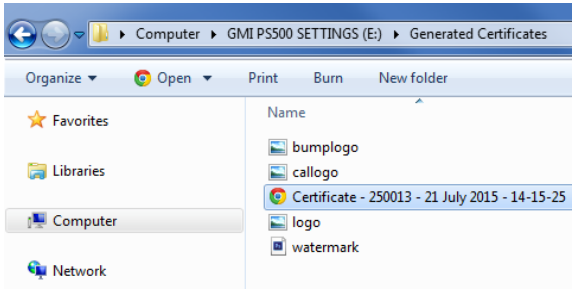
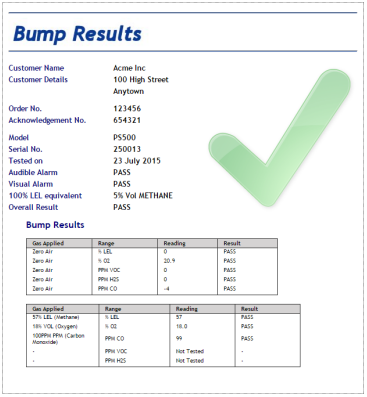



*Fig. 5-16 Generated Certificate Files*

Each file can be opened individually to display / print a 'Bump Results' or 'Calibration Certificate'.

**Note: If background image (green tick), illustrated in Fig. 5-15 or 5-16, is not present adjust local printer settings.**

An example of the 'Bump Results' and 'Calibration Certificate' are illustrated in Fig. 5-17 and Fig. 5-18 respectively.



## Bump Results

| | |
|---|---|
| Customer Name | Acme Inc |
| Customer Details | 100 High Street<br>Anytown |
| Order No. | 123456 |
| Acknowledgement No. | 654321 |
| Model | PS500 |
| Serial No. | 250013 |
| Tested on | 23 July 2015 |
| Audible Alarm | PASS |
| Visual Alarm | PASS |
| 100% LEL equivalent | 5% Vol METHANE |
| Overall Result | PASS |

**Bump Results**

| Gas Applied | Range | Reading | Result |
|---|---|---|---|
| Zero Air | % LEL | 0 | PASS |
| Zero Air | % O2 | 20.9 | PASS |
| Zero Air | PPM VOC | 0 | PASS |
| Zero Air | PPM H2S | 0 | PASS |
| Zero Air | PPM CO | -4 | PASS |

| Gas Applied | Range | Reading | Result |
|---|---|---|---|
| 57% LEL (Methane) | % LEL | 57 | PASS |
| 18% VOL (Oxygen) | % O2 | 18.0 | PASS |
| 100PPM PPM (Carbon Monoxide) | PPM CO | 99 | PASS |
| - | PPM VOC | Not Tested | - |
| - | PPM H2S | Not Tested | - |

*Fig. 5-17 Bump Results*

## Calibration Certificate

| | |
|---|---|
| Customer Name | Acme Inc |
| Customer Details | 100 High Street<br>Anytown |
| Order No. | 123456 |
| Acknowledgement No. | 654321 |
| Model | PS500 |
| Serial No. | 250013 |
| Tested on | 21 July 2015 |
| Audible Alarm | PASS |
| Visual Alarm | PASS |
| 100% LEL equivalent | 5% Vol METHANE |
| Overall Result | PASS |

**Calibration Results**

| Gas Applied | Range | Reading | Calibrated To | Result |
|---|---|---|---|---|
| Zero Air | % LEL | 0 | 0 | PASS |
| Zero Air | % O2 | 20.9 | 20.9 | PASS |
| Zero Air | PPM VOC | -1 | 0 | PASS |
| Zero Air | PPM H2S | 0 | 0 | PASS |
| Zero Air | PPM CO | 0 | -2 | PASS |

| Gas Applied | Range | Reading | Calibrated To | Result |
|---|---|---|---|---|
| 50% LEL (Methane) | % LEL | 50 | 50 | PASS |
| 18% VOL (Oxygen) | % O2 | 18.0 | N/A | PASS |
| 100PPM PPM (Carbon Monoxide) | PPM CO | 96 | 99 | PASS |
| - | PPM VOC | Not Tested | - | - |
| - | PPM H2S | Not Tested | - | - |

Calibrated by A.N Other :_____

*Fig. 5-18 Calibration Certificate*

# FIT MOUNTING BRACKET

*Fig. A-1 Auto Bump / Calibration Station (with mounting bracket fitted)*

## 1. GENERAL DESCRIPTION

The PS500 Auto Bump / Calibration Station is supplied with a mounting bracket and necessary screws to secure the unit to a workbench or similar.

The bracket also provides the facility to ‘daisy chain’ a series of Auto Bump / Calibration Stations if required.

## 2. FIT MOUNTING BRACKET

1. Make sure the workbench surface is clean and free from dirt and grime.

2. Place clean cloth or similar on workbench to protect Auto Bump / Calibration Station front cover surface from scratching and / or scuffing.

3. Carefully place the unit face down on workbench. Refer to Fig. A-2.

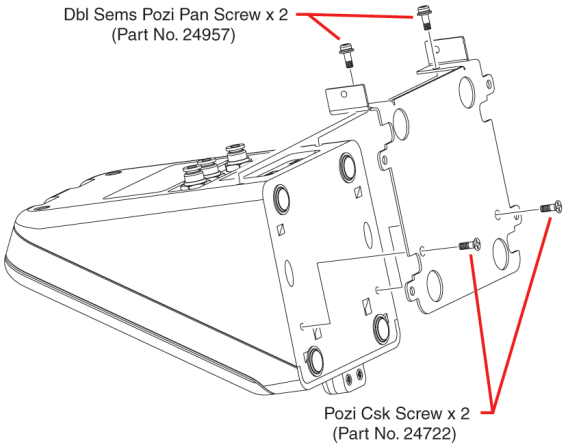



*Fig. A-2 Attach Bracket to Unit*

4. Loosely attach bracket to the underside of the unit with two pozi countersunk screws (Part No. 24722), as illustrated in Fig. A-2.

5. Loosely attach two double sems pozi pan screws (Part No. 24957) through bracket and into rear panel of unit, as illustrated in Fig. A-2.

6. Using a No.2 Pozidrive screwdriver, tighten all four screws to secure.

## 3. ATTACH UNIT to WORKBENCH / DAISY CHAIN OPTION

The bracket can be secured to a workbench or similar type surface using four suitable screws (not supplied).

*Fig. A-3 Attach Unit to Workbench*

A group of Auto Bump / Calibration Stations can be connected in a 'daisy chain' fashion by using a double sems pozi pan screw supplied (Part No. 24957) through bracket at rear of station and into captive nut of adjoining bracket, as illustrated in Fig. A-4.

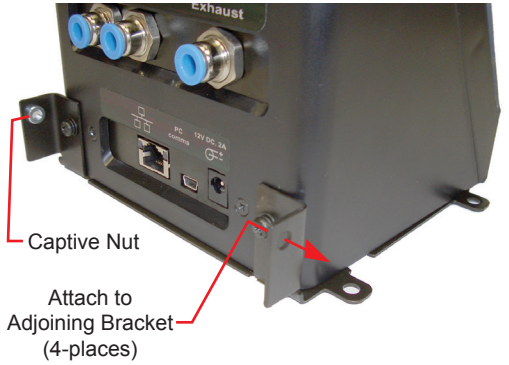



*Fig. A-4 Attach Adjoining Units*

# INDEX

## Symbols

30 DAY LIMITED WARRANTY ii

## A

About 3-11
Additional Accessories 1-5
Air + 1 gas 3-3
Air + 3 gas 3-3
Air inlet 2-5
Air in-line filter 2-5
Attach Adjoining Units A-4
Attach Bracket to Unit A-2
Attach Regulator Valve to Gas Cylinder 2-4
Attach Unit to Workbench A-3
Auto Bump / Calibration Hardware 1-5
Auto Bump / Calibration Station 1-1
Auto Bump / Calibration Station USB Port 3-9, 5-2

## B

Barbed adaptor 2-6
Bump / Calibration Operation 4-1, 4-6
Bump Results 5-14
Bump Test 3-4

## C

Calibration 3-6
Calibration Certificate 5-14
Calibration Gas Setup 2-1
Calibration Software Licence i
Certificate Completed 5-11
Certificate Printer Window 5-10
Close Front Cover 4-5
Compare Gas Cylinder Label with Software Configuration 2-2
Configuration Window 5-9
Configuration Window (Multi Gas Set-up) 3-3
Connect Air / Exhaust Tubing to Auto Bump / Calibration Station 2-5
Connect Air Tubing to ABC 2-6
Connect Calibration Gas 2-1
Connect Gas Cylinder to Auto Bump / Calibration Station 2-4

Connect Power Supply 2-7
Connect tubing to ABC 2-5
COPYRIGHT iii

**D**

Download Complete 5-3
Downloading Data 5-3
Download Test Results 5-2

**E**

Editing VOC Gas Type 3-5
Exhaust outlet 2-5

**F**

FAIL Indication 4-6
Fault Indication 4-10
Fit Mounting Bracket A-1
flexiCal Plus 1-4

**G**

Gas Concentration 3-5, 3-7
Gas Cylinder Label 2-2
Gas duration 1-2
Gas inlet adaptor 2-4
General Description 1-1
Generated Certificate Files 5-13
Generated Certificates 5-9
Generate Settings File 3-8

**H**

Help Options 3-11

**I**

Insert Instrument in Auto Bump / Calibration Station 4-2
Instrument Correctly Seated 4-4
Instrument Type Selection 3-4
Introduction 1-1

**L**

LIABILITY iii
LICENCE AGREEMENT i
Lift Instrument Clear of Gas Nozzle 4-9
LIMITED WARRANTY ii
Locate Instrument 4-3

**M**

Mounting Bracket A-1
Multi-gas unit 1-2

**N**

New PS500 Settings File Generated 3-8
Normal Operating Display 4-1

**O**

On Demand Gas Flow Regulator 1-5
Open Front Cover 4-2, 4-8

**P**

PASS Indication 4-6
PS500 Settings i, 1-3, 3-1, 5-1
PS500 Settings Contents Folder 3-2, 5-4
PS500 SWITCH ON 4-1

**Q**

Quick Operation Guide 3-11

**R**

Remove Instrument From Auto Bump / Calibration Station 4-8

**S**

Select Test Result for Certificate Generation 5-12
Single gas unit 1-2
Software Configuration 2-3, 3-1
Software Licence i

**T**

Test Error 4-10
Test Gas Cylinder 1-5, 2-1
Test in Progress 4-6
Test Result Files 5-5
Test Results Folder Contents 5-5
Test Software Re-started 3-10, 5-3
TRADEMARK INFORMATION iii
Traffic light system 1-3
Transferring Data to Unit 3-10
Transfer Updated 'PS500 Settings' to ABC 3-9
Tygon tubing 1-5, 2-1

**U**

Unit Loading Software 2-8
Unit 'ON' Indication 2-7
Upload Complete 3-10
USB memory stick 3-1, 3-9, 5-1
User Handbook 3-11

**V**

View / Edit Software Configuration 3-1
View / Print Test Results 5-1, 5-4
View Test Result File 5-7
VOC ranges 3-5

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