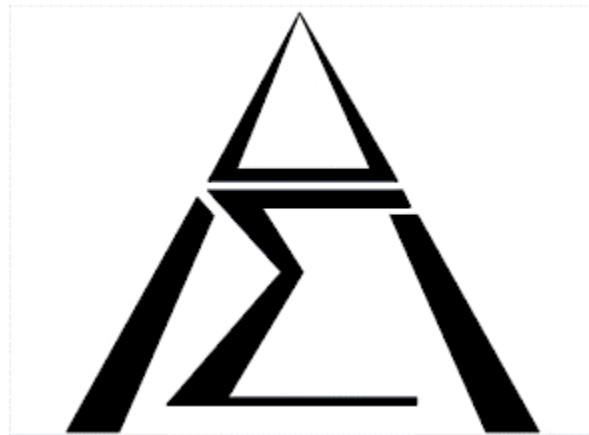


MOLDiagnositics

OPERATING INSTRUCTIONS



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REFERENCE DOCUMENTS

For information on how to use the **MOLDiagnos**tics unit refer to the two documents that are supplied with the product when purchased. These two documents are:

1. **MOLDiagnos**tics Software Manual, Document Number: 0900135
2. **MOLDiagnos**tics Technical Manual, Document Number: 0900133

NOTICE and DISCLAIMER

This monitoring device measure various air parameters that, when properly operated, provides an indication of air data conditions that potentially can support the growth of mold in various areas of a facility. This devices does not measure water intrusion events. This device does not sample or analyze air for the content of mold, fungal material or microbes of any kind. This device, when properly used along with an operations, maintenance and mitigation program that includes visual facility inspection, can provide responsible parties with air related data, that when managed properly, reduce the potential for conditions that may give rise to mold growth.

DISCLAIMER

Applied Data Sciences reserves the right to make design changes or modifications to any product to improve performance or incorporate new functions. The material in this document is for informational purposes and is subject to change without notice. Applied Data Sciences assumes no responsibility for any errors that may appear in this document.

CALIBRATION

The unit has been factory calibrated. Recalibration should be performed on a twelve months schedule. If any changes are required, the unit should be returned to Applied Data Sciences.

The only calibration required by the user is the adjustment for local Barometric Pressure. Refer to **MOLDiagnos**tics Technical Manual, Document Number: 0900133, page 11 under the section described as **UNIT SETUP**.

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ABBREVIATIONS

The abbreviations used by the **MOLDIAGNOSTICS** are as follows:

- BP = Barometric Pressure
- AT = Air Temperature
- RH = Relative Humidity
- CO2 = Carbon Dioxide
- OXY = Oxygen
- BT = Battery
- SWVP = Saturated Water Vapor Pressure
- WVP = Water Vapor Pressure
- AD = Air Density
- DA = Density Altitude
- R8 = Oxygen Sensor Gain Potentiometer
- InHg = Inches of Mercury
- PPM = Parts Per Million
- F = Degrees Fahrenheit
- C = Degrees Celsius
- ADC# = Analog to Digital Converter Number

SETUP & CONNECTING THE UNIT

The information in this document is provided in a typical tutorial format. That is, you should go through this manual in the order the material is presented. The sections are arranged according to the expected sequence a user would use this product

Plug the provided AC power module into the power jack located just below the **ON/OFF** switch on the **MOLDIAGNOSTICS** unit or install two (2) 9-volt batteries into the battery compartment located on the back of the unit.

Turn **ON** the power switch located on the right side.

The unit is in a free running loop and will continue this until another key is pressed. The first screen you see is shown in FIGURE 1.0.

BP=29.46l nHg	AT=082F
RH=33%	CO2=0797 PPM
OXY=30.9%	BT=99%
15:07:44	05/02/03

FIGURE 1.0
Main Screen

INTRODUCTION TO KEYPAD

In subsequent sections of this document you will be required to press keys on the keypad. A photograph of the keypad showing the location of the keys is shown for your assistance.

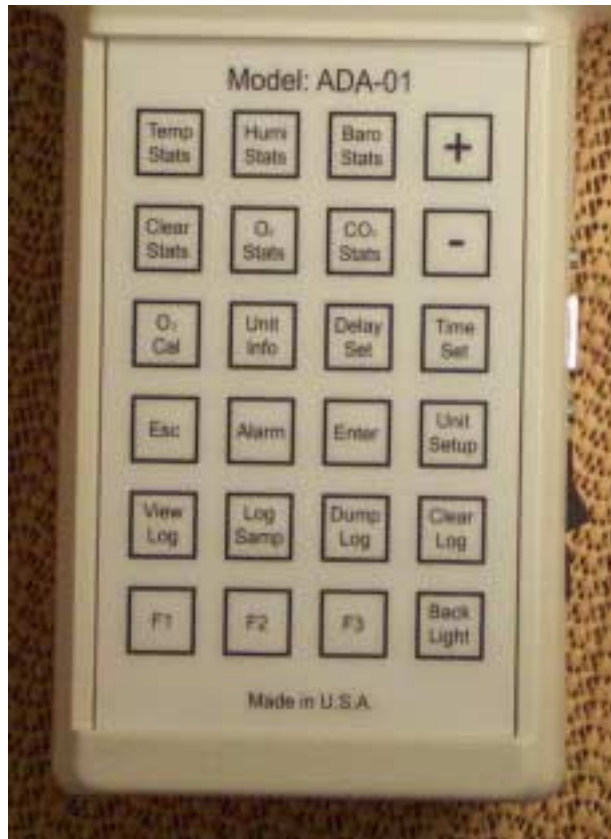
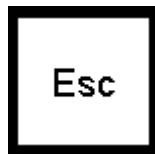


FIGURE 2.0
Keypad

COMMONLY USED KEYS

There are four keys that are used on a recurring basis. They are presented here along with a description of their use.

ESC



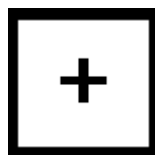
This key is used to escape from several subroutine screens without saving any information. When you want to return to the main menu screen, shown in FIGURE 1.0, press this key. If you are unsure what to do, then press this key to exit.

ENTER

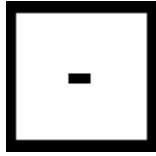
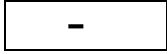


This key is used in conjunction with other keys on the keypad. Its primary function is to save the data or values that you have entered on the screen.

+



This key is used in conjunction with other keys on the keypad. Its primary function is to increase or increment the value that is shown on the display. In performing certain functions, this key may continuously increment the value if you continue to hold this key down.



This key is used in conjunction with other keys on the keypad. Its primary function is to decrease or decrement the value that is shown on the display. In performing certain functions, this key may continuously decrement the value if you continue to hold this key down.

UNIT INFORMATION KEY

Unit Info



Press this key to obtain information about the unit (i.e., firmware revision, serial number and model number). Also displayed is the web site location where you can inquire about the warranty information

When you press the **Unit Info** key, the screen shown in FIGURE 3.0 will be displayed for approximately five (5) seconds.

```
<www.appdatsci.com>  
Firmware Rev. 1.2  
Serial # 23000  
Model # ADA-01
```

FIGURE 3.0
Unit Information

SET DATE & TIME

TIME SET



Press this key when you want to set the correct time and date. When this key is first pressed you will see the screen shown in FIGURE 1.0. The cursor is automatically placed on the hours field and the user can use the + and – keys to adjust the value. When the desired value is displayed, press the **Time Set** key again and the routine will move to minutes. Again use the + and – key to adjust the displayed value until the desired value is displayed and then press the **Time Set** key again to set the value.

This sequence continues through “*hours, minutes, seconds, month, date, and year*”. When you set the year the routine the unit will set the Real Time Clock and write protect it so that bogus values cannot be accidentally set into the Real Time Clock.

It presently works in military time only. That is the hours are shown in a 0 to 24 hour format.

Press **Time Set** – Press + **or** – to adjust hour.

Press **Time Set** – Press + **or** – to adjust minute.

Press **Time Set** – Press + **or** – to adjust second.

Press **Time Set** – Press + **or** – to adjust month.

Press **Time Set** – Press + **or** – to adjust day.

Press **Time Set** – Press + **or** – to adjust year.

SET BAROMETRIC PRESSURE OFFSET

UNIT SETUP



This key is used to set the DC offset for the barometric pressure sensor for your area (i.e., your altitude). You will need to contact to your local weather station or obtain this information via the internet to get the correct local barometric pressure.

Press the key and you will see the screen shown in FIGURE 4.0. The unit will display the current barometric pressure reading and prompt you to press the + or – key to adjust the value.

Once the desired value is displayed, you can press the **Enter** key to write the value to the EEPROM for permanent storage and then you will be returned to the main screen.

The **ESC** key can be pressed to exit without changing the value.

```
Setup Utility Screen
Barometer DC Offset
Adjust +/- 29.47in.
Press F1 to Clear
```

Figure 4.0
Init Setup

COLLECTING DATA

Data is automatically being collected when the unit is turned on. There are only two user features that are available. One feature defines how frequently you want to collect a data sample, and the other feature allows you to manually collect a data sample .

DELAY SET



Press the key and the screen shown in FIGURE 5.0 is displayed. The delay value is shown in minutes. The value is adjustable in minutes from 1 minute up to 60 minutes (1 hour.) At a rate of 1 sample per minute the logger memory will be filled after 11 days. At a rate of 1 sample every 2 hours the logger memory will be filled after 1.8 years.

To adjust the value, press + or - to either increment or decrement the minutes.

Press **Enter** to save the number.

Press **ESC** to exit and return to the free running main program loop.

```
Set Log Sample Delay
Saves 1 sample every
      005 Minutes
Use +/- to Adjust
```

FIGURE 5.0
Delay Set

LOG SAMP



The **Log Samp** key will force the unit to record a sample from each of the five atmospheric sensors and the clock every time it is pressed. You can perform this function up to 16,384 samples. The record will be written into non-volatile EEPROM memory.

Whenever you press this key, the **Delay Set** value counter is also restarted. That is, if you have a delay of 5 minutes and you press the key after two minutes, the delay will start over counting 5 minutes.

STATISTICS INFORMATION

Information about the collected data is available to you while the unit is being used. By pressing the appropriate key, data will be displayed on the screen. Keys define that information:

- Temp Stats
- Humi Stats
- Baro Stats
- O₂ Stats
- CO₂ Stats
- F1
- F2
- F3

There is one key function that is used to clear all accumulated statistics. This key is necessary to clear out erroneous values. Two things may cause these erroneous values:

- The data filters in the program take time to fill up and work properly (about 2 seconds).
- The Carbon Dioxide Sensor requires time (about 2 minutes) to warm up. The user can watch for the CO₂ sensor while it stabilizes, or just wait a few minutes, then press the **Clear Stats** key.

CLEAR STATS



Press **Clear Stats** – This will allow the user to reset the Stats fields without having to turn the unit off to clear these fields. There isn't a noticeable effect on the screen when you push this key. It only requires one press. You can check the results by pressing one of the stats keys.

TEMP STATS



Press the **Temp Stats** key to display the maximum and minimum temperatures. These values are the maximum and minimum detected since the unit has most recently been powered on. Refer to FIGURE 6.0 for an example of the display.

Press **ESC** to exit and return to the free running loop.

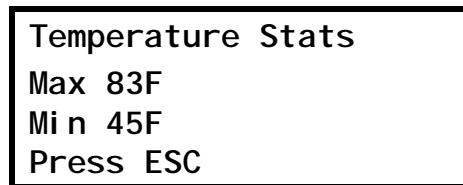


FIGURE 6.0
Temp Stats

HUMI STATS



Press the **Humi Stats** key to display the maximum and minimum humidity. These values are the maximum and minimum detected since the unit has most recently been powered on. Refer to FIGURE 7.0 for an example of the display.

Press **ESC** to exit and return to the free running loop.

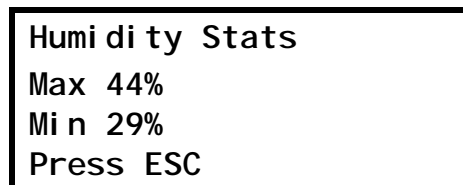


FIGURE 7.0
Humi Stats

BARO STATS



Press the **Baro Stats** key to display the maximum and minimum barometric pressure. These values are the maximum and minimum detected since the unit has most recently been powered on. Refer to FIGURE 8.0 for an example of the display.

Press **ESC** to exit and return to the free running loop

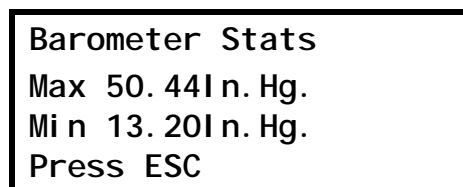


FIGURE 8.0
Baro Stats

O₂ STATS



Press the **O₂ Stats** key to display the maximum and minimum oxygen readings. These values are the maximum and minimum detected since the unit has most recently been powered on. Refer to FIGURE 9.0 for an example of the display.

Press **ESC** to exit and return to the free running loop.

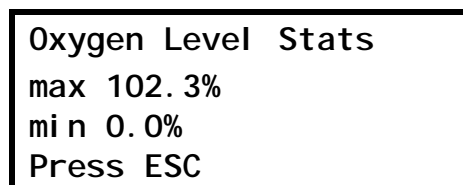


FIGURE 9.0
O₂ Stats

CO2 STATS

**CO₂
Stats**

Press the **CO₂ Stats** key to display the maximum and minimum carbon dioxide readings. These values are the maximum and minimum detected since the unit has most recently been powered on. Refer to FIGURE 10.0 for an example of the display.

Press **ESC** to exit and return to the free running loop.

```
C02 Level Stats
max 5517PPM
mi n 0PPM
Press ESC
```

Figure 10.0
CO₂ Stats

F1

F1

Press the **F1** key to display the current density altitude and air density calculations. Refer to FIGURE 11.0 for an example of the display.

Press **ESC** to exit and return to the free running loop.

```
Densi ty Al ti tude
DA=02350 Feet
Ai r Densi ty
AD=0. 07162 Lb. /Ft3
```

FIGURE 11.0
F1

F2



Press the **F2** key to display the saturated water vapor pressure and the water vapor pressure calculations. Refer to FIGURE 12.0 for an example of the display.

Press **ESC** to exit and return to the free running loop.

```
Saturated WaterVapor  
Pressure 01.09In. Hg.  
Water Vapor  
Pressure 00.37In. Hg.
```

FIGURE 12.0
F2

F3



NOTE: This function not incorporated at this time.

Press **ESC** to exit and return to the free running loop.

```
F3  
  
Press ESC
```

FIGURE 13.0

WORKING WITH THE DATA

VIEW LOG



This function allows you to view the samples that have been logged into EEPROM memory. Press the **View Log** key and you will see the information presented in FIGURE 14.0. Notice that the Address counter in the upper right hand corner is incremented by 2. This is because the logged file is 16 bytes which is two 8-byte addresses

Press the + and – keys to scan through the logged data.

Press **ESC** to exit and return to the free running loop.

```
View log Address00000
C02 0797 OXY 07.8
B29.46 T081 H34 P99
15:26:00 05/02/03
```

FIGURE 14.0
View Log

The abbreviations on the display are:

B = Barometric pressure

T = Temperature

H = relative Humidity

P = battery Power level

Date and Time of sample are on the bottom line.

DUMP LOG



This key will transfer the EEPROM memory contents via the RS232 port to an external device such as a Personal Computer. Refer to FIGURE 15.0 below.

Press **Dump Log** key.

Press **ESC** to exit and return to the free running loop.

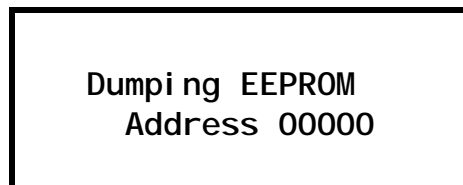


FIGURE 15.0
Dump Log

CLEAR LOG



This key clears the EEPROM memory that is used to store log samples. Refer to FIGURE 16.0 below.

Press the **Clear Log** key and then press **Enter** to start clearing values. All memory locations will be reinitialized to all zeros

Press **Esc** to stop the Clear Log function and return to the main screen.

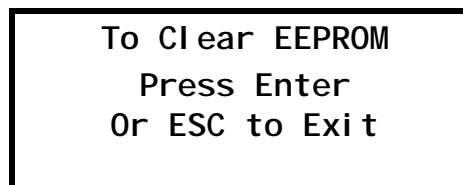


FIGURE 16.0
Clear Log

MISCELLANEOUS FEATURES

There are three miscellaneous features presented. Keys define those features.

- Back Light
- O2 Cal
- Alarm

Back Light



Using the backlight causes the unit to warm up and causes erroneous temperature readings. It is recommended that the backlight stay off most of the time, not just to conserve battery power, but also to prevent erroneous temperature readings.

Press **Back Light** to turn on.

Press **Back Light** again to turn off.

O₂ CAL

**O₂
Cal**

This screen is used for the calibration of the oxygen sensor. Refer to the Technical Manual for detailed information. Press the **O₂ Cal** key and the information in FIGURE 17.0 is presented. Press **Esc** to return to the main screen.

Oxygen Calibration
Sensor ADC# In 0000
Oxygen Content 10.0%
Use R8 to adjust +/-

FIGURE 17.0
O₂ Cal

ALARM

Alarm

This key uses an algorithm to produce an alarm sound. Currently this button is used to enable or disable the beeper. Press **Enter** to disable the beeper or **Esc** to enable the beeper.

Alarm Setup Screen
Suppress Log Sample
Beep? Enter for Yes
Esc for No. Escape

FIGURE 18.0
Alarm