

OMD™ WINCAL

Manual

103719-0 Rev F

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Your Safety...Our Commitment

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GENERAL SOFTWARE DESCRIPTION

The Microsoft Windows® based OMD™ WINCAL software is designed to maintain and document the operation and calibration of the OMD. Calibration procedures include Temperature Scan, Zero, Span, and TSP Adjust. This software provides the ability to store, retrieve, review and print calibration data in the form of a Calibration Certificate. Temperature Scan data may also be reviewed and printed out, and the last temperature scan for a given serial number is automatically saved.

INSTALLATION

PC/Hardware Requirements (minimum)

1. Pentium Dual class 1.6 GHZ IBM or compatible PC or greater. Laptops require about 3 hours of runtime for performing all tests. A vehicle laptop charger is recommended to prevent problems due to low laptop battery capacity while at the vehicle.
2. CD-ROM drive.
3. Hard drive, 200 MB free.
4. System memory, 64 MB minimum
5. Serial port, DB-9 male -OR- USB to RS232 adapter with Prolific chipset.
6. Experience with the OMD setup and use.

PC Software Requirements (operating systems)

1. One of the following Microsoft Windows versions: Win 7® 32 or 64 bit, Win 8.1 64bit or Win 10 64bit edition. Administrative permissions may be required.
2. Experience with Microsoft Windows based applications.
3. International versions of Windows must have the date format set to U.S.A. (month/day/year).

Setting COM Ports

1. Open Control Panel and select Device Manager.
2. Under "Ports (COM & LPT)" a list of assigned comports will appear.
3. Connect the OMD Serial -OR- USB to your PC.
4. A new port should appear after connection. This is the assigned comport for the OMD.
5. For original installation, setup: 9600, 8, 1, N.

Program Installation

1. Close all unnecessary programs.
2. Insert the OMD WINCAL CD-ROM, V. 3.5 Rev H into the CD drive.
3. Open File Explorer and select the CD drive. The directory should contain several folders:
 - a. Add-ons
 - b. Manuals and
 - c. some setup files
4. Select the CD root or top-level folder. The Manuals folder contains this manual and the instrument manual Word and PDF formats.
5. Double click or run setup.exe. Its' icon will look like a monitor and is a 45 KB application program. This will install and setup the OMD WINCAL program. The following windows will appear:
 - a. Heath install shield

- b. Setup Screen, click Next
 - c. Installer's name and Company name, click Next
 - d. Install PC directory; default is C:\Program Files\Heath\OMDTest; click Next
 - e. Program Folder is Heath OMD Test; click Next
 - f. Configuration review; click Next
 - g. Installing Heath OMD WINCAL
6. The Setup Complete window should now be showing. Minimize this window by clicking on the top right "minus" button.
7. Select the OMD Test Icon.
8. Right click on the OMD Test Icon. Select "Send To Desktop" to create a shortcut.
9. Maximize the OMD Setup Complete window and remove the CD-ROM.
10. Click Finish and reboot the computer if asked. Reboot if not asked.
11. Double click on the OMD Test Icon to start the program.

NOTE: The OMD must be powered up and should be on for at least 1 hour to properly perform calibration. The OMD display MUST be in the HOLD mode to perform instrument calibrations or instrument communication problems will occur. WINCAL will run with the serial communications cable unplugged but will report communications problems when attempting to perform a procedure (temp scan, zero, span or TSP adjust). If so, exit WINCAL, cable up properly and re-run WINCAL.

HOLD mode is best attained by pressing the system power button on the OMD display and then pressing the light source button.

MENU

An outline view of the structure used for the OMD WINCAL software is as follows:

1. File
 - a. Exit
2. Displays
 - a. OMD Test
 - b. Temp Scan
 - c. Data
 - d. Manufacture Calibration
 - e. Certificate View
3. Utilities
 - a. Trending
 - b. Port Monitor
 - c. Reload
4. Help
 - a. About

DISPLAYS

NOTE: The OMD display MUST be in the HOLD mode.

Data Monitor

The Data Monitor is a handy tool to use. A real-time indication of several key instrument parameters is updated every second and available for instrument monitoring and status.

The Data Monitor is automatically enabled when the software is loaded and may also be manually enabled by using the Display Button \oplus Data and manually disabled by clicking Hide on the Data Monitor window.

Scanning ...						
PPM	Errors	Light	Methane	Offset	Temperature	Pwm
1.9	0	-803	-40	57	50.8	985
						Hide

OMD Test

Password:

It is highly recommended that the assignment of the username and password be the responsibility of the user's supervisor. Enter the password in the field and click Next. The password is case sensitive and must be at least 6 characters long. If you do not have a password, click on New Password to create one. Type your full name and your password and click Add New. To change your existing password, click on Change Password. Type in your old password and your new password and click Update. An incorrect password will be prompted with an "incorrect password" window.

OMD Test

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OMD TM - PASSWORD

Please enter password:

Type in existing password

New Password Click here to create a new password

Change Password Click here to change old password

Cancel < Back Next > Finish

Serial Numbers

Type in the Serial Number as found on the receiver or from the Heath Calibration Certificate (for example: 2509999-5). The Serial Number is required to continue with the program. For first time calibration, refer to the Calibration Certificate and type in the Modulator Serial Number and the Detector Serial Number. Thereafter, only the receiver Serial Number will be required. Click Next when done.

OMD Test

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OMD - SERIAL NUMBER

Please enter SERIAL NUMBER found on the RECEIVER:
For Example: 2509999-5

Enter serial number

Please enter SERIAL NUMBER for Modulator and Detector as found on the original calibration certificate:

Modulator:

Enter modulator serial number

Detector:

Enter detector serial number

Cancel < Back Next > Finish

Once the modulator and detector serial numbers are input, it is not necessary to re-enter them to use the program for the same OMD. Only the receiver serial number will be required. New or different serial numbers resulting from repairs or upgrades will need to be re-input, but only to update the database and only input once.

Bar Length

Choose the appropriate bar length and click Next.

OMD Test

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OMD - BAR LENGTH

Please enter the Bar Length:

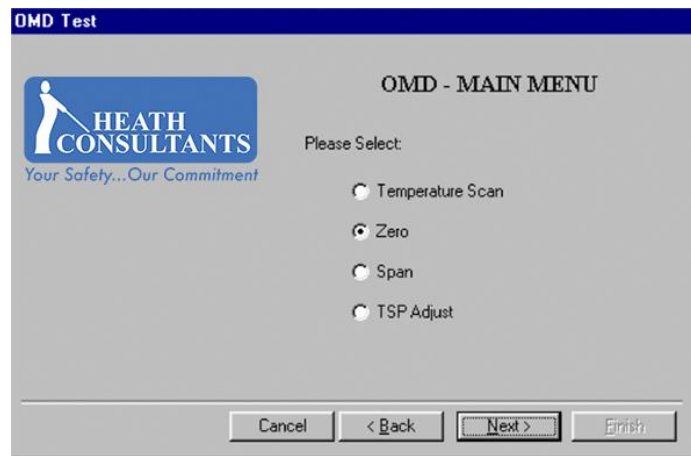
02
22
32
51.75
63
Enter Custom Length

Cancel < Back Next > Finish

Select Enter Custom Length to open a sub menu which will allow you to input a custom bar length if required. Click Next to continue.

Main Menu

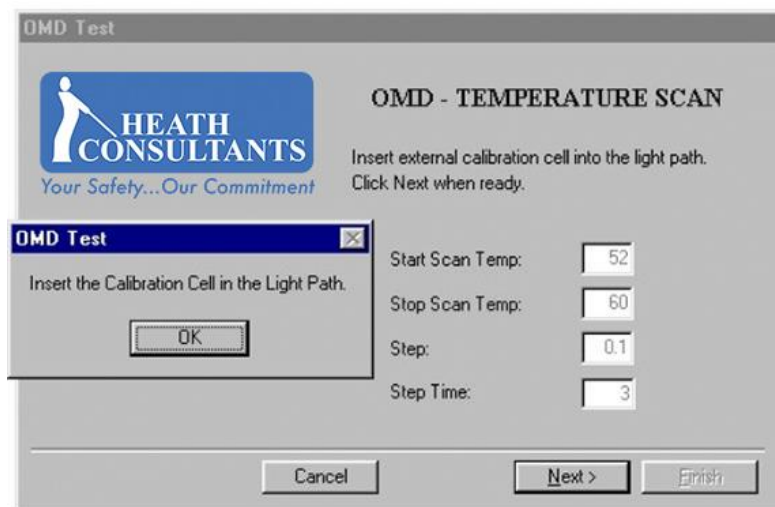
Pick the procedure that you are going to perform, which can be Temperature Scan, Zero, Span and TSP (temperature set point) Adjust. When running Temperature Scan, you are required to complete Zero and Span as well.



Temperature Scan


This procedure will scan the OMD receiver for its' most sensitive temperature set point, reset the zero and perform a span adjustment. Select Temperature Scan and click Next. This procedure will take about 2.5 hours to complete. After running Temperature Scan, you will also Zero and Span to complete the procedure.

Temperature Scan is typically run whenever the PPM baseline drifts over 5 PPM. TSP Adjust can be used to fine tune the temperature set point and reduce the baseline drift to less than 5 PPM.



WINCAL will select a new TSP after the Temp Scan. Click Next, then OK to continue.

OMD Test



OMD - TEMPERATURE SCAN

Start Temp - 52°C
 Stop Temp - 52°C
 Step - 0.2
 Step Time - 1 Mins

Temperature scan in progress. This procedure will take about 2.5 hours...

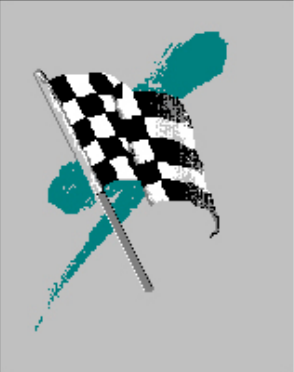
52

Best Found Temperature Value:

Best Found Methane Value:

After the Temp Scan, both the ZERO and SPAN procedures will automatically be selected later. Click Finish to continue.

OMD Test




OMD - TEMPERATURE SCAN

TEMPERATURE SCAN COMPLETE

After Temperature Scan you MUST complete ZERO and SPAN.

ATTN: After Finish a window will pop up that says, "Now Allowing 10 minutes for stabilization", followed by either a highlighted Ok or Next button. Click the appropriate button and then 'Zero' and 'Span'. A calibration report will be generated automatically after each. A calibration report will be generated and may be printed. A waiting window appears while data is being organized.


OPTICAL METHANE DETECTOR™
CALIBRATION CERTIFICATE

OMD Configuration Data

Instrument Serial No: 2509999-5
 Bar Length: 63

OMD Test Calibration Values

HVD: 270	HVC: 2750
LLL: -1500	LLH: -200
TSP: 58.4	MOS: -175.6
CAL: 113	EUC: 0

OMD Test Data

	PPM	Raw Methane	Light
Light On Open Air (No Cell):	0	177	-332
Internal Cal / Test:	0	0	0
External Cal:	111	675	-265

Remarks:


Technician: John Smith Calibration Date: 3/2/04 9:33:15

Print out the Calibration Certificate using the Printer Icon and/or close the window. International customers using A4 paper may need to select the A4 paper size for proper formatting. If there are printing problems, select A4 using the Calibration Certification Print Icon, not using Window's printer setup.

Zero

Zero must only be performed with the TSP properly set. Zeroing must be performed in a hydrocarbon free environment. This procedure will reset the display zero on the OMD.

This procedure can also be selected from the main menu for zeroing only. Remove the Calibration Cell from the light path and make sure the light path is unobstructed. The methane count must be less than 200 to perform this procedure.



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OMD - ZERO

Would you like to reset the Zero?

☒ Yes ☐ No

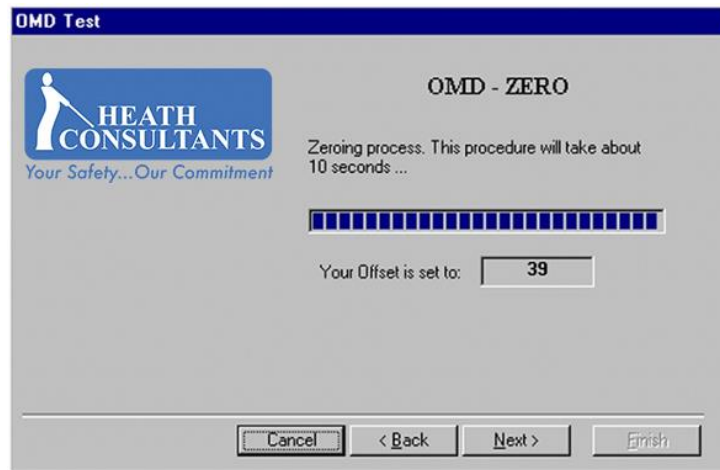
Important

Make sure that the light path is unobstructed, no Calibration Cell is in place and there is a hydrocarbon free atmosphere.

Click Next when ready.

Cancel
Next >
Finish

Select, Yes and then click on Next to start the procedure. Immediately following the Zero procedure, a Calibration Certificate is opened.



Span

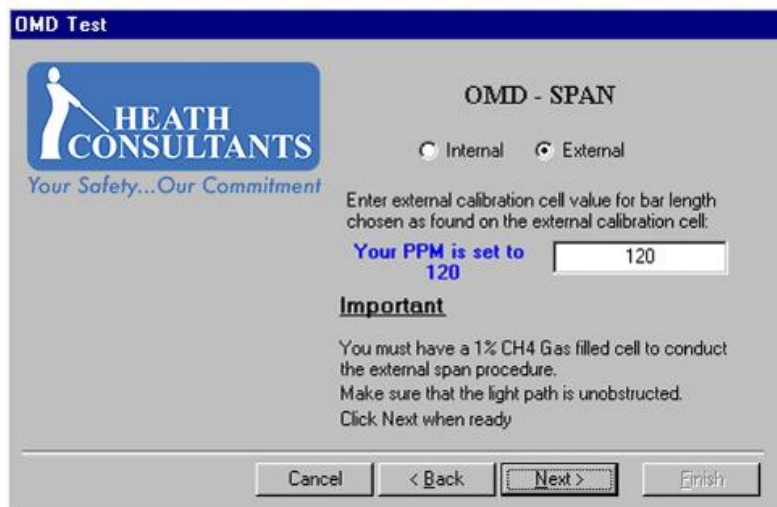
This procedure will calibrate the span value of the OMD in PPM. This procedure can also be selected from the main menu for span adjustments only.

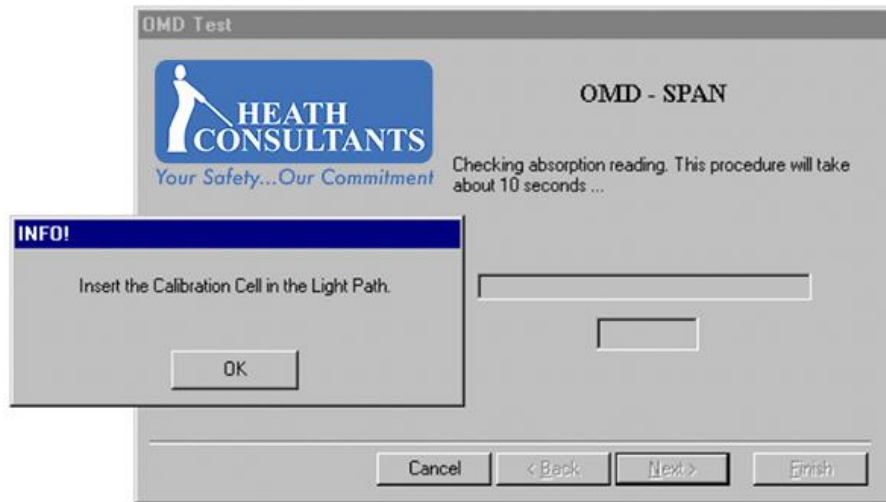
Select which span type you are going to perform, either Internal or External. External is highly recommended. For external span you will need the external Calibration Cell.

External

Choose or verify External, type in the span value in PPM as found on the external Calibration Cell's label for the selected Bar Length and click Next. Typical PPM calibration values for each respective bar length are:

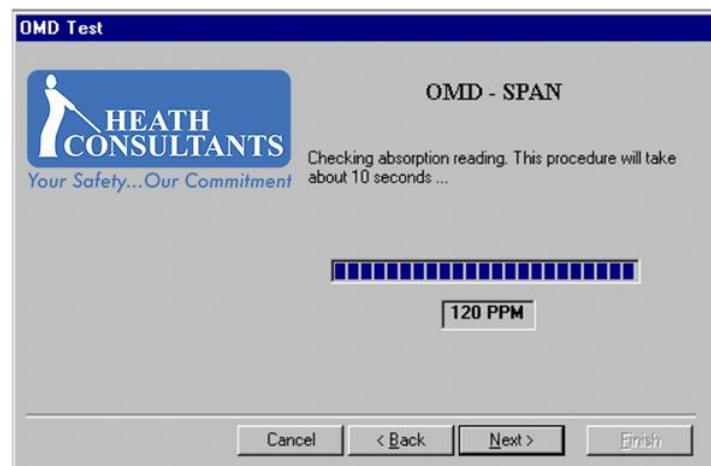
- 63" OMD - 120 PPM
- 51" OMD - 160 PPM
- 32" OMD - 270 PPM
- 22" OMD - 420 PPM





Place the external Calibration Cell into the light path by attaching it to the receiver's mounting studs and click OK. After span calibration is complete, the certificate data is again collected. You can print out the report and use it as a reference or just close the Calibration Certificate window.

The external Calibration Cell must remain in the light path until the Calibration Certificate is shown.



Internal

Choose Internal, type in the span value in PPM as found on the Heath Calibration Certificate or on the receiver's tag and click Next.


The internal span windows are similar to those for the external span. The only difference is no external Calibration Cell is used. The light path must be unobstructed. After span calibration is complete certificate data is collected. Print out the report and use it as a reference or close the Calibration Certificate window. The Temperature Scan procedure is now complete.

TSP Adjust

TSP Adjust is used to fine tune the temperature set point and maintain baseline drift to less than +/- 4 PPM. The TSP may be adjusted in 0.1° C increments up to +/- 0.5° C maximum. Select TSP Adjust on the Main Menu and click Next.

Take note of the PPM and Methane readings as a reference from the Data Monitor window and click Next.

OMD Test




TSP - ADJUST

TSP Adjust must be run in a hydrocarbon free environment. Methane value has to be less than 200.

Current TSP:

The TSP Adjust procedure will start by increasing the TSP by + 0.1° C. Wait 3 minutes for the temperature to stabilize.

OMD Test



TSP - ADJUST

Please wait while temperature is stabilizing...

After stabilization, again note the PPM and Methane readings. If the PPM value became smaller and the Methane value became closer to negative Offset value, then the temperature change is in the right direction (Increase). If the values worsen, the temperature change is in the wrong direction and Decrease should be chosen. Should the values be acceptable (PPM zero within ± 2), click Finish to accept the new TSP and generate a Calibration Certificate.

If the values are not acceptable, click the appropriate temperature change direction (Increase, Decrease) again and retest the values. Repeat as required. If the PPM zero doesn't ever reach ± 2 PPM or less, Temperature Scan should be performed. TSP Adjust is for PPM baseline drift, not setting the zero.

TEMP SCAN DATA REVIEW

Perform by selecting Display Temp Scan. This is used to display temperature scan data. Enter "*" in the search field to display all saved records or enter a serial number for instrument specific records and click Update. The saved files will default to "serial number".txt. Change the name of this file at this time to protect the file if desired. A later temperature scan will overwrite the same serialized file so the file name must be uniquely named. Previous temperature scan data will be lost if the file is not renamed for the same serial number. The temperature scan procedure will automatically save the LAST scan performed ("serial number.txt"). The files may be found in the default location of C:\Program Files\Heath\OMD Test unless previously changed. Clicking on the Save to a File button will also save the last temperature scan data as "noname.txt".

ID	Date	Time	Light	Methane	Offset	Temp	SetTemp	PPM	SerialNum	Length
229	04/09/01	16:04:53	-550	11	-9	46.78	46.5	0.3	2501234-5	63
230	04/09/01	16:08:53	-549	-787	-9	46.87	47	-136.6	2501234-5	63
231	04/09/01	16:12:53	-550	-659	-9	47.39	47.5	-114.4	2501234-5	63
232	04/09/01	16:16:53	-550	-405	-9	47.85	48	-70.9	2501234-5	63
233	04/09/01	16:20:53	-552	-101	-9	48.39	48.5	-18.7	2501234-5	63
234	04/09/01	16:24:54	-551	214	-9	48.88	49	35	2501234-5	63
235	04/09/01	16:28:54	-552	502	-9	49.34	49.5	84.1	2501234-5	63
236	04/09/01	16:32:54	-550	723	-9	49.84	50	122.3	2501234-5	63
237	04/09/01	16:36:54	-548	869	-9	50.31	50.5	147.8	2501234-5	63
238	04/09/01	16:40:54	-547	923	-9	50.87	51	157.4	2501234-5	63
239	04/09/01	16:44:54	-545	874	-9	51.37	51.5	149.5	2501234-5	63
240	04/09/01	16:48:54	-545	729	-9	51.80	52	124.4	2501234-5	63
241	04/09/01	16:52:54	-541	499	-9	52.31	52.5	85.3	2501234-5	63
242	04/09/01	16:56:54	-542	219	-9	52.84	53	36.5	2501234-5	63
243	04/09/01	17:00:54	-543	-96	-9	53.33	53.5	-18.2	2501234-5	63
244	04/09/01	17:04:54	-543	-399	-9	53.75	54	-70.8	2501234-5	63
245	04/09/01	17:08:54	-543	-668	-9	54.35	54.5	-117.4	2501234-5	63
246	04/09/01	17:12:55	-545	-867	-9	54.82	55	-151.4	2501234-5	63
247	04/09/01	17:16:55	-547	-982	-9	55.36	55.5	-170.7	2501234-5	63
248	04/09/01	17:20:55	-549	-1002	-9	55.81	56	-173.5	2501234-5	63
249	04/09/01	17:24:55	-550	-920	-9	56.36	56.5	-159.1	2501234-5	63
250	04/09/01	17:28:55	-552	-749	-9	56.78	57	-129.3	2501234-5	63

CALIBRATION CERTIFICATE DATA REVIEW & PRINTING

Select this procedure by clicking Displays Certificate View. This report screen lets you pick a S/N, day or range of dates to view and optionally print out reports. This window is used to select and display Calibration Certificates. Enter a Serial Number for the OMD in the search field and click Update. You will then have the data for the particular OMD chosen. Type in "*" if you want to display all records.


Certificate Review

ID	Mfg Date	InstrumentSI	ModulatorSI	DetectorSN	Bar Length	HVD	HVC	LLL	LLH	TSP
101	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
102	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
103	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
104	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
105	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
106	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
107	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
108	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
109	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
110	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
111	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
112	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
113	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
114	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
115	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.8
116	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
117	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
118	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
119	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
120	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9
121	4/6/01	2501234-5	9099	IR3400uM	63	330	1400	-1500	-100	50.9

Enter Serial Number:

Search field by serial number Search field by serial number

To view and print out the certificate, double click on the row of the certificate you want to print and the OMD Calibration Certificate will be shown in a separate window.


OPTICAL METHANE DETECTOR™
CALIBRATION CERTIFICATE

OMD Configuration Data

Instrument Serial No: 2509999-5
 Bar Length: 63

OMD Test Calibration Values

HVD: 270	HVC: 2750
LLL: -1500	LLH: -200
TSP: 58.4	MOS: -175.6
CAL: 113	EUC: 0

OMD Test Data

	PPM	Raw Methane	Light
Light On Open Air (No Cell):	0	177	-332
Internal Cal / Test:	0	0	0
External Cal:	111	675	-265

Remarks:

Technician: John Smith Calibration Date: 3/2/04 9:33:15

Click on the printer icon to print out the Calibration Certificate to a local printer. Close the window when finished printing or to exit and continue calibration.

PASSWORDS

Should a password be forgotten, create a new one and use New Password ([Page 5](#)). All calibration certificates and data files will be available.

CHANGING COMPUTERS

The database file DataStorage.mdb on the host PC contains all calibration records. Should the need arise to move these records to a new PC, they must be copied to an external storage device (ZIP drive, CD-ROM or network drive) and then copied to the new PC. To do so, install WINCAL on the new PC and then copy the database file to the new PC in the (default) WINCAL directory \Program Files\Heath\OMD Test. If WINCAL aborts when trying to access the database, verify the file attribute is not set to read only (right click on the file name, select properties and then unselect read only).

User passwords must be added back manually after installing WINCAL.

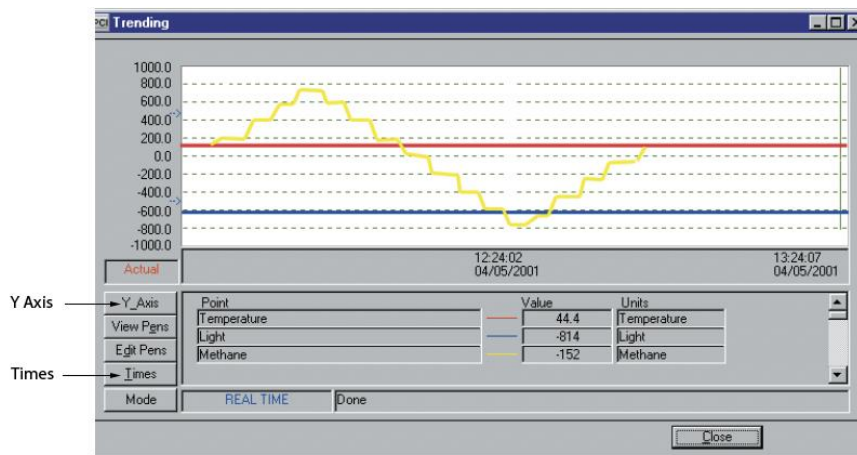
UPDATING WINCAL

WINCAL updates involve backing up and renaming the file DataStorage.mdb to OldDataStorage.mdb or any other file name that is acceptable. Then use Control Panel to remove the program Heath OMD Test. Reboot. Install the new WINCAL software. Rename the file OldDataStorage.mdb (or alternate name) back to DataStorage.mdb and select Yes if asked to over-write the existing file. User passwords must be added back manually after installing WINCAL.

UTILITIES

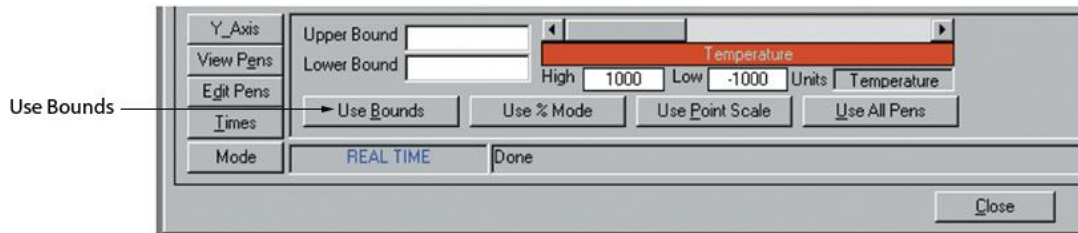
Trending

Select this function by clicking Utilities Trending. This window is used to display a real-time, graphic representation of the temperature, light and methane levels, typically during a temperature scan.



Y-Axis

You can change bounds (vertical zoom) by entering Upper Bound and Lower Bound and then clicking Use Bounds:



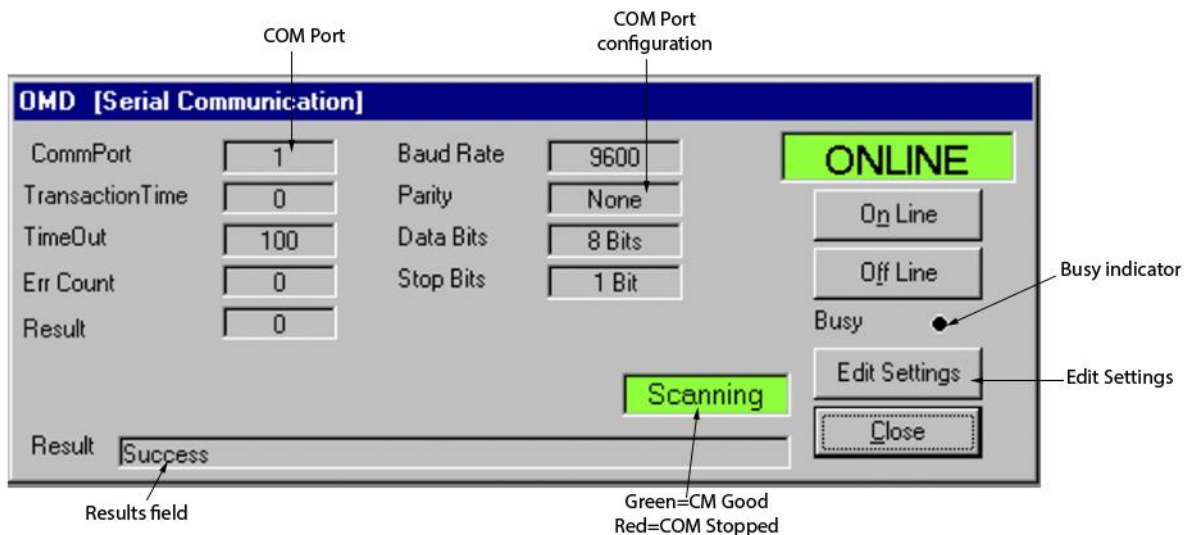
X-Axis

You can change the x or time axis (horizontal Zoom) by clicking on Times and then using the Zoom In and Out buttons accordingly.



Port Monitor

This window is used to show the status of the serial communication to the OMD. The display also shows all the settings for the communication port. The Result field shows the status of communications. Any error which occurs during communication will be displayed in that field. "Success" shows that communication is performing successfully. Edit Settings to select an alternate PC COM (2-4) port. COM 1 must be used to initially install WINCAL.



Bottom Status Bar

Polling Button – will turn communication ON or OFF. This button is used to stop communication if needed and then resume it. The status of this button is shown on the label on the right with text displayed "Polling Off" - Red or "Polling On" – Green.

User – status of the logged-on user.

EXITING THE SOFTWARE

When finished running OMD WINCAL, select File Exit to stop the program. Now close the software by clicking on the Window's "X" button. The software will stop running and return you to the desktop.

TROUBLESHOOTING

Communication Error (Timeout)

Verify that all cables are in good condition and correctly connected to the respective connector and serial com port. Verify that the OMD is powered up and connected to the serial cable. If this does not help, turn off the OMD, shut down the program and then power up the OMD and restart the program

NOTE: The OMD display MUST be in the HOLD mode and with its serial cable connected between the OMD display and the PC.