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Omniguard™ III

Differential Pressure Recorder

Introduction

Unpacking

The *Omniguard III* is shipped complete and ready to use. When unpacking the unit, please check for the following items:

- Roll of thermal paper (installed)
- 10 ft. inlet pressure tubing
- Owner's Manual
- Registration Card
- Accessories/Options Brochure

Save the shipping box and packing material, in the event the unit must be shipped to another location or for service. If you are missing any items shown on the packing list, or if you have any questions regarding your *Omniguard III*, please call your dealer or Engineering Solutions at (206) 241-9395.

Please remember to fill out and return the Registration Card.

Owner's Manual Overview

This manual covers the basic setup and operation of the *Omniguard III*. It uses several different fonts and other special characters to make various unit functions and types of reporting easy to identify. Below is an example of each:

- Text printed on the screen is shown like this: **ALARM I**
- Thermal printer text is shown like this: **NORMAL OP**
- Keys and connectors on the front panel are shown like this: **AUDIBLE ALARM SILENCE**

Features

- Real-time differential monitoring of vacuum and/or pressure level
- Extremely simple to setup and use, with on screen help available via a **HELP** key
- Data storage in internal memory with record of operation available

for printing and computer downloading

- 7+ day internal memory stores pressure readings and alarm occurrences with a date/time-stamp
- Digital printout with 3-digit precision
- Totally self-contained unit with all necessary parts stored securely inside the lid of the unit
- Temperature compensation circuitry eliminates the need for off-site calibration
- Easy-to-read graphic LCD display with backlight shows current pressure reading, operation status and alarm setpoints
- Pressure readings displayed in Inches WC, Millimeters WC or Pascals
- Microprocessor circuitry eliminates the inaccuracies of analog strip chart recorders
- Programmable high and low alarm settings
- Audible and visual alarm systems with Audible Alarm Silence function.
- Operating temperature range 30°- 130°F
- 1 Year Warranty

Options

- Remote high intensity strobe light with 95db audible alarm and 25 ft. cable
- Telephone autodialer kit
- PC Communication kit for transmitting recorded job site information to a computer
- Battery pack for portable operation
- NIST traceable certification
- Alternate operating pressure ranges
- 220VAC, 50Hz power supply operation

Section 1: Basic Care

Omniguard III is built and engineered to provide you with dependable performance for years to come. Following these basic guidelines will insure that you get maximum use from your unit. Once the unit is set up, field operation is easy. Complete reports are virtually automatic, providing the most accurate records of your job site conditions available.

- This unit is designed to measure differential pressure only up to +0.250" to -0.250" WC (optional pressure ranges are available).

*Never apply pressure to the inlet port by mouth or with any other strong pressure device. **High pressure may permanently damage the sensor.***

- Use only *Omniguard II/III* thermal printer paper.
- Always store the unit away from sources of excessive heat, dust and moisture.
- Never attempt to repair any of the internal components of the unit.
- Protect the unit from strong shocks or vibrations. Be sure the lid is securely closed whenever transporting the unit.
- Be sure to plug your *Omniguard III* into a power supply that complies with the National Electrical Code. Keep all connections dry. As with any electrical device, this unit has the potential to cause an electrical shock hazard.
- If your unit must be shipped at any time to another location or for service, use the original packing material and shipping box for optimum protection during shipping.

Section 2: Navigating The LCD Display

The *Omniguard III* display features four screen types, shown below. Press the indicated key to move from screen to screen.

Monitor Screen

The Monitor Screen displays the current pressure reading in "WC" (e.g., -0.058). It also shows Alarm 1 and 2 setpoints (-0.025" and -0.100"), a printer icon, a buzzer icon, and a status bar (e.g., NORMAL). Labels on the right side of the screen indicate: Pressure in "WC", Printer On, Buzzer Armed, and Status Bar. A label on the left side indicates Alarm 1 & 2 Setpoints.

↓ press MENU/SELECT

Main Menu (Help Menu uses same format)

The Main Menu displays a list of menu items: ALARM SETPOINTS, DATE & TIME, PRINT/LOG RATES, AUX ALARM MODE, and RESPONSE RATE. The status bar shows MAIN MENU. Labels on the right side indicate: end of menu indicator, Highlighted Item, indicates more items available, and Screen Name. A label on the left side indicates Menu Items. A label on the bottom left indicates Valid Key Choices.

↓ press EDIT

Edit Screen (edit Alarm Setpoints shown)

The Edit Screen displays the current alarm setpoints (ALARM 1: -0.025, ALARM 2: -0.100) and the operating window (Upper setpoint. Normal operating window is area between Alarms 1 & 2). The status bar shows SELECT SAVE EXIT HELP. Labels on the right side indicate: use ▲ / ▼ to change value of setting, Setting being changed (edited), and Operating Window. A label on the left side indicates Function Name(s). A label on the bottom left indicates Valid Key Choices.

↓ press HELP

Help Info Screen (Alarm Setpoints help shown)

The Help Info Screen displays detailed help information for alarm setpoints: - can be set anywhere within a +/- 0.250"wc range. - bar graph indicates relative operating window size and. The status bar shows HELP INFO. Labels on the right side indicate: end of menu indicator, indicates more help info available, and Screen Name. A label on the left side indicates Function Name. A label on the bottom left indicates Valid Key Choices.

↓ press HELP again to go to Help Menu Screen

↓ press EXIT to return to previous screen or Monitor Screen

Section 3: Quick Setup & Usage

This section is a quick reference checklist for setting up your *Omniguard III*.

1. Insert one end of pressure tubing inside the containment area.
2. Locate a convenient place for *Omniguard III* outside the containment. Plug power cord into a power outlet and turn unit on.
3. Press **PRINT WEEKLY REPORT** for a printout of the previous job, if required.
4. Clear memory using the **CLEAR MEMORY** key.
5. Check Alarm 1 & 2 setpoints (operating window), adjust if needed.
6. Check Time and Date. Set if incorrect.
7. If desired, calibrate unit using **ZERO CAL** feature. The pressure tubing must be **disconnected** from the unit for calibration.
8. Connect pressure tubing to **NEG** inlet.

The status bar will indicate **WAITING FOR PRESSURE** until pressure reaches the operating window. Once this is reached, the status bar will display **NORMAL** indicating that the unit is now in its normal operational mode. Printing and logging of pressure readings begins once the normal operational mode is achieved.

During normal operation, the highest and lowest pressure readings will be printed and logged into memory with a time/date stamp **every 15 minutes** (the default Print/Log rate).

If the monitored pressure then goes **outside** the operating window, the unit will enter alarm mode. The buzzer will sound, the status bar will change to >>**ALARM**<< and begin flashing. The print and log rate of the pressure readings will increase to **every 15 seconds** (the default Print/Log Alarm rate).

Sample Editing Session

1. From the Monitor Screen, press **MENU/SELECT** to go to the Main Menu.
2. Use the **▲/▼** arrow keys to highlight **ALARM SETPOINTS**.

3. Press **EDIT** to go to the Edit Screen and allow changes to the **ALARM SETPOINTS**.
4. The **ALARM 1** setting can now be increased or decreased by using **▲/▼**.
5. Once the desired value has been reached, press **MENU/SELECT** to highlight **ALARM 2** setting.
6. Use **▲/▼** to adjust the value of the **ALARM 2** setting.
7. Save the updated settings for both Alarm 1 & 2 by pressing **SAVE**. Saved settings are printed and logged into memory.

or

EXIT to return to Main Menu **without** saving. You can exit an editing session at any time.

*Note: Press **HELP** to access detailed information at any time during the edit session.*

Section 4: Detailed Operation

The *Omniguard III* monitors and records the differential pressure between the **NEG** inlet port tubing and the **POS** inlet port.

In asbestos or lead abatement the *Omniguard III* should be located outside the work area. This allows a supervisor or hygienist to monitor negative pressure readings without entering a work area.

Work Area Setup

The intake end of the pressure tubing must be located **away from** negative air machines and airlock entrances. Choose a location away from excessive dust or moisture.

1. Cut a 1/2" slit in the polyethylene barrier and feed approximately 1 ft. of pressure tubing through it. Tape the tubing securely to the polyethylene.
2. Connect the free end of the tubing securely over the **NEG** inlet port. Be careful not to turn the nozzle.
3. The Alarm 1 and Alarm 2 settings should be in negative units when used to monitor a negative containment area. For positive containment applications, use positive units (Inches WC, Millimeters WC or Pascals) for alarm setpoints.

NOTE: It is important that there be no kinks or sharp bends in any part of the tubing. Any blockage could inhibit accurate recording of the pressure in the containment area.

Power-Up

To begin operating the *Omniguard III*, plug the power cord into a standard wall outlet supplying 115VAC, 60Hz and press the **POWER ON/OFF** key. The first time a new unit is turned on the settings will be at default values.

Initial Power-Up -- a start-up screen will ask the user to edit the unit's Date & Time and Alarm 1 & 2 setpoints because they are set at the factory defaults. *This happens only until these functions are edited, usually only the first time the unit is used.*

Normal Power-Up Sequence -- If the unit was properly turned off after the previous usage, **POWER OFF** will print. Otherwise

POWER FAIL will print, indicating that an AC power failure may have occurred. Either message will be followed by the date and time the unit was last powered off.

A diagnostic test will automatically run and the unit will print the date, time and the current alarm setpoints. At this time the unit will immediately begin to monitor containment pressure.

Until the containment pressure has reached the operating window, the status bar will indicate **WAITING FOR PRESSURE**.

*Note: Logging and printing of monitored pressure readings does **not** begin until the containment pressure has reached the operating window!*

You will need to customize the factory Alarm 1 and Alarm 2 setpoints for your application!

Once the containment pressure reaches the operating window, the area between the Alarm 1 and Alarm 2 setpoints, the unit's status bar changes from **WAITING FOR PRESSURE** to **NORMAL** and **NORMAL OP** is printed along with a time-stamp.

Clearing Memory

Before starting a new project clear the memory. This will not erase any setpoints or alter any other settings but it will provide you with maximum storage space for the recording of data.

*Note: It is a good idea to print out the memory contents, using the **PRINT WEEKLY REPORT** prior to clearing the unit's memory so a record of the previous project exists. See Section 4: Printing Reports, Page 18 for more information.*

To clear the memory --

1. Press the **CLEAR MEMORY** key.
2. Press **CLEAR MEMORY** again to confirm your desire to clear the memory.

*Pressing any other key will return you to the Monitor Screen **without** clearing the memory.*

When completed, the screen will display **Done**. After a few moments the unit will automatically return to the Monitor Screen.

The memory has a capacity to store 29,500 characters of printed data. This represents 7-10 days of normal operation and approximately 200 alarm messages. When the memory is full, the new data will begin to overwrite the oldest data.

Note: Overwritten data cannot be retrieved.

Zero Calibration

The *Omniguard III* does not require calibration. Internal temperature compensation circuitry provides unsurpassed accuracy over a 30°-130° Fahrenheit range.

To reset the zero point --

1. Disconnect the pressure tubing from the **NEG** and **POS** inlets.
2. Press **ZERO CAL**.
3. Press **ZERO CAL** again to confirm your desire to reset zero.

*Pressing any other key will return you to the Monitor Screen **without** resetting zero.*

When completed, the screen will display **DONE**. After a few moments the unit will automatically return to the Monitor Screen.

*Note: Allow the unit to warm up for 15 minutes prior to zero calibrating. This permits the pressure sensor to stabilize its readings. Zero calibration can only be done when the pressure tubing is **not attached to the unit**.*

Alarm Setpoint Selection

The normal operating window is the area between the Alarm 1 and Alarm 2 setpoints. These setpoints can be set anywhere within the operating range of the unit; +/- 0.250" WC. The *Omniguard III* can also operate in units of mmWC or Pascals. See *Pressure Units*.

Alarm 1: (default is -0.025"WC)

- range is +/- 0.250"WC in increments of 0.005"WC
- upper setpoint of operating window

Alarm 2: (default is -0.100"WC)

- range is +/- 0.250"WC in increments of 0.005"WC
- lower setpoint of operating window

The *Omniguard III* can be used in both positive and negative pressure monitoring applications. The procedure for setting of Alarm setpoints is the same for both applications.

Positive Pressure Application -- Clean room or HVAC system

example settings: **Alarm 1 @ +0.050" WC**
 Alarm 2 @ +0.025" WC

Negative Pressure Application -- Asbestos or lead abatement

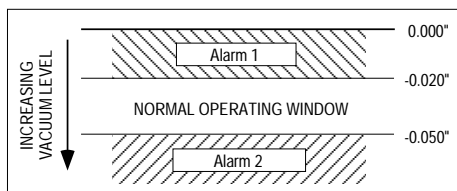
example settings: **Alarm 1 @ -0.020" WC**
 Alarm 2 @ -0.050" WC

Example of Setting Alarm Levels

This is an example of setting the alarm levels for a negative containment area with an operating window of -0.020" to -0.050" WC.

To change the Alarm Setpoints --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **ALARM SETPOINTS** using **▲/▼**.
3. Press **EDIT** to change the setpoint value.
4. Use **▲/▼** to set Alarm 1 to -0.020"WC. The value will change in 0.005" increments. The bar graph at the right of the screen indicates the relative operating window size within the operating pressure range of the unit.



5. Press **MENU/SELECT** to highlight Alarm 2 for editing. Use **▲/▼** to set the value to -0.050"WC.
6. Press **SAVE** to save the updated settings and return to the Main Menu.

*Pressing the **EXIT** key will return you to the Main Menu **without** saving the updated settings.*

Once the containment pressure reaches a value between -0.020" and -0.050" WC the unit will be in normal operational mode.

Then, if the containment pressure ...

- ... rises to -0.019" WC, **Alarm 1** will activate.
- ... falls to -0.051" WC, **Alarm 2** will activate.

Date & Time

The date and time settings are used as a reference time-stamp for all logged events.

To change the Date & Time --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **DATE & TIME** using **▲/▼** and press **EDIT** to change the setting.
3. Use **▲/▼** to change the month.
4. Press **MENU/SELECT** to advance to the day, using **▲/▼** to change.
5. Repeat the procedure for the year.
6. Press **MENU/SELECT** to change the time as indicated by **HH:MM** shown on the screen. Use **▲/▼** to set the hours and minutes using the **MENU/SELECT** key to move from one to the other.

Note: the unit operates on a 24 hour clock.

7. Press **SAVE** to save the updated settings and return to the Main Menu.

*Pressing the **EXIT** key will return you to the Main Menu **without** saving the updated settings.*

Print/Log Rates

The printing and logging of pressure readings begins once the unit reaches normal operation, (status bar indicates **NORMAL**). There are two user-definable rates at which printing/logging occurs.

Normal Rate: (default is 15 min.)

- setting choices are 5, 15, 30 minutes or OFF.
- rate at which the highest & lowest pressure readings are printed and logged to memory during normal operation

- when set to OFF the unit will only log and print alarm readings

Alarm Rate: (default is 15 sec.)

- setting choices are 15, 30, 60 or 120 seconds.
- rate at which pressure readings are printed and logged to memory during an alarm condition

To change the Print/Log Rate --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **PRINT/LOG RATES** using **▲/▼** and press **EDIT** to change settings.
3. Use **▲/▼** to change the **NORMAL RATE**.
4. Press **MENU/SELECT** to move from **NORMAL RATE** to **ALARM RATE** and repeat step 3 to change the **ALARM RATE** setting.
5. Press **SAVE** to save the updated settings and return to the Main Menu.

Pressing the EXIT key will return you to the Main Menu without saving the updated settings.

To conserve paper and log space, the Alarm Print/Log rate will reduce to 15 minutes if the unit stays in an alarm condition for more than 10 minutes. The pressure monitoring rate is not affected. The Alarm Print/Log rate will return to its original setting at the beginning of the next alarm.

Alarm Condition

Once the containment pressure reaches the operating window, the unit will be in normal operation and the alarms will be armed. Then if containment pressure falls **outside** the operating window, the following will occur:

1. Internal buzzer and **AUX ALARM** output will be activated and will remain active until **AUDIBLE ALARM SILENCE** is pressed.
2. The status bar will change to **>>ALARM<<** and begin flashing.
3. Printer will indicate which alarm setpoint was exceeded. The print/log rate will increase to the preset alarm rate. Printouts will show the time followed by the current pressure reading.

When the containment pressure returns to within the normal operating window, the unit will log and print **NORMAL OP** with a time-stamp. The buzzer and **AUX ALARM** output will turn off. If the alarm was silenced without rearming, it should be rearmed.

Alarm Disable, Silence and Rearm

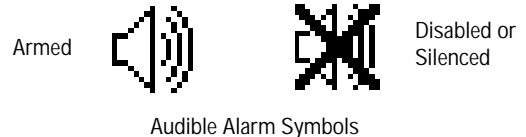
The buzzer symbol on the Monitor Screen indicates whether the audible alarm and **AUX ALARM** output are armed or disabled. The alarm is always armed when the unit is first turned on. The alarm silence function and **AUX ALARM** output are controlled by the **AUDIBLE ALARM SILENCE** key.

To disable or silence the buzzer--

Press **AUDIBLE ALARM SILENCE** once and the alarm will be disabled. This will be indicated on the screen with an **X** marking through the buzzer symbol. If the alarm was sounding at the time of disabling it will become silent.

To rearm a silenced buzzer --

Press **AUDIBLE ALARM SILENCE** and the buzzer symbol will be displayed without an **X** through it.



Inlet Pressure Response Rate

This setting determines how quickly the unit will react to pressure changes. Reduce this setting if you are using the unit in conditions where air pressure fluctuates rapidly and can cause false alarms, such as in high wind.

Response Rate: (default rate is Medium)

- rate choices are Slow, Medium and Fast
- in windy conditions, set to Slow
- if quick response to small pressure changes is needed, set to Fast

Location of Controls

AC Power Cord

Paper Housing & Lid

(A diagram showing how to properly load the thermal paper is located in Section 4. Only use Omniguard II/III thermal paper, available through your dealer.)

Paper Slot & Tear Bar

LCD Display - uses various screen types to provide job information. Monitor Screen (shown) shows current Pressure reading and indicators for Printer, Audible Alarm and Operational status.

MENU/SELECT - displays Main Menu or selects the highlighted item for review or editing.

▲ / ▼ - scroll through menu selections or change settings.

SAVE - saves updated unit settings to memory after editing, then exits to the Main Menu.

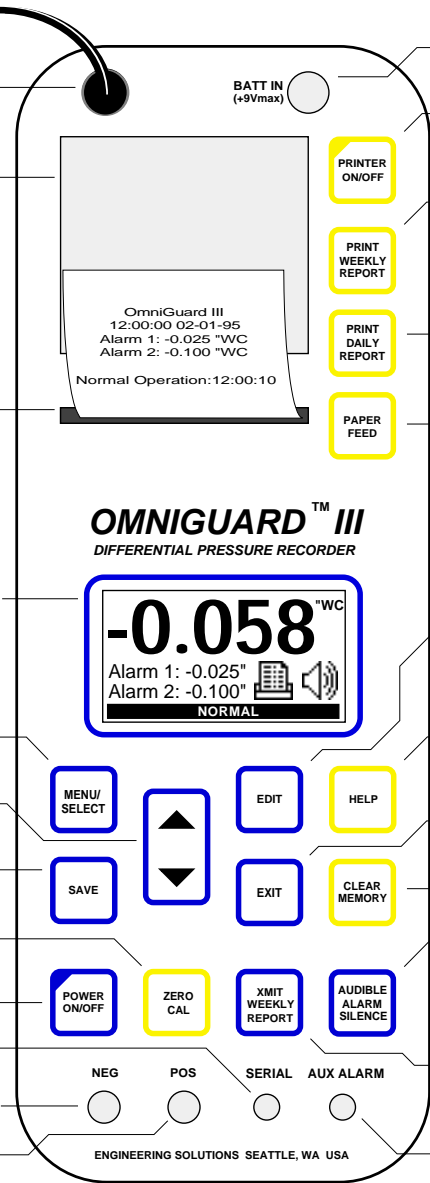
ZERO CAL - automatically calibrates the unit to zero, per the conditions at the job site.

POWER ON/OFF - turns unit on and off.

SERIAL - connector for sending data to a personal computer.

NEG - inlet connector for pressure tubing from containment.

POS - inlet connector for sensing ambient pressure in the room.



BATT IN (+9Vmax)

PRINTER ON/OFF

PRINT WEEKLY REPORT

PRINT DAILY REPORT

PAPER FEED

OMNIGUARD™ III
DIFFERENTIAL PRESSURE RECORDER

-0.058 WC
Alarm 1: -0.025"
Alarm 2: -0.100"
NORMAL

MENU/SELECT

▲
▼

EDIT

HELP

SAVE

EXIT

CLEAR MEMORY

POWER ON/OFF

ZERO CAL

XMIT WEEKLY REPORT

AUDIBLE ALARM SILENCE

NEG

POS

SERIAL

AUX ALARM

ENGINEERING SOLUTIONS SEATTLE, WA USA

BATT IN - connector to optional external battery pack.

PRINTER ON/OFF - turns the printer on and off. Printer status is indicated by the printer symbol at the Monitor Screen.

PRINT WEEKLY REPORT - press once to print a Weekly Report Summary. Press again to print the complete log of all data stored in memory with a sign-off header. **Cancel** printing by pressing any key.

PRINT DAILY REPORT - prints the current day's log with a sign-off header. **Cancel** printing by pressing any key.

PAPER FEED - advances the printer paper.

EDIT - press to allow changes to settings of the highlighted item from the Main Menu or while reviewing unit settings. Step through settings by pressing MENU/SELECT.

HELP - provides information about the highlighted item or displays Help Menu to select a topic for which more information is available.

EXIT - exits to previous screen; if editing, exits **without** saving any updates.

CLEAR MEMORY - clears entire log memory.

AUDIBLE ALARM SILENCE - silences the internal buzzer and AUX ALARM output when an Alarm Condition occurs. Audible Alarm status is indicated by the buzzer symbol at the Monitor Screen. Default is On (alarm will sound).

XMIT WEEKLY REPORT - sends all the data in memory to a personal computer through the SERIAL connector.

AUX ALARM - SPDT relay output supports optional remote alarm or telephone autodialer.

To change the Response Rate --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **RESPONSE RATE** using **▲/▼** and press **EDIT** to change the setting.
3. Use **▲/▼** to change the setting.
4. Press **SAVE** to save the updated settings and return to the Main Menu.

Pressing the EXIT key will return you to the Main Menu without saving the updated settings.

Turning Printer On/Off

The **PRINTER ON/OFF** key controls the printer power. All pressure readings are logged to memory regardless of printer setting.

*Note: If a printer error is detected, the printer will automatically turn off and a **JAM** message will appear above the printer symbol. Clear the jam and use the **PRINTER ON/OFF** key to turn the printer back on. Paper jams are logged with a time-stamp.*



Printer Symbols

Printing Reports

The *Omniguard III* provides a printout of all recorded data, alarm messages and changes in operational settings. Daily, Weekly, Summary and Configuration reports can be printed at anytime.

To print a Daily Report --

- Press **PRINT DAILY REPORT**. A daily report with a sign-off heading will be printed.

To print a Summary Report --

- Press **PRINT WEEKLY REPORT**. A summary of the week's activity will be printed.

Example of Typical Printout

<p>POWER OFF 02-23-95 19:48:39 OmniGuard III 02-23-95 07:10:29 ALARM 1 @ 0.125" WC ALARM 2 @ -0.400" WC NORMAL OP 07:11:28</p> <hr/> <p>NEW TIME 08:11:49</p> <p>NEW ALARM 1 -0.100" WC</p> <p>ALARM 1 @ -0.100" WC 08:13:22 -0.016" W.C. 08:13:52 -0.001" W.C.</p> <p>NORMAL OP 08:14:06 08:29 -0.012" 0.002" W.C.</p> <hr/> <p>02-24-95 00:12 -0.015" 0.002" W.C.</p> <hr/> <p>Daily Report 02-24-95 17:30:29 JOB NAME/# CONTRACTOR: SUPERVISOR:</p>	<p>Typical Start Up Sequence</p> <p>Settings Changes print out for verification</p> <p>Alarm Condition</p> <p>Alarm Condition printing example</p> <p>Normal Operation again</p> <p>Normal Operation printing example</p> <p>New Date prints at midnight</p> <p>Daily Report prints with date and time and sign off header</p>
--	--

To print a Weekly Report --

- Press **PRINT WEEKLY REPORT** and a Summary Report will print. When the Summary Report is completed press **PRINT WEEKLY REPORT** a second time for a detailed Weekly Report with a sign-off header. Everything in memory will be printed. This may contain more than one week's activity.

To print a Configuration Report --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **CONFIGURATION REPORT** using ▲/▼ and press **MENU/SELECT**.
3. The Configuration Report will appear in its entirety on the screen for viewing. Press one of the **PRINT REPORT** keys and the Configuration Report will begin printing.

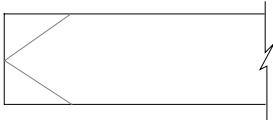
or

Press **EXIT** to return to the Main Menu without printing the Configuration Report.

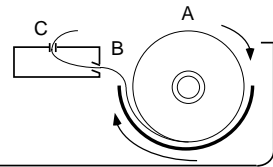
Reports may be reprinted showing more than one day's activity by changing the **DATE** setting to the desired report date. Everything in memory from the new date forward will print when **PRINT DAILY REPORT** is pressed.

*Printing a report does not cause any data to be erased from memory, only the **CLEAR MEMORY** key will erase memory. **Cancel** report printing by pressing any key.*

Loading the Thermal Printer Paper

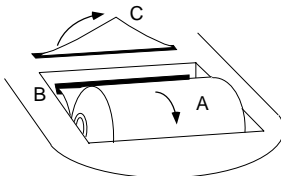


1. Cut the end of the paper to a tapered point.
2. Place the paper into the housing so the paper unrolls from the bottom.
3. Insert tapered point into slot marked **B**, feed through until tapered point can be pulled from the top at **C**.



*Do not use the **PAPER FEED** key to advance the paper.*

4. From **C**, gently pull until the tapered portion is completely exposed.
5. Replace lid onto the paper housing and secure with the thumbscrew.



Caution: *Only use Omniguard III/III thermal printer paper! Thermal paper prints on only **one** side, the side away from the paper roll. If the roll is installed incorrectly the printer will be able to advance the paper but unable to print on it.*

Display Contrast & Backlight

The contrast level and backlight setting on the LCD screen allows the user to adjust the display for optimal viewing in varied lighting conditions. The backlight automatically dims after 4 minutes to extend battery and backlight life. It can be reactivated by pressing any key.

Contrast: (default is 70%)

- range is 30% (min) to 100% (max)

Backlight: (default is ON)

- choices are ON or OFF

To change the Contrast or Backlight --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **DISPLAY** from the Main Menu using ▲/▼ and press **EDIT** to change the settings.
3. Press **MENU/SELECT** to choose **CONTRAST** or **BACKLIGHT** and use ▲/▼ to change the settings for each.
4. Press **SAVE** to save the updated settings and return to the Main Menu.

*Pressing the **EXIT** key will return you to the Main Menu **without** saving the updated settings.*

Transmitting A Report

The information logged in the unit's memory can be transferred to an IBM compatible PC for permanent storage. Reports transmitted to a PC can be reviewed and reprinted any number of times. The PC program also compiles a list of statistics about each report.

Before you can transmit a report to a PC, you must first purchase the PC Communication Kit. Detailed instructions for connection and operation of the transmit function are included with the kit.

To transmit a report --

1. Install the PC Communication program into your computer.
2. Plug the small end of the cable into the **SERIAL** connector of the unit.
3. Plug the large end of the cable into the serial port on your PC.
4. Run the program and follow the instructions shown on the computer screen.

Autodialing Feature

The **AUX ALARM** output can be used to activate a telephone autodialer through a special cable. The Aux Alarm Mode setting is used to set the device type that is attached to the **AUX ALARM** connector, either a remote alarm or an autodialer.

AUX MODE: (default is Remote Alarm)

- choices are Remote Alarm, Autodial 1 min, Autodial 5 min or Autodial 10 min

To select the Autodialer mode --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **AUX ALARM MODE** using **▲/▼** and press **EDIT** to change the settings.
3. Press **▲/▼** to change the setting to the desired time period.
4. Press **SAVE** to save your new setting and return to the Main Menu.

Pressing the **EXIT** key will return you to the Main Menu *without* saving the updated settings.

In an alarm condition, the **AUX ALARM** output will activate for the selected amount of time. After the time period has elapsed, the **AUX ALARM** output will automatically turn off (contacts opened). The output may also be turned off by pressing the **AUDIBLE ALARM SILENCE** key. The **AUX ALARM** output will only reset once the unit has returned to normal operation, this prevents the autodialer from continuously dialing during an alarm condition.

Passcode Protect

The passcode protect feature allows the site manager to setup a passcode that prevents unauthorized changes to the unit's settings. Once enabled, a four digit code must be entered to edit any setting. Settings may be viewed without the passcode.

Passcode Protect: (default is OFF)

Passcode: (default passcode is 0 0 0 0)

- passcode can be set to ON or OFF
- master passcode is 7 7 7 7

To set and enable the Passcode --

1. Select **MENU/SELECT** to view the Main Menu.
2. Highlight **PASSCODE PROTECT** from the Main Menu using **▲/▼** and press **EDIT** to change the setting.
3. Press **MENU/SELECT** to set the passcode digits.
4. Set each digit of the passcode using **▲/▼**.
5. Press **MENU/SELECT** to move from one digit to the next.
6. Press **SAVE** to save the updated setting and return to the Main Menu.

Pressing the **EXIT** key will return you to the Main Menu *without* saving the updated settings.

Note: In the event that the passcode is lost or forgotten it can be reset and settings can be changed using the master passcode.

Pressure Units

The pressure units used by the *Omniguard III* to display and record pressure readings are selectable.

Pressure Units: (default is Inches WC)

- choices are Inches WC ("WC), Millimeters WC (mmWC) or Pascals (Pa)

To select the desired pressure units --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **PRESSURE UNITS** by using **▲/▼** and press

EDIT to change the setting.

3. Use ▲/▼ to change the pressure units to the desired measurement.
4. Press **SAVE** to save the updated settings and return to the Main Menu.

*Pressing the **EXIT** key will return you to the Main Menu **without** saving the updated settings.*

Viewing the Log

A complete detailed log of all logged information can be viewed on the screen at any time during operation.

To view logged data --

1. Press **MENU/SELECT** to view the Main Menu.
2. Highlight **VIEW LOG** using ▲/▼ and press **MENU/SELECT** to view the complete log. A printed copy of the same information is available by pressing the **PRINT WEEKLY REPORT** key twice (see Section 4: Printing Reports, Page 18).

Using Help

To access Help information on a highlighted topic --

- Press **HELP**. Detailed information about the unit's current status or the highlighted function will be displayed.

To access the Help Menu --

1. Press **HELP** twice.
2. Highlight the desired topic using ▲/▼.
3. Press **HELP** to view the information available for that topic.

Section 6: Options

- **Remote Auxiliary Alarm**

The remote alarm features a high-intensity strobe light with 95db audible alarm alerts workers and bystanders to hazardous condition. The remote alarm plugs into the **AUX ALARM** port and includes a 25' cable to allow alarm placement within the containment area. Alarm is activated when an alarm condition occurs.

- **Autodialer / Cable**

Plugs into **AUX ALARM** port and provides off-site alert that an alarm condition has occurred at the job site. Calls up to 4 preprogrammed telephone numbers and plays a prerecorded message. Works with 20-digit phone numbers and pagers. Easy to set up and use. Battery backed memory to retain message and phone numbers in the event of a power outage. Includes 6' cable to connect to the *Omniguard III* unit and a standard RJ11 phone jack.

- **PC Communication Kit**

Transmits recorded job site logs to an IBM compatible PC for permanent storage, statistical analysis and summary report generation. Includes 6' cable and application software (DOS and Windows versions). Extremely easy to use.

- **Battery Pack Upgrade**

For use when AC power is unavailable or during intermittent power conditions. Provides up to 48 hours of operation when printer is turned off, 12-24 hours when printer is turned on. Recharges in 24 to 36 hours when plugged into 115VAC. Includes carrying case, charger and cable to link to *Omniguard*. Requires modifications to *Omniguard* to support external battery pack.

- **NIST Traceable Certification**

When project regulations require the *Omniguard III* to be certified for the NIST. Please contact your dealer to find out how this can be done.

- **Optional Pressure Ranges**

If the *Omniguard III* does not operate over the pressure range which is applicable to your job specifications, call Engineering Solutions to order a unit with the custom range or have your unit modified to meet your requirements.

- **220VAC Power Supply Range**

Designed for use where 220-240VAC 50Hz power is normally available. Choice of plug styles. Requires modifications to the *Omniguard III* unit.

Appendix A: Troubleshooting

If you experience problems with your *Omniguard III*, use this section to try to solve the problem. If you are unable to solve the problem, consult with your dealer or call Engineering Solutions at (206) 241-9395 (8:00 a.m.-12:00 noon, 12:30-4:30 p.m. Pacific Time) and ask for Technical Support, or e-mail techsupport@engsolinc.com.

Problem: The unit does not display the proper pressure.

Remedy: Check to see that the tubing is connected properly to the **NEG** inlet port.

Remedy: Make sure that the tubing does not have a kink or a sharp bend.

Remedy: Make sure that the tubing connection into the containment area is properly placed and secured as described in Section 4: Work Area Setup, Page 9.

Remedy: Check the unit Configuration Report (see Section 4: Printing Reports, Page 18) to determine if the Zero value has been incorrectly calibrated. If the value is not zero then recalibrate the zero point (see Section 4: Zero Calibration, Page 11).

Problem: Excessive momentary alarms.

Remedy: Adjust alarm setpoints to allow for normal air pressure fluctuations caused by entries into work area or other equipment. Make sure that you are within the minimum negative air pressure requirements.

Remedy: If you suspect that wind may be causing rapid pressure fluctuations, reduce the setting for Response Rate (see Section 4: Detailed Operation, Page 9).

Problem: Printer indicates an alarm but audible alarm was not activated.

Remedy: Confirm that the Audible Alarm is on. The buzzer icon should be shown, in the right corner of the display, without an **X** through it (see Section 4: Alarm Disable, Silence and Reset, Page 15).

Problem: Printer is not working properly or a paper jam occurs.

Remedy: The printer may be turned off. Turn it on using the **PRINTER ON/OFF** key.

Remedy: Thermal paper prints on only **one** side, the side away from the paper roll. If installed incorrectly, the printer will be able to advance the paper but unable to print on it. Make sure that the paper is fed properly as described in Section 4: Loading the Thermal Printer Paper, Page 20.

Remedy: Paper jams can occur if the paper is allowed to fall back into the printer head after tearing off a report. If a paper jam occurs, the unit will automatically shut the printer off to prevent damage. The printer symbol will be displayed with a **JAM** message (see Section 4: Turning Printer On/Off, Page 18). After the paper jam is cleared, use the **PRINTER ON/OFF** key to turn the printer back on.

Note: Do not apply oil or grease of any kind to the printer as this will attract dirt and debris and could cause permanent damage to the printer mechanism.

Problem: OMNIGUARD III unit does not enter normal operation at power on, and does not print.

Remedy: For normal operation, the monitored pressure **must** be between the Alarm 1 and Alarm 2 setpoints. At power on, the containment pressure will not likely be within the alarm setpoints, and the unit will not print or log the pressure readings. The unit will begin printing and logging the pressure readings only after it senses containment pressure has reached the normal operating window.

Problem: The unit displays **Initializing system... followed by **The system has been returned to factory defaults...** after the power has been off.**

Remedy: The internal battery is discharged. Leave the unit plugged in for 24 hours to recharge the battery. It will be necessary to reset any of the unit settings you may have changed. The internal battery will last for 30+ days without recharging. It recharges automatically any time the unit is plugged in.

Shipping & Repair

Please call the Engineering Solutions customer service department for a return authorization. A number will be assigned to aid in tracking your unit.

Send the entire unit, enclosing a brief explanation of the problem along with your company name, address, phone number and name of the individual responsible for the unit. **The return authorization number must be clearly marked on the outside of the box.** No COD's will be accepted. If the original packing materials are not available, package the unit securely in a sturdy container with enough padding to surround the unit on all sides. The unit should not be able to be shift after packing. Engineering Solutions will not be responsible for any damage which may occur.

Send to : Engineering Solutions, Inc.
6000 Southcenter Blvd, Suite 70
Tukwila, WA 98188-5742
(206) 241-9395 sales and service

Appendix B: Specifications

Differential Pressure Range: +/-0.250" WC (+/-6.35mmWC, +/-62.5 Pascals)

Accuracy: +/- .003" WC or +/-1% of reading whichever is greater

Resolution: 0.001" WC, (+/-0.05mm WC, +/-0.5 Pascals)

Burst Pressure: 5 psi (34 kPa) on either port

Pressure Units Displayed: "WC (Inches Water Column), mmWC (millimeters Water Column), or Pa (Pascals)

Data Storage: 29,500 characters, 7+ days of readings (over 2,000 logged events)

Display: Graphic Liquid Crystal Display (LCD) with adjustable backlight and over 3 sq. inch viewing area

Internal Battery: Self-charging lithium ion battery provides 30+ days of memory retention and clock operation

Printer: 20 character wide thermal printer (uses 2.2" wide thermal printer paper)

Printing/Logging Rates:

Normal Operation -- highest and lowest pressure readings printed/logged at intervals of 5, 15, 30 minutes or OFF

Alarm Condition -- current pressure reading printed/logged at intervals of 15, 30, 60 or 120 seconds for first 10 minutes of alarm condition, increasing to 15 minute intervals thereafter

Alarms: Two programmable alarm setpoints, 95db audible alarm and flashing on-screen warning indicate alarm condition

Input Connections: Two 3/16" outside diameter barbed hose connectors, 10 ft of hose provided

Serial Port: 1/8" stereo phono jack, RS232 output

Aux Alarm Port: 1/8" stereo phono jack, relay contact outputs: NC, NO and Common rated 1A @ 30Vdc or 0.5A @ 115VAC

Power: 115 VAC 60Hz with 6 ft power cord (220 VAC 50Hz optional)

Case: Heavy duty ABS plastic with lid, handle and hook for hanging

Warranty: One Year Limited Warranty

Appendix C: Limited Warranty

Engineering Solutions warrants that all products, component parts and accessories will, for a period of twelve (12) months from date of purchase, be free from defects in material and workmanship under normal use and service.

PURCHASER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS F. O. B., ENGINEERING SOLUTIONS, INC., 6000 SOUTHCENTER BLVD, SUITE 70, TUKWILA, WA 98188.

To keep this warranty valid, the purchaser must (a) return signed Registration card to Engineering Solutions within fifteen (15) days of purchase, (b) have promptly informed Engineering Solutions' customer service department of any defects in writing, (c) properly used, maintained and repaired the Product, and (d) have proof of purchase.

This warranty does not cover normal wear and tear or defects due to (a) improper or negligent handling or unauthorized modifications, (b) defective or improper premises, chemical, electrochemical or electrical influences, (c) weather or other influences of nature.

LIMITATIONS OF WARRANTY - THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES AND OBLIGATIONS OF ENGINEERING SOLUTIONS OR ITS SUPPLIERS, EXPRESS OR IMPLIED. ENGINEERING SOLUTIONS EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF REMEDY- Under no circumstances shall Engineering Solutions or any of its suppliers be liable for any loss or damage, including, but not limited to, loss or damage arising out of failure of the Product to operate for any period of time, inconvenience, use of rental or replacement equipment, loss of profit or other economic loss, or general, direct, special, indirect, incidental or consequential damages or property damages.

PRODUCT SUITABILITY - Many states and localities have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Engineering Solutions attempts to assure that its Products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the Products are installed or used. Engineering Solutions recommends that, before purchasing and using a Product, purchasers review the Product application, and federal, state and local regulations, to be sure that the Product, installation, and use will comply with them.

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