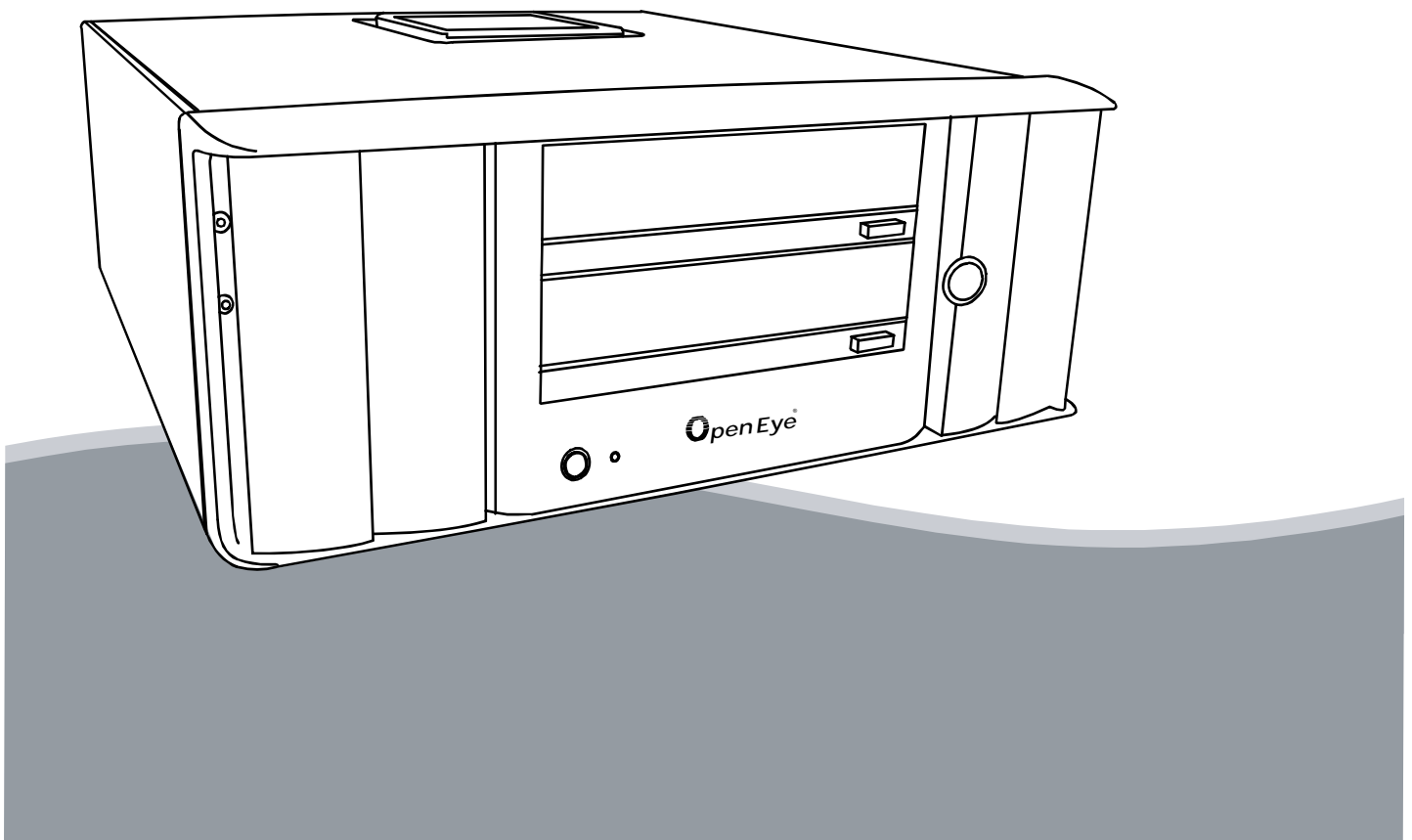


# OpenEye<sup>®</sup>

## X-Series Digital Video Recorder

Hardware Manual

model no. OE3-X12004M



Please carefully read these instructions before using this product.  
Save this manual for future use.

OpenEye® 4 Channel X-Series DVR  
Hardware Manual

Manual Edition 28170AC – JUNE 2008

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The following words and symbols mark special messages throughout this guide:



**WARNING:** Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.



**CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

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OPENEYE  
Liberty Lake, WA • U.S.A.

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## IMPORTANT SAFEGUARDS

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1. **Read Owner's Manual** – After unpacking this product, read the owner's manual carefully, and follow all the operating and other instruction
2. **Power Sources** – This product should be operated only from the type of power source indicated on the label. If not sure of the type of power supply to your home or business, consult product dealer or local power company
3. **Ventilation** – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
4. **Heat** – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products that produce heat.
5. **Water and Moisture** – Do not use this product near water. Do not exceed the humidity specifications for the product as detailed in the Appendix section in this manual
6. **Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
7. **Power Cord Protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
8. **Overloading** – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electrical shock.
9. **Lightning** – For added protection for this product during storm, or when it is left unattended and unused for long periods, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power line surges.
10. **Object and Liquid Entry Points** – Never insert foreign objects into the DVR unit, other than the media types approved by OpenEye, as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the product.
11. **Accessories** – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious personal injury and serious damage to the product.
12. **Disc Tray** – Keep fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.
13. **Burden** – Do not place a heavy object on or step on the product. The object may fall, causing serious personal injury and serious damage to the product.
14. **Disc** – Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

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## **IMPORTANT SAFEGUARDS, continued**

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15. **Damage Requiring Service** – Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
  - When the power-supply cord or plug is damaged.
  - If liquid has been spilled, or objects have fallen into the unit.
  - If the unit has been exposed to rain or water.
  - If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
  - If the unit has been dropped or the enclosure has been damaged.
  - When the unit exhibits a distinct change in performance – this indicates a need for service.
16. **Servicing** – Do not attempt to service this product as opening or removing covers may expose the user to dangerous voltage or other hazards. Refer all servicing to qualified personnel.
17. **Replacement Parts** – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
18. **Safety Check** – Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

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## **NOTES ON HANDLING**

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Please retain the original shipping carton and/or packing materials supplied with this product. To ensure the integrity of this product when shipping or moving, repackage the unit as it was originally received from the manufacturer.

Do not use volatile liquids, such as aerosol spray, near this product. Do not leave rubber or plastic objects in contact with this product for extended periods of time. Rubber or plastic objects left in contact with this product for extended periods of time will leave marks on the finish.

The top and rear panels of the unit may become warm after long periods of use. This is not a malfunction.

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## **NOTES ON LOCATING**

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Place this unit on a level surface. Do not use it on a shaky or unstable surface such as a wobbling table or inclined stand.

If this unit is placed next to a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. If this happens, place the DVR unit away from the TV, radio, or VCR.

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## **NOTES ON CLEANING**

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Use a soft dry cloth for cleaning.

For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry. Do not use any type of solvent, such as thinner and benzene, as they may damage the surface of the DVR unit.

If using a chemical saturated cloth to clean the unit, follow that product's instructions.

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## **NOTES ON MAINTENANCE**

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This DVR unit is designed to last for long periods of time. To keep the DVR unit always operational we recommend regular inspection maintenance (cleaning parts or replacement). For details, contact the nearest dealer.

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## **NOTES ON MOISTURE CONDENSATION**

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Moisture condensation damages the DVR unit. Read the following information carefully.

Moisture condensation occurs during the following cases:

When this product is brought directly from a cool location to a warm location.

When this product is moved to a hot and humid location from a cool location.

When this product is moved to a cool and humid location from a warm location.

When this product is used in a room where the temperature fluctuates.

When this product is used near an air-conditioning unit vent

When this product is used in a humid location.

**Do not use the DVR unit when moisture condensation may occur.**

If the DVR unit is used in such a situation, it may damage discs and internal parts. Remove any CD discs, connect the power cord of the DVR unit to the wall outlet, turn on the DVR unit, and leave it for two to three hours. After two to three hours, the DVR unit will warm up and evaporate any moisture. Keep the DVR unit connected to the wall and moisture will seldom occur.

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## WARNING

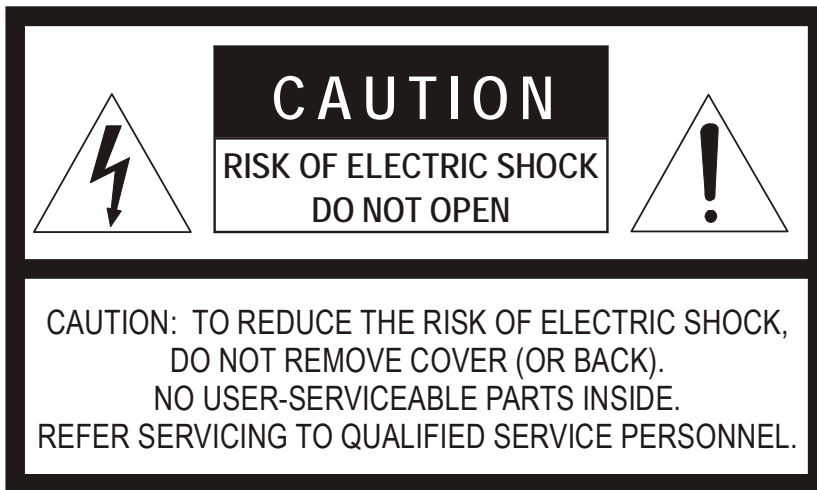
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TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.  
DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE.  
DO NOT OPEN THE CABINET.  
REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

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## CAUTION

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## EXPLANATION OF GRAPHICAL SYMBOLS

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The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the product.

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## **RACK MOUNT INSTRUCTIONS**

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**Elevated Operating Ambient** – If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.

**Reduced Air Flow** – Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

**Mechanical Loading** – Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

**Circuit Overloading** – Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

**Grounding** – Grounding of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

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## **FCC STATEMENT**

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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## **UL NOTICE**

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Underwriters Laboratories Inc. has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested for fire, shock and casualty hazards as outlined in UL's Standard for Safety UL 60950-1. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product. UL MAKES NO REPRESENTATIONS, WARRANTIES OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING RELATED FUNCTIONS OF THIS PRODUCT.

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## **CE NOTICE**

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This product is in conformity with the following European Directives:

**ELECTROMAGNETIC COMPATIBILITY DIRECTIVE, 89/336/EEC**  
(as amended by 92/31/EEC and by Article 5 of 93/68/EEC)

per the provisions of:

EN 55022:1994	EN 55024:1998	EN 61000-4-4:1995
EN 61000-3-2:1995	CISPR 24:1997	EN 61000-4-5:1995
EN 61000-3-3:1995	EN 61000-4-2:1995	EN 61000-4-6:1995
CISPR 22:1997	EN 61000-4-3:2002	EN 61000-4-11:1994

**LOW VOLTAGE DIRECTIVE, 73/23/EEC**  
(as amended by Article 13 of 93/68/EEC)

per the provisions of:

EN 60950-1: 2001

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## Statement of Limited Warranty

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Openeye warrants all new products to be free from defects in workmanship and material under normal use for a period of two years after the date of purchase. Any defective product that falls under this warranty will, at OpenEye's discretion, be repaired or replaced at no additional charge. Openeye may elect to replace defective products with new or factory reconditioned products of equal or greater value. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Exceptions to this are listed below:

- Three Years on all E-Series Digital Recorders
- Three years on all fixed cameras

All products shall be covered by a one year advance replacement warranty\*.

OpenEye will warrant all otherwise out of warranty replacement parts and repairs for 90 days from the date of OpenEye shipment.

The above warranty is the sole warranty made by OpenEye and is in lieu of all other warranties by OpenEye express and implied, including without limitation the warranties of merchantability and fitness for a particular purpose. Under no circumstances will OpenEye be liable for any consequential, incidental, special or exemplary damages arising out of or connected with the sale, delivery, use or performance of the product, even if OpenEye is apprised of the likelihood of such damages occurring. In no event shall OpenEye liability exceed the purchase price of the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state or country to country.

\*Requires corresponding security deposit.



# Table of Contents

- PREFACE.....1**
  - About this Guide.....1
  - Technician Notes.....1
- INTRODUCTION.....3**
  - Product Description.....3
  - Features.....4
  - Product Models.....4
- CONTROLS AND CONNECTIONS.....7**
  - System Specifications.....7
  - Front Panel Controls and LEDs.....7
  - Rear Panel Connectors.....8
- GETTING STARTED .....10**
  - Identifying Included Components.....10
  - Keyboard Setup.....11
  - Mouse Setup.....11
  - Monitor Setup.....12
  - Power Setup.....12
  - Connecting A Video Source to the DVR.....13
  - Connecting Sensors to the DVR.....13
  - Connecting Control Outputs to the DVR.....14
  - Connecting a PTZ Camera.....15
    - Attaching the RS-485 Adapter.....15
  - Turning On the DVR.....16
  - Turning Off the DVR.....16



# PREFACE

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## ABOUT THIS GUIDE

This manual is a setup and maintenance guide that can be used for reference when setting up the X-Series 4 Channel DVR unit and for troubleshooting when a problem occurs. Only authorized personnel should attempt to repair this unit.

OpenEye reserves the right to make changes to the DVR units represented by this manual without notice.

The following text and symbols mark special messages throughout this guide:

**NOTE:** Text set off in this manner indicates topics of interests that can help the user understand the product better.

**TIP:** Text set off in this manner indicates topics and points of interests that can be helpful when using or settings up the DVR unit.

## TECHNICIAN NOTES



**WARNING:** Only authorized technicians trained by OpenEye should attempt to repair this DVR unit. All troubleshooting and repair procedures that may be shown are for reference and minor repair only. Because of the complexity of the individual components and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. And any indications of component replacement or printed wiring board modifications may void any warranty



**WARNING:** To reduce the risk of electrical shock or damage to the equipment:

- Do not disable the power grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Disconnect the power from the computer by unplugging the power cord either from the electrical outlet or the computer.



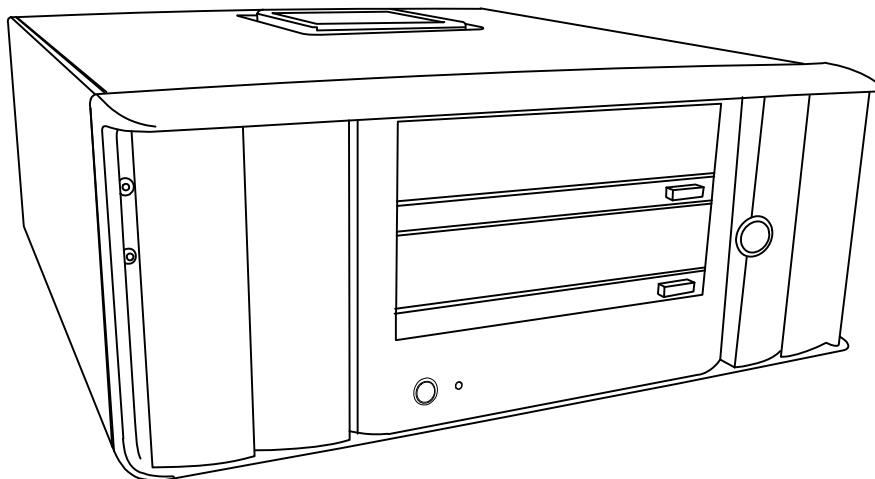
**CAUTION:** To properly ventilate your system, you must provide at least 3 inches (7.6 cm) of clearance at the front and back of the DVR unit.



# INTRODUCTION

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## PRODUCT DESCRIPTION



An OpenEye X-Series 4 Channel DVR is simply a server that performs as a High Definition Digital Recorder. By utilizing the many features of a computer, including processing power, storage capacity, graphics compression, and security features, the DVR unit is more powerful than the analog recorders of the past.

The OpenEye DVR server software comes pre-configured for fast and seamless integration within your existing IT infrastructure. Designed around Microsoft® Windows® XP Embedded, the server software offers unparalleled stability, security, and ease of use. Accordingly, your security investment has never been easier to maintain. Multiple users may simultaneously connect through any network connection for instantaneous live viewing, digital search, and off site video storage. Users can also connect remotely through DSL, Cable Modems, ISDN, or 56K dial-up. This powerful software enables users to establish recording schedules, create motion detection zones, use PTZ controls, and configure alarm inputs and outputs for each of the system's cameras. With the latest advancements in the DVR Server Software, searching and indexing your video archive has never been easier. Video can now be found, viewed, and exported in a number of file formats with just a few clicks.

The OpenEye DVR is high performance security product ready to meet today's security demands.







# CONTROLS AND CONNECTIONS

## SYSTEM SPECIFICATIONS

OpenEye's state-of-the-art High Definition Digital Recorders are housed in a high performance and versatile 3U Rack-Mount case allowing easy storage of multiple DVRs for enterprise applications. Every OpenEye DVR unit comes equipped with the latest technology:

Intel® 3.2 Ghz Celeron D Processor

10/100 Network Interface Card (NIC)

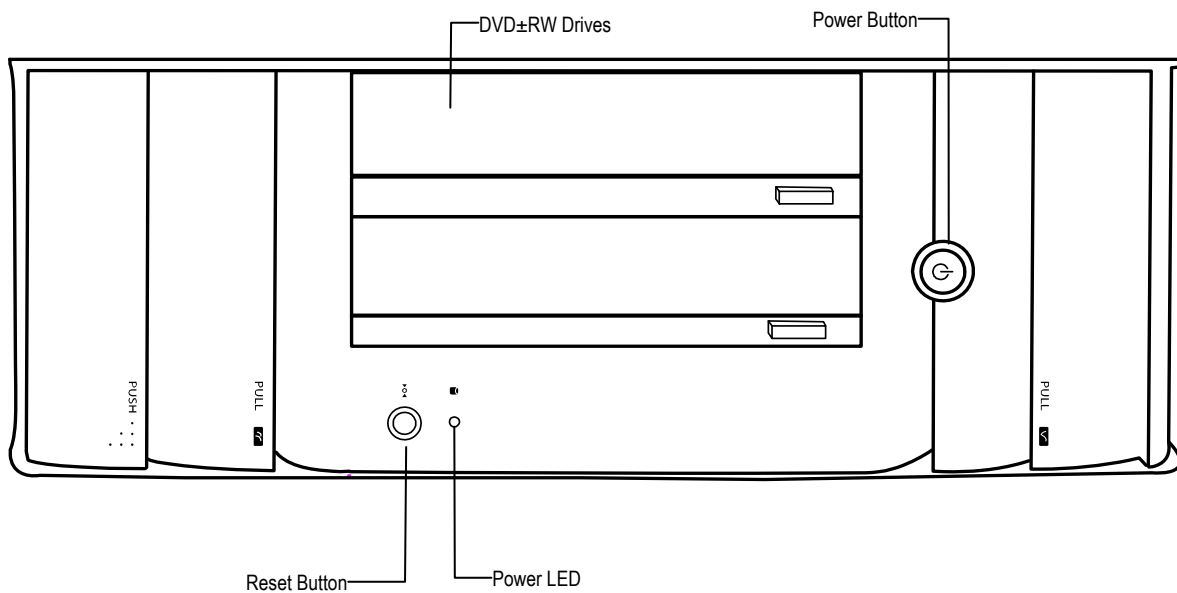
512 MB of System Memory

DVD±RW Recorder

250 GB Video Storage Drive (minimum)

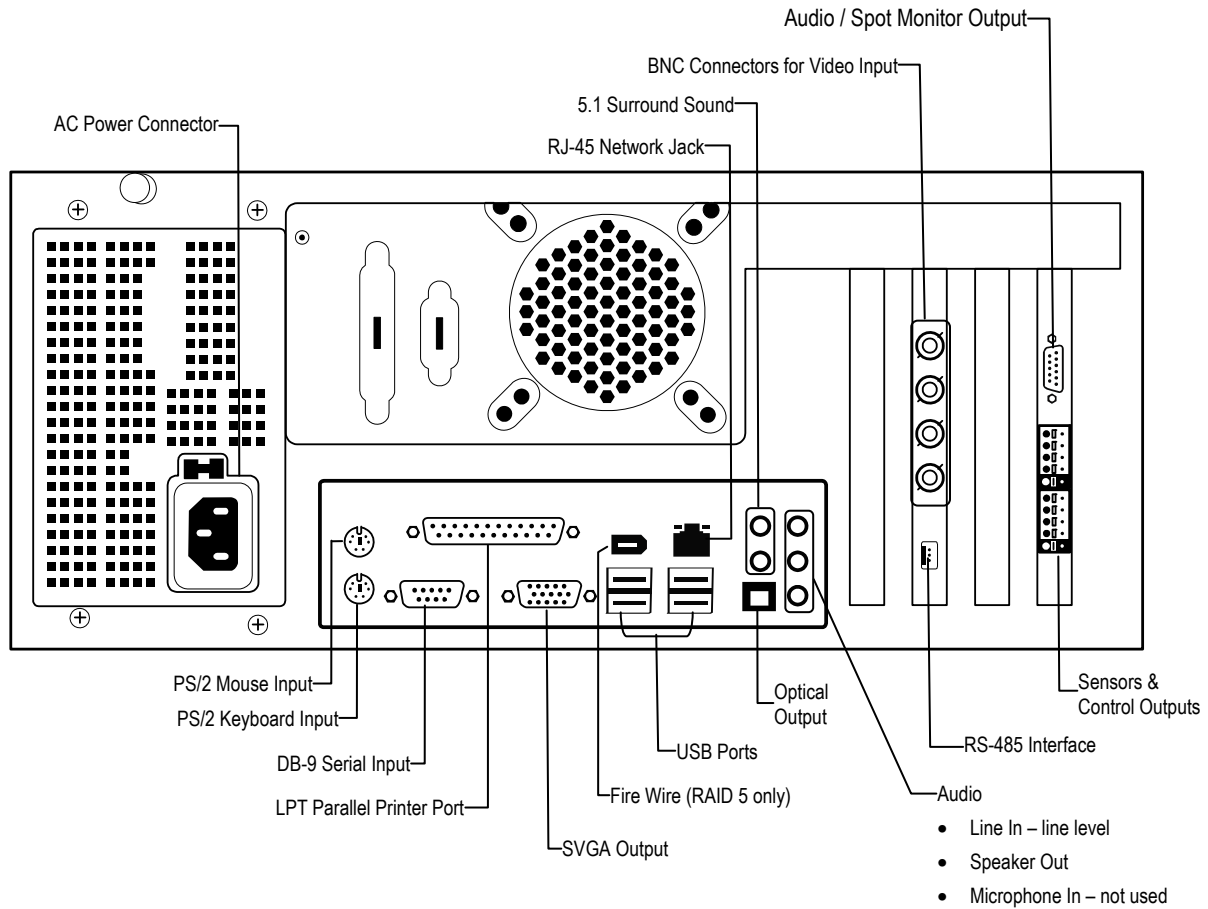
## FRONT PANEL CONTROLS AND LEDES

The front panel of the DVR unit contains the devices that will be commonly used for data removal, retrieval, and backup replacement. The most common components and buttons are shown below:



# REAR PANEL CONNECTORS

The rear panel of the DVR unit contains the connectors used to attach cameras, sensors, and relays to the DVR. The diagram below outlines the location and description of each connector.



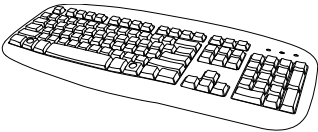





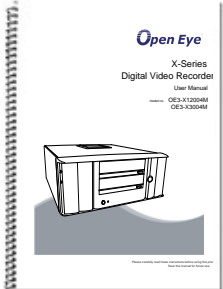




# GETTING STARTED

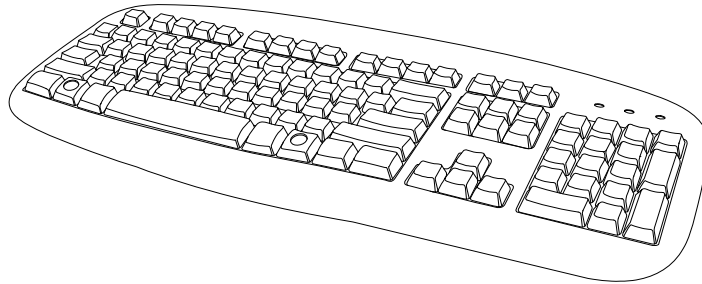
## IDENTIFYING INCLUDED COMPONENTS

OpenEye DVRs come with a mouse, keyboard and selected software and cables. Identify the following components to make sure everything has been properly included with the new DVR unit. If any of the following items are missing, contact the dealer to arrange a replacement.

 <p>DVR Unit</p>	 <p>Mouse</p>	 <p>Keyboard</p>
 <p>Repair Disc/ Software Disc</p>	 <p>Power Cable</p>	 <p>PTZ Adapter</p>
 <p>BNC to RCA Adapter</p>	 <p>Audio/Spot Monitor Cable</p>	 <p>DVR Manual</p>

## KEYBOARD SETUP

To attach the keyboard to the DVR unit, plug the end of the Keyboard into the keyboard PS/2 Port located on the back of the machine. The keyboard PS/2 Port can be identified by the purple color. Refer to the Rear Panel Connectors diagram for more information.



## MOUSE SETUP

To attach the mouse to the DVR unit, plug the end of the mouse into the mouse PS/2 Port located on the back of the machine. The mouse PS/2 Port can be identified by the green color.

The mouse uses a cursor called a pointer. Pointers come in many different shapes but are most commonly shaped like an arrow.

The mouse has two buttons: a left button and a right button. Quickly pressing and releasing one of these buttons is called clicking. Sometimes you will need to double-click – or click the same button twice quickly.

In this manual:

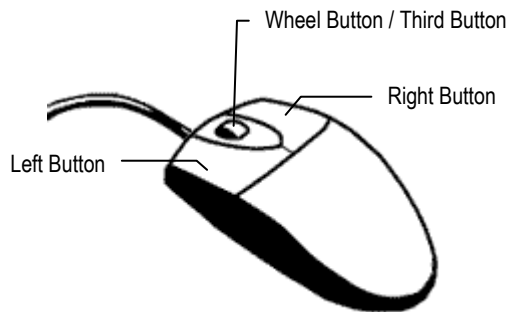
Click means to position the mouse cursor over an item and to single click the left button.

Right click means to position the mouse cursor over an item and to single click the right button.

Double-click means to position the mouse cursor over an item and to click the left button twice.

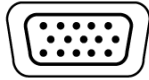
Select means to position the mouse cursor over a radio button, checkbox, or list item and click on it.

The wheel button in between the two buttons is used for added navigation functionality. By moving the wheel with the index finger (scrolling), quickly move through multiple pages, lines, or windows. The wheel may also function as a third button allowing the user to quickly click or double-click an icon or a selected item



## MONITOR SETUP

The DVR has the following connection available to attach a monitor.



SVGA Output

To VGA Monitor.

Attach the monitor or monitors to the rear of the DVR unit using the cable supplied by the monitor manufacturer. Refer to the monitor manual for detailed information on how to setup and use it.

**NOTE:** The monitor must be capable of having a screen resolution of  $1024 \times 768$  and display colors of at least 32 Bit

## POWER SETUP



**WARNING:**

To reduce the risk of electrical shock or damage to the equipment:

Do not disable the power grounding plug.  
The grounding plug is an important safety feature.

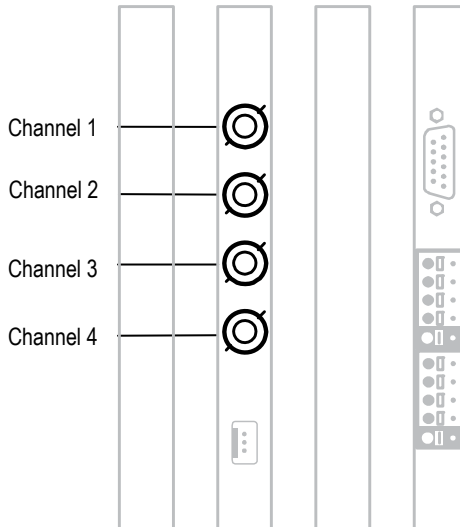
If the electrical plug you are using does not have a ground plug receptacle contact a licensed electrician to have it replaced with a grounded electrical outlet.

Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.

Disconnect the power from the computer by unplugging the power cord either from the electrical outlet or the computer.

## CONNECTING A VIDEO SOURCE TO THE DVR

There are different types of Video Sources that can be plugged into the DVR unit including DVD players, VHS players, and CCTV Cameras. The back of the DVR unit has 4 video inputs. The connectors use the BNC standard.

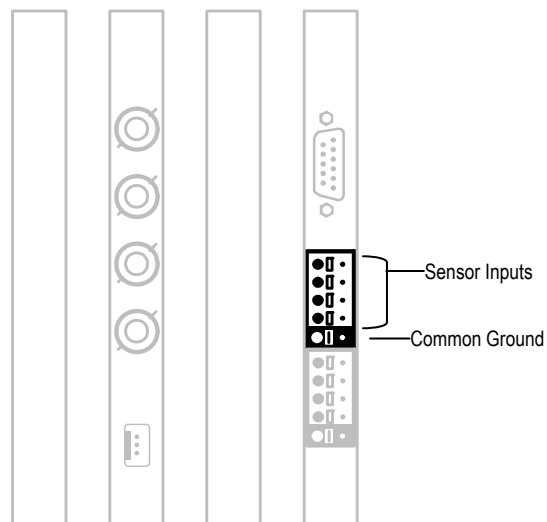


The video inputs are 75  $\Omega$  BNC connectors. Plug one end into the video source (DVD, Camera, etc.) and plug the other end into the desired BNC input on the DVR unit.

## CONNECTING SENSORS TO THE DVR

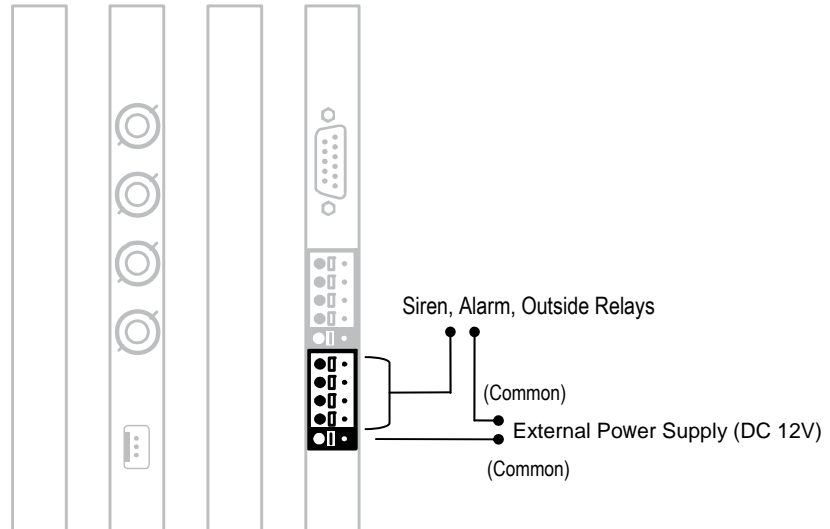
Each DVR unit has 4 Sensor inputs. These inputs can be used with devices such as infrared devices, motion device, glass breakage alarms, door and window trips, and many more. The Sensors can be set to Normally Open or Normally Closed inside the software.

There is 1 Common Ground (-) and 4 sensor inputs (+). There is no power supplied to the ports so an external power supply must be used if power is necessary.



## CONNECTING CONTROL OUTPUTS TO THE DVR

Each DVR unit has 4 Control Outputs. These outputs can be used to trigger devices such as Sirens, Phone Dialers, Lights, and any other relay activated device. There is no power supplied to the ports. Use an external power supply if necessary.



Use 12V, below 300mA. For controlling lights or other devices, use another external relay.

Maximum voltage is 24V AC @ 1 amp

Output uses a Form C Relay

## CONNECTING A PTZ CAMERA

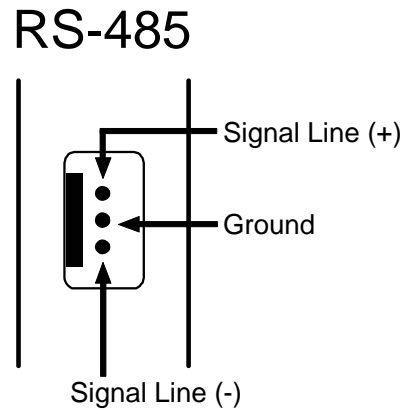
Setting up a PTZ Camera is simple. The DVR unit comes preassembled with an internal PTZ adapter. The cabling may be run up to 4,000 ft using 22 Gauge Twisted Pair.

It is important to understand how the PTZ connects to the DVR. The DVR outputs an RS-232 signal and converts it to an RS-485 signal which is then sent to the PTZ camera.

## ATTACHING THE RS-485 ADAPTER

1. Locate the PTZ adapter cable.
2. Connect the two wires of the PTZ adapter to the PTZ camera. The red wire on the adapter should connect to the RX+ on the PTZ and the brown wire should connect to the RX-.
3. Connect the other end of the adapter to the DVR unit as shown.
4. Assign the PTZ camera an ID number in PTZ Setup that coincides with the number assigned to the camera. This is normally done utilizing a dip-switch configuration method on the addressable dome.

**Tip:** It is recommended that the ID of the camera coincide to the input number on the DVR. This will make future troubleshooting and configuration less complex.



## TURNING ON THE DVR

1. Turn on the monitor and any external peripherals (ex. Printers, External Storage Devices, etc.) connected to the DVR unit.
2. Press the power button located on the front of the DVR unit.
3. The DVR will run a series of self-tests. After two or three minutes, a series of messages may be displayed as the various hardware and software subsystems are activated. Under normal circumstances, users should not be asked to respond to these messages. If asked to respond to the messages (adding a Printer, Monitor, etc for the first time) follow the instructions carefully.
4. Startup is complete when the OpenEye DVR software finishes loading and displays the main menu screen.

## TURNING OFF THE DVR

1. Click the Exit button on the main screen of the DVR software.
2. Select Power Off from the list on the Power Off window and click OK.

The DVR unit may take several minutes to shut down completely.

**CAUTION:** Always be sure to follow the proper procedures when turning off the power to the DVR unit. NEVER disconnect the power to the DVR unit while it is still running or in the process of shutting down. Doing so can cause data loss, file corruption, system instability and hardware failure.