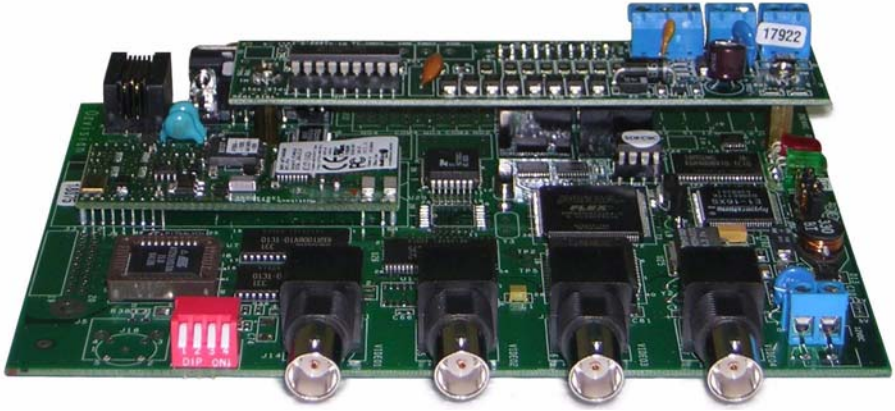
VVM110
Video Verification Module

Compatible with PC1555MX, PC5010, PC5020 Control Panels

Installation Guide



WARNING: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. Read the entire manual carefully.

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1. Introduction

The VVM110 captures and stores video images (ME-JPEG's) for transmission to a central station for visual verification of alarms. Images are transmitted over standard telephone lines using an internal modem. The capture of images is initiated by a zone violation in an associated control panel. Specialized software ***Visual Access Software*** allows the user configuration options including pre-trigger/post-trigger on alarm, frame capture rate, and image resolution. Refer to ***Visual Access Software*** User Guide for additional details.

Basic Operation

Video information from the 4 video inputs is initially formatted into an ME-JPEG format and stored in an on-board buffer. Subsequent video captures store only the difference data required to assemble the frames captured. When the buffer is full, the data is continuously updated by writing the new data over the old data. This process ensures that a recent history is maintained in memory before an alarm event occurs. The buffer allocated to on-going storage is programmable using ***Visual Access Software***. When an alarm event occurs, the control panel calls the central station to report the alarm and then signals the VVM110 via the Keybus. The remaining video buffer memory is used to capture the event. When the remaining memory is filled, recording of video events ceases. After the central station call is completed the VVM110 takes control of the phone line and calls a previously stored number for the central station that will process the video signal. The completed video clip including the pre-alarm video and the post-alarm video is transmitted to the central station using the internal modem.

Note: Central Station calling and transmission of video by the VVM110 is independant of the control panel. If a subsequent alarm event occurs during video transmission, the transmission will be termiated and the control panel will seize the phone line to forward the alarm information to the central station. When the call is com-pleted the VVM110 will resume its call to the central station and transfer the video data.

Note: Contact your central station to confirm support for VVM110 Ozvision™ video transmission protocol.

Remote Look In

Video data can also be retrieved by accessing the module via telephone with a PC using ***Visual Access Software*** and utilizing the module in a streaming video mode.

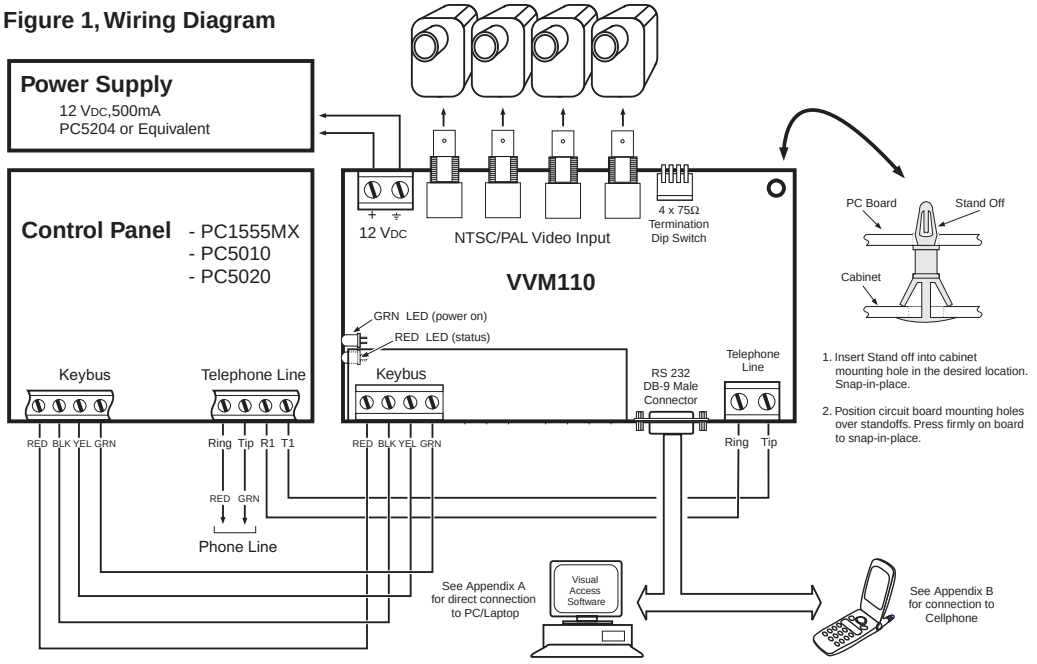
Features:

- 4 baseband video inputs (NTSC & PAL compatible)
- PSTN (telephone) connection - Tip, Ring
- Keybus interface to DSC control panels.
- Status LEDs
    - Green - Power On indicator
    - Red - Flashes during self test
- Standard RS232 serial port for Euro ISDN connection, PC, PDA, Cellphone.
- Supports cellular GSM, TDMA, CDMA cellular carriers which support CSD (Circuit Switch Data) or HSCSD (High Speed Circuit Switch Data) and with full duplex communication networks, including Satellite and RF.
- Pan/Tilt/Zoom (PTZ) - supports ERNA, VCLTP, Ultrack, Migvan , EscBaz and DynaColor protocols.
- On board modem controller
- Control Panels supported
    - PC1555MX
    - PC5010
    - PC5020

Specifications:

- Voltage.....12 to 17VDC
- Current Draw
    - Standby .....370 mA
    - Transmitting...490 mA Max.
- Operating Temperature Range .....32° to 131°F (0° - 50°C)
- Humidity.....25 to 80% Non Condensing
- Resolution
    - 128h x 100v NTSC or PAL
    - 256h x 100v NTSC or PAL
    - 256h x 200v NTSC or PAL
    - 512h x 200v NTSC or PAL
- Color Resolution .....16.8 million colors with 256 gray scales.
- On-board Frame Storage .....200 KBytes.

Figure 1, Wiring Diagram



2. Installation Instructions

1. Mount unit in the control panel's enclosure using the hardware provided (see Figure 1).
2. Connect R-1 and T-1 on the Control panel to the VVM110 module.

   Note: Ensure that all plugs and jacks meet the dimension, tolerance and plating requirements of 47 C.F.R. Part 68, Subpart F. For proper operation there must not be any additional equipment connected between the control panel and the telephone company facilities (e.g., fax machines).

3. Connect the video cables from the CCTV cameras to the BNC connectors.

   Note: The DIP Switch is set for direct connection of CCTV cameras to the unit (down). If the CCTV cameras are connected in parallel to other devices (e.g. VCR/Monitors), Set the associated DIP switch to the **UP** position to ensure correct termination.

4. Ensure that the designated trigger zones on the control panel are installed
5. Connect the Keybus from the control panel to the VVM110 module using 22AWG (5mm), quad, twisted two pair
6. Connect a +12 VDC, 500 mA power supply to Power In terminals on the VVM110.

   Caution: Ensure that the correct polarity is observed when connecting to the power source power.

   Caution: The negative power input, negative power output, circuit common, and unit chassis are tied together in the VVM110 Video Verification Module.

7. Connect the Keybus from the control panel to the VVM110 module using 22AWG (5mm), quad, twisted two pair
8. Power-up system.

3. Programming the Control Panel

PGM Programming: Refer to the associated Control Panel ***Installation Manual*.**

1. Enter Installer Programming
2. In Section [10] Set PGM 03 output to 13 (Kissoff).

Note: PGM attributes Section [503] must be programmed with the default settings. Refer to the *Installation Manual*

Zone Programming:

Zone activation of cameras does not require any special programming at the panel. The linking of zones to specific cameras is performed by ***Visual Access Software'.***

Note: Only zone definitions that produce an alarm event can be used to trigger camera transmissions.

4. Visual Access Software Installation

System Requirements

Minimum System Requirements

- CPU: Intel Pentium III 800 MHZ or higher processor.
- Memory: 128MB of RAM
- Free Space: 5MB of available hard disk space.
- Modem: 33.6/56K
- Operating System: Windows 98/ME/2000 professional/ NT4/XP.
- Minimum screen resolution: 800X600, 24 true-bit colors

Recommended System Requirements

- CPU: Intel Pentium IV 1.6 GHZ .
- Memory: 128MB of RAM
- Free Space: 5MB of available hard disk space.
- Modem: 33.6/56K
- Operating System: Windows ME/2000 professional/ NT4/XP.
- Minimum screen resolution: 800X600, 24 true-bit colors

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Windows is a registered trademark of the Microsoft Corporation

Software Installation

Insert the ***Visual Access Software*** CD and perform the steps indicated in the Installation Wizard or:

1. Click the **Start** button, at the bottom left corner of the windows screen.
2. Select **Settings > Control Panel > Add/Remove Programs** from the menu
3. Click **Install** to begin the installation.
4. Insert Insert the ***Visual Access Software CD*** in the CD drive.
5. Click **Next**. The Windows installation program searches the disc for the Control Center installation program and displays it in the 'Command line for installation program' edit box.

6. Click **End**.
7. When the ***Visual Access*** installation screen appears select **Next**.
8. The ***Choose Destination Location*** window will appear. This screen will determine the directory in which ***Visual Access Software*** is installed. DSC recommends installation in the default directory. After the destination folder has been chosen, click **Next** to continue.
9. Repeat Step 8 for the location of the data files.
10. After copying all files to your computer, the **Select Components** screen will appears. Two check boxes will be displayed:
    - Select **Create a Shortcut** to create a shortcut on your desktop.
    - Select **Run Visual Access Automatically upon Startup** if you want Visual Access to load on startup.

    Click on **Next** to continue the installation. An Information screen will appear confirming a successful installation. Click **Finish**.

Setting Screen Resolution and Color Palette

1. **Right-click** on an empty spot on the desktop (the Windows™ background).
2. Select **Properties** from the menu. The **Display Properties** screen will appears.
3. Select **Settings** (located at the top right of the screen).
4. Set the display area to 800x600 or higher.
5. Set **Color Palette** to **24 bit True Color**.
6. Set **Font Size** to **Large Fonts**.
7. Click **OK** to confirm the new settings.
8. Restart the computer to activate settings if required.

Initial Visual Access Operation

1. Verify that the modem functions under the WINDOWS operating system and is connected to the telephone line.
2. Double click the **Visual Access** shortcut.
3. A white frame will appear at the bottom left corner of the screen with the message **Waiting for Call** (if this does not occur, refer to the '***Visual Access Software User Guide'*** for additional information).

Entering and Connecting to a New Site

1. Click **Site & System Setup** – the Remote Site List window will be displayed.
2. Click on **Edit. > New**
3. Enter the Name, Telephone Number and Contact data for the site in the **Site Details** Dialog Box.
4. Click **OK**.
5. Click **Save**.
6. Click **Call Site**.
7. Click on the **Site Name**.
8. Click **Connect**.
9. On the first connection you must enter a Password.
10. A New Site message will appear, click **OK**.
11. Video from the site will appears on screen.
12. Select the **Tuning Icon** on the toolbar. The Remote Setup dialogue box will appear. In this box set the following:
    - Set Screen Resolution
    - Set Mode - Black&White or Color
13. Select The General Tab
    - Program Alarm Phone #1, Phone #2
    - Select NTSC
14. Select the Advanced Tab
    - Set Buffer Size
15. Select Sensor (Zone) Tab
    - Select appropriate zones (1-64) and assign Cameras (1-4) as required
    - Set Functionality to Alarm
16. Click Upload to Program the VVM110 module.

Note: Refer to the ***Visual Access Software User Guide*** for detailed programming information.

5. System Checkout

1. **Operation:** Verify the following:
   - Green LED - **ON** indicates power is ON.
   - Red LED - **Flashing** indicates self-test on power up (approx 20 secs

2. **Power Input:** Verify that the power Input voltage is 9 - 15 V_{DC} between 12V_{DC} & GND on the VVM110 module.

3. **Phone Line Connection:**
   - Verify that the correct phone line is connected to the unit.
   - Call the unit from another phone. The unit should answer after 1-2 rings followed by a series of beeps from the modem.

4. **Video transfer to PC (Visual Access):**
   - Enter a new site and telephone number using ***Visual Access Software***. After the transmitting unit establishes a connection, the screen shows Modem Connect message. At the first connection, you are requested to enter a password. You can enter a New password or press Cancel. The first video picture appears.

   Note: The Transmitting Unit can now be updated with the initial system settings). For more details see the ***Visual Access Software*** *user guide.*

5. **Zone activation -** Violate a zone associated with each of the CCTV cameras to verify operation.

6. Troubleshooting

Unit does not answer:

- Verify the power is on, according to the installation instructions.
- Replace the unit with a telephone and call the site. If the line is functioning, the telephone will ring.

NO VIDEO message appears in video window:

- Check video signal using a monitor.

The Transmitting Unit does not call the VAS:

- Verify that the VVM module is connected to the control panel Keybus .
- Verify that the correct zones are mapped to the correct CCTV cameras.

The Video image 'rolls'; apparent loss of 'vertical synchronization':

- Change system programming from NTSC from PAL

Appendix A: Direct Connection to PC/Laptop Computer

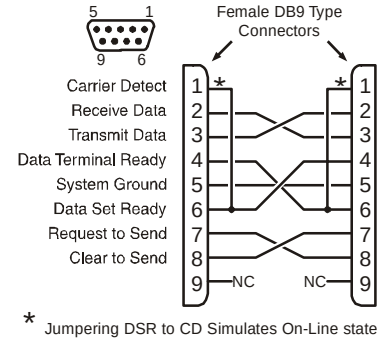
A **Null Modem** cable (Serial cable) is required to directly connect a PC or Laptop computer to the VVM110

1. Connect the Null Modem cable to the RS232 Serial Ports located on the VVM110 module and to the PC/Laptop computer.

2. On the PC/Laptop computer perform the following:
   - Select **Start** > **Settings** > **Control Panel** > **System** Icon> **Device Manager** > **Modems.**
   - Define a Null Modem Cable as one of the modems.

3. In ***Visual Access Software*** PC/Laptop computer perform the following:
   - Select the **Site & System** Icon > from the main screen
   - Select the **System Button** in the **Remote Site List.**
   - Select the **Communications Tab** in the **System Settings** dialog box.
   - Ensure that **Serial cable on COM1** is selected in the **TAPI Line** section.

Null Modem Serial Cable Schematic



* Jumpering DSR to CD Simulates On-Line state

Appendix B: Connection to Cellular Phone

Note: The cellular **network** must support **DATA** communication in CSD/HSCSD format.
The cellular **device** must include a Hardware Modem for CSD/HSCSD format.

Determine the following:

- Requirements for modem operation in Data Mode (e.g., device definitions, telephone number, etc.)
- **AT Commands** required for initializing cellular modem.
- **Baud** rate required for modem input
- Verify availability of cellular coverage in the intended operating area.

Modem Installation:

1. Connect the Data communication cable supplied with the cellular modem to the RS232 Serial Port located on the VVM110 module and to the cellular modem.

2. On the PC/Laptop computer perform the following:
   - Select **Start** > **Settings** > **Control Panel** > **Phone & Modem Options** Icon> **Add.**
   - Select the **Don't detect my modem; I will select from list** checkbox in the **Add/Remove Hardware** wizard.
   - Select the **Standard Modem** installed on the PC/Laptop then click on **Properties**
   - Enter baud rate that is required to communicate with the cellular modem.
   - Follow the remaining steps indicated in the wizard.

Modem Test:

3. Connect the Data communication cable supplied with the cellular modem to the RS232 Serial Port located on the PC and to the cellular modem.
   - Select the Standard modem that you installed on the PC.
   - A "**Waiting for call"** message will appear in the left window of the ***Visual Access Software*** main screen.
   - Dial up the cellular modem from another telephone line. A **"Ring"** message displayed Verifies that the ***Visual Access Software*** recognizes the modem ringing.

Cell Phone Connection to VVM110:

1. In ***Visual Access Software*** PC/Laptop computer perform the following:

2. Dial up the VVM110 from the system internal modem or by direct connection (See Appendix A)
   - Select the **Site & System** Icon > from the main screen
   - Select the **Remote Button** in the **Remote Site List.**
   - Select the **Modem Tab** in the **Locally Saved Remote Set up Parameters for Site** dialog box, then enter the following values:
     - Set the **Limit baud rate to:** field radio button to the cellular modem data baud rate.
     - Enter the required **AT Commands** in the **Modem Init String #1, #2, #3** fields as required.
     - Set **External UART Secondary** radio button to **Primary**.
     - Select the **External UART** radio button to **Modem**.
   - - Click the **Upload** button to save settings

3. When Video images have been received in ***Visual Access Software,*** terminate the PC to VVM110 connection and remove power from the VVM110.
   - Connect the cellular phone/modem to the VVM110 then turn on the cellular modem.
   - When the celleuar modem initializes, reapply power to the VVM110
   - Call the the cellphone from a PC using ***Visual Access Software.***

     Note: Some cellular phone/modems require separate phone numbers for for **Voice** and **Data.**

   - Verify that video is being received.
   - **'Call Back'** to the PC

     Note: If video is not received, verify that the baud definitions for the celleular modem and the settings in the VVM110 are correct (identical).

Appendix C: Pan, Tilt & Zoom

RS232 Protocol:

- Connect Dome to Pins 2(Rx) and Pin 3(Tx) of the DB9 Connector that plugs into the male DB9 connector on the VVM110 module.

RS485 Protocol:

- The RS485 Protocol requires an RS232 to RS485 adaptor. Contact your vendor for details.
- Connect Dome to TxDA Pin 1(-) and TxDB Pin 2(+) of the DB9 Connector that plugs into the male DB9 connector on the VVM110 module.

1. Dial up the VVM110 module from ***Visual Access Software*** installed on a PC

2. Select **Tuning** icon > **Unit Power on parameters** > **Modems.**
   - Select the required protocol from the the list box.
   - Select the required Baud rate using the radio buttons (Typically 2400 - 19200).

3. Click on **Upload**. Disconnect, connect and restart unit.

4. Dial up VVM110 from ***Visual Access Software*** to receive Video from the dome.

5. Click on the

icon located in the upper left hand corner of the video screen you wish to control.

6. Select **Unit Peripheral Setup** from the dialog box that appears.
   - Set the speed of the Dome camera.
   - Set the Sweep Mode, Resolution and Quality settings. These settings determine and frame rate and screen quality during dome camera movement.
   - Enter the ID number of the the dome camera. The ID Number should be 1-3 digits. Check with vendor for correct dome ID Number.

7. Click **OK** to save settings.

FCC COMPLIANCE STATEMEN

CAUTION: Changes or modifications not expressly approved by Multi-Tech Systems Inc. could void your authority to use this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interfer-ence in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be deter-mined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

The user may find the following booklet prepared by the FCC useful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Wash-ington D.C. 20402, Stock # 004-000-00345-4.

IMPORTANT INFORMATION

This equipment complies with Part 68 of the FCC Rules and the requirements adopted by the ACTA. On this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX.

If requested, this number must be provided to the Telephone Company.

Product identifier:	US:AU7MD01BSC56
USOC Jack:	RJ-31X

Telephone Connection Requirements

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer Equivalence Number (REN)

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US: AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Incidence of Harm

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not prac-tical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Changes in Telephone Company Equipment or Facilities

The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Equipment Maintenance Facility

If trouble is experienced with this equipment, for repair or warranty information, please contact the facility indicated below. If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is solved. This equipment is of a type that is not intended to be repaired by the end user.

Multi-Tech Systems Inc. Moundsview, MN, USA, Tel 1-800-328-9717.

Additional Information

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have ques-tions about what will disable alarm equipment, consult your telephone company or a qualified installer.

Industry Canada Compliance Statement

This Class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences de règlement sur le matériel brouilleur du Canada.

Limited Warranty

Digital Security Controls Ltd. warrants that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, Digital Security Controls Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls Ltd. Digital Security Controls Ltd. neither assumes, responsibility nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall Digital Security Controls Ltd. be liable for any direct, indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

Smoke Detectors

Smoke detectors that are a part of this system may not properly alert occupants of a fire for a number of reasons, some of which follow. The smoke detectors may have been improperly installed or positioned. Smoke may not be able to reach the smoke detectors, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors. Smoke detectors may not detect smoke from fires on another level of the residence or building.

Every fire is different in the amount of smoke produced and the rate of burning. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

Warning: Digital Security Controls Ltd. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

Important Information: Changes or modifications not expressly approved by Digital Security Controls Ltd. could void the user's authority to operate this equipment.

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