

Intruder Elite

Video Inspection System



Users Guide For:

Color	NTSC	Micro
B&W	PAL	Mini



**Vision
Technology**

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CAUTION!



GENERAL SAFETY PRECAUTIONS

People who use hand and power tools and who are exposed to the hazards of falling, flying, abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the appropriate personal protective equipment (e.g., safety goggles, gloves, appropriate safety footwear, etc.). The work area should be kept as clean and dry as possible to prevent accidental slips. All electrical connections for these tools must be suitable for the type of tool and the working conditions (wet, dusty, flammable vapors).

POWER TOOL PRECAUTIONS

Power tools can be hazardous when improperly used. The following general precautions should be observed by power tool users:

- Operate electric tools within their design limitations.
- Use gloves and appropriate safety footwear when using electric tools.
- Store electric tools in a dry place when not in use.
- Do not use electric tools in damp or wet locations unless they are approved for that purpose.
- Keep work areas well lit when operating electric tools.
- Ensure that cords from electric tools do not present a tripping hazard.
- Never carry a tool by the cord or hose.

- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not in use, before servicing or cleaning, and when changing accessories.
- Keep all people not involved with the work at a safe distance away from the work area.
- When possible, secure work with clamps or a vise, freeing both hands to operate the tool.
- Maintain tools with care. They should be kept clean for the best performance.
- Follow instructions in the user's manual for changing accessories.
- Be sure to keep good footing and maintain good balance when operating power tools.
- The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
- Remove all damaged electric tools from use and tag them "Do Not Use."
- Turn off the power when not in use.

Five basic safety rules can help prevent hazards associated with the use of hand and power tools:

1. Keep all tools in good condition with regular maintenance.
2. Use the right tool for the job.
3. Examine each tool for damage before use and do not use damaged tools.
4. Operate tools according to the manufacturer's instructions.
5. Provide and use properly the right protective equipment.

Standard Equipment

1. Intruder Elite Video Inspection Unit
2. User's Manual
3. AC Adapter

Optional Equipment

4. Battery
5. Skid
6. DVR & accessories (see DVR supplement)

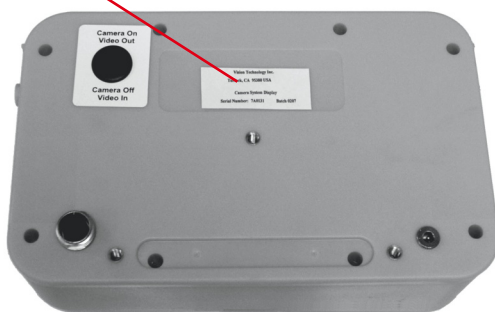


Please record your serial numbers!

Display
Reel
Camera (Mini only)

Location of serial numbers:

Display - on back



Camera (mini only)



Reel - under cover



The Intruder Elite video inspection system consists of:

Camera/Locator Antenna/Push Cable

Housed in a high impact yellow reel. Push cable available in 100' length with micro 1" diameter camera, and 200' mini 1.3" diameter camera. Cameras available in color or black & white, NTSC or PAL. 16 High output LED's for illumination. Tuned antenna for transmitting 512 Hz or 874 Hz signal for location of camera head using locator system (not included).

Hub Assembly

Housed in the center of the case, non-mercury slip ring assembly. Stainless steel and high strength delrin construction for long life. Sealed from outside elements for high reliability.

Case

Molded high impact plastic for light weight, long life, and durability. Convenient size for storage and transportation. Built in battery drawer with screw retention for safe and secure storage, transport, and use of optional battery pack. Power panel with safety fuses, status indicator lights, and charger for optional battery pack. No need to remove battery for charging, and unit can even be run off of AC adapter while charging.

Display

7" wide screen LCD display mounted on a fully adjustable arm for optimal viewing.

Provided with adjustable sun screen for use indoors and out. Power key plus four soft keys for manipulating the functions through the on screen display. Complete system in one small box: Display, time/date, LED brightness control, distance counter, 512 Hz and 874 Hz transmitters, video input and output for recording and playback. Also provided with our standard reel connector so that it can be used stand alone with our larger Intruder reels (up to 400 feet!).



Basic Operation (Quick Start)

Position Intruder Elite within a few feet of the pipe opening. The unit may be operated in either a vertical or horizontal position.



Connect the included AC adapter to the power panel input jack. Connect the other end of the AC adapter to a 110 volt AC outlet. Optional internal 12v battery may be used instead.



Open the front cover by loosening the knob and swinging the cover out of the way. Pull display out of the cavity. Adjust arm and sun screen to desired viewing position.

Push the green button on the display to turn the unit on.

Rotate camera retention door counter-clockwise to allow removal from case.

Insert camera into pipe and adjust LED light level with the UP and DOWN soft keys to desired level.



Using the push cable, slowly push the camera down the pipe until the problem is found, or to the desired location.

Caution: Cable should be removed from and returned to the reel by using one hand to push/pull the cable in/out, while turning the reel with the other hand. Failure to do so may result in the cable tangling in the reel and damaging the cable and/or hub.

Use the distance counter and pipe direction to get a rough estimate of the location of the camera. For more precise location, turn on the transmitter (512 Hz or 874 HZ) and locate using a compatible location system.



Multi-Level Softkey Menu System

The Intruder Elite's functions can be accessed from the 4 yellow soft keys on the front panel.

Main Menu Functions

Invert – Inverts the picture (turns it upside down) and also removes the text from the screen. Return to normal (non inverted) picture by pressing any key.

Down and Up - control the brightness of the cameras LED lights. During adjustment, a bar graph will display showing current power level of LEDs. Adjust to user preference.

Menu – go to the second menu level.

Second Menu Level Functions

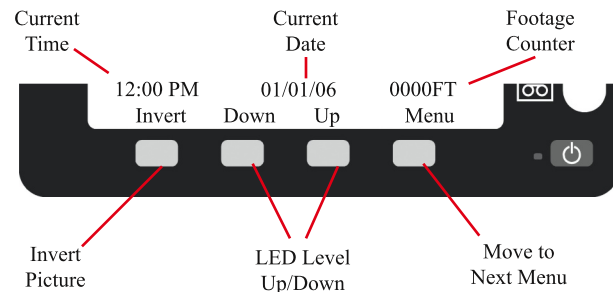
512 Hz – turns on the 512 Hz transmitter. Used for precise location of camera head with optional locator.

874 Hz – turns on the 874 Hz transmitter. Used for precise location of camera head with optional locator.

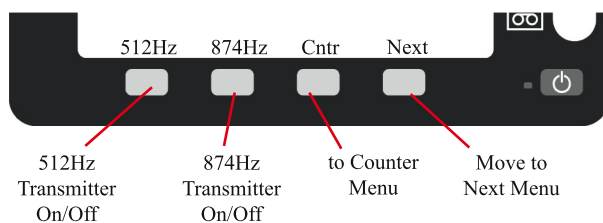
Note: When either frequency is selected, the frequency will flash on the screen to let you know that it is on. You should turn off the transmitters when not in use, as they can contribute to picture interference and lessen battery life.

Cntr – go to the Counter menu.

Main Menu



Second Level Menu



Next – go to the third menu level.

Counter Menu Functions

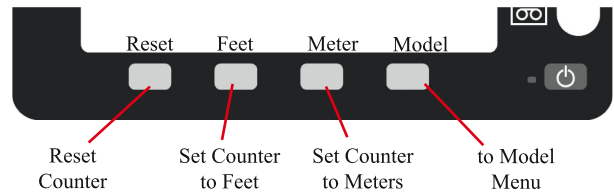
Reset – resets the counter to 0.

Feet – Sets the unit of distance measurement to feet.

Meter – Sets the unit of distance measurement to meters.

Model – go to the Model menu level.

Counter Menu



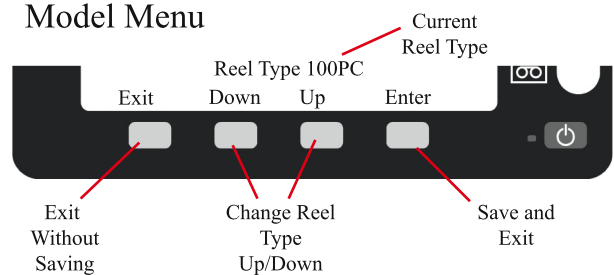
Model Menu Functions

Exit - exit without saving to Main Menu

Down and Up - changes the current reel type

Enter - saves the selected reel type and exits to Main Menu

Model Menu



Third Menu Level Functions

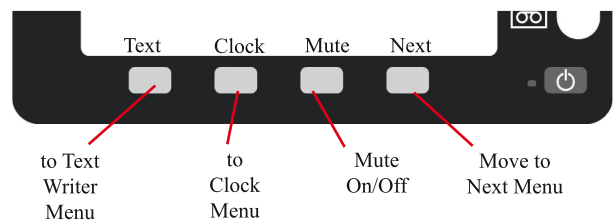
Text – go to the Text menu

Clock - go to the Clock menu

Mute – mutes the microphone (if connected) output on the audio output line. Mute will flash on the display if this feature is enabled. To turn mute off, select it again from this menu.

Next – go to the Fourth menu level.

Third Level Menu

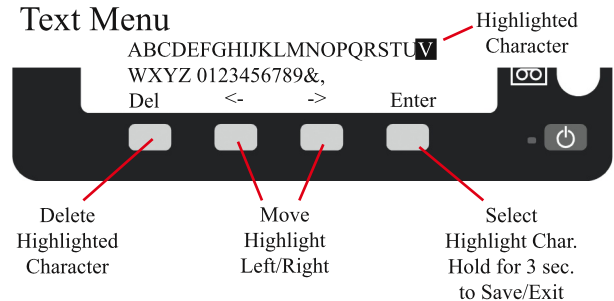


Text Menu Functions

DEL – deletes the currently highlighted character.

< and > - moves the cursor to select characters

Text Menu



Enter – pressing enter momentarily adds the character to the current text string on the display. Press and hold enter for approximately 3 seconds to save and exit the text writer.

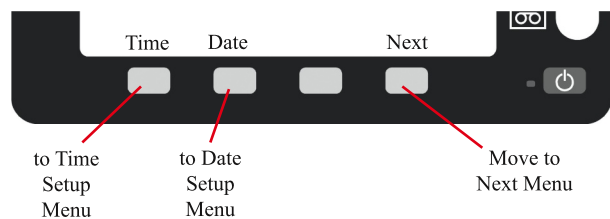
Clock Menu Functions

Time – go to the Time menu

Date - go to the Date menu

Next - returns to the Main Menu

Clock Menu



Time Menu Functions

-> - moves to the next column.

Down and Up – Allows you to increment the currently selected column value up or down.

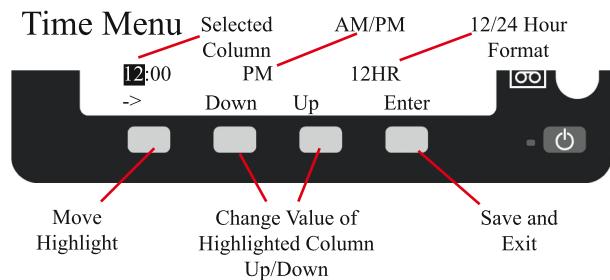
12: - select the hour.

:00 – select the minute.

AM or PM – select AM or PM.

12HR or 24HR – select the desired time format.

Enter – Save the displayed time information and return to the main menu.

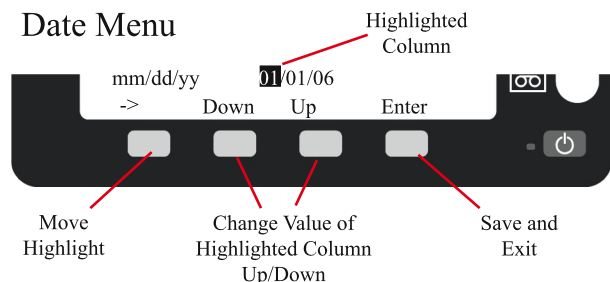


Date Menu Functions

-> - moves to the next column.

Down and Up – Allows you to increment the currently selected column value up or down.

01/xx/xx – select the month (select the day for PAL units).



xx/01/xx – select the day (select the month for PAL units).

xx/xx/01 – select the year.

Enter – Save the currently displayed time information and return to the Main Menu.

Fourth Menu Level Functions

Clear – clears the screen of all text and menu information allowing you to view only the video feed from the camera. Press any key to return to Main Menu.

Back - return to the Main Menu

Video/Audio Recording

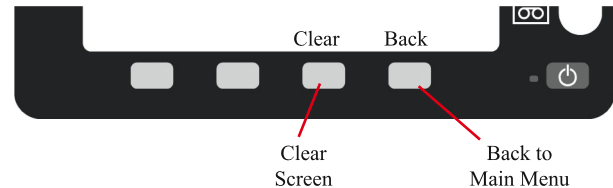
When you have the desired picture on the Intruder Elite LCD that you wish to record:

Connect video out jack of the Intruder Elite display (indicated by video tape symbol) to video input of recording device (VCR, DVD-R, etc.) using standard RCA video cable.

For audio recording, a powered microphone (Radio Shack part# 33-3013 or equivalent) must be connected to the Intruder Elite display audio in jack (indicated by microphone symbol). Connect audio out jack of the Intruder Elite display (indicated by speaker symbol) to audio input of recording device using standard RCA audio cable.

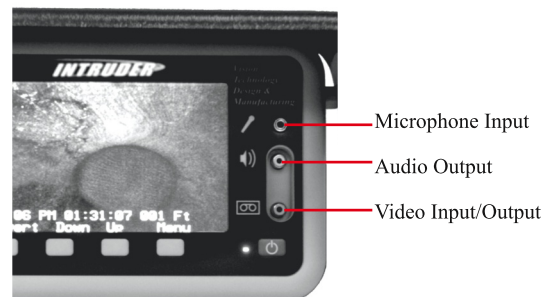
Follow manufacturers instructions for recording of input signals from a video camera to selected recording device.

Fourth Level Menu



Example of standard VCR operation:

1. Power up VCR.
2. Turn on VCR function (VCR/TV button on unit or remote control).
3. Select the input that the Intruder Elite is connected to (line 1, line 2, etc.).
4. Insert video tape (making sure that recording tab is in place).
5. Press record.



Video Input/Output Selection

The video input/output selection switch is located on the back of the Intruder Elite display.

The selector switch is normally set to video out / camera on (with the switch pushed in at the top) allowing normal camera viewing on the display and simultaneous video output on the front panel RCA video jack.

Note: with camera on and external signal coming into the front panel, the 2 signals will combine and give a distorted image on the LCD.

When switched to video in / camera off (with the switch pushed in at the bottom), the camera is powered off and video on the LCD is displayed from the input signal on the front panel RCA video jack.

Note: with no signal on the front panel RCA, the screen will be black.

Power Panel

The power panel is located on the top of the left side of the Intruder Elite case. The LED's will only light when the 12 volt adapter is connected and providing power. The red LED indicates that power is being supplied by the wall adapter. The green LED will be unlit when a battery is connected and charging. The green LED will light when the battery is fully charged.

Note: when no battery is connected, both the red and the green LED's will remain lit when the 12 volt adapter is connected and providing power.

12 Volt Battery Installation

Remove the 3 phillips head screws from the battery drawer and pull out the draw.

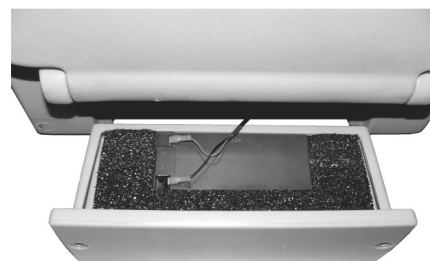
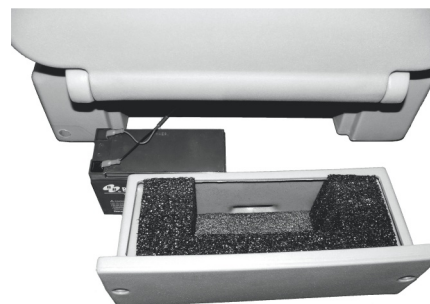
Place battery in drawer with terminals facing up.

Locate the battery cable. Attach the red wire to the red (positive) battery terminal. Attach the black wire to the black (negative) battery terminal.

Slide the battery drawer back in place, being careful not to pinch or disconnect the battery cable.

Replace the 3 phillips head screws.

Initially, the new battery should be charged for 7 hours before first use. Subsequent charge times will vary, depending on discharge and condition of battery. Green indicator light on power panel will come on when battery is fully charged.



Reel Removal and Installation

Tools required

#2 Philips screwdriver

7/16" Socket

Socket wrench and extension

Remove the reel cover by unscrewing the 3 philips screws holding it in place.

Disconnect the reel to hub interface cable by turning the locking ring ¼ turn counter clockwise.

Remove the five 7/16" hex bolts and flat washers from the hub.

CAUTION: Sewer cable in drum is under tension and may “pop out”. This could cause damage or injury. It is best to restrain sewer cable by taping, clamping, or wire tying it to the yellow reel drum housing while taking care not to damage the wiring.

The reel can now be set next to the unit on a flat surface.

To remove the camera end of the cable, remove 1 bolt from each of the 2 straps attached to the case. Loosen the 2 remaining bolts to allow the straps to be moved out of the way.

Camera end of reel may now be coiled into reel drum.

Follow these directions in reverse order to replace the reel onto the unit.

Skid Installation

Loosen set screws in skid being careful not to lose them if they come out.

Slip skid over camera head, push fully back.

Tighten set screws.



Troubleshooting Guide

Unit will not power up

- Check that AC adapter/battery is connected
- Check fuses
- Check cable connections

Bad Video

- Check that Video In/Out switch is set to in with input on video connector

LED's working, but no picture

- Check that Video In/Out switch is set to out
- Check that LED's are not set to dim

LED's not working and no picture

- Check that reel is connected at hub

Blue screen

- Check that cable is connected on back of display

Snowy/Streaked Video

- Check battery charge

Service and Repair

For service or repair, unit should be returned to an authorized repair center or the factory.

If you have any questions regarding service or repair, or for the name and address of your nearest Authorized Repair Center please contact:

Vision Technology Design & Manufacturing Inc.

Repair Department

2548 South Paulson Road, Suite B

Turlock, Ca. 95380

Phone: (209) 668-5840

Toll Free: (877) 754-3435

Fax: (209) 668-5847

E-mail: repairs@vtdesign.net

<http://www.vtdesign.net>

Specifications

Line Capacity	1.5" to 4" (38mm to 100mm) [Mini 2" to 6" (5cm to 15cm)]
Max. Distance	100 ft (30m) [Mini 200 ft (61m)]
Operating Depth	300 ft. (130psi)
Resolution	330(H) x 400(V)
Pixels	512(H) x 492(V) [PAL 512(H) x 585(V)]
Sensitivity	0.3 Lux
Lighting	9,600 mcd [B&W 9,000 mcd]
Camera Dimensions	1.088" x 0.929" (25mm x 22mm) [Mini 1.3" x 1.5" (33mm x 38mm)]
Push-Rod Diameter	.28" (7mm) [Mini .37" (9mm)]
Video Format	NTSC or PAL
Power	12 volts DC
Operating Temperature	14°F to 122°F/-10°C to 50°C