

# Manual



**INTRUDER SYSTEMS**

**INSPECTOR NICK SYSTEM**



**SUBTECH VISION TECHNOLOGY**  
**DESIGN & MANUFACTURING INC.**  
*For Over 30 Years*

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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 equipped 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 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 specifically 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 a receptacle.
- Keep cords and hoses away from heat, oil and sharp edges.
- Disconnect tools when not in use and 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.
- Maintain tools with care. Tools should be kept clean for 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, hair 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**

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use and do not use damaged tools.
- Operate tools according to the Manufacturer's instructions.
- Provide and properly use the correct protective equipment.

# Contents & Accessories

## Standard Equipment

1. Display
2. Cart
3. Reel
4. User's Manual
5. AC Adapter
6. Display mounting Hardware
7. Skid
8. Camera

## Optional Equipment

9. 18 Volt Battery Receptacle
10. USB Recorder
11. WIFI to Phone or Tablet
12. Self-Leveling Camera



**Please record your serial numbers!**

|         |
|---------|
| Display |
| Camera  |
| Reel    |

**Location of serial numbers:**

**Display - on back**



**Camera**



**Reel**



# Assembly

## Mounting the Display Removal/Installation

Place 1 clamp half onto the black metal bracket on the back of the display.

Hold the display in place against the cart tray so that the half clamp is centered on the tube of the cart .

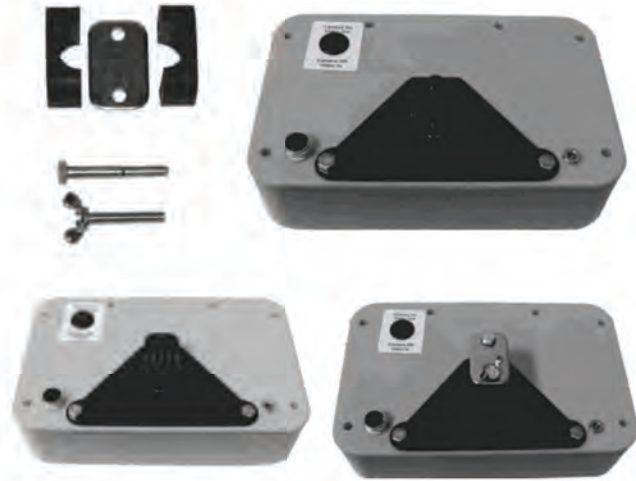
Place the other clamp half over the tube so that the holes line up.

Place the cover plate on the second clamp half so that the holes line up.

Insert the hex head bolt into the top hole and tighten.

Insert the wing head bolt into the lower hole and tighten.

Connect the interface cable from the cart to the 12 pin connector on the display.



Proper clamp configuration

## 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.



## Battery Information- AC In

The 18 volt battery receptacle uses an M18 style Milwaukee battery (**Battery & charger not included**).



The AC cord plugs into the rear of the cart below the battery receptacle.

The 18 volt battery should last for 3-4 hrs. A low battery alert will come across the screen when the battery is low. The unit will shut off if the battery is too low.

The battery must either be exchanged for a fresh battery or used with AC operation. The battery must be charged with an 18V battery charger, the unit will not charge the battery. Units upgraded from 12Volt to 18Volt can no longer use the 12 volt battery.

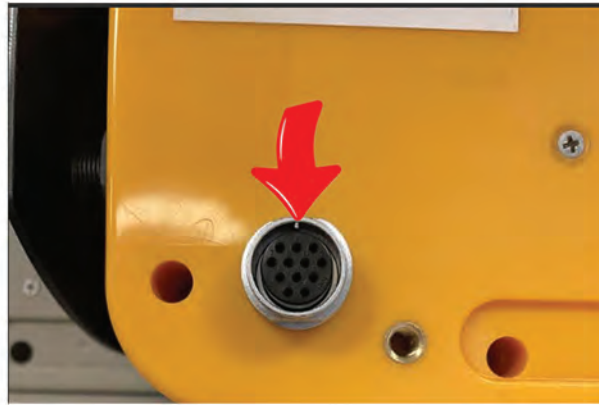
Doing so will damage the LCD command Module.

**DO NOT LEAVE BATTERY PLUGGED IN-DISCHARGE OF BATTERY WILL OCCUR & FIRE HAZARD**

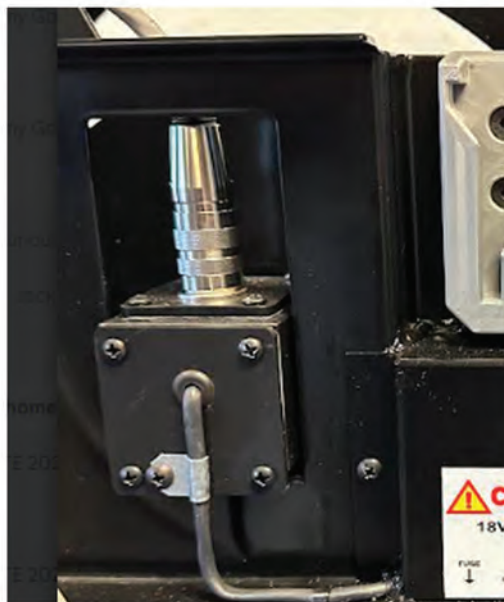
## Connecting the Monitor:

Attach the grey cable (interface cable) to the back of the LCD monitor being careful to correctly align the pins and note the guide. ↓

Push the connector in and turn the collar tightening firmly by hand.



Connect the other end of the interface cable to the cart. Align the pins, push the connector into place, and tighten the collar firmly by hand.



## **Basic Operation (Quick Start)**

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

Connect the included AC adapter to the hubpower input jack. Connect the other end of the AC adapter to a 110 volt AC outlet.

Adjust display angle and sun screen to desired viewing position.

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

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.

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





# Set Up and Operation

## **INTRUDER**

### Multi-Level Softkey Menu System

The Intruder's functions can be accessed from the 4 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 level menu.

### Second Level Menu Functions

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

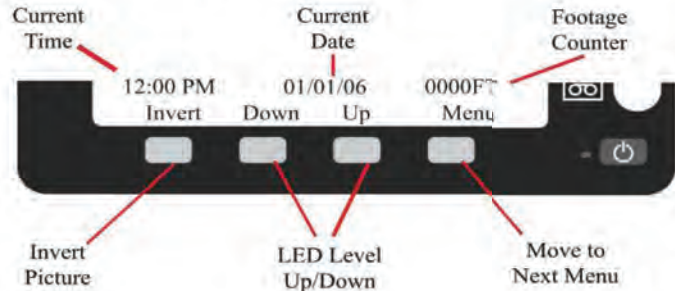
**874 Hz** – turns on the 874 Hz transmitter. Used for precise location of camera head with optional locator.

**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.

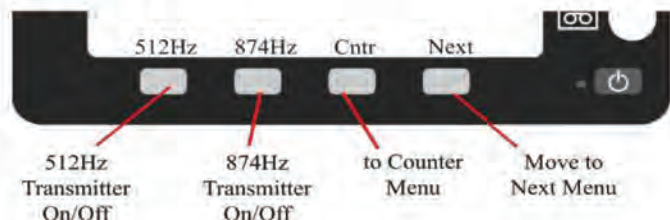
**Cntr** – go to the Counter menu.

**Next** – go to the third level menu.

### **Main Menu**



### **Second Level Menu**



## Counter Menu Functions

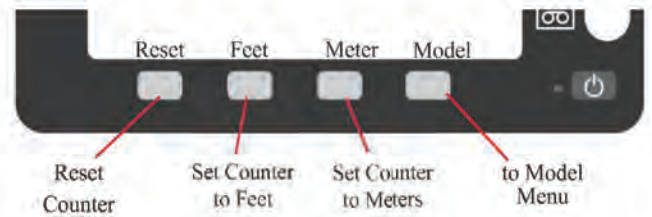
Reset - Resets the counter to 0.

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 Mode Functions

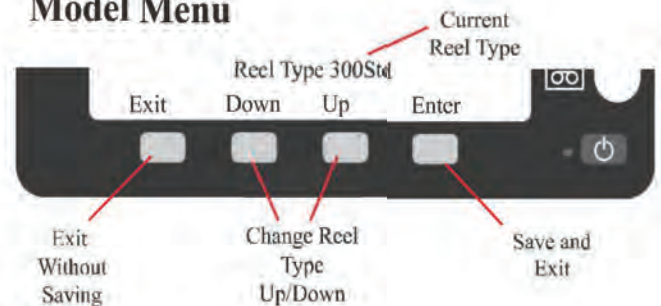
*This setting is set at the factory- Changing the reel type may alter the functions of the unit*

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 Level Menu Functions

Text- go to the text menu.

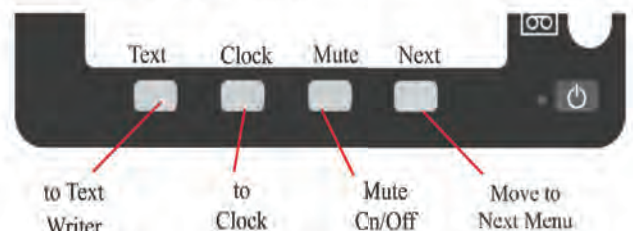
Clock- go to the clock menu.

Mute- mutes the microphone (if connected- certain models)

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 level menu.

### Third Level Menu

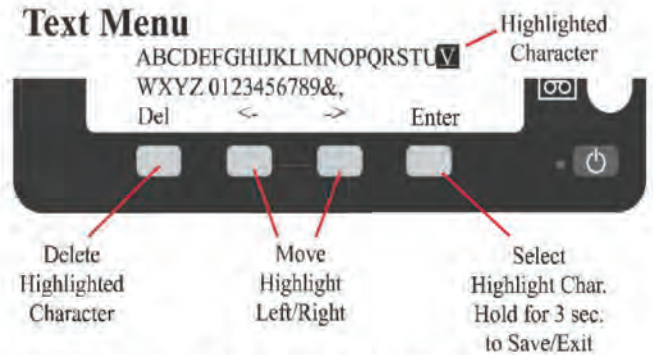


## Text Menu Functions

DEL- deletes the currently highlighted character.

<and>- moves the cursor to select characters.

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.

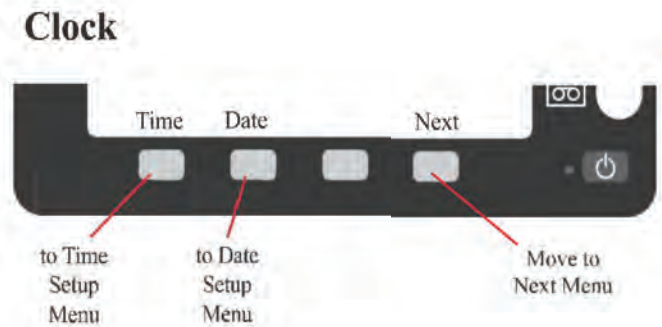


## Clock Menu Functions

Time- go to the Time menu.

Date- go to the Date menu.

Next- returns to the Main Menu.



## Time Menu Functions

->- moves to the next column.

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

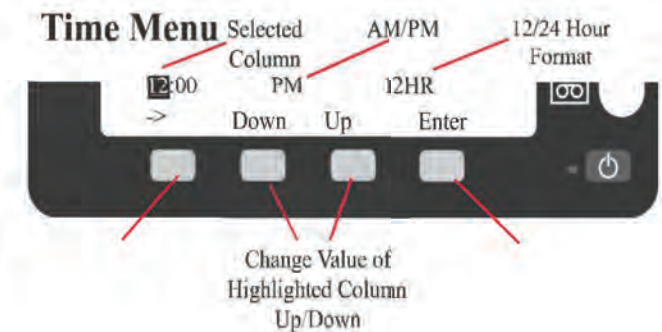
12:- select the hour.

: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.



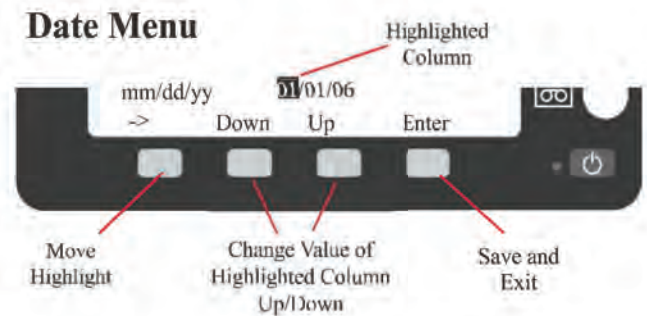
## Date Menu Functions

->- 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 xx/01/xx- select the day xx-xx/01- select the year

Enter- Saves the currently displayed date information and return to the Main Menu.

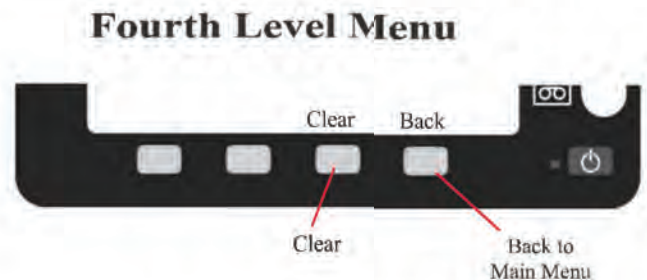


## Fourth Level Menu Functions

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.



## Audio Recording

*(External recording option NO LONGER IN USE.)*



For audio recording, a powered microphone must be connected to the Intruder display audio in jack (indicated by a microphone symbol). **MODELS EQUIPPED WITH USB RECORDING CAN ONLY RECORD WITH THE BUILT IN RECORDER.**

Connect audio out jack of the Intruder display (indicated by speaker symbol) to audio input of recording device using a standard RCA audio cable.

# **USB Recording**

For Intruder & Inspector Nick Models

A 4Gb drive will hold approx. 4 hrs. of video.

Please note: Each time the record button is pressed a new record file is created.

Voice over narration can be done with a microphone. A self-powered USB hard disk can be plugged in place of a thumb drive to record up to 2 TB of Video!

The USB drive can be installed to the LCD at any time, with the unit on or off makes no difference.

- Insert the drive into the USB port on the display
- Wait up to 1 minute for Video line discovery green light blinks
- Both lights turn solid - the recorder is now ready to record, recording may start as long as both lights are solid
- Press RED button to record, RED record light should blink while recording
- Press Record button again to stop recording
- Video playback cannot be seen on the LCD, the USB drive must be read from another source. PLEASE VERIFY RECORDING BEFORE LEAVING JOB.
- An adapter is available to view the USB recording from your phone. (Not available on all phone models) Ask for details.
- A microphone may be used for Voice over recording.
- A good quality flash drive should be used.
- Flash drives must be formatted to FAT 32 (most are this format from factory)

# WIFI Screen Mirror

The WIFI feature (available option) is to mirror the screen. Useful for allowing client to screenshare, and useful for rooftop without taking the entire cart.


- WiFi transmission, support iPhone, iPad, and Android phone
- Transmission distance with no obstacle more than 150meters
- The client terminal shall support Android 2.2 or above, and iOS shall support Version 4.3 or above



## Operations for Android system client

### **Installation APP software:**

1. GOOGLE PLAY store.
2. Search "WIFI"AV" software, and download BE SURE DEVELOPER IS ; Kezhen Zeng
3. Install the APP software
4. The WIFI is always on
- 5.) **NOTE: If you are currently connected to the internet via WIFI you will need to disconnect and choose WIFI"AV to connect.**

### **Connection WIFI:**

1. Go to the WIFI settings on the phone. Click WIFI"AV to connect to.
2. The initial SSID of the device is "WIFI"AV", then type in the password of the device(default password: 12345678 ).
3. Click  APP icon on your phone. The screen should now be mirrored.
4. The **RED** WIFI button on the LCD box is to reset the WIFI. This only is necessary if the connection will not setup or if another phone is used, or to change the factory SSID or Password.

Press this  icon to enter into the settings menu. You can change the default factory SSID and password of the wifi camera tool, and clicking  will

*Some devices and phone models are currently experiencing Wi-Fi connectivity issues. We are working on an update to resolve this. In the meantime, you may be able to find an older version of the app online, as they are no longer available on the Play Store. However, please exercise extreme caution when downloading files from the internet and ensure you trust the source. Downloading from untrusted websites can expose your device to security risks. We appreciate your patience as we work to restore full functionality.*

# Specifications

| Feature               | Standard Camera         | Mini Camera               |
|-----------------------|-------------------------|---------------------------|
| Line Capacity         | 3"-12" (7cm to 30cm)    | 2"-6"                     |
| Max Distance          | 400 ft. (121m)          | 200 ft. (61m)             |
| Operating Depth       | 350 ft. (150 psi)       | 350 ft. (150 psi)         |
| Resolution            | 330(H) x 400(V)         | 420TVL                    |
| Pixels                | 512(H)x492(V)           | 512(H) x 492(V)           |
| Sensitivity           | 0.3 Lux                 | 0.3 Lux                   |
| Lighting              | 28 White LED's          | 16 White LED's            |
| Camera Dimensions     | 1.6"X 1.4 (41mmx36mm)   | 1.3" x 1.5" (33mm x 38mm) |
| Push-Rod Diameter     | .48" (12mm)             | .37" (9mm)                |
| Video Format          | NTSC                    | NTSC                      |
| Power                 | 110v/60hz AC, 12v DC    | 110v/60hz AC, 12v DC      |
| Operating Temperature | 14F to 122F/-10C to 50C | 14F to 122F/-10C to 50C   |

# Subtech Vision Technology Limited

## Warranty

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### WARRANTY COVERAGE

Subtech Vision Technology, Inc. ("Subtech") warrants this hardware product against defects in materials and workmanship for a period of ONE (1) YEAR from the date of original purchase for our Camera Systems, Leak Detectors, and Locators, and THIRTY (30) DAYS from the date of original purchase for our Media Recording Devices (USB Recorder etc.). If a defect exists, at its option Subtech will repair the product at no charge, using new or refurbished replacement parts, or exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product. A replacement product/part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, and the replaced item becomes Subtech's property.

**Push cables** (also referred to as **pushrods**) are **NOT** warranted against damage of any kind, including but not limited to breaks, kinks, deformation, or wear, regardless of cause. Such damage is considered the result of operational conditions and usage outside the scope of warranty coverage.

### OBTAINING WARRANTY SERVICE

Please contact Subtech directly (contact information provided below) to arrange for repairs. Generally, the unit will need to be delivered to either Subtech or one of our Repair Centers for repair work. When you contact Subtech, you will be asked to furnish your name, address, telephone number, and proof of the original purchase (receipt), model and serial number of the product, and description of the problem. You will be advised of where the unit needs to be sent for repair.

### EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to products manufactured by or for Subtech. This Warranty does not apply:

- (a) to damage caused by accident, abuse, misuse, misapplication, or non-Subtech Products;
- (b) to damage caused by service performed by anyone who is not an authorized Subtech Repair Center;
- (c) to a product or a part that has been modified without the written permission of Subtech;
- (d) if any Subtech serial number has been removed or defaced;
- (e) to damage or failure of push cables (pushrods), including but not limited to breaks, kinks, or deformation, regardless of cause.



Using an **A/C adapter other** than the original or a replacement **NOT** purchased through Subtech **WILL void** the warranty and may cause major system damage!

THIS WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. SUBTECH SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF SUBTECH CANNOT LAWFULLY DISCLAIM IMPLIED WARRANTIES UNDER THIS LIMITED WARRANTY, ALL SUCH WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

No Subtech reseller, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

SUBTECH IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DOWNTIME, GOODWILL, DAMAGE TO OR REPLACEMENT OF EQUIPMENT AND PROPERTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages or exclusions or limitations on the duration of implied warranties or conditions, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by state.

Please keep on file or in a safe place with your original receipt for warranty purposes.

Date of purchase: \_\_\_\_\_

Serial Number(s): \_\_\_\_\_

For warranty repair requests or to find the location of your nearest authorized Repair Center, please call Subtech at (877) 754-3435 or (209) 531-9716.

## Troubleshooting Guide

### **Unit No Power:**

- Check AC Adapter/ Battery is connected
- Check and firmly hand tighten all connections
- If on Battery try on AC only

### **Led's Working No Picture:**

- Be sure LED's are not dimmed
- Check cable for damage

### **No Picture, No lights:**

- Be sure reel is connected to hub
- Be sure LCD is connected to interface cable

### **Blue Screen:**

- Check Interface cable connection to LCD

### **Snowy or Streaky Video:**

- Check battery charge
- Inspect Cable for defects

## Service & Repair

For Service or repair, the 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 repair center please contact;

### **Subtech Vision Technology Design & Manufacturing**

#### **Repair Department**

**2905 Railroad Ave Suite A  
Ceres, CA 95307**

Phone-----209-531-9716

Toll Free-----877-754-3435

Technical Support-- 209-269-3251

Email- [Info@subtechmfg.com](mailto:Info@subtechmfg.com)

Website- [WWW.SUBTECHMFG.com](http://WWW.SUBTECHMFG.com)



**SUBTECH VISION TECHNOLOGY**  
DESIGN & MANUFACTURING INC.  
*For Over 30 Years*