



Digital Xpress

User Manual

TABLE OF CONTENTS

Warranty.....page 3

Command Module.....page 6

BaseFrame.....page 18

Camera.....page 20

1 YEAR WARRANTY

Alliance Technology, LLC warrants to the first purchaser that should any of its products prove to be defective in material or workmanship in normal use, within one (1) year from the date of delivery, Alliance Technology, LLC will, at its exclusive option, repair, replace or exchange the product or any of its parts.

THIS WARRANTY IS SUBJECT TO THE FOLLOWING LIMITATIONS:

1. This warranty does not apply to any product which has been subject to accident, negligence, alteration, abuse, misuse, overload, repair by anyone other than Alliance Technology, LLC or its authorized representatives, or not maintained in accordance with the manufacturer's suggested maintenance schedule.
2. This warranty applies only to components manufactured by Alliance Technology, LLC. The appropriate manufacturer's warranty, if any, shall apply to components not manufactured by the company.
3. This warranty does not apply to flex-link connectors, rod, LED light rings, cable, rollers, o-rings, and skids, or other parts, which are considered consumable. The replacement of these items is part of normal product maintenance.
4. This warranty shall not apply if the products are used or operated in any manner not consistent with their intended purpose.
5. This warranty is limited to repair or replacement of defective products and parts during the warranty period, and shall be the exclusive remedy. Alliance Technology, LLC shall in no event have any other obligation or liability of any nature arising from the breakdown, malfunction, defect or other failure of the product, including, without limitation, any liability for service, maintenance, repairs, personal injury, property damage, loss of profits, loss of use or other consequential damages.
6. Any action for any claimed breach of this warranty shall be brought within one (1) year from the date of delivery of the product.
7. The purchaser must return the defective product, part or component to the Alliance Technology, LLC factory in Saukville, WI 53080 at the purchaser's expense, properly and adequately packaged, with insurance and transportation pre-paid. Alliance Technology, LLC will either repair or replace the defective product, part or component, at its option, and will return it to the purchaser at the customer's expense. In no event shall Alliance Technology, LLC be liable for delay in repair or replacement and return under this warranty. Alliance Technology, LLC will endeavour to effect appropriate repairs in the shortest time practical, with respect to the customer having beneficial use of their equipment.
8. Alliance Technology, LLC neither assumes nor authorizes any person to assume any other liability or make any other warranty in connection with the products.
9. THIS WARRANTY IS EXPRESSLY GIVEN IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. ALLIANCE TECHNOLOGY, LLC EXPRESSLY DISCLAIMS ANY OTHER WARRANTY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

SYSTEM MAINTENANCE REQUIREMENTS

The following maintenance procedures are recommended for all Insight-Vision Xpress systems. Standard warranty policy dictates that components and accessories subject to wear and tear are not covered under the One (1) year warranty. Therefore we are strongly recommending that all systems be maintained according to the following procedures. Please be advised that Insight-Vision will not allow warranty coverage for these items if these procedures are not followed.

Digital Xpress Memory Card Recorder: Due to the adverse conditions that the DX experiences during use, Insight Vision strongly recommends that the cleaning procedure described below be performed for every 5 or 6 hours of use.

WARRANTY REPAIRS WILL NOT BE GRANTED FOR DAMAGE CAUSED BY DIRTY DVD PLAYERS AS THIS IS A RESULT OF USE AND NOT MANUFACTURERS DEFECTS.

Cleaning Procedure: Insert a DVD Laser Lens Cleaner disc into the IV1200 Command Module and run the cleaning process once or twice to clean the recorder.

Please note that the DVD disc that was originally experiencing problems may have permanent errors as a result of the dirty recorder. Starting a new disc may be necessary.

These cleaning DVDs are available at Wal-Mart for \$6 - \$7. Phillips, Memorex, and Maxell are some of the brands that Insight Vision recommends.

O-Rings: O-rings are critical to insure watertight integrity of the camera and connection areas. O-rings are subject to wear and tear and can also suffer failure due to age and other factors. They should be inspected regularly and replaced whenever needed.

When O-rings are working properly, a small amount of water and sometimes fine particles of grit will build up behind them. Any time the camera or sonde connection is taken apart and exposed, there exists the risk of grit wearing down or possibly even tearing the o-ring. It is also possible for water to then enter the slip-ring area once exposed. All connections, once opened or exposed, **MUST** be thoroughly cleaned and dried before re-connecting. We recommend using an old toothbrush or other soft bristled brush to clean the o-ring areas and remove the grit or fine debris. Then, dry the area around the o-ring and pogo pins and slip area completely before re-connecting.

Camera Head: The camera head area, especially around the front light window, is an area that is subject to wear and tear. Insight-Vision has provided a small and large protective skid that MUST be used at all times. These skids are designed to aid in the centering of the camera head and have the added benefit of helping to protect the camera head from extreme wear. Failure to use the provided skids will result in direct wear to the front light ring area of the camera, resulting in the eventual cracking of the light ring protective cover and allowing water to ingress into the camera head. This is not a warranty repair.

Push Rod: The design of the horizontal push reel/coiler and the counter mechanism allow for the push rod and camera head to be stored inside the coiler. The proper storage technique is store the camera head inside the basket.

At Insight-Vision our goal continues to be focused on providing one of the highest quality, best designed and user-friendly systems offered on the market. We also realize that all we do will amount to nothing without satisfied customers. We ask that you continue to work with us to help evolve our product into one of the absolute best portable systems available. We are always open to constructive ideas that will help us move forward with any or all of our products.

We also ask that you do your part in this relationship by striving to properly maintain and take care of your camera system just as you would an automobile or any other tool. It is a proven fact that any item that is properly maintained will last much longer and provide a much greater opportunity for a good return on investment.

Sincerely,

The Management at Insight-Vision

Digital Xpress Command Module

The Digital Xpress Command Module allows real time viewing of a camera image on an LCD flat panel screen. The advanced features of the Digital Xpress Command Module provide recording and playback of camera images, audio commentary. Text writer capabilities using optional external components.



SYSTEM CAPABILITIES:

An optional distance counter is available for the Push Inspection System. The Digital Xpress Command Module features an on-screen display for deployed cable length in feet and meters with the optional distance counter. The operator control provides control of the display location as well as zero reset.

CAMERA illumination controls are featured prominently on the operator control for easy operator access.

An integral MICROPHONE for audio commentary on the internal digital recording devices is conveniently integrated into the operator controller.

An integral SPEAKER with 5 volume settings for audio playback from the internal digital recording devices is featured on the operator control.

Connections for an optional text writer are included on the rear of the Command Module.

External video and audio output jacks are included for connection to optional display or recording devices.

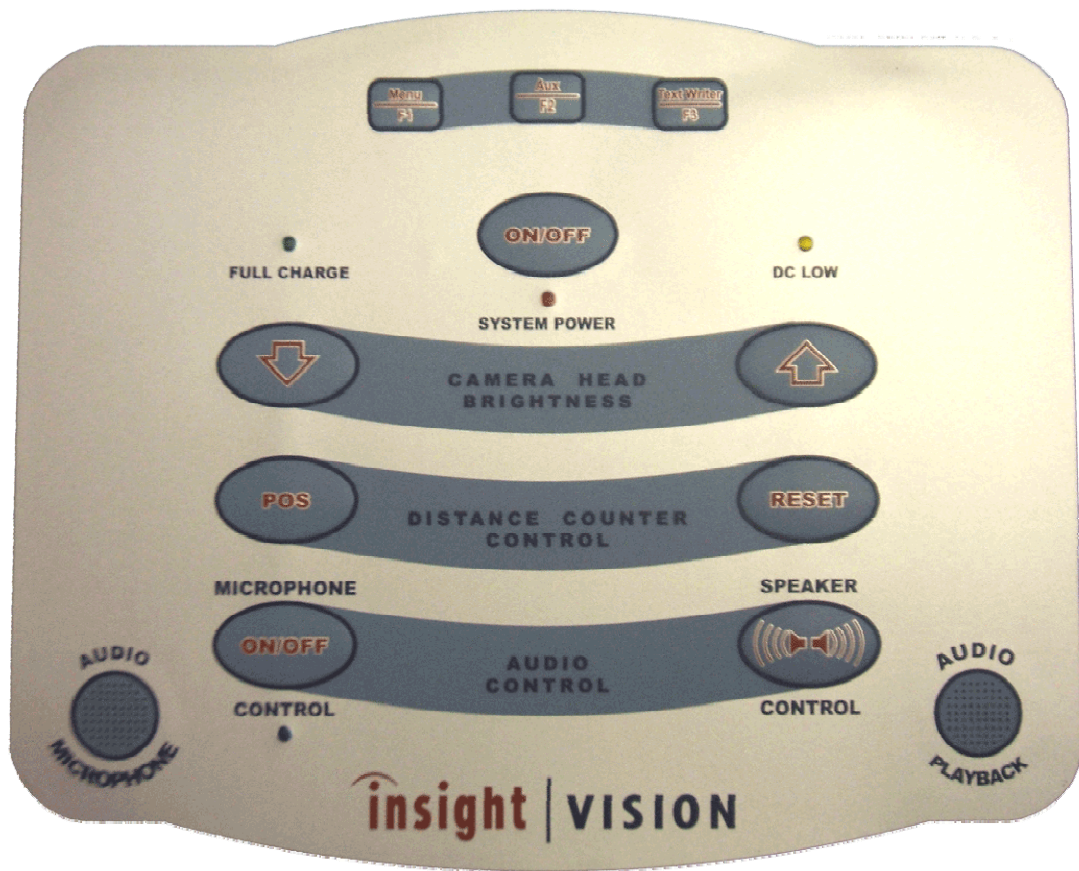
Power options include a DC POWER input from 13.8-15VDC vehicle accessory socket (cigarette lighter socket) or 110/220VAC 50/60Hz power supply.

Aux. DC input NOT for charging system. Only powering or running system.

Operator flexibility is enhanced with the internal BATTERIES for up to 4 hours of operation.

SYSTEM OPERATION

Open the LCD Flat Panel Lid on the Digital Xpress Command Module and position the screen for best viewing angle. The Lid is used to protect the operator control area when not in use. The Operator Control Buttons are prominently featured and are easily accessible on the large water resistant keypad.



To turn the unit on, press the POWER button. The unit is on when the RED LED light is illuminated. Video will be displayed on the LCD Flat Panel screen.

System configuration information is saved automatically from one session to the next. However, the system can be reconfigured at any time. If the system is reconfigured, the distance counter is zeroed. Since system configuration also affects the size of the voltage steps made in controlling camera brightness, camera head brightness keypad buttons will not function unless the system is first configured.

If the unit does not turn on, please verify that the internal battery has been charged or connect the unit to a 13.8-15VDC or 110/220VAC power source or aux battery.

If the unit does not turn on after charging the unit or connecting the unit to a 13.8-15VDC or 110/220VAC power source, please contact an Authorized InsightVision Service Center.

If the unit turns on but no video is displayed on the screen, please reference the “USER TROUBLESHOOTING GUIDE” in this manual.

Verify that the Digital Xpress Command Module is receiving adequate power by verifying the YELLOW LED is not illuminated or flashing. If the YELLOW LED lights up it may mean the system is indicating a low power condition of either the built-in internal batteries or an external power source (i.e. low battery on a vehicle).

Blink Pattern:

The yellow DC low LED is utilized as a short circuit indicator. When system power levels are nominal, a slow flash is used to indicate that a short has been detected. If the system is in low power mode and the DC low LED is already flashing quickly, a short circuit condition is indicated by blanking approximately every fifth blink. The combination situation will thus evoke the pattern: blink, blink, blink, blink, off, blink...this cycle will repeat approximately every two and a half seconds.

DC Low (yellow)

Off – power levels normal

Slow Blink – short circuit detection

Fast Blink – low power

Interrupted fast blink – low power and short circuit detection

On (steady) – shutdown condition (shutdown will occur in 30 seconds)

YELLOW LED is illuminated or flashing *without an external power source connected.*

A flashing YELLOW LED indicates the internal battery is low and will need to be plugged in or recharged within ½ hour.

As soon as it is convenient, connect the unit to a 13.8-15VDC or 110/220VAC power source. When connected to an external supply, the batteries will recharge and the GREEN LED will flash indicating the batteries are charging. BATTERIES ARE FULLY CHARGED WHEN GREEN LED IS ILLUMINATED AND NO LONGER FLASHING.

An illuminated YELLOW LED indicates the internal battery is extremely low and will shut down within 30 seconds.

Immediately connect the unit to a 13.8-15VDC or 110/220VAC power source. When connected to an external supply, the batteries will recharge and the GREEN LED will flash indicating the batteries are charging. **BATTERIES ARE FULLY CHARGED WHEN GREEN LED IS ILLUMINATED AND NO LONGER FLASHING**

YELLOW LED is illuminated or flashing *with an external power source connected*.

A flashing YELLOW LED indicates the external power source is low. The advanced Digital Xpress Command Module may continue operating indefinitely in this state as long as the power level does not decrease further.

An illuminated YELLOW LED indicates the external power source is low and the Digital Xpress Command Module will shut down within 30 seconds.

Immediately disconnect the Command Module for the external power source. Reconnect the unit to an adequate 13.8-15VDC or 110/220VAC power source.

When connected to an external supply, 13.8-15VDC or 110/220VAC power source, the batteries will recharge and the GREEN LED will flash indicating the batteries are charging. **BATTERIES ARE FULLY CHARGED WHEN GREEN LED IS ILLUMINATED AND NO LONGER FLASHING.** We recommend leaving the Digital Xpress Command Module plugged in overnight for a full charge.

The green flashing or steady light will only be visible when the unit is on. However, the unit does charge if plugged in with the unit off.

The unit will charge when plugged in while operating the unit.

Verify the camera image is displayed on the LCD screen.

If the camera image is not displayed on the screen, please verify all connections are made and are tight or turn to the “USER TROUBLESHOOTING GUIDE” in this manual.

Verify the distance counter is at “0000.0f”. If necessary, press the RESET button to zero out the counter. Press the POS button to position counter in desired screen location.

Verify the operation of the camera led light intensity controls by pressing the UP and DOWN arrows.

Due to the advanced auto-iris feature, we recommend setting the light intensity controls to maximum.

If the LED's are not illuminated or are otherwise malfunctioning, please reference the "USER TROUBLESHOOTING GUIDE" in this manual.

KEYBOARD OPERATION BUTTONS

Special function keys:

- F1: main menu page
- F2: aux spotlights (on/off)
- F3: textwriter page scroll (repeated press will scroll through each of the textwriter pages)
- F4: page 1: textwriter – camera page
- F5: page 2: textwriter – header form
- F6: page 3: textwriter – location form
- F7: page 4: textwriter – notes page
- F8: page 5: menus – main menu page

ESC: clean screen (can also be accomplished using function key for that particular page)

RECORDER OPERATION

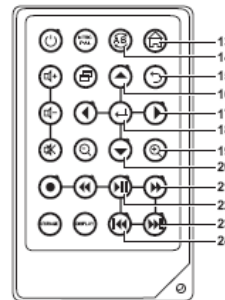
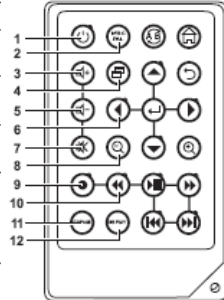
Features

The Recorder allows you to:

- record video from a TV, DVD, VCR or camcorder
- display images (jpg, gif, and bmp formats)
- play audio files (mp3 and wma formats)
- play videos (ASF, AVI, MP4 formats)

About the remote control

Icon	Description
1.	Turns on the power
2.	Switches between NTSC and PAL system
3.	Increases the volume
4.	Enters the setting menu (Note: settings menu options vary depending on when selected)
5.	Decreases the volume
6.	Scrolls left
7.	Mutes all sound
8.	Zooms out
9.	Start and stop recording
10.	Rewinds playback of video and audio files
11.	Switches between CF and Memory Stick/SD/MMC.
12.	Turn on and off the on screen display



Icon	Description
13.	Returns to the top menu
14.	Repeats playback of selected audio/video file.
15.	Returns to the previous menu
16.	Scrolls up
17.	Scrolls right
18.	Confirms selection of menu item
19.	Zooms in
20.	Scrolls down
21.	Fast Forwards playback of video and audio files
22.	Plays or pauses playback of photo, video and audio
23.	Plays the next photo, video and audio files
24.	Plays the previous photo, video and audio files

Turning on the Recorder

Once the Command Module is turned, the green power LED turns on. Press POWER (1.) the button on the remote and the system turns on. Press the POWER (1.) button again to turn off the Recorder. Note: the green light will remain on even if the Recorder is turned off, as long as the Command Module is turned.

Inserting the Compact Flash (CF) or 1" Micro Drive Card

Push the CF card or Hitachi 1" Micro Drive into the CF card slot until it is firmly in place.

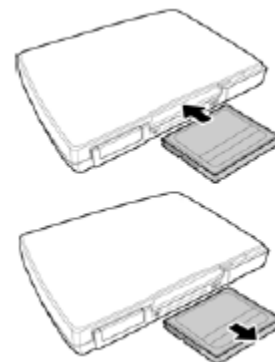
To remove the card, grip the CF card and gently pull.

Note1:

The Hitachi 1" Micro Drive should be formatted using the Recorder before using. This is to ensure that the 1" Micro Drive has been formatted in the FAT16 format and can therefore be recognized by the Recorder.

Note2:

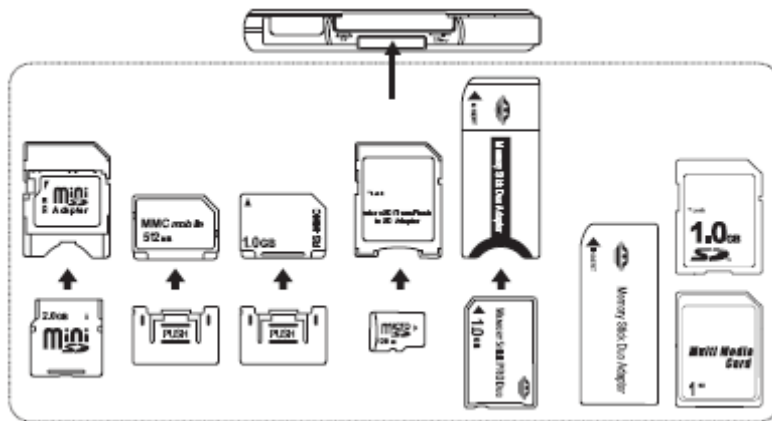
File size is limited to 2 GB for the Hitachi 1" Micro Drive. This is an inherent limitation of the FAT16 format. If you attempt to record a file larger than 2 GB, the Recorder will begin a second file once the 2 GB limit is reached. A small amount of data may be lost while the Recorder is transitioning to the second file.



Inserting the MS Duo/Pro Duo, MMC or SD Series Card

Insert the card into the card slot with the metal contacts going in first and facing up, until the card is firmly in place. The beveled corner of the card must be away from you and to the right as the card is inserted.

To remove the card, grip the card and pull gently. See diagram below for proper adapters:



Confirming/Selecting the correct TV output

Note: Different regions of the world use different TV output formats. For example, the U.S. uses NTSC and much of Europe uses PAL. Depending on your region, you may need to change the TV output from NTSC to PAL

To determine the current TV Output setting and to change it (if necessary):



1. Highlight the Setup menu from the main menu screen using the ◀ ▶ buttons.
2. Press ↵ to access the Setup menu options.
3. You should see TV Output as one of the options along the left side. The currently selected format (NTSC or PAL) will be displayed across from it on the right. If this is the desired format, you are finished with this step. Simply exit the menu by pressing the ⏪ button. If you want to change the format, scroll down to the TV Output line using the ▼ ▲ buttons. Use the ↵ button to highlight TV Output, then use the ◀ ▶ buttons to change the format. Once the desired format is displayed, exit the menu by pressing the ⏪ button as above.

Watching videos



The Recorder is able to play .ASF, .AVI and .MP4 image file formats.

Playing videos

1. Highlight the Video menu and press **↵** to access the file list.
2. Use the **▼ ▲** to go to the required file and press **▶** to play the file.

While playing the video, you can use the following functions:

Decrease volume	Fast forward
Increase volume	Rewind
Mute volume	Play previous video clip
	Play next video clip

DELETE FILES

To delete a video file:

1. In the main Video menu, navigate through the folders and scroll to highlight a video file you wish to delete. Once a file is highlighted, press **↵** to select it. You can tell when a file is selected because the icon next to the file changes to a double rectangle. More than one file can be selected for deletion in a single session. Just highlight and select them one at a time. You can un-select a highlighted file by hitting **↵** a second time.
2. Once you have selected all the files you wish to delete, press the button to display the Settings menu for the Video mode. Then scroll to Delete Files to highlight the word "Selected", then press **↵**.
3. Use the **◀ ▶** keys to confirm YES or NO and press **↵**.
4. If multiple files are selected, they will all be deleted at once. You can un-select a highlighted file by hitting **↵** a second time.

Recording video Record menu



Resolution

To select a resolution:

1. Highlight the record section and press **↵** to access the **Record Menu**.
2. Use the **◀ ▶** to choose among the resolution settings.

Quality

To choose the quality of the recording, highlight the quality menu and use the **◀ ▶** buttons to choose either Normal or Economic in 320x240-15fps and 368x208 options. Use the buttons to choose Super Fine, Fine, Normal or Economic in all other modes.

Auto record

Use the **◀ ▶** buttons to turn **ON** or **OFF**. If the auto record turns on, it will automatically start to record when there is a video source input and the recording will stop if the source is turned off. Or you can press the **↵** button to stop the recording anytime.

Storage

Use the **◀ ▶** buttons to choose between Compact Flash MS, MMC, SD cards or MS Duo memory cards.

Selecting the right recording resolution setting

The 320x240,176x120 and the 640x480 modes record in a 4:3 aspect ratio (which is standard screen format found on regular DVD's and most TV's). The 320 x 240-30fps mode is the resolution typical of most handhelds, and the files are fairly compact and will play back on the greatest number of devices.

The 640x480 mode provides the highest resolution but also requires the most data storage space. It is generally only recommended when you plan to play back the recorded files on a TV or laptop. The extra resolution is wasted on small screens like those on handhelds. While some handhelds can handle the higher resolution 640x480 files (the Neuros 442 for one), many (like the PSP and the iPod Video) don't have the capability to play them at all.

The 368x208 resolution setting is used when recording from video sources that are in the wide-screen (16:9) format, and some people like to use it when recording for playback on wide-screen handhelds like the Sony PSP (see "Playing back recorded files). This format uses about the same amount of data as the 320x240-15fps format. Note: If you record in the 368x208 format from a source that isn't 16:9, the upper or lower portions of the video may be clipped on playback. If recording from a TV, make sure it's in the wide-screen format. If

from a DVD player, make sure the DVD is wide-screen format and also that the player's video output is set to 16:9.

The 320 x 240-15fps is designed for PDAs and some Smartphones. Please refer to your playback device's manual for details concerning supported formats and resolutions.

The 176x120, 320x240-3GP and 176x120-3GP are designed for Mobile Phones. Please refer to your Mobile Phones' manual for details concerning supported formats and resolutions.

Setup menu



Scroll using the buttons to highlight the setup menu, then press to enter. There are seven setup menu options.

DATE AND TIME

To change the date and time:

1. Press **↵** to highlight a selection.
2. Use the **▼ ▲** buttons to change the value.
3. Use the **◀ ▶** buttons to move between fields.
4. Press **↵** when complete.

LANGUAGE

The default language of the Recorder is English. If you would like to change it to the other available languages, follow these instructions:

1. Go to the **setup** menu and press **↵**.
2. Using the **▼** down arrow go to the language bar.
3. Use the **◀ ▶** arrows to select the required language.
4. Press **↵** to return to main menu.

FORMAT DISK

To format the memory card:

1. To format the memory card, scroll down to the Format disk section and Press **↵**.
2. Select **YES** to confirm formatting or **NO** to cancel.

Trouble Shooting

Symptom	Possible cause	Possible remedy
Remote control not functioning.	Obstruction in front of infrared sensor on Recorder.	Ensure that a line of sight exists between the remote control and the sensor on the Recorder.
	Low battery power.	Replace battery in the remote control.
Memory card not recognized by the Recorder	Card not inserted properly.	Refer to “Inserting the Compact Flash (CF) or “Micro Drive Card” or “Inserting the MS Duo/Pro Duo, MMC or SD Series Card”. Never force memory cards into the Recorder.

Typical Recording Times on a 1GB Card

Resolution / Quality	Economic	Normal	Fine	Super fine
640x480 Save Folder:	251min (384kbps) TV	143min (768kbps) TV	11min (1024kbps) TV	60min (2048kbps) TV
320x240-30fps Save Folder:	251min (384kbps) PSP defined	143min (768kbps) PSP defined	94min (1024kbps) PDA-iPod	77min (1535kbps) PDA-iPod
368x208 Save Folder:	251min (384kbps) PSP defined	143min (768kbps) PSP defined	N/A	N/A
320x240-15fps Save Folder:	502min (96kbps) PDASmartphone	402min (192kbps) PDASmartphone	335min (384kbps) PDASmartphone	201min (768kbps) PDASmartphone
176x120 Save Folder:	502min (64kbps) Mobile	402min (128kbps) Mobile	335min (256kbps) Mobile	201min (512kbps) Mobile

Remove the camera from its storage holder and insert into the pipe to be inspected.

Store camera in basket when not in use.

Install skids whenever possible for camera protection.

Skids will help in the operation of the camera as well as increase the durability of the system.

Verify the distance counter increases as the cable is advanced.

Xpress Large Base Frame Reel

The large base frame is a ruggedized aluminum reel designed to house 200' or 300' of the rigid (A) type rod or semi-rigid (B) type rod.

This base frame comes with an integral digital footage counter. The design of this frame brings the push rod out from the front to allow for easy operation.

When camera is not in use please store in basket.

This frame has been designed with a pull out luggage style handle and wheels for easy transport. All anti-slide supports are made with a non-marring material safe for all floor surfaces.

The top part of the base frame includes a mounting bracket for any of the Xpress command modules.



Stiff Rod (A)

The letter A following the rod length indicator designates the Insight Vision rigid push rod. Example: 200A = 200' of stiff rod.

This push rod is .475" in diameter and has been specifically designed for longer pushing distances in 2"-12" pipe.

Attempts should not be made to push this rod type through 2" 90 degree bends as rod breakage may occur. This rod type is only available in 200' and 300' lengths on the large horizontal base frame.

Semi-rigid Rod (B)

The letter B following the rod length indicator designates the Insight Vision semi-rigid push rod. Example: 150B = 150' of semi-rigid rod.

This push rod is .365" in diameter and has been specifically designed for pushing normal distances in 2" through 4" pipe and achieving multiple 90-degree bends. This rod type is available in the standard 100', 150' length. 200' lengths are by special order only.

Debris Bag

This optional item comes in two sizes, one for each size of base frame reels.

It is intended to minimize drippings while working indoors.

It is easily removable for cleaning.

ClearView Camera

This is a color camera with LED's for illumination of the pipe being inspected.

The camera module has an integrated auto iris feature, which will automatically adjust for varied light levels.

The Sonde is not built into the camera.

This camera is intended for operation in pipes 2-12" I.D.

This camera will function with any of our Xpress command modules as well as our Silver Bullet or Universal Jetcam systems.

Diameter is 1.30"

Sonde/Spring Assembly

The removable sonde is located inside the spring assembly

It continually transmits a signal at 512Hz and can be located with any locator capable of picking up a 512Hz signal.



Skid Set

The skids are intended to protect the camera from damage due to debris in the pipe being inspected.

The standard skids come in two sizes.

The small skid is for use in 3-4" diameter pipes.

The large skid is for use in 4-6" diameter pipes.

Installation and removal of skids.

The skid is a two-piece device that must be unscrewed for installation.

Slide the rear half over the pushrod and slid forward to the rear of the camera.

Slide the front half over the camera to meet the rear half.

Screw the two pieces together to hold the skid in place.

Removal is the reverse of the installation steps.

